



**EMUGE**

**Gewindetechnik · Bohrtechnik · Spanntechnik**  
Threading Technology · Drilling Technology · Clamping Technology



Webshop



# EMUGE

## Katalog · Catalogue 160

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### **EMUGE-Werk Richard Glimpel GmbH & Co. KG** **Fabrik für Präzisionswerkzeuge**

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## Mehr als 100 Jahre Präzision und Innovation. More than 100 years of precision and innovation.

EMUGE als Teil der EMUGE-FRANKEN Unternehmensgruppe entwickelt und produziert Präzisionswerkzeuge für die Gewinde- und Bohrungs-herstellung sowie für die Werkzeug- und Werkstückspannung. Das vielfältige Programm verfolgt dabei das Ziel, eine Werkzeug-Systemlösung ab der Maschinenspindel bis zur Fixierung des Werkstücks anzubieten.

Gewindebohrer, Gewindeformer und Gewindefräser stehen für eine Vielzahl an Abmessungen und Werkstoffen zur Verfügung.

Für hervorragende Bohrungsqualität sorgen Spiralbohrer, die zudem perfekt auf die Gewindewerkzeuge abgestimmt sind.

Ein ausgewähltes Programm an Schneideisen und Gewindewalzrollen ermöglicht die zuverlässige Herstellung von Außengewinden.

Zahlreiche Werkzeug-Aufnahmen und Gewindelehren vervollständigen den Systemgedanken und tragen durch ihre Produktmerkmale zur Produktivitätserhöhung bei.

Abgerundet wird das umfangreiche Produkt-Portfolio durch Standard- und Sonderlösungen für die Werkstückspannung, wodurch das Optimum im Fertigungsprozess erreicht wird.

EMUGE as part of the EMUGE-FRANKEN company association develops and manufactures precision tools for the production of threads and drill holes as well as for the clamping of tools and workpieces. The diverse programme aims at offering a tool system solution from the machine spindle to the clamping of the workpiece.

Taps, cold-forming taps and thread milling cutters are available for a variety of dimensions and materials.

Twist drills provide an excellent drill hole quality, which are also perfectly adapted to the threading tools.

A selected range of dies and thread rolls enables the reliable production of external threads.

Numerous tool holders and thread gauges complete the system-based approach and their product features contribute to an increase in productivity.

The extensive product portfolio is rounded off by standard and special solutions for workpiece clamping, thereby achieving the optimum result in the production process.



Vertriebsgebiete und Produktionsstandorte in Deutschland  
Sales areas and production locations in Germany



### FRANKEN – Unser Schwesterwerk in Rückerdorf

Als Systemlieferant im Bereich Frästechnik bietet FRANKEN ein breites Spektrum an Hochleistungswerkzeugen für die moderne Fertigung. Mit seiner Typen- und Schneidstoffvielfalt, dem hohen Standard und der kompromisslosen Präzision entsprechen diese Werkzeuge höchsten Qualitätsanforderungen und sind für fast alle Werkstückmaterialien geeignet. Ein durchgängiges System an Fräsespannmitteln rundet das Lagerprogramm ab.

### FRANKEN – Our sister company in Rückerdorf

As a system supplier in the field of milling technology FRANKEN offers a wide range of high-performance tools for the modern production. These tools meet the highest quality requirements thanks to their wide range of designs and cutting material and the high standard of uncompromising precision, and are suitable for almost all workpiece materials. A consistent range of milling chucks completes the stock programme.

## Wir sind in Ihrer Nähe. Weltweit. We are nearby. Throughout the world.

EMUGE-FRANKEN ist heute in allen wichtigen Industrienationen der Erde vertreten. Über 400 Kundenberater stehen weltweit im direkten Kundenkontakt und sorgen flächendeckend für eine individuelle Beratung vor Ort.

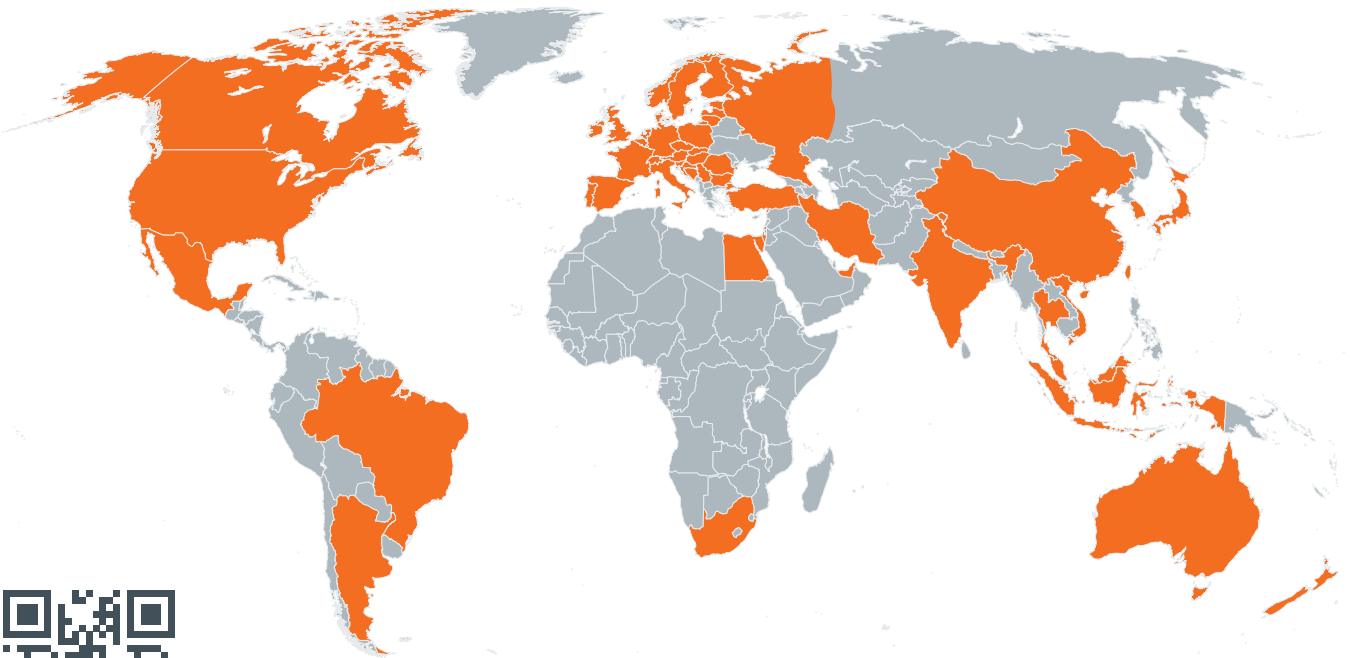
Neben einer anwendungsspezifischen Beratung erarbeiten wir auch Konzepte zur Optimierung Ihres Fertigungsablaufes oder entwickeln eigens für Sie Sonderwerkzeuge.

Ganz gleich, wo unsere Präzisionswerkzeuge und unsere Leistungsvielfalt gefragt sind – wir sind in Ihrer Nähe.

Today EMUGE-FRANKEN is represented in all important industrial nations around the world. More than 400 customer consultants guarantee the direct contact with the customer and provide individual comprehensive consultation on-site.

In addition to offering application-specific advice, we also prepare concepts for optimising your production process or develop special tools specifically for you.

No matter where our precision tools and our range of services are required – we are nearby.



Ihren EMUGE-FRANKEN Ansprechpartner finden Sie auf [www.emuge-franken.com/vertrieb](http://www.emuge-franken.com/vertrieb)  
To find your EMUGE-FRANKEN contact person, please see [www.emuge-franken.com/sales](http://www.emuge-franken.com/sales)

**Immer einen Schritt voraus: Mit Technologien von EMUGE-FRANKEN**

Mit unseren Werkzeugtechnologien nutzen Sie das Entwicklungspotenzial Ihrer Fertigungsprozesse optimal aus und bringen Ihre Zerspanungsprozesse auf ein neues, effizienteres Level.

**Always one step ahead: With technologies from EMUGE-FRANKEN**

Our tool technologies enable you to optimally exploit the development potential of your manufacturing processes and bring your machining processes to a higher, more efficient level.

**EMUGE Taptor®****Simultane Erstellung von Kernloch und Gewinde**

Das patentierte Gewindewerkzeug EMUGE Taptor® kombiniert das Vorbohren und die Gewindefertigung in einem Arbeitsschritt und führt bei der Herstellung von Innengewinden in Grund- und Durchgangslöchern zu einer signifikanten Zeiteinsparung.

Dieser Zeitvorteil ergibt sich aus mehreren Faktoren: Zum einen fällt der gesamte Vorbohrzyklus inklusive aller Verfahrswege und Positionierungen, inklusive des Werkzeugwechsels, weg. Zum anderen realisiert die Spannzangen-Aufnahme Speedsynchro Taptor® mit dem integrierten Übersetzungsgetriebe höhere Schnittgeschwindigkeiten und reduziert die Hauptzeit der einzelnen Gewindebearbeitung signifikant.

Weitere Informationen siehe Seite 786-787

**Simultaneous production of drilled core hole and thread**

The patented EMUGE Taptor® threading tool combines pre-drilling and threading in one work step and leads to significant time savings in the production of internal threads in blind and through-holes.

This time advantage results from several factors: On the one hand, the entire pre-drilling cycle including all traverse paths and positioning, including tool change, is omitted. On the other hand, the Speedsynchro Taptor® collet holder enables higher cutting speeds thanks to its integrated transmission gear and significantly reduces machining main time in the production of threads.

For more information see page 786-787

**EMUGE PunchDrill****Doppelter Bohrvorschub bei gleicher Axialkraft**

Zur Verringerung von Hauptzeiten bietet EMUGE den patentierten PunchDrill an. Mit diesem sind Zeitvorteile von 50 % und mehr in greifbarer Nähe, bei reduzierter oder gleichbleibender Axialkraft.

Geeignet ist der Hochvorschubbohrer zur Bearbeitung von Aluminium- und Magnesium-Gusslegierungen. Eigens neu entwickelte Oberflächenbehandlungen und eine speziell ausgelegte Hartstoffschicht ermöglichen eine sichere Spanabfuhr und erhöhen die Prozesssicherheit.

Ein besonderer Spanteiler hält die abgetragenen Späne kurz und hilft so, die Bearbeitungskräfte zu kontrollieren. Das Werkzeug punktet mit kürzeren Bearbeitungszeiten und einem hohen Zeitspannvolumen.

Weitere Informationen siehe Seite 788-789

**Double drilling feed with the same axial force**

EMUGE offers the patented PunchDrill to reduce machining main times. Time savings of 50 % can be achieved with reduced or the same axial force.

The high-feed drill is suitable for machining aluminium and magnesium cast alloys. Newly developed surface treatments and a specially designed hard material layer enable reliable chip removal and increase process reliability.

A special chip divider keeps the chips short and thus helps to control the machining forces. The tool guarantees shorter machining times and a high metal removal rate.

For more information see page 788-789

## EMUGE PunchTap


**Helikales Gewindeformen  
für neue Dimensionen der Produktivität**

Die patentierte EMUGE PunchTap-Technologie stellt neben Gewindebohren, Gewindeformen und Gewindefräsen eine weitere Technologie zur Herstellung von Innengewinden dar. Mit ihrem innovativen, sehr kurzen Bewegungsablauf eröffnet sie eine völlig neue Dimension der Produktivität.

Das Verfahren ist eine erstaunlich einfache Kinematik in drei Arbeitsschritten: Einfahren, Gewindeformen, Herausfahren. Vergleicht man den Werkzeugweg des EMUGE PunchTap mit dem Werkzeugweg herkömmlicher Gewindebohrer oder Gewindeformer, so fällt dieser bei einem Gewinde M6 mit 15 mm nutzbarer Gewindetiefe circa 15-mal kürzer aus.

Das Ergebnis ist eine deutliche Zeiteinsparung im Gewindezyklus von bis zu 75 %.

Weitere Informationen siehe Seite 790-791

**Helical thread forming  
for new dimensions in productivity**

The patented EMUGE PunchTap technology represents an advanced technology for the production of internal threads in addition to tapping, cold-forming of threads and thread milling. This technology enables a completely new dimension of productivity thanks to its innovative, extremely short motion sequence.

The process consists of an amazingly simple kinematics with three work steps: plunge, thread forming, pull-out. In a comparison of the tool path of the EMUGE PunchTap with the tool path of conventional taps or cold-forming taps, the PunchTap path is about 15 times shorter for an M 6 thread with 15 mm usable thread depth.

The result is a significant time saving of up to 75 % in the threading cycle.

For more information see page 790-791

## EMUGE Werkstück-Spannsysteme · Workpiece clamping systems


**Vielfältiges Know-how  
für anspruchsvolle Aufspannungen**

Beim Spannen von Werkstücken geht es nicht nur um die exakte Fixierung von Bauteilen für die Bearbeitung. Zu den hohen Anforderungen an die Präzision gesellen sich viele weitere Herausforderungen.

Dem begegnet EMUGE mit einem breiten Know-how und insgesamt neun überzeugenden Spannsystemen. Diese finden Sie in unseren ausgeklügelten Spanndornen, Spannfüßern oder stationären Spannmitteln mit mechanischer, pneumatischer oder hydraulischer Betätigung.

Mit unserer Vielfalt an Spannsystemen sind Sie für nahezu jedes Fertigungsverfahren bestens aufgestellt.

Weitere Informationen siehe Seite 792-796


**Wide range of know-how  
for demanding clamping tasks**

Clamping workpieces is not just a matter of precisely clamping components for machining tasks. In addition to the high demands on precision, there are many other challenges.

EMUGE meets this challenge with comprehensive know-how and a total of nine convincing clamping systems. They consist of our sophisticated clamping mandrels, clamping chucks or stationary clamping devices with mechanical, pneumatic or hydraulic actuation.

Our wide variety of clamping systems provides you with ideal solutions for almost any manufacturing process.

For more information see page 792-796

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|  |  |  |
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**EMUGE** Maschinen-Gewindebohrer · Machine Tap

Product Finder

Vc

**M** DIN 13

DIN 371

MF

UNC UN-3

UNF UNF

G, Rp NPSM, NPSF

NPT, NPTF Rc, R

BSW, BSF

Pg

MJ UNLC, UNLF

EG (ST)

SELF-LOCK

Tr, Tr-F Rd

Zubehör Accessories

Toleranz - Tolerance Beschichtung - Coating Schneidstoff - Cutting material

Technische Informationen Technical information

Gewindetiefe und Lochform Thread depth and hole type

Einsatzgebiete - Material Applications - material

| Ø d <sub>1</sub> mm | P mm | l <sub>1</sub> | l <sub>2</sub> | l <sub>3</sub> | Ø d <sub>2</sub> | □   |      |
|---------------------|------|----------------|----------------|----------------|------------------|-----|------|
| M 1                 | 0,25 | 40             | 5              | -              | 2,5              | 2,1 | 0,75 |
| 1,1                 | 0,25 | 40             | 5              | -              | 2,5              | 2,1 | 0,85 |
| 1,2                 | 0,25 | 40             | 5              | -              | 2,5              | 2,1 | 0,95 |
| 1,4                 | 0,3  | 40             | 6              | -              | 2,5              | 2,1 | 1,1  |
| 1,6                 | 0,35 | 40             | 6              | 11             | 2,5              | 2,1 | 1,25 |
| 1,7                 | 0,35 | 40             | 6              | 11             | 2,5              | 2,1 | 1,35 |
| 1,8                 | 0,35 | 40             | 6              | 11             | 2,5              | 2,1 | 1,45 |
| 2                   | 0,4  | 45             | 7              | 12             | 2,8              | 2,1 | 1,6  |
| 2,3                 | 0,45 | 45             | 7              | 12             | 2,8              | 2,1 | 1,75 |
| 2,5                 | 0,45 | 50             | 9              | 14             | 2,8              | 2,1 | 2,05 |
| 2,6                 | 0,45 | 50             | 9              | 14             | 2,8              | 2,1 | 2,15 |
| 3                   | 0,5  | 56             | 11             | 18             | 3,5              | 2,7 | 2,5  |
| 3,5                 | 0,6  | 56             | 12             | 20             | 4                | 3   | 2,9  |
| 4                   | 0,7  | 63             | 13             | 21             | 4,5              | 3,4 | 3,3  |
| 4,5                 | 0,75 | 70             | 14             | 25             | 6                | 4,9 | 3,7  |
| 5                   | 0,8  | 70             | 15             | 25             | 6                | 4,9 | 4,2  |
| 5,5                 | 0,9  | 80             | 16             | 30             | 6                | 4,9 | 4,6  |
| 6                   | 1    | 80             | 17             | 30             | 6                | 4,9 | 5    |
| 7                   | 1    | 80             | 17             | 30             | 7                | 5,5 | 6    |
| 8                   | 1,25 | 90             | 20             | 35             | 8                | 6,2 | 6,8  |
| 9                   | 1,25 | 90             | 20             | 35             | 9                | 7   | 7,8  |
| 10                  | 1,5  | 100            | 22             | 39             | 10               | 8   | 8,5  |
| 12                  | 1,75 | 110            | 24             | 44             | 12               | 9   | 10,2 |

DIN 376

DIN 352

7) ≤ M1,4 Tol. 4H(X)/5H(X)

STEEL Steel materials

6HX 7)

HSSE

C / 2-3

E / 0

max. 2 x d<sub>1</sub>

K 1.1-4.2

N 2.3

Rekord 1A-STEEL

B0101001.0023

| Rekord 1A-STEEL | Rekord 1B-STEEL-TIN | Rekord 1B-STEEL-GLT-1 |
|-----------------|---------------------|-----------------------|
| B0101001.0023   | B0208400.0025       | B020K500.0025         |
| B0101001.0025   | B0208400.0026       | B020K500.0026         |
| B0101001.0026   | B0208900.0030       | B020K500.0030         |
| B0101001.0030   | B0208900.0035       | B020K500.0035         |
| B0101001.0035   | B0208900.0040       | B020K500.0040         |
| B0101001.0040   | B0208900.0045       | B020K500.0045         |
| B0101001.0045   | B0208900.0050       | B020K500.0050         |
| B0101001.0050   | B0208900.0055       | B020K500.0055         |
| B0101001.0055   | B0208900.0060       | B020K500.0060         |
| B0101001.0060   | B0208900.0070       | B020K500.0070         |
| B0101001.0070   | B0208900.0080       | B020K500.0080         |
| B0101001.0080   | B0208900.0090       | B020K500.0090         |
| B0101001.0090   | B0208900.0100       | B020K500.0100         |
| B0101001.0100   | B0208900.0112       | B020K500.0112         |

B0208400.0090

QR-Code direkt zum jeweiligen Artikel in unserem Webshop

QR code directly to the respective article in our web store

Ausführung und Technische Daten

Design and technical data

Fett gedruckte Artikelnummern: Lagerwerkzeug

Article numbers in boldface: Stock tool

Dünn gedruckte Artikelnummern: Kurzfristig lieferbar

Article numbers in lightface: Available on short notice

Baumaße

Dimensions

24/7

Unsere Vielfalt auf · Precision Tools on

[www.emuge-franken.com](http://www.emuge-franken.com)

Anmelden

Warenkorb

Mit dem bei den Werkzeugen abgebildeten QR-Code gelangen Sie direkt zu den jeweiligen Artikeln in unserem Webshop. Dort finden Sie umfassende Werkzeuginformationen und Schnittdaten.

The QR code shown with the tools will take you directly to the respective articles in our web store where you can find comprehensive tool information and cutting data.

Bei Registrierung stehen Ihnen noch weitere Produktdaten und Funktionen zur Verfügung. Dazu zählen neben standardisierten Werkzeugdaten (2D / 3D / Sachmerkmale) auch eine Bestell- oder Angebotshistorie, individuelle Merklisten sowie weitere nützliche Funktionen.

Registration provides you with additional product data and functions. These include standardised tool data (2D / 3D / characteristics), an order or quotation history and individual watch lists as well as other useful functions.



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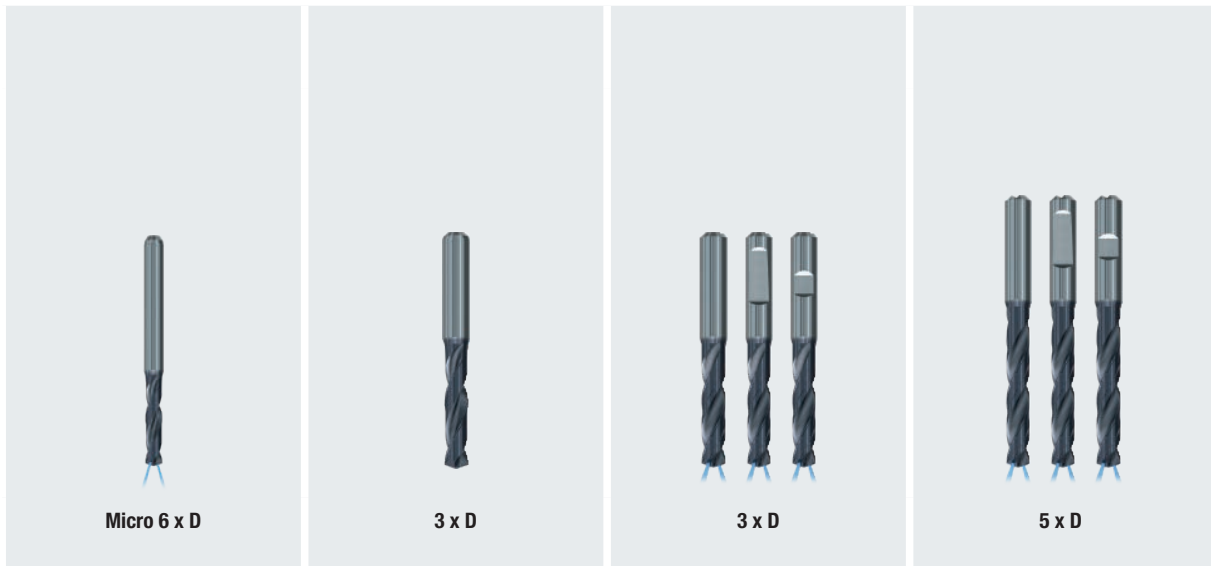
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| STEEL                  |
| INOX                   |
| GG                     |
| HCUT                   |
| SpotDrill              |
| Zubehör<br>Accessories |
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| 5 x D                  |
| 6 x D                  |
| 8 x D                  |
| 12 x D                 |
| 2-3,5 x D              |



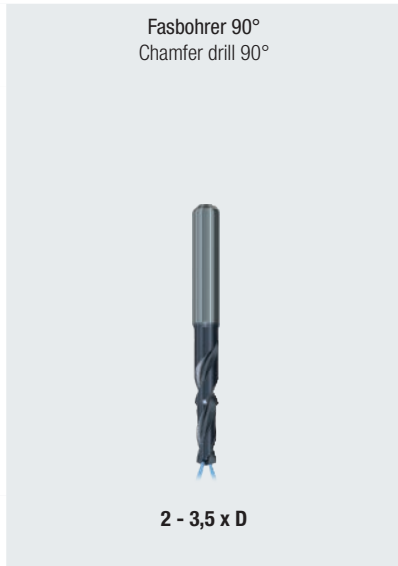
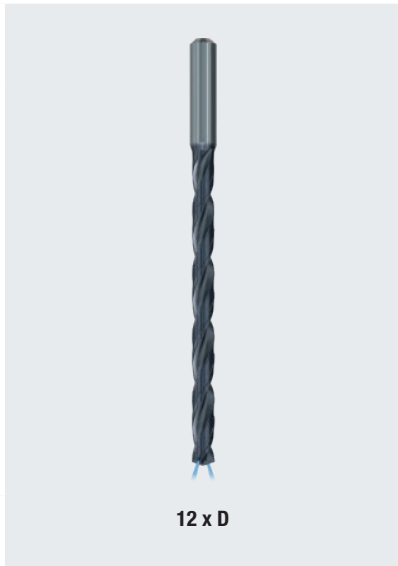
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|              |
|--------------|
| <b>BASIC</b> |
| <b>STEEL</b> |
| <b>INOX</b>  |
| <b>GG</b>    |
| <b>HCUT</b>  |

|                        |
|------------------------|
| <b>Product Finder</b>  |
| v <sub>c</sub> / f     |
| BASIC                  |
| STEEL                  |
| INOX                   |
| GG                     |
| HCUT                   |
| SpotDrill              |
| Zubehör<br>Accessories |

|           |
|-----------|
| 3 x D     |
| 5 x D     |
| 6 x D     |
| 8 x D     |
| 12 x D    |
| 2-3,5 x D |



# Einsatzempfehlungen und Schnittwerte

# Application recommendation and cutting data

**Bitte beachten:**

Die in den jeweiligen Spalten angegebenen Schnittwerte sind Richtwerte, welche je nach Einsatzbedingungen (Material, Schmierung, Maschine, usw.) angepasst werden müssen.

**Please note:**

The cutting values listed in the respective columns are standard values which have to be adjusted to individual work conditions (material, lubrication, machine etc.).

$v_c$  = Schnittgeschwindigkeit [m/min]

$f$  = Vorschub pro Umdrehung [mm/U]

$v_c$  = Cutting speed [m/min]

$f$  = Feed per revolution [mm/rev.]

Internationaler Werkstoffvergleich siehe Seite 764 - 785

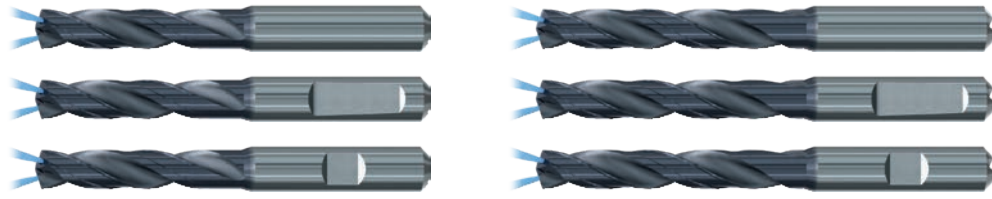
International comparison of materials, see page 764 - 785

|  |   | Einsatzgebiete – Material<br>Applications – material            |   | Material-Beispiele<br>Material examples | Material-Nummern<br>Material numbers   |
|--|---|---|---|---|--|
| P  | <b>Stahlwerkstoffe</b><br>Steel materials   |   |   |   |  |
|  | 1.1   | Kaltfließpressstähle, Baustähle, Automatenstähle, u.a.          | Cold-extrusion steels, Construction steels, Free-cutting steels, etc. | ≤ 600 N/mm <sup>2</sup>                 | Cq15 1.1132<br>S235JR (St37-2) 1.0037<br>10SPb20 1.0722<br>E360 (St70-2) 1.0070<br>16MnCr5 1.7131<br>GS-25CrMo4 1.7218 |
|  | 2.1   | Baustähle, Einsatzstähle, Stahlguss, u.a.                       | Construction steels, Cementation steels, Steel castings, etc.         | ≤ 800 N/mm <sup>2</sup>                 | 20MoCr3 1.7320<br>42CrMo4 1.7225<br>102Cr6 1.2067<br>50CrMo4 1.7228  |
|  | 3.1   | Einsatzstähle, Vergütungsstähle, Kaltarbeitsstähle, u.a.        | Cementation steels, Heat-treatable steels, Cold work steels, etc.     | ≤ 1000 N/mm <sup>2</sup>                | X45NiCrMo4 1.2767<br>31CrMo12 1.8515   |
|  | 4.1   | Vergütungsstähle, Kaltarbeitsstähle, Nitrierstähle, u.a.        | Heat-treatable steels, Cold work steels, Nitriding steels, etc.       | ≤ 1200 N/mm <sup>2</sup>                | X38CrMoV5-3 1.2367<br>X100CrMoV8-1-1 1.2990<br>X40CrMoV5-1 1.2344  |
|  | 5.1   | Hochlegierte Stähle, Kaltarbeitsstähle, Warmarbeitsstähle, u.a. | High-alloyed steels, Cold work steels, Hot work steels, etc.          | ≤ 1400 N/mm <sup>2</sup>                |  |
| M  | <b>Nichtrostende Stahlwerkstoffe</b><br>Stainless steel materials                             |   |   |   |  |
|  | 1.1   | Ferritisch, martensitisch                                       | Ferritic, martensitic   | ≤ 950 N/mm <sup>2</sup>                 | X2CrTi12 1.4512  |
|  | 2.1   | Austenitisch  | Austenitic  | ≤ 950 N/mm <sup>2</sup>                 | X6CrNiMoTi17-12-2 1.4571   |
|  | 3.1   | Austenitisch-ferritisch (Duplex)                                | Austenitic-ferritic (Duplex)  | ≤ 1100 N/mm <sup>2</sup>                | X2CrNiMoN22-5-3 1.4462   |
|  | 4.1   | Austenitisch-ferritisch hitzebeständig (Super Duplex)           | Austenitic-ferritic heat-resistant (Super Duplex)                     | ≤ 1250 N/mm <sup>2</sup>                | X2CrNiMoN25-7-4 1.4410   |
| K  | <b>Gusswerkstoffe</b><br>Cast materials   |   |   |   |  |
|  | 1.1   | Gusseisen mit Lamellengrafit (GJL)                              | Cast iron with lamellar graphite (GJL)                                | 100-250 N/mm <sup>2</sup>               | EN-GJL-200 (GG20) EN-JL-1030   |
|  | 1.2   | Gusseisen mit Kugelgrafit (GJS)                                 | Cast iron with nodular graphite (GJS)                                 | 250-450 N/mm <sup>2</sup>               | EN-GJL-300 (GG30) EN-JL-1050   |
|  | 2.1   | Gusseisen mit Kugelgrafit (GJS)                                 | Cast iron with nodular graphite (GJS)                                 | 350-500 N/mm <sup>2</sup>               | EN-GJS-400-15 (GGG40) EN-JS-1030   |
|  | 2.2   | Gusseisen mit Kugelgrafit (GJS)                                 | Cast iron with nodular graphite (GJS)                                 | 500-900 N/mm <sup>2</sup>               | EN-GJS-700-2 (GGG70) EN-JS-1070  |
|  | 3.1   | Gusseisen mit Vermiculargrafit (GJV)                            | Cast iron with vermicular graphite (GJV)                              | 300-400 N/mm <sup>2</sup>               | GJV 300  |
|  | 3.2   | Gusseisen mit Vermiculargrafit (GJV)                            | Cast iron with vermicular graphite (GJV)                              | 400-500 N/mm <sup>2</sup>               | GJV 450  |
| 4.1  | Temperguss (GTMW, GTMB)   | Malleable cast iron (GTMW, GTMB)                                | 250-500 N/mm <sup>2</sup>   | EN-GJMW-350-4 (GTW-35) EN-JM-1010       |  |
| 4.2  | Temperguss (GTMW, GTMB)   | Malleable cast iron (GTMW, GTMB)                                | 500-800 N/mm <sup>2</sup>   | EN-GJMB-450-6 (GTS-45) EN-JM-1140       |  |
| N  | <b>Nichteisenwerkstoffe</b><br>Non ferrous materials  |   |   |   |  |
|  | <b>Aluminium-Legierungen</b><br>Aluminium alloys  |   |   |   |  |
|  | 1.1   | Aluminium-Knetlegierungen                                       | Aluminium wrought alloys  | ≤ 200 N/mm <sup>2</sup>                 | EN AW-AlMn1 EN AW-3103   |
|  | 1.2   | Aluminium-Knetlegierungen                                       | Aluminium wrought alloys  | ≤ 350 N/mm <sup>2</sup>                 | EN AW-AlMgSi EN AW-6060  |
|  | 1.3   | Aluminium-Knetlegierungen                                       | Aluminium wrought alloys  | ≤ 550 N/mm <sup>2</sup>                 | EN AW-AlZn5Mg3Cu EN AW-7022  |
|  | 1.4   | Aluminium-Knetlegierungen                                       | Aluminium wrought alloys  | Si ≤ 7%                                 | EN AC-AlMg5 EN AC-307 G  |
|  | 1.5   | Aluminium-Gusslegierungen                                       | Aluminium cast alloys   | 7% < Si ≤ 12%                           | EN AC-AISi9Cu3 EN AC-46500   |
|  | 1.6   | Aluminium-Gusslegierungen                                       | Aluminium cast alloys   | 12% < Si ≤ 17%                          | GD-AISi17Cu4FeMg   |
|  | <b>Kupfer-Legierungen</b><br>Copper alloys  |   |   |   |  |
|  | 2.1   | Reinkupfer, niedriglegiertes Kupfer                             | Pure copper, low-alloyed copper                                       | ≤ 400 N/mm <sup>2</sup>                 | E-Cu 57 EN CW 004 A  |
|  | 2.2   | Kupfer-Zink-Legierungen (Messing, langspanend)                  | Copper-zinc alloys (brass, long-chipping)                             | ≤ 550 N/mm <sup>2</sup>                 | CuZn37 (Ms63) EN CW 508 L  |
|  | 2.3   | Kupfer-Zink-Legierungen (Messing, kurzspanend)                  | Copper-zinc alloys (brass, short-chipping)                            | ≤ 550 N/mm <sup>2</sup>                 | CuZn36Pb3 (Ms58) EN CW 603 N   |
|  | 2.4   | Kupfer-Aluminium-Legierungen (Alubronze, langspanend)           | Copper-aluminium alloys (alu bronze, long-chipping)                   | ≤ 800 N/mm <sup>2</sup>                 | CuAl10Ni5Fe4 EN CW 307 G   |
|  | 2.5   | Kupfer-Zinn-Legierungen (Zinnbronze, langspanend)               | Copper-tin alloys (tin bronze, long-chipping)                         | ≤ 700 N/mm <sup>2</sup>                 | CuSn8P EN CW 459 K   |
|  | 2.6   | Kupfer-Zinn-Legierungen (Zinnbronze, kurzspanend)               | Copper-tin alloys (tin bronze, short-chipping)                        | ≤ 400 N/mm <sup>2</sup>                 | CuSn7 ZnPb (Rg7) 2.1090  |
|  | 2.7   | Kupfer-Sonderlegierungen  | Special copper alloys   | ≤ 600 N/mm <sup>2</sup>                 | (AMPCO® 8)   |
|  | 2.8   | Kupfer-Sonderlegierungen  | Special copper alloys   | ≤ 1400 N/mm <sup>2</sup>                | (AMPCO® 45)  |
|  | <b>Magnesium-Legierungen</b><br>Magnesium alloys  |   |   |   |  |
|  | 3.1   | Magnesium-Knetlegierungen                                       | Magnesium wrought alloys  | ≤ 500 N/mm <sup>2</sup>                 | MgAl6Zn 3.5612   |
|  | 3.2   | Magnesium-Gusslegierungen                                       | Magnesium cast alloys   | ≤ 500 N/mm <sup>2</sup>                 | EN-MCMgAl9Zn1 EN-MC21120   |
|  | <b>Kunststoffe</b><br>Synthetics  |   |   |   |  |
|  | 4.1   | Duroplaste (kurzspanend)  | Duroplastics (short-chipping)   |   | Bakelit, Pertinax  |
|  | 4.2   | Thermoplaste (langspanend)                                      | Thermoplastics (long-chipping)  |   | PMMA, POM, PVC   |
| 4.3  | Faserverstärkte Kunststoffe (Faseranteil ≤ 30%)   | Fibre-reinforced synthetics (fibre content ≤ 30%)               |   | GFK, CFK, AFK                           |  |
| 4.4  | Faserverstärkte Kunststoffe (Faseranteil > 30%)   | Fibre-reinforced synthetics (fibre content > 30%)               |   | GFK, CFK, AFK                           |  |
| <b>Besondere Werkstoffe</b><br>Special materials |   |   |   |   |  |
| 5.1  | Grafit  | Graphite  |   | C 8000                                  |  |
| 5.2  | Wolfram-Kupfer-Legierungen  | Tungsten-copper alloys  |   | W-Cu 80/20                              |  |
| 5.3  | Verbundwerkstoffe   | Composite materials   |   | Hyllite, Alucobond                      |  |
| S  | <b>Spezialwerkstoffe</b><br>Special materials   |   |   |   |  |
|  | <b>Titan-Legierungen</b><br>Titanium alloys   |   |   |   |  |
|  | 1.1   | Reintitan   | Pure titanium   | ≤ 450 N/mm <sup>2</sup>                 | Ti1 3.7025   |
|  | 1.2   | Titan-Legierungen   | Titanium alloys   | ≤ 900 N/mm <sup>2</sup>                 | TiAl6V4 3.7165   |
|  | 1.3   | Titan-Legierungen   | Titanium alloys   | ≤ 1250 N/mm <sup>2</sup>                | TiAl4Mo4Sn2 3.7185   |
|  | <b>Nickel-, Kobalt- und Eisen-Legierungen</b><br>Nickel alloys, cobalt alloys and iron alloys |   |   |   |  |
|  | 2.1   | Reinnickel  | Pure nickel   | ≤ 600 N/mm <sup>2</sup>                 | Ni 99.6 2.4060   |
|  | 2.2   | Nickel-Basis-Legierungen  | Nickel-base alloys  | ≤ 1000 N/mm <sup>2</sup>                | Monel 400 2.4360   |
|  | 2.3   | Nickel-Basis-Legierungen  | Nickel-base alloys  | ≤ 1600 N/mm <sup>2</sup>                | Inconel 718 2.4668   |
|  | 2.4   | Nickel-Basis-Legierungen  | Nickel-base alloys  | ≤ 1000 N/mm <sup>2</sup>                | Udimet 605   |
|  | 2.5   | Kobalt-Basis-Legierungen  | Cobalt-base alloys  | ≤ 1600 N/mm <sup>2</sup>                | Haynes 25 2.4964   |
|  | 2.6   | Eisen-Basis-Legierungen   | Iron-base alloys  | ≤ 1500 N/mm <sup>2</sup>                | Incoloy 800 1.4958   |
| H  | <b>Harte Werkstoffe</b><br>Hard materials   |   |   |   |  |
|  | 1.1   | Hochfeste Stähle, gehärtete Stähle, Hartguss                    | High strength steels, hardened steels, hard castings                  | 44 - 50 HRC                             | Weldox 1100  |
|  | 1.2   | Hochfeste Stähle, gehärtete Stähle, Hartguss                    | High strength steels, hardened steels, hard castings                  | 50 - 55 HRC                             | Hardox 550   |
|  | 1.3   | Hochfeste Stähle, gehärtete Stähle, Hartguss                    | High strength steels, hardened steels, hard castings                  | 55 - 60 HRC                             | Armax 600T   |
|  | 1.4   | Hochfeste Stähle, gehärtete Stähle, Hartguss                    | High strength steels, hardened steels, hard castings                  | 60 - 63 HRC                             | Ferro-Titanit  |
|  | 1.5   | Hochfeste Stähle, gehärtete Stähle, Hartguss                    | High strength steels, hardened steels, hard castings                  | 63 - 66 HRC                             | HSSE   |



BasicDrill-BD101

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Accessories



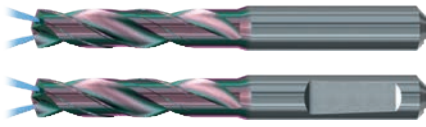
3 x D

5 x D

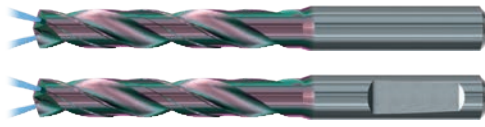
|     |     | D                      |            |      |                    |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |             |             |      |
|-----|-----|------------------------|------------|------|--------------------|-------------|------|-------------|-------------|------|--------------|-------------|------|--------------|-------------|------|--------------|-------------|------|--------------|-------------|------|-------------|-------------|------|
|     |     | D = 3,00 mm            |            |      | D = 5,00 mm        |             |      | D = 8,00 mm |             |      | D = 10,00 mm |             |      | D = 12,00 mm |             |      | D = 16,00 mm |             |      | D = 18,00 mm |             |      |             |             |      |
|     |     | v <sub>c</sub> [m/min] |            |      | f [mm/U · mm/rev.] |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |             |             |      |
|     |     | min.                   | empf. rec. | max. | min.               | empf. rec.  | max. | min.        | empf. rec.  | max. | min.         | empf. rec.  | max. | min.         | empf. rec.  | max. | min.         | empf. rec.  | max. | min.         | empf. rec.  | max. | min.        | empf. rec.  | max. |
| P   | 1.1 | 100                    | <b>140</b> | 180  | 0,11               | <b>0,16</b> | 0,25 | 0,16        | <b>0,20</b> | 0,28 | 0,20         | <b>0,25</b> | 0,35 | 0,23         | <b>0,28</b> | 0,40 | 0,25         | <b>0,31</b> | 0,43 | 0,27         | <b>0,34</b> | 0,47 | 0,29        | <b>0,35</b> | 0,49 |
|     | 2.1 | 80                     | <b>120</b> | 160  | 0,11               | <b>0,16</b> | 0,25 | 0,16        | <b>0,20</b> | 0,28 | 0,20         | <b>0,25</b> | 0,35 | 0,23         | <b>0,28</b> | 0,40 | 0,25         | <b>0,31</b> | 0,43 | 0,27         | <b>0,34</b> | 0,47 | 0,29        | <b>0,35</b> | 0,49 |
|     | 3.1 | 80                     | <b>100</b> | 120  | 0,11               | <b>0,15</b> | 0,24 | 0,16        | <b>0,18</b> | 0,24 | 0,20         | <b>0,24</b> | 0,30 | 0,23         | <b>0,26</b> | 0,34 | 0,25         | <b>0,29</b> | 0,37 | 0,27         | <b>0,32</b> | 0,41 | 0,29        | <b>0,33</b> | 0,43 |
|     | 4.1 | 50                     | <b>70</b>  | 100  | 0,11               | <b>0,15</b> | 0,24 | 0,16        | <b>0,18</b> | 0,24 | 0,20         | <b>0,24</b> | 0,30 | 0,23         | <b>0,26</b> | 0,34 | 0,25         | <b>0,29</b> | 0,37 | 0,27         | <b>0,32</b> | 0,41 | 0,29        | <b>0,33</b> | 0,43 |
|     | 5.1 | 50                     | <b>65</b>  | 90   | 0,10               | <b>0,13</b> | 0,21 | 0,13        | <b>0,17</b> | 0,24 | 0,17         | <b>0,21</b> | 0,30 | 0,19         | <b>0,24</b> | 0,34 | 0,21         | <b>0,26</b> | 0,37 | 0,22         | <b>0,28</b> | 0,39 | 0,23        | <b>0,29</b> | 0,40 |
| M   | 1.1 | 40                     | <b>60</b>  | 80   | 0,04               | <b>0,06</b> | 0,09 | 0,09        | <b>0,12</b> | 0,19 | 0,11         | <b>0,17</b> | 0,26 | 0,14         | <b>0,19</b> | 0,30 | 0,15         | <b>0,21</b> | 0,33 | 0,16         | <b>0,23</b> | 0,36 | 0,17        | <b>0,24</b> | 0,37 |
|     | 2.1 | 40                     | <b>55</b>  | 75   | 0,04               | <b>0,05</b> | 0,08 | 0,08        | <b>0,11</b> | 0,16 | 0,10         | <b>0,15</b> | 0,20 | 0,14         | <b>0,18</b> | 0,27 | 0,15         | <b>0,20</b> | 0,30 | 0,16         | <b>0,22</b> | 0,32 | 0,17        | <b>0,23</b> | 0,34 |
|     | 3.1 | 40                     | <b>50</b>  | 70   | 0,04               | <b>0,05</b> | 0,08 | 0,08        | <b>0,11</b> | 0,16 | 0,10         | <b>0,15</b> | 0,20 | 0,14         | <b>0,18</b> | 0,27 | 0,15         | <b>0,20</b> | 0,30 | 0,16         | <b>0,22</b> | 0,32 | 0,17        | <b>0,23</b> | 0,34 |
|     | 4.1 |                        |            |      |                    |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |             |             |      |
| K   | 1.1 | 120                    | <b>140</b> | 160  | 0,11               | <b>0,16</b> | 0,25 | 0,16        | <b>0,20</b> | 0,28 | 0,20         | <b>0,25</b> | 0,35 | 0,23         | <b>0,28</b> | 0,40 | 0,25         | <b>0,31</b> | 0,43 | 0,27         | <b>0,34</b> | 0,47 | 0,29        | <b>0,35</b> | 0,50 |
|     | 1.2 | 110                    | <b>130</b> | 150  | 0,11               | <b>0,16</b> | 0,25 | 0,16        | <b>0,20</b> | 0,28 | 0,20         | <b>0,25</b> | 0,35 | 0,23         | <b>0,28</b> | 0,40 | 0,25         | <b>0,31</b> | 0,43 | 0,27         | <b>0,34</b> | 0,47 | 0,29        | <b>0,35</b> | 0,50 |
|     | 2.1 | 140                    | <b>160</b> | 180  | 0,11               | <b>0,16</b> | 0,25 | 0,16        | <b>0,20</b> | 0,28 | 0,20         | <b>0,25</b> | 0,35 | 0,23         | <b>0,28</b> | 0,40 | 0,25         | <b>0,31</b> | 0,43 | 0,27         | <b>0,34</b> | 0,47 | 0,29        | <b>0,35</b> | 0,50 |
|     | 2.2 | 100                    | <b>120</b> | 140  | 0,11               | <b>0,15</b> | 0,24 | 0,16        | <b>0,18</b> | 0,24 | 0,20         | <b>0,24</b> | 0,30 | 0,23         | <b>0,26</b> | 0,34 | 0,25         | <b>0,29</b> | 0,37 | 0,27         | <b>0,32</b> | 0,41 | 0,29        | <b>0,33</b> | 0,43 |
|     | 3.1 | 80                     | <b>100</b> | 120  | 0,11               | <b>0,16</b> | 0,25 | 0,16        | <b>0,20</b> | 0,28 | 0,20         | <b>0,25</b> | 0,35 | 0,23         | <b>0,28</b> | 0,40 | 0,25         | <b>0,31</b> | 0,43 | 0,27         | <b>0,34</b> | 0,47 | 0,29        | <b>0,35</b> | 0,50 |
|     | 3.2 | 60                     | <b>80</b>  | 100  | 0,10               | <b>0,14</b> | 0,22 | 0,14        | <b>0,18</b> | 0,25 | 0,18         | <b>0,23</b> | 0,32 | 0,20         | <b>0,25</b> | 0,36 | 0,22         | <b>0,28</b> | 0,39 | 0,24         | <b>0,30</b> | 0,43 | 0,26        | <b>0,32</b> | 0,45 |
|     | 4.1 | 100                    | <b>120</b> | 140  | 0,11               | <b>0,16</b> | 0,25 | 0,16        | <b>0,20</b> | 0,28 | 0,20         | <b>0,25</b> | 0,35 | 0,23         | <b>0,28</b> | 0,40 | 0,25         | <b>0,31</b> | 0,43 | 0,27         | <b>0,34</b> | 0,47 | 0,29        | <b>0,35</b> | 0,50 |
| 4.2 | 90  | <b>110</b>             | 130        | 0,11 | <b>0,15</b>        | 0,24        | 0,16 | <b>0,18</b> | 0,24        | 0,20 | <b>0,24</b>  | 0,30        | 0,23 | <b>0,26</b>  | 0,34        | 0,25 | <b>0,29</b>  | 0,37        | 0,27 | <b>0,32</b>  | 0,41        | 0,29 | <b>0,33</b> | 0,43        |      |
| N   | 1.1 | 160                    | <b>180</b> | 240  | 0,14               | <b>0,19</b> | 0,31 | 0,19        | <b>0,28</b> | 0,38 | 0,24         | <b>0,33</b> | 0,42 | 0,27         | <b>0,37</b> | 0,47 | 0,30         | <b>0,41</b> | 0,52 | 0,32         | <b>0,45</b> | 0,57 | 0,33        | <b>0,46</b> | 0,58 |
|     | 1.2 | 160                    | <b>180</b> | 240  | 0,14               | <b>0,19</b> | 0,31 | 0,19        | <b>0,28</b> | 0,38 | 0,24         | <b>0,33</b> | 0,42 | 0,27         | <b>0,37</b> | 0,47 | 0,30         | <b>0,41</b> | 0,52 | 0,32         | <b>0,45</b> | 0,57 | 0,33        | <b>0,46</b> | 0,58 |
|     | 1.3 | 160                    | <b>180</b> | 240  | 0,14               | <b>0,19</b> | 0,31 | 0,19        | <b>0,28</b> | 0,38 | 0,24         | <b>0,33</b> | 0,42 | 0,27         | <b>0,37</b> | 0,47 | 0,30         | <b>0,41</b> | 0,52 | 0,32         | <b>0,45</b> | 0,57 | 0,33        | <b>0,46</b> | 0,58 |
|     | 1.4 | 160                    | <b>180</b> | 240  | 0,14               | <b>0,19</b> | 0,31 | 0,19        | <b>0,28</b> | 0,38 | 0,24         | <b>0,33</b> | 0,42 | 0,27         | <b>0,37</b> | 0,47 | 0,30         | <b>0,41</b> | 0,52 | 0,32         | <b>0,45</b> | 0,57 | 0,33        | <b>0,46</b> | 0,58 |
|     | 1.5 | 160                    | <b>180</b> | 240  | 0,14               | <b>0,19</b> | 0,31 | 0,19        | <b>0,28</b> | 0,38 | 0,24         | <b>0,33</b> | 0,42 | 0,27         | <b>0,37</b> | 0,47 | 0,30         | <b>0,41</b> | 0,52 | 0,32         | <b>0,45</b> | 0,57 | 0,33        | <b>0,46</b> | 0,58 |
|     | 1.6 | 160                    | <b>180</b> | 240  | 0,14               | <b>0,19</b> | 0,31 | 0,19        | <b>0,28</b> | 0,38 | 0,24         | <b>0,33</b> | 0,42 | 0,27         | <b>0,37</b> | 0,47 | 0,30         | <b>0,41</b> | 0,52 | 0,32         | <b>0,45</b> | 0,57 | 0,33        | <b>0,46</b> | 0,58 |
|     | 2.1 | 120                    | <b>140</b> | 180  | 0,03               | <b>0,05</b> | 0,07 | 0,04        | <b>0,06</b> | 0,08 | 0,05         | <b>0,10</b> | 0,13 | 0,06         | <b>0,12</b> | 0,14 | 0,06         | <b>0,14</b> | 0,16 | 0,07         | <b>0,15</b> | 0,17 | 0,07        | <b>0,16</b> | 0,17 |
|     | 2.2 | 120                    | <b>140</b> | 180  | 0,03               | <b>0,05</b> | 0,07 | 0,04        | <b>0,06</b> | 0,08 | 0,05         | <b>0,10</b> | 0,13 | 0,06         | <b>0,12</b> | 0,14 | 0,06         | <b>0,14</b> | 0,16 | 0,07         | <b>0,15</b> | 0,17 | 0,07        | <b>0,16</b> | 0,17 |
|     | 2.3 | 120                    | <b>140</b> | 180  | 0,11               | <b>0,14</b> | 0,19 | 0,17        | <b>0,22</b> | 0,30 | 0,22         | <b>0,28</b> | 0,39 | 0,25         | <b>0,31</b> | 0,42 | 0,27         | <b>0,33</b> | 0,44 | 0,30         | <b>0,36</b> | 0,48 | 0,31        | <b>0,37</b> | 0,50 |
|     | 2.4 |                        |            |      |                    |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |             |             |      |
|     | 2.5 |                        |            |      |                    |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |             |             |      |
|     | 2.6 |                        |            |      |                    |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |             |             |      |
|     | 2.7 |                        |            |      |                    |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |             |             |      |
|     | 2.8 |                        |            |      |                    |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |             |             |      |
|     | 3.1 |                        |            |      |                    |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |             |             |      |
|     | 3.2 |                        |            |      |                    |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |             |             |      |
| 4.1 |     |                        |            |      |                    |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |             |             |      |
| 4.2 |     |                        |            |      |                    |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |             |             |      |
| 4.3 |     |                        |            |      |                    |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |             |             |      |
| 4.4 |     |                        |            |      |                    |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |             |             |      |
| 5.1 |     |                        |            |      |                    |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |             |             |      |
| 5.2 |     |                        |            |      |                    |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |             |             |      |
| 5.3 |     |                        |            |      |                    |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |             |             |      |
| S   | 1.1 |                        |            |      |                    |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |             |             |      |
|     | 1.2 | 40                     | <b>50</b>  | 60   | 0,04               | <b>0,05</b> | 0,06 | 0,06        | <b>0,08</b> | 0,10 | 0,10         | <b>0,12</b> | 0,15 | 0,11         | <b>0,13</b> | 0,17 | 0,12         | <b>0,14</b> | 0,19 | 0,14         | <b>0,16</b> | 0,20 | 0,15        | <b>0,17</b> | 0,21 |
|     | 1.3 | 30                     | <b>40</b>  | 50   | 0,04               | <b>0,05</b> | 0,06 | 0,06        | <b>0,08</b> | 0,10 | 0,10         | <b>0,12</b> | 0,15 | 0,11         | <b>0,13</b> | 0,17 | 0,12         | <b>0,14</b> | 0,19 | 0,14         | <b>0,16</b> | 0,20 | 0,15        | <b>0,17</b> | 0,21 |
|     | 2.1 |                        |            |      |                    |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |             |             |      |
|     | 2.2 | 20                     | <b>40</b>  | 60   | 0,04               | <b>0,05</b> | 0,07 | 0,06        | <b>0,08</b> | 0,11 | 0,10         | <b>0,13</b> | 0,20 | 0,11         | <b>0,15</b> | 0,23 | 0,12         | <b>0,17</b> | 0,25 | 0,14         | <b>0,18</b> | 0,27 | 0,15        | <b>0,19</b> | 0,28 |
|     | 2.3 | 10                     | <b>25</b>  | 40   | 0,04               | <b>0,05</b> | 0,07 | 0,06        | <b>0,08</b> | 0,10 | 0,10         | <b>0,12</b> | 0,15 | 0,11         | <b>0,13</b> | 0,17 | 0,12         | <b>0,14</b> | 0,19 | 0,14         | <b>0,16</b> | 0,20 | 0,15        | <b>0,17</b> | 0,21 |
| 2.4 |     |                        |            |      |                    |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |             |             |      |
| 2.5 |     |                        |            |      |                    |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |             |             |      |
| 2.6 |     |                        |            |      |                    |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |             |             |      |
| H   | 1.1 | 20                     | <b>40</b>  | 50   | 0,05               | <b>0,06</b> | 0,11 | 0,08        | <b>0,11</b> | 0,16 | 0,10         | <b>0,16</b> | 0,25 | 0,11         | <b>0,18</b> | 0,28 | 0,12         | <b>0,19</b> | 0,31 | 0,14         | <b>0,20</b> | 0,34 | 0,15        | <b>0,21</b> | 0,35 |
|     | 1.2 | 20                     | <b>30</b>  | 50   | 0,05               | <b>0,06</b> | 0,11 | 0,08        | <b>0,11</b> | 0,16 | 0,10         | <b>0,16</b> | 0,25 | 0,11         | <b>0,18</b> | 0,28 | 0,12         | <b>0,19</b> | 0,31 | 0,14         | <b>0,20</b> | 0,34 | 0,15        | <b>0,21</b> | 0,35 |
|     | 1.3 | 20                     | <b>30</b>  | 50   |                    |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |             |             |      |



# SteelDrill-SD102



3 x D



5 x D

- Product Finder
- v<sub>c</sub> / f**
- BASIC
- STEEL
- INOX
- G
- HCUT
- SpotDrill
- Zubehör Accessories

- 3 x D
- 5 x D
- 6 x D
- 8 x D
- 12 x D
- 2-3,5 x D



| v <sub>c</sub> [m/min] |            |      | f [mm/U · mm/rev.] |             |      |             |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |      |            |      |  |     |
|------------------------|------------|------|--------------------|-------------|------|-------------|-------------|------|-------------|-------------|------|--------------|-------------|------|--------------|-------------|------|--------------|-------------|------|--------------|-------------|------|------|------------|------|--|-----|
|                        |            |      | D = 3,00 mm        |             |      | D = 5,00 mm |             |      | D = 8,00 mm |             |      | D = 10,00 mm |             |      | D = 12,00 mm |             |      | D = 16,00 mm |             |      | D = 20,00 mm |             |      |      |            |      |  |     |
| min.                   | empf. rec. | max. | min.               | empf. rec.  | max. | min.        | empf. rec.  | max. | min.        | empf. rec.  | max. | min.         | empf. rec.  | max. | min.         | empf. rec.  | max. | min.         | empf. rec.  | max. | min.         | empf. rec.  | max. | min. | empf. rec. | max. |  |     |
| 100                    | <b>140</b> | 180  | 0,11               | <b>0,16</b> | 0,25 | 0,16        | <b>0,20</b> | 0,28 | 0,20        | <b>0,25</b> | 0,35 | 0,23         | <b>0,28</b> | 0,40 | 0,25         | <b>0,31</b> | 0,43 | 0,27         | <b>0,34</b> | 0,47 | 0,30         | <b>0,38</b> | 0,53 |      |            |      |  | 1.1 |
| 80                     | <b>120</b> | 160  | 0,11               | <b>0,16</b> | 0,25 | 0,16        | <b>0,20</b> | 0,28 | 0,20        | <b>0,25</b> | 0,35 | 0,23         | <b>0,28</b> | 0,40 | 0,25         | <b>0,31</b> | 0,43 | 0,27         | <b>0,34</b> | 0,47 | 0,30         | <b>0,38</b> | 0,53 |      |            |      |  | 2.1 |
| 60                     | <b>80</b>  | 120  | 0,11               | <b>0,15</b> | 0,24 | 0,16        | <b>0,18</b> | 0,24 | 0,20        | <b>0,24</b> | 0,30 | 0,23         | <b>0,26</b> | 0,34 | 0,25         | <b>0,29</b> | 0,37 | 0,27         | <b>0,32</b> | 0,41 | 0,30         | <b>0,35</b> | 0,45 |      |            |      |  | 3.1 |
| 60                     | <b>80</b>  | 110  | 0,11               | <b>0,15</b> | 0,24 | 0,16        | <b>0,18</b> | 0,24 | 0,20        | <b>0,24</b> | 0,30 | 0,23         | <b>0,26</b> | 0,34 | 0,25         | <b>0,29</b> | 0,37 | 0,27         | <b>0,32</b> | 0,41 | 0,30         | <b>0,35</b> | 0,45 |      |            |      |  | 4.1 |
| 60                     | <b>75</b>  | 100  | 0,10               | <b>0,13</b> | 0,21 | 0,13        | <b>0,17</b> | 0,24 | 0,17        | <b>0,21</b> | 0,30 | 0,19         | <b>0,24</b> | 0,34 | 0,21         | <b>0,26</b> | 0,37 | 0,22         | <b>0,28</b> | 0,39 | 0,25         | <b>0,31</b> | 0,44 |      |            |      |  | 5.1 |
|                        |            |      |                    |             |      |             |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |      |            |      |  | 1.1 |
|                        |            |      |                    |             |      |             |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |      |            |      |  | 2.1 |
|                        |            |      |                    |             |      |             |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |      |            |      |  | 3.1 |
|                        |            |      |                    |             |      |             |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |      |            |      |  | 4.1 |
| 135                    | <b>155</b> | 175  | 0,11               | <b>0,16</b> | 0,25 | 0,16        | <b>0,20</b> | 0,28 | 0,20        | <b>0,25</b> | 0,35 | 0,23         | <b>0,28</b> | 0,40 | 0,25         | <b>0,31</b> | 0,43 | 0,27         | <b>0,34</b> | 0,47 | 0,30         | <b>0,38</b> | 0,53 |      |            |      |  | 1.1 |
| 125                    | <b>145</b> | 165  | 0,11               | <b>0,16</b> | 0,25 | 0,16        | <b>0,20</b> | 0,28 | 0,20        | <b>0,25</b> | 0,35 | 0,23         | <b>0,28</b> | 0,40 | 0,25         | <b>0,31</b> | 0,43 | 0,27         | <b>0,34</b> | 0,47 | 0,30         | <b>0,38</b> | 0,53 |      |            |      |  | 1.2 |
| 155                    | <b>175</b> | 195  | 0,11               | <b>0,16</b> | 0,25 | 0,16        | <b>0,20</b> | 0,28 | 0,20        | <b>0,25</b> | 0,35 | 0,23         | <b>0,28</b> | 0,40 | 0,25         | <b>0,31</b> | 0,43 | 0,27         | <b>0,34</b> | 0,47 | 0,30         | <b>0,38</b> | 0,53 |      |            |      |  | 2.1 |
| 115                    | <b>135</b> | 155  | 0,11               | <b>0,15</b> | 0,24 | 0,16        | <b>0,18</b> | 0,24 | 0,20        | <b>0,24</b> | 0,30 | 0,23         | <b>0,26</b> | 0,34 | 0,25         | <b>0,29</b> | 0,37 | 0,27         | <b>0,32</b> | 0,41 | 0,30         | <b>0,35</b> | 0,45 |      |            |      |  | 2.2 |
| 95                     | <b>115</b> | 135  | 0,11               | <b>0,16</b> | 0,25 | 0,16        | <b>0,20</b> | 0,28 | 0,20        | <b>0,25</b> | 0,35 | 0,23         | <b>0,28</b> | 0,40 | 0,25         | <b>0,31</b> | 0,43 | 0,27         | <b>0,34</b> | 0,47 | 0,30         | <b>0,38</b> | 0,53 |      |            |      |  | 3.1 |
| 75                     | <b>95</b>  | 115  | 0,10               | <b>0,14</b> | 0,22 | 0,14        | <b>0,18</b> | 0,25 | 0,18        | <b>0,23</b> | 0,32 | 0,20         | <b>0,25</b> | 0,36 | 0,22         | <b>0,28</b> | 0,39 | 0,24         | <b>0,30</b> | 0,43 | 0,27         | <b>0,34</b> | 0,47 |      |            |      |  | 3.2 |
| 115                    | <b>135</b> | 155  | 0,11               | <b>0,15</b> | 0,24 | 0,16        | <b>0,18</b> | 0,24 | 0,20        | <b>0,24</b> | 0,30 | 0,23         | <b>0,26</b> | 0,34 | 0,25         | <b>0,29</b> | 0,37 | 0,27         | <b>0,32</b> | 0,41 | 0,30         | <b>0,32</b> | 0,41 |      |            |      |  | 4.1 |
| 105                    | <b>125</b> | 145  | 0,10               | <b>0,14</b> | 0,22 | 0,14        | <b>0,18</b> | 0,25 | 0,18        | <b>0,23</b> | 0,32 | 0,20         | <b>0,25</b> | 0,36 | 0,22         | <b>0,28</b> | 0,39 | 0,24         | <b>0,30</b> | 0,43 | 0,27         | <b>0,30</b> | 0,43 |      |            |      |  | 4.2 |
|                        |            |      |                    |             |      |             |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |      |            |      |  | 1.1 |
|                        |            |      |                    |             |      |             |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |      |            |      |  | 1.2 |
|                        |            |      |                    |             |      |             |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |      |            |      |  | 1.3 |
|                        |            |      |                    |             |      |             |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |      |            |      |  | 1.4 |
|                        |            |      |                    |             |      |             |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |      |            |      |  | 1.5 |
|                        |            |      |                    |             |      |             |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |      |            |      |  | 1.6 |
|                        |            |      |                    |             |      |             |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |      |            |      |  | 2.1 |
|                        |            |      |                    |             |      |             |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |      |            |      |  | 2.2 |
|                        |            |      |                    |             |      |             |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |      |            |      |  | 2.3 |
|                        |            |      |                    |             |      |             |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |      |            |      |  | 2.4 |
|                        |            |      |                    |             |      |             |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |      |            |      |  | 2.5 |
|                        |            |      |                    |             |      |             |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |      |            |      |  | 2.6 |
|                        |            |      |                    |             |      |             |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |      |            |      |  | 2.7 |
|                        |            |      |                    |             |      |             |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |      |            |      |  | 2.8 |
|                        |            |      |                    |             |      |             |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |      |            |      |  | 3.1 |
|                        |            |      |                    |             |      |             |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |      |            |      |  | 3.2 |
|                        |            |      |                    |             |      |             |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |      |            |      |  | 4.1 |
|                        |            |      |                    |             |      |             |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |      |            |      |  | 4.2 |
|                        |            |      |                    |             |      |             |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |      |            |      |  | 4.3 |
|                        |            |      |                    |             |      |             |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |      |            |      |  | 4.4 |
|                        |            |      |                    |             |      |             |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |      |            |      |  | 5.1 |
|                        |            |      |                    |             |      |             |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |      |            |      |  | 5.2 |
|                        |            |      |                    |             |      |             |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |      |            |      |  | 5.3 |
| 40                     | <b>50</b>  | 60   | 0,04               | <b>0,05</b> | 0,06 | 0,06        | <b>0,08</b> | 0,10 | 0,10        | <b>0,12</b> | 0,15 | 0,11         | <b>0,13</b> | 0,17 | 0,12         | <b>0,14</b> | 0,19 | 0,14         | <b>0,16</b> | 0,20 | 0,16         | <b>0,18</b> | 0,22 |      |            |      |  | 1.1 |
| 30                     | <b>40</b>  | 50   | 0,04               | <b>0,05</b> | 0,06 | 0,06        | <b>0,08</b> | 0,10 | 0,10        | <b>0,12</b> | 0,15 | 0,11         | <b>0,13</b> | 0,17 | 0,12         | <b>0,14</b> | 0,19 | 0,14         | <b>0,16</b> | 0,20 | 0,16         | <b>0,18</b> | 0,22 |      |            |      |  | 1.2 |
|                        |            |      |                    |             |      |             |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |      |            |      |  | 1.3 |
|                        |            |      |                    |             |      |             |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |      |            |      |  | 2.1 |
| 20                     | <b>40</b>  | 60   | 0,04               | <b>0,05</b> | 0,07 | 0,06        | <b>0,08</b> | 0,11 | 0,10        | <b>0,13</b> | 0,20 | 0,11         | <b>0,15</b> | 0,23 | 0,12         | <b>0,17</b> | 0,25 | 0,14         | <b>0,18</b> | 0,27 | 0,16         | <b>0,20</b> | 0,29 |      |            |      |  | 2.2 |
| 10                     | <b>25</b>  | 40   | 0,04               | <b>0,05</b> | 0,07 | 0,06        | <b>0,08</b> | 0,10 | 0,10        | <b>0,12</b> | 0,15 | 0,11         | <b>0,13</b> | 0,17 | 0,12         | <b>0,14</b> | 0,19 | 0,14         | <b>0,16</b> | 0,20 | 0,16         | <b>0,18</b> | 0,22 |      |            |      |  | 2.3 |
|                        |            |      |                    |             |      |             |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |      |            |      |  | 2.4 |
|                        |            |      |                    |             |      |             |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |      |            |      |  | 2.5 |
|                        |            |      |                    |             |      |             |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |      |            |      |  | 2.6 |
| 20                     | <b>40</b>  | 50   | 0,05               | <b>0,06</b> | 0,11 | 0,08        | <b>0,11</b> | 0,16 | 0,10        | <b>0,16</b> | 0,25 | 0,11         | <b>0,18</b> | 0,28 | 0,12         | <b>0,19</b> | 0,31 | 0,14         | <b>0,20</b> | 0,34 | 0,16         | <b>0,22</b> | 0,44 |      |            |      |  | 1.1 |
| 20                     | <b>30</b>  | 50   | 0,05               | <b>0,06</b> | 0,11 | 0,08        | <b>0,11</b> | 0,16 | 0,10        | <b>0,16</b> | 0,25 | 0,11         | <b>0,18</b> | 0,28 | 0,12         | <b>0,19</b> | 0,31 | 0,14         | <b>0,20</b> | 0,34 | 0,16         | <b>0,22</b> | 0,44 |      |            |      |  | 1.2 |
| 20                     | <b>30</b>  | 50   | 0,05               | <b>0,06</b> | 0,11 | 0,08        | <b>0,11</b> | 0,16 | 0,10        | <b>0,16</b> | 0,25 | 0,11         | <b>0,18</b> | 0,28 | 0,12         | <b>0,19</b> | 0,31 | 0,14         | <b>0,20</b> | 0,34 | 0,16         | <b>0,22</b> | 0,44 |      |            |      |  | 1.3 |
|                        |            |      |                    |             |      |             |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |      |            |      |  | 1.4 |
|                        |            |      |                    |             |      |             |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |      |            |      |  | 1.5 |

# EF-Drill-STEEL

- Product Finder
- $v_c / f$**
- BASIC
- STEEL
- INOX
- GG
- HCUT
- SpotDrill
- Zubehör  
Accessories



8 x D

|     |     | D = 3,00 mm   |            |      | D = 5,00 mm          |             |      | D = 8,00 mm |             |      | D = 10,00 mm |             |      | D = 12,00 mm |             |      | D = 16,00 mm |             |      | D = 20,00 mm |             |      |             |             |      |
|-----|-----|---------------|------------|------|----------------------|-------------|------|-------------|-------------|------|--------------|-------------|------|--------------|-------------|------|--------------|-------------|------|--------------|-------------|------|-------------|-------------|------|
|     |     | $v_c$ [m/min] |            |      | $f$ [mm/U · mm/rev.] |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |             |             |      |
|     |     | min.          | empf. rec. | max. | min.                 | empf. rec.  | max. | min.        | empf. rec.  | max. | min.         | empf. rec.  | max. | min.         | empf. rec.  | max. | min.         | empf. rec.  | max. | min.         | empf. rec.  | max. |             |             |      |
| P   | 1.1 | 100           | <b>140</b> | 180  | 0,11                 | <b>0,16</b> | 0,25 | 0,16        | <b>0,20</b> | 0,28 | 0,20         | <b>0,25</b> | 0,35 | 0,23         | <b>0,28</b> | 0,40 | 0,25         | <b>0,31</b> | 0,43 | 0,27         | <b>0,34</b> | 0,47 | 0,30        | <b>0,38</b> | 0,53 |
|     | 2.1 | 80            | <b>120</b> | 160  | 0,11                 | <b>0,16</b> | 0,25 | 0,16        | <b>0,20</b> | 0,28 | 0,20         | <b>0,25</b> | 0,35 | 0,23         | <b>0,28</b> | 0,40 | 0,25         | <b>0,31</b> | 0,43 | 0,27         | <b>0,34</b> | 0,47 | 0,30        | <b>0,38</b> | 0,53 |
|     | 3.1 | 60            | <b>80</b>  | 120  | 0,11                 | <b>0,15</b> | 0,24 | 0,16        | <b>0,18</b> | 0,24 | 0,20         | <b>0,24</b> | 0,30 | 0,23         | <b>0,26</b> | 0,34 | 0,25         | <b>0,29</b> | 0,37 | 0,27         | <b>0,32</b> | 0,41 | 0,30        | <b>0,35</b> | 0,45 |
|     | 4.1 | 50            | <b>70</b>  | 100  | 0,11                 | <b>0,15</b> | 0,24 | 0,16        | <b>0,18</b> | 0,24 | 0,20         | <b>0,24</b> | 0,30 | 0,23         | <b>0,26</b> | 0,34 | 0,25         | <b>0,29</b> | 0,37 | 0,27         | <b>0,32</b> | 0,41 | 0,30        | <b>0,35</b> | 0,45 |
|     | 5.1 | 50            | <b>65</b>  | 90   | 0,10                 | <b>0,13</b> | 0,21 | 0,13        | <b>0,17</b> | 0,24 | 0,17         | <b>0,21</b> | 0,30 | 0,19         | <b>0,24</b> | 0,34 | 0,21         | <b>0,26</b> | 0,37 | 0,22         | <b>0,28</b> | 0,39 | 0,25        | <b>0,31</b> | 0,44 |
|     | 6.1 | 50            | <b>65</b>  | 90   | 0,10                 | <b>0,13</b> | 0,21 | 0,13        | <b>0,17</b> | 0,24 | 0,17         | <b>0,21</b> | 0,30 | 0,19         | <b>0,24</b> | 0,34 | 0,21         | <b>0,26</b> | 0,37 | 0,22         | <b>0,28</b> | 0,39 | 0,25        | <b>0,31</b> | 0,44 |
| M   | 1.1 |               |            |      |                      |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |             |             |      |
|     | 2.1 |               |            |      |                      |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |             |             |      |
|     | 3.1 |               |            |      |                      |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |             |             |      |
|     | 4.1 |               |            |      |                      |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |             |             |      |
|     | 1.1 | 120           | <b>140</b> | 160  | 0,11                 | <b>0,16</b> | 0,25 | 0,16        | <b>0,20</b> | 0,28 | 0,20         | <b>0,25</b> | 0,35 | 0,23         | <b>0,28</b> | 0,40 | 0,25         | <b>0,31</b> | 0,43 | 0,27         | <b>0,34</b> | 0,47 | 0,30        | <b>0,38</b> | 0,53 |
|     | 1.2 | 110           | <b>130</b> | 150  | 0,11                 | <b>0,16</b> | 0,25 | 0,16        | <b>0,20</b> | 0,28 | 0,20         | <b>0,25</b> | 0,35 | 0,23         | <b>0,28</b> | 0,40 | 0,25         | <b>0,31</b> | 0,43 | 0,27         | <b>0,34</b> | 0,47 | 0,30        | <b>0,38</b> | 0,53 |
|     | 2.1 | 140           | <b>160</b> | 180  | 0,11                 | <b>0,16</b> | 0,25 | 0,16        | <b>0,20</b> | 0,28 | 0,20         | <b>0,25</b> | 0,35 | 0,23         | <b>0,28</b> | 0,40 | 0,25         | <b>0,31</b> | 0,43 | 0,27         | <b>0,34</b> | 0,47 | 0,30        | <b>0,38</b> | 0,53 |
|     | 2.2 | 100           | <b>120</b> | 140  | 0,11                 | <b>0,15</b> | 0,24 | 0,16        | <b>0,18</b> | 0,24 | 0,20         | <b>0,24</b> | 0,30 | 0,23         | <b>0,26</b> | 0,34 | 0,25         | <b>0,29</b> | 0,37 | 0,27         | <b>0,32</b> | 0,41 | 0,30        | <b>0,35</b> | 0,45 |
|     | 3.1 | 80            | <b>100</b> | 120  | 0,11                 | <b>0,16</b> | 0,25 | 0,16        | <b>0,20</b> | 0,28 | 0,20         | <b>0,25</b> | 0,35 | 0,23         | <b>0,28</b> | 0,40 | 0,25         | <b>0,31</b> | 0,43 | 0,27         | <b>0,34</b> | 0,47 | 0,30        | <b>0,38</b> | 0,53 |
|     | 3.2 | 60            | <b>80</b>  | 100  | 0,10                 | <b>0,14</b> | 0,22 | 0,14        | <b>0,18</b> | 0,25 | 0,18         | <b>0,23</b> | 0,32 | 0,20         | <b>0,25</b> | 0,36 | 0,22         | <b>0,28</b> | 0,39 | 0,24         | <b>0,30</b> | 0,43 | 0,27        | <b>0,34</b> | 0,47 |
| 4.1 | 100 | <b>120</b>    | 140        | 0,11 | <b>0,15</b>          | 0,24        | 0,16 | <b>0,18</b> | 0,24        | 0,20 | <b>0,24</b>  | 0,30        | 0,23 | <b>0,26</b>  | 0,34        | 0,25 | <b>0,29</b>  | 0,37        | 0,27 | <b>0,32</b>  | 0,41        | 0,30 | <b>0,32</b> | 0,41        |      |
| 4.2 | 90  | <b>110</b>    | 130        | 0,10 | <b>0,14</b>          | 0,22        | 0,14 | <b>0,18</b> | 0,25        | 0,18 | <b>0,23</b>  | 0,32        | 0,20 | <b>0,25</b>  | 0,36        | 0,22 | <b>0,28</b>  | 0,39        | 0,24 | <b>0,30</b>  | 0,43        | 0,27 | <b>0,30</b> | 0,43        |      |
| K   | 1.1 | 160           | <b>180</b> | 240  | 0,14                 | <b>0,19</b> | 0,31 | 0,19        | <b>0,28</b> | 0,38 | 0,24         | <b>0,33</b> | 0,42 | 0,27         | <b>0,37</b> | 0,47 | 0,30         | <b>0,41</b> | 0,52 | 0,32         | <b>0,45</b> | 0,57 | 0,34        | <b>0,47</b> | 0,59 |
|     | 1.2 | 160           | <b>180</b> | 240  | 0,14                 | <b>0,19</b> | 0,31 | 0,19        | <b>0,28</b> | 0,38 | 0,24         | <b>0,33</b> | 0,42 | 0,27         | <b>0,37</b> | 0,47 | 0,30         | <b>0,41</b> | 0,52 | 0,32         | <b>0,45</b> | 0,57 | 0,34        | <b>0,47</b> | 0,59 |
|     | 1.3 | 160           | <b>180</b> | 240  | 0,14                 | <b>0,19</b> | 0,31 | 0,19        | <b>0,28</b> | 0,38 | 0,24         | <b>0,33</b> | 0,42 | 0,27         | <b>0,37</b> | 0,47 | 0,30         | <b>0,41</b> | 0,52 | 0,32         | <b>0,45</b> | 0,57 | 0,34        | <b>0,47</b> | 0,59 |
|     | 1.4 | 160           | <b>180</b> | 240  | 0,14                 | <b>0,19</b> | 0,31 | 0,19        | <b>0,28</b> | 0,38 | 0,24         | <b>0,33</b> | 0,42 | 0,27         | <b>0,37</b> | 0,47 | 0,30         | <b>0,41</b> | 0,52 | 0,32         | <b>0,45</b> | 0,57 | 0,34        | <b>0,47</b> | 0,59 |
|     | 1.5 | 160           | <b>180</b> | 240  | 0,14                 | <b>0,19</b> | 0,31 | 0,19        | <b>0,28</b> | 0,38 | 0,24         | <b>0,33</b> | 0,42 | 0,27         | <b>0,37</b> | 0,47 | 0,30         | <b>0,41</b> | 0,52 | 0,32         | <b>0,45</b> | 0,57 | 0,34        | <b>0,47</b> | 0,59 |
|     | 1.6 | 160           | <b>180</b> | 240  | 0,14                 | <b>0,19</b> | 0,31 | 0,19        | <b>0,28</b> | 0,38 | 0,24         | <b>0,33</b> | 0,42 | 0,27         | <b>0,37</b> | 0,47 | 0,30         | <b>0,41</b> | 0,52 | 0,32         | <b>0,45</b> | 0,57 | 0,34        | <b>0,47</b> | 0,59 |
|     | 2.1 | 120           | <b>140</b> | 180  | 0,03                 | <b>0,05</b> | 0,07 | 0,04        | <b>0,06</b> | 0,08 | 0,05         | <b>0,10</b> | 0,13 | 0,06         | <b>0,12</b> | 0,14 | 0,06         | <b>0,14</b> | 0,16 | 0,07         | <b>0,15</b> | 0,17 | 0,09        | <b>0,18</b> | 0,20 |
|     | 2.2 | 120           | <b>140</b> | 180  | 0,03                 | <b>0,05</b> | 0,07 | 0,04        | <b>0,06</b> | 0,08 | 0,05         | <b>0,10</b> | 0,13 | 0,06         | <b>0,12</b> | 0,14 | 0,06         | <b>0,14</b> | 0,16 | 0,07         | <b>0,15</b> | 0,17 | 0,09        | <b>0,18</b> | 0,20 |
|     | 2.3 | 120           | <b>140</b> | 180  | 0,11                 | <b>0,14</b> | 0,19 | 0,17        | <b>0,22</b> | 0,30 | 0,22         | <b>0,28</b> | 0,39 | 0,25         | <b>0,31</b> | 0,42 | 0,27         | <b>0,33</b> | 0,44 | 0,30         | <b>0,36</b> | 0,48 | 0,33        | <b>0,39</b> | 0,51 |
|     | 2.4 | 60            | <b>80</b>  | 95   | 0,04                 | <b>0,06</b> | 0,07 | 0,06        | <b>0,08</b> | 0,09 | 0,10         | <b>0,12</b> | 0,14 | 0,12         | <b>0,14</b> | 0,17 | 0,14         | <b>0,15</b> | 0,19 | 0,15         | <b>0,17</b> | 0,21 | 0,19        | <b>0,20</b> | 0,25 |
|     | 2.5 | 110           | <b>140</b> | 160  | 0,05                 | <b>0,07</b> | 0,09 | 0,07        | <b>0,10</b> | 0,12 | 0,12         | <b>0,15</b> | 0,17 | 0,14         | <b>0,17</b> | 0,20 | 0,17         | <b>0,20</b> | 0,22 | 0,19         | <b>0,21</b> | 0,26 | 0,22        | <b>0,25</b> | 0,29 |
|     | 2.6 | 90            | <b>100</b> | 115  | 0,06                 | <b>0,08</b> | 0,09 | 0,08        | <b>0,09</b> | 0,11 | 0,13         | <b>0,14</b> | 0,17 | 0,15         | <b>0,18</b> | 0,20 | 0,18         | <b>0,20</b> | 0,23 | 0,20         | <b>0,24</b> | 0,27 | 0,24        | <b>0,27</b> | 0,31 |
|     | 2.7 | 50            | <b>55</b>  | 60   | 0,03                 | <b>0,03</b> | 0,04 | 0,03        | <b>0,04</b> | 0,06 | 0,07         | <b>0,08</b> | 0,09 | 0,08         | <b>0,09</b> | 0,10 | 0,09         | <b>0,10</b> | 0,12 | 0,10         | <b>0,12</b> | 0,14 | 0,14        | <b>0,15</b> | 0,17 |
|     | 2.8 | 55            | <b>60</b>  | 65   | 0,03                 | <b>0,03</b> | 0,04 | 0,03        | <b>0,04</b> | 0,06 | 0,07         | <b>0,08</b> | 0,09 | 0,08         | <b>0,09</b> | 0,10 | 0,09         | <b>0,10</b> | 0,12 | 0,10         | <b>0,12</b> | 0,14 | 0,14        | <b>0,15</b> | 0,17 |
|     | 3.1 |               |            |      |                      |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |             |             |      |
|     | 3.2 |               |            |      |                      |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |             |             |      |
| 4.1 |     |               |            |      |                      |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |             |             |      |
| 4.2 |     |               |            |      |                      |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |             |             |      |
| 4.3 |     |               |            |      |                      |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |             |             |      |
| 4.4 |     |               |            |      |                      |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |             |             |      |
| 5.1 |     |               |            |      |                      |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |             |             |      |
| 5.2 |     |               |            |      |                      |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |             |             |      |
| 5.3 |     |               |            |      |                      |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |             |             |      |
| S   | 1.1 |               |            |      |                      |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |             |             |      |
|     | 1.2 | 40            | <b>50</b>  | 60   | 0,04                 | <b>0,05</b> | 0,06 | 0,06        | <b>0,08</b> | 0,10 | 0,10         | <b>0,12</b> | 0,15 | 0,11         | <b>0,13</b> | 0,17 | 0,12         | <b>0,14</b> | 0,19 | 0,14         | <b>0,16</b> | 0,20 | 0,16        | <b>0,18</b> | 0,22 |
|     | 1.3 | 30            | <b>40</b>  | 50   | 0,04                 | <b>0,05</b> | 0,06 | 0,06        | <b>0,08</b> | 0,10 | 0,10         | <b>0,12</b> | 0,15 | 0,11         | <b>0,13</b> | 0,17 | 0,12         | <b>0,14</b> | 0,19 | 0,14         | <b>0,16</b> | 0,20 | 0,16        | <b>0,18</b> | 0,22 |
|     | 2.1 |               |            |      |                      |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |             |             |      |
|     | 2.2 | 20            | <b>40</b>  | 60   | 0,04                 | <b>0,05</b> | 0,07 | 0,06        | <b>0,08</b> | 0,11 | 0,10         | <b>0,13</b> | 0,20 | 0,11         | <b>0,15</b> | 0,23 | 0,12         | <b>0,17</b> | 0,25 | 0,14         | <b>0,18</b> | 0,27 | 0,16        | <b>0,20</b> | 0,29 |
|     | 2.3 | 10            | <b>25</b>  | 40   | 0,04                 | <b>0,05</b> | 0,07 | 0,06        | <b>0,08</b> | 0,10 | 0,10         | <b>0,12</b> | 0,15 | 0,11         | <b>0,13</b> | 0,17 | 0,12         | <b>0,14</b> | 0,19 | 0,14         | <b>0,16</b> | 0,20 | 0,16        | <b>0,18</b> | 0,22 |
|     | 2.4 |               |            |      |                      |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |             |             |      |
| 2.5 |     |               |            |      |                      |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |             |             |      |
| 2.6 |     |               |            |      |                      |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |             |             |      |
| H   | 1.1 | 20            | <b>40</b>  | 50   | 0,05                 | <b>0,06</b> | 0,11 | 0,08        | <b>0,11</b> | 0,16 |              |             |      |              |             |      |              |             |      |              |             |      |             |             |      |



12 x D

- Product Finder
- v<sub>c</sub> / f**
- BASIC
- STEEL
- INOX
- GU
- HCUT
- SpotDrill
- Zubehör Accessories

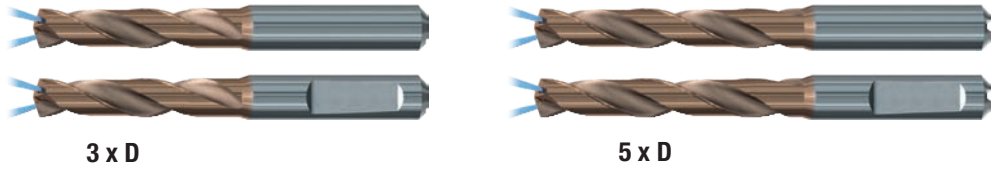
- 3 x D
- 5 x D
- 6 x D
- 8 x D
- 12 x D
- 2-3,5 x D



| v <sub>c</sub> [m/min] |            |      | D = 3,00 mm        |             | D = 5,00 mm |      | D = 8,00 mm |      | D = 10,00 mm |             | D = 12,00 mm |      | D = 16,00 mm |      |      |             |             |      |             |             |      |
|------------------------|------------|------|--------------------|-------------|-------------|------|-------------|------|--------------|-------------|--------------|------|--------------|------|------|-------------|-------------|------|-------------|-------------|------|
|                        |            |      | f [mm/U · mm/rev.] |             |             |      |             |      |              |             |              |      |              |      |      |             |             |      |             |             |      |
| min.                   | empf. rec. | max. | min.               | empf. rec.  | max.        | min. | empf. rec.  | max. | min.         | empf. rec.  | max.         | min. | empf. rec.   | max. |      |             |             |      |             |             |      |
| 80                     | <b>100</b> | 120  | 0,07               | <b>0,09</b> | 0,11        | 0,12 | <b>0,14</b> | 0,16 | 0,16         | <b>0,18</b> | 0,20         | 0,18 | <b>0,20</b>  | 0,22 |      | 0,20        | <b>0,22</b> | 0,24 | 0,23        | <b>0,25</b> | 0,27 |
| 70                     | <b>90</b>  | 110  | 0,07               | <b>0,09</b> | 0,11        | 0,12 | <b>0,14</b> | 0,16 | 0,16         | <b>0,18</b> | 0,20         | 0,18 | <b>0,20</b>  | 0,22 | 0,20 | <b>0,22</b> | 0,24        | 0,23 | <b>0,25</b> | 0,27        | 2.1  |
| 60                     | <b>80</b>  | 100  | 0,08               | <b>0,10</b> | 0,12        | 0,11 | <b>0,13</b> | 0,15 | 0,18         | <b>0,20</b> | 0,22         | 0,19 | <b>0,21</b>  | 0,23 | 0,21 | <b>0,23</b> | 0,25        | 0,26 | <b>0,28</b> | 0,30        | 3.1  |
| 55                     | <b>75</b>  | 95   | 0,06               | <b>0,08</b> | 0,10        | 0,09 | <b>0,11</b> | 0,13 | 0,16         | <b>0,18</b> | 0,20         | 0,18 | <b>0,20</b>  | 0,22 | 0,20 | <b>0,22</b> | 0,24        | 0,24 | <b>0,26</b> | 0,28        | 4.1  |
| 45                     | <b>55</b>  | 65   | 0,04               | <b>0,06</b> | 0,08        | 0,07 | <b>0,09</b> | 0,11 | 0,14         | <b>0,16</b> | 0,18         | 0,16 | <b>0,18</b>  | 0,20 | 0,18 | <b>0,20</b> | 0,22        | 0,21 | <b>0,23</b> | 0,25        | 5.1  |
| 40                     | <b>60</b>  | 80   | 0,04               | <b>0,06</b> | 0,08        | 0,07 | <b>0,09</b> | 0,11 | 0,10         | <b>0,12</b> | 0,14         | 0,13 | <b>0,15</b>  | 0,17 | 0,14 | <b>0,16</b> | 0,18        | 0,16 | <b>0,18</b> | 0,20        | 1.1  |
|                        |            |      |                    |             |             |      |             |      |              |             |              |      |              |      |      |             |             |      |             |             | 2.1  |
|                        |            |      |                    |             |             |      |             |      |              |             |              |      |              |      |      |             |             |      |             |             | 3.1  |
|                        |            |      |                    |             |             |      |             |      |              |             |              |      |              |      |      |             |             |      |             |             | 4.1  |
| 115                    | <b>140</b> | 165  | 0,10               | <b>0,12</b> | 0,14        | 0,17 | <b>0,19</b> | 0,21 | 0,26         | <b>0,28</b> | 0,30         | 0,31 | <b>0,33</b>  | 0,35 | 0,34 | <b>0,36</b> | 0,38        | 0,41 | <b>0,43</b> | 0,45        | 1.1  |
| 95                     | <b>125</b> | 140  | 0,10               | <b>0,12</b> | 0,14        | 0,16 | <b>0,18</b> | 0,20 | 0,27         | <b>0,29</b> | 0,31         | 0,30 | <b>0,32</b>  | 0,34 | 0,33 | <b>0,35</b> | 0,37        | 0,39 | <b>0,41</b> | 0,43        | 1.2  |
| 95                     | <b>125</b> | 150  | 0,11               | <b>0,13</b> | 0,15        | 0,17 | <b>0,19</b> | 0,21 | 0,25         | <b>0,27</b> | 0,29         | 0,29 | <b>0,31</b>  | 0,33 | 0,32 | <b>0,34</b> | 0,36        | 0,38 | <b>0,40</b> | 0,42        | 2.1  |
| 105                    | <b>125</b> | 140  | 0,09               | <b>0,11</b> | 0,13        | 0,15 | <b>0,17</b> | 0,19 | 0,21         | <b>0,23</b> | 0,25         | 0,24 | <b>0,26</b>  | 0,28 | 0,26 | <b>0,28</b> | 0,30        | 0,32 | <b>0,34</b> | 0,36        | 2.2  |
| 70                     | <b>90</b>  | 110  | 0,10               | <b>0,12</b> | 0,14        | 0,16 | <b>0,18</b> | 0,20 | 0,24         | <b>0,26</b> | 0,28         | 0,26 | <b>0,28</b>  | 0,30 | 0,29 | <b>0,31</b> | 0,33        | 0,35 | <b>0,37</b> | 0,39        | 3.1  |
| 60                     | <b>80</b>  | 100  | 0,09               | <b>0,11</b> | 0,13        | 0,12 | <b>0,14</b> | 0,16 | 0,19         | <b>0,21</b> | 0,23         | 0,21 | <b>0,23</b>  | 0,25 | 0,23 | <b>0,25</b> | 0,27        | 0,28 | <b>0,30</b> | 0,32        | 3.2  |
|                        |            |      |                    |             |             |      |             |      |              |             |              |      |              |      |      |             |             |      |             |             | 4.1  |
|                        |            |      |                    |             |             |      |             |      |              |             |              |      |              |      |      |             |             |      |             |             | 4.2  |
|                        |            |      |                    |             |             |      |             |      |              |             |              |      |              |      |      |             |             |      |             |             | 1.1  |
|                        |            |      |                    |             |             |      |             |      |              |             |              |      |              |      |      |             |             |      |             |             | 1.2  |
|                        |            |      |                    |             |             |      |             |      |              |             |              |      |              |      |      |             |             |      |             |             | 1.3  |
|                        |            |      |                    |             |             |      |             |      |              |             |              |      |              |      |      |             |             |      |             |             | 1.4  |
|                        |            |      |                    |             |             |      |             |      |              |             |              |      |              |      |      |             |             |      |             |             | 1.5  |
|                        |            |      |                    |             |             |      |             |      |              |             |              |      |              |      |      |             |             |      |             |             | 1.6  |
|                        |            |      |                    |             |             |      |             |      |              |             |              |      |              |      |      |             |             |      |             |             | 2.1  |
|                        |            |      |                    |             |             |      |             |      |              |             |              |      |              |      |      |             |             |      |             |             | 2.2  |
|                        |            |      |                    |             |             |      |             |      |              |             |              |      |              |      |      |             |             |      |             |             | 2.3  |
|                        |            |      |                    |             |             |      |             |      |              |             |              |      |              |      |      |             |             |      |             |             | 2.4  |
|                        |            |      |                    |             |             |      |             |      |              |             |              |      |              |      |      |             |             |      |             |             | 2.5  |
|                        |            |      |                    |             |             |      |             |      |              |             |              |      |              |      |      |             |             |      |             |             | 2.6  |
|                        |            |      |                    |             |             |      |             |      |              |             |              |      |              |      |      |             |             |      |             |             | 2.7  |
|                        |            |      |                    |             |             |      |             |      |              |             |              |      |              |      |      |             |             |      |             |             | 2.8  |
|                        |            |      |                    |             |             |      |             |      |              |             |              |      |              |      |      |             |             |      |             |             | 3.1  |
|                        |            |      |                    |             |             |      |             |      |              |             |              |      |              |      |      |             |             |      |             |             | 3.2  |
|                        |            |      |                    |             |             |      |             |      |              |             |              |      |              |      |      |             |             |      |             |             | 4.1  |
|                        |            |      |                    |             |             |      |             |      |              |             |              |      |              |      |      |             |             |      |             |             | 4.2  |
|                        |            |      |                    |             |             |      |             |      |              |             |              |      |              |      |      |             |             |      |             |             | 4.3  |
|                        |            |      |                    |             |             |      |             |      |              |             |              |      |              |      |      |             |             |      |             |             | 4.4  |
|                        |            |      |                    |             |             |      |             |      |              |             |              |      |              |      |      |             |             |      |             |             | 5.1  |
|                        |            |      |                    |             |             |      |             |      |              |             |              |      |              |      |      |             |             |      |             |             | 5.2  |
|                        |            |      |                    |             |             |      |             |      |              |             |              |      |              |      |      |             |             |      |             |             | 5.3  |
|                        |            |      |                    |             |             |      |             |      |              |             |              |      |              |      |      |             |             |      |             |             | 1.1  |
|                        |            |      |                    |             |             |      |             |      |              |             |              |      |              |      |      |             |             |      |             |             | 1.2  |
|                        |            |      |                    |             |             |      |             |      |              |             |              |      |              |      |      |             |             |      |             |             | 1.3  |
|                        |            |      |                    |             |             |      |             |      |              |             |              |      |              |      |      |             |             |      |             |             | 2.1  |
|                        |            |      |                    |             |             |      |             |      |              |             |              |      |              |      |      |             |             |      |             |             | 2.2  |
|                        |            |      |                    |             |             |      |             |      |              |             |              |      |              |      |      |             |             |      |             |             | 2.3  |
|                        |            |      |                    |             |             |      |             |      |              |             |              |      |              |      |      |             |             |      |             |             | 2.4  |
|                        |            |      |                    |             |             |      |             |      |              |             |              |      |              |      |      |             |             |      |             |             | 2.5  |
|                        |            |      |                    |             |             |      |             |      |              |             |              |      |              |      |      |             |             |      |             |             | 2.6  |
| 15                     | <b>25</b>  | 35   | 0,02               | <b>0,04</b> | 0,06        | 0,05 | <b>0,07</b> | 0,09 | 0,07         | <b>0,09</b> | 0,11         | 0,07 | <b>0,09</b>  | 0,11 | 0,09 | <b>0,11</b> | 0,13        | 0,11 | <b>0,13</b> | 0,15        | 1.1  |
|                        |            |      |                    |             |             |      |             |      |              |             |              |      |              |      |      |             |             |      |             |             | 1.2  |
|                        |            |      |                    |             |             |      |             |      |              |             |              |      |              |      |      |             |             |      |             |             | 1.3  |
|                        |            |      |                    |             |             |      |             |      |              |             |              |      |              |      |      |             |             |      |             |             | 2.1  |
|                        |            |      |                    |             |             |      |             |      |              |             |              |      |              |      |      |             |             |      |             |             | 2.2  |
|                        |            |      |                    |             |             |      |             |      |              |             |              |      |              |      |      |             |             |      |             |             | 2.3  |
|                        |            |      |                    |             |             |      |             |      |              |             |              |      |              |      |      |             |             |      |             |             | 2.4  |
|                        |            |      |                    |             |             |      |             |      |              |             |              |      |              |      |      |             |             |      |             |             | 2.5  |
|                        |            |      |                    |             |             |      |             |      |              |             |              |      |              |      |      |             |             |      |             |             | 2.6  |
|                        |            |      |                    |             |             |      |             |      |              |             |              |      |              |      |      |             |             |      |             |             | 1.1  |
|                        |            |      |                    |             |             |      |             |      |              |             |              |      |              |      |      |             |             |      |             |             | 1.2  |
|                        |            |      |                    |             |             |      |             |      |              |             |              |      |              |      |      |             |             |      |             |             | 1.3  |
|                        |            |      |                    |             |             |      |             |      |              |             |              |      |              |      |      |             |             |      |             |             | 1.4  |
|                        |            |      |                    |             |             |      |             |      |              |             |              |      |              |      |      |             |             |      |             |             | 1.5  |

# InoxDrill-ID103

- Product Finder
- $v_c / f$**
- BASIC
- STEEL
- INOX
- GG
- HCUT
- SpotDrill
- Zubehör  
Accessories



- 3 x D
- 5 x D
- 6 x D
- 8 x D
- 12 x D
- 2-3,5 x D



|          |     | D = 3,00 mm   |            | D = 5,00 mm |                    | D = 8,00 mm |      | D = 10,00 mm |             | D = 12,00 mm |      | D = 16,00 mm |      | D = 20,00 mm |             |      |      |             |      |      |             |      |      |             |      |
|----------|-----|---------------|------------|-------------|--------------------|-------------|------|--------------|-------------|--------------|------|--------------|------|--------------|-------------|------|------|-------------|------|------|-------------|------|------|-------------|------|
|          |     | $v_c$ [m/min] |            |             | f [mm/U · mm/rev.] |             |      |              |             |              |      |              |      |              |             |      |      |             |      |      |             |      |      |             |      |
|          |     | min.          | empf. rec. | max.        | min.               | empf. rec.  | max. | min.         | empf. rec.  | max.         | min. | empf. rec.   | max. | min.         | empf. rec.  | max. |      |             |      |      |             |      |      |             |      |
| <b>P</b> | 1.1 |               |            |             |                    |             |      |              |             |              |      |              |      |              |             |      |      |             |      |      |             |      |      |             |      |
|          | 2.1 |               |            |             |                    |             |      |              |             |              |      |              |      |              |             |      |      |             |      |      |             |      |      |             |      |
|          | 3.1 |               |            |             |                    |             |      |              |             |              |      |              |      |              |             |      |      |             |      |      |             |      |      |             |      |
|          | 4.1 |               |            |             |                    |             |      |              |             |              |      |              |      |              |             |      |      |             |      |      |             |      |      |             |      |
|          | 5.1 |               |            |             |                    |             |      |              |             |              |      |              |      |              |             |      |      |             |      |      |             |      |      |             |      |
|          |     |               |            |             |                    |             |      |              |             |              |      |              |      |              |             |      |      |             |      |      |             |      |      |             |      |
| <b>M</b> | 1.1 | 40            | <b>60</b>  | 80          | 0,04               | <b>0,06</b> | 0,09 | 0,09         | <b>0,12</b> | 0,19         | 0,11 | <b>0,17</b>  | 0,26 | 0,14         | <b>0,19</b> | 0,30 | 0,15 | <b>0,21</b> | 0,33 | 0,16 | <b>0,23</b> | 0,36 | 0,18 | <b>0,25</b> | 0,38 |
|          | 2.1 | 40            | <b>55</b>  | 75          | 0,04               | <b>0,05</b> | 0,08 | 0,08         | <b>0,11</b> | 0,16         | 0,10 | <b>0,15</b>  | 0,20 | 0,14         | <b>0,18</b> | 0,27 | 0,15 | <b>0,20</b> | 0,30 | 0,16 | <b>0,22</b> | 0,32 | 0,18 | <b>0,24</b> | 0,34 |
|          | 3.1 | 40            | <b>50</b>  | 70          | 0,04               | <b>0,05</b> | 0,08 | 0,08         | <b>0,11</b> | 0,16         | 0,10 | <b>0,15</b>  | 0,20 | 0,14         | <b>0,18</b> | 0,27 | 0,15 | <b>0,20</b> | 0,30 | 0,16 | <b>0,22</b> | 0,32 | 0,18 | <b>0,24</b> | 0,34 |
|          | 4.1 | 30            | <b>40</b>  | 60          | 0,04               | <b>0,05</b> | 0,08 | 0,08         | <b>0,11</b> | 0,16         | 0,10 | <b>0,15</b>  | 0,20 | 0,14         | <b>0,18</b> | 0,27 | 0,15 | <b>0,20</b> | 0,30 | 0,16 | <b>0,22</b> | 0,32 | 0,18 | <b>0,24</b> | 0,34 |
| <b>K</b> | 1.1 |               |            |             |                    |             |      |              |             |              |      |              |      |              |             |      |      |             |      |      |             |      |      |             |      |
|          | 1.2 |               |            |             |                    |             |      |              |             |              |      |              |      |              |             |      |      |             |      |      |             |      |      |             |      |
|          | 2.1 |               |            |             |                    |             |      |              |             |              |      |              |      |              |             |      |      |             |      |      |             |      |      |             |      |
|          | 2.2 |               |            |             |                    |             |      |              |             |              |      |              |      |              |             |      |      |             |      |      |             |      |      |             |      |
|          | 3.1 |               |            |             |                    |             |      |              |             |              |      |              |      |              |             |      |      |             |      |      |             |      |      |             |      |
|          | 3.2 |               |            |             |                    |             |      |              |             |              |      |              |      |              |             |      |      |             |      |      |             |      |      |             |      |
|          | 4.1 |               |            |             |                    |             |      |              |             |              |      |              |      |              |             |      |      |             |      |      |             |      |      |             |      |
|          | 4.2 |               |            |             |                    |             |      |              |             |              |      |              |      |              |             |      |      |             |      |      |             |      |      |             |      |
| <b>N</b> | 1.1 | 160           | <b>180</b> | 240         | 0,14               | <b>0,19</b> | 0,31 | 0,19         | <b>0,28</b> | 0,38         | 0,24 | <b>0,33</b>  | 0,42 | 0,27         | <b>0,37</b> | 0,47 | 0,30 | <b>0,41</b> | 0,52 | 0,32 | <b>0,45</b> | 0,57 | 0,34 | <b>0,47</b> | 0,59 |
|          | 1.2 | 160           | <b>180</b> | 240         | 0,14               | <b>0,19</b> | 0,31 | 0,19         | <b>0,28</b> | 0,38         | 0,24 | <b>0,33</b>  | 0,42 | 0,27         | <b>0,37</b> | 0,47 | 0,30 | <b>0,41</b> | 0,52 | 0,32 | <b>0,45</b> | 0,57 | 0,34 | <b>0,47</b> | 0,59 |
|          | 1.3 | 160           | <b>180</b> | 240         | 0,14               | <b>0,19</b> | 0,31 | 0,19         | <b>0,28</b> | 0,38         | 0,24 | <b>0,33</b>  | 0,42 | 0,27         | <b>0,37</b> | 0,47 | 0,30 | <b>0,41</b> | 0,52 | 0,32 | <b>0,45</b> | 0,57 | 0,34 | <b>0,47</b> | 0,59 |
|          | 1.4 | 160           | <b>180</b> | 240         | 0,14               | <b>0,19</b> | 0,31 | 0,19         | <b>0,28</b> | 0,38         | 0,24 | <b>0,33</b>  | 0,42 | 0,27         | <b>0,37</b> | 0,47 | 0,30 | <b>0,41</b> | 0,52 | 0,32 | <b>0,45</b> | 0,57 | 0,34 | <b>0,47</b> | 0,59 |
|          | 1.5 | 160           | <b>180</b> | 240         | 0,14               | <b>0,19</b> | 0,31 | 0,19         | <b>0,28</b> | 0,38         | 0,24 | <b>0,33</b>  | 0,42 | 0,27         | <b>0,37</b> | 0,47 | 0,30 | <b>0,41</b> | 0,52 | 0,32 | <b>0,45</b> | 0,57 | 0,34 | <b>0,47</b> | 0,59 |
|          | 1.6 | 160           | <b>180</b> | 240         | 0,14               | <b>0,19</b> | 0,31 | 0,19         | <b>0,28</b> | 0,38         | 0,24 | <b>0,33</b>  | 0,42 | 0,27         | <b>0,37</b> | 0,47 | 0,30 | <b>0,41</b> | 0,52 | 0,32 | <b>0,45</b> | 0,57 | 0,34 | <b>0,47</b> | 0,59 |
|          | 2.1 | 120           | <b>140</b> | 180         | 0,03               | <b>0,05</b> | 0,07 | 0,04         | <b>0,06</b> | 0,08         | 0,05 | <b>0,10</b>  | 0,13 | 0,06         | <b>0,12</b> | 0,14 | 0,06 | <b>0,14</b> | 0,16 | 0,07 | <b>0,15</b> | 0,17 | 0,09 | <b>0,18</b> | 0,20 |
|          | 2.2 | 120           | <b>140</b> | 180         | 0,03               | <b>0,05</b> | 0,07 | 0,04         | <b>0,06</b> | 0,08         | 0,05 | <b>0,10</b>  | 0,13 | 0,06         | <b>0,12</b> | 0,14 | 0,06 | <b>0,14</b> | 0,16 | 0,07 | <b>0,15</b> | 0,17 | 0,09 | <b>0,18</b> | 0,20 |
|          | 2.3 | 120           | <b>140</b> | 180         | 0,11               | <b>0,14</b> | 0,19 | 0,17         | <b>0,22</b> | 0,30         | 0,22 | <b>0,28</b>  | 0,39 | 0,25         | <b>0,31</b> | 0,42 | 0,27 | <b>0,33</b> | 0,44 | 0,30 | <b>0,36</b> | 0,48 | 0,33 | <b>0,39</b> | 0,51 |
|          | 2.4 |               |            |             |                    |             |      |              |             |              |      |              |      |              |             |      |      |             |      |      |             |      |      |             |      |
|          | 2.5 |               |            |             |                    |             |      |              |             |              |      |              |      |              |             |      |      |             |      |      |             |      |      |             |      |
|          | 2.6 |               |            |             |                    |             |      |              |             |              |      |              |      |              |             |      |      |             |      |      |             |      |      |             |      |
|          | 2.7 |               |            |             |                    |             |      |              |             |              |      |              |      |              |             |      |      |             |      |      |             |      |      |             |      |
|          | 2.8 |               |            |             |                    |             |      |              |             |              |      |              |      |              |             |      |      |             |      |      |             |      |      |             |      |
|          | 3.1 |               |            |             |                    |             |      |              |             |              |      |              |      |              |             |      |      |             |      |      |             |      |      |             |      |
|          | 3.2 |               |            |             |                    |             |      |              |             |              |      |              |      |              |             |      |      |             |      |      |             |      |      |             |      |
| 4.1      |     |               |            |             |                    |             |      |              |             |              |      |              |      |              |             |      |      |             |      |      |             |      |      |             |      |
| 4.2      |     |               |            |             |                    |             |      |              |             |              |      |              |      |              |             |      |      |             |      |      |             |      |      |             |      |
| 4.3      |     |               |            |             |                    |             |      |              |             |              |      |              |      |              |             |      |      |             |      |      |             |      |      |             |      |
| 4.4      |     |               |            |             |                    |             |      |              |             |              |      |              |      |              |             |      |      |             |      |      |             |      |      |             |      |
| 5.1      |     |               |            |             |                    |             |      |              |             |              |      |              |      |              |             |      |      |             |      |      |             |      |      |             |      |
| 5.2      |     |               |            |             |                    |             |      |              |             |              |      |              |      |              |             |      |      |             |      |      |             |      |      |             |      |
| 5.3      |     |               |            |             |                    |             |      |              |             |              |      |              |      |              |             |      |      |             |      |      |             |      |      |             |      |
| <b>S</b> | 1.1 |               |            |             |                    |             |      |              |             |              |      |              |      |              |             |      |      |             |      |      |             |      |      |             |      |
|          | 1.2 | 40            | <b>50</b>  | 60          | 0,04               | <b>0,05</b> | 0,06 | 0,06         | <b>0,08</b> | 0,10         | 0,10 | <b>0,12</b>  | 0,15 | 0,11         | <b>0,13</b> | 0,17 | 0,12 | <b>0,14</b> | 0,19 | 0,14 | <b>0,16</b> | 0,20 | 0,16 | <b>0,18</b> | 0,22 |
|          | 1.3 | 30            | <b>40</b>  | 50          | 0,04               | <b>0,05</b> | 0,06 | 0,06         | <b>0,08</b> | 0,10         | 0,10 | <b>0,12</b>  | 0,15 | 0,11         | <b>0,13</b> | 0,17 | 0,12 | <b>0,14</b> | 0,19 | 0,14 | <b>0,16</b> | 0,20 | 0,16 | <b>0,18</b> | 0,22 |
|          | 2.1 |               |            |             |                    |             |      |              |             |              |      |              |      |              |             |      |      |             |      |      |             |      |      |             |      |
|          | 2.2 | 20            | <b>40</b>  | 60          | 0,04               | <b>0,05</b> | 0,07 | 0,06         | <b>0,08</b> | 0,11         | 0,10 | <b>0,13</b>  | 0,20 | 0,11         | <b>0,15</b> | 0,23 | 0,12 | <b>0,17</b> | 0,25 | 0,14 | <b>0,18</b> | 0,27 | 0,16 | <b>0,20</b> | 0,29 |
|          | 2.3 | 10            | <b>25</b>  | 40          | 0,04               | <b>0,05</b> | 0,07 | 0,06         | <b>0,08</b> | 0,10         | 0,10 | <b>0,12</b>  | 0,15 | 0,11         | <b>0,13</b> | 0,17 | 0,12 | <b>0,14</b> | 0,19 | 0,14 | <b>0,16</b> | 0,20 | 0,16 | <b>0,18</b> | 0,22 |
| 2.4      |     |               |            |             |                    |             |      |              |             |              |      |              |      |              |             |      |      |             |      |      |             |      |      |             |      |
| 2.5      |     |               |            |             |                    |             |      |              |             |              |      |              |      |              |             |      |      |             |      |      |             |      |      |             |      |
| 2.6      |     |               |            |             |                    |             |      |              |             |              |      |              |      |              |             |      |      |             |      |      |             |      |      |             |      |
| <b>H</b> | 1.1 |               |            |             |                    |             |      |              |             |              |      |              |      |              |             |      |      |             |      |      |             |      |      |             |      |
|          | 1.2 |               |            |             |                    |             |      |              |             |              |      |              |      |              |             |      |      |             |      |      |             |      |      |             |      |
|          | 1.3 |               |            |             |                    |             |      |              |             |              |      |              |      |              |             |      |      |             |      |      |             |      |      |             |      |
|          | 1.4 |               |            |             |                    |             |      |              |             |              |      |              |      |              |             |      |      |             |      |      |             |      |      |             |      |
|          | 1.5 |               |            |             |                    |             |      |              |             |              |      |              |      |              |             |      |      |             |      |      |             |      |      |             |      |



# EF-Drill-HCUT

- Product Finder
- $v_c / f$**
- BASIC
- STEEL
- INOX
- GG
- HCUT
- SpotDrill
- Zubehör  
Accessories



3 x D

- 3 x D
- 5 x D
- 6 x D
- 8 x D
- 12 x D
- 2-3,5 x D



|     |     | D = 3,00 mm   |            |      | D = 5,00 mm        |             |      | D = 8,00 mm |             |      | D = 10,00 mm |             |      | D = 12,00 mm |             |      | D = 16,00 mm |             |      | D = 20,00 mm |             |      |      |             |      |
|-----|-----|---------------|------------|------|--------------------|-------------|------|-------------|-------------|------|--------------|-------------|------|--------------|-------------|------|--------------|-------------|------|--------------|-------------|------|------|-------------|------|
|     |     | $v_c$ [m/min] |            |      | f [mm/U · mm/rev.] |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |      |             |      |
|     |     | min.          | empf. rec. | max. | min.               | empf. rec.  | max. | min.        | empf. rec.  | max. | min.         | empf. rec.  | max. | min.         | empf. rec.  | max. | min.         | empf. rec.  | max. | min.         | empf. rec.  | max. |      |             |      |
| P   | 1.1 |               |            |      |                    |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |      |             |      |
|     | 2.1 |               |            |      |                    |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |      |             |      |
|     | 3.1 |               |            |      |                    |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |      |             |      |
|     | 4.1 |               |            |      |                    |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |      |             |      |
|     | 5.1 |               |            |      |                    |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |      |             |      |
| M   | 1.1 |               |            |      |                    |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |      |             |      |
|     | 2.1 |               |            |      |                    |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |      |             |      |
|     | 3.1 |               |            |      |                    |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |      |             |      |
|     | 4.1 |               |            |      |                    |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |      |             |      |
| K   | 1.1 |               |            |      |                    |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |      |             |      |
|     | 1.2 |               |            |      |                    |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |      |             |      |
|     | 2.1 |               |            |      |                    |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |      |             |      |
|     | 2.2 |               |            |      |                    |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |      |             |      |
|     | 3.1 |               |            |      |                    |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |      |             |      |
|     | 3.2 |               |            |      |                    |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |      |             |      |
|     | 4.1 |               |            |      |                    |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |      |             |      |
|     | 4.2 |               |            |      |                    |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |      |             |      |
| N   | 1.1 |               |            |      |                    |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |      |             |      |
|     | 1.2 |               |            |      |                    |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |      |             |      |
|     | 1.3 |               |            |      |                    |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |      |             |      |
|     | 1.4 |               |            |      |                    |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |      |             |      |
|     | 1.5 |               |            |      |                    |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |      |             |      |
|     | 1.6 |               |            |      |                    |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |      |             |      |
|     | 2.1 |               |            |      |                    |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |      |             |      |
|     | 2.2 |               |            |      |                    |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |      |             |      |
|     | 2.3 |               |            |      |                    |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |      |             |      |
|     | 2.4 |               |            |      |                    |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |      |             |      |
|     | 2.5 |               |            |      |                    |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |      |             |      |
|     | 2.6 |               |            |      |                    |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |      |             |      |
|     | 2.7 |               |            |      |                    |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |      |             |      |
|     | 2.8 |               |            |      |                    |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |      |             |      |
|     | 3.1 |               |            |      |                    |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |      |             |      |
| 3.2 |     |               |            |      |                    |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |      |             |      |
| 4.1 |     |               |            |      |                    |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |      |             |      |
| 4.2 |     |               |            |      |                    |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |      |             |      |
| 4.3 |     |               |            |      |                    |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |      |             |      |
| 4.4 |     |               |            |      |                    |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |      |             |      |
| 5.1 |     |               |            |      |                    |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |      |             |      |
| 5.2 |     |               |            |      |                    |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |      |             |      |
| 5.3 |     |               |            |      |                    |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |      |             |      |
| S   | 1.1 |               |            |      |                    |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |      |             |      |
|     | 1.2 |               |            |      |                    |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |      |             |      |
|     | 1.3 |               |            |      |                    |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |      |             |      |
|     | 2.1 |               |            |      |                    |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |      |             |      |
|     | 2.2 |               |            |      |                    |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |      |             |      |
|     | 2.3 |               |            |      |                    |             |      |             |             |      |              |             |      |              |             |      |              |             |      |              |             |      |      |             |      |
| H   | 1.1 | 30            | <b>35</b>  | 40   | 0,03               | <b>0,05</b> | 0,06 | 0,04        | <b>0,06</b> | 0,07 | 0,08         | <b>0,10</b> | 0,12 | 0,10         | <b>0,12</b> | 0,14 | 0,12         | <b>0,14</b> | 0,16 | 0,14         | <b>0,16</b> | 0,18 | 0,18 | <b>0,20</b> | 0,22 |
|     | 1.2 | 20            | <b>25</b>  | 30   | 0,03               | <b>0,05</b> | 0,06 | 0,04        | <b>0,06</b> | 0,07 | 0,08         | <b>0,10</b> | 0,12 | 0,10         | <b>0,12</b> | 0,14 | 0,12         | <b>0,14</b> | 0,16 | 0,14         | <b>0,16</b> | 0,18 | 0,18 | <b>0,20</b> | 0,22 |
|     | 1.3 | 15            | <b>20</b>  | 25   | 0,03               | <b>0,04</b> | 0,05 | 0,03        | <b>0,04</b> | 0,05 | 0,04         | <b>0,06</b> | 0,08 | 0,06         | <b>0,08</b> | 0,10 | 0,06         | <b>0,08</b> | 0,10 | 0,08         | <b>0,10</b> | 0,12 | 0,12 | <b>0,14</b> | 0,16 |
|     | 1.4 | 10            | <b>15</b>  | 20   | 0,02               | <b>0,03</b> | 0,04 | 0,03        | <b>0,04</b> | 0,05 | 0,03         | <b>0,04</b> | 0,05 | 0,04         | <b>0,05</b> | 0,06 | 0,04         | <b>0,05</b> | 0,06 | 0,05         | <b>0,06</b> | 0,07 | 0,09 | <b>0,10</b> | 0,11 |
|     | 1.5 | 8             | <b>12</b>  | 15   | 0,01               | <b>0,02</b> | 0,03 | 0,02        | <b>0,03</b> | 0,04 | 0,03         | <b>0,04</b> | 0,05 | 0,04         | <b>0,05</b> | 0,06 | 0,04         | <b>0,05</b> | 0,06 | 0,05         | <b>0,06</b> | 0,07 | 0,09 | <b>0,10</b> | 0,11 |



- Product Finder
- $v_c / f$
- BASIC
- STEEL
- INOX
- GG
- HCUT
- SpotDrill
- Zubehör  
Accessories
- 3 x D
- 5 x D
- 6 x D
- 8 x D
- 12 x D
- 2-3,5 x D

### EF-Drill-Micro-STEEL

VHM  
Carbide

TIALN

STEEL  
Steel  
materials

R30

Z2

2FF



140°



IT9-IT10

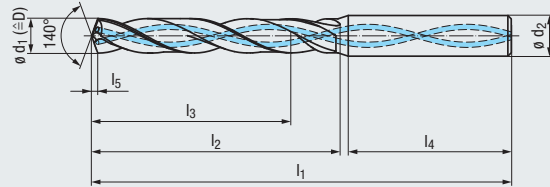
DIN 6535



HA



# 6 x D



Bohrtiefe  
Drill depth

# 6 x D

Einsatzgebiete – Material  
Applications – material



|                  |                  |                  |
|------------------|------------------|------------------|
| <b>P</b> 1.1-5.1 | <b>M</b> 1.1-4.1 | <b>K</b> 1.1-4.2 |
| <b>N</b> 1.1-1.6 | <b>N</b> 2.2-2.3 | <b>S</b> 1.2-1.3 |

| $\varnothing d_1$<br>k5 | Gewindebohrer<br>Taps    | Gewindeformer<br>Cold-forming taps |       |       |       |       |       |   | $\varnothing d_2$ | EF-Drill-Micro<br>STEEL-6xD | HA |
|-------------------------|--------------------------|------------------------------------|-------|-------|-------|-------|-------|---|-------------------|-----------------------------|----|
|                         |                          |                                    | $l_1$ | $l_2$ | $l_3$ | $l_4$ | $l_5$ |   |                   |                             |    |
| 0,75                    | M1                       |                                    | 51,5  | 5,7   | 4,5   | 28    | 0,105 | 3 | TE213324.0075     |                             |    |
| 0,80                    | M1x0,2                   |                                    | 51,5  | 6,1   | 4,8   | 28    | 0,112 | 3 | TE213324.0080     |                             |    |
| 0,85                    | M1,1                     |                                    | 51,5  | 6,5   | 5,1   | 28    | 0,119 | 3 | TE213324.0085     |                             |    |
| 0,90                    | M1,1x0,2                 | M1                                 | 51,5  | 6,9   | 5,4   | 28    | 0,126 | 3 | TE213324.0090     |                             |    |
| 0,95                    | M1,2                     |                                    | 51,5  | 7,3   | 5,7   | 28    | 0,132 | 3 | TE213324.0095     |                             |    |
| 1,00                    | M1,2x0,2                 | M1,1                               | 55    | 7,7   | 6     | 28    | 0,139 | 4 | TE213324.0100     |                             |    |
| 1,10                    | M1,4                     | M1,2                               | 55    | 8,5   | 6,6   | 28    | 0,153 | 4 | TE213324.0110     |                             |    |
| 1,20                    | M1,4x0,2                 |                                    | 55    | 9,3   | 7,2   | 28    | 0,167 | 4 | TE213324.0120     |                             |    |
| 1,25                    | M1,6 / #0-80             |                                    | 55    | 9,7   | 7,5   | 28    | 0,174 | 4 | TE213324.0125     |                             |    |
| 1,28                    |                          | M1,4                               | 55    | 9,7   | 7,7   | 28    | 0,178 | 4 | TE213324.0128     |                             |    |
| 1,30                    | MJ1,6x0,35               |                                    | 57    | 10,1  | 7,8   | 28    | 0,181 | 4 | TE213324.0130     |                             |    |
| 1,35                    | M1,7                     |                                    | 57    | 10,5  | 8,1   | 28    | 0,188 | 4 | TE213324.0135     |                             |    |
| 1,40                    | M1,6x0,2                 | #0-80                              | 57    | 10,9  | 8,4   | 28    | 0,195 | 4 | TE213324.0140     |                             |    |
| 1,45                    | M1,8                     |                                    | 57    | 11,3  | 8,7   | 28    | 0,202 | 4 | TE213324.0145     |                             |    |
| 1,47                    |                          | M1,6                               | 57    | 11,3  | 8,8   | 28    | 0,202 | 4 | TE213324.0147     |                             |    |
| 1,50                    |                          |                                    | 57    | 11,7  | 9     | 28    | 0,209 | 4 | TE213324.0150     |                             |    |
| 1,57                    |                          | M1,7                               | 59    | 11,7  | 9,4   | 28    | 0,219 | 4 | TE213324.0157     |                             |    |
| 1,60                    | M2 / M1,8x0,2            |                                    | 59    | 12,5  | 9,6   | 28    | 0,223 | 4 | TE213324.0160     |                             |    |
| 1,67                    |                          | M1,8                               | 59    | 12,5  | 10    | 28    | 0,233 | 4 | TE213324.0167     |                             |    |
| 1,70                    |                          | #1-64 / #1-72                      | 59    | 13,3  | 10,2  | 28    | 0,237 | 4 | TE213324.0170     |                             |    |
| 1,75                    | M2,2 / M2x0,25           |                                    | 59    | 13,7  | 10,5  | 28    | 0,244 | 4 | TE213324.0175     |                             |    |
| 1,80                    |                          |                                    | 61    | 14,1  | 10,8  | 28    | 0,251 | 4 | TE213324.0180     |                             |    |
| 1,85                    | #2-56 / #2-64            | M2                                 | 61    | 14,5  | 11,1  | 28    | 0,258 | 4 | TE213324.0185     |                             |    |
| 1,90                    | M2,3                     |                                    | 61    | 14,9  | 11,4  | 28    | 0,265 | 4 | TE213324.0190     |                             |    |
| 1,95                    | M2,2x0,25 / M2,3x0,35    |                                    | 61    | 15,3  | 11,7  | 28    | 0,272 | 4 | TE213324.0195     |                             |    |
| 2,00                    |                          | #2-56                              | 63    | 15,7  | 12    | 28    | 0,279 | 4 | TE213324.0200     |                             |    |
| 2,03                    |                          | M2,2                               | 63    | 15,7  | 12,2  | 28    | 0,283 | 4 | TE213324.0203     |                             |    |
| 2,05                    | M2,5 / M2,3x0,25         |                                    | 63    | 16,1  | 12,3  | 28    | 0,286 | 4 | TE213324.0205     |                             |    |
| 2,10                    | MJ2,5x0,45 / #3-48       |                                    | 63    | 16,5  | 12,6  | 28    | 0,293 | 4 | TE213324.0210     |                             |    |
| 2,15                    | M2,6 / M2,5x0,35 / #3-56 | M2,3                               | 63    | 16,9  | 12,9  | 28    | 0,300 | 4 | TE213324.0215     |                             |    |
| 2,20                    |                          |                                    | 63    | 17,3  | 13,2  | 28    | 0,307 | 4 | TE213324.0220     |                             |    |
| 2,30                    |                          | #3-48                              | 65    | 18,1  | 13,8  | 28    | 0,321 | 4 | TE213324.0230     |                             |    |
| 2,33                    |                          | M2,5                               | 65    | 18,1  | 14    | 28    | 0,325 | 4 | TE213324.0233     |                             |    |
| 2,40                    | #4-48                    |                                    | 65    | 18,9  | 14,4  | 28    | 0,335 | 4 | TE213324.0240     |                             |    |
| 2,43                    |                          | M2,6                               | 65    | 18,9  | 14,6  | 28    | 0,339 | 4 | TE213324.0243     |                             |    |
| 2,50                    | M3                       |                                    | 65    | 19,7  | 15    | 28    | 0,349 | 4 | TE213324.0250     |                             |    |
| 2,60                    | MJ3x0,5                  |                                    | 66,5  | 20,5  | 15,6  | 28    | 0,363 | 4 | TE213324.0260     |                             |    |
| 2,65                    | M3x0,35 / #5-40          |                                    | 66,5  | 20,9  | 15,9  | 28    | 0,370 | 4 | TE213324.0265     |                             |    |
| 2,70                    | #5-44                    |                                    | 66,5  | 21,3  | 16,2  | 28    | 0,377 | 4 | TE213324.0270     |                             |    |
| 2,80                    |                          | M3                                 | 68,5  | 22,1  | 16,8  | 28    | 0,390 | 4 | TE213324.0280     |                             |    |
| 2,90                    | M3,5                     | #5-40                              | 68,5  | 22,9  | 17,4  | 28    | 0,404 | 4 | TE213324.0290     |                             |    |
| 3,00                    | M3,5x0,5 / MJ3,5x0,6     |                                    | 73    | 23,7  | 18    | 36    | 0,418 | 4 | TE213324.0300     |                             |    |

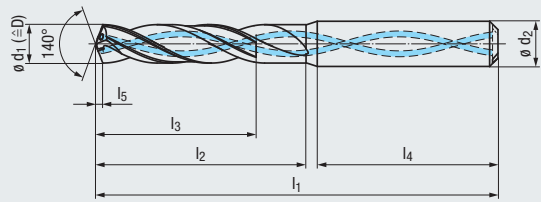


### BasicDrill-BD101

|             |          |
|-------------|----------|
| VHM Carbide | TIALN    |
| DIN 6537 K  | R30      |
| Z2          | 4FF      |
| 140°        | IT9-IT10 |
| DIN 6535    |          |
| HA          | HB       |
| HE          |          |

**BASIC**  
Universal application

## 3xD Kurze Ausführung Short design



Bohrtiefe  
Drill depth

Einsatzgebiete – Material  
Applications – material



**3 x D**

|           |                    |           |
|-----------|--------------------|-----------|
| P 1.1-5.1 | M 1.1-3.1          | K 1.1-4.2 |
| N 1.1-2.3 | S 1.2-1.3, 2.2-2.3 | H 1.1-1.3 |

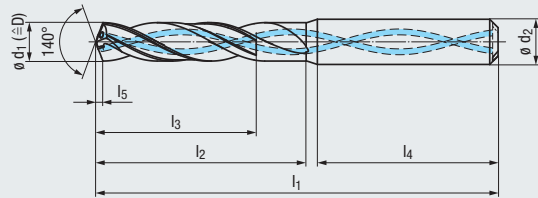
| ø d <sub>1</sub><br>m7 | Gewindebohrer<br>Taps   | Gewindeformer<br>Cold-forming taps | l <sub>1</sub> | l <sub>2</sub> | l <sub>3</sub> | l <sub>4</sub> | l <sub>5</sub> | ø d <sub>2</sub><br>h6 | BasicDrill<br>BD101-3xD | BasicDrill<br>BD101-3xD | BasicDrill<br>BD101-3xD |
|------------------------|-------------------------|------------------------------------|----------------|----------------|----------------|----------------|----------------|------------------------|-------------------------|-------------------------|-------------------------|
|                        |                         |                                    |                |                |                |                |                |                        | HA                      | HE                      | HB                      |
| 3,00                   | M3,5x0,5 / MJ3,5x0,6    |                                    | 62             | 20             | 14             | 36             | 0,5            | 6                      | TA201344.0300           | TA501344.0300           | TA601344.0300           |
| 3,10                   |                         |                                    | 62             | 20             | 14             | 36             | 0,5            | 6                      | TA201344.0310           | TA501344.0310           | TA601344.0310           |
| 3,15                   | M3,5x0,35               | #6-32                              | 62             | 20             | 14             | 36             | 0,5            | 6                      | TA201344.0315           | TA501344.0315           | TA601344.0315           |
| 3,18                   |                         |                                    | 62             | 20             | 14             | 36             | 0,5            | 6                      | TA201344.0318           | TA501344.0318           | TA601344.0318           |
| 3,20                   | MJ3,5x0,35              |                                    | 62             | 20             | 14             | 36             | 0,5            | 6                      | TA201344.0320           | TA501344.0320           | TA601344.0320           |
| 3,22                   |                         | #6-40                              | 62             | 20             | 14             | 36             | 0,5            | 6                      | TA201344.0322           | TA501344.0322           | TA601344.0322           |
| 3,25                   |                         | M3,5                               | 62             | 20             | 14             | 36             | 0,6            | 6                      | TA201344.0325           | TA501344.0325           | TA601344.0325           |
| 3,30                   | M4                      | M3,5x0,5                           | 62             | 20             | 14             | 36             | 0,6            | 6                      | TA201344.0330           | TA501344.0330           | TA601344.0330           |
| 3,35                   |                         |                                    | 62             | 20             | 14             | 36             | 0,6            | 6                      | TA201344.0335           | TA501344.0335           | TA601344.0335           |
| 3,38                   |                         | M3,5x0,35                          | 62             | 20             | 14             | 36             | 0,6            | 6                      | TA201344.0338           | TA501344.0338           | TA601344.0338           |
| 3,40                   | MJ4x0,7                 |                                    | 62             | 20             | 14             | 36             | 0,6            | 6                      | TA201344.0340           | TA501344.0340           | TA601344.0340           |
| 3,50                   | M4x0,5 / #8-32 / #8-36  |                                    | 62             | 20             | 14             | 36             | 0,6            | 6                      | TA201344.0350           | TA501344.0350           | TA601344.0350           |
| 3,57                   |                         |                                    | 62             | 20             | 14             | 36             | 0,6            | 6                      | TA201344.0357           | TA501344.0357           | TA601344.0357           |
| 3,60                   | MJ4x0,5                 |                                    | 62             | 20             | 14             | 36             | 0,6            | 6                      | TA201344.0360           | TA501344.0360           | TA601344.0360           |
| 3,65                   | M4x0,35                 |                                    | 62             | 20             | 14             | 36             | 0,6            | 6                      | TA201344.0365           | TA501344.0365           | TA601344.0365           |
| 3,70                   | M4,5                    | M4                                 | 62             | 20             | 14             | 36             | 0,6            | 6                      | TA201344.0370           | TA501344.0370           | TA601344.0370           |
| 3,80                   |                         | M4x0,5 / #8-32                     | 66             | 24             | 17             | 36             | 0,6            | 6                      | TA201344.0380           | TA501344.0380           | TA601344.0380           |
| 3,85                   |                         | #8-36                              | 66             | 24             | 17             | 36             | 0,7            | 6                      | TA201344.0385           | TA501344.0385           | TA601344.0385           |
| 3,88                   |                         | M4x0,35                            | 66             | 24             | 17             | 36             | 0,7            | 6                      | TA201344.0388           | TA501344.0388           | TA601344.0388           |
| 3,90                   | MJ4,5x0,75 / #10-24     |                                    | 66             | 24             | 17             | 36             | 0,7            | 6                      | TA201344.0390           | TA501344.0390           | TA601344.0390           |
| 3,97                   |                         |                                    | 66             | 24             | 17             | 36             | 0,7            | 6                      | TA201344.0397           | TA501344.0397           | TA601344.0397           |
| 4,00                   |                         |                                    | 66             | 24             | 17             | 36             | 0,7            | 6                      | TA201344.0400           | TA501344.0400           | TA601344.0400           |
| 4,04                   |                         |                                    | 66             | 24             | 17             | 36             | 0,7            | 6                      | TA201344.0404           | TA501344.0404           | TA601344.0404           |
| 4,10                   | MJ4,5x0,5 / #10-32      |                                    | 66             | 24             | 17             | 36             | 0,7            | 6                      | TA201344.0410           | TA501344.0410           | TA601344.0410           |
| 4,15                   | M5x0,9                  |                                    | 66             | 24             | 17             | 36             | 0,7            | 6                      | TA201344.0415           | TA501344.0415           | TA601344.0415           |
| 4,20                   | M5 / M5x0,75            | M4,5                               | 66             | 24             | 17             | 36             | 0,7            | 6                      | TA201344.0420           | TA501344.0420           | TA601344.0420           |
| 4,30                   | MJ5x0,8                 | M4,5x0,5 / #10-24 (GAL)            | 66             | 24             | 17             | 36             | 0,7            | 6                      | TA201344.0430           | TA501344.0430           | TA601344.0430           |
| 4,35                   |                         | #10-24                             | 66             | 24             | 17             | 36             | 0,7            | 6                      | TA201344.0435           | TA501344.0435           | TA601344.0435           |
| 4,37                   |                         |                                    | 66             | 24             | 17             | 36             | 0,7            | 6                      | TA201344.0437           | TA501344.0437           | TA601344.0437           |
| 4,40                   |                         |                                    | 66             | 24             | 17             | 36             | 0,7            | 6                      | TA201344.0440           | TA501344.0440           | TA601344.0440           |
| 4,45                   |                         | #10-32                             | 66             | 24             | 17             | 36             | 0,8            | 6                      | TA201344.0445           | TA501344.0445           | TA601344.0445           |
| 4,50                   | M5x0,5 / #12-24         |                                    | 66             | 24             | 17             | 36             | 0,8            | 6                      | TA201344.0450           | TA501344.0450           | TA601344.0450           |
| 4,60                   | M5,5 / MJ5x0,5 / #12-28 |                                    | 66             | 24             | 17             | 36             | 0,8            | 6                      | TA201344.0460           | TA501344.0460           | TA601344.0460           |
| 4,65                   |                         | M5                                 | 66             | 24             | 17             | 36             | 0,8            | 6                      | TA201344.0465           | TA501344.0465           | TA601344.0465           |
| 4,70                   |                         | M5x0,75                            | 66             | 24             | 17             | 36             | 0,8            | 6                      | TA201344.0470           | TA501344.0470           | TA601344.0470           |
| 4,76                   |                         |                                    | 66             | 28             | 20             | 36             | 0,8            | 6                      | TA201344.0476           | TA501344.0476           | TA601344.0476           |
| 4,80                   |                         | M5x0,5                             | 66             | 28             | 20             | 36             | 0,8            | 6                      | TA201344.0480           | TA501344.0480           | TA601344.0480           |
| 4,90                   |                         |                                    | 66             | 28             | 20             | 36             | 0,8            | 6                      | TA201344.0490           | TA501344.0490           | TA601344.0490           |
| 5,00                   | M6                      | #12-24                             | 66             | 28             | 20             | 36             | 0,8            | 6                      | TA201344.0500           | TA501344.0500           | TA601344.0500           |
| 5,10                   | MJ6x1 / 1/4-20          | M5,5 / #12-28                      | 66             | 28             | 20             | 36             | 0,9            | 6                      | TA201344.0510           | TA501344.0510           | TA601344.0510           |
| 5,11                   |                         |                                    | 66             | 28             | 20             | 36             | 0,9            | 6                      | TA201344.0511           | TA501344.0511           | TA601344.0511           |
| 5,16                   |                         |                                    | 66             | 28             | 20             | 36             | 0,9            | 6                      | TA201344.0516           | TA501344.0516           | TA601344.0516           |
| 5,20                   | M6x0,75                 |                                    | 66             | 28             | 20             | 36             | 0,9            | 6                      | TA201344.0520           | TA501344.0520           | TA601344.0520           |
| 5,30                   |                         | M5,5x0,5                           | 66             | 28             | 20             | 36             | 0,9            | 6                      | TA201344.0530           | TA501344.0530           | TA601344.0530           |
| 5,40                   |                         |                                    | 66             | 28             | 20             | 36             | 0,9            | 6                      | TA201344.0540           | TA501344.0540           | TA601344.0540           |
| 5,41                   |                         |                                    | 66             | 28             | 20             | 36             | 0,9            | 6                      | TA201344.0541           | TA501344.0541           | TA601344.0541           |
| 5,50                   | M6x0,5 / 1/4-28         |                                    | 66             | 28             | 20             | 36             | 0,9            | 6                      | TA201344.0550           | TA501344.0550           | TA601344.0550           |
| 5,55                   |                         | M6 (GAL)                           | 66             | 28             | 20             | 36             | 0,9            | 6                      | TA201344.0555           | TA501344.0555           | TA601344.0555           |
| 5,56                   |                         |                                    | 66             | 28             | 20             | 36             | 0,9            | 6                      | TA201344.0556           | TA501344.0556           | TA601344.0556           |
| 5,60                   | MJ6x0,5                 | M6                                 | 66             | 28             | 20             | 36             | 1,0            | 6                      | TA201344.0560           | TA501344.0560           | TA601344.0560           |
| 5,70                   |                         | M6x0,75 / 1/4-20 (GAL)             | 66             | 28             | 20             | 36             | 1,0            | 6                      | TA201344.0570           | TA501344.0570           | TA601344.0570           |
| 5,75                   |                         | 1/4-20                             | 66             | 28             | 20             | 36             | 1,0            | 6                      | TA201344.0575           | TA501344.0575           | TA601344.0575           |

ø 5,80 mm - ø 18,00 mm



### BasicDrill-BD101

**3 x D** Kurze Ausführung  
Short design



VHM  
Carbide

TIALN

DIN  
6537 K

R30

Z2



4FF



140°



DIN 6535



BASIC  
Universal  
application



**3 x D**

Bohrtiefe  
Drill depth

Einsatzgebiete – Material  
Applications – material



|                  |                           |                  |
|------------------|---------------------------|------------------|
| <b>P</b> 1.1-5.1 | <b>M</b> 1.1-3.1          | <b>K</b> 1.1-4.2 |
| <b>N</b> 1.1-2.3 | <b>S</b> 1.2-1.3, 2.2-2.3 | <b>H</b> 1.1-1.3 |

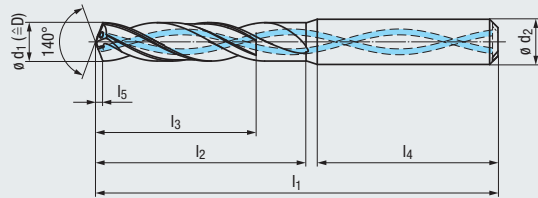
| Ø d <sub>1</sub><br>m7 | Gewindebohrer<br>Taps | Gewindeformer<br>Cold-forming taps |                |                |                |                |                | Ø d <sub>2</sub><br>h6 | BasicDrill<br>BD101-3xD | BasicDrill<br>BD101-3xD | BasicDrill<br>BD101-3xD |
|------------------------|-----------------------|------------------------------------|----------------|----------------|----------------|----------------|----------------|------------------------|-------------------------|-------------------------|-------------------------|
|                        |                       |                                    | l <sub>1</sub> | l <sub>2</sub> | l <sub>3</sub> | l <sub>4</sub> | l <sub>5</sub> |                        | HA                      | HE                      | HB                      |
| 5,80                   |                       | M6x0,5                             | 66             | 28             | 20             | 36             | 1,0            | 6                      | TA201344.0580           | TA501344.0580           | TA601344.0580           |
| 5,90                   |                       |                                    | 66             | 28             | 20             | 36             | 1,0            | 6                      | TA201344.0590           | TA501344.0590           | TA601344.0590           |
| 5,95                   |                       | 1/4-28                             | 66             | 28             | 20             | 36             | 1,0            | 6                      | TA201344.0595           | TA501344.0595           | TA601344.0595           |
| 6,00                   | M7                    |                                    | 66             | 28             | 20             | 36             | 1,0            | 6                      | TA201344.0600           | TA501344.0600           | TA601344.0600           |
| 6,10                   | MJ7x1                 |                                    | 79             | 34             | 24             | 36             | 1,0            | 8                      | TA201344.0610           | TA501344.0610           | TA601344.0610           |
| 6,20                   | M7x0,75               |                                    | 79             | 34             | 24             | 36             | 1,1            | 8                      | TA201344.0620           | TA501344.0620           | TA601344.0620           |
| 6,30                   |                       |                                    | 79             | 34             | 24             | 36             | 1,1            | 8                      | TA201344.0630           | TA501344.0630           | TA601344.0630           |
| 6,35                   | MJ7x0,75              |                                    | 79             | 34             | 24             | 36             | 1,1            | 8                      | TA201344.0635           | TA501344.0635           | TA601344.0635           |
| 6,40                   |                       |                                    | 79             | 34             | 24             | 36             | 1,1            | 8                      | TA201344.0640           | TA501344.0640           | TA601344.0640           |
| 6,50                   | M7x0,5                |                                    | 79             | 34             | 24             | 36             | 1,1            | 8                      | TA201344.0650           | TA501344.0650           | TA601344.0650           |
| 6,53                   |                       |                                    | 79             | 34             | 24             | 36             | 1,1            | 8                      | TA201344.0653           | TA501344.0653           | TA601344.0653           |
| 6,60                   | 5/16-18               | M7                                 | 79             | 34             | 24             | 36             | 1,1            | 8                      | TA201344.0660           | TA501344.0660           | TA601344.0660           |
| 6,70                   |                       | M7x0,75                            | 79             | 34             | 24             | 36             | 1,1            | 8                      | TA201344.0670           | TA501344.0670           | TA601344.0670           |
| 6,75                   |                       |                                    | 79             | 34             | 24             | 36             | 1,1            | 8                      | TA201344.0675           | TA501344.0675           | TA601344.0675           |
| 6,80                   | M8 / G1/16            | M7x0,5                             | 79             | 34             | 24             | 36             | 1,2            | 8                      | TA201344.0680           | TA501344.0680           | TA601344.0680           |
| 6,90                   | MJ8x1,25 / 5/16-24    |                                    | 79             | 34             | 24             | 36             | 1,2            | 8                      | TA201344.0690           | TA501344.0690           | TA601344.0690           |
| 7,00                   | M8x1                  |                                    | 79             | 34             | 24             | 36             | 1,2            | 8                      | TA201344.0700           | TA501344.0700           | TA601344.0700           |
| 7,10                   | MJ8x1                 |                                    | 79             | 41             | 29             | 36             | 1,2            | 8                      | TA201344.0710           | TA501344.0710           | TA601344.0710           |
| 7,15                   |                       |                                    | 79             | 41             | 29             | 36             | 1,2            | 8                      | TA201344.0715           | TA501344.0715           | TA601344.0715           |
| 7,20                   | M8x0,75               |                                    | 79             | 41             | 29             | 36             | 1,2            | 8                      | TA201344.0720           | TA501344.0720           | TA601344.0720           |
| 7,25                   |                       | 5/16-18 (GAL) / G1/16              | 79             | 41             | 29             | 36             | 1,2            | 8                      | TA201344.0725           | TA501344.0725           | TA601344.0725           |
| 7,30                   |                       | 5/16-18                            | 79             | 41             | 29             | 36             | 1,2            | 8                      | TA201344.0730           | TA501344.0730           | TA601344.0730           |
| 7,40                   |                       | M8 (GAL) / 5/16-24 (GAL)           | 79             | 41             | 29             | 36             | 1,3            | 8                      | TA201344.0740           | TA501344.0740           | TA601344.0740           |
| 7,45                   |                       | M8 / 5/16-24                       | 79             | 41             | 29             | 36             | 1,3            | 8                      | TA201344.0745           | TA501344.0745           | TA601344.0745           |
| 7,50                   | M8x0,5                |                                    | 79             | 41             | 29             | 36             | 1,3            | 8                      | TA201344.0750           | TA501344.0750           | TA601344.0750           |
| 7,54                   |                       |                                    | 79             | 41             | 29             | 36             | 1,3            | 8                      | TA201344.0754           | TA501344.0754           | TA601344.0754           |
| 7,60                   |                       | M8x1                               | 79             | 41             | 29             | 36             | 1,3            | 8                      | TA201344.0760           | TA501344.0760           | TA601344.0760           |
| 7,70                   |                       | M8x0,75                            | 79             | 41             | 29             | 36             | 1,3            | 8                      | TA201344.0770           | TA501344.0770           | TA601344.0770           |
| 7,80                   | M9                    | M8x0,5                             | 79             | 41             | 29             | 36             | 1,3            | 8                      | TA201344.0780           | TA501344.0780           | TA601344.0780           |
| 7,90                   | MJ9x1,25              |                                    | 79             | 41             | 29             | 36             | 1,3            | 8                      | TA201344.0790           | TA501344.0790           | TA601344.0790           |
| 7,94                   |                       |                                    | 79             | 41             | 29             | 36             | 1,3            | 8                      | TA201344.0794           | TA501344.0794           | TA601344.0794           |
| 8,00                   | M9x1 / 3/8-16         |                                    | 79             | 41             | 29             | 36             | 1,4            | 8                      | TA201344.0800           | TA501344.0800           | TA601344.0800           |
| 8,10                   | MJ9x1                 |                                    | 89             | 47             | 35             | 40             | 1,4            | 10                     | TA201344.0810           | TA501344.0810           | TA601344.0810           |
| 8,20                   | M9x0,75               |                                    | 89             | 47             | 35             | 40             | 1,4            | 10                     | TA201344.0820           | TA501344.0820           | TA601344.0820           |
| 8,30                   |                       |                                    | 89             | 47             | 35             | 40             | 1,4            | 10                     | TA201344.0830           | TA501344.0830           | TA601344.0830           |
| 8,33                   |                       |                                    | 89             | 47             | 35             | 40             | 1,4            | 10                     | TA201344.0833           | TA501344.0833           | TA601344.0833           |
| 8,40                   |                       | M9 (GAL)                           | 89             | 47             | 35             | 40             | 1,4            | 10                     | TA201344.0840           | TA501344.0840           | TA601344.0840           |
| 8,45                   |                       | M9                                 | 89             | 47             | 35             | 40             | 1,4            | 10                     | TA201344.0845           | TA501344.0845           | TA601344.0845           |
| 8,50                   | M10 / M9x0,5 / 3/8-24 |                                    | 89             | 47             | 35             | 40             | 1,4            | 10                     | TA201344.0850           | TA501344.0850           | TA601344.0850           |
| 8,60                   | MJ10x1,5              | M9x1                               | 89             | 47             | 35             | 40             | 1,5            | 10                     | TA201344.0860           | TA501344.0860           | TA601344.0860           |
| 8,70                   |                       | M9x0,75                            | 89             | 47             | 35             | 40             | 1,5            | 10                     | TA201344.0870           | TA501344.0870           | TA601344.0870           |
| 8,73                   |                       |                                    | 89             | 47             | 35             | 40             | 1,5            | 10                     | TA201344.0873           | TA501344.0873           | TA601344.0873           |
| 8,80                   | M10x1,25 / G1/8       | M9x0,5 / 3/8-16                    | 89             | 47             | 35             | 40             | 1,5            | 10                     | TA201344.0880           | TA501344.0880           | TA601344.0880           |
| 8,90                   | MJ10x1,25             |                                    | 89             | 47             | 35             | 40             | 1,5            | 10                     | TA201344.0890           | TA501344.0890           | TA601344.0890           |
| 9,00                   | M10x1                 | 3/8-24 (GAL)                       | 89             | 47             | 35             | 40             | 1,5            | 10                     | TA201344.0900           | TA501344.0900           | TA601344.0900           |
| 9,05                   |                       | 3/8-24                             | 89             | 47             | 35             | 40             | 1,5            | 10                     | TA201344.0905           | TA501344.0905           | TA601344.0905           |
| 9,10                   | MJ10x1                |                                    | 89             | 47             | 35             | 40             | 1,5            | 10                     | TA201344.0910           | TA501344.0910           | TA601344.0910           |
| 9,13                   |                       |                                    | 89             | 47             | 35             | 40             | 1,5            | 10                     | TA201344.0913           | TA501344.0913           | TA601344.0913           |
| 9,20                   | M10x0,75              |                                    | 89             | 47             | 35             | 40             | 1,6            | 10                     | TA201344.0920           | TA501344.0920           | TA601344.0920           |
| 9,30                   |                       | M10 (GAL)                          | 89             | 47             | 35             | 40             | 1,6            | 10                     | TA201344.0930           | TA501344.0930           | TA601344.0930           |
| 9,35                   | MJ10x0,75             | M10                                | 89             | 47             | 35             | 40             | 1,6            | 10                     | TA201344.0935           | TA501344.0935           | TA601344.0935           |
| 9,40                   | 7/16-14               | M10x1,25 (GAL)                     | 89             | 47             | 35             | 40             | 1,6            | 10                     | TA201344.0940           | TA501344.0940           | TA601344.0940           |

### BasicDrill-BD101

|             |          |
|-------------|----------|
| VHM Carbide | TIALN    |
| DIN 6537 K  | R30      |
| Z2          | 4FF      |
| 140°        | IT9-IT10 |
| DIN 6535    |          |
| HA          | HB       |
| HE          |          |

**BASIC**  
Universal application

## 3xD Kurze Ausführung Short design



Bohrtiefe  
Drill depth

### 3 x D

Einsatzgebiete – Material  
Applications – material

14

|                  |                           |                  |
|------------------|---------------------------|------------------|
| <b>P</b> 1.1-5.1 | <b>M</b> 1.1-3.1          | <b>K</b> 1.1-4.2 |
| <b>N</b> 1.1-2.3 | <b>S</b> 1.2-1.3, 2.2-2.3 | <b>H</b> 1.1-1.3 |

| Ø d <sub>1</sub><br>m7 | Gewindebohrer<br>Taps | Gewindeformer<br>Cold-forming taps | l <sub>1</sub> | l <sub>2</sub> | l <sub>3</sub> | l <sub>4</sub> | l <sub>5</sub> | Ø d <sub>2</sub><br>h6 | BasicDrill<br>BD101-3xD | BasicDrill<br>BD101-3xD | BasicDrill<br>BD101-3xD |
|------------------------|-----------------------|------------------------------------|----------------|----------------|----------------|----------------|----------------|------------------------|-------------------------|-------------------------|-------------------------|
|                        |                       |                                    |                |                |                |                |                |                        | HA                      | HE                      | HB                      |
| 9,45                   |                       | M10x1,25                           | 89             | 47             | 35             | 40             | 1,6            | 10                     | TA201344.0945           | TA501344.0945           | TA601344.0945           |
| 9,50                   | M11 / M10x0,5         |                                    | 89             | 47             | 35             | 40             | 1,6            | 10                     | TA201344.0950           | TA501344.0950           | TA601344.0950           |
| 9,53                   |                       |                                    | 89             | 47             | 35             | 40             | 1,6            | 10                     | TA201344.0953           | TA501344.0953           | TA601344.0953           |
| 9,60                   | MJ10x0,5 / MJ11x1,5   | M10x1                              | 89             | 47             | 35             | 40             | 1,6            | 10                     | TA201344.0960           | TA501344.0960           | TA601344.0960           |
| 9,70                   |                       | M10x0,75                           | 89             | 47             | 35             | 40             | 1,6            | 10                     | TA201344.0970           | TA501344.0970           | TA601344.0970           |
| 9,80                   |                       | M10x0,5                            | 89             | 47             | 35             | 40             | 1,7            | 10                     | TA201344.0980           | TA501344.0980           | TA601344.0980           |
| 9,90                   | MJ11x1,25 / 7/16-20   |                                    | 89             | 47             | 35             | 40             | 1,7            | 10                     | TA201344.0990           | TA501344.0990           | TA601344.0990           |
| 9,92                   |                       |                                    | 89             | 47             | 35             | 40             | 1,7            | 10                     | TA201344.0992           | TA501344.0992           | TA601344.0992           |
| 10,00                  | M11x1                 |                                    | 89             | 47             | 35             | 40             | 1,7            | 10                     | TA201344.1000           | TA501344.1000           | TA601344.1000           |
| 10,10                  | MJ11x1                |                                    | 102            | 55             | 40             | 45             | 1,7            | 12                     | TA201344.1010           | TA501344.1010           | TA601344.1010           |
| 10,20                  | M12 / M11x0,75        | 7/16-14 (GAL)                      | 102            | 55             | 40             | 45             | 1,7            | 12                     | TA201344.1020           | TA501344.1020           | TA601344.1020           |
| 10,25                  |                       | 7/16-14                            | 102            | 55             | 40             | 45             | 1,7            | 12                     | TA201344.1025           | TA501344.1025           | TA601344.1025           |
| 10,30                  |                       | M11 (GAL)                          | 102            | 55             | 40             | 45             | 1,7            | 12                     | TA201344.1030           | TA501344.1030           | TA601344.1030           |
| 10,32                  |                       |                                    | 102            | 55             | 40             | 45             | 1,8            | 12                     | TA201344.1032           | TA501344.1032           | TA601344.1032           |
| 10,35                  | MJ11x0,75             | M11                                | 102            | 55             | 40             | 45             | 1,8            | 12                     | TA201344.1035           | TA501344.1035           | TA601344.1035           |
| 10,40                  |                       |                                    | 102            | 55             | 40             | 45             | 1,8            | 12                     | TA201344.1040           | TA501344.1040           | TA601344.1040           |
| 10,50                  | M12x1,5               | 7/16-20 (GAL)                      | 102            | 55             | 40             | 45             | 1,8            | 12                     | TA201344.1050           | TA501344.1050           | TA601344.1050           |
| 10,55                  |                       | M11x1 (GAL) / 7/16-20              | 102            | 55             | 40             | 45             | 1,8            | 12                     | TA201344.1055           | TA501344.1055           | TA601344.1055           |
| 10,72                  |                       |                                    | 102            | 55             | 40             | 45             | 1,8            | 12                     | TA201344.1072           | TA501344.1072           | TA601344.1072           |
| 10,80                  | M12x1,25 / 1/2-13     |                                    | 102            | 55             | 40             | 45             | 1,8            | 12                     | TA201344.1080           | TA501344.1080           | TA601344.1080           |
| 10,90                  | MJ12x1,25             |                                    | 102            | 55             | 40             | 45             | 1,8            | 12                     | TA201344.1090           | TA501344.1090           | TA601344.1090           |
| 11,00                  | M12x1                 |                                    | 102            | 55             | 40             | 45             | 1,9            | 12                     | TA201344.1100           | TA501344.1100           | TA601344.1100           |
| 11,11                  |                       |                                    | 102            | 55             | 40             | 45             | 1,9            | 12                     | TA201344.1111           | TA501344.1111           | TA601344.1111           |
| 11,20                  | M12x0,75              | M12 (GAL)                          | 102            | 55             | 40             | 45             | 1,9            | 12                     | TA201344.1120           | TA501344.1120           | TA601344.1120           |
| 11,25                  |                       | M12                                | 102            | 55             | 40             | 45             | 1,9            | 12                     | TA201344.1125           | TA501344.1125           | TA601344.1125           |
| 11,30                  |                       | M12x1,5 (GAL)                      | 102            | 55             | 40             | 45             | 1,9            | 12                     | TA201344.1130           | TA501344.1130           | TA601344.1130           |
| 11,35                  |                       | M12x1,5                            | 102            | 55             | 40             | 45             | 1,9            | 12                     | TA201344.1135           | TA501344.1135           | TA601344.1135           |
| 11,40                  |                       | M12x1,25 (GAL)                     | 102            | 55             | 40             | 45             | 1,9            | 12                     | TA201344.1140           | TA501344.1140           | TA601344.1140           |
| 11,45                  |                       | M12x1,25                           | 102            | 55             | 40             | 45             | 1,9            | 12                     | TA201344.1145           | TA501344.1145           | TA601344.1145           |
| 11,50                  | 1/2-20                |                                    | 102            | 55             | 40             | 45             | 2,0            | 12                     | TA201344.1150           | TA501344.1150           | TA601344.1150           |
| 11,51                  |                       |                                    | 102            | 55             | 40             | 45             | 2,0            | 12                     | TA201344.1151           | TA501344.1151           | TA601344.1151           |
| 11,60                  |                       | M12x1                              | 102            | 55             | 40             | 45             | 2,0            | 12                     | TA201344.1160           | TA501344.1160           | TA601344.1160           |
| 11,80                  | G1/4                  | 1/2-13                             | 102            | 55             | 40             | 45             | 2,0            | 12                     | TA201344.1180           | TA501344.1180           | TA601344.1180           |
| 11,90                  |                       |                                    | 102            | 55             | 40             | 45             | 2,0            | 12                     | TA201344.1190           | TA501344.1190           | TA601344.1190           |
| 11,91                  |                       |                                    | 102            | 55             | 40             | 45             | 2,0            | 12                     | TA201344.1191           | TA501344.1191           | TA601344.1191           |
| 12,00                  | M14                   |                                    | 102            | 55             | 40             | 45             | 2,0            | 12                     | TA201344.1200           | TA501344.1200           | TA601344.1200           |
| 12,10                  | MJ13x1                | 1/2-20 (GAL)                       | 107            | 60             | 43             | 45             | 2,1            | 14                     | TA201344.1210           | TA501344.1210           | TA601344.1210           |
| 12,15                  |                       | 1/2-20                             | 107            | 60             | 43             | 45             | 2,1            | 14                     | TA201344.1215           | TA501344.1215           | TA601344.1215           |
| 12,20                  | 9/16-12               |                                    | 107            | 60             | 43             | 45             | 2,1            | 14                     | TA201344.1220           | TA501344.1220           | TA601344.1220           |
| 12,30                  |                       |                                    | 107            | 60             | 43             | 45             | 2,1            | 14                     | TA201344.1230           | TA501344.1230           | TA601344.1230           |
| 12,50                  | M14x1,5               | G1/4 (GAL)                         | 107            | 60             | 43             | 45             | 2,1            | 14                     | TA201344.1250           | TA501344.1250           | TA601344.1250           |
| 12,55                  |                       | M13x1 (GAL) / G1/4                 | 107            | 60             | 43             | 45             | 2,1            | 14                     | TA201344.1255           | TA501344.1255           | TA601344.1255           |
| 12,60                  | MJ14x1,5              | M13x1                              | 107            | 60             | 43             | 45             | 2,1            | 14                     | TA201344.1260           | TA501344.1260           | TA601344.1260           |
| 12,70                  |                       | M13x0,75                           | 107            | 60             | 43             | 45             | 2,2            | 14                     | TA201344.1270           | TA501344.1270           | TA601344.1270           |
| 12,80                  | M14x1,25              |                                    | 107            | 60             | 43             | 45             | 2,2            | 14                     | TA201344.1280           | TA501344.1280           | TA601344.1280           |
| 12,90                  | MJ14x1,25 / 9/16-18   |                                    | 107            | 60             | 43             | 45             | 2,2            | 14                     | TA201344.1290           | TA501344.1290           | TA601344.1290           |
| 13,00                  | M14x1                 |                                    | 107            | 60             | 43             | 45             | 2,2            | 14                     | TA201344.1300           | TA501344.1300           | TA601344.1300           |
| 13,10                  | MJ14x1                | M14                                | 107            | 60             | 43             | 45             | 2,2            | 14                     | TA201344.1310           | TA501344.1310           | TA601344.1310           |
| 13,30                  |                       | 9/16-12                            | 107            | 60             | 43             | 45             | 2,3            | 14                     | TA201344.1330           | TA501344.1330           | TA601344.1330           |
| 13,35                  |                       | M14x1,5                            | 107            | 60             | 43             | 45             | 2,3            | 14                     | TA201344.1335           | TA501344.1335           | TA601344.1335           |
| 13,45                  |                       | M14x1,25                           | 107            | 60             | 43             | 45             | 2,3            | 14                     | TA201344.1345           | TA501344.1345           | TA601344.1345           |
| 13,49                  |                       |                                    | 107            | 60             | 43             | 45             | 2,3            | 14                     | TA201344.1349           | TA501344.1349           | TA601344.1349           |

Ø 13,50 mm - Ø 18,00 mm

Product Finder

v<sub>c</sub> / f

BASIC

STEEL

INOX

G

HCUT

SpotDrill

Zubehör  
Accessories

3 x D

5 x D

6 x D

8 x D

12 x D

2-3,5 x D

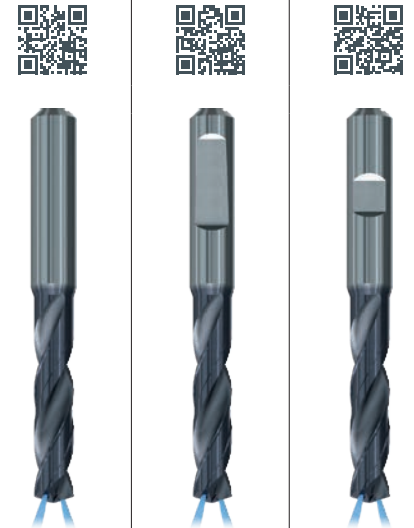


- Product Finder
- $v_c / f$
- BASIC
- STEEL
- INOX
- GG
- HCUT
- SpotDrill
- Zubehör  
Accessories
- 3 x D
- 5 x D
- 6 x D
- 8 x D
- 12 x D
- 2-3,5 x D

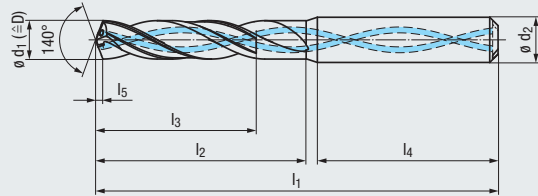
## BasicDrill-BD101

|   |          |
|---|----------|
| VHM<br>Carbide  | TIALN    |
| DIN<br>6537 K   | R30      |
| Z2  | 4FF      |
| 140°  | IT9-IT10 |
| DIN 6535  |          |
| <input type="checkbox"/> HA<br><input type="checkbox"/> HB<br><input type="checkbox"/> HE |          |

**BASIC**  
Universal  
application



**3 x D** Kurze Ausführung  
Short design



Bohrtiefe  
Drill depth

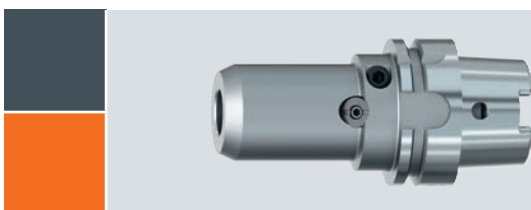
**3 x D**

Einsatzgebiete – Material  
Applications – material

|                  |                           |                  |
|------------------|---------------------------|------------------|
| <b>P</b> 1.1-5.1 | <b>M</b> 1.1-3.1          | <b>K</b> 1.1-4.2 |
| <b>N</b> 1.1-2.3 | <b>S</b> 1.2-1.3, 2.2-2.3 | <b>H</b> 1.1-1.3 |

| $\emptyset d_1$<br>m7 | Gewindebohrer<br>Taps | Gewindeformer<br>Cold-forming taps |                |                |                |                |                | $\emptyset d_2$<br>h6 | BasicDrill<br>BD101-3xD | BasicDrill<br>BD101-3xD | BasicDrill<br>BD101-3xD |
|-----------------------|-----------------------|------------------------------------|----------------|----------------|----------------|----------------|----------------|-----------------------|-------------------------|-------------------------|-------------------------|
|                       |                       |                                    | l <sub>1</sub> | l <sub>2</sub> | l <sub>3</sub> | l <sub>4</sub> | l <sub>5</sub> |                       | HA                      | HE                      | HB                      |
| 13,50                 | 5/8-11                |                                    | 107            | 60             | 43             | 45             | 2,3            | 14                    | TA201344.1350           | TA501344.1350           | TA601344.1350           |
| 13,60                 | MJ15x1,5              | M14x1 / 9/16-18 (GAL)              | 107            | 60             | 43             | 45             | 2,3            | 14                    | TA201344.1360           | TA501344.1360           | TA601344.1360           |
| 13,65                 |                       | 9/16-18                            | 107            | 60             | 43             | 45             | 2,3            | 14                    | TA201344.1365           | TA501344.1365           | TA601344.1365           |
| 13,70                 |                       | M14x0,75                           | 107            | 60             | 43             | 45             | 2,3            | 14                    | TA201344.1370           | TA501344.1370           | TA601344.1370           |
| 13,80                 |                       |                                    | 107            | 60             | 43             | 45             | 2,3            | 14                    | TA201344.1380           | TA501344.1380           | TA601344.1380           |
| 13,89                 |                       |                                    | 107            | 60             | 43             | 45             | 2,4            | 14                    | TA201344.1389           | TA501344.1389           | TA601344.1389           |
| 14,00                 | M16 / M15x1           |                                    | 107            | 60             | 43             | 45             | 2,4            | 14                    | TA201344.1400           | TA501344.1400           | TA601344.1400           |
| 14,10                 | MJ15x1                |                                    | 115            | 65             | 45             | 48             | 2,4            | 16                    | TA201344.1410           | TA501344.1410           | TA601344.1410           |
| 14,20                 | M15x0,75              |                                    | 115            | 65             | 45             | 48             | 2,4            | 16                    | TA201344.1420           | TA501344.1420           | TA601344.1420           |
| 14,29                 |                       |                                    | 115            | 65             | 45             | 48             | 2,4            | 16                    | TA201344.1429           | TA501344.1429           | TA601344.1429           |
| 14,50                 | M16x1,5 / 5/8-18      |                                    | 115            | 65             | 45             | 48             | 2,5            | 16                    | TA201344.1450           | TA501344.1450           | TA601344.1450           |
| 14,60                 | MJ16x1,5              | M15x1                              | 115            | 65             | 45             | 48             | 2,5            | 16                    | TA201344.1460           | TA501344.1460           | TA601344.1460           |
| 14,68                 |                       |                                    | 115            | 65             | 45             | 48             | 2,5            | 16                    | TA201344.1468           | TA501344.1468           | TA601344.1468           |
| 14,70                 |                       | M15x0,75                           | 115            | 65             | 45             | 48             | 2,5            | 16                    | TA201344.1470           | TA501344.1470           | TA601344.1470           |
| 14,80                 |                       | 5/8-11                             | 115            | 65             | 45             | 48             | 2,5            | 16                    | TA201344.1480           | TA501344.1480           | TA601344.1480           |
| 15,00                 | M16x1                 |                                    | 115            | 65             | 45             | 48             | 2,5            | 16                    | TA201344.1500           | TA501344.1500           | TA601344.1500           |
| 15,08                 |                       |                                    | 115            | 65             | 45             | 48             | 2,6            | 16                    | TA201344.1508           | TA501344.1508           | TA601344.1508           |
| 15,10                 | MJ16x1                | M16                                | 115            | 65             | 45             | 48             | 2,6            | 16                    | TA201344.1510           | TA501344.1510           | TA601344.1510           |
| 15,20                 | M16x0,75              | 5/8-18 (GAL)                       | 115            | 65             | 45             | 48             | 2,6            | 16                    | TA201344.1520           | TA501344.1520           | TA601344.1520           |
| 15,25                 | G3/8                  | 5/8-18                             | 115            | 65             | 45             | 48             | 2,6            | 16                    | TA201344.1525           | TA501344.1525           | TA601344.1525           |
| 15,35                 |                       | M16x1,5                            | 115            | 65             | 45             | 48             | 2,6            | 16                    | TA201344.1535           | TA501344.1535           | TA601344.1535           |
| 15,50                 | M18                   |                                    | 115            | 65             | 45             | 48             | 2,6            | 16                    | TA201344.1550           | TA501344.1550           | TA601344.1550           |
| 15,60                 |                       | M16x1                              | 115            | 65             | 45             | 48             | 2,6            | 16                    | TA201344.1560           | TA501344.1560           | TA601344.1560           |
| 15,80                 | MJ18x2,5              |                                    | 115            | 65             | 45             | 48             | 2,7            | 16                    | TA201344.1580           | TA501344.1580           | TA601344.1580           |
| 15,88                 |                       |                                    | 115            | 65             | 45             | 48             | 2,7            | 16                    | TA201344.1588           | TA501344.1588           | TA601344.1588           |
| 16,00                 | M18x2                 |                                    | 115            | 65             | 45             | 48             | 2,7            | 16                    | TA201344.1600           | TA501344.1600           | TA601344.1600           |
| 16,27                 |                       |                                    | 123            | 73             | 51             | 48             | 2,8            | 18                    | TA201344.1627           | TA501344.1627           | TA601344.1627           |
| 16,50                 | M18x1,5 / 3/4-10      |                                    | 123            | 73             | 51             | 48             | 2,8            | 18                    | TA201344.1650           | TA501344.1650           | TA601344.1650           |
| 16,67                 |                       |                                    | 123            | 73             | 51             | 48             | 2,8            | 18                    | TA201344.1667           | TA501344.1667           | TA601344.1667           |
| 17,00                 | M18x1                 |                                    | 123            | 73             | 51             | 48             | 2,9            | 18                    | TA201344.1700           | TA501344.1700           | TA601344.1700           |
| 17,46                 |                       |                                    | 123            | 73             | 51             | 48             | 3,0            | 18                    | TA201344.1746           | TA501344.1746           | TA601344.1746           |
| 17,50                 | M20 / 3/4-16          |                                    | 123            | 73             | 51             | 48             | 3,0            | 18                    | TA201344.1750           | TA501344.1750           | TA601344.1750           |
| 18,00                 | M20x2                 |                                    | 123            | 73             | 51             | 48             | 3,1            | 18                    | TA201344.1800           | TA501344.1800           | TA601344.1800           |

←  $\emptyset$  3,00 mm -  $\emptyset$  13,49 mm



Hydrodehnspannfutter  
siehe Seite 68 - 69

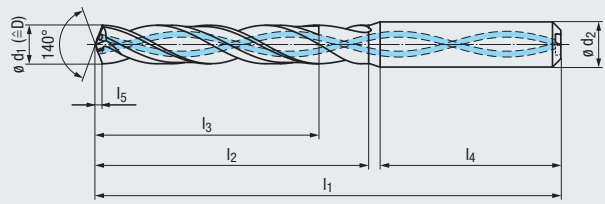
Hydraulic expansion chucks,  
see page 68 - 69

### BasicDrill-BD101

|             |          |
|-------------|----------|
| VHM Carbide | TIALN    |
| DIN 6537 L  | R30      |
| Z2          | 4FF      |
| 140°        | IT9-IT10 |
| DIN 6535    |          |
| HA          | HB       |
| HE          |          |

**BASIC**  
Universal application

**5 x D** Lange Ausführung  
Long design



Bohrtiefe  
Drill depth

**5 x D**

Einsatzgebiete – Material  
Applications – material

|           |                    |           |
|-----------|--------------------|-----------|
| P 1.1-5.1 | M 1.1-3.1          | K 1.1-4.2 |
| N 1.1-2.3 | S 1.2-1.3, 2.2-2.3 | H 1.1-1.3 |

| $\phi d_1$<br>m7 | Gewindebohrer<br>Taps   | Gewindeformer<br>Cold-forming taps |       |       |       |       |       | $\phi d_2$<br>h6 | BasicDrill<br>BD101-5xD | BasicDrill<br>BD101-5xD | BasicDrill<br>BD101-5xD |
|------------------|-------------------------|------------------------------------|-------|-------|-------|-------|-------|------------------|-------------------------|-------------------------|-------------------------|
|                  |                         |                                    | $l_1$ | $l_2$ | $l_3$ | $l_4$ | $l_5$ |                  | HA                      | HE                      | HB                      |
| 3,00             | M3,5x0,5 / MJ3,5x0,6    |                                    | 66    | 28    | 23    | 36    | 0,5   | 6                | TA211344.0300           | TA511344.0300           | TA611344.0300           |
| 3,10             |                         |                                    | 66    | 28    | 23    | 36    | 0,5   | 6                | TA211344.0310           | TA511344.0310           | TA611344.0310           |
| 3,15             | M3,5x0,35               | #6-32                              | 66    | 28    | 23    | 36    | 0,5   | 6                | TA211344.0315           | TA511344.0315           | TA611344.0315           |
| 3,18             |                         |                                    | 66    | 28    | 23    | 36    | 0,5   | 6                | TA211344.0318           | TA511344.0318           | TA611344.0318           |
| 3,20             | MJ3,5x0,35              |                                    | 66    | 28    | 23    | 36    | 0,5   | 6                | TA211344.0320           | TA511344.0320           | TA611344.0320           |
| 3,22             |                         | #6-40                              | 66    | 28    | 23    | 36    | 0,5   | 6                | TA211344.0322           | TA511344.0322           | TA611344.0322           |
| 3,25             |                         | M3,5                               | 66    | 28    | 23    | 36    | 0,6   | 6                | TA211344.0325           | TA511344.0325           | TA611344.0325           |
| 3,30             | M4                      | M3,5x0,5                           | 66    | 28    | 23    | 36    | 0,6   | 6                | TA211344.0330           | TA511344.0330           | TA611344.0330           |
| 3,35             |                         |                                    | 66    | 28    | 23    | 36    | 0,6   | 6                | TA211344.0335           | TA511344.0335           | TA611344.0335           |
| 3,38             |                         | M3,5x0,35                          | 66    | 28    | 23    | 36    | 0,6   | 6                | TA211344.0338           | TA511344.0338           | TA611344.0338           |
| 3,40             | MJ4x0,7                 |                                    | 66    | 28    | 23    | 36    | 0,6   | 6                | TA211344.0340           | TA511344.0340           | TA611344.0340           |
| 3,50             | M4x0,5 / #8-32 / #8-36  |                                    | 66    | 28    | 23    | 36    | 0,6   | 6                | TA211344.0350           | TA511344.0350           | TA611344.0350           |
| 3,57             |                         |                                    | 66    | 28    | 23    | 36    | 0,6   | 6                | TA211344.0357           | TA511344.0357           | TA611344.0357           |
| 3,60             | MJ4x0,5                 |                                    | 66    | 28    | 23    | 36    | 0,6   | 6                | TA211344.0360           | TA511344.0360           | TA611344.0360           |
| 3,65             | M4x0,35                 |                                    | 66    | 28    | 23    | 36    | 0,6   | 6                | TA211344.0365           | TA511344.0365           | TA611344.0365           |
| 3,70             | M4,5                    | M4                                 | 66    | 28    | 23    | 36    | 0,6   | 6                | TA211344.0370           | TA511344.0370           | TA611344.0370           |
| 3,80             |                         | M4x0,5 / #8-32                     | 74    | 36    | 29    | 36    | 0,6   | 6                | TA211344.0380           | TA511344.0380           | TA611344.0380           |
| 3,85             |                         | #8-36                              | 74    | 36    | 29    | 36    | 0,7   | 6                | TA211344.0385           | TA511344.0385           | TA611344.0385           |
| 3,88             |                         | M4x0,35                            | 74    | 36    | 29    | 36    | 0,7   | 6                | TA211344.0388           | TA511344.0388           | TA611344.0388           |
| 3,90             | MJ4,5x0,75 / #10-24     |                                    | 74    | 36    | 29    | 36    | 0,7   | 6                | TA211344.0390           | TA511344.0390           | TA611344.0390           |
| 3,97             |                         |                                    | 74    | 36    | 29    | 36    | 0,7   | 6                | TA211344.0397           | TA511344.0397           | TA611344.0397           |
| 4,00             |                         |                                    | 74    | 36    | 29    | 36    | 0,7   | 6                | TA211344.0400           | TA511344.0400           | TA611344.0400           |
| 4,04             |                         |                                    | 74    | 36    | 29    | 36    | 0,7   | 6                | TA211344.0404           | TA511344.0404           | TA611344.0404           |
| 4,10             | MJ4,5x0,5 / #10-32      |                                    | 74    | 36    | 29    | 36    | 0,7   | 6                | TA211344.0410           | TA511344.0410           | TA611344.0410           |
| 4,15             | M5x0,9                  |                                    | 74    | 36    | 29    | 36    | 0,7   | 6                | TA211344.0415           | TA511344.0415           | TA611344.0415           |
| 4,20             | M5 / M5x0,75            | M4,5                               | 74    | 36    | 29    | 36    | 0,7   | 6                | TA211344.0420           | TA511344.0420           | TA611344.0420           |
| 4,30             | MJ5x0,8                 | M4,5x0,5 / #10-24 (GAL)            | 74    | 36    | 29    | 36    | 0,7   | 6                | TA211344.0430           | TA511344.0430           | TA611344.0430           |
| 4,35             |                         | #10-24                             | 74    | 36    | 29    | 36    | 0,7   | 6                | TA211344.0435           | TA511344.0435           | TA611344.0435           |
| 4,37             |                         |                                    | 74    | 36    | 29    | 36    | 0,7   | 6                | TA211344.0437           | TA511344.0437           | TA611344.0437           |
| 4,40             |                         |                                    | 74    | 36    | 29    | 36    | 0,7   | 6                | TA211344.0440           | TA511344.0440           | TA611344.0440           |
| 4,45             |                         | #10-32                             | 74    | 36    | 29    | 36    | 0,8   | 6                | TA211344.0445           | TA511344.0445           | TA611344.0445           |
| 4,50             | M5x0,5 / #12-24         |                                    | 74    | 36    | 29    | 36    | 0,8   | 6                | TA211344.0450           | TA511344.0450           | TA611344.0450           |
| 4,60             | M5,5 / MJ5x0,5 / #12-28 |                                    | 74    | 36    | 29    | 36    | 0,8   | 6                | TA211344.0460           | TA511344.0460           | TA611344.0460           |
| 4,65             |                         | M5                                 | 74    | 36    | 29    | 36    | 0,8   | 6                | TA211344.0465           | TA511344.0465           | TA611344.0465           |
| 4,70             |                         | M5x0,75                            | 74    | 36    | 29    | 36    | 0,8   | 6                | TA211344.0470           | TA511344.0470           | TA611344.0470           |
| 4,76             |                         |                                    | 82    | 44    | 35    | 36    | 0,8   | 6                | TA211344.0476           | TA511344.0476           | TA611344.0476           |
| 4,80             |                         | M5x0,5                             | 82    | 44    | 35    | 36    | 0,8   | 6                | TA211344.0480           | TA511344.0480           | TA611344.0480           |
| 4,90             |                         |                                    | 82    | 44    | 35    | 36    | 0,8   | 6                | TA211344.0490           | TA511344.0490           | TA611344.0490           |
| 5,00             | M6                      | #12-24                             | 82    | 44    | 35    | 36    | 0,8   | 6                | TA211344.0500           | TA511344.0500           | TA611344.0500           |
| 5,10             | MJ6x1 / 1/4-20          | M5,5 / #12-28                      | 82    | 44    | 35    | 36    | 0,9   | 6                | TA211344.0510           | TA511344.0510           | TA611344.0510           |
| 5,11             |                         |                                    | 82    | 44    | 35    | 36    | 0,9   | 6                | TA211344.0511           | TA511344.0511           | TA611344.0511           |
| 5,16             |                         |                                    | 82    | 44    | 35    | 36    | 0,9   | 6                | TA211344.0516           | TA511344.0516           | TA611344.0516           |
| 5,20             | M6x0,75                 |                                    | 82    | 44    | 35    | 36    | 0,9   | 6                | TA211344.0520           | TA511344.0520           | TA611344.0520           |
| 5,30             |                         | M5,5x0,5                           | 82    | 44    | 35    | 36    | 0,9   | 6                | TA211344.0530           | TA511344.0530           | TA611344.0530           |
| 5,40             |                         |                                    | 82    | 44    | 35    | 36    | 0,9   | 6                | TA211344.0540           | TA511344.0540           | TA611344.0540           |
| 5,41             |                         |                                    | 82    | 44    | 35    | 36    | 0,9   | 6                | TA211344.0541           | TA511344.0541           | TA611344.0541           |
| 5,50             | M6x0,5 / 1/4-28         |                                    | 82    | 44    | 35    | 36    | 0,9   | 6                | TA211344.0550           | TA511344.0550           | TA611344.0550           |
| 5,55             |                         | M6 (GAL)                           | 82    | 44    | 35    | 36    | 0,9   | 6                | TA211344.0555           | TA511344.0555           | TA611344.0555           |
| 5,56             |                         |                                    | 82    | 44    | 35    | 36    | 0,9   | 6                | TA211344.0556           | TA511344.0556           | TA611344.0556           |

$\phi$  5,60 mm -  $\phi$  18,00 mm



Product Finder

$v_c / f$

BASIC

STEEL

INOX

G

HCUT

SpotDrill

Zubehör  
Accessories

3 x D

5 x D

6 x D

8 x D

12 x D

2-3,5 x D



### BasicDrill-BD101

VHM  
Carbide

TIALN

DIN  
6537 L

R30

Z2



4FF



140°



DIN 6535

HA

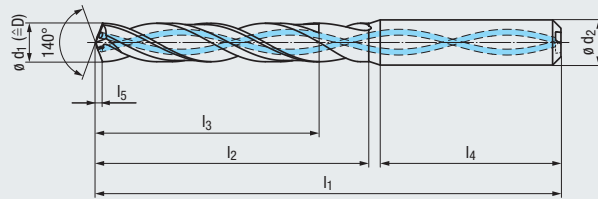
HB

HE

BASIC  
Universal  
application



**5 x D** Lange Ausführung  
Long design



Bohrtiefe  
Drill depth

**5 x D**

Einsatzgebiete – Material  
Applications – material



|                  |                           |                  |
|------------------|---------------------------|------------------|
| <b>P</b> 1.1-5.1 | <b>M</b> 1.1-3.1          | <b>K</b> 1.1-4.2 |
| <b>N</b> 1.1-2.3 | <b>S</b> 1.2-1.3, 2.2-2.3 | <b>H</b> 1.1-1.3 |

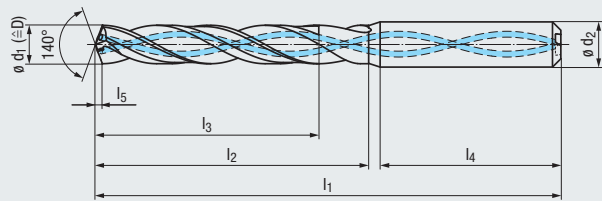
| Ø d <sub>1</sub><br>m7 | Gewindebohrer<br>Taps | Gewindeformer<br>Cold-forming taps |     |    |    |    |     | Ø d <sub>2</sub><br>h6 | BasicDrill<br>BD101-5xD | BasicDrill<br>BD101-5xD | BasicDrill<br>BD101-5xD |
|------------------------|-----------------------|------------------------------------|-----|----|----|----|-----|------------------------|-------------------------|-------------------------|-------------------------|
|                        |                       |                                    | HA  | HE | HB |    |     |                        |                         |                         |                         |
| 5,60                   | MJ6x0,5               | M6                                 | 82  | 44 | 35 | 36 | 1,0 | 6                      | TA211344.0560           | TA511344.0560           | TA611344.0560           |
| 5,70                   |                       | M6x0,75 / 1/4-20 (GAL)             | 82  | 44 | 35 | 36 | 1,0 | 6                      | TA211344.0570           | TA511344.0570           | TA611344.0570           |
| 5,75                   |                       | 1/4-20                             | 82  | 44 | 35 | 36 | 1,0 | 6                      | TA211344.0575           | TA511344.0575           | TA611344.0575           |
| 5,80                   |                       | M6x0,5                             | 82  | 44 | 35 | 36 | 1,0 | 6                      | TA211344.0580           | TA511344.0580           | TA611344.0580           |
| 5,90                   |                       |                                    | 82  | 44 | 35 | 36 | 1,0 | 6                      | TA211344.0590           | TA511344.0590           | TA611344.0590           |
| 5,95                   |                       | 1/4-28                             | 82  | 44 | 35 | 36 | 1,0 | 6                      | TA211344.0595           | TA511344.0595           | TA611344.0595           |
| 6,00                   | M7                    |                                    | 82  | 44 | 35 | 36 | 1,0 | 6                      | TA211344.0600           | TA511344.0600           | TA611344.0600           |
| 6,10                   | MJ7x1                 |                                    | 91  | 53 | 43 | 36 | 1,0 | 8                      | TA211344.0610           | TA511344.0610           | TA611344.0610           |
| 6,20                   | M7x0,75               |                                    | 91  | 53 | 43 | 36 | 1,1 | 8                      | TA211344.0620           | TA511344.0620           | TA611344.0620           |
| 6,30                   |                       |                                    | 91  | 53 | 43 | 36 | 1,1 | 8                      | TA211344.0630           | TA511344.0630           | TA611344.0630           |
| 6,35                   | MJ7x0,75              |                                    | 91  | 53 | 43 | 36 | 1,1 | 8                      | TA211344.0635           | TA511344.0635           | TA611344.0635           |
| 6,40                   |                       |                                    | 91  | 53 | 43 | 36 | 1,1 | 8                      | TA211344.0640           | TA511344.0640           | TA611344.0640           |
| 6,50                   | M7x0,5                |                                    | 91  | 53 | 43 | 36 | 1,1 | 8                      | TA211344.0650           | TA511344.0650           | TA611344.0650           |
| 6,53                   |                       |                                    | 91  | 53 | 43 | 36 | 1,1 | 8                      | TA211344.0653           | TA511344.0653           | TA611344.0653           |
| 6,60                   | 5/16-18               | M7                                 | 91  | 53 | 43 | 36 | 1,1 | 8                      | TA211344.0660           | TA511344.0660           | TA611344.0660           |
| 6,70                   |                       | M7x0,75                            | 91  | 53 | 43 | 36 | 1,1 | 8                      | TA211344.0670           | TA511344.0670           | TA611344.0670           |
| 6,75                   |                       |                                    | 91  | 53 | 43 | 36 | 1,1 | 8                      | TA211344.0675           | TA511344.0675           | TA611344.0675           |
| 6,80                   | M8 / G1/16            | M7x0,5                             | 91  | 53 | 43 | 36 | 1,2 | 8                      | TA211344.0680           | TA511344.0680           | TA611344.0680           |
| 6,90                   | MJ8x1,25 / 5/16-24    |                                    | 91  | 53 | 43 | 36 | 1,2 | 8                      | TA211344.0690           | TA511344.0690           | TA611344.0690           |
| 7,00                   | M8x1                  |                                    | 91  | 53 | 43 | 36 | 1,2 | 8                      | TA211344.0700           | TA511344.0700           | TA611344.0700           |
| 7,10                   | MJ8x1                 |                                    | 91  | 53 | 43 | 36 | 1,2 | 8                      | TA211344.0710           | TA511344.0710           | TA611344.0710           |
| 7,15                   |                       |                                    | 91  | 53 | 43 | 36 | 1,2 | 8                      | TA211344.0715           | TA511344.0715           | TA611344.0715           |
| 7,20                   | M8x0,75               |                                    | 91  | 53 | 43 | 36 | 1,2 | 8                      | TA211344.0720           | TA511344.0720           | TA611344.0720           |
| 7,25                   |                       | 5/16-18 (GAL) / G1/16              | 91  | 53 | 43 | 36 | 1,2 | 8                      | TA211344.0725           | TA511344.0725           | TA611344.0725           |
| 7,30                   |                       | 5/16-18                            | 91  | 53 | 43 | 36 | 1,2 | 8                      | TA211344.0730           | TA511344.0730           | TA611344.0730           |
| 7,40                   |                       | M8 (GAL) / 5/16-24 (GAL)           | 91  | 53 | 43 | 36 | 1,3 | 8                      | TA211344.0740           | TA511344.0740           | TA611344.0740           |
| 7,45                   |                       | M8 / 5/16-24                       | 91  | 53 | 43 | 36 | 1,3 | 8                      | TA211344.0745           | TA511344.0745           | TA611344.0745           |
| 7,50                   | M8x0,5                |                                    | 91  | 53 | 43 | 36 | 1,3 | 8                      | TA211344.0750           | TA511344.0750           | TA611344.0750           |
| 7,54                   |                       |                                    | 91  | 53 | 43 | 36 | 1,3 | 8                      | TA211344.0754           | TA511344.0754           | TA611344.0754           |
| 7,60                   |                       | M8x1                               | 91  | 53 | 43 | 36 | 1,3 | 8                      | TA211344.0760           | TA511344.0760           | TA611344.0760           |
| 7,70                   |                       | M8x0,75                            | 91  | 53 | 43 | 36 | 1,3 | 8                      | TA211344.0770           | TA511344.0770           | TA611344.0770           |
| 7,80                   | M9                    | M8x0,5                             | 91  | 53 | 43 | 36 | 1,3 | 8                      | TA211344.0780           | TA511344.0780           | TA611344.0780           |
| 7,90                   | MJ9x1,25              |                                    | 91  | 53 | 43 | 36 | 1,3 | 8                      | TA211344.0790           | TA511344.0790           | TA611344.0790           |
| 7,94                   |                       |                                    | 91  | 53 | 43 | 36 | 1,3 | 8                      | TA211344.0794           | TA511344.0794           | TA611344.0794           |
| 8,00                   | M9x1 / 3/8-16         |                                    | 91  | 53 | 43 | 36 | 1,4 | 8                      | TA211344.0800           | TA511344.0800           | TA611344.0800           |
| 8,10                   | MJ9x1                 |                                    | 103 | 61 | 49 | 40 | 1,4 | 10                     | TA211344.0810           | TA511344.0810           | TA611344.0810           |
| 8,20                   | M9x0,75               |                                    | 103 | 61 | 49 | 40 | 1,4 | 10                     | TA211344.0820           | TA511344.0820           | TA611344.0820           |
| 8,30                   |                       |                                    | 103 | 61 | 49 | 40 | 1,4 | 10                     | TA211344.0830           | TA511344.0830           | TA611344.0830           |
| 8,33                   |                       |                                    | 103 | 61 | 49 | 40 | 1,4 | 10                     | TA211344.0833           | TA511344.0833           | TA611344.0833           |
| 8,40                   |                       | M9 (GAL)                           | 103 | 61 | 49 | 40 | 1,4 | 10                     | TA211344.0840           | TA511344.0840           | TA611344.0840           |
| 8,45                   |                       | M9                                 | 103 | 61 | 49 | 40 | 1,4 | 10                     | TA211344.0845           | TA511344.0845           | TA611344.0845           |
| 8,50                   | M10 / M9x0,5 / 3/8-24 |                                    | 103 | 61 | 49 | 40 | 1,4 | 10                     | TA211344.0850           | TA511344.0850           | TA611344.0850           |
| 8,60                   | MJ10x1,5              | M9x1                               | 103 | 61 | 49 | 40 | 1,5 | 10                     | TA211344.0860           | TA511344.0860           | TA611344.0860           |
| 8,70                   |                       | M9x0,75                            | 103 | 61 | 49 | 40 | 1,5 | 10                     | TA211344.0870           | TA511344.0870           | TA611344.0870           |
| 8,73                   |                       |                                    | 103 | 61 | 49 | 40 | 1,5 | 10                     | TA211344.0873           | TA511344.0873           | TA611344.0873           |
| 8,80                   | M10x1,25 / G1/8       | M9x0,5 / 3/8-16                    | 103 | 61 | 49 | 40 | 1,5 | 10                     | TA211344.0880           | TA511344.0880           | TA611344.0880           |
| 8,90                   | MJ10x1,25             |                                    | 103 | 61 | 49 | 40 | 1,5 | 10                     | TA211344.0890           | TA511344.0890           | TA611344.0890           |
| 9,00                   | M10x1                 | 3/8-24 (GAL)                       | 103 | 61 | 49 | 40 | 1,5 | 10                     | TA211344.0900           | TA511344.0900           | TA611344.0900           |
| 9,05                   |                       | 3/8-24                             | 103 | 61 | 49 | 40 | 1,5 | 10                     | TA211344.0905           | TA511344.0905           | TA611344.0905           |

### BasicDrill-BD101

|             |          |
|-------------|----------|
| VHM Carbide | TIALN    |
| DIN 6537 L  | R30      |
| Z2          | 4FF      |
| 140°        | IT9-IT10 |
| DIN 6535    |          |
| HA          | HB       |
| HE          |          |

**BASIC**  
Universal application

**5 x D** Lange Ausführung  
Long design



Bohrtiefe  
Drill depth

Einsatzgebiete – Material  
Applications – material



|           |                    |           |
|-----------|--------------------|-----------|
| P 1.1-5.1 | M 1.1-3.1          | K 1.1-4.2 |
| N 1.1-2.3 | S 1.2-1.3, 2.2-2.3 | H 1.1-1.3 |

| ø d <sub>1</sub><br>m7 | Gewindebohrer<br>Taps | Gewindeformer<br>Cold-forming taps | l <sub>1</sub> | l <sub>2</sub> | l <sub>3</sub> | l <sub>4</sub> | l <sub>5</sub> | ø d <sub>2</sub><br>h6 | BasicDrill<br>BD101-5xD | BasicDrill<br>BD101-5xD | BasicDrill<br>BD101-5xD |
|------------------------|-----------------------|------------------------------------|----------------|----------------|----------------|----------------|----------------|------------------------|-------------------------|-------------------------|-------------------------|
|                        |                       |                                    |                |                |                |                |                |                        | HA                      | HE                      | HB                      |
| 9,10                   | MJ10x1                |                                    | 103            | 61             | 49             | 40             | 1,5            | 10                     | TA211344.0910           | TA511344.0910           | TA611344.0910           |
| 9,13                   |                       |                                    | 103            | 61             | 49             | 40             | 1,5            | 10                     | TA211344.0913           | TA511344.0913           | TA611344.0913           |
| 9,20                   | M10x0,75              |                                    | 103            | 61             | 49             | 40             | 1,6            | 10                     | TA211344.0920           | TA511344.0920           | TA611344.0920           |
| 9,30                   |                       | M10 (GAL)                          | 103            | 61             | 49             | 40             | 1,6            | 10                     | TA211344.0930           | TA511344.0930           | TA611344.0930           |
| 9,35                   | MJ10x0,75             | M10                                | 103            | 61             | 49             | 40             | 1,6            | 10                     | TA211344.0935           | TA511344.0935           | TA611344.0935           |
| 9,40                   | 7/16-14               | M10x1,25 (GAL)                     | 103            | 61             | 49             | 40             | 1,6            | 10                     | TA211344.0940           | TA511344.0940           | TA611344.0940           |
| 9,45                   |                       | M10x1,25                           | 103            | 61             | 49             | 40             | 1,6            | 10                     | TA211344.0945           | TA511344.0945           | TA611344.0945           |
| 9,50                   | M11 / M10x0,5         |                                    | 103            | 61             | 49             | 40             | 1,6            | 10                     | TA211344.0950           | TA511344.0950           | TA611344.0950           |
| 9,53                   |                       |                                    | 103            | 61             | 49             | 40             | 1,6            | 10                     | TA211344.0953           | TA511344.0953           | TA611344.0953           |
| 9,60                   | MJ10x0,5 / MJ11x1,5   | M10x1                              | 103            | 61             | 49             | 40             | 1,6            | 10                     | TA211344.0960           | TA511344.0960           | TA611344.0960           |
| 9,70                   |                       | M10x0,75                           | 103            | 61             | 49             | 40             | 1,6            | 10                     | TA211344.0970           | TA511344.0970           | TA611344.0970           |
| 9,80                   |                       | M10x0,5                            | 103            | 61             | 49             | 40             | 1,7            | 10                     | TA211344.0980           | TA511344.0980           | TA611344.0980           |
| 9,90                   | MJ11x1,25 / 7/16-20   |                                    | 103            | 61             | 49             | 40             | 1,7            | 10                     | TA211344.0990           | TA511344.0990           | TA611344.0990           |
| 9,92                   |                       |                                    | 103            | 61             | 49             | 40             | 1,7            | 10                     | TA211344.0992           | TA511344.0992           | TA611344.0992           |
| 10,00                  | M11x1                 |                                    | 103            | 61             | 49             | 40             | 1,7            | 10                     | TA211344.1000           | TA511344.1000           | TA611344.1000           |
| 10,10                  | MJ11x1                |                                    | 118            | 71             | 56             | 45             | 1,7            | 12                     | TA211344.1010           | TA511344.1010           | TA611344.1010           |
| 10,20                  | M12 / M11x0,75        | 7/16-14 (GAL)                      | 118            | 71             | 56             | 45             | 1,7            | 12                     | TA211344.1020           | TA511344.1020           | TA611344.1020           |
| 10,25                  |                       | 7/16-14                            | 118            | 71             | 56             | 45             | 1,7            | 12                     | TA211344.1025           | TA511344.1025           | TA611344.1025           |
| 10,30                  |                       | M11 (GAL)                          | 118            | 71             | 56             | 45             | 1,7            | 12                     | TA211344.1030           | TA511344.1030           | TA611344.1030           |
| 10,32                  |                       |                                    | 118            | 71             | 56             | 45             | 1,8            | 12                     | TA211344.1032           | TA511344.1032           | TA611344.1032           |
| 10,35                  | MJ11x0,75             | M11                                | 118            | 71             | 56             | 45             | 1,8            | 12                     | TA211344.1035           | TA511344.1035           | TA611344.1035           |
| 10,40                  |                       |                                    | 118            | 71             | 56             | 45             | 1,8            | 12                     | TA211344.1040           | TA511344.1040           | TA611344.1040           |
| 10,50                  | M12x1,5               | 7/16-20 (GAL)                      | 118            | 71             | 56             | 45             | 1,8            | 12                     | TA211344.1050           | TA511344.1050           | TA611344.1050           |
| 10,55                  |                       | M11x1 (GAL) / 7/16-20              | 118            | 71             | 56             | 45             | 1,8            | 12                     | TA211344.1055           | TA511344.1055           | TA611344.1055           |
| 10,72                  |                       |                                    | 118            | 71             | 56             | 45             | 1,8            | 12                     | TA211344.1072           | TA511344.1072           | TA611344.1072           |
| 10,80                  | M12x1,25 / 1/2-13     |                                    | 118            | 71             | 56             | 45             | 1,8            | 12                     | TA211344.1080           | TA511344.1080           | TA611344.1080           |
| 10,90                  | MJ12x1,25             |                                    | 118            | 71             | 56             | 45             | 1,8            | 12                     | TA211344.1090           | TA511344.1090           | TA611344.1090           |
| 11,00                  | M12x1                 |                                    | 118            | 71             | 56             | 45             | 1,9            | 12                     | TA211344.1100           | TA511344.1100           | TA611344.1100           |
| 11,11                  |                       |                                    | 118            | 71             | 56             | 45             | 1,9            | 12                     | TA211344.1111           | TA511344.1111           | TA611344.1111           |
| 11,20                  | M12x0,75              | M12 (GAL)                          | 118            | 71             | 56             | 45             | 1,9            | 12                     | TA211344.1120           | TA511344.1120           | TA611344.1120           |
| 11,25                  |                       | M12                                | 118            | 71             | 56             | 45             | 1,9            | 12                     | TA211344.1125           | TA511344.1125           | TA611344.1125           |
| 11,30                  |                       | M12x1,5 (GAL)                      | 118            | 71             | 56             | 45             | 1,9            | 12                     | TA211344.1130           | TA511344.1130           | TA611344.1130           |
| 11,35                  |                       | M12x1,5                            | 118            | 71             | 56             | 45             | 1,9            | 12                     | TA211344.1135           | TA511344.1135           | TA611344.1135           |
| 11,40                  |                       | M12x1,25 (GAL)                     | 118            | 71             | 56             | 45             | 1,9            | 12                     | TA211344.1140           | TA511344.1140           | TA611344.1140           |
| 11,45                  |                       | M12x1,25                           | 118            | 71             | 56             | 45             | 1,9            | 12                     | TA211344.1145           | TA511344.1145           | TA611344.1145           |
| 11,50                  | 1/2-20                |                                    | 118            | 71             | 56             | 45             | 2,0            | 12                     | TA211344.1150           | TA511344.1150           | TA611344.1150           |
| 11,51                  |                       |                                    | 118            | 71             | 56             | 45             | 2,0            | 12                     | TA211344.1151           | TA511344.1151           | TA611344.1151           |
| 11,60                  |                       | M12x1                              | 118            | 71             | 56             | 45             | 2,0            | 12                     | TA211344.1160           | TA511344.1160           | TA611344.1160           |
| 11,80                  | G1/4                  | 1/2-13                             | 118            | 71             | 56             | 45             | 2,0            | 12                     | TA211344.1180           | TA511344.1180           | TA611344.1180           |
| 11,90                  |                       |                                    | 118            | 71             | 56             | 45             | 2,0            | 12                     | TA211344.1190           | TA511344.1190           | TA611344.1190           |
| 11,91                  |                       |                                    | 118            | 71             | 56             | 45             | 2,0            | 12                     | TA211344.1191           | TA511344.1191           | TA611344.1191           |
| 12,00                  | M14                   |                                    | 118            | 71             | 56             | 45             | 2,0            | 12                     | TA211344.1200           | TA511344.1200           | TA611344.1200           |
| 12,10                  | MJ13x1                | 1/2-20 (GAL)                       | 124            | 77             | 60             | 45             | 2,1            | 14                     | TA211344.1210           | TA511344.1210           | TA611344.1210           |
| 12,15                  |                       | 1/2-20                             | 124            | 77             | 60             | 45             | 2,1            | 14                     | TA211344.1215           | TA511344.1215           | TA611344.1215           |
| 12,20                  |                       |                                    | 124            | 77             | 60             | 45             | 2,1            | 14                     | TA211344.1220           | TA511344.1220           | TA611344.1220           |
| 12,30                  |                       |                                    | 124            | 77             | 60             | 45             | 2,1            | 14                     | TA211344.1230           | TA511344.1230           | TA611344.1230           |
| 12,50                  | M14x1,5               | G1/4 (GAL)                         | 124            | 77             | 60             | 45             | 2,1            | 14                     | TA211344.1250           | TA511344.1250           | TA611344.1250           |
| 12,55                  |                       | M13x1 (GAL) / G1/4                 | 124            | 77             | 60             | 45             | 2,1            | 14                     | TA211344.1255           | TA511344.1255           | TA611344.1255           |
| 12,60                  | MJ14x1,5              | M13x1                              | 124            | 77             | 60             | 45             | 2,1            | 14                     | TA211344.1260           | TA511344.1260           | TA611344.1260           |

ø 12,70 mm - ø 18,00 mm



Product Finder

v<sub>c</sub> / f

BASIC

STEEL

INOX

G

HCUT

SpotDrill

Zubehör  
Accessories

3 x D

5 x D

6 x D

8 x D

12 x D

2-3,5 x D



- Product Finder
- $v_c / f$
- BASIC
- STEEL
- INOX
- GG
- HCUT
- SpotDrill
- Zubehör  
Accessories
- 3 x D
- 5 x D
- 6 x D
- 8 x D
- 12 x D
- 2-3,5 x D

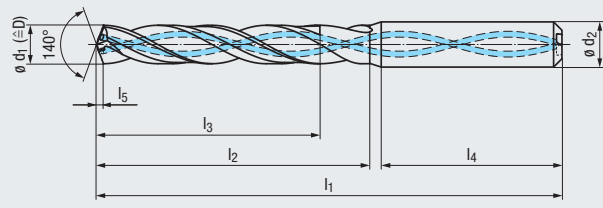
## BasicDrill-BD101

|   |                     |
|---|---------------------|
| <b>VHM<br/>Carbide</b>  | <b>TIALN</b>        |
| <b>DIN<br/>6537 L</b>   | <b>R30</b>          |
| <b>Z2</b><br>   | <b>4FF</b><br>      |
| <b>140°</b><br>   | <b>IT9-IT10</b><br> |
| <b>DIN 6535</b>   |                     |
| <div style="display: flex; justify-content: space-around; font-size: 8px;"> <span> HA</span> <span> HB</span> <span> HE</span> </div> |                     |

**BASIC**  
Universal application



**5 x D** Lange Ausführung  
Long design



Bohrtiefe  
Drill depth

**5 x D**

Einsatzgebiete – Material  
Applications – material



|                  |                           |                  |
|------------------|---------------------------|------------------|
| <b>P</b> 1.1-5.1 | <b>M</b> 1.1-3.1          | <b>K</b> 1.1-4.2 |
| <b>N</b> 1.1-2.3 | <b>S</b> 1.2-1.3, 2.2-2.3 | <b>H</b> 1.1-1.3 |

| $\phi d_1$<br>m7 | Gewindebohrer<br>Taps | Gewindeformer<br>Cold-forming taps |       |       |       |       |       | $\phi d_2$<br>h6 | BasicDrill<br>BD101-5xD | BasicDrill<br>BD101-5xD | BasicDrill<br>BD101-5xD |
|------------------|-----------------------|------------------------------------|-------|-------|-------|-------|-------|------------------|-------------------------|-------------------------|-------------------------|
|                  |                       |                                    | $l_1$ | $l_2$ | $l_3$ | $l_4$ | $l_5$ |                  | HA                      | HE                      | HB                      |
| 12,70            |                       | M13x0,75                           | 124   | 77    | 60    | 45    | 2,2   | 14               | TA211344.1270           | TA511344.1270           | TA611344.1270           |
| 12,80            | M14x1,25              |                                    | 124   | 77    | 60    | 45    | 2,2   | 14               | TA211344.1280           | TA511344.1280           | TA611344.1280           |
| 12,90            | MJ14x1,25 / 9/16-18   |                                    | 124   | 77    | 60    | 45    | 2,2   | 14               | TA211344.1290           | TA511344.1290           | TA611344.1290           |
| 13,00            | M14x1                 |                                    | 124   | 77    | 60    | 45    | 2,2   | 14               | TA211344.1300           | TA511344.1300           | TA611344.1300           |
| 13,10            | MJ14x1                | M14                                | 124   | 77    | 60    | 45    | 2,2   | 14               | TA211344.1310           | TA511344.1310           | TA611344.1310           |
| 13,30            |                       | 9/16-12                            | 124   | 77    | 60    | 45    | 2,3   | 14               | TA211344.1330           | TA511344.1330           | TA611344.1330           |
| 13,35            |                       | M14x1,5                            | 124   | 77    | 60    | 45    | 2,3   | 14               | TA211344.1335           | TA511344.1335           | TA611344.1335           |
| 13,45            |                       | M14x1,25                           | 124   | 77    | 60    | 45    | 2,3   | 14               | TA211344.1345           | TA511344.1345           | TA611344.1345           |
| 13,49            |                       |                                    | 124   | 77    | 60    | 45    | 2,3   | 14               | TA211344.1349           | TA511344.1349           | TA611344.1349           |
| 13,50            | 5/8-11                |                                    | 124   | 77    | 60    | 45    | 2,3   | 14               | TA211344.1350           | TA511344.1350           | TA611344.1350           |
| 13,60            | MJ15x1,5              | M14x1 / 9/16-18 (GAL)              | 124   | 77    | 60    | 45    | 2,3   | 14               | TA211344.1360           | TA511344.1360           | TA611344.1360           |
| 13,65            |                       | 9/16-18                            | 124   | 77    | 60    | 45    | 2,3   | 14               | TA211344.1365           | TA511344.1365           | TA611344.1365           |
| 13,70            |                       | M14x0,75                           | 124   | 77    | 60    | 45    | 2,3   | 14               | TA211344.1370           | TA511344.1370           | TA611344.1370           |
| 13,80            |                       |                                    | 124   | 77    | 60    | 45    | 2,3   | 14               | TA211344.1380           | TA511344.1380           | TA611344.1380           |
| 13,89            |                       |                                    | 124   | 77    | 60    | 45    | 2,4   | 14               | TA211344.1389           | TA511344.1389           | TA611344.1389           |
| 14,00            | M16 / M15x1           |                                    | 124   | 77    | 60    | 45    | 2,4   | 14               | TA211344.1400           | TA511344.1400           | TA611344.1400           |
| 14,10            | MJ15x1                |                                    | 133   | 83    | 63    | 48    | 2,4   | 16               | TA211344.1410           | TA511344.1410           | TA611344.1410           |
| 14,20            | M15x0,75              |                                    | 133   | 83    | 63    | 48    | 2,4   | 16               | TA211344.1420           | TA511344.1420           | TA611344.1420           |
| 14,29            |                       |                                    | 133   | 83    | 63    | 48    | 2,4   | 16               | TA211344.1429           | TA511344.1429           | TA611344.1429           |
| 14,50            | M16x1,5 / 5/8-18      |                                    | 133   | 83    | 63    | 48    | 2,5   | 16               | TA211344.1450           | TA511344.1450           | TA611344.1450           |
| 14,60            | MJ16x1,5              | M15x1                              | 133   | 83    | 63    | 48    | 2,5   | 16               | TA211344.1460           | TA511344.1460           | TA611344.1460           |
| 14,68            |                       |                                    | 133   | 83    | 63    | 48    | 2,5   | 16               | TA211344.1468           | TA511344.1468           | TA611344.1468           |
| 14,70            |                       | M15x0,75                           | 133   | 83    | 63    | 48    | 2,5   | 16               | TA211344.1470           | TA511344.1470           | TA611344.1470           |
| 14,80            |                       | 5/8-11                             | 133   | 83    | 63    | 48    | 2,5   | 16               | TA211344.1480           | TA511344.1480           | TA611344.1480           |
| 15,00            | M16x1                 |                                    | 133   | 83    | 63    | 48    | 2,5   | 16               | TA211344.1500           | TA511344.1500           | TA611344.1500           |
| 15,08            |                       |                                    | 133   | 83    | 63    | 48    | 2,6   | 16               | TA211344.1508           | TA511344.1508           | TA611344.1508           |
| 15,10            | MJ16x1                | M16                                | 133   | 83    | 63    | 48    | 2,6   | 16               | TA211344.1510           | TA511344.1510           | TA611344.1510           |
| 15,20            | M16x0,75              | 5/8-18 (GAL)                       | 133   | 83    | 63    | 48    | 2,6   | 16               | TA211344.1520           | TA511344.1520           | TA611344.1520           |
| 15,25            | G3/8                  | 5/8-18                             | 133   | 83    | 63    | 48    | 2,6   | 16               | TA211344.1525           | TA511344.1525           | TA611344.1525           |
| 15,35            |                       | M16x1,5                            | 133   | 83    | 63    | 48    | 2,6   | 16               | TA211344.1535           | TA511344.1535           | TA611344.1535           |
| 15,50            | M18                   |                                    | 133   | 83    | 63    | 48    | 2,6   | 16               | TA211344.1550           | TA511344.1550           | TA611344.1550           |
| 15,60            |                       | M16x1                              | 133   | 83    | 63    | 48    | 2,6   | 16               | TA211344.1560           | TA511344.1560           | TA611344.1560           |
| 15,80            | MJ18x2,5              |                                    | 133   | 83    | 63    | 48    | 2,7   | 16               | TA211344.1580           | TA511344.1580           | TA611344.1580           |
| 15,88            |                       |                                    | 133   | 83    | 63    | 48    | 2,7   | 16               | TA211344.1588           | TA511344.1588           | TA611344.1588           |
| 16,00            | M18x2                 |                                    | 133   | 83    | 63    | 48    | 2,7   | 16               | TA211344.1600           | TA511344.1600           | TA611344.1600           |
| 16,27            |                       |                                    | 143   | 93    | 71    | 48    | 2,8   | 18               | TA211344.1627           | TA511344.1627           | TA611344.1627           |
| 16,50            | M18x1,5 / 3/4-10      |                                    | 143   | 93    | 71    | 48    | 2,8   | 18               | TA211344.1650           | TA511344.1650           | TA611344.1650           |
| 16,67            |                       |                                    | 143   | 93    | 71    | 48    | 2,8   | 18               | TA211344.1667           | TA511344.1667           | TA611344.1667           |
| 17,00            | M18x1                 |                                    | 143   | 93    | 71    | 48    | 2,9   | 18               | TA211344.1700           | TA511344.1700           | TA611344.1700           |
| 17,46            |                       |                                    | 143   | 93    | 71    | 48    | 3,0   | 18               | TA211344.1746           | TA511344.1746           | TA611344.1746           |
| 17,50            | M20 / 3/4-16          |                                    | 143   | 93    | 71    | 48    | 3,0   | 18               | TA211344.1750           | TA511344.1750           | TA611344.1750           |
| 18,00            | M20x2                 |                                    | 143   | 93    | 71    | 48    | 3,1   | 18               | TA211344.1800           | TA511344.1800           | TA611344.1800           |

◀  $\phi$  3,00 mm -  $\phi$  12,60 mm

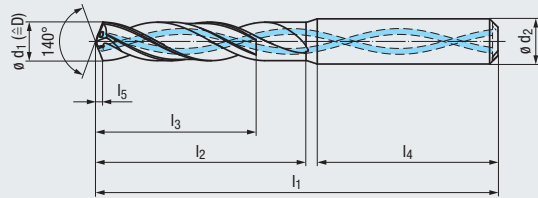


### SteelDrill-SD102

|             |          |
|-------------|----------|
| VHM Carbide | ALTiN    |
| DIN 6537 K  | R30      |
| Z2          | 4FF      |
| 140°        | IT9-IT10 |
| DIN 6535    |          |
| HA          | HE       |

STEEL Steel materials

## 3xD Kurze Ausführung Short design



Bohrtiefe  
Drill depth

## 3 x D

Einsatzgebiete – Material  
Applications – material

|   |                  |   |         |
|---|------------------|---|---------|
| P | 1.1-5.1          | K | 1.1-4.2 |
| S | 1.2-1.3, 2.2-2.3 | H | 1.1-1.3 |

| $\phi d_1$<br>m7 | Gewindebohrer<br>Taps   | Gewindeformer<br>Cold-forming taps |       |       |       |       |       | $\phi d_2$<br>h6 | SteelDrill<br>SD102-3xD | SteelDrill<br>SD102-3xD |
|------------------|-------------------------|------------------------------------|-------|-------|-------|-------|-------|------------------|-------------------------|-------------------------|
|                  |                         |                                    | $l_1$ | $l_2$ | $l_3$ | $l_4$ | $l_5$ |                  | HA                      | HE                      |
| 3,00             | M3,5x0,5 / MJ3,5x0,6    |                                    | 62    | 20    | 14    | 36    | 0,5   | 6                | TA201544.0300           | TA501544.0300           |
| 3,10             |                         |                                    | 62    | 20    | 14    | 36    | 0,5   | 6                | TA201544.0310           | TA501544.0310           |
| 3,15             | M3,5x0,35               | #6-32                              | 62    | 20    | 14    | 36    | 0,5   | 6                | TA201544.0315           | TA501544.0315           |
| 3,18             |                         |                                    | 62    | 20    | 14    | 36    | 0,5   | 6                | TA201544.0318           | TA501544.0318           |
| 3,20             | MJ3,5x0,35              |                                    | 62    | 20    | 14    | 36    | 0,5   | 6                | TA201544.0320           | TA501544.0320           |
| 3,22             |                         | #6-40                              | 62    | 20    | 14    | 36    | 0,5   | 6                | TA201544.0322           | TA501544.0322           |
| 3,25             |                         | M3,5                               | 62    | 20    | 14    | 36    | 0,6   | 6                | TA201544.0325           | TA501544.0325           |
| 3,30             | M4                      | M3,5x0,5                           | 62    | 20    | 14    | 36    | 0,6   | 6                | TA201544.0330           | TA501544.0330           |
| 3,35             |                         |                                    | 62    | 20    | 14    | 36    | 0,6   | 6                | TA201544.0335           | TA501544.0335           |
| 3,38             |                         | M3,5x0,35                          | 62    | 20    | 14    | 36    | 0,6   | 6                | TA201544.0338           | TA501544.0338           |
| 3,40             | MJ4x0,7                 |                                    | 62    | 20    | 14    | 36    | 0,6   | 6                | TA201544.0340           | TA501544.0340           |
| 3,50             | M4x0,5 / #8-32 / #8-36  |                                    | 62    | 20    | 14    | 36    | 0,6   | 6                | TA201544.0350           | TA501544.0350           |
| 3,55             |                         |                                    | 62    | 20    | 14    | 36    | 0,6   | 6                | TA201544.0355           | TA501544.0355           |
| 3,57             |                         |                                    | 62    | 20    | 14    | 36    | 0,6   | 6                | TA201544.0357           | TA501544.0357           |
| 3,60             | MJ4x0,5                 |                                    | 62    | 20    | 14    | 36    | 0,6   | 6                | TA201544.0360           | TA501544.0360           |
| 3,65             | M4x0,35                 |                                    | 62    | 20    | 14    | 36    | 0,6   | 6                | TA201544.0365           | TA501544.0365           |
| 3,70             | M4,5                    | M4                                 | 62    | 20    | 14    | 36    | 0,6   | 6                | TA201544.0370           | TA501544.0370           |
| 3,80             |                         | M4x0,5 / #8-32                     | 66    | 24    | 17    | 36    | 0,6   | 6                | TA201544.0380           | TA501544.0380           |
| 3,85             |                         | #8-36                              | 66    | 24    | 17    | 36    | 0,7   | 6                | TA201544.0385           | TA501544.0385           |
| 3,88             |                         | M4x0,35                            | 66    | 24    | 17    | 36    | 0,7   | 6                | TA201544.0388           | TA501544.0388           |
| 3,90             | MJ4,5x0,75 / #10-24     |                                    | 66    | 24    | 17    | 36    | 0,7   | 6                | TA201544.0390           | TA501544.0390           |
| 3,97             |                         |                                    | 66    | 24    | 17    | 36    | 0,7   | 6                | TA201544.0397           | TA501544.0397           |
| 4,00             |                         |                                    | 66    | 24    | 17    | 36    | 0,7   | 6                | TA201544.0400           | TA501544.0400           |
| 4,04             |                         |                                    | 66    | 24    | 17    | 36    | 0,7   | 6                | TA201544.0404           | TA501544.0404           |
| 4,10             | MJ4,5x0,5 / #10-32      |                                    | 66    | 24    | 17    | 36    | 0,7   | 6                | TA201544.0410           | TA501544.0410           |
| 4,15             | M5x0,9                  |                                    | 66    | 24    | 17    | 36    | 0,7   | 6                | TA201544.0415           | TA501544.0415           |
| 4,20             | M5 / M5x0,75            | M4,5                               | 66    | 24    | 17    | 36    | 0,7   | 6                | TA201544.0420           | TA501544.0420           |
| 4,30             | MJ5x0,8                 | M4,5x0,5 / #10-24 (GAL)            | 66    | 24    | 17    | 36    | 0,7   | 6                | TA201544.0430           | TA501544.0430           |
| 4,35             |                         | #10-24                             | 66    | 24    | 17    | 36    | 0,7   | 6                | TA201544.0435           | TA501544.0435           |
| 4,37             |                         |                                    | 66    | 24    | 17    | 36    | 0,7   | 6                | TA201544.0437           | TA501544.0437           |
| 4,40             |                         |                                    | 66    | 24    | 17    | 36    | 0,7   | 6                | TA201544.0440           | TA501544.0440           |
| 4,45             |                         | #10-32                             | 66    | 24    | 17    | 36    | 0,8   | 6                | TA201544.0445           | TA501544.0445           |
| 4,50             | M5x0,5 / #12-24         |                                    | 66    | 24    | 17    | 36    | 0,8   | 6                | TA201544.0450           | TA501544.0450           |
| 4,60             | M5,5 / MJ5x0,5 / #12-28 |                                    | 66    | 24    | 17    | 36    | 0,8   | 6                | TA201544.0460           | TA501544.0460           |
| 4,65             |                         | M5                                 | 66    | 24    | 17    | 36    | 0,8   | 6                | TA201544.0465           | TA501544.0465           |
| 4,70             |                         | M5x0,75                            | 66    | 24    | 17    | 36    | 0,8   | 6                | TA201544.0470           | TA501544.0470           |
| 4,76             |                         |                                    | 66    | 28    | 20    | 36    | 0,8   | 6                | TA201544.0476           | TA501544.0476           |
| 4,80             |                         | M5x0,5                             | 66    | 28    | 20    | 36    | 0,8   | 6                | TA201544.0480           | TA501544.0480           |
| 4,90             |                         |                                    | 66    | 28    | 20    | 36    | 0,8   | 6                | TA201544.0490           | TA501544.0490           |
| 5,00             | M6                      | #12-24                             | 66    | 28    | 20    | 36    | 0,8   | 6                | TA201544.0500           | TA501544.0500           |
| 5,10             | MJ6x1 / 1/4-20          | M5,5 / #12-28                      | 66    | 28    | 20    | 36    | 0,9   | 6                | TA201544.0510           | TA501544.0510           |
| 5,11             |                         |                                    | 66    | 28    | 20    | 36    | 0,9   | 6                | TA201544.0511           | TA501544.0511           |
| 5,16             |                         |                                    | 66    | 28    | 20    | 36    | 0,9   | 6                | TA201544.0516           | TA501544.0516           |
| 5,20             | M6x0,75                 |                                    | 66    | 28    | 20    | 36    | 0,9   | 6                | TA201544.0520           | TA501544.0520           |
| 5,25             |                         |                                    | 66    | 28    | 20    | 36    | 0,9   | 6                | TA201544.0525           | TA501544.0525           |
| 5,30             |                         | M5,5x0,5                           | 66    | 28    | 20    | 36    | 0,9   | 6                | TA201544.0530           | TA501544.0530           |
| 5,40             |                         |                                    | 66    | 28    | 20    | 36    | 0,9   | 6                | TA201544.0540           | TA501544.0540           |
| 5,41             |                         |                                    | 66    | 28    | 20    | 36    | 0,9   | 6                | TA201544.0541           | TA501544.0541           |
| 5,50             | M6x0,5 / 1/4-28         |                                    | 66    | 28    | 20    | 36    | 0,9   | 6                | TA201544.0550           | TA501544.0550           |
| 5,55             |                         | M6 (GAL)                           | 66    | 28    | 20    | 36    | 0,9   | 6                | TA201544.0555           | TA501544.0555           |
| 5,56             |                         |                                    | 66    | 28    | 20    | 36    | 0,9   | 6                | TA201544.0556           | TA501544.0556           |
| 5,60             | MJ6x0,5                 | M6                                 | 66    | 28    | 20    | 36    | 1,0   | 6                | TA201544.0560           | TA501544.0560           |

Product Finder

$v_c / f$

BASIC

STEEL

INOX

G

HCUT

SpotDrill

Zubehör Accessories

3 x D

5 x D

6 x D

8 x D

12 x D

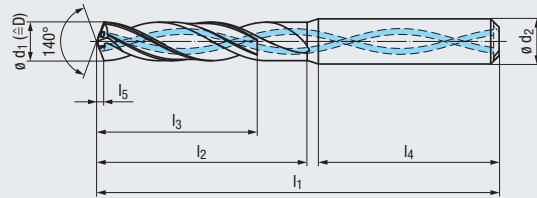
2-3,5 x D



- Product Finder
- $v_c / f$
- BASIC
- STEEL
- INOX
- GG
- HCUT
- SpotDrill
- Zubehör  
Accessories
- 3 x D
- 5 x D
- 6 x D
- 8 x D
- 12 x D
- 2-3,5 x D

## SteelDrill-SD102

### 3 x D Kurze Ausführung Short design



|                    |                     |
|--------------------|---------------------|
| <b>VHM Carbide</b> | <b>ALTIN</b>        |
| <b>DIN 6537 K</b>  | <b>R30</b>          |
| <b>Z2</b><br>      | <b>4FF</b><br>      |
| <b>140°</b><br>    | <b>IT9-IT10</b><br> |
| <b>DIN 6535</b>    |                     |
|                    |                     |

### STEEL Steel materials



Bohrtiefe  
Drill depth

### 3 x D

Einsatzgebiete – Material  
Applications – material



|                           |                  |
|---------------------------|------------------|
| <b>P</b> 1.1-5.1          | <b>K</b> 1.1-4.2 |
| <b>S</b> 1.2-1.3, 2.2-2.3 | <b>H</b> 1.1-1.3 |

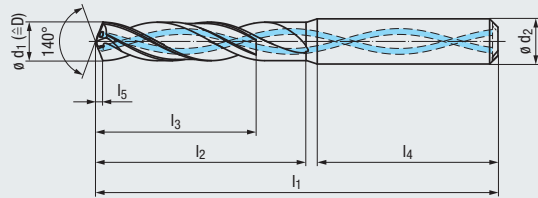
| $\emptyset d_1$<br>m7 | Gewindebohrer<br>Taps | Gewindeformer<br>Cold-forming taps |                |                |                |                |                | $\emptyset d_2$<br>h6 | SteelDrill<br>SD102-3xD | SteelDrill<br>SD102-3xD |
|-----------------------|-----------------------|------------------------------------|----------------|----------------|----------------|----------------|----------------|-----------------------|-------------------------|-------------------------|
|                       |                       |                                    | l <sub>1</sub> | l <sub>2</sub> | l <sub>3</sub> | l <sub>4</sub> | l <sub>5</sub> |                       | HA                      | HE                      |
| 5,70                  |                       | M6x0,75 / 1/4-20 (GAL)             | 66             | 28             | 20             | 36             | 1,0            | 6                     | TA201544.0570           | TA501544.0570           |
| 5,75                  |                       | 1/4-20                             | 66             | 28             | 20             | 36             | 1,0            | 6                     | TA201544.0575           | TA501544.0575           |
| 5,80                  |                       | M6x0,5                             | 66             | 28             | 20             | 36             | 1,0            | 6                     | TA201544.0580           | TA501544.0580           |
| 5,90                  |                       |                                    | 66             | 28             | 20             | 36             | 1,0            | 6                     | TA201544.0590           | TA501544.0590           |
| 5,95                  |                       | 1/4-28                             | 66             | 28             | 20             | 36             | 1,0            | 6                     | TA201544.0595           | TA501544.0595           |
| 6,00                  | M7                    |                                    | 66             | 28             | 20             | 36             | 1,0            | 6                     | TA201544.0600           | TA501544.0600           |
| 6,10                  | MJ7x1                 |                                    | 79             | 34             | 24             | 36             | 1,0            | 8                     | TA201544.0610           | TA501544.0610           |
| 6,20                  | M7x0,75               |                                    | 79             | 34             | 24             | 36             | 1,1            | 8                     | TA201544.0620           | TA501544.0620           |
| 6,30                  |                       |                                    | 79             | 34             | 24             | 36             | 1,1            | 8                     | TA201544.0630           | TA501544.0630           |
| 6,35                  | MJ7x0,75              |                                    | 79             | 34             | 24             | 36             | 1,1            | 8                     | TA201544.0635           | TA501544.0635           |
| 6,40                  |                       |                                    | 79             | 34             | 24             | 36             | 1,1            | 8                     | TA201544.0640           | TA501544.0640           |
| 6,50                  | M7x0,5                |                                    | 79             | 34             | 24             | 36             | 1,1            | 8                     | TA201544.0650           | TA501544.0650           |
| 6,53                  |                       |                                    | 79             | 34             | 24             | 36             | 1,1            | 8                     | TA201544.0653           | TA501544.0653           |
| 6,60                  | 5/16-18               | M7                                 | 79             | 34             | 24             | 36             | 1,1            | 8                     | TA201544.0660           | TA501544.0660           |
| 6,70                  |                       | M7x0,75                            | 79             | 34             | 24             | 36             | 1,1            | 8                     | TA201544.0670           | TA501544.0670           |
| 6,75                  |                       |                                    | 79             | 34             | 24             | 36             | 1,1            | 8                     | TA201544.0675           | TA501544.0675           |
| 6,80                  | M8 / G1/16            | M7x0,5                             | 79             | 34             | 24             | 36             | 1,2            | 8                     | TA201544.0680           | TA501544.0680           |
| 6,90                  | MJ8x1,25 / 5/16-24    |                                    | 79             | 34             | 24             | 36             | 1,2            | 8                     | TA201544.0690           | TA501544.0690           |
| 7,00                  | M8x1                  |                                    | 79             | 34             | 24             | 36             | 1,2            | 8                     | TA201544.0700           | TA501544.0700           |
| 7,10                  | MJ8x1                 |                                    | 79             | 41             | 29             | 36             | 1,2            | 8                     | TA201544.0710           | TA501544.0710           |
| 7,15                  |                       |                                    | 79             | 41             | 29             | 36             | 1,2            | 8                     | TA201544.0715           | TA501544.0715           |
| 7,20                  | M8x0,75               |                                    | 79             | 41             | 29             | 36             | 1,2            | 8                     | TA201544.0720           | TA501544.0720           |
| 7,25                  |                       | 5/16-18 (GAL) / G1/16              | 79             | 41             | 29             | 36             | 1,2            | 8                     | TA201544.0725           | TA501544.0725           |
| 7,30                  |                       | 5/16-18                            | 79             | 41             | 29             | 36             | 1,2            | 8                     | TA201544.0730           | TA501544.0730           |
| 7,40                  |                       | M8 (GAL) / 5/16-24 (GAL)           | 79             | 41             | 29             | 36             | 1,3            | 8                     | TA201544.0740           | TA501544.0740           |
| 7,45                  |                       | M8 / 5/16-24                       | 79             | 41             | 29             | 36             | 1,3            | 8                     | TA201544.0745           | TA501544.0745           |
| 7,50                  | M8x0,5                |                                    | 79             | 41             | 29             | 36             | 1,3            | 8                     | TA201544.0750           | TA501544.0750           |
| 7,54                  |                       |                                    | 79             | 41             | 29             | 36             | 1,3            | 8                     | TA201544.0754           | TA501544.0754           |
| 7,60                  |                       | M8x1                               | 79             | 41             | 29             | 36             | 1,3            | 8                     | TA201544.0760           | TA501544.0760           |
| 7,70                  |                       | M8x0,75                            | 79             | 41             | 29             | 36             | 1,3            | 8                     | TA201544.0770           | TA501544.0770           |
| 7,80                  | M9                    | M8x0,5                             | 79             | 41             | 29             | 36             | 1,3            | 8                     | TA201544.0780           | TA501544.0780           |
| 7,90                  | MJ9x1,25              |                                    | 79             | 41             | 29             | 36             | 1,3            | 8                     | TA201544.0790           | TA501544.0790           |
| 7,94                  |                       |                                    | 79             | 41             | 29             | 36             | 1,3            | 8                     | TA201544.0794           | TA501544.0794           |
| 8,00                  | M9x1 / 3/8-16         |                                    | 79             | 41             | 29             | 36             | 1,4            | 8                     | TA201544.0800           | TA501544.0800           |
| 8,10                  | MJ9x1                 |                                    | 89             | 47             | 35             | 40             | 1,4            | 10                    | TA201544.0810           | TA501544.0810           |
| 8,20                  | M9x0,75               |                                    | 89             | 47             | 35             | 40             | 1,4            | 10                    | TA201544.0820           | TA501544.0820           |
| 8,30                  |                       |                                    | 89             | 47             | 35             | 40             | 1,4            | 10                    | TA201544.0830           | TA501544.0830           |
| 8,33                  |                       |                                    | 89             | 47             | 35             | 40             | 1,4            | 10                    | TA201544.0833           | TA501544.0833           |
| 8,40                  |                       | M9 (GAL)                           | 89             | 47             | 35             | 40             | 1,4            | 10                    | TA201544.0840           | TA501544.0840           |
| 8,45                  |                       | M9                                 | 89             | 47             | 35             | 40             | 1,4            | 10                    | TA201544.0845           | TA501544.0845           |
| 8,50                  | M10 / M9x0,5 / 3/8-24 |                                    | 89             | 47             | 35             | 40             | 1,4            | 10                    | TA201544.0850           | TA501544.0850           |
| 8,60                  | MJ10x1,5              | M9x1                               | 89             | 47             | 35             | 40             | 1,5            | 10                    | TA201544.0860           | TA501544.0860           |
| 8,70                  |                       | M9x0,75                            | 89             | 47             | 35             | 40             | 1,5            | 10                    | TA201544.0870           | TA501544.0870           |
| 8,73                  |                       |                                    | 89             | 47             | 35             | 40             | 1,5            | 10                    | TA201544.0873           | TA501544.0873           |
| 8,80                  | M10x1,25 / G1/8       | M9x0,5 / 3/8-16                    | 89             | 47             | 35             | 40             | 1,5            | 10                    | TA201544.0880           | TA501544.0880           |
| 8,90                  | MJ10x1,25             |                                    | 89             | 47             | 35             | 40             | 1,5            | 10                    | TA201544.0890           | TA501544.0890           |
| 9,00                  | M10x1                 | 3/8-24 (GAL)                       | 89             | 47             | 35             | 40             | 1,5            | 10                    | TA201544.0900           | TA501544.0900           |
| 9,05                  |                       | 3/8-24                             | 89             | 47             | 35             | 40             | 1,5            | 10                    | TA201544.0905           | TA501544.0905           |
| 9,10                  | MJ10x1                |                                    | 89             | 47             | 35             | 40             | 1,5            | 10                    | TA201544.0910           | TA501544.0910           |
| 9,13                  |                       |                                    | 89             | 47             | 35             | 40             | 1,5            | 10                    | TA201544.0913           | TA501544.0913           |
| 9,20                  | M10x0,75              |                                    | 89             | 47             | 35             | 40             | 1,6            | 10                    | TA201544.0920           | TA501544.0920           |
| 9,30                  |                       | M10 (GAL)                          | 89             | 47             | 35             | 40             | 1,6            | 10                    | TA201544.0930           | TA501544.0930           |

### SteelDrill-SD102

|             |          |
|-------------|----------|
| VHM Carbide | ALTIN    |
| DIN 6537 K  | R30      |
| Z2          | 4FF      |
| 140°        | IT9-IT10 |
| DIN 6535    |          |
| HA          | HE       |

**STEEL**  
Steel materials

## 3xD Kurze Ausführung Short design



Bohrtiefe  
Drill depth

## 3 x D

Einsatzgebiete – Material  
Applications – material



|   |                  |   |         |
|---|------------------|---|---------|
| P | 1.1-5.1          | K | 1.1-4.2 |
| S | 1.2-1.3, 2.2-2.3 | H | 1.1-1.3 |

| Ø d <sub>1</sub><br>m7 | Gewindebohrer<br>Taps | Gewindeformer<br>Cold-forming taps | l <sub>1</sub> | l <sub>2</sub> | l <sub>3</sub> | l <sub>4</sub> | l <sub>5</sub> | Ø d <sub>2</sub><br>h6 | SteelDrill SD102-3xD |               |
|------------------------|-----------------------|------------------------------------|----------------|----------------|----------------|----------------|----------------|------------------------|----------------------|---------------|
|                        |                       |                                    |                |                |                |                |                |                        | HA                   | HE            |
| 9,35                   | MJ10x0,75             | M10                                | 89             | 47             | 35             | 40             | 1,6            | 10                     | TA201544.0935        | TA501544.0935 |
| 9,40                   | 7/16-14               | M10x1,25 (GAL)                     | 89             | 47             | 35             | 40             | 1,6            | 10                     | TA201544.0940        | TA501544.0940 |
| 9,45                   |                       | M10x1,25                           | 89             | 47             | 35             | 40             | 1,6            | 10                     | TA201544.0945        | TA501544.0945 |
| 9,50                   | M11 / M10x0,5         |                                    | 89             | 47             | 35             | 40             | 1,6            | 10                     | TA201544.0950        | TA501544.0950 |
| 9,53                   |                       |                                    | 89             | 47             | 35             | 40             | 1,6            | 10                     | TA201544.0953        | TA501544.0953 |
| 9,60                   | MJ10x0,5 / MJ11x1,5   | M10x1                              | 89             | 47             | 35             | 40             | 1,6            | 10                     | TA201544.0960        | TA501544.0960 |
| 9,70                   |                       | M10x0,75                           | 89             | 47             | 35             | 40             | 1,6            | 10                     | TA201544.0970        | TA501544.0970 |
| 9,80                   |                       | M10x0,5                            | 89             | 47             | 35             | 40             | 1,7            | 10                     | TA201544.0980        | TA501544.0980 |
| 9,90                   | MJ11x1,25 / 7/16-20   |                                    | 89             | 47             | 35             | 40             | 1,7            | 10                     | TA201544.0990        | TA501544.0990 |
| 9,92                   |                       |                                    | 89             | 47             | 35             | 40             | 1,7            | 10                     | TA201544.0992        | TA501544.0992 |
| 10,00                  | M11x1                 |                                    | 89             | 47             | 35             | 40             | 1,7            | 10                     | TA201544.1000        | TA501544.1000 |
| 10,10                  | MJ11x1                |                                    | 102            | 55             | 40             | 45             | 1,7            | 12                     | TA201544.1010        | TA501544.1010 |
| 10,20                  | M12 / M11x0,75        | 7/16-14 (GAL)                      | 102            | 55             | 40             | 45             | 1,7            | 12                     | TA201544.1020        | TA501544.1020 |
| 10,25                  |                       | 7/16-14                            | 102            | 55             | 40             | 45             | 1,7            | 12                     | TA201544.1025        | TA501544.1025 |
| 10,30                  |                       | M11 (GAL)                          | 102            | 55             | 40             | 45             | 1,7            | 12                     | TA201544.1030        | TA501544.1030 |
| 10,32                  |                       |                                    | 102            | 55             | 40             | 45             | 1,8            | 12                     | TA201544.1032        | TA501544.1032 |
| 10,35                  | MJ11x0,75             | M11                                | 102            | 55             | 40             | 45             | 1,8            | 12                     | TA201544.1035        | TA501544.1035 |
| 10,40                  |                       |                                    | 102            | 55             | 40             | 45             | 1,8            | 12                     | TA201544.1040        | TA501544.1040 |
| 10,50                  | M12x1,5               | 7/16-20 (GAL)                      | 102            | 55             | 40             | 45             | 1,8            | 12                     | TA201544.1050        | TA501544.1050 |
| 10,55                  |                       | M11x1 (GAL) / 7/16-20              | 102            | 55             | 40             | 45             | 1,8            | 12                     | TA201544.1055        | TA501544.1055 |
| 10,60                  | MJ12x1,5              | M11x1                              | 102            | 55             | 40             | 45             | 1,8            | 12                     | TA201544.1060        | TA501544.1060 |
| 10,70                  |                       | M11x0,75                           | 102            | 55             | 40             | 45             | 1,8            | 12                     | TA201544.1070        | TA501544.1070 |
| 10,72                  |                       |                                    | 102            | 55             | 40             | 45             | 1,8            | 12                     | TA201544.1072        | TA501544.1072 |
| 10,80                  | M12x1,25 / 1/2-13     |                                    | 102            | 55             | 40             | 45             | 1,8            | 12                     | TA201544.1080        | TA501544.1080 |
| 10,90                  | MJ12x1,25             |                                    | 102            | 55             | 40             | 45             | 1,8            | 12                     | TA201544.1090        | TA501544.1090 |
| 11,00                  | M12x1                 |                                    | 102            | 55             | 40             | 45             | 1,9            | 12                     | TA201544.1100        | TA501544.1100 |
| 11,10                  | MJ12x1                |                                    | 102            | 55             | 40             | 45             | 1,9            | 12                     | TA201544.1110        | TA501544.1110 |
| 11,11                  |                       |                                    | 102            | 55             | 40             | 45             | 1,9            | 12                     | TA201544.1111        | TA501544.1111 |
| 11,20                  | M12x0,75              | M12 (GAL)                          | 102            | 55             | 40             | 45             | 1,9            | 12                     | TA201544.1120        | TA501544.1120 |
| 11,25                  |                       | M12                                | 102            | 55             | 40             | 45             | 1,9            | 12                     | TA201544.1125        | TA501544.1125 |
| 11,30                  |                       | M12x1,5 (GAL)                      | 102            | 55             | 40             | 45             | 1,9            | 12                     | TA201544.1130        | TA501544.1130 |
| 11,35                  |                       | M12x1,5                            | 102            | 55             | 40             | 45             | 1,9            | 12                     | TA201544.1135        | TA501544.1135 |
| 11,40                  |                       | M12x1,25 (GAL)                     | 102            | 55             | 40             | 45             | 1,9            | 12                     | TA201544.1140        | TA501544.1140 |
| 11,45                  |                       | M12x1,25                           | 102            | 55             | 40             | 45             | 1,9            | 12                     | TA201544.1145        | TA501544.1145 |
| 11,50                  | 1/2-20                |                                    | 102            | 55             | 40             | 45             | 2,0            | 12                     | TA201544.1150        | TA501544.1150 |
| 11,51                  |                       |                                    | 102            | 55             | 40             | 45             | 2,0            | 12                     | TA201544.1151        | TA501544.1151 |
| 11,60                  |                       | M12x1                              | 102            | 55             | 40             | 45             | 2,0            | 12                     | TA201544.1160        | TA501544.1160 |
| 11,70                  |                       | M12x0,75                           | 102            | 55             | 40             | 45             | 2,0            | 12                     | TA201544.1170        | TA501544.1170 |
| 11,80                  | G1/4                  | 1/2-13                             | 102            | 55             | 40             | 45             | 2,0            | 12                     | TA201544.1180        | TA501544.1180 |
| 11,90                  |                       |                                    | 102            | 55             | 40             | 45             | 2,0            | 12                     | TA201544.1190        | TA501544.1190 |
| 11,91                  |                       |                                    | 102            | 55             | 40             | 45             | 2,0            | 12                     | TA201544.1191        | TA501544.1191 |
| 12,00                  | M14                   |                                    | 102            | 55             | 40             | 45             | 2,0            | 12                     | TA201544.1200        | TA501544.1200 |
| 12,10                  | MJ13x1                | 1/2-20 (GAL)                       | 107            | 60             | 43             | 45             | 2,1            | 14                     | TA201544.1210        | TA501544.1210 |
| 12,15                  |                       | 1/2-20                             | 107            | 60             | 43             | 45             | 2,1            | 14                     | TA201544.1215        | TA501544.1215 |
| 12,20                  | 9/16-12               |                                    | 107            | 60             | 43             | 45             | 2,1            | 14                     | TA201544.1220        | TA501544.1220 |
| 12,30                  |                       |                                    | 107            | 60             | 43             | 45             | 2,1            | 14                     | TA201544.1230        | TA501544.1230 |
| 12,50                  | M14x1,5               | G1/4 (GAL)                         | 107            | 60             | 43             | 45             | 2,1            | 14                     | TA201544.1250        | TA501544.1250 |
| 12,55                  |                       | M13x1 (GAL) / G1/4                 | 107            | 60             | 43             | 45             | 2,1            | 14                     | TA201544.1255        | TA501544.1255 |
| 12,60                  | MJ14x1,5              | M13x1                              | 107            | 60             | 43             | 45             | 2,1            | 14                     | TA201544.1260        | TA501544.1260 |
| 12,70                  |                       | M13x0,75                           | 107            | 60             | 43             | 45             | 2,2            | 14                     | TA201544.1270        | TA501544.1270 |
| 12,80                  | M14x1,25              |                                    | 107            | 60             | 43             | 45             | 2,2            | 14                     | TA201544.1280        | TA501544.1280 |
| 12,90                  | MJ14x1,25 / 9/16-18   |                                    | 107            | 60             | 43             | 45             | 2,2            | 14                     | TA201544.1290        | TA501544.1290 |

Ø 13,00 mm - Ø 20,00 mm →



Product Finder

v<sub>c</sub> / f

BASIC

STEEL

INOX

G

HCUT

SpotDrill

Zubehör  
Accessories

3 x D

5 x D

6 x D

8 x D

12 x D

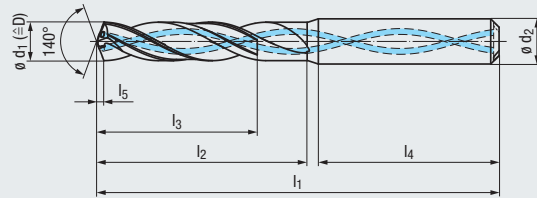
2-3,5 x D



- Product Finder
- $v_c / f$
- BASIC
- STEEL
- INOX
- GG
- HCUT
- SpotDrill
- Zubehör  
Accessories
- 3 x D
- 5 x D
- 6 x D
- 8 x D
- 12 x D
- 2-3,5 x D

## SteelDrill-SD102

### 3 x D Kurze Ausführung Short design



|                    |                     |
|--------------------|---------------------|
| <b>VHM Carbide</b> | <b>ALTIN</b>        |
| <b>DIN 6537 K</b>  | <b>R30</b>          |
| <b>Z2</b><br>      | <b>4FF</b><br>      |
| <b>140°</b><br>    | <b>IT9-IT10</b><br> |
| <b>DIN 6535</b>    |                     |
| HA<br>HE           |                     |

**STEEL**  
Steel materials



## 3 x D

Bohrtiefe  
Drill depth

Einsatzgebiete – Material  
Applications – material » 14

**P** 1.1-5.1    **K** 1.1-4.2  
**S** 1.2-1.3, 2.2-2.3    **H** 1.1-1.3

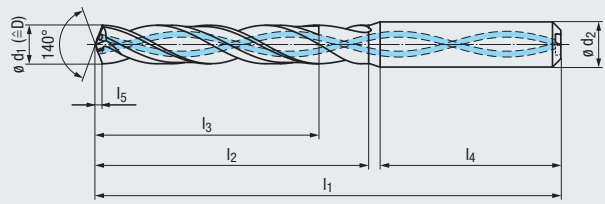
| $\emptyset d_1$<br>m7 | Gewindebohrer<br>Taps | Gewindeformer<br>Cold-forming taps |       |       |       |       |       | $\emptyset d_2$<br>h6 | SteelDrill<br>SD102-3xD | SteelDrill<br>SD102-3xD |
|-----------------------|-----------------------|------------------------------------|-------|-------|-------|-------|-------|-----------------------|-------------------------|-------------------------|
|                       |                       |                                    | $l_1$ | $l_2$ | $l_3$ | $l_4$ | $l_5$ |                       | HA                      | HE                      |
| 13,00                 | M14x1                 |                                    | 107   | 60    | 43    | 45    | 2,2   | 14                    | TA201544.1300           | TA501544.1300           |
| 13,10                 | MJ14x1                | M14                                | 107   | 60    | 43    | 45    | 2,2   | 14                    | TA201544.1310           | TA501544.1310           |
| 13,20                 | M14x0,75              |                                    | 107   | 60    | 43    | 45    | 2,2   | 14                    | TA201544.1320           | TA501544.1320           |
| 13,30                 |                       | 9/16-12                            | 107   | 60    | 43    | 45    | 2,3   | 14                    | TA201544.1330           | TA501544.1330           |
| 13,35                 |                       | M14x1,5                            | 107   | 60    | 43    | 45    | 2,3   | 14                    | TA201544.1335           | TA501544.1335           |
| 13,45                 |                       | M14x1,25                           | 107   | 60    | 43    | 45    | 2,3   | 14                    | TA201544.1345           | TA501544.1345           |
| 13,49                 |                       |                                    | 107   | 60    | 43    | 45    | 2,3   | 14                    | TA201544.1349           | TA501544.1349           |
| 13,50                 | 5/8-11                |                                    | 107   | 60    | 43    | 45    | 2,3   | 14                    | TA201544.1350           | TA501544.1350           |
| 13,60                 | MJ15x1,5              | M14x1 / 9/16-18 (GAL)              | 107   | 60    | 43    | 45    | 2,3   | 14                    | TA201544.1360           | TA501544.1360           |
| 13,65                 |                       | 9/16-18                            | 107   | 60    | 43    | 45    | 2,3   | 14                    | TA201544.1365           | TA501544.1365           |
| 13,70                 |                       | M14x0,75                           | 107   | 60    | 43    | 45    | 2,3   | 14                    | TA201544.1370           | TA501544.1370           |
| 13,80                 |                       |                                    | 107   | 60    | 43    | 45    | 2,3   | 14                    | TA201544.1380           | TA501544.1380           |
| 13,89                 |                       |                                    | 107   | 60    | 43    | 45    | 2,4   | 14                    | TA201544.1389           | TA501544.1389           |
| 14,00                 | M16 / M15x1           |                                    | 107   | 60    | 43    | 45    | 2,4   | 14                    | TA201544.1400           | TA501544.1400           |
| 14,10                 | MJ15x1                |                                    | 115   | 65    | 45    | 48    | 2,4   | 16                    | TA201544.1410           | TA501544.1410           |
| 14,20                 | M15x0,75              |                                    | 115   | 65    | 45    | 48    | 2,4   | 16                    | TA201544.1420           | TA501544.1420           |
| 14,29                 |                       |                                    | 115   | 65    | 45    | 48    | 2,4   | 16                    | TA201544.1429           | TA501544.1429           |
| 14,30                 |                       |                                    | 115   | 65    | 45    | 48    | 2,4   | 16                    | TA201544.1430           | TA501544.1430           |
| 14,40                 |                       |                                    | 115   | 65    | 45    | 48    | 2,4   | 16                    | TA201544.1440           | TA501544.1440           |
| 14,50                 | M16x1,5 / 5/8-18      |                                    | 115   | 65    | 45    | 48    | 2,5   | 16                    | TA201544.1450           | TA501544.1450           |
| 14,60                 | MJ16x1,5              | M15x1                              | 115   | 65    | 45    | 48    | 2,5   | 16                    | TA201544.1460           | TA501544.1460           |
| 14,68                 |                       |                                    | 115   | 65    | 45    | 48    | 2,5   | 16                    | TA201544.1468           | TA501544.1468           |
| 14,70                 |                       | M15x0,75                           | 115   | 65    | 45    | 48    | 2,5   | 16                    | TA201544.1470           | TA501544.1470           |
| 14,80                 |                       | 5/8-11                             | 115   | 65    | 45    | 48    | 2,5   | 16                    | TA201544.1480           | TA501544.1480           |
| 15,00                 | M16x1                 |                                    | 115   | 65    | 45    | 48    | 2,5   | 16                    | TA201544.1500           | TA501544.1500           |
| 15,08                 |                       |                                    | 115   | 65    | 45    | 48    | 2,6   | 16                    | TA201544.1508           | TA501544.1508           |
| 15,10                 | MJ16x1                | M16                                | 115   | 65    | 45    | 48    | 2,6   | 16                    | TA201544.1510           | TA501544.1510           |
| 15,20                 | M16x0,75              | 5/8-18 (GAL)                       | 115   | 65    | 45    | 48    | 2,6   | 16                    | TA201544.1520           | TA501544.1520           |
| 15,25                 | G3/8                  | 5/8-18                             | 115   | 65    | 45    | 48    | 2,6   | 16                    | TA201544.1525           | TA501544.1525           |
| 15,35                 |                       | M16x1,5                            | 115   | 65    | 45    | 48    | 2,6   | 16                    | TA201544.1535           | TA501544.1535           |
| 15,50                 | M18                   |                                    | 115   | 65    | 45    | 48    | 2,6   | 16                    | TA201544.1550           | TA501544.1550           |
| 15,60                 |                       | M16x1                              | 115   | 65    | 45    | 48    | 2,6   | 16                    | TA201544.1560           | TA501544.1560           |
| 15,80                 | MJ18x2,5              |                                    | 115   | 65    | 45    | 48    | 2,7   | 16                    | TA201544.1580           | TA501544.1580           |
| 15,88                 |                       |                                    | 115   | 65    | 45    | 48    | 2,7   | 16                    | TA201544.1588           | TA501544.1588           |
| 16,00                 | M18x2                 |                                    | 115   | 65    | 45    | 48    | 2,7   | 16                    | TA201544.1600           | TA501544.1600           |
| 16,27                 |                       |                                    | 123   | 73    | 51    | 48    | 2,8   | 18                    | TA201544.1627           | TA501544.1627           |
| 16,50                 | M18x1,5 / 3/4-10      |                                    | 123   | 73    | 51    | 48    | 2,8   | 18                    | TA201544.1650           | TA501544.1650           |
| 16,67                 |                       |                                    | 123   | 73    | 51    | 48    | 2,8   | 18                    | TA201544.1667           | TA501544.1667           |
| 17,00                 | M18x1                 |                                    | 123   | 73    | 51    | 48    | 2,9   | 18                    | TA201544.1700           | TA501544.1700           |
| 17,46                 |                       |                                    | 123   | 73    | 51    | 48    | 3,0   | 18                    | TA201544.1746           | TA501544.1746           |
| 17,50                 | M20 / 3/4-16          |                                    | 123   | 73    | 51    | 48    | 3,0   | 18                    | TA201544.1750           | TA501544.1750           |
| 17,60                 |                       | M18x1                              | 123   | 73    | 51    | 48    | 3,0   | 18                    | TA201544.1760           | TA501544.1760           |
| 18,00                 | M20x2                 |                                    | 123   | 73    | 51    | 48    | 3,1   | 18                    | TA201544.1800           | TA501544.1800           |
| 18,50                 | M20x1,5               |                                    | 131   | 79    | 55    | 50    | 3,1   | 20                    | TA201544.1850           | TA501544.1850           |
| 18,85                 |                       | M20                                | 131   | 79    | 55    | 50    | 3,2   | 20                    | TA201544.1885           | TA501544.1885           |
| 19,00                 | M20x1 / G1/2          |                                    | 131   | 79    | 55    | 50    | 3,2   | 20                    | TA201544.1900           | TA501544.1900           |
| 19,05                 |                       |                                    | 131   | 79    | 55    | 50    | 3,2   | 20                    | TA201544.1905           | TA501544.1905           |
| 19,35                 |                       | M20x1,5                            | 131   | 79    | 55    | 50    | 3,3   | 20                    | TA201544.1935           | TA501544.1935           |
| 19,50                 | M22 / 7/8-9           |                                    | 131   | 79    | 55    | 50    | 3,3   | 20                    | TA201544.1950           | TA501544.1950           |
| 19,60                 |                       | M20x1                              | 131   | 79    | 55    | 50    | 3,3   | 20                    | TA201544.1960           | TA501544.1960           |
| 20,00                 | M22x2                 |                                    | 131   | 79    | 55    | 50    | 3,4   | 20                    | TA201544.2000           | TA501544.2000           |

### SteelDrill-SD102

|             |          |
|-------------|----------|
| VHM Carbide | ALTIN    |
| DIN 6537 L  | R30      |
| Z2          | 4FF      |
| 140°        | IT9-IT10 |
| DIN 6535    |          |
| HA          | HE       |

**STEEL**  
Steel materials

**5 x D** Lange Ausführung  
Long design



Bohrtiefe  
Drill depth

**5 x D**

Einsatzgebiete – Material  
Applications – material

**P 1.1-5.1 K 1.1-4.2**  
**S 1.2-1.3, 2.2-2.3 H 1.1-1.3**

| ø d <sub>1</sub><br>m7 | Gewindebohrer<br>Taps   | Gewindeformer<br>Cold-forming taps |                |                |                |                |                | ø d <sub>2</sub><br>h6 | SteelDrill<br>SD102-5xD | SteelDrill<br>SD102-5xD |
|------------------------|-------------------------|------------------------------------|----------------|----------------|----------------|----------------|----------------|------------------------|-------------------------|-------------------------|
|                        |                         |                                    | l <sub>1</sub> | l <sub>2</sub> | l <sub>3</sub> | l <sub>4</sub> | l <sub>5</sub> |                        | HA                      | HE                      |
| 3,00                   | M3,5x0,5 / MJ3,5x0,6    |                                    | 66             | 28             | 23             | 36             | 0,5            | 6                      | TA211544.0300           | TA511544.0300           |
| 3,10                   |                         |                                    | 66             | 28             | 23             | 36             | 0,5            | 6                      | TA211544.0310           | TA511544.0310           |
| 3,15                   | M3,5x0,35               | #6-32                              | 66             | 28             | 23             | 36             | 0,5            | 6                      | TA211544.0315           | TA511544.0315           |
| 3,18                   |                         |                                    | 66             | 28             | 23             | 36             | 0,5            | 6                      | TA211544.0318           | TA511544.0318           |
| 3,20                   | MJ3,5x0,35              |                                    | 66             | 28             | 23             | 36             | 0,5            | 6                      | TA211544.0320           | TA511544.0320           |
| 3,22                   |                         | #6-40                              | 66             | 28             | 23             | 36             | 0,5            | 6                      | TA211544.0322           | TA511544.0322           |
| 3,25                   |                         | M3,5                               | 66             | 28             | 23             | 36             | 0,6            | 6                      | TA211544.0325           | TA511544.0325           |
| 3,30                   | M4                      | M3,5x0,5                           | 66             | 28             | 23             | 36             | 0,6            | 6                      | TA211544.0330           | TA511544.0330           |
| 3,35                   |                         |                                    | 66             | 28             | 23             | 36             | 0,6            | 6                      | TA211544.0335           | TA511544.0335           |
| 3,38                   |                         | M3,5x0,35                          | 66             | 28             | 23             | 36             | 0,6            | 6                      | TA211544.0338           | TA511544.0338           |
| 3,40                   | MJ4x0,7                 |                                    | 66             | 28             | 23             | 36             | 0,6            | 6                      | TA211544.0340           | TA511544.0340           |
| 3,50                   | M4x0,5 / #8-32 / #8-36  |                                    | 66             | 28             | 23             | 36             | 0,6            | 6                      | TA211544.0350           | TA511544.0350           |
| 3,55                   |                         |                                    | 66             | 28             | 23             | 36             | 0,6            | 6                      | TA211544.0355           | TA511544.0355           |
| 3,57                   |                         |                                    | 66             | 28             | 23             | 36             | 0,6            | 6                      | TA211544.0357           | TA511544.0357           |
| 3,60                   | MJ4x0,5                 |                                    | 66             | 28             | 23             | 36             | 0,6            | 6                      | TA211544.0360           | TA511544.0360           |
| 3,65                   | M4x0,35                 |                                    | 66             | 28             | 23             | 36             | 0,6            | 6                      | TA211544.0365           | TA511544.0365           |
| 3,70                   | M4,5                    | M4                                 | 66             | 28             | 23             | 36             | 0,6            | 6                      | TA211544.0370           | TA511544.0370           |
| 3,80                   |                         | M4x0,5 / #8-32                     | 74             | 36             | 29             | 36             | 0,6            | 6                      | TA211544.0380           | TA511544.0380           |
| 3,85                   |                         | #8-36                              | 74             | 36             | 29             | 36             | 0,7            | 6                      | TA211544.0385           | TA511544.0385           |
| 3,88                   |                         | M4x0,35                            | 74             | 36             | 29             | 36             | 0,7            | 6                      | TA211544.0388           | TA511544.0388           |
| 3,90                   | MJ4,5x0,75 / #10-24     |                                    | 74             | 36             | 29             | 36             | 0,7            | 6                      | TA211544.0390           | TA511544.0390           |
| 3,97                   |                         |                                    | 74             | 36             | 29             | 36             | 0,7            | 6                      | TA211544.0397           | TA511544.0397           |
| 4,00                   |                         |                                    | 74             | 36             | 29             | 36             | 0,7            | 6                      | TA211544.0400           | TA511544.0400           |
| 4,04                   |                         |                                    | 74             | 36             | 29             | 36             | 0,7            | 6                      | TA211544.0404           | TA511544.0404           |
| 4,10                   | MJ4,5x0,5 / #10-32      |                                    | 74             | 36             | 29             | 36             | 0,7            | 6                      | TA211544.0410           | TA511544.0410           |
| 4,15                   | M5x0,9                  |                                    | 74             | 36             | 29             | 36             | 0,7            | 6                      | TA211544.0415           | TA511544.0415           |
| 4,20                   | M5 / M5x0,75            | M4,5                               | 74             | 36             | 29             | 36             | 0,7            | 6                      | TA211544.0420           | TA511544.0420           |
| 4,30                   | MJ5x0,8                 | M4,5x0,5 / #10-24 (GAL)            | 74             | 36             | 29             | 36             | 0,7            | 6                      | TA211544.0430           | TA511544.0430           |
| 4,35                   |                         | #10-24                             | 74             | 36             | 29             | 36             | 0,7            | 6                      | TA211544.0435           | TA511544.0435           |
| 4,37                   |                         |                                    | 74             | 36             | 29             | 36             | 0,7            | 6                      | TA211544.0437           | TA511544.0437           |
| 4,40                   |                         |                                    | 74             | 36             | 29             | 36             | 0,7            | 6                      | TA211544.0440           | TA511544.0440           |
| 4,45                   |                         | #10-32                             | 74             | 36             | 29             | 36             | 0,8            | 6                      | TA211544.0445           | TA511544.0445           |
| 4,50                   | M5x0,5 / #12-24         |                                    | 74             | 36             | 29             | 36             | 0,8            | 6                      | TA211544.0450           | TA511544.0450           |
| 4,60                   | M5,5 / MJ5x0,5 / #12-28 |                                    | 74             | 36             | 29             | 36             | 0,8            | 6                      | TA211544.0460           | TA511544.0460           |
| 4,65                   |                         | M5                                 | 74             | 36             | 29             | 36             | 0,8            | 6                      | TA211544.0465           | TA511544.0465           |
| 4,70                   |                         | M5x0,75                            | 74             | 36             | 29             | 36             | 0,8            | 6                      | TA211544.0470           | TA511544.0470           |
| 4,76                   |                         |                                    | 82             | 44             | 35             | 36             | 0,8            | 6                      | TA211544.0476           | TA511544.0476           |
| 4,80                   |                         | M5x0,5                             | 82             | 44             | 35             | 36             | 0,8            | 6                      | TA211544.0480           | TA511544.0480           |
| 4,90                   |                         |                                    | 82             | 44             | 35             | 36             | 0,8            | 6                      | TA211544.0490           | TA511544.0490           |
| 5,00                   | M6                      | #12-24                             | 82             | 44             | 35             | 36             | 0,8            | 6                      | TA211544.0500           | TA511544.0500           |
| 5,10                   | MJ6x1 / 1/4-20          | M5,5 / #12-28                      | 82             | 44             | 35             | 36             | 0,9            | 6                      | TA211544.0510           | TA511544.0510           |
| 5,11                   |                         |                                    | 82             | 44             | 35             | 36             | 0,9            | 6                      | TA211544.0511           | TA511544.0511           |
| 5,16                   |                         |                                    | 82             | 44             | 35             | 36             | 0,9            | 6                      | TA211544.0516           | TA511544.0516           |
| 5,20                   | M6x0,75                 |                                    | 82             | 44             | 35             | 36             | 0,9            | 6                      | TA211544.0520           | TA511544.0520           |
| 5,25                   |                         |                                    | 82             | 44             | 35             | 36             | 0,9            | 6                      | TA211544.0525           | TA511544.0525           |
| 5,30                   |                         | M5,5x0,5                           | 82             | 44             | 35             | 36             | 0,9            | 6                      | TA211544.0530           | TA511544.0530           |
| 5,40                   |                         |                                    | 82             | 44             | 35             | 36             | 0,9            | 6                      | TA211544.0540           | TA511544.0540           |
| 5,41                   |                         |                                    | 82             | 44             | 35             | 36             | 0,9            | 6                      | TA211544.0541           | TA511544.0541           |
| 5,50                   | M6x0,5 / 1/4-28         |                                    | 82             | 44             | 35             | 36             | 0,9            | 6                      | TA211544.0550           | TA511544.0550           |

Product Finder

v<sub>c</sub> / f

BASIC

STEEL

INOX

G

HCUT

SpotDrill

Zubehör  
Accessories

3 x D

5 x D

6 x D

8 x D

12 x D

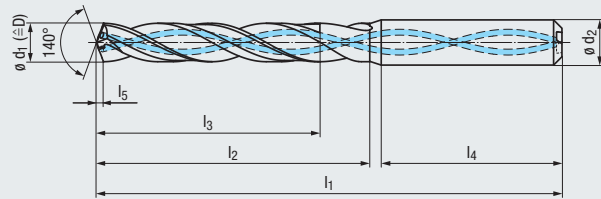
2-3,5 x D



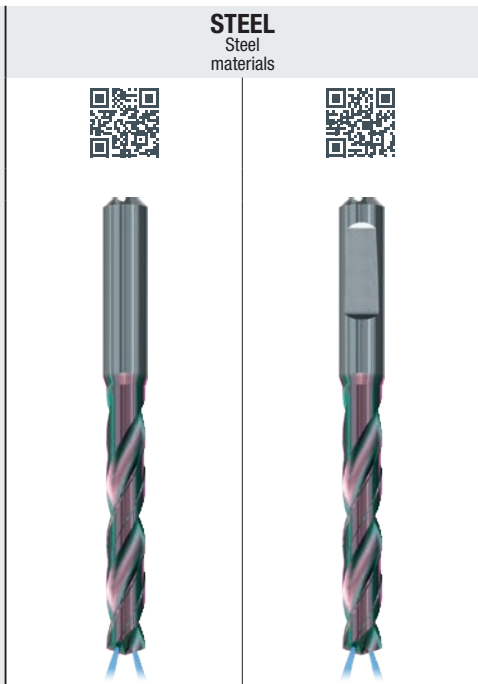
- Product Finder
- $v_c / f$
- BASIC
- STEEL
- INOX
- GG
- HCUT
- SpotDrill
- Zubehör  
Accessories
- 3 x D
- 5 x D
- 6 x D
- 8 x D
- 12 x D
- 2-3,5 x D

### SteelDrill-SD102

**5 x D** Lange Ausführung  
Long design



|                |          |
|----------------|----------|
| VHM<br>Carbide | ALTIN    |
| DIN<br>6537 L  | R30      |
| Z2             | 4FF      |
| 140°           | IT9-IT10 |
| DIN 6535       |          |
| HA             | HE       |



Bohrtiefe  
Drill depth

**5 x D**

Einsatzgebiete – Material  
Applications – material



P 1.1-5.1 K 1.1-4.2  
S 1.2-1.3, 2.2-2.3 H 1.1-1.3

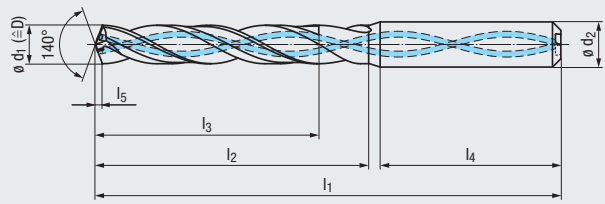
| $\emptyset d_1$<br>m7 | Gewindebohrer<br>Taps | Gewindeformer<br>Cold-forming taps | $l_1$ | $l_2$ | $l_3$ | $l_4$ | $l_5$ | $\emptyset d_2$<br>h6 | SteelDrill<br>SD102-5xD | SteelDrill<br>SD102-5xD |
|-----------------------|-----------------------|------------------------------------|-------|-------|-------|-------|-------|-----------------------|-------------------------|-------------------------|
|                       |                       |                                    |       |       |       |       |       |                       | HA                      | HE                      |
| 5,55                  |                       | M6 (GAL)                           | 82    | 44    | 35    | 36    | 0,9   | 6                     | TA211544.0555           | TA511544.0555           |
| 5,56                  |                       |                                    | 82    | 44    | 35    | 36    | 0,9   | 6                     | TA211544.0556           | TA511544.0556           |
| 5,60                  | MJ6x0,5               | M6                                 | 82    | 44    | 35    | 36    | 1,0   | 6                     | TA211544.0560           | TA511544.0560           |
| 5,70                  |                       | M6x0,75 / 1/4-20 (GAL)             | 82    | 44    | 35    | 36    | 1,0   | 6                     | TA211544.0570           | TA511544.0570           |
| 5,75                  |                       | 1/4-20                             | 82    | 44    | 35    | 36    | 1,0   | 6                     | TA211544.0575           | TA511544.0575           |
| 5,80                  |                       | M6x0,5                             | 82    | 44    | 35    | 36    | 1,0   | 6                     | TA211544.0580           | TA511544.0580           |
| 5,90                  |                       |                                    | 82    | 44    | 35    | 36    | 1,0   | 6                     | TA211544.0590           | TA511544.0590           |
| 5,95                  |                       | 1/4-28                             | 82    | 44    | 35    | 36    | 1,0   | 6                     | TA211544.0595           | TA511544.0595           |
| 6,00                  | M7                    |                                    | 82    | 44    | 35    | 36    | 1,0   | 6                     | TA211544.0600           | TA511544.0600           |
| 6,10                  | MJ7x1                 |                                    | 91    | 53    | 43    | 36    | 1,0   | 8                     | TA211544.0610           | TA511544.0610           |
| 6,20                  | M7x0,75               |                                    | 91    | 53    | 43    | 36    | 1,1   | 8                     | TA211544.0620           | TA511544.0620           |
| 6,30                  |                       |                                    | 91    | 53    | 43    | 36    | 1,1   | 8                     | TA211544.0630           | TA511544.0630           |
| 6,35                  | MJ7x0,75              |                                    | 91    | 53    | 43    | 36    | 1,1   | 8                     | TA211544.0635           | TA511544.0635           |
| 6,40                  |                       |                                    | 91    | 53    | 43    | 36    | 1,1   | 8                     | TA211544.0640           | TA511544.0640           |
| 6,50                  | M7x0,5                |                                    | 91    | 53    | 43    | 36    | 1,1   | 8                     | TA211544.0650           | TA511544.0650           |
| 6,53                  |                       |                                    | 91    | 53    | 43    | 36    | 1,1   | 8                     | TA211544.0653           | TA511544.0653           |
| 6,60                  | 5/16-18               | M7                                 | 91    | 53    | 43    | 36    | 1,1   | 8                     | TA211544.0660           | TA511544.0660           |
| 6,70                  |                       | M7x0,75                            | 91    | 53    | 43    | 36    | 1,1   | 8                     | TA211544.0670           | TA511544.0670           |
| 6,75                  |                       |                                    | 91    | 53    | 43    | 36    | 1,1   | 8                     | TA211544.0675           | TA511544.0675           |
| 6,80                  | M8 / G1/16            | M7x0,5                             | 91    | 53    | 43    | 36    | 1,2   | 8                     | TA211544.0680           | TA511544.0680           |
| 6,90                  | MJ8x1,25 / 5/16-24    |                                    | 91    | 53    | 43    | 36    | 1,2   | 8                     | TA211544.0690           | TA511544.0690           |
| 7,00                  | M8x1                  |                                    | 91    | 53    | 43    | 36    | 1,2   | 8                     | TA211544.0700           | TA511544.0700           |
| 7,10                  | MJ8x1                 |                                    | 91    | 53    | 43    | 36    | 1,2   | 8                     | TA211544.0710           | TA511544.0710           |
| 7,15                  |                       |                                    | 91    | 53    | 43    | 36    | 1,2   | 8                     | TA211544.0715           | TA511544.0715           |
| 7,20                  | M8x0,75               |                                    | 91    | 53    | 43    | 36    | 1,2   | 8                     | TA211544.0720           | TA511544.0720           |
| 7,25                  |                       | 5/16-18 (GAL) / G1/16              | 91    | 53    | 43    | 36    | 1,2   | 8                     | TA211544.0725           | TA511544.0725           |
| 7,30                  |                       | 5/16-18                            | 91    | 53    | 43    | 36    | 1,2   | 8                     | TA211544.0730           | TA511544.0730           |
| 7,40                  |                       | M8 (GAL) / 5/16-24 (GAL)           | 91    | 53    | 43    | 36    | 1,3   | 8                     | TA211544.0740           | TA511544.0740           |
| 7,45                  |                       | M8 / 5/16-24                       | 91    | 53    | 43    | 36    | 1,3   | 8                     | TA211544.0745           | TA511544.0745           |
| 7,50                  | M8x0,5                |                                    | 91    | 53    | 43    | 36    | 1,3   | 8                     | TA211544.0750           | TA511544.0750           |
| 7,54                  |                       |                                    | 91    | 53    | 43    | 36    | 1,3   | 8                     | TA211544.0754           | TA511544.0754           |
| 7,60                  |                       | M8x1                               | 91    | 53    | 43    | 36    | 1,3   | 8                     | TA211544.0760           | TA511544.0760           |
| 7,70                  |                       | M8x0,75                            | 91    | 53    | 43    | 36    | 1,3   | 8                     | TA211544.0770           | TA511544.0770           |
| 7,80                  |                       | M8x0,5                             | 91    | 53    | 43    | 36    | 1,3   | 8                     | TA211544.0780           | TA511544.0780           |
| 7,90                  | M9                    |                                    | 91    | 53    | 43    | 36    | 1,3   | 8                     | TA211544.0790           | TA511544.0790           |
| 7,94                  | MJ9x1,25              |                                    | 91    | 53    | 43    | 36    | 1,3   | 8                     | TA211544.0794           | TA511544.0794           |
| 8,00                  | M9x1 / 3/8-16         |                                    | 91    | 53    | 43    | 36    | 1,4   | 8                     | TA211544.0800           | TA511544.0800           |
| 8,10                  | MJ9x1                 |                                    | 103   | 61    | 49    | 40    | 1,4   | 10                    | TA211544.0810           | TA511544.0810           |
| 8,20                  | M9x0,75               |                                    | 103   | 61    | 49    | 40    | 1,4   | 10                    | TA211544.0820           | TA511544.0820           |
| 8,30                  |                       |                                    | 103   | 61    | 49    | 40    | 1,4   | 10                    | TA211544.0830           | TA511544.0830           |
| 8,33                  |                       |                                    | 103   | 61    | 49    | 40    | 1,4   | 10                    | TA211544.0833           | TA511544.0833           |
| 8,40                  |                       | M9 (GAL)                           | 103   | 61    | 49    | 40    | 1,4   | 10                    | TA211544.0840           | TA511544.0840           |
| 8,45                  |                       | M9                                 | 103   | 61    | 49    | 40    | 1,4   | 10                    | TA211544.0845           | TA511544.0845           |
| 8,50                  | M10 / M9x0,5 / 3/8-24 |                                    | 103   | 61    | 49    | 40    | 1,4   | 10                    | TA211544.0850           | TA511544.0850           |
| 8,60                  | MJ10x1,5              | M9x1                               | 103   | 61    | 49    | 40    | 1,5   | 10                    | TA211544.0860           | TA511544.0860           |
| 8,70                  |                       | M9x0,75                            | 103   | 61    | 49    | 40    | 1,5   | 10                    | TA211544.0870           | TA511544.0870           |
| 8,73                  |                       |                                    | 103   | 61    | 49    | 40    | 1,5   | 10                    | TA211544.0873           | TA511544.0873           |
| 8,80                  | M10x1,25 / G1/8       | M9x0,5 / 3/8-16                    | 103   | 61    | 49    | 40    | 1,5   | 10                    | TA211544.0880           | TA511544.0880           |
| 8,90                  | MJ10x1,25             |                                    | 103   | 61    | 49    | 40    | 1,5   | 10                    | TA211544.0890           | TA511544.0890           |

### SteelDrill-SD102

|             |          |
|-------------|----------|
| VHM Carbide | ALTIN    |
| DIN 6537 L  | R30      |
| Z2          | 4FF      |
| 140°        | IT9-IT10 |
| DIN 6535    |          |
| HA          | HE       |

STEEL Steel materials

**5 x D** Lange Ausführung  
Long design



Bohrtiefe  
Drill depth

**5 x D**

Einsatzgebiete – Material  
Applications – material

|                    |           |
|--------------------|-----------|
| P 1.1-5.1          | K 1.1-4.2 |
| S 1.2-1.3, 2.2-2.3 | H 1.1-1.3 |

| ø d <sub>1</sub><br>m7 | Gewindebohrer<br>Taps | Gewindeformer<br>Cold-forming taps | l <sub>1</sub> | l <sub>2</sub> | l <sub>3</sub> | l <sub>4</sub> | l <sub>5</sub> | ø d <sub>2</sub><br>h6 | SteelDrill<br>SD102-5xD | SteelDrill<br>SD102-5xD |
|------------------------|-----------------------|------------------------------------|----------------|----------------|----------------|----------------|----------------|------------------------|-------------------------|-------------------------|
|                        |                       |                                    |                |                |                |                |                |                        | HA                      | HE                      |
| 9,00                   | M10x1                 | 3/8-24 (GAL)                       | 103            | 61             | 49             | 40             | 1,5            | 10                     | TA211544.0900           | TA511544.0900           |
| 9,05                   |                       | 3/8-24                             | 103            | 61             | 49             | 40             | 1,5            | 10                     | TA211544.0905           | TA511544.0905           |
| 9,10                   | MJ10x1                |                                    | 103            | 61             | 49             | 40             | 1,5            | 10                     | TA211544.0910           | TA511544.0910           |
| 9,13                   |                       |                                    | 103            | 61             | 49             | 40             | 1,5            | 10                     | TA211544.0913           | TA511544.0913           |
| 9,20                   | M10x0,75              |                                    | 103            | 61             | 49             | 40             | 1,6            | 10                     | TA211544.0920           | TA511544.0920           |
| 9,30                   |                       | M10 (GAL)                          | 103            | 61             | 49             | 40             | 1,6            | 10                     | TA211544.0930           | TA511544.0930           |
| 9,35                   | MJ10x0,75             | M10                                | 103            | 61             | 49             | 40             | 1,6            | 10                     | TA211544.0935           | TA511544.0935           |
| 9,40                   | 7/16-14               | M10x1,25 (GAL)                     | 103            | 61             | 49             | 40             | 1,6            | 10                     | TA211544.0940           | TA511544.0940           |
| 9,45                   |                       | M10x1,25                           | 103            | 61             | 49             | 40             | 1,6            | 10                     | TA211544.0945           | TA511544.0945           |
| 9,50                   | M11 / M10x0,5         |                                    | 103            | 61             | 49             | 40             | 1,6            | 10                     | TA211544.0950           | TA511544.0950           |
| 9,53                   |                       |                                    | 103            | 61             | 49             | 40             | 1,6            | 10                     | TA211544.0953           | TA511544.0953           |
| 9,60                   | MJ10x0,5 / MJ11x1,5   | M10x1                              | 103            | 61             | 49             | 40             | 1,6            | 10                     | TA211544.0960           | TA511544.0960           |
| 9,70                   |                       | M10x0,75                           | 103            | 61             | 49             | 40             | 1,6            | 10                     | TA211544.0970           | TA511544.0970           |
| 9,80                   |                       | M10x0,5                            | 103            | 61             | 49             | 40             | 1,7            | 10                     | TA211544.0980           | TA511544.0980           |
| 9,90                   | MJ11x1,25 / 7/16-20   |                                    | 103            | 61             | 49             | 40             | 1,7            | 10                     | TA211544.0990           | TA511544.0990           |
| 9,92                   |                       |                                    | 103            | 61             | 49             | 40             | 1,7            | 10                     | TA211544.0992           | TA511544.0992           |
| 10,00                  | M11x1                 |                                    | 103            | 61             | 49             | 40             | 1,7            | 10                     | TA211544.1000           | TA511544.1000           |
| 10,10                  | MJ11x1                |                                    | 118            | 71             | 56             | 45             | 1,7            | 12                     | TA211544.1010           | TA511544.1010           |
| 10,20                  | M12 / M11x0,75        | 7/16-14 (GAL)                      | 118            | 71             | 56             | 45             | 1,7            | 12                     | TA211544.1020           | TA511544.1020           |
| 10,25                  |                       | 7/16-14                            | 118            | 71             | 56             | 45             | 1,7            | 12                     | TA211544.1025           | TA511544.1025           |
| 10,30                  |                       | M11 (GAL)                          | 118            | 71             | 56             | 45             | 1,7            | 12                     | TA211544.1030           | TA511544.1030           |
| 10,32                  |                       |                                    | 118            | 71             | 56             | 45             | 1,8            | 12                     | TA211544.1032           | TA511544.1032           |
| 10,35                  | MJ11x0,75             | M11                                | 118            | 71             | 56             | 45             | 1,8            | 12                     | TA211544.1035           | TA511544.1035           |
| 10,40                  |                       |                                    | 118            | 71             | 56             | 45             | 1,8            | 12                     | TA211544.1040           | TA511544.1040           |
| 10,50                  | M12x1,5               | 7/16-20 (GAL)                      | 118            | 71             | 56             | 45             | 1,8            | 12                     | TA211544.1050           | TA511544.1050           |
| 10,55                  |                       | M11x1 (GAL) / 7/16-20              | 118            | 71             | 56             | 45             | 1,8            | 12                     | TA211544.1055           | TA511544.1055           |
| 10,60                  | MJ12x1,5              | M11x1                              | 118            | 71             | 56             | 45             | 1,8            | 12                     | TA211544.1060           | TA511544.1060           |
| 10,70                  |                       | M11x0,75                           | 118            | 71             | 56             | 45             | 1,8            | 12                     | TA211544.1070           | TA511544.1070           |
| 10,72                  |                       |                                    | 118            | 71             | 56             | 45             | 1,8            | 12                     | TA211544.1072           | TA511544.1072           |
| 10,80                  | M12x1,25 / 1/2-13     |                                    | 118            | 71             | 56             | 45             | 1,8            | 12                     | TA211544.1080           | TA511544.1080           |
| 10,90                  | MJ12x1,25             |                                    | 118            | 71             | 56             | 45             | 1,8            | 12                     | TA211544.1090           | TA511544.1090           |
| 11,00                  | M12x1                 |                                    | 118            | 71             | 56             | 45             | 1,9            | 12                     | TA211544.1100           | TA511544.1100           |
| 11,10                  | MJ12x1                |                                    | 118            | 71             | 56             | 45             | 1,9            | 12                     | TA211544.1110           | TA511544.1110           |
| 11,11                  |                       |                                    | 118            | 71             | 56             | 45             | 1,9            | 12                     | TA211544.1111           | TA511544.1111           |
| 11,20                  | M12x0,75              | M12 (GAL)                          | 118            | 71             | 56             | 45             | 1,9            | 12                     | TA211544.1120           | TA511544.1120           |
| 11,25                  |                       | M12                                | 118            | 71             | 56             | 45             | 1,9            | 12                     | TA211544.1125           | TA511544.1125           |
| 11,30                  |                       | M12x1,5 (GAL)                      | 118            | 71             | 56             | 45             | 1,9            | 12                     | TA211544.1130           | TA511544.1130           |
| 11,35                  |                       | M12x1,5                            | 118            | 71             | 56             | 45             | 1,9            | 12                     | TA211544.1135           | TA511544.1135           |
| 11,40                  |                       | M12x1,25 (GAL)                     | 118            | 71             | 56             | 45             | 1,9            | 12                     | TA211544.1140           | TA511544.1140           |
| 11,45                  |                       | M12x1,25                           | 118            | 71             | 56             | 45             | 1,9            | 12                     | TA211544.1145           | TA511544.1145           |
| 11,50                  | 1/2-20                |                                    | 118            | 71             | 56             | 45             | 2,0            | 12                     | TA211544.1150           | TA511544.1150           |
| 11,51                  |                       |                                    | 118            | 71             | 56             | 45             | 2,0            | 12                     | TA211544.1151           | TA511544.1151           |
| 11,60                  |                       | M12x1                              | 118            | 71             | 56             | 45             | 2,0            | 12                     | TA211544.1160           | TA511544.1160           |
| 11,70                  |                       | M12x0,75                           | 118            | 71             | 56             | 45             | 2,0            | 12                     | TA211544.1170           | TA511544.1170           |
| 11,80                  | G1/4                  | 1/2-13                             | 118            | 71             | 56             | 45             | 2,0            | 12                     | TA211544.1180           | TA511544.1180           |
| 11,90                  |                       |                                    | 118            | 71             | 56             | 45             | 2,0            | 12                     | TA211544.1190           | TA511544.1190           |
| 11,91                  |                       |                                    | 118            | 71             | 56             | 45             | 2,0            | 12                     | TA211544.1191           | TA511544.1191           |
| 12,00                  | M14                   |                                    | 118            | 71             | 56             | 45             | 2,0            | 12                     | TA211544.1200           | TA511544.1200           |
| 12,10                  | MJ13x1                | 1/2-20 (GAL)                       | 124            | 77             | 60             | 45             | 2,1            | 14                     | TA201544.1210           | TA501544.1210           |

ø 12,15 mm - ø 20,00 mm →



Product Finder

v<sub>c</sub> / f

BASIC

STEEL

INOX

G

HCUT

SpotDrill

Zubehör  
Accessories

3 x D

5 x D

6 x D

8 x D

12 x D

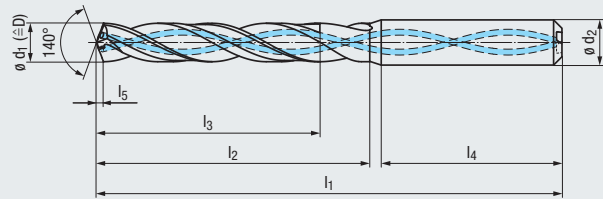
2-3,5 x D



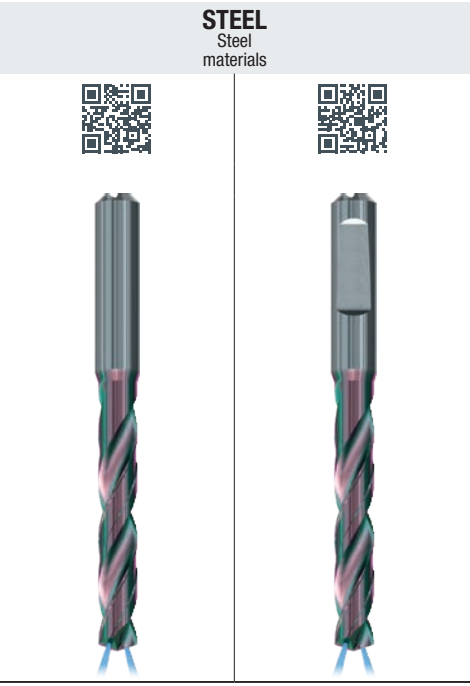
- Product Finder
- $v_c / f$
- BASIC
- STEEL
- INOX
- GG
- HCUT
- SpotDrill
- Zubehör  
Accessories
- 3 x D
- 5 x D
- 6 x D
- 8 x D
- 12 x D
- 2-3,5 x D

## SteelDrill-SD102

**5 x D** Lange Ausführung  
Long design



|             |          |
|-------------|----------|
| VHM Carbide | ALTIN    |
| DIN 6537 L  | R30      |
| Z2          | 4FF      |
| 140°        | IT9-IT10 |
| DIN 6535    |          |
| HA          | HE       |



Bohrtiefe  
Drill depth

**5 x D**

Einsatzgebiete – Material  
Applications – material » 14

|                    |           |
|--------------------|-----------|
| P 1.1-5.1          | K 1.1-4.2 |
| S 1.2-1.3, 2.2-2.3 | H 1.1-1.3 |

| $\phi d_1$<br>m7 | Gewindebohrer<br>Taps | Gewindeformer<br>Cold-forming taps |       |       |       |       |       | $\phi d_2$<br>h6 | SteelDrill<br>SD102-5xD | SteelDrill<br>SD102-5xD |
|------------------|-----------------------|------------------------------------|-------|-------|-------|-------|-------|------------------|-------------------------|-------------------------|
|                  |                       |                                    | $l_1$ | $l_2$ | $l_3$ | $l_4$ | $l_5$ |                  | HA                      | HE                      |
| 12,15            |                       | 1/2-20                             | 124   | 77    | 60    | 45    | 2,1   | 14               | TA211544.1215           | TA511544.1215           |
| 12,20            | 9/16-12               |                                    | 124   | 77    | 60    | 45    | 2,1   | 14               | TA211544.1220           | TA511544.1220           |
| 12,30            |                       |                                    | 124   | 77    | 60    | 45    | 2,1   | 14               | TA211544.1230           | TA511544.1230           |
| 12,50            | M14x1,5               | G1/4 (GAL)                         | 124   | 77    | 60    | 45    | 2,1   | 14               | TA211544.1250           | TA511544.1250           |
| 12,55            |                       | M13x1 (GAL) / G1/4                 | 124   | 77    | 60    | 45    | 2,1   | 14               | TA211544.1255           | TA511544.1255           |
| 12,60            | MJ14x1,5              | M13x1                              | 124   | 77    | 60    | 45    | 2,1   | 14               | TA211544.1260           | TA511544.1260           |
| 12,70            |                       | M13x0,75                           | 124   | 77    | 60    | 45    | 2,2   | 14               | TA211544.1270           | TA511544.1270           |
| 12,80            | M14x1,25              |                                    | 124   | 77    | 60    | 45    | 2,2   | 14               | TA211544.1280           | TA511544.1280           |
| 12,90            | MJ14x1,25 / 9/16-18   |                                    | 124   | 77    | 60    | 45    | 2,2   | 14               | TA211544.1290           | TA511544.1290           |
| 13,00            | M14x1                 |                                    | 124   | 77    | 60    | 45    | 2,2   | 14               | TA211544.1300           | TA511544.1300           |
| 13,10            | MJ14x1                | M14                                | 124   | 77    | 60    | 45    | 2,2   | 14               | TA211544.1310           | TA511544.1310           |
| 13,20            | M14x0,75              |                                    | 124   | 77    | 60    | 45    | 2,2   | 14               | TA211544.1320           | TA511544.1320           |
| 13,30            |                       | 9/16-12                            | 124   | 77    | 60    | 45    | 2,3   | 14               | TA211544.1330           | TA511544.1330           |
| 13,35            |                       | M14x1,5                            | 124   | 77    | 60    | 45    | 2,3   | 14               | TA211544.1335           | TA511544.1335           |
| 13,45            |                       | M14x1,25                           | 124   | 77    | 60    | 45    | 2,3   | 14               | TA211544.1345           | TA511544.1345           |
| 13,49            |                       |                                    | 124   | 77    | 60    | 45    | 2,3   | 14               | TA211544.1349           | TA511544.1349           |
| 13,50            | 5/8-11                |                                    | 124   | 77    | 60    | 45    | 2,3   | 14               | TA211544.1350           | TA511544.1350           |
| 13,60            | MJ15x1,5              | M14x1 / 9/16-18 (GAL)              | 124   | 77    | 60    | 45    | 2,3   | 14               | TA211544.1360           | TA511544.1360           |
| 13,65            |                       | 9/16-18                            | 124   | 77    | 60    | 45    | 2,3   | 14               | TA211544.1365           | TA511544.1365           |
| 13,70            |                       | M14x0,75                           | 124   | 77    | 60    | 45    | 2,3   | 14               | TA211544.1370           | TA511544.1370           |
| 13,80            |                       |                                    | 124   | 77    | 60    | 45    | 2,3   | 14               | TA211544.1380           | TA511544.1380           |
| 13,89            |                       |                                    | 124   | 77    | 60    | 45    | 2,4   | 14               | TA211544.1389           | TA511544.1389           |
| 14,00            | M16 / M15x1           |                                    | 124   | 77    | 60    | 45    | 2,4   | 14               | TA211544.1400           | TA511544.1400           |
| 14,10            | MJ15x1                |                                    | 133   | 83    | 63    | 48    | 2,4   | 16               | TA211544.1410           | TA511544.1410           |
| 14,20            | M15x0,75              |                                    | 133   | 83    | 63    | 48    | 2,4   | 16               | TA211544.1420           | TA511544.1420           |
| 14,29            |                       |                                    | 133   | 83    | 63    | 48    | 2,4   | 16               | TA211544.1429           | TA511544.1429           |
| 14,30            |                       |                                    | 133   | 83    | 63    | 48    | 2,4   | 16               | TA211544.1430           | TA511544.1430           |
| 14,40            |                       |                                    | 133   | 83    | 63    | 48    | 2,4   | 16               | TA211544.1440           | TA511544.1440           |
| 14,50            | M16x1,5 / 5/8-18      |                                    | 133   | 83    | 63    | 48    | 2,5   | 16               | TA211544.1450           | TA511544.1450           |
| 14,60            | MJ16x1,5              | M15x1                              | 133   | 83    | 63    | 48    | 2,5   | 16               | TA211544.1460           | TA511544.1460           |
| 14,68            |                       |                                    | 133   | 83    | 63    | 48    | 2,5   | 16               | TA211544.1468           | TA511544.1468           |
| 14,70            |                       | M15x0,75                           | 133   | 83    | 63    | 48    | 2,5   | 16               | TA211544.1470           | TA511544.1470           |
| 14,80            |                       | 5/8-11                             | 133   | 83    | 63    | 48    | 2,5   | 16               | TA211544.1480           | TA511544.1480           |
| 15,00            | M16x1                 |                                    | 133   | 83    | 63    | 48    | 2,5   | 16               | TA211544.1500           | TA511544.1500           |
| 15,08            |                       |                                    | 133   | 83    | 63    | 48    | 2,6   | 16               | TA211544.1508           | TA511544.1508           |
| 15,10            | MJ16x1                | M16                                | 133   | 83    | 63    | 48    | 2,6   | 16               | TA211544.1510           | TA511544.1510           |
| 15,20            | M16x0,75              | 5/8-18 (GAL)                       | 133   | 83    | 63    | 48    | 2,6   | 16               | TA211544.1520           | TA511544.1520           |
| 15,25            | G3/8                  | 5/8-18                             | 133   | 83    | 63    | 48    | 2,6   | 16               | TA211544.1525           | TA511544.1525           |
| 15,35            |                       | M16x1,5                            | 133   | 83    | 63    | 48    | 2,6   | 16               | TA211544.1535           | TA511544.1535           |
| 15,50            | M18                   |                                    | 133   | 83    | 63    | 48    | 2,6   | 16               | TA211544.1550           | TA511544.1550           |
| 15,60            |                       | M16x1                              | 133   | 83    | 63    | 48    | 2,6   | 16               | TA211544.1560           | TA511544.1560           |
| 15,80            | MJ18x2,5              |                                    | 133   | 83    | 63    | 48    | 2,7   | 16               | TA211544.1580           | TA511544.1580           |
| 15,88            |                       |                                    | 133   | 83    | 63    | 48    | 2,7   | 16               | TA211544.1588           | TA511544.1588           |
| 16,00            | M18x2                 |                                    | 133   | 83    | 63    | 48    | 2,7   | 16               | TA211544.1600           | TA511544.1600           |
| 16,27            |                       |                                    | 143   | 93    | 71    | 48    | 2,8   | 18               | TA211544.1627           | TA511544.1627           |
| 16,50            | M18x1,5 / 3/4-10      |                                    | 143   | 93    | 71    | 48    | 2,8   | 18               | TA211544.1650           | TA511544.1650           |
| 16,67            |                       |                                    | 143   | 93    | 71    | 48    | 2,8   | 18               | TA211544.1667           | TA511544.1667           |
| 17,00            | M18x1                 |                                    | 143   | 93    | 71    | 48    | 2,9   | 18               | TA211544.1700           | TA511544.1700           |
| 17,46            |                       |                                    | 143   | 93    | 71    | 48    | 3,0   | 18               | TA211544.1746           | TA511544.1746           |

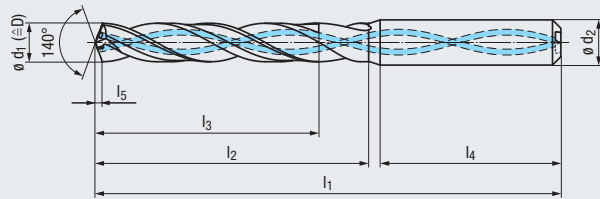


**SteelDrill-SD102**

|             |          |
|-------------|----------|
| VHM Carbide | ALTIN    |
| DIN 6537 L  | R30      |
| Z2          | 4FF      |
| 140°        | IT9-IT10 |
| DIN 6535    |          |
| HA          | HE       |

**STEEL**  
Steel materials

**5 x D** Lange Ausführung  
Long design



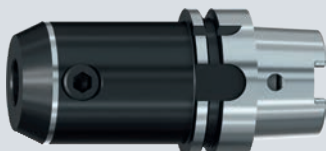
Bohrtiefe  
Drill depth

**5 x D**

Einsatzgebiete – Material  
Applications – material

|   |                  |   |         |
|---|------------------|---|---------|
| P | 1.1-5.1          | K | 1.1-4.2 |
| S | 1.2-1.3, 2.2-2.3 | H | 1.1-1.3 |

| ø d <sub>1</sub><br>m7 | Gewindebohrer<br>Taps | Gewindeformer<br>Cold-forming taps | l <sub>1</sub> | l <sub>2</sub> | l <sub>3</sub> | l <sub>4</sub> | l <sub>5</sub> | ø d <sub>2</sub><br>h6 | SteelDrill<br>SD102-5xD | SteelDrill<br>SD102-5xD |
|------------------------|-----------------------|------------------------------------|----------------|----------------|----------------|----------------|----------------|------------------------|-------------------------|-------------------------|
|                        |                       |                                    |                |                |                |                |                |                        | HA                      | HE                      |
| 17,50                  | M20 / 3/4-16          |                                    | 143            | 93             | 71             | 48             | 3,0            | 18                     | TA211544.1750           | TA511544.1750           |
| 17,60                  |                       | M18x1                              | 143            | 93             | 71             | 48             | 3,0            | 18                     | TA211544.1760           | TA511544.1760           |
| 18,00                  | M20x2                 |                                    | 143            | 93             | 71             | 48             | 3,1            | 18                     | TA211544.1800           | TA511544.1800           |
| 18,50                  | M20x1,5               |                                    | 153            | 101            | 77             | 50             | 3,1            | 20                     | TA211544.1850           | TA511544.1850           |
| 18,85                  |                       | M20                                | 153            | 101            | 77             | 50             | 3,2            | 20                     | TA211544.1885           | TA511544.1885           |
| 19,00                  | M20x1 / G1/2          |                                    | 153            | 101            | 77             | 50             | 3,2            | 20                     | TA211544.1900           | TA511544.1900           |
| 19,05                  |                       |                                    | 153            | 101            | 77             | 50             | 3,2            | 20                     | TA211544.1905           | TA511544.1905           |
| 19,35                  |                       | M20x1,5                            | 153            | 101            | 77             | 50             | 3,3            | 20                     | TA211544.1935           | TA511544.1935           |
| 19,50                  | M22 / 7/8-9           |                                    | 153            | 101            | 77             | 50             | 3,3            | 20                     | TA211544.1950           | TA511544.1950           |
| 19,60                  |                       | M20x1                              | 153            | 101            | 77             | 50             | 3,3            | 20                     | TA211544.1960           | TA511544.1960           |
| 20,00                  | M22x2                 |                                    | 153            | 101            | 77             | 50             | 3,4            | 20                     | TA211544.2000           | TA511544.2000           |



Werkzeug-Aufnahmen für Zylinderschäfte  
mit geneigter Spannfläche  
siehe Seite 66 - 67

Tool holders for straight shanks  
with inclined clamping flat,  
see page 66 - 67

- Product Finder
- $v_c / f$
- BASIC
- STEEL
- INOX
- GG
- HCUT
- SpotDrill
- Zubehör  
Accessories
- 3 x D
- 5 x D
- 6 x D
- 8 x D**
- 12 x D
- 2-3,5 x D

## EF-Drill-STEEL

VHM  
Carbide

TIALN

STEEL  
Steel  
materials

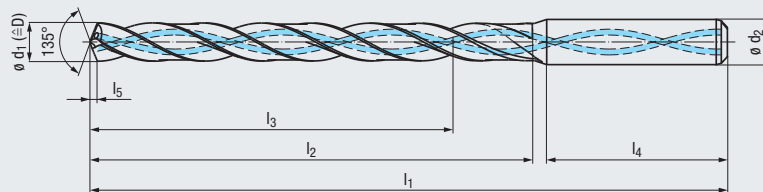
R30



DIN 6535



**8 x D** Extra lange Ausführung  
Extra longong design



Eine Vorzentrierung durch den Einsatz eines Vorbohrers (z.B. NC SpotDrill) wird empfohlen  
Preparatory centering with a centering drill (p.ex. NC SpotDrill) is recommended

Bohrtiefe  
Drill depth

**8 x D**

Einsatzgebiete – Material  
Applications – material



|                  |                  |                  |
|------------------|------------------|------------------|
| <b>P</b> 1.1-5.1 | <b>K</b> 1.1-4.2 | <b>N</b> 1.1-2.8 |
| <b>S</b> 1.2-1.3 | <b>S</b> 2.2-2.3 | <b>H</b> 1.1-1.3 |

| $\emptyset d_1$<br>m7 | Gewindebohrer<br>Taps   | Gewindeformer<br>Cold-forming taps | $l_1$ | $l_2$ | $l_3$ | $l_4$ | $l_5$ | $\emptyset d_2$<br>h6 | EF-Drill<br>STEEL-8xD | HA |
|-----------------------|-------------------------|------------------------------------|-------|-------|-------|-------|-------|-----------------------|-----------------------|----|
|                       |                         |                                    |       |       |       |       |       |                       |                       |    |
| 2,80                  |                         | M3                                 | 70    | 30    | 24    | 36    | 0,6   | 6                     | TA223344.0280         |    |
| 2,85                  | #6-32                   |                                    | 70    | 30    | 24    | 36    | 0,6   | 6                     | TA223344.0285         |    |
| 2,90                  | M3,5                    | #5-40                              | 70    | 30    | 24    | 36    | 0,7   | 6                     | TA223344.0290         |    |
| 3,00                  | M3,5x0,5 / MJ3,5x0,6    |                                    | 78    | 38    | 30    | 36    | 0,7   | 6                     | TA223344.0300         |    |
| 3,10                  |                         |                                    | 78    | 38    | 30    | 36    | 0,7   | 6                     | TA223344.0310         |    |
| 3,15                  | M3,5x0,35               | #6-32                              | 78    | 38    | 30    | 36    | 0,7   | 6                     | TA223344.0315         |    |
| 3,20                  | MJ3,5x0,35              |                                    | 78    | 38    | 30    | 36    | 0,7   | 6                     | TA223344.0320         |    |
| 3,25                  |                         | M3,5                               | 78    | 38    | 30    | 36    | 0,7   | 6                     | TA223344.0325         |    |
| 3,30                  | M4                      | M3,5x0,5                           | 78    | 38    | 30    | 36    | 0,7   | 6                     | TA223344.0330         |    |
| 3,35                  |                         |                                    | 78    | 38    | 30    | 36    | 0,7   | 6                     | TA223344.0335         |    |
| 3,38                  |                         | M3,5x0,35                          | 78    | 38    | 30    | 36    | 0,8   | 6                     | TA223344.0338         |    |
| 3,40                  | MJ4x0,7                 |                                    | 78    | 38    | 30    | 36    | 0,8   | 6                     | TA223344.0340         |    |
| 3,50                  | M4x0,5 / #8-32 / #8-36  |                                    | 78    | 38    | 30    | 36    | 0,8   | 6                     | TA223344.0350         |    |
| 3,55                  |                         |                                    | 78    | 38    | 30    | 36    | 0,8   | 6                     | TA223344.0355         |    |
| 3,60                  | MJ4x0,5                 |                                    | 78    | 38    | 30    | 36    | 0,8   | 6                     | TA223344.0360         |    |
| 3,65                  | M4x0,35                 |                                    | 78    | 38    | 30    | 36    | 0,8   | 6                     | TA223344.0365         |    |
| 3,70                  | M4,5                    | M4                                 | 78    | 38    | 30    | 36    | 0,8   | 6                     | TA223344.0370         |    |
| 3,80                  |                         | M4x0,5 / #8-32                     | 88    | 48    | 38    | 36    | 0,8   | 6                     | TA223344.0380         |    |
| 3,88                  |                         | M4x0,35                            | 88    | 48    | 38    | 36    | 0,9   | 6                     | TA223344.0388         |    |
| 3,90                  | MJ4,5x0,75 / #10-24     |                                    | 88    | 48    | 38    | 36    | 0,9   | 6                     | TA223344.0390         |    |
| 4,00                  |                         |                                    | 88    | 48    | 38    | 36    | 0,9   | 6                     | TA223344.0400         |    |
| 4,10                  | MJ4,5x0,5 / #10-32      |                                    | 88    | 48    | 38    | 36    | 0,9   | 6                     | TA223344.0410         |    |
| 4,15                  | M5x0,9                  |                                    | 88    | 48    | 38    | 36    | 0,9   | 6                     | TA223344.0415         |    |
| 4,20                  | M5 / M5x0,75            | M4,5                               | 88    | 48    | 38    | 36    | 0,9   | 6                     | TA223344.0420         |    |
| 4,30                  | MJ5x0,8                 | M4,5x0,5 / #10-24 (GAL)            | 88    | 48    | 38    | 36    | 0,9   | 6                     | TA223344.0430         |    |
| 4,35                  |                         | #10-24                             | 88    | 48    | 38    | 36    | 1,0   | 6                     | TA223344.0435         |    |
| 4,40                  |                         |                                    | 88    | 48    | 38    | 36    | 1,0   | 6                     | TA223344.0440         |    |
| 4,45                  |                         | #10-32                             | 88    | 48    | 38    | 36    | 1,0   | 6                     | TA223344.0445         |    |
| 4,50                  | M5x0,5 / #12-24         |                                    | 88    | 48    | 38    | 36    | 1,0   | 6                     | TA223344.0450         |    |
| 4,60                  | M5,5 / MJ5x0,5 / #12-28 |                                    | 88    | 48    | 38    | 36    | 1,0   | 6                     | TA223344.0460         |    |
| 4,65                  |                         | M5                                 | 88    | 48    | 38    | 36    | 1,0   | 6                     | TA223344.0465         |    |
| 4,70                  |                         | M5x0,75                            | 88    | 48    | 38    | 36    | 1,0   | 6                     | TA223344.0470         |    |
| 4,80                  |                         | M5x0,5                             | 97    | 60    | 48    | 36    | 1,0   | 6                     | TA223344.0480         |    |
| 4,90                  |                         |                                    | 97    | 60    | 48    | 36    | 1,1   | 6                     | TA223344.0490         |    |
| 5,00                  | M6                      | #12-24                             | 97    | 60    | 48    | 36    | 1,1   | 6                     | TA223344.0500         |    |
| 5,10                  | MJ6x1 / 1/4-20          | M5,5 / #12-28                      | 97    | 60    | 48    | 36    | 1,1   | 6                     | TA223344.0510         |    |
| 5,20                  | M6x0,75                 |                                    | 97    | 60    | 48    | 36    | 1,1   | 6                     | TA223344.0520         |    |
| 5,25                  |                         |                                    | 97    | 60    | 48    | 36    | 1,1   | 6                     | TA223344.0525         |    |
| 5,30                  |                         | M5,5x0,5                           | 97    | 60    | 48    | 36    | 1,1   | 6                     | TA223344.0530         |    |
| 5,40                  |                         |                                    | 97    | 60    | 48    | 36    | 1,2   | 6                     | TA223344.0540         |    |
| 5,50                  | M6x0,5 / 1/4-28         |                                    | 97    | 60    | 48    | 36    | 1,2   | 6                     | TA223344.0550         |    |
| 5,55                  |                         | M6 (GAL)                           | 97    | 60    | 48    | 36    | 1,2   | 6                     | TA223344.0555         |    |

**EF-Drill-STEEL**

**VHM Carbide**

**TIALN**

**R30**

**Z2**

**4FF**

**140°**

**IT9-IT11**

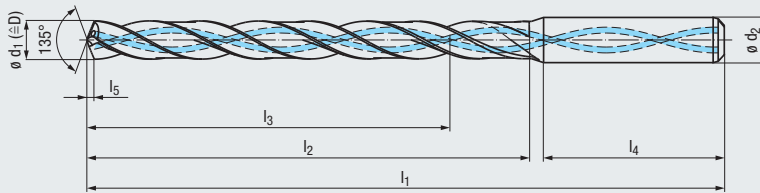
**DIN 6535**

HA

**STEEL**  
Steel materials



**8 x D** Extra lange Ausführung  
Extra long design



Eine Vorzentrierung durch den Einsatz eines Vorbohrers (z.B. NC SpotDrill) wird empfohlen  
Preparatory centering with a centering drill (p.ex. NC SpotDrill) is recommended

Bohrtiefe  
Drill depth

**8 x D**

Einsatzgebiete – Material  
Applications – material



|                  |                  |                  |
|------------------|------------------|------------------|
| <b>P</b> 1.1-5.1 | <b>K</b> 1.1-4.2 | <b>N</b> 1.1-2.8 |
| <b>S</b> 1.2-1.3 | <b>S</b> 2.2-2.3 | <b>H</b> 1.1-1.3 |

| ø d <sub>1</sub><br>m7 | Gewindebohrer<br>Taps | Gewindeformer<br>Cold-forming taps | l <sub>1</sub> | l <sub>2</sub> | l <sub>3</sub> | l <sub>4</sub> | l <sub>5</sub> | ø d <sub>2</sub><br>h6 | EF-Drill<br>STEEL-8xD |  |
|------------------------|-----------------------|------------------------------------|----------------|----------------|----------------|----------------|----------------|------------------------|-----------------------|--|
|                        |                       |                                    |                |                |                |                |                |                        | HA                    |  |
| 5,60                   | MJ6x0,5               | M6                                 | 97             | 60             | 48             | 36             | 1,2            | 6                      | TA223344.0560         |  |
| 5,70                   |                       | M6x0,75 / 1/4-20 (GAL)             | 97             | 60             | 48             | 36             | 1,2            | 6                      | TA223344.0570         |  |
| 5,80                   |                       | M6x0,5                             | 97             | 60             | 48             | 36             | 1,3            | 6                      | TA223344.0580         |  |
| 5,90                   |                       |                                    | 97             | 60             | 48             | 36             | 1,3            | 6                      | TA223344.0590         |  |
| 6,00                   | M7                    |                                    | 97             | 60             | 48             | 36             | 1,3            | 6                      | TA223344.0600         |  |
| 6,10                   | MJ7x1                 |                                    | 107            | 70             | 56             | 36             | 1,3            | 8                      | TA223344.0610         |  |
| 6,20                   | M7x0,75               |                                    | 107            | 70             | 56             | 36             | 1,3            | 8                      | TA223344.0620         |  |
| 6,30                   |                       |                                    | 107            | 70             | 56             | 36             | 1,4            | 8                      | TA223344.0630         |  |
| 6,35                   | MJ7x0,75              |                                    | 107            | 70             | 56             | 36             | 1,4            | 8                      | TA223344.0635         |  |
| 6,40                   |                       |                                    | 107            | 70             | 56             | 36             | 1,4            | 8                      | TA223344.0640         |  |
| 6,50                   | M7x0,5                |                                    | 107            | 70             | 56             | 36             | 1,4            | 8                      | TA223344.0650         |  |
| 6,60                   | 5/16-18               | M7                                 | 107            | 70             | 56             | 36             | 1,4            | 8                      | TA223344.0660         |  |
| 6,70                   |                       | M7x0,75                            | 107            | 70             | 56             | 36             | 1,4            | 8                      | TA223344.0670         |  |
| 6,80                   | M8 / G1/16            | M7x0,5                             | 107            | 70             | 56             | 36             | 1,5            | 8                      | TA223344.0680         |  |
| 6,90                   | MJ8x1,25 / 5/16-24    |                                    | 107            | 70             | 56             | 36             | 1,5            | 8                      | TA223344.0690         |  |
| 7,00                   | M8x1                  |                                    | 107            | 70             | 56             | 36             | 1,5            | 8                      | TA223344.0700         |  |
| 7,10                   | MJ8x1                 |                                    | 117            | 80             | 64             | 36             | 1,5            | 8                      | TA223344.0710         |  |
| 7,20                   | M8x0,75               |                                    | 117            | 80             | 64             | 36             | 1,5            | 8                      | TA223344.0720         |  |
| 7,30                   |                       | 5/16-18                            | 117            | 80             | 64             | 36             | 1,6            | 8                      | TA223344.0730         |  |
| 7,40                   |                       | M8 (GAL) / 5/16-24 (GAL)           | 117            | 80             | 64             | 36             | 1,6            | 8                      | TA223344.0740         |  |
| 7,45                   |                       | M8 / 5/16-24                       | 117            | 80             | 64             | 36             | 1,6            | 8                      | TA223344.0745         |  |
| 7,50                   | M8x0,5                |                                    | 117            | 80             | 64             | 36             | 1,6            | 8                      | TA223344.0750         |  |
| 7,60                   |                       | M8x1                               | 117            | 80             | 64             | 36             | 1,6            | 8                      | TA223344.0760         |  |
| 7,70                   |                       | M8x0,75                            | 117            | 80             | 64             | 36             | 1,6            | 8                      | TA223344.0770         |  |
| 7,80                   | M9                    | M8x0,5                             | 117            | 80             | 64             | 36             | 1,7            | 8                      | TA223344.0780         |  |
| 7,90                   | MJ9x1,25              |                                    | 117            | 80             | 64             | 36             | 1,7            | 8                      | TA223344.0790         |  |
| 8,00                   | M9x1 / 3/8-16         |                                    | 117            | 80             | 64             | 36             | 1,7            | 8                      | TA223344.0800         |  |
| 8,10                   | MJ9x1                 |                                    | 141            | 100            | 80             | 40             | 1,7            | 10                     | TA223344.0810         |  |
| 8,20                   | M9x0,75               |                                    | 141            | 100            | 80             | 40             | 1,7            | 10                     | TA223344.0820         |  |
| 8,30                   |                       |                                    | 141            | 100            | 80             | 40             | 1,8            | 10                     | TA223344.0830         |  |
| 8,40                   |                       | M9 (GAL)                           | 141            | 100            | 80             | 40             | 1,8            | 10                     | TA223344.0840         |  |
| 8,45                   |                       | M9                                 | 141            | 100            | 80             | 40             | 1,8            | 10                     | TA223344.0845         |  |
| 8,50                   | M10 / M9x0,5 / 3/8-24 |                                    | 141            | 100            | 80             | 40             | 1,8            | 10                     | TA223344.0850         |  |
| 8,60                   | MJ10x1,5              | M9x1                               | 141            | 100            | 80             | 40             | 1,8            | 10                     | TA223344.0860         |  |
| 8,70                   |                       | M9x0,75                            | 141            | 100            | 80             | 40             | 1,9            | 10                     | TA223344.0870         |  |
| 8,80                   | M10x1,25 / G1/8       | M9x0,5 / 3/8-16                    | 141            | 100            | 80             | 40             | 1,9            | 10                     | TA223344.0880         |  |
| 8,90                   | MJ10x1,25             |                                    | 141            | 100            | 80             | 40             | 1,9            | 10                     | TA223344.0890         |  |
| 9,00                   | M10x1                 | 3/8-24 (GAL)                       | 141            | 100            | 80             | 40             | 1,9            | 10                     | TA223344.0900         |  |
| 9,10                   | MJ10x1                |                                    | 141            | 100            | 80             | 40             | 1,9            | 10                     | TA223344.0910         |  |
| 9,20                   | M10x0,75              |                                    | 141            | 100            | 80             | 40             | 2,0            | 10                     | TA223344.0920         |  |
| 9,30                   |                       | M10 (GAL)                          | 141            | 100            | 80             | 40             | 2,0            | 10                     | TA223344.0930         |  |
| 9,35                   | MJ10x0,75             | M10                                | 141            | 100            | 80             | 40             | 2,0            | 10                     | TA223344.0935         |  |

ø 9,40 mm - ø 20,00 mm →

- Product Finder
- v<sub>c</sub> / f
- BASIC
- STEEL
- INOX
- GU
- HCUT
- SpotDrill
- Zubehör  
Accessories
- 3 x D
- 5 x D
- 6 x D
- 8 x D
- 12 x D
- 2-3,5 x D



- Product Finder
- $v_c / f$
- BASIC
- STEEL
- INOX
- GG
- HCUT
- SpotDrill
- Zubehör  
Accessories
- 3 x D
- 5 x D
- 6 x D
- 8 x D**
- 12 x D
- 2-3,5 x D

### EF-Drill-STEEL

VHM  
Carbide

TIALN

STEEL  
Steel  
materials

R30

Z2



4FF



135°



IT9-IT11

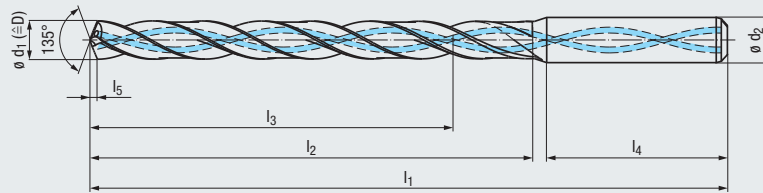
DIN 6535

HA



## 8 x D

Extra lange Ausführung  
Extra long design



Eine Vorzentrierung durch den Einsatz eines Vorbohrers (z.B. NC SpotDrill) wird empfohlen  
Preparatory centering with a centering drill (p.ex. NC SpotDrill) is recommended

Bohrtiefe  
Drill depth

## 8 x D

Einsatzgebiete – Material  
Applications – material



|                  |                  |                  |
|------------------|------------------|------------------|
| <b>P</b> 1.1-5.1 | <b>K</b> 1.1-4.2 | <b>N</b> 1.1-2.8 |
| <b>S</b> 1.2-1.3 | <b>S</b> 2.2-2.3 | <b>H</b> 1.1-1.3 |

| $\varnothing d_1$<br>m7 | Gewindebohrer<br>Taps | Gewindeformer<br>Cold-forming taps |       |       |       |       |       | $\varnothing d_2$<br>h6 | EF-Drill<br>STEEL-8xD | HA |
|-------------------------|-----------------------|------------------------------------|-------|-------|-------|-------|-------|-------------------------|-----------------------|----|
|                         |                       |                                    | $l_1$ | $l_2$ | $l_3$ | $l_4$ | $l_5$ |                         |                       |    |
| 9,40                    | 7/16-14               | M10x1,25 (GAL)                     | 141   | 100   | 80    | 40    | 2,0   | 10                      | TA223344.0940         |    |
| 9,45                    |                       | M10x1,25                           | 141   | 100   | 80    | 40    | 2,0   | 10                      | TA223344.0945         |    |
| 9,50                    | M11 / M10x0,5         |                                    | 141   | 100   | 80    | 40    | 2,0   | 10                      | TA223344.0950         |    |
| 9,60                    | MJ10x0,5 / MJ11x1,5   | M10x1                              | 141   | 100   | 80    | 40    | 2,0   | 10                      | TA223344.0960         |    |
| 9,70                    |                       | M10x0,75                           | 141   | 100   | 80    | 40    | 2,1   | 10                      | TA223344.0970         |    |
| 9,80                    |                       | M10x0,5                            | 141   | 100   | 80    | 40    | 2,1   | 10                      | TA223344.0980         |    |
| 9,90                    | MJ11x1,25 / 7/16-20   |                                    | 141   | 100   | 80    | 40    | 2,1   | 10                      | TA223344.0990         |    |
| 10,00                   | M11x1                 |                                    | 141   | 100   | 80    | 40    | 2,1   | 10                      | TA223344.1000         |    |
| 10,10                   | MJ11x1                |                                    | 166   | 120   | 96    | 45    | 2,1   | 12                      | TA223344.1010         |    |
| 10,20                   | M12 / M11x0,75        | 7/16-14 (GAL)                      | 166   | 120   | 96    | 45    | 2,2   | 12                      | TA223344.1020         |    |
| 10,30                   |                       | M11 (GAL)                          | 166   | 120   | 96    | 45    | 2,2   | 12                      | TA223344.1030         |    |
| 10,35                   | MJ11x0,75             | M11                                | 166   | 120   | 96    | 45    | 2,2   | 12                      | TA223344.1035         |    |
| 10,40                   |                       |                                    | 166   | 120   | 96    | 45    | 2,2   | 12                      | TA223344.1040         |    |
| 10,50                   | M12x1,5               | 7/16-20 (GAL)                      | 166   | 120   | 96    | 45    | 2,2   | 12                      | TA223344.1050         |    |
| 10,60                   | MJ12x1,5              | M11x1                              | 166   | 120   | 96    | 45    | 2,2   | 12                      | TA223344.1060         |    |
| 10,70                   |                       | M11x0,75                           | 166   | 120   | 96    | 45    | 2,3   | 12                      | TA223344.1070         |    |
| 10,80                   | M12x1,25 / 1/2-13     |                                    | 166   | 120   | 96    | 45    | 2,3   | 12                      | TA223344.1080         |    |
| 10,90                   | MJ12x1,25             |                                    | 166   | 120   | 96    | 45    | 2,3   | 12                      | TA223344.1090         |    |
| 11,00                   | M12x1                 |                                    | 166   | 120   | 96    | 45    | 2,3   | 12                      | TA223344.1100         |    |
| 11,10                   | MJ12x1                |                                    | 166   | 120   | 96    | 45    | 2,3   | 12                      | TA223344.1110         |    |
| 11,20                   | M12x0,75              | M12 (GAL)                          | 166   | 120   | 96    | 45    | 2,4   | 12                      | TA223344.1120         |    |
| 11,25                   |                       | M12                                | 166   | 120   | 96    | 45    | 2,4   | 12                      | TA223344.1125         |    |
| 11,30                   |                       | M12x1,5 (GAL)                      | 166   | 120   | 96    | 45    | 2,4   | 12                      | TA223344.1130         |    |
| 11,35                   |                       | M12x1,5                            | 166   | 120   | 96    | 45    | 2,4   | 12                      | TA223344.1135         |    |
| 11,40                   |                       | M12x1,25 (GAL)                     | 166   | 120   | 96    | 45    | 2,4   | 12                      | TA223344.1140         |    |
| 11,45                   |                       | M12x1,25                           | 166   | 120   | 96    | 45    | 2,4   | 12                      | TA223344.1145         |    |
| 11,50                   | 1/2-20                |                                    | 166   | 120   | 96    | 45    | 2,4   | 12                      | TA223344.1150         |    |
| 11,60                   |                       | M12x1                              | 166   | 120   | 96    | 45    | 2,5   | 12                      | TA223344.1160         |    |
| 11,70                   |                       | M12x0,75                           | 166   | 120   | 96    | 45    | 2,5   | 12                      | TA223344.1170         |    |
| 11,80                   | G1/4                  | 1/2-13                             | 166   | 120   | 96    | 45    | 2,5   | 12                      | TA223344.1180         |    |
| 11,90                   |                       |                                    | 166   | 120   | 96    | 45    | 2,5   | 12                      | TA223344.1190         |    |
| 12,00                   | M14                   |                                    | 166   | 120   | 96    | 45    | 2,5   | 12                      | TA223344.1200         |    |
| 12,20                   | 9/16-12               |                                    | 186   | 140   | 112   | 45    | 2,6   | 14                      | TA223344.1220         |    |
| 12,30                   |                       |                                    | 186   | 140   | 112   | 45    | 2,6   | 14                      | TA223344.1230         |    |
| 12,50                   | M14x1,5               | G1/4 (GAL)                         | 186   | 140   | 112   | 45    | 2,6   | 14                      | TA223344.1250         |    |
| 12,60                   | MJ14x1,5              | M13x1                              | 186   | 140   | 112   | 45    | 2,7   | 14                      | TA223344.1260         |    |
| 12,70                   |                       | M13x0,75                           | 186   | 140   | 112   | 45    | 2,7   | 14                      | TA223344.1270         |    |
| 12,80                   | M14x1,25              |                                    | 186   | 140   | 112   | 45    | 2,7   | 14                      | TA223344.1280         |    |
| 12,90                   | MJ14x1,25 / 9/16-18   |                                    | 186   | 140   | 112   | 45    | 2,7   | 14                      | TA223344.1290         |    |
| 13,00                   | M14x1                 |                                    | 186   | 140   | 112   | 45    | 2,7   | 14                      | TA223344.1300         |    |
| 13,10                   | MJ14x1                | M14                                | 186   | 140   | 112   | 45    | 2,8   | 14                      | TA223344.1310         |    |
| 13,20                   | M14x0,75              |                                    | 186   | 140   | 112   | 45    | 2,8   | 14                      | TA223344.1320         |    |

**EF-Drill-STEEL**

**VHM Carbide**

**TIALN**

**R30**

**Z2**

**4FF**

**IT9-IT11**

**135°**

**DIN 6535**

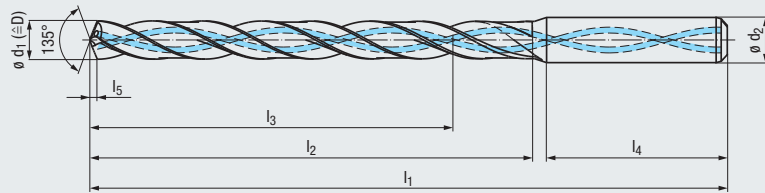
HA

**STEEL**  
Steel materials




- Product Finder
- v<sub>c</sub> / f
- BASIC
- STEEL
- INOX
- GU
- HCUT
- SpotDrill
- Zubehör Accessories
- 3 x D
- 5 x D
- 6 x D
- 8 x D**
- 12 x D
- 2-3,5 x D

**8 x D** Extra lange Ausführung  
Extra long design



Eine Vorzentrierung durch den Einsatz eines Vorbohrers (z.B. NC SpotDrill) wird empfohlen  
Preparatory centering with a centering drill (p.ex. NC SpotDrill) is recommended

Bohrtiefe  
Drill depth

**8 x D**

Einsatzgebiete – Material  
Applications – material



|                  |                  |                  |
|------------------|------------------|------------------|
| <b>P</b> 1.1-5.1 | <b>K</b> 1.1-4.2 | <b>N</b> 1.1-2.8 |
| <b>S</b> 1.2-1.3 | <b>S</b> 2.2-2.3 | <b>H</b> 1.1-1.3 |

| ø d <sub>1</sub><br>m7 | Gewindebohrer<br>Taps | Gewindeformer<br>Cold-forming taps | l <sub>1</sub> | l <sub>2</sub> | l <sub>3</sub> | l <sub>4</sub> | l <sub>5</sub> | ø d <sub>2</sub><br>h6 | EF-Drill      |    |
|------------------------|-----------------------|------------------------------------|----------------|----------------|----------------|----------------|----------------|------------------------|---------------|----|
|                        |                       |                                    |                |                |                |                |                |                        | STEEL-8xD     | HA |
| 13,30                  |                       | 9/16-12                            | 186            | 140            | 112            | 45             | 2,8            | 14                     | TA223344.1330 |    |
| 13,35                  |                       | M14x1,5                            | 186            | 140            | 112            | 45             | 2,8            | 14                     | TA223344.1335 |    |
| 13,45                  |                       | M14x1,25                           | 186            | 140            | 112            | 45             | 2,8            | 14                     | TA223344.1345 |    |
| 13,50                  | 5/8-11                |                                    | 186            | 140            | 112            | 45             | 2,8            | 14                     | TA223344.1350 |    |
| 13,60                  | MJ15x1,5              | M14x1 / 9/16-18 (GAL)              | 186            | 140            | 112            | 45             | 2,9            | 14                     | TA223344.1360 |    |
| 13,70                  |                       | M14x0,75                           | 186            | 140            | 112            | 45             | 2,9            | 14                     | TA223344.1370 |    |
| 13,80                  |                       |                                    | 186            | 140            | 112            | 45             | 2,9            | 14                     | TA223344.1380 |    |
| 14,00                  | M16 / M15x1           |                                    | 186            | 140            | 112            | 45             | 2,9            | 14                     | TA223344.1400 |    |
| 14,10                  | MJ15x1                |                                    | 209            | 160            | 128            | 48             | 3,0            | 16                     | TA223344.1410 |    |
| 14,30                  |                       |                                    | 209            | 160            | 128            | 48             | 3,0            | 16                     | TA223344.1430 |    |
| 14,40                  |                       |                                    | 209            | 160            | 128            | 48             | 3,0            | 16                     | TA223344.1440 |    |
| 14,50                  | M16x1,5 / 5/8-18      |                                    | 209            | 160            | 128            | 48             | 3,1            | 16                     | TA223344.1450 |    |
| 14,60                  | MJ16x1,5              | M15x1                              | 209            | 160            | 128            | 48             | 3,1            | 16                     | TA223344.1460 |    |
| 14,70                  |                       | M15x0,75                           | 209            | 160            | 128            | 48             | 3,1            | 16                     | TA223344.1470 |    |
| 14,80                  |                       | 5/8-11                             | 209            | 160            | 128            | 48             | 3,1            | 16                     | TA223344.1480 |    |
| 15,00                  | M16x1                 |                                    | 209            | 160            | 128            | 48             | 3,2            | 16                     | TA223344.1500 |    |
| 15,10                  | MJ16x1                | M16                                | 209            | 160            | 128            | 48             | 3,2            | 16                     | TA223344.1510 |    |
| 15,35                  |                       | M16x1,5                            | 209            | 160            | 128            | 48             | 3,2            | 16                     | TA223344.1535 |    |
| 15,50                  | M18                   |                                    | 209            | 160            | 128            | 48             | 3,3            | 16                     | TA223344.1550 |    |
| 15,60                  |                       | M16x1                              | 209            | 160            | 128            | 48             | 3,3            | 16                     | TA223344.1560 |    |
| 16,00                  | M18x2                 |                                    | 209            | 160            | 128            | 48             | 3,4            | 16                     | TA223344.1600 |    |
| 16,50                  | M18x1,5 / 3/4-10      |                                    | 229            | 180            | 144            | 48             | 3,5            | 18                     | TA223344.1650 |    |
| 17,00                  | M18x1                 |                                    | 229            | 180            | 144            | 48             | 3,6            | 18                     | TA223344.1700 |    |
| 17,50                  | M20 / 3/4-16          |                                    | 229            | 180            | 144            | 48             | 3,7            | 18                     | TA223344.1750 |    |
| 17,60                  |                       | M18x1                              | 229            | 180            | 144            | 48             | 3,7            | 18                     | TA223344.1760 |    |
| 18,00                  | M20x2                 |                                    | 229            | 180            | 144            | 48             | 3,8            | 18                     | TA223344.1800 |    |
| 18,50                  | M20x1,5               |                                    | 251            | 200            | 160            | 50             | 3,9            | 20                     | TA223344.1850 |    |
| 18,85                  |                       | M20                                | 251            | 200            | 160            | 50             | 4,0            | 20                     | TA223344.1885 |    |
| 19,00                  | M20x1 / G1/2          |                                    | 251            | 200            | 160            | 50             | 4,0            | 20                     | TA223344.1900 |    |
| 19,35                  |                       | M20x1,5                            | 251            | 200            | 160            | 50             | 4,1            | 20                     | TA223344.1935 |    |
| 19,50                  | M22 / 7/8-9           |                                    | 251            | 200            | 160            | 50             | 4,1            | 20                     | TA223344.1950 |    |
| 19,60                  |                       | M20x1                              | 251            | 200            | 160            | 50             | 4,1            | 20                     | TA223344.1960 |    |
| 20,00                  | M22x2                 |                                    | 251            | 200            | 160            | 50             | 4,2            | 20                     | TA223344.2000 |    |



- Product Finder
- $v_c / f$
- BASIC
- STEEL
- INOX
- GG
- HCUT
- SpotDrill
- Zubehör  
Accessories
- 3 x D
- 5 x D
- 6 x D
- 8 x D
- 12 x D**
- 2-3,5 x D

### SteelDrill-SD104

VHM  
Carbide

TIALN

STEEL  
Steel  
materials

R30

Z2



4FF



135°



IT9-IT11

DIN 6535

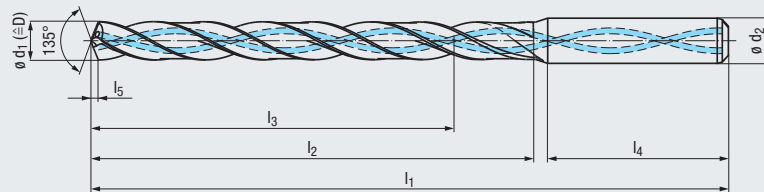


HA



## 12x D

Extra lange Ausführung  
Extra longong design



Eine Vorzentrierung durch den Einsatz eines Vorbohrers (z.B. NC SpotDrill) wird empfohlen  
Preparatory centering with a centering drill (p.ex. NC SpotDrill) is recommended

Bohrtiefe  
Drill depth

## 12 x D

Einsatzgebiete – Material  
Applications – material

14

P 1.1-4.1 M 1.1  
K 1.1, 2.1-3.2 H 1.1

| $\varnothing d_1$<br>k7 | Gewindebohrer<br>Taps   | Gewindeformer<br>Cold-forming taps | $l_1$ | $l_2$ | $l_3$ | $l_4$ | $l_5$ | $\varnothing d_2$<br>h6 | SteelDrill<br>SD104-12xD |
|-------------------------|-------------------------|------------------------------------|-------|-------|-------|-------|-------|-------------------------|--------------------------|
|                         |                         |                                    |       |       |       |       |       |                         | HA                       |
| 3,00                    | M3,5x0,5 / MJ3,5x0,6    |                                    | 92    | 54    | 48    | 36    | 0,6   | 6                       | TA233344.0300            |
| 3,10                    |                         |                                    | 92    | 54    | 48    | 36    | 0,6   | 6                       | TA233344.0310            |
| 3,18                    |                         |                                    | 92    | 54    | 48    | 36    | 0,6   | 6                       | TA233344.0318            |
| 3,20                    | MJ3,5x0,35              |                                    | 92    | 54    | 48    | 36    | 0,6   | 6                       | TA233344.0320            |
| 3,30                    | M4                      | M3,5x0,5                           | 92    | 54    | 48    | 36    | 0,6   | 6                       | TA233344.0330            |
| 3,40                    | MJ4x0,7                 |                                    | 92    | 54    | 48    | 36    | 0,6   | 6                       | TA233344.0340            |
| 3,50                    | M4x0,5 / #8-32 / #8-36  |                                    | 92    | 54    | 48    | 36    | 0,6   | 6                       | TA233344.0350            |
| 3,57                    |                         |                                    | 92    | 54    | 48    | 36    | 0,7   | 6                       | TA233344.0357            |
| 3,60                    | MJ4x0,5                 |                                    | 92    | 54    | 48    | 36    | 0,7   | 6                       | TA233344.0360            |
| 3,70                    | M4,5                    | M4                                 | 92    | 54    | 48    | 36    | 0,7   | 6                       | TA233344.0370            |
| 3,80                    |                         | M4x0,5 / #8-32                     | 102   | 64    | 58    | 36    | 0,7   | 6                       | TA233344.0380            |
| 3,90                    | MJ4,5x0,75 / #10-24     |                                    | 102   | 64    | 58    | 36    | 0,7   | 6                       | TA233344.0390            |
| 3,97                    |                         |                                    | 102   | 64    | 58    | 36    | 0,7   | 6                       | TA233344.0397            |
| 4,00                    |                         |                                    | 102   | 64    | 58    | 36    | 0,7   | 6                       | TA233344.0400            |
| 4,04                    |                         |                                    | 102   | 64    | 58    | 36    | 0,7   | 6                       | TA233344.0404            |
| 4,10                    | MJ4,5x0,5 / #10-32      |                                    | 102   | 64    | 58    | 36    | 0,8   | 6                       | TA233344.0410            |
| 4,20                    | M5 / M5x0,75            | M4,5                               | 102   | 64    | 58    | 36    | 0,8   | 6                       | TA233344.0420            |
| 4,30                    | MJ5x0,8                 | M4,5x0,5 / #10-24 (GAL)            | 102   | 64    | 58    | 36    | 0,8   | 6                       | TA233344.0430            |
| 4,37                    |                         |                                    | 102   | 64    | 58    | 36    | 0,8   | 6                       | TA233344.0437            |
| 4,40                    |                         |                                    | 102   | 64    | 58    | 36    | 0,8   | 6                       | TA233344.0440            |
| 4,50                    | M5x0,5 / #12-24         |                                    | 102   | 64    | 58    | 36    | 0,8   | 6                       | TA233344.0450            |
| 4,60                    | M5,5 / MJ5x0,5 / #12-28 |                                    | 102   | 64    | 58    | 36    | 0,8   | 6                       | TA233344.0460            |
| 4,70                    |                         | M5x0,75                            | 102   | 64    | 58    | 36    | 0,9   | 6                       | TA233344.0470            |
| 4,76                    |                         |                                    | 116   | 78    | 70    | 36    | 0,9   | 6                       | TA233344.0476            |
| 4,80                    |                         | M5x0,5                             | 116   | 78    | 70    | 36    | 0,9   | 6                       | TA233344.0480            |
| 5,00                    | M6                      | #12-24                             | 116   | 78    | 70    | 36    | 0,9   | 6                       | TA233344.0500            |
| 5,10                    | MJ6x1 / 1/4-20          | M5,5 / #12-28                      | 116   | 78    | 70    | 36    | 0,9   | 6                       | TA233344.0510            |
| 5,11                    |                         |                                    | 116   | 78    | 70    | 36    | 0,9   | 6                       | TA233344.0511            |
| 5,16                    |                         |                                    | 116   | 78    | 70    | 36    | 0,9   | 6                       | TA233344.0516            |
| 5,20                    | M6x0,75                 |                                    | 116   | 78    | 70    | 36    | 1,0   | 6                       | TA233344.0520            |
| 5,40                    |                         |                                    | 116   | 78    | 70    | 36    | 1,0   | 6                       | TA233344.0540            |
| 5,41                    |                         |                                    | 116   | 78    | 70    | 36    | 1,0   | 6                       | TA233344.0541            |
| 5,50                    | M6x0,5 / 1/4-28         |                                    | 116   | 78    | 70    | 36    | 1,0   | 6                       | TA233344.0550            |
| 5,56                    |                         |                                    | 116   | 78    | 70    | 36    | 1,0   | 6                       | TA233344.0556            |
| 5,60                    | MJ6x0,5                 | M6                                 | 116   | 78    | 70    | 36    | 1,0   | 6                       | TA233344.0560            |
| 5,80                    |                         | M6x0,5                             | 116   | 78    | 70    | 36    | 1,1   | 6                       | TA233344.0580            |
| 5,90                    |                         |                                    | 116   | 78    | 70    | 36    | 1,1   | 6                       | TA233344.0590            |
| 5,95                    |                         | 1/4-28                             | 116   | 78    | 70    | 36    | 1,1   | 6                       | TA233344.0595            |

**SteelDrill-SD104**

**VHM Carbide**

**TIALN**

**R30**

**Z2**

**4FF**

**135°**

**IT9-IT11**

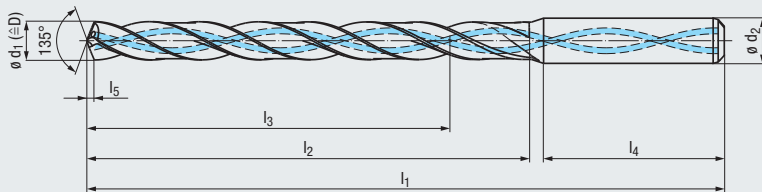
**DIN 6535**

HA

**STEEL**  
Steel materials



**12xD** Extra lange Ausführung  
Extra longong design



Eine Vorzentrierung durch den Einsatz eines Vorbohrers (z.B. NC SpotDrill) wird empfohlen  
Preparatory centering with a centering drill (p.ex. NC SpotDrill) is recommended

Bohrtiefe  
Drill depth

Einsatzgebiete – Material  
Applications – material

**12 x D**

**P 1.1-4.1** **M 1.1**  
**K 1.1, 2.1-3.2** **H 1.1**

| ø d <sub>1</sub><br>k7 | Gewindebohrer<br>Taps | Gewindeformer<br>Cold-forming taps | l <sub>1</sub> | l <sub>2</sub> | l <sub>3</sub> | l <sub>4</sub> | l <sub>5</sub> | ø d <sub>2</sub><br>h6 | SteelDrill<br>SD104-12xD |
|------------------------|-----------------------|------------------------------------|----------------|----------------|----------------|----------------|----------------|------------------------|--------------------------|
|                        |                       |                                    |                |                |                |                |                |                        | HA                       |
| 6,00                   | M7                    |                                    | 116            | 78             | 70             | 36             | 1,1            | 6                      | TA233344.0600            |
| 6,10                   | MJ7x1                 |                                    | 146            | 108            | 94             | 36             | 1,1            | 8                      | TA233344.0610            |
| 6,20                   | M7x0,75               |                                    | 146            | 108            | 94             | 36             | 1,1            | 8                      | TA233344.0620            |
| 6,30                   |                       |                                    | 146            | 108            | 94             | 36             | 1,2            | 8                      | TA233344.0630            |
| 6,35                   | MJ7x0,75              |                                    | 146            | 108            | 94             | 36             | 1,2            | 8                      | TA233344.0635            |
| 6,50                   | M7x0,5                |                                    | 146            | 108            | 94             | 36             | 1,2            | 8                      | TA233344.0650            |
| 6,53                   |                       |                                    | 146            | 108            | 94             | 36             | 1,2            | 8                      | TA233344.0653            |
| 6,75                   |                       |                                    | 146            | 108            | 94             | 36             | 1,2            | 8                      | TA233344.0675            |
| 6,80                   | M8 / G1/16            | M7x0,5                             | 146            | 108            | 94             | 36             | 1,2            | 8                      | TA233344.0680            |
| 7,00                   | M8x1                  |                                    | 146            | 108            | 94             | 36             | 1,3            | 8                      | TA233344.0700            |
| 7,15                   |                       |                                    | 146            | 108            | 94             | 36             | 1,3            | 8                      | TA233344.0715            |
| 7,20                   | M8x0,75               |                                    | 146            | 108            | 94             | 36             | 1,3            | 8                      | TA233344.0720            |
| 7,30                   |                       | 5/16-18                            | 146            | 108            | 94             | 36             | 1,3            | 8                      | TA233344.0730            |
| 7,50                   | M8x0,5                |                                    | 146            | 108            | 94             | 36             | 1,4            | 8                      | TA233344.0750            |
| 7,54                   |                       |                                    | 146            | 108            | 94             | 36             | 1,4            | 8                      | TA233344.0754            |
| 7,80                   | M9                    | M8x0,5                             | 146            | 108            | 94             | 36             | 1,4            | 8                      | TA233344.0780            |
| 7,90                   | MJ9x1,25              |                                    | 146            | 108            | 94             | 36             | 1,4            | 8                      | TA233344.0790            |
| 7,94                   |                       |                                    | 146            | 108            | 94             | 36             | 1,4            | 8                      | TA233344.0794            |
| 8,00                   | M9x1 / 3/8-16         |                                    | 146            | 108            | 94             | 36             | 1,5            | 8                      | TA233344.0800            |
| 8,10                   | MJ9x1                 |                                    | 162            | 120            | 110            | 40             | 1,5            | 10                     | TA233344.0810            |
| 8,30                   |                       |                                    | 162            | 120            | 110            | 40             | 1,5            | 10                     | TA233344.0830            |
| 8,33                   |                       |                                    | 162            | 120            | 110            | 40             | 1,5            | 10                     | TA233344.0833            |
| 8,50                   | M10 / M9x0,5 / 3/8-24 |                                    | 162            | 120            | 110            | 40             | 1,6            | 10                     | TA233344.0850            |
| 8,60                   | MJ10x1,5              | M9x1                               | 162            | 120            | 110            | 40             | 1,6            | 10                     | TA233344.0860            |
| 8,70                   |                       | M9x0,75                            | 162            | 120            | 110            | 40             | 1,6            | 10                     | TA233344.0870            |
| 8,73                   |                       |                                    | 162            | 120            | 110            | 40             | 1,6            | 10                     | TA233344.0873            |
| 8,80                   | M10x1,25 / G1/8       | M9x0,5 / 3/8-16                    | 162            | 120            | 110            | 40             | 1,6            | 10                     | TA233344.0880            |
| 9,00                   | M10x1                 | 3/8-24 (GAL)                       | 162            | 120            | 110            | 40             | 1,6            | 10                     | TA233344.0900            |
| 9,10                   | MJ10x1                |                                    | 162            | 120            | 110            | 40             | 1,7            | 10                     | TA233344.0910            |
| 9,13                   |                       |                                    | 162            | 120            | 110            | 40             | 1,7            | 10                     | TA233344.0913            |
| 9,40                   | 7/16-14               | M10x1,25 (GAL)                     | 162            | 120            | 110            | 40             | 1,7            | 10                     | TA233344.0940            |
| 9,50                   | M11 / M10x0,5         |                                    | 162            | 120            | 110            | 40             | 1,7            | 10                     | TA233344.0950            |
| 9,53                   |                       |                                    | 162            | 120            | 110            | 40             | 1,7            | 10                     | TA233344.0953            |
| 9,60                   | MJ10x0,5 / MJ11x1,5   | M10x1                              | 162            | 120            | 110            | 40             | 1,8            | 10                     | TA233344.0960            |
| 9,70                   |                       | M10x0,75                           | 162            | 120            | 110            | 40             | 1,8            | 10                     | TA233344.0970            |
| 9,80                   |                       | M10x0,5                            | 162            | 120            | 110            | 40             | 1,8            | 10                     | TA233344.0980            |
| 9,90                   | MJ11x1,25 / 7/16-20   |                                    | 162            | 120            | 110            | 40             | 1,8            | 10                     | TA233344.0990            |
| 9,92                   |                       |                                    | 162            | 120            | 110            | 40             | 1,8            | 10                     | TA233344.0992            |

ø 10,00 mm - ø 14,00 mm →

- Product Finder
- v<sub>c</sub> / f
- BASIC
- STEEL
- INOX
- GU
- HCUT
- SpotDrill
- Zubehör  
Accessories
- 3 x D
- 5 x D
- 6 x D
- 8 x D
- 12 x D
- 2-3,5 x D



- Product Finder
- v<sub>c</sub> / f
- BASIC
- STEEL**
- INOX
- GG
- HCUT
- SpotDrill
- Zubehör  
Accessories
- 3 x D
- 5 x D
- 6 x D
- 8 x D
- 12 x D**
- 2-3,5 x D

**SteelDrill-SD104**

VHM  
Carbide

TIALN

R30

Z2



4FF



140°



IT9-IT11

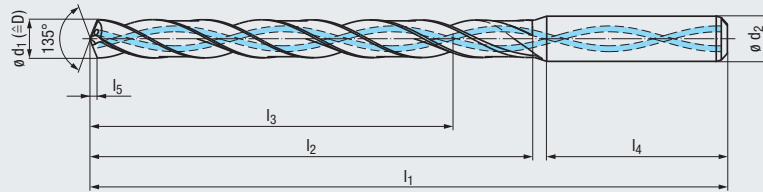
DIN 6535



**STEEL**  
Steel  
materials



**12 x D** Extra lange Ausführung  
Extra long design



Eine Vorzentrierung durch den Einsatz eines Vorbohrers (z.B. NC SpotDrill) wird empfohlen  
Preparatory centering with a centering drill (p.ex. NC SpotDrill) is recommended

Bohrtiefe  
Drill depth

**12 x D**

Einsatzgebiete – Material  
Applications – material

» 14

P 1.1-4.1 M 1.1  
K 1.1, 2.1-3.2 H 1.1

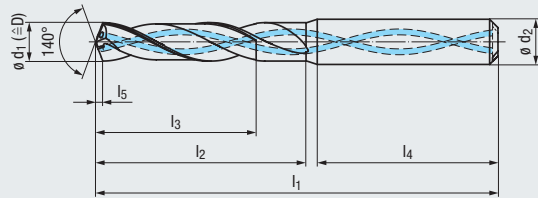
| ø d <sub>1</sub><br>k7 | Gewindebohrer<br>Taps | Gewindeformer<br>Cold-forming taps | l <sub>1</sub> | l <sub>2</sub> | l <sub>3</sub> | l <sub>4</sub> | l <sub>5</sub> | ø d <sub>2</sub><br>h6 | SteelDrill<br>SD104-12xD |  |
|------------------------|-----------------------|------------------------------------|----------------|----------------|----------------|----------------|----------------|------------------------|--------------------------|--|
|                        |                       |                                    |                |                |                |                |                |                        | HA                       |  |
| 10,00                  | M11x1                 |                                    | 162            | 120            | 110            | 40             | 1,8            | 10                     | TA233344.1000            |  |
| 10,10                  | MJ11x1                |                                    | 204            | 156            | 142            | 45             | 1,8            | 12                     | TA233344.1010            |  |
| 10,20                  | M12 / M11x0,75        | 7/16-14 (GAL)                      | 204            | 156            | 142            | 45             | 1,9            | 12                     | TA233344.1020            |  |
| 10,32                  |                       |                                    | 204            | 156            | 142            | 45             | 1,9            | 12                     | TA233344.1032            |  |
| 10,50                  | M12x1,5               | 7/16-20 (GAL)                      | 204            | 156            | 142            | 45             | 1,9            | 12                     | TA233344.1050            |  |
| 10,72                  |                       |                                    | 204            | 156            | 142            | 45             | 2,0            | 12                     | TA233344.1072            |  |
| 11,00                  | M12x1                 |                                    | 204            | 156            | 142            | 45             | 2,0            | 12                     | TA233344.1100            |  |
| 11,11                  |                       |                                    | 204            | 156            | 142            | 45             | 2,0            | 12                     | TA233344.1111            |  |
| 11,50                  | 1/2-20                |                                    | 204            | 156            | 142            | 45             | 2,1            | 12                     | TA233344.1150            |  |
| 11,51                  |                       |                                    | 204            | 156            | 142            | 45             | 2,1            | 12                     | TA233344.1151            |  |
| 11,91                  |                       |                                    | 204            | 156            | 142            | 45             | 2,2            | 12                     | TA233344.1191            |  |
| 12,00                  | M14                   |                                    | 204            | 156            | 142            | 45             | 2,2            | 12                     | TA233344.1200            |  |
| 12,30                  |                       |                                    | 230            | 182            | 166            | 45             | 2,2            | 14                     | TA233344.1230            |  |
| 12,50                  | M14x1,5               | G1/4 (GAL)                         | 230            | 182            | 166            | 45             | 2,3            | 14                     | TA233344.1250            |  |
| 12,70                  |                       | M13x0,75                           | 230            | 182            | 166            | 45             | 2,3            | 14                     | TA233344.1270            |  |
| 13,00                  | M14x1                 |                                    | 230            | 182            | 166            | 45             | 2,4            | 14                     | TA233344.1300            |  |
| 13,49                  |                       |                                    | 230            | 182            | 166            | 45             | 2,5            | 14                     | TA233344.1349            |  |
| 13,50                  | 5/8-11                |                                    | 230            | 182            | 166            | 45             | 2,5            | 14                     | TA233344.1350            |  |
| 13,89                  |                       |                                    | 230            | 182            | 166            | 45             | 2,5            | 14                     | TA233344.1389            |  |
| 14,00                  | M16 / M15x1           |                                    | 230            | 182            | 166            | 45             | 2,6            | 14                     | TA233344.1400            |  |

◀ ø 3,00 mm - ø 9,92 mm



### InoxDrill-ID103

**3 x D** Kurze Ausführung  
Short design



|             |          |
|-------------|----------|
| VHM Carbide | ALCR     |
| DIN 6537 K  | R30      |
| Z2          | 2FF      |
| 140°        | IT9-IT10 |
| DIN 6535    |          |
| HA          | HE       |

**INOX**  
Stainless steel materials

Product Finder

$v_c / f$

BASIC

STEEL

INOX

G

HCUT

SpotDrill

Zubehör Accessories

3 x D

5 x D

6 x D

8 x D

12 x D

2-3,5 x D

Bohrtiefe  
Drill depth

**3 x D**

Einsatzgebiete – Material  
Applications – material

|           |           |
|-----------|-----------|
| M 1.1-4.1 | N 1.1-2.3 |
| S 1.2-1.3 | S 2.2-2.3 |

14

| $\varnothing d_1$<br>m7 | Gewindebohrer<br>Taps   | Gewindeformer<br>Cold-forming taps |       |       |       |       |       | $\varnothing d_2$<br>h6 | InoxDrill<br>ID103-3xD | InoxDrill<br>ID103-3xD |
|-------------------------|-------------------------|------------------------------------|-------|-------|-------|-------|-------|-------------------------|------------------------|------------------------|
|                         |                         |                                    | $l_1$ | $l_2$ | $l_3$ | $l_4$ | $l_5$ |                         | HA                     | HE                     |
| 3,00                    | M3,5x0,5 / MJ3,5x0,6    |                                    | 62    | 20    | 14    | 36    | 0,5   | 6                       | TA201724.0300          | TA501724.0300          |
| 3,10                    |                         |                                    | 62    | 20    | 14    | 36    | 0,5   | 6                       | TA201724.0310          | TA501724.0310          |
| 3,15                    | M3,5x0,35               | #6-32                              | 62    | 20    | 14    | 36    | 0,5   | 6                       | TA201724.0315          | TA501724.0315          |
| 3,18                    |                         |                                    | 62    | 20    | 14    | 36    | 0,5   | 6                       | TA201724.0318          | TA501724.0318          |
| 3,20                    | MJ3,5x0,35              |                                    | 62    | 20    | 14    | 36    | 0,5   | 6                       | TA201724.0320          | TA501724.0320          |
| 3,22                    |                         | #6-40                              | 62    | 20    | 14    | 36    | 0,5   | 6                       | TA201724.0322          | TA501724.0322          |
| 3,25                    |                         | M3,5                               | 62    | 20    | 14    | 36    | 0,6   | 6                       | TA201724.0325          | TA501724.0325          |
| 3,30                    | M4                      | M3,5x0,5                           | 62    | 20    | 14    | 36    | 0,6   | 6                       | TA201724.0330          | TA501724.0330          |
| 3,35                    |                         |                                    | 62    | 20    | 14    | 36    | 0,6   | 6                       | TA201724.0335          | TA501724.0335          |
| 3,38                    |                         | M3,5x0,35                          | 62    | 20    | 14    | 36    | 0,6   | 6                       | TA201724.0338          | TA501724.0338          |
| 3,40                    | MJ4x0,7                 |                                    | 62    | 20    | 14    | 36    | 0,6   | 6                       | TA201724.0340          | TA501724.0340          |
| 3,50                    | M4x0,5 / #8-32 / #8-36  |                                    | 62    | 20    | 14    | 36    | 0,6   | 6                       | TA201724.0350          | TA501724.0350          |
| 3,55                    |                         |                                    | 62    | 20    | 14    | 36    | 0,6   | 6                       | TA201724.0355          | TA501724.0355          |
| 3,57                    |                         |                                    | 62    | 20    | 14    | 36    | 0,6   | 6                       | TA201724.0357          | TA501724.0357          |
| 3,60                    | MJ4x0,5                 |                                    | 62    | 20    | 14    | 36    | 0,6   | 6                       | TA201724.0360          | TA501724.0360          |
| 3,65                    | M4x0,35                 |                                    | 62    | 20    | 14    | 36    | 0,6   | 6                       | TA201724.0365          | TA501724.0365          |
| 3,70                    | M4,5                    | M4                                 | 62    | 20    | 14    | 36    | 0,6   | 6                       | TA201724.0370          | TA501724.0370          |
| 3,80                    |                         | M4x0,5 / #8-32                     | 66    | 24    | 17    | 36    | 0,6   | 6                       | TA201724.0380          | TA501724.0380          |
| 3,85                    |                         | #8-36                              | 66    | 24    | 17    | 36    | 0,7   | 6                       | TA201724.0385          | TA501724.0385          |
| 3,88                    |                         | M4x0,35                            | 66    | 24    | 17    | 36    | 0,7   | 6                       | TA201724.0388          | TA501724.0388          |
| 3,90                    | MJ4,5x0,75 / #10-24     |                                    | 66    | 24    | 17    | 36    | 0,7   | 6                       | TA201724.0390          | TA501724.0390          |
| 3,97                    |                         |                                    | 66    | 24    | 17    | 36    | 0,7   | 6                       | TA201724.0397          | TA501724.0397          |
| 4,00                    |                         |                                    | 66    | 24    | 17    | 36    | 0,7   | 6                       | TA201724.0400          | TA501724.0400          |
| 4,04                    |                         |                                    | 66    | 24    | 17    | 36    | 0,7   | 6                       | TA201724.0404          | TA501724.0404          |
| 4,10                    | MJ4,5x0,5 / #10-32      |                                    | 66    | 24    | 17    | 36    | 0,7   | 6                       | TA201724.0410          | TA501724.0410          |
| 4,15                    | M5x0,9                  |                                    | 66    | 24    | 17    | 36    | 0,7   | 6                       | TA201724.0415          | TA501724.0415          |
| 4,20                    | M5 / M5x0,75            | M4,5                               | 66    | 24    | 17    | 36    | 0,7   | 6                       | TA201724.0420          | TA501724.0420          |
| 4,30                    | MJ5x0,8                 | M4,5x0,5 / #10-24 (GAL)            | 66    | 24    | 17    | 36    | 0,7   | 6                       | TA201724.0430          | TA501724.0430          |
| 4,35                    |                         | #10-24                             | 66    | 24    | 17    | 36    | 0,7   | 6                       | TA201724.0435          | TA501724.0435          |
| 4,37                    |                         |                                    | 66    | 24    | 17    | 36    | 0,7   | 6                       | TA201724.0437          | TA501724.0437          |
| 4,40                    |                         |                                    | 66    | 24    | 17    | 36    | 0,7   | 6                       | TA201724.0440          | TA501724.0440          |
| 4,45                    |                         | #10-32                             | 66    | 24    | 17    | 36    | 0,8   | 6                       | TA201724.0445          | TA501724.0445          |
| 4,50                    | M5x0,5 / #12-24         |                                    | 66    | 24    | 17    | 36    | 0,8   | 6                       | TA201724.0450          | TA501724.0450          |
| 4,60                    | M5,5 / MJ5x0,5 / #12-28 |                                    | 66    | 24    | 17    | 36    | 0,8   | 6                       | TA201724.0460          | TA501724.0460          |
| 4,65                    |                         | M5                                 | 66    | 24    | 17    | 36    | 0,8   | 6                       | TA201724.0465          | TA501724.0465          |
| 4,70                    |                         | M5x0,75                            | 66    | 24    | 17    | 36    | 0,8   | 6                       | TA201724.0470          | TA501724.0470          |
| 4,76                    |                         |                                    | 66    | 28    | 20    | 36    | 0,8   | 6                       | TA201724.0476          | TA501724.0476          |
| 4,80                    |                         | M5x0,5                             | 66    | 28    | 20    | 36    | 0,8   | 6                       | TA201724.0480          | TA501724.0480          |
| 4,90                    |                         |                                    | 66    | 28    | 20    | 36    | 0,8   | 6                       | TA201724.0490          | TA501724.0490          |
| 5,00                    | M6                      | #12-24                             | 66    | 28    | 20    | 36    | 0,8   | 6                       | TA201724.0500          | TA501724.0500          |
| 5,10                    | MJ6x1 / 1/4-20          | M5,5 / #12-28                      | 66    | 28    | 20    | 36    | 0,9   | 6                       | TA201724.0510          | TA501724.0510          |
| 5,11                    |                         |                                    | 66    | 28    | 20    | 36    | 0,9   | 6                       | TA201724.0511          | TA501724.0511          |
| 5,16                    |                         |                                    | 66    | 28    | 20    | 36    | 0,9   | 6                       | TA201724.0516          | TA501724.0516          |
| 5,20                    | M6x0,75                 |                                    | 66    | 28    | 20    | 36    | 0,9   | 6                       | TA201724.0520          | TA501724.0520          |
| 5,25                    |                         |                                    | 66    | 28    | 20    | 36    | 0,9   | 6                       | TA201724.0525          | TA501724.0525          |
| 5,30                    |                         | M5,5x0,5                           | 66    | 28    | 20    | 36    | 0,9   | 6                       | TA201724.0530          | TA501724.0530          |
| 5,40                    |                         |                                    | 66    | 28    | 20    | 36    | 0,9   | 6                       | TA201724.0540          | TA501724.0540          |
| 5,41                    |                         |                                    | 66    | 28    | 20    | 36    | 0,9   | 6                       | TA201724.0541          | TA501724.0541          |
| 5,50                    | M6x0,5 / 1/4-28         |                                    | 66    | 28    | 20    | 36    | 0,9   | 6                       | TA201724.0550          | TA501724.0550          |
| 5,55                    |                         | M6 (GAL)                           | 66    | 28    | 20    | 36    | 0,9   | 6                       | TA201724.0555          | TA501724.0555          |
| 5,56                    |                         |                                    | 66    | 28    | 20    | 36    | 0,9   | 6                       | TA201724.0556          | TA501724.0556          |
| 5,60                    | MJ6x0,5                 | M6                                 | 66    | 28    | 20    | 36    | 1,0   | 6                       | TA201724.0560          | TA501724.0560          |

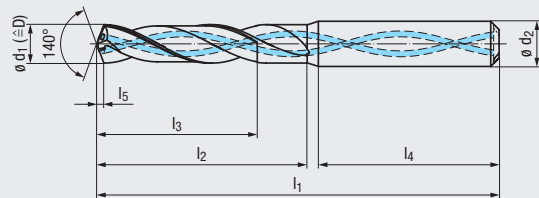
$\varnothing 5,70 \text{ mm} - \varnothing 20,00 \text{ mm} \rightarrow$



- Product Finder
- $v_c / f$
- BASIC
- STEEL
- INOX**
- GG
- HCUT
- SpotDrill
- Zubehör  
Accessories
- 3 x D
- 5 x D
- 6 x D
- 8 x D
- 12 x D
- 2-3,5 x D

## InoxDrill-ID103

**3 x D** Kurze Ausführung  
Short design



VHM  
Carbide

ALCR

DIN  
6537 K

R30



DIN 6535



**INOX**  
Stainless steel  
materials



Bohrtiefe  
Drill depth

**3 x D**

Einsatzgebiete – Material  
Applications – material

» 14

M 1.1-4.1 N 1.1-2.3  
S 1.2-1.3 S 2.2-2.3

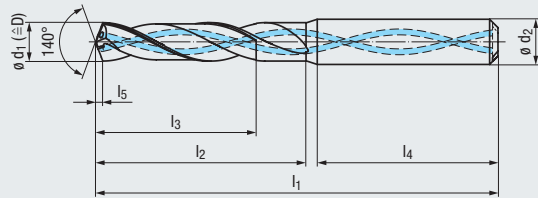
| $\emptyset d_1$<br>m7 | Gewindebohrer<br>Taps | Gewindeformer<br>Cold-forming taps |       |       |       |       |       | $\emptyset d_2$<br>h6 | InoxDrill<br>ID103-3xD | InoxDrill<br>ID103-3xD |
|-----------------------|-----------------------|------------------------------------|-------|-------|-------|-------|-------|-----------------------|------------------------|------------------------|
|                       |                       |                                    | $l_1$ | $l_2$ | $l_3$ | $l_4$ | $l_5$ |                       | HA                     | HE                     |
| 5,70                  |                       | M6x0,75 / 1/4-20 (GAL)             | 66    | 28    | 20    | 36    | 1,0   | 6                     | TA201724.0570          | TA501724.0570          |
| 5,75                  |                       | 1/4-20                             | 66    | 28    | 20    | 36    | 1,0   | 6                     | TA201724.0575          | TA501724.0575          |
| 5,80                  |                       | M6x0,5                             | 66    | 28    | 20    | 36    | 1,0   | 6                     | TA201724.0580          | TA501724.0580          |
| 5,90                  |                       |                                    | 66    | 28    | 20    | 36    | 1,0   | 6                     | TA201724.0590          | TA501724.0590          |
| 5,95                  |                       | 1/4-28                             | 66    | 28    | 20    | 36    | 1,0   | 6                     | TA201724.0595          | TA501724.0595          |
| 6,00                  | M7                    |                                    | 66    | 28    | 20    | 36    | 1,0   | 6                     | TA201724.0600          | TA501724.0600          |
| 6,10                  | MJ7x1                 |                                    | 79    | 34    | 24    | 36    | 1,0   | 8                     | TA201724.0610          | TA501724.0610          |
| 6,20                  | M7x0,75               |                                    | 79    | 34    | 24    | 36    | 1,1   | 8                     | TA201724.0620          | TA501724.0620          |
| 6,30                  |                       |                                    | 79    | 34    | 24    | 36    | 1,1   | 8                     | TA201724.0630          | TA501724.0630          |
| 6,35                  | MJ7x0,75              |                                    | 79    | 34    | 24    | 36    | 1,1   | 8                     | TA201724.0635          | TA501724.0635          |
| 6,40                  |                       |                                    | 79    | 34    | 24    | 36    | 1,1   | 8                     | TA201724.0640          | TA501724.0640          |
| 6,50                  | M7x0,5                |                                    | 79    | 34    | 24    | 36    | 1,1   | 8                     | TA201724.0650          | TA501724.0650          |
| 6,53                  |                       |                                    | 79    | 34    | 24    | 36    | 1,1   | 8                     | TA201724.0653          | TA501724.0653          |
| 6,60                  | 5/16-18               | M7                                 | 79    | 34    | 24    | 36    | 1,1   | 8                     | TA201724.0660          | TA501724.0660          |
| 6,70                  |                       | M7x0,75                            | 79    | 34    | 24    | 36    | 1,1   | 8                     | TA201724.0670          | TA501724.0670          |
| 6,75                  |                       |                                    | 79    | 34    | 24    | 36    | 1,1   | 8                     | TA201724.0675          | TA501724.0675          |
| 6,80                  | M8 / G1/16            | M7x0,5                             | 79    | 34    | 24    | 36    | 1,2   | 8                     | TA201724.0680          | TA501724.0680          |
| 6,90                  | MJ8x1,25 / 5/16-24    |                                    | 79    | 34    | 24    | 36    | 1,2   | 8                     | TA201724.0690          | TA501724.0690          |
| 7,00                  | M8x1                  |                                    | 79    | 34    | 24    | 36    | 1,2   | 8                     | TA201724.0700          | TA501724.0700          |
| 7,10                  | MJ8x1                 |                                    | 79    | 41    | 29    | 36    | 1,2   | 8                     | TA201724.0710          | TA501724.0710          |
| 7,15                  |                       |                                    | 79    | 41    | 29    | 36    | 1,2   | 8                     | TA201724.0715          | TA501724.0715          |
| 7,20                  | M8x0,75               |                                    | 79    | 41    | 29    | 36    | 1,2   | 8                     | TA201724.0720          | TA501724.0720          |
| 7,25                  |                       | 5/16-18 (GAL) / G1/16              | 79    | 41    | 29    | 36    | 1,2   | 8                     | TA201724.0725          | TA501724.0725          |
| 7,30                  |                       | 5/16-18                            | 79    | 41    | 29    | 36    | 1,2   | 8                     | TA201724.0730          | TA501724.0730          |
| 7,40                  |                       | M8 (GAL) / 5/16-24 (GAL)           | 79    | 41    | 29    | 36    | 1,3   | 8                     | TA201724.0740          | TA501724.0740          |
| 7,45                  |                       | M8 / 5/16-24                       | 79    | 41    | 29    | 36    | 1,3   | 8                     | TA201724.0745          | TA501724.0745          |
| 7,50                  | M8x0,5                |                                    | 79    | 41    | 29    | 36    | 1,3   | 8                     | TA201724.0750          | TA501724.0750          |
| 7,54                  |                       |                                    | 79    | 41    | 29    | 36    | 1,3   | 8                     | TA201724.0754          | TA501724.0754          |
| 7,60                  |                       | M8x1                               | 79    | 41    | 29    | 36    | 1,3   | 8                     | TA201724.0760          | TA501724.0760          |
| 7,70                  |                       | M8x0,75                            | 79    | 41    | 29    | 36    | 1,3   | 8                     | TA201724.0770          | TA501724.0770          |
| 7,80                  | M9                    | M8x0,5                             | 79    | 41    | 29    | 36    | 1,3   | 8                     | TA201724.0780          | TA501724.0780          |
| 7,90                  | MJ9x1,25              |                                    | 79    | 41    | 29    | 36    | 1,3   | 8                     | TA201724.0790          | TA501724.0790          |
| 7,94                  |                       |                                    | 79    | 41    | 29    | 36    | 1,3   | 8                     | TA201724.0794          | TA501724.0794          |
| 8,00                  | M9x1 / 3/8-16         |                                    | 79    | 41    | 29    | 36    | 1,4   | 8                     | TA201724.0800          | TA501724.0800          |
| 8,10                  | MJ9x1                 |                                    | 89    | 47    | 35    | 40    | 1,4   | 10                    | TA201724.0810          | TA501724.0810          |
| 8,20                  | M9x0,75               |                                    | 89    | 47    | 35    | 40    | 1,4   | 10                    | TA201724.0820          | TA501724.0820          |
| 8,30                  |                       |                                    | 89    | 47    | 35    | 40    | 1,4   | 10                    | TA201724.0830          | TA501724.0830          |
| 8,33                  |                       |                                    | 89    | 47    | 35    | 40    | 1,4   | 10                    | TA201724.0833          | TA501724.0833          |
| 8,40                  |                       | M9 (GAL)                           | 89    | 47    | 35    | 40    | 1,4   | 10                    | TA201724.0840          | TA501724.0840          |
| 8,45                  |                       | M9                                 | 89    | 47    | 35    | 40    | 1,4   | 10                    | TA201724.0845          | TA501724.0845          |
| 8,50                  | M10 / M9x0,5 / 3/8-24 |                                    | 89    | 47    | 35    | 40    | 1,4   | 10                    | TA201724.0850          | TA501724.0850          |
| 8,60                  | MJ10x1,5              | M9x1                               | 89    | 47    | 35    | 40    | 1,5   | 10                    | TA201724.0860          | TA501724.0860          |
| 8,70                  |                       | M9x0,75                            | 89    | 47    | 35    | 40    | 1,5   | 10                    | TA201724.0870          | TA501724.0870          |
| 8,73                  |                       |                                    | 89    | 47    | 35    | 40    | 1,5   | 10                    | TA201724.0873          | TA501724.0873          |
| 8,80                  | M10x1,25 / G1/8       | M9x0,5 / 3/8-16                    | 89    | 47    | 35    | 40    | 1,5   | 10                    | TA201724.0880          | TA501724.0880          |
| 8,90                  | MJ10x1,25             |                                    | 89    | 47    | 35    | 40    | 1,5   | 10                    | TA201724.0890          | TA501724.0890          |
| 9,00                  | M10x1                 | 3/8-24 (GAL)                       | 89    | 47    | 35    | 40    | 1,5   | 10                    | TA201724.0900          | TA501724.0900          |
| 9,05                  |                       | 3/8-24                             | 89    | 47    | 35    | 40    | 1,5   | 10                    | TA201724.0905          | TA501724.0905          |
| 9,10                  | MJ10x1                |                                    | 89    | 47    | 35    | 40    | 1,5   | 10                    | TA201724.0910          | TA501724.0910          |
| 9,13                  |                       |                                    | 89    | 47    | 35    | 40    | 1,5   | 10                    | TA201724.0913          | TA501724.0913          |
| 9,20                  | M10x0,75              |                                    | 89    | 47    | 35    | 40    | 1,6   | 10                    | TA201724.0920          | TA501724.0920          |
| 9,30                  |                       | M10 (GAL)                          | 89    | 47    | 35    | 40    | 1,6   | 10                    | TA201724.0930          | TA501724.0930          |

### InoxDrill-ID103

|             |          |
|-------------|----------|
| VHM Carbide | ALCR     |
| DIN 6537 K  | R30      |
| Z2          | 2FF      |
| 140°        | IT9-IT10 |
| DIN 6535    |          |
| HA          | HE       |

**INOX**  
Stainless steel materials

## 3xD Kurze Ausführung Short design



Bohrtiefe  
Drill depth

## 3 x D

Einsatzgebiete – Material  
Applications – material



|           |           |
|-----------|-----------|
| M 1.1-4.1 | N 1.1-2.3 |
| S 1.2-1.3 | S 2.2-2.3 |

| ø d <sub>1</sub><br>m7 | Gewindebohrer<br>Taps | Gewindeformer<br>Cold-forming taps |                |                |                |                |                | ø d <sub>2</sub><br>h6 | InoxDrill ID103-3xD |               |
|------------------------|-----------------------|------------------------------------|----------------|----------------|----------------|----------------|----------------|------------------------|---------------------|---------------|
|                        |                       |                                    | l <sub>1</sub> | l <sub>2</sub> | l <sub>3</sub> | l <sub>4</sub> | l <sub>5</sub> |                        | HA                  | HE            |
| 9,35                   | MJ10x0,75             | M10                                | 89             | 47             | 35             | 40             | 1,6            | 10                     | TA201724.0935       | TA501724.0935 |
| 9,40                   | 7/16-14               | M10x1,25 (GAL)                     | 89             | 47             | 35             | 40             | 1,6            | 10                     | TA201724.0940       | TA501724.0940 |
| 9,45                   |                       | M10x1,25                           | 89             | 47             | 35             | 40             | 1,6            | 10                     | TA201724.0945       | TA501724.0945 |
| 9,50                   | M11 / M10x0,5         |                                    | 89             | 47             | 35             | 40             | 1,6            | 10                     | TA201724.0950       | TA501724.0950 |
| 9,53                   |                       |                                    | 89             | 47             | 35             | 40             | 1,6            | 10                     | TA201724.0953       | TA501724.0953 |
| 9,60                   | MJ10x0,5 / MJ11x1,5   | M10x1                              | 89             | 47             | 35             | 40             | 1,6            | 10                     | TA201724.0960       | TA501724.0960 |
| 9,70                   |                       | M10x0,75                           | 89             | 47             | 35             | 40             | 1,6            | 10                     | TA201724.0970       | TA501724.0970 |
| 9,80                   |                       | M10x0,5                            | 89             | 47             | 35             | 40             | 1,7            | 10                     | TA201724.0980       | TA501724.0980 |
| 9,90                   | MJ11x1,25 / 7/16-20   |                                    | 89             | 47             | 35             | 40             | 1,7            | 10                     | TA201724.0990       | TA501724.0990 |
| 9,92                   |                       |                                    | 89             | 47             | 35             | 40             | 1,7            | 10                     | TA201724.0992       | TA501724.0992 |
| 10,00                  | M11x1                 |                                    | 89             | 47             | 35             | 40             | 1,7            | 10                     | TA201724.1000       | TA501724.1000 |
| 10,10                  | MJ11x1                |                                    | 102            | 55             | 40             | 45             | 1,7            | 12                     | TA201724.1010       | TA501724.1010 |
| 10,20                  | M12 / M11x0,75        | 7/16-14 (GAL)                      | 102            | 55             | 40             | 45             | 1,7            | 12                     | TA201724.1020       | TA501724.1020 |
| 10,25                  |                       | 7/16-14                            | 102            | 55             | 40             | 45             | 1,7            | 12                     | TA201724.1025       | TA501724.1025 |
| 10,30                  |                       | M11 (GAL)                          | 102            | 55             | 40             | 45             | 1,7            | 12                     | TA201724.1030       | TA501724.1030 |
| 10,32                  |                       |                                    | 102            | 55             | 40             | 45             | 1,8            | 12                     | TA201724.1032       | TA501724.1032 |
| 10,35                  | MJ11x0,75             | M11                                | 102            | 55             | 40             | 45             | 1,8            | 12                     | TA201724.1035       | TA501724.1035 |
| 10,40                  |                       |                                    | 102            | 55             | 40             | 45             | 1,8            | 12                     | TA201724.1040       | TA501724.1040 |
| 10,50                  | M12x1,5               | 7/16-20 (GAL)                      | 102            | 55             | 40             | 45             | 1,8            | 12                     | TA201724.1050       | TA501724.1050 |
| 10,55                  |                       | M11x1 (GAL) / 7/16-20              | 102            | 55             | 40             | 45             | 1,8            | 12                     | TA201724.1055       | TA501724.1055 |
| 10,60                  | MJ12x1,5              | M11x1                              | 102            | 55             | 40             | 45             | 1,8            | 12                     | TA201724.1060       | TA501724.1060 |
| 10,70                  |                       | M11x0,75                           | 102            | 55             | 40             | 45             | 1,8            | 12                     | TA201724.1070       | TA501724.1070 |
| 10,72                  |                       |                                    | 102            | 55             | 40             | 45             | 1,8            | 12                     | TA201724.1072       | TA501724.1072 |
| 10,80                  | M12x1,25 / 1/2-13     |                                    | 102            | 55             | 40             | 45             | 1,8            | 12                     | TA201724.1080       | TA501724.1080 |
| 10,90                  | MJ12x1,25             |                                    | 102            | 55             | 40             | 45             | 1,8            | 12                     | TA201724.1090       | TA501724.1090 |
| 11,00                  | M12x1                 |                                    | 102            | 55             | 40             | 45             | 1,9            | 12                     | TA201724.1100       | TA501724.1100 |
| 11,10                  | MJ12x1                |                                    | 102            | 55             | 40             | 45             | 1,9            | 12                     | TA201724.1110       | TA501724.1110 |
| 11,11                  |                       |                                    | 102            | 55             | 40             | 45             | 1,9            | 12                     | TA201724.1111       | TA501724.1111 |
| 11,20                  | M12x0,75              | M12 (GAL)                          | 102            | 55             | 40             | 45             | 1,9            | 12                     | TA201724.1120       | TA501724.1120 |
| 11,25                  |                       | M12                                | 102            | 55             | 40             | 45             | 1,9            | 12                     | TA201724.1125       | TA501724.1125 |
| 11,30                  |                       | M12x1,5 (GAL)                      | 102            | 55             | 40             | 45             | 1,9            | 12                     | TA201724.1130       | TA501724.1130 |
| 11,35                  |                       | M12x1,5                            | 102            | 55             | 40             | 45             | 1,9            | 12                     | TA201724.1135       | TA501724.1135 |
| 11,40                  |                       | M12x1,25 (GAL)                     | 102            | 55             | 40             | 45             | 1,9            | 12                     | TA201724.1140       | TA501724.1140 |
| 11,45                  |                       | M12x1,25                           | 102            | 55             | 40             | 45             | 1,9            | 12                     | TA201724.1145       | TA501724.1145 |
| 11,50                  | 1/2-20                |                                    | 102            | 55             | 40             | 45             | 2,0            | 12                     | TA201724.1150       | TA501724.1150 |
| 11,51                  |                       |                                    | 102            | 55             | 40             | 45             | 2,0            | 12                     | TA201724.1151       | TA501724.1151 |
| 11,60                  |                       | M12x1                              | 102            | 55             | 40             | 45             | 2,0            | 12                     | TA201724.1160       | TA501724.1160 |
| 11,70                  |                       | M12x0,75                           | 102            | 55             | 40             | 45             | 2,0            | 12                     | TA201724.1170       | TA501724.1170 |
| 11,80                  | G1/4                  | 1/2-13                             | 102            | 55             | 40             | 45             | 2,0            | 12                     | TA201724.1180       | TA501724.1180 |
| 11,90                  |                       |                                    | 102            | 55             | 40             | 45             | 2,0            | 12                     | TA201724.1190       | TA501724.1190 |
| 11,91                  |                       |                                    | 102            | 55             | 40             | 45             | 2,0            | 12                     | TA201724.1191       | TA501724.1191 |
| 12,00                  | M14                   |                                    | 102            | 55             | 40             | 45             | 2,0            | 12                     | TA201724.1200       | TA501724.1200 |
| 12,10                  | MJ13x1                | 1/2-20 (GAL)                       | 107            | 60             | 43             | 45             | 2,1            | 14                     | TA201724.1210       | TA501724.1210 |
| 12,15                  |                       | 1/2-20                             | 107            | 60             | 43             | 45             | 2,1            | 14                     | TA201724.1215       | TA501724.1215 |
| 12,20                  | 9/16-12               |                                    | 107            | 60             | 43             | 45             | 2,1            | 14                     | TA201724.1220       | TA501724.1220 |
| 12,30                  |                       |                                    | 107            | 60             | 43             | 45             | 2,1            | 14                     | TA201724.1230       | TA501724.1230 |
| 12,50                  | M14x1,5               | G1/4 (GAL)                         | 107            | 60             | 43             | 45             | 2,1            | 14                     | TA201724.1250       | TA501724.1250 |
| 12,55                  |                       | M13x1 (GAL) / G1/4                 | 107            | 60             | 43             | 45             | 2,1            | 14                     | TA201724.1255       | TA501724.1255 |
| 12,60                  | MJ14x1,5              | M13x1                              | 107            | 60             | 43             | 45             | 2,1            | 14                     | TA201724.1260       | TA501724.1260 |
| 12,70                  |                       | M13x0,75                           | 107            | 60             | 43             | 45             | 2,2            | 14                     | TA201724.1270       | TA501724.1270 |
| 12,80                  | M14x1,25              |                                    | 107            | 60             | 43             | 45             | 2,2            | 14                     | TA201724.1280       | TA501724.1280 |
| 12,90                  | MJ14x1,25 / 9/16-18   |                                    | 107            | 60             | 43             | 45             | 2,2            | 14                     | TA201724.1290       | TA501724.1290 |

ø 13,00 mm - ø 20,00 mm →

Product Finder

v<sub>c</sub> / f

BASIC

STEEL

INOX

G

HCUT

SpotDrill

Zubehör  
Accessories

3 x D

5 x D

6 x D

8 x D

12 x D

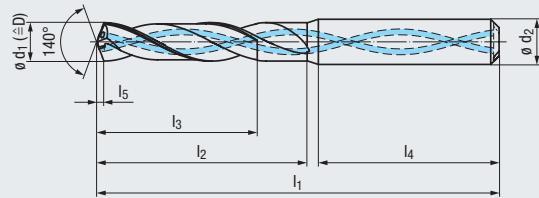
2-3,5 x D



- Product Finder
- $v_c / f$
- BASIC
- STEEL
- INOX**
- GG
- HCUT
- SpotDrill
- Zubehör  
Accessories
- 3 x D
- 5 x D
- 6 x D
- 8 x D
- 12 x D
- 2-3,5 x D

## InoxDrill-ID103

**3 x D** Kurze Ausführung  
Short design



VHM  
Carbide

ALCR

DIN  
6537 K

R30



DIN 6535



**INOX**  
Stainless steel  
materials



**3 x D**

Bohrtiefe  
Drill depth

Einsatzgebiete – Material  
Applications – material

» 14

**M** 1.1-4.1    **N** 1.1-2.3  
**S** 1.2-1.3    **S** 2.2-2.3

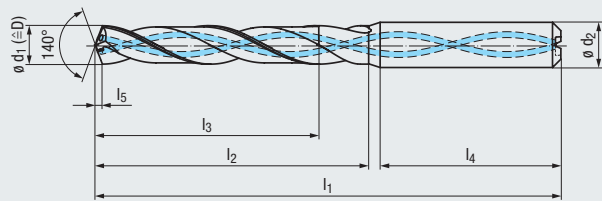
| $\emptyset d_1$<br>m7 | Gewindebohrer<br>Taps | Gewindeformer<br>Cold-forming taps |       |       |       |       |       |    | $\emptyset d_2$<br>h6 | InoxDrill<br>ID103-3xD | InoxDrill<br>ID103-3xD |
|-----------------------|-----------------------|------------------------------------|-------|-------|-------|-------|-------|----|-----------------------|------------------------|------------------------|
|                       |                       |                                    | $l_1$ | $l_2$ | $l_3$ | $l_4$ | $l_5$ | HA |                       | HE                     |                        |
| 13,00                 | M14x1                 |                                    | 107   | 60    | 43    | 45    | 2,2   | 14 | TA201724.1300         | TA501724.1300          |                        |
| 13,10                 | MJ14x1                | M14                                | 107   | 60    | 43    | 45    | 2,2   | 14 | TA201724.1310         | TA501724.1310          |                        |
| 13,20                 | M14x0,75              |                                    | 107   | 60    | 43    | 45    | 2,2   | 14 | TA201724.1320         | TA501724.1320          |                        |
| 13,30                 |                       | 9/16-12                            | 107   | 60    | 43    | 45    | 2,3   | 14 | TA201724.1330         | TA501724.1330          |                        |
| 13,35                 |                       | M14x1,5                            | 107   | 60    | 43    | 45    | 2,3   | 14 | TA201724.1335         | TA501724.1335          |                        |
| 13,45                 |                       | M14x1,25                           | 107   | 60    | 43    | 45    | 2,3   | 14 | TA201724.1345         | TA501724.1345          |                        |
| 13,49                 |                       |                                    | 107   | 60    | 43    | 45    | 2,3   | 14 | TA201724.1349         | TA501724.1349          |                        |
| 13,50                 | 5/8-11                |                                    | 107   | 60    | 43    | 45    | 2,3   | 14 | TA201724.1350         | TA501724.1350          |                        |
| 13,60                 | MJ15x1,5              | M14x1 / 9/16-18 (GAL)              | 107   | 60    | 43    | 45    | 2,3   | 14 | TA201724.1360         | TA501724.1360          |                        |
| 13,65                 |                       | 9/16-18                            | 107   | 60    | 43    | 45    | 2,3   | 14 | TA201724.1365         | TA501724.1365          |                        |
| 13,70                 |                       | M14x0,75                           | 107   | 60    | 43    | 45    | 2,3   | 14 | TA201724.1370         | TA501724.1370          |                        |
| 13,80                 |                       |                                    | 107   | 60    | 43    | 45    | 2,3   | 14 | TA201724.1380         | TA501724.1380          |                        |
| 13,89                 |                       |                                    | 107   | 60    | 43    | 45    | 2,4   | 14 | TA201724.1389         | TA501724.1389          |                        |
| 14,00                 | M16 / M15x1           |                                    | 107   | 60    | 43    | 45    | 2,4   | 14 | TA201724.1400         | TA501724.1400          |                        |
| 14,10                 | MJ15x1                |                                    | 115   | 65    | 45    | 48    | 2,4   | 16 | TA201724.1410         | TA501724.1410          |                        |
| 14,20                 | M15x0,75              |                                    | 115   | 65    | 45    | 48    | 2,4   | 16 | TA201724.1420         | TA501724.1420          |                        |
| 14,29                 |                       |                                    | 115   | 65    | 45    | 48    | 2,4   | 16 | TA201724.1429         | TA501724.1429          |                        |
| 14,30                 |                       |                                    | 115   | 65    | 45    | 48    | 2,4   | 16 | TA201724.1430         | TA501724.1430          |                        |
| 14,40                 |                       |                                    | 115   | 65    | 45    | 48    | 2,4   | 16 | TA201724.1440         | TA501724.1440          |                        |
| 14,50                 | M16x1,5 / 5/8-18      |                                    | 115   | 65    | 45    | 48    | 2,5   | 16 | TA201724.1450         | TA501724.1450          |                        |
| 14,60                 | MJ16x1,5              | M15x1                              | 115   | 65    | 45    | 48    | 2,5   | 16 | TA201724.1460         | TA501724.1460          |                        |
| 14,68                 |                       |                                    | 115   | 65    | 45    | 48    | 2,5   | 16 | TA201724.1468         | TA501724.1468          |                        |
| 14,70                 |                       | M15x0,75                           | 115   | 65    | 45    | 48    | 2,5   | 16 | TA201724.1470         | TA501724.1470          |                        |
| 14,80                 |                       | 5/8-11                             | 115   | 65    | 45    | 48    | 2,5   | 16 | TA201724.1480         | TA501724.1480          |                        |
| 15,00                 | M16x1                 |                                    | 115   | 65    | 45    | 48    | 2,5   | 16 | TA201724.1500         | TA501724.1500          |                        |
| 15,08                 |                       |                                    | 115   | 65    | 45    | 48    | 2,6   | 16 | TA201724.1508         | TA501724.1508          |                        |
| 15,10                 | MJ16x1                | M16                                | 115   | 65    | 45    | 48    | 2,6   | 16 | TA201724.1510         | TA501724.1510          |                        |
| 15,20                 | M16x0,75              | 5/8-18 (GAL)                       | 115   | 65    | 45    | 48    | 2,6   | 16 | TA201724.1520         | TA501724.1520          |                        |
| 15,25                 | G3/8                  | 5/8-18                             | 115   | 65    | 45    | 48    | 2,6   | 16 | TA201724.1525         | TA501724.1525          |                        |
| 15,35                 |                       | M16x1,5                            | 115   | 65    | 45    | 48    | 2,6   | 16 | TA201724.1535         | TA501724.1535          |                        |
| 15,50                 | M18                   |                                    | 115   | 65    | 45    | 48    | 2,6   | 16 | TA201724.1550         | TA501724.1550          |                        |
| 15,60                 |                       | M16x1                              | 115   | 65    | 45    | 48    | 2,6   | 16 | TA201724.1560         | TA501724.1560          |                        |
| 15,80                 | MJ18x2,5              |                                    | 115   | 65    | 45    | 48    | 2,7   | 16 | TA201724.1580         | TA501724.1580          |                        |
| 15,88                 |                       |                                    | 115   | 65    | 45    | 48    | 2,7   | 16 | TA201724.1588         | TA501724.1588          |                        |
| 16,00                 | M18x2                 |                                    | 115   | 65    | 45    | 48    | 2,7   | 16 | TA201724.1600         | TA501724.1600          |                        |
| 16,27                 |                       |                                    | 123   | 73    | 51    | 48    | 2,8   | 18 | TA201724.1627         | TA501724.1627          |                        |
| 16,50                 | M18x1,5 / 3/4-10      |                                    | 123   | 73    | 51    | 48    | 2,8   | 18 | TA201724.1650         | TA501724.1650          |                        |
| 16,67                 |                       |                                    | 123   | 73    | 51    | 48    | 2,8   | 18 | TA201724.1667         | TA501724.1667          |                        |
| 17,00                 | M18x1                 |                                    | 123   | 73    | 51    | 48    | 2,9   | 18 | TA201724.1700         | TA501724.1700          |                        |
| 17,46                 |                       |                                    | 123   | 73    | 51    | 48    | 3,0   | 18 | TA201724.1746         | TA501724.1746          |                        |
| 17,50                 | M20 / 3/4-16          |                                    | 123   | 73    | 51    | 48    | 3,0   | 18 | TA201724.1750         | TA501724.1750          |                        |
| 17,60                 |                       | M18x1                              | 123   | 73    | 51    | 48    | 3,0   | 18 | TA201724.1760         | TA501724.1760          |                        |
| 18,00                 | M20x2                 |                                    | 123   | 73    | 51    | 48    | 3,1   | 18 | TA201724.1800         | TA501724.1800          |                        |
| 18,50                 | M20x1,5               |                                    | 131   | 79    | 55    | 50    | 3,1   | 20 | TA201724.1850         | TA501724.1850          |                        |
| 18,85                 |                       | M20                                | 131   | 79    | 55    | 50    | 3,2   | 20 | TA201724.1885         | TA501724.1885          |                        |
| 19,00                 | M20x1 / G1/2          |                                    | 131   | 79    | 55    | 50    | 3,2   | 20 | TA201724.1900         | TA501724.1900          |                        |
| 19,05                 |                       |                                    | 131   | 79    | 55    | 50    | 3,2   | 20 | TA201724.1905         | TA501724.1905          |                        |
| 19,35                 |                       | M20x1,5                            | 131   | 79    | 55    | 50    | 3,3   | 20 | TA201724.1935         | TA501724.1935          |                        |
| 19,50                 | M22 / 7/8-9           |                                    | 131   | 79    | 55    | 50    | 3,3   | 20 | TA201724.1950         | TA501724.1950          |                        |
| 19,60                 |                       | M20x1                              | 131   | 79    | 55    | 50    | 3,3   | 20 | TA201724.1960         | TA501724.1960          |                        |
| 20,00                 | M22x2                 |                                    | 131   | 79    | 55    | 50    | 3,4   | 20 | TA201724.2000         | TA501724.2000          |                        |

### InoxDrill-ID103

|             |          |
|-------------|----------|
| VHM Carbide | ALCR     |
| DIN 6537 L  | R30      |
| Z2          | 2FF      |
| 140°        | IT9-IT10 |
| DIN 6535    |          |
| HA          | HE       |

**INOX**  
Stainless steel materials

**5 x D** Lange Ausführung  
Long design



Bohrtiefe  
Drill depth

**5 x D**

Einsatzgebiete – Material  
Applications – material

|   |         |   |         |
|---|---------|---|---------|
| M | 1.1-4.1 | N | 1.1-2.3 |
| S | 1.2-1.3 | S | 2.2-2.3 |

| ø d <sub>1</sub><br>m7 | Gewindebohrer<br>Taps   | Gewindeformer<br>Cold-forming taps |                |                |                |                |                | ø d <sub>2</sub><br>h6 | InoxDrill ID103-5xD |               |
|------------------------|-------------------------|------------------------------------|----------------|----------------|----------------|----------------|----------------|------------------------|---------------------|---------------|
|                        |                         |                                    | l <sub>1</sub> | l <sub>2</sub> | l <sub>3</sub> | l <sub>4</sub> | l <sub>5</sub> |                        | HA                  | HE            |
| 3,00                   | M3,5x0,5 / MJ3,5x0,6    |                                    | 66             | 28             | 23             | 36             | 0,5            | 6                      | TA211724.0300       | TA511724.0300 |
| 3,10                   |                         |                                    | 66             | 28             | 23             | 36             | 0,5            | 6                      | TA211724.0310       | TA511724.0310 |
| 3,15                   | M3,5x0,35               | #6-32                              | 66             | 28             | 23             | 36             | 0,5            | 6                      | TA211724.0315       | TA511724.0315 |
| 3,18                   |                         |                                    | 66             | 28             | 23             | 36             | 0,5            | 6                      | TA211724.0318       | TA511724.0318 |
| 3,20                   | MJ3,5x0,35              |                                    | 66             | 28             | 23             | 36             | 0,5            | 6                      | TA211724.0320       | TA511724.0320 |
| 3,22                   |                         | #6-40                              | 66             | 28             | 23             | 36             | 0,5            | 6                      | TA211724.0322       | TA511724.0322 |
| 3,25                   |                         | M3,5                               | 66             | 28             | 23             | 36             | 0,6            | 6                      | TA211724.0325       | TA511724.0325 |
| 3,30                   | M4                      | M3,5x0,5                           | 66             | 28             | 23             | 36             | 0,6            | 6                      | TA211724.0330       | TA511724.0330 |
| 3,35                   |                         |                                    | 66             | 28             | 23             | 36             | 0,6            | 6                      | TA211724.0335       | TA511724.0335 |
| 3,38                   |                         | M3,5x0,35                          | 66             | 28             | 23             | 36             | 0,6            | 6                      | TA211724.0338       | TA511724.0338 |
| 3,40                   | MJ4x0,7                 |                                    | 66             | 28             | 23             | 36             | 0,6            | 6                      | TA211724.0340       | TA511724.0340 |
| 3,50                   | M4x0,5 / #8-32 / #8-36  |                                    | 66             | 28             | 23             | 36             | 0,6            | 6                      | TA211724.0350       | TA511724.0350 |
| 3,55                   |                         |                                    | 66             | 28             | 23             | 36             | 0,6            | 6                      | TA211724.0355       | TA511724.0355 |
| 3,57                   |                         |                                    | 66             | 28             | 23             | 36             | 0,6            | 6                      | TA211724.0357       | TA511724.0357 |
| 3,60                   | MJ4x0,5                 |                                    | 66             | 28             | 23             | 36             | 0,6            | 6                      | TA211724.0360       | TA511724.0360 |
| 3,65                   | M4x0,35                 |                                    | 66             | 28             | 23             | 36             | 0,6            | 6                      | TA211724.0365       | TA511724.0365 |
| 3,70                   | M4,5                    | M4                                 | 66             | 28             | 23             | 36             | 0,6            | 6                      | TA211724.0370       | TA511724.0370 |
| 3,80                   |                         | M4x0,5 / #8-32                     | 74             | 36             | 29             | 36             | 0,6            | 6                      | TA211724.0380       | TA511724.0380 |
| 3,85                   |                         | #8-36                              | 74             | 36             | 29             | 36             | 0,7            | 6                      | TA211724.0385       | TA511724.0385 |
| 3,88                   |                         | M4x0,35                            | 74             | 36             | 29             | 36             | 0,7            | 6                      | TA211724.0388       | TA511724.0388 |
| 3,90                   | MJ4,5x0,75 / #10-24     |                                    | 74             | 36             | 29             | 36             | 0,7            | 6                      | TA211724.0390       | TA511724.0390 |
| 3,97                   |                         |                                    | 74             | 36             | 29             | 36             | 0,7            | 6                      | TA211724.0397       | TA511724.0397 |
| 4,00                   |                         |                                    | 74             | 36             | 29             | 36             | 0,7            | 6                      | TA211724.0400       | TA511724.0400 |
| 4,04                   |                         |                                    | 74             | 36             | 29             | 36             | 0,7            | 6                      | TA211724.0404       | TA511724.0404 |
| 4,10                   | MJ4,5x0,5 / #10-32      |                                    | 74             | 36             | 29             | 36             | 0,7            | 6                      | TA211724.0410       | TA511724.0410 |
| 4,15                   | M5x0,9                  |                                    | 74             | 36             | 29             | 36             | 0,7            | 6                      | TA211724.0415       | TA511724.0415 |
| 4,20                   | M5 / M5x0,75            | M4,5                               | 74             | 36             | 29             | 36             | 0,7            | 6                      | TA211724.0420       | TA511724.0420 |
| 4,30                   | MJ5x0,8                 | M4,5x0,5 / #10-24 (GAL)            | 74             | 36             | 29             | 36             | 0,7            | 6                      | TA211724.0430       | TA511724.0430 |
| 4,35                   |                         | #10-24                             | 74             | 36             | 29             | 36             | 0,7            | 6                      | TA211724.0435       | TA511724.0435 |
| 4,37                   |                         |                                    | 74             | 36             | 29             | 36             | 0,7            | 6                      | TA211724.0437       | TA511724.0437 |
| 4,40                   |                         |                                    | 74             | 36             | 29             | 36             | 0,7            | 6                      | TA211724.0440       | TA511724.0440 |
| 4,45                   |                         | #10-32                             | 74             | 36             | 29             | 36             | 0,8            | 6                      | TA211724.0445       | TA511724.0445 |
| 4,50                   | M5x0,5 / #12-24         |                                    | 74             | 36             | 29             | 36             | 0,8            | 6                      | TA211724.0450       | TA511724.0450 |
| 4,60                   | M5,5 / MJ5x0,5 / #12-28 |                                    | 74             | 36             | 29             | 36             | 0,8            | 6                      | TA211724.0460       | TA511724.0460 |
| 4,65                   |                         | M5                                 | 74             | 36             | 29             | 36             | 0,8            | 6                      | TA211724.0465       | TA511724.0465 |
| 4,70                   |                         | M5x0,75                            | 74             | 36             | 29             | 36             | 0,8            | 6                      | TA211724.0470       | TA511724.0470 |
| 4,76                   |                         |                                    | 82             | 44             | 35             | 36             | 0,8            | 6                      | TA211724.0476       | TA511724.0476 |
| 4,80                   |                         | M5x0,5                             | 82             | 44             | 35             | 36             | 0,8            | 6                      | TA211724.0480       | TA511724.0480 |
| 4,90                   |                         |                                    | 82             | 44             | 35             | 36             | 0,8            | 6                      | TA211724.0490       | TA511724.0490 |
| 5,00                   | M6                      | #12-24                             | 82             | 44             | 35             | 36             | 0,8            | 6                      | TA211724.0500       | TA511724.0500 |
| 5,10                   | MJ6x1 / 1/4-20          | M5,5 / #12-28                      | 82             | 44             | 35             | 36             | 0,9            | 6                      | TA211724.0510       | TA511724.0510 |
| 5,11                   |                         |                                    | 82             | 44             | 35             | 36             | 0,9            | 6                      | TA211724.0511       | TA511724.0511 |
| 5,16                   |                         |                                    | 82             | 44             | 35             | 36             | 0,9            | 6                      | TA211724.0516       | TA511724.0516 |
| 5,20                   | M6x0,75                 |                                    | 82             | 44             | 35             | 36             | 0,9            | 6                      | TA211724.0520       | TA511724.0520 |
| 5,25                   |                         |                                    | 82             | 44             | 35             | 36             | 0,9            | 6                      | TA211724.0525       | TA511724.0525 |
| 5,30                   |                         | M5,5x0,5                           | 82             | 44             | 35             | 36             | 0,9            | 6                      | TA211724.0530       | TA511724.0530 |
| 5,40                   |                         |                                    | 82             | 44             | 35             | 36             | 0,9            | 6                      | TA211724.0540       | TA511724.0540 |
| 5,41                   |                         |                                    | 82             | 44             | 35             | 36             | 0,9            | 6                      | TA211724.0541       | TA511724.0541 |
| 5,50                   | M6x0,5 / 1/4-28         |                                    | 82             | 44             | 35             | 36             | 0,9            | 6                      | TA211724.0550       | TA511724.0550 |

Product Finder

v<sub>c</sub> / f

BASIC

STEEL

INOX

G

HCUT

SpotDrill

Zubehör  
Accessories

3 x D

5 x D

6 x D

8 x D

12 x D

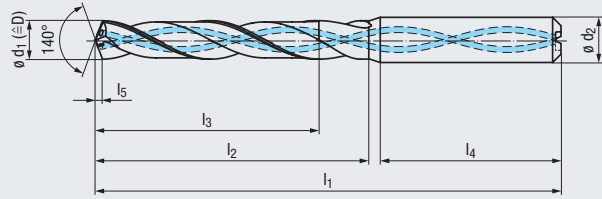
2-3,5 x D



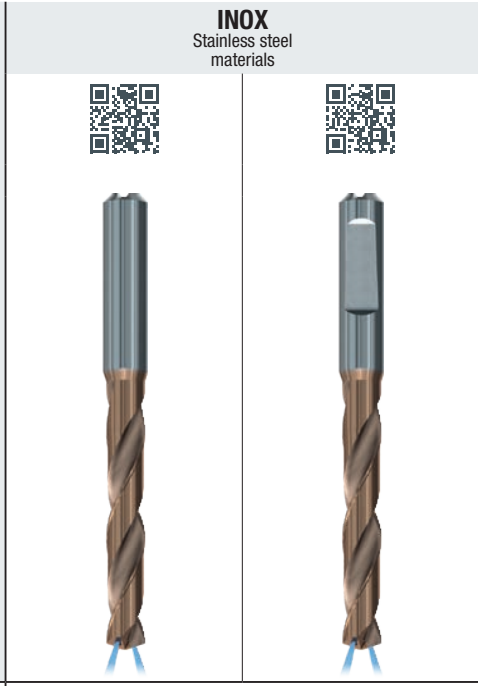
- Product Finder
- $v_c / f$
- BASIC
- STEEL
- INOX**
- GG
- HCUT
- SpotDrill
- Zubehör  
Accessories
- 3 x D
- 5 x D**
- 6 x D
- 8 x D
- 12 x D
- 2-3,5 x D

## InoxDrill-ID103

**5 x D** Lange Ausführung  
Long design



|                    |                     |
|--------------------|---------------------|
| <b>VHM Carbide</b> | <b>ALCR</b>         |
| <b>DIN 6537 L</b>  | <b>R30</b>          |
| <b>Z2</b><br>      | <b>2FF</b><br>      |
| <b>140°</b><br>    | <b>IT9-IT10</b><br> |
| <b>DIN 6535</b>    |                     |
|                    |                     |



Bohrtiefe  
Drill depth

**5 x D**

Einsatzgebiete – Material  
Applications – material » 14

|                  |                  |
|------------------|------------------|
| <b>M 1.1-4.1</b> | <b>N 1.1-2.3</b> |
| <b>S 1.2-1.3</b> | <b>S 2.2-2.3</b> |

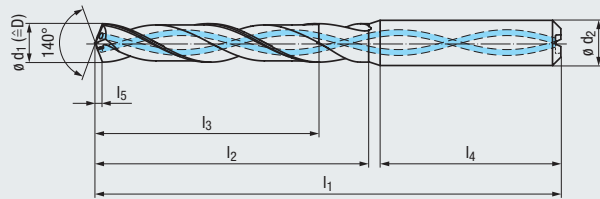
| $\phi d_1$<br>m7 | Gewindebohrer<br>Taps | Gewindeformer<br>Cold-forming taps |       |       |       |       |       | $\phi d_2$<br>h6 | InoxDrill<br>ID103-5xD | InoxDrill<br>ID103-5xD |
|------------------|-----------------------|------------------------------------|-------|-------|-------|-------|-------|------------------|------------------------|------------------------|
|                  |                       |                                    | $l_1$ | $l_2$ | $l_3$ | $l_4$ | $l_5$ |                  | HA                     | HE                     |
| 5,55             |                       | M6 (GAL)                           | 82    | 44    | 35    | 36    | 0,9   | 6                | TA211724.0555          | TA511724.0555          |
| 5,56             |                       |                                    | 82    | 44    | 35    | 36    | 0,9   | 6                | TA211724.0556          | TA511724.0556          |
| 5,60             | MJ6x0,5               | M6                                 | 82    | 44    | 35    | 36    | 1,0   | 6                | TA211724.0560          | TA511724.0560          |
| 5,70             |                       | M6x0,75 / 1/4-20 (GAL)             | 82    | 44    | 35    | 36    | 1,0   | 6                | TA211724.0570          | TA511724.0570          |
| 5,75             |                       | 1/4-20                             | 82    | 44    | 35    | 36    | 1,0   | 6                | TA211724.0575          | TA511724.0575          |
| 5,80             |                       | M6x0,5                             | 82    | 44    | 35    | 36    | 1,0   | 6                | TA211724.0580          | TA511724.0580          |
| 5,90             |                       |                                    | 82    | 44    | 35    | 36    | 1,0   | 6                | TA211724.0590          | TA511724.0590          |
| 5,95             |                       | 1/4-28                             | 82    | 44    | 35    | 36    | 1,0   | 6                | TA211724.0595          | TA511724.0595          |
| 6,00             | M7                    |                                    | 82    | 44    | 35    | 36    | 1,0   | 6                | TA211724.0600          | TA511724.0600          |
| 6,10             | MJ7x1                 |                                    | 91    | 53    | 43    | 36    | 1,0   | 8                | TA211724.0610          | TA511724.0610          |
| 6,20             | M7x0,75               |                                    | 91    | 53    | 43    | 36    | 1,1   | 8                | TA211724.0620          | TA511724.0620          |
| 6,30             |                       |                                    | 91    | 53    | 43    | 36    | 1,1   | 8                | TA211724.0630          | TA511724.0630          |
| 6,35             | MJ7x0,75              |                                    | 91    | 53    | 43    | 36    | 1,1   | 8                | TA211724.0635          | TA511724.0635          |
| 6,40             |                       |                                    | 91    | 53    | 43    | 36    | 1,1   | 8                | TA211724.0640          | TA511724.0640          |
| 6,50             | M7x0,5                |                                    | 91    | 53    | 43    | 36    | 1,1   | 8                | TA211724.0650          | TA511724.0650          |
| 6,53             |                       |                                    | 91    | 53    | 43    | 36    | 1,1   | 8                | TA211724.0653          | TA511724.0653          |
| 6,60             | 5/16-18               | M7                                 | 91    | 53    | 43    | 36    | 1,1   | 8                | TA211724.0660          | TA511724.0660          |
| 6,70             |                       | M7x0,75                            | 91    | 53    | 43    | 36    | 1,1   | 8                | TA211724.0670          | TA511724.0670          |
| 6,75             |                       |                                    | 91    | 53    | 43    | 36    | 1,1   | 8                | TA211724.0675          | TA511724.0675          |
| 6,80             | M8 / G1/16            | M7x0,5                             | 91    | 53    | 43    | 36    | 1,2   | 8                | TA211724.0680          | TA511724.0680          |
| 6,90             | MJ8x1,25 / 5/16-24    |                                    | 91    | 53    | 43    | 36    | 1,2   | 8                | TA211724.0690          | TA511724.0690          |
| 7,00             | M8x1                  |                                    | 91    | 53    | 43    | 36    | 1,2   | 8                | TA211724.0700          | TA511724.0700          |
| 7,10             | MJ8x1                 |                                    | 91    | 53    | 43    | 36    | 1,2   | 8                | TA211724.0710          | TA511724.0710          |
| 7,15             |                       |                                    | 91    | 53    | 43    | 36    | 1,2   | 8                | TA211724.0715          | TA511724.0715          |
| 7,20             | M8x0,75               |                                    | 91    | 53    | 43    | 36    | 1,2   | 8                | TA211724.0720          | TA511724.0720          |
| 7,25             |                       | 5/16-18 (GAL) / G1/16              | 91    | 53    | 43    | 36    | 1,2   | 8                | TA211724.0725          | TA511724.0725          |
| 7,30             |                       | 5/16-18                            | 91    | 53    | 43    | 36    | 1,2   | 8                | TA211724.0730          | TA511724.0730          |
| 7,40             |                       | M8 (GAL) / 5/16-24 (GAL)           | 91    | 53    | 43    | 36    | 1,3   | 8                | TA211724.0740          | TA511724.0740          |
| 7,45             |                       | M8 / 5/16-24                       | 91    | 53    | 43    | 36    | 1,3   | 8                | TA211724.0745          | TA511724.0745          |
| 7,50             | M8x0,5                |                                    | 91    | 53    | 43    | 36    | 1,3   | 8                | TA211724.0750          | TA511724.0750          |
| 7,54             |                       |                                    | 91    | 53    | 43    | 36    | 1,3   | 8                | TA211724.0754          | TA511724.0754          |
| 7,60             |                       | M8x1                               | 91    | 53    | 43    | 36    | 1,3   | 8                | TA211724.0760          | TA511724.0760          |
| 7,70             |                       | M8x0,75                            | 91    | 53    | 43    | 36    | 1,3   | 8                | TA211724.0770          | TA511724.0770          |
| 7,80             |                       | M8x0,5                             | 91    | 53    | 43    | 36    | 1,3   | 8                | TA211724.0780          | TA511724.0780          |
| 7,90             | M9                    |                                    | 91    | 53    | 43    | 36    | 1,3   | 8                | TA211724.0790          | TA511724.0790          |
| 7,94             | MJ9x1,25              |                                    | 91    | 53    | 43    | 36    | 1,3   | 8                | TA211724.0794          | TA511724.0794          |
| 8,00             | M9x1 / 3/8-16         |                                    | 91    | 53    | 43    | 36    | 1,4   | 8                | TA211724.0800          | TA511724.0800          |
| 8,10             | MJ9x1                 |                                    | 103   | 61    | 49    | 40    | 1,4   | 10               | TA211724.0810          | TA511724.0810          |
| 8,20             | M9x0,75               |                                    | 103   | 61    | 49    | 40    | 1,4   | 10               | TA211724.0820          | TA511724.0820          |
| 8,30             |                       |                                    | 103   | 61    | 49    | 40    | 1,4   | 10               | TA211724.0830          | TA511724.0830          |
| 8,33             |                       |                                    | 103   | 61    | 49    | 40    | 1,4   | 10               | TA211724.0833          | TA511724.0833          |
| 8,40             |                       | M9 (GAL)                           | 103   | 61    | 49    | 40    | 1,4   | 10               | TA211724.0840          | TA511724.0840          |
| 8,45             |                       | M9                                 | 103   | 61    | 49    | 40    | 1,4   | 10               | TA211724.0845          | TA511724.0845          |
| 8,50             | M10 / M9x0,5 / 3/8-24 |                                    | 103   | 61    | 49    | 40    | 1,4   | 10               | TA211724.0850          | TA511724.0850          |
| 8,60             | MJ10x1,5              | M9x1                               | 103   | 61    | 49    | 40    | 1,5   | 10               | TA211724.0860          | TA511724.0860          |
| 8,70             |                       | M9x0,75                            | 103   | 61    | 49    | 40    | 1,5   | 10               | TA211724.0870          | TA511724.0870          |
| 8,73             |                       |                                    | 103   | 61    | 49    | 40    | 1,5   | 10               | TA211724.0873          | TA511724.0873          |
| 8,80             | M10x1,25 / G1/8       | M9x0,5 / 3/8-16                    | 103   | 61    | 49    | 40    | 1,5   | 10               | TA211724.0880          | TA511724.0880          |
| 8,90             | MJ10x1,25             |                                    | 103   | 61    | 49    | 40    | 1,5   | 10               | TA211724.0890          | TA511724.0890          |

### InoxDrill-ID103

|             |          |
|-------------|----------|
| VHM Carbide | ALCR     |
| DIN 6537 L  | R30      |
| Z2          | 2FF      |
| 140°        | IT9-IT10 |
| DIN 6535    |          |
| HA          | HE       |

**INOX**  
Stainless steel materials

**5 x D** Lange Ausführung  
Long design



Bohrtiefe  
Drill depth

**5 x D**

Einsatzgebiete – Material  
Applications – material

|   |         |   |         |
|---|---------|---|---------|
| M | 1.1-4.1 | N | 1.1-2.3 |
| S | 1.2-1.3 | S | 2.2-2.3 |

| ø d <sub>1</sub><br>m7 | Gewindebohrer<br>Taps | Gewindeformer<br>Cold-forming taps | l <sub>1</sub> | l <sub>2</sub> | l <sub>3</sub> | l <sub>4</sub> | l <sub>5</sub> | ø d <sub>2</sub><br>h6 | InoxDrill ID103-5xD |               |
|------------------------|-----------------------|------------------------------------|----------------|----------------|----------------|----------------|----------------|------------------------|---------------------|---------------|
|                        |                       |                                    |                |                |                |                |                |                        | HA                  | HE            |
| 9,00                   | M10x1                 | 3/8-24 (GAL)                       | 103            | 61             | 49             | 40             | 1,5            | 10                     | TA211724.0900       | TA511724.0900 |
| 9,05                   |                       | 3/8-24                             | 103            | 61             | 49             | 40             | 1,5            | 10                     | TA211724.0905       | TA511724.0905 |
| 9,10                   | MJ10x1                |                                    | 103            | 61             | 49             | 40             | 1,5            | 10                     | TA211724.0910       | TA511724.0910 |
| 9,13                   |                       |                                    | 103            | 61             | 49             | 40             | 1,5            | 10                     | TA211724.0913       | TA511724.0913 |
| 9,20                   | M10x0,75              |                                    | 103            | 61             | 49             | 40             | 1,6            | 10                     | TA211724.0920       | TA511724.0920 |
| 9,30                   |                       | M10 (GAL)                          | 103            | 61             | 49             | 40             | 1,6            | 10                     | TA211724.0930       | TA511724.0930 |
| 9,35                   | MJ10x0,75             | M10                                | 103            | 61             | 49             | 40             | 1,6            | 10                     | TA211724.0935       | TA511724.0935 |
| 9,40                   | 7/16-14               | M10x1,25 (GAL)                     | 103            | 61             | 49             | 40             | 1,6            | 10                     | TA211724.0940       | TA511724.0940 |
| 9,45                   |                       | M10x1,25                           | 103            | 61             | 49             | 40             | 1,6            | 10                     | TA211724.0945       | TA511724.0945 |
| 9,50                   | M11 / M10x0,5         |                                    | 103            | 61             | 49             | 40             | 1,6            | 10                     | TA211724.0950       | TA511724.0950 |
| 9,53                   |                       |                                    | 103            | 61             | 49             | 40             | 1,6            | 10                     | TA211724.0953       | TA511724.0953 |
| 9,60                   | MJ10x0,5 / MJ11x1,5   | M10x1                              | 103            | 61             | 49             | 40             | 1,6            | 10                     | TA211724.0960       | TA511724.0960 |
| 9,70                   |                       | M10x0,75                           | 103            | 61             | 49             | 40             | 1,6            | 10                     | TA211724.0970       | TA511724.0970 |
| 9,80                   |                       | M10x0,5                            | 103            | 61             | 49             | 40             | 1,7            | 10                     | TA211724.0980       | TA511724.0980 |
| 9,90                   | MJ11x1,25 / 7/16-20   |                                    | 103            | 61             | 49             | 40             | 1,7            | 10                     | TA211724.0990       | TA511724.0990 |
| 9,92                   |                       |                                    | 103            | 61             | 49             | 40             | 1,7            | 10                     | TA211724.0992       | TA511724.0992 |
| 10,00                  | M11x1                 |                                    | 103            | 61             | 49             | 40             | 1,7            | 10                     | TA211724.1000       | TA511724.1000 |
| 10,10                  | MJ11x1                |                                    | 118            | 71             | 56             | 45             | 1,7            | 12                     | TA211724.1010       | TA511724.1010 |
| 10,20                  | M12 / M11x0,75        | 7/16-14 (GAL)                      | 118            | 71             | 56             | 45             | 1,7            | 12                     | TA211724.1020       | TA511724.1020 |
| 10,25                  |                       | 7/16-14                            | 118            | 71             | 56             | 45             | 1,7            | 12                     | TA211724.1025       | TA511724.1025 |
| 10,30                  |                       | M11 (GAL)                          | 118            | 71             | 56             | 45             | 1,7            | 12                     | TA211724.1030       | TA511724.1030 |
| 10,32                  |                       |                                    | 118            | 71             | 56             | 45             | 1,8            | 12                     | TA211724.1032       | TA511724.1032 |
| 10,35                  | MJ11x0,75             | M11                                | 118            | 71             | 56             | 45             | 1,8            | 12                     | TA211724.1035       | TA511724.1035 |
| 10,40                  |                       |                                    | 118            | 71             | 56             | 45             | 1,8            | 12                     | TA211724.1040       | TA511724.1040 |
| 10,50                  | M12x1,5               | 7/16-20 (GAL)                      | 118            | 71             | 56             | 45             | 1,8            | 12                     | TA211724.1050       | TA511724.1050 |
| 10,55                  |                       | M11x1 (GAL) / 7/16-20              | 118            | 71             | 56             | 45             | 1,8            | 12                     | TA211724.1055       | TA511724.1055 |
| 10,60                  | MJ12x1,5              | M11x1                              | 118            | 71             | 56             | 45             | 1,8            | 12                     | TA211724.1060       | TA511724.1060 |
| 10,70                  |                       | M11x0,75                           | 118            | 71             | 56             | 45             | 1,8            | 12                     | TA211724.1070       | TA511724.1070 |
| 10,72                  |                       |                                    | 118            | 71             | 56             | 45             | 1,8            | 12                     | TA211724.1072       | TA511724.1072 |
| 10,80                  | M12x1,25 / 1/2-13     |                                    | 118            | 71             | 56             | 45             | 1,8            | 12                     | TA211724.1080       | TA511724.1080 |
| 10,90                  | MJ12x1,25             |                                    | 118            | 71             | 56             | 45             | 1,8            | 12                     | TA211724.1090       | TA511724.1090 |
| 11,00                  | M12x1                 |                                    | 118            | 71             | 56             | 45             | 1,9            | 12                     | TA211724.1100       | TA511724.1100 |
| 11,10                  | MJ12x1                |                                    | 118            | 71             | 56             | 45             | 1,9            | 12                     | TA211724.1110       | TA511724.1110 |
| 11,11                  |                       |                                    | 118            | 71             | 56             | 45             | 1,9            | 12                     | TA211724.1111       | TA511724.1111 |
| 11,20                  | M12x0,75              | M12 (GAL)                          | 118            | 71             | 56             | 45             | 1,9            | 12                     | TA211724.1120       | TA511724.1120 |
| 11,25                  |                       | M12                                | 118            | 71             | 56             | 45             | 1,9            | 12                     | TA211724.1125       | TA511724.1125 |
| 11,30                  |                       | M12x1,5 (GAL)                      | 118            | 71             | 56             | 45             | 1,9            | 12                     | TA211724.1130       | TA511724.1130 |
| 11,35                  |                       | M12x1,5                            | 118            | 71             | 56             | 45             | 1,9            | 12                     | TA211724.1135       | TA511724.1135 |
| 11,40                  |                       | M12x1,25 (GAL)                     | 118            | 71             | 56             | 45             | 1,9            | 12                     | TA211724.1140       | TA511724.1140 |
| 11,45                  |                       | M12x1,25                           | 118            | 71             | 56             | 45             | 1,9            | 12                     | TA211724.1145       | TA511724.1145 |
| 11,50                  | 1/2-20                |                                    | 118            | 71             | 56             | 45             | 2,0            | 12                     | TA211724.1150       | TA511724.1150 |
| 11,51                  |                       |                                    | 118            | 71             | 56             | 45             | 2,0            | 12                     | TA211724.1151       | TA511724.1151 |
| 11,60                  |                       | M12x1                              | 118            | 71             | 56             | 45             | 2,0            | 12                     | TA211724.1160       | TA511724.1160 |
| 11,70                  |                       | M12x0,75                           | 118            | 71             | 56             | 45             | 2,0            | 12                     | TA211724.1170       | TA511724.1170 |
| 11,80                  | G1/4                  | 1/2-13                             | 118            | 71             | 56             | 45             | 2,0            | 12                     | TA211724.1180       | TA511724.1180 |
| 11,90                  |                       |                                    | 118            | 71             | 56             | 45             | 2,0            | 12                     | TA211724.1190       | TA511724.1190 |
| 11,91                  |                       |                                    | 118            | 71             | 56             | 45             | 2,0            | 12                     | TA211724.1191       | TA511724.1191 |
| 12,00                  | M14                   |                                    | 118            | 71             | 56             | 45             | 2,0            | 12                     | TA211724.1200       | TA511724.1200 |
| 12,10                  | MJ13x1                | 1/2-20 (GAL)                       | 124            | 77             | 60             | 45             | 2,1            | 14                     | TA211724.1210       | TA511724.1210 |

Product Finder

v<sub>c</sub> / f

BASIC

STEEL

INOX

G

HCUT

SpotDrill

Zubehör  
Accessories

3 x D

5 x D

6 x D

8 x D

12 x D

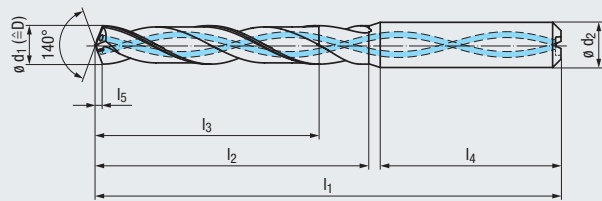
2-3,5 x D



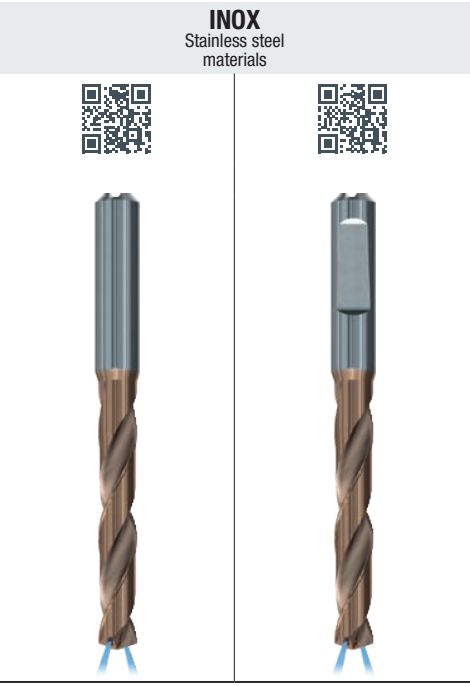
- Product Finder
- $v_c / f$
- BASIC
- STEEL
- INOX**
- GG
- HCUT
- SpotDrill
- Zubehör  
Accessories
- 3 x D
- 5 x D**
- 6 x D
- 8 x D
- 12 x D
- 2-3,5 x D

## InoxDrill-ID103

**5 x D** Lange Ausführung  
Long design



|                    |                     |
|--------------------|---------------------|
| <b>VHM Carbide</b> | <b>ALCR</b>         |
| <b>DIN 6537 L</b>  | <b>R30</b>          |
| <b>Z2</b><br>      | <b>2FF</b><br>      |
| <b>140°</b><br>    | <b>IT9-IT10</b><br> |
| <b>DIN 6535</b>    |                     |
|                    |                     |



Bohrtiefe  
Drill depth

**5 x D**

Einsatzgebiete – Material  
Applications – material » 14

|                  |                  |
|------------------|------------------|
| <b>M</b> 1.1-4.1 | <b>N</b> 1.1-2.3 |
| <b>S</b> 1.2-1.3 | <b>S</b> 2.2-2.3 |

| $\phi d_1$<br>m7 | Gewindebohrer<br>Taps | Gewindeformer<br>Cold-forming taps |       |       |       |       |       | $\phi d_2$<br>h6 | InoxDrill<br>ID103-5xD | InoxDrill<br>ID103-5xD |
|------------------|-----------------------|------------------------------------|-------|-------|-------|-------|-------|------------------|------------------------|------------------------|
|                  |                       |                                    | $l_1$ | $l_2$ | $l_3$ | $l_4$ | $l_5$ |                  | HA                     | HE                     |
| 12,15            |                       | 1/2-20                             | 124   | 77    | 60    | 45    | 2,1   | 14               | TA211724.1215          | TA511724.1215          |
| 12,20            | 9/16-12               |                                    | 124   | 77    | 60    | 45    | 2,1   | 14               | TA211724.1220          | TA511724.1220          |
| 12,30            |                       |                                    | 124   | 77    | 60    | 45    | 2,1   | 14               | TA211724.1230          | TA511724.1230          |
| 12,50            | M14x1,5               | G1/4 (GAL)                         | 124   | 77    | 60    | 45    | 2,1   | 14               | TA211724.1250          | TA511724.1250          |
| 12,55            |                       | M13x1 (GAL) / G1/4                 | 124   | 77    | 60    | 45    | 2,1   | 14               | TA211724.1255          | TA511724.1255          |
| 12,60            | MJ14x1,5              | M13x1                              | 124   | 77    | 60    | 45    | 2,1   | 14               | TA211724.1260          | TA511724.1260          |
| 12,70            |                       | M13x0,75                           | 124   | 77    | 60    | 45    | 2,2   | 14               | TA211724.1270          | TA511724.1270          |
| 12,80            | M14x1,25              |                                    | 124   | 77    | 60    | 45    | 2,2   | 14               | TA211724.1280          | TA511724.1280          |
| 12,90            | MJ14x1,25 / 9/16-18   |                                    | 124   | 77    | 60    | 45    | 2,2   | 14               | TA211724.1290          | TA511724.1290          |
| 13,00            | M14x1                 |                                    | 124   | 77    | 60    | 45    | 2,2   | 14               | TA211724.1300          | TA511724.1300          |
| 13,10            | MJ14x1                | M14                                | 124   | 77    | 60    | 45    | 2,2   | 14               | TA211724.1310          | TA511724.1310          |
| 13,20            | M14x0,75              |                                    | 124   | 77    | 60    | 45    | 2,2   | 14               | TA211724.1320          | TA511724.1320          |
| 13,30            |                       | 9/16-12                            | 124   | 77    | 60    | 45    | 2,3   | 14               | TA211724.1330          | TA511724.1330          |
| 13,35            |                       | M14x1,5                            | 124   | 77    | 60    | 45    | 2,3   | 14               | TA211724.1335          | TA511724.1335          |
| 13,45            |                       | M14x1,25                           | 124   | 77    | 60    | 45    | 2,3   | 14               | TA211724.1345          | TA511724.1345          |
| 13,49            |                       |                                    | 124   | 77    | 60    | 45    | 2,3   | 14               | TA211724.1349          | TA511724.1349          |
| 13,50            | 5/8-11                |                                    | 124   | 77    | 60    | 45    | 2,3   | 14               | TA211724.1350          | TA511724.1350          |
| 13,60            | MJ15x1,5              | M14x1 / 9/16-18 (GAL)              | 124   | 77    | 60    | 45    | 2,3   | 14               | TA211724.1360          | TA511724.1360          |
| 13,65            |                       | 9/16-18                            | 124   | 77    | 60    | 45    | 2,3   | 14               | TA211724.1365          | TA511724.1365          |
| 13,70            |                       | M14x0,75                           | 124   | 77    | 60    | 45    | 2,3   | 14               | TA211724.1370          | TA511724.1370          |
| 13,80            |                       |                                    | 124   | 77    | 60    | 45    | 2,3   | 14               | TA211724.1380          | TA511724.1380          |
| 13,89            |                       |                                    | 124   | 77    | 60    | 45    | 2,4   | 14               | TA211724.1389          | TA511724.1389          |
| 14,00            | M16 / M15x1           |                                    | 124   | 77    | 60    | 45    | 2,4   | 14               | TA211724.1400          | TA511724.1400          |
| 14,10            | MJ15x1                |                                    | 133   | 83    | 63    | 48    | 2,4   | 16               | TA211724.1410          | TA511724.1410          |
| 14,20            | M15x0,75              |                                    | 133   | 83    | 63    | 48    | 2,4   | 16               | TA211724.1420          | TA511724.1420          |
| 14,29            |                       |                                    | 133   | 83    | 63    | 48    | 2,4   | 16               | TA211724.1429          | TA511724.1429          |
| 14,30            |                       |                                    | 133   | 83    | 63    | 48    | 2,4   | 16               | TA211724.1430          | TA511724.1430          |
| 14,40            |                       |                                    | 133   | 83    | 63    | 48    | 2,4   | 16               | TA211724.1440          | TA511724.1440          |
| 14,50            | M16x1,5 / 5/8-18      |                                    | 133   | 83    | 63    | 48    | 2,5   | 16               | TA211724.1450          | TA511724.1450          |
| 14,60            | MJ16x1,5              | M15x1                              | 133   | 83    | 63    | 48    | 2,5   | 16               | TA211724.1460          | TA511724.1460          |
| 14,68            |                       |                                    | 133   | 83    | 63    | 48    | 2,5   | 16               | TA211724.1468          | TA511724.1468          |
| 14,70            |                       | M15x0,75                           | 133   | 83    | 63    | 48    | 2,5   | 16               | TA211724.1470          | TA511724.1470          |
| 14,80            |                       | 5/8-11                             | 133   | 83    | 63    | 48    | 2,5   | 16               | TA211724.1480          | TA511724.1480          |
| 15,00            | M16x1                 |                                    | 133   | 83    | 63    | 48    | 2,5   | 16               | TA211724.1500          | TA511724.1500          |
| 15,08            |                       |                                    | 133   | 83    | 63    | 48    | 2,6   | 16               | TA211724.1508          | TA511724.1508          |
| 15,10            | MJ16x1                | M16                                | 133   | 83    | 63    | 48    | 2,6   | 16               | TA211724.1510          | TA511724.1510          |
| 15,20            | M16x0,75              | 5/8-18 (GAL)                       | 133   | 83    | 63    | 48    | 2,6   | 16               | TA211724.1520          | TA511724.1520          |
| 15,25            | G3/8                  | 5/8-18                             | 133   | 83    | 63    | 48    | 2,6   | 16               | TA211724.1525          | TA511724.1525          |
| 15,35            |                       | M16x1,5                            | 133   | 83    | 63    | 48    | 2,6   | 16               | TA211724.1535          | TA511724.1535          |
| 15,50            | M18                   |                                    | 133   | 83    | 63    | 48    | 2,6   | 16               | TA211724.1550          | TA511724.1550          |
| 15,60            |                       | M16x1                              | 133   | 83    | 63    | 48    | 2,6   | 16               | TA211724.1560          | TA511724.1560          |
| 15,80            | MJ18x2,5              |                                    | 133   | 83    | 63    | 48    | 2,7   | 16               | TA211724.1580          | TA511724.1580          |
| 15,88            |                       |                                    | 133   | 83    | 63    | 48    | 2,7   | 16               | TA211724.1588          | TA511724.1588          |
| 16,00            | M18x2                 |                                    | 133   | 83    | 63    | 48    | 2,7   | 16               | TA211724.1600          | TA511724.1600          |
| 16,27            |                       |                                    | 143   | 93    | 71    | 48    | 2,8   | 18               | TA211724.1627          | TA511724.1627          |
| 16,50            | M18x1,5 / 3/4-10      |                                    | 143   | 93    | 71    | 48    | 2,8   | 18               | TA211724.1650          | TA511724.1650          |
| 16,67            |                       |                                    | 143   | 93    | 71    | 48    | 2,8   | 18               | TA211724.1667          | TA511724.1667          |
| 17,00            | M18x1                 |                                    | 143   | 93    | 71    | 48    | 2,9   | 18               | TA211724.1700          | TA511724.1700          |
| 17,46            |                       |                                    | 143   | 93    | 71    | 48    | 3,0   | 18               | TA211724.1746          | TA511724.1746          |

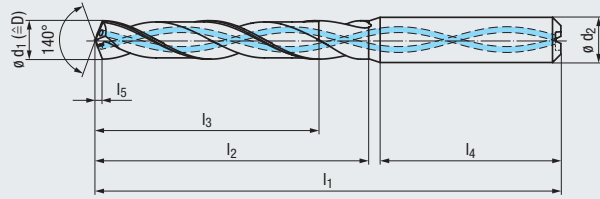


**InoxDrill-ID103**

|             |          |
|-------------|----------|
| VHM Carbide | ALCR     |
| DIN 6537 L  | R30      |
| Z2          | 2FF      |
| 140°        | IT9-IT10 |
| DIN 6535    |          |
| HA          | HE       |

**INOX**  
Stainless steel materials

**5 x D** Lange Ausführung  
Long design



Bohrtiefe  
Drill depth

**5 x D**

Einsatzgebiete – Material  
Applications – material » 14

|   |         |   |         |
|---|---------|---|---------|
| M | 1.1-4.1 | N | 1.1-2.3 |
| S | 1.2-1.3 | S | 2.2-2.3 |

| ø d <sub>1</sub><br>m7 | Gewindebohrer<br>Taps | Gewindeformer<br>Cold-forming taps |                |                |                |                |                | ø d <sub>2</sub><br>h6 | InoxDrill<br>ID103-5xD | InoxDrill<br>ID103-5xD |
|------------------------|-----------------------|------------------------------------|----------------|----------------|----------------|----------------|----------------|------------------------|------------------------|------------------------|
|                        |                       |                                    | l <sub>1</sub> | l <sub>2</sub> | l <sub>3</sub> | l <sub>4</sub> | l <sub>5</sub> |                        | HA                     | HE                     |
| 17,50                  | M20 / 3/4-16          |                                    | 143            | 93             | 71             | 48             | 3,0            | 18                     | TA211724.1750          | TA511724.1750          |
| 17,60                  |                       | M18x1                              | 143            | 93             | 71             | 48             | 3,0            | 18                     | TA211724.1760          | TA511724.1760          |
| 18,00                  | M20x2                 |                                    | 143            | 93             | 71             | 48             | 3,1            | 18                     | TA211724.1800          | TA511724.1800          |
| 18,50                  | M20x1,5               |                                    | 153            | 101            | 77             | 50             | 3,1            | 20                     | TA211724.1850          | TA511724.1850          |
| 18,85                  |                       | M20                                | 153            | 101            | 77             | 50             | 3,2            | 20                     | TA211724.1885          | TA511724.1885          |
| 19,00                  | M20x1 / G1/2          |                                    | 153            | 101            | 77             | 50             | 3,2            | 20                     | TA211724.1900          | TA511724.1900          |
| 19,05                  |                       |                                    | 153            | 101            | 77             | 50             | 3,2            | 20                     | TA211724.1905          | TA511724.1905          |
| 19,35                  |                       | M20x1,5                            | 153            | 101            | 77             | 50             | 3,3            | 20                     | TA211724.1935          | TA511724.1935          |
| 19,50                  | M22 / 7/8-9           |                                    | 153            | 101            | 77             | 50             | 3,3            | 20                     | TA211724.1950          | TA511724.1950          |
| 19,60                  |                       | M20x1                              | 153            | 101            | 77             | 50             | 3,3            | 20                     | TA211724.1960          | TA511724.1960          |
| 20,00                  | M22x2                 |                                    | 153            | 101            | 77             | 50             | 3,4            | 20                     | TA211724.2000          | TA511724.2000          |

- Product Finder
- v<sub>c</sub> / f
- BASIC
- STEEL
- INOX
- GU
- HCUT
- SpotDrill
- Zubehör  
Accessories
- 3 x D
- 5 x D
- 6 x D
- 8 x D
- 12 x D
- 2-3,5 x D



Kühlschmierstoffe siehe Seite 300 - 301

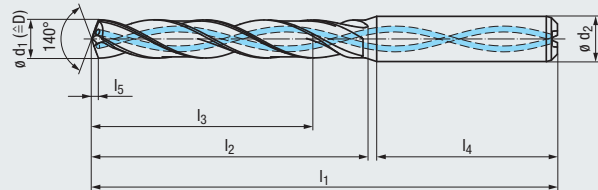
Coolant-lubricants, see page 300 - 301

- Product Finder
- $v_c / f$
- BASIC
- STEEL
- INOX
- GG**
- HCUT
- SpotDrill
- Zubehör  
Accessories
- 3 x D
- 5 x D**
- 6 x D
- 8 x D
- 12 x D
- 2-3,5 x D

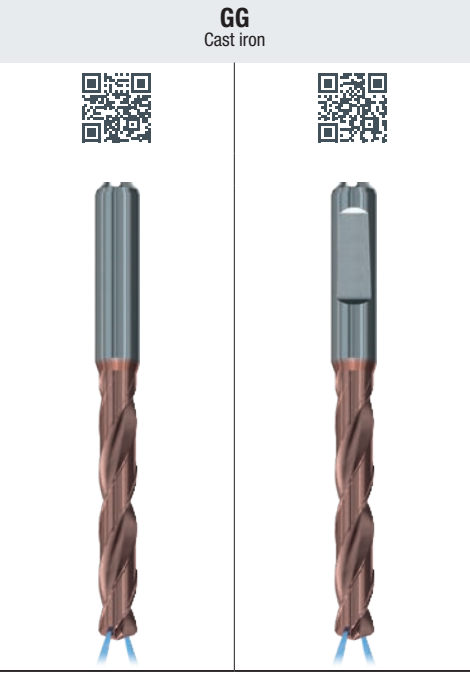
## EF-Drill-GG

**Für die Bearbeitung von Gusswerkstoffen**  
For the machining of cast materials

**5 x D** Lange Ausführung  
Long design



|                             |                             |
|-----------------------------|-----------------------------|
| <b>VHM Carbide</b>          | <b>TIALN</b>                |
| <b>DIN 6537 L</b>           | <b>R30</b>                  |
| <b>Z2</b>                   | <b>4FF</b>                  |
| <b>140°</b>                 | <b>IT9-IT10</b>             |
| <b>DIN 6535</b>             |                             |
| <input type="checkbox"/> HA | <input type="checkbox"/> HE |



Bohrtiefe  
Drill depth

**5 x D**

Einsatzgebiete – Material  
Applications – material » 14

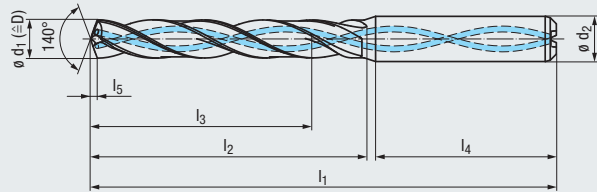
**K 1.1-4.2**

| $\emptyset d_1$<br>m7 | Gewindebohrer<br>Taps   | Gewindeformer<br>Cold-forming taps |       |       |       |       |       | $\emptyset d_2$<br>h6 | EF-Drill<br>GG-5xD | EF-Drill<br>GG-5xD |
|-----------------------|-------------------------|------------------------------------|-------|-------|-------|-------|-------|-----------------------|--------------------|--------------------|
|                       |                         |                                    | $l_1$ | $l_2$ | $l_3$ | $l_4$ | $l_5$ |                       | HA                 | HE                 |
| 2,80                  |                         | M3                                 | 61    | 22    | 17    | 36    | 0,7   | 6                     | TA212444.0280      | TA512444.0280      |
| 2,85                  | #6-32                   |                                    | 61    | 22    | 17    | 36    | 0,7   | 6                     | TA212444.0285      | TA512444.0285      |
| 2,90                  | M3,5                    | #5-40                              | 61    | 22    | 17    | 36    | 0,8   | 6                     | TA212444.0290      | TA512444.0290      |
| 3,00                  | M3,5x0,5 / MJ3,5x0,6    |                                    | 66    | 28    | 23    | 36    | 0,8   | 6                     | TA212444.0300      | TA512444.0300      |
| 3,10                  |                         |                                    | 66    | 28    | 23    | 36    | 0,8   | 6                     | TA212444.0310      | TA512444.0310      |
| 3,15                  | M3,5x0,35               | #6-32                              | 66    | 28    | 23    | 36    | 0,8   | 6                     | TA212444.0315      | TA512444.0315      |
| 3,20                  | MJ3,5x0,35              |                                    | 66    | 28    | 23    | 36    | 0,8   | 6                     | TA212444.0320      | TA512444.0320      |
| 3,25                  |                         | M3,5                               | 66    | 28    | 23    | 36    | 0,8   | 6                     | TA212444.0325      | TA512444.0325      |
| 3,30                  | M4                      | M3,5x0,5                           | 66    | 28    | 23    | 36    | 0,9   | 6                     | TA212444.0330      | TA512444.0330      |
| 3,35                  |                         |                                    | 66    | 28    | 23    | 36    | 0,9   | 6                     | TA212444.0335      | TA512444.0335      |
| 3,38                  |                         | M3,5x0,35                          | 66    | 28    | 23    | 36    | 0,9   | 6                     | TA212444.0338      | TA512444.0338      |
| 3,40                  | MJ4x0,7                 |                                    | 66    | 28    | 23    | 36    | 0,9   | 6                     | TA212444.0340      | TA512444.0340      |
| 3,50                  | M4x0,5 / #8-32 / #8-36  |                                    | 66    | 28    | 23    | 36    | 0,9   | 6                     | TA212444.0350      | TA512444.0350      |
| 3,55                  |                         |                                    | 66    | 28    | 23    | 36    | 0,9   | 6                     | TA212444.0355      | TA512444.0355      |
| 3,60                  | MJ4x0,5                 |                                    | 66    | 28    | 23    | 36    | 0,9   | 6                     | TA212444.0360      | TA512444.0360      |
| 3,65                  | M4x0,35                 |                                    | 66    | 28    | 23    | 36    | 0,9   | 6                     | TA212444.0365      | TA512444.0365      |
| 3,70                  | M4,5                    | M4                                 | 66    | 28    | 23    | 36    | 1,0   | 6                     | TA212444.0370      | TA512444.0370      |
| 3,80                  |                         | M4x0,5 / #8-32                     | 74    | 36    | 29    | 36    | 1,0   | 6                     | TA212444.0380      | TA512444.0380      |
| 3,88                  |                         | M4x0,35                            | 74    | 36    | 29    | 36    | 1,0   | 6                     | TA212444.0388      | TA512444.0388      |
| 3,90                  | MJ4,5x0,75 / #10-24     |                                    | 74    | 36    | 29    | 36    | 1,0   | 6                     | TA212444.0390      | TA512444.0390      |
| 4,00                  |                         |                                    | 74    | 36    | 29    | 36    | 1,0   | 6                     | TA212444.0400      | TA512444.0400      |
| 4,10                  | MJ4,5x0,5 / #10-32      |                                    | 74    | 36    | 29    | 36    | 1,1   | 6                     | TA212444.0410      | TA512444.0410      |
| 4,15                  | M5x0,9                  |                                    | 74    | 36    | 29    | 36    | 1,1   | 6                     | TA212444.0415      | TA512444.0415      |
| 4,20                  | M5 / M5x0,75            | M4,5                               | 74    | 36    | 29    | 36    | 1,1   | 6                     | TA212444.0420      | TA512444.0420      |
| 4,30                  | MJ5x0,8                 | M4,5x0,5 / #10-24 (GAL)            | 74    | 36    | 29    | 36    | 1,1   | 6                     | TA212444.0430      | TA512444.0430      |
| 4,35                  |                         | #10-24                             | 74    | 36    | 29    | 36    | 1,1   | 6                     | TA212444.0435      | TA512444.0435      |
| 4,40                  |                         |                                    | 74    | 36    | 29    | 36    | 1,1   | 6                     | TA212444.0440      | TA512444.0440      |
| 4,45                  |                         | #10-32                             | 74    | 36    | 29    | 36    | 1,1   | 6                     | TA212444.0445      | TA512444.0445      |
| 4,50                  | M5x0,5 / #12-24         |                                    | 74    | 36    | 29    | 36    | 1,2   | 6                     | TA212444.0450      | TA512444.0450      |
| 4,60                  | M5,5 / MJ5x0,5 / #12-28 |                                    | 74    | 36    | 29    | 36    | 1,2   | 6                     | TA212444.0460      | TA512444.0460      |
| 4,65                  |                         | M5                                 | 74    | 36    | 29    | 36    | 1,2   | 6                     | TA212444.0465      | TA512444.0465      |
| 4,70                  |                         | M5x0,75                            | 74    | 36    | 29    | 36    | 1,2   | 6                     | TA212444.0470      | TA512444.0470      |
| 4,80                  |                         | M5x0,5                             | 82    | 44    | 35    | 36    | 1,2   | 6                     | TA212444.0480      | TA512444.0480      |
| 4,90                  |                         |                                    | 82    | 44    | 35    | 36    | 1,3   | 6                     | TA212444.0490      | TA512444.0490      |
| 5,00                  | M6                      | #12-24                             | 82    | 44    | 35    | 36    | 1,3   | 6                     | TA212444.0500      | TA512444.0500      |
| 5,10                  | MJ6x1 / 1/4-20          | M5,5 / #12-28                      | 82    | 44    | 35    | 36    | 1,3   | 6                     | TA212444.0510      | TA512444.0510      |
| 5,20                  | M6x0,75                 |                                    | 82    | 44    | 35    | 36    | 1,3   | 6                     | TA212444.0520      | TA512444.0520      |
| 5,25                  |                         |                                    | 82    | 44    | 35    | 36    | 1,3   | 6                     | TA212444.0525      | TA512444.0525      |
| 5,30                  |                         | M5,5x0,5                           | 82    | 44    | 35    | 36    | 1,4   | 6                     | TA212444.0530      | TA512444.0530      |
| 5,40                  |                         |                                    | 82    | 44    | 35    | 36    | 1,4   | 6                     | TA212444.0540      | TA512444.0540      |
| 5,50                  | M6x0,5 / 1/4-28         |                                    | 82    | 44    | 35    | 36    | 1,4   | 6                     | TA212444.0550      | TA512444.0550      |
| 5,55                  |                         | M6 (GAL)                           | 82    | 44    | 35    | 36    | 1,4   | 6                     | TA212444.0555      | TA512444.0555      |
| 5,60                  | MJ6x0,5                 | M6                                 | 82    | 44    | 35    | 36    | 1,4   | 6                     | TA212444.0560      | TA512444.0560      |
| 5,70                  |                         | M6x0,75 / 1/4-20 (GAL)             | 82    | 44    | 35    | 36    | 1,4   | 6                     | TA212444.0570      | TA512444.0570      |
| 5,80                  |                         | M6x0,5                             | 82    | 44    | 35    | 36    | 1,5   | 6                     | TA212444.0580      | TA512444.0580      |
| 5,90                  |                         |                                    | 82    | 44    | 35    | 36    | 1,5   | 6                     | TA212444.0590      | TA512444.0590      |
| 6,00                  | M7                      |                                    | 82    | 44    | 35    | 36    | 1,5   | 6                     | TA212444.0600      | TA512444.0600      |
| 6,10                  | MJ7x1                   |                                    | 91    | 53    | 43    | 36    | 1,5   | 8                     | TA212444.0610      | TA512444.0610      |
| 6,20                  | M7x0,75                 |                                    | 91    | 53    | 43    | 36    | 1,6   | 8                     | TA212444.0620      | TA512444.0620      |

### EF-Drill-GG

**Für die Bearbeitung von Gusswerkstoffen**  
For the machining of cast materials

**5 x D** Lange Ausführung  
Long design



|             |          |
|-------------|----------|
| VHM Carbide | TIALN    |
| DIN 6537 L  | R30      |
| Z2          | 4FF      |
| 140°        | IT9-IT10 |
| DIN 6535    |          |
| HA          | HE       |

**GG**  
Cast iron

Product Finder

v<sub>c</sub> / f

BASIC

STEEL

INOX

**GG**

HCUT

SpotDrill

Zubehör Accessories

3 x D

**5 x D**

6 x D

8 x D

12 x D

2-3,5 x D

Bohrtiefe  
Drill depth

**5 x D**

Einsatzgebiete – Material  
Applications – material

**K 1.1-4.2**



| ø d <sub>1</sub><br>m7 | Gewindebohrer<br>Taps | Gewindeformer<br>Cold-forming taps |                |                |                |                |                | ø d <sub>2</sub><br>h6 | EF-Drill<br>GG-5xD | EF-Drill<br>GG-5xD |
|------------------------|-----------------------|------------------------------------|----------------|----------------|----------------|----------------|----------------|------------------------|--------------------|--------------------|
|                        |                       |                                    | l <sub>1</sub> | l <sub>2</sub> | l <sub>3</sub> | l <sub>4</sub> | l <sub>5</sub> |                        | HA                 | HE                 |
| 6,30                   |                       |                                    | 91             | 53             | 43             | 36             | 1,6            | 8                      | TA212444.0630      | TA512444.0630      |
| 6,35                   | MJ7x0,75              |                                    | 91             | 53             | 43             | 36             | 1,6            | 8                      | TA212444.0635      | TA512444.0635      |
| 6,40                   |                       |                                    | 91             | 53             | 43             | 36             | 1,6            | 8                      | TA212444.0640      | TA512444.0640      |
| 6,50                   | M7x0,5                |                                    | 91             | 53             | 43             | 36             | 1,6            | 8                      | TA212444.0650      | TA512444.0650      |
| 6,60                   | 5/16-18               | M7                                 | 91             | 53             | 43             | 36             | 1,7            | 8                      | TA212444.0660      | TA512444.0660      |
| 6,70                   |                       | M7x0,75                            | 91             | 53             | 43             | 36             | 1,7            | 8                      | TA212444.0670      | TA512444.0670      |
| 6,80                   | M8 / G1/16            | M7x0,5                             | 91             | 53             | 43             | 36             | 1,7            | 8                      | TA212444.0680      | TA512444.0680      |
| 6,90                   | MJ8x1,25 / 5/16-24    |                                    | 91             | 53             | 43             | 36             | 1,7            | 8                      | TA212444.0690      | TA512444.0690      |
| 7,00                   | M8x1                  |                                    | 91             | 53             | 43             | 36             | 1,8            | 8                      | TA212444.0700      | TA512444.0700      |
| 7,10                   | MJ8x1                 |                                    | 91             | 53             | 43             | 36             | 1,8            | 8                      | TA212444.0710      | TA512444.0710      |
| 7,20                   | M8x0,75               |                                    | 91             | 53             | 43             | 36             | 1,8            | 8                      | TA212444.0720      | TA512444.0720      |
| 7,30                   |                       | 5/16-18                            | 91             | 53             | 43             | 36             | 1,8            | 8                      | TA212444.0730      | TA512444.0730      |
| 7,40                   |                       | M8 (GAL) / 5/16-24 (GAL)           | 91             | 53             | 43             | 36             | 1,9            | 8                      | TA212444.0740      | TA512444.0740      |
| 7,45                   |                       | M8 / 5/16-24                       | 91             | 53             | 43             | 36             | 1,9            | 8                      | TA212444.0745      | TA512444.0745      |
| 7,50                   | M8x0,5                |                                    | 91             | 53             | 43             | 36             | 1,9            | 8                      | TA212444.0750      | TA512444.0750      |
| 7,60                   |                       | M8x1                               | 91             | 53             | 43             | 36             | 1,9            | 8                      | TA212444.0760      | TA512444.0760      |
| 7,70                   |                       | M8x0,75                            | 91             | 53             | 43             | 36             | 1,9            | 8                      | TA212444.0770      | TA512444.0770      |
| 7,80                   | M9                    | M8x0,5                             | 91             | 53             | 43             | 36             | 2,0            | 8                      | TA212444.0780      | TA512444.0780      |
| 7,90                   | MJ9x1,25              |                                    | 91             | 53             | 43             | 36             | 2,0            | 8                      | TA212444.0790      | TA512444.0790      |
| 8,00                   | M9x1 / 3/8-16         |                                    | 91             | 53             | 43             | 36             | 2,0            | 8                      | TA212444.0800      | TA512444.0800      |
| 8,10                   | MJ9x1                 |                                    | 103            | 61             | 49             | 40             | 2,0            | 10                     | TA212444.0810      | TA512444.0810      |
| 8,20                   | M9x0,75               |                                    | 103            | 61             | 49             | 40             | 2,1            | 10                     | TA212444.0820      | TA512444.0820      |
| 8,30                   |                       |                                    | 103            | 61             | 49             | 40             | 2,1            | 10                     | TA212444.0830      | TA512444.0830      |
| 8,40                   |                       | M9 (GAL)                           | 103            | 61             | 49             | 40             | 2,1            | 10                     | TA212444.0840      | TA512444.0840      |
| 8,45                   |                       | M9                                 | 103            | 61             | 49             | 40             | 2,1            | 10                     | TA212444.0845      | TA512444.0845      |
| 8,50                   | M10 / M9x0,5 / 3/8-24 |                                    | 103            | 61             | 49             | 40             | 2,1            | 10                     | TA212444.0850      | TA512444.0850      |
| 8,60                   | MJ10x1,5              | M9x1                               | 103            | 61             | 49             | 40             | 2,2            | 10                     | TA212444.0860      | TA512444.0860      |
| 8,70                   |                       | M9x0,75                            | 103            | 61             | 49             | 40             | 2,2            | 10                     | TA212444.0870      | TA512444.0870      |
| 8,80                   | M10x1,25 / G1/8       | M9x0,5 / 3/8-16                    | 103            | 61             | 49             | 40             | 2,2            | 10                     | TA212444.0880      | TA512444.0880      |
| 8,90                   | MJ10x1,25             |                                    | 103            | 61             | 49             | 40             | 2,2            | 10                     | TA212444.0890      | TA512444.0890      |
| 9,00                   | M10x1                 | 3/8-24 (GAL)                       | 103            | 61             | 49             | 40             | 2,3            | 10                     | TA212444.0900      | TA512444.0900      |
| 9,10                   | MJ10x1                |                                    | 103            | 61             | 49             | 40             | 2,3            | 10                     | TA212444.0910      | TA512444.0910      |
| 9,20                   | M10x0,75              |                                    | 103            | 61             | 49             | 40             | 2,3            | 10                     | TA212444.0920      | TA512444.0920      |
| 9,30                   |                       | M10 (GAL)                          | 103            | 61             | 49             | 40             | 2,3            | 10                     | TA212444.0930      | TA512444.0930      |
| 9,35                   | MJ10x0,75             | M10                                | 103            | 61             | 49             | 40             | 2,3            | 10                     | TA212444.0935      | TA512444.0935      |
| 9,40                   | 7/16-14               | M10x1,25 (GAL)                     | 103            | 61             | 49             | 40             | 2,4            | 10                     | TA212444.0940      | TA512444.0940      |
| 9,45                   |                       | M10x1,25                           | 103            | 61             | 49             | 40             | 2,4            | 10                     | TA212444.0945      | TA512444.0945      |
| 9,50                   | M11 / M10x0,5         |                                    | 103            | 61             | 49             | 40             | 2,4            | 10                     | TA212444.0950      | TA512444.0950      |
| 9,60                   | MJ10x0,5 / MJ11x1,5   | M10x1                              | 103            | 61             | 49             | 40             | 2,4            | 10                     | TA212444.0960      | TA512444.0960      |
| 9,70                   |                       | M10x0,75                           | 103            | 61             | 49             | 40             | 2,4            | 10                     | TA212444.0970      | TA512444.0970      |
| 9,80                   |                       | M10x0,5                            | 103            | 61             | 49             | 40             | 2,5            | 10                     | TA212444.0980      | TA512444.0980      |
| 9,90                   | MJ11x1,25 / 7/16-20   |                                    | 103            | 61             | 49             | 40             | 2,5            | 10                     | TA212444.0990      | TA512444.0990      |
| 10,00                  | M11x1                 |                                    | 103            | 61             | 49             | 40             | 2,5            | 10                     | TA212444.1000      | TA512444.1000      |
| 10,10                  | MJ11x1                |                                    | 118            | 71             | 56             | 45             | 2,5            | 12                     | TA212444.1010      | TA512444.1010      |
| 10,20                  | M12 / M11x0,75        | 7/16-14 (GAL)                      | 118            | 71             | 56             | 45             | 2,6            | 12                     | TA212444.1020      | TA512444.1020      |
| 10,30                  |                       | M11 (GAL)                          | 118            | 71             | 56             | 45             | 2,6            | 12                     | TA212444.1030      | TA512444.1030      |
| 10,35                  | MJ11x0,75             | M11                                | 118            | 71             | 56             | 45             | 2,6            | 12                     | TA212444.1035      | TA512444.1035      |
| 10,40                  |                       |                                    | 118            | 71             | 56             | 45             | 2,6            | 12                     | TA212444.1040      | TA512444.1040      |
| 10,50                  | M12x1,5               | 7/16-20 (GAL)                      | 118            | 71             | 56             | 45             | 2,6            | 12                     | TA212444.1050      | TA512444.1050      |

ø 10,60 mm - ø 20,00 mm →

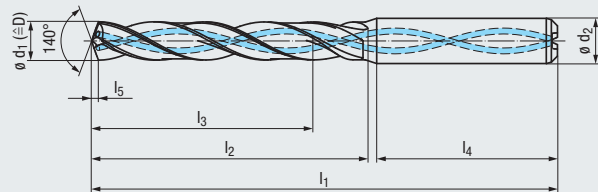


- Product Finder
- v<sub>c</sub> / f
- BASIC
- STEEL
- INOX
- GG**
- HCUT
- SpotDrill
- Zubehör  
Accessories
- 3 x D
- 5 x D**
- 6 x D
- 8 x D
- 12 x D
- 2-3,5 x D

### EF-Drill-GG

Für die Bearbeitung von Gusswerkstoffen  
For the machining of cast materials

**5 x D** Lange Ausführung  
Long design



VHM  
Carbide

TIALN

DIN  
6537 L

R30



DIN 6535



**GG**  
Cast iron



Bohrtiefe  
Drill depth

**5 x D**

Einsatzgebiete – Material  
Applications – material

» 14

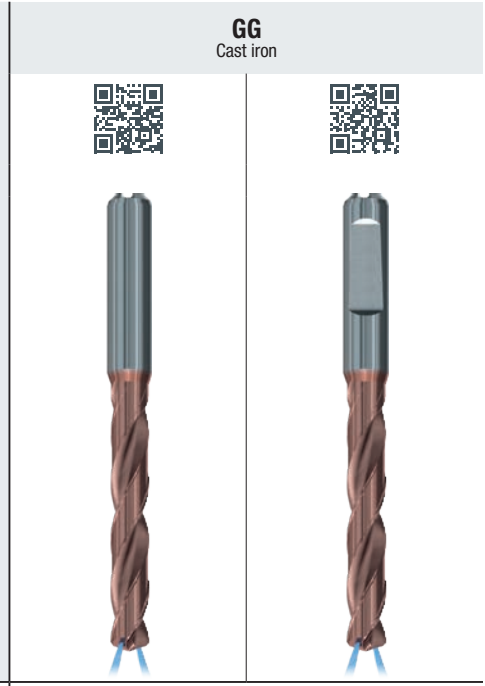
**K 1.1-4.2**

| Ø d <sub>1</sub><br>m7 | Gewindebohrer<br>Taps | Gewindeformer<br>Cold-forming taps | l <sub>1</sub> | l <sub>2</sub> | l <sub>3</sub> | l <sub>4</sub> | l <sub>5</sub> | Ø d <sub>2</sub><br>h6 | EF-Drill<br>GG-5xD | EF-Drill<br>GG-5xD |
|------------------------|-----------------------|------------------------------------|----------------|----------------|----------------|----------------|----------------|------------------------|--------------------|--------------------|
|                        |                       |                                    |                |                |                |                |                |                        | HA                 | HE                 |
| 10,60                  | MJ12x1,5              | M11x1                              | 118            | 71             | 56             | 45             | 2,7            | 12                     | TA212444.1060      | TA512444.1060      |
| 10,70                  |                       | M11x0,75                           | 118            | 71             | 56             | 45             | 2,7            | 12                     | TA212444.1070      | TA512444.1070      |
| 10,80                  | M12x1,25 / 1/2-13     |                                    | 118            | 71             | 56             | 45             | 2,7            | 12                     | TA212444.1080      | TA512444.1080      |
| 10,90                  | MJ12x1,25             |                                    | 118            | 71             | 56             | 45             | 2,7            | 12                     | TA212444.1090      | TA512444.1090      |
| 11,00                  | M12x1                 |                                    | 118            | 71             | 56             | 45             | 2,8            | 12                     | TA212444.1100      | TA512444.1100      |
| 11,10                  | MJ12x1                |                                    | 118            | 71             | 56             | 45             | 2,8            | 12                     | TA212444.1110      | TA512444.1110      |
| 11,20                  | M12x0,75              | M12 (GAL)                          | 118            | 71             | 56             | 45             | 2,8            | 12                     | TA212444.1120      | TA512444.1120      |
| 11,25                  |                       | M12                                | 118            | 71             | 56             | 45             | 2,8            | 12                     | TA212444.1125      | TA512444.1125      |
| 11,30                  |                       | M12x1,5 (GAL)                      | 118            | 71             | 56             | 45             | 2,8            | 12                     | TA212444.1130      | TA512444.1130      |
| 11,35                  |                       | M12x1,5                            | 118            | 71             | 56             | 45             | 2,8            | 12                     | TA212444.1135      | TA512444.1135      |
| 11,40                  |                       | M12x1,25 (GAL)                     | 118            | 71             | 56             | 45             | 2,8            | 12                     | TA212444.1140      | TA512444.1140      |
| 11,45                  |                       | M12x1,25                           | 118            | 71             | 56             | 45             | 2,9            | 12                     | TA212444.1145      | TA512444.1145      |
| 11,50                  | 1/2-20                |                                    | 118            | 71             | 56             | 45             | 2,9            | 12                     | TA212444.1150      | TA512444.1150      |
| 11,60                  |                       | M12x1                              | 118            | 71             | 56             | 45             | 2,9            | 12                     | TA212444.1160      | TA512444.1160      |
| 11,70                  |                       | M12x0,75                           | 118            | 71             | 56             | 45             | 2,9            | 12                     | TA212444.1170      | TA512444.1170      |
| 11,80                  | G1/4                  | 1/2-13                             | 118            | 71             | 56             | 45             | 2,9            | 12                     | TA212444.1180      | TA512444.1180      |
| 11,90                  |                       |                                    | 118            | 71             | 56             | 45             | 3,0            | 12                     | TA212444.1190      | TA512444.1190      |
| 12,00                  | M14                   |                                    | 118            | 71             | 56             | 45             | 3,0            | 12                     | TA212444.1200      | TA512444.1200      |
| 12,20                  | 9/16-12               |                                    | 124            | 77             | 60             | 45             | 3,0            | 14                     | TA212444.1220      | TA512444.1220      |
| 12,30                  |                       |                                    | 124            | 77             | 60             | 45             | 3,1            | 14                     | TA212444.1230      | TA512444.1230      |
| 12,50                  | M14x1,5               | G1/4 (GAL)                         | 124            | 77             | 60             | 45             | 3,1            | 14                     | TA212444.1250      | TA512444.1250      |
| 12,60                  | MJ14x1,5              | M13x1                              | 124            | 77             | 60             | 45             | 3,1            | 14                     | TA212444.1260      | TA512444.1260      |
| 12,70                  |                       | M13x0,75                           | 124            | 77             | 60             | 45             | 3,2            | 14                     | TA212444.1270      | TA512444.1270      |
| 12,80                  | M14x1,25              |                                    | 124            | 77             | 60             | 45             | 3,2            | 14                     | TA212444.1280      | TA512444.1280      |
| 12,90                  | MJ14x1,25 / 9/16-18   |                                    | 124            | 77             | 60             | 45             | 3,2            | 14                     | TA212444.1290      | TA512444.1290      |
| 13,00                  | M14x1                 |                                    | 124            | 77             | 60             | 45             | 3,2            | 14                     | TA212444.1300      | TA512444.1300      |
| 13,10                  | MJ14x1                | M14                                | 124            | 77             | 60             | 45             | 3,3            | 14                     | TA212444.1310      | TA512444.1310      |
| 13,20                  | M14x0,75              |                                    | 124            | 77             | 60             | 45             | 3,3            | 14                     | TA212444.1320      | TA512444.1320      |
| 13,30                  |                       | 9/16-12                            | 124            | 77             | 60             | 45             | 3,3            | 14                     | TA212444.1330      | TA512444.1330      |
| 13,35                  |                       | M14x1,5                            | 124            | 77             | 60             | 45             | 3,3            | 14                     | TA212444.1335      | TA512444.1335      |
| 13,45                  |                       | M14x1,25                           | 124            | 77             | 60             | 45             | 3,4            | 14                     | TA212444.1345      | TA512444.1345      |
| 13,50                  | 5/8-11                |                                    | 124            | 77             | 60             | 45             | 3,4            | 14                     | TA212444.1350      | TA512444.1350      |
| 13,60                  | MJ15x1,5              | M14x1 / 9/16-18 (GAL)              | 124            | 77             | 60             | 45             | 3,4            | 14                     | TA212444.1360      | TA512444.1360      |
| 13,70                  |                       | M14x0,75                           | 124            | 77             | 60             | 45             | 3,4            | 14                     | TA212444.1370      | TA512444.1370      |
| 13,80                  |                       |                                    | 124            | 77             | 60             | 45             | 3,4            | 14                     | TA212444.1380      | TA512444.1380      |
| 14,00                  | M16 / M15x1           |                                    | 124            | 77             | 60             | 45             | 3,5            | 14                     | TA212444.1400      | TA512444.1400      |
| 14,10                  | MJ15x1                |                                    | 133            | 83             | 63             | 48             | 3,5            | 16                     | TA212444.1410      | TA512444.1410      |
| 14,30                  |                       |                                    | 133            | 83             | 63             | 48             | 3,6            | 16                     | TA212444.1430      | TA512444.1430      |
| 14,40                  |                       |                                    | 133            | 83             | 63             | 48             | 3,6            | 16                     | TA212444.1440      | TA512444.1440      |
| 14,50                  | M16x1,5 / 5/8-18      |                                    | 133            | 83             | 63             | 48             | 3,6            | 16                     | TA212444.1450      | TA512444.1450      |
| 14,60                  | MJ16x1,5              | M15x1                              | 133            | 83             | 63             | 48             | 3,6            | 16                     | TA212444.1460      | TA512444.1460      |
| 14,70                  |                       | M15x0,75                           | 133            | 83             | 63             | 48             | 3,7            | 16                     | TA212444.1470      | TA512444.1470      |
| 14,80                  |                       | 5/8-11                             | 133            | 83             | 63             | 48             | 3,7            | 16                     | TA212444.1480      | TA512444.1480      |
| 15,00                  | M16x1                 |                                    | 133            | 83             | 63             | 48             | 3,7            | 16                     | TA212444.1500      | TA512444.1500      |
| 15,10                  | MJ16x1                | M16                                | 133            | 83             | 63             | 48             | 3,8            | 16                     | TA212444.1510      | TA512444.1510      |
| 15,35                  |                       | M16x1,5                            | 133            | 83             | 63             | 48             | 3,8            | 16                     | TA212444.1535      | TA512444.1535      |
| 15,50                  | M18                   |                                    | 133            | 83             | 63             | 48             | 3,9            | 16                     | TA212444.1550      | TA512444.1550      |
| 15,60                  |                       | M16x1                              | 133            | 83             | 63             | 48             | 3,9            | 16                     | TA212444.1560      | TA512444.1560      |
| 16,00                  | M18x2                 |                                    | 133            | 83             | 63             | 48             | 4,0            | 16                     | TA212444.1600      | TA512444.1600      |

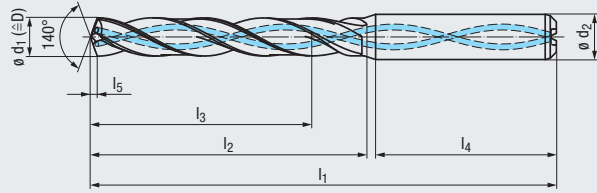
**EF-Drill-GG**

**Für die Bearbeitung von Gusswerkstoffen**  
For the machining of cast materials

|  |          |
|--|----------|
| VHM Carbide  | TIALN    |
| DIN 6537 L   | R30      |
| Z2   | 4FF      |
| 140°   | IT9-IT10 |
| DIN 6535   |          |
| <input type="checkbox"/> HA<br><input type="checkbox"/> HE |          |



**5 x D** Lange Ausführung  
Long design



Bohrtiefe  
Drill depth

**5 x D**  
K 1.1-4.2

Einsatzgebiete – Material  
Applications – material

| ø d1<br>m7 | Gewindebohrer<br>Taps | Gewindeformer<br>Cold-forming taps |     |     |    |    |     | ø d2<br>h6 | EF-Drill<br>GG-5xD | EF-Drill<br>GG-5xD |
|------------|-----------------------|------------------------------------|-----|-----|----|----|-----|------------|--------------------|--------------------|
|            |                       |                                    | l1  | l2  | l3 | l4 | l5  |            | HA                 | HE                 |
| 16,50      | M18x1,5 / 3/4-10      |                                    | 143 | 93  | 71 | 48 | 4,1 | 18         | TA212444.1650      | TA512444.1650      |
| 17,00      | M18x1                 |                                    | 143 | 93  | 71 | 48 | 4,2 | 18         | TA212444.1700      | TA512444.1700      |
| 17,50      | M20 / 3/4-16          |                                    | 143 | 93  | 71 | 48 | 4,3 | 18         | TA212444.1750      | TA512444.1750      |
| 17,60      |                       | M18x1                              | 143 | 93  | 71 | 48 | 4,4 | 18         | TA212444.1760      | TA512444.1760      |
| 18,00      | M20x2                 |                                    | 143 | 93  | 71 | 48 | 4,5 | 18         | TA212444.1800      | TA512444.1800      |
| 18,50      | M20x1,5               |                                    | 153 | 101 | 77 | 50 | 4,6 | 20         | TA212444.1850      | TA512444.1850      |
| 18,85      |                       | M20                                | 153 | 101 | 77 | 50 | 4,7 | 20         | TA212444.1885      | TA512444.1885      |
| 19,00      | M20x1 / G1/2          |                                    | 153 | 101 | 77 | 50 | 4,7 | 20         | TA212444.1900      | TA512444.1900      |
| 19,35      |                       | M20x1,5                            | 153 | 101 | 77 | 50 | 4,8 | 20         | TA212444.1935      | TA512444.1935      |
| 19,50      | M22 / 7/8-9           |                                    | 153 | 101 | 77 | 50 | 4,8 | 20         | TA212444.1950      | TA512444.1950      |
| 19,60      |                       | M20x1                              | 153 | 101 | 77 | 50 | 4,9 | 20         | TA212444.1960      | TA512444.1960      |
| 20,00      | M22x2                 |                                    | 153 | 101 | 77 | 50 | 5,0 | 20         | TA212444.2000      | TA512444.2000      |

- Product Finder
- v<sub>c</sub> / f
- BASIC
- STEEL
- INOX
- GG
- HCUT
- SpotDrill
- Zubehör  
Accessories
- 3 x D
- 5 x D
- 6 x D
- 8 x D
- 12 x D
- 2-3,5 x D

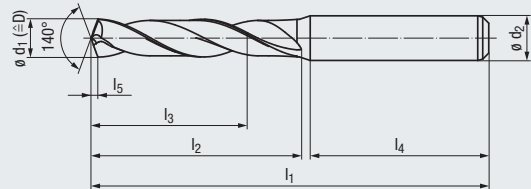


- Product Finder
- $v_c / f$
- BASIC
- STEEL
- INOX
- GG
- HCUT
- SpotDrill
- Zubehör  
Accessories
- 3 x D
- 5 x D
- 6 x D
- 8 x D
- 12 x D
- 2-3,5 x D

## EF-Drill-HCUT

**Für die Bearbeitung von gehärteten Stählen mit einer Härte von 50-67 HRC**  
 For the machining of hardened steels with a hardness of 50-67 HRC

**3 x D** Kurze Ausführung  
 Short design



**VHM Carbide** **TIALN**

**DIN 6537 K** **R30**

**Z2** **2FF**

**140°** **IT9-IT10**

**DIN 6535**

**HA**

**HCUT**  
 Hardened steels



Bohrtiefe  
 Drill depth

**3 x D**

Einsatzgebiete – Material  
 Applications – material » 14

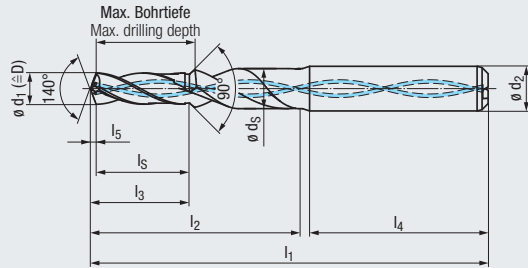
H 1.1-1.5

| $\emptyset d_1$<br>m7 | HCUT-Gewindebohrer<br>HCUT Taps | $l_1$ | $l_2$ | $l_3$ | $l_4$ | $l_5$ | $\emptyset d_2$<br>h6 | EF-Drill<br>HCUT-3xD |
|-----------------------|---------------------------------|-------|-------|-------|-------|-------|-----------------------|----------------------|
|                       |                                 |       |       |       |       |       |                       | HA                   |
| 2,55                  | M3                              | 57    | 16    | 11    | 36    | 0,5   | 6                     | TA107725.0255        |
| 3,00                  |                                 | 62    | 20    | 14    | 36    | 0,6   | 6                     | TA107725.0300        |
| 3,40                  | M4                              | 62    | 20    | 14    | 36    | 0,7   | 6                     | TA107725.0340        |
| 3,50                  |                                 | 62    | 20    | 14    | 36    | 0,7   | 6                     | TA107725.0350        |
| 4,00                  |                                 | 66    | 24    | 17    | 36    | 0,8   | 6                     | TA107725.0400        |
| 4,30                  | M5                              | 66    | 24    | 17    | 36    | 0,8   | 6                     | TA107725.0430        |
| 4,50                  |                                 | 66    | 24    | 17    | 36    | 0,9   | 6                     | TA107725.0450        |
| 5,00                  |                                 | 66    | 28    | 20    | 36    | 1,0   | 6                     | TA107725.0500        |
| 5,10                  | M6                              | 66    | 28    | 20    | 36    | 1,0   | 6                     | TA107725.0510        |
| 5,50                  |                                 | 66    | 28    | 20    | 36    | 1,1   | 6                     | TA107725.0550        |
| 6,00                  |                                 | 66    | 28    | 20    | 36    | 1,1   | 6                     | TA107725.0600        |
| 6,50                  |                                 | 79    | 34    | 24    | 36    | 1,2   | 8                     | TA107725.0650        |
| 6,90                  | M8                              | 79    | 34    | 24    | 36    | 1,3   | 8                     | TA107725.0690        |
| 7,00                  |                                 | 79    | 34    | 24    | 36    | 1,3   | 8                     | TA107725.0700        |
| 7,10                  | M8 x 1                          | 79    | 41    | 29    | 36    | 1,3   | 8                     | TA107725.0710        |
| 7,50                  |                                 | 79    | 41    | 29    | 36    | 1,4   | 8                     | TA107725.0750        |
| 8,00                  |                                 | 79    | 41    | 29    | 36    | 1,5   | 8                     | TA107725.0800        |
| 8,50                  |                                 | 89    | 47    | 35    | 40    | 1,6   | 10                    | TA107725.0850        |
| 8,60                  | M10                             | 89    | 47    | 35    | 40    | 1,6   | 10                    | TA107725.0860        |
| 8,80                  | G 1/8                           | 89    | 47    | 35    | 40    | 1,7   | 10                    | TA107725.0880        |
| 9,00                  |                                 | 89    | 47    | 35    | 40    | 1,7   | 10                    | TA107725.0900        |
| 9,10                  | M10 x 1                         | 89    | 47    | 35    | 40    | 1,7   | 10                    | TA107725.0910        |
| 9,50                  |                                 | 89    | 47    | 35    | 40    | 1,8   | 10                    | TA107725.0950        |
| 10,00                 |                                 | 89    | 47    | 35    | 40    | 1,9   | 10                    | TA107725.1000        |
| 10,40                 | M12                             | 102   | 55    | 40    | 45    | 1,9   | 12                    | TA107725.1040        |
| 10,50                 |                                 | 102   | 55    | 40    | 45    | 2,0   | 12                    | TA107725.1050        |
| 10,60                 | M12 x 1,5                       | 102   | 55    | 40    | 45    | 2,0   | 12                    | TA107725.1060        |
| 11,00                 |                                 | 102   | 55    | 40    | 45    | 2,1   | 12                    | TA107725.1100        |
| 11,50                 |                                 | 102   | 55    | 40    | 45    | 2,1   | 12                    | TA107725.1150        |
| 11,90                 | G 1/4                           | 102   | 55    | 40    | 45    | 2,2   | 12                    | TA107725.1190        |
| 12,00                 |                                 | 102   | 55    | 40    | 45    | 2,2   | 12                    | TA107725.1200        |
| 12,60                 | M14 x 1,5                       | 107   | 60    | 43    | 45    | 2,3   | 14                    | TA107725.1260        |
| 14,20                 | M16                             | 115   | 65    | 45    | 48    | 2,6   | 16                    | TA107725.1420        |
| 14,60                 | M16 x 1,5                       | 115   | 65    | 45    | 48    | 2,7   | 16                    | TA107725.1460        |

### EF-Drill C-STEEL

Variable Stufenlängen in mm-Schritten  
Variable step length in millimeter steps

# 2 - 3,5 x D



VHM  
Carbide

TIALN

≈ DIN  
6537 K

Z2

4FF

140°

IT9-IT10

DIN 6535

HA

STEEL  
Steel  
materials



Product  
Finder

v<sub>c</sub> / f

BASIC

STEEL

INOX

G

HCUT

SpotDrill

Zubehör  
Accessories

3 x D

5 x D

6 x D

8 x D

12 x D

2-3,5 x D

Bohrtiefe  
Drill depth

## 2 - 3,5 x D

Einsatzgebiete – Material  
Applications – material

» 14

|   |         |   |         |
|---|---------|---|---------|
| P | 1.1-5.1 | M | 1.1     |
| K | 1.1-4.2 | N | 1.1-1.5 |
| N | 2.1-2.8 | H | 1.1-1.2 |

| ø d <sub>1</sub><br>m7 | Gewindebohrer<br>Taps | Gewindeformer<br>Cold-forming taps | ø d <sub>S</sub> |                | l <sub>3</sub> |                 | l <sub>4</sub> |                | l <sub>5</sub> |                 | ø d <sub>2</sub><br>h6 | EF-Drill C<br>STEEL-2-3,5xD<br><br>HA |    |    |                                   |
|------------------------|-----------------------|------------------------------------|------------------|----------------|----------------|-----------------|----------------|----------------|----------------|-----------------|------------------------|---------------------------------------|----|----|-----------------------------------|
|                        |                       |                                    | l <sub>1</sub>   | l <sub>2</sub> | 2 x D<br>min.  | 3,5 x D<br>max. | l <sub>4</sub> | l <sub>5</sub> | 2 x D<br>min.  | 3,5 x D<br>max. |                        |                                       |    |    |                                   |
| 2,80                   |                       | M3                                 | 4                | 57             | 17             | 6,6             | -              | 10,6           | 36             | 0,6             | 6                      | -                                     | 10 | 6  | TG203344.028006 - TG203344.028010 |
| 2,90                   | M3,5                  | #5-40                              | 4                | 57             | 18             | 6,6             | -              | 10,6           | 36             | 0,6             | 6                      | -                                     | 10 | 6  | TG203344.029006 - TG203344.029010 |
| 3,25                   |                       | M3,5                               | 5                | 62             | 24             | 7,7             | -              | 11,7           | 36             | 0,6             | 7                      | -                                     | 11 | 6  | TG203344.032507 - TG203344.032511 |
| 3,30                   | M4                    | M3,5x0,5                           | 5                | 62             | 24             | 7,7             | -              | 12,7           | 36             | 0,7             | 7                      | -                                     | 12 | 6  | TG203344.033007 - TG203344.033012 |
| 3,70                   | M4,5                  | M4                                 | 5                | 62             | 24             | 7,8             | -              | 13,8           | 36             | 0,7             | 7                      | -                                     | 13 | 6  | TG203344.037007 - TG203344.037013 |
| 4,20                   | M5 / M5x0,75          | M4,5                               | 6                | 66             | 29             | 8,9             | -              | 15,9           | 36             | 0,8             | 8                      | -                                     | 15 | 6  | TG203344.042008 - TG203344.042015 |
| 4,65                   |                       | M5                                 | 6                | 66             | 29             | 9,9             | -              | 16,9           | 36             | 0,9             | 9                      | -                                     | 16 | 6  | TG203344.046509 - TG203344.046516 |
| 5,00                   | M6                    | #12-24                             | 7                | 79             | 40             | 11,0            | -              | 19,0           | 36             | 1,0             | 10                     | -                                     | 18 | 8  | TG203344.050010 - TG203344.050018 |
| 5,60                   | MJ6x0,5               | M6                                 | 7                | 79             | 40             | 12,1            | -              | 21,1           | 36             | 1,1             | 11                     | -                                     | 20 | 8  | TG203344.056011 - TG203344.056020 |
| 6,00                   | M7                    |                                    | 8                | 79             | 42             | 13,2            | -              | 22,2           | 36             | 1,1             | 12                     | -                                     | 21 | 8  | TG203344.060012 - TG203344.060021 |
| 6,60                   | 5/16-18               | M7                                 | 8                | 89             | 45             | 14,3            | -              | 24,3           | 40             | 1,3             | 13                     | -                                     | 23 | 10 | TG203344.066013 - TG203344.066023 |
| 6,80                   | M8 / G1/16            | M7x0,5                             | 9                | 89             | 46             | 15,4            | -              | 25,4           | 40             | 1,3             | 14                     | -                                     | 24 | 10 | TG203344.068014 - TG203344.068024 |
| 7,00                   | M8x1                  |                                    | 9                | 89             | 46             | 15,4            | -              | 26,4           | 40             | 1,3             | 14                     | -                                     | 25 | 10 | TG203344.070014 - TG203344.070025 |
| 7,45                   |                       | M8 / 5/16-24                       | 9                | 89             | 46             | 16,5            | -              | 27,5           | 40             | 1,4             | 15                     | -                                     | 26 | 10 | TG203344.074515 - TG203344.074526 |
| 7,60                   |                       | M8x1                               | 9                | 89             | 46             | 16,5            | -              | 28,5           | 40             | 1,4             | 15                     | -                                     | 27 | 10 | TG203344.076015 - TG203344.076027 |
| 7,80                   | M9                    | M8x0,5                             | 10               | 89             | 48             | 17,5            | -              | 28,5           | 40             | 1,5             | 16                     | -                                     | 27 | 10 | TG203344.078016 - TG203344.078027 |
| 8,45                   |                       | M9                                 | 12               | 102            | 56             | 18,7            | -              | 31,7           | 45             | 1,6             | 17                     | -                                     | 30 | 12 | TG203344.084517 - TG203344.084530 |
| 8,50                   | M10 / M9x0,5 / 3/8-24 |                                    | 12               | 102            | 56             | 18,7            | -              | 31,7           | 45             | 1,6             | 17                     | -                                     | 30 | 12 | TG203344.085017 - TG203344.085030 |
| 9,00                   | M10x1                 | 3/8-24 (GAL)                       | 12               | 102            | 56             | 19,8            | -              | 33,8           | 45             | 1,7             | 18                     | -                                     | 32 | 12 | TG203344.090018 - TG203344.090032 |
| 9,35                   | MJ10x0,75             | M10                                | 12               | 102            | 56             | 20,8            | -              | 34,8           | 45             | 1,8             | 19                     | -                                     | 33 | 12 | TG203344.093519 - TG203344.093533 |
| 9,50                   | M11 / M10x0,5         |                                    | 12               | 102            | 56             | 20,9            | -              | 34,9           | 45             | 1,8             | 19                     | -                                     | 33 | 12 | TG203344.095019 - TG203344.095033 |
| 9,60                   | MJ10x0,5 / MJ11x1,5   | M10x1                              | 12               | 102            | 56             | 20,9            | -              | 35,9           | 45             | 1,8             | 19                     | -                                     | 34 | 12 | TG203344.096019 - TG203344.096034 |
| 10,20                  | M12 / M11x0,75        | 7/16-14 (GAL)                      | 14               | 107            | 61             | 22,0            | -              | 38,0           | 45             | 1,9             | 20                     | -                                     | 36 | 14 | TG203344.102020 - TG203344.102036 |
| 10,35                  | MJ11x0,75             | M11                                | 14               | 107            | 61             | 23,0            | -              | 38,0           | 45             | 1,9             | 21                     | -                                     | 36 | 14 | TG203344.103521 - TG203344.103536 |
| 10,50                  | M12x1,5               | 7/16-20 (GAL)                      | 14               | 107            | 61             | 23,1            | -              | 39,1           | 45             | 2,0             | 21                     | -                                     | 37 | 14 | TG203344.105021 - TG203344.105037 |
| 11,25                  |                       | M12                                | 14               | 107            | 61             | 25,2            | -              | 41,2           | 45             | 2,1             | 23                     | -                                     | 39 | 14 | TG203344.112523 - TG203344.112539 |
| 11,35                  |                       | M12x1,5                            | 14               | 107            | 61             | 25,2            | -              | 42,2           | 45             | 2,1             | 23                     | -                                     | 40 | 14 | TG203344.113523 - TG203344.113540 |
| 12,00                  | M14                   |                                    | 16               | 115            | 66             | 26,4            | -              | 44,4           | 48             | 2,2             | 24                     | -                                     | 42 | 16 | TG203344.120024 - TG203344.120042 |
| 12,50                  | M14x1,5               | G1/4 (GAL)                         | 16               | 115            | 66             | 27,4            | -              | 46,4           | 48             | 2,3             | 25                     | -                                     | 44 | 16 | TG203344.125025 - TG203344.125044 |
| 13,10                  | MJ14x1                | M14                                | 16               | 115            | 66             | 28,6            | -              | 48,6           | 48             | 2,4             | 26                     | -                                     | 46 | 16 | TG203344.131026 - TG203344.131046 |
| 13,35                  |                       | M14x1,5                            | 16               | 115            | 66             | 29,6            | -              | 49,6           | 48             | 2,5             | 27                     | -                                     | 47 | 16 | TG203344.133527 - TG203344.133547 |
| 14,00                  | M16 / M15x1           |                                    | 18               | 123            | 74             | 30,7            | -              | 51,7           | 48             | 2,6             | 28                     | -                                     | 49 | 18 | TG203344.140028 - TG203344.140049 |
| 14,50                  | M16x1,5 / 5/8-18      |                                    | 18               | 123            | 74             | 31,8            | -              | 53,8           | 48             | 2,7             | 29                     | -                                     | 51 | 18 | TG203344.145029 - TG203344.145051 |
| 15,10                  | MJ16x1                | M16                                | 18               | 123            | 74             | 32,9            | -              | 55,9           | 48             | 2,8             | 30                     | -                                     | 53 | 18 | TG203344.151030 - TG203344.151053 |
| 15,35                  |                       | M16x1,5                            | 18               | 123            | 74             | 34,0            | -              | 57,0           | 48             | 2,8             | 31                     | -                                     | 54 | 18 | TG203344.153531 - TG203344.153554 |
| 15,50                  | M18                   |                                    | 20               | 131            | 80             | 34,0            | -              | 57,0           | 50             | 2,9             | 31                     | -                                     | 54 | 20 | TG203344.155031 - TG203344.155054 |

Bestell-Beispiel · Ordering example:

TG203344.0280 07

Bohrdurchmesser d<sub>1</sub> = 2,80 mm · Drill diameter d<sub>1</sub> = 2,80 mm

Stufenlänge l<sub>5</sub> = 7 mm · Step length l<sub>5</sub> = 7 mm

- Product Finder
- $v_c / f$
- BASIC
- STEEL
- INOX
- GG
- HCUT
- SpotDrill**
- Zubehör  
Accessories

### NC SpotDrill-142°

Zum Anzentrieren für Werkzeuge mit Spitzenwinkel  $\leq 140^\circ$   
Spot drilling for tools with a point angle  $\leq 140^\circ$

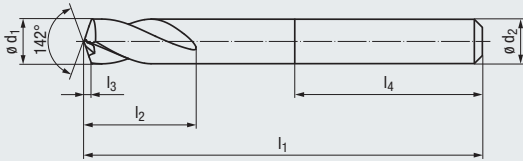
VHM  
Carbide

TIALN



DIN 6535

HA



Spitzenwinkel  
Point angle

# 142°

Einsatzgebiete – Material  
Applications – material [» 14](#)

|                  |                        |                  |
|------------------|------------------------|------------------|
| <b>P</b> 1.1-5.1 | <b>M</b> 1.1-4.1       | <b>K</b> 1.1-4.2 |
| <b>N</b> 1.1-1.5 | <b>N</b> 2.1-2.8       | <b>N</b> 5.1     |
| <b>S</b> 1.2-1.3 | <b>S</b> 2.2, 2.4, 2.6 | <b>H</b> 1.1     |

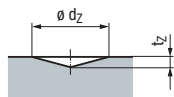
| $\emptyset d_1$<br>h6 | $l_1$ | $l_2$ | $l_3$ | $l_4$ | $\emptyset d_2$<br>h6 |
|-----------------------|-------|-------|-------|-------|-----------------------|
| 3,00                  | 51    | 13    | 0,52  | 28    | 3                     |
| 4,00                  | 57    | 19    | 0,69  | 28    | 4                     |
| 5,00                  | 57    | 19    | 0,86  | 30    | 5                     |
| 6,00                  | 57    | 19    | 1,03  | 36    | 6                     |
| 8,00                  | 70    | 25    | 1,38  | 36    | 8                     |
| 10,00                 | 73    | 25    | 1,72  | 40    | 10                    |
| 12,00                 | 74    | 25    | 2,07  | 45    | 12                    |
| 16,00                 | 102   | 25    | 2,75  | 48    | 16                    |

NC SpotDrill  
142°

HA

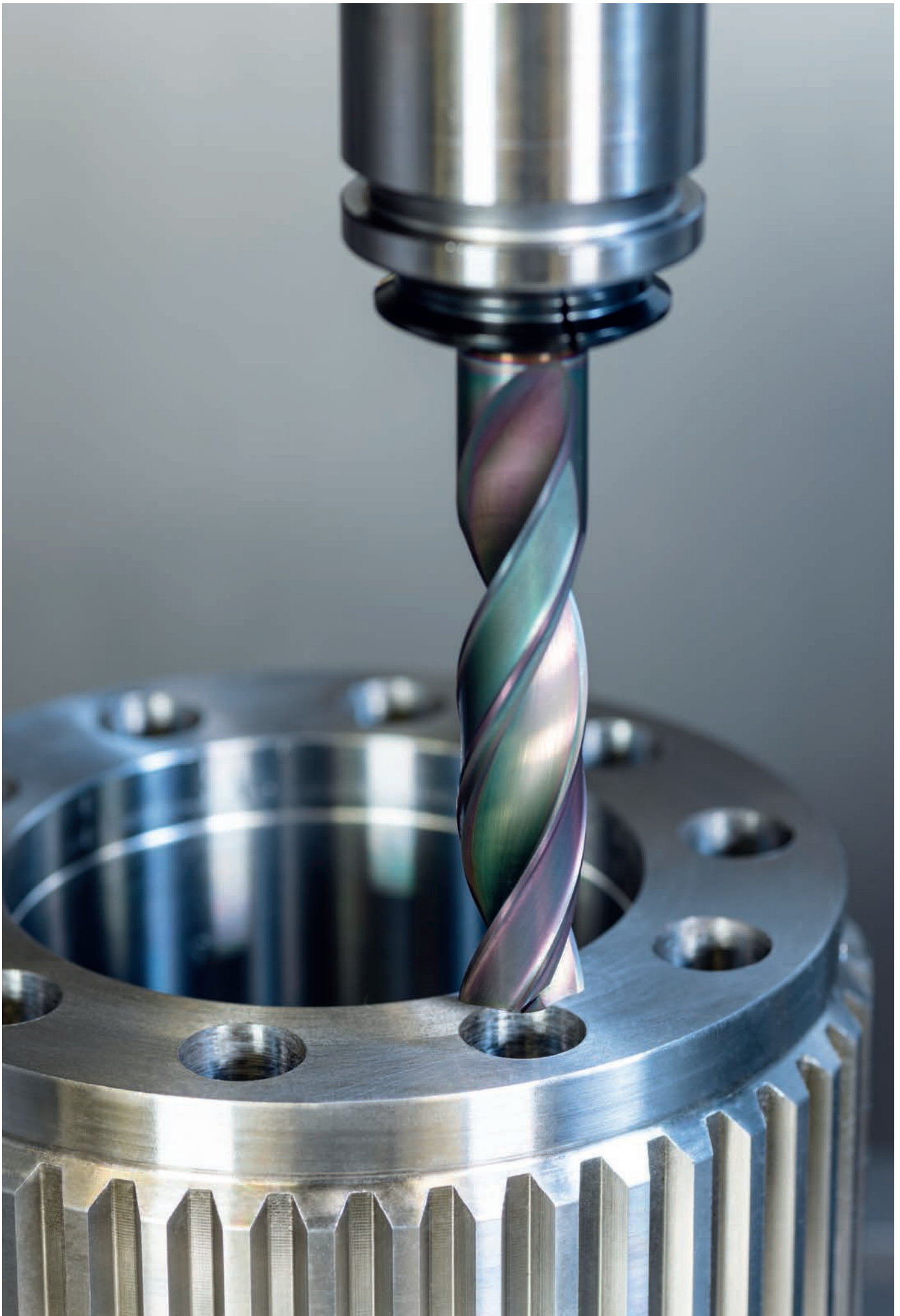
|               |
|---------------|
| TN103344.0300 |
| TN103344.0400 |
| TN103344.0500 |
| TN103344.0600 |
| TN103344.0800 |
| TN103344.1000 |
| TN103344.1200 |
| TN103344.1600 |

Berechnung der Bohrtiefe  $t_z$  auf Basis des gewünschten Anzentrierungsdurchmesser  $d_z$   
Calculation of the drilling depth  $t_z$  based on the desired spot drilling diameter  $d_z$



$$t_z = \tan \left( 90 - \frac{142}{2} \right) \times \frac{d_z}{2}$$





Product  
Finder

$v_c / f$

BASIC

STEEL

INOX

GC

HCUT

SpotDrill

Zubehör  
Accessories

3 x D

5 x D

6 x D

8 x D

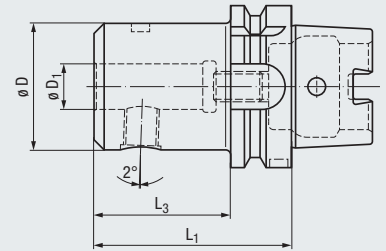
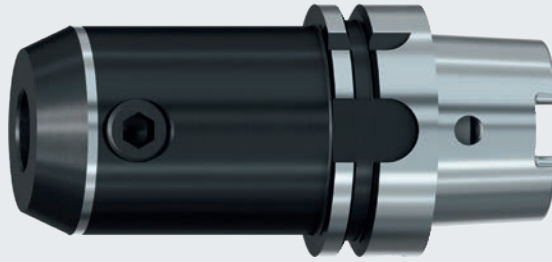
12 x D

2-3,5 x D



# HSK-A

## DIN 69893-1



Für Zylinderschäfte nach DIN 6535 HE For straight shanks acc. DIN 6535 HE



|           | $\varnothing D_1$ | $\varnothing D$ | $L_3$ | $L_1$ | Schaftgröße<br>Shank size |                 |
|-----------|-------------------|-----------------|-------|-------|---------------------------|-----------------|
| 3 x D     | 6                 | 25              | 54    | 80    | HSK-A63                   | TCWNHS63.060800 |
| 5 x D     | 8                 | 28              | 54    | 80    | HSK-A63                   | TCWNHS63.080800 |
| 6 x D     | 10                | 35              | 54    | 80    | HSK-A63                   | TCWNHS63.100800 |
| 8 x D     | 12                | 42              | 64    | 90    | HSK-A63                   | TCWNHS63.120900 |
| 12 x D    | 14                | 44              | 64    | 90    | HSK-A63                   | TCWNHS63.140900 |
| 2-3,5 x D | 16                | 48              | 74    | 100   | HSK-A63                   | TCWNHS63.161000 |
|           | 18                | 50              | 74    | 100   | HSK-A63                   | TCWNHS63.181000 |
|           | 20                | 52              | 74    | 100   | HSK-A63                   | TCWNHS63.201000 |
|           | 25                | 65              | 84    | 110   | HSK-A63                   | TCWNHS63.251100 |
|           | 32                | 72              | 84    | 110   | HSK-A63                   | TCWNHS63.321100 |



Kühlschmierstoffrohre und Schlüssel  
Coolant tubes and wrenches

» 742 - 743

### Spannschrauben mit Innensechskant

Allen clamping screws



| Für<br>For<br>$\varnothing D_1$ | Größe<br>Dimension |                |
|---------------------------------|--------------------|----------------|
| 6                               | M 6 x 10 x SW 3    | TWA01001.22010 |
| 8                               | M 8 x 10 x SW 4    | TWA01001.25010 |
| 10                              | M10 x 12 x SW 5    | TWA01001.27012 |
| 12 - 14                         | M12 x 16 x SW 6    | TWA01001.30016 |
| 16 - 18                         | M14 x 16 x SW 6    | TWA01001.33016 |
| 20                              | M16 x 16 x SW 8    | TWA01001.35016 |
| 25                              | M18 x 20 x SW 10   | TWA01001.39020 |
| 32                              | M20 x 20 x SW 10   | TWA01001.42020 |

### T-Griff-Schraubendreher für Spannschrauben

T-handle wrench for clamping screws



| Für<br>For<br>$\varnothing D_1$ | Größe<br>Dimension |                |
|---------------------------------|--------------------|----------------|
| 6                               | SW 3 x 100         | TWB03002.03010 |
| 8                               | SW 4 x 100         | TWB03002.04010 |
| 10                              | SW 5 x 150         | TWB03002.05015 |
| 12 - 16                         | SW 6 x 150         | TWB03002.06015 |
| 18 - 20                         | SW 8 x 150         | TWB03002.08015 |
| 25 - 32                         | SW10 x 200         | TWB03002.10020 |

### Verstellschrauben mit Innensechskant

Allen adjusting screws



| Für<br>For<br>$\varnothing D_1$ | Größe<br>Dimension |                |
|---------------------------------|--------------------|----------------|
| 6                               | M 5 x 16 x SW 2,5  | TWA02001.20016 |
| 8                               | M 6 x 16 x SW 3    | TWA02001.22016 |
| 10                              | M 8 x 16 x SW 4    | TWA02001.25016 |
| 12 - 14                         | M10 x 16 x SW 5    | TWA02001.27016 |
| 16 - 18                         | M12 x 16 x SW 6    | TWA02001.30016 |
| 20 - 32                         | M16 x 20 x SW 6    | TWA02001.35020 |

### Winkelschraubendreher für Verstellschrauben

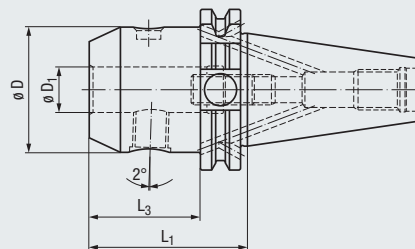
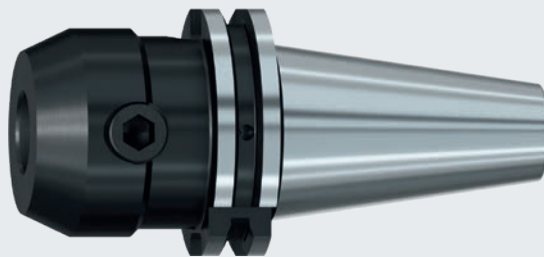
Allen wrench for adjusting screws



| Für<br>For<br>$\varnothing D_1$ | Größe<br>Dimension |                |
|---------------------------------|--------------------|----------------|
| 6                               | SW 2,5             | TWB03001.02500 |
| 8                               | SW 3               | TWB03001.03000 |
| 10                              | SW 4               | TWB03001.04000 |
| 12 - 14                         | SW 5               | TWB03001.05000 |
| 16 - 32                         | SW 6               | TWB03001.06000 |

# SK

## DIN ISO 7388-1 AD/AF



Für Zylinderschäfte nach DIN 6535 HE For straight shanks acc. DIN 6535 HE

Product Finder

$v_c / f$

BASIC

STEEL

INOX

GU

HCUT

SpotDrill

Zubehör Accessories

3 x D


5 x D


6 x D

8 x D

12 x D

2-3,5 x D

| $\varnothing D_1$ | $\varnothing D$ | $L_3$ | $L_1$ | Schaftgröße<br>Shank size |  |
|-------------------|-----------------|-------|-------|---------------------------|---|
| 6                 | 25              | 31    | 50    | SK40                      | TCWNSK40.060500   |
| 8                 | 28              | 31    | 50    | SK40                      | TCWNSK40.080500   |
| 10                | 35              | 31    | 50    | SK40                      | TCWNSK40.100500   |
| 12                | 42              | 31    | 50    | SK40                      | TCWNSK40.120500   |
| 14                | 44              | 31    | 50    | SK40                      | TCWNSK40.140500   |
| 16                | 48              | 44    | 63    | SK40                      | TCWNSK40.160630   |
| 18                | 50              | 44    | 63    | SK40                      | TCWNSK40.180630   |
| 20                | 52              | 44    | 63    | SK40                      | TCWNSK40.200630   |
| 25                | 65              | 81    | 100   | SK40                      | TCWNSK40.251000   |
| 32                | 72              | 81    | 100   | SK40                      | TCWNSK40.321000   |

| $\varnothing D_1$ | $\varnothing D$ | $L_3$ | $L_1$ | Schaftgröße<br>Shank size |  |
|-------------------|-----------------|-------|-------|---------------------------|---|
| 6                 | 25              | 44    | 63    | SK50                      | TCWNSK50.060630   |
| 8                 | 28              | 44    | 63    | SK50                      | TCWNSK50.080630   |
| 10                | 35              | 44    | 63    | SK50                      | TCWNSK50.100630   |
| 12                | 42              | 44    | 63    | SK50                      | TCWNSK50.120630   |
| 14                | 44              | 44    | 63    | SK50                      | TCWNSK50.140630   |
| 16                | 48              | 44    | 63    | SK50                      | TCWNSK50.160630   |
| 18                | 50              | 44    | 63    | SK50                      | TCWNSK50.180630   |
| 20                | 52              | 44    | 63    | SK50                      | TCWNSK50.200630   |
| 25                | 65              | 61    | 80    | SK50                      | TCWNSK50.250800   |
| 32                | 72              | 81    | 100   | SK50                      | TCWNSK50.321000   |




Anzugsbolzen für Steilkegel  
Pull studs for ISO tapers

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### Umstellschraube Innenkühlung

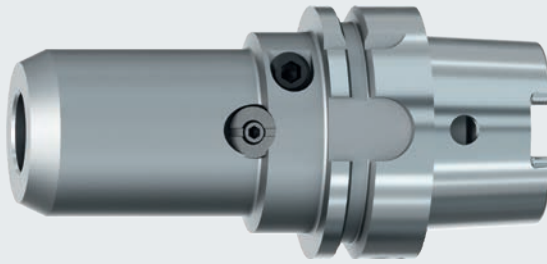
Internal coolant screw plug



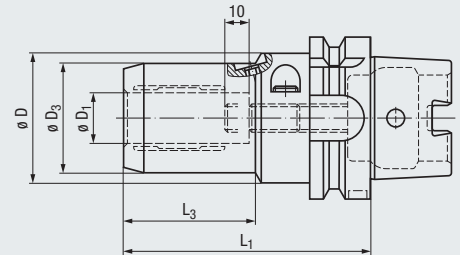
| Für<br>For | Größe<br>Dimension |  |
|------------|--------------------|---|
| SK 40      | M5 x 5 x SW 2,5    | TWA04001.20005  |
| SK 50      | M8 x 6 x SW 4      | TWA04001.25006  |

# HSK-A

## DIN 69893-1



Mit Werkzeuglängeneinstellung  
(Betätigung radial)  
With tool length adjustment  
(radial operation)



Für Zylinderschäfte nach DIN 6535 HA For straight shanks acc. DIN 6535 HA

- Product Finder
- v<sub>c</sub> / f
- BASIC
- STEEL
- INOX
- GG
- HCUT
- SpotDrill
- Zubehör Accessories

- 3 x D
- 5 x D
- 6 x D
- 8 x D
- 12 x D
- 2-3,5 x D

|  | $\varnothing D_1$ | $\varnothing D_3$ | $\varnothing D$ | $L_3$ | $L_1$ | Schaftgröße<br>Shank size |                 |
|--|-------------------|-------------------|-----------------|-------|-------|---------------------------|-----------------|
|  | 6                 | 25,7              | 50              | 33    | 80    | HSK-A63                   | TCHDHS63.060800 |
|  | 8                 | 27,7              | 50              | 34    | 80    | HSK-A63                   | TCHDHS63.080800 |
|  | 10                | 29,7              | 50              | 39    | 85    | HSK-A63                   | TCHDHS63.100850 |
|  | 12                | 31,6              | 50              | 45    | 90    | HSK-A63                   | TCHDHS63.120900 |
|  | 14                | 33,6              | 50              | 46    | 90    | HSK-A63                   | TCHDHS63.140900 |
|  | 16                | 37,6              | 50              | 52    | 95    | HSK-A63                   | TCHDHS63.160950 |
|  | 18                | 39,6              | 50              | 52    | 95    | HSK-A63                   | TCHDHS63.180950 |
|  | 20                | 41,6              | 50              | 58    | 100   | HSK-A63                   | TCHDHS63.201000 |
|  | 25                | 49,6              | 63              | 51    | 120   | HSK-A63                   | TCHDHS63.251200 |
|  | 32                | 59,8              | 63              | 59    | 125   | HSK-A63                   | TCHDHS63.321250 |



Kühlschmierstoffrohre und Schlüssel  
Coolant tubes and wrenches

742 - 743

### Spannschrauben mit Innensechskant Allen clamping screws



| Für<br>For<br>$\varnothing D_1$ | Größe<br>Dimension |                |
|---------------------------------|--------------------|----------------|
| 6 - 20                          | M10 x 12 x SW5     | TWA01002.27012 |
| 25 - 32                         | M14 x 16 x SW6     | TWA01002.33016 |



### T-Griff-Schraubendreher für Spannschrauben T-handle wrench for clamping screws



| Für<br>For<br>$\varnothing D_1$ | Größe<br>Dimension |                |
|---------------------------------|--------------------|----------------|
| 6 - 20                          | SW 5 x 150         | TWB03002.05015 |
| 25 - 32                         | SW 6 x 150         | TWB03002.06015 |



### Serviceleistungen

- Einbauteile des Spannsystems erneuern
- Radial-/Axialverstellung erneuern
- Dehnrate einstellen
- Drehmoment prüfen
- Rundlauf prüfen

### Service options

- Replace spare parts of the clamping system
- Replace radial / axial adjustment
- Adjust expansion rate
- Check torque
- Check concentricity

### Winkelschraubendreher für Verstellerschrauben Allen wrench for adjusting screws

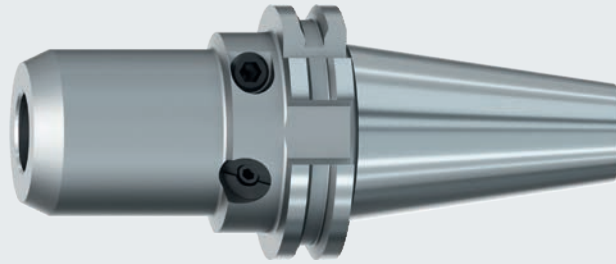


| Für<br>For<br>$\varnothing D_1$ | Größe<br>Dimension |                |
|---------------------------------|--------------------|----------------|
| 6 - 12                          | SW 2,5             | TWB03001.02500 |
| 14 - 20                         | SW 3               | TWB03001.03000 |
| 25 - 32                         | SW 4               | TWB03001.04000 |

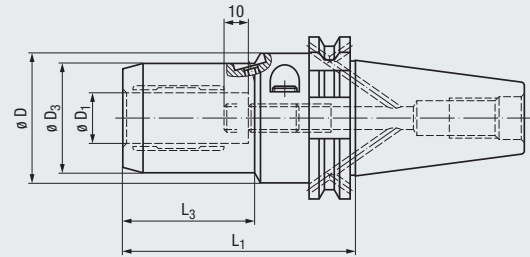


# SK

## DIN ISO 7388-1 AD/AF



Mit Werkzeuglängeneinstellung  
(Betätigung radial)  
With tool length adjustment  
(radial operation)



Für Zylinderschäfte nach DIN 6535 HA For straight shanks acc. DIN 6535 HA

Product Finder

$v_c / f$

BASIC

STEEL

INOX

G

HCUT

SpotDrill

Zubehör Accessories

3 x D

5 x D


6 x D


8 x D

12 x D

2-3,5 x D



| $\varnothing D_1$ | $\varnothing D_3$ | $\varnothing D$ | $L_3$ | $L_1$ | Schaftgröße<br>Shank size |  |
|-------------------|-------------------|-----------------|-------|-------|---------------------------|---|
| 6                 | 25,7              | 50              | 33    | 72    | SK 40                     | TCHDSK40.060720   |
| 8                 | 27,7              | 50              | 34    | 72    | SK 40                     | TCHDSK40.080720   |
| 10                | 29,7              | 50              | 39    | 77    | SK 40                     | TCHDSK40.100770   |
| 12                | 31,6              | 50              | 40    | 77    | SK 40                     | TCHDSK40.120770   |
| 14                | 33,6              | 50              | 46    | 82    | SK 40                     | TCHDSK40.140820   |
| 16                | 37,6              | 50              | 47    | 82    | SK 40                     | TCHDSK40.160820   |
| 18                | 39,6              | 50              | 47    | 82    | SK 40                     | TCHDSK40.180820   |
| 20                | 41,6              | 50              | 48    | 82    | SK 40                     | TCHDSK40.200820   |
| 25                | 49,6              | 63              | 51    | 117   | SK 40                     | TCHDSK40.251170   |
| 32                | 59,9              | 63              | 59    | 117   | SK 40                     | TCHDSK40.321170   |

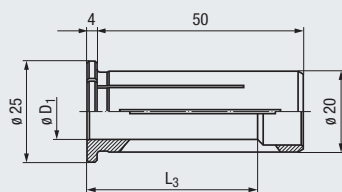
| $\varnothing D_1$ | $\varnothing D_3$ | $\varnothing D$ | $L_3$ | $L_1$ | Schaftgröße<br>Shank size |  |
|-------------------|-------------------|-----------------|-------|-------|---------------------------|---|
| 20                | 41,6              | 50              | 48    | 82    | SK 50                     | TCHDSK50.200820   |
| 25                | 49,6              | 63              | 51    | 117   | SK 50                     | TCHDSK50.251170   |
| 32                | 59,9              | 63              | 59    | 117   | SK 50                     | TCHDSK50.321170   |



Anzugsbolzen für Steilkegel  
Pull studs for ISO tapers

» 70


### Reduzierhülsen $\varnothing 20$ mm Reduction sleeves dia. 20 mm



| $\varnothing D_1$ | $L_3$ |                 |
|-------------------|-------|-----------------|
| 3                 | 28    | TCHDRD20.030500 |
| 6                 | 36    | TCHDRD20.060500 |
| 8                 | 37    | TCHDRD20.080500 |
| 10                | 40    | TCHDRD20.100500 |
| 12                | 45    | TCHDRD20.120500 |
| 14                | 45    | TCHDRD20.140500 |
| 16                | 48    | TCHDRD20.160500 |
| 18                | 48    | TCHDRD20.180500 |

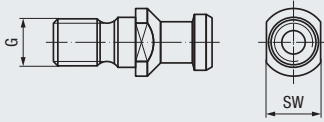
### Umstellschraube Innenkühlung Internal coolant screw plug



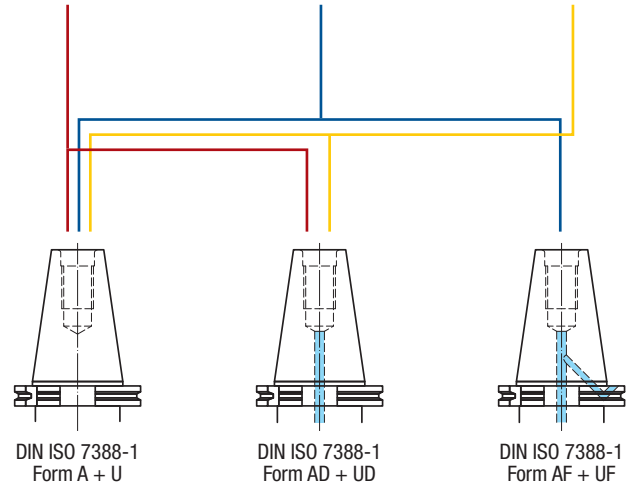
| Für<br>For | Größe<br>Dimension |  |
|------------|--------------------|---|
| SK 40      | M5 x 5 x SW 2,5    | TWA04001.20005  |
| SK 50      | M8 x 6 x SW 4      | TWA04001.25006  |

- Product Finder
- v<sub>c</sub> / f
- BASIC
- STEEL
- INOX
- GG
- HCUT
- SpotDrill
- Zubehör  
Accessories
- 3 x D
- 5 x D
- 6 x D
- 8 x D
- 12 x D
- 2-3,5 x D

## Für Steilkegelschäfte nach DIN ISO 7388-1 For ISO taper shanks acc. DIN ISO 7388-1



| Für Steilkegelgröße<br>For ISO taper size |     |    | DIN ISO 7388-3<br>Form AD | DIN ISO 7388-3<br>Form AF | DIN ISO 7388-3<br>Form UD |
|---|-----|----|---------------------------|---------------------------|---------------------------|
|   | G   | SW |                           |                           |                           |
| <b>SK 40</b>                              | M16 | 19 | <b>TWA03001.04000</b>     | <b>TWA03002.04000</b>     | <b>TWA03003.04000</b>     |
| <b>SK 50</b>                              | M24 | 30 | <b>TWA03001.05000</b>     | <b>TWA03002.05000</b>     | <b>TWA03003.05000</b>     |










## Gewindebohrer Taps


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| Produktseiten                        | Product pages                               | 92 - 306 |

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| V <sub>c</sub>      |
| M                   |
| MF                  |
| UNC<br>UN-8         |
| UNF<br>UNEF         |
| G, Rp<br>NPSM, NPSF |
| NPT, NPTF<br>Rc, W  |
| BSW, BSF            |
| Pg                  |
| MJ<br>UNJC, UNJF    |

|   |   |  |  |  |
|---|---|--|--|--|
| <p>Gewindebohrer mit verstärktem Schaft<br/>Taps with reinforced shank</p>  <p><b>Rekord 1</b><br/>Enorm 1</p> | <p>Gewindebohrer mit durchfallendem Schaft<br/>Taps with reduced shank</p>  <p><b>Rekord 2</b><br/>Enorm 2</p> | <p>Gewindebohrer mit extra-langem Schaft<br/>Taps with extra long shank</p>  <p><b>Rekord 1/2-LS</b><br/>Enorm 1/2-LS</p> | <p>Gewindebohrer mit langen Nuten und langem Schaft<br/>Taps with long flutes and long shank</p>  <p><b>Rekord 2-LF3</b><br/>Rekord 2-LF4</p> | <p>Gewindebohrer mit Spanglocke<br/>Taps with internal chip collector</p>  <p><b>Robust 2X</b><br/>Robust 2ST</p> |
|---|---|--|--|--|

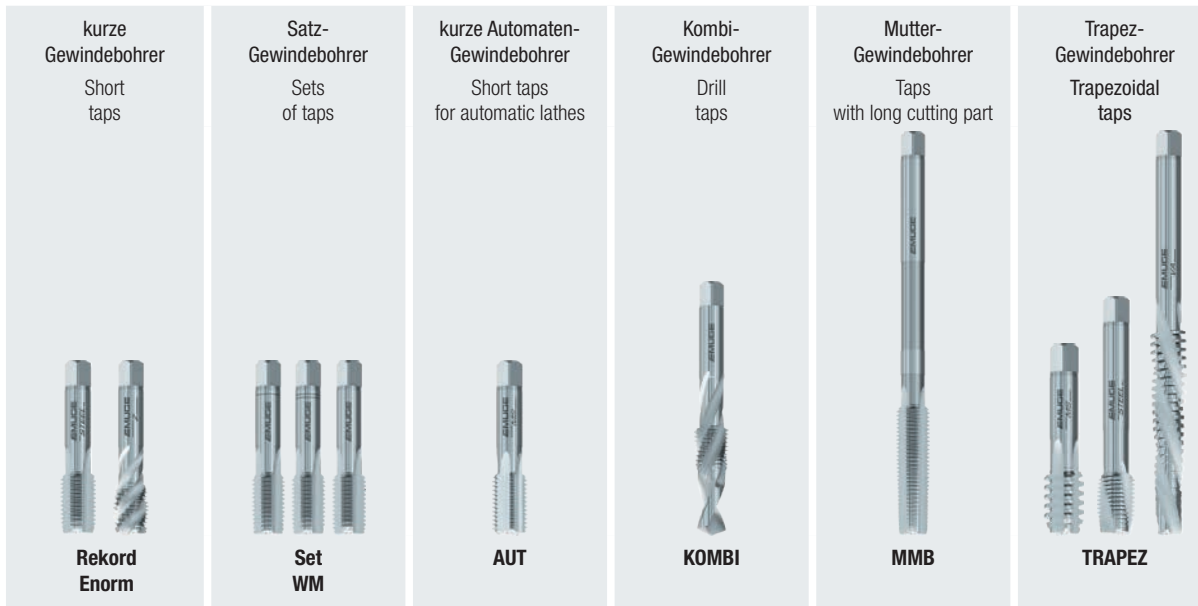
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|  | UN-8         |           | 212       |                      |           |           |
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|  | NPSF         |           | 247       |                      |           |           |
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|  | W            |           |           |                      |           |           |
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|  | BSF          | 270       | 271       |                      |           |           |
|  | Pg           |           | 273       |                      |           |           |
|  | MJ           | 274 - 275 |           |                      |           |           |
|  | UNJC         | 276 - 277 |           |                      |           |           |
|  | UNJF         | 278 - 279 |           |                      |           |           |
|  | EG M (STI)   | 280 - 281 | 282 - 283 |                      |           |           |
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| EG UNF (STI)   | 287 - 288    | 289       |           |                      |           |           |
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| Tr   |              |           |           |                      |           |           |
| Tr-F   |              |           |           |                      |           |           |
| Rd   |              |           |           |                      |           |           |

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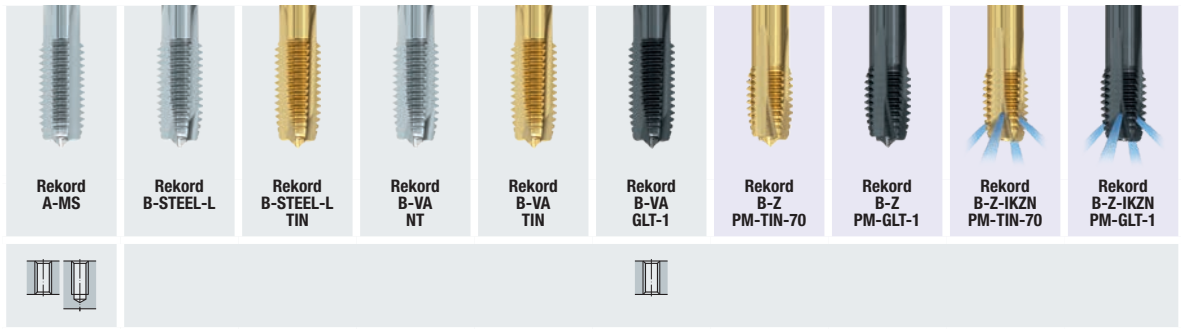
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|           |           |     |     |           | <b>NPSF</b>         |
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|           |           |     |     |           | <b>Pg</b>           |
|           |           |     |     |           | <b>MJ</b>           |
|           |           |     |     |           | <b>UNJC</b>         |
|           |           |     |     |           | <b>UNJF</b>         |
|           |           |     |     |           | <b>EG M (STI)</b>   |
|           |           |     |     |           | <b>EG UNC (STI)</b> |
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| Product Finder      |
|---------------------|
| V <sub>c</sub>      |
| M                   |
| MF                  |
| UNC UN-8            |
| UNF UNEF            |
| G, Rp NPSM, NPSF    |
| NPT, NPTF Rc, W     |
| BSW, BSF            |
| Pg                  |
| MJ UNJC, UNJF       |
| EG (STI)            |
| SELF-LOCK           |
| Tr, Tr-F Rd         |
| Zubehör Accessories |



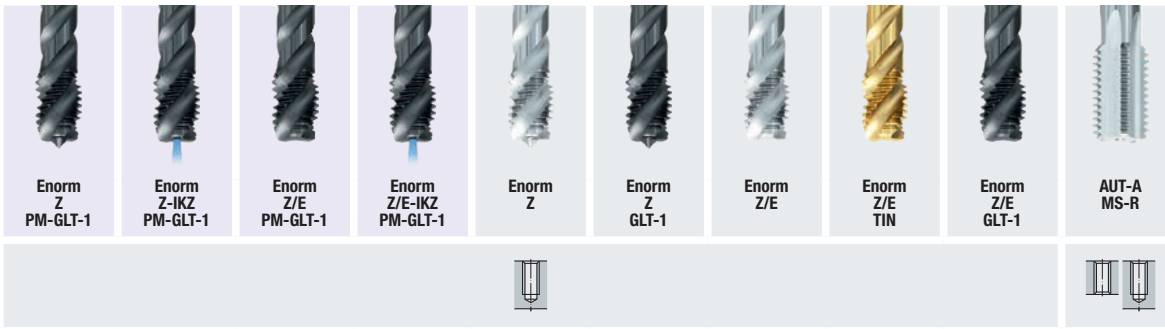
|  |  |                           |
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- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC  
UN-8
- UNF  
UNEF
- G, Rp  
NPSM, NPSF
- NPT, NPTF  
Rc, W
- BSW, BSF
- Pg
- MJ  
UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F  
Rd
- Zubehör  
Accessories



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|                  | 6H +0,1   |     |           |         |         |         |         |          |          |          |          |
|                  |           |     |           |         |         |         |         |          |          |          |          |
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|                  | 6GX       |     |           |         |         |         |         |          |          |          |          |
|                  | 6HX +0,1  |     |           |         |         |         |         |          |          |          |          |
| <b>UNC</b>       | 3B        |     | 204, 208  |         |         |         |         |          |          |          |          |
|                  | 2B +0,05  |     |           |         |         |         |         |          |          |          |          |
| <b>UNF</b>       | 3B        |     | 216, 220  |         |         |         |         |          |          |          |          |
|                  | 2B +0,05  |     |           |         |         |         |         |          |          |          |          |
| <b>G (BSP)</b>   | „X“ +0,05 |     |           |         |         |         |         |          |          |          |          |
|                  | „X“ +0,1  |     |           |         |         |         |         |          |          |          |          |
| <b>Rp (BSPP)</b> | „X“ +0,05 |     |           |         |         |         |         |          |          |          |          |








| Product Finder         |
|------------------------|
| V <sub>c</sub>         |
| M                      |
| MF                     |
| UNC<br>UN-8            |
| UNF<br>UNEF            |
| G, Rp<br>NPSM, NPSF    |
| NPT, NPTF<br>Rc, W     |
| BSW, BSF               |
| Pg                     |
| MJ<br>UNJC, UNJF       |
| EG (STI)               |
| SELF-LOCK              |
| Tr, Tr-F<br>Rd         |
| Zubehör<br>Accessories |

|          |          |          |          |          |          |          |          |          |     |           |              |
|----------|----------|----------|----------|----------|----------|----------|----------|----------|-----|-----------|--------------|
|          |          |          |          | 113, 139 | 113, 139 |          |          |          |     | ISO 1/4H  | M            |
|          |          |          |          | 114, 140 | 114, 140 | 114, 140 | 114, 140 | 115, 141 |     | ISO 3/6G  |              |
| 111, 137 | 111, 137 | 111, 137 | 111, 137 |          |          |          |          |          |     | 6GX       |              |
|          |          |          |          | 115, 141 | 115, 141 |          |          |          |     | 7G        |              |
|          |          |          |          | 115, 141 | 115, 141 |          |          |          |     | 6H +0,1   |              |
|          |          |          |          | 167, 186 | 167      |          |          |          |     | ISO 1/4H  |              |
|          |          |          |          |          |          | 167, 187 | 187      | 167, 187 |     | ISO 3/6G  | MF           |
|          |          |          |          |          |          |          |          |          | 202 | 6GX       |              |
|          |          |          |          |          |          |          |          |          | 202 | 6HX +0,1  |              |
|          |          |          |          | 207, 211 | 207, 211 |          |          |          |     | 3B        | UNC          |
|          |          |          |          | 207, 211 | 207, 211 |          |          |          |     | 2B +0,05  |              |
|          |          |          |          | 219, 223 | 219, 223 |          |          |          |     | 3B        | UNF          |
|          |          |          |          |          |          | 219, 223 |          | 219, 223 |     | 2B +0,05  |              |
|          |          |          |          |          |          | 237      |          | 237      | 242 | „X“ +0,05 | G<br>(BSP)   |
|          |          |          |          |          |          |          |          |          | 242 | „X“ +0,1  |              |
|          |          |          |          |          |          |          |          |          | 245 | „X“ +0,05 | Rp<br>(BSPP) |



| Product Finder      | IKZ   |     |     |     |     |     |
|---------------------|---|---|---|---|---|---|
| V <sub>c</sub>      |   |   |   |   |   |   |
| M                   |    |   |   |   |   |   |
| MF                  |   |   |   |   |   |   |
| UNC UN-8            |   |   |   | Seite · Page  |   |   |
| UNF UNEF            | <b>M</b>  | 99, 127   | 127   | 99, 127   | 99, 127   | 101   |
| G, Rp NPSM, NPSF    | <b>MF</b>   | 177   | 177   | 177   | 177   |   |
| NPT, NPTF Rc, W     | <b>G (BSP)</b>  |   |   |   |   |   |
| BSW, BSF            |   |   |   |   |   |   |
| Pg                  | <b>IKZ</b>  |    |    |    |    |    |
| MJ UNJC, UNJF       |    |   |   |   |   |   |
| EG (STI)            |   |   |   |   |   |   |
| SELF-LOCK           |   |   |   |   |   |   |
| Tr, Tr-F Rd         |   |   |   | Seite · Page  |   |   |
| Zubehör Accessories | <b>M</b>  | 101   | 101   | 102   | 105, 130  | 105, 130  |
|                     | <b>MF</b>   |   |   |   | 179   | 179   |
|                     | <b>G (BSP)</b>  |   |   |   |   |   |
|                     | <b>IKZ</b>  |  |  |  |  |  |
|                     |  |   |   |   |   |   |
|                     |   |   |   | Seite · Page  |   |   |
|                     | <b>M</b>  | 105, 131  |   | 132   | 132   | 107, 133, 146, 147  |
|                     | <b>MF</b>   | 163, 179  |   |   |   | 180, 188, 189   |
|                     | <b>G (BSP)</b>  |   | 235   |   |   |   |
|                     | <b>IKZ</b>  |  |  |  |  |  |
|                     |  |   |   |   |   |   |
|                     |   |   |   | Seite · Page  |   |   |
|                     | <b>M</b>  | 108, 134  | 109, 135, 146, 147  | 110, 136  | 110, 119, 136, 145, 146, 147  | 110, 136  |
|                     | <b>MF</b>   | 181   | 181, 188, 189   | 182   | 182, 188, 189   | 182   |
|                     | <b>G (BSP)</b>  |   |   |   |   |   |

|  |  |  |  |  |  |
|--|--|--|--|--|--|
|  |  |  |  |  | <br> |
| Enorm<br>Z-IKZ<br>PM-GLT-1   | Enorm<br>Z/E-IKZ<br>PM-GLT-1   | Enorm<br>Z-IKZ   | Enorm<br>Z-IKZ<br>GLT-1  | Enorm<br>Z/E-IKZ   |  |

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|           |          |     |          |     |                |
|-----------|----------|-----|----------|-----|----------------|
| 111, 137  | 111, 137 | 138 | 112, 139 | 113 | <b>M</b>       |
| 183 - 184 |          |     |          | 186 | <b>MF</b>      |
|           | 236      |     |          |     | <b>G (BSP)</b> |

V<sub>c</sub>

M

MF

UNC  
UN-8

UNF  
UNEF

G, Rp  
NPSM, NPSF

NPT, NPTF  
Rc, W

BSW, BSF

Pg

MJ





UNJC, UNJF

EG (STI)

SELF-LOCK








Tr, Tr-F  
Rd

Zubehör  
Accessories

|   |   |  |  |  |  |
|---|---|--|--|--|--|
|  |  |  |  |  | <br> |
| Enorm<br>Z/E-IKZ<br>TIN   | Enorm<br>Z/E-IKZ<br>GLT-1   |  |  |  |  |

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|----------|----------|--|--|--|----------------|
| 113, 139 | 113, 139 |  |  |  | <b>M</b>       |
| 186      | 186      |  |  |  | <b>MF</b>      |
|          |          |  |  |  | <b>G (BSP)</b> |

|   |   |   |   |   |  |
|---|---|---|---|---|--|
|  |  |  |  |  | <br> |
| Rekord<br>A-GJV-IKZN<br>PM-TICN   | Rekord<br>A-GJV/E-IKZN<br>PM-TICN   | Rekord<br>A-GAL/E-IKZN<br>TICN  | Rekord<br>A-H-IKZN<br>TICN  | Rekord<br>A-Z-IKZN<br>TICN  |  |

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|         |         |     |          |          |                |
|---------|---------|-----|----------|----------|----------------|
| 99, 127 | 99, 127 | 101 | 105, 131 | 107, 133 | <b>M</b>       |
| 177     | 177     |     | 179      | 180      | <b>MF</b>      |
|         |         |     |          |          | <b>G (BSP)</b> |

|   |   |   |  |  |  |
|---|---|---|--|--|--|
|  |  |  |  |  | <br> |
| Rekord<br>A-Z/E-IKZN<br>TICN  | Rekord<br>B-Z-IKZN<br>PM-TIN-70   | Rekord<br>B-Z-IKZN<br>PM-GLT-1  |  |  |  |

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|          |          |          |  |  |                |
|----------|----------|----------|--|--|----------------|
| 108, 134 | 109, 135 | 109, 135 |  |  | <b>M</b>       |
| 181      | 181      | 181      |  |  | <b>MF</b>      |
|          |          |          |  |  | <b>G (BSP)</b> |

- Product Finder
- V<sub>c</sub>**
- M
- MF
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories

# Einsatzempfehlungen und Schnittwerte

## Bitte beachten:

Die in den jeweiligen Spalten angegebenen Schnittgeschwindigkeiten (v<sub>c</sub> in m/min) sind Richtwerte, welche je nach Einsatzbedingungen (Material, Schmierung, Maschine, usw.) angepasst werden müssen.

Die empfohlenen Schnittgeschwindigkeiten sind bezogen auf einen Gewinde- Nenndurchmesser von 10 mm.


 = DIN-Form / Gänge (Anschnittlänge)

# Application recommendation and cutting data

## Please note:

The cutting speeds (v<sub>c</sub> in m/min) listed in the respective columns are standard values which have to be adjusted to individual work conditions (material, lubrication, machine etc.).






The recommended cutting speeds are related to a nominal thread diameter of 10 mm.

 = DIN form / threads (chamfer length)

Internationaler Werkstoffvergleich siehe Seite 764 - 785

International comparison of materials, see page 764 - 785

| Einsatzgebiete – Material<br>Applications – material |   | Material-Beispiele<br>Material examples  | Material-Nummern<br>Material numbers  |   |
|--|---|--|---|---|
| <b>P</b>   | <b>Stahlwerkstoffe</b><br>Kaltfließpressstähle, Baustähle, Automatenstähle, u.a.  | <b>Steel materials</b><br>Cold-extrusion steels, Construction steels, Free-cutting steels, etc.  | Cq15 1.1132<br>S235JR (St37-2) 1.0037<br>10SPb20 1.0722   |   |
|  | 2.1 Baustähle, Einsatzstähle, Stahlguss, u.a.   | Construction steels, Cementation steels, Steel castings, etc.  | E360 (St70-2) 1.0070<br>16MnCr5 1.7131<br>GS-25CrMo4 1.7218   |   |
|  | 3.1 Einsatzstähle, Vergütungsstähle, Kaltarbeitsstähle, u.a.  | Cementation steels, Heat-treatable steels, Cold work steels, etc.  | 20MoCr3 1.7320<br>42CrMo4 1.7225<br>102Cr6 1.2067<br>50CrMo4 1.7228   |   |
|  | 4.1 Vergütungsstähle, Kaltarbeitsstähle, Nitrierstähle, u.a.  | Heat-treatable steels, Cold work steels, Nitriding steels, etc.  | X45NiCrMo4 1.2767<br>31CrMo12 1.8515<br>X38CrMoV5-3 1.2367  |   |
|  | 5.1 Hochlegierte Stähle, Kaltarbeitsstähle, Warmarbeitsstähle, u.a.   | High-alloyed steels, Cold work steels, Hot work steels, etc.   | X100CrMoV8-1-1 1.2990<br>X40CrMoV5-1 1.2344   |   |
|  | <b>M</b>  | <b>Nichtrostende Stahlwerkstoffe</b><br>1.1 Ferritisch, martensitisch<br>2.1 Austenitisch<br>3.1 Austenitisch-ferritisch (Duplex)<br>4.1 Austenitisch-ferritisch hitzebeständig (Super Duplex)   | <b>Stainless steel materials</b><br>Ferritic, martensitic<br>Austenitic<br>Austenitic-ferritic (Duplex)<br>Austenitic-ferritic heat-resistant (Super Duplex)  | ≤ 950 N/mm <sup>2</sup> X2CrTi12 1.4512<br>≤ 950 N/mm <sup>2</sup> X6CrNiMoTi17-12-2 1.4571<br>≤ 1100 N/mm <sup>2</sup> X2CrNiMoN22-5-3 1.4462<br>≤ 1250 N/mm <sup>2</sup> X2CrNiMoN25-7-4 1.4410   |
| <b>K</b>   | <b>Gusswerkstoffe</b><br>1.1 Gusseisen mit Lamellengrafit (GJL)<br>1.2<br>2.1 Gusseisen mit Kugelgrafit (GJS)<br>2.2<br>3.1 Gusseisen mit Vermiculargrafit (GJV)<br>3.2<br>4.1 Temperguss (GTMW, GTMB)<br>4.2   | <b>Cast materials</b><br>Cast iron with lamellar graphite (GJL)<br>Cast iron with nodular graphite (GJS)<br>Cast iron with vermicular graphite (GJV)<br>Malleable cast iron (GTMW, GTMB)   | 100-250 N/mm <sup>2</sup> EN-GJL-200 (GG20) EN-JL-1030<br>250-450 N/mm <sup>2</sup> EN-GJL-300 (GG30) EN-JL-1050<br>350-500 N/mm <sup>2</sup> EN-GJS-400-15 (GGG40) EN-JS-1030<br>500-900 N/mm <sup>2</sup> EN-GJS-700-2 (GGG70) EN-JS-1070<br>300-400 N/mm <sup>2</sup> GJV 300<br>400-500 N/mm <sup>2</sup> GJV 450<br>250-500 N/mm <sup>2</sup> EN-GJMW-350-4 (GTW-35) EN-JM-1010<br>500-800 N/mm <sup>2</sup> EN-GJMB-450-6 (GTS-45) EN-JM-1140 |   |
|  | <b>Nichteisenwerkstoffe</b><br>1.1 Aluminium-Legierungen<br>1.2 Aluminium-Knetlegierungen<br>1.3<br>1.4<br>1.5 Aluminium-Gusslegierungen<br>1.6   | <b>Non ferrous materials</b><br>Aluminium alloys<br>Aluminium wrought alloys<br>Aluminium cast alloys  | ≤ 200 N/mm <sup>2</sup> EN AW-AlMn1 EN AW-3103<br>≤ 350 N/mm <sup>2</sup> EN AW-AlMgSi EN AW-6060<br>≤ 550 N/mm <sup>2</sup> EN AW-AlZn5Mg3Cu EN AW-7022<br>Si ≤ 7% EN AC-AlMg5 EN AC-51300<br>7% < Si ≤ 12% EN AC-AISi9Cu3 EN AC-46500<br>12% < Si ≤ 17% GD-AISI17Cu4FeMg  |   |
|  | <b>N</b>  | <b>Kupfer-Legierungen</b><br>2.1 Reinkupfer, niedriglegiertes Kupfer<br>2.2 Kupfer-Zink-Legierungen (Messing, langspanend)<br>2.3 Kupfer-Zink-Legierungen (Messing, kurzspanend)<br>2.4 Kupfer-Aluminium-Legierungen (Alubronze, langspanend)<br>2.5 Kupfer-Zinn-Legierungen (Zinnbronze, langspanend)<br>2.6 Kupfer-Zinn-Legierungen (Zinnbronze, kurzspanend)<br>2.7 Kupfer-Sonderlegierungen<br>2.8 | <b>Copper alloys</b><br>Pure copper, low-alloyed copper<br>Copper-zinc alloys (brass, long-chipping)<br>Copper-zinc alloys (brass, short-chipping)<br>Copper-aluminium alloys (alu bronze, long-chipping)<br>Copper-tin alloys (tin bronze, long-chipping)<br>Copper-tin alloys (tin bronze, short-chipping)<br>Special copper alloys   | ≤ 400 N/mm <sup>2</sup> E-Cu 57<br>≤ 550 N/mm <sup>2</sup> CuZn37 (Ms63) EN CW 508 L<br>≤ 550 N/mm <sup>2</sup> CuZn36Pb3 (Ms58) EN CW 603 N<br>≤ 800 N/mm <sup>2</sup> CuAl10Ni5Fe4 EN CW 307 G<br>≤ 700 N/mm <sup>2</sup> CuSn8P EN CW 459 K<br>≤ 400 N/mm <sup>2</sup> CuSn7 ZnPb (Rg7) 2.1090<br>≤ 600 N/mm <sup>2</sup> (AMPCO® 8)<br>≤ 1400 N/mm <sup>2</sup> (AMPCO® 45) |
|  | <b>S</b>  | <b>Magnesium-Legierungen</b><br>3.1 Magnesium-Knetlegierungen<br>3.2 Magnesium-Gusslegierungen   | <b>Magnesium alloys</b><br>Magnesium wrought alloys<br>Magnesium cast alloys  | ≤ 500 N/mm <sup>2</sup> MgAl6Zn 3.5612<br>≤ 500 N/mm <sup>2</sup> EN-MCMgAl9Zn1 EN-MC21120  |
|  | <b>H</b>  | <b>Kunststoffe</b><br>4.1 Duroplaste (kurzspanend)<br>4.2 Thermoplaste (langspanend)<br>4.3 Faserverstärkte Kunststoffe (Faseranteil ≤ 30%)<br>4.4 Faserverstärkte Kunststoffe (Faseranteil > 30%)   | <b>Synthetics</b><br>Duroplastics (short-chipping)<br>Thermoplastics (long-chipping)<br>Fibre-reinforced synthetics (fibre content ≤ 30%)<br>Fibre-reinforced synthetics (fibre content > 30%)  | Bakelit, Pertinax<br>PMMA, POM, PVC<br>GFK, CFK, AFK<br>GFK, CFK, AFK   |
|  | <b>S</b>  | <b>Besondere Werkstoffe</b><br>5.1 Grafit<br>5.2 Wolfram-Kupfer-Legierungen<br>5.3 Verbundwerkstoffe   | <b>Special materials</b><br>Graphite<br>Tungsten-copper alloys<br>Composite materials   | C 8000<br>W-Cu 80/20<br>Hyllite, Alucobond  |
| <b>S</b>   | <b>Spezialwerkstoffe</b><br>Titan-Legierungen<br>1.1 Reintitan<br>1.2 Titan-Legierungen<br>1.3<br>Nickel-, Kobalt- und Eisen-Legierungen<br>2.1 Reinnickel<br>2.2 Nickel-Basis-Legierungen<br>2.3<br>2.4<br>2.5 Kobalt-Basis-Legierungen<br>2.6 Eisen-Basis-Legierungen | <b>Special materials</b><br>Titanium alloys<br>Pure titanium<br>Titanium alloys<br>Nickel alloys, cobalt alloys and iron alloys<br>Pure nickel<br>Nickel-base alloys<br>Cobalt-base alloys<br>Iron-base alloys   | ≤ 450 N/mm <sup>2</sup> Ti1 3.7025<br>≤ 900 N/mm <sup>2</sup> TiAl6V4 3.7165<br>≤ 1250 N/mm <sup>2</sup> TiAl4Mo4Sn2 3.7185<br>≤ 600 N/mm <sup>2</sup> Ni 99.6 2.4060<br>≤ 1000 N/mm <sup>2</sup> Monel 400 2.4360<br>≤ 1600 N/mm <sup>2</sup> Inconel 718 2.4668<br>≤ 1000 N/mm <sup>2</sup> Udimet 605<br>≤ 1600 N/mm <sup>2</sup> Haynes 25 2.4964<br>≤ 1500 N/mm <sup>2</sup> Incoloy 800 1.4958  |   |
| <b>H</b>   | <b>Harte Werkstoffe</b><br>1.1<br>1.2<br>1.3 Hochfeste Stähle, gehärtete Stähle, Hartguss<br>1.4<br>1.5   | <b>Hard materials</b><br>High strength steels, hardened steels, hard castings  | 44 - 50 HRC Weldox 1100<br>50 - 55 HRC Hardox 550<br>55 - 60 HRC Armax 600T<br>60 - 63 HRC Ferro-Titanit<br>63 - 66 HRC HSSE  |   |

| Rekord A-STEEL   | Rekord B-STEEL-L   | Rekord B-STEEL-L TIN   | Rekord B-STEEL-L GLT-1  | Rekord B-STEEL-H PM-ALCR-102 | Rekord B-STEEL-H PM-ALCR-101 | Rekord D-STEEL  | Rekord D-STEEL/E         | Rekord DF-STEEL TIN  | Enorm STEEL                            | Enorm STEEL TIN                        |   |
|--|--|--|-------------------------|------------------------------|------------------------------|---|--------------------------|--|--|--|---|
| C / 2-3  | B / 4-5  | B / 4-5  | B / 4-5                 | B ≈6                         | B ≈6                         | C / 2-3   | E / 1,5-2                | C / 2-3  | C / 2-3                                | C / 2-3                                |   |
| max. 2 x d <sub>1</sub><br> |  | max. 3 x d <sub>1</sub><br> |                         |                              |                              | max. 2 x d <sub>1</sub><br> |                          | max. 2,5 x d <sub>1</sub><br> |  |  |  |
| 92, 120, 150<br>162, 168, 194  | 92, 117, 120, 143, 150<br>162, 168<br>204, 208<br>216, 220 | 92, 120<br>162, 168  | 92                      | 94, 122<br>163, 171          | 94, 122<br>163, 171          | 94, 122, 150<br>172   | 94, 117, 122, 143<br>172 | 95, 117, 123, 143  | 95, 123<br>172<br>204, 208<br>216, 220 | 95, 123<br>172<br>204, 208<br>216, 220 |   |
| 224<br>228<br>232, 238, 243<br>246, 247  | 232  | 232  |                         |                              |                              | 232   | 228<br>233               | 233  | 233                                    | 212<br>233                             |   |
| 270, 271<br>273  |  |  |                         |                              |                              |   |                          |  | 267                                    |  |   |
| min. empf. max.<br>rec.  | min. empf. max.<br>rec.                                    | min. empf. max.<br>rec.  | min. empf. max.<br>rec. | min. empf. max.<br>rec.      | min. empf. max.<br>rec.      | min. empf. max.<br>rec.   | min. empf. max.<br>rec.  | min. empf. max.<br>rec.  | min. empf. max.<br>rec.                | min. empf. max.<br>rec.                | min. empf. max.<br>rec.   |
|  | 5 <b>15</b> 25   | 15 <b>25</b> 45  | 15 <b>25</b> 45         |                              |                              |   |                          |  | 5 <b>15</b> 25                         | 15 <b>25</b> 45                        | 1.1   |
|  | 5 <b>10</b> 20   | 10 <b>20</b> 40  | 10 <b>20</b> 40         |                              |                              | 5 <b>10</b> 20  | 5 <b>10</b> 20           |  | 5 <b>10</b> 20                         | 10 <b>20</b> 40                        | 2.1   |
|  | 2 <b>8</b> 15  | 5 <b>15</b> 25   | 5 <b>15</b> 25          | 15 <b>35</b> 45              | 15 <b>35</b> 45              | 2 <b>8</b> 15   | 2 <b>8</b> 15            | 5 <b>15</b> 20   | 2 <b>8</b> 15                          | 5 <b>15</b> 25                         | 3.1   |
|  |  | 5 <b>10</b> 15   | 5 <b>10</b> 15          | 15 <b>35</b> 45              | 15 <b>35</b> 45              |   |                          | 5 <b>10</b> 15   |  |  | 4.1   |
|  |  |  |                         | 5 <b>10</b> 15               | 5 <b>10</b> 15               |   |                          |  |  |  | 5.1   |
|  |  |  |                         |                              |                              |   |                          |  |  |  | 1.1   |
|  |  |  |                         |                              |                              |   |                          |  |  |  | 2.1   |
|  |  |  |                         |                              |                              |   |                          |  |  |  | 3.1   |
|  |  |  |                         |                              |                              |   |                          |  |  |  | 4.1   |
| 5 <b>15</b> 25   |  |  |                         |                              |                              |   |                          |  |  |  | 1.1   |
| 5 <b>15</b> 25   |  |  |                         |                              |                              |   |                          |  |  |  | 1.2   |
| 5 <b>10</b> 20   |  |  |                         |                              |                              |   |                          |  |  |  | 2.1   |
| 5 <b>10</b> 20   |  |  |                         |                              |                              |   |                          |  |  |  | 2.2   |
| 5 <b>10</b> 20   |  |  |                         |                              |                              |   |                          |  |  |  | 3.1   |
| 5 <b>10</b> 20   |  |  |                         |                              |                              |   |                          |  |  |  | 3.2   |
| 5 <b>10</b> 20   |  |  |                         |                              |                              |   |                          |  |  |  | 4.1   |
| 5 <b>10</b> 20   |  |  |                         |                              |                              |   |                          |  |  |  | 4.2   |
|  |  |  |                         |                              |                              |   |                          |  |  |  | 1.1   |
|  |  |  |                         |                              |                              |   |                          |  |  |  | 1.2   |
|  |  |  |                         |                              |                              |   |                          |  |  |  | 1.3   |
|  |  |  |                         |                              |                              |   |                          |  |  |  | 1.4   |
|  |  |  |                         |                              |                              |   |                          |  |  |  | 1.5   |
|  |  |  |                         |                              |                              |   |                          |  |  |  | 1.6   |
|  |  |  |                         |                              |                              |   |                          |  |  |  | 2.1   |
| 10 <b>20</b> 40  | 10 <b>20</b> 40  |  |                         |                              |                              |   |                          |  | 10 <b>20</b> 40                        | 10 <b>25</b> 40                        | 2.2   |
|  |  |  |                         |                              |                              |   |                          |  |  |  | 2.3   |
|  |  |  |                         |                              |                              |   |                          |  |  |  | 2.4   |
|  |  |  |                         |                              |                              |   |                          |  |  |  | 2.5   |
|  |  |  |                         |                              |                              |   |                          |  |  |  | 2.6   |
|  |  |  |                         |                              |                              |   |                          |  |  |  | 2.7   |
|  |  |  |                         |                              |                              |   |                          |  |  |  | 2.8   |
|  |  |  |                         |                              |                              |   |                          |  |  |  | 3.1   |
|  |  |  |                         |                              |                              |   |                          |  |  |  | 3.2   |
|  |  |  |                         |                              |                              |   |                          |  |  |  | 4.1   |
|  |  |  |                         |                              |                              |   |                          |  |  |  | 4.2   |
|  |  |  |                         |                              |                              |   |                          |  |  |  | 4.3   |
|  |  |  |                         |                              |                              |   |                          |  |  |  | 4.4   |
|  |  |  |                         |                              |                              |   |                          |  |  |  | 5.1   |
|  |  |  |                         |                              |                              |   |                          |  |  |  | 5.2   |
|  |  |  |                         |                              |                              |   |                          |  |  |  | 5.3   |
|  |  |  |                         |                              |                              |   |                          |  |  |  | 1.1   |
|  |  |  |                         |                              |                              |   |                          |  |  |  | 1.2   |
|  |  |  |                         |                              |                              |   |                          |  |  |  | 1.3   |
|  |  |  |                         |                              |                              |   |                          |  |  |  | 2.1   |
|  |  |  |                         |                              |                              |   |                          |  |  |  | 2.2   |
|  |  |  |                         |                              |                              |   |                          |  |  |  | 2.3   |
|  |  |  |                         |                              |                              |   |                          |  |  |  | 2.4   |
|  |  |  |                         |                              |                              |   |                          |  |  |  | 2.5   |
|  |  |  |                         |                              |                              |   |                          |  |  |  | 2.6   |
|  |  |  |                         |                              |                              |   |                          |  |  |  | 1.1   |
|  |  |  |                         |                              |                              |   |                          |  |  |  | 1.2   |
|  |  |  |                         |                              |                              |   |                          |  |  |  | 1.3   |
|  |  |  |                         |                              |                              |   |                          |  |  |  | 1.4   |
|  |  |  |                         |                              |                              |   |                          |  |  |  | 1.5   |

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Vc in m/min

Product Finder

V<sub>c</sub>

M

MF

UNC UN-8

UNC UNF

G, Rp NPSM, NPSF

NPT, NPTF Rc, W

BSW, BSF

Pg

MJ UNJC, UNJF

EG (STI)

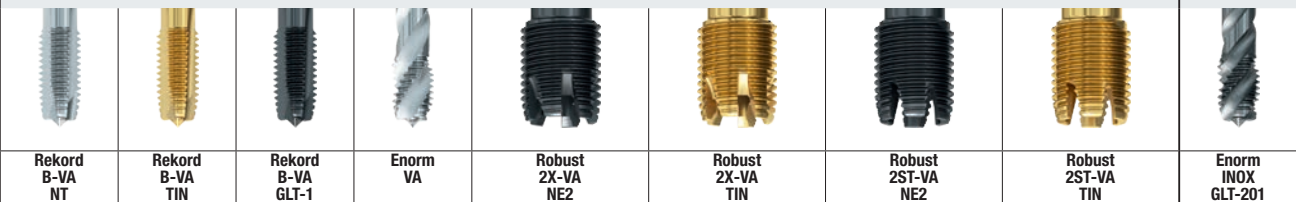
SELF-LOCK

Tr, Tr-F Rd

Zubehör Accessories



- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF Pg MJ UNJC, UNJF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories



|  | Rekord B-VA NT          | Rekord B-VA TIN | Rekord B-VA GLT-1 | Enorm VA                  | Robust 2X-VA NE2 | Robust 2X-VA TIN          | Robust 2ST-VA NE2 | Robust 2ST-VA TIN | Enorm INOX GLT-201        |
|--|-------------------------|-----------------|-------------------|---------------------------|------------------|---------------------------|-------------------|-------------------|---------------------------|
| Gewindtiefe und Lochform<br>Thread depth and hole type | B / 4-5                 | B / 4-5         | B / 4-5           | C / 2-3                   | C / 2-3          | C / 2-3                   | C / 2-3           | C / 2-3           | C / 2-3                   |
|  | max. 3 x d <sub>1</sub> |                 |                   | max. 2,5 x d <sub>1</sub> |                  | max. 1,5 x d <sub>1</sub> |                   |                   | max. 2,5 x d <sub>1</sub> |
|  |                         |                 |                   |                           |                  |                           |                   |                   |                           |
| M  | 95,118,123,144,151      | 95,123          | 95,118,123,144    | 97,118,125,144            | 148              | 148                       | 149               | 149               | 98,126                    |
| MF   | 174                     | 163,174         | 163,174           | 175                       | 190              | 190                       | 192               | 192               | 175                       |
| UNC  | 205,209                 | 205,209         | 205,209           | 205,209                   |                  |                           |                   |                   | 205,209                   |
| UNF  | 217,221                 | 217,221         | 217,221           | 217,221                   |                  |                           |                   |                   | 217,221                   |
| G, Rp  |                         | 228             | 229               |                           |                  |                           |                   |                   |                           |
| NPSM, NPSF   | 233                     | 233             | 233               | 234                       |                  |                           |                   |                   | 234                       |
| NPT, NPTF  |                         |                 |                   |                           |                  |                           |                   |                   |                           |
| Rc, W  |                         |                 |                   |                           |                  |                           |                   |                   |                           |
| BSW, BSF   |                         |                 | 266,267           |                           |                  |                           |                   |                   |                           |
| Pg   |                         |                 |                   |                           |                  |                           |                   |                   |                           |
| MJ   |                         |                 |                   |                           |                  |                           |                   |                   |                           |
| UNJC, UNJF   |                         |                 |                   |                           |                  |                           |                   |                   |                           |
| EG (STI)   |                         |                 | 280,289           |                           |                  |                           |                   |                   |                           |
| LK-M   |                         |                 | 290,292           |                           |                  |                           |                   |                   |                           |
| Tr, Tr-F, Rd   |                         |                 |                   |                           |                  |                           |                   |                   |                           |
| V <sub>c</sub> [m/min]                                 | min. empf. max.         | min. empf. max. | min. empf. max.   | min. empf. max.           | min. empf. max.  | min. empf. max.           | min. empf. max.   | min. empf. max.   | min. empf. max.           |

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|     |     |                 |                 |                 |                 |               |               |               |               |               |  |
|-----|-----|-----------------|-----------------|-----------------|-----------------|---------------|---------------|---------------|---------------|---------------|--|
| P   | 1.1 |                 | 15 <b>25</b> 45 | 15 <b>25</b> 45 | 5 <b>15</b> 25  | 2 <b>3</b> 8  | 2 <b>3</b> 8  | 2 <b>3</b> 8  | 2 <b>3</b> 8  |               |  |
|     | 2.1 | 5 <b>10</b> 20  | 10 <b>20</b> 40 | 10 <b>20</b> 40 | 5 <b>10</b> 20  | 2 <b>3</b> 6  | 2 <b>3</b> 6  | 2 <b>3</b> 6  | 2 <b>3</b> 6  |               |  |
|     | 3.1 | 2 <b>8</b> 15   | 5 <b>15</b> 25  | 5 <b>15</b> 25  | 2 <b>8</b> 15   | 1 <b>3</b> 6  | 1 <b>3</b> 6  | 1 <b>3</b> 6  | 1 <b>3</b> 6  |               |  |
|     | 4.1 |                 | 5 <b>10</b> 15  | 5 <b>10</b> 15  |                 |               |               |               |               |               |  |
|     | 5.1 |                 |                 |                 |                 |               |               |               |               |               |  |
|     |     |                 |                 |                 |                 |               |               |               |               |               |  |
| M   | 1.1 |                 |                 | 5 <b>8</b> 12   |                 |               |               |               |               | 5 <b>8</b> 12 |  |
|     | 2.1 |                 |                 | 2 <b>5</b> 8    |                 |               |               |               |               | 2 <b>5</b> 8  |  |
|     | 3.1 |                 |                 | 2 <b>5</b> 8    |                 |               |               |               |               |               |  |
|     | 4.1 |                 |                 | 2 <b>5</b> 8    |                 |               |               |               |               |               |  |
|     |     |                 |                 |                 |                 |               |               |               |               |               |  |
| K   | 1.1 |                 |                 |                 |                 | 2 <b>5</b> 10 | 2 <b>5</b> 10 | 2 <b>5</b> 10 | 2 <b>5</b> 10 | 2 <b>5</b> 10 |  |
|     | 1.2 |                 |                 |                 |                 | 2 <b>5</b> 10 | 2 <b>5</b> 10 | 2 <b>5</b> 10 | 2 <b>5</b> 10 | 2 <b>5</b> 10 |  |
|     | 2.1 |                 |                 |                 |                 | 2 <b>3</b> 8  | 2 <b>3</b> 8  | 2 <b>3</b> 8  | 2 <b>3</b> 8  | 2 <b>3</b> 8  |  |
|     | 2.2 |                 |                 |                 |                 | 2 <b>3</b> 8  | 2 <b>3</b> 8  | 2 <b>3</b> 8  | 2 <b>3</b> 8  | 2 <b>3</b> 8  |  |
|     | 3.1 |                 |                 |                 |                 | 2 <b>3</b> 8  | 2 <b>3</b> 8  | 2 <b>3</b> 8  | 2 <b>3</b> 8  | 2 <b>3</b> 8  |  |
|     | 3.2 |                 |                 |                 |                 | 2 <b>3</b> 8  | 2 <b>3</b> 8  | 2 <b>3</b> 8  | 2 <b>3</b> 8  | 2 <b>3</b> 8  |  |
|     | 4.1 |                 |                 |                 |                 | 2 <b>5</b> 10 | 2 <b>5</b> 10 | 2 <b>5</b> 10 | 2 <b>5</b> 10 | 2 <b>5</b> 10 |  |
|     | 4.2 |                 |                 |                 |                 | 2 <b>5</b> 10 | 2 <b>5</b> 10 | 2 <b>5</b> 10 | 2 <b>5</b> 10 | 2 <b>5</b> 10 |  |
|     |     |                 |                 |                 |                 |               |               |               |               |               |  |
|     |     |                 |                 |                 |                 |               |               |               |               |               |  |
| N   | 1.1 |                 |                 |                 |                 |               |               |               |               |               |  |
|     | 1.2 |                 |                 |                 |                 |               |               |               |               |               |  |
|     | 1.3 |                 |                 |                 |                 |               |               |               |               |               |  |
|     | 1.4 |                 |                 |                 |                 |               |               |               |               |               |  |
|     | 1.5 |                 |                 |                 |                 |               |               |               |               |               |  |
|     | 1.6 |                 |                 |                 |                 |               |               |               |               |               |  |
|     | 2.1 |                 |                 |                 |                 |               |               |               |               |               |  |
|     | 2.2 | 10 <b>20</b> 40 |                 |                 | 10 <b>25</b> 40 |               |               |               |               |               |  |
|     | 2.3 |                 |                 |                 |                 |               |               |               |               |               |  |
|     | 2.4 |                 |                 |                 |                 |               |               |               |               |               |  |
|     | 2.5 | 2 <b>5</b> 10   |                 |                 |                 |               |               |               |               |               |  |
|     | 2.6 |                 |                 |                 |                 |               |               |               |               |               |  |
|     | 2.7 |                 |                 |                 |                 |               |               |               |               |               |  |
|     | 2.8 |                 |                 |                 |                 |               |               |               |               |               |  |
|     | 3.1 |                 |                 |                 |                 |               |               |               |               |               |  |
| 3.2 |     |                 |                 |                 |                 |               |               |               |               |               |  |
| 4.1 |     |                 |                 |                 |                 |               |               |               |               |               |  |
| 4.2 |     |                 |                 |                 |                 |               |               |               |               |               |  |
| 4.3 |     |                 |                 |                 |                 |               |               |               |               |               |  |
| 4.4 |     |                 |                 |                 |                 |               |               |               |               |               |  |
| 5.1 |     |                 |                 |                 |                 |               |               |               |               |               |  |
| 5.2 |     |                 |                 |                 |                 |               |               |               |               |               |  |
| 5.3 |     |                 |                 |                 |                 |               |               |               |               |               |  |
| S   | 1.1 |                 |                 |                 |                 |               |               |               |               |               |  |
|     | 1.2 |                 |                 |                 |                 |               |               |               |               |               |  |
|     | 1.3 |                 |                 |                 |                 |               |               |               |               |               |  |
|     | 2.1 |                 |                 |                 |                 |               |               |               |               |               |  |
|     | 2.2 |                 |                 |                 |                 |               |               |               |               |               |  |
|     | 2.3 |                 |                 |                 |                 |               |               |               |               |               |  |
|     | 2.6 |                 |                 |                 |                 |               |               |               |               |               |  |
| H   | 1.1 |                 |                 |                 |                 |               |               |               |               |               |  |
|     | 1.2 |                 |                 |                 |                 |               |               |               |               |               |  |
|     | 1.3 |                 |                 |                 |                 |               |               |               |               |               |  |
|     | 1.4 |                 |                 |                 |                 |               |               |               |               |               |  |
|     | 1.5 |                 |                 |                 |                 |               |               |               |               |               |  |

V<sub>c</sub> in m/min



| Rekord A-GG NT  |          | Rekord A-GG TICN        |          | Rekord A-GJV PM-TICN    |          | Rekord A-GJV- <b>IKZ</b> PM-TICN |          | Rekord A-GJV- <b>IKZN</b> PM-TICN |          | Rekord A-GJV/E- <b>IKZ</b> PM-TICN |          | Rekord A-GJV/E- <b>IKZN</b> PM-TICN |          | HM-Rekord A-GJV- <b>IKZ</b> TICN |          | HM-Rekord A-GJV/E- <b>IKZ</b> TICN |          | Rekord B-AL  |  |         |          |                     |     |  |
|---|----------|-------------------------|----------|-------------------------|----------|----------------------------------|----------|-----------------------------------|----------|------------------------------------|----------|-------------------------------------|----------|----------------------------------|----------|------------------------------------|----------|--|--|---------|----------|---------------------|-----|--|
| C / 2-3   |          | C / 2-3                 |          | C / 2-3                 |          | C / 2-3                          |          | C / 2-3                           |          | E / 1,5-2                          |          | E / 1,5-2                           |          | C / 2-3                          |          | E / 1,5-2                          |          | B / ≈3   |  |         |          |                     |     |  |
| max. 2 x d <sub>1</sub>   |          | max. 2 x d <sub>1</sub> |          | max. 2 x d <sub>1</sub> |          | max. 2 x d <sub>1</sub>          |          | max. 2 x d <sub>1</sub>           |          | max. 2 x d <sub>1</sub>            |          | max. 2 x d <sub>1</sub>             |          | max. 2 x d <sub>1</sub>          |          | max. 3 x d <sub>1</sub>            |          | Gewindetiefe und Lochform Thread depth and hole type |  |         |          |                     |     |  |
| 98,126<br>176   |          | 98,126<br>176           |          | 99,127<br>176           |          | 99,127<br>177                    |          | 99,127<br>177                     |          | 99,127<br>177                      |          | 99,127<br>177                       |          | 99,127<br>177                    |          | 99,127<br>177                      |          | 100,128  |  |         |          |                     |     |  |
| 290,292   |          |                         |          |                         |          |                                  |          |                                   |          |                                    |          |                                     |          |                                  |          |                                    |          | 280  |  |         |          |                     |     |  |
| min. empf. rec. max.  |          | min. empf. rec. max.    |          | min. empf. rec. max.    |          | min. empf. rec. max.             |          | min. empf. rec. max.              |          | min. empf. rec. max.               |          | min. empf. rec. max.                |          | min. empf. rec. max.             |          | min. empf. rec. max.               |          | min. empf. rec. max.                                 |  |         |          |                     |     |  |
| <div style="text-align: center; font-size: 2em; opacity: 0.5;">Seite · Page</div> |          |                         |          |                         |          |                                  |          |                                   |          |                                    |          |                                     |          |                                  |          |                                    |          |  |  | 1.1     | <b>P</b> | EG (STI)            |     |  |
|   |          |                         |          |                         |          |                                  |          |                                   |          |                                    |          |                                     |          |                                  |          |                                    |          |  |  | 2.1     |          | SELF-LOCK           |     |  |
|   |          |                         |          |                         |          |                                  |          |                                   |          |                                    |          |                                     |          |                                  |          |                                    |          |  |  | 3.1     |          | Tr, Tr-F Rd         |     |  |
|   |          |                         |          |                         |          |                                  |          |                                   |          |                                    |          |                                     |          |                                  |          |                                    |          |  |  | 4.1     |          | Zubehör Accessories |     |  |
|   |          |                         |          |                         |          |                                  |          |                                   |          |                                    |          |                                     |          |                                  |          |                                    |          |  |  | 5.1     |          |                     |     |  |
|   |          |                         |          |                         |          |                                  |          |                                   |          |                                    |          |                                     |          |                                  |          |                                    |          |  |  | 1.1     | <b>M</b> |                     |     |  |
|   |          |                         |          |                         |          |                                  |          |                                   |          |                                    |          |                                     |          |                                  |          |                                    |          |  |  | 2.1     |          |                     |     |  |
|   |          |                         |          |                         |          |                                  |          |                                   |          |                                    |          |                                     |          |                                  |          |                                    |          |  |  | 3.1     |          |                     |     |  |
|   |          |                         |          |                         |          |                                  |          |                                   |          |                                    |          |                                     |          |                                  |          |                                    |          |  |  | 4.1     |          |                     |     |  |
|   |          |                         |          |                         |          |                                  |          |                                   |          |                                    |          |                                     |          |                                  |          |                                    |          |  |  | 4.1     |          |                     |     |  |
| 10 15 25  | 15 30 45 | 15 45 60                | 15 45 60 | 15 45 60                | 15 45 60 | 15 45 60                         | 15 45 60 | 15 45 60                          | 15 45 60 | 15 45 60                           | 15 45 60 | 15 45 60                            | 15 45 60 | 40 60 80                         | 40 60 80 | 1.1                                | <b>K</b> |  |  |         |          |                     |     |  |
| 10 15 20  | 10 25 40 | 10 40 60                | 10 40 60 | 10 30 60                | 10 30 60 | 10 30 60                         | 10 30 60 | 10 30 60                          | 10 30 60 | 10 30 60                           | 10 30 60 | 10 30 60                            | 10 30 60 | 30 45 60                         | 30 45 60 | 1.2                                |          |  |  |         |          |                     |     |  |
|   |          | 10 30 60                | 10 30 60 | 10 30 60                | 10 30 60 | 10 30 60                         | 10 30 60 | 10 30 60                          | 10 30 60 | 10 30 60                           | 10 30 60 | 10 30 60                            | 10 30 60 | 30 45 60                         | 30 45 60 | 2.1                                |          |  |  |         |          |                     |     |  |
|   |          | 10 20 40                | 10 20 40 | 10 20 40                | 10 20 40 | 10 20 40                         | 10 20 40 | 10 20 40                          | 10 20 40 | 10 20 40                           | 10 20 40 | 10 20 40                            | 10 20 40 | 10 20 40                         | 10 20 40 | 2.2                                |          |  |  |         |          |                     |     |  |
|   |          | 10 30 60                | 10 30 60 | 10 30 60                | 10 30 60 | 10 30 60                         | 10 30 60 | 10 30 60                          | 10 30 60 | 10 30 60                           | 10 30 60 | 10 30 60                            | 10 30 60 | 20 30 40                         | 20 30 40 | 3.1                                |          |  |  |         |          |                     |     |  |
|   |          | 10 30 60                | 10 30 60 | 10 30 60                | 10 30 60 | 10 30 60                         | 10 30 60 | 10 30 60                          | 10 30 60 | 10 30 60                           | 10 30 60 | 10 30 60                            | 10 30 60 | 20 30 40                         | 20 30 40 | 3.2                                |          |  |  |         |          |                     |     |  |
|   |          | 15 30 45                | 15 30 45 | 15 30 45                | 15 30 45 | 15 30 45                         | 15 30 45 | 15 30 45                          | 15 30 45 | 15 30 45                           | 15 30 45 | 15 30 45                            | 15 30 45 | 40 60 80                         | 40 60 80 | 4.1                                |          |  |  |         |          |                     |     |  |
|   |          | 15 30 45                | 15 30 45 | 15 30 45                | 15 30 45 | 15 30 45                         | 15 30 45 | 15 30 45                          | 15 30 45 | 15 30 45                           | 15 30 45 | 15 30 45                            | 15 30 45 | 30 45 60                         | 30 45 60 | 4.2                                |          |  |  |         |          |                     |     |  |
|   |          |                         |          |                         |          |                                  |          |                                   |          |                                    |          |                                     |          |                                  |          |                                    |          |  |  | 1.1     | <b>N</b> |                     |     |  |
|   |          |                         |          |                         |          |                                  |          |                                   |          |                                    |          |                                     |          |                                  |          |                                    |          |  |  | 1.2     |          |                     |     |  |
|   |          |                         |          |                         |          |                                  |          |                                   |          |                                    |          |                                     |          |                                  |          |                                    |          |  |  | 1.3     |          |                     |     |  |
|   |          |                         |          |                         |          |                                  |          |                                   |          |                                    |          |                                     |          |                                  |          |                                    |          |  |  | 5 15 25 |          |                     | 1.4 |  |
|   |          |                         |          |                         |          |                                  |          |                                   |          |                                    |          |                                     |          |                                  |          |                                    |          |  |  |         |          |                     | 1.5 |  |
|   |          |                         |          |                         |          |                                  |          |                                   |          |                                    |          |                                     |          |                                  |          |                                    |          |  |  |         |          |                     | 1.6 |  |
|   |          |                         |          |                         |          |                                  |          |                                   |          |                                    |          |                                     |          |                                  |          |                                    |          |  |  |         |          |                     | 2.1 |  |
|   |          |                         |          |                         |          |                                  |          |                                   |          |                                    |          |                                     |          |                                  |          |                                    |          |  |  |         |          |                     | 2.2 |  |
|   |          |                         |          |                         |          |                                  |          |                                   |          |                                    |          |                                     |          |                                  |          |                                    |          |  |  |         |          |                     | 2.3 |  |
|   |          |                         |          |                         |          |                                  |          |                                   |          |                                    |          |                                     |          |                                  |          |                                    |          |  |  |         |          |                     | 2.4 |  |
|   |          | 2.5                     |          |                         |          |                                  |          |                                   |          |                                    |          |                                     |          |                                  |          |                                    |          |  |  |         |          |                     |     |  |
|   |          | 2.6                     |          |                         |          |                                  |          |                                   |          |                                    |          |                                     |          |                                  |          |                                    |          |  |  |         |          |                     |     |  |
|   |          | 2.7                     |          |                         |          |                                  |          |                                   |          |                                    |          |                                     |          |                                  |          |                                    |          |  |  |         |          |                     |     |  |
|   |          | 2.8                     |          |                         |          |                                  |          |                                   |          |                                    |          |                                     |          |                                  |          |                                    |          |  |  |         |          |                     |     |  |
|   |          | 3.1                     |          |                         |          |                                  |          |                                   |          |                                    |          |                                     |          |                                  |          |                                    |          |  |  |         |          |                     |     |  |
|   |          | 3.2                     |          |                         |          |                                  |          |                                   |          |                                    |          |                                     |          |                                  |          |                                    |          |  |  |         |          |                     |     |  |
|   |          |                         |          |                         |          |                                  |          |                                   |          |                                    |          |                                     |          |                                  |          |                                    |          |  |  | 4.1     | <b>S</b> |                     |     |  |
|   |          |                         |          |                         |          |                                  |          |                                   |          |                                    |          |                                     |          |                                  |          |                                    |          |  |  | 4.2     |          |                     |     |  |
|   |          |                         |          |                         |          |                                  |          |                                   |          |                                    |          |                                     |          |                                  |          |                                    |          |  |  | 4.3     |          |                     |     |  |
|   |          |                         |          |                         |          |                                  |          |                                   |          |                                    |          |                                     |          |                                  |          |                                    |          |  |  | 4.4     |          |                     |     |  |
|   |          |                         |          |                         |          |                                  |          |                                   |          |                                    |          |                                     |          |                                  |          |                                    |          |  |  | 5.1     |          |                     |     |  |
|   |          |                         |          |                         |          |                                  |          |                                   |          |                                    |          |                                     |          |                                  |          |                                    |          |  |  | 5.2     |          |                     |     |  |
|   |          |                         |          |                         |          |                                  |          |                                   |          |                                    |          |                                     |          |                                  |          |                                    |          |  |  | 1.1     | <b>H</b> |                     |     |  |
|   |          |                         |          |                         |          |                                  |          |                                   |          |                                    |          |                                     |          |                                  |          |                                    |          |  |  | 1.2     |          |                     |     |  |
|   |          |                         |          |                         |          |                                  |          |                                   |          |                                    |          |                                     |          |                                  |          |                                    |          |  |  | 1.3     |          |                     |     |  |
|   |          |                         |          |                         |          |                                  |          |                                   |          |                                    |          |                                     |          |                                  |          |                                    |          |  |  | 1.4     |          |                     |     |  |
|   |          |                         |          |                         |          |                                  |          |                                   |          |                                    |          |                                     |          |                                  |          |                                    |          |  |  | 1.5     |          |                     |     |  |

**Product Finder**

**V<sub>c</sub>**

**M**

**MF**

**UNC UN-8**

**UNF UNF**

**G, Rp NPSM, NPSF**

**NPT, NPTF Rc, W**

**BSW, BSF**

**Pg**

**MJ UNJC, UNJF**

**EG (STI)**

**SELF-LOCK**

**Tr, Tr-F Rd**

**Zubehör Accessories**




1) Gewindebohren in Durchgangslöcher nur mit externer Kühlschmierung möglich  
Threading in through holes is possible only with external cooling/lubrication

| Product Finder         | EMUGE<br>AL             |                      |                           |                      | EMUGE<br>GAL            |                          |                         |                            | EMUGE<br>MG             | EMUGE<br>FK             |                         |              |              |
|------------------------|-------------------------|----------------------|---------------------------|----------------------|-------------------------|--------------------------|-------------------------|----------------------------|-------------------------|-------------------------|-------------------------|--------------|--------------|
|                        |                         |                      |                           |                      |                         |                          |                         |                            |                         |                         |                         |              |              |
| V <sub>c</sub>         |                         |                      |                           |                      |                         |                          |                         |                            |                         |                         |                         |              |              |
| M                      | Rekord B-AL GLT-104     | Enorm AL             | Enorm AL GLT-104          | Enorm AL/E GLT-104   | Rekord A-GAL/E-IKZ TiCN | Rekord A-GAL/E-IKZN TiCN | Rekord D-GAL/E-IKZ TiCN | HM-Rekord D-GAL/E-IKZ TiCN | Rekord A-MG GLT-1       | Rekord A-FK NT          | HM-Rekord A-FK-IKZ      |              |              |
| MF                     | B / ≈3                  | C / 2-3              | C / 2-3                   | E / 1,5-2            | E / 1,5-2               | E / 1,5-2                | E / 1,5-2               | E / 1,5-2                  | C / 2-3                 | C / 2-3                 | C / 2-3                 |              |              |
| UNC UN-8               | max. 3 x d <sub>1</sub> |                      | max. 2,5 x d <sub>1</sub> |                      | max. 2 x d <sub>1</sub> | max. 2 x d <sub>1</sub>  |                         | max. 2 x d <sub>1</sub>    | max. 2 x d <sub>1</sub> | max. 2 x d <sub>1</sub> | max. 2 x d <sub>1</sub> |              |              |
| UNF UNEF               |                         |                      |                           |                      |                         |                          |                         |                            |                         |                         |                         |              |              |
| G, Rp NPSM, NPSF       |                         |                      |                           |                      |                         |                          |                         |                            |                         |                         |                         |              |              |
| NPT, NPTF Rc, W        |                         |                      |                           |                      |                         |                          |                         |                            |                         |                         |                         |              |              |
| BSW, BSF               |                         |                      |                           |                      |                         |                          |                         |                            |                         |                         |                         |              |              |
| Pg                     |                         |                      |                           |                      |                         |                          |                         |                            |                         |                         |                         |              |              |
| MJ UNJC, UNJF          |                         |                      |                           |                      |                         |                          |                         |                            |                         |                         |                         |              |              |
| EG (STI)               |                         |                      |                           |                      |                         |                          |                         |                            |                         |                         |                         |              |              |
| SELF-LOCK              |                         |                      |                           |                      |                         |                          |                         |                            |                         |                         |                         |              |              |
| Tr, Tr-F Rd            |                         |                      |                           |                      |                         |                          |                         |                            |                         |                         |                         |              |              |
| Zubehör Accessories    |                         |                      |                           |                      |                         |                          |                         |                            |                         |                         |                         |              |              |
| v <sub>c</sub> [m/min] | min. empf. rec. max.    | min. empf. rec. max. | min. empf. rec. max.      | min. empf. rec. max. | min. empf. rec. max.    | min. empf. rec. max.     | min. empf. rec. max.    | min. empf. rec. max.       | min. empf. rec. max.    | min. empf. rec. max.    | min. empf. rec. max.    |              |              |
| P                      | 1.1                     |                      |                           |                      |                         |                          |                         |                            |                         |                         |                         |              |              |
|                        | 2.1                     |                      |                           |                      |                         |                          |                         |                            |                         |                         |                         |              |              |
|                        | 3.1                     |                      |                           |                      |                         |                          |                         |                            |                         |                         |                         |              |              |
|                        | 4.1                     |                      |                           |                      |                         |                          |                         |                            |                         |                         |                         |              |              |
|                        | 5.1                     |                      |                           |                      |                         |                          |                         |                            |                         |                         |                         |              |              |
| M                      | 1.1                     |                      |                           |                      |                         |                          |                         |                            |                         |                         |                         |              |              |
|                        | 2.1                     |                      |                           |                      |                         |                          |                         |                            |                         |                         |                         |              |              |
|                        | 3.1                     |                      |                           |                      |                         |                          |                         |                            |                         |                         |                         |              |              |
|                        | 4.1                     |                      |                           |                      |                         |                          |                         |                            |                         |                         |                         |              |              |
| K                      | 1.1                     |                      |                           |                      |                         |                          |                         |                            |                         |                         |                         |              |              |
|                        | 1.2                     |                      |                           |                      |                         |                          |                         |                            |                         | 40                      | <b>60</b> 80            |              |              |
|                        | 2.1                     |                      |                           |                      |                         |                          |                         |                            |                         | 30                      | <b>45</b> 60            |              |              |
|                        | 2.2                     |                      |                           |                      |                         |                          |                         |                            |                         | 30                      | <b>45</b> 60            |              |              |
|                        | 3.1                     |                      |                           |                      |                         |                          |                         |                            |                         | 10                      | <b>20</b> 40            |              |              |
|                        | 3.2                     |                      |                           |                      |                         |                          |                         |                            |                         | 20                      | <b>30</b> 40            |              |              |
|                        | 4.1                     |                      |                           |                      |                         |                          |                         |                            |                         | 20                      | <b>30</b> 40            |              |              |
| 4.2                    |                         |                      |                           |                      |                         |                          |                         |                            | 40                      | <b>60</b> 80            |                         |              |              |
| 4.2                    |                         |                      |                           |                      |                         |                          |                         |                            | 30                      | <b>45</b> 60            |                         |              |              |
| N                      | 1.1                     | 15                   | <b>25</b> 40              |                      | 15                      | <b>25</b> 40             | 15                      | <b>25</b> 40               |                         |                         |                         |              |              |
|                        | 1.2                     | 15                   | <b>25</b> 40              |                      | 15                      | <b>25</b> 40             | 15                      | <b>25</b> 40               |                         |                         |                         |              |              |
|                        | 1.3                     | 15                   | <b>25</b> 40              |                      | 15                      | <b>25</b> 40             | 15                      | <b>25</b> 40               |                         |                         |                         |              |              |
|                        | 1.4                     | 15                   | <b>25</b> 40              | 5                    | <b>15</b> 25            | 15                       | <b>25</b> 40            | 15                         | <b>25</b> 40            |                         |                         |              |              |
|                        | 1.5                     |                      |                           |                      |                         |                          |                         |                            | 15                      | <b>30</b> 45            | 20                      | <b>40</b> 80 |              |
|                        | 1.6                     |                      |                           |                      |                         |                          |                         |                            | 30                      | <b>50</b> 80            | 30                      | <b>50</b> 80 |              |
|                        |                         |                      |                           |                      |                         |                          |                         |                            | 10                      | <b>20</b> 30            | 10                      | <b>20</b> 30 |              |
|                        |                         |                      |                           |                      |                         |                          |                         |                            |                         |                         |                         |              |              |
|                        | 2.1                     | 5                    | <b>15</b> 30              |                      | 5                       | <b>15</b> 30             | 5                       | <b>15</b> 30               |                         |                         |                         |              |              |
|                        | 2.2                     |                      |                           |                      |                         |                          |                         |                            |                         |                         |                         |              |              |
|                        | 2.3                     |                      |                           |                      |                         |                          |                         |                            |                         |                         |                         |              |              |
|                        | 2.4                     |                      |                           |                      |                         |                          |                         |                            |                         |                         |                         |              |              |
|                        | 2.5                     |                      |                           |                      |                         |                          |                         |                            |                         |                         |                         |              |              |
|                        | 2.6                     |                      |                           |                      |                         |                          |                         |                            |                         |                         |                         |              |              |
|                        | 2.7                     |                      |                           |                      |                         |                          |                         |                            |                         |                         | 10                      | <b>20</b> 30 |              |
|                        | 2.8                     |                      |                           |                      |                         |                          |                         |                            |                         |                         | 5                       | <b>10</b> 15 |              |
|                        |                         |                      |                           |                      |                         |                          |                         |                            |                         | 1                       | <b>5</b> 8              |              |              |
| 3.1                    |                         |                      |                           |                      |                         |                          |                         |                            | 20                      | <b>40</b> 60            |                         |              |              |
| 3.2                    |                         |                      |                           |                      |                         |                          |                         |                            | 20                      | <b>40</b> 60            |                         |              |              |
| 4.1                    |                         |                      |                           |                      |                         |                          |                         |                            |                         |                         |                         |              |              |
| 4.2                    |                         |                      |                           |                      |                         |                          |                         |                            |                         | 5                       | <b>10</b> 25            | 20           | <b>40</b> 60 |
| 4.3                    |                         |                      |                           |                      |                         |                          |                         |                            |                         |                         |                         |              |              |
| 4.4                    |                         |                      |                           |                      |                         |                          |                         |                            | 2                       | <b>7</b> 10             | 10                      | <b>15</b> 25 |              |
|                        |                         |                      |                           |                      |                         |                          |                         |                            |                         | 5                       | <b>10</b> 15            |              |              |
| 5.1                    |                         |                      |                           |                      |                         |                          |                         |                            |                         |                         |                         |              |              |
| 5.2                    |                         |                      |                           |                      |                         |                          |                         |                            |                         | 20                      | <b>40</b> 60            |              |              |
| 5.3                    |                         |                      |                           |                      |                         |                          |                         |                            |                         | 5                       | <b>10</b> 20            |              |              |
| S                      | 1.1                     |                      |                           |                      |                         |                          |                         |                            |                         |                         |                         |              |              |
|                        | 1.2                     |                      |                           |                      |                         |                          |                         |                            |                         |                         |                         |              |              |
|                        | 1.3                     |                      |                           |                      |                         |                          |                         |                            |                         |                         |                         |              |              |
|                        | 2.1                     |                      |                           |                      |                         |                          |                         |                            |                         |                         |                         |              |              |
|                        | 2.2                     |                      |                           |                      |                         |                          |                         |                            |                         |                         |                         |              |              |
|                        | 2.3                     |                      |                           |                      |                         |                          |                         |                            |                         |                         |                         |              |              |
| 2.4                    |                         |                      |                           |                      |                         |                          |                         |                            |                         |                         |                         |              |              |
| 2.5                    |                         |                      |                           |                      |                         |                          |                         |                            |                         |                         |                         |              |              |
| 2.6                    |                         |                      |                           |                      |                         |                          |                         |                            |                         |                         |                         |              |              |
| H                      | 1.1                     |                      |                           |                      |                         |                          |                         |                            |                         |                         |                         |              |              |
|                        | 1.2                     |                      |                           |                      |                         |                          |                         |                            |                         |                         |                         |              |              |
|                        | 1.3                     |                      |                           |                      |                         |                          |                         |                            |                         |                         |                         |              |              |
|                        | 1.4                     |                      |                           |                      |                         |                          |                         |                            |                         |                         |                         |              |              |
|                        | 1.5                     |                      |                           |                      |                         |                          |                         |                            |                         |                         |                         |              |              |

Seite · Page

v<sub>c</sub> [m/min]

| EMUGE<br>PVC             |                         | EMUGE<br>MS             |                        | EMUGE<br>TI             |                        |                            |                           | EMUGE<br>TILEG             |  | EMUGE<br>NI           |   | EMUGE<br>H      |  | Product<br>Finder |     |
|--------------------------|-------------------------|-------------------------|------------------------|-------------------------|------------------------|----------------------------|---------------------------|----------------------------|--|-----------------------|---|-----------------|--|-------------------|-----|
| Rekord<br>D-PVC/E<br>CRN | Rekord<br>A-MS          | Rekord<br>C-TI<br>NT2   | Rekord<br>C-TI<br>TICN | Rekord<br>D-TI<br>NT2   | Rekord<br>D-TI<br>TICN | Rekord<br>DF-TILEG<br>TICN | Rekord<br>C-NI<br>PM-TICN | Rekord<br>DF-NI<br>PM-TICN | Rekord<br>A-H<br>NT                              | Rekord<br>A-H<br>TICN | Gewindetiefe<br>und Lochform<br>Thread depth<br>and hole type |                 |  |                   |     |
| E / 1,5-2                | C / 2-3                 | D / 4-5                 | D / 4-5                | C / 2-3                 | C / 2-3                | C / 2-3                    | D / 4-5                   | C / 2-3                    | C / 2-3  | C / 2-3               | C / 2-3   | C / 2-3         | <br>Gewindetiefe<br>und Lochform<br>Thread depth<br>and hole type |                   |     |
| max. 2 x d <sub>1</sub>  | max. 2 x d <sub>1</sub> | max. 3 x d <sub>1</sub> |                        | max. 2 x d <sub>1</sub> |                        | max. 2 x d <sub>1</sub>    | max. 3 x d <sub>1</sub>   | max. 2 x d <sub>1</sub>    | max. 2 x d <sub>1</sub>                          |                       |   |                 |  |                   |     |
| 102                      | 103,151                 | 103,129                 | 103,129                | 103,129                 | 103,129                | 103                        | 104,129                   | 104,129                    | 104,119,130,145<br>163,178<br>205,209<br>217,221 | 105,130<br>178        |   |                 | M  |                   |     |
|                          | 264                     |                         |                        |                         |                        |                            |                           |                            |  |                       |   |                 | MF   |                   |     |
|                          |                         |                         |                        |                         |                        |                            |                           |                            |  |                       |   |                 | UNC<br>UN-8  |                   |     |
|                          |                         |                         |                        |                         |                        |                            |                           |                            |  |                       |   |                 | UNF<br>UNEF  |                   |     |
|                          |                         |                         |                        |                         |                        |                            |                           |                            |  |                       |   |                 | G, Rp<br>NPSM, NPSF  |                   |     |
|                          |                         |                         |                        |                         |                        |                            |                           |                            |  |                       |   |                 | NPT, NPTF<br>Rc, W   |                   |     |
|                          |                         |                         |                        |                         |                        |                            |                           |                            |  |                       |   |                 | BSW, BSF<br>Pg<br>MJ   |                   |     |
|                          |                         |                         |                        |                         |                        |                            |                           |                            |  |                       |   |                 | UNJC, UNJF<br>EG (STI)<br>LK-M<br>Tr, Tr-F, Rd   |                   |     |
| min. empf. rec.          | min. empf. rec.         | min. empf. rec.         | min. empf. rec.        | min. empf. rec.         | min. empf. rec.        | min. empf. rec.            | min. empf. rec.           | min. empf. rec.            | min. empf. rec.                                  | min. empf. rec.       | min. empf. rec.   | min. empf. rec. | V <sub>c</sub> [m/min]   |                   |     |
|                          |                         |                         |                        |                         |                        |                            |                           |                            |  |                       |   |                 | 1.1  | P                 |     |
|                          |                         |                         |                        |                         |                        |                            |                           |                            |  |                       |   |                 | 2.1  |                   |     |
|                          |                         |                         |                        |                         |                        |                            |                           |                            |  |                       |   |                 | 3.1  |                   |     |
|                          |                         | 2                       | 5                      | 10                      | 5                      | 10                         | 15                        | 2                          | 5  | 10                    | 5   | 10              | 15   |                   | 4.1 |
|                          |                         | 1                       | 3                      | 5                       | 2                      | 5                          | 10                        | 1                          | 3  | 5                     | 2   | 5               | 10   |                   | 5.1 |
|                          |                         |                         |                        |                         |                        |                            |                           |                            |  |                       |   |                 | 1.1  | M                 |     |
|                          |                         | 1                       | 4                      | 8                       | 2                      | 5                          | 8                         | 1                          | 4  | 8                     | 2   | 5               | 8  |                   | 2.1 |
|                          |                         | 1                       | 3                      | 5                       | 2                      | 5                          | 8                         | 1                          | 3  | 5                     | 2   | 5               | 8  |                   | 3.1 |
|                          |                         |                         |                        |                         |                        |                            |                           |                            |  |                       |   |                 | 4.1  |                   |     |
|                          |                         |                         |                        |                         |                        |                            |                           |                            |  |                       |   |                 | 10   | K                 |     |
|                          |                         |                         |                        |                         |                        |                            |                           |                            |  |                       |   |                 | 15   |                   | 25  |
|                          |                         |                         |                        |                         |                        |                            |                           |                            |  |                       |   |                 | 15   |                   | 30  |
|                          |                         |                         |                        |                         |                        |                            |                           |                            |  |                       |   |                 | 15   |                   | 45  |
|                          |                         |                         |                        |                         |                        |                            |                           |                            |  |                       |   |                 | 10   |                   | 20  |
|                          |                         |                         |                        |                         |                        |                            |                           |                            |  |                       |   |                 | 10   |                   | 40  |
|                          |                         |                         |                        |                         |                        |                            |                           |                            |  |                       |   |                 | 5  |                   | 30  |
|                          |                         |                         |                        |                         |                        |                            |                           |                            |  |                       |   |                 | 5  |                   | 45  |
|                          |                         |                         |                        |                         |                        |                            |                           |                            |  |                       |   |                 | 5  | 30                |     |
|                          |                         |                         |                        |                         |                        |                            |                           |                            |  |                       |   |                 | 10   | 20                |     |
|                          |                         |                         |                        |                         |                        |                            |                           |                            |  |                       |   |                 | 10   | 30                |     |
|                          |                         |                         |                        |                         |                        |                            |                           |                            |  |                       |   |                 | 10   | 45                |     |
|                          |                         |                         |                        |                         |                        |                            |                           |                            |  |                       |   |                 | 10   | 30                |     |
|                          |                         |                         |                        |                         |                        |                            |                           |                            |  |                       |   |                 | 1.1  | N                 |     |
|                          |                         |                         |                        |                         |                        |                            |                           |                            |  |                       |   |                 | 1.2  |                   |     |
|                          |                         |                         |                        |                         |                        |                            |                           |                            |  |                       |   |                 | 1.3  |                   |     |
|                          |                         |                         |                        |                         |                        |                            |                           |                            |  |                       |   |                 | 1.4  |                   |     |
|                          |                         |                         |                        |                         |                        |                            |                           |                            |  |                       |   |                 | 30   |                   |     |
|                          |                         |                         |                        |                         |                        |                            |                           |                            |  |                       |   |                 | 50   |                   |     |
|                          |                         |                         |                        |                         |                        |                            |                           |                            |  |                       |   |                 | 80   |                   |     |
|                          |                         |                         |                        |                         |                        |                            |                           |                            |  |                       |   |                 | 10   |                   |     |
|                          |                         |                         |                        |                         |                        |                            |                           |                            |  |                       |   |                 | 20   |                   |     |
|                          |                         |                         |                        |                         |                        |                            |                           |                            |  |                       |   |                 | 30   |                   |     |
|                          |                         |                         |                        |                         |                        |                            |                           |                            |  |                       |   |                 | 2.1  |                   |     |
|                          |                         |                         |                        |                         |                        |                            |                           |                            |  |                       |   |                 | 2.2  |                   |     |
|                          |                         |                         |                        |                         |                        |                            |                           |                            |  |                       |   |                 | 2.3  |                   |     |
|                          |                         |                         |                        |                         |                        |                            |                           |                            |  |                       |   |                 | 2.4  |                   |     |
|                          |                         |                         |                        |                         |                        |                            |                           |                            |  |                       |   |                 | 2.5  |                   |     |
|                          |                         |                         |                        |                         |                        |                            |                           |                            |  |                       |   |                 | 10   |                   |     |
|                          |                         |                         |                        |                         |                        |                            |                           |                            |  |                       |   |                 | 20   |                   |     |
|                          |                         |                         |                        |                         |                        |                            |                           |                            |  |                       |   |                 | 30   |                   |     |
|                          |                         |                         |                        |                         |                        |                            |                           |                            |  |                       |   |                 | 2.6  |                   |     |
|                          |                         |                         |                        |                         |                        |                            |                           |                            |  |                       |   |                 | 2.7  |                   |     |
|                          |                         |                         |                        |                         |                        |                            |                           |                            |  |                       |   |                 | 2.8  |                   |     |
|                          |                         |                         |                        |                         |                        |                            |                           |                            |  |                       |   |                 | 3.1  |                   |     |
|                          |                         |                         |                        |                         |                        |                            |                           |                            |  |                       |   |                 | 3.2  |                   |     |
|                          |                         |                         |                        |                         |                        |                            |                           |                            |  |                       |   |                 | 4.1  |                   |     |
|                          |                         |                         |                        |                         |                        |                            |                           |                            |  |                       |   |                 | 5  |                   |     |
|                          |                         |                         |                        |                         |                        |                            |                           |                            |  |                       |   |                 | 10   |                   |     |
|                          |                         |                         |                        |                         |                        |                            |                           |                            |  |                       |   |                 | 20   |                   |     |
|                          |                         |                         |                        |                         |                        |                            |                           |                            |  |                       |   |                 | 40   |                   |     |
|                          |                         |                         |                        |                         |                        |                            |                           |                            |  |                       |   |                 | 4.2  |                   |     |
|                          |                         |                         |                        |                         |                        |                            |                           |                            |  |                       |   |                 | 4.3  |                   |     |
|                          |                         |                         |                        |                         |                        |                            |                           |                            |  |                       |   |                 | 4.4  |                   |     |
|                          |                         |                         |                        |                         |                        |                            |                           |                            |  |                       |   |                 | 10   |                   |     |
|                          |                         |                         |                        |                         |                        |                            |                           |                            |  |                       |   |                 | 25   |                   |     |
|                          |                         |                         |                        |                         |                        |                            |                           |                            |  |                       |   |                 | 40   |                   |     |
|                          |                         |                         |                        |                         |                        |                            |                           |                            |  |                       |   |                 | 5.1  |                   |     |
|                          |                         |                         |                        |                         |                        |                            |                           |                            |  |                       |   |                 | 5.2  |                   |     |
|                          |                         |                         |                        |                         |                        |                            |                           |                            |  |                       |   |                 | 5.3  |                   |     |
|                          |                         |                         |                        |                         |                        |                            |                           |                            |  |                       |   |                 | 1.1  | S                 |     |
|                          |                         |                         |                        |                         |                        |                            |                           |                            |  |                       |   |                 | 1.2  |                   |     |
|                          |                         |                         |                        |                         |                        |                            |                           |                            |  |                       |   |                 | 1.3  |                   |     |
|                          |                         |                         |                        |                         |                        |                            |                           |                            |  |                       |   |                 | 1.3  |                   |     |
|                          |                         |                         |                        |                         |                        |                            |                           |                            |  |                       |   |                 | 2.1  |                   |     |
|                          |                         |                         |                        |                         |                        |                            |                           |                            |  |                       |   |                 | 2.2  |                   |     |
|                          |                         |                         |                        |                         |                        |                            |                           |                            |  |                       |   |                 | 2.3  |                   |     |
|                          |                         |                         |                        |                         |                        |                            |                           |                            |  |                       |   |                 | 2.4  |                   |     |
|                          |                         |                         |                        |                         |                        |                            |                           |                            |  |                       |   |                 | 2.5  |                   |     |
|                          |                         |                         |                        |                         |                        |                            |                           |                            |  |                       |   |                 | 2.6  |                   |     |
|                          |                         |                         |                        |                         |                        |                            |                           |                            |  |                       |   |                 | 1.1  | H                 |     |
|                          |                         |                         |                        |                         |                        |                            |                           |                            |  |                       |   |                 | 1.2  |                   |     |
|                          |                         |                         |                        |                         |                        |                            |                           |                            |  |                       |   |                 | 1.3  |                   |     |
|                          |                         |                         |                        |                         |                        |                            |                           |                            |  |                       |   |                 | 1.4  |                   |     |
|                          |                         |                         |                        |                         |                        |                            |                           |                            |  |                       |   |                 | 1.4  |                   |     |
|                          |                         |                         |                        |                         |                        |                            |                           |                            |  |                       |   |                 | 1.5  |                   |     |

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








V<sub>c</sub> in m/min

1) Gewindebohren in Durchgangslöcher nur mit externer Kühlschmierung möglich  
Threading in through holes is possible only with external cooling/lubrication

| Product Finder                          | EMUGE<br>H  |  |  |   |   | EMUGE<br>HCUT                                   |  |  |                               |                             | EMUGE<br>Z                  |  |
|---|---|--|--|---|---|---|--|--|-------------------------------|-----------------------------|-----------------------------|--|
|   | Rekord A-H-IKZ NT   | Rekord A-H-IKZ TiCN                              | Rekord A-H-IKZN TiCN                             | HM-Rekord A-H-IKZ                               | HM-Rekord A-H/E-IKZ                             | Rekord A-HCUT PM-TiCN                           | HM-Rekord A-HCUT/D TiCN                          | HM-Rekord A-HCUT/D-IKZ TiCN                      | HM-Rekord A-HCUT/C TiCN       | HM-Rekord A-HCUT/C-IKZ TiCN | Rekord A-Z TiCN             |  |
| V <sub>c</sub>                          |   |  |  |   |   |   |  |  |                               |                             |                             |  |
| M                                       |   |  |  |   |   |   |  |  |                               |                             |                             |  |
| MF                                      | C / 2-3   | C / 2-3  | C / 2-3  | C / 2-3   | E / 1,5-2                                       | C / 2-3   | D / 4-5  | D / 4-5  | C / 2-3                       | C / 2-3                     | C / 2-3                     |  |
| UNC UN-8                                | max. 2 x d <sub>1</sub><br>   |  | max. 2 x d <sub>1</sub><br>                      |   | max. 2 x d <sub>1</sub><br>                     |   | max. 1,5 x d <sub>1</sub><br>                    |  | max. 1,5 x d <sub>1</sub><br> |                             | max. 2 x d <sub>1</sub><br> |  |
| UNF UNEF                                | 105,130<br>179  | 105,130<br>179                                   | 105,131<br>179                                   | 105,131<br>163,179                              |   | 105,131<br>164,179                              | 106<br>165                                       | 132  | 106<br>165                    | 132                         | 107,133<br>180              |  |
| G, Rp NPSM, NPSF                        |   |  |  |   | 235   | 230,235   | 231  |  | 231                           |                             |                             |  |
| NPT, NPTF Rc, W                         |   |  |  |   |   |   |  |  |                               |                             |                             |  |
| BSW, BSF Pg MJ UNJC, UNJF EG (STI) LK-M |   |  |  |   |   |   |  |  |                               |                             |                             |  |
| Tr, Tr-F Rd                             |   |  |  |   |   |   |  |  |                               |                             |                             |  |
| Zubehör Accessories                     |   |  |  |   |   |   |  |  |                               |                             |                             |  |
| MJ UNJC, UNJF                           |   |  |  |   |   |   |  |  |                               |                             |                             |  |
| EG (STI)                                |   |  |  |   |   |   |  |  |                               |                             |                             |  |
| SELF-LOCK                               |   |  |  |   |   |   |  |  |                               |                             |                             |  |
| Tr, Tr-F Rd                             |   |  |  |   |   |   |  |  |                               |                             |                             |  |
| Zubehör Accessories                     |   |  |  |   |   |   |  |  |                               |                             |                             |  |
| v <sub>c</sub> [m/min]                  | min. empf. rec. max.  | min. empf. rec. max.                             | min. empf. rec. max.                             | min. empf. rec. max.                            | min. empf. rec. max.                            | min. empf. rec. max.                            | min. empf. rec. max.                             | min. empf. rec. max.                             | min. empf. rec. max.          | min. empf. rec. max.        | min. empf. rec. max.        |  |
| P                                       |   |  |  |   |   |   |  |  |                               |                             |                             |  |
| M                                       |   |  |  |   |   |   |  |  |                               |                             |                             |  |
| K                                       | 1.1 10 15 25 15 30 45 15 30 45 40 60 80 40 60 80  | 1.2 10 15 25 15 30 45 15 30 45 30 45 60 30 45 60 | 2.1 10 15 25 15 30 45 15 30 45 30 45 60 30 45 60 | 2.2 5 10 15 10 20 40 10 20 40 10 20 40 10 20 40 | 3.1 5 10 15 15 30 45 15 30 45 20 30 40 20 30 40 | 3.2 5 10 15 15 30 45 15 30 45 20 30 40 20 30 40 | 4.1 10 15 25 10 20 30 10 20 30 40 60 80 40 60 80 | 4.2 10 15 25 10 20 30 10 20 30 30 45 60 30 45 60 |                               |                             |                             | 15 30 45 15 30 45 15 30 45 10 20 40 15 30 45 15 30 45 10 20 30 |
| N                                       | 1.1 1.2 1.3 1.4 1.5 1.6 2.1 2.2 2.3 2.4 2.5 2.6 2.7 2.8 3.1 3.2 4.1 4.2 4.3 4.4 5.1 5.2 5.3 | 30 50 80 10 20 30                                | 30 50 80 10 20 30                                | 20 40 60 20 30 40                               | 20 40 60 20 30 40                               |   |  |  |                               |                             |                             | 30 50 80 10 20 30  |
| S                                       | 1.1 1.2 1.3 2.1 2.2 2.3 2.4 2.5 2.6   |  |  |   |   |   |  |  |                               |                             |                             |  |
| H                                       | 1.1 1.2 1.3 1.4 1.5   |  |  |   |   | 1 3 5 1 2 3                                     | 1 2 3 1 1,5 2                                    | 1 2 3 1 1,5 2                                    | 1 2 3 1 1,5 2                 | 1 2 3 1 1,5 2               |                             |  |

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v<sub>c</sub> in m/min

| Rekord A-Z-<br>IKZ<br>TICN   | Rekord A-Z-<br>IKZN<br>TICN  | Rekord A-Z/<br>E<br>TICN   | Rekord A-Z/<br>E-<br>IKZ<br>TICN   | Rekord A-Z/<br>E-<br>IKZN<br>TICN  | Rekord A-Z-<br>IKZ-LF3<br>TICN   | Rekord A-Z-<br>IKZ-LF4<br>TICN   | Rekord B-Z<br>PM-TIN-70  | Rekord B-Z<br>PM-GLT-1 | Rekord B-Z-<br>IKZN<br>PM-TIN-70 | Rekord B-Z-<br>IKZN<br>PM-GLT-1   |     |     |     |
|--|--|--|--|--|--|--|--|------------------------|----------------------------------|---|-----|-----|-----|
| C / 2-3  | C / 2-3  | E / 1,5-2  | E / 1,5-2  | E / 1,5-2  | C / 2-3  | C / 2-3  | B / 4-5  | B / 4-5                | B / 4-5                          | B / 4-5   |     |     |     |
| max. 2 x d <sub>1</sub><br> | max. 2 x d <sub>1</sub><br> | max. 2 x d <sub>1</sub><br> | max. 2 x d <sub>1</sub><br> | max. 2 x d <sub>1</sub><br> | max. 3 x d <sub>1</sub><br> | max. 4 x d <sub>1</sub><br> | max. 3 x d <sub>1</sub><br> |                        |                                  |  |     |     |     |
| 107,133<br>180   | 107,133<br>180   | 107,133<br>180   | 108,134<br>181   | 108,134<br>181   | 146<br>188   | 147<br>189   | 108,134<br>166,181   | 108,134<br>166,181     | 109,135<br>181                   | 109,135<br>181  |     |     |     |
| min. empf. rec. max.   | min. empf. rec. max.   | min. empf. rec. max.   | min. empf. rec. max.   | min. empf. rec. max.   | min. empf. rec. max.   | min. empf. rec. max.   | min. empf. rec. max.   | min. empf. rec. max.   | min. empf. rec. max.             | min. empf. rec. max.  |     |     |     |
|  |  |  |  |  |  |  |  | 15                     | 25                               | 45  | 1.1 |     |     |
|  |  |  |  |  |  |  | 10   | 20                     | 40                               | 40  | 2.1 |     |     |
|  |  |  |  |  | 5  | 15   | 25   | 5                      | 15                               | 25  | 3.1 |     |     |
|  |  |  |  |  | 5  | 10   | 15   | 5                      | 10                               | 15  | 4.1 |     |     |
|  |  |  |  |  |  |  | 2  | 8                      | 10                               | 10  | 5.1 |     |     |
|  |  |  |  |  |  |  |  | 5                      | 8                                | 12  | 1.1 |     |     |
|  |  |  |  |  |  |  |  | 5                      | 8                                | 12  | 2.1 |     |     |
|  |  |  |  |  |  |  |  | 2                      | 5                                | 8   | 3.1 |     |     |
|  |  |  |  |  |  |  |  | 2                      | 5                                | 8   | 4.1 |     |     |
| 15   | 30   | 45   | 15   | 30   | 45   | 15   | 30   | 45                     | 15                               | 30  | 45  | 1.1 |     |
| 15   | 30   | 45   | 15   | 30   | 45   | 15   | 30   | 45                     | 15                               | 30  | 45  | 1.2 |     |
| 15   | 30   | 45   | 15   | 30   | 45   | 15   | 30   | 45                     | 15                               | 30  | 45  | 2.1 |     |
| 10   | 20   | 40   | 10   | 20   | 40   | 10   | 20   | 40                     | 10                               | 20  | 40  | 2.2 |     |
| 15   | 30   | 45   | 15   | 30   | 45   | 15   | 30   | 45                     | 15                               | 30  | 45  | 3.1 |     |
| 15   | 30   | 45   | 15   | 30   | 45   | 15   | 30   | 45                     | 15                               | 30  | 45  | 3.2 |     |
| 10   | 20   | 30   | 10   | 20   | 30   | 10   | 20   | 30                     | 10                               | 20  | 30  | 4.1 |     |
| 10   | 20   | 30   | 10   | 20   | 30   | 10   | 20   | 30                     | 10                               | 20  | 30  | 4.2 |     |
|  |  |  |  |  |  |  |  |                        |                                  |   |     | 1.1 |     |
|  |  |  |  |  |  |  |  |                        |                                  |   |     | 1.2 |     |
|  |  |  |  |  |  |  |  |                        |                                  |   |     | 1.3 |     |
|  |  |  |  |  |  |  |  | 15                     | 30                               | 40  | 15  | 30  | 1.4 |
| 30   | 50   | 80   | 30   | 50   | 80   | 30   | 50   | 80                     | 30                               | 50  | 80  | 1.5 |     |
| 10   | 20   | 30   | 10   | 20   | 30   | 10   | 20   | 30                     | 10                               | 20  | 30  | 1.6 |     |
|  |  |  |  |  |  |  |  |                        |                                  |   |     | 2.1 |     |
|  |  |  |  |  |  |  |  |                        |                                  |   |     | 2.2 |     |
|  |  |  |  |  |  |  |  |                        |                                  |   |     | 2.3 |     |
|  |  |  |  |  |  |  |  | 5                      | 15                               | 25  | 5   | 15  | 2.4 |
|  |  |  |  |  |  |  |  | 5                      | 15                               | 25  | 5   | 15  | 2.5 |
| 10   | 20   | 30   | 10   | 20   | 30   | 10   | 20   | 30                     | 10                               | 20  | 30  | 2.6 |     |
|  |  |  |  |  |  |  |  |                        |                                  |   |     | 2.7 |     |
|  |  |  |  |  |  |  |  |                        |                                  |   |     | 2.8 |     |
|  |  |  |  |  |  |  |  |                        |                                  |   |     | 3.1 |     |
|  |  |  |  |  |  |  |  |                        |                                  |   |     | 3.2 |     |
| 10   | 20   | 40   | 10   | 20   | 40   | 10   | 20   | 40                     | 10                               | 20  | 40  | 4.1 |     |
|  |  |  |  |  |  |  |  |                        |                                  |   |     | 4.2 |     |
|  |  |  |  |  |  |  |  |                        |                                  |   |     | 4.3 |     |
|  |  |  |  |  |  |  |  |                        |                                  |   |     | 4.4 |     |
|  |  |  |  |  |  |  |  |                        |                                  |   |     | 5.1 |     |
|  |  |  |  |  |  |  |  |                        |                                  |   |     | 5.2 |     |
|  |  |  |  |  |  |  |  |                        |                                  |   |     | 5.3 |     |
|  |  |  |  |  |  |  |  | 1                      | 5                                | 7   | 1   | 5   | 1.1 |
|  |  |  |  |  |  |  |  |                        |                                  |   |     |     | 1.2 |
|  |  |  |  |  |  |  |  |                        |                                  |   |     |     | 1.3 |
|  |  |  |  |  |  |  |  |                        |                                  |   |     |     | 2.1 |
|  |  |  |  |  |  |  |  | 1                      | 3                                | 5   | 1   | 3   | 2.2 |
|  |  |  |  |  |  |  |  | 1                      | 3                                | 5   | 1   | 3   | 2.3 |
|  |  |  |  |  |  |  |  |                        |                                  |   |     |     | 2.4 |
|  |  |  |  |  |  |  |  |                        |                                  |   |     |     | 2.5 |
|  |  |  |  |  |  |  |  |                        |                                  |   |     |     | 2.6 |
|  |  |  |  |  |  |  |  |                        |                                  |   |     |     | 1.1 |
|  |  |  |  |  |  |  |  |                        |                                  |   |     |     | 1.2 |
|  |  |  |  |  |  |  |  |                        |                                  |   |     |     | 1.3 |
|  |  |  |  |  |  |  |  |                        |                                  |   |     |     | 1.4 |
|  |  |  |  |  |  |  |  |                        |                                  |   |     |     | 1.5 |

Product Finder

V<sub>c</sub>

M

MF

UNC UN-8

UNF UNF

G, Rp NPSM, NPSF

NPT, NPTF Rc, W

BSW, BSF Pg MJ

Pg

MJ UNJC, UNJF

EG (STI)

SELF-LOCK

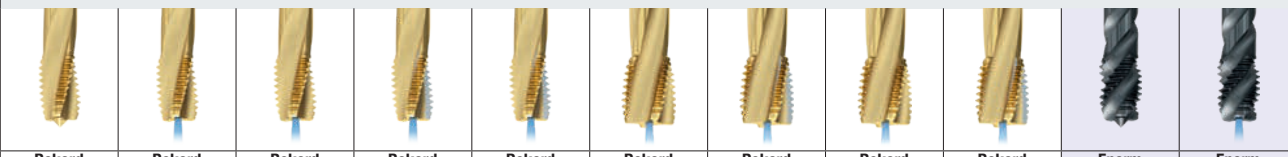
Tr, Tr-F Rd

Zubehör Accessories



1) Gewindebohren in Durchgangslöcher nur mit externer Kühlschmierung möglich  
Threading in through holes is possible only with external cooling/lubrication

- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories



|  |                |                    |                      |                       |                         |                        |                           |                        |                           |                  |                      |
|--|----------------|--------------------|----------------------|-----------------------|-------------------------|------------------------|---------------------------|------------------------|---------------------------|------------------|----------------------|
|  | Rekord D-Z TIN | Rekord D-Z-IKZ TIN | Rekord D-Z-E-IKZ TIN | Rekord D-Z-BF-IKZ TIN | Rekord D-Z-E-BF-IKZ TIN | Rekord D-Z-IKZ-LF3 TIN | Rekord D-Z-BF-IKZ-LF3 TIN | Rekord D-Z-IKZ-LF4 TIN | Rekord D-Z-BF-IKZ-LF4 TIN | Enorm Z-PM GLT-1 | Enorm Z-IKZ-PM GLT-1 |
|--|----------------|--------------------|----------------------|-----------------------|-------------------------|------------------------|---------------------------|------------------------|---------------------------|------------------|----------------------|

|  |         |         |           |         |           |         |         |         |         |         |         |
|--|---------|---------|-----------|---------|-----------|---------|---------|---------|---------|---------|---------|
|  | C / 2-3 | C / 2-3 | E / 1,5-2 | C / 2-3 | E / 1,5-2 | C / 2-3 | C / 2-3 | C / 2-3 | C / 2-3 | C / 2-3 | C / 2-3 |
|--|---------|---------|-----------|---------|-----------|---------|---------|---------|---------|---------|---------|

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|--|-------------------------|--|--|--|-------------------------|--|--|--|-------------------------|--|--|--|-------------------------|--|--|--|
|  | max. 2 x d <sub>1</sub> |  |  |  | max. 3 x d <sub>1</sub> |  |  |  | max. 4 x d <sub>1</sub> |  |  |  | max. 3 x d <sub>1</sub> |  |  |  |
|--|-------------------------|--|--|--|-------------------------|--|--|--|-------------------------|--|--|--|-------------------------|--|--|--|

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|--|---------|---------|---------|-----------------|---------|-----|-----|-----|-----|---------|---------|
|  | 109,135 | 109,135 | 110,136 | 110,119,136,145 | 110,136 | 146 | 146 | 147 | 147 | 111,137 | 111,137 |
|--|---------|---------|---------|-----------------|---------|-----|-----|-----|-----|---------|---------|

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|  | 181 | 181 | 182 | 182 | 182 | 188 | 188 | 189 | 189 | 183 | 183 |
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Seite · Page

v<sub>c</sub> in m/min



|                           |                               |                |                    |                      |                    |                          |                  |                      |                        |                      |
|---------------------------|-------------------------------|----------------|--------------------|----------------------|--------------------|--------------------------|------------------|----------------------|------------------------|----------------------|
| <b>Enorm Z/E PM-GLT-1</b> | <b>Enorm Z/E-IKZ PM-GLT-1</b> | <b>Enorm Z</b> | <b>Enorm Z TIN</b> | <b>Enorm Z GLT-1</b> | <b>Enorm Z-IKZ</b> | <b>Enorm Z-IKZ GLT-1</b> | <b>Enorm Z/E</b> | <b>Enorm Z/E TIN</b> | <b>Enorm Z/E GLT-1</b> | <b>Enorm Z/E-IKZ</b> |
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|-----------|-----------|---------|---------|---------|---------|---------|-----------|-----------|-----------|-----------|
| E / 1,5-2 | E / 1,5-2 | C / 2-3 | C / 2-3 | C / 2-3 | C / 2-3 | C / 2-3 | E / 1,5-2 | E / 1,5-2 | E / 1,5-2 | E / 1,5-2 |
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max. 3 x d<sub>1</sub>



Gewindeteufe und Lochform  
Thread depth and hole type

|                |         |  |         |  |     |         |  |                                      |  |            |
|----------------|---------|--|---------|--|-----|---------|--|--------------------------------------|--|------------|
| 111,137<br>183 | 111,137 | 112,119,138,145<br>166,183<br>206,210<br>218,222<br>212,229<br>236 | 112,138 | 112,119,138,145<br>166,185<br>206,210<br>218,222<br>229<br>236 | 138 | 112,139 | 113,139,151<br>167,185<br>206,210<br>218,222 | 113,139<br>185<br>207,211<br>219,222 | 113,139<br>167,185<br>207,211<br>219,223 | 113<br>186 |
| 235            | 236     | 266,268  | 266,268 | 277,279<br>281,283   |     |         | 236,244<br>246,247                           | 237                                  | 237,244<br>246,247                       |            |
|                |         |  |         |  |     |         | 281-289<br>291,293                           |                                      | 281-289<br>291,293                       |            |

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| min. empf. rec. max. | min. empf. rec. max. | min. empf. rec. max. | min. empf. rec. max. | min. empf. rec. max. | min. empf. rec. max. | min. empf. rec. max. | min. empf. rec. max. | min. empf. rec. max. | min. empf. rec. max. | min. empf. rec. max. | min. empf. rec. max. |
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|-----------------|-----------------|----------------|-----------------|-----------------|----------------|-----------------|----------------|-----------------|-----------------|-----------------|----------------|------------|
| 15 <b>25</b> 45 | 15 <b>25</b> 45 | 5 <b>15</b> 25 | 15 <b>25</b> 45 | 15 <b>25</b> 45 | 5 <b>15</b> 25 | 15 <b>25</b> 45 | 5 <b>15</b> 25 | 15 <b>25</b> 45 | 15 <b>25</b> 45 | 15 <b>25</b> 45 | 5 <b>15</b> 25 | <b>1.1</b> |
| 10 <b>20</b> 40 | 10 <b>20</b> 40 | 5 <b>10</b> 20 | 10 <b>20</b> 40 | 10 <b>20</b> 40 | 5 <b>10</b> 20 | 10 <b>20</b> 40 | 5 <b>10</b> 20 | 10 <b>20</b> 40 | 10 <b>20</b> 40 | 10 <b>20</b> 40 | 5 <b>10</b> 20 | <b>2.1</b> |
| 5 <b>15</b> 25  | 5 <b>15</b> 25  | 2 <b>8</b> 15  | 5 <b>15</b> 25  | 5 <b>15</b> 25  | 2 <b>8</b> 15  | 5 <b>15</b> 25  | 2 <b>8</b> 15  | 5 <b>15</b> 25  | 5 <b>15</b> 25  | 5 <b>15</b> 25  | 2 <b>8</b> 15  | <b>3.1</b> |
| 5 <b>10</b> 15  | 5 <b>10</b> 15  |                | 5 <b>10</b> 15  | 5 <b>10</b> 15  |                | 5 <b>10</b> 15  |                | 5 <b>10</b> 15  | 5 <b>10</b> 15  | 5 <b>10</b> 15  |                | <b>4.1</b> |
|                 |                 |                |                 |                 |                |                 |                |                 |                 |                 |                | <b>5.1</b> |

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| 5 <b>8</b> 12 | 5 <b>8</b> 12 |  |  | 5 <b>8</b> 12 |  | 5 <b>8</b> 12 |  |  | 5 <b>8</b> 12 |  |  | <b>1.1</b> |
| 2 <b>5</b> 8  | 2 <b>5</b> 8  |  |  | 2 <b>5</b> 8  |  | 2 <b>5</b> 8  |  |  | 2 <b>5</b> 8  |  |  | <b>2.1</b> |
| 2 <b>5</b> 8  | 2 <b>5</b> 8  |  |  | 2 <b>5</b> 8  |  | 2 <b>5</b> 8  |  |  | 2 <b>5</b> 8  |  |  | <b>3.1</b> |
| 2 <b>5</b> 8  | 2 <b>5</b> 8  |  |  | 2 <b>5</b> 8  |  | 2 <b>5</b> 8  |  |  | 2 <b>5</b> 8  |  |  | <b>4.1</b> |

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| 5 <b>15</b> 25 | 5 <b>15</b> 25 |  |  |  |  |  |  |  |  |  |  | <b>1.1</b> |
| 5 <b>15</b> 25 | 5 <b>15</b> 25 |  |  |  |  |  |  |  |  |  |  | <b>1.2</b> |
| 5 <b>10</b> 20 | 5 <b>10</b> 20 |  |  |  |  |  |  |  |  |  |  | <b>2.1</b> |
| 5 <b>10</b> 20 | 5 <b>10</b> 20 |  |  |  |  |  |  |  |  |  |  | <b>2.2</b> |
| 5 <b>10</b> 20 | 5 <b>10</b> 20 |  |  |  |  |  |  |  |  |  |  | <b>3.1</b> |
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|                 |                 |  |  |                 |  |                 |  |  |                 |  |  | <b>1.3</b> |
| 15 <b>25</b> 40 | 15 <b>25</b> 40 |  |  | 15 <b>25</b> 40 |  | 15 <b>25</b> 40 |  |  | 15 <b>25</b> 40 |  |  | <b>1.4</b> |
|                 |                 |  |  |                 |  |                 |  |  |                 |  |  | <b>1.5</b> |
|                 |                 |  |  |                 |  |                 |  |  |                 |  |  | <b>1.6</b> |

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| 5 <b>15</b> 30  | 5 <b>15</b> 30  |  |  | 5 <b>15</b> 30  |  | 5 <b>15</b> 30  |  |  | 5 <b>15</b> 30  |  |  | <b>2.1</b> |
| 10 <b>25</b> 40 | 10 <b>25</b> 40 |  |  | 10 <b>25</b> 40 |  | 10 <b>25</b> 40 |  |  | 10 <b>25</b> 40 |  |  | <b>2.2</b> |
|                 |                 |  |  |                 |  |                 |  |  |                 |  |  | <b>2.3</b> |
| 5 <b>15</b> 25  | 5 <b>15</b> 25  |  |  | 5 <b>15</b> 25  |  | 5 <b>15</b> 25  |  |  | 5 <b>15</b> 25  |  |  | <b>2.4</b> |
| 5 <b>15</b> 25  | 5 <b>15</b> 25  |  |  | 5 <b>15</b> 25  |  | 5 <b>15</b> 25  |  |  | 5 <b>15</b> 25  |  |  | <b>2.5</b> |
|                 |                 |  |  |                 |  |                 |  |  |                 |  |  | <b>2.6</b> |
|                 |                 |  |  |                 |  |                 |  |  |                 |  |  | <b>2.7</b> |
|                 |                 |  |  |                 |  |                 |  |  |                 |  |  | <b>2.8</b> |

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| 1 <b>3</b> 5 | 1 <b>3</b> 5 |  |  | 1 <b>3</b> 5 |  | 1 <b>3</b> 5 |  |  | 1 <b>3</b> 5 |  |  | <b>1.1</b> |
|              |              |  |  |              |  |              |  |  |              |  |  | <b>1.2</b> |
|              |              |  |  |              |  |              |  |  |              |  |  | <b>1.3</b> |

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|  |  |  |  |  |  |  |  |  |  |  |  | <b>2.5</b> |
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|  |  |  |  |  |  |  |  |  |  |  |  | <b>1.4</b> |
|  |  |  |  |  |  |  |  |  |  |  |  | <b>1.5</b> |

**Product Finder**

V<sub>c</sub>

M

MF

UNC UN-8

UNF UNF

G, Rp NPSM, NPSF

NPT, NPTF Rc, W

BSW, BSF

Pg MJ

UNJC, UNJF

EG (STI) LK-M

Tr, Tr-F, Rd

MJ UNJC, UNJF

EG (STI)






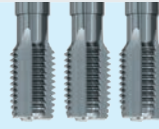




SELF-LOCK

Tr, Tr-F Rd

Zubehör Accessories



v<sub>c</sub> in m/min

| Product Finder      |   | EMUGE<br>Z   |  |  |  | SET  |  |  |           |           |    |           |    |   |          |          |          |          |   |
|---------------------|---|--|--|--|--|--|--|--|-----------|-----------|----|-----------|----|---|----------|----------|----------|----------|---|
| V <sub>c</sub>      |   |                              |  |  |  |                                |  |  |           |           |    |           |    |   |          |          |          |          |   |
| M                   |   | Enorm Z/E-IKZ TIN  | Enorm Z/E-IKZ GLT-1  | Enorm Z50  | Enorm Z50 GLT-1  | HGB-Set  | HM-Set   | WM-Set   |           |           |    |           |    |   |          |          |          |          |   |
| MF                  |  | E / 1,5-2  | E / 1,5-2  | C / 2-3  | C / 2-3  | C / 2-3  | C / ≈3   | C / 2-3  |           |           |    |           |    |   |          |          |          |          |   |
| UNC UN-8            | Gewindtiefe und Lochform<br>Thread depth and hole type                            | max. 3 x d <sub>1</sub><br> |  |  |  | max. 2 x d <sub>1</sub><br> |  |  |           |           |    |           |    |   |          |          |          |          |   |
| UNF UNEF            | M   | 113,139  | 113,139  | 116,142  | 116,142  | 152  | 153  | 154  |           |           |    |           |    |   |          |          |          |          |   |
| G, Rp NPSM, NPSF    | MF  | 186  | 186  |  |  | 196  | 199  | 200  |           |           |    |           |    |   |          |          |          |          |   |
| NPT, NPTF Rc, W     | UNC   |  |  |  |  | 213  |  | 214  |           |           |    |           |    |   |          |          |          |          |   |
| BSW, BSF            | UNF   |  |  |  |  | 225  |  | 226  |           |           |    |           |    |   |          |          |          |          |   |
| Pg                  | G, Rp NPSM, NPSF  |  |  |  |  | 239  |  | 240  |           |           |    |           |    |   |          |          |          |          |   |
| MJ UNJC, UNJF       | NPSM, NPSF  |  |  |  |  |  |  |  |           |           |    |           |    |   |          |          |          |          |   |
| EG (STI)            | NPT, NPTF, Rc   |  |  |  |  |  |  |  |           |           |    |           |    |   |          |          |          |          |   |
| SELF-LOCK           | W   |  |  |  |  | 269,272  |  |  |           |           |    |           |    |   |          |          |          |          |   |
| Tr, Tr-F Rd         | BSW, BSF  |  |  |  |  |  |  |  |           |           |    |           |    |   |          |          |          |          |   |
| Zubehör Accessories | Pg  |  |  |  |  |  |  |  |           |           |    |           |    |   |          |          |          |          |   |
|                     | UNJC, UNJF  |  |  |  |  |  |  |  |           |           |    |           |    |   |          |          |          |          |   |
|                     | EG (STI)  |  |  |  |  |  |  |  |           |           |    |           |    |   |          |          |          |          |   |
|                     | SELF-LOCK   |  |  |  |  |  |  |  |           |           |    |           |    |   |          |          |          |          |   |
|                     | Tr, Tr-F Rd   |  |  |  |  |  |  |  |           |           |    |           |    |   |          |          |          |          |   |
|                     | Zubehör Accessories   |  |  |  |  |  |  |  |           |           |    |           |    |   |          |          |          |          |   |
|                     | v <sub>c</sub> [m/min]  | min. empf. rec.  | max.   | min. empf. rec.  | max.   | min. empf. rec.  | max.   | min. empf. rec.  | max.      |           |    |           |    |   |          |          |          |          |   |
| P                   | 1.1   | 15   | <b>25</b>  | 45   | 15   | <b>25</b>  | 45   | 5  | <b>15</b> | 25        | 15 | <b>25</b> | 45 | 1 | <b>2</b> | 3        | 1        | <b>2</b> | 3 |
|                     | 2.1   | 10   | <b>20</b>  | 40   | 10   | <b>20</b>  | 40   | 5  | <b>10</b> | 20        | 10 | <b>20</b> | 40 | 1 | <b>2</b> | 3        | 1        | <b>2</b> | 3 |
|                     | 3.1   | 5  | <b>15</b>  | 25   | 5  | <b>15</b>  | 25   | 2  | <b>8</b>  | 15        | 5  | <b>15</b> | 25 | 1 | <b>2</b> | 3        | 1        | <b>2</b> | 3 |
|                     | 4.1   | 5  | <b>10</b>  | 15   | 5  | <b>10</b>  | 15   |  |           |           | 5  | <b>10</b> | 15 |   |          |          | 1        | <b>2</b> | 3 |
|                     | 5.1   |  |  |  |  |  |  |  |           |           |    |           |    |   |          |          | 1        | <b>2</b> | 3 |
|                     |   |  |  |  |  |  |  |  |           |           |    |           |    |   |          |          | 1        | <b>2</b> | 3 |
| M                   | 1.1   |  |  | 5  | <b>8</b>   | 12   |  |  | 5         | <b>8</b>  | 12 |           |    |   |          | 1        | <b>2</b> | 3        |   |
|                     | 2.1   |  |  | 2  | <b>5</b>   | 8  |  |  | 2         | <b>5</b>  | 8  |           |    |   |          | 1        | <b>2</b> | 3        |   |
|                     | 3.1   |  |  | 2  | <b>5</b>   | 8  |  |  | 2         | <b>5</b>  | 8  |           |    |   |          | 1        | <b>2</b> | 3        |   |
|                     | 4.1   |  |  | 2  | <b>5</b>   | 8  |  |  | 2         | <b>5</b>  | 8  |           |    |   |          | 1        | <b>2</b> | 3        |   |
|                     |   |  |  |  |  |  |  |  |           |           |    |           |    |   |          |          |          |          |   |
| K                   | 1.1   |  |  |  |  |  |  |  |           |           |    |           |    |   |          | 1        | <b>2</b> | 3        |   |
|                     | 1.2   |  |  |  |  |  |  |  |           |           |    |           |    |   |          | 1        | <b>2</b> | 3        |   |
|                     | 2.1   |  |  |  |  |  |  |  |           |           |    |           |    |   |          | 1        | <b>2</b> | 3        |   |
|                     | 2.2   |  |  |  |  |  |  |  |           |           |    |           |    |   |          | 1        | <b>2</b> | 3        |   |
|                     | 3.1   |  |  |  |  |  |  |  |           |           |    |           |    |   |          | 1        | <b>2</b> | 3        |   |
|                     | 3.2   |  |  |  |  |  |  |  |           |           |    |           |    |   |          | 1        | <b>2</b> | 3        |   |
|                     | 4.1   |  |  |  |  |  |  |  |           |           |    |           |    |   |          | 1        | <b>2</b> | 3        |   |
|                     | 4.2   |  |  |  |  |  |  |  |           |           |    |           |    |   |          | 1        | <b>2</b> | 3        |   |
| N                   | 1.1   |  |  |  |  |  |  |  |           |           |    |           |    |   |          | 1        | <b>2</b> | 3        |   |
|                     | 1.2   |  |  |  |  |  |  |  |           |           |    |           |    |   |          | 1        | <b>2</b> | 3        |   |
|                     | 1.3   |  |  |  |  |  |  |  |           |           |    |           |    |   |          | 1        | <b>2</b> | 3        |   |
|                     | 1.4   |  |  | 15   | <b>25</b>  | 40   |  |  | 15        | <b>25</b> | 40 |           |    |   |          | 1        | <b>2</b> | 3        |   |
|                     | 1.5   |  |  |  |  |  |  |  |           |           |    |           |    |   |          | 1        | <b>2</b> | 3        |   |
|                     | 1.6   |  |  |  |  |  |  |  |           |           |    |           |    |   |          | 1        | <b>2</b> | 3        |   |
|                     | 2.1   |  |  | 5  | <b>15</b>  | 30   |  |  | 5         | <b>15</b> | 30 |           |    |   |          | 1        | <b>2</b> | 3        |   |
|                     | 2.2   | 10   | <b>25</b>  | 40   | 10   | <b>25</b>  | 40   |  | 10        | <b>25</b> | 40 |           |    |   |          | 1        | <b>2</b> | 3        |   |
|                     | 2.3   |  |  |  |  |  |  |  |           |           |    |           |    |   |          | 1        | <b>2</b> | 3        |   |
|                     | 2.4   | 5  | <b>15</b>  | 25   | 5  | <b>15</b>  | 25   |  | 5         | <b>15</b> | 25 |           |    |   |          | 1        | <b>2</b> | 3        |   |
|                     | 2.5   | 5  | <b>15</b>  | 25   | 5  | <b>15</b>  | 25   |  | 5         | <b>15</b> | 25 |           |    |   |          | 1        | <b>2</b> | 3        |   |
|                     | 2.6   |  |  |  |  |  |  |  |           |           |    |           |    |   |          | 1        | <b>2</b> | 3        |   |
|                     | 2.7   |  |  |  |  |  |  |  |           |           |    |           |    |   |          |          |          |          |   |
|                     | 2.8   |  |  |  |  |  |  |  |           |           |    |           |    |   |          | 1        | <b>2</b> | 3        |   |
|                     | 3.1   |  |  |  |  |  |  |  |           |           |    |           |    |   |          |          |          |          |   |
| 3.2                 |   |  |  |  |  |  |  |  |           |           |    |           |    |   |          |          |          |          |   |
| 4.1                 |   |  |  |  |  |  |  |  |           |           |    |           |    |   |          |          |          |          |   |
| 4.2                 |   |  |  |  |  |  |  |  |           |           |    |           |    |   |          |          |          |          |   |
| 4.3                 |   |  |  |  |  |  |  |  |           |           |    |           |    |   |          |          |          |          |   |
| 4.4                 |   |  |  |  |  |  |  |  |           |           |    |           |    |   |          |          |          |          |   |
| 5.1                 |   |  |  |  |  |  |  |  |           |           |    |           |    |   |          |          |          |          |   |
| 5.2                 |   |  |  |  |  |  |  |  |           |           |    |           |    |   | 1        | <b>2</b> | 3        |          |   |
| 5.3                 |   |  |  |  |  |  |  |  |           |           |    |           |    |   |          |          |          |          |   |
| S                   | 1.1   | 1  | <b>3</b>   | 5  | 1  | <b>3</b>   | 5  |  | 1         | <b>3</b>  | 5  |           |    |   |          |          |          |          |   |
|                     | 1.2   |  |  |  |  |  |  |  |           |           |    |           |    |   |          |          |          |          |   |
|                     | 1.3   |  |  |  |  |  |  |  |           |           |    |           |    |   |          |          |          |          |   |
|                     | 2.1   |  |  |  |  |  |  |  |           |           |    |           |    |   |          | 1        | <b>2</b> | 3        |   |
|                     | 2.2   |  |  |  |  |  |  |  |           |           |    |           |    |   |          | 1        | <b>2</b> | 3        |   |
|                     | 2.3   |  |  |  |  |  |  |  |           |           |    |           |    |   |          |          |          |          |   |
|                     | 2.4   |  |  |  |  |  |  |  |           |           |    |           |    |   |          | 1        | <b>2</b> | 3        |   |
| 2.5                 |   |  |  |  |  |  |  |  |           |           |    |           |    |   |          |          |          |          |   |
| 2.6                 |   |  |  |  |  |  |  |  |           |           |    |           |    |   |          |          |          |          |   |
| H                   | 1.1   |  |  |  |  |  |  |  |           |           |    |           |    |   | 1        | <b>2</b> | 3        |          |   |
|                     | 1.2   |  |  |  |  |  |  |  |           |           |    |           |    |   | 1        | <b>2</b> | 3        |          |   |
|                     | 1.3   |  |  |  |  |  |  |  |           |           |    |           |    |   | 1        | <b>2</b> | 3        |          |   |
|                     | 1.4   |  |  |  |  |  |  |  |           |           |    |           |    |   |          |          |          |          |   |
|                     | 1.5   |  |  |  |  |  |  |  |           |           |    |           |    |   |          |          |          |          |   |

Seite · Page

v<sub>c</sub> in m/min



AUT-A

KOMBI

MMB

Product  
Finder

V<sub>c</sub>

M

MF

UNC  
UN-8

UNC  
UNEF

G, Rp  
NPSM, NPSF

NPT, NPTF  
Rc, W

BSW, BSF

Pg

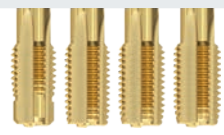
MJ  
UNJC, UNJF

EG (STI)

SELF-LOCK

Tr, Tr-F  
Rd

Zubehör  
Accessories



WM-Set  
TIN

WM-F-TIC-Set  
NT

AUT-A  
MS-R

KOMBI

MMB  
DIN 357

C / 2-3

C / 2-3

max. 1

C / 2-3

max. 1,5 x d<sub>1</sub>

Gewindetiefe  
und Lochform  
Thread depth  
and hole type



156

158

202

160  
203

161

242,245

Seite · Page

min. empf. max.  
rec.

min. empf. max.  
rec.

min. empf. max.  
rec.

min. empf. max.  
rec.

min. empf. max.  
rec.

v<sub>c</sub> [m/min]

1 2 3

1 2 3

5 15 25

1.1

1 2 3

5 10 20

5 10 20

2.1

1 2 3

1 2 3

2 8 15

3.1

1 2 3

1 2 3

4.1

1 2 3

1 2 3

5.1

1 2 3

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1 2 3

1.1

2.1

3.1

4.1

1.1

1.2

2.1

2.2

3.1

3.2

4.1

4.2

1.1

1.2

1.3

1.4

1.5

1.6

2.1

2.2

2.3

2.4

2.5

2.6

2.7

2.8

3.1

3.2

4.1

4.2

4.3

4.4

5.1

5.2

5.3

1.1

1.2

1.3

2.1

2.2

2.3

2.4

2.5

2.6

1.1









1.2

1.3

1.4








1.5

v<sub>c</sub> in m/min

| Product Finder  | KEG   | EMUGE<br>-STEEL-   |  | EMUGE<br>-VA-  |  |  |  | EMUGE<br>-NI-  |
|---|---|--|--|--|--|--|--|--|
|   |   |  |  |  |  |  |  |  |
| V <sub>c</sub>  |   | Rekord KEG STEEL   | Rekord KEG STEEL-AZ  | Rekord KEG VA  | Rekord KEG VA-AZ   | Rekord KEG R35-VA  | Rekord KEG R35-VA-AZ   | Rekord KEG R10-NI PM-TICN  |
| M   |   | C / 2-3  | C / 2-3  | C / 2-3  | C / 2-3  | C / 2-3  | C / 2-3  | C / 2-3  |
| MF  |  | C / 2-3  | C / 2-3  | C / 2-3  | C / 2-3  | C / 2-3  | C / 2-3  | C / 2-3  |
| UNC<br>UN-8   | Gewindetiefe und Lochform<br>Thread depth and hole type                           | —  | —  | —  | —  | —  | —  | —  |
| UNF<br>UNEF   | M<br>MF<br>UNC<br>UNF   |  |  |  |  |  |  |  |
| G, Rp<br>NPSM, NPSF   | UNEF, UN-8<br>G, Rp<br>NPSM, NPSF   |  |  |  |  |  |  |  |
| NPT, NPTF<br>Rc, W  | NPT, NPTF, Rc<br>W  | 249, 251, 253, 255, 257, 262, 263  | 253  | 249, 251, 255, 257, 261  | 249, 251   | 250, 252, 255, 257   | 250, 252   | 250, 256   |
| BSW, BSF  | BW, BSF<br>Pg<br>MJ   |  |  |  |  |  |  |  |
| Pg  | UNJC, UNJF<br>EG (STI)<br>LK-M  |  |  |  |  |  |  |  |
| MJ<br>UNJC, UNJF  | Tr, Tr-F, Rd<br>v <sub>c</sub> [m/min]  | min. empf. rec. max.   | min. empf. rec. max.   | min. empf. rec. max.   | min. empf. rec. max.   | min. empf. rec. max.   | min. empf. rec. max.   | min. empf. rec. max.   |
| EG (STI)<br>SELF-LOCK<br>Tr, Tr-F<br>Rd<br>Zubehör<br>Accessories | P   | 1.1  |  |  |  | 2 5 8  | 2 5 8  |  |
|   |   | 2.1  |  |  | 2 3 6  | 2 3 6  | 2 4 6  | 2 4 6  |
|   |   | 3.1  | 1 3 8  | 1 3 8  | 1 4 8  | 1 4 8  | 1 5 8  | 1 5 8  |
|   |   | 4.1  |  |  | 1 3 5  | 1 3 5  |  |  |
|   |   | 5.1  |  |  |  |  |  |  |
| M   | 1.1   |  |  |  |  | 1 5 8  | 1 5 8  |  |
|   | 2.1   |  |  |  |  | 1 5 8  | 1 5 8  |  |
|   | 3.1   |  |  |  |  | 1 3 5  | 1 3 5  |  |
|   | 4.1   |  |  |  |  |  |  |  |
| K   | 1.1   | 2 4 10   | 2 4 10   |  |  |  |  |  |
|   | 1.2   | 2 4 10   | 2 4 10   |  |  |  |  |  |
|   | 2.1   |  |  | 1 3 5  | 1 3 5  |  |  |  |
|   | 2.2   |  |  | 1 3 5  | 1 3 5  |  |  |  |
|   | 3.1   |  |  | 1 3 5  | 1 3 5  |  |  |  |
|   | 3.2   |  |  | 1 3 5  | 1 3 5  |  |  |  |
|   | 4.1   |  |  | 1 3 5  | 1 3 5  |  |  |  |
|   | 4.2   |  |  | 1 3 5  | 1 3 5  |  |  |  |
| N   | 1.1   |  |  |  |  |  |  |  |
|   | 1.2   |  |  |  |  |  |  |  |
|   | 1.3   |  |  |  |  |  |  |  |
|   | 1.4   |  |  |  |  |  |  |  |
|   | 1.5   |  |  | 1 3 5  | 1 3 5  |  |  |  |
|   | 1.6   |  |  |  |  |  |  |  |
|   | 2.1   |  |  |  |  |  |  |  |
|   | 2.2   |  |  |  |  |  |  |  |
|   | 2.3   | 2 4 10   | 2 4 10   |  |  |  |  |  |
|   | 2.4   |  |  |  |  |  |  |  |
|   | 2.5   |  |  |  |  |  |  |  |
|   | 2.6   |  |  | 1 3 5  | 1 3 5  |  |  |  |
|   | 2.7   |  |  |  |  |  |  |  |
|   | 2.8   |  |  |  |  |  |  | 1 3 5  |
|   | 3.1   |  |  |  |  |  |  |  |
| 3.2   |   |  |  |  |  |  |  |  |
| 4.1   |   |  |  |  |  |  |  |  |
| 4.2   |   |  |  |  |  |  |  |  |
| 4.3   |   |  |  |  |  |  |  |  |
| 4.4   |   |  |  |  |  |  |  |  |
| 5.1   |   |  |  |  |  |  |  |  |
| 5.2   |   |  |  |  |  |  |  |  |
| 5.3   |   |  |  |  |  |  |  |  |
| S   | 1.1   |  |  |  |  |  |  |  |
|   | 1.2   |  |  |  |  |  |  |  |
|   | 1.3   |  |  |  |  |  |  |  |
|   | 2.1   |  |  |  |  |  |  |  |
|   | 2.2   |  |  |  |  |  |  |  |
|   | 2.6   |  |  |  |  |  |  | 1 4 8  |
| H   | 1.1   |  |  |  |  |  |  |  |
|   | 1.2   |  |  |  |  |  |  |  |
|   | 1.3   |  |  |  |  |  |  |  |
|   | 1.4   |  |  |  |  |  |  |  |
|   | 1.5   |  |  |  |  |  |  |  |

Seite Page

v<sub>c</sub> in m/min

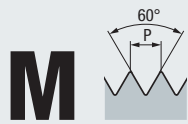
| TRAPEZ | EMUGE<br>-STEEL-   |  | EMUGE<br>-VA-  |  | EMUGE<br>-MS-  | RUND | EMUGE<br>-STEEL-  | Product<br>Finder  |
|--------|--|--|--|--|--|------|---|--|
|        | TRAPEZ-2Stuf<br>STEEL  | TRAPEZ-Rekord<br>C-STEEL   | TRAPEZ<br>AM-VA<br>NT  | TRAPEZ-Rekord<br>C-VA<br>NT  | TRAPEZ<br>AUT-A-MS   |      | RUND-Rekord<br>A-STEEL  |  |
|        | max. 2 x d <sub>1</sub> <sup>1)</sup><br> | max. 2 x d <sub>1</sub> <sup>1)</sup><br> | max. 1,5 x d <sub>1</sub><br> | max. 2 x d <sub>1</sub><br> | E / 1,5-2<br>max. 1 x d <sub>1</sub><br> |      | C / 2-3<br>max. 1 x d <sub>1</sub><br> | Gewindetiefe<br>und Lochform<br>Thread depth<br>and hole type<br>           |
|        | 294<br>min. empf. max.<br>rec.   | 297<br>min. empf. max.<br>rec.   | 295<br>min. empf. max.<br>rec.   | 297<br>min. empf. max.<br>rec.   | 296, 298<br>min. empf. max.<br>rec.  |      | 299<br>min. empf. max.<br>rec.  | M<br>MF<br>UNC<br>UNEF<br>G, Rp<br>NPSM, NPSF<br>NPT, NPTF<br>Rc, W<br>BSW, BSF<br>Pg<br>MJ<br>UNJC, UNJF<br>EG (STI)<br>LK-M<br>Tr, Tr-F, Rd<br>$v_c$ [m/min] |
|        |  | 2 4 8  |  | 2 4 8  |  |      |   | 1.1  |
|        | 2 4 6  | 2 3 6  | 2 4 6  | 2 3 6  |  |      |   | 2.1  |
|        | 1 4 8  |  | 1 4 8  | 2 3 6  |  |      |   | 3.1  |
|        |  |  |  |  |  |      |   | 4.1  |
|        |  |  |  |  |  |      |   | 5.1  |
|        |  |  |  |  |  |      |   | 1.1  |
|        |  |  |  |  |  |      |   | 2.1  |
|        |  |  |  |  |  |      |   | 3.1  |
|        |  |  |  |  |  |      |   | 4.1  |
|        | 2 5 10   |  | 2 5 10   |  |  |      | 10 15 25  | 1.1  |
|        | 2 4 8  |  | 2 4 8  |  |  |      | 10 15 25  | 1.2  |
|        | 2 4 8  |  | 2 4 8  | 2 4 8  |  |      | 10 15 25  | 2.1  |
|        | 2 4 8  |  | 2 4 8  | 2 4 8  |  |      | 5 10 15   | 2.2  |
|        | 2 4 8  |  | 2 4 8  | 2 4 8  |  |      | 5 10 15   | 3.1  |
|        | 2 4 8  |  | 2 4 8  | 2 4 8  |  |      | 5 10 15   | 3.2  |
|        | 2 5 10   |  | 2 5 10   | 2 5 10   |  |      | 10 15 25  | 4.1  |
|        | 2 5 10   |  | 2 5 10   | 2 4 8  |  |      | 10 15 25  | 4.2  |
|        |  |  |  |  |  |      |   | 1.1  |
|        |  |  |  |  |  |      |   | 1.2  |
|        |  |  |  |  |  |      |   | 1.3  |
|        |  |  |  |  |  |      |   | 1.4  |
|        |  |  |  |  |  |      |   | 1.5  |
|        |  |  |  |  |  |      |   | 1.6  |
|        |  |  |  |  |  |      |   | 2.1  |
|        |  |  |  |  |  |      |   | 2.2  |
|        |  |  |  |  | 2 5 10   |      | 10 25 40  | 2.3  |
|        | 1 4 8  |  | 1 4 8  | 2 4 8  |  |      |   | 2.4  |
|        | 1 4 8  |  | 1 4 8  | 2 4 8  |  |      |   | 2.5  |
|        | 1 4 8  |  | 1 4 8  | 2 4 8  |  |      |   | 2.6  |
|        |  |  |  |  |  |      |   | 2.7  |
|        |  |  |  |  |  |      |   | 2.8  |
|        |  |  |  |  |  |      |   | 3.1  |
|        |  |  |  |  |  |      |   | 3.2  |
|        |  |  |  |  |  |      |   | 4.1  |
|        |  |  |  |  |  |      |   | 4.2  |
|        |  |  |  |  |  |      |   | 4.3  |
|        |  |  |  |  |  |      |   | 4.4  |
|        |  |  |  |  |  |      |   | 5.1  |
|        |  |  |  |  |  |      |   | 5.2  |
|        |  |  |  |  |  |      |   | 5.3  |
|        |  |  |  |  |  |      |   | 1.1  |
|        |  |  |  |  |  |      |   | 1.2  |
|        |  |  |  |  |  |      |   | 1.3  |
|        |  |  |  |  |  |      |   | 2.1  |
|        |  |  |  |  |  |      |   | 2.2  |
|        |  |  |  |  |  |      |   | 2.3  |
|        |  |  |  |  |  |      |   | 2.4  |
|        |  |  |  |  |  |      |   | 2.5  |
|        |  |  |  |  |  |      |   | 2.6  |
|        |  |  |  |  |  |      |   | 1.1  |
|        |  |  |  |  |  |      |   | 1.2  |
|        |  |  |  |  |  |      |   | 1.3  |
|        |  |  |  |  |  |      |   | 1.4  |
|        |  |  |  |  |  |      |   | 1.5  |

Seite - Page

$v_c$  in m/min

1) Bei entsprechender Einspannlänge bis ca. 2,5 x d<sub>1</sub>  
With sufficient clamping length up to approx. 2.5 x d<sub>1</sub>

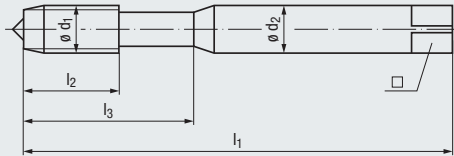
- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories



**M**  
DIN 13

**DIN 371**

**STEEL**  
Steel materials



Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material

Technische Informationen  
Technical information

Tr, Tr-F Rd

|                  |                  |                  |                  |
|------------------|------------------|------------------|------------------|
| 6HX *)           | ISO 2/6H *)      | ISO 2/6H         | ISO 2/6H *)      |
| HSSE             | HSSE             | TIN<br>HSSE      | GLT-1<br>HSSE    |
| C / 2-3<br>E / 0 | B / 4-5<br>E / 0 | B / 4-5<br>E / 0 | B / 4-5<br>E / 0 |

Gewindetiefe und Lochform  
Thread depth and hole type



Einsatzgebiete – Material  
Applications – material

|                                  |                                  |                  |                  |
|----------------------------------|----------------------------------|------------------|------------------|
| <b>K</b> 1.1-4.2<br><b>N</b> 2.3 | <b>P</b> 1.1-3.1<br><b>N</b> 2.2 | <b>P</b> 1.1-4.1 | <b>P</b> 1.1-4.1 |
|----------------------------------|----------------------------------|------------------|------------------|

| $\phi d_1$<br>mm | P<br>mm | $l_1$ | $l_2$ | $l_3$ | $\phi d_2$ | $\square$ |      | Rekord<br>1A-STEEL | Rekord<br>1B-STEEL-L | Rekord<br>1B-STEEL-L<br>TIN | Rekord<br>1B-STEEL-L<br>GLT-1 |
|------------------|---------|-------|-------|-------|------------|-----------|------|--------------------|----------------------|-----------------------------|-------------------------------|
| <b>M</b> 1       | 0,25    | 40    | 5     | –     | 2,5        | 2,1       | 0,75 | B0101001.0010      | B0208900.0010        |                             | B020K500.0010                 |
| 1,1              | 0,25    | 40    | 5     | –     | 2,5        | 2,1       | 0,85 | B0101001.0011      | B0208900.0011        |                             | B020K500.0011                 |
| 1,2              | 0,25    | 40    | 5     | –     | 2,5        | 2,1       | 0,95 | B0101001.0012      | B0208900.0012        |                             | B020K500.0012                 |
| 1,4              | 0,3     | 40    | 6     | –     | 2,5        | 2,1       | 1,1  | B0101001.0014      | B0208900.0014        |                             | B020K500.0014                 |
| 1,6              | 0,35    | 40    | 6     | 11    | 2,5        | 2,1       | 1,25 | B0101001.0016      | B0208900.0016        |                             | <b>B020K500.0016</b>          |
| 1,7              | 0,35    | 40    | 6     | 11    | 2,5        | 2,1       | 1,35 | B0101001.0017      | B0208900.0017        |                             | B020K500.0017                 |
| 1,8              | 0,35    | 40    | 6     | 11    | 2,5        | 2,1       | 1,45 | B0101001.0018      | B0208900.0018        |                             | B020K500.0018                 |
| 2                | 0,4     | 45    | 7     | 12    | 2,8        | 2,1       | 1,6  | B0101001.0020      | B0208900.0020        |                             | <b>B020K500.0020</b>          |
| 2,2              | 0,45    | 45    | 7     | 12    | 2,8        | 2,1       | 1,75 | B0101001.0022      | B0208900.0022        |                             | B020K500.0022                 |
| 2,3              | 0,4     | 45    | 7     | 12    | 2,8        | 2,1       | 1,9  | B0101001.0023      | B0208900.0023        |                             | B020K500.0023                 |
| 2,5              | 0,45    | 50    | 9     | 14    | 2,8        | 2,1       | 2,05 | B0101001.0025      | B0208900.0025        | <b>B0208400.0025</b>        | <b>B020K500.0025</b>          |
| 2,6              | 0,45    | 50    | 9     | 14    | 2,8        | 2,1       | 2,15 | B0101001.0026      | B0208900.0026        | B0208400.0026               | B020K500.0026                 |
| 3                | 0,5     | 56    | 11    | 18    | 3,5        | 2,7       | 2,5  | B0101001.0030      | B0208900.0030        | <b>B0208400.0030</b>        |                               |
| 3,5              | 0,6     | 56    | 12    | 20    | 4          | 3         | 2,9  | B0101001.0035      | B0208900.0035        | <b>B0208400.0035</b>        |                               |
| 4                | 0,7     | 63    | 13    | 21    | 4,5        | 3,4       | 3,3  | B0101001.0040      | B0208900.0040        | <b>B0208400.0040</b>        |                               |
| 4,5              | 0,75    | 70    | 14    | 25    | 6          | 4,9       | 3,7  | B0101001.0045      | B0208900.0045        | B0208400.0045               |                               |
| 5                | 0,8     | 70    | 15    | 25    | 6          | 4,9       | 4,2  | B0101001.0050      | B0208900.0050        | <b>B0208400.0050</b>        |                               |
| 5,5              | 0,9     | 80    | 16    | 30    | 6          | 4,9       | 4,6  | B0101001.0055      | B0208900.0055        | B0208400.0055               |                               |
| 6                | 1       | 80    | 17    | 30    | 6          | 4,9       | 5    | B0101001.0060      | B0208900.0060        | <b>B0208400.0060</b>        |                               |
| 7                | 1       | 80    | 17    | 30    | 7          | 5,5       | 6    | B0101001.0070      | B0208900.0070        | B0208400.0070               |                               |
| 8                | 1,25    | 90    | 20    | 35    | 8          | 6,2       | 6,8  | B0101001.0080      | B0208900.0080        | <b>B0208400.0080</b>        |                               |
| 9                | 1,25    | 90    | 20    | 35    | 9          | 7         | 7,8  | B0101001.0090      | B0208900.0090        | B0208400.0090               |                               |
| 10               | 1,5     | 100   | 22    | 39    | 10         | 8         | 8,5  | B0101001.0100      | B0208900.0100        | <b>B0208400.0100</b>        |                               |
| 12               | 1,75    | 110   | 24    | 44    | 12         | 9         | 10,2 | B0208900.0112      | B0208400.0112        | B0208400.0112               |                               |

DIN 376

120

120

120

DIN 352

150

150

\*) ≤ M1,4 Tol. 4H(X)/5H(X)

**STEEL**  
Steel  
materials

|          |             |          |             |         |             |               |               |
|----------|-------------|----------|-------------|---------|-------------|---------------|---------------|
|          |             |          |             |         |             |               |               |
|          |             |          |             |         |             |               |               |
| ISO 1/4H | ISO 1/4H    | ISO 3/6G | ISO 3/6G    | 7G      | 7G          | ISO 2/6H      | ISO 2/6H      |
| HSSE     | TIN<br>HSSE | HSSE     | TIN<br>HSSE | HSSE    | TIN<br>HSSE | HSSE          | TIN<br>HSSE   |
| B / 4-5  | B / 4-5     | B / 4-5  | B / 4-5     | B / 4-5 | B / 4-5     | LH<br>B / 4-5 | LH<br>B / 4-5 |
| E / O    | E / O       | E / O    | E / O       | E / O   | E / O       | E / O         | E / O         |

max. 3 x d<sub>1</sub>



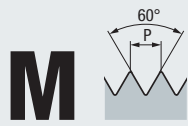
|                    |                          |                                |                                |                    |                          |                      |                             |
|--------------------|--------------------------|--------------------------------|--------------------------------|--------------------|--------------------------|----------------------|-----------------------------|
| P 1.1-3.1<br>N 2.2 | P 1.1-4.1                | P 1.1-3.1<br>N 2.2             | P 1.1-4.1                      | P 1.1-3.1<br>N 2.2 | P 1.1-4.1                | P 1.1-3.1<br>N 2.2   | P 1.1-4.1                   |
| Rekord 1B-STEEL-L  | Rekord 1B-STEEL-L<br>TIN | Rekord 1B-STEEL-L              | Rekord 1B-STEEL-L<br>TIN       | Rekord 1B-STEEL-L  | Rekord 1B-STEEL-L<br>TIN | Rekord 1B-STEEL-L-LH | Rekord 1B-STEEL-L-LH<br>TIN |
| B0208910.0020      |                          | B0208920.0020                  |                                | B0208930.0020      |                          | B0208950.0020        |                             |
| B0208910.0025      |                          | B0208920.0025                  |                                | B0208930.0025      |                          | B0208950.0025        |                             |
| B0208910.0030      | B0208410.0030            | B0208920.0030<br>B0208920.0035 | B0208420.0030<br>B0208420.0035 | B0208930.0030      | B0208430.0030            | B0208950.0030        | B0208450.0030               |
| B0208910.0040      | B0208410.0040            | B0208920.0040                  | B0208420.0040                  | B0208930.0040      | B0208430.0040            | B0208950.0040        | B0208450.0040               |
| B0208910.0050      | B0208410.0050            | B0208920.0050                  | B0208420.0050                  | B0208930.0050      | B0208430.0050            | B0208950.0050        | B0208450.0050               |
| B0208910.0060      | B0208410.0060            | B0208920.0060                  | B0208420.0060                  | B0208930.0060      | B0208430.0060            | B0208950.0060        | B0208450.0060               |
| B0208910.0080      | B0208410.0080            | B0208920.0080                  | B0208420.0080                  | B0208930.0080      | B0208430.0080            | B0208950.0080        | B0208450.0080               |
| B0208910.0100      | B0208410.0100            | B0208920.0100                  | B0208420.0100                  | B0208930.0100      | B0208430.0100            | B0208950.0100        | B0208450.0100               |
| 120                | 121                      | 121                            | 121                            | 121                | 121                      | 121                  | 121                         |

|   |     |
|---|-----|
| M | 1   |
|   | 1,1 |
|   | 1,2 |
|   | 1,4 |
|   | 1,6 |
|   | 1,7 |
|   | 1,8 |
|   | 2   |
|   | 2,2 |
|   | 2,3 |
|   | 2,5 |
|   | 2,6 |
|   | 3   |
|   | 3,5 |
|   | 4   |
|   | 4,5 |
|   | 5   |
|   | 5,5 |
|   | 6   |
|   | 7   |
|   | 8   |
|   | 9   |
|   | 10  |
|   | 12  |

- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC  
UN-8
- UNF  
UNEF
- G, Rp  
NPSM, NPSF
- NPT, NPTF  
Rc, W
- BSW, BSF
- Pg
- MJ  
UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F  
Rd
- Zubehör  
Accessories

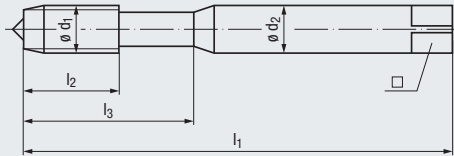


- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories



**M**  
DIN 13

**DIN 371**



Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material

Technische Informationen  
Technical information

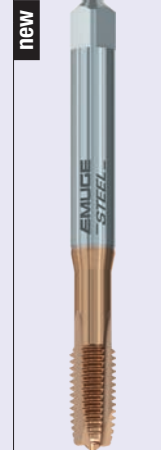
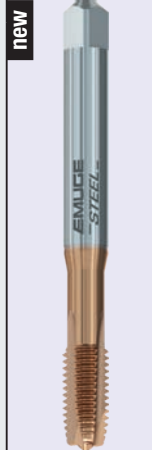


**STEEL**  
Steel materials



NEW

NEW



|                |
|----------------|
| 6HX            |
| ALCR-102       |
| <b>HSSE-PM</b> |
| B / ≈6         |
| E / O          |

|                |
|----------------|
| 6HX            |
| ALCR-101       |
| <b>HSSE-PM</b> |
| B / ≈6         |
| E / O          |

|          |
|----------|
| ISO 2/6H |
| HSSE     |
| R15      |
| C / 2-3  |
| E / O    |

|                  |
|------------------|
| ISO 2/6H         |
| HSSE             |
| R15              |
| <b>E / 1,5-2</b> |
| E / O            |

Gewindetiefe und Lochform  
Thread depth and hole type

max. 3 x d<sub>1</sub>



max. 2 x d<sub>1</sub>



Einsatzgebiete – Material  
Applications – material

» 78

**P 3.1-5.1**

**P 3.1-5.1**

**P 2.1-3.1**

**P 2.1-3.1**

| M | Ø d <sub>1</sub><br>mm | P<br>mm | l <sub>1</sub> | l <sub>2</sub> | l <sub>3</sub> | Ø d <sub>2</sub> | □   |      | Rekord                    | Rekord                    | Rekord               | Rekord               |
|---|------------------------|---------|----------------|----------------|----------------|------------------|-----|------|---------------------------|---------------------------|----------------------|----------------------|
|   |                        |         |                |                |                |                  |     |      | 1B-STEEL-H<br>PM-ALCR-102 | 1B-STEEL-H<br>PM-ALCR-101 | 1D-STEEL             | 1D-STEEL/E           |
|   | 1                      | 0,25    | 40             | 5              | –              | 2,5              | 2,1 | 0,75 |                           |                           |                      |                      |
|   | 1,1                    | 0,25    | 40             | 5              | –              | 2,5              | 2,1 | 0,85 |                           |                           |                      |                      |
|   | 1,2                    | 0,25    | 40             | 5              | –              | 2,5              | 2,1 | 0,95 |                           |                           |                      |                      |
|   | 1,4                    | 0,3     | 40             | 6              | –              | 2,5              | 2,1 | 1,1  |                           |                           |                      |                      |
|   | 1,6                    | 0,35    | 40             | 6              | 11             | 2,5              | 2,1 | 1,25 |                           |                           |                      |                      |
|   | 1,7                    | 0,35    | 40             | 6              | 11             | 2,5              | 2,1 | 1,35 |                           |                           |                      |                      |
|   | 1,8                    | 0,35    | 40             | 6              | 11             | 2,5              | 2,1 | 1,45 |                           |                           |                      |                      |
|   | 2                      | 0,4     | 45             | 7              | 12             | 2,8              | 2,1 | 1,6  | <b>B0209J01.0020</b>      | <b>B0208J01.0020</b>      | <b>B0451000.0020</b> | <b>B0461000.0020</b> |
|   | 2,2                    | 0,45    | 45             | 7              | 12             | 2,8              | 2,1 | 1,75 |                           |                           |                      |                      |
|   | 2,3                    | 0,4     | 45             | 7              | 12             | 2,8              | 2,1 | 1,9  |                           |                           |                      |                      |
|   | 2,5                    | 0,45    | 50             | 9              | 14             | 2,8              | 2,1 | 2,05 | <b>B0209J01.0025</b>      | <b>B0208J01.0025</b>      | <b>B0451000.0025</b> | <b>B0461000.0025</b> |
|   | 2,6                    | 0,45    | 50             | 9              | 14             | 2,8              | 2,1 | 2,15 |                           |                           |                      |                      |
|   | 3                      | 0,5     | 56             | 11             | 18             | 3,5              | 2,7 | 2,5  | <b>B0209J01.0030</b>      | <b>B0208J01.0030</b>      | <b>B0451000.0030</b> | <b>B0461000.0030</b> |
|   | 3,5                    | 0,6     | 56             | 12             | 20             | 4                | 3   | 2,9  |                           |                           |                      |                      |
|   | 4                      | 0,7     | 63             | 13             | 21             | 4,5              | 3,4 | 3,3  | <b>B0209J01.0040</b>      | <b>B0208J01.0040</b>      | <b>B0451000.0040</b> | <b>B0461000.0040</b> |
|   | 4,5                    | 0,75    | 70             | 14             | 25             | 6                | 4,9 | 3,7  |                           |                           |                      |                      |
|   | 5                      | 0,8     | 70             | 15             | 25             | 6                | 4,9 | 4,2  | <b>B0209J01.0050</b>      | <b>B0208J01.0050</b>      | <b>B0451000.0050</b> | <b>B0461000.0050</b> |
|   | 5,5                    | 0,9     | 80             | 16             | 30             | 6                | 4,9 | 4,6  |                           |                           |                      |                      |
|   | 6                      | 1       | 80             | 17             | 30             | 6                | 4,9 | 5    | <b>B0209J01.0060</b>      | <b>B0208J01.0060</b>      | <b>B0451000.0060</b> | <b>B0461000.0060</b> |
|   | 7                      | 1       | 80             | 17             | 30             | 7                | 5,5 | 6    |                           |                           |                      |                      |
|   | 8                      | 1,25    | 90             | 20             | 35             | 8                | 6,2 | 6,8  | <b>B0209J01.0080</b>      | <b>B0208J01.0080</b>      | <b>B0451000.0080</b> | <b>B0461000.0080</b> |
|   | 9                      | 1,25    | 90             | 20             | 35             | 9                | 7   | 7,8  |                           |                           |                      |                      |
|   | 10                     | 1,5     | 100            | 22             | 39             | 10               | 8   | 8,5  | <b>B0209J01.0100</b>      | <b>B0208J01.0100</b>      | <b>B0451000.0100</b> | <b>B0461000.0100</b> |
|   | 12                     | 1,75    | 110            | 24             | 44             | 12               | 9   | 10,2 |                           |                           |                      |                      |

DIN 376



122

122

122

122

DIN 352



150

| STEEL<br>Steel materials |                           |                           | VA<br>Stainless steel materials |                        |                                 |                         |     |
|--------------------------|---------------------------|---------------------------|---------------------------------|------------------------|---------------------------------|-------------------------|-----|
|                          |                           |                           |                                 |                        |                                 |                         |     |
|                          |                           |                           |                                 |                        |                                 |                         |     |
|                          | $l_2 \approx 10 \times P$ | $l_2 \approx 10 \times P$ |                                 |                        |                                 |                         |     |
| ISO 2/6H                 | ISO 2/6H                  | ISO 2/6H                  | ISO 2/6H *)                     | ISO 2/6H               | ISO 2/6H *)                     | ISO 1/4H                |     |
| TIN                      |                           | TIN                       | NT                              | TIN                    | GLT-1                           | NT                      |     |
| HSSE                     | HSSE                      | HSSE                      | HSSE                            | HSSE                   | HSSE                            | HSSE                    |     |
| R15                      | R35                       | R35                       |                                 |                        |                                 |                         |     |
| C / 2-3                  | C / 2-3                   | C / 2-3                   | B / 4-5                         | B / 4-5                | B / 4-5                         | B / 4-5                 |     |
| E / O                    | E / O                     | E / O                     | E / O / P                       | E / O / P              | E / O / P                       | E / O / P               |     |
| max. 2 x d <sub>1</sub>  | max. 2,5 x d <sub>1</sub> |                           | max. 3 x d <sub>1</sub>         |                        |                                 |                         |     |
|                          |                           |                           |                                 |                        |                                 |                         |     |
| P 3.1-4.1                | P 1.1-3.1<br>N 2.2        | P 1.1-3.1<br>N 2.2        | P 2.1-3.1<br>N 2.2, 2.5         | P 1.1-4.1              | P 1.1-4.1<br>M 1.1-4.1<br>N 2.2 | P 2.1-3.1<br>N 2.2, 2.5 |     |
| Rekord 1DF-STEEL<br>TIN  | Enorm 1<br>STEEL          | Enorm 1<br>STEEL<br>TIN   | Rekord<br>1B-VA<br>NT           | Rekord<br>1B-VA<br>TIN | Rekord<br>1B-VA<br>GLT-1        | Rekord<br>1B-VA<br>NT   |     |
|                          |                           |                           | B0203000.0010                   |                        | B020C300.0010                   |                         | M 1 |
|                          |                           |                           | B0203000.0011                   |                        | B020C300.0011                   |                         | 1,1 |
|                          |                           |                           | B0203000.0012                   |                        | B020C300.0012                   |                         | 1,2 |
|                          |                           |                           | B0203000.0014                   |                        | B020C300.0014                   |                         | 1,4 |
|                          |                           |                           | B0203000.0016                   |                        | B020C300.0016                   |                         | 1,6 |
|                          |                           |                           | B0203000.0017                   |                        | B020C300.0017                   |                         | 1,7 |
|                          |                           |                           | B0203000.0018                   |                        | B020C300.0018                   |                         | 1,8 |
|                          | B0501000.0020             | B0501400.0020             | B0203000.0020                   |                        | B020C300.0020                   | B0203010.0020           | 2   |
|                          |                           |                           | B0203000.0022                   |                        | B020C300.0022                   |                         | 2,2 |
|                          | B0501000.0025             | B0501400.0025             | B0203000.0023                   |                        | B020C300.0023                   |                         | 2,3 |
|                          |                           |                           | B0203000.0025                   |                        | B020C300.0025                   | B0203010.0025           | 2,5 |
|                          |                           |                           | B0203000.0026                   |                        | B020C300.0026                   |                         | 2,6 |
| B0401400.0030            | B0501000.0030             | B0501400.0030             | B0203000.0030                   | B0203100.0030          | B020C300.0030                   | B0203010.0030           | 3   |
|                          |                           |                           | B0203000.0035                   |                        |                                 |                         | 3,5 |
| B0401400.0040            | B0501000.0040             | B0501400.0040             | B0203000.0040                   | B0203100.0040          | B020C300.0040                   | B0203010.0040           | 4   |
|                          |                           |                           | B0203000.0045                   | B0203100.0045          | B020C300.0045                   |                         | 4,5 |
| B0401400.0050            | B0501000.0050             | B0501400.0050             | B0203000.0050                   | B0203100.0050          | B020C300.0050                   | B0203010.0050           | 5   |
|                          |                           |                           | B0203000.0055                   | B0203100.0055          | B020C300.0055                   |                         | 5,5 |
| B0401400.0060            | B0501000.0060             | B0501400.0060             | B0203000.0060                   | B0203100.0060          | B020C300.0060                   | B0203010.0060           | 6   |
|                          |                           |                           | B0203000.0070                   | B0203100.0070          | B020C300.0070                   |                         | 7   |
| B0401400.0080            | B0501000.0080             | B0501400.0080             | B0203000.0080                   | B0203100.0080          | B020C300.0080                   | B0203010.0080           | 8   |
|                          |                           |                           | B0203000.0090                   | B0203100.0090          | B020C300.0090                   |                         | 9   |
| B0401400.0100            | B0501000.0100             | B0501400.0100             | B0203000.0100                   | B0203100.0100          | B020C300.0100                   | B0203010.0100           | 10  |
|                          |                           |                           | B0203000.0112                   | B0203100.0112          | B020C300.0112                   |                         | 12  |
|                          |                           |                           |                                 |                        |                                 |                         |     |
|                          |                           |                           |                                 |                        |                                 |                         |     |

\*) ≤ M1,4 Tol. 4H/5H

- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories

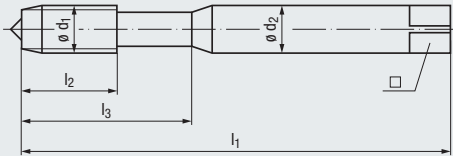


- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories

# M



DIN 13



DIN 371

VA  
Stainless steel materials



Technische Informationen  
Technical information

Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material



|           |           |           |           |
|-----------|-----------|-----------|-----------|
| ISO 1/4H  | ISO 1/4H  | ISO 3/6G  | ISO 3/6G  |
| TIN       | GLT-1     | NT        | TIN       |
| HSSE      | HSSE      | HSSE      | HSSE      |
| B / 4-5   | B / 4-5   | B / 4-5   | B / 4-5   |
| E / O / P | E / O / P | E / O / P | E / O / P |

Gewindetiefe und Lochform  
Thread depth and hole type

max. 3 x d<sub>1</sub>



Einsatzgebiete – Material  
Applications – material

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|           |                                 |                         |           |
|-----------|---------------------------------|-------------------------|-----------|
| P 1.1-4.1 | P 1.1-4.1<br>M 1.1-4.1<br>N 2.2 | P 2.1-3.1<br>N 2.2, 2.5 | P 1.1-4.1 |
|-----------|---------------------------------|-------------------------|-----------|

| $\phi d_1$<br>mm | P<br>mm | $l_1$ | $l_2$ | $l_3$ | $\phi d_2$ | □   |      | Rekord 1B-VA TIN | Rekord 1B-VA GLT-1 | Rekord 1B-VA NT      | Rekord 1B-VA TIN |
|------------------|---------|-------|-------|-------|------------|-----|------|------------------|--------------------|----------------------|------------------|
| M 1              | 0,25    | 40    | 5     | –     | 2,5        | 2,1 | 0,75 |                  |                    |                      |                  |
| 1,1              | 0,25    | 40    | 5     | –     | 2,5        | 2,1 | 0,85 |                  |                    |                      |                  |
| 1,2              | 0,25    | 40    | 5     | –     | 2,5        | 2,1 | 0,95 |                  |                    |                      |                  |
| 1,4              | 0,3     | 40    | 6     | –     | 2,5        | 2,1 | 1,1  |                  |                    |                      |                  |
| 1,6              | 0,35    | 40    | 6     | 11    | 2,5        | 2,1 | 1,25 |                  |                    |                      |                  |
| 1,7              | 0,35    | 40    | 6     | 11    | 2,5        | 2,1 | 1,35 |                  |                    |                      |                  |
| 1,8              | 0,35    | 40    | 6     | 11    | 2,5        | 2,1 | 1,45 |                  |                    |                      |                  |
| 2                | 0,4     | 45    | 7     | 12    | 2,8        | 2,1 | 1,6  |                  | B020C310.0020      | <b>B0203020.0020</b> |                  |
| 2,2              | 0,45    | 45    | 7     | 12    | 2,8        | 2,1 | 1,75 |                  |                    |                      |                  |
| 2,3              | 0,4     | 45    | 7     | 12    | 2,8        | 2,1 | 1,9  |                  |                    |                      |                  |
| 2,5              | 0,45    | 50    | 9     | 14    | 2,8        | 2,1 | 2,05 |                  | B020C310.0025      | <b>B0203020.0025</b> |                  |
| 2,6              | 0,45    | 50    | 9     | 14    | 2,8        | 2,1 | 2,15 |                  |                    |                      |                  |
| 3                | 0,5     | 56    | 11    | 18    | 3,5        | 2,7 | 2,5  | B0203110.0030    | B020C310.0030      | <b>B0203020.0030</b> | B0203120.0030    |
| 3,5              | 0,6     | 56    | 12    | 20    | 4          | 3   | 2,9  |                  |                    |                      |                  |
| 4                | 0,7     | 63    | 13    | 21    | 4,5        | 3,4 | 3,3  | B0203110.0040    | B020C310.0040      | <b>B0203020.0040</b> | B0203120.0040    |
| 4,5              | 0,75    | 70    | 14    | 25    | 6          | 4,9 | 3,7  |                  |                    |                      |                  |
| 5                | 0,8     | 70    | 15    | 25    | 6          | 4,9 | 4,2  | B0203110.0050    | B020C310.0050      | <b>B0203020.0050</b> | B0203120.0050    |
| 5,5              | 0,9     | 80    | 16    | 30    | 6          | 4,9 | 4,6  |                  |                    |                      |                  |
| 6                | 1       | 80    | 17    | 30    | 6          | 4,9 | 5    | B0203110.0060    | B020C310.0060      | <b>B0203020.0060</b> | B0203120.0060    |
| 7                | 1       | 80    | 17    | 30    | 7          | 5,5 | 6    |                  |                    |                      |                  |
| 8                | 1,25    | 90    | 20    | 35    | 8          | 6,2 | 6,8  | B0203110.0080    | B020C310.0080      | <b>B0203020.0080</b> | B0203120.0080    |
| 9                | 1,25    | 90    | 20    | 35    | 9          | 7   | 7,8  |                  |                    |                      |                  |
| 10               | 1,5     | 100   | 22    | 39    | 10         | 8   | 8,5  | B0203110.0100    | B020C310.0100      | <b>B0203020.0100</b> | B0203120.0100    |
| 12               | 1,75    | 110   | 24    | 44    | 12         | 9   | 10,2 |                  |                    |                      |                  |

DIN 376

» 124

» 124

» 124

» 124

DIN 352



**VA**  
Stainless steel  
materials

|           |           |           |           |           |           |           |           |
|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
|           |           |           |           |           |           |           |           |
|           |           |           |           |           |           |           |           |
| ISO 3/6G  | 7G        | 7G        | 7G        | ISO 2/6H  | ISO 2/6H  | ISO 2/6H  | ISO 2/6H  |
| GLT-1     | NT        | TIN       | GLT-1     | NT        | TIN       | GLT-1     |           |
| HSSE      | HSSE      | HSSE      | HSSE      | HSSE      | HSSE      | HSSE      | HSSE      |
|           |           |           | <b>LH</b> | <b>LH</b> | <b>LH</b> | <b>LH</b> |           |
| B / 4-5   | B / 4-5   | B / 4-5   | B / 4-5   | B / 4-5   | B / 4-5   | B / 4-5   | B / 4-5   |
| E / O / P | E / O / P | E / O / P | E / O / P | E / O / P | E / O / P | E / O / P | E / O / P |

max. 3 x d<sub>1</sub>



max. 2,5 x d<sub>1</sub>



|                  |                   |                  |                  |                   |                  |                  |                  |
|------------------|-------------------|------------------|------------------|-------------------|------------------|------------------|------------------|
| <b>P</b> 1.1-4.1 | <b>P</b> 2.1-3.1  | <b>P</b> 1.1-4.1 | <b>P</b> 1.1-4.1 | <b>P</b> 2.1-3.1  | <b>P</b> 1.1-4.1 | <b>P</b> 1.1-4.1 | <b>P</b> 1.1-3.1 |
| <b>M</b> 1.1-4.1 | <b>N</b> 2.2, 2.5 |                  | <b>M</b> 1.1-4.1 | <b>N</b> 2.2, 2.5 |                  | <b>M</b> 1.1-4.1 |                  |
| <b>N</b> 2.2     |                   |                  | <b>N</b> 2.2     |                   |                  | <b>N</b> 2.2     |                  |

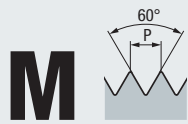
|                           |                        |                         |                           |                           |                            |                              |                      |
|---------------------------|------------------------|-------------------------|---------------------------|---------------------------|----------------------------|------------------------------|----------------------|
| <b>Rekord 1B-VA GLT-1</b> | <b>Rekord 1B-VA NT</b> | <b>Rekord 1B-VA TIN</b> | <b>Rekord 1B-VA GLT-1</b> | <b>Rekord 1B-VA-LH NT</b> | <b>Rekord 1B-VA-LH TIN</b> | <b>Rekord 1B-VA-LH GLT-1</b> | <b>Enorm 1 VA</b>    |
| B020C320.0020             | <b>B0203030.0020</b>   |                         | B020C330.0020             | <b>B0203050.0020</b>      |                            | B020C350.0020                | <b>B0503000.0020</b> |
| B020C320.0025             | <b>B0203030.0025</b>   |                         | B020C330.0025             | <b>B0203050.0025</b>      |                            | B020C350.0025                | <b>B0503000.0025</b> |
| B020C320.0030             | <b>B0203030.0030</b>   | B0203130.0030           | B020C330.0030             | <b>B0203050.0030</b>      | B0203150.0030              | B020C350.0030                | <b>B0503000.0030</b> |
| B020C320.0035             |                        |                         |                           |                           |                            |                              |                      |
| B020C320.0040             | <b>B0203030.0040</b>   | B0203130.0040           | B020C330.0040             | <b>B0203050.0040</b>      | B0203150.0040              | B020C350.0040                | <b>B0503000.0040</b> |
| B020C320.0050             | <b>B0203030.0050</b>   | B0203130.0050           | B020C330.0050             | <b>B0203050.0050</b>      | B0203150.0050              | B020C350.0050                | <b>B0503000.0050</b> |
| B020C320.0060             | <b>B0203030.0060</b>   | B0203130.0060           | B020C330.0060             | <b>B0203050.0060</b>      | B0203150.0060              | B020C350.0060                | <b>B0503000.0060</b> |
| B020C320.0080             | <b>B0203030.0080</b>   | B0203130.0080           | B020C330.0080             | <b>B0203050.0080</b>      | B0203150.0080              | B020C350.0080                | <b>B0503000.0080</b> |
| B020C320.0100             | <b>B0203030.0100</b>   | B0203130.0100           | B020C330.0100             | <b>B0203050.0100</b>      | B0203150.0100              | B020C350.0100                | <b>B0503000.0100</b> |
| 125                       | 125                    | 125                     | 125                       | 125                       | 125                        | 125                          | 125                  |

|          |     |
|----------|-----|
| <b>M</b> | 1   |
|          | 1,1 |
|          | 1,2 |
|          | 1,4 |
|          | 1,6 |
|          | 1,7 |
|          | 1,8 |
|          | 2   |
|          | 2,2 |
|          | 2,3 |
|          | 2,5 |
|          | 2,6 |
|          | 3   |
|          | 3,5 |
|          | 4   |
|          | 4,5 |
|          | 5   |
|          | 5,5 |
|          | 6   |
|          | 7   |
|          | 8   |
|          | 9   |
|          | 10  |
|          | 12  |

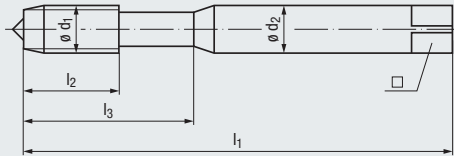
- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories



- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories



DIN 13



DIN 371

**INOX**  
Stainless steel materials



NEW



l<sub>2</sub> ≈ 10 x P

**GG**  
Cast iron



Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material

Technische Informationen  
Technical information

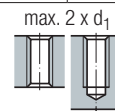
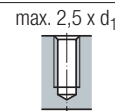
Tr, Tr-F Rd

Zubehör Accessories

- ISO 2/6H
- GLT-201
- HSSE
- R45
- C / 2-3
- E / O

- |         |         |
|---------|---------|
| 6HX     | 6HX     |
| NT      | TICN    |
| HSSE    | HSSE    |
| C / 2-3 | C / 2-3 |
| E       | E       |

Gewindetiefe und Lochform  
Thread depth and hole type



Einsatzgebiete – Material  
Applications – material

» 78

M 1.1-2.1

K 1.1-1.2

K 1.1-1.2

| Ø d <sub>1</sub><br>mm | P<br>mm | l <sub>1</sub> | l <sub>2</sub> | l <sub>3</sub> | Ø d <sub>2</sub> | □   |      | Enorm 1<br>INOX<br>GLT-201 | Rekord<br>1A-GG<br>NT | Rekord<br>1A-GG<br>TICN |
|------------------------|---------|----------------|----------------|----------------|------------------|-----|------|----------------------------|-----------------------|-------------------------|
| M 1                    | 0,25    | 40             | 5              | –              | 2,5              | 2,1 | 0,75 |                            |                       |                         |
| 1,1                    | 0,25    | 40             | 5              | –              | 2,5              | 2,1 | 0,85 |                            |                       |                         |
| 1,2                    | 0,25    | 40             | 5              | –              | 2,5              | 2,1 | 0,95 |                            |                       |                         |
| 1,4                    | 0,3     | 40             | 6              | –              | 2,5              | 2,1 | 1,1  |                            |                       |                         |
| 1,6                    | 0,35    | 40             | 6              | 11             | 2,5              | 2,1 | 1,25 |                            |                       |                         |
| 1,7                    | 0,35    | 40             | 6              | 11             | 2,5              | 2,1 | 1,35 |                            |                       |                         |
| 1,8                    | 0,35    | 40             | 6              | 11             | 2,5              | 2,1 | 1,45 |                            |                       |                         |
| 2                      | 0,4     | 45             | 7              | 12             | 2,8              | 2,1 | 1,6  | B050J300.0020              |                       |                         |
| 2,2                    | 0,45    | 45             | 7              | 12             | 2,8              | 2,1 | 1,75 |                            |                       |                         |
| 2,3                    | 0,4     | 45             | 7              | 12             | 2,8              | 2,1 | 1,9  |                            |                       |                         |
| 2,5                    | 0,45    | 50             | 9              | 14             | 2,8              | 2,1 | 2,05 | B050J300.0025              |                       |                         |
| 2,6                    | 0,45    | 50             | 9              | 14             | 2,8              | 2,1 | 2,15 |                            |                       |                         |
| 3                      | 0,5     | 56             | 11             | 18             | 3,5              | 2,7 | 2,5  | B050J300.0030              | B0102001.0030         |                         |
| 3,5                    | 0,6     | 56             | 12             | 20             | 4                | 3   | 2,9  |                            |                       |                         |
| 4                      | 0,7     | 63             | 13             | 21             | 4,5              | 3,4 | 3,3  | B050J300.0040              | B0102001.0040         | B0109201.0040           |
| 4,5                    | 0,75    | 70             | 14             | 25             | 6                | 4,9 | 3,7  |                            |                       |                         |
| 5                      | 0,8     | 70             | 15             | 25             | 6                | 4,9 | 4,2  | B050J300.0050              | B0102001.0050         | B0109201.0050           |
| 5,5                    | 0,9     | 80             | 16             | 30             | 6                | 4,9 | 4,6  |                            |                       |                         |
| 6                      | 1       | 80             | 17             | 30             | 6                | 4,9 | 5    | B050J300.0060              | B0102001.0060         | B0109201.0060           |
| 7                      | 1       | 80             | 17             | 30             | 7                | 5,5 | 6    |                            |                       |                         |
| 8                      | 1,25    | 90             | 20             | 35             | 8                | 6,2 | 6,8  | B050J300.0080              | B0102001.0080         | B0109201.0080           |
| 9                      | 1,25    | 90             | 20             | 35             | 9                | 7   | 7,8  |                            |                       |                         |
| 10                     | 1,5     | 100            | 22             | 39             | 10               | 8   | 8,5  | B050J300.0100              | B0102001.0100         | B0109201.0100           |
| 12                     | 1,75    | 110            | 24             | 44             | 12               | 9   | 10,2 |                            |                       |                         |

DIN 376

126

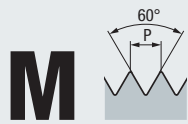
126

126

DIN 352

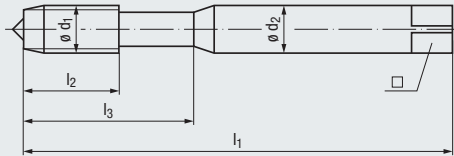


- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories



**M**  
DIN 13

**DIN 371**



Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material

Technische Informationen  
Technical information



Gewindetiefe und Lochform  
Thread depth and hole type

Einsatzgebiete – Material  
Applications – material

» 78

| Ø d <sub>1</sub><br>mm | P<br>mm | l <sub>1</sub> | l <sub>2</sub> | l <sub>3</sub> | Ø d <sub>2</sub> | □   |      |
|------------------------|---------|----------------|----------------|----------------|------------------|-----|------|
| <b>M</b> 1             | 0,25    | 40             | 5              | –              | 2,5              | 2,1 | 0,75 |
| 1,1                    | 0,25    | 40             | 5              | –              | 2,5              | 2,1 | 0,85 |
| 1,2                    | 0,25    | 40             | 5              | –              | 2,5              | 2,1 | 0,95 |
| 1,4                    | 0,3     | 40             | 6              | –              | 2,5              | 2,1 | 1,1  |
| 1,6                    | 0,35    | 40             | 6              | 11             | 2,5              | 2,1 | 1,25 |
| 1,7                    | 0,35    | 40             | 6              | 11             | 2,5              | 2,1 | 1,35 |
| 1,8                    | 0,35    | 40             | 6              | 11             | 2,5              | 2,1 | 1,45 |
| 2                      | 0,4     | 45             | 7              | 12             | 2,8              | 2,1 | 1,6  |
| 2,2                    | 0,45    | 45             | 7              | 12             | 2,8              | 2,1 | 1,75 |
| 2,3                    | 0,4     | 45             | 7              | 12             | 2,8              | 2,1 | 1,9  |
| 2,5                    | 0,45    | 50             | 9              | 14             | 2,8              | 2,1 | 2,05 |
| 2,6                    | 0,45    | 50             | 9              | 14             | 2,8              | 2,1 | 2,15 |
| 3                      | 0,5     | 56             | 11             | 18             | 3,5              | 2,7 | 2,5  |
| 3,5                    | 0,6     | 56             | 12             | 20             | 4                | 3   | 2,9  |
| 4                      | 0,7     | 63             | 13             | 21             | 4,5              | 3,4 | 3,3  |
| 4,5                    | 0,75    | 70             | 14             | 25             | 6                | 4,9 | 3,7  |
| 5                      | 0,8     | 70             | 15             | 25             | 6                | 4,9 | 4,2  |
| 5,5                    | 0,9     | 80             | 16             | 30             | 6                | 4,9 | 4,6  |
| 6                      | 1       | 80             | 17             | 30             | 6                | 4,9 | 5    |
| 7                      | 1       | 80             | 17             | 30             | 7                | 5,5 | 6    |
| 8                      | 1,25    | 90             | 20             | 35             | 8                | 6,2 | 6,8  |
| 9                      | 1,25    | 90             | 20             | 35             | 9                | 7   | 7,8  |
| 10                     | 1,5     | 100            | 22             | 39             | 10               | 8   | 8,5  |
| 12                     | 1,75    | 110            | 24             | 44             | 12               | 9   | 10,2 |

DIN 376



128

DIN 352



**AL**  
Aluminium  
wrought alloys



**NEW**



l<sub>2</sub> ≈ 10 x P



**NEW**

l<sub>2</sub> ≈ 10 x P

ISO 2/6H \*)

HSSE

B / ≈3

E / O

max. 3 x d<sub>1</sub>



ISO 2/6H \*)

GLT-104

HSSE

B / ≈3

E / O

max. 2,5 x d<sub>1</sub>



ISO 2/6H \*)

HSSE

R45

C / 2-3

E / O

ISO 2/6H \*)

GLT-104

HSSE

R45

C / 2-3

E / O

**N 1.4**

**N 1.1-1.4, 2.1**

**N 1.4**

**N 1.1-1.4, 2.1**

**Rekord 1B-AL**

**Rekord 1B-AL GLT-104**

**Enorm 1-AL**

**Enorm 1-AL GLT-104**

**B0204500.0014**

**B0203G00.0014**

**B0504500.0014**

**B0503G00.0014**

**B0204500.0016**

**B0203G00.0016**

**B0504500.0016**

**B0503G00.0016**

**B0204500.0020**

**B0203G00.0020**

**B0504500.0020**

**B0503G00.0020**

**B0204500.0025**

**B0203G00.0025**

**B0504500.0025**

**B0503G00.0025**

**B0204500.0030**

**B0203G00.0030**

**B0504500.0030**

**B0503G00.0030**

**B0204500.0035**

**B0203G00.0035**

**B0504500.0035**

**B0503G00.0035**

**B0204500.0040**

**B0203G00.0040**

**B0504500.0040**

**B0503G00.0040**

**B0204500.0050**

**B0203G00.0050**

**B0504500.0050**

**B0503G00.0050**

**B0204500.0060**

**B0203G00.0060**

**B0504500.0060**

**B0503G00.0060**

**B0204500.0080**

**B0203G00.0080**

**B0504500.0080**

**B0503G00.0080**
















**B0204500.0100**

**B0203G00.0100**

**B0504500.0100**

**B0503G00.0100**

\*) ≤ M1,4 Tol. 4H/5H

| <p><b>AL</b><br/>Aluminium wrought alloys</p>   <p><b>new</b></p> <p><math>l_2 \approx 10 \times P</math></p> | <p><b>GAL</b><br/>Aluminium cast alloys</p>      <p><math>l_2 \approx 10 \times P</math></p> |  |   |   |  | <p><b>MG</b><br/>Magnesium alloys</p>   <p><math>l_2 \approx 10 \times P</math></p> |
|--|---|--|---|---|--|---|
| <p>ISO 2/6H<br/>GLT-104<br/>HSSE<br/>R45<br/><b>E / 1,5-2</b><br/>E / O</p>  | <p>6HX<br/>TICN<br/>HSSE<br/><b>E / 1,5-2</b><br/>E / M</p>   | <p>6HX<br/>TICN<br/>HSSE<br/><b>E / 1,5-2</b><br/>E / M</p>  | <p>6HX<br/>TICN<br/>HSSE<br/>R15<br/><b>E / 1,5-2</b><br/>E / M</p>   | <p>6HX<br/>TICN<br/><b>VHM</b><br/>R15<br/><b>E / 1,5-2</b><br/>E / M</p>   |  | <p>6HX<br/>GLT-1<br/>HSSE<br/>C / 2-3<br/>E</p>   |
| <p>max. 2,5 x d<sub>1</sub></p>    | <p>max. 2 x d<sub>1</sub></p>  <p>1)</p>  | <p>max. 2 x d<sub>1</sub></p>  | <p>max. 2 x d<sub>1</sub></p>                 | <p>max. 2 x d<sub>1</sub></p>                |  | <p>max. 2 x d<sub>1</sub></p>   |
| <p><b>N 1.1-1.4, 2.1</b></p>   | <p><b>N 1.5-1.6</b></p>   | <p><b>N 1.5-1.6</b></p>  | <p><b>N 1.4-1.6</b></p>   | <p><b>N 1.4-1.6</b></p>   |  | <p><b>N 3.1-3.2</b></p>   |
| <p><b>Enorm 1-AL/E GLT-104</b></p>   | <p><b>Rekord 1A-GAL/E-IKZ TICN</b></p>  | <p><b>Rekord 1A-GAL/E-IKZN TICN</b></p>  | <p><b>Rekord 1D-GAL/E-IKZ TICN</b></p>  | <p><b>VHM-Rekord 1D-GAL/E-IKZ TICN</b></p>  |  | <p><b>Rekord 1A-MG GLT-1</b></p>  |
| <p><b>B0513G00.0030</b><br/><b>B0513G00.0040</b><br/><b>B0513G00.0050</b><br/><b>B0513G00.0060</b><br/><b>B0513G00.0080</b><br/><b>B0513G00.0100</b></p>   | <p><b>B1969501.0040</b><br/><b>B1969501.0050</b><br/><b>B1969501.0060</b><br/><b>B1969501.0080</b><br/><b>B1969501.0100</b></p>   | <p>B1099501.0050<br/>B1099501.0060<br/>B1099501.0080<br/>B1099501.0100</p>                                       | <p><b>B0989501.0040</b><br/><b>B0989501.0050</b><br/><b>B0989501.0060</b><br/><b>B0989501.0080</b><br/><b>B0989501.0100</b></p> | <p><b>B098Q801.0040</b><br/><b>B098Q801.0050</b><br/><b>B098Q801.0060</b><br/><b>B098Q801.0080</b><br/><b>B098Q801.0100</b></p> |  | <p><b>B010J601.0030</b><br/><b>B010J601.0040</b><br/><b>B010J601.0050</b><br/><b>B010J601.0060</b><br/><b>B010J601.0080</b><br/><b>B010J601.0100</b></p>  |
|  |   |  |   |   |  | <p>M 1<br/>1,1<br/>1,2<br/>1,4<br/>1,6<br/>1,7<br/>1,8<br/>2<br/>2,2<br/>2,3<br/>2,5<br/>2,6<br/>3<br/>3,5<br/>4<br/>4,5<br/>5<br/>5,5<br/>6<br/>7<br/>8<br/>9<br/>10<br/>12</p>  |

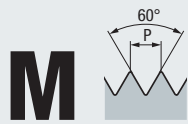
1) Gewindebohren in Durchgangslöcher nur mit externer Kühlschmierung möglich  
Threading in through holes is possible only with external cooling/lubrication

Product Finder

- V<sub>c</sub>
- M
- MF
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories

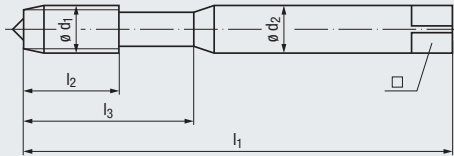


- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories



**M**  
DIN 13

**DIN 371**



**FK**  
Short-chipping synthetics



**PVC**  
Long-chipping synthetics



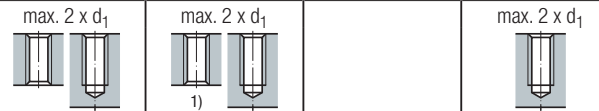
Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material

**Technische Informationen**  
Technical information

**Einsatzgebiete – Material**  
Applications – material

|         |            |                  |
|---------|------------|------------------|
| 6HX     | 6HX        | 6HX              |
| NT      |            | CRN              |
| HSSE    | <b>VHM</b> | HSSE             |
| C / 2-3 | C / 2-3    | R15              |
| E       | E          | <b>E / 1,5-2</b> |
|         |            | E                |

**Gewindetiefe und Lochform**  
Thread depth and hole type



**Einsatzgebiete – Material**  
Applications – material

|                   |                  |              |
|-------------------|------------------|--------------|
| <b>N 4.1, 4.3</b> | <b>K 1.1-4.2</b> | <b>N 4.2</b> |
|                   | N 1.5-1.6        |              |
|                   | N 2.6-2.8        |              |
|                   | N 4.1, 4.3-5.2   |              |

| M | Ø d <sub>1</sub><br>mm | P<br>mm | l <sub>1</sub> | l <sub>2</sub> | l <sub>3</sub> | Ø d <sub>2</sub> | □   |      | Rekord<br>1A-FK<br>NT | VHM-Rekord<br>1A-FK-<br>IKZ | Rekord<br>1D-PVC/E<br>CRN |      |      |      |     |      |      |      |     |      |     |      |      |
|---|------------------------|---------|----------------|----------------|----------------|------------------|-----|------|-----------------------|-----------------------------|---------------------------|------|------|------|-----|------|------|------|-----|------|-----|------|------|
|   |                        |         |                |                |                |                  |     |      |                       |                             |                           | 0,75 | 0,85 | 0,95 | 1,1 | 1,25 | 1,35 | 1,45 | 1,6 | 1,75 | 1,9 | 2,05 | 2,15 |
|   | 1                      | 0,25    | 40             | 5              | –              | 2,5              | 2,1 | 0,75 |                       |                             |                           |      |      |      |     |      |      |      |     |      |     |      |      |
|   | 1,1                    | 0,25    | 40             | 5              | –              | 2,5              | 2,1 | 0,85 |                       |                             |                           |      |      |      |     |      |      |      |     |      |     |      |      |
|   | 1,2                    | 0,25    | 40             | 5              | –              | 2,5              | 2,1 | 0,95 |                       |                             |                           |      |      |      |     |      |      |      |     |      |     |      |      |
|   | 1,4                    | 0,3     | 40             | 6              | –              | 2,5              | 2,1 | 1,1  |                       |                             |                           |      |      |      |     |      |      |      |     |      |     |      |      |
|   | 1,6                    | 0,35    | 40             | 6              | 11             | 2,5              | 2,1 | 1,25 |                       |                             |                           |      |      |      |     |      |      |      |     |      |     |      |      |
|   | 1,7                    | 0,35    | 40             | 6              | 11             | 2,5              | 2,1 | 1,35 |                       |                             |                           |      |      |      |     |      |      |      |     |      |     |      |      |
|   | 1,8                    | 0,35    | 40             | 6              | 11             | 2,5              | 2,1 | 1,45 |                       |                             |                           |      |      |      |     |      |      |      |     |      |     |      |      |
|   | 2                      | 0,4     | 45             | 7              | 12             | 2,8              | 2,1 | 1,6  |                       |                             |                           |      |      |      |     |      |      |      |     |      |     |      |      |
|   | 2,2                    | 0,45    | 45             | 7              | 12             | 2,8              | 2,1 | 1,75 |                       |                             |                           |      |      |      |     |      |      |      |     |      |     |      |      |
|   | 2,3                    | 0,4     | 45             | 7              | 12             | 2,8              | 2,1 | 1,9  |                       |                             |                           |      |      |      |     |      |      |      |     |      |     |      |      |
|   | 2,5                    | 0,45    | 50             | 9              | 14             | 2,8              | 2,1 | 2,05 |                       |                             |                           |      |      |      |     |      |      |      |     |      |     |      |      |
|   | 2,6                    | 0,45    | 50             | 9              | 14             | 2,8              | 2,1 | 2,15 |                       |                             |                           |      |      |      |     |      |      |      |     |      |     |      |      |
|   | 3                      | 0,5     | 56             | 11             | 18             | 3,5              | 2,7 | 2,5  | <b>B010T001.0030</b>  | <b>B8170901.0030</b>        | <b>B046L801.0030</b>      |      |      |      |     |      |      |      |     |      |     |      |      |
|   | 3,5                    | 0,6     | 56             | 12             | 20             | 4                | 3   | 2,9  |                       |                             |                           |      |      |      |     |      |      |      |     |      |     |      |      |
|   | 4                      | 0,7     | 63             | 13             | 21             | 4,5              | 3,4 | 3,3  | <b>B010T001.0040</b>  | <b>B8170901.0040</b>        | <b>B046L801.0040</b>      |      |      |      |     |      |      |      |     |      |     |      |      |
|   | 4,5                    | 0,75    | 70             | 14             | 25             | 6                | 4,9 | 3,7  |                       |                             |                           |      |      |      |     |      |      |      |     |      |     |      |      |
|   | 5                      | 0,8     | 70             | 15             | 25             | 6                | 4,9 | 4,2  | <b>B010T001.0050</b>  | <b>B8170901.0050</b>        | <b>B046L801.0050</b>      |      |      |      |     |      |      |      |     |      |     |      |      |
|   | 5,5                    | 0,9     | 80             | 16             | 30             | 6                | 4,9 | 4,6  |                       |                             |                           |      |      |      |     |      |      |      |     |      |     |      |      |
|   | 6                      | 1       | 80             | 17             | 30             | 6                | 4,9 | 5    | <b>B010T001.0060</b>  | <b>B8170901.0060</b>        | <b>B046L801.0060</b>      |      |      |      |     |      |      |      |     |      |     |      |      |
|   | 7                      | 1       | 80             | 17             | 30             | 7                | 5,5 | 6    |                       |                             |                           |      |      |      |     |      |      |      |     |      |     |      |      |
|   | 8                      | 1,25    | 90             | 20             | 35             | 8                | 6,2 | 6,8  | <b>B010T001.0080</b>  | <b>B8170901.0080</b>        | <b>B046L801.0080</b>      |      |      |      |     |      |      |      |     |      |     |      |      |
|   | 9                      | 1,25    | 90             | 20             | 35             | 9                | 7   | 7,8  |                       |                             |                           |      |      |      |     |      |      |      |     |      |     |      |      |
|   | 10                     | 1,5     | 100            | 22             | 39             | 10               | 8   | 8,5  | <b>B010T001.0100</b>  | <b>B8170901.0100</b>        | <b>B046L801.0100</b>      |      |      |      |     |      |      |      |     |      |     |      |      |
|   | 12                     | 1,75    | 110            | 24             | 44             | 12               | 9   | 10,2 |                       |                             |                           |      |      |      |     |      |      |      |     |      |     |      |      |

DIN 376

DIN 352

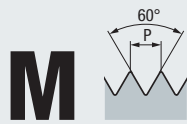
1) Gewindebohren in Durchgangslöcher nur mit externer Kühlschmierung möglich  
Threading in through holes is possible only with external cooling/lubrication

| MS<br>Copper-zinc alloys    |  | TI<br>Titanium   |  |  |  | TILEG<br>Titanium alloys     |            |
|-----------------------------|--|--|--|--|--|------------------------------|------------|
|                             |  |  |  |  |  |                              |            |
| 6HX                         |  | 6HX  | 6HX  | 6HX  | 6HX  | 6HX                          |            |
| HSSE                        |  | NT2  | TICN   | NT2  | TICN   | TICN                         |            |
| C / 2-3                     |  | HSSE   | HSSE   | HSSE   | HSSE   | HSSE                         |            |
| E                           |  | L15  | L15  | R15  | R15  | R15                          |            |
|                             |  | D / 4-5  | D / 4-5  | C / 2-3  | C / 2-3  | C / 2-3                      |            |
|                             |  | E / O / P  | E / O / P  | E / O / P  | E / O / P  | E / O / P                    |            |
| max. 2 x d <sub>1</sub><br> |  | max. 3 x d <sub>1</sub><br>  |  | max. 2 x d <sub>1</sub><br>  |  | max. 2 x d <sub>1</sub><br>  |            |
| <b>N 2.3</b>                |  | <b>P 4.1-5.1</b><br><b>M 3.1-4.1</b><br><b>N 2.4-2.5, 2.7</b><br><b>S 1.1-2.2, 2.4</b> | <b>P 4.1-5.1</b><br><b>M 3.1-4.1</b><br><b>N 2.4-2.5, 2.7</b><br><b>S 1.1-2.2, 2.4</b> | <b>P 4.1-5.1</b><br><b>M 3.1-4.1</b><br><b>N 2.4-2.5, 2.7</b><br><b>S 1.1-2.2, 2.4</b> | <b>P 4.1-5.1</b><br><b>M 3.1-4.1</b><br><b>N 2.4-2.5, 2.7</b><br><b>S 1.1-2.2, 2.4</b> | <b>S 1.2-1.3</b>             |            |
| <b>Rekord 1A-MS</b>         |  | <b>Rekord 1C-TI NT2</b>  | <b>Rekord 1C-TI TICN</b>   | <b>Rekord 1D-TI NT2</b>  | <b>Rekord 1D-TI TICN</b>   | <b>Rekord 1DF-TILEG TICN</b> |            |
|                             |  |  |  |  |  |                              | <b>M</b> 1 |
|                             |  |  |  |  |  |                              | 1,1        |
|                             |  |  |  |  |  |                              | 1,2        |
|                             |  |  |  |  |  |                              | 1,4        |
|                             |  |  |  |  |  |                              | 1,6        |
|                             |  |  |  |  |  |                              | 1,7        |
|                             |  |  |  |  |  |                              | 1,8        |
| <b>B0102501.0020</b>        |  | <b>B0306001.0020</b>   | <b>B0309601.0020</b>   | <b>B0456001.0020</b>   | <b>B0459601.0020</b>   |                              | 2          |
|                             |  |  |  |  |  |                              | 2,2        |
|                             |  |  |  |  |  |                              | 2,3        |
| <b>B0102501.0025</b>        |  | <b>B0306001.0025</b>   | <b>B0309601.0025</b>   | <b>B0456001.0025</b>   | <b>B0459601.0025</b>   |                              | 2,5        |
|                             |  |  |  |  |  |                              | 2,6        |
| <b>B0102501.0030</b>        |  | <b>B0306001.0030</b>   | <b>B0309601.0030</b>   | <b>B0456001.0030</b>   | <b>B0459601.0030</b>   | <b>B040V401.0030</b>         | 3          |
|                             |  | B0306001.0035  | B0309601.0035  | B0456001.0035  | B0459601.0035  |                              | 3,5        |
| <b>B0102501.0040</b>        |  | <b>B0306001.0040</b>   | <b>B0309601.0040</b>   | <b>B0456001.0040</b>   | <b>B0459601.0040</b>   | <b>B040V401.0040</b>         | 4          |
|                             |  |  |  |  |  |                              | 4,5        |
| <b>B0102501.0050</b>        |  | <b>B0306001.0050</b>   | <b>B0309601.0050</b>   | <b>B0456001.0050</b>   | <b>B0459601.0050</b>   | <b>B040V401.0050</b>         | 5          |
|                             |  |  |  |  |  |                              | 5,5        |
| <b>B0102501.0060</b>        |  | <b>B0306001.0060</b>   | <b>B0309601.0060</b>   | <b>B0456001.0060</b>   | <b>B0459601.0060</b>   | <b>B040V401.0060</b>         | 6          |
|                             |  |  |  |  |  |                              | 7          |
| <b>B0102501.0080</b>        |  | <b>B0306001.0080</b>   | <b>B0309601.0080</b>   | <b>B0456001.0080</b>   | <b>B0459601.0080</b>   | <b>B040V401.0080</b>         | 8          |
|                             |  |  |  |  |  |                              | 9          |
| <b>B0102501.0100</b>        |  | <b>B0306001.0100</b>   | <b>B0309601.0100</b>   | <b>B0456001.0100</b>   | <b>B0459601.0100</b>   | <b>B040V401.0100</b>         | 10         |
|                             |  |  |  |  |  |                              | 12         |
|                             |  | 129  | 129  | 129  | 129  |                              |            |
| 151                         |  |  |  |  |  |                              |            |

|                     |
|---------------------|
| Product Finder      |
| V <sub>c</sub>      |
| M                   |
| MF                  |
| UNC UN-8            |
| UNF UNEF            |
| G, Rp NPSM, NPSF    |
| NPT, NPTF Rc, W     |
| BSW, BSF            |
| Pg                  |
| MJ UNJC, UNJF       |
| EG (STI)            |
| SELF-LOCK           |
| Tr, Tr-F Rd         |
| Zubehör Accessories |

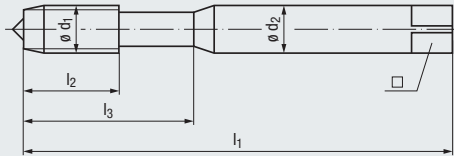


- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories



**M**  
DIN 13

**DIN 371**



**NI**  
Nickel alloys

**H**  
Materials of high tensile strength



Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material

Technische Informationen  
Technical information

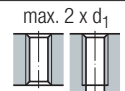


6HX  
TiCN  
**HSSE-PM**  
L08  
D / 4-5  
O / P

6HX  
TiCN  
**HSSE-PM**  
R10  
C / 2-3  
O / P

6HX  
NT  
HSSE  
C / 2-3  
E / O / P

Gewindetiefe und Lochform  
Thread depth and hole type



Einsatzgebiete – Material  
Applications – material

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**N** 2.8  
**S** 2.3, 2.5-2.6

**N** 2.8  
**S** 2.3, 2.5-2.6

**K** 1.1-4.2  
**N** 4.1

| M | ø d <sub>1</sub><br>mm | P<br>mm | l <sub>1</sub> | l <sub>2</sub> | l <sub>3</sub> | ø d <sub>2</sub> | □   | Image             | Rekord           | Rekord            | Rekord        |     |     |
|---|------------------------|---------|----------------|----------------|----------------|------------------|-----|-------------------|------------------|-------------------|---------------|-----|-----|
|   |                        |         |                |                |                |                  |     |                   | 1C-NI<br>PM-TiCN | 1DF-NI<br>PM-TiCN | 1A-H<br>NT    |     |     |
|   | 1                      | 0,25    | 40             | 5              | –              | 2,5              | 2,1 | 0,75              |                  |                   |               |     |     |
|   | 1,1                    | 0,25    | 40             | 5              | –              | 2,5              | 2,1 | 0,85              |                  |                   |               |     |     |
|   | 1,2                    | 0,25    | 40             | 5              | –              | 2,5              | 2,1 | 0,95              |                  |                   |               |     |     |
|   | 1,4                    | 0,3     | 40             | 6              | –              | 2,5              | 2,1 | 1,1               |                  |                   |               |     |     |
|   | 1,6                    | 0,35    | 40             | 6              | 11             | 2,5              | 2,1 | 1,25              |                  |                   |               |     |     |
|   | 1,7                    | 0,35    | 40             | 6              | 11             | 2,5              | 2,1 | 1,35              |                  |                   |               |     |     |
|   | 1,8                    | 0,35    | 40             | 6              | 11             | 2,5              | 2,1 | 1,45              |                  |                   |               |     |     |
|   | 2                      | 0,4     | 45             | 7              | 12             | 2,8              | 2,1 | 1,6               |                  |                   | B0100501.0020 |     |     |
|   | 2,2                    | 0,45    | 45             | 7              | 12             | 2,8              | 2,1 | 1,75              |                  |                   |               |     |     |
|   | 2,3                    | 0,4     | 45             | 7              | 12             | 2,8              | 2,1 | 1,9               |                  |                   |               |     |     |
|   | 2,5                    | 0,45    | 50             | 9              | 14             | 2,8              | 2,1 | 2,05              |                  |                   | B0100501.0025 |     |     |
|   | 2,6                    | 0,45    | 50             | 9              | 14             | 2,8              | 2,1 | 2,15              |                  |                   |               |     |     |
|   | 3                      | 0,5     | 56             | 11             | 18             | 3,5              | 2,7 | 2,5               | B030J401.0030    | B438J401.0030     | B0100501.0030 |     |     |
|   | 3,5                    | 0,6     | 56             | 12             | 20             | 4                | 3   | 2,9               |                  |                   | B0100501.0035 |     |     |
|   | 4                      | 0,7     | 63             | 13             | 21             | 4,5              | 3,4 | 3,3 <sup>2)</sup> | B030J401.0040    | B438J401.0040     | B0100501.0040 |     |     |
|   | 4,5                    | 0,75    | 70             | 14             | 25             | 6                | 4,9 | 3,7               |                  |                   |               |     |     |
|   | 5                      | 0,8     | 70             | 15             | 25             | 6                | 4,9 | 4,2 <sup>2)</sup> | B030J401.0050    | B438J401.0050     | B0100501.0050 |     |     |
|   | 5,5                    | 0,9     | 80             | 16             | 30             | 6                | 4,9 | 4,6               |                  |                   |               |     |     |
|   | 6                      | 1       | 80             | 17             | 30             | 6                | 4,9 | 5 <sup>2)</sup>   | B030J401.0060    | B438J401.0060     | B0100501.0060 |     |     |
|   | 7                      | 1       | 80             | 17             | 30             | 7                | 5,5 | 6                 |                  |                   | B0100501.0070 |     |     |
|   | 8                      | 1,25    | 90             | 20             | 35             | 8                | 6,2 | 6,8 <sup>2)</sup> | B030J401.0080    | B438J401.0080     | B0100501.0080 |     |     |
|   | 9                      | 1,25    | 90             | 20             | 35             | 9                | 7   | 7,8               |                  |                   |               |     |     |
|   | 10                     | 1,5     | 100            | 22             | 39             | 10               | 8   | 8,5 <sup>2)</sup> | B030J401.0100    | B438J401.0100     | B0100501.0100 |     |     |
|   | 12                     | 1,75    | 110            | 24             | 44             | 12               | 9   | 10,2              |                  |                   |               |     |     |
|   |                        |         |                |                |                |                  |     |                   | DIN 376          | Image             | 129           | 129 | 130 |
|   |                        |         |                |                |                |                  |     |                   | DIN 352          | Image             |               |     |     |

<sup>2)</sup> Vorbohrerdurchmesser für Gewindebohrer Rekord 1A-HCUT-PM-TiCN um 0,1 mm anheben  
Increase drill diameter for taps Rekord 1A-HCUT-PM-TiCN by 0.1 mm



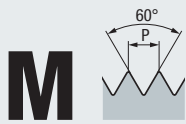
| H<br>Materials of high tensile strength                        |                                  |  |  |   | HCUT<br>Hardened steels       |  |            |
|--|----------------------------------|--|--|---|-------------------------------|--|------------|
|  |                                  |  |  |   |                               |  |            |
|  |                                  |  |  |   |                               |  |            |
| 6HX<br>TICN<br>HSSE  | 6HX<br>NT<br>HSSE                | 6HX<br>TICN<br>HSSE  | 6HX<br>TICN<br>HSSE  | 6HX<br>VHM  | 6HX<br>TICN<br>HSSE-PM        |  |            |
| C / 2-3<br>E / O / P   | C / 2-3<br>E / O                 | C / 2-3<br>E / O   | C / 2-3<br>E / O   | C / 2-3<br>E / O  | C / 2-3<br>O / P              |  |            |
| max. 2 x d <sub>1</sub><br>                                    | max. 2 x d <sub>1</sub><br>      | max. 2 x d <sub>1</sub><br>                                    | max. 2 x d <sub>1</sub><br>                                    | max. 2 x d <sub>1</sub><br>   | max. 1,5 x d <sub>1</sub><br> |  |            |
| <b>K 1.1-4.2</b><br><b>N 1.5-1.6, 2.6</b><br><b>N 4.1, 5.1</b> | <b>K 1.1-4.2</b><br><b>N 4.1</b> | <b>K 1.1-4.2</b><br><b>N 1.5-1.6, 2.6</b><br><b>N 4.1, 5.1</b> | <b>K 1.1-4.2</b><br><b>N 1.5-1.6, 2.6</b><br><b>N 4.1, 5.1</b> | <b>K 1.1-4.2</b><br><b>N 1.5-1.6</b><br><b>N 2.6-2.8</b><br><b>N 4.1, 4.3-4.4</b><br><b>N 5.1-5.2</b> | <b>H 1.1-1.2</b>              |  |            |
| <b>Rekord 1A-H TICN</b>  | <b>Rekord 1A-H-IKZ NT</b>        | <b>Rekord 1A-H-IKZ TICN</b>                                    | <b>Rekord 1A-H-IKZN TICN</b>                                   | <b>VHM-Rekord 1A-H-IKZ</b>  | <b>Rekord 1A-HCUT PM-TICN</b> |  |            |
|  |                                  |  |  |   |                               |  | <b>M</b> 1 |
|  |                                  |  |  |   |                               |  | 1,1        |
|  |                                  |  |  |   |                               |  | 1,2        |
|  |                                  |  |  |   |                               |  | 1,4        |
|  |                                  |  |  |   |                               |  | 1,6        |
|  |                                  |  |  |   |                               |  | 1,7        |
|  |                                  |  |  |   |                               |  | 1,8        |
| <b>B0109101.0020</b>   |                                  |  |  |   |                               |  | 2          |
|  |                                  |  |  |   |                               |  | 2,2        |
| <b>B0109101.0025</b>   |                                  |  |  |   |                               |  | 2,3        |
|  |                                  |  |  |   |                               |  | 2,5        |
|  |                                  |  |  |   |                               |  | 2,6        |
| <b>B0109101.0030</b>   |                                  |  |  | <b>B1950901.0030</b>  |                               |  | 3          |
| <b>B0109101.0035</b>   |                                  |  |  |   |                               |  | 3,5        |
| <b>B0109101.0040</b>   |                                  |  |  | <b>B1950901.0040</b>  | <b>B010J901.0040</b>          |  | 4          |
|  |                                  |  |  |   |                               |  | 4,5        |
| <b>B0109101.0050</b>   | <b>B1950501.0050</b>             | <b>B1959101.0050</b>   | B1069101.0050  | <b>B1950901.0050</b>  | <b>B010J901.0050</b>          |  | 5          |
|  |                                  |  |  |   |                               |  | 5,5        |
| <b>B0109101.0060</b>   | <b>B1950501.0060</b>             | <b>B1959101.0060</b>   | B1069101.0060  | <b>B1950901.0060</b>  | <b>B010J901.0060</b>          |  | 6          |
| <b>B0109101.0070</b>   |                                  |  |  |   |                               |  | 7          |
| <b>B0109101.0080</b>   | <b>B1950501.0080</b>             | <b>B1959101.0080</b>   | B1069101.0080  | <b>B1950901.0080</b>  | <b>B010J901.0080</b>          |  | 8          |
|  |                                  |  |  |   |                               |  | 9          |
| <b>B0109101.0100</b>   | <b>B1950501.0100</b>             | <b>B1959101.0100</b>   | B1069101.0100  | <b>B1950901.0100</b>  | <b>B010J901.0100</b>          |  | 10         |
|  |                                  |  |  |   |                               |  | 12         |
|  |                                  |  |  |   |                               |  |            |

1) Gewindebohren in Durchgangslöcher nur mit externer Kühlschmierung möglich  
Threading in through holes is possible only with external cooling/lubrication

|                     |
|---------------------|
| Product Finder      |
| V <sub>c</sub>      |
| M                   |
| MF                  |
| UNC UN-8            |
| UNF UNEF            |
| G, Rp NPSM, NPSF    |
| NPT, NPTF Rc, W     |
| BSW, BSF            |
| Pg                  |
| MJ UNJC, UNJF       |
| EG (STI)            |
| SELF-LOCK           |
| Tr, Tr-F Rd         |
| Zubehör Accessories |

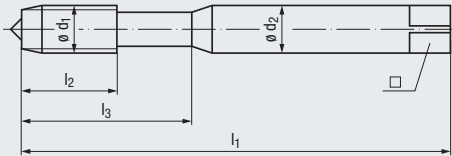


- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories



**M**  
DIN 13

≈ DIN 371



**HCUT**  
Hardened steels



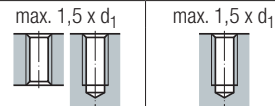
2)

**Technische Informationen**  
Technical information

Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material

|            |            |
|------------|------------|
| 6HX        | 6HX        |
| TICN       | TICN       |
| <b>VHM</b> | <b>VHM</b> |
| D / 4-5    | C / 2-3    |
| O / P      | O / P      |

**Gewindetiefe und Lochform**  
Thread depth and hole type



**Einsatzgebiete – Material**  
Applications – material

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H 1.3-1.4

| M  | ∅ d <sub>1</sub><br>mm | P<br>mm | l <sub>1</sub> | l <sub>2</sub> | l <sub>3</sub> | ∅ d <sub>2</sub> | □    | H             | VHM-Rekord<br>1A-HCUT/D<br>TICN | VHM-Rekord<br>1A-HCUT/C<br>TICN |
|----|------------------------|---------|----------------|----------------|----------------|------------------|------|---------------|---------------------------------|---------------------------------|
|    |                        |         |                |                |                |                  |      |               | 2,55                            | B016K101.0030                   |
| 3  | 0,5                    | 63      | 6              | 18             | 4,5            | 3,4              | 2,55 | B016K101.0040 | B010K101.0040                   |                                 |
| 4  | 0,7                    | 63      | 8              | 20             | 4,5            | 3,4              | 3,4  | B016K101.0050 | B010K101.0050                   |                                 |
| 5  | 0,8                    | 70      | 10             | 26             | 6              | 4,9              | 4,3  | B016K101.0060 | B010K101.0060                   |                                 |
| 6  | 1                      | 80      | 12             | 28             | 6              | 4,9              | 5,1  | B016K101.0080 | B010K101.0080                   |                                 |
| 8  | 1,25                   | 90      | 15             | 35             | 8              | 6,2              | 6,9  | B016K101.0100 | B010K101.0100                   |                                 |
| 10 | 1,5                    | 100     | 18             | 38             | 10             | 8                | 8,6  | B016K101.0112 | B010K101.0112                   |                                 |
| 12 | 1,75                   | 110     | 21             | 41             | 12             | 9                | 10,4 | B016K101.0114 | B010K101.0114                   |                                 |
| 14 | 2                      | 110     | 24             | 44             | 14             | 11               | 12,2 | B016K101.0116 | B010K101.0116                   |                                 |
| 16 | 2                      | 110     | 24             | 44             | 16             | 12               | 14,2 |               |                                 |                                 |

2) Achtung: VHM-Rekord 1A-HCUT/D-TICN als Vorschneider verwenden!  
Please note: Use solid carbide tap VHM-Rekord 1A-HCUT/D-TICN as No. 1 tap!

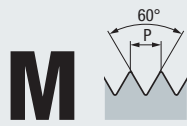


Spiralbohrer Typ EF-Drill-HCUT  
siehe Seite 62

Twist drills type EF-Drill-HCUT,  
see page 62

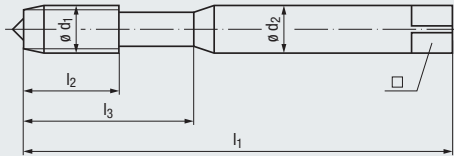


- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories



**M**  
DIN 13

**DIN 371**



**Z**  
CNC-controlled machines



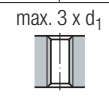
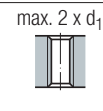
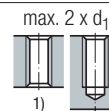
Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material

Technische Informationen  
Technical information



|           |           |                |                |
|-----------|-----------|----------------|----------------|
| 6HX       | 6HX       | 6HX            | 6HX            |
| TICN      | TICN      | TIN-70         | GLT-1          |
| HSSE      | HSSE      | <b>HSSE-PM</b> | <b>HSSE-PM</b> |
| E / 1,5-2 | E / 1,5-2 | B / 4-5        | B / 4-5        |
| E / 0     | E / 0     | E / 0 / P      | E / 0 / P      |

Gewindetiefe und Lochform  
Thread depth and hole type



Einsatzgebiete – Material  
Applications – material

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|                       |                       |                  |                       |
|-----------------------|-----------------------|------------------|-----------------------|
| <b>K</b> 1.1-4.2      | <b>K</b> 1.1-4.2      | <b>P</b> 2.1-5.1 | <b>P</b> 1.1-5.1      |
| <b>N</b> 1.5-1.6, 2.6 | <b>N</b> 1.5-1.6, 2.6 |                  | <b>M</b> 1.1-4.1      |
| <b>N</b> 4.1          | <b>N</b> 4.1          |                  | <b>K</b> 1.1-3.2      |
|                       |                       |                  | <b>N</b> 1.4, 2.1-2.2 |
|                       |                       |                  | <b>N</b> 2.4-2.5      |
|                       |                       |                  | <b>S</b> 1.1, 2.2-2.3 |

| M | Ø d <sub>1</sub><br>mm | P<br>mm | l <sub>1</sub> | l <sub>2</sub> | l <sub>3</sub> | Ø d <sub>2</sub> | □   |      | Rekord                     | Rekord                      | Rekord               | Rekord               |
|---|------------------------|---------|----------------|----------------|----------------|------------------|-----|------|----------------------------|-----------------------------|----------------------|----------------------|
|   |                        |         |                |                |                |                  |     |      | 1A-Z/E- <b>IKZ</b><br>TICN | 1A-Z/E- <b>IKZN</b><br>TICN | 1B-Z<br>PM-TIN-70    | 1B-Z<br>PM-GLT-1     |
|   | 1                      | 0,25    | 40             | 2,5            | –              | 2,5              | 2,1 | 0,75 |                            |                             |                      |                      |
|   | 1,1                    | 0,25    | 40             | 2,5            | –              | 2,5              | 2,1 | 0,85 |                            |                             |                      |                      |
|   | 1,2                    | 0,25    | 40             | 2,5            | –              | 2,5              | 2,1 | 0,95 |                            |                             |                      |                      |
|   | 1,4                    | 0,3     | 40             | 3              | –              | 2,5              | 2,1 | 1,1  |                            |                             |                      |                      |
|   | 1,6                    | 0,35    | 40             | 4              | 11             | 2,5              | 2,1 | 1,25 |                            |                             |                      |                      |
|   | 1,7                    | 0,35    | 40             | 4              | 11             | 2,5              | 2,1 | 1,35 |                            |                             |                      |                      |
|   | 1,8                    | 0,35    | 40             | 4              | 11             | 2,5              | 2,1 | 1,45 |                            |                             |                      |                      |
|   | 2                      | 0,4     | 45             | 4              | 12             | 2,8              | 2,1 | 1,6  |                            |                             | B0208F01.0020        | B020A601.0020        |
|   | 2,2                    | 0,45    | 45             | 4,5            | 12             | 2,8              | 2,1 | 1,75 |                            |                             |                      |                      |
|   | 2,3                    | 0,4     | 45             | 4,5            | 12             | 2,8              | 2,1 | 1,9  |                            |                             |                      |                      |
|   | 2,5                    | 0,45    | 50             | 5              | 14             | 2,8              | 2,1 | 2,05 |                            |                             | B0208F01.0025        | B020A601.0025        |
|   | 2,6                    | 0,45    | 50             | 5              | 14             | 2,8              | 2,1 | 2,15 |                            |                             |                      |                      |
|   | 3                      | 0,5     | 56             | 6              | 18             | 3,5              | 2,7 | 2,5  |                            |                             | B0208F01.0030        | B020A601.0030        |
|   | 3,5                    | 0,6     | 56             | 7              | 20             | 4                | 3   | 2,9  |                            |                             | B0208F01.0035        | B020A601.0035        |
|   | 4                      | 0,7     | 63             | 7              | 21             | 4,5              | 3,4 | 3,3  | <b>B1969401.0040</b>       |                             | <b>B0208F01.0040</b> | <b>B020A601.0040</b> |
|   | 4,5                    | 0,75    | 70             | 8              | 25             | 6                | 4,9 | 3,7  |                            |                             |                      |                      |
|   | 5                      | 0,8     | 70             | 8              | 25             | 6                | 4,9 | 4,2  | <b>B1969401.0050</b>       | B1099401.0050               | <b>B0208F01.0050</b> | <b>B020A601.0050</b> |
|   | 5,5                    | 0,9     | 80             | 10             | 30             | 6                | 4,9 | 4,6  |                            |                             |                      |                      |
|   | 6                      | 1       | 80             | 10             | 30             | 6                | 4,9 | 5    | <b>B1969401.0060</b>       | B1099401.0060               | <b>B0208F01.0060</b> | <b>B020A601.0060</b> |
|   | 7                      | 1       | 80             | 10             | 30             | 7                | 5,5 | 6    |                            |                             |                      |                      |
|   | 8                      | 1,25    | 90             | 14             | 35             | 8                | 6,2 | 6,8  | <b>B1969401.0080</b>       | B1099401.0080               | <b>B0208F01.0080</b> | <b>B020A601.0080</b> |
|   | 9                      | 1,25    | 90             | 14             | 35             | 9                | 7   | 7,8  |                            |                             |                      |                      |
|   | 10                     | 1,5     | 100            | 16             | 39             | 10               | 8   | 8,5  | <b>B1969401.0100</b>       | B1099401.0100               | <b>B0208F01.0100</b> | <b>B020A601.0100</b> |
|   | 12                     | 1,75    | 110            | 18             | 44             | 12               | 9   | 10,2 |                            |                             |                      |                      |

DIN 376



134

134

134

134

DIN 352



1) Gewindebohren in Durchgangslöcher nur mit externer Kühlschmierung möglich  
Threading in through holes is possible only with external cooling/lubrication

**Z**  
CNC-controlled  
machines

|         |         |           |           |         |         |           |         |
|---------|---------|-----------|-----------|---------|---------|-----------|---------|
|         |         |           |           |         |         |           |         |
|         |         |           |           |         |         |           |         |
| 6HX     | 6HX     | 6GX       | 6GX       | 6GX     | 6GX     | 6HX       | 6HX     |
| TIN-70  | GLT-1   | TIN-70    | GLT-1     | TIN-70  | GLT-1   | TIN       | TIN     |
| HSSE-PM | HSSE-PM | HSSE-PM   | HSSE-PM   | HSSE-PM | HSSE-PM | HSSE      | HSSE    |
| B / 4-5 | B / 4-5 | B / 4-5   | B / 4-5   | B / 4-5 | B / 4-5 | R15       | R15     |
| E / O   | E / O   | E / O / P | E / O / P | E / O   | E / O   | C / 2-3   | C / 2-3 |
|         |         |           |           |         |         | E / O / P | E / O   |

max. 3 x d<sub>1</sub>



max. 2 x d<sub>1</sub>



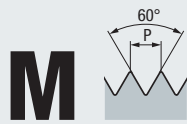
|                                   |  |                              |  |                                   |  |                                      |                                      |
|-----------------------------------|--|------------------------------|--|-----------------------------------|--|--------------------------------------|--------------------------------------|
| <b>P</b> 2.1-5.1                  | <b>P</b> 1.1-5.1<br><b>M</b> 1.1-4.1<br><b>K</b> 1.1-3.2<br><b>N</b> 1.4, 2.1-2.2<br><b>N</b> 2.4-2.5<br><b>S</b> 1.1, 2.2-2.3 | <b>P</b> 2.1-5.1             | <b>P</b> 1.1-5.1<br><b>M</b> 1.1-4.1<br><b>K</b> 1.1-3.2<br><b>N</b> 1.4, 2.1-2.2<br><b>N</b> 2.4-2.5<br><b>S</b> 1.1, 2.2-2.3 | <b>P</b> 2.1-5.1                  | <b>P</b> 1.1-5.1<br><b>M</b> 1.1-4.1<br><b>K</b> 1.1-3.2<br><b>N</b> 1.4, 2.1-2.2<br><b>N</b> 2.4-2.5<br><b>S</b> 1.1, 2.2-2.3 | <b>P</b> 3.1-5.1<br><b>N</b> 2.4-2.5 | <b>P</b> 3.1-5.1<br><b>N</b> 2.4-2.5 |
| <b>Rekord 1B-Z-IKZN PM-TIN-70</b> | <b>Rekord 1B-Z-IKZN PM-GLT-1</b>   | <b>Rekord 1B-Z PM-TIN-70</b> | <b>Rekord 1B-Z PM-GLT-1</b>  | <b>Rekord 1B-Z-IKZN PM-TIN-70</b> | <b>Rekord 1B-Z-IKZN PM-GLT-1</b>   | <b>Rekord 1D-Z TIN</b>               | <b>Rekord 1D-Z-IKZ TIN</b>           |
|                                   |  | <b>B0208F21.0020</b>         | <b>B020A621.0020</b>   |                                   |  |                                      |                                      |
|                                   |  | <b>B0208F21.0025</b>         | <b>B020A621.0025</b>   |                                   |  |                                      |                                      |
|                                   |  | <b>B0208F21.0030</b>         | <b>B020A621.0030</b>   |                                   |  | <b>B0453701.0030</b>                 |                                      |
|                                   |  | <b>B0208F21.0040</b>         | <b>B020A621.0040</b>   |                                   |  | <b>B0453701.0040</b>                 | <b>B0963701.0040</b>                 |
| <b>B1088F01.0050</b>              | <b>B108A601.0050</b>   | <b>B0208F21.0050</b>         | <b>B020A621.0050</b>   | <b>B1088F21.0050</b>              | <b>B108A621.0050</b>   | <b>B0453701.0050</b>                 | <b>B0963701.0050</b>                 |
| <b>B1088F01.0060</b>              | <b>B108A601.0060</b>   | <b>B0208F21.0060</b>         | <b>B020A621.0060</b>   | <b>B1088F21.0060</b>              | <b>B108A621.0060</b>   | <b>B0453701.0060</b>                 | <b>B0963701.0060</b>                 |
| <b>B1088F01.0080</b>              | <b>B108A601.0080</b>   | <b>B0208F21.0080</b>         | <b>B020A621.0080</b>   | <b>B1088F21.0080</b>              | <b>B108A621.0080</b>   | <b>B0453701.0080</b>                 | <b>B0963701.0080</b>                 |
| <b>B1088F01.0100</b>              | <b>B108A601.0100</b>   | <b>B0208F21.0100</b>         | <b>B020A621.0100</b>   | <b>B1088F21.0100</b>              | <b>B108A621.0100</b>   | <b>B0453701.0100</b>                 | <b>B0963701.0100</b>                 |
| 135                               | 135  | 135                          | 135  | 135                               | 135  | 135                                  | 135                                  |

|          |     |
|----------|-----|
| <b>M</b> | 1   |
|          | 1,1 |
|          | 1,2 |
|          | 1,4 |
|          | 1,6 |
|          | 1,7 |
|          | 1,8 |
|          | 2   |
|          | 2,2 |
|          | 2,3 |
|          | 2,5 |
|          | 2,6 |
|          | 3   |
|          | 3,5 |
|          | 4   |
|          | 4,5 |
|          | 5   |
|          | 5,5 |
|          | 6   |
|          | 7   |
|          | 8   |
|          | 9   |
|          | 10  |
|          | 12  |

|                     |
|---------------------|
| Product Finder      |
| V <sub>c</sub>      |
| M                   |
| MF                  |
| UNC UN-8            |
| UNF UNEF            |
| G, Rp NPSM, NPSF    |
| NPT, NPTF Rc, W     |
| BSW, BSF            |
| Pg                  |
| MJ UNJC, UNJF       |
| EG (STI)            |
| SELF-LOCK           |
| Tr, Tr-F Rd         |
| Zubehör Accessories |

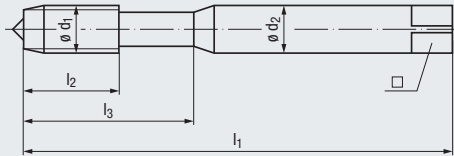


- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories



**M**  
DIN 13

**DIN 371**



**Z**  
CNC-controlled machines



Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material

Technische Informationen  
Technical information



|                  |                |                  |
|------------------|----------------|------------------|
| 6HX              | 6HX            | 6HX              |
| TIN              | TIN            | TIN              |
| HSSE             | HSSE           | HSSE             |
| R15              | R15            | R15              |
| <b>E / 1,5-2</b> | <b>C / 2-3</b> | <b>E / 1,5-2</b> |
| E / 0            | E / 0          | E / 0            |

Gewindetiefe und Lochform  
Thread depth and hole type

max. 2 x d<sub>1</sub>



Einsatzgebiete – Material  
Applications – material

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|                  |                  |                  |
|------------------|------------------|------------------|
| <b>P</b> 3.1-5.1 | <b>P</b> 3.1-5.1 | <b>P</b> 3.1-5.1 |
| <b>N</b> 2.4-2.5 | <b>N</b> 2.4-2.5 | <b>N</b> 2.4-2.5 |

| M | Ø d <sub>1</sub><br>mm | P<br>mm | l <sub>1</sub> | l <sub>2</sub> | l <sub>3</sub> | Ø d <sub>2</sub> | □   |      | Rekord               | Rekord               | Rekord               |
|---|------------------------|---------|----------------|----------------|----------------|------------------|-----|------|----------------------|----------------------|----------------------|
|   |                        |         |                |                |                |                  |     |      | 1D-Z/E-IKZ<br>TIN    | 1D-Z-BF<br>IKZ-TIN   | 1D-Z/E-BF<br>IKZ-TIN |
|   | 1                      | 0,25    | 40             | 2,5            | –              | 2,5              | 2,1 | 0,75 |                      |                      |                      |
|   | 1,1                    | 0,25    | 40             | 2,5            | –              | 2,5              | 2,1 | 0,85 |                      |                      |                      |
|   | 1,2                    | 0,25    | 40             | 2,5            | –              | 2,5              | 2,1 | 0,95 |                      |                      |                      |
|   | 1,4                    | 0,3     | 40             | 3              | –              | 2,5              | 2,1 | 1,1  |                      |                      |                      |
|   | 1,6                    | 0,35    | 40             | 4              | 11             | 2,5              | 2,1 | 1,25 |                      |                      |                      |
|   | 1,7                    | 0,35    | 40             | 4              | 11             | 2,5              | 2,1 | 1,35 |                      |                      |                      |
|   | 1,8                    | 0,35    | 40             | 4              | 11             | 2,5              | 2,1 | 1,45 |                      |                      |                      |
|   | 2                      | 0,4     | 45             | 4              | 12             | 2,8              | 2,1 | 1,6  |                      |                      |                      |
|   | 2,2                    | 0,45    | 45             | 4,5            | 12             | 2,8              | 2,1 | 1,75 |                      |                      |                      |
|   | 2,3                    | 0,4     | 45             | 4,5            | 12             | 2,8              | 2,1 | 1,9  |                      |                      |                      |
|   | 2,5                    | 0,45    | 50             | 5              | 14             | 2,8              | 2,1 | 2,05 |                      |                      |                      |
|   | 2,6                    | 0,45    | 50             | 5              | 14             | 2,8              | 2,1 | 2,15 |                      |                      |                      |
|   | 3                      | 0,5     | 56             | 6              | 18             | 3,5              | 2,7 | 2,5  |                      |                      |                      |
|   | 3,5                    | 0,6     | 56             | 7              | 20             | 4                | 3   | 2,9  |                      |                      |                      |
|   | 4                      | 0,7     | 63             | 7              | 21             | 4,5              | 3,4 | 3,3  | <b>B0983701.0040</b> | <b>B4253701.0040</b> | <b>B4503701.0040</b> |
|   | 4,5                    | 0,75    | 70             | 8              | 25             | 6                | 4,9 | 3,7  |                      |                      |                      |
|   | 5                      | 0,8     | 70             | 8              | 25             | 6                | 4,9 | 4,2  | <b>B0983701.0050</b> | <b>B4253701.0050</b> | <b>B4503701.0050</b> |
|   | 5,5                    | 0,9     | 80             | 10             | 30             | 6                | 4,9 | 4,6  |                      |                      |                      |
|   | 6                      | 1       | 80             | 10             | 30             | 6                | 4,9 | 5    | <b>B0983701.0060</b> | <b>B4253701.0060</b> | <b>B4503701.0060</b> |
|   | 7                      | 1       | 80             | 10             | 30             | 7                | 5,5 | 6    |                      |                      |                      |
|   | 8                      | 1,25    | 90             | 14             | 35             | 8                | 6,2 | 6,8  | <b>B0983701.0080</b> | <b>B4253701.0080</b> | <b>B4503701.0080</b> |
|   | 9                      | 1,25    | 90             | 14             | 35             | 9                | 7   | 7,8  |                      |                      |                      |
|   | 10                     | 1,5     | 100            | 16             | 39             | 10               | 8   | 8,5  | <b>B0983701.0100</b> | <b>B4253701.0100</b> | <b>B4503701.0100</b> |
|   | 12                     | 1,75    | 110            | 18             | 44             | 12               | 9   | 10,2 |                      |                      |                      |

DIN 376



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» 136

» 136

DIN 352



Z  
CNC-controlled  
machines

|                |                |                |                |                |                |                |                |
|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
|                |                |                |                |                |                |                |                |
| <b>new</b><br> | <b>new</b><br> | <b>new</b><br> | <b>new</b><br> | <b>new</b><br> | <b>new</b><br> | <b>new</b><br> | <b>new</b><br> |
| 6HX            | 6HX            | 6HX            | 6HX            | 6GX            | 6GX            | 6GX            | 6GX            |
| GLT-1          | GLT-1          | GLT-1          | GLT-1          | GLT-1          | GLT-1          | GLT-1          | GLT-1          |
| HSSE-PM        | HSSE-PM        | HSSE-PM        | HSSE-PM        | HSSE-PM        | HSSE-PM        | HSSE-PM        | HSSE-PM        |
| R45            | R45            | R45            | R45            | R45            | R45            | R45            | R45            |
| C / 2-3        | C / 2-3        | E / 1,5-2      | E / 1,5-2      | C / 2-3        | C / 2-3        | E / 1,5-2      | E / 1,5-2      |
| E / O / P      | E / O          | E / O / P      | E / O          | E / O / P      | E / O          | E / O / P      | E / O          |

max. 3 x d<sub>1</sub>



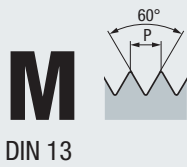
|                       |                        |                       |                          |                       |                        |                       |                          |
|-----------------------|------------------------|-----------------------|--------------------------|-----------------------|------------------------|-----------------------|--------------------------|
| <b>P</b> 1.1-4.1      | <b>P</b> 1.1-4.1       | <b>P</b> 1.1-4.1      | <b>P</b> 1.1-4.1         | <b>P</b> 1.1-4.1      | <b>P</b> 1.1-4.1       | <b>P</b> 1.1-4.1      | <b>P</b> 1.1-4.1         |
| <b>M</b> 1.1-4.1      | <b>M</b> 1.1-4.1       | <b>M</b> 1.1-4.1      | <b>M</b> 1.1-4.1         | <b>M</b> 1.1-4.1      | <b>M</b> 1.1-4.1       | <b>M</b> 1.1-4.1      | <b>M</b> 1.1-4.1         |
| <b>K</b> 1.1-3.2      | <b>K</b> 1.1-3.2       | <b>K</b> 1.1-3.2      | <b>K</b> 1.1-3.2         | <b>K</b> 1.1-3.2      | <b>K</b> 1.1-3.2       | <b>K</b> 1.1-3.2      | <b>K</b> 1.1-3.2         |
| <b>N</b> 1.4, 2.1-2.2 | <b>N</b> 1.4, 2.1-2.2  | <b>N</b> 1.4, 2.1-2.2 | <b>N</b> 1.4, 2.1-2.2    | <b>N</b> 1.4, 2.1-2.2 | <b>N</b> 1.4, 2.1-2.2  | <b>N</b> 1.4, 2.1-2.2 | <b>N</b> 1.4, 2.1-2.2    |
| <b>N</b> 2.4-2.5      | <b>N</b> 2.4-2.5       | <b>N</b> 2.4-2.5      | <b>N</b> 2.4-2.5         | <b>N</b> 2.4-2.5      | <b>N</b> 2.4-2.5       | <b>N</b> 2.4-2.5      | <b>N</b> 2.4-2.5         |
| <b>S</b> 1.1          | <b>S</b> 1.1           | <b>S</b> 1.1          | <b>S</b> 1.1             | <b>S</b> 1.1          | <b>S</b> 1.1           | <b>S</b> 1.1          | <b>S</b> 1.1             |
| Enorm 1-Z PM-GLT-1    | Enorm 1-Z-IKZ PM-GLT-1 | Enorm 1-Z/E PM-GLT-1  | Enorm 1-Z/E-IKZ PM-GLT-1 | Enorm 1-Z PM-GLT-1    | Enorm 1-Z-IKZ PM-GLT-1 | Enorm 1-Z/E PM-GLT-1  | Enorm 1-Z/E-IKZ PM-GLT-1 |
|                       |                        |                       |                          |                       |                        |                       |                          |
|                       |                        |                       |                          |                       |                        |                       |                          |
|                       |                        |                       |                          |                       |                        |                       |                          |
|                       |                        |                       |                          |                       |                        |                       |                          |
|                       |                        |                       |                          |                       |                        |                       |                          |
| B616A601.0020         |                        | B498A601.0020         |                          |                       |                        |                       |                          |
|                       |                        |                       |                          |                       |                        |                       |                          |
| B616A601.0025         |                        | B498A601.0025         |                          |                       |                        |                       |                          |
|                       |                        |                       |                          |                       |                        |                       |                          |
| <b>B616A601.0030</b>  |                        | <b>B498A601.0030</b>  |                          | <b>B616A621.0030</b>  |                        | <b>B498A621.0030</b>  |                          |
| B616A601.0035         |                        | B498A601.0035         |                          |                       |                        |                       |                          |
| <b>B616A601.0040</b>  | <b>B591A601.0040</b>   | <b>B498A601.0040</b>  | <b>B590A601.0040</b>     | <b>B616A621.0040</b>  | <b>B591A621.0040</b>   | <b>B498A621.0040</b>  | <b>B590A621.0040</b>     |
|                       |                        |                       |                          |                       |                        |                       |                          |
| <b>B616A601.0050</b>  | <b>B591A601.0050</b>   | <b>B498A601.0050</b>  | <b>B590A601.0050</b>     | <b>B616A621.0050</b>  | <b>B591A621.0050</b>   | <b>B498A621.0050</b>  | <b>B590A621.0050</b>     |
|                       |                        |                       |                          |                       |                        |                       |                          |
| <b>B616A601.0060</b>  | <b>B591A601.0060</b>   | <b>B498A601.0060</b>  | <b>B590A601.0060</b>     | <b>B616A621.0060</b>  | <b>B591A621.0060</b>   | <b>B498A621.0060</b>  | <b>B590A621.0060</b>     |
|                       |                        |                       |                          |                       |                        |                       |                          |
| <b>B616A601.0080</b>  | <b>B591A601.0080</b>   | <b>B498A601.0080</b>  | <b>B590A601.0080</b>     | <b>B616A621.0080</b>  | <b>B591A621.0080</b>   | <b>B498A621.0080</b>  | <b>B590A621.0080</b>     |
|                       |                        |                       |                          |                       |                        |                       |                          |
| <b>B616A601.0100</b>  | <b>B591A601.0100</b>   | <b>B498A601.0100</b>  | <b>B590A601.0100</b>     | <b>B616A621.0100</b>  | <b>B591A621.0100</b>   | <b>B498A621.0100</b>  | <b>B590A621.0100</b>     |
|                       |                        |                       |                          |                       |                        |                       |                          |
| 137                   | 137                    | 137                   | 137                      | 137                   | 137                    | 137                   | 137                      |

|   |     |
|---|-----|
| M | 1   |
|   | 1,1 |
|   | 1,2 |
|   | 1,4 |
|   | 1,6 |
|   | 1,7 |
|   | 1,8 |
|   | 2   |
|   | 2,2 |
|   | 2,3 |
|   | 2,5 |
|   | 2,6 |
|   | 3   |
|   | 3,5 |
|   | 4   |
|   | 4,5 |
|   | 5   |
|   | 5,5 |
|   | 6   |
|   | 7   |
|   | 8   |
|   | 9   |
|   | 10  |
|   | 12  |

- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories

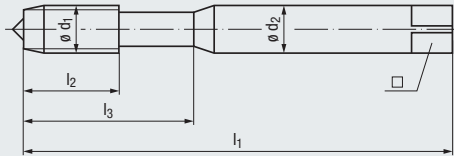


- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories



DIN 13

DIN 371



Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material

Technische Informationen  
Technical information



Z  
CNC-controlled machines



|             |           |           |          |
|-------------|-----------|-----------|----------|
| ISO 2/6H *) | ISO 2/6H  | ISO 2/6H  | ISO 2/6H |
| HSSE        | TIN       | GLT-1     | GLT-1    |
| R45         | HSSE      | HSSE      | HSSE     |
| C / 2-3     | R45       | R45       | R45      |
| E / O / P   | C / 2-3   | C / 2-3   | C / 2-3  |
|             | E / O / P | E / O / P | E / O    |

Gewindetiefe und Lochform  
Thread depth and hole type

max. 3 x d<sub>1</sub>



Einsatzgebiete – Material  
Applications – material

» 78

|           |                                      |  |  |
|-----------|--------------------------------------|--|--|
| P 1.1-3.1 | P 1.1-4.1<br>N 2.2, 2.4-2.5<br>S 1.1 | P 1.1-4.1<br>M 1.1-4.1<br>N 1.4, 2.1-2.2<br>N 2.4-2.5<br>S 1.1 | P 1.1-4.1<br>M 1.1-4.1<br>N 1.4, 2.1-2.2<br>N 2.4-2.5<br>S 1.1 |
|-----------|--------------------------------------|--|--|

| M | $\phi d_1$<br>mm | P<br>mm | $l_1$ | $l_2$ | $l_3$ | $\phi d_2$ | □   |      |                      | Enorm 1-Z            | Enorm 1-Z<br>TIN     | Enorm 1-Z<br>GLT-1   | Enorm 1-Z-<br>IKZ<br>GLT-1 |
|---|------------------|---------|-------|-------|-------|------------|-----|------|----------------------|----------------------|----------------------|----------------------|----------------------------|
|   |                  |         |       |       |       |            |     |      |                      |                      |                      |                      |                            |
|   | 1                | 0,25    | 40    | 2,5   | –     | 2,5        | 2,1 | 0,75 |                      |                      |                      |                      |                            |
|   | 1,1              | 0,25    | 40    | 2,5   | –     | 2,5        | 2,1 | 0,85 |                      |                      |                      |                      |                            |
|   | 1,2              | 0,25    | 40    | 2,5   | –     | 2,5        | 2,1 | 0,95 |                      |                      |                      |                      |                            |
|   | 1,4              | 0,3     | 40    | 3     | –     | 2,5        | 2,1 | 1,1  | B0503500.0014        |                      |                      |                      |                            |
|   | 1,6              | 0,35    | 40    | 4     | 11    | 2,5        | 2,1 | 1,25 | B0503500.0016        |                      |                      |                      |                            |
|   | 1,7              | 0,35    | 40    | 4     | 11    | 2,5        | 2,1 | 1,35 | B0503500.0017        |                      |                      |                      |                            |
|   | 1,8              | 0,35    | 40    | 4     | 11    | 2,5        | 2,1 | 1,45 | B0503500.0018        |                      |                      |                      |                            |
|   | 2                | 0,4     | 45    | 4     | 12    | 2,8        | 2,1 | 1,6  | <b>B0503500.0020</b> |                      | <b>B050C400.0020</b> |                      |                            |
|   | 2,2              | 0,45    | 45    | 4,5   | 12    | 2,8        | 2,1 | 1,75 | <b>B0503500.0022</b> |                      |                      |                      |                            |
|   | 2,3              | 0,4     | 45    | 4,5   | 12    | 2,8        | 2,1 | 1,9  | <b>B0503500.0023</b> |                      |                      |                      |                            |
|   | 2,5              | 0,45    | 50    | 5     | 14    | 2,8        | 2,1 | 2,05 | <b>B0503500.0025</b> |                      | <b>B050C400.0025</b> |                      |                            |
|   | 2,6              | 0,45    | 50    | 5     | 14    | 2,8        | 2,1 | 2,15 | <b>B0503500.0026</b> |                      |                      |                      |                            |
|   | 3                | 0,5     | 56    | 6     | 18    | 3,5        | 2,7 | 2,5  | <b>B0503500.0030</b> | <b>B0503700.0030</b> | <b>B050C400.0030</b> |                      |                            |
|   | 3,5              | 0,6     | 56    | 7     | 20    | 4          | 3   | 2,9  | <b>B0503500.0035</b> | <b>B0503700.0035</b> |                      |                      |                            |
|   | 4                | 0,7     | 63    | 7     | 21    | 4,5        | 3,4 | 3,3  | <b>B0503500.0040</b> | <b>B0503700.0040</b> | <b>B050C400.0040</b> |                      |                            |
|   | 4,5              | 0,75    | 70    | 8     | 25    | 6          | 4,9 | 3,7  | <b>B0503500.0045</b> |                      |                      |                      |                            |
|   | 5                | 0,8     | 70    | 8     | 25    | 6          | 4,9 | 4,2  | <b>B0503500.0050</b> | <b>B0503700.0050</b> | <b>B050C400.0050</b> | <b>B099C400.0050</b> |                            |
|   | 5,5              | 0,9     | 80    | 10    | 30    | 6          | 4,9 | 4,6  | <b>B0503500.0055</b> |                      |                      |                      |                            |
|   | 6                | 1       | 80    | 10    | 30    | 6          | 4,9 | 5    | <b>B0503500.0060</b> | <b>B0503700.0060</b> | <b>B050C400.0060</b> | <b>B099C400.0060</b> |                            |
|   | 7                | 1       | 80    | 10    | 30    | 7          | 5,5 | 6    | <b>B0503500.0070</b> |                      |                      |                      |                            |
|   | 8                | 1,25    | 90    | 14    | 35    | 8          | 6,2 | 6,8  | <b>B0503500.0080</b> | <b>B0503700.0080</b> | <b>B050C400.0080</b> | <b>B099C400.0080</b> |                            |
|   | 9                | 1,25    | 90    | 14    | 35    | 9          | 7   | 7,8  | <b>B0503500.0090</b> |                      |                      |                      |                            |
|   | 10               | 1,5     | 100   | 16    | 39    | 10         | 8   | 8,5  | <b>B0503500.0100</b> | <b>B0503700.0100</b> | <b>B050C400.0100</b> | <b>B099C400.0100</b> |                            |
|   | 12               | 1,75    | 110   | 18    | 44    | 12         | 9   | 10,2 | <b>B0503500.0112</b> |                      |                      |                      |                            |

DIN 376

» 138

» 138

» 138

» 139

DIN 352

\*) ≤ M1,4 Tol. 4H/5H



**Z**  
CNC-controlled  
machines

|           |                 |                   |           |                 |                   |           |                   |
|-----------|-----------------|-------------------|-----------|-----------------|-------------------|-----------|-------------------|
|           |                 |                   |           |                 |                   |           |                   |
|           |                 |                   |           |                 |                   |           |                   |
| ISO 2/6H  | ISO 2/6H<br>TIN | ISO 2/6H<br>GLT-1 | ISO 2/6H  | ISO 2/6H<br>TIN | ISO 2/6H<br>GLT-1 | ISO 1/4H  | ISO 1/4H<br>GLT-1 |
| HSSE      | HSSE            | HSSE              | HSSE      | HSSE            | HSSE              | HSSE      | HSSE              |
| R45       | R45             | R45               | R45       | R45             | R45               | R45       | R45               |
| E / 1,5-2 | E / 1,5-2       | E / 1,5-2         | E / 1,5-2 | E / 1,5-2       | E / 1,5-2         | C / 2-3   | C / 2-3           |
| E / O / P | E / O / P       | E / O / P         | E / O     | E / O           | E / O             | E / O / P | E / O / P         |

max. 3 x d<sub>1</sub>



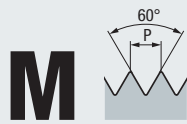
| P 1.1-3.1                                       | P 1.1-4.1<br>N 2.2, 2.4-2.5<br>S 1.1            | P 1.1-4.1<br>M 1.1-4.1<br>N 1.4, 2.1-2.2<br>N 2.4-2.5<br>S 1.1 | P 1.1-3.1       | P 1.1-4.1<br>N 2.2, 2.4-2.5<br>S 1.1 | P 1.1-4.1<br>M 1.1-4.1<br>N 1.4, 2.1-2.2<br>N 2.4-2.5<br>S 1.1 | P 1.1-3.1                      | P 1.1-4.1<br>M 1.1-4.1<br>N 1.4, 2.1-2.2<br>N 2.4-2.5<br>S 1.1 |
|---|---|--|-----------------|--------------------------------------|--|--------------------------------|--|
| Enorm 1-Z/E                                     | Enorm 1-Z/E<br>TIN                              | Enorm 1-Z/E<br>GLT-1   | Enorm 1-Z/E-IKZ | Enorm 1-Z/E-IKZ<br>TIN               | Enorm 1-Z/E-IKZ<br>GLT-1                                       | Enorm 1-Z                      | Enorm 1-Z<br>GLT-1   |
|   |   |  |                 |                                      |  |                                |  |
|   |   |  |                 |                                      |  |                                |  |
|   |   |  |                 |                                      |  |                                |  |
|   |   |  |                 |                                      |  |                                |  |
|   |   |  |                 |                                      |  |                                |  |
| B0513500.0020                                   |   |  |                 |                                      |  | B0503510.0020                  |  |
|   |   |  |                 |                                      |  |                                |  |
| B0513500.0025                                   |   |  |                 |                                      |  | B0503510.0025                  |  |
|   |   |  |                 |                                      |  |                                |  |
| B0513500.0030<br>B0513500.0035<br>B0513500.0040 | B0513700.0030<br>B0513700.0035<br>B0513700.0040 | B051C400.0030  |                 |                                      |  | B0503510.0030<br>B050C410.0030 |  |
|   |   |  |                 |                                      |  |                                |  |
| B0513500.0040                                   | B0513700.0040                                   | B051C400.0040  |                 |                                      |  | B0503510.0040<br>B050C410.0040 |  |
|   |   |  |                 |                                      |  |                                |  |
| B0513500.0050                                   | B0513700.0050                                   | B051C400.0050  | B0973500.0050   | B0973700.0050                        | B097C400.0050  | B0503510.0050<br>B050C410.0050 |  |
|   |   |  |                 |                                      |  |                                |  |
| B0513500.0060<br>B0513500.0070<br>B0513500.0080 | B0513700.0060<br>B0513700.0080                  | B051C400.0060  | B0973500.0060   | B0973700.0060                        | B097C400.0060  | B0503510.0060<br>B050C410.0060 |  |
|   |   |  |                 |                                      |  |                                |  |
| B0513500.0080                                   | B0513700.0080                                   | B051C400.0080  | B0973500.0080   | B0973700.0080                        | B097C400.0080  | B0503510.0080<br>B050C410.0080 |  |
|   |   |  |                 |                                      |  |                                |  |
| B0513500.0100                                   | B0513700.0100                                   | B051C400.0100  | B0973500.0100   | B0973700.0100                        | B097C400.0100  | B0503510.0100<br>B050C410.0100 |  |
|   |   |  |                 |                                      |  |                                |  |
|   |   |  |                 |                                      |  |                                |  |
| 139   | 139   | 139  |                 | 139                                  | 139  | 139                            | 139  |
|   |   |  |                 |                                      |  |                                |  |
| 151   |   |  |                 |                                      |  |                                |  |

|   |     |
|---|-----|
| M | 1   |
|   | 1,1 |
|   | 1,2 |
|   | 1,4 |
|   | 1,6 |
|   | 1,7 |
|   | 1,8 |
|   | 2   |
|   | 2,2 |
|   | 2,3 |
|   | 2,5 |
|   | 2,6 |
|   | 3   |
|   | 3,5 |
|   | 4   |
|   | 4,5 |
|   | 5   |
|   | 5,5 |
|   | 6   |
|   | 7   |
|   | 8   |
|   | 9   |
|   | 10  |
|   | 12  |

|                        |
|------------------------|
| Product Finder         |
| V <sub>c</sub>         |
| M                      |
| MF                     |
| UNC<br>UN-8            |
| UNF<br>UNEF            |
| G, Rp<br>NPSM, NPSF    |
| NPT, NPTF<br>Rc, W     |
| BSW, BSF               |
| Pg                     |
| MJ<br>UNJC, UNJF       |
| EG (STI)               |
| SELF-LOCK              |
| Tr, Tr-F<br>Rd         |
| Zubehör<br>Accessories |

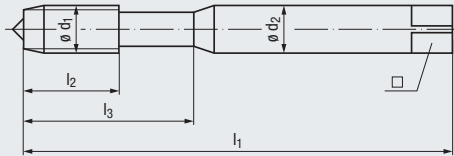


- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories



**M**  
DIN 13

**DIN 371**



**Z**  
CNC-controlled machines



Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material

Technische Informationen  
Technical information

Tr, Tr-F Rd

|           |           |           |           |
|-----------|-----------|-----------|-----------|
| ISO 3/6G  | ISO 3/6G  | ISO 3/6G  | ISO 3/6G  |
| HSSE      | GLT-1     | HSSE      | TIN       |
| R45       | HSSE      | HSSE      | HSSE      |
| C / 2-3   | R45       | R45       | R45       |
| E / 0 / P | C / 2-3   | E / 1,5-2 | E / 1,5-2 |
|           | E / 0 / P | E / 0 / P | E / 0 / P |

Gewindetiefe und Lochform  
Thread depth and hole type

max. 3 x d<sub>1</sub>

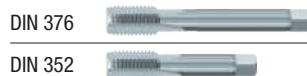


Einsatzgebiete – Material  
Applications – material



|           |  |           |                                      |
|-----------|--|-----------|--------------------------------------|
| P 1.1-3.1 | P 1.1-4.1<br>M 1.1-4.1<br>N 1.4, 2.1-2.2<br>N 2.4-2.5<br>S 1.1 | P 1.1-3.1 | P 1.1-4.1<br>N 2.2, 2.4-2.5<br>S 1.1 |
|-----------|--|-----------|--------------------------------------|

| M   | ø d <sub>1</sub><br>mm | P<br>mm | l <sub>1</sub> | l <sub>2</sub> | l <sub>3</sub> | ø d <sub>2</sub> | □    |               | Enorm 1-Z     | Enorm 1-Z<br>GLT-1 | Enorm 1-Z/E   | Enorm 1-Z/E<br>TIN |
|-----|------------------------|---------|----------------|----------------|----------------|------------------|------|---------------|---------------|--------------------|---------------|--------------------|
|     |                        |         |                |                |                |                  |      |               |               |                    |               |                    |
| 1,1 | 0,25                   | 40      | 2,5            | –              | 2,5            | 2,1              | 0,85 |               |               |                    |               |                    |
| 1,2 | 0,25                   | 40      | 2,5            | –              | 2,5            | 2,1              | 0,95 |               |               |                    |               |                    |
| 1,4 | 0,3                    | 40      | 3              | –              | 2,5            | 2,1              | 1,1  |               |               |                    |               |                    |
| 1,6 | 0,35                   | 40      | 4              | 11             | 2,5            | 2,1              | 1,25 |               |               |                    |               |                    |
| 1,7 | 0,35                   | 40      | 4              | 11             | 2,5            | 2,1              | 1,35 |               |               |                    |               |                    |
| 1,8 | 0,35                   | 40      | 4              | 11             | 2,5            | 2,1              | 1,45 |               |               |                    |               |                    |
| 2   | 0,4                    | 45      | 4              | 12             | 2,8            | 2,1              | 1,6  | B0503520.0020 | B050C420.0020 | B0513520.0020      |               |                    |
| 2,2 | 0,45                   | 45      | 4,5            | 12             | 2,8            | 2,1              | 1,75 |               |               |                    |               |                    |
| 2,3 | 0,4                    | 45      | 4,5            | 12             | 2,8            | 2,1              | 1,9  |               |               |                    |               |                    |
| 2,5 | 0,45                   | 50      | 5              | 14             | 2,8            | 2,1              | 2,05 | B0503520.0025 | B050C420.0025 | B0513520.0025      |               |                    |
| 2,6 | 0,45                   | 50      | 5              | 14             | 2,8            | 2,1              | 2,15 |               |               |                    |               |                    |
| 3   | 0,5                    | 56      | 6              | 18             | 3,5            | 2,7              | 2,5  | B0503520.0030 | B050C420.0030 | B0513520.0030      | B0513720.0030 |                    |
| 3,5 | 0,6                    | 56      | 7              | 20             | 4              | 3                | 2,9  |               |               |                    |               |                    |
| 4   | 0,7                    | 63      | 7              | 21             | 4,5            | 3,4              | 3,3  | B0503520.0040 | B050C420.0040 | B0513520.0040      | B0513720.0040 |                    |
| 4,5 | 0,75                   | 70      | 8              | 25             | 6              | 4,9              | 3,7  |               |               |                    |               |                    |
| 5   | 0,8                    | 70      | 8              | 25             | 6              | 4,9              | 4,2  | B0503520.0050 | B050C420.0050 | B0513520.0050      | B0513720.0050 |                    |
| 5,5 | 0,9                    | 80      | 10             | 30             | 6              | 4,9              | 4,6  |               |               |                    |               |                    |
| 6   | 1                      | 80      | 10             | 30             | 6              | 4,9              | 5    | B0503520.0060 | B050C420.0060 | B0513520.0060      | B0513720.0060 |                    |
| 7   | 1                      | 80      | 10             | 30             | 7              | 5,5              | 6    |               |               |                    |               |                    |
| 8   | 1,25                   | 90      | 14             | 35             | 8              | 6,2              | 6,8  | B0503520.0080 | B050C420.0080 | B0513520.0080      | B0513720.0080 |                    |
| 9   | 1,25                   | 90      | 14             | 35             | 9              | 7                | 7,8  |               |               |                    |               |                    |
| 10  | 1,5                    | 100     | 16             | 39             | 10             | 8                | 8,5  | B0503520.0100 | B050C420.0100 | B0513520.0100      | B0513720.0100 |                    |
| 12  | 1,75                   | 110     | 18             | 44             | 12             | 9                | 10,2 |               |               |                    |               |                    |



140 140 140 140

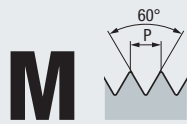
| Z<br>CNC-controlled machines  |  |   |  |   |  |   |            |
|---|--|---|--|---|--|---|------------|
|   |  |   |  |   |  |   |            |
|   |  |   |  |   |  |   |            |
| <b>ISO 3/6G</b><br>GLT-1<br>HSSE<br>R45<br>E / 1,5-2<br>E / O / P                                 | <b>7G</b><br>HSSE<br>R45<br>C / 2-3<br>E / O / P | <b>7G</b><br>GLT-1<br>HSSE<br>R45<br>C / 2-3<br>E / O / P   | <b>6H +0,1 2)</b><br>HSSE<br>R45<br>C / 2-3<br>E / O / P | <b>6H +0,1 2)</b><br>GLT-1<br>HSSE<br>R45<br>C / 2-3<br>E / O / P                                 | <b>ISO 2/6H</b><br>HSSE<br>LH, L45<br>C / 2-3<br>E / O / P | <b>ISO 2/6H</b><br>GLT-1<br>HSSE<br>LH, L45<br>C / 2-3<br>E / O / P                               |            |
| max. 3 x d <sub>1</sub><br>   |  |   |  |   |  |   |            |
| <b>P 1.1-4.1</b><br><b>M 1.1-4.1</b><br><b>N 1.4, 2.1-2.2</b><br><b>N 2.4-2.5</b><br><b>S 1.1</b> | <b>P 1.1-3.1</b>                                 | <b>P 1.1-4.1</b><br><b>M 1.1-4.1</b><br><b>N 1.4, 2.1-2.2</b><br><b>N 2.4-2.5</b><br><b>S 1.1</b> | <b>P 1.1-3.1</b>   | <b>P 1.1-4.1</b><br><b>M 1.1-4.1</b><br><b>N 1.4, 2.1-2.2</b><br><b>N 2.4-2.5</b><br><b>S 1.1</b> | <b>P 1.1-3.1</b>   | <b>P 1.1-4.1</b><br><b>M 1.1-4.1</b><br><b>N 1.4, 2.1-2.2</b><br><b>N 2.4-2.5</b><br><b>S 1.1</b> |            |
| <b>Enorm 1-Z/E GLT-1</b>  | <b>Enorm 1-Z</b>                                 | <b>Enorm 1-Z GLT-1</b>  | <b>Enorm 1-Z</b>   | <b>Enorm 1-Z GLT-1</b>  | <b>Enorm 1-Z-LH</b>  | <b>Enorm 1-Z-LH GLT-1</b>   |            |
|   |  |   |  |   |  |   | <b>M 1</b> |
|   |  |   |  |   |  |   | 1,1        |
|   |  |   |  |   |  |   | 1,2        |
|   |  |   |  |   |  |   | 1,4        |
|   |  |   |  |   |  |   | 1,6        |
|   |  |   |  |   |  |   | 1,7        |
|   |  |   |  |   |  |   | 1,8        |
|   | <b>B0503530.0020</b>                             | <b>B050C430.0020</b>  |  |   | <b>B0503550.0020</b>                                       |   | 2          |
|   |  |   |  |   |  |   | 2,2        |
|   | <b>B0503530.0025</b>                             | <b>B050C430.0025</b>  |  |   | <b>B0503550.0025</b>                                       |   | 2,3        |
|   |  |   |  |   |  |   | 2,5        |
|   |  |   |  |   |  |   | 2,6        |
| <b>B051C420.0030</b>  | <b>B0503530.0030</b>                             | <b>B050C430.0030</b>  | <b>B0503540.0030</b>                                     | <b>B050C440.0030</b>  | <b>B0503550.0030</b>                                       | <b>B050C450.0030</b>  | 3          |
| <b>B051C420.0040</b>  | <b>B0503530.0040</b>                             | <b>B050C430.0040</b>  | <b>B0503540.0040</b>                                     | <b>B050C440.0040</b>  | <b>B0503550.0040</b>                                       | <b>B050C450.0040</b>  | 3,5        |
| <b>B051C420.0050</b>  | <b>B0503530.0050</b>                             | <b>B050C430.0050</b>  | <b>B0503540.0050</b>                                     | <b>B050C440.0050</b>  | <b>B0503550.0050</b>                                       | <b>B050C450.0050</b>  | 4          |
| <b>B051C420.0060</b>  | <b>B0503530.0060</b>                             | <b>B050C430.0060</b>  |  |   | <b>B0503550.0060</b>                                       | <b>B050C450.0060</b>  | 4,5        |
| <b>B051C420.0080</b>  | <b>B0503530.0080</b>                             | <b>B050C430.0080</b>  |  |   | <b>B0503550.0080</b>                                       | <b>B050C450.0080</b>  | 5          |
| <b>B051C420.0100</b>  | <b>B0503530.0100</b>                             | <b>B050C430.0100</b>  |  |   | <b>B0503550.0100</b>                                       | <b>B050C450.0100</b>  | 5,5        |
|   |  |   |  |   |  |   | 6          |
|   |  |   |  |   |  |   | 7          |
|   |  |   |  |   |  |   | 7          |
|   |  |   |  |   |  |   | 8          |
|   |  |   |  |   |  |   | 9          |
|   |  |   |  |   |  |   | 10         |
|   |  |   |  |   |  |   | 12         |
|   |  |   |  |   |  |   |            |

|                     |
|---------------------|
| Product Finder      |
| V <sub>c</sub>      |
| M                   |
| MF                  |
| UNC UN-8            |
| UNF UNEF            |
| G, Rp NPSM, NPSF    |
| NPT, NPTF Rc, W     |
| BSW, BSF            |
| Pg                  |
| MJ UNJC, UNJF       |
| EG (STI)            |
| SELF-LOCK           |
| Tr, Tr-F Rd         |
| Zubehör Accessories |



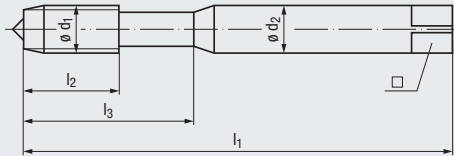
2) Vorbohrdurchmesser für Gewindebohrer mit Übermaß um 0,1 mm anheben  
Increase drill diameter for taps with oversize by 0.1 mm

- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories



**M**  
DIN 13

**DIN 371**



**Z**  
CNC-controlled machines



**NEW**



Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material

Technische Informationen  
Technical information



|            |           |
|------------|-----------|
| 6HX        | 6HX       |
| HSSE       | GLT-1     |
| <b>R50</b> | HSSE      |
| C / 2-3    | C / 2-3   |
| E / O / P  | E / O / P |

Gewindetiefe und Lochform  
Thread depth and hole type

max. 3 x d<sub>1</sub>



Einsatzgebiete – Material  
Applications – material

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|                  |                       |
|------------------|-----------------------|
| <b>P</b> 1.1-3.1 | <b>P</b> 1.1-4.1      |
|                  | <b>M</b> 1.1-4.1      |
|                  | <b>N</b> 1.4, 2.1-2.2 |
|                  | <b>N</b> 2.4-2.5      |
|                  | <b>S</b> 1.1          |

| M | ø d <sub>1</sub><br>mm | P<br>mm | l <sub>1</sub> | l <sub>2</sub> | l <sub>3</sub> | ø d <sub>2</sub> | □   |      | Enorm 1-Z50          | Enorm 1-Z50 GLT-1    |
|---|------------------------|---------|----------------|----------------|----------------|------------------|-----|------|----------------------|----------------------|
|   |                        |         |                |                |                |                  |     |      |                      |                      |
|   | 1,1                    | 0,25    | 40             | 2,5            | –              | 2,5              | 2,1 | 0,85 |                      |                      |
|   | 1,2                    | 0,25    | 40             | 2,5            | –              | 2,5              | 2,1 | 0,95 |                      |                      |
|   | 1,4                    | 0,3     | 40             | 3              | –              | 2,5              | 2,1 | 1,1  |                      |                      |
|   | 1,6                    | 0,35    | 40             | 4              | 11             | 2,5              | 2,1 | 1,25 |                      |                      |
|   | 1,7                    | 0,35    | 40             | 4              | 11             | 2,5              | 2,1 | 1,35 |                      |                      |
|   | 1,8                    | 0,35    | 40             | 4              | 11             | 2,5              | 2,1 | 1,45 |                      |                      |
|   | 2                      | 0,4     | 45             | 4              | 12             | 2,8              | 2,1 | 1,6  | B0653501.0020        |                      |
|   | 2,2                    | 0,45    | 45             | 4,5            | 12             | 2,8              | 2,1 | 1,75 |                      |                      |
|   | 2,3                    | 0,4     | 45             | 4,5            | 12             | 2,8              | 2,1 | 1,9  |                      |                      |
|   | 2,5                    | 0,45    | 50             | 5              | 14             | 2,8              | 2,1 | 2,05 | B0653501.0025        |                      |
|   | 2,6                    | 0,45    | 50             | 5              | 14             | 2,8              | 2,1 | 2,15 |                      |                      |
|   | 3                      | 0,5     | 56             | 6              | 18             | 3,5              | 2,7 | 2,5  | <b>B0653501.0030</b> | <b>B065C401.0030</b> |
|   | 3,5                    | 0,6     | 56             | 7              | 20             | 4                | 3   | 2,9  |                      |                      |
|   | 4                      | 0,7     | 63             | 7              | 21             | 4,5              | 3,4 | 3,3  | <b>B0653501.0040</b> | <b>B065C401.0040</b> |
|   | 4,5                    | 0,75    | 70             | 8              | 25             | 6                | 4,9 | 3,7  |                      |                      |
|   | 5                      | 0,8     | 70             | 8              | 25             | 6                | 4,9 | 4,2  | <b>B0653501.0050</b> | <b>B065C401.0050</b> |
|   | 5,5                    | 0,9     | 80             | 10             | 30             | 6                | 4,9 | 4,6  |                      |                      |
|   | 6                      | 1       | 80             | 10             | 30             | 6                | 4,9 | 5    | <b>B0653501.0060</b> | <b>B065C401.0060</b> |
|   | 7                      | 1       | 80             | 10             | 30             | 7                | 5,5 | 6    |                      |                      |
|   | 8                      | 1,25    | 90             | 14             | 35             | 8                | 6,2 | 6,8  | <b>B0653501.0080</b> | <b>B065C401.0080</b> |
|   | 9                      | 1,25    | 90             | 14             | 35             | 9                | 7   | 7,8  |                      |                      |
|   | 10                     | 1,5     | 100            | 16             | 39             | 10               | 8   | 8,5  | <b>B0653501.0100</b> | <b>B065C401.0100</b> |
|   | 12                     | 1,75    | 110            | 18             | 44             | 12               | 9   | 10,2 |                      |                      |

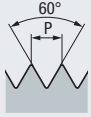
DIN 376

» 142

» 142

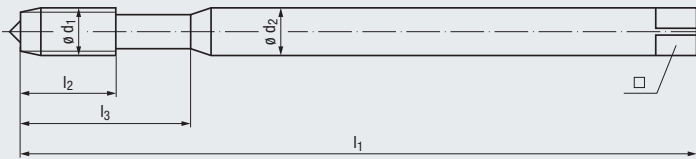
DIN 352

**M**



DIN 13

Mit extra langem Schaft  
With extra long shank



Technische Informationen  
Technical information

Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material



Gewindetiefe und Lochform  
Thread depth and hole type

Einsatzgebiete – Material  
Applications – material

» 78

| $\phi d_1$<br>mm | P<br>mm | $l_1$ | $l_2$ | $l_3$ | $\phi d_2$ | $\square$ |     | Rekord<br>1B-STEEL-L<br>LS | Rekord<br>1D-STEEL/E<br>LS | Rekord<br>1DF-STEEL<br>LS-TIN |
|------------------|---------|-------|-------|-------|------------|-----------|-----|----------------------------|----------------------------|-------------------------------|
| <b>M</b> 3       | 0,5     | 100   | 11    | 18    | 3,5        | 2,7       | 2,5 | B2208900.0030              | B2461000.0030              | B2401400.0030                 |
| 4                | 0,7     | 125   | 13    | 21    | 4,5        | 3,4       | 3,3 | B2208900.0040              | B2461000.0040              | B2401400.0040                 |
| 5                | 0,8     | 140   | 15    | 25    | 6          | 4,9       | 4,2 | B2208900.0050              | B2461000.0050              | B2401400.0050                 |
| 6                | 1       | 160   | 17    | 30    | 6          | 4,9       | 5   | B2208900.0060              | B2461000.0060              | B2401400.0060                 |
| 8                | 1,25    | 180   | 20    | 35    | 8          | 6,2       | 6,8 | B2208900.0080              | B2461000.0080              | B2401400.0080                 |
| 10               | 1,5     | 200   | 22    | 39    | 10         | 8         | 8,5 |                            |                            | B2401400.0100                 |

new

**STEEL**  
Steel  
materials



2)



1)



1)

|          |
|----------|
| ISO 2/6H |
| HSSE     |
| B / 4-5  |
| E / 0    |

|                  |
|------------------|
| ISO 2/6H         |
| HSSE             |
| R15              |
| <b>E / 1,5-2</b> |
| E / 0            |

|          |
|----------|
| ISO 2/6H |
| TIN      |
| HSSE     |
| R15      |
| C / 2-3  |
| E / 0    |



|                  |
|------------------|
| <b>P</b> 1.1-3.1 |
| <b>N</b> 2.2     |

|                  |
|------------------|
| <b>P</b> 2.1-3.1 |
|------------------|

|                  |
|------------------|
| <b>P</b> 3.1-4.1 |
|------------------|

143

143

143

1) Ab M4 auch mit innerer Kühlschmierstoff-Zufuhr IKZ möglich  
From M4 also available with internal coolant supply IKZ

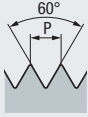
2) Ab M5 auch mit innerer Kühlschmierstoff-Zufuhr IKZN möglich  
From M5 also available with internal coolant supply IKZN

- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories



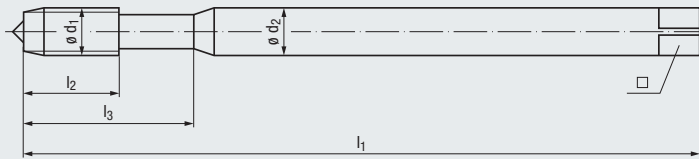
- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories

# M



DIN 13

Mit extra langem Schaft  
With extra long shank



Technische Informationen  
Technical information

Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material

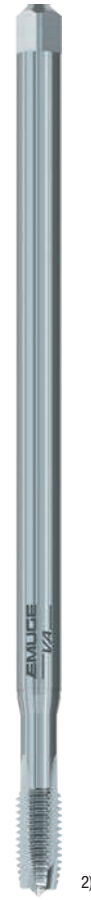


Gewindetiefe und Lochform  
Thread depth and hole type

Einsatzgebiete – Material  
Applications – material



VA  
Stainless steel materials



2)



2)



1)

l<sub>2</sub> ≈ 10 x P

|           |
|-----------|
| ISO 2/6H  |
| NT        |
| HSSE      |
| B / 4-5   |
| E / O / P |

|           |
|-----------|
| ISO 2/6H  |
| GLT-1     |
| HSSE      |
| B / 4-5   |
| E / O / P |

|           |
|-----------|
| ISO 2/6H  |
| HSSE      |
| R35       |
| C / 2-3   |
| E / O / P |

max. 3 x d<sub>1</sub>



max. 2,5 x d<sub>1</sub>



|            |
|------------|
| P 2.1-3.1  |
| N 2.2, 2.5 |

|           |
|-----------|
| P 1.1-4.1 |
| M 1.1-4.1 |
| N 2.2     |

|           |
|-----------|
| P 1.1-3.1 |
|-----------|

| Ø d <sub>1</sub> mm | P mm | l <sub>1</sub> | l <sub>2</sub> | l <sub>3</sub> | Ø d <sub>2</sub> | □   |     | Rekord 1B-VA LS-NT | Rekord 1B-VA LS-GLT-1 | Enorm 1-VA LS |
|---------------------|------|----------------|----------------|----------------|------------------|-----|-----|--------------------|-----------------------|---------------|
| <b>M</b> 3          | 0,5  | 100            | 11             | 18             | 3,5              | 2,7 | 2,5 | B2203000.0030      | B220C300.0030         | B2503000.0030 |
| 4                   | 0,7  | 125            | 13             | 21             | 4,5              | 3,4 | 3,3 | B2203000.0040      | B220C300.0040         | B2503000.0040 |
| 5                   | 0,8  | 140            | 15             | 25             | 6                | 4,9 | 4,2 | B2203000.0050      | B220C300.0050         | B2503000.0050 |
| 6                   | 1    | 160            | 17             | 30             | 6                | 4,9 | 5   | B2203000.0060      | B220C300.0060         | B2503000.0060 |
| 8                   | 1,25 | 180            | 20             | 35             | 8                | 6,2 | 6,8 | B2203000.0080      | B220C300.0080         | B2503000.0080 |
| 10                  | 1,5  | 200            | 22             | 39             | 10               | 8   | 8,5 |                    |                       |               |



144

144

144

1) Ab M4 auch mit innerer Kühlschmierstoff-Zufuhr IKZ möglich  
From M4 also available with internal coolant supply IKZ

2) Ab M5 auch mit innerer Kühlschmierstoff-Zufuhr IKZN möglich  
From M5 also available with internal coolant supply IKZN

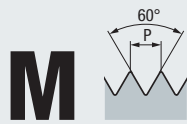
| H<br>Materials of high tensile strength   | Z<br>CNC-controlled machines  |   |   |                           |    |  |  |                                      |
|---|---|---|---|---------------------------|----|--|--|--------------------------------------|
|   |   |   |   |                           |    |  |  |                                      |
|   |   |   |   |                           |    |  |  |                                      |
| 1) 2)   | $l_2 \approx 10 \times P$   | $l_2 \approx 10 \times P$   | 1)  | $l_2 \approx 10 \times P$ | 1) |  |  |                                      |
| 6HX<br>NT<br>HSSE   | 6HX<br>TIN<br>HSSE<br>R15   | ISO 2/6H<br>HSSE<br>R45   | ISO 2/6H<br>GLT-1<br>HSSE<br>R45  |                           |    |  |  |                                      |
| C / 2-3<br>E / O / P  | C / 2-3<br>E / O  | C / 2-3<br>E / O / P  | C / 2-3<br>E / O / P  |                           |    |  |  |                                      |
| max. 2 x d <sub>1</sub><br>   | max. 2 x d <sub>1</sub><br>   | max. 3 x d <sub>1</sub><br>   |   |                           |    |  |  |                                      |
| <b>K</b> 1.1-4.2<br><b>N</b> 4.1  | <b>P</b> 3.1-5.1<br><b>N</b> 2.4-2.5  | <b>P</b> 1.1-3.1  | <b>P</b> 1.1-4.1<br><b>M</b> 1.1-4.1<br><b>N</b> 1.4, 2.1-2.2<br><b>N</b> 2.4-2.5<br><b>S</b> 1.1 |                           |    |  |  |                                      |
| <b>Rekord</b><br>1A-H<br>LS-NT  | <b>Rekord</b><br>1D-Z-BF-IKZ<br>LS-TIN  | <b>Enorm</b><br>1-Z<br>LS   | <b>Enorm</b><br>1-Z-LS<br>GLT-1   |                           |    |  |  |                                      |
| B2100501.0030<br>B2100501.0040<br>B2100501.0050<br>B2100501.0060<br>B2100501.0080 | B4093701.0040<br>B4093701.0050<br>B4093701.0060<br>B4093701.0080<br>B4093701.0100 | B2503500.0030<br>B2503500.0040<br>B2503500.0050<br>B2503500.0060<br>B2503500.0080 | B250C400.0030<br>B250C400.0040<br>B250C400.0050<br>B250C400.0060<br>B250C400.0080                 |                           |    |  |  | <b>M</b> 3<br>4<br>5<br>6<br>8<br>10 |
|   |   |   |   |                           |    |  |  |                                      |

|                     |
|---------------------|
| Product Finder      |
| V <sub>c</sub>      |
| M                   |
| MF                  |
| UNC UN-8            |
| UNF UNEF            |
| G, Rp NPSM, NPSF    |
| NPT, NPTF Rc, W     |
| BSW, BSF            |
| Pg                  |
| MJ UNJC, UNJF       |
| EG (STI)            |
| SELF-LOCK           |
| Tr, Tr-F Rd         |
| Zubehör Accessories |



Spezial-Schaftverlängerungen zur Aufnahme von Standard-Gewindebohrern siehe Seite 302 - 304  
Special shank extensions for using standard taps, see page 302 - 304

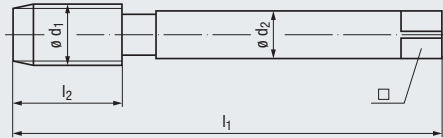
- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories



**M**  
DIN 13

**DIN 376**

**STEEL**  
Steel materials



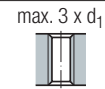
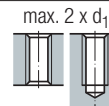
Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material

Technische Informationen  
Technical information



|                  |                  |                  |                  |
|------------------|------------------|------------------|------------------|
| 6HX              | ISO 2/6H         | ISO 2/6H         | ISO 1/4H         |
| HSSE             | HSSE             | TIN<br>HSSE      | HSSE             |
| C / 2-3<br>E / 0 | B / 4-5<br>E / 0 | B / 4-5<br>E / 0 | B / 4-5<br>E / 0 |

Gewindetiefe und Lochform  
Thread depth and hole type



Einsatzgebiete – Material  
Applications – material

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|                                  |                                  |                  |                                  |
|----------------------------------|----------------------------------|------------------|----------------------------------|
| <b>K</b> 1.1-4.2<br><b>N</b> 2.3 | <b>P</b> 1.1-3.1<br><b>N</b> 2.2 | <b>P</b> 1.1-4.1 | <b>P</b> 1.1-3.1<br><b>N</b> 2.2 |
|----------------------------------|----------------------------------|------------------|----------------------------------|

| $\phi d_1$<br>mm | P<br>mm | $l_1$ | $l_2$ | $\phi d_2$ | □    |      | Rekord<br>2A-STEEL | Rekord<br>2B-STEEL-L | Rekord<br>2B-STEEL-L<br>TIN | Rekord<br>2B-STEEL-L |
|------------------|---------|-------|-------|------------|------|------|--------------------|----------------------|-----------------------------|----------------------|
| <b>M</b> 3       | 0,5     | 56    | 11    | 2,2        | –    | 2,5  |                    |                      |                             |                      |
| 4                | 0,7     | 63    | 13    | 2,8        | 2,1  | 3,3  | C0101001.0040      |                      |                             |                      |
| 5                | 0,8     | 70    | 15    | 3,5        | 2,7  | 4,2  | C0101001.0050      | C0208900.0050        | C0208400.0050               |                      |
| 6                | 1       | 80    | 17    | 4,5        | 3,4  | 5    | C0101001.0060      | C0208900.0060        | C0208400.0060               |                      |
| 7                | 1       | 80    | 17    | 5,5        | 4,3  | 6    |                    |                      |                             |                      |
| 8                | 1,25    | 90    | 20    | 6          | 4,9  | 6,8  | C0101001.0080      | C0208900.0080        | C0208400.0080               |                      |
| 9                | 1,25    | 90    | 20    | 7          | 5,5  | 7,8  |                    |                      |                             |                      |
| 10               | 1,5     | 100   | 22    | 7          | 5,5  | 8,5  | C0101001.0100      | C0208900.0100        | C0208400.0100               |                      |
| 11               | 1,5     | 100   | 22    | 8          | 6,2  | 9,5  | C0101001.0111      | C0208900.0111        | C0208400.0111               |                      |
| 12               | 1,75    | 110   | 24    | 9          | 7    | 10,2 | C0101001.0112      | C0208900.0112        | C0208400.0112               | C0208910.0112        |
| 14               | 2       | 110   | 26    | 11         | 9    | 12   | C0101001.0114      | C0208900.0114        | C0208400.0114               | C0208910.0114        |
| 16               | 2       | 110   | 27    | 12         | 9    | 14   | C0101001.0116      | C0208900.0116        | C0208400.0116               | C0208910.0116        |
| 18               | 2,5     | 125   | 30    | 14         | 11   | 15,5 | C0101001.0118      | C0208900.0118        | C0208400.0118               | C0208910.0118        |
| 20               | 2,5     | 140   | 32    | 16         | 12   | 17,5 | C0101001.0120      | C0208900.0120        | C0208400.0120               | C0208910.0120        |
| 22               | 2,5     | 140   | 32    | 18         | 14,5 | 19,5 | C0101001.0122      | C0208900.0122        | C0208400.0122               | C0208910.0122        |
| 24               | 3       | 160   | 34    | 18         | 14,5 | 21   | C0101001.0124      | C0208900.0124        | C0208400.0124               | C0208910.0124        |
| 27               | 3       | 160   | 36    | 20         | 16   | 24   | C0101001.0127      | C0208900.0127        | C0208400.0127               |                      |
| 30               | 3,5     | 180   | 40    | 22         | 18   | 26,5 | C0101001.0130      | C0208900.0130        | C0208400.0130               |                      |
| 33               | 3,5     | 180   | 40    | 25         | 20   | 29,5 | C0101001.0133      | C0208900.0133        | C0208400.0133               |                      |
| 36               | 4       | 200   | 50    | 28         | 22   | 32   | C0101001.0136      | C0208900.0136        | C0208400.0136               |                      |
| 39               | 4       | 200   | 50    | 32         | 24   | 35   | C0101001.0139      | C0208900.0139        | C0208400.0139               |                      |
| 42               | 4,5     | 200   | 56    | 32         | 24   | 37,5 | C0101001.0142      | C0208900.0142        | C0208400.0142               |                      |
| 45               | 4,5     | 220   | 58    | 36         | 29   | 40,5 | C0101001.0145      | C0208900.0145        | C0208400.0145               |                      |
| 48               | 5       | 250   | 65    | 36         | 29   | 43   | C0101001.0148      | C0208900.0148        | C0208400.0148               |                      |
| 52               | 5       | 250   | 65    | 40         | 32   | 47   | C0101001.0152      | C0208900.0152        | C0208400.0152               |                      |

DIN 371

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» 92

» 93























DIN 352

» 150

» 150



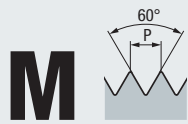
**STEEL**  
Steel  
materials

|   |  |  |  |  |  |  |     |
|---|--|--|--|--|--|--|-----|
|                              |       |       |       |       |       |       |     |
|                              |       |       |       |       |       |       |     |
| ISO 1/4H  | ISO 3/6G   | ISO 3/6G   | 7G   | 7G   | ISO 2/6H   | ISO 2/6H   |     |
| TIN   | HSSE   | TIN  | HSSE   | TIN  | HSSE   | TIN  |     |
| HSSE  | HSSE   | HSSE   | HSSE   | HSSE   | HSSE   | HSSE   |     |
| B / 4-5   | B / 4-5  | B / 4-5  | B / 4-5  | B / 4-5  | LH   | LH   |     |
| E / 0   | E / 0  | E / 0  | E / 0  | E / 0  | B / 4-5  | B / 4-5  |     |
| E / 0   | E / 0  | E / 0  | E / 0  | E / 0  | E / 0  | E / 0  |     |
| max. 3 x d <sub>1</sub><br> |  |  |  |  |  |  |     |
| P 1.1-4.1   | P 1.1-3.1<br>N 2.2   | P 1.1-4.1  | P 1.1-3.1<br>N 2.2   | P 1.1-4.1  | P 1.1-3.1<br>N 2.2   | P 1.1-4.1  |     |
| Rekord 2B-STEEL-L TIN   | Rekord 2B-STEEL-L  | Rekord 2B-STEEL-L TIN  | Rekord 2B-STEEL-L  | Rekord 2B-STEEL-L TIN  | Rekord 2B-STEEL-L-LH   | Rekord 2B-STEEL-L-LH TIN   |     |
|   |  |  |  |  |  |  | M 3 |
|   |  |  |  |  |  |  | 4   |
|   |  |  |  |  |  |  | 5   |
|   |  |  |  |  |  |  | 6   |
|   |  |  |  |  |  |  | 7   |
|   |  |  |  |  |  |  | 8   |
|   |  |  |  |  |  |  | 9   |
|   |  |  |  |  |  |  | 10  |
|   |  |  |  |  |  |  | 11  |
|   |  |  |  |  |  |  | 12  |
| C0208410.0112   | C0208920.0112  | C0208420.0112  | C0208930.0112  | C0208430.0112  | C0208950.0112  | C0208450.0112  | 14  |
| C0208410.0114   | C0208920.0114  | C0208420.0114  | C0208930.0114  | C0208430.0114  | C0208950.0114  | C0208450.0114  | 16  |
| C0208410.0116   | C0208920.0116  | C0208420.0116  | C0208930.0116  | C0208430.0116  | C0208950.0116  | C0208450.0116  | 18  |
| C0208410.0118   | C0208920.0118  | C0208420.0118  | C0208930.0118  | C0208430.0118  | C0208950.0118  | C0208450.0118  | 20  |
| C0208410.0120   | C0208920.0120  | C0208420.0120  | C0208930.0120  | C0208430.0120  | C0208950.0120  | C0208450.0120  | 22  |
| C0208410.0122   | C0208920.0122  | C0208420.0122  | C0208930.0122  | C0208430.0122  | C0208950.0122  | C0208450.0122  | 24  |
| C0208410.0124   | C0208920.0124  | C0208420.0124  | C0208930.0124  | C0208430.0124  | C0208950.0124  | C0208450.0124  | 27  |
|   |  |  |  |  |  |  | 30  |
|   |  |  |  |  |  |  | 33  |
|   |  |  |  |  |  |  | 36  |
|   |  |  |  |  |  |  | 39  |
|   |  |  |  |  |  |  | 42  |
|   |  |  |  |  |  |  | 45  |
|   |  |  |  |  |  |  | 48  |
|   |  |  |  |  |  |  | 52  |
|  93                        |  93 |  93 |  93 |  93 |  93 |  93 |     |

|                     |
|---------------------|
| Product Finder      |
| V <sub>c</sub>      |
| M                   |
| MF                  |
| UNC UN-8            |
| UNF UNEF            |
| G, Rp NPSM, NPSF    |
| NPT, NPTF Rc, W     |
| BSW, BSF            |
| Pg                  |
| MJ UNJC, UNJF       |
| EG (STI)            |
| SELF-LOCK           |
| Tr, Tr-F Rd         |
| Zubehör Accessories |

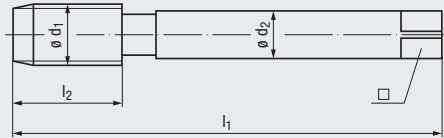


- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories

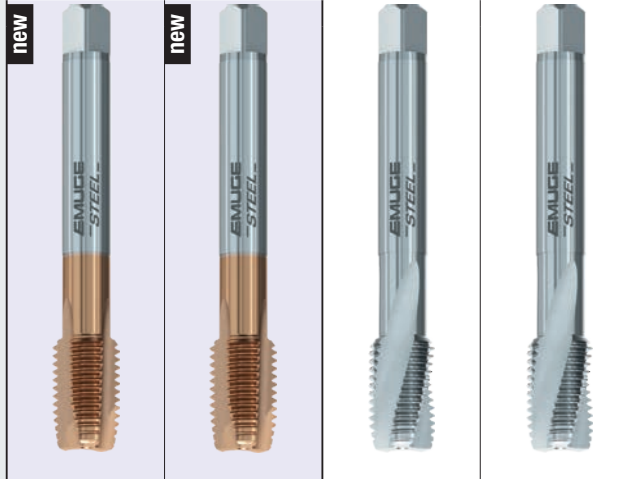


**M**  
DIN 13

**DIN 376**



**STEEL**  
Steel materials



Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material

Technische Informationen  
Technical information



|                                   |                                   |   |  |
|-----------------------------------|-----------------------------------|---|--|
| 6HX<br>ALCR-102<br><b>HSSE-PM</b> | 6HX<br>ALCR-101<br><b>HSSE-PM</b> | ISO 2/6H<br>HSSE<br>R15<br>C / 2-3<br>E / O | ISO 2/6H<br>HSSE<br>R15<br><b>E / 1,5-2</b><br>E / O |
|-----------------------------------|-----------------------------------|---|--|

Gewindetiefe und Lochform  
Thread depth and hole type

max. 3 x d<sub>1</sub>



max. 2 x d<sub>1</sub>



Einsatzgebiete – Material  
Applications – material

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|           |           |           |           |
|-----------|-----------|-----------|-----------|
| P 3.1-5.1 | P 3.1-5.1 | P 2.1-3.1 | P 2.1-3.1 |
|-----------|-----------|-----------|-----------|

|   | $\phi d_1$<br>mm | P<br>mm | $l_1$ | $l_2$ | $\phi d_2$ | □    |      | Rekord<br>2B-STEEL-H<br>PM-ALCR-102 | Rekord<br>2B-STEEL-H<br>PM-ALCR-101 | Rekord<br>2D-STEEL | Rekord<br>2D-STEEL/E |
|---|------------------|---------|-------|-------|------------|------|------|-------------------------------------|-------------------------------------|--------------------|----------------------|
| M | 3                | 0,5     | 56    | 11    | 2,2        | –    | 2,5  |                                     |                                     |                    |                      |
|   | 4                | 0,7     | 63    | 13    | 2,8        | 2,1  | 3,3  |                                     |                                     |                    |                      |
|   | 5                | 0,8     | 70    | 15    | 3,5        | 2,7  | 4,2  |                                     |                                     |                    |                      |
|   | 6                | 1       | 80    | 17    | 4,5        | 3,4  | 5    |                                     |                                     | C0451000.0060      |                      |
|   | 7                | 1       | 80    | 17    | 5,5        | 4,3  | 6    |                                     |                                     |                    |                      |
|   | 8                | 1,25    | 90    | 20    | 6          | 4,9  | 6,8  |                                     |                                     | C0451000.0080      |                      |
|   | 9                | 1,25    | 90    | 20    | 7          | 5,5  | 7,8  |                                     |                                     |                    |                      |
|   | 10               | 1,5     | 100   | 22    | 7          | 5,5  | 8,5  |                                     |                                     | C0451000.0100      |                      |
|   | 11               | 1,5     | 100   | 22    | 8          | 6,2  | 9,5  |                                     |                                     |                    |                      |
|   | 12               | 1,75    | 110   | 24    | 9          | 7    | 10,2 | C0209J01.0112                       | C0208J01.0112                       | C0451000.0112      | C0461000.0112        |
|   | 14               | 2       | 110   | 26    | 11         | 9    | 12   |                                     |                                     |                    |                      |
|   | 16               | 2       | 110   | 27    | 12         | 9    | 14   | C0209J01.0116                       | C0208J01.0116                       | C0451000.0116      | C0461000.0116        |
|   | 18               | 2,5     | 125   | 30    | 14         | 11   | 15,5 |                                     |                                     |                    |                      |
|   | 20               | 2,5     | 140   | 32    | 16         | 12   | 17,5 | C0209J01.0120                       | C0208J01.0120                       | C0451000.0120      | C0461000.0120        |
|   | 22               | 2,5     | 140   | 32    | 18         | 14,5 | 19,5 |                                     |                                     |                    |                      |
|   | 24               | 3       | 160   | 34    | 18         | 14,5 | 21   | C0209J01.0124                       | C0208J01.0124                       | C0451000.0124      | C0461000.0124        |
|   | 27               | 3       | 160   | 36    | 20         | 16   | 24   |                                     |                                     | C0451000.0127      |                      |
|   | 30               | 3,5     | 180   | 40    | 22         | 18   | 26,5 |                                     |                                     | C0451000.0130      |                      |
|   | 33               | 3,5     | 180   | 40    | 25         | 20   | 29,5 |                                     |                                     |                    |                      |
|   | 36               | 4       | 200   | 50    | 28         | 22   | 32   |                                     |                                     |                    |                      |
|   | 39               | 4       | 200   | 50    | 32         | 24   | 35   |                                     |                                     |                    |                      |
|   | 42               | 4,5     | 200   | 56    | 32         | 24   | 37,5 |                                     |                                     |                    |                      |
|   | 45               | 4,5     | 220   | 58    | 36         | 29   | 40,5 |                                     |                                     |                    |                      |
|   | 48               | 5       | 250   | 65    | 36         | 29   | 43   |                                     |                                     |                    |                      |
|   | 52               | 5       | 250   | 65    | 40         | 32   | 47   |                                     |                                     |                    |                      |

DIN 371



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» 94

DIN 352



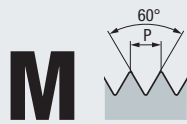
» 150

| STEEL<br>Steel materials |                           |                      | VA<br>Stainless steel materials |                     |                                 |                         |           |
|--------------------------|---------------------------|----------------------|---------------------------------|---------------------|---------------------------------|-------------------------|-----------|
|                          |                           |                      |                                 |                     |                                 |                         |           |
|                          |                           |                      |                                 |                     |                                 |                         |           |
| ISO 2/6H                 | ISO 2/6H                  | ISO 2/6H             | ISO 2/6H                        | ISO 2/6H            | ISO 2/6H                        | ISO 2/6H                | ISO 1/4H  |
| TIN                      |                           | TIN                  | NT                              | TIN                 | GLT-1                           |                         | NT        |
| HSSE                     | HSSE                      | HSSE                 | HSSE                            | HSSE                | HSSE                            |                         | HSSE      |
| R15                      | R35                       | R35                  |                                 |                     |                                 |                         |           |
| C / 2-3                  | C / 2-3                   | C / 2-3              | B / 4-5                         | B / 4-5             | B / 4-5                         | B / 4-5                 | B / 4-5   |
| E / O                    | E / O                     | E / O                | E / O / P                       | E / O / P           | E / O / P                       | E / O / P               | E / O / P |
| max. 2 x d <sub>1</sub>  | max. 2,5 x d <sub>1</sub> |                      | max. 3 x d <sub>1</sub>         |                     |                                 |                         |           |
|                          |                           |                      |                                 |                     |                                 |                         |           |
| P 3.1-4.1                | P 1.1-3.1<br>N 2.2        | P 1.1-3.1<br>N 2.2   | P 2.1-3.1<br>N 2.2, 2.5         | P 1.1-4.1           | P 1.1-4.1<br>M 1.1-4.1<br>N 2.2 | P 2.1-3.1<br>N 2.2, 2.5 |           |
| Rekord 2DF-STEEL<br>TIN  | Enorm 2-STEEL             | Enorm 2-STEEL<br>TIN | Rekord 2B-VA<br>NT              | Rekord 2B-VA<br>TIN | Rekord 2B-VA<br>GLT-1           | Rekord 2B-VA<br>NT      |           |
|                          |                           |                      |                                 |                     |                                 |                         | M 3       |
|                          |                           |                      |                                 |                     |                                 |                         | 4         |
|                          |                           |                      | C0203000.0050                   | C0203100.0050       | C020C300.0050                   |                         | 5         |
|                          |                           |                      | C0203000.0060                   | C0203100.0060       | C020C300.0060                   |                         | 6         |
|                          |                           |                      |                                 |                     |                                 |                         | 7         |
|                          |                           |                      | C0203000.0080                   | C0203100.0080       | C020C300.0080                   |                         | 8         |
|                          |                           |                      |                                 |                     |                                 |                         | 9         |
|                          |                           |                      | C0203000.0100                   | C0203100.0100       | C020C300.0100                   |                         | 10        |
|                          |                           |                      | C0203000.0111                   | C0203100.0111       | C020C300.0111                   |                         | 11        |
| C0401400.0112            | C0501000.0112             | C0501400.0112        | C0203000.0112                   | C0203100.0112       | C020C300.0112                   | C0203010.0112           | 12        |
| C0401400.0116            | C0501000.0114             | C0501400.0114        | C0203000.0114                   | C0203100.0114       | C020C300.0114                   | C0203010.0114           | 14        |
|                          | C0501000.0116             | C0501400.0116        | C0203000.0116                   | C0203100.0116       | C020C300.0116                   | C0203010.0116           | 16        |
|                          | C0501000.0118             | C0501400.0118        | C0203000.0118                   | C0203100.0118       | C020C300.0118                   | C0203010.0118           | 18        |
| C0401400.0120            | C0501000.0120             | C0501400.0120        | C0203000.0120                   | C0203100.0120       | C020C300.0120                   | C0203010.0120           | 20        |
|                          | C0501000.0122             | C0501400.0122        | C0203000.0122                   | C0203100.0122       | C020C300.0122                   | C0203010.0122           | 22        |
| C0401400.0124            | C0501000.0124             | C0501400.0124        | C0203000.0124                   | C0203100.0124       | C020C300.0124                   | C0203010.0124           | 24        |
|                          |                           |                      | C0203000.0127                   | C0203100.0127       | C020C300.0127                   |                         | 27        |
|                          | C0501000.0130             | C0501400.0130        | C0203000.0130                   | C0203100.0130       | C020C300.0130                   |                         | 30        |
|                          | C0501000.0133             | C0501400.0133        | C0203000.0133                   | C0203100.0133       | C020C300.0133                   |                         | 33        |
|                          | C0501000.0136             | C0501400.0136        | C0203000.0136                   | C0203100.0136       | C020C300.0136                   |                         | 36        |
|                          | C0501000.0139             | C0501400.0139        | C0203000.0139                   | C0203100.0139       | C020C300.0139                   |                         | 39        |
|                          | C0501000.0142             | C0501400.0142        | C0203000.0142                   | C0203100.0142       | C020C300.0142                   |                         | 42        |
|                          | C0501000.0145             | C0501400.0145        | C0203000.0145                   | C0203100.0145       | C020C300.0145                   |                         | 45        |
|                          | C0501000.0148             | C0501400.0148        | C0203000.0148                   | C0203100.0148       | C020C300.0148                   |                         | 48        |
|                          | C0501000.0152             | C0501400.0152        | C0203000.0152                   | C0203100.0152       | C020C300.0152                   |                         | 52        |
|                          |                           |                      |                                 |                     |                                 |                         |           |
|                          |                           |                      |                                 |                     |                                 |                         |           |

|                     |
|---------------------|
| Product Finder      |
| V <sub>c</sub>      |
| M                   |
| MF                  |
| UNC UN-8            |
| UNC UNF             |
| G, Rp NPSM, NPSF    |
| NPT, NPTF Rc, W     |
| BSW, BSF            |
| Pg                  |
| MJ UNJC, UNJF       |
| EG (STI)            |
| SELF-LOCK           |
| Tr, Tr-F Rd         |
| Zubehör Accessories |

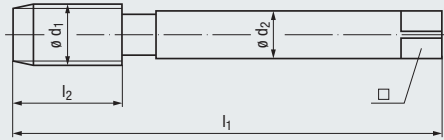


- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories



DIN 13

DIN 376



Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material

Technische Informationen  
Technical information



VA  
Stainless steel materials



|           |           |           |           |
|-----------|-----------|-----------|-----------|
| ISO 1/4H  | ISO 1/4H  | ISO 3/6G  | ISO 3/6G  |
| TIN       | GLT-1     | NT        | TIN       |
| HSSE      | HSSE      | HSSE      | HSSE      |
| B / 4-5   | B / 4-5   | B / 4-5   | B / 4-5   |
| E / O / P | E / O / P | E / O / P | E / O / P |

Gewindetiefe und Lochform  
Thread depth and hole type

max. 3 x d<sub>1</sub>



Einsatzgebiete – Material  
Applications – material

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|           |                                 |                         |           |
|-----------|---------------------------------|-------------------------|-----------|
| P 1.1-4.1 | P 1.1-4.1<br>M 1.1-4.1<br>N 2.2 | P 2.1-3.1<br>N 2.2, 2.5 | P 1.1-4.1 |
|-----------|---------------------------------|-------------------------|-----------|

|   | $\phi d_1$<br>mm | P<br>mm | $l_1$ | $l_2$ | $\phi d_2$ | □    |      | Rekord<br>2B-VA<br>TIN | Rekord<br>2B-VA<br>GLT-1 | Rekord<br>2B-VA<br>NT | Rekord<br>2B-VA<br>TIN |
|---|------------------|---------|-------|-------|------------|------|------|------------------------|--------------------------|-----------------------|------------------------|
| M | 3                | 0,5     | 56    | 11    | 2,2        | –    | 2,5  |                        |                          |                       |                        |
|   | 4                | 0,7     | 63    | 13    | 2,8        | 2,1  | 3,3  |                        |                          |                       |                        |
|   | 5                | 0,8     | 70    | 15    | 3,5        | 2,7  | 4,2  |                        |                          |                       |                        |
|   | 6                | 1       | 80    | 17    | 4,5        | 3,4  | 5    |                        |                          |                       |                        |
|   | 7                | 1       | 80    | 17    | 5,5        | 4,3  | 6    |                        |                          |                       |                        |
|   | 8                | 1,25    | 90    | 20    | 6          | 4,9  | 6,8  |                        |                          |                       |                        |
|   | 9                | 1,25    | 90    | 20    | 7          | 5,5  | 7,8  |                        |                          |                       |                        |
|   | 10               | 1,5     | 100   | 22    | 7          | 5,5  | 8,5  |                        |                          |                       |                        |
|   | 11               | 1,5     | 100   | 22    | 8          | 6,2  | 9,5  |                        |                          |                       |                        |
|   | 12               | 1,75    | 110   | 24    | 9          | 7    | 10,2 |                        |                          |                       |                        |
|   | 14               | 2       | 110   | 26    | 11         | 9    | 12   | C0203110.0112          | C020C310.0112            | C0203020.0112         | C0203120.0112          |
|   | 16               | 2       | 110   | 27    | 12         | 9    | 14   | C0203110.0114          | C020C310.0114            | C0203020.0114         | C0203120.0114          |
|   | 18               | 2,5     | 125   | 30    | 14         | 11   | 15,5 | C0203110.0116          | C020C310.0116            | C0203020.0116         | C0203120.0116          |
|   | 20               | 2,5     | 140   | 32    | 16         | 12   | 17,5 | C0203110.0118          | C020C310.0118            | C0203020.0118         | C0203120.0118          |
|   | 22               | 2,5     | 140   | 32    | 18         | 14,5 | 19,5 | C0203110.0120          | C020C310.0120            | C0203020.0120         | C0203120.0120          |
|   | 24               | 3       | 160   | 34    | 18         | 14,5 | 21   | C0203110.0122          | C020C310.0122            | C0203020.0122         | C0203120.0122          |
|   | 27               | 3       | 160   | 36    | 20         | 16   | 24   | C0203110.0124          | C020C310.0124            | C0203020.0124         | C0203120.0124          |
|   | 30               | 3,5     | 180   | 40    | 22         | 18   | 26,5 |                        |                          |                       |                        |
|   | 33               | 3,5     | 180   | 40    | 25         | 20   | 29,5 |                        |                          |                       |                        |
|   | 36               | 4       | 200   | 50    | 28         | 22   | 32   |                        |                          |                       |                        |
|   | 39               | 4       | 200   | 50    | 32         | 24   | 35   |                        |                          |                       |                        |
|   | 42               | 4,5     | 200   | 56    | 32         | 24   | 37,5 |                        |                          |                       |                        |
|   | 45               | 4,5     | 220   | 58    | 36         | 29   | 40,5 |                        |                          |                       |                        |
|   | 48               | 5       | 250   | 65    | 36         | 29   | 43   |                        |                          |                       |                        |
|   | 52               | 5       | 250   | 65    | 40         | 32   | 47   |                        |                          |                       |                        |

DIN 371

» 96

» 96

» 96

» 96

DIN 352

**VA**  
Stainless steel  
materials

|           |           |           |           |           |           |           |           |
|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
|           |           |           |           |           |           |           |           |
|           |           |           |           |           |           |           |           |
| ISO 3/6G  | 7G        | 7G        | 7G        | ISO 2/6H  | ISO 2/6H  | ISO 2/6H  | ISO 2/6H  |
| GLT-1     | NT        | TIN       | GLT-1     | NT        | TIN       | GLT-1     |           |
| HSSE      | HSSE      | HSSE      | HSSE      | HSSE      | HSSE      | HSSE      | HSSE      |
|           |           |           | <b>LH</b> | <b>LH</b> | <b>LH</b> | <b>LH</b> |           |
| B / 4-5   | B / 4-5   | B / 4-5   | B / 4-5   | B / 4-5   | B / 4-5   | B / 4-5   | R35       |
| E / O / P | E / O / P | E / O / P | E / O / P | E / O / P | E / O / P | E / O / P | C / 2-3   |
|           |           |           |           |           |           |           | E / O / P |

max. 3 x d<sub>1</sub>



max. 2,5 x d<sub>1</sub>



|           |            |           |           |            |           |           |           |
|-----------|------------|-----------|-----------|------------|-----------|-----------|-----------|
| P 1.1-4.1 | P 2.1-3.1  | P 1.1-4.1 | P 1.1-4.1 | P 2.1-3.1  | P 1.1-4.1 | P 1.1-4.1 | P 1.1-3.1 |
| M 1.1-4.1 | N 2.2, 2.5 |           | M 1.1-4.1 | N 2.2, 2.5 |           | M 1.1-4.1 |           |
| N 2.2     |            |           | N 2.2     |            |           | N 2.2     |           |

|                    |                 |                  |                    |                    |                     |                       |            |
|--------------------|-----------------|------------------|--------------------|--------------------|---------------------|-----------------------|------------|
| Rekord 2B-VA GLT-1 | Rekord 2B-VA NT | Rekord 2B-VA TIN | Rekord 2B-VA GLT-1 | Rekord 2B-VA-LH NT | Rekord 2B-VA-LH TIN | Rekord 2B-VA-LH GLT-1 | Enorm 2 VA |
|--------------------|-----------------|------------------|--------------------|--------------------|---------------------|-----------------------|------------|

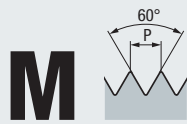
|               |                      |               |               |                      |               |               |                      |   |    |
|---------------|----------------------|---------------|---------------|----------------------|---------------|---------------|----------------------|---|----|
|               |                      |               |               |                      |               |               |                      | M | 3  |
|               |                      |               |               |                      |               |               |                      |   | 4  |
|               |                      |               |               |                      |               |               |                      |   | 5  |
|               |                      |               |               |                      |               |               |                      |   | 6  |
|               |                      |               |               |                      |               |               |                      |   | 7  |
|               |                      |               |               |                      |               |               |                      |   | 8  |
|               |                      |               |               |                      |               |               |                      |   | 9  |
|               |                      |               |               |                      |               |               |                      |   | 10 |
|               |                      |               |               |                      |               |               |                      |   | 11 |
|               |                      |               |               |                      |               |               |                      |   | 12 |
| C020C320.0112 | <b>C0203030.0112</b> | C0203130.0112 | C020C330.0112 | <b>C0203050.0112</b> | C0203150.0112 | C020C350.0112 | <b>C0503000.0112</b> |   | 14 |
| C020C320.0114 | C0203030.0114        | C0203130.0114 | C020C330.0114 | C0203050.0114        | C0203150.0114 | C020C350.0114 | <b>C0503000.0114</b> |   | 16 |
| C020C320.0116 | <b>C0203030.0116</b> | C0203130.0116 | C020C330.0116 | <b>C0203050.0116</b> | C0203150.0116 | C020C350.0116 | <b>C0503000.0116</b> |   | 18 |
| C020C320.0118 | C0203030.0118        | C0203130.0118 | C020C330.0118 | C0203050.0118        | C0203150.0118 | C020C350.0118 | <b>C0503000.0118</b> |   | 20 |
| C020C320.0120 | <b>C0203030.0120</b> | C0203130.0120 | C020C330.0120 | <b>C0203050.0120</b> | C0203150.0120 | C020C350.0120 | <b>C0503000.0120</b> |   | 22 |
| C020C320.0122 | C0203030.0122        | C0203130.0122 | C020C330.0122 | C0203050.0122        | C0203150.0122 | C020C350.0122 | <b>C0503000.0122</b> |   | 24 |
| C020C320.0124 | <b>C0203030.0124</b> | C0203130.0124 | C020C330.0124 | <b>C0203050.0124</b> | C0203150.0124 | C020C350.0124 | <b>C0503000.0124</b> |   | 27 |
|               |                      |               |               |                      |               |               |                      |   | 30 |
|               |                      |               |               |                      |               |               |                      |   | 33 |
|               |                      |               |               |                      |               |               |                      |   | 36 |
|               |                      |               |               |                      |               |               |                      |   | 39 |
|               |                      |               |               |                      |               |               |                      |   | 42 |
|               |                      |               |               |                      |               |               |                      |   | 45 |
|               |                      |               |               |                      |               |               |                      |   | 48 |
|               |                      |               |               |                      |               |               |                      |   | 52 |

|  |  |  |  |  |  |  |  |
|--|--|--|--|--|--|--|--|
|  |  |  |  |  |  |  |  |
|--|--|--|--|--|--|--|--|

|                     |
|---------------------|
| Product Finder      |
| V <sub>c</sub>      |
| M                   |
| MF                  |
| UNC UN-8            |
| UNF UNEF            |
| G, Rp NPSM, NPSF    |
| NPT, NPTF Rc, W     |
| BSW, BSF            |
| Pg                  |
| MJ UNJC, UNJF       |
| EG (STI)            |
| SELF-LOCK           |
| Tr, Tr-F Rd         |
| Zubehör Accessories |



- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories



**M**  
DIN 13

**DIN 376**

**INOX**  
Stainless steel materials

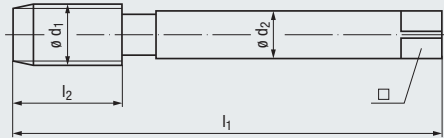


**NEW**



l<sub>2</sub> ≈ 10 x P

**GG**  
Cast iron



Technische Informationen  
Technical information

Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material



- ISO 2/6H
- GLT-201
- HSSE
- R45
- C / 2-3
- E / O

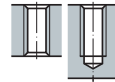
- |         |         |
|---------|---------|
| 6HX     | 6HX     |
| NT      | TICN    |
| HSSE    | HSSE    |
| C / 2-3 | C / 2-3 |
| E       | E       |

Gewindetiefe und Lochform  
Thread depth and hole type

max. 2,5 x d<sub>1</sub>



max. 2 x d<sub>1</sub>



Einsatzgebiete – Material  
Applications – material

» 78

**M 1.1-2.1**

**K 1.1-1.2**

**K 1.1-1.2**

|          | $\phi d_1$<br>mm | P<br>mm | l <sub>1</sub> | l <sub>2</sub> | $\phi d_2$ | □    |      | Enorm 2<br>INOX<br>GLT-201 | Rekord<br>2A-GG<br>NT | Rekord<br>2A-GG<br>TICN |
|----------|------------------|---------|----------------|----------------|------------|------|------|----------------------------|-----------------------|-------------------------|
| <b>M</b> | 3                | 0,5     | 56             | 11             | 2,2        | –    | 2,5  |                            |                       |                         |
|          | 4                | 0,7     | 63             | 13             | 2,8        | 2,1  | 3,3  |                            |                       |                         |
|          | 5                | 0,8     | 70             | 15             | 3,5        | 2,7  | 4,2  |                            |                       |                         |
|          | 6                | 1       | 80             | 17             | 4,5        | 3,4  | 5    |                            | C0102001.0060         | C0109201.0060           |
|          | 7                | 1       | 80             | 17             | 5,5        | 4,3  | 6    |                            |                       |                         |
|          | 8                | 1,25    | 90             | 20             | 6          | 4,9  | 6,8  |                            | C0102001.0080         | C0109201.0080           |
|          | 9                | 1,25    | 90             | 20             | 7          | 5,5  | 7,8  |                            |                       |                         |
|          | 10               | 1,5     | 100            | 22             | 7          | 5,5  | 8,5  |                            | C0102001.0100         | C0109201.0100           |
|          | 11               | 1,5     | 100            | 22             | 8          | 6,2  | 9,5  |                            |                       |                         |
|          | 12               | 1,75    | 110            | 24             | 9          | 7    | 10,2 | C050J300.0112              | C0102001.0112         | C0109201.0112           |
|          | 14               | 2       | 110            | 26             | 11         | 9    | 12   | C050J300.0114              | C0102001.0114         | C0109201.0114           |
|          | 16               | 2       | 110            | 27             | 12         | 9    | 14   | C050J300.0116              | C0102001.0116         | C0109201.0116           |
|          | 18               | 2,5     | 125            | 30             | 14         | 11   | 15,5 | C050J300.0118              | C0102001.0118         | C0109201.0118           |
|          | 20               | 2,5     | 140            | 32             | 16         | 12   | 17,5 | C050J300.0120              | C0102001.0120         | C0109201.0120           |
|          | 22               | 2,5     | 140            | 32             | 18         | 14,5 | 19,5 | C050J300.0122              | C0102001.0122         | C0109201.0122           |
|          | 24               | 3       | 160            | 34             | 18         | 14,5 | 21   | C050J300.0124              | C0102001.0124         | C0109201.0124           |
|          | 27               | 3       | 160            | 36             | 20         | 16   | 24   |                            | C0102001.0127         |                         |
|          | 30               | 3,5     | 180            | 40             | 22         | 18   | 26,5 |                            | C0102001.0130         |                         |
|          | 33               | 3,5     | 180            | 40             | 25         | 20   | 29,5 |                            |                       |                         |
|          | 36               | 4       | 200            | 50             | 28         | 22   | 32   |                            |                       |                         |
|          | 39               | 4       | 200            | 50             | 32         | 24   | 35   |                            |                       |                         |
|          | 42               | 4,5     | 200            | 56             | 32         | 24   | 37,5 |                            |                       |                         |
|          | 45               | 4,5     | 220            | 58             | 36         | 29   | 40,5 |                            |                       |                         |
|          | 48               | 5       | 250            | 65             | 36         | 29   | 43   |                            |                       |                         |
|          | 52               | 5       | 250            | 65             | 40         | 32   | 47   |                            |                       |                         |

DIN 371

» 98

» 98

» 98

DIN 352

**GJV**  
Cast iron  
vermicular

| GJV<br>Cast iron<br>vermicular   |   |   |                                    |   |  |  |  |
|----------------------------------|---|---|------------------------------------|---|--|--|--|
|                                  |   |   |                                    |   |  |  |  |
|                                  |   |   |                                    |   |  |  |  |
| 6HX                              | 6HX                                       | 6HX                                       | 6HX                                | 6HX   | 6HX  | 6HX  | 6HX  |
| TICN                             | TICN                                      | TICN                                      | TICN                               | TICN  | TICN   | TICN   | TICN   |
| HSSE-PM                          | HSSE-PM                                   | HSSE-PM                                   | HSSE-PM                            | HSSE-PM                                     | HSSE-PM                                      | <b>KHM</b>                                     | <b>KHM</b>                                       |
| C / 2-3                          | C / 2-3                                   | C / 2-3                                   | E / 1,5-2                          | E / 1,5-2                                   | E / 1,5-2                                    | C / 2-3  | E / 1,5-2  |
| E                                | E   | E   | E                                  | E   | E  | E  | E  |
| max. 2 x d <sub>1</sub><br>      | max. 2 x d <sub>1</sub><br>               | max. 2 x d <sub>1</sub><br>               | max. 2 x d <sub>1</sub><br>        | max. 2 x d <sub>1</sub><br>                 | max. 2 x d <sub>1</sub><br>                  | max. 2 x d <sub>1</sub><br>                    | max. 2 x d <sub>1</sub><br>                      |
| <b>K 1.1-4.2</b>                 | <b>K 1.1-4.2</b>                          | <b>K 1.1-4.2</b>                          | <b>K 1.1-4.2</b>                   | <b>K 1.1-4.2</b>                            | <b>K 1.1-4.2</b>                             | <b>K 1.1-4.2</b>                               | <b>K 1.1-4.2</b>                                 |
| <b>Rekord 2A-GJV<br/>PM-TICN</b> | <b>Rekord 2A-GJV-<br/>IKZ<br/>PM-TICN</b> | <b>Rekord 2A-GJV-<br/>IKZ<br/>PM-TICN</b> | <b>Rekord 2A-GJV/E<br/>PM-TICN</b> | <b>Rekord 2A-GJV/E-<br/>IKZ<br/>PM-TICN</b> | <b>Rekord 2A-GJV/E-<br/>IKZN<br/>PM-TICN</b> | <b>KHM-Rekord<br/>2A-GJV-<br/>IKZ<br/>TICN</b> | <b>KHM-Rekord<br/>2A-GJV/E-<br/>IKZ<br/>TICN</b> |
|                                  |   |   |                                    |   |  |  |  |
|                                  |   |   |                                    |   |  |  |  |
|                                  |   |   |                                    |   |  |  |  |
|                                  |   |   |                                    |   |  |  |  |
|                                  |   |   |                                    |   |  |  |  |
|                                  |   |   |                                    |   |  |  |  |
|                                  |   |   |                                    |   |  |  |  |
|                                  |   |   |                                    |   |  |  |  |
|                                  |   |   |                                    |   |  |  |  |
| <b>C010R501.0112</b>             | <b>C195R501.0112</b>                      | C106R501.0112                             | <b>C011R501.0112</b>               | <b>C196R501.0112</b>                        | C109R501.0112                                | <b>C1951P01.0112</b>                           | <b>C1961P01.0112</b>                             |
| <b>C010R501.0116</b>             | <b>C195R501.0116</b>                      | C106R501.0116                             | <b>C011R501.0116</b>               | <b>C196R501.0116</b>                        | C109R501.0116                                | <b>C1951P01.0116</b>                           | <b>C1961P01.0116</b>                             |
|                                  | <b>C195R501.0120</b>                      | C106R501.0120                             |                                    | <b>C196R501.0120</b>                        | C109R501.0120                                | <b>C1951P01.0120</b>                           | <b>C1961P01.0120</b>                             |
|                                  |   |   |                                    |   |  |  |  |
|                                  |   |   |                                    |   |  |  |  |
|                                  |   |   |                                    |   |  |  |  |
|                                  |   |   |                                    |   |  |  |  |
|                                  |   |   |                                    |   |  |  |  |
|                                  |   |   |                                    |   |  |  |  |
|                                  |   |   |                                    |   |  |  |  |
|                                  |   |   |                                    |   |  |  |  |
|                                  |   |   |                                    |   |  |  |  |
|                                  |   |   |                                    |   |  |  |  |
|                                  |   |   |                                    |   |  |  |  |
|                                  |   |   |                                    |   |  |  |  |
|                                  |   |   |                                    |   |  |  |  |
|                                  |   |   |                                    |   |  |  |  |

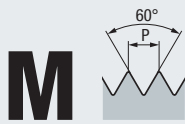
1) Gewindebohren in Durchgangslöcher nur mit externer Kühlungsmöglichkeit möglich  
Threading in through holes is possible only with external cooling/lubrication

- Product Finder
- V<sub>c</sub>
  - M
  - MF
  - UNC UN-8
  - UNF UNEF
  - G, Rp NPSM, NPSF
  - NPT, NPTF Rc, W
  - BSW, BSF
  - Pg
  - MJ UNJC, UNJF
  - EG (STI)
  - SELF-LOCK
  - Tr, Tr-F Rd
  - Zubehör Accessories



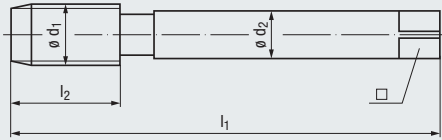
|   |    |
|---|----|
| M | 3  |
|   | 4  |
|   | 5  |
|   | 6  |
|   | 7  |
|   | 8  |
|   | 9  |
|   | 10 |
|   | 11 |
|   | 12 |
|   | 14 |
|   | 16 |
|   | 18 |
|   | 20 |
|   | 22 |
|   | 24 |
|   | 27 |
|   | 30 |
|   | 33 |
|   | 36 |
|   | 39 |
|   | 42 |
|   | 45 |
|   | 48 |
|   | 52 |

- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories



**M**  
DIN 13

**DIN 376**



**AL**  
Aluminium wrought alloys



**NEW**



**NEW**



$l_2 \approx 10 \times P$

$l_2 \approx 10 \times P$

Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material

Technische Informationen  
Technical information



ISO 2/6H  
HSSE  
B /  $\approx 3$   
E / O

ISO 2/6H  
GLT-104  
HSSE  
B /  $\approx 3$   
E / O

ISO 2/6H  
HSSE  
R35  
C / 2-3  
E / O

ISO 2/6H  
GLT-104  
HSSE  
R35  
C / 2-3  
E / O

Gewindetiefe und Lochform  
Thread depth and hole type

max. 3 x d<sub>1</sub>



max. 2,5 x d<sub>1</sub>



Einsatzgebiete – Material  
Applications – material

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**N 1.4**

**N 1.1-1.4, 2.1**

**N 1.4**

**N 1.1-1.4, 2.1**

| $\phi d_1$<br>mm | P<br>mm | $l_1$ | $l_2$ | $\phi d_2$ | □    |      | Rekord<br>2B-AL      | Rekord<br>2B-AL<br>GLT-104 | Enorm<br>2-AL        | Enorm<br>2-AL<br>GLT-104 |
|------------------|---------|-------|-------|------------|------|------|----------------------|----------------------------|----------------------|--------------------------|
| <b>M</b> 3       | 0,5     | 56    | 11    | 2,2        | –    | 2,5  |                      |                            |                      |                          |
| 4                | 0,7     | 63    | 13    | 2,8        | 2,1  | 3,3  |                      |                            |                      |                          |
| 5                | 0,8     | 70    | 15    | 3,5        | 2,7  | 4,2  |                      |                            |                      |                          |
| 6                | 1       | 80    | 17    | 4,5        | 3,4  | 5    |                      |                            |                      |                          |
| 7                | 1       | 80    | 17    | 5,5        | 4,3  | 6    |                      |                            |                      |                          |
| 8                | 1,25    | 90    | 20    | 6          | 4,9  | 6,8  |                      |                            |                      |                          |
| 9                | 1,25    | 90    | 20    | 7          | 5,5  | 7,8  |                      |                            |                      |                          |
| 10               | 1,5     | 100   | 22    | 7          | 5,5  | 8,5  |                      |                            |                      |                          |
| 11               | 1,5     | 100   | 22    | 8          | 6,2  | 9,5  |                      |                            |                      |                          |
| 12               | 1,75    | 110   | 24    | 9          | 7    | 10,2 | <b>C0204500.0112</b> | <b>C0203600.0112</b>       | <b>C0504500.0112</b> | <b>C0503600.0112</b>     |
| 14               | 2       | 110   | 26    | 11         | 9    | 12   | C0204500.0114        | C0203600.0114              | C0504500.0114        | C0503600.0114            |
| 16               | 2       | 110   | 27    | 12         | 9    | 14   | <b>C0204500.0116</b> | <b>C0203600.0116</b>       | <b>C0504500.0116</b> | <b>C0503600.0116</b>     |
| 18               | 2,5     | 125   | 30    | 14         | 11   | 15,5 |                      |                            |                      |                          |
| 20               | 2,5     | 140   | 32    | 16         | 12   | 17,5 | C0204500.0120        | C0203600.0120              | C0504500.0120        | C0503600.0120            |
| 22               | 2,5     | 140   | 32    | 18         | 14,5 | 19,5 |                      |                            |                      |                          |
| 24               | 3       | 160   | 34    | 18         | 14,5 | 21   |                      |                            |                      |                          |
| 27               | 3       | 160   | 36    | 20         | 16   | 24   |                      |                            |                      |                          |
| 30               | 3,5     | 180   | 40    | 22         | 18   | 26,5 |                      |                            |                      |                          |
| 33               | 3,5     | 180   | 40    | 25         | 20   | 29,5 |                      |                            |                      |                          |
| 36               | 4       | 200   | 50    | 28         | 22   | 32   |                      |                            |                      |                          |
| 39               | 4       | 200   | 50    | 32         | 24   | 35   |                      |                            |                      |                          |
| 42               | 4,5     | 200   | 56    | 32         | 24   | 37,5 |                      |                            |                      |                          |
| 45               | 4,5     | 220   | 58    | 36         | 29   | 40,5 |                      |                            |                      |                          |
| 48               | 5       | 250   | 65    | 36         | 29   | 43   |                      |                            |                      |                          |
| 52               | 5       | 250   | 65    | 40         | 32   | 47   |                      |                            |                      |                          |

DIN 371



» 100

» 100























» 100

» 100

DIN 352





| <b>TI</b><br>Titanium   |   |   |   | <b>NI</b><br>Nickel alloys  |   |   |    |
|---|---|---|---|---|---|---|----|
|                              |        |                              |        |                              |                              |   |    |
|                              |        |                              |        |                              |                              |   |    |
| 6HX   | 6HX   | 6HX   | 6HX   | 6HX   | 6HX   |   |    |
| NT2   | TICN  | NT2   | TICN  | TICN  | TICN  |   |    |
| HSSE  | HSSE  | HSSE  | HSSE  | <b>HSSE-PM</b>  | <b>HSSE-PM</b>  |   |    |
| L15   | L15   | R15   | R15   | L08   | R10   |   |    |
| D / 4-5   | D / 4-5   | C / 2-3   | C / 2-3   | D / 4-5   | C / 2-3   |   |    |
| E / O / P   | E / O / P   | E / O / P   | E / O / P   | O / P   | O / P   |   |    |
| max. 3 x d <sub>1</sub><br> |   | max. 2 x d <sub>1</sub><br> |   | max. 3 x d <sub>1</sub><br> | max. 2 x d <sub>1</sub><br> |   |    |
| <b>P</b> 4.1-5.1<br><b>M</b> 3.1-4.1<br><b>N</b> 2.4-2.5, 2.7<br><b>S</b> 1.1-2.2, 2.4                        | <b>P</b> 4.1-5.1<br><b>M</b> 3.1-4.1<br><b>N</b> 2.4-2.5, 2.7<br><b>S</b> 1.1-2.2, 2.4  | <b>P</b> 4.1-5.1<br><b>M</b> 3.1-4.1<br><b>N</b> 2.4-2.5, 2.7<br><b>S</b> 1.1-2.2, 2.4                        | <b>P</b> 4.1-5.1<br><b>M</b> 3.1-4.1<br><b>N</b> 2.4-2.5, 2.7<br><b>S</b> 1.1-2.2, 2.4  | <b>N</b> 2.8<br><b>S</b> 2.3, 2.5-2.6   | <b>N</b> 2.8<br><b>S</b> 2.3, 2.5-2.6   |   |    |
| <b>Rekord</b><br>2C-TI<br>NT2   | <b>Rekord</b><br>2C-TI<br>TICN  | <b>Rekord</b><br>2D-TI<br>NT2   | <b>Rekord</b><br>2D-TI<br>TICN  | <b>Rekord</b><br>2C-NI<br>PM-TICN   | <b>Rekord</b><br>2DF-NI<br>PM-TICN  |   |    |
| <b>C0306001.0112</b>  | <b>C0309601.0112</b>  | <b>C0456001.0112</b><br>C0456001.0114   | <b>C0459601.0112</b><br>C0459601.0114   | <b>C030J401.0112</b>  | <b>C438J401.0112</b>  |   |    |
| <b>C0306001.0116</b>  | <b>C0309601.0116</b>  | <b>C0456001.0116</b><br>C0456001.0118   | <b>C0459601.0116</b><br>C0459601.0118   | <b>C030J401.0114</b>  | <b>C438J401.0114</b>  |   |    |
| <b>C0306001.0120</b>  | <b>C0309601.0120</b>  | <b>C0456001.0120</b><br>C0456001.0122   | <b>C0459601.0120</b><br>C0459601.0122   | <b>C030J401.0116</b>  | <b>C438J401.0116</b>  |   |    |
| <b>C0306001.0124</b>  | <b>C0309601.0124</b>  | <b>C0456001.0124</b>  | <b>C0459601.0124</b>  | <b>C030J401.0120</b>  | <b>C438J401.0120</b>  |   |    |
|   |   |   |   |   |   | M | 3  |
|   |   |   |   |   |   |   | 4  |
|   |   |   |   |   |   |   | 5  |
|   |   |   |   |   |   |   | 6  |
|   |   |   |   |   |   |   | 7  |
|   |   |   |   |   |   |   | 8  |
|   |   |   |   |   |   |   | 9  |
|   |   |   |   |   |   |   | 10 |
|   |   |   |   |   |   |   | 11 |
|   |   |   |   |   |   |   | 12 |
|   |   |   |   |   |   |   | 14 |
|   |   |   |   |   |   |   | 16 |
|   |   |   |   |   |   |   | 18 |
|   |   |   |   |   |   |   | 20 |
|   |   |   |   |   |   |   | 22 |
|   |   |   |   |   |   |   | 24 |
|   |   |   |   |   |   |   | 27 |
|   |   |   |   |   |   |   | 30 |
|   |   |   |   |   |   |   | 33 |
|   |   |   |   |   |   |   | 36 |
|   |   |   |   |   |   |   | 39 |
|   |   |   |   |   |   |   | 42 |
|   |   |   |   |   |   |   | 45 |
|   |   |   |   |   |   |   | 48 |
|   |   |   |   |   |   |   | 52 |
|  103                       |  103 |  103                       |  103 |  104                       |  104                       |   |    |

Product Finder

V<sub>c</sub>

M

MF

UNC  
UN-8

UNF  
UNEF

G, Rp  
NPSM, NPSF

NPT, NPTF  
Rc, W

BSW, BSF

Pg

MJ  
UNJC, UNJF

EG (STI)

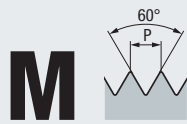
SELF-LOCK

Tr, Tr-F  
Rd

Zubehör  
Accessories

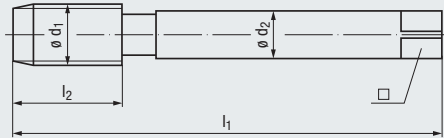


- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories

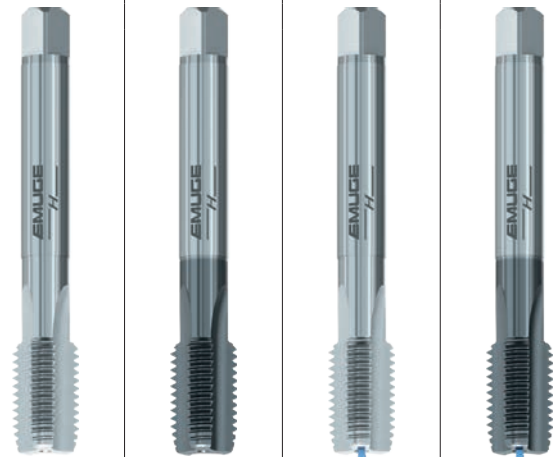
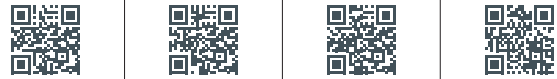


DIN 13

DIN 376



**H**  
Materials of high tensile strength



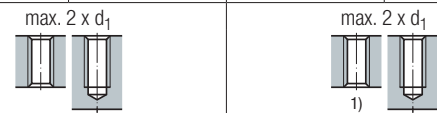
Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material

Technische Informationen  
Technical information

Tr, Tr-F Rd

|           |           |         |         |
|-----------|-----------|---------|---------|
| 6HX       | 6HX       | 6HX     | 6HX     |
| NT        | TICN      | NT      | TICN    |
| HSSE      | HSSE      | HSSE    | HSSE    |
| C / 2-3   | C / 2-3   | C / 2-3 | C / 2-3 |
| E / O / P | E / O / P | E / O   | E / O   |

Gewindetiefe und Lochform  
Thread depth and hole type



Einsatzgebiete – Material  
Applications – material

» 78

|                  |                       |                  |                       |
|------------------|-----------------------|------------------|-----------------------|
| <b>K</b> 1.1-4.2 | <b>K</b> 1.1-4.2      | <b>K</b> 1.1-4.2 | <b>K</b> 1.1-4.2      |
| <b>N</b> 4.1     | <b>N</b> 1.5-1.6, 2.6 | <b>N</b> 4.1     | <b>N</b> 1.5-1.6, 2.6 |
|                  | <b>N</b> 4.1, 5.1     |                  | <b>N</b> 4.1, 5.1     |













| $\phi d_1$<br>mm | P<br>mm | $l_1$ | $l_2$ | $\phi d_2$ | □    |         | Rekord<br>2A-H<br>NT | Rekord<br>2A-H<br>TICN | Rekord<br>2A-H-<br>IKZ<br>NT | Rekord<br>2A-H-<br>IKZ<br>TICN |
|------------------|---------|-------|-------|------------|------|---------|----------------------|------------------------|------------------------------|--------------------------------|
| M 3              | 0,5     | 56    | 11    | 2,2        | –    | 2,5     |                      |                        |                              |                                |
| 4                | 0,7     | 63    | 13    | 2,8        | 2,1  | 3,3     |                      |                        |                              |                                |
| 5                | 0,8     | 70    | 15    | 3,5        | 2,7  | 4,2     |                      |                        |                              |                                |
| 6                | 1       | 80    | 17    | 4,5        | 3,4  | 5       |                      |                        |                              |                                |
| 7                | 1       | 80    | 17    | 5,5        | 4,3  | 6       |                      |                        |                              |                                |
| 8                | 1,25    | 90    | 20    | 6          | 4,9  | 6,8     |                      |                        |                              |                                |
| 9                | 1,25    | 90    | 20    | 7          | 5,5  | 7,8     |                      |                        |                              |                                |
| 10               | 1,5     | 100   | 22    | 7          | 5,5  | 8,5     |                      |                        |                              |                                |
| 11               | 1,5     | 100   | 22    | 8          | 6,2  | 9,5     |                      |                        |                              |                                |
| 12               | 1,75    | 110   | 24    | 9          | 7    | 10,2 2) | <b>C0100501.0112</b> | <b>C0109101.0112</b>   | <b>C1950501.0112</b>         | <b>C1959101.0112</b>           |
| 14               | 2       | 110   | 26    | 11         | 9    | 12 2)   | <b>C0100501.0114</b> | <b>C0109101.0114</b>   | <b>C1950501.0114</b>         | <b>C1959101.0114</b>           |
| 16               | 2       | 110   | 27    | 12         | 9    | 14 2)   | <b>C0100501.0116</b> | <b>C0109101.0116</b>   | <b>C1950501.0116</b>         | <b>C1959101.0116</b>           |
| 18               | 2,5     | 125   | 30    | 14         | 11   | 15,5    | C0100501.0118        | C0109101.0118          | C1950501.0118                | C1959101.0118                  |
| 20               | 2,5     | 140   | 32    | 16         | 12   | 17,5 2) | <b>C0100501.0120</b> | <b>C0109101.0120</b>   | <b>C1950501.0120</b>         | <b>C1959101.0120</b>           |
| 22               | 2,5     | 140   | 32    | 18         | 14,5 | 19,5    | C0100501.0122        | C0109101.0122          | C1950501.0122                | C1959101.0122                  |
| 24               | 3       | 160   | 34    | 18         | 14,5 | 21      | <b>C0100501.0124</b> | <b>C0109101.0124</b>   | C1950501.0124                | C1959101.0124                  |
| 27               | 3       | 160   | 36    | 20         | 16   | 24      | C0100501.0127        | C0109101.0127          |                              |                                |
| 30               | 3,5     | 180   | 40    | 22         | 18   | 26,5    | C0100501.0130        | C0109101.0130          |                              |                                |
| 33               | 3,5     | 180   | 40    | 25         | 20   | 29,5    | C0100501.0133        |                        |                              |                                |
| 36               | 4       | 200   | 50    | 28         | 22   | 32      | C0100501.0136        |                        |                              |                                |
| 39               | 4       | 200   | 50    | 32         | 24   | 35      |                      |                        |                              |                                |
| 42               | 4,5     | 200   | 56    | 32         | 24   | 37,5    |                      |                        |                              |                                |
| 45               | 4,5     | 220   | 58    | 36         | 29   | 40,5    |                      |                        |                              |                                |
| 48               | 5       | 250   | 65    | 36         | 29   | 43      |                      |                        |                              |                                |
| 52               | 5       | 250   | 65    | 40         | 32   | 47      |                      |                        |                              |                                |

DIN 371

104 105 105 105

DIN 352

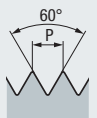
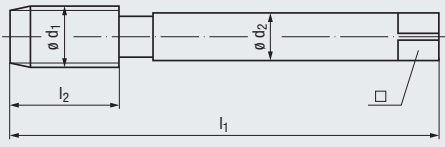





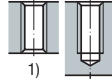




2) Vorbohrerdurchmesser für Gewindebohrer Rekord 2A-HCUT-PM-TICN um 0,2 mm anheben  
Increase drill diameter for taps Rekord 2A-HCUT-PM-TICN by 0.2 mm

| <b>H</b><br>Materials of high tensile strength   |  | <b>HCUT</b><br>Hardened steels   |  |  |  |  |  |            |
|--|--|--|--|--|--|--|--|------------|
| <br> | <br> | <br> |  |  |  |  |  |            |
| 6HX<br>TiCN<br>HSSE  | 6HX<br><b>KHM</b>  | 6HX<br>TiCN<br><b>HSSE-PM</b>  |  |  |  |  |  |            |
| C / 2-3<br>E / O   | C / 2-3<br>E / O   | C / 2-3<br>O / P   |  |  |  |  |  |            |
| max. 2 x d <sub>1</sub><br>  | max. 2 x d <sub>1</sub><br>  | max. 1,5 x d <sub>1</sub><br>  |  |  |  |  |  |            |
| <b>K</b> 1.1-4.2<br><b>N</b> 1.5-1.6, 2.6<br><b>N</b> 4.1, 5.1   | <b>K</b> 1.1-4.2<br><b>N</b> 1.5-1.6<br><b>N</b> 2.6-2.8<br><b>N</b> 4.1, 4.3-4.4<br><b>N</b> 5.1-5.2  | <b>H</b> 1.1-1.2   |  |  |  |  |  |            |
| <b>Rekord</b><br>2A-H- <b>IKZN</b><br>TiCN   | <b>KHM-Rekord</b><br>2A-H- <b>IKZ</b>  | <b>Rekord</b><br>2A- <b>HCUT</b><br>PM-TiCN  |  |  |  |  |  |            |
|  |  |  |  |  |  |  |  | <b>M</b> 3 |
|  |  |  |  |  |  |  |  | 4          |
|  |  |  |  |  |  |  |  | 5          |
|  |  |  |  |  |  |  |  | 6          |
|  |  |  |  |  |  |  |  | 7          |
|  |  |  |  |  |  |  |  | 8          |
|  |  |  |  |  |  |  |  | 9          |
|  |  |  |  |  |  |  |  | 10         |
|  |  |  |  |  |  |  |  | 11         |
|  |  |  |  |  |  |  |  | 12         |
| C1069101.0112  | <b>C1950901.0112</b>   | <b>C010J901.0112</b>   |  |  |  |  |  | 14         |
| C1069101.0114  | <b>C1950901.0114</b>   | C010J901.0114  |  |  |  |  |  | 16         |
| C1069101.0116  | <b>C1950901.0116</b>   | <b>C010J901.0116</b>   |  |  |  |  |  | 18         |
| C1069101.0118  | <b>C1950901.0118</b>   |  |  |  |  |  |  | 20         |
| C1069101.0120  | <b>C1950901.0120</b>   | <b>C010J901.0120</b>   |  |  |  |  |  | 22         |
| C1069101.0122  | <b>C1950901.0122</b>   |  |  |  |  |  |  | 24         |
| C1069101.0124  | <b>C1950901.0124</b>   |  |  |  |  |  |  | 27         |
|  | <b>C1950901.0127</b>   |  |  |  |  |  |  | 30         |
|  |  |  |  |  |  |  |  | 33         |
|  |  |  |  |  |  |  |  | 36         |
|  |  |  |  |  |  |  |  | 39         |
|  |  |  |  |  |  |  |  | 42         |
|  |  |  |  |  |  |  |  | 45         |
|  |  |  |  |  |  |  |  | 48         |
|  |  |  |  |  |  |  |  | 52         |
|  105  |  105  |  105  |  |  |  |  |  |            |

1) Gewindebohren in Durchgangslöcher nur mit externer Kühlschmierung möglich  
 Threading in through holes is possible only with external cooling/lubrication

|                     |
|---------------------|
| Product Finder      |
| V <sub>c</sub>      |
| M                   |
| MF                  |
| UNC UN-8            |
| UNF UNEF            |
| G, Rp NPSM, NPSF    |
| NPT, NPTF Rc, W     |
| BSW, BSF            |
| Pg                  |
| MJ UNJC, UNJF       |
| EG (STI)            |
| SELF-LOCK           |
| Tr, Tr-F Rd         |
| Zubehör Accessories |



| Product Finder   |  <p><b>M</b><br/>DIN 13</p> <p>≈ DIN 376</p>  | <p><b>HCUT</b><br/>Hardened steels</p>   |  |   |           |   |                                     |   |                                     |                                     |             |     |     |    |    |    |      |                      |                      |    |   |     |    |    |      |      |                      |                      |    |     |     |    |    |    |      |                      |                      |  |  |  |  |
|--|---|--|--|---|-----------|---|-------------------------------------|---|-------------------------------------|-------------------------------------|-------------|-----|-----|----|----|----|------|----------------------|----------------------|----|---|-----|----|----|------|------|----------------------|----------------------|----|-----|-----|----|----|----|------|----------------------|----------------------|--|--|--|--|
| V <sub>c</sub>   |   |  |                                    |  |           |   |                                     |   |                                     |                                     |             |     |     |    |    |    |      |                      |                      |    |   |     |    |    |      |      |                      |                      |    |     |     |    |    |    |      |                      |                      |  |  |  |  |
| M  |   |  |  |   |           |   |                                     |   |                                     |                                     |             |     |     |    |    |    |      |                      |                      |    |   |     |    |    |      |      |                      |                      |    |     |     |    |    |    |      |                      |                      |  |  |  |  |
| MF   |   |  |  |   |           |   |                                     |   |                                     |                                     |             |     |     |    |    |    |      |                      |                      |    |   |     |    |    |      |      |                      |                      |    |     |     |    |    |    |      |                      |                      |  |  |  |  |
| UNC<br>UN-8  |   |  |  |   |           |   |                                     |   |                                     |                                     |             |     |     |    |    |    |      |                      |                      |    |   |     |    |    |      |      |                      |                      |    |     |     |    |    |    |      |                      |                      |  |  |  |  |
| UNF<br>UNEF  |   |  |  |   |           |   |                                     |   |                                     |                                     |             |     |     |    |    |    |      |                      |                      |    |   |     |    |    |      |      |                      |                      |    |     |     |    |    |    |      |                      |                      |  |  |  |  |
| G, Rp<br>NPSM, NPSF  |   |  |  |   |           |   |                                     |   |                                     |                                     |             |     |     |    |    |    |      |                      |                      |    |   |     |    |    |      |      |                      |                      |    |     |     |    |    |    |      |                      |                      |  |  |  |  |
| NPT, NPTF<br>Rc, W   |   |  |  |   |           |   |                                     |   |                                     |                                     |             |     |     |    |    |    |      |                      |                      |    |   |     |    |    |      |      |                      |                      |    |     |     |    |    |    |      |                      |                      |  |  |  |  |
| BSW, BSF   |   |  |  |   |           |   |                                     |   |                                     |                                     |             |     |     |    |    |    |      |                      |                      |    |   |     |    |    |      |      |                      |                      |    |     |     |    |    |    |      |                      |                      |  |  |  |  |
| Pg   |   |  |  |   |           |   |                                     |   |                                     |                                     |             |     |     |    |    |    |      |                      |                      |    |   |     |    |    |      |      |                      |                      |    |     |     |    |    |    |      |                      |                      |  |  |  |  |
| MJ<br>UNJC, UNJF   |   |  |  |   |           |   |                                     |   |                                     |                                     |             |     |     |    |    |    |      |                      |                      |    |   |     |    |    |      |      |                      |                      |    |     |     |    |    |    |      |                      |                      |  |  |  |  |
| EG (STI)   |   |  |  |   |           |   |                                     |   |                                     |                                     |             |     |     |    |    |    |      |                      |                      |    |   |     |    |    |      |      |                      |                      |    |     |     |    |    |    |      |                      |                      |  |  |  |  |
| SELF-LOCK  |   |  |  |   |           |   |                                     |   |                                     |                                     |             |     |     |    |    |    |      |                      |                      |    |   |     |    |    |      |      |                      |                      |    |     |     |    |    |    |      |                      |                      |  |  |  |  |
| Tr, Tr-F<br>Rd   |   |  |  |   |           |   |                                     |   |                                     |                                     |             |     |     |    |    |    |      |                      |                      |    |   |     |    |    |      |      |                      |                      |    |     |     |    |    |    |      |                      |                      |  |  |  |  |
| Zubehör<br>Accessories   |   |  |  |   |           |   |                                     |   |                                     |                                     |             |     |     |    |    |    |      |                      |                      |    |   |     |    |    |      |      |                      |                      |    |     |     |    |    |    |      |                      |                      |  |  |  |  |
| <p><b>Technische Informationen</b><br/>Technical information</p> <p>Toleranz · Tolerance<br/>Beschichtung · Coating<br/>Schneidstoff · Cutting material</p>   |   | <p>6HX</p> <p>TICN</p> <p><b>KHM</b></p> <p>D / 4-5</p> <p>O / P</p>   | <p>6HX</p> <p>TICN</p> <p><b>KHM</b></p> <p>C / 2-3</p> <p>O / P</p>   |   |           |   |                                     |   |                                     |                                     |             |     |     |    |    |    |      |                      |                      |    |   |     |    |    |      |      |                      |                      |    |     |     |    |    |    |      |                      |                      |  |  |  |  |
| <p><b>Gewindetiefe und Lochform</b><br/>Thread depth and hole type</p>   |   | <p>max. 1,5 x d<sub>1</sub></p>  <p>1)</p>  | <p>max. 1,5 x d<sub>1</sub></p>  |   |           |   |                                     |   |                                     |                                     |             |     |     |    |    |    |      |                      |                      |    |   |     |    |    |      |      |                      |                      |    |     |     |    |    |    |      |                      |                      |  |  |  |  |
| <p><b>Einsatzgebiete – Material</b><br/>Applications – material</p> <p>» 78</p>  |   | H 1.3-1.4  | H 1.3-1.4  |   |           |   |                                     |   |                                     |                                     |             |     |     |    |    |    |      |                      |                      |    |   |     |    |    |      |      |                      |                      |    |     |     |    |    |    |      |                      |                      |  |  |  |  |
| <table border="1"> <thead> <tr> <th><math>\varnothing d_1</math><br/>mm</th> <th>P<br/>mm</th> <th><math>l_1</math></th> <th><math>l_2</math></th> <th><math>\varnothing d_2</math></th> <th><math>\square</math></th> <th></th> <th>KHM-Rekord<br/>2A-HCUT/D<br/>IKZ-TICN</th> <th>KHM-Rekord<br/>2A-HCUT/C<br/>IKZ-TICN</th> </tr> </thead> <tbody> <tr> <td><b>M</b> 20</td> <td>2,5</td> <td>140</td> <td>30</td> <td>16</td> <td>12</td> <td>17,7</td> <td><b>C130K101.0120</b></td> <td><b>C195K101.0120</b></td> </tr> <tr> <td>24</td> <td>3</td> <td>160</td> <td>36</td> <td>18</td> <td>14,5</td> <td>21,2</td> <td><b>C130K101.0124</b></td> <td><b>C195K101.0124</b></td> </tr> <tr> <td>30</td> <td>3,5</td> <td>180</td> <td>42</td> <td>22</td> <td>18</td> <td>26,7</td> <td><b>C130K101.0130</b></td> <td><b>C195K101.0130</b></td> </tr> </tbody> </table> |   | $\varnothing d_1$<br>mm  | P<br>mm  | $l_1$   | $l_2$     | $\varnothing d_2$   | $\square$                           |  | KHM-Rekord<br>2A-HCUT/D<br>IKZ-TICN | KHM-Rekord<br>2A-HCUT/C<br>IKZ-TICN | <b>M</b> 20 | 2,5 | 140 | 30 | 16 | 12 | 17,7 | <b>C130K101.0120</b> | <b>C195K101.0120</b> | 24 | 3 | 160 | 36 | 18 | 14,5 | 21,2 | <b>C130K101.0124</b> | <b>C195K101.0124</b> | 30 | 3,5 | 180 | 42 | 22 | 18 | 26,7 | <b>C130K101.0130</b> | <b>C195K101.0130</b> |  |  |  |  |
| $\varnothing d_1$<br>mm  | P<br>mm   | $l_1$  | $l_2$  | $\varnothing d_2$   | $\square$ |  | KHM-Rekord<br>2A-HCUT/D<br>IKZ-TICN | KHM-Rekord<br>2A-HCUT/C<br>IKZ-TICN   |                                     |                                     |             |     |     |    |    |    |      |                      |                      |    |   |     |    |    |      |      |                      |                      |    |     |     |    |    |    |      |                      |                      |  |  |  |  |
| <b>M</b> 20  | 2,5   | 140  | 30   | 16  | 12        | 17,7  | <b>C130K101.0120</b>                | <b>C195K101.0120</b>  |                                     |                                     |             |     |     |    |    |    |      |                      |                      |    |   |     |    |    |      |      |                      |                      |    |     |     |    |    |    |      |                      |                      |  |  |  |  |
| 24   | 3   | 160  | 36   | 18  | 14,5      | 21,2  | <b>C130K101.0124</b>                | <b>C195K101.0124</b>  |                                     |                                     |             |     |     |    |    |    |      |                      |                      |    |   |     |    |    |      |      |                      |                      |    |     |     |    |    |    |      |                      |                      |  |  |  |  |
| 30   | 3,5   | 180  | 42   | 22  | 18        | 26,7  | <b>C130K101.0130</b>                | <b>C195K101.0130</b>  |                                     |                                     |             |     |     |    |    |    |      |                      |                      |    |   |     |    |    |      |      |                      |                      |    |     |     |    |    |    |      |                      |                      |  |  |  |  |

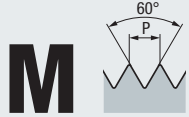
1) Gewindebohren in Durchgangslöcher nur mit externer Kühlschmierung möglich  
Threading in through holes is possible only with external cooling/lubrication

2) Achtung: KHM-Rekord 2A-HCUT/D-IKZ-TICN als Vorschneider verwenden!  
Please note: Use solid carbide tap KHM-Rekord 2A-HCUT/D-IKZ-TICN as No.1 tap!



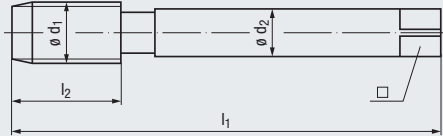
Spiralbohrer Typ EF-Drill-HCUT  
siehe Seite 62

Twist drills type EF-Drill-HCUT,  
see page 62



DIN 13

DIN 376



Technische Informationen  
Technical information

Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material



Gewindetiefe und Lochform  
Thread depth and hole type

Einsatzgebiete – Material  
Applications – material

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Z  
CNC-controlled  
machines



|           |         |         |           |
|-----------|---------|---------|-----------|
| 6HX       | 6HX     | 6HX     | 6HX       |
| TICN      | TICN    | TICN    | TICN      |
| HSSE      | HSSE    | HSSE    | HSSE      |
| C / 2-3   | C / 2-3 | C / 2-3 | E / 1,5-2 |
| E / O / P | E / O   | E / O   | E / O / P |

|                         |                         |                         |                         |
|-------------------------|-------------------------|-------------------------|-------------------------|
| max. 2 x d <sub>1</sub> | max. 2 x d <sub>1</sub> | max. 2 x d <sub>1</sub> | max. 2 x d <sub>1</sub> |
|                         |                         |                         |                         |

|                       |                       |                       |                       |
|-----------------------|-----------------------|-----------------------|-----------------------|
| <b>K</b> 1.1-4.2      | <b>K</b> 1.1-4.2      | <b>K</b> 1.1-4.2      | <b>K</b> 1.1-4.2      |
| <b>N</b> 1.5-1.6, 2.6 | <b>N</b> 1.5-1.6, 2.6 | <b>N</b> 1.5-1.6, 2.6 | <b>N</b> 1.5-1.6, 2.6 |
| <b>N</b> 4.1          | <b>N</b> 4.1          | <b>N</b> 4.1          | <b>N</b> 4.1          |

| M | $\phi d_1$<br>mm | P<br>mm | $l_1$ | $l_2$ | $\phi d_2$ | □    |      |                      | Rekord               | Rekord           | Rekord               | Rekord         |
|---|------------------|---------|-------|-------|------------|------|------|----------------------|----------------------|------------------|----------------------|----------------|
|   |                  |         |       |       |            |      |      |                      | 2A-Z<br>TICN         | 2A-Z-1KZ<br>TICN | 2A-Z-1KZN<br>TICN    | 2A-Z/E<br>TICN |
|   | 3                | 0,5     | 56    | 6     | 2,2        | –    | 2,5  |                      |                      |                  |                      |                |
|   | 4                | 0,7     | 63    | 7     | 2,8        | 2,1  | 3,3  |                      |                      |                  |                      |                |
|   | 5                | 0,8     | 70    | 8     | 3,5        | 2,7  | 4,2  |                      |                      |                  |                      |                |
|   | 6                | 1       | 80    | 10    | 4,5        | 3,4  | 5    |                      |                      |                  |                      |                |
|   | 7                | 1       | 80    | 10    | 5,5        | 4,3  | 6    |                      |                      |                  |                      |                |
|   | 8                | 1,25    | 90    | 14    | 6          | 4,9  | 6,8  |                      |                      |                  |                      |                |
|   | 9                | 1,25    | 90    | 14    | 7          | 5,5  | 7,8  |                      |                      |                  |                      |                |
|   | 10               | 1,5     | 100   | 16    | 7          | 5,5  | 8,5  |                      |                      |                  |                      |                |
|   | 11               | 1,5     | 100   | 18    | 8          | 6,2  | 9,5  |                      |                      |                  |                      |                |
|   | 12               | 1,75    | 110   | 18    | 9          | 7    | 10,2 |                      |                      |                  |                      |                |
|   | 14               | 2       | 110   | 20    | 11         | 9    | 12   | <b>C0109401.0112</b> | <b>C1959401.0112</b> | C1069401.0112    | <b>C0119401.0112</b> |                |
|   |                  |         |       |       |            |      |      | <b>C0109401.0114</b> | <b>C1959401.0114</b> | C1069401.0114    | <b>C0119401.0114</b> |                |
|   |                  |         |       |       |            |      |      | <b>C0109401.0116</b> | <b>C1959401.0116</b> | C1069401.0116    | <b>C0119401.0116</b> |                |
|   |                  |         |       |       |            |      |      | C0109401.0118        | C1959401.0118        | C1069401.0118    | C0119401.0118        |                |
|   |                  |         |       |       |            |      |      | <b>C0109401.0120</b> | <b>C1959401.0120</b> | C1069401.0120    | <b>C0119401.0120</b> |                |
|   |                  |         |       |       |            |      |      |                      | <b>C1959401.0124</b> | C1069401.0124    |                      |                |
|   | 16               | 2       | 110   | 22    | 12         | 9    | 14   |                      |                      |                  |                      |                |
|   | 18               | 2,5     | 125   | 25    | 14         | 11   | 15,5 |                      |                      |                  |                      |                |
|   | 20               | 2,5     | 140   | 25    | 16         | 12   | 17,5 |                      |                      |                  |                      |                |
|   | 22               | 2,5     | 140   | 27    | 18         | 14,5 | 19,5 |                      |                      |                  |                      |                |
|   | 24               | 3       | 160   | 30    | 18         | 14,5 | 21   |                      |                      |                  |                      |                |
|   | 27               | 3       | 160   | 30    | 20         | 16   | 24   |                      |                      |                  |                      |                |
|   | 30               | 3,5     | 180   | 35    | 22         | 18   | 26,5 |                      |                      |                  |                      |                |
|   | 33               | 3,5     | 180   | 35    | 25         | 20   | 29,5 |                      |                      |                  |                      |                |
|   | 36               | 4       | 200   | 40    | 28         | 22   | 32   |                      |                      |                  |                      |                |
|   | 39               | 4       | 200   | 40    | 32         | 24   | 35   |                      |                      |                  |                      |                |
|   | 42               | 4,5     | 200   | 45    | 32         | 24   | 37,5 |                      |                      |                  |                      |                |
|   | 45               | 4,5     | 220   | 45    | 36         | 29   | 40,5 |                      |                      |                  |                      |                |
|   | 48               | 5       | 250   | 50    | 36         | 29   | 43   |                      |                      |                  |                      |                |
|   | 52               | 5       | 250   | 50    | 40         | 32   | 47   |                      |                      |                  |                      |                |

DIN 371

107 107 107 107

DIN 352

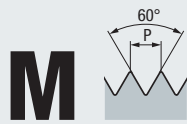
1) Gewindebohren in Durchgangslöcher nur mit externer Kühlschmierung möglich  
Threading in through holes is possible only with external cooling/lubrication

Product Finder

- V<sub>c</sub>
- M
- MF
- UNC UN-8
- UNC UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories

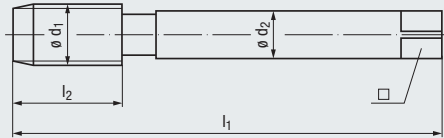


- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories



**M**  
DIN 13

**DIN 376**



**Z**  
CNC-controlled machines



Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material

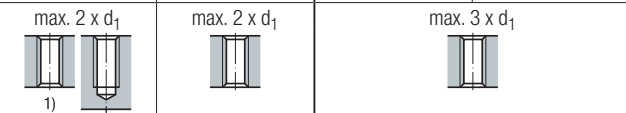
Technische Informationen  
Technical information

Tr, Tr-F Rd

Zubehör Accessories

|           |           |                |                |
|-----------|-----------|----------------|----------------|
| 6HX       | 6HX       | 6HX            | 6HX            |
| TICN      | TICN      | TIN-70         | GLT-1          |
| HSSE      | HSSE      | <b>HSSE-PM</b> | <b>HSSE-PM</b> |
| E / 1,5-2 | E / 1,5-2 | B / 4-5        | B / 4-5        |
| E / 0     | E / 0     | E / 0 / P      | E / 0 / P      |

Gewindetiefe und Lochform  
Thread depth and hole type



Einsatzgebiete – Material  
Applications – material

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|                       |                       |                  |                       |
|-----------------------|-----------------------|------------------|-----------------------|
| <b>K</b> 1.1-4.2      | <b>K</b> 1.1-4.2      | <b>P</b> 2.1-5.1 | <b>P</b> 1.1-5.1      |
| <b>N</b> 1.5-1.6, 2.6 | <b>N</b> 1.5-1.6, 2.6 |                  | <b>M</b> 1.1-4.1      |
| <b>N</b> 4.1          | <b>N</b> 4.1          |                  | <b>K</b> 1.1-3.2      |
|                       |                       |                  | <b>N</b> 1.4, 2.1-2.2 |
|                       |                       |                  | <b>N</b> 2.4-2.5      |
|                       |                       |                  | <b>S</b> 1.1, 2.2-2.3 |

| $\varnothing d_1$<br>mm | P<br>mm | $l_1$ | $l_2$ | $\varnothing d_2$ | □    |      | Rekord<br>2A-Z/E- <b>IKZ</b><br>TICN | Rekord<br>2A-Z/E- <b>IKZN</b><br>TICN | Rekord<br>2B-Z<br>PM-TIN-70 | Rekord<br>2B-Z<br>PM-GLT-1 |
|-------------------------|---------|-------|-------|-------------------|------|------|--------------------------------------|---------------------------------------|-----------------------------|----------------------------|
| <b>M</b> 3              | 0,5     | 56    | 6     | 2,2               | –    | 2,5  |                                      |                                       |                             |                            |
| 4                       | 0,7     | 63    | 7     | 2,8               | 2,1  | 3,3  |                                      |                                       |                             |                            |
| 5                       | 0,8     | 70    | 8     | 3,5               | 2,7  | 4,2  |                                      |                                       |                             |                            |
| 6                       | 1       | 80    | 10    | 4,5               | 3,4  | 5    |                                      |                                       |                             |                            |
| 7                       | 1       | 80    | 10    | 5,5               | 4,3  | 6    |                                      |                                       |                             |                            |
| 8                       | 1,25    | 90    | 14    | 6                 | 4,9  | 6,8  |                                      |                                       |                             |                            |
| 9                       | 1,25    | 90    | 14    | 7                 | 5,5  | 7,8  |                                      |                                       |                             |                            |
| 10                      | 1,5     | 100   | 16    | 7                 | 5,5  | 8,5  |                                      |                                       |                             |                            |
| 11                      | 1,5     | 100   | 18    | 8                 | 6,2  | 9,5  |                                      |                                       |                             |                            |
| 12                      | 1,75    | 110   | 18    | 9                 | 7    | 10,2 |                                      |                                       |                             |                            |
| 14                      | 2       | 110   | 20    | 11                | 9    | 12   | <b>C1969401.0112</b>                 | C1099401.0112                         | <b>C0208F01.0112</b>        | <b>C020A601.0112</b>       |
| 16                      | 2       | 110   | 22    | 12                | 9    | 14   | <b>C1969401.0114</b>                 | C1099401.0114                         | <b>C0208F01.0114</b>        | <b>C020A601.0114</b>       |
| 18                      | 2,5     | 125   | 25    | 14                | 11   | 15,5 | <b>C1969401.0116</b>                 | C1099401.0116                         | <b>C0208F01.0116</b>        | <b>C020A601.0116</b>       |
| 20                      | 2,5     | 140   | 25    | 16                | 12   | 17,5 | C1969401.0118                        | C1099401.0118                         | C0208F01.0118               |                            |
| 22                      | 2,5     | 140   | 27    | 18                | 14,5 | 19,5 | <b>C1969401.0120</b>                 | C1099401.0120                         | <b>C0208F01.0120</b>        | <b>C020A601.0120</b>       |
| 24                      | 3       | 160   | 30    | 18                | 14,5 | 21   |                                      |                                       | C0208F01.0122               |                            |
| 27                      | 3       | 160   | 30    | 20                | 16   | 24   |                                      |                                       | <b>C0208F01.0124</b>        | <b>C020A601.0124</b>       |
| 30                      | 3,5     | 180   | 35    | 22                | 18   | 26,5 |                                      |                                       |                             |                            |
| 33                      | 3,5     | 180   | 35    | 25                | 20   | 29,5 |                                      |                                       | <b>C0208F01.0130</b>        | <b>C020A601.0130</b>       |
| 36                      | 4       | 200   | 40    | 28                | 22   | 32   |                                      |                                       |                             |                            |
| 39                      | 4       | 200   | 40    | 32                | 24   | 35   |                                      |                                       |                             |                            |
| 42                      | 4,5     | 200   | 45    | 32                | 24   | 37,5 |                                      |                                       |                             |                            |
| 45                      | 4,5     | 220   | 45    | 36                | 29   | 40,5 |                                      |                                       |                             |                            |
| 48                      | 5       | 250   | 50    | 36                | 29   | 43   |                                      |                                       |                             |                            |
| 52                      | 5       | 250   | 50    | 40                | 32   | 47   |                                      |                                       |                             |                            |

DIN 371

108

108

108

108

DIN 352

1) Gewindebohren in Durchgangslöcher nur mit externer Kühlschmierung möglich  
Threading in through holes is possible only with external cooling/lubrication

**Z**  
CNC-controlled  
machines

|                          |                         |                          |                         |                          |                         |                      |                    |
|--------------------------|-------------------------|--------------------------|-------------------------|--------------------------|-------------------------|----------------------|--------------------|
|                          |                         |                          |                         |                          |                         |                      |                    |
|                          |                         |                          |                         |                          |                         |                      |                    |
| 6HX<br>TIN-70<br>HSSE-PM | 6HX<br>GLT-1<br>HSSE-PM | 6GX<br>TIN-70<br>HSSE-PM | 6GX<br>GLT-1<br>HSSE-PM | 6GX<br>TIN-70<br>HSSE-PM | 6GX<br>GLT-1<br>HSSE-PM | 6HX<br>TIN<br>HSSE   | 6HX<br>TIN<br>HSSE |
| B / 4-5<br>E / 0         | B / 4-5<br>E / 0        | B / 4-5<br>E / 0 / P     | B / 4-5<br>E / 0 / P    | B / 4-5<br>E / 0         | B / 4-5<br>E / 0        | C / 2-3<br>E / 0 / P | C / 2-3<br>E / 0   |

max. 3 x d<sub>1</sub>



max. 2 x d<sub>1</sub>



|                  |  |                  |  |                  |  |                                      |                                      |
|------------------|--|------------------|--|------------------|--|--------------------------------------|--------------------------------------|
| <b>P</b> 2.1-5.1 | <b>P</b> 1.1-5.1<br><b>M</b> 1.1-4.1<br><b>K</b> 1.1-3.2<br><b>N</b> 1.4, 2.1-2.2<br><b>N</b> 2.4-2.5<br><b>S</b> 1.1, 2.2-2.3 | <b>P</b> 2.1-5.1 | <b>P</b> 1.1-5.1<br><b>M</b> 1.1-4.1<br><b>K</b> 1.1-3.2<br><b>N</b> 1.4, 2.1-2.2<br><b>N</b> 2.4-2.5<br><b>S</b> 1.1, 2.2-2.3 | <b>P</b> 2.1-5.1 | <b>P</b> 1.1-5.1<br><b>M</b> 1.1-4.1<br><b>K</b> 1.1-3.2<br><b>N</b> 1.4, 2.1-2.2<br><b>N</b> 2.4-2.5<br><b>S</b> 1.1, 2.2-2.3 | <b>P</b> 3.1-5.1<br><b>N</b> 2.4-2.5 | <b>P</b> 3.1-5.1<br><b>N</b> 2.4-2.5 |
|------------------|--|------------------|--|------------------|--|--------------------------------------|--------------------------------------|

|                                   |                                  |                              |                             |                                   |                                  |                        |                            |
|-----------------------------------|----------------------------------|------------------------------|-----------------------------|-----------------------------------|----------------------------------|------------------------|----------------------------|
| <b>Rekord 2B-Z-IKZN PM-TIN-70</b> | <b>Rekord 2B-Z-IKZN PM-GLT-1</b> | <b>Rekord 2B-Z PM-TIN-70</b> | <b>Rekord 2B-Z PM-GLT-1</b> | <b>Rekord 2B-Z-IKZN PM-TIN-70</b> | <b>Rekord 2B-Z-IKZN PM-GLT-1</b> | <b>Rekord 2D-Z TIN</b> | <b>Rekord 2D-Z-IKZ TIN</b> |
|-----------------------------------|----------------------------------|------------------------------|-----------------------------|-----------------------------------|----------------------------------|------------------------|----------------------------|

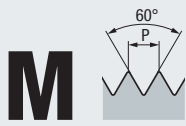
|               |               |                      |                      |               |               |                      |                      |          |    |
|---------------|---------------|----------------------|----------------------|---------------|---------------|----------------------|----------------------|----------|----|
|               |               |                      |                      |               |               |                      |                      | <b>M</b> | 3  |
|               |               |                      |                      |               |               |                      |                      |          | 4  |
|               |               |                      |                      |               |               |                      |                      |          | 5  |
|               |               |                      |                      |               |               |                      |                      |          | 6  |
|               |               |                      |                      |               |               |                      |                      |          | 7  |
|               |               |                      |                      |               |               |                      |                      |          | 8  |
|               |               |                      |                      |               |               |                      |                      |          | 9  |
|               |               |                      |                      |               |               |                      |                      |          | 10 |
|               |               |                      |                      |               |               |                      |                      |          | 11 |
|               |               |                      |                      |               |               |                      |                      |          | 12 |
| C1088F01.0112 | C108A601.0112 | <b>C0208F21.0112</b> | <b>C020A621.0112</b> | C1088F21.0112 | C108A621.0112 | <b>C0453701.0112</b> | <b>C0963701.0112</b> |          | 14 |
| C1088F01.0114 | C108A601.0114 | C0208F21.0114        | C020A621.0114        | C1088F21.0114 | C108A621.0114 |                      | C0963701.0114        |          | 16 |
| C1088F01.0116 | C108A601.0116 | <b>C0208F21.0116</b> | <b>C020A621.0116</b> | C1088F21.0116 | C108A621.0116 | <b>C0453701.0116</b> | <b>C0963701.0116</b> |          | 18 |
| C1088F01.0118 |               | C0208F21.0118        |                      | C1088F21.0118 |               |                      | C0963701.0118        |          | 20 |
| C1088F01.0120 | C108A601.0120 | <b>C0208F21.0120</b> | <b>C020A621.0120</b> | C1088F21.0120 | C108A621.0120 | <b>C0453701.0120</b> | <b>C0963701.0120</b> |          | 22 |
| C1088F01.0122 |               | C0208F21.0122        |                      | C1088F21.0122 |               |                      | C0963701.0122        |          | 24 |
| C1088F01.0124 | C108A601.0124 | <b>C0208F21.0124</b> | <b>C020A621.0124</b> | C1088F21.0124 | C108A621.0124 |                      | <b>C0963701.0124</b> |          | 27 |
|               |               |                      |                      |               |               |                      | C0963701.0127        |          | 30 |
|               |               |                      |                      |               |               |                      | <b>C0963701.0130</b> |          | 33 |
|               |               |                      |                      |               |               |                      |                      |          | 36 |
|               |               |                      |                      |               |               |                      |                      |          | 39 |
|               |               |                      |                      |               |               |                      |                      |          | 42 |
|               |               |                      |                      |               |               |                      |                      |          | 45 |
|               |               |                      |                      |               |               |                      |                      |          | 48 |
|               |               |                      |                      |               |               |                      |                      |          | 52 |

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|--|--|--|--|--|--|--|--|--|--|
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|--|--|--|--|--|--|--|--|--|--|

- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories



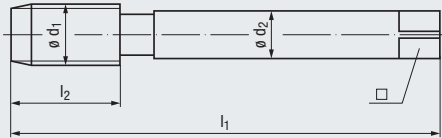
- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories



**M**  
DIN 13

**DIN 376**

**Z**  
CNC-controlled machines



Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material

Technische Informationen  
Technical information



|                  |         |                  |
|------------------|---------|------------------|
| 6HX              | 6HX     | 6HX              |
| TIN              | TIN     | TIN              |
| HSSE             | HSSE    | HSSE             |
| R15              | R15     | R15              |
| <b>E / 1,5-2</b> | C / 2-3 | <b>E / 1,5-2</b> |
| E / 0            | E / 0   | E / 0            |

Gewindetiefe und Lochform  
Thread depth and hole type

max. 2 x d<sub>1</sub>



Einsatzgebiete – Material  
Applications – material

» 78

|                  |                  |                  |
|------------------|------------------|------------------|
| <b>P</b> 3.1-5.1 | <b>P</b> 3.1-5.1 | <b>P</b> 3.1-5.1 |
| <b>N</b> 2.4-2.5 | <b>N</b> 2.4-2.5 | <b>N</b> 2.4-2.5 |

|          | $\phi d_1$<br>mm | P<br>mm | $l_1$ | $l_2$ | $\phi d_2$ | □    |      | Rekord<br>2D-Z/E-IKZ<br>TIN | Rekord<br>2D-Z-BF<br>IKZ-TIN | Rekord<br>2D-Z/E-BF<br>IKZ-TIN |
|----------|------------------|---------|-------|-------|------------|------|------|-----------------------------|------------------------------|--------------------------------|
| <b>M</b> | 3                | 0,5     | 56    | 6     | 2,2        | –    | 2,5  |                             |                              |                                |
|          | 4                | 0,7     | 63    | 7     | 2,8        | 2,1  | 3,3  |                             |                              |                                |
|          | 5                | 0,8     | 70    | 8     | 3,5        | 2,7  | 4,2  |                             |                              |                                |
|          | 6                | 1       | 80    | 10    | 4,5        | 3,4  | 5    |                             |                              |                                |
|          | 7                | 1       | 80    | 10    | 5,5        | 4,3  | 6    |                             |                              |                                |
|          | 8                | 1,25    | 90    | 14    | 6          | 4,9  | 6,8  |                             |                              |                                |
|          | 9                | 1,25    | 90    | 14    | 7          | 5,5  | 7,8  |                             |                              |                                |
|          | 10               | 1,5     | 100   | 16    | 7          | 5,5  | 8,5  |                             |                              |                                |
|          | 11               | 1,5     | 100   | 18    | 8          | 6,2  | 9,5  |                             |                              |                                |
|          | 12               | 1,75    | 110   | 18    | 9          | 7    | 10,2 | <b>C0983701.0112</b>        | <b>C4253701.0112</b>         | <b>C4053701.0112</b>           |
|          | 14               | 2       | 110   | 20    | 11         | 9    | 12   |                             | C4253701.0114                |                                |
|          | 16               | 2       | 110   | 22    | 12         | 9    | 14   | <b>C0983701.0116</b>        | <b>C4253701.0116</b>         | <b>C4053701.0116</b>           |
|          | 18               | 2,5     | 125   | 25    | 14         | 11   | 15,5 |                             | C4253701.0118                |                                |
|          | 20               | 2,5     | 140   | 25    | 16         | 12   | 17,5 | <b>C0983701.0120</b>        | <b>C4253701.0120</b>         | <b>C4053701.0120</b>           |
|          | 22               | 2,5     | 140   | 27    | 18         | 14,5 | 19,5 |                             | C4253701.0122                |                                |
|          | 24               | 3       | 160   | 30    | 18         | 14,5 | 21   |                             | C4253701.0124                |                                |
|          | 27               | 3       | 160   | 30    | 20         | 16   | 24   |                             | C4253701.0127                |                                |
|          | 30               | 3,5     | 180   | 35    | 22         | 18   | 26,5 |                             | C4253701.0130                |                                |
|          | 33               | 3,5     | 180   | 35    | 25         | 20   | 29,5 |                             |                              |                                |
|          | 36               | 4       | 200   | 40    | 28         | 22   | 32   |                             |                              |                                |
|          | 39               | 4       | 200   | 40    | 32         | 24   | 35   |                             |                              |                                |
|          | 42               | 4,5     | 200   | 45    | 32         | 24   | 37,5 |                             |                              |                                |
|          | 45               | 4,5     | 220   | 45    | 36         | 29   | 40,5 |                             |                              |                                |
|          | 48               | 5       | 250   | 50    | 36         | 29   | 43   |                             |                              |                                |
|          | 52               | 5       | 250   | 50    | 40         | 32   | 47   |                             |                              |                                |

DIN 371

» 110

» 110

» 110

DIN 352



**Z**  
CNC-controlled machines

|            |            |            |            |            |            |            |            |
|------------|------------|------------|------------|------------|------------|------------|------------|
|            |            |            |            |            |            |            |            |
| <b>new</b> | <b>new</b> | <b>new</b> | <b>new</b> | <b>new</b> | <b>new</b> | <b>new</b> | <b>new</b> |
|            |            |            |            |            |            |            |            |
| 6HX        | 6HX        | 6HX        | 6HX        | 6GX        | 6GX        | 6GX        | 6GX        |
| GLT-1      | GLT-1      | GLT-1      | GLT-1      | GLT-1      | GLT-1      | GLT-1      | GLT-1      |
| HSSE-PM    | HSSE-PM    | HSSE-PM    | HSSE-PM    | HSSE-PM    | HSSE-PM    | HSSE-PM    | HSSE-PM    |
| R45        | R45        | R45        | R45        | R45        | R45        | R45        | R45        |
| C / 2-3    | C / 2-3    | E / 1,5-2  | E / 1,5-2  | C / 2-3    | C / 2-3    | E / 1,5-2  | E / 1,5-2  |
| E / O / P  | E / O      | E / O / P  | E / O      | E / O / P  | E / O      | E / O / P  | E / O      |

max. 3 x d<sub>1</sub>



|                |                |                |                |                |                |                |                |
|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| P 1.1-4.1      | P 1.1-4.1      | P 1.1-4.1      | P 1.1-4.1      | P 1.1-4.1      | P 1.1-4.1      | P 1.1-4.1      | P 1.1-4.1      |
| M 1.1-4.1      | M 1.1-4.1      | M 1.1-4.1      | M 1.1-4.1      | M 1.1-4.1      | M 1.1-4.1      | M 1.1-4.1      | M 1.1-4.1      |
| K 1.1-3.2      | K 1.1-3.2      | K 1.1-3.2      | K 1.1-3.2      | K 1.1-3.2      | K 1.1-3.2      | K 1.1-3.2      | K 1.1-3.2      |
| N 1.4, 2.1-2.2 | N 1.4, 2.1-2.2 | N 1.4, 2.1-2.2 | N 1.4, 2.1-2.2 | N 1.4, 2.1-2.2 | N 1.4, 2.1-2.2 | N 1.4, 2.1-2.2 | N 1.4, 2.1-2.2 |
| N 2.4-2.5      | N 2.4-2.5      | N 2.4-2.5      | N 2.4-2.5      | N 2.4-2.5      | N 2.4-2.5      | N 2.4-2.5      | N 2.4-2.5      |
| S 1.1          | S 1.1          | S 1.1          | S 1.1          | S 1.1          | S 1.1          | S 1.1          | S 1.1          |

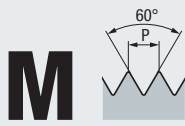
| Enorm 2-Z PM-GLT-1 | Enorm 2-Z-IKZ PM-GLT-1 | Enorm 2-Z/E PM-GLT-1 | Enorm 2-Z/E-IKZ PM-GLT-1 | Enorm 2-Z PM-GLT-1 | Enorm 2-Z-IKZ PM-GLT-1 | Enorm 2-Z/E PM-GLT-1 | Enorm 2-Z/E-IKZ PM-GLT-1 |
|--------------------|------------------------|----------------------|--------------------------|--------------------|------------------------|----------------------|--------------------------|
|                    |                        |                      |                          |                    |                        |                      |                          |
|                    |                        |                      |                          |                    |                        |                      |                          |
|                    |                        |                      |                          |                    |                        |                      |                          |
|                    |                        |                      |                          |                    |                        |                      |                          |
|                    |                        |                      |                          |                    |                        |                      |                          |
|                    |                        |                      |                          |                    |                        |                      |                          |
|                    |                        |                      |                          |                    |                        |                      |                          |
|                    |                        |                      |                          |                    |                        |                      |                          |
| C616A601.0112      | C591A601.0112          | C498A601.0112        | C590A601.0112            | C616A621.0112      | C591A621.0112          | C498A621.0112        | C590A621.0112            |
| C616A601.0114      | C591A601.0114          | C498A601.0114        | C590A601.0114            | C616A621.0116      | C591A621.0116          | C498A621.0116        | C590A621.0116            |
| C616A601.0116      | C591A601.0116          | C498A601.0116        | C590A601.0116            | C616A621.0120      | C591A621.0120          | C498A621.0120        | C590A621.0120            |
| C616A601.0120      | C591A601.0120          | C498A601.0120        | C590A601.0120            | C616A621.0124      | C591A621.0124          | C498A621.0124        | C590A621.0124            |
| C616A601.0124      | C591A601.0124          | C498A601.0124        | C590A601.0124            | C616A621.0130      | C591A621.0130          | C498A621.0130        | C590A621.0130            |
| C616A601.0130      | C591A601.0130          | C498A601.0130        | C590A601.0130            |                    |                        |                      |                          |
|                    |                        |                      |                          |                    |                        |                      |                          |
|                    |                        |                      |                          |                    |                        |                      |                          |
|                    |                        |                      |                          |                    |                        |                      |                          |
|                    |                        |                      |                          |                    |                        |                      |                          |
|                    |                        |                      |                          |                    |                        |                      |                          |
|                    |                        |                      |                          |                    |                        |                      |                          |
|                    |                        |                      |                          |                    |                        |                      |                          |
|                    |                        |                      |                          |                    |                        |                      |                          |
|                    |                        |                      |                          |                    |                        |                      |                          |
|                    |                        |                      |                          |                    |                        |                      |                          |
|                    |                        |                      |                          |                    |                        |                      |                          |
|                    |                        |                      |                          |                    |                        |                      |                          |
|                    |                        |                      |                          |                    |                        |                      |                          |
|                    |                        |                      |                          |                    |                        |                      |                          |
|                    |                        |                      |                          |                    |                        |                      |                          |
|                    |                        |                      |                          |                    |                        |                      |                          |
| 111                | 111                    | 111                  | 111                      | 111                | 111                    | 111                  | 111                      |

- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories



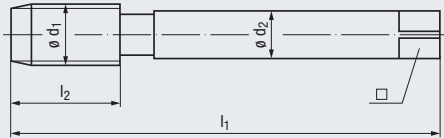
|   |    |
|---|----|
| M | 3  |
|   | 4  |
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|   | 6  |
|   | 7  |
|   | 8  |
|   | 9  |
|   | 10 |
|   | 11 |
|   | 12 |
|   | 14 |
|   | 16 |
|   | 18 |
|   | 20 |
|   | 22 |
|   | 24 |
|   | 27 |
|   | 30 |
|   | 33 |
|   | 36 |
|   | 39 |
|   | 42 |
|   | 45 |
|   | 48 |
|   | 52 |

- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories



**M**  
DIN 13

**DIN 376**



**Z**  
CNC-controlled machines



**NEW**

Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material

Technische Informationen  
Technical information

Tr, Tr-F Rd

|           |           |           |          |
|-----------|-----------|-----------|----------|
| ISO 2/6H  | ISO 2/6H  | ISO 2/6H  | ISO 2/6H |
| HSSE      | TIN       | GLT-1     | HSSE     |
| R45       | HSSE      | HSSE      | HSSE     |
| C / 2-3   | R45       | R45       | R45      |
| E / O / P | C / 2-3   | C / 2-3   | C / 2-3  |
|           | E / O / P | E / O / P | E / O    |

Gewindetiefe und Lochform  
Thread depth and hole type

max. 3 x d<sub>1</sub>

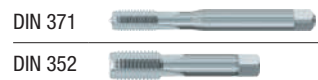


Einsatzgebiete – Material  
Applications – material

|                  |   |   |                  |
|------------------|---|---|------------------|
| <b>P</b> 1.1-3.1 | <b>P</b> 1.1-4.1<br><b>N</b> 2.2, 2.4-2.5<br><b>S</b> 1.1 | <b>P</b> 1.1-4.1<br><b>M</b> 1.1-4.1<br><b>N</b> 1.4, 2.1-2.2<br><b>N</b> 2.4-2.5<br><b>S</b> 1.1 | <b>P</b> 1.1-3.1 |
|------------------|---|---|------------------|

|          | $\phi d_1$<br>mm | P<br>mm | $l_1$ | $l_2$ | $\phi d_2$ | $\square$ |      |
|----------|------------------|---------|-------|-------|------------|-----------|------|
| <b>M</b> | 3                | 0,5     | 56    | 6     | 2,2        | –         | 2,5  |
|          | 4                | 0,7     | 63    | 7     | 2,8        | 2,1       | 3,3  |
|          | 5                | 0,8     | 70    | 8     | 3,5        | 2,7       | 4,2  |
|          | 6                | 1       | 80    | 10    | 4,5        | 3,4       | 5    |
|          | 7                | 1       | 80    | 10    | 5,5        | 4,3       | 6    |
|          | 8                | 1,25    | 90    | 14    | 6          | 4,9       | 6,8  |
|          | 9                | 1,25    | 90    | 14    | 7          | 5,5       | 7,8  |
|          | 10               | 1,5     | 100   | 16    | 7          | 5,5       | 8,5  |
|          | 11               | 1,5     | 100   | 18    | 8          | 6,2       | 9,5  |
|          | 12               | 1,75    | 110   | 18    | 9          | 7         | 10,2 |
|          | 14               | 2       | 110   | 20    | 11         | 9         | 12   |
|          | 16               | 2       | 110   | 22    | 12         | 9         | 14   |
|          | 18               | 2,5     | 125   | 25    | 14         | 11        | 15,5 |
|          | 20               | 2,5     | 140   | 25    | 16         | 12        | 17,5 |
|          | 22               | 2,5     | 140   | 27    | 18         | 14,5      | 19,5 |
|          | 24               | 3       | 160   | 30    | 18         | 14,5      | 21   |
|          | 27               | 3       | 160   | 30    | 20         | 16        | 24   |
|          | 30               | 3,5     | 180   | 35    | 22         | 18        | 26,5 |
|          | 33               | 3,5     | 180   | 35    | 25         | 20        | 29,5 |
|          | 36               | 4       | 200   | 40    | 28         | 22        | 32   |
|          | 39               | 4       | 200   | 40    | 32         | 24        | 35   |
|          | 42               | 4,5     | 200   | 45    | 32         | 24        | 37,5 |
|          | 45               | 4,5     | 220   | 45    | 36         | 29        | 40,5 |
|          | 48               | 5       | 250   | 50    | 36         | 29        | 43   |
|          | 52               | 5       | 250   | 50    | 40         | 32        | 47   |

| Enorm 2-Z            | Enorm 2-Z TIN        | Enorm 2-Z GLT-1      | Enorm 2-Z-1KZ        |
|----------------------|----------------------|----------------------|----------------------|
| <b>C0503500.0030</b> |                      |                      |                      |
| <b>C0503500.0040</b> |                      |                      |                      |
| <b>C0503500.0050</b> |                      |                      |                      |
| <b>C0503500.0060</b> |                      |                      |                      |
| <b>C0503500.0070</b> |                      |                      |                      |
| <b>C0503500.0080</b> |                      |                      |                      |
| <b>C0503500.0090</b> |                      |                      |                      |
| <b>C0503500.0100</b> |                      |                      |                      |
| <b>C0503500.0111</b> |                      |                      |                      |
| <b>C0503500.0112</b> | <b>C0503700.0112</b> | <b>C050C400.0112</b> | <b>C0993500.0112</b> |
| <b>C0503500.0114</b> | C0503700.0114        | C050C400.0114        |                      |
| <b>C0503500.0116</b> | <b>C0503700.0116</b> | <b>C050C400.0116</b> | <b>C0993500.0116</b> |
| <b>C0503500.0118</b> | C0503700.0118        | C050C400.0118        |                      |
| <b>C0503500.0120</b> | <b>C0503700.0120</b> | <b>C050C400.0120</b> | <b>C0993500.0120</b> |
| <b>C0503500.0122</b> | C0503700.0122        | C050C400.0122        |                      |
| <b>C0503500.0124</b> | <b>C0503700.0124</b> | <b>C050C400.0124</b> |                      |
| C0503500.0127        |                      | C050C400.0127        |                      |
| C0503500.0130        |                      |                      |                      |
| C0503500.0133        |                      |                      |                      |
| C0503500.0136        |                      |                      |                      |
| C0503500.0139        |                      |                      |                      |
| C0503500.0142        |                      |                      |                      |
| C0503500.0145        |                      |                      |                      |



112 112 112

**Z**  
CNC-controlled  
machines

|          |           |           |           |           |           |           |           |
|----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
|          |           |           |           |           |           |           |           |
|          |           |           |           |           |           |           |           |
| ISO 2/6H | ISO 2/6H  | ISO 2/6H  | ISO 2/6H  | ISO 2/6H  | ISO 2/6H  | ISO 1/4H  | ISO 1/4H  |
| GLT-1    | GLT-1     | TIN       | GLT-1     | TIN       | GLT-1     | GLT-1     | GLT-1     |
| HSSE     | HSSE      | HSSE      | HSSE      | HSSE      | HSSE      | HSSE      | HSSE      |
| R45      | R45       | R45       | R45       | R45       | R45       | R45       | R45       |
| C / 2-3  | E / 1,5-2 | E / 1,5-2 | E / 1,5-2 | E / 1,5-2 | E / 1,5-2 | C / 2-3   | C / 2-3   |
| E / O    | E / O / P | E / O / P | E / O / P | E / O     | E / O     | E / O / P | E / O / P |

max. 3 x d<sub>1</sub>



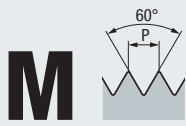
|   |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|---|
| <b>P</b> 1.1-4.1<br><b>M</b> 1.1-4.1<br><b>N</b> 1.4, 2.1-2.2<br><b>N</b> 2.4-2.5<br><b>S</b> 1.1 | <b>P</b> 1.1-3.1  | <b>P</b> 1.1-4.1<br><b>N</b> 2.2, 2.4-2.5<br><b>S</b> 1.1 | <b>P</b> 1.1-4.1<br><b>M</b> 1.1-4.1<br><b>N</b> 1.4, 2.1-2.2<br><b>N</b> 2.4-2.5<br><b>S</b> 1.1 | <b>P</b> 1.1-4.1<br><b>N</b> 2.2, 2.4-2.5<br><b>S</b> 1.1 | <b>P</b> 1.1-4.1<br><b>M</b> 1.1-4.1<br><b>N</b> 1.4, 2.1-2.2<br><b>N</b> 2.4-2.5<br><b>S</b> 1.1 | <b>P</b> 1.1-3.1                                | <b>P</b> 1.1-4.1<br><b>M</b> 1.1-4.1<br><b>N</b> 1.4, 2.1-2.2<br><b>N</b> 2.4-2.5<br><b>S</b> 1.1 |
| Enorm 2-Z- <b>IKZ</b> GLT-1   | Enorm 2-Z/ <b>E</b>   | Enorm 2-Z/ <b>E</b> TIN                                   | Enorm 2-Z/ <b>E</b> GLT-1   | Enorm 2-Z/ <b>E-<b>IKZ</b></b> TIN                        | Enorm 2-Z/ <b>E-<b>IKZ</b></b> GLT-1  | Enorm 2-Z                                       | Enorm 2-Z GLT-1   |
| C099C400.0112   | C0513500.0112<br>C0513500.0114  | C0513700.0112<br>C0513700.0114                            | C051C400.0112   | C0973700.0112<br>C0973700.0114                            | C097C400.0112<br>C097C400.0114  | C0503510.0112<br>C0503510.0114                  | C050C410.0112<br>C050C410.0114  |
| C099C400.0116   | C0513500.0116<br>C0513500.0118  | C0513700.0116<br>C0513700.0118                            | C051C400.0116   | C0973700.0116   | C097C400.0116   | C0503510.0116<br>C0503510.0118                  | C050C410.0116<br>C050C410.0118  |
| C099C400.0120   | C0513500.0120<br>C0513500.0122<br>C0513500.0124   | C0513700.0120<br>C0513700.0122<br>C0513700.0124           | C051C400.0120   | C0973700.0120   | C097C400.0120   | C0503510.0120<br>C0503510.0122<br>C0503510.0124 | C050C410.0120<br>C050C410.0122<br>C050C410.0124   |
|   | C0513500.0127<br>C0513500.0130<br>C0513500.0133<br>C0513500.0136<br>C0513500.0139<br>C0513500.0142<br>C0513500.0148 |   |   |   |   |   |   |
| 112   | 113   | 113   | 113   | 113   | 113   | 113   | 113   |
|   | 151   |   |   |   |   |   |   |

|    |    |
|----|----|
| M  | 3  |
|    | 4  |
|    | 5  |
|    | 6  |
|    | 7  |
|    | 8  |
|    | 9  |
|    | 10 |
|    | 11 |
|    | 12 |
|    | 14 |
|    | 16 |
|    | 18 |
|    | 20 |
| 22 |    |
| 24 |    |
| 27 |    |
| 30 |    |
| 33 |    |
| 36 |    |
| 39 |    |
| 42 |    |
| 45 |    |
| 48 |    |
| 52 |    |

|                     |
|---------------------|
| Product Finder      |
| V <sub>c</sub>      |
| M                   |
| MF                  |
| UNC UN-8            |
| UNF UNEF            |
| G, Rp NPSM, NPSF    |
| NPT, NPTF Rc, W     |
| BSW, BSF            |
| Pg                  |
| MJ UNJC, UNJF       |
| EG (STI)            |
| SELF-LOCK           |
| Tr, Tr-F Rd         |
| Zubehör Accessories |

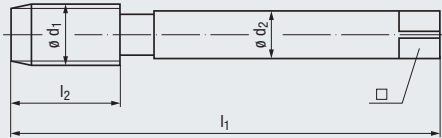


- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories



DIN 13

DIN 376



Technische Informationen  
Technical information

Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material



Gewindetiefe und Lochform  
Thread depth and hole type

Einsatzgebiete – Material  
Applications – material

» 78

max. 3 x d<sub>1</sub>



|                  |   |                  |   |
|------------------|---|------------------|---|
| <b>P</b> 1.1-3.1 | <b>P</b> 1.1-4.1<br><b>M</b> 1.1-4.1<br><b>N</b> 1.4, 2.1-2.2<br><b>N</b> 2.4-2.5<br><b>S</b> 1.1 | <b>P</b> 1.1-3.1 | <b>P</b> 1.1-4.1<br><b>N</b> 2.2, 2.4-2.5<br><b>S</b> 1.1 |
|------------------|---|------------------|---|

| $\phi d_1$<br>mm | P<br>mm | $l_1$ | $l_2$ | $\phi d_2$ | □    |      | Enorm 2-Z            | Enorm 2-Z GLT-1      | Enorm 2-Z/E          | Enorm 2-Z/E TIN      |
|------------------|---------|-------|-------|------------|------|------|----------------------|----------------------|----------------------|----------------------|
| <b>M</b> 3       | 0,5     | 56    | 6     | 2,2        | –    | 2,5  |                      |                      |                      |                      |
| 4                | 0,7     | 63    | 7     | 2,8        | 2,1  | 3,3  |                      |                      |                      |                      |
| 5                | 0,8     | 70    | 8     | 3,5        | 2,7  | 4,2  |                      |                      |                      |                      |
| 6                | 1       | 80    | 10    | 4,5        | 3,4  | 5    |                      |                      |                      |                      |
| 7                | 1       | 80    | 10    | 5,5        | 4,3  | 6    |                      |                      |                      |                      |
| 8                | 1,25    | 90    | 14    | 6          | 4,9  | 6,8  |                      |                      |                      |                      |
| 9                | 1,25    | 90    | 14    | 7          | 5,5  | 7,8  |                      |                      |                      |                      |
| 10               | 1,5     | 100   | 16    | 7          | 5,5  | 8,5  |                      |                      |                      |                      |
| 11               | 1,5     | 100   | 18    | 8          | 6,2  | 9,5  |                      |                      |                      |                      |
| 12               | 1,75    | 110   | 18    | 9          | 7    | 10,2 |                      |                      |                      |                      |
| 14               | 2       | 110   | 20    | 11         | 9    | 12   | <b>C0503520.0112</b> | <b>C050C420.0112</b> | <b>C0513520.0112</b> | <b>C0513720.0112</b> |
| 16               | 2       | 110   | 22    | 12         | 9    | 14   | <b>C0503520.0114</b> | <b>C050C420.0114</b> | <b>C0513520.0114</b> | <b>C0513720.0114</b> |
| 18               | 2,5     | 125   | 25    | 14         | 11   | 15,5 | <b>C0503520.0116</b> | <b>C050C420.0116</b> | <b>C0513520.0116</b> | <b>C0513720.0116</b> |
| 20               | 2,5     | 140   | 25    | 16         | 12   | 17,5 | <b>C0503520.0118</b> | <b>C050C420.0118</b> | <b>C0513520.0118</b> | <b>C0513720.0118</b> |
| 22               | 2,5     | 140   | 27    | 18         | 14,5 | 19,5 | <b>C0503520.0120</b> | <b>C050C420.0120</b> | <b>C0513520.0120</b> | <b>C0513720.0120</b> |
| 24               | 3       | 160   | 30    | 18         | 14,5 | 21   | <b>C0503520.0122</b> | <b>C050C420.0122</b> |                      |                      |
| 27               | 3       | 160   | 30    | 20         | 16   | 24   | <b>C0503520.0124</b> | <b>C050C420.0124</b> |                      |                      |
| 30               | 3,5     | 180   | 35    | 22         | 18   | 26,5 |                      |                      |                      |                      |
| 33               | 3,5     | 180   | 35    | 25         | 20   | 29,5 |                      |                      |                      |                      |
| 36               | 4       | 200   | 40    | 28         | 22   | 32   |                      |                      |                      |                      |
| 39               | 4       | 200   | 40    | 32         | 24   | 35   |                      |                      |                      |                      |
| 42               | 4,5     | 200   | 45    | 32         | 24   | 37,5 |                      |                      |                      |                      |
| 45               | 4,5     | 220   | 45    | 36         | 29   | 40,5 |                      |                      |                      |                      |
| 48               | 5       | 250   | 50    | 36         | 29   | 43   |                      |                      |                      |                      |
| 52               | 5       | 250   | 50    | 40         | 32   | 47   |                      |                      |                      |                      |

DIN 371

114















114

114

114

DIN 352

**Z**  
CNC-controlled machines








|   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|
|                |                |                |                |                |                |                |
| <b>new</b><br> | <b>new</b><br> | <b>new</b><br> | <b>new</b><br> | <b>new</b><br> | <b>new</b><br> | <b>new</b><br> |
| <b>ISO 3/6G</b>   | <b>7G</b>   | <b>7G</b>   | <b>6H +0,1 2)</b>   | <b>6H +0,1 2)</b>   | <b>ISO 2/6H</b>   | <b>ISO 2/6H</b>   |
| GLT-1   |   | GLT-1   |   | GLT-1   |   | GLT-1   |
| HSSE  | HSSE  | HSSE  | HSSE  | HSSE  | HSSE  | HSSE  |
| R45   | R45   | R45   | R45   | R45   | <b>LH, L45</b>  | <b>LH, L45</b>  |
| <b>E / 1,5-2</b>  | <b>C / 2-3</b>  | <b>C / 2-3</b>  | <b>C / 2-3</b>  | <b>C / 2-3</b>  | <b>C / 2-3</b>  | <b>C / 2-3</b>  |
| E / O / P   | E / O / P   | E / O / P   | E / O / P   | E / O / P   | E / O / P   | E / O / P   |

max. 3 x d<sub>1</sub>



|                       |                  |                       |                  |                       |                  |                       |
|-----------------------|------------------|-----------------------|------------------|-----------------------|------------------|-----------------------|
| <b>P 1.1-4.1</b>      | <b>P 1.1-3.1</b> | <b>P 1.1-4.1</b>      | <b>P 1.1-3.1</b> | <b>P 1.1-4.1</b>      | <b>P 1.1-3.1</b> | <b>P 1.1-4.1</b>      |
| <b>M 1.1-4.1</b>      |                  | <b>M 1.1-4.1</b>      |                  | <b>M 1.1-4.1</b>      |                  | <b>M 1.1-4.1</b>      |
| <b>N 1.4, 2.1-2.2</b> |                  | <b>N 1.4, 2.1-2.2</b> |                  | <b>N 1.4, 2.1-2.2</b> |                  | <b>N 1.4, 2.1-2.2</b> |
| <b>N 2.4-2.5</b>      |                  | <b>N 2.4-2.5</b>      |                  | <b>N 2.4-2.5</b>      |                  | <b>N 2.4-2.5</b>      |
| <b>S 1.1</b>          |                  | <b>S 1.1</b>          |                  | <b>S 1.1</b>          |                  | <b>S 1.1</b>          |

|                          |                  |                        |                  |                        |                     |                           |
|--------------------------|------------------|------------------------|------------------|------------------------|---------------------|---------------------------|
| <b>Enorm 2-Z/E GLT-1</b> | <b>Enorm 2-Z</b> | <b>Enorm 2-Z GLT-1</b> | <b>Enorm 2-Z</b> | <b>Enorm 2-Z GLT-1</b> | <b>Enorm 2-Z-LH</b> | <b>Enorm 2-Z-LH GLT-1</b> |
|--------------------------|------------------|------------------------|------------------|------------------------|---------------------|---------------------------|

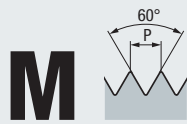
|   |   |   |   |   |   |   |          |    |
|---|---|---|---|---|---|---|----------|----|
|   |   |   |   |   |   |   | <b>M</b> | 3  |
|   |   |   |   |   |   |   |          | 4  |
|   |   |   |   |   |   |   |          | 5  |
|   |   |   | <b>C0503540.0060</b>  | <b>C050C440.0060</b>  |   |   |          | 6  |
|   |   |   |   |   |   |   |          | 7  |
|   |   |   | <b>C0503540.0080</b>  | <b>C050C440.0080</b>  |   |   |          | 8  |
|   |   |   |   |   |   |   |          | 9  |
|   |   |   | <b>C0503540.0100</b>  | <b>C050C440.0100</b>  |   |   |          | 10 |
|   |   |   |   |   |   |   |          | 11 |
| <b>C051C420.0112</b>  | <b>C0503530.0112</b>  | <b>C050C430.0112</b>  | <b>C0503540.0112</b>  | <b>C050C440.0112</b>  | <b>C0503550.0112</b>  | <b>C050C450.0112</b>  |          | 12 |
| C051C420.0114   | C0503530.0114   | C050C430.0114   |   |   | C0503550.0114   | C050C450.0114   |          | 14 |
| <b>C051C420.0116</b>  | <b>C0503530.0116</b>  | <b>C050C430.0116</b>  | <b>C0503540.0116</b>  | <b>C050C440.0116</b>  | <b>C0503550.0116</b>  | <b>C050C450.0116</b>  |          | 16 |
| C051C420.0118   | C0503530.0118   | C050C430.0118   |   |   | C0503550.0118   | C050C450.0118   |          | 18 |
| <b>C051C420.0120</b>  | <b>C0503530.0120</b>  | <b>C050C430.0120</b>  | <b>C0503540.0120</b>  | <b>C050C440.0120</b>  | <b>C0503550.0120</b>  | <b>C050C450.0120</b>  |          | 20 |
|   | C0503530.0122   | C050C430.0122   |   |   | C0503550.0122   | C050C450.0122   |          | 22 |
|   | <b>C0503530.0124</b>  | <b>C050C430.0124</b>  | C0503540.0124   | C050C440.0124   | <b>C0503550.0124</b>  | C050C450.0124   |          | 24 |
|   |   |   |   |   |   |   |          | 27 |
|   |   |   |   |   |   |   |          | 30 |
|   |   |   |   |   |   |   |          | 33 |
|   |   |   |   |   |   |   |          | 36 |
|   |   |   |   |   |   |   |          | 39 |
|   |   |   |   |   |   |   |          | 42 |
|   |   |   |   |   |   |   |          | 45 |
|   |   |   |   |   |   |   |          | 48 |
|   |   |   |   |   |   |   |          | 52 |
|  115 |  115 |  115 |  115 |  115 |  115 |  115 |          |    |

2) Vorbohrdurchmesser für Gewindebohrer mit Übermaß um 0,1 mm anheben  
Increase drill diameter for taps with oversize by 0.1 mm

|                     |
|---------------------|
| Product Finder      |
| V <sub>c</sub>      |
| M                   |
| MF                  |
| UNC UN-8            |
| UNF UNEF            |
| G, Rp NPSM, NPSF    |
| NPT, NPTF Rc, W     |
| BSW, BSF            |
| Pg                  |
| MJ UNJC, UNJF       |
| EG (STI)            |
| SELF-LOCK           |
| Tr, Tr-F Rd         |
| Zubehör Accessories |

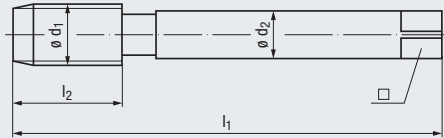


- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories



**M**  
DIN 13

**DIN 376**



**Z**  
CNC-controlled machines



**NEW**



Technische Informationen  
Technical information

Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material



|            |           |
|------------|-----------|
| 6HX        | 6HX       |
| HSSE       | GLT-1     |
| <b>R50</b> | HSSE      |
| C / 2-3    | C / 2-3   |
| E / O / P  | E / O / P |

Gewindetiefe und Lochform  
Thread depth and hole type

max. 3 x d<sub>1</sub>



Einsatzgebiete – Material  
Applications – material » 78

|                  |                       |
|------------------|-----------------------|
| <b>P</b> 1.1-3.1 | <b>P</b> 1.1-4.1      |
|                  | <b>M</b> 1.1-4.1      |
|                  | <b>N</b> 1.4, 2.1-2.2 |
|                  | <b>N</b> 2.4-2.5      |
|                  | <b>S</b> 1.1          |

|          | $\varnothing d_1$<br>mm | P<br>mm | $l_1$ | $l_2$ | $\varnothing d_2$ | □    |      | Enorm 2-Z50          | Enorm 2-Z50 GLT-1    |
|----------|-------------------------|---------|-------|-------|-------------------|------|------|----------------------|----------------------|
| <b>M</b> | 3                       | 0,5     | 56    | 6     | 2,2               | –    | 2,5  |                      |                      |
|          | 4                       | 0,7     | 63    | 7     | 2,8               | 2,1  | 3,3  |                      |                      |
|          | 5                       | 0,8     | 70    | 8     | 3,5               | 2,7  | 4,2  |                      |                      |
|          | 6                       | 1       | 80    | 10    | 4,5               | 3,4  | 5    |                      |                      |
|          | 7                       | 1       | 80    | 10    | 5,5               | 4,3  | 6    |                      |                      |
|          | 8                       | 1,25    | 90    | 14    | 6                 | 4,9  | 6,8  |                      |                      |
|          | 9                       | 1,25    | 90    | 14    | 7                 | 5,5  | 7,8  |                      |                      |
|          | 10                      | 1,5     | 100   | 16    | 7                 | 5,5  | 8,5  |                      |                      |
|          | 11                      | 1,5     | 100   | 18    | 8                 | 6,2  | 9,5  |                      |                      |
|          | 12                      | 1,75    | 110   | 18    | 9                 | 7    | 10,2 | <b>C0653501.0112</b> | <b>C065C401.0112</b> |
|          | 14                      | 2       | 110   | 20    | 11                | 9    | 12   |                      |                      |
|          | 16                      | 2       | 110   | 22    | 12                | 9    | 14   | <b>C0653501.0116</b> | <b>C065C401.0116</b> |
|          | 18                      | 2,5     | 125   | 25    | 14                | 11   | 15,5 |                      |                      |
|          | 20                      | 2,5     | 140   | 25    | 16                | 12   | 17,5 | <b>C0653501.0120</b> | <b>C065C401.0120</b> |
|          | 22                      | 2,5     | 140   | 27    | 18                | 14,5 | 19,5 |                      |                      |
|          | 24                      | 3       | 160   | 30    | 18                | 14,5 | 21   |                      |                      |
|          | 27                      | 3       | 160   | 30    | 20                | 16   | 24   |                      |                      |
|          | 30                      | 3,5     | 180   | 35    | 22                | 18   | 26,5 |                      |                      |
|          | 33                      | 3,5     | 180   | 35    | 25                | 20   | 29,5 |                      |                      |
|          | 36                      | 4       | 200   | 40    | 28                | 22   | 32   |                      |                      |
|          | 39                      | 4       | 200   | 40    | 32                | 24   | 35   |                      |                      |
|          | 42                      | 4,5     | 200   | 45    | 32                | 24   | 37,5 |                      |                      |
|          | 45                      | 4,5     | 220   | 45    | 36                | 29   | 40,5 |                      |                      |
|          | 48                      | 5       | 250   | 50    | 36                | 29   | 43   |                      |                      |
|          | 52                      | 5       | 250   | 50    | 40                | 32   | 47   |                      |                      |

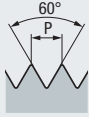
DIN 371

116

116

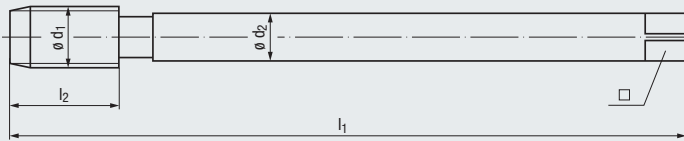
DIN 352

**M**



DIN 13

Mit extra langem Schaft  
With extra long shank



Technische Informationen  
Technical information

Toleranz · Tolerance  
Beschichtung · Coating  
Schnedstoff · Cutting material



Gewindetiefe und Lochform  
Thread depth and hole type

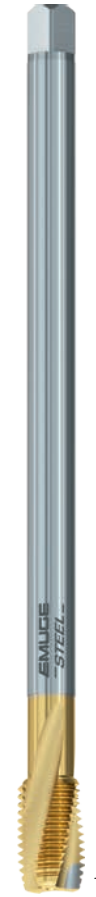
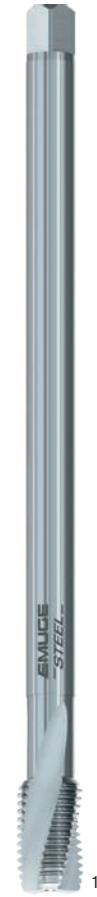
Einsatzgebiete – Material  
Applications – material

» 78

**STEEL**  
Steel  
materials



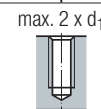
new



|          |
|----------|
| ISO 2/6H |
| HSSE     |
| B / 4-5  |
| E / 0    |

|                  |
|------------------|
| ISO 2/6H         |
| HSSE             |
| R15              |
| <b>E / 1,5-2</b> |
| E / 0            |

|          |
|----------|
| ISO 2/6H |
| TIN      |
| HSSE     |
| R15      |
| C / 2-3  |
| E / 0    |



**P** 1.1-3.1  
**N** 2.2

**P** 2.1-3.1

**P** 3.1-4.1

| $\varnothing d_1$<br>mm | P<br>mm | $l_1$ | $l_2$ | $\varnothing d_2$ | $\square$ |      | Rekord<br>2B-STEEL-L<br>LS | Rekord<br>2D-STEEL/E<br>LS | Rekord<br>2DF-STEEL<br>LS-TIN |
|-------------------------|---------|-------|-------|-------------------|-----------|------|----------------------------|----------------------------|-------------------------------|
| <b>M</b> 6              | 1       | 160   | 17    | 4,5               | 3,4       | 5    | C2208900.0060              | C2461000.0060              |                               |
| 8                       | 1,25    | 180   | 20    | 6                 | 4,9       | 6,8  | C2208900.0080              | C2461000.0080              |                               |
| 10                      | 1,5     | 200   | 22    | 7                 | 5,5       | 8,5  | C2208900.0100              | C2461000.0100              |                               |
| 12                      | 1,75    | 224   | 24    | 9                 | 7         | 10,2 | C2208900.0112              | C2461000.0112              | C2401400.0112                 |
| 14                      | 2       | 224   | 26    | 11                | 9         | 12   | C2208900.0114              | C2461000.0114              |                               |
| 16                      | 2       | 224   | 27    | 12                | 9         | 14   | C2208900.0116              | C2461000.0116              | C2401400.0116                 |
| 18                      | 2,5     | 250   | 30    | 14                | 11        | 15,5 | C2208900.0118              | C2461000.0118              |                               |
| 20                      | 2,5     | 280   | 32    | 16                | 12        | 17,5 | C2208900.0120              | C2461000.0120              |                               |

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» 117

1) Auch mit innerer Kühlschmierstoff-Zufuhr IKZ möglich  
Also available with internal coolant supply IKZ

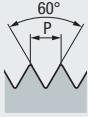
2) Auch mit innerer Kühlschmierstoff-Zufuhr IKZN möglich  
Also available with internal coolant supply IKZN

|                        |
|------------------------|
| Product Finder         |
| $v_c$                  |
| M                      |
| MF                     |
| UNC<br>UN-8            |
| UNF<br>UNEF            |
| G, Rp<br>NPSM, NPSF    |
| NPT, NPTF<br>Rc, W     |
| BSW, BSF               |
| Pg                     |
| MJ<br>UNJC, UNJF       |
| EG (STI)               |
| SELF-LOCK              |
| Tr, Tr-F<br>Rd         |
| Zubehör<br>Accessories |



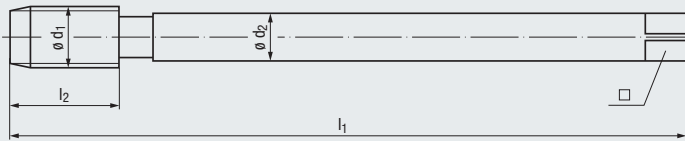
- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories

# M



DIN 13

Mit extra langem Schaft  
With extra long shank



Technische Informationen  
Technical information

Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material

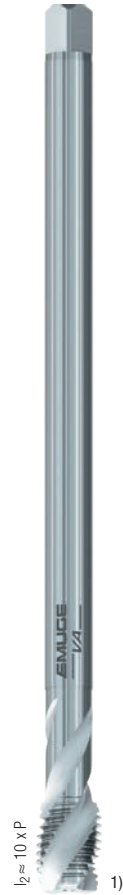
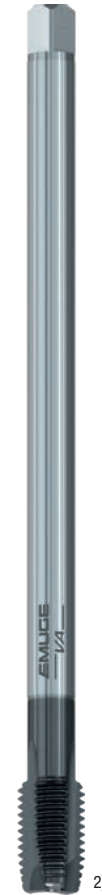
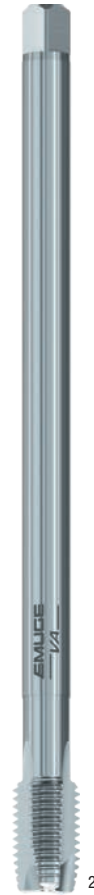


Gewindetiefe und Lochform  
Thread depth and hole type

Einsatzgebiete – Material  
Applications – material



VA  
Stainless steel materials



|           |           |           |
|-----------|-----------|-----------|
| ISO 2/6H  | ISO 2/6H  | ISO 2/6H  |
| NT        | GLT-1     |           |
| HSSE      | HSSE      | HSSE      |
|           |           | R35       |
| B / 4-5   | B / 4-5   | C / 2-3   |
| E / O / P | E / O / P | E / O / P |

max. 3 x d<sub>1</sub>



max. 2,5 x d<sub>1</sub>



|                   |                  |                  |
|-------------------|------------------|------------------|
| <b>P</b> 2.1-3.1  | <b>P</b> 1.1-4.1 | <b>P</b> 1.1-3.1 |
| <b>N</b> 2.2, 2.5 | <b>M</b> 1.1-4.1 |                  |
|                   | <b>N</b> 2.2     |                  |

| $\varnothing d_1$<br>mm | P<br>mm | $l_1$ | $l_2$ | $\varnothing d_2$ | □   |      | Rekord<br>2B-VA<br>LS-NT | Rekord<br>2B-VA<br>LS-GLT-1 | Enorm<br>2-VA<br>LS  |
|-------------------------|---------|-------|-------|-------------------|-----|------|--------------------------|-----------------------------|----------------------|
| <b>M</b> 6              | 1       | 160   | 17    | 4,5               | 3,4 | 5    | <b>C2203000.0060</b>     | C220C300.0060               |                      |
| 8                       | 1,25    | 180   | 20    | 6                 | 4,9 | 6,8  | <b>C2203000.0080</b>     | C220C300.0080               |                      |
| 10                      | 1,5     | 200   | 22    | 7                 | 5,5 | 8,5  | <b>C2203000.0100</b>     | C220C300.0100               |                      |
| 12                      | 1,75    | 224   | 24    | 9                 | 7   | 10,2 | <b>C2203000.0112</b>     | C220C300.0112               | <b>C2503000.0112</b> |
| 14                      | 2       | 224   | 26    | 11                | 9   | 12   | <b>C2203000.0114</b>     | C220C300.0114               | <b>C2503000.0114</b> |
| 16                      | 2       | 224   | 27    | 12                | 9   | 14   | <b>C2203000.0116</b>     | C220C300.0116               | <b>C2503000.0116</b> |
| 18                      | 2,5     | 250   | 30    | 14                | 11  | 15,5 | <b>C2203000.0118</b>     | C220C300.0118               | <b>C2503000.0118</b> |
| 20                      | 2,5     | 280   | 32    | 16                | 12  | 17,5 | <b>C2203000.0120</b>     | C220C300.0120               | <b>C2503000.0120</b> |




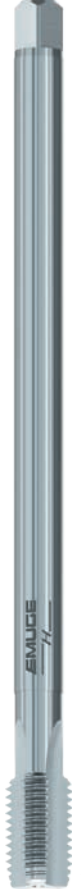

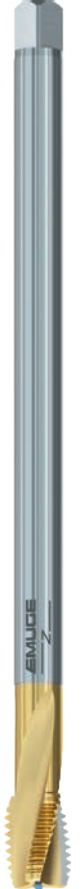




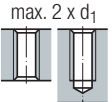
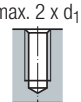
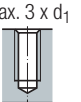
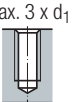




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118

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- 1) Auch mit innerer Kühlschmierstoff-Zufuhr IKZ möglich  
Also available with internal coolant supply IKZ
- 2) Auch mit innerer Kühlschmierstoff-Zufuhr IKZN möglich  
Also available with internal coolant supply IKZN



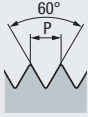
| <b>H</b><br>Materials of high tensile strength<br>  |  | <b>Z</b><br>CNC-controlled machines<br>      |  |   |  |   |  |
|--|--|---|--|---|--|---|--|
| 6HX<br>NT<br>HSSE<br><br>C / 2-3<br>E / O / P<br>   |  | 6HX<br>TIN<br>HSSE<br>R15<br>C / 2-3<br>E / O<br>  | ISO 2/6H<br>HSSE<br>R45<br>C / 2-3<br>E / O / P<br> | ISO 2/6H<br>GLT-1<br>HSSE<br>R45<br>C / 2-3<br>E / O / P<br> |  |   |  |
| <b>K</b> 1.1-4.2<br><b>N</b> 4.1   |  | <b>P</b> 3.1-5.1<br><b>N</b> 2.4-2.5  | <b>P</b> 1.1-3.1   | <b>P</b> 1.1-4.1<br><b>M</b> 1.1-4.1<br><b>N</b> 1.4, 2.1-2.2<br><b>N</b> 2.4-2.5<br><b>S</b> 1.1   |  |   |  |
| <b>Rekord</b><br>2A-H<br>LS-NT   |  | <b>Rekord</b><br>2D-Z-BF-IKZ<br>LS-TIN  | <b>Enorm</b><br>2-Z<br>LS  | <b>Enorm</b><br>2-Z-LS<br>GLT-1   |  |   |  |
| C2100501.0060<br>C2100501.0080<br>C2100501.0100<br>C2100501.0112<br>C2100501.0114<br>C2100501.0116<br>C2100501.0118<br>C2100501.0120   |  | C4093701.0112<br><br>C4093701.0116  | C2503500.0060<br>C2503500.0080<br>C2503500.0100<br>C2503500.0112<br>C2503500.0114<br>C2503500.0116<br>C2503500.0118<br>C2503500.0120   | C250C400.0060<br>C250C400.0080<br>C250C400.0100<br>C250C400.0112<br>C250C400.0114<br>C250C400.0116<br>C250C400.0118<br>C250C400.0120            |  | <b>M</b> 6<br>8<br>10<br>12<br>14<br>16<br>18<br>20 |  |
|  119  |  |  119   |  119  |  119   |  |   |  |

|                     |
|---------------------|
| Product Finder      |
| V <sub>c</sub>      |
| M                   |
| MF                  |
| UNC UN-8            |
| UNF UNEF            |
| G, Rp NPSM, NPSF    |
| NPT, NPTF Rc, W     |
| BSW, BSF            |
| Pg                  |
| MJ UNJC, UNJF       |
| EG (STI)            |
| SELF-LOCK           |
| Tr, Tr-F Rd         |
| Zubehör Accessories |



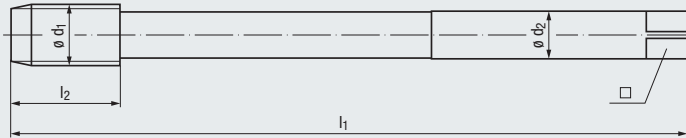
- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories

# M



DIN 13

Mit langen Nuten und langem Schaft für Gewindetiefen bis max. 3 x d<sub>1</sub>  
 With long flutes and long shank for thread depths up to max. 3 x d<sub>1</sub>

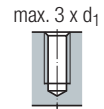
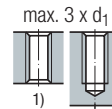


Technische Informationen  
 Technical information

Toleranz · Tolerance  
 Beschichtung · Coating  
 Schneidstoff · Cutting material



Gewindetiefe und Lochform  
 Thread depth and hole type



Einsatzgebiete – Material  
 Applications – material

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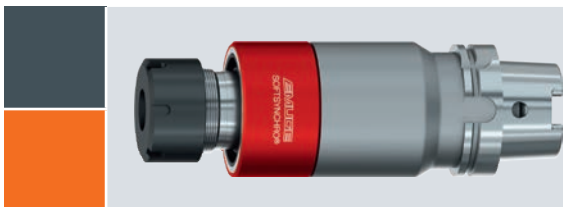
**P** 3.1-4.1  
**K** 1.1-4.2

**P** 3.1-5.1  
**N** 2.4-2.5

**P** 3.1-5.1  
**N** 2.4-2.5

| Ø d <sub>1</sub><br>mm | P<br>mm | l <sub>1</sub> | l <sub>2</sub> | Ø d <sub>2</sub> | □    |      | Rekord<br>2A-Z-1KZ-LF3<br>TICN | Rekord<br>2D-Z-1KZ-LF3<br>TIN | Rekord<br>2D-Z-BF-1KZ-LF3<br>TIN |
|------------------------|---------|----------------|----------------|------------------|------|------|--------------------------------|-------------------------------|----------------------------------|
| <b>M</b> 24            | 3       | 215            | 30             | 18               | 14,5 | 21   | <b>C0579401.0124</b>           | <b>C4963701.0124</b>          | C4973701.0124                    |
| 30                     | 3,5     | 240            | 35             | 22               | 18   | 26,5 | <b>C0579401.0130</b>           | <b>C4963701.0130</b>          | C4973701.0130                    |
| 33                     | 3,5     | 255            | 35             | 25               | 20   | 29,5 | <b>C0579401.0133</b>           | <b>C4963701.0133</b>          | C4973701.0133                    |
| 36                     | 4       | 275            | 40             | 28               | 22   | 32   | <b>C0579401.0136</b>           | <b>C4963701.0136</b>          | C4973701.0136                    |
| 42                     | 4,5     | 295            | 45             | 32               | 24   | 37,5 | <b>C0579401.0142</b>           | <b>C4963701.0142</b>          | C4973701.0142                    |

1) Gewindebohren in Durchgangslöcher nur mit externer Kühlschmierung möglich  
 Threading in through holes is possible only with external cooling/lubrication



Zum Spannen von Gewindebohrern für die Herstellung großer Gewinde empfehlen wir die Verwendung von Aufnahmen der Typenreihen Softsynchro® und HF. Diese finden Sie auf den Seiten 620 - 621, 629 - 630 und 709 - 715.

For the clamping of taps for the production of large threads, we recommend using our holders of the Softsynchro® and HF series. You will find these on pages 620 - 621, 629 - 630 and 709 - 715.

Z  
 CNC-controlled  
 machines

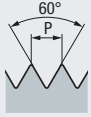


6HX  
 TICN  
 HSSE  
 C / 2-3  
 E / O

6HX  
 TIN  
 HSSE  
 R15  
 C / 2-3  
 E / O

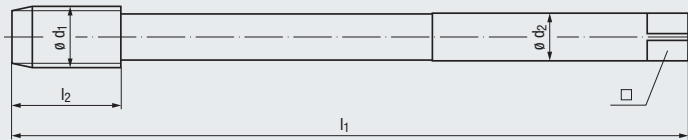
6HX  
 TIN  
 HSSE  
 R15  
 C / 2-3  
 E / O

**M**



DIN 13

Mit langen Nuten und langem Schaft für Gewindetiefen bis max. 4 x d<sub>1</sub>  
 With long flutes and long shank for thread depths up to max. 4 x d<sub>1</sub>



Technische Informationen  
 Technical information

Toleranz · Tolerance  
 Beschichtung · Coating  
 Schneidstoff · Cutting material



Gewindetiefe und Lochform  
 Thread depth and hole type

Einsatzgebiete – Material  
 Applications – material



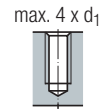
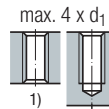
| Ø d <sub>1</sub><br>mm | P<br>mm | l <sub>1</sub> | l <sub>2</sub> | Ø d <sub>2</sub> | □    |      | Rekord<br>2A-Z- <b>IKZ</b> -LF4<br>TICN | Rekord<br>2D-Z- <b>IKZ</b> -LF4<br>TIN | Rekord<br>2D-Z- <b>BF-<b>IKZ</b></b> -LF4<br>TIN |
|------------------------|---------|----------------|----------------|------------------|------|------|---|--|--|
| <b>M</b> 20            | 2,5     | 190            | 25             | 16               | 12   | 17,5 | <b>C0539401.0120</b>                    | <b>C4283701.0120</b>                   | C4063701.0120                                    |
| 22                     | 2,5     | 230            | 27             | 18               | 14,5 | 19,5 | <b>C0539401.0122</b>                    | <b>C4283701.0122</b>                   | C4063701.0122                                    |
| 24                     | 3       | 240            | 30             | 18               | 14,5 | 21   | <b>C0539401.0124</b>                    | <b>C4283701.0124</b>                   | C4063701.0124                                    |
| 27                     | 3       | 250            | 30             | 20               | 16   | 24   | <b>C0539401.0127</b>                    | <b>C4283701.0127</b>                   | C4063701.0127                                    |
| 30                     | 3,5     | 270            | 35             | 22               | 18   | 26,5 | <b>C0539401.0130</b>                    | <b>C4283701.0130</b>                   | C4063701.0130                                    |
| 33                     | 3,5     | 290            | 35             | 25               | 20   | 29,5 | <b>C0539401.0133</b>                    | <b>C4283701.0133</b>                   | C4063701.0133                                    |
| 36                     | 4       | 310            | 40             | 28               | 22   | 32   | <b>C0539401.0136</b>                    | <b>C4283701.0136</b>                   | C4063701.0136                                    |
| 42                     | 4,5     | 340            | 45             | 32               | 24   | 37,5 | <b>C0539401.0142</b>                    | <b>C4283701.0142</b>                   | C4063701.0142                                    |
| 45                     | 4,5     | 360            | 45             | 36               | 29   | 40,5 | <b>C0539401.0145</b>                    | <b>C4283701.0145</b>                   | C4063701.0145                                    |
| 48                     | 5       | 380            | 50             | 36               | 29   | 43   | <b>C0539401.0148</b>                    | <b>C4283701.0145</b>                   | C4063701.0145                                    |

1) Gewindebohren in Durchgangslöcher nur mit externer Kühlschmierung möglich  
 Threading in through holes is possible only with external cooling/lubrication

**Z**  
 CNC-controlled  
 machines



|         |         |         |
|---------|---------|---------|
| 6HX     | 6HX     | 6HX     |
| TICN    | TIN     | TIN     |
| HSSE    | HSSE    | HSSE    |
| C / 2-3 | R15     | R15     |
| E / O   | C / 2-3 | C / 2-3 |
|         | E / O   | E / O   |



|                  |                  |                  |
|------------------|------------------|------------------|
| <b>P</b> 3.1-4.1 | <b>P</b> 3.1-5.1 | <b>P</b> 3.1-5.1 |
| <b>K</b> 1.1-4.2 | <b>N</b> 2.4-2.5 | <b>N</b> 2.4-2.5 |

Product  
 Finder

V<sub>c</sub>

M

MF

UNC  
 UN-8

UNF  
 UNEF

G, Rp  
 NPSM, NPSF

NPT, NPTF  
 Rc, W

BSW, BSF

Pg

MJ  
 UNJC, UNJF

EG (STI)

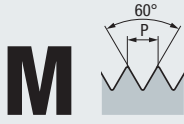
SELF-LOCK

Tr, Tr-F  
 Rd

Zubehör  
 Accessories



- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories



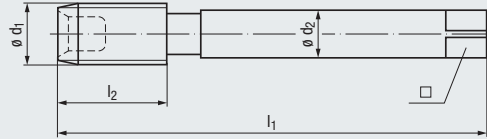
DIN 13

DIN 376

VA  
Stainless steel materials



Mit Spanglocke  
With internal chip collector



Technische Informationen  
Technical information

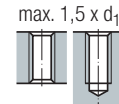
Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material



|          |
|----------|
| 6HX      |
| NE2      |
| HSSE     |
| C / 2-3  |
| P / O 1) |

|          |
|----------|
| 6HX      |
| TIN      |
| HSSE     |
| C / 2-3  |
| P / O 1) |

Gewindetiefe und Lochform  
Thread depth and hole type




Einsatzgebiete – Material  
Applications – material



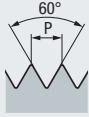
|           |
|-----------|
| P 1.1-3.1 |
| K 1.1-4.2 |

|           |
|-----------|
| P 1.1-3.1 |
| K 1.1-4.2 |

|   | $\varnothing d_1$<br>mm | P<br>mm | $l_1$ | $l_2$ | $\varnothing d_2$ | □    |  | Robust<br>2X-VA<br>NE2 | Robust<br>2X-VA<br>TIN |
|---|-------------------------|---------|-------|-------|-------------------|------|---|------------------------|------------------------|
| M | 24                      | 3       | 160   | 34    | 18                | 14,5 | 21  | C0803001.0124          | C0803101.0124          |
|   | 27                      | 3       | 160   | 36    | 20                | 16   | 24  | C0803001.0127          | C0803101.0127          |
|   | 30                      | 3,5     | 180   | 40    | 22                | 18   | 26,5  | C0803001.0130          | C0803101.0130          |
|   | 33                      | 3,5     | 180   | 40    | 25                | 20   | 29,5  | C0803001.0133          | C0803101.0133          |
|   | 36                      | 4       | 200   | 50    | 28                | 22   | 32  | C0803001.0136          | C0803101.0136          |
|   | 39                      | 4       | 200   | 50    | 32                | 24   | 35  | C0803001.0139          | C0803101.0139          |
|   | 42                      | 4,5     | 200   | 56    | 32                | 24   | 37,5  | C0803001.0142          | C0803101.0142          |
|   | 45                      | 4,5     | 220   | 58    | 36                | 29   | 40,5  | C0803001.0145          | C0803101.0145          |
|   | 48                      | 5       | 250   | 65    | 36                | 29   | 43  | C0803001.0148          | C0803101.0148          |
|   | 52                      | 5       | 250   | 65    | 40                | 32   | 47  | C0803001.0152          | C0803101.0152          |
|   | 56                      | 5,5     | 250   | 70    | 40                | 32   | 50,5  | C0803001.0156          | C0803101.0156          |
|   | 60                      | 5,5     | 280   | 70    | 45                | 35   | 54,5  | C0803001.0160          | C0803101.0160          |
|   | 64                      | 6       | 315   | 75    | 50                | 39   | 58  | C0803001.0164          | C0803101.0164          |

1) Bevorzugt mit Pastenschmierung einsetzen, neben Werkzeug auch Bohrungswandung einstreichen.  
Ölschmierung ist nur bei senkrechter Grundlochbearbeitung möglich, wenn das Grundloch mit Öl vollgefüllt ist.  
If possible, use paste lubrication, coating both the tool and the walls of the drilled hole.  
Lubrication with oil is possible only in the vertical machining of blind holes, if the hole is entirely filled with oil.

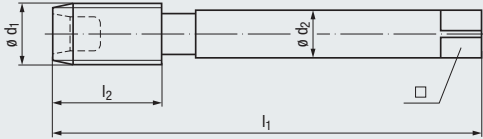
**M**



DIN 13

DIN 376

Mit Spanglocke  
With internal chip collector

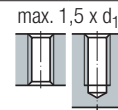


Technische Informationen  
Technical information

Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material



Gewindetiefe und Lochform  
Thread depth and hole type



Einsatzgebiete – Material  
Applications – material

» 78

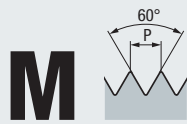
| M | $\varnothing d_1$<br>mm | P<br>mm | $l_1$ | $l_2$ | $\varnothing d_2$ | □    |      | Robust<br>2ST-VA<br>NE2 | Robust<br>2ST-VA<br>TIN |
|---|-------------------------|---------|-------|-------|-------------------|------|------|-------------------------|-------------------------|
|   |                         |         |       |       |                   |      |      | C2023001.0124           | C2023101.0124           |
|   | 24                      | 3       | 160   | 34    | 18                | 14,5 | 21   | C2023001.0127           | C2023101.0127           |
|   | 27                      | 3       | 160   | 36    | 20                | 16   | 24   | C2023001.0130           | C2023101.0130           |
|   | 30                      | 3,5     | 180   | 40    | 22                | 18   | 26,5 | C2023001.0133           | C2023101.0133           |
|   | 33                      | 3,5     | 180   | 40    | 25                | 20   | 29,5 | C2023001.0136           | C2023101.0136           |
|   | 36                      | 4       | 200   | 50    | 28                | 22   | 32   | C2023001.0139           | C2023101.0139           |
|   | 39                      | 4       | 200   | 50    | 32                | 24   | 35   | C2023001.0142           | C2023101.0142           |
|   | 42                      | 4,5     | 200   | 56    | 32                | 24   | 37,5 | C2023001.0145           | C2023101.0145           |
|   | 45                      | 4,5     | 220   | 58    | 36                | 29   | 40,5 | C2023001.0148           | C2023101.0148           |
|   | 48                      | 5       | 250   | 65    | 36                | 29   | 43   | C2023001.0152           | C2023101.0152           |
|   | 52                      | 5       | 250   | 65    | 40                | 32   | 47   | C2023001.0156           | C2023101.0156           |
|   | 56                      | 5,5     | 250   | 70    | 40                | 32   | 50,5 | C2023001.0160           | C2023101.0160           |
|   | 60                      | 5,5     | 280   | 70    | 45                | 35   | 54,5 | C2023001.0164           | C2023101.0164           |
|   | 64                      | 6       | 315   | 75    | 50                | 39   | 58   |                         |                         |

1) Bevorzugt mit Pastenschmierung einsetzen, neben Werkzeug auch Bohrungswandung einstreichen.  
Ölschmierung ist nur bei senkrechter Grundlochbearbeitung möglich, wenn das Grundloch mit Öl vollgefüllt ist.  
If possible, use paste lubrication, coating both the tool and the walls of the drilled hole.  
Lubrication with oil is possible only in the vertical machining of blind holes, if the hole is entirely filled with oil.

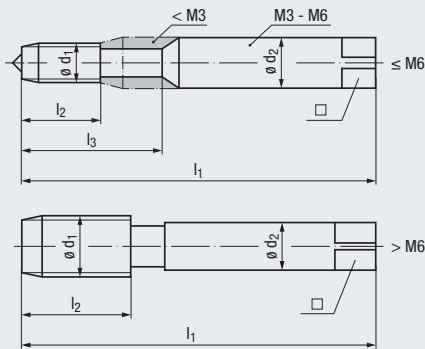
- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories



- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories



DIN 13



DIN 352

STEEL  
Steel materials



new



Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material

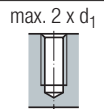
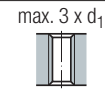
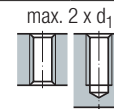
Technische Informationen  
Technical information

Tr, Tr-F Rd



|         |         |          |          |
|---------|---------|----------|----------|
| 6HX *)  | 6HX     | ISO 2/6H | ISO 2/6H |
| HSSE    | HSSE    | HSSE     | HSSE     |
| C / 2-3 | C / 2-3 | B / 4-5  | C / 2-3  |
| E / O   | E / O   | E / O    | E / O    |

Gewindetiefe und Lochform  
Thread depth and hole type



Einsatzgebiete – Material  
Applications – material

78

|                                  |                                  |                                  |                  |
|----------------------------------|----------------------------------|----------------------------------|------------------|
| <b>K</b> 1.1-4.2<br><b>N</b> 2.3 | <b>K</b> 1.1-4.2<br><b>N</b> 2.3 | <b>P</b> 1.1-3.1<br><b>N</b> 2.2 | <b>P</b> 2.1-3.1 |
|----------------------------------|----------------------------------|----------------------------------|------------------|

| M | $\theta d_1$<br>mm | P<br>mm | $l_1$ | $l_2$ | $l_3$ | $\theta d_2$ | □    |      | Rekord               | Rekord               | Rekord               | Rekord               |
|---|--------------------|---------|-------|-------|-------|--------------|------|------|----------------------|----------------------|----------------------|----------------------|
|   |                    |         |       |       |       |              |      |      | A-STEEL              | A-STEEL-LH           | B-STEEL-L            | D-STEEL              |
|   | 1                  | 0,25    | 32    | 5     | –     | 2,5          | 2,1  | 0,75 | A0101001.0010        |                      |                      |                      |
|   | 1,1                | 0,25    | 32    | 5     | –     | 2,5          | 2,1  | 0,85 |                      |                      |                      |                      |
|   | 1,2                | 0,25    | 32    | 5     | –     | 2,5          | 2,1  | 0,95 | A0101001.0012        |                      |                      |                      |
|   | 1,4                | 0,3     | 32    | 7     | –     | 2,5          | 2,1  | 1,1  | A0101001.0014        |                      |                      |                      |
|   | 1,6                | 0,35    | 32    | 8     | –     | 2,5          | 2,1  | 1,25 | A0101001.0016        |                      |                      |                      |
|   | 1,8                | 0,35    | 32    | 8     | –     | 2,5          | 2,1  | 1,45 |                      |                      |                      |                      |
|   | 2                  | 0,4     | 36    | 8     | –     | 2,8          | 2,1  | 1,6  | A0101001.0020        |                      |                      |                      |
|   | 2,2                | 0,45    | 36    | 9     | –     | 2,8          | 2,1  | 1,75 | A0101001.0022        |                      |                      |                      |
|   | 2,3                | 0,4     | 36    | 9     | –     | 2,8          | 2,1  | 1,9  | A0101001.0023        |                      |                      |                      |
|   | 2,5                | 0,45    | 40    | 9     | –     | 2,8          | 2,1  | 2,05 | A0101001.0025        |                      |                      |                      |
|   | 2,6                | 0,45    | 40    | 9     | –     | 2,8          | 2,1  | 2,15 | A0101001.0026        |                      |                      |                      |
|   | 3                  | 0,5     | 40    | 10    | 18    | 3,5          | 2,7  | 2,5  | <b>A0101001.0030</b> | <b>A0101051.0030</b> | <b>A0208900.0030</b> | <b>A0451000.0030</b> |
|   | 3,5                | 0,6     | 45    | 11    | 20    | 4            | 3    | 2,9  | A0101001.0035        |                      | A0208900.0035        |                      |
|   | 4                  | 0,7     | 45    | 12    | 22    | 4,5          | 3,4  | 3,3  | <b>A0101001.0040</b> | <b>A0101051.0040</b> | <b>A0208900.0040</b> | <b>A0451000.0040</b> |
|   | 4,5                | 0,75    | 50    | 13    | 24    | 6            | 4,9  | 3,7  |                      |                      |                      |                      |
|   | 5                  | 0,8     | 50    | 14    | 25    | 6            | 4,9  | 4,2  | <b>A0101001.0050</b> | <b>A0101051.0050</b> | <b>A0208900.0050</b> | <b>A0451000.0050</b> |
|   | 6                  | 1       | 56    | 16    | 28    | 6            | 4,9  | 5    | <b>A0101001.0060</b> | <b>A0101051.0060</b> | <b>A0208900.0060</b> | <b>A0451000.0060</b> |
|   | 7                  | 1       | 56    | 18    | –     | 6            | 4,9  | 6    |                      |                      |                      |                      |
|   | 8                  | 1,25    | 63    | 20    | –     | 6            | 4,9  | 6,8  | <b>A0101001.0080</b> | <b>A0101051.0080</b> | <b>A0208900.0080</b> | <b>A0451000.0080</b> |
|   | 9                  | 1,25    | 63    | 20    | –     | 7            | 5,5  | 7,8  |                      |                      |                      |                      |
|   | 10                 | 1,5     | 70    | 22    | –     | 7            | 5,5  | 8,5  | <b>A0101001.0100</b> | <b>A0101051.0100</b> | <b>A0208900.0100</b> | <b>A0451000.0100</b> |
|   | 11                 | 1,5     | 70    | 22    | –     | 8            | 6,2  | 9,5  |                      |                      |                      |                      |
|   | 12                 | 1,75    | 75    | 24    | –     | 9            | 7    | 10,2 | <b>A0101001.0112</b> | <b>A0101051.0112</b> | <b>A0208900.0112</b> | <b>A0451000.0112</b> |
|   | 14                 | 2       | 80    | 26    | –     | 11           | 9    | 12   | A0101001.0114        | A0101051.0114        |                      |                      |
|   | 16                 | 2       | 80    | 27    | –     | 12           | 9    | 14   | A0101001.0116        | A0101051.0116        |                      |                      |
|   | 18                 | 2,5     | 95    | 30    | –     | 14           | 11   | 15,5 | A0101001.0118        | A0101051.0118        |                      |                      |
|   | 20                 | 2,5     | 95    | 32    | –     | 16           | 12   | 17,5 | A0101001.0120        | A0101051.0120        |                      |                      |
|   | 22                 | 2,5     | 100   | 32    | –     | 18           | 14,5 | 19,5 | A0101001.0122        |                      |                      |                      |
|   | 24                 | 3       | 110   | 34    | –     | 18           | 14,5 | 21   | A0101001.0124        | A0101051.0124        |                      |                      |
|   | 27                 | 3       | 110   | 36    | –     | 20           | 16   | 24   | A0101001.0127        |                      |                      |                      |
|   | 30                 | 3,5     | 125   | 40    | –     | 22           | 18   | 26,5 | A0101001.0130        |                      |                      |                      |

















DIN 371 92

DIN 376 120

92

120

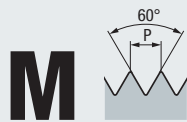
\*)  $\leq M1,4$  Tol. 4H(X)/5H(X)

| VA<br>Stainless steel materials   | MS<br>Copper-zinc alloys  |   | Z<br>CNC-controlled machines  |               |  |  |            |
|---|---|---|---|---------------|--|--|------------|
|                              |                              |  |                              |               |  |  |            |
|                              |                              |  |                              |               |  |  |            |
| ISO 2/6H<br>NT<br>HSSE<br>B / 4-5<br>E / O / P  | 6HX<br>HSSE<br>C / 2-3<br>E   | <b>6GX</b><br>HSSE<br>C / 2-3<br>E  | ISO 2/6H<br>HSSE<br>R45<br><b>E / 1,5-2</b><br>E / O / P  |               |  |  |            |
| max. 3 x d <sub>1</sub><br> | max. 2 x d <sub>1</sub><br> |   | max. 3 x d <sub>1</sub><br> |               |  |  |            |
| <b>P 2.1-3.1</b><br><b>N 2.2, 2.5</b>   | <b>N 2.3</b>  | <b>N 2.3</b>  | <b>P 1.1-3.1</b>  |               |  |  |            |
| <b>Rekord B-VA NT</b>   | <b>Rekord A-MS</b>  | <b>Rekord A-MS</b>  | <b>Enorm Z/E</b>  |               |  |  |            |
|   |   |   |   |               |  |  | <b>M</b> 1 |
|   |   |   |   |               |  |  | 1,1        |
|   |   |   |   |               |  |  | 1,2        |
|   |   |   |   |               |  |  | 1,4        |
|   |   |   |   |               |  |  | 1,6        |
|   |   |   |   |               |  |  | 1,8        |
|   |   |   |   |               |  |  | 2          |
|   | A0102501.0020   |   |   |               |  |  | 2,2        |
|   | A0102501.0022   |   |   |               |  |  | 2,3        |
|   | A0102501.0023   |   |   |               |  |  | 2,5        |
|   | A0102501.0025   |   |   |               |  |  | 2,6        |
|   | A0102501.0026   |   |   |               |  |  | 3          |
| <b>A0203000.0030</b>  | <b>A0102501.0030</b>  | <b>A0102521.0030</b>  |   | A0513500.0030 |  |  | 3,5        |
|   | A0102501.0035   | A0102521.0035   |   |               |  |  | 4          |
| <b>A0203000.0040</b>  | <b>A0102501.0040</b>  | <b>A0102521.0040</b>  |   | A0513500.0040 |  |  | 4,5        |
|   |   |   |   |               |  |  | 5          |
| <b>A0203000.0050</b>  | <b>A0102501.0050</b>  | <b>A0102521.0050</b>  |   | A0513500.0050 |  |  | 6          |
| <b>A0203000.0060</b>  | <b>A0102501.0060</b>  | <b>A0102521.0060</b>  |   | A0513500.0060 |  |  | 7          |
|   |   |   |   |               |  |  | 8          |
| <b>A0203000.0080</b>  | <b>A0102501.0080</b>  | <b>A0102521.0080</b>  |   | A0513500.0080 |  |  | 9          |
|   |   |   |   |               |  |  | 10         |
| <b>A0203000.0100</b>  | <b>A0102501.0100</b>  | <b>A0102521.0100</b>  |   | A0513500.0100 |  |  | 11         |
|   |   |   |   |               |  |  | 12         |
| <b>A0203000.0112</b>  |   |   |   | A0513500.0112 |  |  | 14         |
|   |   |   |   |               |  |  | 16         |
|   |   |   |   | A0513500.0116 |  |  | 18         |
|   |   |   |   |               |  |  | 20         |
|   |   |   |   | A0513500.0120 |  |  | 22         |
|   |   |   |   |               |  |  | 24         |
|   |   |   |   |               |  |  | 27         |
|   |   |   |   |               |  |  | 30         |
|  95                        |  103                       |   |  113                       |               |  |  |            |
|  123                       |   |   |  139                       |               |  |  |            |

|                     |
|---------------------|
| Product Finder      |
| V <sub>c</sub>      |
| M                   |
| MF                  |
| UNC UN-8            |
| UNF UNEF            |
| G, Rp NPSM, NPSF    |
| NPT, NPTF Rc, W     |
| BSW, BSF            |
| Pg                  |
| MJ UNJC, UNJF       |
| EG (STI)            |
| SELF-LOCK           |
| Tr, Tr-F Rd         |
| Zubehör Accessories |

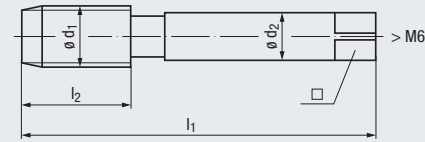
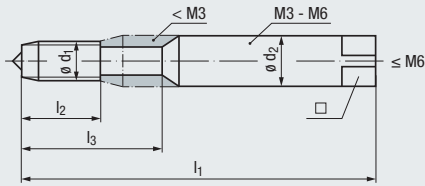


- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories



DIN 352

DIN 13



Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material

Technische Informationen  
Technical information



HSSE

HSSE

6HX \*)

6HX \*)

A / 5-6

D / 3-4

C / 2-3

C / 2-3

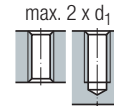
O / P

O / P

O / P

O / P

Gewindetiefe und Lochform  
Thread depth and hole type



Einsatzgebiete – Material  
Applications – material



P

1.1-3.1

P

1.1-3.1

P

1.1-3.1

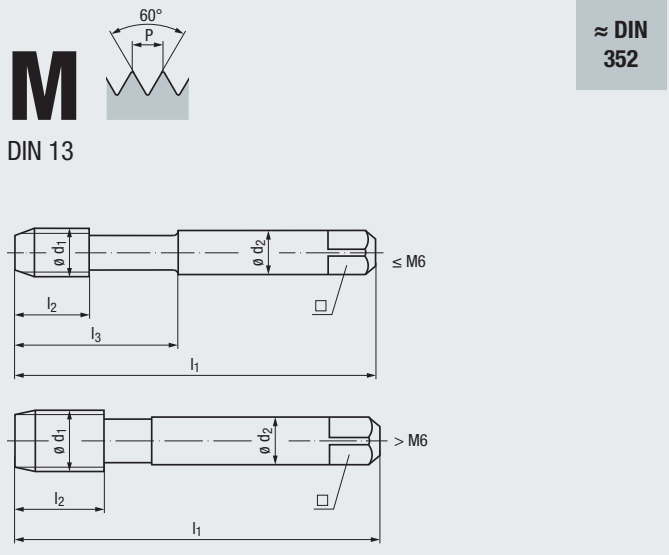
P

1.1-3.1

| $\theta d_1$<br>mm | P<br>mm | $l_1$ | $l_2$ | $l_3$ | $\theta d_2$ | □    |      | HGB-Set       | HGB-Set       | HGB-Set       | HGB-Set-3S      |
|--------------------|---------|-------|-------|-------|--------------|------|------|---------------|---------------|---------------|-----------------|
|                    |         |       |       |       |              |      |      | V-Nr.1        | M-Nr.2        | F             | (Nr.1, Nr.2, F) |
| M 1                | 0,25    | 32    | 5     | –     | 2,5          | 2,1  | 0,75 | H0111019.0010 | H0111029.0010 | H0111001.0010 | H0101001.0010   |
| 1,1                | 0,25    | 32    | 5     | –     | 2,5          | 2,1  | 0,85 |               |               |               |                 |
| 1,2                | 0,25    | 32    | 5     | –     | 2,5          | 2,1  | 0,95 |               |               |               |                 |
| 1,4                | 0,3     | 32    | 7     | –     | 2,5          | 2,1  | 1,1  | H0111019.0014 | H0111029.0014 | H0111001.0014 | H0101001.0014   |
| 1,6                | 0,35    | 32    | 8     | –     | 2,5          | 2,1  | 1,25 | H0111019.0016 | H0111029.0016 | H0111001.0016 | H0101001.0016   |
| 1,7                | 0,35    | 32    | 8     | –     | 2,5          | 2,1  | 1,35 |               |               |               |                 |
| 1,8                | 0,35    | 32    | 8     | –     | 2,5          | 2,1  | 1,45 |               |               |               |                 |
| 2                  | 0,4     | 36    | 8     | –     | 2,8          | 2,1  | 1,6  | H0111019.0020 | H0111029.0020 | H0111001.0020 | H0101001.0020   |
| 2,2                | 0,45    | 36    | 9     | –     | 2,8          | 2,1  | 1,75 |               |               |               |                 |
| 2,3                | 0,4     | 36    | 9     | –     | 2,8          | 2,1  | 1,9  |               |               |               |                 |
| 2,5                | 0,45    | 40    | 9     | –     | 2,8          | 2,1  | 2,05 | H0111019.0025 | H0111029.0025 | H0111001.0025 | H0101001.0025   |
| 2,6                | 0,45    | 40    | 9     | –     | 2,8          | 2,1  | 2,15 |               |               |               |                 |
| 3                  | 0,5     | 40    | 10    | 18    | 3,5          | 2,7  | 2,5  | H0111019.0030 | H0111029.0030 | H0111001.0030 | H0101001.0030   |
| 3,5                | 0,6     | 45    | 11    | 20    | 4            | 3    | 2,9  | H0111019.0035 | H0111029.0035 | H0111001.0035 | H0101001.0035   |
| 4                  | 0,7     | 45    | 12    | 22    | 4,5          | 3,4  | 3,3  | H0111019.0040 | H0111029.0040 | H0111001.0040 | H0101001.0040   |
| 4,5                | 0,75    | 50    | 13    | 24    | 6            | 4,9  | 3,7  |               |               |               |                 |
| 5                  | 0,8     | 50    | 14    | 25    | 6            | 4,9  | 4,2  | H0111019.0050 | H0111029.0050 | H0111001.0050 | H0101001.0050   |
| 6                  | 1       | 56    | 16    | 28    | 6            | 4,9  | 5    | H0111019.0060 | H0111029.0060 | H0111001.0060 | H0101001.0060   |
| 7                  | 1       | 56    | 18    | –     | 6            | 4,9  | 6    | H0111019.0070 | H0111029.0070 | H0111001.0070 | H0101001.0070   |
| 8                  | 1,25    | 63    | 20    | –     | 6            | 4,9  | 6,8  | H0111019.0080 | H0111029.0080 | H0111001.0080 | H0101001.0080   |
| 9                  | 1,25    | 63    | 20    | –     | 7            | 5,5  | 7,8  |               |               |               |                 |
| 10                 | 1,5     | 70    | 22    | –     | 7            | 5,5  | 8,5  | H0111019.0100 | H0111029.0100 | H0111001.0100 | H0101001.0100   |
| 11                 | 1,5     | 70    | 22    | –     | 8            | 6,2  | 9,5  | H0111019.0111 | H0111029.0111 | H0111001.0111 | H0101001.0111   |
| 12                 | 1,75    | 75    | 24    | –     | 9            | 7    | 10,2 | H0111019.0112 | H0111029.0112 | H0111001.0112 | H0101001.0112   |
| 14                 | 2       | 80    | 26    | –     | 11           | 9    | 12   | H0111019.0114 | H0111029.0114 | H0111001.0114 | H0101001.0114   |
| 16                 | 2       | 80    | 27    | –     | 12           | 9    | 14   | H0111019.0116 | H0111029.0116 | H0111001.0116 | H0101001.0116   |
| 18                 | 2,5     | 95    | 30    | –     | 14           | 11   | 15,5 |               |               |               |                 |
| 20                 | 2,5     | 95    | 32    | –     | 16           | 12   | 17,5 | H0111019.0120 | H0111029.0120 | H0111001.0120 | H0101001.0120   |
| 22                 | 2,5     | 100   | 32    | –     | 18           | 14,5 | 19,5 |               |               |               |                 |
| 24                 | 3       | 110   | 34    | –     | 18           | 14,5 | 21   | H0111019.0124 | H0111029.0124 | H0111001.0124 | H0101001.0124   |
| 27                 | 3       | 110   | 36    | –     | 20           | 16   | 24   | H0111019.0127 | H0111029.0127 | H0111001.0127 | H0101001.0127   |
| 30                 | 3,5     | 125   | 40    | –     | 22           | 18   | 26,5 | H0111019.0130 | H0111029.0130 | H0111001.0130 | H0101001.0130   |
| 33                 | 3,5     | 125   | 40    | –     | 25           | 20   | 29,5 | H0111019.0133 | H0111029.0133 | H0111001.0133 | H0101001.0133   |
| 36                 | 4       | 150   | 50    | –     | 28           | 22   | 32   | H0111019.0136 | H0111029.0136 | H0111001.0136 | H0101001.0136   |

\*)  $\leq M1,4$  Tol. 4HX/5HX



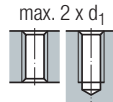


Technische Informationen  
Technical information

Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material



Gewindetiefe und Lochform  
Thread depth and hole type



Einsatzgebiete – Material  
Applications – material

» 78

|                   |                   |                   |                   |
|-------------------|-------------------|-------------------|-------------------|
| <b>P</b> 5.1      | <b>P</b> 5.1      | <b>P</b> 5.1      | <b>P</b> 5.1      |
| <b>N</b> 2.8, 5.2 | <b>N</b> 2.8, 5.2 | <b>N</b> 2.8, 5.2 | <b>N</b> 2.8, 5.2 |
| <b>H</b> 1.1-1.3  | <b>H</b> 1.1-1.3  | <b>H</b> 1.1-1.3  | <b>H</b> 1.1-1.3  |

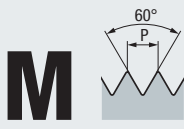
| M | Ø d <sub>1</sub><br>mm | P<br>mm | l <sub>1</sub> | l <sub>2</sub> | max.<br>l <sub>3</sub> | Ø d <sub>2</sub> | □   | Image | VHM/KHM-Set<br>V-Nr.1 | VHM/KHM-Set<br>M-Nr.2 | VHM/KHM-Set<br>F | VHM/KHM-Set-3S<br>(Nr.1, Nr.2, F) |
|---|------------------------|---------|----------------|----------------|------------------------|------------------|-----|-------|-----------------------|-----------------------|------------------|-----------------------------------|
|   |                        |         |                |                |                        |                  |     |       | Code                  | Code                  | Code             | Code                              |
|   | 3                      | 0,5     | 40             | 6              | 18                     | 3,5              | 2,7 | 2,5   | H0310919.0030         | H0310929.0030         | H0310901.0030    | H0300901.0030                     |
|   | 4                      | 0,7     | 45             | 7              | 19                     | 4,5              | 3,4 | 3,3   | H0310919.0040         | H0310929.0040         | H0310901.0040    | H0300901.0040                     |
|   | 5                      | 0,8     | 50             | 9              | 25                     | 6                | 4,9 | 4,2   | H0310919.0050         | H0310929.0050         | H0310901.0050    | H0300901.0050                     |
|   | 6                      | 1       | 56             | 10             | 26                     | 6                | 4,9 | 5     | H0310919.0060         | H0310929.0060         | H0310901.0060    | H0300901.0060                     |
|   | 8                      | 1,25    | 63             | 14             | –                      | 6                | 4,9 | 6,8   | H0310919.0080         | H0310929.0080         | H0310901.0080    | H0300901.0080                     |
|   | 10                     | 1,5     | 70             | 16             | –                      | 7                | 5,5 | 8,5   | H0310919.0100         | H0310929.0100         | H0310901.0100    | H0300901.0100                     |
|   | 12                     | 1,75    | 75             | 18             | –                      | 9                | 7   | 10,2  | H0310919.0112         | H0310929.0112         | H0310901.0112    | H0300901.0112                     |
|   | 14                     | 2       | 80             | 20             | –                      | 11               | 9   | 12    | H0310919.0114         | H0310929.0114         | H0310901.0114    | H0300901.0114                     |
|   | 16                     | 2       | 80             | 22             | –                      | 12               | 9   | 14    | H0310919.0116         | H0310929.0116         | H0310901.0116    | H0300901.0116                     |
|   | 20                     | 2,5     | 95             | 25             | –                      | 16               | 12  | 17,5  | H0310919.0120         | H0310929.0120         | H0310901.0120    | H0300901.0120                     |

- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories



Kühlschmierstoffe siehe Seite 300 - 301 Coolant-lubricants, see page 300 - 301

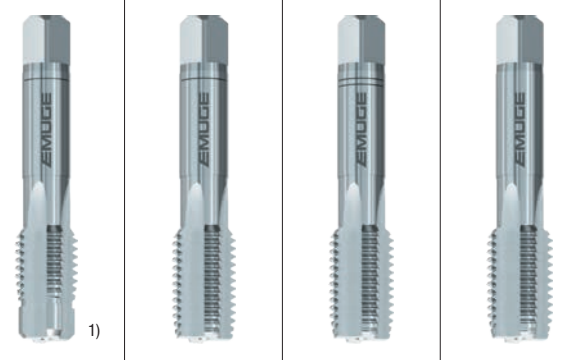
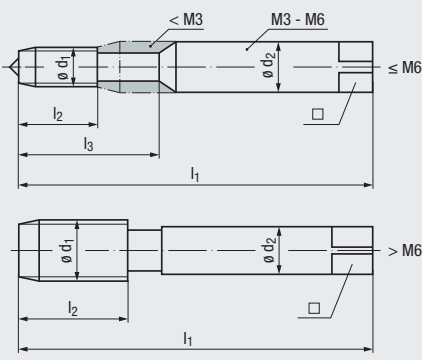
- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories



**DIN 352**



**DIN 13**

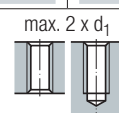


Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material

Technische Informationen  
Technical information

|         |         |         |             |
|---------|---------|---------|-------------|
| HSSE    | HSSE    | HSSE    | 6HX<br>HSSE |
| C / 2-3 | C / 2-3 | C / 2-3 | C / 2-3     |
| O / P   | O / P   | O / P   | O / P       |

Gewindetiefe und Lochform  
Thread depth and hole type

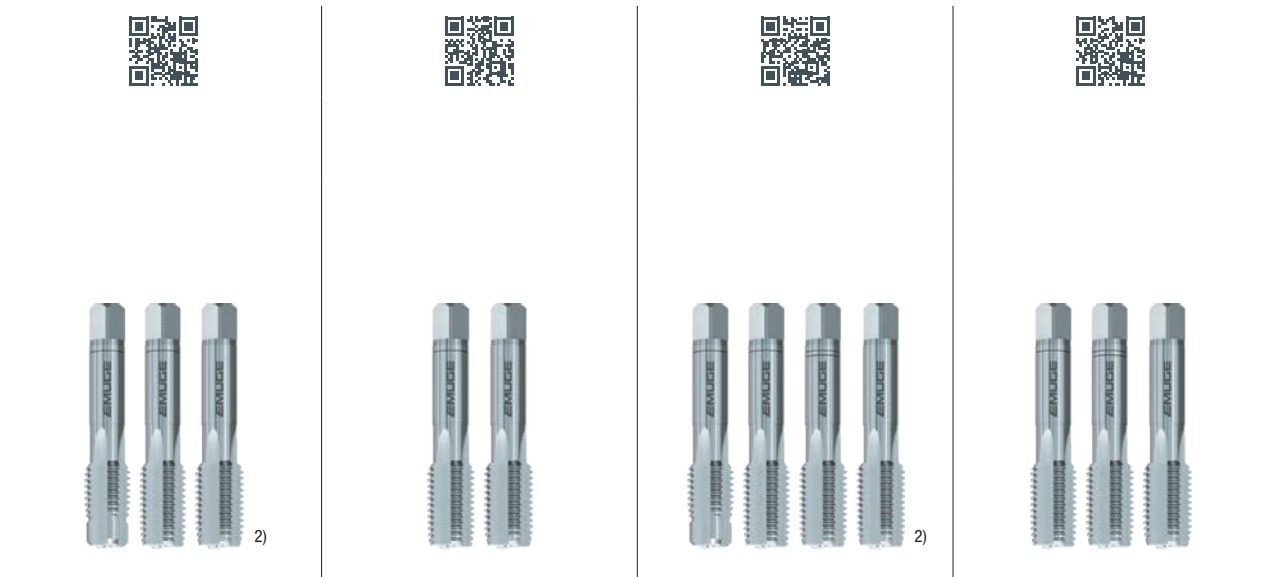


Einsatzgebiete – Material  
Applications – material

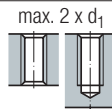
|                       |                       |                       |                       |
|-----------------------|-----------------------|-----------------------|-----------------------|
| <b>P</b> 1.1-5.1      | <b>P</b> 1.1-5.1      | <b>P</b> 1.1-5.1      | <b>P</b> 1.1-5.1      |
| <b>M</b> 1.1-4.1      | <b>M</b> 1.1-4.1      | <b>M</b> 1.1-4.1      | <b>M</b> 1.1-4.1      |
| <b>K</b> 1.1-4.2      | <b>K</b> 1.1-4.2      | <b>K</b> 1.1-4.2      | <b>K</b> 1.1-4.2      |
| <b>N</b> 1.1-2.6      | <b>N</b> 1.1-2.6      | <b>N</b> 1.1-2.6      | <b>N</b> 1.1-2.6      |
| <b>S</b> 2.1-2.2, 2.4 | <b>S</b> 2.1-2.2, 2.4 | <b>S</b> 2.1-2.2, 2.4 | <b>S</b> 2.1-2.2, 2.4 |

| $\theta d_1$<br>mm | P<br>mm | $l_1$ | $l_2$ | $l_3$ | $\theta d_2$ | □    |      | WM-Set        | WM-Set        | WM-Set        | WM-Set        |               |
|--------------------|---------|-------|-------|-------|--------------|------|------|---------------|---------------|---------------|---------------|---------------|
|                    |         |       |       |       |              |      |      | V-Nr.1Z       | V-Nr.1        | M-Nr.2        | F             |               |
| <b>M</b>           | 2       | 0,4   | 36    | 8     | –            | 2,8  | 2,1  | 1,6           | H0413019.0020 | H0423019.0020 | H0423029.0020 | H0423001.0020 |
|                    | 2,2     | 0,45  | 36    | 9     | –            | 2,8  | 2,1  | 1,75          |               |               |               |               |
|                    | 2,3     | 0,4   | 36    | 9     | –            | 2,8  | 2,1  | 1,9           |               |               |               |               |
|                    | 2,5     | 0,45  | 40    | 9     | –            | 2,8  | 2,1  | 2,05          | H0413019.0025 | H0423019.0025 | H0423029.0025 | H0423001.0025 |
|                    | 2,6     | 0,45  | 40    | 9     | –            | 2,8  | 2,1  | 2,15          |               |               |               |               |
|                    | 3       | 0,5   | 40    | 10    | 18           | 3,5  | 2,7  | 2,5           | H0413019.0030 | H0423019.0030 | H0423029.0030 | H0423001.0030 |
| 3,5                | 0,6     | 45    | 11    | 20    | 4            | 3    | 2,9  | H0413019.0035 | H0423019.0035 | H0423029.0035 | H0423001.0035 |               |
| 4                  | 0,7     | 45    | 12    | 22    | 4,5          | 3,4  | 3,3  | H0413019.0040 | H0423019.0040 | H0423029.0040 | H0423001.0040 |               |
| 5                  | 0,8     | 50    | 14    | 25    | 6            | 4,9  | 4,2  | H0413019.0050 | H0423019.0050 | H0423029.0050 | H0423001.0050 |               |
| 6                  | 1       | 56    | 16    | 28    | 6            | 4,9  | 5    | H0413019.0060 | H0423019.0060 | H0423029.0060 | H0423001.0060 |               |
| 8                  | 1,25    | 63    | 20    | –     | 6            | 4,9  | 6,8  | H0413019.0080 | H0423019.0080 | H0423029.0080 | H0423001.0080 |               |
| 10                 | 1,5     | 70    | 22    | –     | 7            | 5,5  | 8,5  | H0413019.0100 | H0423019.0100 | H0423029.0100 | H0423001.0100 |               |
| 12                 | 1,75    | 75    | 24    | –     | 9            | 7    | 10,2 | H0413019.0112 | H0423019.0112 | H0423029.0112 | H0423001.0112 |               |
| 14                 | 2       | 80    | 26    | –     | 11           | 9    | 12   | H0413019.0114 | H0423019.0114 | H0423029.0114 | H0423001.0114 |               |
| 16                 | 2       | 80    | 27    | –     | 12           | 9    | 14   | H0413019.0116 | H0423019.0116 | H0423029.0116 | H0423001.0116 |               |
| 18                 | 2,5     | 95    | 30    | –     | 14           | 11   | 15,5 |               |               |               |               |               |
| 20                 | 2,5     | 95    | 32    | –     | 16           | 12   | 17,5 | H0413019.0120 | H0423019.0120 | H0423029.0120 | H0423001.0120 |               |
| 22                 | 2,5     | 100   | 32    | –     | 18           | 14,5 | 19,5 |               |               |               |               |               |
| 24                 | 3       | 110   | 34    | –     | 18           | 14,5 | 21   | H0413019.0124 | H0423019.0124 | H0423029.0124 | H0423001.0124 |               |
| 27                 | 3       | 110   | 36    | –     | 20           | 16   | 24   |               |               |               |               |               |
| 30                 | 3,5     | 125   | 40    | –     | 22           | 18   | 26,5 |               |               |               |               |               |

1) Der Vorschneider Nr.1Z mit Führungszapfen ist eine zusätzliche Hilfe zum winkelrechten Anschneiden von Hand. Er kann z.B. auf der Maschine weggelassen werden. Die Profilabstufung von Nr.1Z und Nr.1 ist gleich.  
The taper tap No. 1Z with cylindrical pilot is an additional aid for true alignment especially when tapping by hand. It can be deleted when tapping by machine. The profile graduation of No.1Z, and No.1 is the same.



|         |         |         |         |
|---------|---------|---------|---------|
| 6HX     | 6HX     | 6HX     | 6HX     |
| HSSE    | HSSE    | HSSE    | HSSE    |
| C / 2-3 | C / 2-3 | C / 2-3 | C / 2-3 |
| O / P   | O / P   | O / P   | O / P   |



|                       |                       |                       |                       |
|-----------------------|-----------------------|-----------------------|-----------------------|
| <b>P</b> 1.1-5.1      | <b>P</b> 1.1-5.1      | <b>P</b> 1.1-5.1      | <b>P</b> 1.1-5.1      |
| <b>M</b> 1.1-4.1      | <b>M</b> 1.1-4.1      | <b>M</b> 1.1-4.1      | <b>M</b> 1.1-4.1      |
| <b>K</b> 1.1-4.2      | <b>K</b> 1.1-4.2      | <b>K</b> 1.1-4.2      | <b>K</b> 1.1-4.2      |
| <b>N</b> 1.1-2.6      | <b>N</b> 1.1-2.6      | <b>N</b> 1.1-2.6      | <b>N</b> 1.1-2.6      |
| <b>S</b> 2.1-2.2, 2.4 | <b>S</b> 2.1-2.2, 2.4 | <b>S</b> 2.1-2.2, 2.4 | <b>S</b> 2.1-2.2, 2.4 |

| WM-Set-3S<br>(Nr.1Z, Nr.1, F) | WM-Set-2S<br>(Nr.1, F) | WM-Set-4S<br>(Nr.1Z, Nr.1, Nr.2, F) | WM-Set-3S<br>(Nr.1, Nr.2, F) |
|-------------------------------|------------------------|-------------------------------------|------------------------------|
| H0453001.0020                 | H0483001.0020          | H0403001.0020                       | H0433001.0020                |
| H0453001.0025                 | H0483001.0025          | H0403001.0025                       | H0433001.0025                |
| H0453001.0030                 | H0483001.0030          | H0403001.0030                       | H0433001.0030                |
| H0453001.0035                 | H0483001.0035          | H0403001.0035                       | H0433001.0035                |
| H0453001.0040                 | H0483001.0040          | H0403001.0040                       | H0433001.0040                |
| H0453001.0050                 | H0483001.0050          | H0403001.0050                       | H0433001.0050                |
| H0453001.0060                 | H0483001.0060          | H0403001.0060                       | H0433001.0060                |
| H0453001.0080                 | H0483001.0080          | H0403001.0080                       | H0433001.0080                |
| H0453001.0100                 | H0483001.0100          | H0403001.0100                       | H0433001.0100                |
| H0453001.0112                 | H0483001.0112          | H0403001.0112                       | H0433001.0112                |
| H0453001.0114                 | H0483001.0114          | H0403001.0114                       | H0433001.0114                |
| H0453001.0116                 | H0483001.0116          | H0403001.0116                       | H0433001.0116                |
| H0453001.0120                 | H0483001.0120          | H0403001.0120                       | H0433001.0120                |
| H0453001.0124                 | H0483001.0124          | H0403001.0124                       | H0433001.0124                |

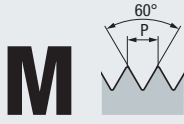
|          |     |
|----------|-----|
| <b>M</b> | 2   |
|          | 2,2 |
|          | 2,3 |
|          | 2,5 |
|          | 2,6 |
|          | 3   |
|          | 3,5 |
|          | 4   |
|          | 5   |
|          | 6   |
|          | 8   |
|          | 10  |
|          | 12  |
|          | 14  |
|          | 16  |
|          | 18  |
|          | 20  |
|          | 22  |
|          | 24  |
|          | 27  |
|          | 30  |

2) Beim Gewindebohren von Hand in Durchgangslöcher entfällt Nr.1  
No.1 is not needed when tapping in through holes by hand

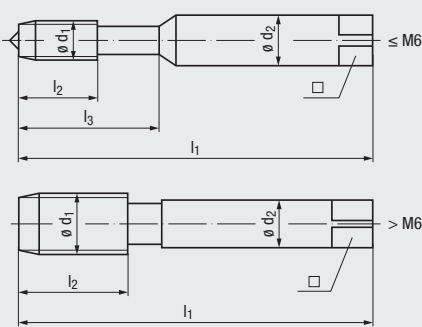
- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories



- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories



DIN 13



DIN 352

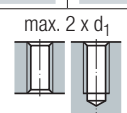


Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material

Technische Informationen  
Technical information

|         |         |         |         |
|---------|---------|---------|---------|
| TIN     | TIN     | TIN     | 6HX     |
| HSSE    | HSSE    | HSSE    | TIN     |
| C / 2-3 | C / 2-3 | C / 2-3 | HSSE    |
| O / P   | O / P   | O / P   | C / 2-3 |
|         |         |         | O / P   |

Gewindetiefe und Lochform  
Thread depth and hole type



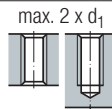
Einsatzgebiete – Material  
Applications – material

|                  |                  |                  |                  |
|------------------|------------------|------------------|------------------|
| <b>P</b> 1.1-5.1 | <b>P</b> 1.1-5.1 | <b>P</b> 1.1-5.1 | <b>P</b> 1.1-5.1 |
| <b>M</b> 1.1-4.1 | <b>M</b> 1.1-4.1 | <b>M</b> 1.1-4.1 | <b>M</b> 1.1-4.1 |
| <b>K</b> 1.1-4.2 | <b>K</b> 1.1-4.2 | <b>K</b> 1.1-4.2 | <b>K</b> 1.1-4.2 |
| <b>N</b> 1.1-2.7 | <b>N</b> 1.1-2.7 | <b>N</b> 1.1-2.7 | <b>N</b> 1.1-2.7 |
| <b>S</b> 2.1-2.6 | <b>S</b> 2.1-2.6 | <b>S</b> 2.1-2.6 | <b>S</b> 2.1-2.6 |

| Ø d <sub>1</sub><br>mm | P<br>mm | l <sub>1</sub> | l <sub>2</sub> | l <sub>3</sub> | Ø d <sub>2</sub> | □   |      | WM-Set         | WM-Set        | WM-Set        | WM-Set        |
|------------------------|---------|----------------|----------------|----------------|------------------|-----|------|----------------|---------------|---------------|---------------|
|                        |         |                |                |                |                  |     |      | V-Nr.1Z<br>TIN | V-Nr.1<br>TIN | M-Nr.2<br>TIN | F<br>TIN      |
| <b>M</b> 3             | 0,5     | 40             | 10             | 18             | 3,5              | 2,7 | 2,5  | H0413119.0030  | H0423119.0030 | H0423129.0030 | H0423101.0030 |
| 4                      | 0,7     | 45             | 12             | 22             | 4,5              | 3,4 | 3,3  | H0413119.0040  | H0423119.0040 | H0423129.0040 | H0423101.0040 |
| 5                      | 0,8     | 50             | 14             | 25             | 6                | 4,9 | 4,2  | H0413119.0050  | H0423119.0050 | H0423129.0050 | H0423101.0050 |
| 6                      | 1       | 56             | 16             | 28             | 6                | 4,9 | 5    | H0413119.0060  | H0423119.0060 | H0423129.0060 | H0423101.0060 |
| 8                      | 1,25    | 63             | 20             | –              | 6                | 4,9 | 6,8  | H0413119.0080  | H0423119.0080 | H0423129.0080 | H0423101.0080 |
| 10                     | 1,5     | 70             | 22             | –              | 7                | 5,5 | 8,5  | H0413119.0100  | H0423119.0100 | H0423129.0100 | H0423101.0100 |
| 12                     | 1,75    | 75             | 24             | –              | 9                | 7   | 10,2 | H0413119.0112  | H0423119.0112 | H0423129.0112 | H0423101.0112 |
| 14                     | 2       | 80             | 26             | –              | 11               | 9   | 12   |                |               |               |               |
| 16                     | 2       | 80             | 27             | –              | 12               | 9   | 14   | H0413119.0116  | H0423119.0116 | H0423129.0116 | H0423101.0116 |

1) Der Vorschneider Nr.1Z mit Führungszapfen ist eine zusätzliche Hilfe zum winkelrechten Anschneiden von Hand. Er kann z.B. auf der Maschine weggelassen werden. Die Profilabstufung von Nr.1Z und Nr.1 ist gleich.  
The taper tap No. 1Z with cylindrical pilot is an additional aid for true alignment especially when tapping by hand. It can be deleted when tapping by machine. The profile graduation of No.1Z, and No.1 is the same.

|  |  |  |  |
|--|--|--|--|
| <br><br><br>2)                             | <br><br>                                   | <br><br><br>2)                             | <br><br>                                   |
| 6HX<br>TIN<br>HSSE<br><br>C / 2-3<br>O / P | 6HX<br>TIN<br>HSSE<br><br>C / 2-3<br>O / P | 6HX<br>TIN<br>HSSE<br><br>C / 2-3<br>O / P | 6HX<br>TIN<br>HSSE<br><br>C / 2-3<br>O / P |



|  |  |  |  |
|--|--|--|--|
| <b>P</b> 1.1-5.1<br><b>M</b> 1.1-4.1<br><b>K</b> 1.1-4.2<br><b>N</b> 1.1-2.7<br><b>S</b> 2.1-2.6 | <b>P</b> 1.1-5.1<br><b>M</b> 1.1-4.1<br><b>K</b> 1.1-4.2<br><b>N</b> 1.1-2.7<br><b>S</b> 2.1-2.6 | <b>P</b> 1.1-5.1<br><b>M</b> 1.1-4.1<br><b>K</b> 1.1-4.2<br><b>N</b> 1.1-2.7<br><b>S</b> 2.1-2.6 | <b>P</b> 1.1-5.1<br><b>M</b> 1.1-4.1<br><b>K</b> 1.1-4.2<br><b>N</b> 1.1-2.7<br><b>S</b> 2.1-2.6 |
|--|--|--|--|

| WM-Set-3S<br>TIN<br>(Nr.1Z, Nr.1, F) | WM-Set-2S<br>TIN<br>(Nr.1, F) | WM-Set-4S<br>TIN<br>(Nr.1Z, Nr.1, Nr.2, F) | WM-Set-3S<br>TIN<br>(Nr.1, Nr.2, F) |
|--------------------------------------|-------------------------------|--|-------------------------------------|
| H0453101.0030                        | H0483101.0030                 | H0403101.0030                              | H0433101.0030                       |
| H0453101.0040                        | H0483101.0040                 | H0403101.0040                              | H0433101.0040                       |
| H0453101.0050                        | H0483101.0050                 | H0403101.0050                              | H0433101.0050                       |
| H0453101.0060                        | H0483101.0060                 | H0403101.0060                              | H0433101.0060                       |
| H0453101.0080                        | H0483101.0080                 | H0403101.0080                              | H0433101.0080                       |
| H0453101.0100                        | H0483101.0100                 | H0403101.0100                              | H0433101.0100                       |
| H0453101.0112                        | H0483101.0112                 | H0403101.0112                              | H0433101.0112                       |
|                                      |                               |  | 14                                  |
| H0453101.0116                        | H0483101.0116                 | H0403101.0116                              | H0433101.0116                       |
|                                      |                               |  | 16                                  |

2) Beim Gewindebohren von Hand in Durchgangslöcher entfällt Nr.1  
 No.1 is not needed when tapping in through holes by hand

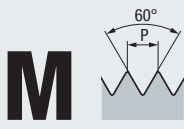
|                        |
|------------------------|
| Product Finder         |
| V <sub>c</sub>         |
| M                      |
| MF                     |
| UNC<br>UN-8            |
| UNF<br>UNEF            |
| G, Rp<br>NPSM, NPSF    |
| NPT, NPTF<br>Rc, W     |
| BSW, BSF               |
| Pg                     |
| MJ<br>UNJC, UNJF       |
| EG (STI)               |
| SELF-LOCK              |
| Tr, Tr-F<br>Rd         |
| Zubehör<br>Accessories |



Verstellbare Windeisen siehe Seite 305

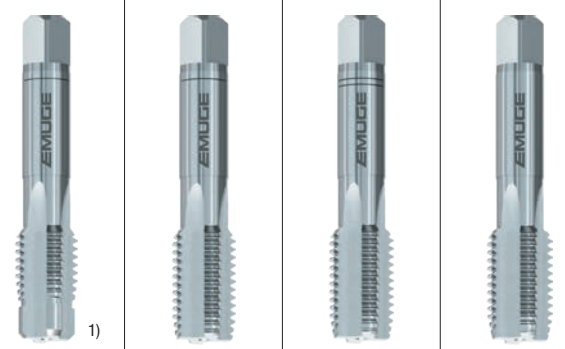
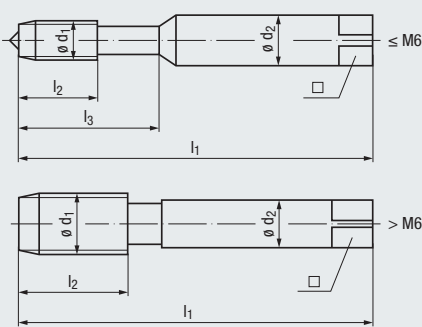
Adjustable tap wrenches, see page 305

- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories



DIN 13

DIN 352

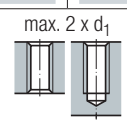


Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material

Technische Informationen  
Technical information

Gewindetiefe und Lochform  
Thread depth and hole type

|         |         |         |         |
|---------|---------|---------|---------|
| NT      | NT      | NT      | 6HX     |
| HSSE    | HSSE    | HSSE    | NT      |
| C / 2-3 | C / 2-3 | C / 2-3 | C / 2-3 |
| O / P   | O / P   | O / P   | O / P   |





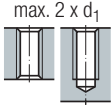


Einsatzgebiete – Material  
Applications – material

|                       |                       |                       |                       |
|-----------------------|-----------------------|-----------------------|-----------------------|
| <b>P</b> 3.1-5.1      | <b>P</b> 3.1-5.1      | <b>P</b> 3.1-5.1      | <b>P</b> 3.1-5.1      |
| <b>N</b> 2.7          | <b>N</b> 2.7          | <b>N</b> 2.7          | <b>N</b> 2.7          |
| <b>S</b> 2.3, 2.5-2.6 | <b>S</b> 2.3, 2.5-2.6 | <b>S</b> 2.3, 2.5-2.6 | <b>S</b> 2.3, 2.5-2.6 |

| M | ∅ d <sub>1</sub><br>mm | P<br>mm | l <sub>1</sub> | l <sub>2</sub> | l <sub>3</sub> | ∅ d <sub>2</sub> | □   | Image | WM-F-TIC-Set  | WM-F-TIC-Set  | WM-F-TIC-Set  | WM-F-TIC-Set  |
|---|------------------------|---------|----------------|----------------|----------------|------------------|-----|-------|---------------|---------------|---------------|---------------|
|   |                        |         |                |                |                |                  |     |       | V-Nr.1Z<br>NT | V-Nr.1<br>NT  | M-Nr.2<br>NT  | F<br>NT       |
|   | 3                      | 0,5     | 40             | 10             | 18             | 3,5              | 2,7 | 2,5   | H0417119.0030 | H0427119.0030 | H0427129.0030 | H0427101.0030 |
|   | 4                      | 0,7     | 45             | 12             | 22             | 4,5              | 3,4 | 3,3   | H0417119.0040 | H0427119.0040 | H0427129.0040 | H0427101.0040 |
|   | 5                      | 0,8     | 50             | 14             | 25             | 6                | 4,9 | 4,2   | H0417119.0050 | H0427119.0050 | H0427129.0050 | H0427101.0050 |
|   | 6                      | 1       | 56             | 16             | 28             | 6                | 4,9 | 5     | H0417119.0060 | H0427119.0060 | H0427129.0060 | H0427101.0060 |
|   | 8                      | 1,25    | 63             | 20             | –              | 6                | 4,9 | 6,8   | H0417119.0080 | H0427119.0080 | H0427129.0080 | H0427101.0080 |
|   | 10                     | 1,5     | 70             | 22             | –              | 7                | 5,5 | 8,5   | H0417119.0100 | H0427119.0100 | H0427129.0100 | H0427101.0100 |
|   | 12                     | 1,75    | 75             | 24             | –              | 9                | 7   | 10,2  | H0417119.0112 | H0427119.0112 | H0427129.0112 | H0427101.0112 |
|   | 16                     | 2       | 80             | 27             | –              | 12               | 9   | 14    | H0417119.0116 | H0427119.0116 | H0427129.0116 | H0427101.0116 |
|   | 20                     | 2,5     | 95             | 32             | –              | 16               | 12  | 17,5  | H0417119.0120 | H0427119.0120 | H0427129.0120 | H0427101.0120 |

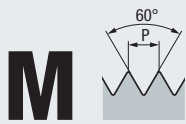
1) Der Vorschneider Nr.1Z mit Führungszapfen ist eine zusätzliche Hilfe zum winkelrechten Anschneiden von Hand. Er kann z.B. auf der Maschine weggelassen werden. Die Profilabstufung von Nr.1Z und Nr.1 ist gleich.  
The taper tap No. 1Z with cylindrical pilot is an additional aid for true alignment especially when tapping by hand. It can be deleted when tapping by machine. The profile graduation of No.1Z, and No.1 is the same.

|  |  |  |  |  |
|--|--|--|--|--|
| <br><br><br>2) | <br><br> |  |  | Product Finder<br>V <sub>c</sub><br>M<br>MF<br>UNC UN-8<br>UNF UNEF<br>G, Rp NPSM, NPSF<br>NPT, NPTF Rc, W<br>BSW, BSF<br>Pg<br>MJ UNJC, UNJF<br>EG (STI)<br>SELF-LOCK<br>Tr, Tr-F Rd<br>Zubehör Accessories |
| 6HX<br>NT<br>HSSE<br><br>C / 2-3<br>O / P  | 6HX<br>NT<br>HSSE<br><br>C / 2-3<br>O / P  |  |  |  |
|   |  |  |  |  |
| <b>P</b> 3.1-5.1<br><b>N</b> 2.7<br><b>S</b> 2.3, 2.5-2.6  | <b>P</b> 3.1-5.1<br><b>N</b> 2.7<br><b>S</b> 2.3, 2.5-2.6  |  |  |  |
| <b>WM-F-TIC-Set-4S</b><br>NT<br>(Nr.1Z, Nr.1, Nr.2, F)   | <b>WM-F-TIC-Set-3S</b><br>NT<br>(Nr.1, Nr.2, F)  |  |  |  |
| H0407101.0030  | H0437101.0030  |  |  | <b>M</b> 3   |
| H0407101.0040  | H0437101.0040  |  |  | 4  |
| H0407101.0050  | H0437101.0050  |  |  | 5  |
| H0407101.0060  | H0437101.0060  |  |  | 6  |
| H0407101.0080  | H0437101.0080  |  |  | 8  |
| H0407101.0100  | H0437101.0100  |  |  | 10   |
| H0407101.0112  | H0437101.0112  |  |  | 12   |
| H0407101.0116  | H0437101.0116  |  |  | 16   |
| H0407101.0120  | H0437101.0120  |  |  | 20   |

2) Beim Gewindebohren von Hand in Durchgangslöcher entfällt Nr.1  
 No.1 is not needed when tapping in through holes by hand

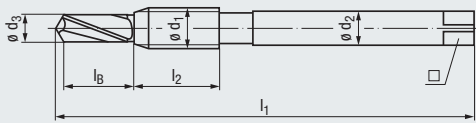


- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories



**M**  
DIN 13

Normal lang und extra lang  
Standard length and extra long



Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material

Technische Informationen  
Technical information



|          |          |
|----------|----------|
| ISO 2/6H | ISO 2/6H |
| HSSE     | HSSE     |
| C / 2-3  | C / 2-3  |
| E / O    | E / O    |

Gewindetiefe und Lochform  
Thread depth and hole type

max. 1 x d<sub>1</sub>



Einsatzgebiete – Material  
Applications – material

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|       |       |
|-------|-------|
| P 2.1 | P 2.1 |
| N 2.2 | N 2.2 |

### Normal lang · Standard length

| ∅ d <sub>1</sub><br>mm | P<br>mm | l <sub>1</sub> | l <sub>2</sub> | l <sub>B</sub> | ∅ d <sub>2</sub> | □   | ∅ d <sub>3</sub> | KOMBI<br>Normal-Ig |
|------------------------|---------|----------------|----------------|----------------|------------------|-----|------------------|--------------------|
| <b>M</b> 3             | 0,5     | 62             | 11             | 8,2            | 3,5              | 2,7 | 2,55             | M0601000.0030      |
| 3,5                    | 0,6     | 66             | 12             | 9,1            | 4                | 3   | 2,95             |                    |
| 4                      | 0,7     | 66             | 13             | 9              | 4,5              | 3,4 | 3,36             | M0601000.0040      |
| 5                      | 0,8     | 75             | 15             | 10,7           | 6                | 4,9 | 4,26             | M0601000.0050      |
| 6                      | 1       | 81             | 20             | 12,5           | 6                | 4,9 | 5,05             | M0601000.0060      |
| 8                      | 1,25    | 93             | 12             | 17,9           | 6                | 4,9 | 6,8              | M0601000.0080      |
| 10                     | 1,5     | 99             | 14             | 19,4           | 7                | 5,5 | 8,55             | M0601000.0100      |
| 12                     | 1,75    | 106            | 16             | 21,8           | 9                | 7   | 10,3             | M0601000.0112      |
| 14                     | 2       | 114            | 18             | 24,3           | 11               | 9   | 12,1             |                    |
| 16                     | 2       | 123            | 20             | 27,7           | 12               | 9   | 14,1             | M0601000.0116      |
| 18                     | 2,5     | 132            | 22             | 31,2           | 14               | 11  | 15,6             |                    |
| 20                     | 2,5     | 132            | 22             | 30,6           | 16               | 12  | 17,6             | M0601000.0120      |

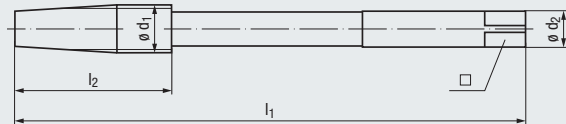
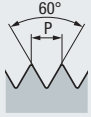
### Extra lang · Extra long

| ∅ d <sub>1</sub><br>mm | P<br>mm | l <sub>1</sub> | l <sub>2</sub> | l <sub>B</sub> | ∅ d <sub>2</sub> | □   | ∅ d <sub>3</sub> | KOMBI<br>Extra-Ig |
|------------------------|---------|----------------|----------------|----------------|------------------|-----|------------------|-------------------|
| <b>M</b> 3             | 0,5     | 71             | 11             | 17,2           | 3,5              | 2,7 | 2,55             | M0621000.0030     |
| 4                      | 0,7     | 77             | 13             | 20             | 4,5              | 3,4 | 3,36             | M0621000.0040     |
| 5                      | 0,8     | 87             | 13,7           | 24             | 6                | 4,9 | 4,26             | M0621000.0050     |
| 6                      | 1       | 94             | 20             | 25,5           | 6                | 4,9 | 5,05             | M0621000.0060     |
| 8                      | 1,25    | 109            | 12             | 33,9           | 6                | 4,9 | 6,8              | M0621000.0080     |
| 10                     | 1,5     | 118            | 14             | 38,4           | 7                | 5,5 | 8,55             | M0621000.0100     |
| 12                     | 1,75    | 127            | 16             | 42,8           | 9                | 7   | 10,3             | M0621000.0112     |



**M**

DIN 13

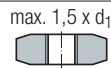


Technische Informationen  
Technical information

Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material




Gewindetiefe und Lochform  
Thread depth and hole type



Einsatzgebiete – Material  
Applications – material

» 78

**P** 1.1-3.1  
**N** 2.2

| $\varnothing d_1$<br>mm | P<br>mm | $l_1$ | $l_2$ | $\varnothing d_2$ | $\square$ |  | MMB<br>DIN 357 |
|-------------------------|---------|-------|-------|-------------------|-----------|---|----------------|
| <b>M</b> 3              | 0,5     | 70    | 16    | 2,2               | –         | 2,5   | M0101000.0030  |
| 4                       | 0,7     | 90    | 22    | 2,8               | 2,1       | 3,3   | M0101000.0040  |
| 5                       | 0,8     | 100   | 24    | 3,5               | 2,7       | 4,2   | M0101000.0050  |
| 6                       | 1       | 110   | 30    | 4,5               | 3,4       | 5   | M0101000.0060  |
| 7                       | 1       | 110   | 30    | 5,5               | 4,3       | 6   | M0101000.0070  |
| 8                       | 1,25    | 125   | 38    | 6                 | 4,9       | 6,8   | M0101000.0080  |
| 10                      | 1,5     | 140   | 45    | 7                 | 5,5       | 8,5   | M0101000.0100  |
| 12                      | 1,75    | 180   | 50    | 9                 | 7         | 10,2  | M0101000.0112  |
| 14                      | 2       | 200   | 56    | 11                | 9         | 12  |                |
| 16                      | 2       | 200   | 63    | 12                | 9         | 14  | M0101000.0116  |
| 18                      | 2,5     | 220   | 63    | 14                | 11        | 15,5  |                |
| 20                      | 2,5     | 250   | 70    | 16                | 12        | 17,5  |                |
| 22                      | 2,5     | 280   | 80    | 18                | 14,5      | 19,5  |                |
| 24                      | 3       | 280   | 80    | 18                | 14,5      | 21  |                |
| 27                      | 3       | 315   | 90    | 20                | 16        | 24  |                |
| 30                      | 3,5     | 315   | 100   | 22                | 18        | 26,5  |                |



Haben Sie Bedarf an Automaten-Mutter-Gewindebohrern?  
Bitte sprechen Sie uns an!  
Do you need taper taps?  
Please contact us!

Product  
Finder

V<sub>c</sub>

M

MF

UNC  
UN-8

UNF  
UNEF

G, Rp  
NPSM, NPSF

NPT, NPTF  
Rc, W

BSW, BSF

Pg

MJ  
UNJC, UNJF

EG (STI)

SELF-LOCK

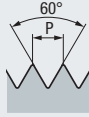
Tr, Tr-F  
Rd

Zubehör  
Accessories



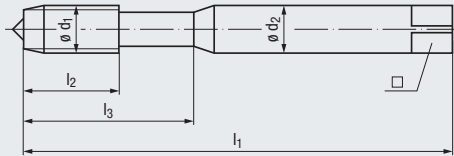
- Product Finder
- V<sub>c</sub>
- M
- MF**
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories

# MF



DIN 13

**DIN 371**



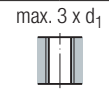
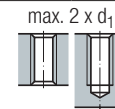
**STEEL**  
Steel materials



|  |                                 |           |
|--|---------------------------------|-----------|
| <b>Technische Informationen</b><br>Technical information | Toleranz · Tolerance            | 6HX       |
|  | Beschichtung · Coating          | 6HX       |
|  | Schneidstoff · Cutting material | HSSE      |
|  |                                 | <b>LH</b> |
|  |                                 | C / 2-3   |
|  |                                 | E / O     |

|  |  |                |                |
|--|--|----------------|----------------|
|  |  | ISO 2/6H       | ISO 2/6H       |
|  |  |                | TIN            |
|  |  | HSSE           | HSSE           |
|  |  | <b>B / 4-5</b> | <b>B / 4-5</b> |
|  |  | E / O          | E / O          |

**Gewindetiefe und Lochform**  
Thread depth and hole type



**Einsatzgebiete – Material**  
Applications – material

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|                  |                  |                  |                  |
|------------------|------------------|------------------|------------------|
| <b>K 1.1-4.2</b> | <b>K 1.1-4.2</b> | <b>P 1.1-3.1</b> | <b>P 1.1-4.1</b> |
| <b>N 2.3</b>     | <b>N 2.3</b>     | <b>N 2.2</b>     |                  |

| M | ø d <sub>1</sub><br>mm | P<br>mm | l <sub>1</sub> | l <sub>2</sub> | l <sub>3</sub> | ø d <sub>2</sub> | □   | □    | □                    | Rekord               | Rekord               | Rekord               | Rekord            |
|---|------------------------|---------|----------------|----------------|----------------|------------------|-----|------|----------------------|----------------------|----------------------|----------------------|-------------------|
|   |                        |         |                |                |                |                  |     |      |                      | 1A-STEEL             | 1A-STEEL-LH          | 1B-STEEL-L           | 1B-STEEL-L<br>TIN |
|   | 2,5                    | x 0,35  | 50             | 7              | 12             | 2,8              | 2,1 | 2,15 | B0101001.0196        |                      |                      |                      |                   |
|   | 2,6                    | x 0,35  | 50             | 7              | 12             | 2,8              | 2,1 | 2,25 | B0101001.0199        |                      |                      |                      |                   |
|   | 3                      | x 0,35  | 56             | 8              | 18             | 3,5              | 2,7 | 2,65 | B0101001.0202        | B0101051.0202        |                      |                      |                   |
|   | 3,5                    | x 0,35  | 56             | 9              | 20             | 4                | 3   | 3,15 | B0101001.0205        |                      | <b>B0208900.0205</b> | <b>B0208400.0205</b> |                   |
|   | 4                      | x 0,5   | 63             | 10             | 21             | 4,5              | 3,4 | 3,5  | <b>B0101001.0210</b> | <b>B0101051.0210</b> | <b>B0208900.0210</b> | <b>B0208400.0210</b> |                   |
|   | 5                      | x 0,5   | 70             | 11             | 25             | 6                | 4,9 | 4,5  | <b>B0101001.0218</b> | <b>B0101051.0218</b> | <b>B0208900.0218</b> | <b>B0208400.0218</b> |                   |
|   | 6                      | x 0,5   | 80             | 13             | 30             | 6                | 4,9 | 5,5  | <b>B0101001.0228</b> | <b>B0101051.0228</b> | <b>B0208900.0228</b> | <b>B0208400.0228</b> |                   |
|   | 6                      | x 0,75  | 80             | 13             | 30             | 6                | 4,9 | 5,2  | <b>B0101001.0229</b> | <b>B0101051.0229</b> | <b>B0208900.0229</b> | <b>B0208400.0229</b> |                   |
|   | 7                      | x 0,75  | 80             | 13             | 30             | 7                | 5,5 | 6,2  | B0101001.0239        |                      | <b>B0208900.0239</b> | B0208400.0239        |                   |
|   | 8                      | x 0,75  | 80             | 14             | 30             | 8                | 6,2 | 7,2  | <b>B0101001.0250</b> |                      | <b>B0208900.0250</b> | <b>B0208400.0250</b> |                   |
|   | 8                      | x 1     | 90             | 17             | 35             | 8                | 6,2 | 7    | <b>B0101001.0251</b> | <b>B0101051.0251</b> | <b>B0208900.0251</b> | <b>B0208400.0251</b> |                   |
|   | 9                      | x 0,75  | 90             | 14             | 35             | 9                | 7   | 8,2  | B0101001.0262        |                      | <b>B0208900.0262</b> | B0208400.0262        |                   |
|   | 9                      | x 1     | 90             | 17             | 35             | 9                | 7   | 8    | B0101001.0263        |                      | <b>B0208900.0263</b> | B0208400.0263        |                   |
|   | 10                     | x 0,75  | 90             | 15             | 35             | 10               | 8   | 9,2  | B0101001.0275        |                      | <b>B0208900.0275</b> | <b>B0208400.0275</b> |                   |
|   | 10                     | x 1     | 90             | 18             | 35             | 10               | 8   | 9    | <b>B0101001.0276</b> | <b>B0101051.0276</b> | <b>B0208900.0276</b> | <b>B0208400.0276</b> |                   |
|   | 10                     | x 1,25  | 100            | 18             | 39             | 10               | 8   | 8,8  | B0101001.0277        |                      | <b>B0208900.0277</b> | <b>B0208400.0277</b> |                   |

DIN 374 168

DIN 2181 194

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Werkzeug-Aufnahmen der Typenreihe Softsynchro® siehe Seite 617 - 644

Tool holders of our Softsynchro® series, see page 617 - 644

| STEEL<br>Steel materials             |                                      | VA<br>Stainless steel materials |  | H<br>Materials of high tensile strength  |   | Product Finder                            |
|--------------------------------------|--------------------------------------|---------------------------------|--|--|---|---|
|                                      |                                      |                                 |  |  |   | V <sub>c</sub>                            |
|                                      |                                      |                                 |  |  |   | M   |
| <b>new</b>                           | <b>new</b>                           |                                 |  |  |   | MF  |
| 6HX<br>ALCR-102<br><b>HSSE-PM</b>    | 6HX<br>ALCR-101<br><b>HSSE-PM</b>    | ISO 2/6H<br>TIN<br>HSSE         | ISO 2/6H<br>GLT-1<br>HSSE                            | 6HX<br>NT<br>HSSE  | 6HX<br><b>VHM</b>   | UNC<br>UN-8<br>UNF<br>UNEF                |
| B / ≈6<br>E / O                      | B / ≈6<br>E / O                      | B / 4-5<br>E / O / P            | B / 4-5<br>E / O / P                                 | C / 2-3<br>E / O / P   | C / 2-3<br>E / O  | G, Rp<br>NPSM, NPSF<br>NPT, NPTF<br>Rc, W |
| max. 3 x d <sub>1</sub><br>          |                                      | max. 3 x d <sub>1</sub><br>     |  | max. 2 x d <sub>1</sub><br>  |   | BSW, BSF                                  |
| <b>P 3.1-5.1</b>                     | <b>P 3.1-5.1</b>                     | <b>P 1.1-4.1</b>                | <b>P 1.1-4.1</b><br><b>M 1.1-4.1</b><br><b>N 2.2</b> | <b>K 1.1-4.2</b><br><b>N 4.1</b>   | <b>K 1.1-4.2</b><br><b>N 1.5-1.6</b><br><b>N 2.6-2.8</b><br><b>N 4.1, 4.3-4.4</b><br><b>N 5.1-5.2</b> | Pg  |
| <b>Rekord 1B-STEEL-H PM-ALCR-102</b> | <b>Rekord 1B-STEEL-H PM-ALCR-101</b> | <b>Rekord 1B-VA TIN</b>         | <b>Rekord 1B-VA GLT-1</b>                            | <b>Rekord 1A-H NT</b>  | <b>VHM-Rekord 1A-H-IKZ</b>  | MJ<br>UNJC, UNJF                          |
|                                      |                                      |                                 |  | <b>B0100501.0196</b><br><b>B0100501.0199</b><br><b>B0100501.0202</b><br><b>B0100501.0205</b><br><b>B0100501.0210</b><br><b>B0100501.0218</b><br><b>B0100501.0228</b><br><b>B0100501.0229</b> | <b>B1950901.0229</b>  | EG (STI)                                  |
|                                      |                                      | B0203100.0210<br>B0203100.0218  | B020C300.0210<br>B020C300.0218                       |  | <b>B1950901.0229</b>  | SELF-LOCK                                 |
| <b>B0209J01.0251</b>                 | <b>B0208J01.0251</b>                 |                                 |  |  | <b>B1950901.0251</b>  | Tr, Tr-F<br>Rd                            |
| <b>B0209J01.0263</b>                 | <b>B0208J01.0263</b>                 |                                 |  |  |   | Zubehör<br>Accessories                    |
| <b>B0209J01.0276</b>                 | <b>B0208J01.0276</b>                 |                                 |  |  | <b>B1950901.0276</b><br><b>B1950901.0277</b>  |   |
|                                      |                                      |                                 |  |  |   |   |

1) Gewindebohren in Durchgangslöcher nur mit externer Kühlschmierung möglich  
Threading in through holes is possible only with external cooling/lubrication

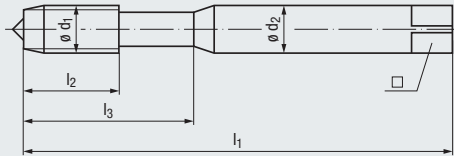
- Product Finder
- V<sub>c</sub>
- M
- MF**
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories



DIN 13

DIN 371

**HCUT**  
Hardened steels



Technische Informationen  
Technical information

Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material



6HX

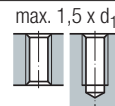
TICN

**HSSE-PM**

C / 2-3

O / P

Gewindetiefe und Lochform  
Thread depth and hole type



H 1.1-1.2

Einsatzgebiete – Material  
Applications – material

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**Rekord 1A-HCUT PM-TICN**

|          | ∅ d <sub>1</sub><br>mm | P<br>mm | l <sub>1</sub> | l <sub>2</sub> | l <sub>3</sub> | ∅ d <sub>2</sub> | □   |     |
|----------|------------------------|---------|----------------|----------------|----------------|------------------|-----|-----|
| <b>M</b> | 8                      | x 1     | 90             | 10             | 35             | 8                | 6,2 | 7,1 |
|          | 10                     | x 1     | 90             | 10             | 35             | 10               | 8   | 9,1 |

**B010J901.0251**  
**B010J901.0276**

DIN 374

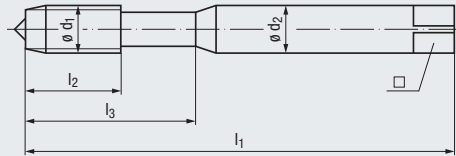


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DIN 13

DIN 371



Technische Informationen  
Technical information

Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material



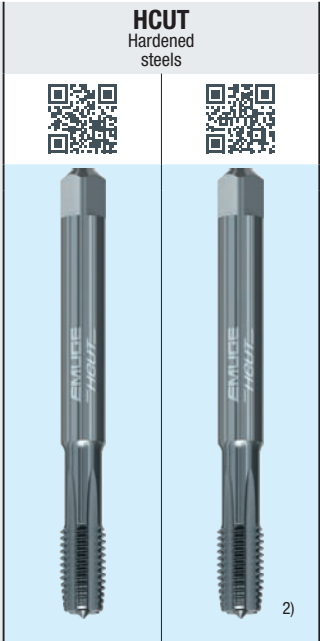
Gewindetiefe und Lochform  
Thread depth and hole type

Einsatzgebiete – Material  
Applications – material

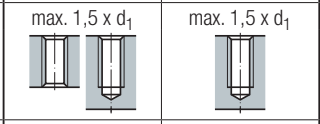


| M | $\phi d_1$<br>mm | P<br>mm | $l_1$ | $l_2$ | $l_3$ | $\phi d_2$ | $\square$ |      | VHM-Rekord<br>1A-HCUT/D<br>TICN | VHM-Rekord<br>1A-HCUT/C<br>TICN |
|---|------------------|---------|-------|-------|-------|------------|-----------|------|---------------------------------|---------------------------------|
|   |                  |         |       |       |       |            |           |      | H 1.3-1.4                       | H 1.3-1.4                       |
|   | 8                | x 1     | 90    | 15    | 35    | 8          | 6,2       | 7,1  | <b>B016K101.0251</b>            | <b>B010K101.0251</b>            |
|   | 10               | x 1     | 100   | 18    | 38    | 10         | 8         | 9,1  | <b>B016K101.0276</b>            | <b>B010K101.0276</b>            |
|   | 12               | x 1,5   | 110   | 21    | 41    | 12         | 9         | 10,6 | <b>B016K101.0303</b>            | <b>B010K101.0303</b>            |
|   | 14               | x 1,5   | 110   | 24    | 44    | 14         | 11        | 12,6 | <b>B016K101.0331</b>            | <b>B010K101.0331</b>            |
|   | 16               | x 1,5   | 110   | 24    | 44    | 16         | 12        | 14,6 | <b>B016K101.0359</b>            | <b>B010K101.0359</b>            |

2) Achtung: VHM-Rekord 1A-HCUT/D-TICN als Vorschneider verwenden!  
Please note: Use solid carbide tap VHM-Rekord 1A-HCUT/D-TICN as No.1 tap!



|         |         |
|---------|---------|
| 6HX     | 6HX     |
| TICN    | TICN    |
| VHM     | VHM     |
| D / 4-5 | C / 2-3 |
| O / P   | O / P   |



|           |           |
|-----------|-----------|
| H 1.3-1.4 | H 1.3-1.4 |
|-----------|-----------|

Product Finder

|                        |
|------------------------|
| V <sub>c</sub>         |
| M                      |
| MF                     |
| UNC<br>UN-8            |
| UNF<br>UNEF            |
| G, Rp<br>NPSM, NPSF    |
| NPT, NPTF<br>Rc, W     |
| BSW, BSF               |
| Pg                     |
| MJ<br>UNJC, UNJF       |
| EG (STI)               |
| SELF-LOCK              |
| Tr, Tr-F<br>Rd         |
| Zubehör<br>Accessories |



Spiralbohrer Typ EF-Drill-HCUT  
siehe Seite 62

Twist drills type EF-Drill-HCUT,  
see page 62

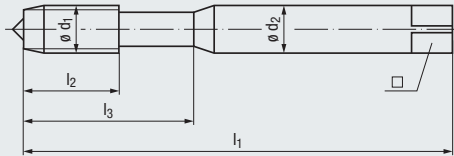
- Product Finder
- V<sub>c</sub>
- M
- MF**
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories

# MF



DIN 13

**DIN 371**



**Z**  
CNC-controlled machines



**NEW**



**NEW**



Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material

Technische Informationen  
Technical information



|                                 |                                |   |  |
|---------------------------------|--------------------------------|---|--|
| 6HX<br>TIN-70<br><b>HSSE-PM</b> | 6HX<br>GLT-1<br><b>HSSE-PM</b> | ISO 2/6H<br>HSSE<br>R45<br>C / 2-3<br>E / O / P | ISO 2/6H<br>GLT-1<br>HSSE<br>R45<br>C / 2-3<br>E / O / P |
|---------------------------------|--------------------------------|---|--|

Gewindetiefe und Lochform  
Thread depth and hole type

max. 3 x d<sub>1</sub>



max. 3 x d<sub>1</sub>



Einsatzgebiete – Material  
Applications – material

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|                  |  |                  |   |
|------------------|--|------------------|---|
| <b>P</b> 2.1-5.1 | <b>P</b> 1.1-5.1<br><b>M</b> 1.1-4.1<br><b>K</b> 1.1-3.2<br><b>N</b> 1.4, 2.1-2.2<br><b>N</b> 2.4-2.5<br><b>S</b> 1.1, 2.2-2.3 | <b>P</b> 1.1-3.1 | <b>P</b> 1.1-4.1<br><b>M</b> 1.1-4.1<br><b>N</b> 1.4, 2.1-2.2<br><b>N</b> 2.4-2.5<br><b>S</b> 1.1 |
|------------------|--|------------------|---|

|          | $\phi d_1$<br>mm | P<br>mm | $l_1$ | $l_2$ | $l_3$ | $\phi d_2$ | $\square$ |      | Rekord<br>1B-Z<br>PM-TIN-70 | Rekord<br>1B-Z<br>PM-GLT-1 | Enorm<br>1-Z  | Enorm<br>1-Z<br>GLT-1 |
|----------|------------------|---------|-------|-------|-------|------------|-----------|------|-----------------------------|----------------------------|---------------|-----------------------|
| <b>M</b> | 2,5              | x 0,35  | 50    | 5     | 12    | 2,8        | 2,1       | 2,15 |                             |                            | B0503500.0196 |                       |
|          | 2,6              | x 0,35  | 50    | 5     | 12    | 2,8        | 2,1       | 2,25 |                             |                            | B0503500.0199 |                       |
|          | 3                | x 0,35  | 56    | 4,5   | 18    | 3,5        | 2,7       | 2,65 |                             |                            | B0503500.0202 |                       |
|          | 3,5              | x 0,35  | 56    | 5     | 20    | 4          | 3         | 3,15 |                             |                            | B0503500.0205 |                       |
|          | 4                | x 0,5   | 63    | 5     | 21    | 4,5        | 3,4       | 3,5  | B0208F01.0210               | B020A601.0210              | B0503500.0210 | B050C400.0210         |
|          | 5                | x 0,5   | 70    | 5     | 25    | 6          | 4,9       | 4,5  | B0208F01.0218               | B020A601.0218              | B0503500.0218 | B050C400.0218         |
|          | 6                | x 0,5   | 80    | 5     | 30    | 6          | 4,9       | 5,5  |                             |                            | B0503500.0228 | B050C400.0228         |
|          | 6                | x 0,75  | 80    | 8     | 30    | 6          | 4,9       | 5,2  |                             |                            | B0503500.0229 | B050C400.0229         |
|          | 7                | x 0,75  | 80    | 10    | 30    | 7          | 5,5       | 6,2  |                             |                            | B0503500.0239 |                       |
|          | 8                | x 0,75  | 80    | 8     | 30    | 8          | 6,2       | 7,2  |                             |                            | B0503500.0250 |                       |
|          | 8                | x 1     | 90    | 10    | 35    | 8          | 6,2       | 7    |                             |                            | B0503500.0251 | B050C400.0251         |
|          | 9                | x 0,75  | 90    | 10    | 35    | 9          | 7         | 8,2  |                             |                            | B0503500.0262 |                       |
|          | 9                | x 1     | 90    | 10    | 35    | 9          | 7         | 8    |                             |                            | B0503500.0263 |                       |
|          | 10               | x 0,75  | 90    | 10    | 35    | 10         | 8         | 9,2  |                             |                            | B0503500.0275 |                       |
|          | 10               | x 1     | 90    | 10    | 35    | 10         | 8         | 9    |                             |                            | B0503500.0276 | B050C400.0276         |
|          | 10               | x 1,25  | 100   | 16    | 39    | 10         | 8         | 8,8  |                             |                            | B0503500.0277 | B050C400.0277         |

DIN 374



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





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DIN 2181



**Z**  
CNC-controlled  
machines

| Z<br>CNC-controlled<br>machines   |   |   |   |   |   |  |                     |
|---|---|---|---|---|---|--|---------------------|
|        |                  |        |                  |        |                  |  |                     |
| ISO 2/6H  | ISO 2/6H  | ISO 1/4H  | ISO 1/4H  | ISO 3/6G  | ISO 3/6G  |  |                     |
| HSSE  | GLT-1<br>HSSE   | HSSE  | GLT-1<br>HSSE   | HSSE  | GLT-1<br>HSSE   |  |                     |
| R45   | R45   | R45   | R45   | R45   | R45   |  |                     |
| E / 1,5-2   | E / 1,5-2   | C / 2-3   | C / 2-3   | E / 1,5-2   | E / 1,5-2   |  |                     |
| E / O / P   | E / O / P   | E / O / P   | E / O / P   | E / O / P   | E / O / P   |  |                     |
| max. 3 x d <sub>1</sub>   |   |   |   |   |   |  |                     |
|       |   |   |   |   |   |  |                     |
| <b>P</b> 1.1-3.1  | <b>P</b> 1.1-4.1<br><b>M</b> 1.1-4.1<br><b>N</b> 1.4, 2.1-2.2<br><b>N</b> 2.4-2.5<br><b>S</b> 1.1 | <b>P</b> 1.1-3.1  | <b>P</b> 1.1-4.1<br><b>M</b> 1.1-4.1<br><b>N</b> 1.4, 2.1-2.2<br><b>N</b> 2.4-2.5<br><b>S</b> 1.1 | <b>P</b> 1.1-3.1  | <b>P</b> 1.1-4.1<br><b>M</b> 1.1-4.1<br><b>N</b> 1.4, 2.1-2.2<br><b>N</b> 2.4-2.5<br><b>S</b> 1.1 |  |                     |
| Enorm 1-Z/E   | Enorm 1-Z/E<br>GLT-1  | Enorm 1-Z   | Enorm 1-Z<br>GLT-1  | Enorm 1-Z/E   | Enorm 1-Z/E<br>GLT-1  |  |                     |
|   |   |   |   |   |   |  |                     |
|   |   |   |   |   |   |  | <b>M</b> 2,5 x 0,35 |
|   |   |   |   |   |   |  | 2,6 x 0,35          |
|   |   |   |   |   |   |  | 3 x 0,35            |
|   |   |   |   |   |   |  | 3,5 x 0,35          |
| <b>B0513500.0210</b>  | <b>B051C400.0210</b>  | <b>B0503510.0210</b>  | <b>B050C410.0210</b>  | <b>B0513520.0210</b>  | <b>B051C420.0210</b>  |  | 4 x 0,5             |
| <b>B0513500.0218</b>  | <b>B051C400.0218</b>  | <b>B0503510.0218</b>  | <b>B050C410.0218</b>  | <b>B0513520.0218</b>  | <b>B051C420.0218</b>  |  | 5 x 0,5             |
| <b>B0513500.0228</b>  | <b>B051C400.0228</b>  | <b>B0503510.0228</b>  | <b>B050C410.0228</b>  | <b>B0513520.0228</b>  | <b>B051C420.0228</b>  |  | 6 x 0,5             |
| <b>B0513500.0229</b>  | <b>B051C400.0229</b>  | <b>B0503510.0229</b>  | <b>B050C410.0229</b>  | <b>B0513520.0229</b>  | <b>B051C420.0229</b>  |  | 6 x 0,75            |
|   |   |   |   |   |   |  | 7 x 0,75            |
|   |   |   |   |   |   |  | 8 x 0,75            |
|   |   |   |   |   |   |  | 8 x 1               |
|   |   |   |   |   |   |  | 9 x 0,75            |
|   |   |   |   |   |   |  | 9 x 1               |
|   |   |   |   |   |   |  | 10 x 0,75           |
|   |   |   |   |   |   |  | 10 x 1              |
|   |   |   |   |   |   |  | 10 x 1,25           |
|  185 |  185           |  186 |   |  187 |  187           |  |                     |

|                        |
|------------------------|
| Product Finder         |
| V <sub>c</sub>         |
| M                      |
| MF                     |
| UNC<br>UN-8            |
| UNF<br>UNEF            |
| G, Rp<br>NPSM, NPSF    |
| NPT, NPTF<br>Rc, W     |
| BSW, BSF               |
| Pg                     |
| MJ<br>UNJC, UNJF       |
| EG (STI)               |
| SELF-LOCK              |
| Tr, Tr-F<br>Rd         |
| Zubehör<br>Accessories |



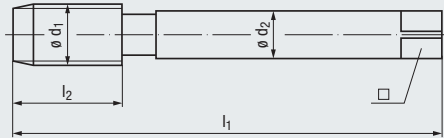
- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories

# MF



DIN 13

DIN 374



**STEEL**  
Steel materials



Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material

Technische Informationen  
Technical information

Tr, Tr-F Rd

|                  |                  |                  |                  |
|------------------|------------------|------------------|------------------|
| 6HX              | ISO 2/6H         | ISO 2/6H<br>TIN  | ISO 1/4H         |
| HSSE             | HSSE             | HSSE             | HSSE             |
| C / 2-3<br>E / 0 | B / 4-5<br>E / 0 | B / 4-5<br>E / 0 | B / 4-5<br>E / 0 |

Gewindetiefe und Lochform  
Thread depth and hole type



Einsatzgebiete – Material  
Applications – material

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|                                  |                                  |                  |                                  |
|----------------------------------|----------------------------------|------------------|----------------------------------|
| <b>K</b> 1.1-4.2<br><b>N</b> 2.3 | <b>P</b> 1.1-3.1<br><b>N</b> 2.2 | <b>P</b> 1.1-4.1 | <b>P</b> 1.1-3.1<br><b>N</b> 2.2 |
|----------------------------------|----------------------------------|------------------|----------------------------------|

| $\phi d_1$<br>mm | P<br>mm | $l_1$ | $l_2$ | $\phi d_2$ | □    |               | Rekord<br>2A-STEEL | Rekord<br>2B-STEEL-L | Rekord<br>2B-STEEL-L<br>TIN | Rekord<br>2B-STEEL-L |
|------------------|---------|-------|-------|------------|------|---------------|--------------------|----------------------|-----------------------------|----------------------|
| M 4 x 0,35       | 63      | 10    | 2,8   | 2,1        | 3,65 | C0101001.0209 | C0208900.0209      | C0208400.0209        |                             |                      |
| 4 x 0,5          | 63      | 10    | 2,8   | 2,1        | 3,5  | C0101001.0210 | C0208900.0210      | C0208400.0210        |                             |                      |
| 5 x 0,5          | 70      | 11    | 3,5   | 2,7        | 4,5  | C0101001.0218 | C0208900.0218      | C0208400.0218        |                             |                      |
| 6 x 0,5          | 80      | 13    | 4,5   | 3,4        | 5,5  | C0101001.0228 | C0208900.0228      | C0208400.0228        |                             |                      |
| 6 x 0,75         | 80      | 13    | 4,5   | 3,4        | 5,2  | C0101001.0229 | C0208900.0229      | C0208400.0229        |                             |                      |
| 8 x 0,75         | 80      | 14    | 6     | 4,9        | 7,2  | C0101001.0250 | C0208900.0250      | C0208400.0250        |                             |                      |
| 8 x 1            | 90      | 17    | 6     | 4,9        | 7    | C0101001.0251 | C0208900.0251      | C0208400.0251        | C0208910.0251               |                      |
| 9 x 1            | 90      | 17    | 7     | 5,5        | 8    | C0101001.0263 | C0208900.0263      | C0208400.0263        |                             |                      |
| 10 x 0,75        | 90      | 18    | 7     | 5,5        | 9,2  | C0101001.0275 | C0208900.0275      | C0208400.0275        |                             |                      |
| 10 x 1           | 90      | 18    | 7     | 5,5        | 9    | C0101001.0276 | C0208900.0276      | C0208400.0276        | C0208910.0276               |                      |
| 10 x 1,25        | 100     | 22    | 7     | 5,5        | 8,8  | C0101001.0277 | C0208900.0277      | C0208400.0277        |                             |                      |
| 11 x 1           | 90      | 18    | 8     | 6,2        | 10   | C0101001.0288 | C0208900.0288      | C0208400.0288        |                             |                      |
| 12 x 1           | 100     | 18    | 9     | 7          | 11   | C0101001.0301 | C0208900.0301      | C0208400.0301        | C0208910.0301               |                      |
| 12 x 1,25        | 100     | 22    | 9     | 7          | 10,8 | C0101001.0302 | C0208900.0302      | C0208400.0302        |                             |                      |
| 12 x 1,5         | 100     | 22    | 9     | 7          | 10,5 | C0101001.0303 | C0208900.0303      | C0208400.0303        | C0208910.0303               |                      |
| 14 x 1           | 100     | 18    | 11    | 9          | 13   | C0101001.0329 | C0208900.0329      | C0208400.0329        |                             |                      |
| 14 x 1,25        | 100     | 22    | 11    | 9          | 12,8 | C0101001.0330 | C0208900.0330      | C0208400.0330        |                             |                      |
| 14 x 1,5         | 100     | 22    | 11    | 9          | 12,5 | C0101001.0331 | C0208900.0331      | C0208400.0331        | C0208910.0331               |                      |
| 15 x 1           | 100     | 18    | 12    | 9          | 14   | C0101001.0343 | C0208900.0343      | C0208400.0343        |                             |                      |
| 16 x 1           | 100     | 18    | 12    | 9          | 15   | C0101001.0357 | C0208900.0357      | C0208400.0357        |                             |                      |
| 16 x 1,5         | 100     | 22    | 12    | 9          | 14,5 | C0101001.0359 | C0208900.0359      | C0208400.0359        | C0208910.0359               |                      |
| 18 x 1           | 110     | 20    | 14    | 11         | 17   | C0101001.0388 | C0208900.0388      | C0208400.0388        |                             |                      |
| 18 x 1,5         | 110     | 25    | 14    | 11         | 16,5 | C0101001.0390 | C0208900.0390      | C0208400.0390        | C0208910.0390               |                      |
| 18 x 2           | 125     | 26    | 14    | 11         | 16   | C0101001.0391 | C0208900.0391      | C0208400.0391        |                             |                      |
| 20 x 1           | 125     | 20    | 16    | 12         | 19   | C0101001.0420 | C0208900.0420      | C0208400.0420        |                             |                      |
| 20 x 1,5         | 125     | 25    | 16    | 12         | 18,5 | C0101001.0422 | C0208900.0422      | C0208400.0422        | C0208910.0422               |                      |
| 20 x 2           | 140     | 27    | 16    | 12         | 18   | C0101001.0423 | C0208900.0423      | C0208400.0423        |                             |                      |
| 22 x 1           | 125     | 20    | 18    | 14,5       | 21   | C0101001.0436 | C0208900.0436      | C0208400.0436        |                             |                      |
| 22 x 1,5         | 125     | 25    | 18    | 14,5       | 20,5 | C0101001.0438 | C0208900.0438      | C0208400.0438        |                             |                      |
| 22 x 2           | 140     | 27    | 18    | 14,5       | 20   | C0101001.0439 | C0208900.0439      | C0208400.0439        |                             |                      |
| 24 x 1           | 140     | 20    | 18    | 14,5       | 23   | C0101001.0450 | C0208900.0450      | C0208400.0450        |                             |                      |
| 24 x 1,5         | 140     | 27    | 18    | 14,5       | 22,5 | C0101001.0452 | C0208900.0452      | C0208400.0452        |                             |                      |
| 24 x 2           | 140     | 27    | 18    | 14,5       | 22   | C0101001.0453 | C0208900.0453      | C0208400.0453        |                             |                      |
| 25 x 1,5         | 140     | 28    | 18    | 14,5       | 23,5 | C0101001.0458 | C0208900.0458      | C0208400.0458        |                             |                      |
| 26 x 1,5         | 140     | 28    | 18    | 14,5       | 24,5 | C0101001.0464 | C0208900.0464      | C0208400.0464        |                             |                      |

DIN 371

162

162

162

DIN 2181

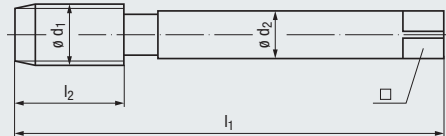
194





DIN 13

DIN 374



Technische Informationen  
Technical information

Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material



Gewindetiefe und Lochform  
Thread depth and hole type

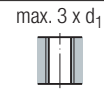
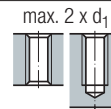
Einsatzgebiete – Material  
Applications – material

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**STEEL**  
Steel materials



|                  |                  |                  |                  |
|------------------|------------------|------------------|------------------|
| 6HX              | ISO 2/6H         | ISO 2/6H         | ISO 1/4H         |
| HSSE             | HSSE             | TIN<br>HSSE      | HSSE             |
| C / 2-3<br>E / 0 | B / 4-5<br>E / 0 | B / 4-5<br>E / 0 | B / 4-5<br>E / 0 |



|                                  |                                  |                  |                                  |
|----------------------------------|----------------------------------|------------------|----------------------------------|
| <b>K</b> 1.1-4.2<br><b>N</b> 2.3 | <b>P</b> 1.1-3.1<br><b>N</b> 2.2 | <b>P</b> 1.1-4.1 | <b>P</b> 1.1-3.1<br><b>N</b> 2.2 |
|----------------------------------|----------------------------------|------------------|----------------------------------|

| $\phi d_1$<br>mm | P<br>mm | $l_1$ | $l_2$ | $\phi d_2$ | $\square$ |      | Rekord<br>2A-STEEL | Rekord<br>2B-STEEL-L | Rekord<br>2B-STEEL-L<br>TIN | Rekord<br>2B-STEEL-L |
|------------------|---------|-------|-------|------------|-----------|------|--------------------|----------------------|-----------------------------|----------------------|
| M 27             | x 1,5   | 140   | 28    | 20         | 16        | 25,5 | C0101001.0470      | C0208900.0470        | C0208400.0470               |                      |
| 27               | x 2     | 140   | 28    | 20         | 16        | 25   | C0101001.0471      | C0208900.0471        | C0208400.0471               |                      |
| 28               | x 1,5   | 140   | 28    | 20         | 16        | 26,5 | C0101001.0476      | C0208900.0476        | C0208400.0476               |                      |
| 28               | x 2     | 140   | 28    | 20         | 16        | 26   | C0101001.0477      | C0208900.0477        | C0208400.0477               |                      |
| 30               | x 1,5   | 150   | 28    | 22         | 18        | 28,5 | C0101001.0490      | C0208900.0490        | C0208400.0490               |                      |
| 30               | x 2     | 150   | 28    | 22         | 18        | 28   | C0101001.0491      | C0208900.0491        | C0208400.0491               |                      |
| 32               | x 1,5   | 150   | 28    | 22         | 18        | 30,5 | C0101001.0504      | C0208900.0504        | C0208400.0504               |                      |
| 32               | x 2     | 150   | 28    | 22         | 18        | 30   | C0101001.0505      | C0208900.0505        | C0208400.0505               |                      |
| 33               | x 1,5   | 160   | 30    | 25         | 20        | 31,5 | C0101001.0511      | C0208900.0511        | C0208400.0511               |                      |
| 33               | x 2     | 160   | 30    | 25         | 20        | 31   | C0101001.0512      | C0208900.0512        | C0208400.0512               |                      |
| 34               | x 1,5   | 170   | 30    | 28         | 22        | 32,5 | C0101001.0518      | C0208900.0518        | C0208400.0518               |                      |
| 35               | x 1,5   | 170   | 30    | 28         | 22        | 33,5 | C0101001.0525      | C0208900.0525        | C0208400.0525               |                      |
| 36               | x 1,5   | 170   | 30    | 28         | 22        | 34,5 | C0101001.0532      | C0208900.0532        | C0208400.0532               |                      |
| 36               | x 2     | 170   | 30    | 28         | 22        | 34   | C0101001.0533      | C0208900.0533        | C0208400.0533               |                      |
| 36               | x 3     | 200   | 42    | 28         | 22        | 33   | C0101001.0534      | C0208900.0534        | C0208400.0534               |                      |
| 38               | x 1,5   | 170   | 30    | 28         | 22        | 36,5 | C0101001.0546      | C0208900.0546        | C0208400.0546               |                      |
| 39               | x 1,5   | 170   | 30    | 32         | 24        | 37,5 | C0101001.0553      | C0208900.0553        | C0208400.0553               |                      |
| 39               | x 2     | 170   | 30    | 32         | 24        | 37   | C0101001.0554      | C0208900.0554        | C0208400.0554               |                      |
| 40               | x 1,5   | 170   | 30    | 32         | 24        | 38,5 | C0101001.0560      | C0208900.0560        | C0208400.0560               |                      |
| 40               | x 2     | 170   | 30    | 32         | 24        | 38   | C0101001.0561      | C0208900.0561        | C0208400.0561               |                      |
| 42               | x 1,5   | 170   | 30    | 32         | 24        | 40,5 | C0101001.0574      | C0208900.0574        | C0208400.0574               |                      |
| 42               | x 2     | 170   | 30    | 32         | 24        | 40   | C0101001.0575      | C0208900.0575        | C0208400.0575               |                      |
| 42               | x 3     | 200   | 45    | 32         | 24        | 39   | C0101001.0576      | C0208900.0576        | C0208400.0576               |                      |
| 45               | x 1,5   | 180   | 32    | 36         | 29        | 43,5 | C0101001.0595      | C0208900.0595        | C0208400.0595               |                      |
| 45               | x 2     | 180   | 32    | 36         | 29        | 43   | C0101001.0596      | C0208900.0596        | C0208400.0596               |                      |
| 45               | x 3     | 200   | 45    | 36         | 29        | 42   | C0101001.0597      | C0208900.0597        | C0208400.0597               |                      |
| 48               | x 1,5   | 190   | 32    | 36         | 29        | 46,5 | C0101001.0616      | C0208900.0616        | C0208400.0616               |                      |
| 48               | x 2     | 190   | 32    | 36         | 29        | 46   | C0101001.0617      | C0208900.0617        | C0208400.0617               |                      |
| 48               | x 3     | 225   | 50    | 36         | 29        | 45   | C0101001.0618      | C0208900.0618        | C0208400.0618               |                      |
| 50               | x 1,5   | 190   | 32    | 36         | 29        | 48,5 | C0101001.0630      | C0208900.0630        | C0208400.0630               |                      |
| 50               | x 2     | 190   | 32    | 36         | 29        | 48   | C0101001.0631      | C0208900.0631        | C0208400.0631               |                      |
| 52               | x 1,5   | 190   | 32    | 40         | 32        | 50,5 | C0101001.0644      | C0208900.0644        | C0208400.0644               |                      |
| 52               | x 2     | 190   | 32    | 40         | 32        | 50   | C0101001.0645      | C0208900.0645        | C0208400.0645               |                      |
| 52               | x 3     | 225   | 50    | 40         | 32        | 49   | C0101001.0646      | C0208900.0646        | C0208400.0646               |                      |

|          |  |     |     |     |
|----------|--|-----|-----|-----|
| DIN 371  |  | 162 | 162 | 162 |
| DIN 2181 |  | 194 |     |     |

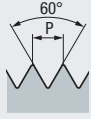
Product Finder

- V<sub>c</sub>
- M
- MF
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories



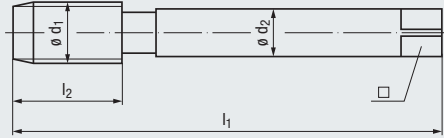
- Product Finder
- V<sub>c</sub>
- M
- MF**
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories

# MF



DIN 13

**DIN 374**



**STEEL**  
Steel materials



|          |          |          |          |
|----------|----------|----------|----------|
| ISO 1/4H | ISO 3/6G | ISO 3/6G | ISO 2/6H |
| TIN      |          | TIN      |          |
| HSSE     | HSSE     | HSSE     | HSSE     |
| B / 4-5  | B / 4-5  | B / 4-5  | B / 4-5  |
| E / O    | E / O    | E / O    | E / O    |

Technische Informationen  
Technical information

Gewindetiefe und Lochform  
Thread depth and hole type

max. 3 x d<sub>1</sub>

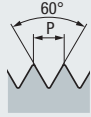


Einsatzgebiete – Material  
Applications – material [» 78](#)

|           |                    |           |                    |
|-----------|--------------------|-----------|--------------------|
| P 1.1-4.1 | P 1.1-3.1<br>N 2.2 | P 1.1-4.1 | P 1.1-3.1<br>N 2.2 |
|-----------|--------------------|-----------|--------------------|

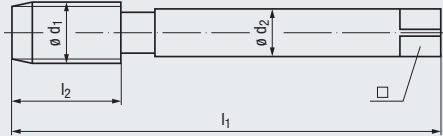
| M | ∅ d <sub>1</sub><br>mm | P<br>mm | l <sub>1</sub> | l <sub>2</sub> | ∅ d <sub>2</sub> | □    |      | Rekord            | Rekord        | Rekord            | Rekord        |
|---|------------------------|---------|----------------|----------------|------------------|------|------|-------------------|---------------|-------------------|---------------|
|   |                        |         |                |                |                  |      |      | 2B-STEEL-L<br>TIN | 2B-STEEL-L    | 2B-STEEL-L<br>TIN | 2B-STEEL-L-LH |
|   | 6                      | x 0,5   | 80             | 13             | 4,5              | 3,4  | 5,5  |                   |               |                   |               |
|   | 6                      | x 0,75  | 80             | 13             | 4,5              | 3,4  | 5,2  |                   |               |                   |               |
|   | 8                      | x 0,75  | 80             | 14             | 6                | 4,9  | 7,2  |                   |               |                   |               |
|   | 8                      | x 1     | 90             | 17             | 6                | 4,9  | 7    | C0208410.0251     | C0208920.0251 | C0208420.0251     | C0208950.0251 |
|   | 9                      | x 1     | 90             | 17             | 7                | 5,5  | 8    |                   |               |                   |               |
|   | 10                     | x 0,75  | 90             | 18             | 7                | 5,5  | 9,2  |                   |               |                   |               |
|   | 10                     | x 1     | 90             | 18             | 7                | 5,5  | 9    | C0208410.0276     | C0208920.0276 | C0208420.0276     | C0208950.0276 |
|   | 10                     | x 1,25  | 100            | 22             | 7                | 5,5  | 8,8  |                   |               |                   |               |
|   | 11                     | x 1     | 90             | 18             | 8                | 6,2  | 10   |                   |               |                   |               |
|   | 12                     | x 1     | 100            | 18             | 9                | 7    | 11   | C0208410.0301     | C0208920.0301 | C0208420.0301     | C0208950.0301 |
|   | 12                     | x 1,25  | 100            | 22             | 9                | 7    | 10,8 |                   |               |                   |               |
|   | 12                     | x 1,5   | 100            | 22             | 9                | 7    | 10,5 | C0208410.0303     | C0208920.0303 | C0208420.0303     | C0208950.0303 |
|   | 14                     | x 1     | 100            | 18             | 11               | 9    | 13   |                   |               |                   |               |
|   | 14                     | x 1,25  | 100            | 22             | 11               | 9    | 12,8 |                   |               |                   |               |
|   | 14                     | x 1,5   | 100            | 22             | 11               | 9    | 12,5 | C0208410.0331     | C0208920.0331 | C0208420.0331     | C0208950.0331 |
|   | 15                     | x 1     | 100            | 18             | 12               | 9    | 14   |                   |               |                   |               |
|   | 16                     | x 1     | 100            | 18             | 12               | 9    | 15   |                   |               |                   |               |
|   | 16                     | x 1,5   | 100            | 22             | 12               | 9    | 14,5 | C0208410.0359     | C0208920.0359 | C0208420.0359     | C0208950.0359 |
|   | 18                     | x 1     | 110            | 20             | 14               | 11   | 17   |                   |               |                   |               |
|   | 18                     | x 1,5   | 110            | 25             | 14               | 11   | 16,5 | C0208410.0390     | C0208920.0390 | C0208420.0390     | C0208950.0390 |
|   | 18                     | x 2     | 125            | 26             | 14               | 11   | 16   |                   |               |                   |               |
|   | 20                     | x 1     | 125            | 20             | 16               | 12   | 19   |                   |               |                   |               |
|   | 20                     | x 1,5   | 125            | 25             | 16               | 12   | 18,5 | C0208410.0422     | C0208920.0422 | C0208420.0422     | C0208950.0422 |
|   | 20                     | x 2     | 140            | 27             | 16               | 12   | 18   |                   |               |                   |               |
|   | 22                     | x 1     | 125            | 20             | 18               | 14,5 | 21   |                   |               |                   |               |
|   | 22                     | x 1,5   | 125            | 25             | 18               | 14,5 | 20,5 |                   |               |                   |               |
|   | 22                     | x 2     | 140            | 27             | 18               | 14,5 | 20   |                   |               |                   |               |
|   | 24                     | x 1     | 140            | 20             | 18               | 14,5 | 23   |                   |               |                   |               |
|   | 24                     | x 1,5   | 140            | 27             | 18               | 14,5 | 22,5 |                   |               |                   |               |
|   | 24                     | x 2     | 140            | 27             | 18               | 14,5 | 22   |                   |               |                   |               |

**MF**



DIN 13

DIN 374



Technische Informationen  
Technical information

Gewindetiefe und Lochform  
Thread depth and hole type

Einsatzgebiete – Material  
Applications – material



**STEEL**  
Steel materials



ISO 2/6H  
TIN  
HSSE  
LH  
B / 4-5  
E / 0

6HX  
ALCR-102  
HSSE-PM  
B / ≈6  
E / 0

6HX  
ALCR-101  
HSSE-PM  
B / ≈6  
E / 0


max. 3 x d<sub>1</sub>



P 1.1-4.1

P 3.1-5.1

P 3.1-5.1

|   | $\phi d_1$<br>mm | P<br>mm | $l_1$ | $l_2$ | $\phi d_2$ | □    |  | Rekord<br>2B-STEEL-L-LH<br>TIN | Rekord<br>2B-STEEL-H<br>PM-ALCR-102 | Rekord<br>2B-STEEL-H<br>PM-ALCR-101 |
|---|------------------|---------|-------|-------|------------|------|---|--------------------------------|-------------------------------------|-------------------------------------|
| M | 6                | x 0,5   | 80    | 13    | 4,5        | 3,4  | 5,5   |                                |                                     |                                     |
|   | 6                | x 0,75  | 80    | 13    | 4,5        | 3,4  | 5,2   |                                |                                     |                                     |
|   | 8                | x 0,75  | 80    | 14    | 6          | 4,9  | 7,2   |                                |                                     |                                     |
|   | 8                | x 1     | 90    | 17    | 6          | 4,9  | 7   | C0208450.0251                  |                                     |                                     |
|   | 9                | x 1     | 90    | 17    | 7          | 5,5  | 8   |                                |                                     |                                     |
|   | 10               | x 0,75  | 90    | 18    | 7          | 5,5  | 9,2   |                                |                                     |                                     |
|   | 10               | x 1     | 90    | 18    | 7          | 5,5  | 9   | C0208450.0276                  |                                     |                                     |
|   | 10               | x 1,25  | 100   | 22    | 7          | 5,5  | 8,8   |                                |                                     |                                     |
|   | 11               | x 1     | 90    | 18    | 8          | 6,2  | 10  |                                |                                     |                                     |
|   | 12               | x 1     | 100   | 18    | 9          | 7    | 11  | C0208450.0301                  |                                     |                                     |
|   | 12               | x 1,25  | 100   | 22    | 9          | 7    | 10,8  |                                |                                     |                                     |
|   | 12               | x 1,5   | 100   | 22    | 9          | 7    | 10,5  | C0208450.0303                  | C0209J01.0303                       | C0208J01.0303                       |
|   | 14               | x 1     | 100   | 18    | 11         | 9    | 13  |                                |                                     |                                     |
|   | 14               | x 1,25  | 100   | 22    | 11         | 9    | 12,8  |                                |                                     |                                     |
|   | 14               | x 1,5   | 100   | 22    | 11         | 9    | 12,5  | C0208450.0331                  | C0209J01.0331                       | C0208J01.0331                       |
|   | 15               | x 1     | 100   | 18    | 12         | 9    | 14  |                                |                                     |                                     |
|   | 16               | x 1     | 100   | 18    | 12         | 9    | 15  |                                |                                     |                                     |
|   | 16               | x 1,5   | 100   | 22    | 12         | 9    | 14,5  | C0208450.0359                  | C0209J01.0359                       | C0208J01.0359                       |
|   | 18               | x 1     | 110   | 20    | 14         | 11   | 17  |                                |                                     |                                     |
|   | 18               | x 1,5   | 110   | 25    | 14         | 11   | 16,5  | C0208450.0390                  |                                     |                                     |
|   | 18               | x 2     | 125   | 26    | 14         | 11   | 16  |                                |                                     |                                     |
|   | 20               | x 1     | 125   | 20    | 16         | 12   | 19  |                                |                                     |                                     |
|   | 20               | x 1,5   | 125   | 25    | 16         | 12   | 18,5  | C0208450.0422                  |                                     |                                     |
|   | 20               | x 2     | 140   | 27    | 16         | 12   | 18  |                                |                                     |                                     |
|   | 22               | x 1     | 125   | 20    | 18         | 14,5 | 21  |                                |                                     |                                     |
|   | 22               | x 1,5   | 125   | 25    | 18         | 14,5 | 20,5  |                                |                                     |                                     |
|   | 22               | x 2     | 140   | 27    | 18         | 14,5 | 20  |                                |                                     |                                     |
|   | 24               | x 1     | 140   | 20    | 18         | 14,5 | 23  |                                |                                     |                                     |
|   | 24               | x 1,5   | 140   | 27    | 18         | 14,5 | 22,5  |                                |                                     |                                     |
|   | 24               | x 2     | 140   | 27    | 18         | 14,5 | 22  |                                |                                     |                                     |

DIN 371 

163

163

DIN 2181 

Product Finder

V<sub>c</sub>

M

MF

UNC  
UN-8

UNC  
UNEF

G, Rp  
NPSM, NPSF

NPT, NPTF  
Rc, W

BSW, BSF

Pg

MJ  
UNJC, UNJF

EG (STI)

SELF-LOCK

Tr, Tr-F  
Rd

Zubehör  
Accessories



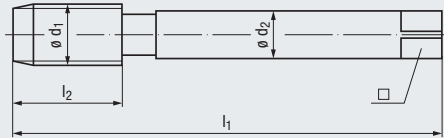
- Product Finder
- V<sub>c</sub>
- M
- MF**
- UNC  
UN-8
- UNF  
UNEF
- G, Rp  
NPSM, NPSF
- NPT, NPTF  
Rc, W
- BSW, BSF
- Pg
- MJ  
UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F  
Rd
- Zubehör  
Accessories

# MF



DIN 13

DIN  
374



**STEEL**  
Steel  
materials



Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material

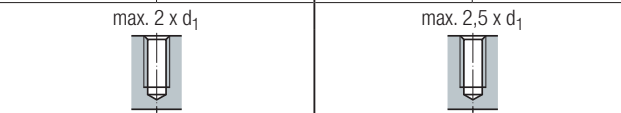
Technische Informationen  
Technical information

Tr, Tr-F  
Rd

Zubehör  
Accessories

|          |                  |          |             |
|----------|------------------|----------|-------------|
| ISO 2/6H | ISO 2/6H         | ISO 2/6H | ISO 2/6H    |
| HSSE     | HSSE             | HSSE     | TIN<br>HSSE |
| R15      | R15              | R35      | R35         |
| C / 2-3  | <b>E / 1,5-2</b> | C / 2-3  | C / 2-3     |
| E / 0    | E / 0            | E / 0    | E / 0       |

Gewindetiefe und Lochform  
Thread depth and hole type



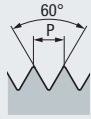
Einsatzgebiete – Material  
Applications – material

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|           |           |                    |                    |
|-----------|-----------|--------------------|--------------------|
| P 2.1-3.1 | P 2.1-3.1 | P 1.1-3.1<br>N 2.2 | P 1.1-3.1<br>N 2.2 |
|-----------|-----------|--------------------|--------------------|

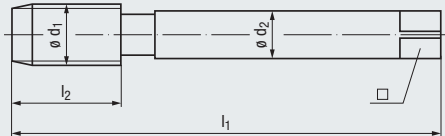
| $\varnothing d_1$<br>mm | P<br>mm | $l_1$ | $l_2$ | $\varnothing d_2$ | □    |  | Rekord<br>2D-STEEL   | Rekord<br>2D-STEEL/E | Enorm<br>2-STEEL     | Enorm<br>2-STEEL<br>TIN |
|-------------------------|---------|-------|-------|-------------------|------|--|----------------------|----------------------|----------------------|-------------------------|
| M 4 x 0,35              | 63      | 10    | 2,8   | 2,1               | 3,65 |  |                      |                      |                      |                         |
| 4 x 0,5                 | 63      | 10    | 2,8   | 2,1               | 3,5  |  |                      |                      |                      |                         |
| 5 x 0,5                 | 70      | 11    | 3,5   | 2,7               | 4,5  |  |                      |                      |                      |                         |
| 6 x 0,5                 | 80      | 13    | 4,5   | 3,4               | 5,5  |  |                      |                      |                      |                         |
| 6 x 0,75                | 80      | 13    | 4,5   | 3,4               | 5,2  |  | C0451000.0229        |                      | C0501000.0229        | C0501400.0229           |
| 8 x 0,75                | 80      | 14    | 6     | 4,9               | 7,2  |  | C0451000.0250        |                      |                      |                         |
| 8 x 1                   | 90      | 17    | 6     | 4,9               | 7    |  | <b>C0451000.0251</b> | <b>C0461000.0251</b> | <b>C0501000.0251</b> | <b>C0501400.0251</b>    |
| 9 x 1                   | 90      | 17    | 7     | 5,5               | 8    |  | <b>C0451000.0263</b> |                      |                      |                         |
| 10 x 0,75               | 90      | 18    | 7     | 5,5               | 9,2  |  | C0451000.0275        |                      |                      |                         |
| 10 x 1                  | 90      | 18    | 7     | 5,5               | 9    |  | <b>C0451000.0276</b> | <b>C0461000.0276</b> | <b>C0501000.0276</b> | <b>C0501400.0276</b>    |
| 10 x 1,25               | 100     | 22    | 7     | 5,5               | 8,8  |  | <b>C0451000.0277</b> |                      |                      |                         |
| 11 x 1                  | 90      | 18    | 8     | 6,2               | 10   |  | C0451000.0288        |                      |                      |                         |
| 12 x 1                  | 100     | 18    | 9     | 7                 | 11   |  | <b>C0451000.0301</b> | <b>C0461000.0301</b> | <b>C0501000.0301</b> | <b>C0501400.0301</b>    |
| 12 x 1,25               | 100     | 22    | 9     | 7                 | 10,8 |  | <b>C0451000.0302</b> |                      |                      |                         |
| 12 x 1,5                | 100     | 22    | 9     | 7                 | 10,5 |  | <b>C0451000.0303</b> | <b>C0461000.0303</b> | <b>C0501000.0303</b> | <b>C0501400.0303</b>    |
| 14 x 1                  | 100     | 18    | 11    | 9                 | 13   |  | <b>C0451000.0329</b> |                      |                      |                         |
| 14 x 1,25               | 100     | 22    | 11    | 9                 | 12,8 |  | C0451000.0330        |                      |                      |                         |
| 14 x 1,5                | 100     | 22    | 11    | 9                 | 12,5 |  | <b>C0451000.0331</b> | <b>C0461000.0331</b> | <b>C0501000.0331</b> | <b>C0501400.0331</b>    |
| 15 x 1                  | 100     | 18    | 12    | 9                 | 14   |  | <b>C0451000.0343</b> |                      |                      |                         |
| 16 x 1                  | 100     | 18    | 12    | 9                 | 15   |  | <b>C0451000.0357</b> |                      |                      |                         |
| 16 x 1,5                | 100     | 22    | 12    | 9                 | 14,5 |  | <b>C0451000.0359</b> | <b>C0461000.0359</b> | <b>C0501000.0359</b> | <b>C0501400.0359</b>    |
| 18 x 1                  | 110     | 20    | 14    | 11                | 17   |  | <b>C0451000.0388</b> |                      |                      |                         |
| 18 x 1,5                | 110     | 25    | 14    | 11                | 16,5 |  | <b>C0451000.0390</b> | <b>C0461000.0390</b> | <b>C0501000.0390</b> | <b>C0501400.0390</b>    |
| 18 x 2                  | 125     | 26    | 14    | 11                | 16   |  | C0451000.0391        |                      |                      |                         |
| 20 x 1                  | 125     | 20    | 16    | 12                | 19   |  | C0451000.0420        |                      |                      |                         |
| 20 x 1,5                | 125     | 25    | 16    | 12                | 18,5 |  | <b>C0451000.0422</b> | <b>C0461000.0422</b> | <b>C0501000.0422</b> | <b>C0501400.0422</b>    |
| 20 x 2                  | 140     | 27    | 16    | 12                | 18   |  | <b>C0451000.0423</b> |                      |                      |                         |
| 22 x 1                  | 125     | 20    | 18    | 14,5              | 21   |  | C0451000.0436        |                      |                      |                         |
| 22 x 1,5                | 125     | 25    | 18    | 14,5              | 20,5 |  | <b>C0451000.0438</b> | <b>C0461000.0438</b> | <b>C0501000.0438</b> | <b>C0501400.0438</b>    |
| 22 x 2                  | 140     | 27    | 18    | 14,5              | 20   |  | C0451000.0439        |                      |                      |                         |
| 24 x 1                  | 140     | 20    | 18    | 14,5              | 23   |  | C0451000.0450        |                      |                      |                         |
| 24 x 1,5                | 140     | 27    | 18    | 14,5              | 22,5 |  | <b>C0451000.0452</b> | <b>C0461000.0452</b> | <b>C0501000.0452</b> | <b>C0501400.0452</b>    |
| 24 x 2                  | 140     | 27    | 18    | 14,5              | 22   |  | <b>C0451000.0453</b> |                      |                      |                         |
| 25 x 1,5                | 140     | 28    | 18    | 14,5              | 23,5 |  | C0451000.0458        |                      |                      |                         |
| 26 x 1,5                | 140     | 28    | 18    | 14,5              | 24,5 |  | C0451000.0464        |                      |                      |                         |

**MF**



DIN 13

DIN 374



Technische Informationen  
Technical information

Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material



Gewindetiefe und Lochform  
Thread depth and hole type

Einsatzgebiete – Material  
Applications – material

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**STEEL**  
Steel materials



ISO 2/6H  
HSSE  
R15  
C / 2-3  
E / 0

ISO 2/6H  
HSSE  
R15  
**E / 1,5-2**  
E / 0

ISO 2/6H  
HSSE  
R35  
C / 2-3  
E / 0

ISO 2/6H  
TIN  
HSSE  
R35  
C / 2-3  
E / 0

max. 2 x d<sub>1</sub>



max. 2,5 x d<sub>1</sub>



P 2.1-3.1

P 2.1-3.1

P 1.1-3.1

N 2.2

P 1.1-3.1

N 2.2

| M | ø d <sub>1</sub><br>mm | P<br>mm | l <sub>1</sub> | l <sub>2</sub> | ø d <sub>2</sub> | □  |      | Rekord               | Rekord     | Enorm                | Enorm                |
|---|------------------------|---------|----------------|----------------|------------------|----|------|----------------------|------------|----------------------|----------------------|
|   |                        |         |                |                |                  |    |      | 2D-STEEL             | 2D-STEEL/E | 2-STEEL              | 2-STEEL<br>TIN       |
|   | 27                     | x 1,5   | 140            | 28             | 20               | 16 | 25,5 | C0451000.0470        |            |                      |                      |
|   | 27                     | x 2     | 140            | 28             | 20               | 16 | 25   | C0451000.0471        |            |                      |                      |
|   | 28                     | x 1,5   | 140            | 28             | 20               | 16 | 26,5 | C0451000.0476        |            |                      |                      |
|   | 28                     | x 2     | 140            | 28             | 20               | 16 | 26   | C0451000.0477        |            |                      |                      |
|   | 30                     | x 1,5   | 150            | 28             | 22               | 18 | 28,5 | <b>C0451000.0490</b> |            | <b>C0501000.0490</b> | <b>C0501400.0490</b> |
|   | 30                     | x 2     | 150            | 28             | 22               | 18 | 28   | <b>C0451000.0491</b> |            | <b>C0501000.0491</b> | <b>C0501400.0491</b> |
|   | 32                     | x 1,5   | 150            | 28             | 22               | 18 | 30,5 | C0451000.0504        |            | <b>C0501000.0504</b> | <b>C0501400.0504</b> |
|   | 32                     | x 2     | 150            | 28             | 22               | 18 | 30   |                      |            | C0501000.0505        |                      |
|   | 33                     | x 1,5   | 160            | 30             | 25               | 20 | 31,5 | C0451000.0511        |            | <b>C0501000.0511</b> | <b>C0501400.0511</b> |
|   | 33                     | x 2     | 160            | 30             | 25               | 20 | 31   | C0451000.0512        |            | <b>C0501000.0512</b> | <b>C0501400.0512</b> |
|   | 34                     | x 1,5   | 170            | 30             | 28               | 22 | 32,5 | C0451000.0518        |            | <b>C0501000.0518</b> | <b>C0501400.0518</b> |
|   | 35                     | x 1,5   | 170            | 30             | 28               | 22 | 33,5 | C0451000.0525        |            | <b>C0501000.0525</b> | <b>C0501400.0525</b> |
|   | 36                     | x 1,5   | 170            | 30             | 28               | 22 | 34,5 | C0451000.0532        |            | <b>C0501000.0532</b> | <b>C0501400.0532</b> |
|   | 36                     | x 2     | 170            | 30             | 28               | 22 | 34   | C0451000.0533        |            | <b>C0501000.0533</b> | <b>C0501400.0533</b> |
|   | 36                     | x 3     | 200            | 42             | 28               | 22 | 33   | C0451000.0534        |            | <b>C0501000.0534</b> | <b>C0501400.0534</b> |
|   | 38                     | x 1,5   | 170            | 30             | 28               | 22 | 36,5 | C0451000.0546        |            | <b>C0501000.0546</b> | <b>C0501400.0546</b> |
|   | 39                     | x 1,5   | 170            | 30             | 32               | 24 | 37,5 |                      |            | C0501000.0553        |                      |
|   | 39                     | x 2     | 170            | 30             | 32               | 24 | 37   | C0451000.0554        |            | C0501000.0554        |                      |
|   | 40                     | x 1,5   | 170            | 30             | 32               | 24 | 38,5 | C0451000.0560        |            | <b>C0501000.0560</b> | <b>C0501400.0560</b> |
|   | 40                     | x 2     | 170            | 30             | 32               | 24 | 38   | C0451000.0561        |            | C0501000.0561        |                      |
|   | 42                     | x 1,5   | 170            | 30             | 32               | 24 | 40,5 | C0451000.0574        |            | <b>C0501000.0574</b> | <b>C0501400.0574</b> |
|   | 42                     | x 2     | 170            | 30             | 32               | 24 | 40   | C0451000.0575        |            | <b>C0501000.0575</b> | <b>C0501400.0575</b> |
|   | 42                     | x 3     | 200            | 45             | 32               | 24 | 39   | C0451000.0576        |            | <b>C0501000.0576</b> | <b>C0501400.0576</b> |
|   | 45                     | x 1,5   | 180            | 32             | 36               | 29 | 43,5 | C0451000.0595        |            | <b>C0501000.0595</b> | <b>C0501400.0595</b> |
|   | 45                     | x 2     | 180            | 32             | 36               | 29 | 43   | C0451000.0596        |            | C0501000.0596        |                      |
|   | 45                     | x 3     | 200            | 45             | 36               | 29 | 42   | C0451000.0597        |            | C0501000.0597        |                      |
|   | 48                     | x 1,5   | 190            | 32             | 36               | 29 | 46,5 | C0451000.0616        |            | <b>C0501000.0616</b> | <b>C0501400.0616</b> |
|   | 48                     | x 2     | 190            | 32             | 36               | 29 | 46   | C0451000.0617        |            | <b>C0501000.0617</b> | <b>C0501400.0617</b> |
|   | 48                     | x 3     | 225            | 50             | 36               | 29 | 45   | C0451000.0618        |            | <b>C0501000.0618</b> | <b>C0501400.0618</b> |
|   | 50                     | x 1,5   | 190            | 32             | 36               | 29 | 48,5 | C0451000.0630        |            | <b>C0501000.0630</b> | <b>C0501400.0630</b> |
|   | 50                     | x 2     | 190            | 32             | 36               | 29 | 48   | C0451000.0631        |            |                      |                      |
|   | 52                     | x 1,5   | 190            | 32             | 40               | 32 | 50,5 | C0451000.0644        |            | <b>C0501000.0644</b> | <b>C0501400.0644</b> |
|   | 52                     | x 2     | 190            | 32             | 40               | 32 | 50   | C0451000.0645        |            | <b>C0501000.0645</b> | <b>C0501400.0645</b> |
|   | 52                     | x 3     | 225            | 50             | 40               | 32 | 49   | C0451000.0646        |            | C0501000.0646        |                      |

Product Finder

V<sub>c</sub>

M

MF

UNC  
UN-8

UNC  
UNEF

G, Rp  
NPSM, NPSF

NPT, NPTF  
Rc, W

BSW, BSF

Pg

MJ  
UNJC, UNJF

EG (STI)

SELF-LOCK

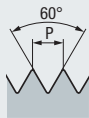
Tr, Tr-F  
Rd

Zubehör  
Accessories



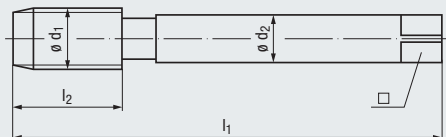
- Product Finder
- V<sub>c</sub>
- M
- MF**
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories

# MF



DIN 13

DIN 374



VA  
Stainless steel materials



|           |           |           |           |
|-----------|-----------|-----------|-----------|
| ISO 2/6H  | ISO 2/6H  | ISO 2/6H  | ISO 1/4H  |
| NT        | TIN       | GLT-1     | NT        |
| HSSE      | HSSE      | HSSE      | HSSE      |
| B / 4-5   | B / 4-5   | B / 4-5   | B / 4-5   |
| E / O / P | E / O / P | E / O / P | E / O / P |

Technische Informationen  
Technical information

Gewindetiefe und Lochform  
Thread depth and hole type

max. 3 x d<sub>1</sub>



Einsatzgebiete – Material  
Applications – material

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|                         |           |                                 |                         |
|-------------------------|-----------|---------------------------------|-------------------------|
| P 2.1-3.1<br>N 2.2, 2.5 | P 1.1-4.1 | P 1.1-4.1<br>M 1.1-4.1<br>N 2.2 | P 2.1-3.1<br>N 2.2, 2.5 |
|-------------------------|-----------|---------------------------------|-------------------------|

| $\phi d_1$<br>mm | P<br>mm | $l_1$ | $l_2$ | $\phi d_2$ | □    |      | Rekord<br>2B-VA<br>NT | Rekord<br>2B-VA<br>TIN | Rekord<br>2B-VA<br>GLT-1 | Rekord<br>2B-VA<br>NT |
|------------------|---------|-------|-------|------------|------|------|-----------------------|------------------------|--------------------------|-----------------------|
| M 6              | x 0,5   | 80    | 13    | 4,5        | 3,4  | 5,5  | C0203000.0228         | C0203100.0228          | C020C300.0228            |                       |
| 6                | x 0,75  | 80    | 13    | 4,5        | 3,4  | 5,2  | C0203000.0229         | C0203100.0229          | C020C300.0229            |                       |
| 8                | x 0,75  | 80    | 14    | 6          | 4,9  | 7,2  | C0203000.0250         | C0203100.0250          | C020C300.0250            |                       |
| 8                | x 1     | 90    | 17    | 6          | 4,9  | 7    | C0203000.0251         | C0203100.0251          | C020C300.0251            | C0203010.0251         |
| 9                | x 1     | 90    | 17    | 7          | 5,5  | 8    |                       |                        |                          |                       |
| 10               | x 0,75  | 90    | 18    | 7          | 5,5  | 9,2  |                       |                        |                          |                       |
| 10               | x 1     | 90    | 18    | 7          | 5,5  | 9    | C0203000.0276         | C0203100.0276          | C020C300.0276            | C0203010.0276         |
| 10               | x 1,25  | 100   | 22    | 7          | 5,5  | 8,8  |                       |                        |                          |                       |
| 11               | x 1     | 90    | 18    | 8          | 6,2  | 10   |                       |                        |                          |                       |
| 12               | x 1     | 100   | 18    | 9          | 7    | 11   | C0203000.0301         | C0203100.0301          | C020C300.0301            | C0203010.0301         |
| 12               | x 1,25  | 100   | 22    | 9          | 7    | 10,8 |                       |                        |                          |                       |
| 12               | x 1,5   | 100   | 22    | 9          | 7    | 10,5 | C0203000.0303         | C0203100.0303          | C020C300.0303            | C0203010.0303         |
| 14               | x 1     | 100   | 18    | 11         | 9    | 13   | C0203000.0329         | C0203100.0329          | C020C300.0329            |                       |
| 14               | x 1,25  | 100   | 22    | 11         | 9    | 12,8 | C0203000.0330         | C0203100.0330          | C020C300.0330            |                       |
| 14               | x 1,5   | 100   | 22    | 11         | 9    | 12,5 | C0203000.0331         | C0203100.0331          | C020C300.0331            | C0203010.0331         |
| 15               | x 1     | 100   | 18    | 12         | 9    | 14   |                       |                        |                          |                       |
| 16               | x 1     | 100   | 18    | 12         | 9    | 15   | C0203000.0357         | C0203100.0357          | C020C300.0357            |                       |
| 16               | x 1,5   | 100   | 22    | 12         | 9    | 14,5 | C0203000.0359         | C0203100.0359          | C020C300.0359            | C0203010.0359         |
| 18               | x 1     | 110   | 20    | 14         | 11   | 17   |                       |                        |                          |                       |
| 18               | x 1,5   | 110   | 25    | 14         | 11   | 16,5 | C0203000.0390         | C0203100.0390          | C020C300.0390            | C0203010.0390         |
| 18               | x 2     | 125   | 26    | 14         | 11   | 16   |                       |                        |                          |                       |
| 20               | x 1     | 125   | 20    | 16         | 12   | 19   | C0203000.0420         | C0203100.0420          | C020C300.0420            |                       |
| 20               | x 1,5   | 125   | 25    | 16         | 12   | 18,5 | C0203000.0422         | C0203100.0422          | C020C300.0422            | C0203010.0422         |
| 20               | x 2     | 140   | 27    | 16         | 12   | 18   | C0203000.0423         | C0203100.0423          | C020C300.0423            |                       |
| 22               | x 1     | 125   | 20    | 18         | 14,5 | 21   |                       |                        |                          |                       |
| 22               | x 1,5   | 125   | 25    | 18         | 14,5 | 20,5 | C0203000.0438         | C0203100.0438          | C020C300.0438            |                       |
| 22               | x 2     | 140   | 27    | 18         | 14,5 | 20   | C0203000.0439         | C0203100.0439          | C020C300.0439            |                       |
| 24               | x 1     | 140   | 20    | 18         | 14,5 | 23   |                       |                        |                          |                       |
| 24               | x 1,5   | 140   | 27    | 18         | 14,5 | 22,5 | C0203000.0452         | C0203100.0452          | C020C300.0452            |                       |
| 24               | x 2     | 140   | 27    | 18         | 14,5 | 22   |                       |                        |                          |                       |
| 25               | x 1,5   | 140   | 28    | 18         | 14,5 | 23,5 |                       |                        |                          |                       |
| 26               | x 1,5   | 140   | 28    | 18         | 14,5 | 24,5 | C0203000.0458         | C0203100.0458          | C020C300.0458            |                       |
| 27               | x 1,5   | 140   | 28    | 20         | 16   | 25,5 | C0203000.0464         | C0203100.0464          | C020C300.0464            |                       |
| 27               | x 2     | 140   | 28    | 20         | 16   | 25   |                       |                        |                          |                       |
| 28               | x 1,5   | 140   | 28    | 20         | 16   | 26,5 | C0203000.0476         | C0203100.0476          | C020C300.0476            |                       |

DIN 371

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DIN 2181

| VA<br>Stainless steel materials |                                 |                         |                  |                                 |                           | INOX<br>Stainless steel materials |                           |
|---------------------------------|---------------------------------|-------------------------|------------------|---------------------------------|---------------------------|-----------------------------------|---------------------------|
|                                 |                                 |                         |                  |                                 |                           |                                   |                           |
|                                 |                                 |                         |                  |                                 |                           |                                   |                           |
| ISO 1/4H                        | ISO 1/4H                        | ISO 3/6G                | ISO 3/6G         | ISO 3/6G                        | ISO 2/6H                  | ISO 2/6H                          | ISO 2/6H                  |
| TIN                             | GLT-1                           | NT                      | TIN              | GLT-1                           | HSSE                      | GLT-201                           | GLT-201                   |
| HSSE                            | HSSE                            | HSSE                    | HSSE             | HSSE                            | HSSE                      | HSSE                              | HSSE                      |
| B / 4-5                         | B / 4-5                         | B / 4-5                 | B / 4-5          | B / 4-5                         | R35                       | R45                               | R45                       |
| E / O / P                       | E / O / P                       | E / O / P               | E / O / P        | E / O / P                       | C / 2-3                   | C / 2-3                           | C / 2-3                   |
|                                 |                                 |                         |                  |                                 | E / O / P                 | E / O                             | E / O                     |
| max. 3 x d <sub>1</sub>         |                                 |                         |                  |                                 | max. 2,5 x d <sub>1</sub> |                                   | max. 2,5 x d <sub>1</sub> |
|                                 |                                 |                         |                  |                                 |                           |                                   |                           |
| P 1.1-4.1                       | P 1.1-4.1<br>M 1.1-4.1<br>N 2.2 | P 2.1-3.1<br>N 2.2, 2.5 | P 1.1-4.1        | P 1.1-4.1<br>M 1.1-4.1<br>N 2.2 | P 1.1-3.1                 |                                   | M 1.1-2.1                 |
| Rekord 2B-VA TIN                | Rekord 2B-VA GLT-1              | Rekord 2B-VA NT         | Rekord 2B-VA TIN | Rekord 2B-VA GLT-1              | Enorm 2 VA                |                                   | Enorm 2 INOX GLT-201      |
|                                 |                                 |                         |                  |                                 | C0503000.0229             |                                   | C050J300.0229             |
| C0203110.0251                   | C020C310.0251                   | C0203020.0251           | C0203120.0251    | C020C320.0251                   | C0503000.0251             |                                   | C050J300.0251             |
| C0203110.0276                   | C020C310.0276                   | C0203020.0276           | C0203120.0276    | C020C320.0276                   | C0503000.0276             |                                   | C050J300.0276             |
| C0203110.0301                   | C020C310.0301                   | C0203020.0301           | C0203120.0301    | C020C320.0301                   | C0503000.0301             |                                   | C050J300.0301             |
| C0203110.0303                   | C020C310.0303                   | C0203020.0303           | C0203120.0303    | C020C320.0303                   | C0503000.0303             |                                   | C050J300.0303             |
| C0203110.0331                   | C020C310.0331                   | C0203020.0331           | C0203120.0331    | C020C320.0331                   | C0503000.0331             |                                   | C050J300.0331             |
| C0203110.0359                   | C020C310.0359                   | C0203020.0359           | C0203120.0359    | C020C320.0359                   | C0503000.0359             |                                   | C050J300.0359             |
| C0203110.0390                   | C020C310.0390                   | C0203020.0390           | C0203120.0390    | C020C320.0390                   | C0503000.0390             |                                   | C050J300.0390             |
| C0203110.0422                   | C020C310.0422                   | C0203020.0422           | C0203120.0422    | C020C320.0422                   | C0503000.0422             |                                   | C050J300.0422             |
|                                 |                                 |                         |                  |                                 | C0503000.0438             |                                   | C050J300.0438             |
|                                 |                                 |                         |                  |                                 | C0503000.0452             |                                   | C050J300.0452             |
|                                 |                                 |                         |                  |                                 |                           |                                   | M 6 x 0,5                 |
|                                 |                                 |                         |                  |                                 |                           |                                   | 6 x 0,75                  |
|                                 |                                 |                         |                  |                                 |                           |                                   | 8 x 0,75                  |
|                                 |                                 |                         |                  |                                 |                           |                                   | 8 x 1                     |
|                                 |                                 |                         |                  |                                 |                           |                                   | 9 x 1                     |
|                                 |                                 |                         |                  |                                 |                           |                                   | 10 x 0,75                 |
|                                 |                                 |                         |                  |                                 |                           |                                   | 10 x 1                    |
|                                 |                                 |                         |                  |                                 |                           |                                   | 10 x 1,25                 |
|                                 |                                 |                         |                  |                                 |                           |                                   | 11 x 1                    |
|                                 |                                 |                         |                  |                                 |                           |                                   | 12 x 1                    |
|                                 |                                 |                         |                  |                                 |                           |                                   | 12 x 1,25                 |
|                                 |                                 |                         |                  |                                 |                           |                                   | 12 x 1,5                  |
|                                 |                                 |                         |                  |                                 |                           |                                   | 14 x 1                    |
|                                 |                                 |                         |                  |                                 |                           |                                   | 14 x 1,25                 |
|                                 |                                 |                         |                  |                                 |                           |                                   | 14 x 1,5                  |
|                                 |                                 |                         |                  |                                 |                           |                                   | 15 x 1                    |
|                                 |                                 |                         |                  |                                 |                           |                                   | 16 x 1                    |
|                                 |                                 |                         |                  |                                 |                           |                                   | 16 x 1,5                  |
|                                 |                                 |                         |                  |                                 |                           |                                   | 18 x 1                    |
|                                 |                                 |                         |                  |                                 |                           |                                   | 18 x 1,5                  |
|                                 |                                 |                         |                  |                                 |                           |                                   | 18 x 2                    |
|                                 |                                 |                         |                  |                                 |                           |                                   | 20 x 1                    |
|                                 |                                 |                         |                  |                                 |                           |                                   | 20 x 1,5                  |
|                                 |                                 |                         |                  |                                 |                           |                                   | 20 x 2                    |
|                                 |                                 |                         |                  |                                 |                           |                                   | 22 x 1                    |
|                                 |                                 |                         |                  |                                 |                           |                                   | 22 x 1,5                  |
|                                 |                                 |                         |                  |                                 |                           |                                   | 22 x 2                    |
|                                 |                                 |                         |                  |                                 |                           |                                   | 24 x 1                    |
|                                 |                                 |                         |                  |                                 |                           |                                   | 24 x 1,5                  |
|                                 |                                 |                         |                  |                                 |                           |                                   | 24 x 2                    |
|                                 |                                 |                         |                  |                                 |                           |                                   | 25 x 1,5                  |
|                                 |                                 |                         |                  |                                 |                           |                                   | 26 x 1,5                  |
|                                 |                                 |                         |                  |                                 |                           |                                   | 27 x 1,5                  |
|                                 |                                 |                         |                  |                                 |                           |                                   | 27 x 2                    |
|                                 |                                 |                         |                  |                                 |                           |                                   | 28 x 1,5                  |

|                     |
|---------------------|
| Product Finder      |
| V <sub>c</sub>      |
| M                   |
| MF                  |
| UNC UN-8            |
| UNF UNEF            |
| G, Rp NPSM, NPSF    |
| NPT, NPTF Rc, W     |
| BSW, BSF            |
| Pg                  |
| MJ UNJC, UNJF       |
| EG (STI)            |
| SELF-LOCK           |
| Tr, Tr-F Rd         |
| Zubehör Accessories |



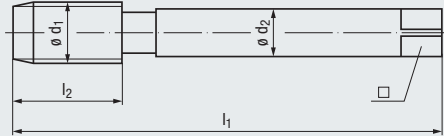
- Product Finder
- V<sub>c</sub>
- M
- MF**
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories



# MF

DIN 13

**DIN 374**



Technische Informationen  
Technical information

Gewindetiefe und Lochform  
Thread depth and hole type

Einsatzgebiete – Material  
Applications – material

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**GG**  
Cast iron

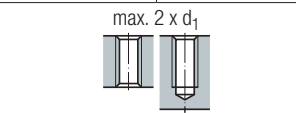


**GJV**  
Cast iron  
vermicular



|         |         |
|---------|---------|
| 6HX     | 6HX     |
| NT      | TICN    |
| HSSE    | HSSE    |
| C / 2-3 | C / 2-3 |
| E       | E       |

|                |
|----------------|
| 6HX            |
| TICN           |
| <b>HSSE-PM</b> |
| C / 2-3        |
| E              |



**K 1.1-1.2**      **K 1.1-1.2**

**K 1.1-4.2**

| M  | Ø d <sub>1</sub><br>mm | P<br>mm | l <sub>1</sub> | l <sub>2</sub> | Ø d <sub>2</sub> | □    |      | Rekord<br>2A-GG<br>NT | Rekord<br>2A-GG<br>TICN | Rekord<br>2A-GJV<br>PM-TICN |
|----|------------------------|---------|----------------|----------------|------------------|------|------|-----------------------|-------------------------|-----------------------------|
|    |                        |         |                |                |                  |      |      |                       |                         |                             |
| 6  | x                      | 0,75    | 80             | 13             | 4,5              | 3,4  | 5,2  |                       |                         |                             |
| 8  | x                      | 0,75    | 80             | 14             | 6                | 4,9  | 7,2  |                       |                         |                             |
| 8  | x                      | 1       | 90             | 17             | 6                | 4,9  | 7    | <b>C0102001.0251</b>  | C0109201.0251           |                             |
| 9  | x                      | 1       | 90             | 17             | 7                | 5,5  | 8    |                       |                         |                             |
| 10 | x                      | 0,75    | 90             | 18             | 7                | 5,5  | 9,2  |                       |                         |                             |
| 10 | x                      | 1       | 90             | 18             | 7                | 5,5  | 9    | <b>C0102001.0276</b>  | C0109201.0276           |                             |
| 10 | x                      | 1,25    | 100            | 22             | 7                | 5,5  | 8,8  |                       |                         |                             |
| 11 | x                      | 1       | 90             | 18             | 8                | 6,2  | 10   |                       |                         |                             |
| 12 | x                      | 1       | 100            | 18             | 9                | 7    | 11   | <b>C0102001.0301</b>  | C0109201.0301           |                             |
| 12 | x                      | 1,25    | 100            | 22             | 9                | 7    | 10,8 |                       |                         |                             |
| 12 | x                      | 1,5     | 100            | 22             | 9                | 7    | 10,5 | <b>C0102001.0303</b>  | C0109201.0303           | <b>C010R501.0303</b>        |
| 14 | x                      | 1       | 100            | 18             | 11               | 9    | 13   |                       |                         |                             |
| 14 | x                      | 1,25    | 100            | 22             | 11               | 9    | 12,8 |                       |                         |                             |
| 14 | x                      | 1,5     | 100            | 22             | 11               | 9    | 12,5 | <b>C0102001.0331</b>  | C0109201.0331           | <b>C010R501.0331</b>        |
| 15 | x                      | 1       | 100            | 18             | 12               | 9    | 14   |                       |                         |                             |
| 16 | x                      | 1       | 100            | 18             | 12               | 9    | 15   |                       |                         |                             |
| 16 | x                      | 1,5     | 100            | 22             | 12               | 9    | 14,5 | <b>C0102001.0359</b>  | C0109201.0359           | <b>C010R501.0359</b>        |
| 18 | x                      | 1       | 110            | 20             | 14               | 11   | 17   |                       |                         |                             |
| 18 | x                      | 1,5     | 110            | 25             | 14               | 11   | 16,5 | <b>C0102001.0390</b>  | C0109201.0390           | <b>C010R501.0390</b>        |
| 18 | x                      | 2       | 125            | 26             | 14               | 11   | 16   |                       |                         |                             |
| 20 | x                      | 1       | 125            | 20             | 16               | 12   | 19   |                       |                         |                             |
| 20 | x                      | 1,5     | 125            | 25             | 16               | 12   | 18,5 | <b>C0102001.0422</b>  | C0109201.0422           | <b>C010R501.0422</b>        |
| 20 | x                      | 2       | 140            | 27             | 16               | 12   | 18   |                       |                         |                             |
| 22 | x                      | 1       | 125            | 20             | 18               | 14,5 | 21   |                       |                         |                             |
| 22 | x                      | 1,5     | 125            | 25             | 18               | 14,5 | 20,5 |                       |                         |                             |
| 22 | x                      | 2       | 140            | 27             | 18               | 14,5 | 20   |                       |                         |                             |
| 24 | x                      | 1       | 140            | 20             | 18               | 14,5 | 23   |                       |                         |                             |
| 24 | x                      | 1,5     | 140            | 27             | 18               | 14,5 | 22,5 |                       |                         |                             |
| 24 | x                      | 2       | 140            | 27             | 18               | 14,5 | 22   |                       |                         |                             |
| 25 | x                      | 1,5     | 140            | 28             | 18               | 14,5 | 23,5 |                       |                         |                             |
| 26 | x                      | 1,5     | 140            | 28             | 18               | 14,5 | 24,5 |                       |                         |                             |
| 27 | x                      | 1,5     | 140            | 28             | 20               | 16   | 25,5 |                       |                         |                             |
| 27 | x                      | 2       | 140            | 28             | 20               | 16   | 25   |                       |                         |                             |
| 28 | x                      | 1,5     | 140            | 28             | 20               | 16   | 26,5 |                       |                         |                             |



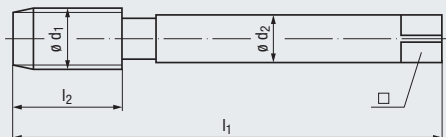
| GJV<br>Cast iron<br>vermicular                |  |   |  |   |  |   | Product<br>Finder      |
|---|--|---|--|---|--|---|------------------------|
|   |  |   |  |   |  |   | V <sub>c</sub>         |
|   |  |   |  |   |  |   | M                      |
|   |  |   |  |   |  |   | MF                     |
| 6HX   | 6HX  | 6HX   | 6HX  | 6HX   | 6HX  | 6HX   | UNC<br>UN-8            |
| TICN  | TICN   | TICN  | TICN   | TICN  | TICN   | TICN  | UNF<br>UNEF            |
| HSSE-PM                                       | HSSE-PM  | HSSE-PM                                     | HSSE-PM  | HSSE-PM   | KHM  | KHM   | G, Rp<br>NPSM, NPSF    |
| C / 2-3                                       | C / 2-3  | E / 1,5-2                                   | E / 1,5-2  | E / 1,5-2   | C / 2-3  | E / 1,5-2   | NPT, NPTF<br>Rc, W     |
| E   | E  | E   | E  | E   | E  | E   | BSW, BSF               |
| max. 2 x d <sub>1</sub><br>                   | max. 2 x d <sub>1</sub><br>                    | max. 2 x d <sub>1</sub><br>                 | max. 2 x d <sub>1</sub><br>                          | max. 2 x d <sub>1</sub><br>                           | max. 2 x d <sub>1</sub><br>                    | max. 2 x d <sub>1</sub><br>                           | Pg                     |
| K 1.1-4.2                                     | K 1.1-4.2                                      | K 1.1-4.2                                   | K 1.1-4.2  | K 1.1-4.2   | K 1.1-4.2                                      | K 1.1-4.2   | MJ<br>UNJC, UNJF       |
| <b>Rekord<br/>2A-GJV-<br/>IKZ<br/>PM-TICN</b> | <b>Rekord<br/>2A-GJV-<br/>IKZN<br/>PM-TICN</b> | <b>Rekord<br/>2A-GJV/<br/>E<br/>PM-TICN</b> | <b>Rekord<br/>2A-GJV/<br/>E-<br/>IKZ<br/>PM-TICN</b> | <b>Rekord<br/>2A-GJV/<br/>E-<br/>IKZN<br/>PM-TICN</b> | <b>KHM-Rekord<br/>2A-GJV-<br/>IKZ<br/>TICN</b> | <b>KHM-Rekord<br/>2A-GJV/<br/>E-<br/>IKZ<br/>TICN</b> | EG (STI)               |
|   |  |   |  |   |  |   | SELF-LOCK              |
|   |  |   |  |   |  |   | Tr, Tr-F<br>Rd         |
|   |  |   |  |   |  |   | Zubehör<br>Accessories |
|   |  |   |  |   |  |   |                        |
|   |  |   |  |   |  |   | M 6 x 0,5              |
|   |  |   |  |   |  |   | 6 x 0,75               |
|   |  |   |  |   |  |   | 8 x 0,75               |
|   |  |   |  |   |  |   | 8 x 1                  |
|   |  |   |  |   |  |   | 9 x 1                  |
|   |  |   |  |   |  |   | 10 x 0,75              |
|   |  |   |  |   |  |   | 10 x 1                 |
|   |  |   |  |   |  |   | 10 x 1,25              |
|   |  |   |  |   |  |   | 11 x 1                 |
|   |  |   |  |   |  |   | 12 x 1                 |
|   |  |   |  |   |  |   | 12 x 1,25              |
| <b>C195R501.0303</b>                          | C106R501.0303                                  | <b>C011R501.0303</b>                        | <b>C196R501.0303</b>                                 | C109R501.0303   | <b>C1951P01.0303</b>                           | <b>C1961P01.0303</b>                                  | 12 x 1,5               |
|   |  |   |  |   |  |   | 14 x 1                 |
|   |  |   |  |   |  |   | 14 x 1,25              |
| <b>C195R501.0331</b>                          | C106R501.0331                                  | <b>C011R501.0331</b>                        | <b>C196R501.0331</b>                                 | C109R501.0331   | <b>C1951P01.0331</b>                           | <b>C1961P01.0331</b>                                  | 14 x 1,5               |
|   |  |   |  |   |  |   | 15 x 1                 |
|   |  |   |  |   |  |   | 16 x 1                 |
| <b>C195R501.0359</b>                          | C106R501.0359                                  | <b>C011R501.0359</b>                        | <b>C196R501.0359</b>                                 | C109R501.0359   | <b>C1951P01.0359</b>                           | <b>C1961P01.0359</b>                                  | 16 x 1,5               |
|   |  |   |  |   |  |   | 18 x 1                 |
| <b>C195R501.0390</b>                          | C106R501.0390                                  | <b>C011R501.0390</b>                        | <b>C196R501.0390</b>                                 | C109R501.0390   | <b>C1951P01.0390</b>                           | <b>C1961P01.0390</b>                                  | 18 x 1,5               |
|   |  |   |  |   |  |   | 18 x 2                 |
|   |  |   |  |   |  |   | 20 x 1                 |
| <b>C195R501.0422</b>                          | C106R501.0422                                  | <b>C011R501.0422</b>                        | <b>C196R501.0422</b>                                 | C109R501.0422   | <b>C1951P01.0422</b>                           | <b>C1961P01.0422</b>                                  | 20 x 1,5               |
|   |  |   |  |   |  |   | 20 x 2                 |
|   |  |   |  |   |  |   | 22 x 1                 |
|   |  |   |  |   |  |   | 22 x 1,5               |
|   |  |   |  |   |  |   | 22 x 2                 |
|   |  |   |  |   |  |   | 24 x 1                 |
|   |  |   |  |   |  |   | 24 x 1,5               |
|   |  |   |  |   |  |   | 24 x 2                 |
|   |  |   |  |   |  |   | 25 x 1,5               |
|   |  |   |  |   |  |   | 26 x 1,5               |
|   |  |   |  |   |  |   | 27 x 1,5               |
|   |  |   |  |   |  |   | 27 x 2                 |
|   |  |   |  |   |  |   | 28 x 1,5               |

1) Gewindebohren in Durchgangslöcher nur mit externer Kühlschmierung möglich  
Threading in through holes is possible only with external cooling/lubrication

- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories



DIN 13



DIN 374

**AL**  
Aluminium wrought alloys



l<sub>2</sub> ≈ 10 x P

**H**  
Materials of high tensile strength

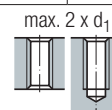
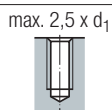


Technische Informationen  
Technical information

- ISO 2/6H
- HSSE
- R35
- C / 2-3
- E / O

- |           |           |
|-----------|-----------|
| 6HX       | 6HX       |
| NT        | TICN      |
| HSSE      | HSSE      |
| C / 2-3   | C / 2-3   |
| E / O / P | E / O / P |

Gewindetiefe und Lochform  
Thread depth and hole type



Einsatzgebiete – Material  
Applications – material

» 78

N 1.4

- |           |                |
|-----------|----------------|
| K 1.1-4.2 | K 1.1-4.2      |
| N 4.1     | N 1.5-1.6, 2.6 |
|           | N 4.1, 5.1     |

| Ø d <sub>1</sub><br>mm | P<br>mm | l <sub>1</sub> | l <sub>2</sub> | Ø d <sub>2</sub> | □       |  | Enorm<br>2-AL        | Rekord<br>2A-H<br>NT | Rekord<br>2A-H<br>TICN |
|------------------------|---------|----------------|----------------|------------------|---------|--|----------------------|----------------------|------------------------|
| <b>M</b> 6 x 0,5       | 80      | 13             | 4,5            | 3,4              | 5,5     |  |                      |                      |                        |
| 6 x 0,75               | 80      | 13             | 4,5            | 3,4              | 5,2     |  |                      |                      |                        |
| 8 x 0,75               | 80      | 14             | 6              | 4,9              | 7,2     |  |                      |                      |                        |
| 8 x 1                  | 90      | 17             | 6              | 4,9              | 7       |  |                      |                      |                        |
| 9 x 1                  | 90      | 17             | 7              | 5,5              | 8       |  |                      |                      |                        |
| 10 x 0,75              | 90      | 18             | 7              | 5,5              | 9,2     |  |                      |                      |                        |
| 10 x 1                 | 90      | 18             | 7              | 5,5              | 9       |  |                      |                      |                        |
| 10 x 1,25              | 100     | 22             | 7              | 5,5              | 8,8     |  |                      |                      |                        |
| 11 x 1                 | 90      | 18             | 8              | 6,2              | 10      |  |                      |                      |                        |
| 12 x 1                 | 100     | 18             | 9              | 7                | 11      |  |                      |                      |                        |
| 12 x 1,25              | 100     | 22             | 9              | 7                | 10,8    |  |                      |                      |                        |
| 12 x 1,5               | 100     | 22             | 9              | 7                | 10,5 2) |  | <b>C0504500.0303</b> | <b>C0100501.0303</b> | <b>C0109101.0303</b>   |
| 14 x 1                 | 100     | 18             | 11             | 9                | 13      |  |                      |                      |                        |
| 14 x 1,25              | 100     | 22             | 11             | 9                | 12,8    |  |                      |                      |                        |
| 14 x 1,5               | 100     | 22             | 11             | 9                | 12,5 2) |  | <b>C0504500.0331</b> | <b>C0100501.0330</b> | <b>C0109101.0331</b>   |
| 15 x 1                 | 100     | 18             | 12             | 9                | 14      |  |                      |                      |                        |
| 16 x 1                 | 100     | 18             | 12             | 9                | 15      |  |                      |                      |                        |
| 16 x 1,5               | 100     | 22             | 12             | 9                | 14,5 2) |  | <b>C0504500.0359</b> | <b>C0100501.0357</b> | <b>C0109101.0359</b>   |
| 18 x 1                 | 110     | 20             | 14             | 11               | 17      |  |                      |                      |                        |
| 18 x 1,5               | 110     | 25             | 14             | 11               | 16,5    |  |                      |                      |                        |
| 18 x 2                 | 125     | 26             | 14             | 11               | 16      |  |                      |                      |                        |
| 20 x 1                 | 125     | 20             | 16             | 12               | 19      |  |                      |                      |                        |
| 20 x 1,5               | 125     | 25             | 16             | 12               | 18,5    |  |                      |                      |                        |
| 20 x 2                 | 140     | 27             | 16             | 12               | 18      |  |                      |                      |                        |
| 22 x 1                 | 125     | 20             | 18             | 14,5             | 21      |  |                      |                      |                        |
| 22 x 1,5               | 125     | 25             | 18             | 14,5             | 20,5    |  |                      |                      |                        |
| 22 x 2                 | 140     | 27             | 18             | 14,5             | 20      |  |                      |                      |                        |
| 24 x 1                 | 140     | 20             | 18             | 14,5             | 23      |  |                      |                      |                        |
| 24 x 1,5               | 140     | 27             | 18             | 14,5             | 22,5    |  |                      |                      |                        |
| 24 x 2                 | 140     | 27             | 18             | 14,5             | 22      |  |                      |                      |                        |

DIN 371

DIN 2181

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2) Vorbohrerdurchmesser für Gewindebohrer Rekord 2A-HCUT-PM-TICN um 0,2 mm anheben  
Increase drill diameter for taps Rekord 2A-HCUT-PM-TICN by 0.2 mm

| H<br>Materials of high tensile strength |  |  |   | HCUT<br>Hardened steels                    |  |  |  |
|---|--|--|---|--|--|--|--|
|   |  |  |   |  |  |  |  |
| 6HX<br>NT<br>HSSE<br>C / 2-3<br>E / O   | 6HX<br>TICN<br>HSSE<br>C / 2-3<br>E / O                        | 6HX<br>TICN<br>HSSE<br>C / 2-3<br>E / O                        | 6HX<br>KHM<br>C / 2-3<br>E / O  | 6HX<br>TICN<br>HSSE-PM<br>C / 2-3<br>O / P |  |  |  |
| max. 2 x d <sub>1</sub><br>             |  | max. 2 x d <sub>1</sub><br>                                    |   | max. 1,5 x d <sub>1</sub><br>              |  |  |  |
| <b>K 1.1-4.2</b><br><b>N 4.1</b>        | <b>K 1.1-4.2</b><br><b>N 1.5-1.6, 2.6</b><br><b>N 4.1, 5.1</b> | <b>K 1.1-4.2</b><br><b>N 1.5-1.6, 2.6</b><br><b>N 4.1, 5.1</b> | <b>K 1.1-4.2</b><br><b>N 1.5-1.6</b><br><b>N 2.6-2.8</b><br><b>N 4.1, 4.3-4.4</b><br><b>N 5.1-5.2</b> | <b>H 1.1-1.2</b>                           |  |  |  |
| <b>Rekord 2A-H-1KZ NT</b>               | <b>Rekord 2A-H-1KZ TICN</b>                                    | <b>Rekord 2A-H-1KZN TICN</b>                                   | <b>KHM-Rekord 2A-H-1KZ</b>  | <b>Rekord 2A-HCUT PM-TICN</b>              |  |  |  |
|   |  |  |   |  |  |  | <b>M</b> 6 x 0,5<br>6 x 0,75<br>8 x 0,75<br>8 x 1<br>9 x 1<br>10 x 0,75<br>10 x 1<br>10 x 1,25<br>11 x 1<br>12 x 1<br>12 x 1,25<br>12 x 1,5<br>14 x 1<br>14 x 1,25<br>14 x 1,5<br>15 x 1<br>16 x 1<br>16 x 1,5<br>18 x 1<br>18 x 1,5<br>18 x 2<br>20 x 1<br>20 x 1,5<br>20 x 2<br>22 x 1<br>22 x 1,5<br>22 x 2<br>24 x 1<br>24 x 1,5<br>24 x 2 |
| <b>C1950501.0303</b>                    | <b>C1959101.0303</b>   | C1069101.0303  | <b>C1950901.0303</b>  | <b>C010J901.0303</b>                       |  |  |  |
| <b>C1950501.0331</b>                    | <b>C1959101.0331</b>   | C1069101.0331  | <b>C1950901.0331</b>  | <b>C010J901.0331</b>                       |  |  |  |
| <b>C1950501.0359</b>                    | <b>C1959101.0359</b>   | C1069101.0359  | <b>C1950901.0359</b>  | <b>C010J901.0359</b>                       |  |  |  |
| <b>C1950501.0422</b>                    | <b>C1959101.0422</b>   | C1069101.0422  | <b>C1950901.0422</b>  |  |  |  |  |
|   |  |  | 163   | 164  |  |  |  |

|                        |
|------------------------|
| Product Finder         |
| V <sub>c</sub>         |
| M                      |
| MF                     |
| UNC<br>UN-8            |
| UNF<br>UNEF            |
| G, Rp<br>NPSM, NPSF    |
| NPT, NPTF<br>Rc, W     |
| BSW, BSF               |
| Pg                     |
| MJ<br>UNJC, UNJF       |
| EG (STI)               |
| SELF-LOCK              |
| Tr, Tr-F<br>Rd         |
| Zubehör<br>Accessories |



1) Gewindebohren in Durchgangslöcher nur mit externer Kühlschmierung möglich  
Threading in through holes is possible only with external cooling/lubrication

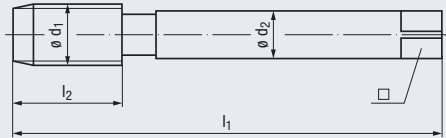
- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories

# MF



DIN 13

DIN 374



Z  
CNC-controlled machines

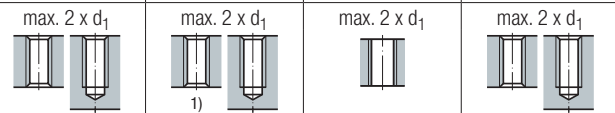


Technische Informationen  
Technical information

Gewindetiefe und Lochform  
Thread depth and hole type

Einsatzgebiete – Material  
Applications – material » 78

|           |         |         |           |
|-----------|---------|---------|-----------|
| 6HX       | 6HX     | 6HX     | 6HX       |
| TICN      | TICN    | TICN    | TICN      |
| HSSE      | HSSE    | HSSE    | HSSE      |
| C / 2-3   | C / 2-3 | C / 2-3 | E / 1,5-2 |
| E / 0 / P | E / 0   | E / 0   | E / 0 / P |



|                       |                       |                       |                       |
|-----------------------|-----------------------|-----------------------|-----------------------|
| <b>K</b> 1.1-4.2      | <b>K</b> 1.1-4.2      | <b>K</b> 1.1-4.2      | <b>K</b> 1.1-4.2      |
| <b>N</b> 1.5-1.6, 2.6 | <b>N</b> 1.5-1.6, 2.6 | <b>N</b> 1.5-1.6, 2.6 | <b>N</b> 1.5-1.6, 2.6 |
| <b>N</b> 4.1          | <b>N</b> 4.1          | <b>N</b> 4.1          | <b>N</b> 4.1          |

| M | ∅ d <sub>1</sub><br>mm | P<br>mm | l <sub>1</sub> | l <sub>2</sub> | ∅ d <sub>2</sub> | □    |      | Rekord               | Rekord               | Rekord            | Rekord               |
|---|------------------------|---------|----------------|----------------|------------------|------|------|----------------------|----------------------|-------------------|----------------------|
|   |                        |         |                |                |                  |      |      | 2A-Z<br>TICN         | 2A-Z-1KZ<br>TICN     | 2A-Z-1KZN<br>TICN | 2A-Z/E<br>TICN       |
|   | 6                      | x 0,5   | 80             | 5              | 4,5              | 3,4  | 5,5  |                      |                      |                   |                      |
|   | 6                      | x 0,75  | 80             | 8              | 4,5              | 3,4  | 5,2  |                      |                      |                   |                      |
|   | 8                      | x 0,75  | 80             | 8              | 6                | 4,9  | 7,2  |                      |                      |                   |                      |
|   | 8                      | x 1     | 90             | 10             | 6                | 4,9  | 7    | <b>C0109401.0251</b> | <b>C1959401.0251</b> | C1069401.0251     | <b>C0119401.0251</b> |
|   | 9                      | x 1     | 90             | 10             | 7                | 5,5  | 8    |                      |                      |                   |                      |
|   | 10                     | x 0,75  | 90             | 10             | 7                | 5,5  | 9,2  |                      |                      |                   |                      |
|   | 10                     | x 1     | 90             | 10             | 7                | 5,5  | 9    | <b>C0109401.0276</b> | <b>C1959401.0276</b> | C1069401.0276     | <b>C0119401.0276</b> |
|   | 10                     | x 1,25  | 100            | 16             | 7                | 5,5  | 8,8  | <b>C0109401.0277</b> | <b>C1959401.0277</b> | C1069401.0277     | <b>C0119401.0277</b> |
|   | 11                     | x 1     | 90             | 11             | 8                | 6,2  | 10   |                      |                      |                   |                      |
|   | 12                     | x 1     | 100            | 11             | 9                | 7    | 11   |                      |                      |                   |                      |
|   | 12                     | x 1,25  | 100            | 15             | 9                | 7    | 10,8 |                      |                      |                   |                      |
|   | 12                     | x 1,5   | 100            | 15             | 9                | 7    | 10,5 | <b>C0109401.0303</b> | <b>C1959401.0303</b> | C1069401.0303     | <b>C0119401.0303</b> |
|   | 14                     | x 1     | 100            | 11             | 11               | 9    | 13   |                      |                      |                   |                      |
|   | 14                     | x 1,25  | 100            | 15             | 11               | 9    | 12,8 |                      |                      |                   |                      |
|   | 14                     | x 1,5   | 100            | 15             | 11               | 9    | 12,5 | <b>C0109401.0331</b> | <b>C1959401.0331</b> | C1069401.0331     | <b>C0119401.0331</b> |
|   | 15                     | x 1     | 100            | 12             | 12               | 9    | 14   |                      |                      |                   |                      |
|   | 16                     | x 1     | 100            | 12             | 12               | 9    | 15   |                      |                      |                   |                      |
|   | 16                     | x 1,5   | 100            | 15             | 12               | 9    | 14,5 | <b>C0109401.0359</b> | <b>C1959401.0359</b> | C1069401.0359     | <b>C0119401.0359</b> |
|   | 18                     | x 1     | 110            | 13             | 14               | 11   | 17   |                      |                      |                   |                      |
|   | 18                     | x 1,5   | 110            | 17             | 14               | 11   | 16,5 |                      |                      |                   |                      |
|   | 18                     | x 2     | 125            | 20             | 14               | 11   | 16   |                      |                      |                   |                      |
|   | 20                     | x 1     | 125            | 14             | 16               | 12   | 19   |                      |                      |                   |                      |
|   | 20                     | x 1,5   | 125            | 17             | 16               | 12   | 18,5 |                      |                      |                   |                      |
|   | 20                     | x 2     | 140            | 20             | 16               | 12   | 18   |                      |                      |                   |                      |
|   | 22                     | x 1     | 125            | 14             | 18               | 14,5 | 21   |                      |                      |                   |                      |
|   | 22                     | x 1,5   | 125            | 17             | 18               | 14,5 | 20,5 |                      |                      |                   |                      |
|   | 22                     | x 2     | 140            | 20             | 18               | 14,5 | 20   |                      |                      |                   |                      |
|   | 24                     | x 1     | 140            | 15             | 18               | 14,5 | 23   |                      |                      |                   |                      |
|   | 24                     | x 1,5   | 140            | 20             | 18               | 14,5 | 22,5 |                      |                      |                   |                      |
|   | 24                     | x 2     | 140            | 20             | 18               | 14,5 | 22   |                      |                      |                   |                      |
|   |                        |         |                |                |                  |      |      | DIN 371              |                      |                   |                      |
|   |                        |         |                |                |                  |      |      | DIN 2181             |                      |                   |                      |

1) Gewindebohren in Durchgangslöcher nur mit externer Kühlschmierung möglich  
Threading in through holes is possible only with external cooling/lubrication

**Z**  
CNC-controlled  
machines

|   |   |  |  |   |  |  |  |
|---|---|--|--|---|--|--|--|
|   |   |  |  |   |  |  |  |
|   |   |  |  |   |  |  |  |
| 6HX<br>TICN<br>HSSE                                       | 6HX<br>TICN<br>HSSE                                       | 6HX<br>TIN-70<br>HSSE-PM   | 6HX<br>GLT-1<br>HSSE-PM  | 6HX<br>TIN-70<br>HSSE-PM                        | 6HX<br>GLT-1<br>HSSE-PM  | 6HX<br>TIN<br>HSSE                           | 6HX<br>TIN<br>HSSE                           |
| E / 1,5-2<br>E / O  | E / 1,5-2<br>E / O  | B / 4-5<br>E / O / P   | B / 4-5<br>E / O / P   | B / 4-5<br>E / O                                | B / 4-5<br>E / O   | C / 2-3<br>E / O / P                         | C / 2-3<br>E / O                             |
| max. 2 x d <sub>1</sub><br>                               | max. 2 x d <sub>1</sub><br>                               | max. 3 x d <sub>1</sub><br>  |  |   | max. 2 x d <sub>1</sub><br>  |  |  |
| <b>K</b> 1.1-4.2<br><b>N</b> 1.5-1.6, 2.6<br><b>N</b> 4.1 | <b>K</b> 1.1-4.2<br><b>N</b> 1.5-1.6, 2.6<br><b>N</b> 4.1 | <b>P</b> 2.1-5.1   | <b>P</b> 1.1-5.1<br><b>M</b> 1.1-4.1<br><b>K</b> 1.1-3.2<br><b>N</b> 1.4, 2.1-2.2<br><b>N</b> 2.4-2.5<br><b>S</b> 1.1, 2.2-2.3 | <b>P</b> 2.1-5.1                                | <b>P</b> 1.1-5.1<br><b>M</b> 1.1-4.1<br><b>K</b> 1.1-3.2<br><b>N</b> 1.4, 2.1-2.2<br><b>N</b> 2.4-2.5<br><b>S</b> 1.1, 2.2-2.3 | <b>P</b> 3.1-5.1<br><b>N</b> 2.4-2.5         | <b>P</b> 3.1-5.1<br><b>N</b> 2.4-2.5         |
| Rekord<br>2A-Z/E-IKZ<br>TICN                              | Rekord<br>2A-Z/E-IKZN<br>TICN                             | Rekord<br>2B-Z<br>PM-TIN-70  | Rekord<br>2B-Z<br>PM-GLT-1   | Rekord<br>2B-Z-IKZN<br>PM-TIN-70                | Rekord<br>2B-Z-IKZN<br>PM-GLT-1  | Rekord<br>2D-Z<br>TIN                        | Rekord<br>2D-Z-IKZ<br>TIN                    |
| <b>C1969401.0251</b>                                      | C1099401.0251   | <b>C0208F01.0251</b>   | <b>C020A601.0251</b>   | C1088F01.0251                                   | C108A601.0251  | <b>C0453701.0251</b>                         | <b>C0963701.0251</b>                         |
| <b>C1969401.0276</b><br><b>C1969401.0277</b>              | C1099401.0276<br>C1099401.0277                            | <b>C0208F01.0276</b><br><b>C0208F01.0277</b>                         | <b>C020A601.0276</b><br><b>C020A601.0277</b>   | C1088F01.0276<br>C1088F01.0277                  | C108A601.0276<br>C108A601.0277   | <b>C0453701.0276</b><br><b>C0453701.0277</b> | <b>C0963701.0276</b><br><b>C0963701.0277</b> |
| <b>C1969401.0303</b>                                      | C1099401.0303   | <b>C0208F01.0301</b><br><b>C0208F01.0302</b><br><b>C0208F01.0303</b> | <b>C020A601.0301</b><br><b>C020A601.0302</b><br><b>C020A601.0303</b>   | C1088F01.0301<br>C1088F01.0302<br>C1088F01.0303 | C108A601.0301<br>C108A601.0302<br>C108A601.0303  | <b>C0453701.0303</b>                         | <b>C0963701.0303</b>                         |
| <b>C1969401.0331</b>                                      | C1099401.0331   | <b>C0208F01.0331</b>   | <b>C020A601.0331</b>   | C1088F01.0331                                   | C108A601.0331  |  | <b>C0963701.0331</b>                         |
| <b>C1969401.0359</b>                                      | C1099401.0359   | <b>C0208F01.0359</b><br><b>C0208F01.0390</b><br><b>C0208F01.0422</b> | <b>C020A601.0359</b><br><b>C020A601.0390</b><br><b>C020A601.0422</b>   | C1088F01.0359<br>C1088F01.0390<br>C1088F01.0422 | C108A601.0359<br>C108A601.0390<br>C108A601.0422  |  | <b>C0963701.0359</b>                         |
|   |   |  |  |   |  |  |  |

|                     |
|---------------------|
| Product Finder      |
| V <sub>c</sub>      |
| M                   |
| MF                  |
| UNC UN-8            |
| UNF UNEF            |
| G, Rp NPSM, NPSF    |
| NPT, NPTF Rc, W     |
| BSW, BSF            |
| Pg                  |
| MJ UNJC, UNJF       |
| EG (STI)            |
| SELF-LOCK           |
| Tr, Tr-F Rd         |
| Zubehör Accessories |



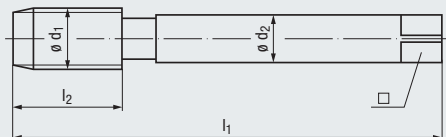
|          |           |
|----------|-----------|
| <b>M</b> | 6 x 0,5   |
|          | 6 x 0,75  |
|          | 8 x 0,75  |
|          | 8 x 1     |
|          | 9 x 1     |
|          | 10 x 0,75 |
|          | 10 x 1    |
|          | 10 x 1,25 |
|          | 11 x 1    |
|          | 12 x 1    |
|          | 12 x 1,25 |
|          | 12 x 1,5  |
|          | 14 x 1    |
|          | 14 x 1,25 |
|          | 14 x 1,5  |
|          | 15 x 1    |
|          | 16 x 1    |
|          | 16 x 1,5  |
|          | 18 x 1    |
|          | 18 x 1,5  |
|          | 18 x 2    |
|          | 20 x 1    |
|          | 20 x 1,5  |
|          | 20 x 2    |
|          | 22 x 1    |
|          | 22 x 1,5  |
|          | 22 x 2    |
|          | 24 x 1    |
|          | 24 x 1,5  |
|          | 24 x 2    |

- Product Finder
- V<sub>c</sub>
- M
- MF**
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories



DIN 13

DIN 374



Z  
CNC-controlled machines



Technische Informationen  
Technical information

|                  |                |                  |
|------------------|----------------|------------------|
| 6HX              | 6HX            | 6HX              |
| TIN              | TIN            | TIN              |
| HSSE             | HSSE           | HSSE             |
| R15              | R15            | R15              |
| <b>E / 1,5-2</b> | <b>C / 2-3</b> | <b>E / 1,5-2</b> |
| E / 0            | E / 0          | E / 0            |

Gewindetiefe und Lochform  
Thread depth and hole type

max. 2 x d<sub>1</sub>



Einsatzgebiete – Material  
Applications – material [» 78](#)

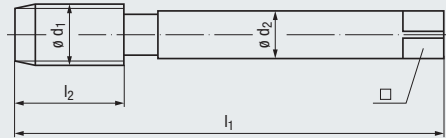
|                  |                  |                  |
|------------------|------------------|------------------|
| <b>P 3.1-5.1</b> | <b>P 3.1-5.1</b> | <b>P 3.1-5.1</b> |
| <b>N 2.4-2.5</b> | <b>N 2.4-2.5</b> | <b>N 2.4-2.5</b> |

| M | Ø d <sub>1</sub><br>mm | P<br>mm | l <sub>1</sub> | l <sub>2</sub> | Ø d <sub>2</sub> | □    |      | Rekord                    | Rekord               | Rekord               |
|---|------------------------|---------|----------------|----------------|------------------|------|------|---------------------------|----------------------|----------------------|
|   |                        |         |                |                |                  |      |      | 2D-Z/E- <b>IKZ</b><br>TIN | 2D-Z-BF<br>IKZ-TIN   | 2D-Z/E-BF<br>IKZ-TIN |
|   | 6                      | x 0,5   | 80             | 5              | 4,5              | 3,4  | 5,5  |                           |                      |                      |
|   | 6                      | x 0,75  | 80             | 8              | 4,5              | 3,4  | 5,2  |                           |                      |                      |
|   | 8                      | x 0,75  | 80             | 8              | 6                | 4,9  | 7,2  |                           |                      |                      |
|   | 8                      | x 1     | 90             | 10             | 6                | 4,9  | 7    | <b>C0983701.0251</b>      | <b>C4253701.0251</b> | <b>C4053701.0251</b> |
|   | 9                      | x 1     | 90             | 10             | 7                | 5,5  | 8    |                           |                      |                      |
|   | 10                     | x 0,75  | 90             | 10             | 7                | 5,5  | 9,2  |                           |                      |                      |
|   | 10                     | x 1     | 90             | 10             | 7                | 5,5  | 9    | <b>C0983701.0276</b>      | <b>C4253701.0276</b> | <b>C4053701.0276</b> |
|   | 10                     | x 1,25  | 100            | 16             | 7                | 5,5  | 8,8  | <b>C0983701.0277</b>      | <b>C4253701.0277</b> | <b>C4053701.0277</b> |
|   | 11                     | x 1     | 90             | 11             | 8                | 6,2  | 10   |                           |                      |                      |
|   | 12                     | x 1     | 100            | 11             | 9                | 7    | 11   |                           |                      |                      |
|   | 12                     | x 1,25  | 100            | 15             | 9                | 7    | 10,8 |                           |                      |                      |
|   | 12                     | x 1,5   | 100            | 15             | 9                | 7    | 10,5 | <b>C0983701.0303</b>      | <b>C4253701.0303</b> | <b>C4053701.0303</b> |
|   | 14                     | x 1     | 100            | 11             | 11               | 9    | 13   |                           |                      |                      |
|   | 14                     | x 1,25  | 100            | 15             | 11               | 9    | 12,8 |                           |                      |                      |
|   | 14                     | x 1,5   | 100            | 15             | 11               | 9    | 12,5 | <b>C0983701.0331</b>      | <b>C4253701.0331</b> | <b>C4053701.0331</b> |
|   | 15                     | x 1     | 100            | 12             | 12               | 9    | 14   |                           |                      |                      |
|   | 16                     | x 1     | 100            | 12             | 12               | 9    | 15   |                           |                      |                      |
|   | 16                     | x 1,5   | 100            | 15             | 12               | 9    | 14,5 | <b>C0983701.0359</b>      | <b>C4253701.0359</b> | <b>C4053701.0359</b> |
|   | 18                     | x 1     | 110            | 13             | 14               | 11   | 17   |                           |                      |                      |
|   | 18                     | x 1,5   | 110            | 17             | 14               | 11   | 16,5 |                           |                      |                      |
|   | 18                     | x 2     | 125            | 20             | 14               | 11   | 16   |                           |                      |                      |
|   | 20                     | x 1     | 125            | 14             | 16               | 12   | 19   |                           |                      |                      |
|   | 20                     | x 1,5   | 125            | 17             | 16               | 12   | 18,5 |                           |                      |                      |
|   | 20                     | x 2     | 140            | 20             | 16               | 12   | 18   |                           |                      |                      |
|   | 22                     | x 1     | 125            | 14             | 18               | 14,5 | 21   |                           |                      |                      |
|   | 22                     | x 1,5   | 125            | 17             | 18               | 14,5 | 20,5 |                           |                      |                      |
|   | 22                     | x 2     | 140            | 20             | 18               | 14,5 | 20   |                           |                      |                      |
|   | 24                     | x 1     | 140            | 15             | 18               | 14,5 | 23   |                           |                      |                      |
|   | 24                     | x 1,5   | 140            | 20             | 18               | 14,5 | 22,5 |                           |                      |                      |
|   | 24                     | x 2     | 140            | 20             | 18               | 14,5 | 22   |                           |                      |                      |



DIN 13

DIN 374



Technische Informationen  
Technical information

Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material



Gewindetiefe und Lochform  
Thread depth and hole type

Einsatzgebiete – Material  
Applications – material

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max. 3 x  $d_1$



|                       |                       |                       |                  |
|-----------------------|-----------------------|-----------------------|------------------|
| <b>P</b> 1.1-4.1      | <b>P</b> 1.1-4.1      | <b>P</b> 1.1-4.1      | <b>P</b> 1.1-3.1 |
| <b>M</b> 1.1-4.1      | <b>M</b> 1.1-4.1      | <b>M</b> 1.1-4.1      |                  |
| <b>K</b> 1.1-3.2      | <b>K</b> 1.1-3.2      | <b>K</b> 1.1-3.2      |                  |
| <b>N</b> 1.4, 2.1-2.2 | <b>N</b> 1.4, 2.1-2.2 | <b>N</b> 1.4, 2.1-2.2 |                  |
| <b>N</b> 2.4-2.5      | <b>N</b> 2.4-2.5      | <b>N</b> 2.4-2.5      |                  |
| <b>S</b> 1.1          | <b>S</b> 1.1          | <b>S</b> 1.1          |                  |

|          | $\phi d_1$<br>mm | P<br>mm | $l_1$ | $l_2$ | $\phi d_2$ | □    |      |               | Enorm<br>2-Z<br>PM-GLT-1 | Enorm<br>2-Z-1KZ<br>PM-GLT-1 | Enorm<br>2-Z/E<br>PM-GLT-1 | Enorm<br>2-Z |
|----------|------------------|---------|-------|-------|------------|------|------|---------------|--------------------------|------------------------------|----------------------------|--------------|
|          |                  |         |       |       |            |      |      |               |                          |                              |                            |              |
| <b>M</b> | 4                | x 0,5   | 63    | 5     | 2,8        | 2,1  | 3,5  |               |                          |                              |                            |              |
|          | 5                | x 0,5   | 70    | 5     | 3,5        | 2,7  | 4,5  |               |                          |                              |                            |              |
|          | 6                | x 0,5   | 80    | 5     | 4,5        | 3,4  | 5,5  |               |                          |                              |                            |              |
|          | 6                | x 0,75  | 80    | 8     | 4,5        | 3,4  | 5,2  | C616A601.0229 | C591A601.0229            | C498A601.0229                | C0503500.0229              |              |
|          | 8                | x 0,75  | 80    | 8     | 6          | 4,9  | 7,2  |               |                          |                              | C0503500.0250              |              |
|          | 8                | x 1     | 90    | 10    | 6          | 4,9  | 7    | C616A601.0251 | C591A601.0251            | C498A601.0251                | C0503500.0251              |              |
|          | 9                | x 1     | 90    | 10    | 7          | 5,5  | 8    |               |                          |                              | C0503500.0263              |              |
|          | 10               | x 0,75  | 90    | 10    | 7          | 5,5  | 9,2  |               |                          |                              | C0503500.0275              |              |
|          | 10               | x 1     | 90    | 10    | 7          | 5,5  | 9    | C616A601.0276 | C591A601.0276            | C498A601.0276                | C0503500.0276              |              |
|          | 10               | x 1,25  | 100   | 16    | 7          | 5,5  | 8,8  | C616A601.0277 | C591A601.0277            | C498A601.0277                | C0503500.0277              |              |
|          | 11               | x 1     | 90    | 11    | 8          | 6,2  | 10   |               |                          |                              | C0503500.0288              |              |
|          | 12               | x 1     | 100   | 11    | 9          | 7    | 11   | C616A601.0301 | C591A601.0301            | C498A601.0301                | C0503500.0301              |              |
|          | 12               | x 1,25  | 100   | 15    | 9          | 7    | 10,8 | C616A601.0302 | C591A601.0302            | C498A601.0302                | C0503500.0302              |              |
|          | 12               | x 1,5   | 100   | 15    | 9          | 7    | 10,5 | C616A601.0303 | C591A601.0303            | C498A601.0303                | C0503500.0303              |              |
|          | 14               | x 1     | 100   | 11    | 11         | 9    | 13   |               |                          |                              | C0503500.0329              |              |
|          | 14               | x 1,25  | 100   | 15    | 11         | 9    | 12,8 |               |                          |                              | C0503500.0330              |              |
|          | 14               | x 1,5   | 100   | 15    | 11         | 9    | 12,5 | C616A601.0331 | C591A601.0331            | C498A601.0331                | C0503500.0331              |              |
|          | 15               | x 1     | 100   | 12    | 12         | 9    | 14   |               |                          |                              | C0503500.0343              |              |
|          | 16               | x 1     | 100   | 12    | 12         | 9    | 15   |               |                          |                              | C0503500.0357              |              |
|          | 16               | x 1,5   | 100   | 15    | 12         | 9    | 14,5 | C616A601.0359 | C591A601.0359            | C498A601.0359                | C0503500.0359              |              |
|          | 18               | x 1     | 110   | 13    | 14         | 11   | 17   |               |                          |                              | C0503500.0388              |              |
|          | 18               | x 1,5   | 110   | 17    | 14         | 11   | 16,5 | C616A601.0390 | C591A601.0390            | C498A601.0390                | C0503500.0390              |              |
|          | 18               | x 2     | 125   | 20    | 14         | 11   | 16   |               |                          |                              | C0503500.0391              |              |
|          | 20               | x 1     | 125   | 14    | 16         | 12   | 19   |               |                          |                              | C0503500.0420              |              |
|          | 20               | x 1,5   | 125   | 17    | 16         | 12   | 18,5 | C616A601.0422 | C591A601.0422            | C498A601.0422                | C0503500.0422              |              |
|          | 20               | x 2     | 140   | 20    | 16         | 12   | 18   |               |                          |                              | C0503500.0423              |              |
|          | 22               | x 1     | 125   | 14    | 18         | 14,5 | 21   |               |                          |                              | C0503500.0436              |              |
|          | 22               | x 1,5   | 125   | 17    | 18         | 14,5 | 20,5 | C616A601.0438 | C591A601.0438            | C498A601.0438                | C0503500.0438              |              |
|          | 22               | x 2     | 140   | 20    | 18         | 14,5 | 20   |               |                          |                              | C0503500.0439              |              |
|          | 24               | x 1     | 140   | 15    | 18         | 14,5 | 23   |               |                          |                              | C0503500.0450              |              |
|          | 24               | x 1,5   | 140   | 20    | 18         | 14,5 | 22,5 | C616A601.0452 | C591A601.0452            | C498A601.0452                | C0503500.0452              |              |
|          | 24               | x 2     | 140   | 20    | 18         | 14,5 | 22   |               |                          |                              | C0503500.0453              |              |
|          | 25               | x 1,5   | 140   | 20    | 18         | 14,5 | 23,5 |               |                          |                              | C0503500.0458              |              |
|          | 26               | x 1,5   | 140   | 20    | 18         | 14,5 | 24,5 |               |                          |                              | C0503500.0464              |              |

DIN 371

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DIN 2181

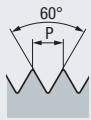
Product Finder

- V<sub>c</sub>
- M
- MF**
- UNC UN-8
- UNC UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories



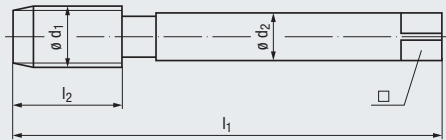
- Product Finder
- V<sub>c</sub>
- M
- MF**
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories

# MF



DIN 13

**DIN 374**



Technische Informationen  
Technical information

Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material



Gewindetiefe und Lochform  
Thread depth and hole type

Einsatzgebiete – Material  
Applications – material

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max. 3 x d<sub>1</sub>



|                       |                       |                       |                  |
|-----------------------|-----------------------|-----------------------|------------------|
| <b>P</b> 1.1-4.1      | <b>P</b> 1.1-4.1      | <b>P</b> 1.1-4.1      | <b>P</b> 1.1-3.1 |
| <b>M</b> 1.1-4.1      | <b>M</b> 1.1-4.1      | <b>M</b> 1.1-4.1      |                  |
| <b>K</b> 1.1-3.2      | <b>K</b> 1.1-3.2      | <b>K</b> 1.1-3.2      |                  |
| <b>N</b> 1.4, 2.1-2.2 | <b>N</b> 1.4, 2.1-2.2 | <b>N</b> 1.4, 2.1-2.2 |                  |
| <b>N</b> 2.4-2.5      | <b>N</b> 2.4-2.5      | <b>N</b> 2.4-2.5      |                  |
| <b>S</b> 1.1          | <b>S</b> 1.1          | <b>S</b> 1.1          |                  |

| M | ∅ d <sub>1</sub><br>mm | P<br>mm | l <sub>1</sub> | l <sub>2</sub> | ∅ d <sub>2</sub> | □  |      | Enorm 2-Z<br>PM-GLT-1 | Enorm 2-Z-1KZ<br>PM-GLT-1 | Enorm 2-Z/E<br>PM-GLT-1 | Enorm 2-Z     |
|---|------------------------|---------|----------------|----------------|------------------|----|------|-----------------------|---------------------------|-------------------------|---------------|
|   |                        |         |                |                |                  |    |      |                       |                           |                         |               |
|   | 27                     | x 1,5   | 140            | 20             | 20               | 16 | 25,5 |                       |                           |                         | C0503500.0470 |
|   | 27                     | x 2     | 140            | 20             | 20               | 16 | 25   |                       |                           |                         | C0503500.0471 |
|   | 28                     | x 1,5   | 140            | 20             | 20               | 16 | 26,5 |                       |                           |                         | C0503500.0476 |
|   | 28                     | x 2     | 140            | 20             | 20               | 16 | 26   |                       |                           |                         | C0503500.0477 |
|   | 30                     | x 1,5   | 150            | 22             | 22               | 18 | 28,5 |                       |                           |                         |               |
|   | 30                     | x 2     | 150            | 22             | 22               | 18 | 28   |                       |                           |                         |               |
|   | 32                     | x 1,5   | 150            | 22             | 22               | 18 | 30,5 |                       |                           |                         |               |
|   | 32                     | x 2     | 150            | 22             | 22               | 18 | 30   |                       |                           |                         |               |
|   | 33                     | x 1,5   | 160            | 24             | 25               | 20 | 31,5 |                       |                           |                         |               |
|   | 33                     | x 2     | 160            | 24             | 25               | 20 | 31   |                       |                           |                         |               |
|   | 34                     | x 1,5   | 170            | 24             | 28               | 22 | 32,5 |                       |                           |                         |               |
|   | 35                     | x 1,5   | 170            | 24             | 28               | 22 | 33,5 |                       |                           |                         |               |
|   | 36                     | x 1,5   | 170            | 24             | 28               | 22 | 34,5 |                       |                           |                         |               |
|   | 36                     | x 2     | 170            | 24             | 28               | 22 | 34   |                       |                           |                         |               |
|   | 36                     | x 3     | 200            | 30             | 28               | 22 | 33   |                       |                           |                         |               |
|   | 38                     | x 1,5   | 170            | 24             | 28               | 22 | 36,5 |                       |                           |                         |               |
|   | 39                     | x 1,5   | 170            | 25             | 32               | 24 | 37,5 |                       |                           |                         |               |
|   | 39                     | x 2     | 170            | 25             | 32               | 24 | 37   |                       |                           |                         |               |
|   | 40                     | x 1,5   | 170            | 25             | 32               | 24 | 38,5 |                       |                           |                         |               |
|   | 40                     | x 2     | 170            | 25             | 32               | 24 | 38   |                       |                           |                         |               |
|   | 42                     | x 1,5   | 170            | 25             | 32               | 24 | 40,5 |                       |                           |                         |               |
|   | 42                     | x 2     | 170            | 25             | 32               | 24 | 40   |                       |                           |                         |               |
|   | 42                     | x 3     | 200            | 30             | 32               | 24 | 39   |                       |                           |                         |               |
|   | 45                     | x 1,5   | 180            | 27             | 36               | 29 | 43,5 |                       |                           |                         |               |
|   | 45                     | x 2     | 180            | 27             | 36               | 29 | 43   |                       |                           |                         |               |
|   | 45                     | x 3     | 200            | 30             | 36               | 29 | 42   |                       |                           |                         |               |
|   | 48                     | x 1,5   | 190            | 27             | 36               | 29 | 46,5 |                       |                           |                         |               |
|   | 48                     | x 2     | 190            | 27             | 36               | 29 | 46   |                       |                           |                         |               |
|   | 48                     | x 3     | 225            | 33             | 36               | 29 | 45   |                       |                           |                         |               |
|   | 50                     | x 1,5   | 190            | 27             | 36               | 29 | 48,5 |                       |                           |                         |               |
|   | 50                     | x 2     | 190            | 27             | 36               | 29 | 48   |                       |                           |                         |               |
|   | 52                     | x 1,5   | 190            | 27             | 40               | 32 | 50,5 |                       |                           |                         |               |
|   | 52                     | x 2     | 190            | 27             | 40               | 32 | 50   |                       |                           |                         |               |
|   | 52                     | x 3     | 225            | 33             | 40               | 32 | 49   |                       |                           |                         |               |

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DIN 2181

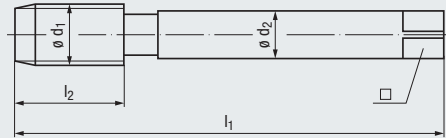
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DIN 13

DIN 374



Technische Informationen  
Technical information

Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material



Gewindetiefe und Lochform  
Thread depth and hole type

Einsatzgebiete – Material  
Applications – material

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max. 3 x  $d_1$



|                       |                  |                       |                       |
|-----------------------|------------------|-----------------------|-----------------------|
| <b>P</b> 1.1-4.1      | <b>P</b> 1.1-3.1 | <b>P</b> 1.1-4.1      | <b>P</b> 1.1-4.1      |
| <b>M</b> 1.1-4.1      |                  | <b>N</b> 2.2, 2.4-2.5 | <b>M</b> 1.1-4.1      |
| <b>N</b> 1.4, 2.1-2.2 |                  | <b>S</b> 1.1          | <b>N</b> 1.4, 2.1-2.2 |
| <b>N</b> 2.4-2.5      |                  |                       | <b>N</b> 2.4-2.5      |
| <b>S</b> 1.1          |                  |                       | <b>S</b> 1.1          |

| $\phi d_1$<br>mm | P<br>mm | $l_1$ | $l_2$ | $\phi d_2$ | $\square$ |      | Enorm<br>2-Z<br>GLT-1 | Enorm<br>2-Z/E   | Enorm<br>2-Z/E<br>TIN                        | Enorm<br>2-Z/E<br>GLT-1                      |
|------------------|---------|-------|-------|------------|-----------|------|-----------------------|--|--|--|
| <b>M</b> 8       | x 0,75  | 80    | 8     | 6          | 4,9       | 7,2  |                       |  |  |  |
| 8                | x 1     | 90    | 10    | 6          | 4,9       | 7    | <b>C050C400.0251</b>  | <b>C0513500.0250</b><br><b>C0513500.0251</b>                         | <b>C0513700.0251</b>                         | <b>C051C400.0251</b>                         |
| 9                | x 1     | 90    | 10    | 7          | 5,5       | 8    |                       |  |  |  |
| 10               | x 0,75  | 90    | 10    | 7          | 5,5       | 9,2  |                       |  |  |  |
| 10               | x 1     | 90    | 10    | 7          | 5,5       | 9    | <b>C050C400.0276</b>  | <b>C0513500.0276</b><br><b>C0513500.0277</b>                         | <b>C0513700.0276</b>                         | <b>C051C400.0276</b>                         |
| 10               | x 1,25  | 100   | 16    | 7          | 5,5       | 8,8  |                       |  |  |  |
| 11               | x 1     | 90    | 11    | 8          | 6,2       | 10   |                       |  |  |  |
| 12               | x 1     | 100   | 11    | 9          | 7         | 11   | <b>C050C400.0301</b>  | <b>C0513500.0301</b><br><b>C0513500.0302</b>                         | <b>C0513700.0301</b><br><b>C0513700.0302</b> | <b>C051C400.0301</b><br><b>C051C400.0302</b> |
| 12               | x 1,25  | 100   | 15    | 9          | 7         | 10,8 |                       |  |  |  |
| 12               | x 1,5   | 100   | 15    | 9          | 7         | 10,5 | <b>C050C400.0303</b>  | <b>C0513500.0303</b><br><b>C0513500.0329</b>                         | <b>C0513700.0303</b>                         | <b>C051C400.0303</b>                         |
| 14               | x 1     | 100   | 11    | 11         | 9         | 13   |                       |  |  |  |
| 14               | x 1,25  | 100   | 15    | 11         | 9         | 12,8 |                       |  |  |  |
| 14               | x 1,5   | 100   | 15    | 11         | 9         | 12,5 | <b>C050C400.0331</b>  | <b>C0513500.0331</b><br><b>C0513500.0343</b><br><b>C0513500.0357</b> | <b>C0513700.0331</b>                         | <b>C051C400.0331</b>                         |
| 15               | x 1     | 100   | 12    | 12         | 9         | 14   |                       |  |  |  |
| 16               | x 1     | 100   | 12    | 12         | 9         | 15   |                       |  |  |  |
| 16               | x 1,5   | 100   | 15    | 12         | 9         | 14,5 | <b>C050C400.0359</b>  | <b>C0513500.0359</b><br><b>C0513500.0388</b>                         | <b>C0513700.0359</b>                         | <b>C051C400.0359</b>                         |
| 18               | x 1     | 110   | 13    | 14         | 11        | 17   |                       |  |  |  |
| 18               | x 1,5   | 110   | 17    | 14         | 11        | 16,5 | <b>C050C400.0390</b>  | <b>C0513500.0390</b>   | <b>C0513700.0390</b>                         | <b>C051C400.0390</b>                         |
| 18               | x 2     | 125   | 20    | 14         | 11        | 16   |                       |  |  |  |
| 20               | x 1     | 125   | 14    | 16         | 12        | 19   |                       | <b>C0513500.0420</b>   |  |  |
| 20               | x 1,5   | 125   | 17    | 16         | 12        | 18,5 | <b>C050C400.0422</b>  | <b>C0513500.0422</b>   | <b>C0513700.0422</b>                         | <b>C051C400.0422</b>                         |
| 20               | x 2     | 140   | 20    | 16         | 12        | 18   |                       |  |  |  |
| 22               | x 1     | 125   | 14    | 18         | 14,5      | 21   |                       |  |  |  |
| 22               | x 1,5   | 125   | 17    | 18         | 14,5      | 20,5 |                       | <b>C0513500.0438</b>   | <b>C0513700.0438</b>                         | <b>C051C400.0438</b>                         |
| 22               | x 2     | 140   | 20    | 18         | 14,5      | 20   |                       |  |  |  |
| 24               | x 1     | 140   | 15    | 18         | 14,5      | 23   |                       |  |  |  |
| 24               | x 1,5   | 140   | 20    | 18         | 14,5      | 22,5 |                       | <b>C0513500.0452</b>   | <b>C0513700.0452</b>                         | <b>C051C400.0452</b>                         |
| 24               | x 2     | 140   | 20    | 18         | 14,5      | 22   | <b>C050C400.0453</b>  |  |  |  |
| 25               | x 1,5   | 140   | 20    | 18         | 14,5      | 23,5 |                       |  |  |  |
| 26               | x 1,5   | 140   | 20    | 18         | 14,5      | 24,5 |                       | <b>C0513500.0464</b>   | <b>C0513700.0464</b>                         | <b>C051C400.0464</b>                         |
| 27               | x 1,5   | 140   | 20    | 20         | 16        | 25,5 |                       |  |  |  |
| 27               | x 2     | 140   | 20    | 20         | 16        | 25   |                       |  |  |  |
| 28               | x 1,5   | 140   | 20    | 20         | 16        | 26,5 |                       | <b>C0513500.0476</b>   |  |  |
| 28               | x 2     | 140   | 20    | 20         | 16        | 26   |                       |  |  |  |
| 30               | x 1,5   | 150   | 22    | 22         | 18        | 28,5 |                       | <b>C0513500.0490</b>   |  |  |

DIN 371

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DIN 2181

Product Finder

|                     |
|---------------------|
| V <sub>c</sub>      |
| M                   |
| <b>MF</b>           |
| UNC UN-8            |
| UNC UNEF            |
| G, Rp NPSM, NPSF    |
| NPT, NPTF Rc, W     |
| BSW, BSF            |
| Pg                  |
| MJ UNJC, UNJF       |
| EG (STI)            |
| SELF-LOCK           |
| Tr, Tr-F Rd         |
| Zubehör Accessories |



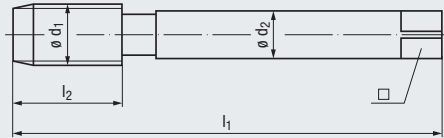
- Product Finder
- V<sub>c</sub>
- M
- MF**
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories

# MF



DIN 13

**DIN 374**



Technische Informationen  
Technical information

Gewindetiefe und Lochform  
Thread depth and hole type

Einsatzgebiete – Material  
Applications – material

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| $\varnothing d_1$<br>mm | P<br>mm | $l_1$ | $l_2$ | $\varnothing d_2$ | □    |  |
|-------------------------|---------|-------|-------|-------------------|------|--|
| <b>M</b> 8 x 0,75       | 80      | 8     | 6     | 4,9               | 7,2  |  |
| 8 x 1                   | 90      | 10    | 6     | 4,9               | 7    |  |
| 9 x 1                   | 90      | 10    | 7     | 5,5               | 8    |  |
| 10 x 0,75               | 90      | 10    | 7     | 5,5               | 9,2  |  |
| 10 x 1                  | 90      | 10    | 7     | 5,5               | 9    |  |
| 10 x 1,25               | 100     | 16    | 7     | 5,5               | 8,8  |  |
| 11 x 1                  | 90      | 11    | 8     | 6,2               | 10   |  |
| 12 x 1                  | 100     | 11    | 9     | 7                 | 11   |  |
| 12 x 1,25               | 100     | 15    | 9     | 7                 | 10,8 |  |
| 12 x 1,5                | 100     | 15    | 9     | 7                 | 10,5 |  |
| 14 x 1                  | 100     | 11    | 11    | 9                 | 13   |  |
| 14 x 1,25               | 100     | 15    | 11    | 9                 | 12,8 |  |
| 14 x 1,5                | 100     | 15    | 11    | 9                 | 12,5 |  |
| 15 x 1                  | 100     | 12    | 12    | 9                 | 14   |  |
| 16 x 1                  | 100     | 12    | 12    | 9                 | 15   |  |
| 16 x 1,5                | 100     | 15    | 12    | 9                 | 14,5 |  |
| 18 x 1                  | 110     | 13    | 14    | 11                | 17   |  |
| 18 x 1,5                | 110     | 17    | 14    | 11                | 16,5 |  |
| 18 x 2                  | 125     | 20    | 14    | 11                | 16   |  |
| 20 x 1                  | 125     | 14    | 16    | 12                | 19   |  |
| 20 x 1,5                | 125     | 17    | 16    | 12                | 18,5 |  |
| 20 x 2                  | 140     | 20    | 16    | 12                | 18   |  |
| 22 x 1                  | 125     | 14    | 18    | 14,5              | 21   |  |
| 22 x 1,5                | 125     | 17    | 18    | 14,5              | 20,5 |  |
| 22 x 2                  | 140     | 20    | 18    | 14,5              | 20   |  |
| 24 x 1                  | 140     | 15    | 18    | 14,5              | 23   |  |
| 24 x 1,5                | 140     | 20    | 18    | 14,5              | 22,5 |  |
| 24 x 2                  | 140     | 20    | 18    | 14,5              | 22   |  |
| 25 x 1,5                | 140     | 20    | 18    | 14,5              | 23,5 |  |
| 26 x 1,5                | 140     | 20    | 18    | 14,5              | 24,5 |  |
| 27 x 1,5                | 140     | 20    | 20    | 16                | 25,5 |  |
| 27 x 2                  | 140     | 20    | 20    | 16                | 25   |  |
| 28 x 1,5                | 140     | 20    | 20    | 16                | 26,5 |  |
| 28 x 2                  | 140     | 20    | 20    | 16                | 26   |  |
| 30 x 1,5                | 150     | 22    | 22    | 18                | 28,5 |  |

DIN 371



DIN 2181



**Z**  
CNC-controlled machines



|           |           |           |           |
|-----------|-----------|-----------|-----------|
| ISO 2/6H  | ISO 2/6H  | ISO 2/6H  | ISO 1/4H  |
| HSSE      | TIN       | GLT-1     | HSSE      |
| R45       | HSSE      | HSSE      | HSSE      |
| E / 1,5-2 | R45       | R45       | R45       |
| E / 0     | E / 1,5-2 | E / 1,5-2 | C / 2-3   |
|           | E / 0     | E / 0     | E / 0 / P |

max. 3 x d<sub>1</sub>



|                  |   |   |                  |
|------------------|---|---|------------------|
| <b>P</b> 1.1-3.1 | <b>P</b> 1.1-4.1<br><b>N</b> 2.2, 2.4-2.5<br><b>S</b> 1.1 | <b>P</b> 1.1-4.1<br><b>M</b> 1.1-4.1<br><b>N</b> 1.4, 2.1-2.2<br><b>N</b> 2.4-2.5<br><b>S</b> 1.1 | <b>P</b> 1.1-3.1 |
|------------------|---|---|------------------|

| Enorm 2-Z/E-IKZ      | Enorm 2-Z/E-IKZ TIN  | Enorm 2-Z/E-IKZ GLT-1 | Enorm 2-Z            |
|----------------------|----------------------|-----------------------|----------------------|
| C0973500.0251        |                      |                       | <b>C0503510.0251</b> |
| C0973500.0276        |                      |                       | <b>C0503510.0276</b> |
|                      |                      |                       | <b>C0503510.0301</b> |
| <b>C0973500.0303</b> | <b>C0973700.0303</b> | <b>C097C400.0303</b>  | <b>C0503510.0303</b> |
|                      |                      |                       | <b>C0503510.0331</b> |
| <b>C0973500.0331</b> | <b>C0973700.0331</b> | <b>C097C400.0331</b>  | <b>C0503510.0331</b> |
|                      |                      |                       | <b>C0503510.0359</b> |
| <b>C0973500.0359</b> | <b>C0973700.0359</b> | <b>C097C400.0359</b>  | <b>C0503510.0359</b> |
|                      |                      |                       | <b>C0503510.0390</b> |
|                      |                      |                       | <b>C0503510.0422</b> |
| <b>C0973500.0422</b> | <b>C0973700.0422</b> | <b>C097C400.0422</b>  | <b>C0503510.0422</b> |
|                      |                      |                       | <b>C0503510.0438</b> |
|                      |                      |                       | <b>C0503510.0452</b> |

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**Z**  
CNC-controlled  
machines



new



new



new

|           |             |               |           |               |
|-----------|-------------|---------------|-----------|---------------|
| ISO 3/6G  | ISO 3/6G    | ISO 3/6G      | ISO 2/6H  | ISO 2/6H      |
| HSSE      | TIN<br>HSSE | GLT-1<br>HSSE | HSSE      | GLT-1<br>HSSE |
| R45       | R45         | R45           | LH, L45   | LH, L45       |
| E / 1,5-2 | E / 1,5-2   | E / 1,5-2     | C / 2-3   | C / 2-3       |
| E / O / P | E / O / P   | E / O / P     | E / O / P | E / O / P     |

max. 3 x d<sub>1</sub>



|                  |   |   |                  |   |
|------------------|---|---|------------------|---|
| <b>P</b> 1.1-3.1 | <b>P</b> 1.1-4.1<br><b>N</b> 2.2, 2.4-2.5<br><b>S</b> 1.1 | <b>P</b> 1.1-4.1<br><b>M</b> 1.1-4.1<br><b>N</b> 1.4, 2.1-2.2<br><b>N</b> 2.4-2.5<br><b>S</b> 1.1 | <b>P</b> 1.1-3.1 | <b>P</b> 1.1-4.1<br><b>M</b> 1.1-4.1<br><b>N</b> 1.4, 2.1-2.2<br><b>N</b> 2.4-2.5<br><b>S</b> 1.1 |
|------------------|---|---|------------------|---|

|             |                 |                   |              |                    |
|-------------|-----------------|-------------------|--------------|--------------------|
| Enorm 2-Z/E | Enorm 2-Z/E TIN | Enorm 2-Z/E GLT-1 | Enorm 2-Z-LH | Enorm 2-Z-LH GLT-1 |
|-------------|-----------------|-------------------|--------------|--------------------|

|   |   |   |   |  |  |  |  |   |
|---|---|---|---|--|--|--|--|---|
| C0513520.0250<br><b>C0513520.0251</b>   | C0513720.0250<br><b>C0513720.0251</b>                         | C051C420.0250<br><b>C051C420.0251</b>                         | <b>C0503550.0251</b>  | <b>C050C450.0251</b>   |  |  |  | <b>M</b> 8 x 0,75<br>8 x 1<br>9 x 1<br>10 x 0,75<br>10 x 1<br>10 x 1,25<br>11 x 1<br>12 x 1<br>12 x 1,25<br>12 x 1,5<br>14 x 1<br>14 x 1,25<br>14 x 1,5<br>15 x 1<br>16 x 1<br>16 x 1,5<br>18 x 1<br>18 x 1,5<br>20 x 1<br>20 x 1,5<br>22 x 1<br>22 x 1,5<br>22 x 2<br>24 x 1<br>24 x 1,5<br>24 x 2<br>25 x 1,5<br>26 x 1,5<br>27 x 1,5<br>27 x 2<br>28 x 1,5<br>28 x 2<br>30 x 1,5 |
| <b>C0513520.0276</b><br>C0513520.0277<br>C0513520.0288  | <b>C0513720.0276</b>  | <b>C051C420.0276</b>  | <b>C0503550.0276</b>  | <b>C050C450.0276</b>   |  |  |  |   |
| <b>C0513520.0301</b><br>C0513520.0302<br><b>C0513520.0303</b><br>C0513520.0329                  | <b>C0513720.0301</b><br><b>C0513720.0303</b>                  | <b>C051C420.0301</b><br><b>C051C420.0303</b>                  | <b>C0503550.0301</b><br>C0503550.0302<br><b>C0503550.0303</b><br>C0503550.0329        | <b>C050C450.0301</b><br><b>C050C450.0303</b>                         |  |  |  |   |
| <b>C0513520.0331</b><br>C0513520.0357<br><b>C0513520.0359</b><br>C0513520.0388<br>C0513520.0390 | <b>C0513720.0331</b><br><b>C0513720.0359</b><br>C0513720.0390 | <b>C051C420.0331</b><br><b>C051C420.0359</b><br>C051C420.0390 | <b>C0503550.0331</b><br>C0503550.0357<br><b>C0503550.0359</b><br><b>C0503550.0390</b> | <b>C050C450.0331</b><br><b>C050C450.0359</b><br><b>C050C450.0390</b> |  |  |  |   |
| C0513520.0420<br>C0513520.0422  | C0513720.0422   | C051C420.0422   | <b>C0503550.0422</b>  | <b>C050C450.0422</b>   |  |  |  |   |
| C0513520.0436<br>C0513520.0438  |   |   |   |  |  |  |  |   |
| C0513520.0450<br>C0513520.0452  |   |   |   |  |  |  |  |   |
| C0513520.0464   |   |   |   |  |  |  |  |   |
| C0513520.0476   |   |   |   |  |  |  |  |   |
| C0513520.0490   |   |   |   |  |  |  |  |   |

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- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC  
UN-8
- UNF  
UNEF
- G, Rp  
NPSM, NPSF
- NPT, NPTF  
Rc, W
- BSW, BSF
- Pg
- MJ  
UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F  
Rd
- Zubehör  
Accessories



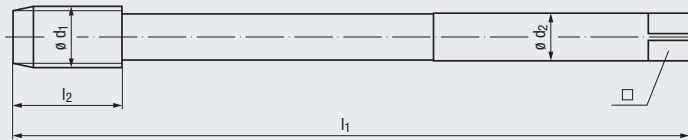
- Product Finder
- V<sub>c</sub>
- M
- MF**
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories

# MF



DIN 13

Mit langen Nuten und langem Schaft für Gewindetiefen bis max. 3 x d<sub>1</sub>  
 With long flutes and long shank for thread depths up to max. 3 x d<sub>1</sub>



Technische Informationen  
 Technical information

Toleranz · Tolerance  
 Beschichtung · Coating  
 Schneidstoff · Cutting material



Gewindetiefe und Lochform  
 Thread depth and hole type

Einsatzgebiete – Material  
 Applications – material

» 78

| ø d <sub>1</sub><br>mm | P<br>mm | l <sub>1</sub> | l <sub>2</sub> | ø d <sub>2</sub> | □    |    | Rekord<br>2A-Z-1KZ-LF3<br>TICN | Rekord<br>2D-Z-1KZ-LF3<br>TIN | Rekord<br>2D-Z-BF-1KZ-LF3<br>TIN |
|------------------------|---------|----------------|----------------|------------------|------|----|--------------------------------|-------------------------------|----------------------------------|
| <b>M</b> 24            | x 2     | 215            | 20             | 18               | 14,5 | 22 | C0579401.0453                  | C4963701.0453                 | C4973701.0453                    |
| 30                     | x 2     | 240            | 22             | 22               | 18   | 28 | C0579401.0491                  | C4963701.0491                 | C4973701.0491                    |
| 36                     | x 3     | 270            | 30             | 28               | 22   | 33 | C0579401.0534                  | C4963701.0534                 | C4973701.0534                    |

1) Gewindebohren in Durchgangslöcher nur mit externer Kühlschmierung möglich  
 Threading in through holes is possible only with external cooling/lubrication

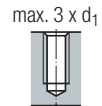
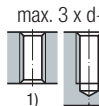
Z  
 CNC-controlled  
 machines



|         |
|---------|
| 6HX     |
| TICN    |
| HSSE    |
| C / 2-3 |
| E / O   |

|         |
|---------|
| 6HX     |
| TIN     |
| HSSE    |
| R15     |
| C / 2-3 |
| E / O   |

|         |
|---------|
| 6HX     |
| TIN     |
| HSSE    |
| R15     |
| C / 2-3 |
| E / O   |

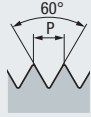


|                  |
|------------------|
| <b>P</b> 3.1-4.1 |
| <b>K</b> 1.1-4.2 |

|                  |
|------------------|
| <b>P</b> 3.1-5.1 |
| <b>N</b> 2.4-2.5 |

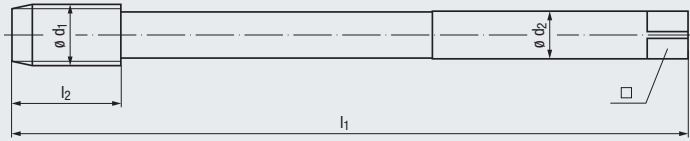
|                  |
|------------------|
| <b>P</b> 3.1-5.1 |
| <b>N</b> 2.4-2.5 |

# MF



DIN 13

Mit langen Nuten und langem Schaft für Gewindetiefen bis max. 4 x d<sub>1</sub>  
 With long flutes and long shank for thread depths up to max. 4 x d<sub>1</sub>



Technische Informationen  
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Gewindetiefe und Lochform  
 Thread depth and hole type

Einsatzgebiete – Material  
 Applications – material



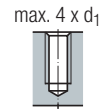
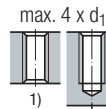
|          | ø d <sub>1</sub><br>mm | P<br>mm | l <sub>1</sub> | l <sub>2</sub> | ø d <sub>2</sub> | □    |    |
|----------|------------------------|---------|----------------|----------------|------------------|------|----|
| <b>M</b> | 24                     | x 2     | 240            | 20             | 18               | 14,5 | 22 |
|          | 30                     | x 2     | 270            | 22             | 22               | 18   | 28 |
|          | 36                     | x 3     | 310            | 30             | 28               | 22   | 33 |

1) Gewindebohren in Durchgangslöcher nur mit externer Kühlschmierung möglich  
 Threading in through holes is possible only with external cooling/lubrication

**Z**  
 CNC-controlled  
 machines



| 6HX     | 6HX     | 6HX     |
|---------|---------|---------|
| TICN    | TIN     | TIN     |
| HSSE    | HSSE    | HSSE    |
|         | R15     | R15     |
| C / 2-3 | C / 2-3 | C / 2-3 |
| E / 0   | E / 0   | E / 0   |



|                  |                  |                  |
|------------------|------------------|------------------|
| <b>P</b> 3.1-4.1 | <b>P</b> 3.1-5.1 | <b>P</b> 3.1-5.1 |
| <b>K</b> 1.1-4.2 | <b>N</b> 2.4-2.5 | <b>N</b> 2.4-2.5 |

| Rekord<br>2A-Z-1KZ-LF4<br>TICN | Rekord<br>2D-Z-1KZ-LF4<br>TIN | Rekord<br>2D-Z-BF-1KZ-LF4<br>TIN |
|--------------------------------|-------------------------------|----------------------------------|
| C0539401.0453                  | C4283701.0453                 | C4063701.0453                    |
| C0539401.0491                  | C4283701.0491                 | C4063701.0491                    |
| C0539401.0534                  | C4283701.0534                 | C4063701.0534                    |

Product Finder

|                        |
|------------------------|
| V <sub>c</sub>         |
| M                      |
| <b>MF</b>              |
| UNC<br>UN-8            |
| UNF<br>UNEF            |
| G, Rp<br>NPSM, NPSF    |
| NPT, NPTF<br>Rc, W     |
| BSW, BSF               |
| Pg                     |
| MJ<br>UNJC, UNJF       |
| EG (STI)               |
| SELF-LOCK              |
| Tr, Tr-F<br>Rd         |
| Zubehör<br>Accessories |

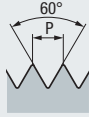


Spannzangen-Aufnahmen der Typenreihe Softsynchro® zur synchronen Herstellung von großen Gewinden siehe Seite 621 und 630

Collet holders of our Softsynchro® series for the synchronous production of large threads, see pages 621 and 630

- Product Finder
- V<sub>c</sub>
- M
- MF**
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories

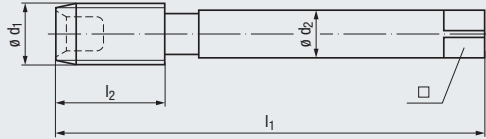
# MF



DIN 13

**DIN 374**

Mit Spanglocke  
With internal chip collector

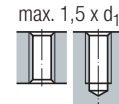


Technische Informationen  
Technical information

Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material



Gewindetiefe und Lochform  
Thread depth and hole type




Einsatzgebiete – Material  
Applications – material

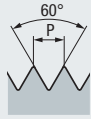
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|          |          |
|----------|----------|
| 6HX      | 6HX      |
| NE2      | TIN      |
| HSSE     | HSSE     |
| C / 2-3  | C / 2-3  |
| P / 0 1) | P / 0 1) |

|                  |                  |
|------------------|------------------|
| <b>P</b> 1.1-3.1 | <b>P</b> 1.1-3.1 |
| <b>K</b> 1.1-4.2 | <b>K</b> 1.1-4.2 |

| $\varnothing d_1$<br>mm | P<br>mm | $l_1$ | $l_2$ | $\varnothing d_2$ | □    |  | <b>Robust 2X-VA NE2</b> | <b>Robust 2X-VA TIN</b> |
|-------------------------|---------|-------|-------|-------------------|------|---|-------------------------|-------------------------|
| <b>M</b> 20             | x 1,5   | 125   | 25    | 16                | 12   | 18,5  | C0803001.0422           | C0803101.0422           |
| 22                      | x 1,5   | 125   | 25    | 18                | 14,5 | 20,5  | C0803001.0438           | C0803101.0438           |
| 24                      | x 1,5   | 140   | 27    | 18                | 14,5 | 22,5  | C0803001.0452           | C0803101.0452           |
| 24                      | x 2     | 140   | 27    | 18                | 14,5 | 22  | C0803001.0453           | C0803101.0453           |
| 27                      | x 1,5   | 140   | 28    | 20                | 16   | 25,5  | C0803001.0470           | C0803101.0470           |
| 27                      | x 2     | 140   | 28    | 20                | 16   | 25  | C0803001.0471           | C0803101.0471           |
| 30                      | x 1,5   | 150   | 28    | 22                | 18   | 28,5  | C0803001.0490           | C0803101.0490           |
| 33                      | x 1,5   | 160   | 30    | 25                | 20   | 31,5  | C0803001.0511           | C0803101.0511           |
| 33                      | x 2     | 160   | 30    | 25                | 20   | 31  | C0803001.0512           | C0803101.0512           |
| 36                      | x 1,5   | 170   | 30    | 28                | 22   | 34,5  | C0803001.0532           | C0803101.0532           |
| 36                      | x 2     | 170   | 30    | 28                | 22   | 34  | C0803001.0533           | C0803101.0533           |
| 36                      | x 3     | 200   | 42    | 28                | 22   | 33  | C0803001.0534           | C0803101.0534           |
| 38                      | x 1,5   | 170   | 30    | 28                | 22   | 36,5  | C0803001.0546           | C0803101.0546           |
| 39                      | x 3     | 200   | 42    | 32                | 24   | 36  | C0803001.0555           | C0803101.0555           |
| 40                      | x 2     | 170   | 30    | 32                | 24   | 38  | C0803001.0561           | C0803101.0561           |
| 42                      | x 1,5   | 170   | 30    | 32                | 24   | 40,5  | C0803001.0574           | C0803101.0574           |
| 42                      | x 2     | 170   | 30    | 32                | 24   | 40  | C0803001.0575           | C0803101.0575           |
| 42                      | x 3     | 200   | 45    | 32                | 24   | 39  | C0803001.0576           | C0803101.0576           |
| 45                      | x 3     | 200   | 45    | 36                | 29   | 42  | C0803001.0597           | C0803101.0597           |
| 48                      | x 1,5   | 190   | 32    | 36                | 29   | 46,5  | C0803001.0616           | C0803101.0616           |
| 48                      | x 2     | 190   | 32    | 36                | 29   | 46  | C0803001.0617           | C0803101.0617           |
| 48                      | x 3     | 225   | 50    | 36                | 29   | 45  | C0803001.0618           | C0803101.0618           |
| 52                      | x 3     | 225   | 50    | 40                | 32   | 49  | C0803001.0646           | C0803101.0646           |
| 56                      | x 3     | 225   | 50    | 40                | 32   | 53  | C0803001.0661           | C0803101.0661           |
| 56                      | x 4     | 250   | 60    | 40                | 32   | 52  | C0803001.0662           | C0803101.0662           |
| 60                      | x 4     | 280   | 60    | 45                | 35   | 56  | C0803001.0672           | C0803101.0672           |
| 64                      | x 3     | 275   | 55    | 50                | 39   | 61  | C0803001.0681           | C0803101.0681           |
| 64                      | x 4     | 315   | 65    | 50                | 39   | 60  | C0803001.0682           | C0803101.0682           |

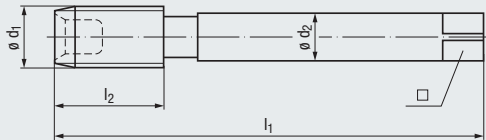
**MF**



DIN 13

**DIN 374**

Mit Spanglocke  
With internal chip collector

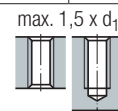


Technische Informationen  
Technical information

Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material



Gewindetiefe und Lochform  
Thread depth and hole type



Einsatzgebiete – Material  
Applications – material

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|          | $\varnothing d_1$<br>mm | P<br>mm | $l_1$ | $l_2$ | $\varnothing d_2$ | □  |     | <b>Robust<br/>2X-VA<br/>NE2</b> | <b>Robust<br/>2X-VA<br/>TIN</b> |
|----------|-------------------------|---------|-------|-------|-------------------|----|-----|---------------------------------|---------------------------------|
| <b>M</b> | 68                      | x 4     | 315   | 65    | 50                | 39 | 64  | C0803001.0692                   | C0803101.0692                   |
|          | 70                      | x 3     | 275   | 55    | 50                | 39 | 67  | C0803001.0696                   | C0803101.0696                   |
|          | 70                      | x 4     | 340   | 65    | 50                | 39 | 66  | C0803001.0697                   | C0803101.0697                   |
|          | 72                      | x 3     | 275   | 55    | 50                | 39 | 69  | C0803001.0702                   | C0803101.0702                   |
|          | 72                      | x 4     | 340   | 65    | 50                | 39 | 68  | C0803001.0703                   | C0803101.0703                   |
|          | 72                      | x 6     | 340   | 80    | 50                | 39 | 66  | C0803001.0704                   | C0803101.0704                   |
|          | 76                      | x 3     | 275   | 55    | 50                | 39 | 73  | C0803001.0714                   | C0803101.0714                   |
|          | 76                      | x 4     | 340   | 65    | 50                | 39 | 72  | C0803001.0715                   | C0803101.0715                   |
|          | 76                      | x 6     | 340   | 80    | 50                | 39 | 70  | C0803001.0716                   | C0803101.0716                   |
|          | 80                      | x 4     | 360   | 65    | 50                | 39 | 76  | C0803001.0727                   | C0803101.0727                   |
|          | 80                      | x 6     | 360   | 80    | 50                | 39 | 74  | C0803001.0728                   | C0803101.0728                   |
|          | 85                      | x 3     | 325   | 60    | 50                | 39 | 82  | C0803001.0736                   | C0803101.0736                   |
|          | 85                      | x 4     | 380   | 70    | 50                | 39 | 81  | C0803001.0737                   | C0803101.0737                   |
|          | 90                      | x 3     | 325   | 60    | 50                | 39 | 87  | C0803001.0746                   | C0803101.0746                   |
|          | 90                      | x 4     | 380   | 70    | 50                | 39 | 86  | C0803001.0747                   | C0803101.0747                   |
|          | 90                      | x 6     | 380   | 80    | 50                | 39 | 84  | C0803001.0748                   | C0803101.0748                   |
|          | 95                      | x 6     | 400   | 85    | 56                | 44 | 89  | C0803001.0758                   | C0803101.0758                   |
|          | 100                     | x 4     | 400   | 70    | 56                | 44 | 96  | C0803001.0767                   | C0803101.0767                   |
|          | 100                     | x 6     | 400   | 85    | 56                | 44 | 94  | C0803001.0768                   | C0803101.0768                   |
|          | 110                     | x 6     | 400   | 85    | 56                | 44 | 104 | C0803001.0788                   | C0803101.0788                   |
|          | 115                     | x 3     | 350   | 65    | 56                | 44 | 112 | C0803001.0791                   | C0803101.0791                   |
|          | 120                     | x 4     | 400   | 75    | 56                | 44 | 116 | C0803001.0797                   | C0803101.0797                   |
|          | 120                     | x 6     | 400   | 90    | 56                | 44 | 114 | C0803001.0798                   | C0803101.0798                   |

1) Bevorzugt mit Pastenschmierung einsetzen, neben Werkzeug auch Bohrungswandung einstreichen.  
Ölschmierung ist nur bei senkrechter Grundlochbearbeitung möglich, wenn das Grundloch mit Öl vollgefüllt ist.  
If possible, use paste lubrication, coating both the tool and the walls of the drilled hole.  
Lubrication with oil is possible only in the vertical machining of blind holes, if the hole is entirely filled with oil.

|                     |
|---------------------|
| Product Finder      |
| V <sub>c</sub>      |
| M                   |
| <b>MF</b>           |
| UNC UN-8            |
| UNF UNEF            |
| G, Rp NPSM, NPSF    |
| NPT, NPTF Rc, W     |
| BSW, BSF            |
| Pg                  |
| MJ UNJC, UNJF       |
| EG (STI)            |
| SELF-LOCK           |
| Tr, Tr-F Rd         |
| Zubehör Accessories |



- Product Finder
- V<sub>c</sub>
- M
- MF**
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories

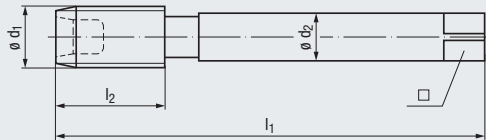
# MF



DIN 13

DIN 374

Mit Spanglocke  
With internal chip collector

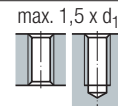


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Technical information

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Gewindetiefe und Lochform  
Thread depth and hole type



Einsatzgebiete – Material  
Applications – material

» 78

VA

Stainless steel materials



new



new




|          |
|----------|
| 6HX      |
| NE2      |
| HSSE     |
| C / 2-3  |
| P / O 1) |

|          |
|----------|
| 6HX      |
| TIN      |
| HSSE     |
| C / 2-3  |
| P / O 1) |

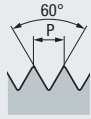
|                  |
|------------------|
| <b>P</b> 1.1-3.1 |
| <b>K</b> 1.1-4.2 |

|                  |
|------------------|
| <b>P</b> 1.1-3.1 |
| <b>K</b> 1.1-4.2 |

| $\varnothing d_1$<br>mm | P<br>mm | $l_1$ | $l_2$ | $\varnothing d_2$ | □    |  | Robust<br>2ST-VA<br>NE2 | Robust<br>2ST-VA<br>TIN |
|-------------------------|---------|-------|-------|-------------------|------|---|-------------------------|-------------------------|
| M 20                    | x 1,5   | 125   | 25    | 16                | 12   | 18,5  | C2023001.0422           | C2023101.0422           |
| 22                      | x 1,5   | 125   | 25    | 18                | 14,5 | 20,5  | C2023001.0438           | C2023101.0438           |
| 24                      | x 1,5   | 140   | 27    | 18                | 14,5 | 22,5  | C2023001.0452           | C2023101.0452           |
| 24                      | x 2     | 140   | 27    | 18                | 14,5 | 22  | C2023001.0453           | C2023101.0453           |
| 27                      | x 1,5   | 140   | 28    | 20                | 16   | 25,5  | C2023001.0470           | C2023101.0470           |
| 27                      | x 2     | 140   | 28    | 20                | 16   | 25  | C2023001.0471           | C2023101.0471           |
| 30                      | x 1,5   | 150   | 28    | 22                | 18   | 28,5  | C2023001.0490           | C2023101.0490           |
| 33                      | x 1,5   | 160   | 30    | 25                | 20   | 31,5  | C2023001.0511           | C2023101.0511           |
| 33                      | x 2     | 160   | 30    | 25                | 20   | 31  | C2023001.0512           | C2023101.0512           |
| 36                      | x 1,5   | 170   | 30    | 28                | 22   | 34,5  | C2023001.0532           | C2023101.0532           |
| 36                      | x 2     | 170   | 30    | 28                | 22   | 34  | C2023001.0533           | C2023101.0533           |
| 36                      | x 3     | 200   | 42    | 28                | 22   | 33  | C2023001.0534           | C2023101.0534           |
| 38                      | x 1,5   | 170   | 30    | 28                | 22   | 36,5  | C2023001.0546           | C2023101.0546           |
| 39                      | x 3     | 200   | 42    | 32                | 24   | 36  | C2023001.0555           | C2023101.0555           |
| 40                      | x 2     | 170   | 30    | 32                | 24   | 38  | C2023001.0561           | C2023101.0561           |
| 42                      | x 1,5   | 170   | 30    | 32                | 24   | 40,5  | C2023001.0574           | C2023101.0574           |
| 42                      | x 2     | 170   | 30    | 32                | 24   | 40  | C2023001.0575           | C2023101.0575           |
| 42                      | x 3     | 200   | 45    | 32                | 24   | 39  | C2023001.0576           | C2023101.0576           |
| 45                      | x 3     | 200   | 45    | 36                | 29   | 42  | C2023001.0597           | C2023101.0597           |
| 48                      | x 1,5   | 190   | 32    | 36                | 29   | 46,5  | C2023001.0616           | C2023101.0616           |
| 48                      | x 2     | 190   | 32    | 36                | 29   | 46  | C2023001.0617           | C2023101.0617           |
| 48                      | x 3     | 225   | 50    | 36                | 29   | 45  | C2023001.0618           | C2023101.0618           |
| 52                      | x 3     | 225   | 50    | 40                | 32   | 49  | C2023001.0646           | C2023101.0646           |
| 56                      | x 3     | 225   | 50    | 40                | 32   | 53  | C2023001.0661           | C2023101.0661           |
| 56                      | x 4     | 250   | 60    | 40                | 32   | 52  | C2023001.0662           | C2023101.0662           |
| 60                      | x 4     | 280   | 60    | 45                | 35   | 56  | C2023001.0672           | C2023101.0672           |
| 64                      | x 3     | 275   | 55    | 50                | 39   | 61  | C2023001.0681           | C2023101.0681           |
| 64                      | x 4     | 315   | 65    | 50                | 39   | 60  | C2023001.0682           | C2023101.0682           |



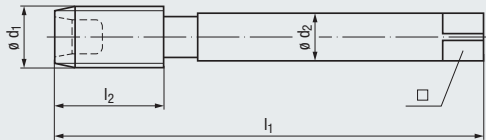
**MF**



DIN 13

DIN 374

Mit Spanglocke  
With internal chip collector

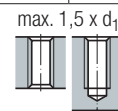


Technische Informationen  
Technical information

Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material



Gewindetiefe und Lochform  
Thread depth and hole type



Einsatzgebiete – Material  
Applications – material

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|   | $\varnothing d_1$<br>mm | P<br>mm | $l_1$ | $l_2$ | $\varnothing d_2$ | □  |     | Robust<br>2ST-VA<br>NE2 | Robust<br>2ST-VA<br>TIN |
|---|-------------------------|---------|-------|-------|-------------------|----|-----|-------------------------|-------------------------|
| M | 68                      | x 4     | 315   | 65    | 50                | 39 | 64  | C2023001.0692           | C2023101.0692           |
|   | 70                      | x 3     | 275   | 55    | 50                | 39 | 67  | C2023001.0696           | C2023101.0696           |
|   | 70                      | x 4     | 340   | 65    | 50                | 39 | 66  | C2023001.0697           | C2023101.0697           |
|   | 72                      | x 3     | 275   | 55    | 50                | 39 | 69  | C2023001.0702           | C2023101.0702           |
|   | 72                      | x 4     | 340   | 65    | 50                | 39 | 68  | C2023001.0703           | C2023101.0703           |
|   | 72                      | x 6     | 340   | 80    | 50                | 39 | 66  | C2023001.0704           | C2023101.0704           |
|   | 76                      | x 3     | 275   | 55    | 50                | 39 | 73  | C2023001.0714           | C2023101.0714           |
|   | 76                      | x 4     | 340   | 65    | 50                | 39 | 72  | C2023001.0715           | C2023101.0715           |
|   | 76                      | x 6     | 340   | 80    | 50                | 39 | 70  | C2023001.0716           | C2023101.0716           |
|   | 80                      | x 4     | 360   | 65    | 50                | 39 | 76  | C2023001.0727           | C2023101.0727           |
|   | 80                      | x 6     | 360   | 80    | 50                | 39 | 74  | C2023001.0728           | C2023101.0728           |
|   | 85                      | x 3     | 325   | 60    | 50                | 39 | 82  | C2023001.0736           | C2023101.0736           |
|   | 85                      | x 4     | 380   | 70    | 50                | 39 | 81  | C2023001.0737           | C2023101.0737           |
|   | 90                      | x 3     | 325   | 60    | 50                | 39 | 87  | C2023001.0746           | C2023101.0746           |
|   | 90                      | x 4     | 380   | 70    | 50                | 39 | 86  | C2023001.0747           | C2023101.0747           |
|   | 90                      | x 6     | 380   | 80    | 50                | 39 | 84  | C2023001.0748           | C2023101.0748           |
|   | 95                      | x 6     | 400   | 85    | 56                | 44 | 89  | C2023001.0758           | C2023101.0758           |
|   | 100                     | x 4     | 400   | 70    | 56                | 44 | 96  | C2023001.0767           | C2023101.0767           |
|   | 100                     | x 6     | 400   | 85    | 56                | 44 | 94  | C2023001.0768           | C2023101.0768           |
|   | 110                     | x 6     | 400   | 85    | 56                | 44 | 104 | C2023001.0788           | C2023101.0788           |
|   | 115                     | x 3     | 350   | 65    | 56                | 44 | 112 | C2023001.0791           | C2023101.0791           |
|   | 120                     | x 4     | 400   | 75    | 56                | 44 | 116 | C2023001.0797           | C2023101.0797           |
|   | 120                     | x 6     | 400   | 90    | 56                | 44 | 114 | C2023001.0798           | C2023101.0798           |

1) Bevorzugt mit Pastenschmierung einsetzen, neben Werkzeug auch Bohrungswandung einstreichen.  
Ölschmierung ist nur bei senkrechter Grundlochbearbeitung möglich, wenn das Grundloch mit Öl vollgefüllt ist.  
If possible, use paste lubrication, coating both the tool and the walls of the drilled hole.  
Lubrication with oil is possible only in the vertical machining of blind holes, if the hole is entirely filled with oil.

Product Finder

|                        |
|------------------------|
| V <sub>c</sub>         |
| M                      |
| <b>MF</b>              |
| UNC<br>UN-8            |
| UNF<br>UNEF            |
| G, Rp<br>NPSM, NPSF    |
| NPT, NPTF<br>Rc, W     |
| BSW, BSF               |
| Pg                     |
| MJ<br>UNJC, UNJF       |
| EG (STI)               |
| SELF-LOCK              |
| Tr, Tr-F<br>Rd         |
| Zubehör<br>Accessories |



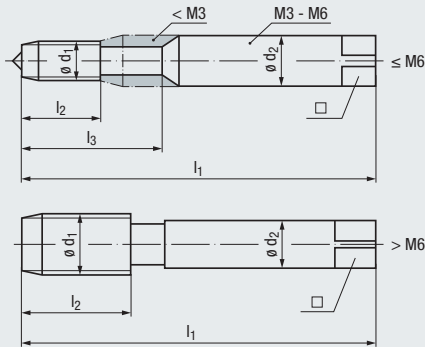
- Product Finder
- V<sub>c</sub>
- M
- MF**
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories

# MF



DIN 13

**DIN 2181**



**STEEL**  
Steel materials

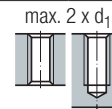


Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material

Technische Informationen  
Technical information

|         |           |
|---------|-----------|
| 6HX     | 6HX       |
| HSSE    | HSSE      |
| C / 2-3 | C / 2-3   |
| E / O   | E / O     |
|         | <b>LH</b> |

Gewindetiefe und Lochform  
Thread depth and hole type



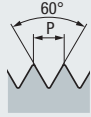
Einsatzgebiete – Material  
Applications – material

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|                  |                  |
|------------------|------------------|
| <b>K</b> 1.1-4.2 | <b>K</b> 1.1-4.2 |
| <b>N</b> 2.3     | <b>N</b> 2.3     |

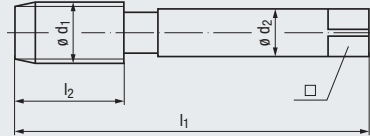
| $\varnothing d_1$<br>mm | P<br>mm | $l_1$ | $l_2$ | $l_3$ | $\varnothing d_2$ | $\square$ |                      | Rekord<br>A-STEEL | Rekord<br>A-STEEL-LH |
|-------------------------|---------|-------|-------|-------|-------------------|-----------|----------------------|-------------------|----------------------|
| <b>M</b> 2,5 x 0,35     | 40      | 9     | —     | 2,8   | 2,1               | 2,15      | A0101001.0196        |                   |                      |
| 2,6 x 0,35              | 40      | 9     | —     | 2,8   | 2,1               | 2,25      | A0101001.0199        |                   |                      |
| 3 x 0,35                | 40      | 8     | 18    | 3,5   | 2,7               | 2,65      | A0101001.0202        | A0101051.0202     |                      |
| 3,5 x 0,35              | 45      | 8     | 20    | 4     | 3                 | 3,15      | A0101001.0205        | A0101051.0205     |                      |
| 4 x 0,35                | 45      | 9     | 22    | 4,5   | 3,4               | 3,65      | <b>A0101001.0209</b> | A0101051.0209     |                      |
| 4 x 0,5                 | 45      | 9     | 22    | 4,5   | 3,4               | 3,5       | <b>A0101001.0210</b> | A0101051.0210     |                      |
| 4,5 x 0,5               | 50      | 10    | 24    | 6     | 4,9               | 4         | <b>A0101001.0214</b> |                   |                      |
| 5 x 0,5                 | 50      | 11    | 25    | 6     | 4,9               | 4,5       | <b>A0101001.0218</b> | A0101051.0218     |                      |
| 6 x 0,5                 | 56      | 12    | 27    | 6     | 4,9               | 5,5       | <b>A0101001.0228</b> | A0101051.0228     |                      |
| 6 x 0,75                | 56      | 12    | 27    | 6     | 4,9               | 5,2       | <b>A0101001.0229</b> | A0101051.0229     |                      |
| 7 x 0,75                | 56      | 14    | —     | 6     | 4,9               | 6,2       | <b>A0101001.0239</b> | A0101051.0239     |                      |
| 8 x 0,5                 | 56      | 14    | —     | 6     | 4,9               | 7,5       | <b>A0101001.0249</b> | A0101051.0249     |                      |
| 8 x 0,75                | 56      | 14    | —     | 6     | 4,9               | 7,2       | <b>A0101001.0250</b> | A0101051.0250     |                      |
| 8 x 1                   | 63      | 17    | —     | 6     | 4,9               | 7         | <b>A0101001.0251</b> | A0101051.0251     |                      |
| 9 x 1                   | 63      | 17    | —     | 7     | 5,5               | 8         | <b>A0101001.0263</b> | A0101051.0263     |                      |
| 10 x 0,75               | 63      | 18    | —     | 7     | 5,5               | 9,2       | <b>A0101001.0275</b> | A0101051.0275     |                      |
| 10 x 1                  | 63      | 18    | —     | 7     | 5,5               | 9         | <b>A0101001.0276</b> | A0101051.0276     |                      |
| 10 x 1,25               | 70      | 22    | —     | 7     | 5,5               | 8,8       | <b>A0101001.0277</b> | A0101051.0277     |                      |
| 11 x 1                  | 63      | 18    | —     | 8     | 6,2               | 10        | <b>A0101001.0288</b> | A0101051.0288     |                      |
| 12 x 1                  | 70      | 18    | —     | 9     | 7                 | 11        | <b>A0101001.0301</b> | A0101051.0301     |                      |
| 12 x 1,25               | 70      | 20    | —     | 9     | 7                 | 10,8      | <b>A0101001.0302</b> | A0101051.0302     |                      |
| 12 x 1,5                | 70      | 20    | —     | 9     | 7                 | 10,5      | <b>A0101001.0303</b> | A0101051.0303     |                      |
| 13 x 1                  | 70      | 18    | —     | 11    | 9                 | 12        | <b>A0101001.0315</b> | A0101051.0315     |                      |
| 14 x 1                  | 70      | 18    | —     | 11    | 9                 | 13        | <b>A0101001.0329</b> | A0101051.0329     |                      |
| 14 x 1,25               | 70      | 20    | —     | 11    | 9                 | 12,8      | <b>A0101001.0330</b> | A0101051.0330     |                      |
| 14 x 1,5                | 70      | 20    | —     | 11    | 9                 | 12,5      | <b>A0101001.0331</b> | A0101051.0331     |                      |
| 15 x 1                  | 70      | 18    | —     | 12    | 9                 | 14        | <b>A0101001.0343</b> | A0101051.0343     |                      |
| 15 x 1,5                | 70      | 20    | —     | 12    | 9                 | 13,5      | A0101001.0345        |                   |                      |
| 16 x 1                  | 70      | 18    | —     | 12    | 9                 | 15        | <b>A0101001.0357</b> | A0101051.0357     |                      |
| 16 x 1,5                | 70      | 20    | —     | 12    | 9                 | 14,5      | <b>A0101001.0359</b> | A0101051.0359     |                      |
| 18 x 1                  | 80      | 18    | —     | 14    | 11                | 17        | <b>A0101001.0388</b> | A0101051.0388     |                      |
| 18 x 1,5                | 80      | 22    | —     | 14    | 11                | 16,5      | <b>A0101001.0390</b> | A0101051.0390     |                      |
| 18 x 2                  | 80      | 22    | —     | 14    | 11                | 16        | <b>A0101001.0391</b> |                   |                      |
| 20 x 1                  | 80      | 18    | —     | 16    | 12                | 19        | A0101001.0420        | A0101051.0420     |                      |
| 20 x 1,5                | 80      | 22    | —     | 16    | 12                | 18,5      | <b>A0101001.0422</b> | A0101051.0422     |                      |
| 20 x 2                  | 80      | 22    | —     | 16    | 12                | 18        | <b>A0101001.0423</b> |                   |                      |
| 22 x 1                  | 80      | 18    | —     | 18    | 14,5              | 21        | A0101001.0436        | A0101051.0436     |                      |
| 22 x 1,5                | 80      | 22    | —     | 18    | 14,5              | 20,5      | <b>A0101001.0438</b> | A0101051.0438     |                      |
| 22 x 2                  | 80      | 22    | —     | 18    | 14,5              | 20        | <b>A0101001.0439</b> |                   |                      |
| 24 x 1                  | 90      | 18    | —     | 18    | 14,5              | 23        | A0101001.0450        | A0101051.0450     |                      |
| 24 x 1,5                | 90      | 22    | —     | 18    | 14,5              | 22,5      | <b>A0101001.0452</b> | A0101051.0452     |                      |
| 24 x 2                  | 90      | 22    | —     | 18    | 14,5              | 22        | <b>A0101001.0453</b> | A0101051.0453     |                      |

**MF**



DIN 13

**DIN 2181**

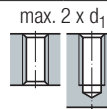


Technische Informationen  
Technical information

Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material



Gewindetiefe und Lochform  
Thread depth and hole type



Einsatzgebiete – Material  
Applications – material

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**K 1.1-4.2**  
**N 2.3**

**K 1.1-4.2**  
**N 2.3**

| M | $\phi d_1$<br>mm | P<br>mm | $l_1$ | $l_2$ | $l_3$ | $\phi d_2$ | □    |      | Rekord        | Rekord        |
|---|------------------|---------|-------|-------|-------|------------|------|------|---------------|---------------|
|   |                  |         |       |       |       |            |      |      | A-STEEL       | A-STEEL-LH    |
|   | 25               | x 1,5   | 90    | 22    | –     | 18         | 14,5 | 23,5 | A0101001.0458 |               |
|   | 26               | x 1,5   | 90    | 22    | –     | 18         | 14,5 | 24,5 | A0101001.0464 | A0101051.0464 |
|   | 27               | x 1,5   | 90    | 22    | –     | 20         | 16   | 25,5 | A0101001.0470 | A0101051.0470 |
|   | 27               | x 2     | 90    | 22    | –     | 20         | 16   | 25   | A0101001.0471 |               |
|   | 28               | x 1,5   | 90    | 22    | –     | 20         | 16   | 26,5 | A0101001.0476 |               |
|   | 30               | x 1     | 90    | 18    | –     | 22         | 18   | 29   | A0101001.0488 |               |
|   | 30               | x 1,5   | 90    | 22    | –     | 22         | 18   | 28,5 | A0101001.0490 | A0101051.0490 |
|   | 30               | x 2     | 90    | 22    | –     | 22         | 18   | 28   | A0101001.0491 | A0101051.0491 |
|   | 32               | x 1,5   | 90    | 22    | –     | 22         | 18   | 30,5 | A0101001.0504 |               |
|   | 33               | x 1,5   | 100   | 25    | –     | 25         | 20   | 31,5 | A0101001.0511 |               |
|   | 33               | x 2     | 100   | 25    | –     | 25         | 20   | 31   | A0101001.0512 |               |
|   | 34               | x 1,5   | 100   | 25    | –     | 28         | 22   | 32,5 | A0101001.0518 |               |
|   | 35               | x 1,5   | 100   | 25    | –     | 28         | 22   | 33,5 | A0101001.0525 |               |
|   | 36               | x 1,5   | 100   | 25    | –     | 28         | 22   | 34,5 | A0101001.0532 |               |
|   | 36               | x 2     | 125   | 30    | –     | 28         | 22   | 34   | A0101001.0533 | A0101051.0533 |
|   | 36               | x 3     | 125   | 36    | –     | 28         | 22   | 33   | A0101001.0534 |               |
|   | 38               | x 1,5   | 100   | 25    | –     | 28         | 22   | 36,5 | A0101001.0546 |               |
|   | 39               | x 2     | 125   | 30    | –     | 32         | 24   | 37   | A0101001.0554 |               |
|   | 39               | x 3     | 125   | 36    | –     | 32         | 24   | 36   | A0101001.0555 |               |
|   | 40               | x 1,5   | 110   | 25    | –     | 32         | 24   | 38,5 | A0101001.0560 | A0101051.0560 |
|   | 40               | x 2     | 125   | 30    | –     | 32         | 24   | 38   | A0101001.0561 |               |
|   | 40               | x 3     | 125   | 36    | –     | 32         | 24   | 37   | A0101001.0562 |               |
|   | 42               | x 1,5   | 110   | 25    | –     | 32         | 24   | 40,5 | A0101001.0574 |               |
|   | 42               | x 2     | 125   | 30    | –     | 32         | 24   | 40   | A0101001.0575 |               |
|   | 42               | x 3     | 125   | 36    | –     | 32         | 24   | 39   | A0101001.0576 |               |
|   | 45               | x 1,5   | 110   | 25    | –     | 36         | 29   | 43,5 | A0101001.0595 |               |
|   | 45               | x 2     | 125   | 30    | –     | 36         | 29   | 43   | A0101001.0596 |               |
|   | 45               | x 3     | 125   | 36    | –     | 36         | 29   | 42   | A0101001.0597 |               |
|   | 48               | x 1,5   | 140   | 25    | –     | 36         | 29   | 46,5 | A0101001.0616 |               |
|   | 48               | x 2     | 140   | 30    | –     | 36         | 29   | 46   | A0101001.0617 |               |
|   | 48               | x 3     | 140   | 36    | –     | 36         | 29   | 45   | A0101001.0618 |               |
|   | 50               | x 1,5   | 140   | 25    | –     | 36         | 29   | 48,5 | A0101001.0630 |               |
|   | 50               | x 2     | 140   | 30    | –     | 36         | 29   | 48   | A0101001.0631 |               |
|   | 50               | x 3     | 140   | 36    | –     | 36         | 29   | 47   | A0101001.0632 |               |
|   | 52               | x 1,5   | 140   | 25    | –     | 40         | 32   | 50,5 | A0101001.0644 |               |
|   | 52               | x 2     | 140   | 32    | –     | 40         | 32   | 50   | A0101001.0645 |               |
|   | 52               | x 3     | 140   | 40    | –     | 40         | 32   | 49   | A0101001.0646 |               |

DIN 371

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DIN 374

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Product Finder

V<sub>c</sub>

M

**MF**

UNC  
UN-8

UNF  
UNEF

G, Rp  
NPSM, NPSF

NPT, NPTF  
Rc, W

BSW, BSF

Pg

MJ  
UNJC, UNJF

EG (STI)

SELF-LOCK

Tr, Tr-F  
Rd

Zubehör  
Accessories

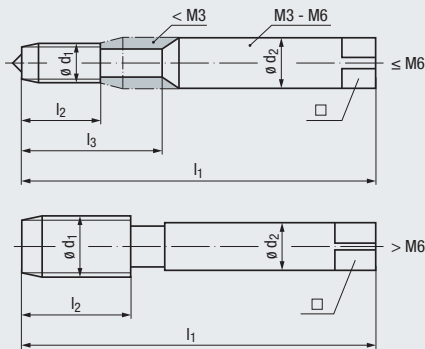


- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories



DIN 2181

DIN 13



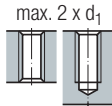
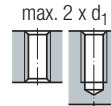
Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material

Technische Informationen  
Technical information



|         |         |         |
|---------|---------|---------|
| 6HX     | 6HX     | 6HX     |
| HSSE    | HSSE    | HSSE    |
| D / 3-4 | C / 2-3 | C / 2-3 |
| O / P   | O / P   | O / P   |

Gewindetiefe und Lochform  
Thread depth and hole type



Einsatzgebiete – Material  
Applications – material

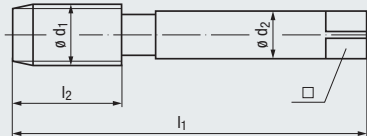
|           |           |           |
|-----------|-----------|-----------|
| P 1.1-3.1 | P 1.1-3.1 | P 1.1-3.1 |
|-----------|-----------|-----------|

| M | $\phi d_1$<br>mm | P<br>mm | $l_1$ | $l_2$ | $l_3$ | $\phi d_2$ | □    | Hand Tap | HGB-Set       | HGB-Set       | HGB-Set-2S    |
|---|------------------|---------|-------|-------|-------|------------|------|----------|---------------|---------------|---------------|
|   |                  |         |       |       |       |            |      |          | V-Nr.1        | F             | (Nr.1, F)     |
|   | 2,5              | x 0,35  | 40    | 9     | –     | 2,8        | 2,1  | 2,15     | H0211009.0196 | H0211001.0196 | H0201001.0196 |
|   | 2,6              | x 0,35  | 40    | 9     | –     | 2,8        | 2,1  | 2,25     |               |               |               |
|   | 3                | x 0,35  | 40    | 8     | 18    | 3,5        | 2,7  | 2,65     | H0211009.0202 | H0211001.0202 | H0201001.0202 |
|   | 3,5              | x 0,35  | 45    | 8     | 20    | 4          | 3    | 3,15     |               |               |               |
|   | 4                | x 0,35  | 45    | 9     | 22    | 4,5        | 3,4  | 3,65     | H0211009.0209 | H0211001.0209 | H0201001.0209 |
|   | 4                | x 0,5   | 45    | 9     | 22    | 4,5        | 3,4  | 3,5      | H0211009.0210 | H0211001.0210 | H0201001.0210 |
|   | 4,5              | x 0,5   | 50    | 10    | 24    | 6          | 4,9  | 4        |               |               |               |
|   | 5                | x 0,5   | 50    | 11    | 25    | 6          | 4,9  | 4,5      | H0211009.0218 | H0211001.0218 | H0201001.0218 |
|   | 6                | x 0,5   | 56    | 12    | 27    | 6          | 4,9  | 5,5      | H0211009.0228 | H0211001.0228 | H0201001.0228 |
|   | 6                | x 0,75  | 56    | 12    | 27    | 6          | 4,9  | 5,2      | H0211009.0229 | H0211001.0229 | H0201001.0229 |
|   | 7                | x 0,75  | 56    | 14    | –     | 6          | 4,9  | 6,2      |               |               |               |
|   | 8                | x 0,5   | 56    | 14    | –     | 6          | 4,9  | 7,5      | H0211009.0249 | H0211001.0249 | H0201001.0249 |
|   | 8                | x 0,75  | 56    | 14    | –     | 6          | 4,9  | 7,2      | H0211009.0250 | H0211001.0250 | H0201001.0250 |
|   | 8                | x 1     | 63    | 17    | –     | 6          | 4,9  | 7        | H0211009.0251 | H0211001.0251 | H0201001.0251 |
|   | 9                | x 1     | 63    | 17    | –     | 7          | 5,5  | 8        |               |               |               |
|   | 10               | x 0,75  | 63    | 18    | –     | 7          | 5,5  | 9,2      | H0211009.0275 | H0211001.0275 | H0201001.0275 |
|   | 10               | x 1     | 63    | 18    | –     | 7          | 5,5  | 9        | H0211009.0276 | H0211001.0276 | H0201001.0276 |
|   | 10               | x 1,25  | 70    | 22    | –     | 7          | 5,5  | 8,8      | H0211009.0277 | H0211001.0277 | H0201001.0277 |
|   | 11               | x 1     | 63    | 18    | –     | 8          | 6,2  | 10       |               |               |               |
|   | 12               | x 1     | 70    | 18    | –     | 9          | 7    | 11       | H0211009.0301 | H0211001.0301 | H0201001.0301 |
|   | 12               | x 1,25  | 70    | 20    | –     | 9          | 7    | 10,8     | H0211009.0302 | H0211001.0302 | H0201001.0302 |
|   | 12               | x 1,5   | 70    | 20    | –     | 9          | 7    | 10,5     | H0211009.0303 | H0211001.0303 | H0201001.0303 |
|   | 13               | x 1     | 70    | 18    | –     | 11         | 9    | 12       |               |               |               |
|   | 14               | x 1     | 70    | 18    | –     | 11         | 9    | 13       | H0211009.0329 | H0211001.0329 | H0201001.0329 |
|   | 14               | x 1,25  | 70    | 20    | –     | 11         | 9    | 12,8     | H0211009.0330 | H0211001.0330 | H0201001.0330 |
|   | 14               | x 1,5   | 70    | 20    | –     | 11         | 9    | 12,5     | H0211009.0331 | H0211001.0331 | H0201001.0331 |
|   | 15               | x 1     | 70    | 18    | –     | 12         | 9    | 14       |               |               |               |
|   | 15               | x 1,5   | 70    | 20    | –     | 12         | 9    | 13,5     |               |               |               |
|   | 16               | x 1     | 70    | 18    | –     | 12         | 9    | 15       | H0211009.0357 | H0211001.0357 | H0201001.0357 |
|   | 16               | x 1,5   | 70    | 20    | –     | 12         | 9    | 14,5     | H0211009.0359 | H0211001.0359 | H0201001.0359 |
|   | 18               | x 1     | 80    | 18    | –     | 14         | 11   | 17       | H0211009.0388 | H0211001.0388 | H0201001.0388 |
|   | 18               | x 1,5   | 80    | 22    | –     | 14         | 11   | 16,5     | H0211009.0390 | H0211001.0390 | H0201001.0390 |
|   | 18               | x 2     | 80    | 22    | –     | 14         | 11   | 16       | H0211009.0391 | H0211001.0391 | H0201001.0391 |
|   | 20               | x 1     | 80    | 18    | –     | 16         | 12   | 19       | H0211009.0420 | H0211001.0420 | H0201001.0420 |
|   | 20               | x 1,5   | 80    | 22    | –     | 16         | 12   | 18,5     | H0211009.0422 | H0211001.0422 | H0201001.0422 |
|   | 20               | x 2     | 80    | 22    | –     | 16         | 12   | 18       | H0211009.0423 | H0211001.0423 | H0201001.0423 |
|   | 22               | x 1     | 80    | 18    | –     | 18         | 14,5 | 21       | H0211009.0436 | H0211001.0436 | H0201001.0436 |
|   | 22               | x 1,5   | 80    | 22    | –     | 18         | 14,5 | 20,5     | H0211009.0438 | H0211001.0438 | H0201001.0438 |
|   | 22               | x 2     | 80    | 22    | –     | 18         | 14,5 | 20       | H0211009.0439 | H0211001.0439 | H0201001.0439 |
|   | 24               | x 1     | 90    | 18    | –     | 18         | 14,5 | 23       | H0211009.0450 | H0211001.0450 | H0201001.0450 |



DIN 13

DIN 2181



Technische Informationen  
Technical information

Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material



HSSE

6HX

HSSE

HSSE

D / 3-4

O / P

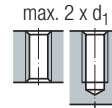
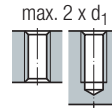
C / 2-3

O / P

C / 2-3

O / P

Gewindetiefe und Lochform  
Thread depth and hole type



Einsatzgebiete – Material  
Applications – material

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P 1.1-3.1

P 1.1-3.1

P 1.1-3.1

| M | ø d <sub>1</sub><br>mm | P<br>mm | l <sub>1</sub> | l <sub>2</sub> | l <sub>3</sub> | ø d <sub>2</sub> | □    |      | HGB-Set       | HGB-Set       | HGB-Set-2S    |
|---|------------------------|---------|----------------|----------------|----------------|------------------|------|------|---------------|---------------|---------------|
|   |                        |         |                |                |                |                  |      |      | V-Nr.1        | F             | (Nr.1, F)     |
|   | 24                     | x 1,5   | 90             | 22             | –              | 18               | 14,5 | 22,5 | H0211009.0452 | H0211001.0452 | H0201001.0452 |
|   | 24                     | x 2     | 90             | 22             | –              | 18               | 14,5 | 22   | H0211009.0453 | H0211001.0453 | H0201001.0453 |
|   | 25                     | x 1,5   | 90             | 22             | –              | 18               | 14,5 | 23,5 | H0211009.0458 | H0211001.0458 | H0201001.0458 |
|   | 26                     | x 1,5   | 90             | 22             | –              | 18               | 14,5 | 24,5 | H0211009.0464 | H0211001.0464 | H0201001.0464 |
|   | 27                     | x 1,5   | 90             | 22             | –              | 20               | 16   | 25,5 | H0211009.0470 | H0211001.0470 | H0201001.0470 |
|   | 27                     | x 2     | 90             | 22             | –              | 20               | 16   | 25   | H0211009.0471 | H0211001.0471 | H0201001.0471 |
|   | 28                     | x 1,5   | 90             | 22             | –              | 20               | 16   | 26,5 | H0211009.0476 | H0211001.0476 | H0201001.0476 |
|   | 30                     | x 1     | 90             | 18             | –              | 22               | 18   | 29   |               |               |               |
|   | 30                     | x 1,5   | 90             | 22             | –              | 22               | 18   | 28,5 | H0211009.0490 | H0211001.0490 | H0201001.0490 |
|   | 30                     | x 2     | 90             | 22             | –              | 22               | 18   | 28   | H0211009.0491 | H0211001.0491 | H0201001.0491 |
|   | 32                     | x 1,5   | 90             | 22             | –              | 22               | 18   | 30,5 | H0211009.0504 | H0211001.0504 | H0201001.0504 |
|   | 33                     | x 1,5   | 100            | 25             | –              | 25               | 20   | 31,5 | H0211009.0511 | H0211001.0511 | H0201001.0511 |
|   | 33                     | x 2     | 100            | 25             | –              | 25               | 20   | 31   | H0211009.0512 | H0211001.0512 | H0201001.0512 |
|   | 34                     | x 1,5   | 100            | 25             | –              | 28               | 22   | 32,5 | H0211009.0518 | H0211001.0518 | H0201001.0518 |
|   | 35                     | x 1,5   | 100            | 25             | –              | 28               | 22   | 33,5 | H0211009.0525 | H0211001.0525 | H0201001.0525 |
|   | 36                     | x 1,5   | 100            | 25             | –              | 28               | 22   | 34,5 | H0211009.0532 | H0211001.0532 | H0201001.0532 |
|   | 36                     | x 2     | 125            | 30             | –              | 28               | 22   | 34   | H0211009.0533 | H0211001.0533 | H0201001.0533 |
|   | 36                     | x 3     | 125            | 36             | –              | 28               | 22   | 33   | H0211009.0534 | H0211001.0534 | H0201001.0534 |
|   | 38                     | x 1,5   | 100            | 25             | –              | 28               | 22   | 36,5 | H0211009.0546 | H0211001.0546 | H0201001.0546 |
|   | 39                     | x 2     | 125            | 30             | –              | 32               | 24   | 37   | H0211009.0554 | H0211001.0554 | H0201001.0554 |
|   | 39                     | x 3     | 125            | 36             | –              | 32               | 24   | 36   | H0211009.0555 | H0211001.0555 | H0201001.0555 |
|   | 40                     | x 1,5   | 110            | 25             | –              | 32               | 24   | 38,5 | H0211009.0560 | H0211001.0560 | H0201001.0560 |
|   | 40                     | x 2     | 125            | 30             | –              | 32               | 24   | 38   | H0211009.0561 | H0211001.0561 | H0201001.0561 |
|   | 40                     | x 3     | 125            | 36             | –              | 32               | 24   | 37   | H0211009.0562 | H0211001.0562 | H0201001.0562 |
|   | 42                     | x 1,5   | 110            | 25             | –              | 32               | 24   | 40,5 | H0211009.0574 | H0211001.0574 | H0201001.0574 |
|   | 42                     | x 2     | 125            | 30             | –              | 32               | 24   | 40   | H0211009.0575 | H0211001.0575 | H0201001.0575 |
|   | 42                     | x 3     | 125            | 36             | –              | 32               | 24   | 39   | H0211009.0576 | H0211001.0576 | H0201001.0576 |
|   | 45                     | x 1,5   | 110            | 25             | –              | 36               | 29   | 43,5 | H0211009.0595 | H0211001.0595 | H0201001.0595 |
|   | 45                     | x 2     | 125            | 30             | –              | 36               | 29   | 43   | H0211009.0596 | H0211001.0596 | H0201001.0596 |
|   | 45                     | x 3     | 125            | 36             | –              | 36               | 29   | 42   | H0211009.0597 | H0211001.0597 | H0201001.0597 |
|   | 48                     | x 1,5   | 140            | 25             | –              | 36               | 29   | 46,5 | H0211009.0616 | H0211001.0616 | H0201001.0616 |
|   | 48                     | x 2     | 140            | 30             | –              | 36               | 29   | 46   | H0211009.0617 | H0211001.0617 | H0201001.0617 |
|   | 48                     | x 3     | 140            | 36             | –              | 36               | 29   | 45   | H0211009.0618 | H0211001.0618 | H0201001.0618 |
|   | 50                     | x 1,5   | 140            | 25             | –              | 36               | 29   | 48,5 | H0211009.0630 | H0211001.0630 | H0201001.0630 |
|   | 50                     | x 2     | 140            | 30             | –              | 36               | 29   | 48   | H0211009.0631 | H0211001.0631 | H0201001.0631 |
|   | 50                     | x 3     | 140            | 36             | –              | 36               | 29   | 47   | H0211009.0632 | H0211001.0632 | H0201001.0632 |
|   | 52                     | x 1,5   | 140            | 25             | –              | 40               | 32   | 50,5 | H0211009.0644 | H0211001.0644 | H0201001.0644 |
|   | 52                     | x 2     | 140            | 32             | –              | 40               | 32   | 50   | H0211009.0645 | H0211001.0645 | H0201001.0645 |
|   | 52                     | x 3     | 140            | 40             | –              | 40               | 32   | 49   | H0211009.0646 | H0211001.0646 | H0201001.0646 |

- Product Finder
- V<sub>c</sub>
- M
- MF**
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories

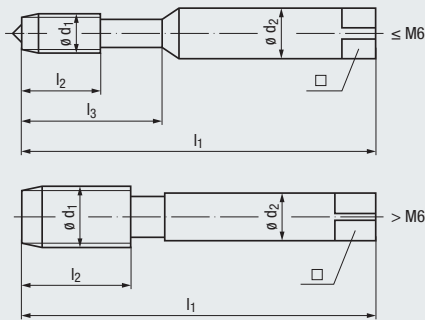


- Product Finder
- V<sub>c</sub>
- M
- MF**
- UNC  
UN-8
- UNF  
UNEF
- G, Rp  
NPSM, NPSF
- NPT, NPTF  
Rc, W
- BSW, BSF
- Pg
- MJ  
UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F  
Rd
- Zubehör  
Accessories



DIN 13

DIN  
2181



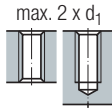
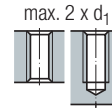
Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material

Technische Informationen  
Technical information



|         |         |         |
|---------|---------|---------|
|         | 6HX     | 6HX     |
| HSSE    | HSSE    | HSSE    |
| LH      | LH      | LH      |
| D / 3-4 | C / 2-3 | C / 2-3 |
| O / P   | O / P   | O / P   |

Gewindetiefe und Lochform  
Thread depth and hole type



Einsatzgebiete – Material  
Applications – material



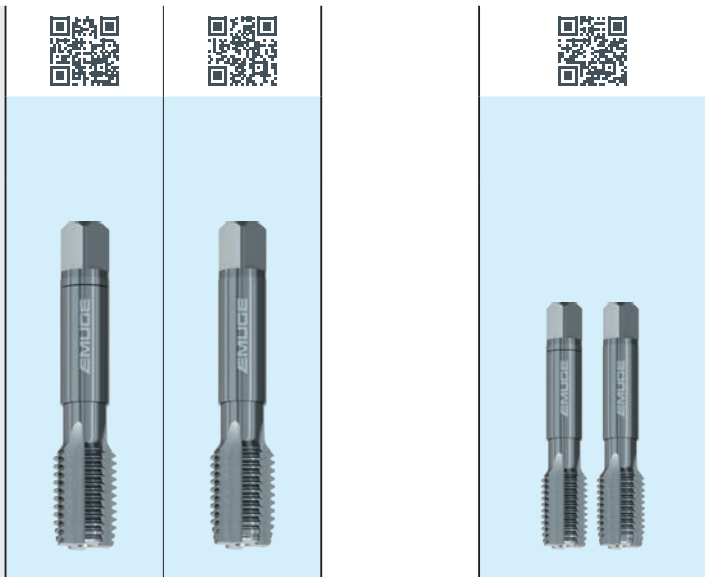
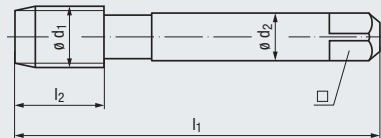
|           |           |           |
|-----------|-----------|-----------|
| P 1.1-3.1 | P 1.1-3.1 | P 1.1-3.1 |
|-----------|-----------|-----------|

| M | ø d <sub>1</sub><br>mm | P<br>mm | l <sub>1</sub> | l <sub>2</sub> | l <sub>3</sub> | ø d <sub>2</sub> | □    | H <sub>1</sub> | HGB-Set<br>LH-V-Nr.1 | HGB-Set<br>LH-F | HGB-Set-LH-2S<br>(Nr.1, F) |
|---|------------------------|---------|----------------|----------------|----------------|------------------|------|----------------|----------------------|-----------------|----------------------------|
|   |                        |         |                |                |                |                  |      |                |                      |                 |                            |
|   | 6                      | x 0,5   | 56             | 12             | 27             | 6                | 4,9  | 5,5            |                      |                 |                            |
|   | 6                      | x 0,75  | 56             | 12             | 27             | 6                | 4,9  | 5,2            |                      |                 |                            |
|   | 7                      | x 0,75  | 56             | 14             | —              | 6                | 4,9  | 6,2            |                      |                 |                            |
|   | 8                      | x 0,5   | 56             | 14             | —              | 6                | 4,9  | 7,5            |                      |                 |                            |
|   | 8                      | x 0,75  | 56             | 14             | —              | 6                | 4,9  | 7,2            |                      |                 |                            |
|   | 8                      | x 1     | 63             | 17             | —              | 6                | 4,9  | 7              |                      |                 |                            |
|   | 9                      | x 1     | 63             | 17             | —              | 7                | 5,5  | 8              | H0211059.0251        | H0211051.0251   | H0201051.0251              |
|   | 10                     | x 0,75  | 63             | 18             | —              | 7                | 5,5  | 9,2            |                      |                 |                            |
|   | 10                     | x 1     | 63             | 18             | —              | 7                | 5,5  | 9              | H0211059.0276        | H0211051.0276   | H0201051.0276              |
|   | 10                     | x 1,25  | 70             | 22             | —              | 7                | 5,5  | 8,8            |                      |                 |                            |
|   | 11                     | x 1     | 63             | 18             | —              | 8                | 6,2  | 10             |                      |                 |                            |
|   | 12                     | x 1     | 70             | 18             | —              | 9                | 7    | 11             | H0211059.0301        | H0211051.0301   | H0201051.0301              |
|   | 12                     | x 1,25  | 70             | 20             | —              | 9                | 7    | 10,8           |                      |                 |                            |
|   | 12                     | x 1,5   | 70             | 20             | —              | 9                | 7    | 10,5           | H0211059.0303        | H0211051.0303   | H0201051.0303              |
|   | 13                     | x 1     | 70             | 18             | —              | 11               | 9    | 12             |                      |                 |                            |
|   | 14                     | x 1     | 70             | 18             | —              | 11               | 9    | 13             |                      |                 |                            |
|   | 14                     | x 1,25  | 70             | 20             | —              | 11               | 9    | 12,8           |                      |                 |                            |
|   | 14                     | x 1,5   | 70             | 20             | —              | 11               | 9    | 12,5           | H0211059.0331        | H0211051.0331   | H0201051.0331              |
|   | 15                     | x 1     | 70             | 18             | —              | 12               | 9    | 14             |                      |                 |                            |
|   | 15                     | x 1,5   | 70             | 20             | —              | 12               | 9    | 13,5           |                      |                 |                            |
|   | 16                     | x 1     | 70             | 18             | —              | 12               | 9    | 15             |                      |                 |                            |
|   | 16                     | x 1,5   | 70             | 20             | —              | 12               | 9    | 14,5           | H0211059.0359        | H0211051.0359   | H0201051.0359              |
|   | 18                     | x 1     | 80             | 18             | —              | 14               | 11   | 17             |                      |                 |                            |
|   | 18                     | x 1,5   | 80             | 22             | —              | 14               | 11   | 16,5           | H0211059.0390        | H0211051.0390   | H0201051.0390              |
|   | 18                     | x 2     | 80             | 22             | —              | 14               | 11   | 16             |                      |                 |                            |
|   | 20                     | x 1     | 80             | 18             | —              | 16               | 12   | 19             |                      |                 |                            |
|   | 20                     | x 1,5   | 80             | 22             | —              | 16               | 12   | 18,5           | H0211059.0422        | H0211051.0422   | H0201051.0422              |
|   | 20                     | x 2     | 80             | 22             | —              | 16               | 12   | 18             |                      |                 |                            |
|   | 22                     | x 1     | 80             | 18             | —              | 18               | 14,5 | 21             |                      |                 |                            |
|   | 22                     | x 1,5   | 80             | 22             | —              | 18               | 14,5 | 20,5           | H0211059.0438        | H0211051.0438   | H0201051.0438              |
|   | 22                     | x 2     | 80             | 22             | —              | 18               | 14,5 | 20             |                      |                 |                            |
|   | 24                     | x 1     | 90             | 18             | —              | 18               | 14,5 | 23             |                      |                 |                            |
|   | 24                     | x 1,5   | 90             | 22             | —              | 18               | 14,5 | 22,5           | H0211059.0452        | H0211051.0452   | H0201051.0452              |
|   | 24                     | x 2     | 90             | 22             | —              | 18               | 14,5 | 22             |                      |                 |                            |



DIN 13

DIN 2181



Technische Informationen  
Technical information

Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material

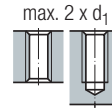
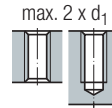


VHM/KHM  
C /  $\approx 3$   
O / P

6HX  
VHM/KHM  
C /  $\approx 3$   
O / P

6HX  
VHM/KHM  
C /  $\approx 3$   
O / P

Gewindetiefe und Lochform  
Thread depth and hole type



Einsatzgebiete – Material  
Applications – material

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P 5.1  
N 2.8, 5.2  
H 1.1-1.3

P 5.1  
N 2.8, 5.2  
H 1.1-1.3

P 5.1  
N 2.8, 5.2  
H 1.1-1.3

| M | $\varnothing d_1$<br>mm | x | P<br>mm | $l_1$ | $l_2$ | $\varnothing d_2$ | □   |      | VHM/KHM-Set<br>V-Nr.1 | VHM/KHM-Set<br>F | VHM/KHM-Set-2S<br>(Nr.1, F) |
|---|-------------------------|---|---------|-------|-------|-------------------|-----|------|-----------------------|------------------|-----------------------------|
|   |                         |   |         |       |       |                   |     |      | H0330909.0251         | H0330901.0251    | H0320901.0251               |
|   | 8                       | x | 1       | 63    | 10    | 6                 | 4,9 | 7    | H0330901.0276         | H0330901.0276    | H0320901.0276               |
|   | 10                      | x | 1       | 63    | 10    | 7                 | 5,5 | 9    | H0330909.0303         | H0330901.0303    | H0320901.0303               |
|   | 12                      | x | 1,5     | 70    | 15    | 9                 | 7   | 10,5 | H0330909.0331         | H0330901.0331    | H0320901.0331               |
|   | 14                      | x | 1,5     | 70    | 15    | 11                | 9   | 12,5 | H0330909.0359         | H0330901.0359    | H0320901.0359               |
|   | 16                      | x | 1,5     | 70    | 15    | 12                | 9   | 14,5 |                       |                  |                             |

- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories

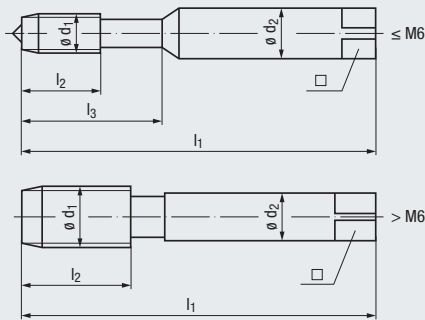


- Product Finder
- V<sub>c</sub>
- M
- MF**
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories



DIN 13

DIN 2181



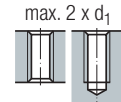
Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material

Technische Informationen  
Technical information



|         |         |             |
|---------|---------|-------------|
| HSSE    | HSSE    | 6HX<br>HSSE |
| C / 2-3 | C / 2-3 | C / 2-3     |
| O / P   | O / P   | O / P       |

Gewindetiefe und Lochform  
Thread depth and hole type



Einsatzgebiete – Material  
Applications – material





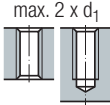


|                       |                       |                       |
|-----------------------|-----------------------|-----------------------|
| <b>P</b> 1.1-5.1      | <b>P</b> 1.1-5.1      | <b>P</b> 1.1-5.1      |
| <b>M</b> 1.1-4.1      | <b>M</b> 1.1-4.1      | <b>M</b> 1.1-4.1      |
| <b>K</b> 1.1-4.2      | <b>K</b> 1.1-4.2      | <b>K</b> 1.1-4.2      |
| <b>N</b> 1.1-2.6      | <b>N</b> 1.1-2.6      | <b>N</b> 1.1-2.6      |
| <b>S</b> 2.1-2.2, 2.4 | <b>S</b> 2.1-2.2, 2.4 | <b>S</b> 2.1-2.2, 2.4 |

| M | ∅ d <sub>1</sub><br>mm | P<br>mm | l <sub>1</sub> | l <sub>2</sub> | l <sub>3</sub> | ∅ d <sub>2</sub> | □    | H <sub>1</sub> | WM-Set               | WM-Set               | WM-Set               |
|---|------------------------|---------|----------------|----------------|----------------|------------------|------|----------------|----------------------|----------------------|----------------------|
|   |                        |         |                |                |                |                  |      |                | V-Nr.1Z              | V-Nr.1               | F                    |
|   | 6                      | x 0,75  | 56             | 12             | 27             | 6                | 4,9  | 5,2            | H0463009.0229        | H0473009.0229        | H0473001.0229        |
|   | 8                      | x 0,75  | 56             | 14             | –              | 6                | 4,9  | 7,2            | H0463009.0250        | H0473009.0250        | H0473001.0250        |
|   | 8                      | x 1     | 63             | 17             | –              | 6                | 4,9  | 7              | <b>H0463009.0251</b> | <b>H0473009.0251</b> | <b>H0473001.0251</b> |
|   | 10                     | x 1     | 63             | 18             | –              | 7                | 5,5  | 9              | <b>H0463009.0276</b> | <b>H0473009.0276</b> | <b>H0473001.0276</b> |
|   | 12                     | x 1     | 70             | 18             | –              | 9                | 7    | 11             | H0463009.0301        | H0473009.0301        | H0473001.0301        |
|   | 12                     | x 1,5   | 70             | 20             | –              | 9                | 7    | 10,5           | <b>H0463009.0303</b> | <b>H0473009.0303</b> | <b>H0473001.0303</b> |
|   | 14                     | x 1,5   | 70             | 20             | –              | 11               | 9    | 12,5           | <b>H0463009.0331</b> | <b>H0473009.0331</b> | <b>H0473001.0331</b> |
|   | 16                     | x 1,5   | 70             | 20             | –              | 12               | 9    | 14,5           | <b>H0463009.0359</b> | <b>H0473009.0359</b> | <b>H0473001.0359</b> |
|   | 18                     | x 1,5   | 80             | 22             | –              | 14               | 11   | 16,5           | H0463009.0390        | H0473009.0390        | H0473001.0390        |
|   | 20                     | x 1,5   | 80             | 22             | –              | 16               | 12   | 18,5           | H0463009.0422        | H0473009.0422        | H0473001.0422        |
|   | 22                     | x 1,5   | 80             | 22             | –              | 18               | 14,5 | 20,5           | H0463009.0438        | H0473009.0438        | H0473001.0438        |
|   | 24                     | x 1,5   | 90             | 22             | –              | 18               | 14,5 | 22,5           | H0463009.0452        | H0473009.0452        | H0473001.0452        |

1) Der Vorschneider Nr.1Z mit Führungszapfen ist eine zusätzliche Hilfe zum winkelrechten Anschneiden von Hand. Er kann z.B. auf der Maschine weggelassen werden. Die Profilabstufung von Nr.1Z und Nr.1 ist gleich.  
The taper tap No. 1Z with cylindrical pilot is an additional aid for true alignment especially when tapping by hand. It can be deleted when tapping by machine. The profile graduation of No.1Z, and No.1 is the same.



|  |  |  |  |   |
|--|--|--|--|---|
| <br><br><br>2) | <br><br> |  |  | Product Finder<br>V <sub>c</sub><br>M<br>MF<br>UNC<br>UN-8<br>UNF<br>UNEF<br>G, Rp<br>NPSM, NPSF<br>NPT, NPTF<br>Rc, W<br>BSW, BSF<br>Pg<br>MJ<br>UNJC, UNJF<br>EG (STI)<br>SELF-LOCK<br>Tr, Tr-F<br>Rd<br>Zubehör<br>Accessories |
| 6HX<br><br>HSSE<br><br>C / 2-3<br>O / P  | 6HX<br><br>HSSE<br><br>C / 2-3<br>O / P  |  |  |   |
|   |  |  |  |   |
| P 1.1-5.1<br>M 1.1-4.1<br>K 1.1-4.2<br>N 1.1-2.6<br>S 2.1-2.2, 2.4   | P 1.1-5.1<br>M 1.1-4.1<br>K 1.1-4.2<br>N 1.1-2.6<br>S 2.1-2.2, 2.4   |  |  |   |
| <b>WM-Set-3S</b><br>(Nr.1Z, Nr.1, F)   | <b>WM-Set-2S</b><br>(Nr.1, F)  |  |  |   |
| H0453001.0229  | H0483001.0229  |  |  | <b>M</b> 6 x 0,75   |
| H0453001.0250  | H0483001.0250  |  |  | 8 x 0,75  |
| <b>H0453001.0251</b>   | <b>H0483001.0251</b>   |  |  | 8 x 1   |
| <b>H0453001.0276</b>   | <b>H0483001.0276</b>   |  |  | 10 x 1  |
| H0453001.0301  | H0483001.0301  |  |  | 12 x 1  |
| <b>H0453001.0303</b>   | <b>H0483001.0303</b>   |  |  | 12 x 1,5  |
| <b>H0453001.0331</b>   | <b>H0483001.0331</b>   |  |  | 14 x 1,5  |
| <b>H0453001.0359</b>   | <b>H0483001.0359</b>   |  |  | 16 x 1,5  |
| H0453001.0390  | H0483001.0390  |  |  | 18 x 1,5  |
| H0453001.0422  | H0483001.0422  |  |  | 20 x 1,5  |
| H0453001.0438  | H0483001.0438  |  |  | 22 x 1,5  |
| H0453001.0452  | H0483001.0452  |  |  | 24 x 1,5  |

2) Beim Gewindebohren von Hand in Durchgangslöcher entfällt Nr.1  
 No.1 is not needed when tapping in through holes by hand



Verstellbare Windeisen siehe Seite 305

Adjustable tap wrenches, see page 305

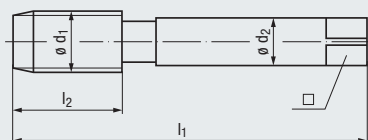
- Product Finder
- V<sub>c</sub>
- M
- MF**
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories



# MF

DIN 13

Für dünnwandige Messing-Rohre  
For thin-walled brass tubes



Technische Informationen  
Technical information

Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material

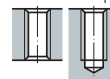


Gewindetiefe und Lochform  
Thread depth and hole type

Einsatzgebiete – Material  
Applications – material

» 78

max. 1 x d<sub>1</sub>



| MS<br>Copper-zinc alloys |             |        |
|--------------------------|-------------|--------|
| 6HX                      | 6HX +0,1 2) | 6GX    |
| HSSE                     | HSSE        | HSSE   |
| max. 1                   | max. 1      | max. 1 |
| E                        | E           | E      |

**N 2.3, 2.6**    **N 2.3, 2.6**    **N 2.3, 2.6**

| M | ø d <sub>1</sub><br>mm | P<br>mm | l <sub>1</sub> | l <sub>2</sub> | ø d <sub>2</sub> | □    |      | AUT-A         | AUT-A         | AUT-A         |
|---|------------------------|---------|----------------|----------------|------------------|------|------|---------------|---------------|---------------|
|   |                        |         |                |                |                  |      |      | MS-R          | MS-R          | MS-R          |
|   | 8                      | x 1     | 63             | 17             | 6                | 4,9  | 7    | A6622501.0251 |               | A6622521.0251 |
|   | 10                     | x 1     | 63             | 18             | 7                | 5,5  | 9    | A6622501.0276 | A662254A.0276 | A6622521.0276 |
|   | 12                     | x 1     | 70             | 18             | 9                | 7    | 11   | A6622501.0301 | A662254A.0301 | A6622521.0301 |
|   | 12                     | x 1,5   | 70             | 20             | 9                | 7    | 10,5 | A6622501.0303 |               | A6622521.0303 |
|   | 14                     | x 1     | 70             | 18             | 10 1)            | 8    | 13   |               | A662254A.0329 | A6622521.0329 |
|   | 14                     | x 1,5   | 70             | 20             | 10 1)            | 8    | 12,5 | A6622501.0331 |               | A6622521.0331 |
|   | 15                     | x 1     | 70             | 18             | 12               | 9    | 14   |               |               | A6622521.0343 |
|   | 16                     | x 1,5   | 70             | 20             | 12               | 9    | 14,5 | A6622501.0359 | A662254A.0359 | A6622521.0359 |
|   | 17                     | x 1     | 70             | 18             | 12               | 9    | 16   |               |               | A6622521.0372 |
|   | 18                     | x 1,5   | 80             | 22             | 12 1)            | 9    | 16,5 | A6622501.0390 |               | A6622521.0390 |
|   | 20                     | x 1,5   | 80             | 22             | 15 1)            | 12   | 18,5 | A6622501.0422 |               | A6622521.0422 |
|   | 22                     | x 1,5   | 80             | 22             | 15 1)            | 12   | 20,5 | A6622501.0438 |               | A6622521.0438 |
|   | 24                     | x 1,5   | 90             | 22             | 18               | 14,5 | 22,5 | A6622501.0452 |               | A6622521.0452 |
|   | 26                     | x 1,5   | 90             | 22             | 18               | 14,5 | 24,5 | A6622501.0464 |               | A6622521.0464 |
|   | 28                     | x 1,5   | 90             | 22             | 18 1)            | 14,5 | 26,5 | A6622501.0476 |               | A6622521.0476 |
|   | 30                     | x 1,5   | 90             | 22             | 18 1)            | 14,5 | 28,5 | A6622501.0490 |               | A6622521.0490 |

1) Spezieller AUT-Schaft  
Special shank for "AUT" taps

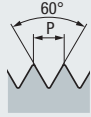
2) Vorbohrdurchmesser für Gewindebohrer mit Übermaß um 0,1 mm anheben  
Increase drill diameter for taps with oversize by 0.1 mm



Automatengewindebohrer für  
Metrisches ISO-Regelgewinde DIN 13  
auf Anfrage

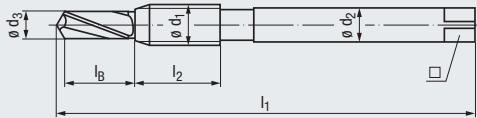
Taps for automatic lathes for  
ISO Metric coarse thread DIN 13,  
upon request

**MF**



DIN 13

Normal lang  
Standard length



Technische Informationen  
Technical information

Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material



ISO 2/6H

HSSE

C / 2-3

E / 0

max. 1 x  $d_1$



Gewindetiefe und Lochform  
Thread depth and hole type

Einsatzgebiete – Material  
Applications – material

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**P 2.1**

**N 2.2**

**Normal lang · Standard length**

|          | $\varnothing d_1$<br>mm | P<br>mm | $l_1$ | $l_2$ | $l_B$ | $\varnothing d_2$ | □   | $\varnothing d_3$ | KOMBI<br>Normal-Ig |
|----------|-------------------------|---------|-------|-------|-------|-------------------|-----|-------------------|--------------------|
| <b>M</b> | 4                       | x 0,5   | 66    | 13    | 8,9   | 4,5               | 3,4 | 3,55              | M0601000.0210      |
|          | 5                       | x 0,5   | 75    | 15    | 10,7  | 6                 | 4,9 | 4,55              |                    |
|          | 6                       | x 0,75  | 81    | 20    | 12,4  | 6                 | 4,9 | 5,31              | M0601000.0229      |
|          | 8                       | x 0,75  | 93    | 12    | 17,8  | 6                 | 4,9 | 7,31              |                    |
|          | 8                       | x 1     | 93    | 12    | 17,8  | 6                 | 4,9 | 7,05              | M0601000.0251      |
|          | 10                      | x 1     | 99    | 14    | 19,2  | 7                 | 5,5 | 9,05              | M0601000.0276      |
|          | 10                      | x 1,25  | 99    | 14    | 19,3  | 7                 | 5,5 | 8,8               |                    |
|          | 12                      | x 1     | 106   | 14    | 21,6  | 9                 | 7   | 11,05             |                    |
|          | 12                      | x 1,5   | 106   | 14    | 21,8  | 9                 | 7   | 10,55             | M0601000.0303      |
|          | 14                      | x 1,5   | 114   | 15    | 24,2  | 11                | 9   | 12,55             | M0601000.0331      |
|          | 16                      | x 1,5   | 123   | 16    | 27,5  | 12                | 9   | 14,55             | M0601000.0359      |
|          | 18                      | x 1,5   | 132   | 18    | 30,9  | 14                | 11  | 16,55             |                    |
|          | 20                      | x 1,5   | 132   | 18    | 30,3  | 16                | 12  | 18,55             | M0601000.0422      |

Product  
Finder

$v_c$

M

**MF**

UNC  
UN-8

UNF  
UNEF

G, Rp  
NPSM, NPSF

NPT, NPTF  
Rc, W

BSW, BSF

Pg

MJ  
UNJC, UNJF

EG (STI)

SELF-LOCK

Tr, Tr-F  
Rd

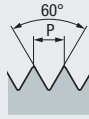
Zubehör  
Accessories



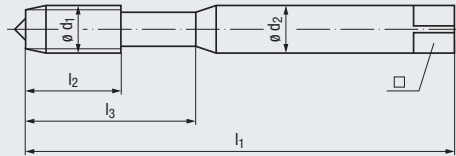
- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC**  
UN-8
- UNF  
UNEF
- G, Rp  
NPSM, NPSF
- NPT, NPTF  
Rc, W
- BSW, BSF
- Pg
- MJ  
UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F  
Rd
- Zubehör  
Accessories

# UNC

ASME B1.1



≈ DIN 371



Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material



Technische Informationen  
Technical information

Gewindetiefe und Lochform  
Thread depth and hole type

Einsatzgebiete – Material  
Applications – material

» 78

| Nr.    | ø d <sub>1</sub> |      | P<br>Gg/1" (tpi) | l <sub>1</sub> | l <sub>2</sub> | l <sub>3</sub> | ø d <sub>2</sub> |      | □ |  |
|--------|------------------|------|------------------|----------------|----------------|----------------|------------------|------|---|--|
|        | inch             | inch |                  |                |                |                |                  |      |   |  |
| Nr. 1  | 0.0730           | 64   | 45               | 7              | –              | 2,8            | 2,1              | 1,55 |   |  |
| Nr. 2  | 0.0860           | 56   | 45               | 7              | –              | 2,8            | 2,1              | 1,85 |   |  |
| Nr. 3  | 0.0990           | 48   | 50               | 9              | 14             | 2,8            | 2,1              | 2,1  |   |  |
| Nr. 4  | 0.1120           | 40   | 56               | 11             | 18             | 3,5            | 2,7              | 2,35 |   |  |
| Nr. 5  | 0.1250           | 40   | 56               | 11             | 18             | 3,5            | 2,7              | 2,65 |   |  |
| Nr. 6  | 0.1380           | 32   | 56               | 12             | 20             | 4              | 3                | 2,85 |   |  |
| Nr. 8  | 0.1640           | 32   | 63               | 13             | 21             | 4,5            | 3,4              | 3,5  |   |  |
| Nr. 10 | 0.1900           | 24   | 70               | 15             | 25             | 6              | 4,9              | 3,9  |   |  |
| Nr. 12 | 0.2160           | 24   | 80               | 16             | 30             | 6              | 4,9              | 4,5  |   |  |
| 1/4    | 0.2500           | 20   | 80               | 17             | 30             | 7              | 5,5              | 5,1  |   |  |
| 5/16   | 0.3125           | 18   | 90               | 20             | 35             | 8              | 6,2              | 6,6  |   |  |
| 3/8    | 0.3750           | 16   | 100              | 22             | 39             | 10             | 8                | 8    |   |  |

≈ DIN 376



**STEEL**  
Steel materials



NEW



l<sub>2</sub> ≈ 10 x P



l<sub>2</sub> ≈ 10 x P

|         |           |                |                |
|---------|-----------|----------------|----------------|
| 2B      | <b>3B</b> | 2B             | 2B             |
| HSSE    | HSSE      | HSSE           | TIN<br>HSSE    |
| B / 4-5 | B / 4-5   | R35<br>C / 2-3 | R35<br>C / 2-3 |
| E / O   | E / O     | E / O          | E / O          |

max. 3 x d<sub>1</sub>



max. 2,5 x d<sub>1</sub>



|           |           |           |           |
|-----------|-----------|-----------|-----------|
| P 1.1-3.1 | P 1.1-3.1 | P 1.1-3.1 | P 1.1-3.1 |
| N 2.2     | N 2.2     | N 2.2     | N 2.2     |

| Rekord<br>1B-STEEL-L | Rekord<br>1B-STEEL-L | Enorm 1<br>STEEL     | Enorm 1<br>STEEL<br>TIN |
|----------------------|----------------------|----------------------|-------------------------|
|                      |                      |                      |                         |
| <b>B0208900.5001</b> |                      |                      |                         |
| B0208900.5002        | B0208910.5002        |                      |                         |
| <b>B0208900.5003</b> | B0208910.5003        | <b>B0501000.5003</b> | <b>B0501400.5003</b>    |
| B0208900.5004        | B0208910.5004        |                      |                         |
| <b>B0208900.5005</b> | <b>B0208910.5005</b> | <b>B0501000.5005</b> | <b>B0501400.5005</b>    |
| <b>B0208900.5006</b> | <b>B0208910.5006</b> | <b>B0501000.5006</b> | <b>B0501400.5006</b>    |
| <b>B0208900.5007</b> | <b>B0208910.5007</b> | <b>B0501000.5007</b> | <b>B0501400.5007</b>    |
| B0208900.5008        | B0208910.5008        |                      |                         |
| <b>B0208900.5009</b> | <b>B0208910.5009</b> | <b>B0501000.5009</b> | <b>B0501400.5009</b>    |
| <b>B0208900.5010</b> | <b>B0208910.5010</b> | <b>B0501000.5010</b> | <b>B0501400.5010</b>    |
| <b>B0208900.5011</b> | <b>B0208910.5011</b> | <b>B0501000.5011</b> | <b>B0501400.5011</b>    |

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» 208

» 208

» 208

| VA<br>Stainless steel materials |                         |                           |                           | INOX<br>Stainless steel materials | H<br>Materials of high tensile strength |
|---------------------------------|-------------------------|---------------------------|---------------------------|-----------------------------------|---|
|                                 |                         |                           |                           |                                   |   |
| 2B                              | 2B                      | 2B                        | 2B                        | 2B                                | 2BX                                     |
| NT                              | TIN                     | GLT-1                     | HSSE                      | GLT-201                           | NT                                      |
| HSSE                            | HSSE                    | HSSE                      | HSSE                      | HSSE                              | HSSE                                    |
| B / 4-5                         | B / 4-5                 | B / 4-5                   | R35                       | R45                               | C / 2-3                                 |
| E / O / P                       | E / O / P               | E / O / P                 | C / 2-3                   | C / 2-3                           | E / O / P                               |
|                                 |                         |                           | E / O / P                 | E / O                             |   |
| max. 3 x d <sub>1</sub>         |                         |                           | max. 2,5 x d <sub>1</sub> | max. 2,5 x d <sub>1</sub>         | max. 2 x d <sub>1</sub>                 |
|                                 |                         |                           |                           |                                   |   |
| <b>P</b> 2.1-3.1                | <b>P</b> 1.1-4.1        | <b>P</b> 1.1-4.1          | <b>P</b> 1.1-3.1          | <b>M</b> 1.1-2.1                  | <b>K</b> 1.1-4.2                        |
| <b>N</b> 2.2, 2.5               |                         | <b>M</b> 1.1-4.1          |                           |                                   | <b>N</b> 4.1                            |
|                                 |                         | <b>N</b> 2.2              |                           |                                   |   |
| <b>Rekord 1B-VA NT</b>          | <b>Rekord 1B-VA TIN</b> | <b>Rekord 1B-VA GLT-1</b> | <b>Enorm 1 VA</b>         | <b>Enorm 1 INOX GLT-201</b>       | <b>Rekord 1A-H NT</b>                   |
| <b>B0203000.5001</b>            | B0203100.5001           | B020C300.5001             |                           |                                   |   |
| <b>B0203000.5003</b>            | B0203100.5003           | B020C300.5003             | <b>B0503000.5003</b>      | <b>B050J300.5003</b>              | <b>B0100501.5003</b>                    |
| <b>B0203000.5005</b>            | B0203100.5005           | B020C300.5005             | <b>B0503000.5005</b>      | <b>B050J300.5005</b>              | B0100501.5004                           |
| <b>B0203000.5006</b>            | B0203100.5006           | B020C300.5006             | <b>B0503000.5006</b>      | <b>B050J300.5006</b>              | <b>B0100501.5005</b>                    |
| <b>B0203000.5007</b>            | B0203100.5007           | B020C300.5007             | <b>B0503000.5007</b>      | <b>B050J300.5007</b>              | <b>B0100501.5006</b>                    |
| <b>B0203000.5009</b>            | B0203100.5009           | B020C300.5009             | <b>B0503000.5009</b>      | <b>B050J300.5009</b>              | <b>B0100501.5007</b>                    |
| <b>B0203000.5010</b>            | B0203100.5010           | B020C300.5010             | <b>B0503000.5010</b>      | <b>B050J300.5010</b>              | B0100501.5008                           |
| <b>B0203000.5011</b>            | B0203100.5011           | B020C300.5011             | <b>B0503000.5011</b>      | <b>B050J300.5011</b>              | <b>B0100501.5009</b>                    |
| 209                             | 209                     | 209                       | 209                       | 209                               | 209                                     |

|                |
|----------------|
| Product Finder |
| V <sub>c</sub> |
| M              |
| MF             |
| <b>UNC</b>     |
| UN-8           |
| UNF            |
| UNEF           |
| G, Rp          |
| NPSM, NPSF     |
| NPT, NPTF      |
| Rc, W          |
| BSW, BSF       |
| Pg             |
| MJ             |
| UNJC, UNJF     |
| EG (STI)       |
| SELF-LOCK      |
| Tr, Tr-F       |
| Rd             |
| Zubehör        |
| Accessories    |

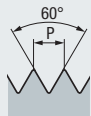


|             |
|-------------|
| Nr. 1 - 64  |
| Nr. 2 - 56  |
| Nr. 3 - 48  |
| Nr. 4 - 40  |
| Nr. 5 - 40  |
| Nr. 6 - 32  |
| Nr. 8 - 32  |
| Nr. 10 - 24 |
| Nr. 12 - 24 |
| 1/4 - 20    |
| 5/16 - 18   |
| 3/8 - 16    |

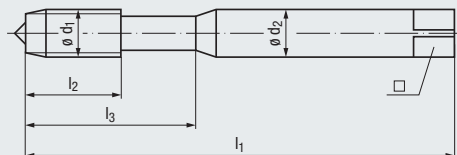
- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC**  
UN-8
- UNF  
UNEF
- G, Rp  
NPSM, NPSF
- NPT, NPTF  
Rc, W
- BSW, BSF
- Pg
- MJ  
UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F  
Rd
- Zubehör  
Accessories

# UNC

ASME B1.1



≈ DIN 371



Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material



Technische Informationen  
Technical information

Gewindetiefe und Lochform  
Thread depth and hole type

Einsatzgebiete – Material  
Applications – material

» 78

Z  
CNC-controlled machines

|                |           |           |                  |
|----------------|-----------|-----------|------------------|
|                |           |           |                  |
|                |           |           |                  |
| 2BX            | 2B        | 2B        | 2B               |
| GLT-1          |           | GLT-1     |                  |
| <b>HSSE-PM</b> | HSSE      | HSSE      | HSSE             |
| R45            | R45       | R45       | R45              |
| C / 2-3        | C / 2-3   | C / 2-3   | <b>E / 1,5-2</b> |
| E / 0 / P      | E / 0 / P | E / 0 / P | E / 0 / P        |

max. 3 x d<sub>1</sub>



|                       |                  |                       |                  |
|-----------------------|------------------|-----------------------|------------------|
| <b>P 1.1-4.1</b>      | <b>P 1.1-3.1</b> | <b>P 1.1-4.1</b>      | <b>P 1.1-3.1</b> |
| <b>M 1.1-4.1</b>      |                  | <b>M 1.1-4.1</b>      |                  |
| <b>K 1.1-3.2</b>      |                  | <b>N 1.4, 2.1-2.2</b> |                  |
| <b>N 1.4, 2.1-2.2</b> |                  | <b>N 2.4-2.5</b>      |                  |
| <b>N 2.4-2.5</b>      |                  | <b>S 1.1</b>          |                  |
| <b>S 1.1</b>          |                  |                       |                  |

| Nr.    | ø d <sub>1</sub> |      | P<br>Gg/1" (tpi) | l <sub>1</sub> | l <sub>2</sub> | l <sub>3</sub> | ø d <sub>2</sub> |     | □    |               | Enorm<br>1-Z<br>PM-GLT-1 | Enorm<br>1-Z  | Enorm<br>1-Z<br>GLT-1 | Enorm<br>1-Z/E |
|--------|------------------|------|------------------|----------------|----------------|----------------|------------------|-----|------|---------------|--------------------------|---------------|-----------------------|----------------|
|        | inch             | mm   |                  |                |                |                | mm               | mm  |      |               |                          |               |                       |                |
| Nr. 1  | 0.0730           | 1.85 | 64               | 45             | 4              | —              | 2,8              | 2,1 | 1,55 |               |                          |               |                       |                |
| Nr. 2  | 0.0860           | 2.15 | 56               | 45             | 4,5            | —              | 2,8              | 2,1 | 1,85 |               | B0503500.5001            |               | B0513500.5001         |                |
| Nr. 3  | 0.0990           | 2.50 | 48               | 50             | 5              | 14             | 2,8              | 2,1 | 2,1  | B616A601.5003 | B0503500.5002            | B050C400.5003 | B0513500.5002         |                |
| Nr. 4  | 0.1120           | 2.85 | 40               | 56             | 6              | 18             | 3,5              | 2,7 | 2,35 |               | B0503500.5003            |               | B0513500.5003         |                |
| Nr. 5  | 0.1250           | 3.18 | 40               | 56             | 7              | 18             | 3,5              | 2,7 | 2,65 |               | B0503500.5004            |               | B0513500.5004         |                |
| Nr. 6  | 0.1380           | 3.50 | 32               | 56             | 7              | 20             | 4                | 3   | 2,85 | B616A601.5005 | B0503500.5005            | B050C400.5005 | B0513500.5005         |                |
| Nr. 8  | 0.1640           | 4.18 | 32               | 63             | 8              | 21             | 4,5              | 3,4 | 3,5  | B616A601.5006 | B0503500.5006            | B050C400.5006 | B0513500.5006         |                |
| Nr. 10 | 0.1900           | 4.83 | 24               | 70             | 10             | 25             | 6                | 4,9 | 3,9  | B616A601.5007 | B0503500.5007            | B050C400.5007 | B0513500.5007         |                |
| Nr. 12 | 0.2160           | 5.49 | 24               | 80             | 10             | 30             | 6                | 4,9 | 4,5  |               | B0503500.5008            |               | B0513500.5008         |                |
| 1/4    | 0.2500           | 6.35 | 20               | 80             | 13             | 30             | 7                | 5,5 | 5,1  | B616A601.5009 | B0503500.5009            | B050C400.5009 | B0513500.5009         |                |
| 5/16   | 0.3125           | 7.94 | 18               | 90             | 14             | 35             | 8                | 6,2 | 6,6  | B616A601.5010 | B0503500.5010            | B050C400.5010 | B0513500.5010         |                |
| 3/8    | 0.3750           | 9.53 | 16               | 100            | 16             | 39             | 10               | 8   | 8    | B616A601.5011 | B0503500.5011            | B050C400.5011 | B0513500.5011         |                |

≈ DIN 376



210

210

210

210

| Z<br>CNC-controlled machines |                       |                  |                       |                  |                       |
|------------------------------|-----------------------|------------------|-----------------------|------------------|-----------------------|
|                              |                       |                  |                       |                  |                       |
| <b>new</b>                   | <b>new</b>            | <b>new</b>       | <b>new</b>            | <b>new</b>       | <b>new</b>            |
| 2B                           | 2B                    | 3B               | 3B                    | 2B +0,05 2)      | 2B +0,05 2)           |
| TIN                          | GLT-1                 |                  | GLT-1                 |                  | GLT-1                 |
| HSSE                         | HSSE                  | HSSE             | HSSE                  | HSSE             | HSSE                  |
| R45                          | R45                   | R45              | R45                   | R45              | R45                   |
| E / 1,5-2                    | E / 1,5-2             | C / 2-3          | C / 2-3               | C / 2-3          | C / 2-3               |
| E / O / P                    | E / O / P             | E / O / P        | E / O / P             | E / O / P        | E / O / P             |
| max. 3 x d <sub>1</sub><br>  |                       |                  |                       |                  |                       |
| <b>P 1.1-4.1</b>             | <b>P 1.1-4.1</b>      | <b>P 1.1-3.1</b> | <b>P 1.1-4.1</b>      | <b>P 1.1-3.1</b> | <b>P 1.1-4.1</b>      |
| <b>N 2.2, 2.4-2.5</b>        | <b>M 1.1-4.1</b>      |                  | <b>M 1.1-4.1</b>      |                  | <b>M 1.1-4.1</b>      |
| <b>S 1.1</b>                 | <b>N 1.4, 2.1-2.2</b> |                  | <b>N 1.4, 2.1-2.2</b> |                  | <b>N 1.4, 2.1-2.2</b> |
|                              | <b>N 2.4-2.5</b>      |                  | <b>N 2.4-2.5</b>      |                  | <b>N 2.4-2.5</b>      |
|                              | <b>S 1.1</b>          |                  | <b>S 1.1</b>          |                  | <b>S 1.1</b>          |
| Enorm 1-Z/E TIN              | Enorm 1-Z/E GLT-1     | Enorm 1-Z        | Enorm 1-Z GLT-1       | Enorm 1-Z        | Enorm 1-Z GLT-1       |
| B0513700.5003                | B051C400.5003         | B0503510.5003    | B050C410.5003         | B0503530.5002    | B050C430.5003         |
|                              |                       | B0503510.5004    | B050C410.5004         | B0503530.5004    | B050C430.5004         |
| B0513700.5005                | B051C400.5005         | B0503510.5005    | B050C410.5005         | B0503530.5005    | B050C430.5005         |
| B0513700.5006                | B051C400.5006         | B0503510.5006    | B050C410.5006         | B0503530.5006    | B050C430.5006         |
| B0513700.5007                | B051C400.5007         | B0503510.5007    | B050C410.5007         | B0503530.5007    | B050C430.5007         |
|                              |                       | B0503510.5008    | B050C410.5008         | B0503530.5008    | B050C430.5008         |
| B0513700.5009                | B051C400.5009         | B0503510.5009    | B050C410.5009         | B0503530.5009    | B050C430.5009         |
| B0513700.5010                | B051C400.5010         | B0503510.5010    | B050C410.5010         | B0503530.5010    | B050C430.5010         |
| B0513700.5011                | B051C400.5011         | B0503510.5011    | B050C410.5011         | B0503530.5011    | B050C430.5011         |
|                              |                       |                  |                       |                  |                       |

|                     |
|---------------------|
| Product Finder      |
| V <sub>c</sub>      |
| M                   |
| MF                  |
| UNC UN-8            |
| UNF UNEF            |
| G, Rp NPSM, NPSF    |
| NPT, NPTF Rc, W     |
| BSW, BSF            |
| Pg                  |
| MJ UNJC, UNJF       |
| EG (STI)            |
| SELF-LOCK           |
| Tr, Tr-F Rd         |
| Zubehör Accessories |



|             |
|-------------|
| Nr. 1 - 64  |
| Nr. 2 - 56  |
| Nr. 3 - 48  |
| Nr. 4 - 40  |
| Nr. 5 - 40  |
| Nr. 6 - 32  |
| Nr. 8 - 32  |
| Nr. 10 - 24 |
| Nr. 12 - 24 |
| 1/4 - 20    |
| 5/16 - 18   |
| 3/8 - 16    |

2) Vorbohrdurchmesser für Gewindebohrer mit Übermaß um 0,05 mm anheben  
Increase drill diameter for taps with oversize by 0.05 mm

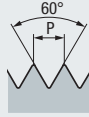


Werkzeug-Aufnahmen der Typenreihe Softsynchro® siehe Seite 617 - 644  
Tool holders of our Softsynchro® series, see page 617 - 644

- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC**  
UN-8
- UNF  
UNEF
- G, Rp  
NPSM, NPSF
- NPT, NPTF  
Rc, W
- BSW, BSF
- Pg
- MJ  
UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F  
Rd
- Zubehör  
Accessories

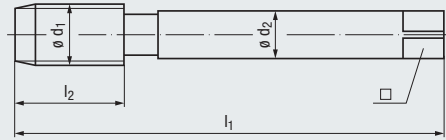
# UNC

ASME B1.1



≈ DIN  
376

**STEEL**  
Steel  
materials



NEW

l<sub>2</sub> ≈ 10 x P

l<sub>2</sub> ≈ 10 x P

Technische Informationen  
Technical information

Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material



|         |           |                |                |
|---------|-----------|----------------|----------------|
| 2B      | <b>3B</b> | 2B             | 2B             |
| HSSE    | HSSE      | HSSE           | TIN<br>HSSE    |
| B / 4-5 | B / 4-5   | R35<br>C / 2-3 | R35<br>C / 2-3 |
| E / O   | E / O     | E / O          | E / O          |

Gewindetiefe und Lochform  
Thread depth and hole type

max. 3 x d<sub>1</sub>



max. 2,5 x d<sub>1</sub>



Einsatzgebiete – Material  
Applications – material

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|           |           |           |           |
|-----------|-----------|-----------|-----------|
| P 1.1-3.1 | P 1.1-3.1 | P 1.1-3.1 | P 1.1-3.1 |
| N 2.2     | N 2.2     | N 2.2     | N 2.2     |

| ø d <sub>1</sub><br>inch | P<br>Gg/1" (tpi) | l <sub>1</sub> | l <sub>2</sub> | ø d <sub>2</sub> | □   | l <sub>1</sub> | l <sub>2</sub> | Rekord               | Rekord               | Enorm                | Enorm                |
|--------------------------|------------------|----------------|----------------|------------------|-----|----------------|----------------|----------------------|----------------------|----------------------|----------------------|
|                          |                  |                |                |                  |     |                |                | 2B-STEEL-L           | 2B-STEEL-L           | 2-STEEL              | 2-STEEL<br>TIN       |
| 1/4                      | 0.2500           | 20             | 80             | 17               | 4,5 | 3,4            | 5,1            | <b>C0208900.5009</b> |                      |                      |                      |
| 5/16                     | 0.3125           | 18             | 90             | 20               | 6   | 4,9            | 6,6            | <b>C0208900.5010</b> |                      |                      |                      |
| 3/8                      | 0.3750           | 16             | 100            | 22               | 7   | 5,5            | 8              | <b>C0208900.5011</b> | C0208910.5011        |                      |                      |
| 7/16                     | 0.4375           | 14             | 100            | 22               | 8   | 6,2            | 9,4            | <b>C0208900.5012</b> | <b>C0208910.5012</b> | <b>C0501000.5012</b> | <b>C0501400.5012</b> |
| 1/2                      | 0.5000           | 13             | 110            | 25               | 9   | 7              | 10,8           | <b>C0208900.5013</b> | <b>C0208910.5013</b> | <b>C0501000.5013</b> | <b>C0501400.5013</b> |
| 9/16                     | 0.5625           | 12             | 110            | 26               | 11  | 9              | 12,2           | C0208900.5014        | C0208910.5014        | <b>C0501000.5014</b> | <b>C0501400.5014</b> |
| 5/8                      | 0.6250           | 11             | 110            | 27               | 12  | 9              | 13,5           | <b>C0208900.5015</b> | <b>C0208910.5015</b> | <b>C0501000.5015</b> | <b>C0501400.5015</b> |
| 3/4                      | 0.7500           | 10             | 125            | 30               | 14  | 11             | 16,5           | <b>C0208900.5016</b> | <b>C0208910.5016</b> | <b>C0501000.5016</b> | <b>C0501400.5016</b> |
| 7/8                      | 0.8750           | 9              | 140            | 32               | 18  | 14,5           | 19,5           | <b>C0208900.5017</b> |                      |                      |                      |
| 1"                       | 1.0000           | 8              | 160            | 36               | 18  | 14,5           | 22,25          | <b>C0208900.5018</b> |                      | <b>C0501000.5018</b> | <b>C0501400.5018</b> |
| 1 1/8                    | 1.1250           | 7              | 180            | 40               | 22  | 18             | 25             | C0208900.5019        |                      |                      |                      |
| 1 1/4                    | 1.2500           | 7              | 180            | 40               | 22  | 18             | 28             | <b>C0208900.5020</b> |                      | <b>C0501000.5020</b> | <b>C0501400.5020</b> |
| 1 3/8                    | 1.3750           | 6              | 200            | 50               | 28  | 22             | 30,75          | C0208900.5021        |                      | <b>C0501000.5021</b> | <b>C0501400.5021</b> |
| 1 1/2                    | 1.5000           | 6              | 200            | 50               | 28  | 22             | 34             | <b>C0208900.5022</b> |                      | <b>C0501000.5022</b> | <b>C0501400.5022</b> |
| 1 3/4                    | 1.7500           | 5              | 220            | 58               | 36  | 29             | 39,5           | <b>C0208900.5023</b> |                      | <b>C0501000.5023</b> | <b>C0501400.5023</b> |
| 2"                       | 2.0000           | 4 1/2          | 250            | 65               | 40  | 32             | 45             | <b>C0208900.5024</b> |                      | <b>C0501000.5024</b> | <b>C0501400.5024</b> |

≈ DIN 371



204

204

204

204



Gewinde-Tiefenlehrdorne  
siehe Seite 588 - 591

Thread depth plug gauges,  
see page 588 - 591



| VA<br>Stainless steel materials       |                         |  |                           | INOX<br>Stainless steel materials | H<br>Materials of high tensile strength |
|---------------------------------------|-------------------------|--|---------------------------|-----------------------------------|---|
|                                       |                         |  |                           |                                   |   |
| 2B                                    | 2B                      | 2B   | 2B                        | 2B                                | 2BX                                     |
| NT                                    | TIN                     | GLT-1  | 2B                        | GLT-201                           | NT                                      |
| HSSE                                  | HSSE                    | HSSE   | HSSE                      | HSSE                              | HSSE                                    |
| B / 4-5                               | B / 4-5                 | B / 4-5  | R35                       | R45                               |   |
| E / O / P                             | E / O / P               | E / O / P  | C / 2-3                   | C / 2-3                           | C / 2-3                                 |
|                                       |                         |  | E / O / P                 | E / 0                             | E / O / P                               |
| max. 3 x d <sub>1</sub>               |                         |  | max. 2,5 x d <sub>1</sub> | max. 2,5 x d <sub>1</sub>         | max. 2 x d <sub>1</sub>                 |
|                                       |                         |  |                           |                                   |   |
| <b>P</b> 2.1-3.1<br><b>N</b> 2.2, 2.5 | <b>P</b> 1.1-4.1        | <b>P</b> 1.1-4.1<br><b>M</b> 1.1-4.1<br><b>N</b> 2.2 | <b>P</b> 1.1-3.1          | <b>M</b> 1.1-2.1                  | <b>K</b> 1.1-4.2<br><b>N</b> 4.1        |
| <b>Rekord 2B-VA NT</b>                | <b>Rekord 2B-VA TIN</b> | <b>Rekord 2B-VA GLT-1</b>                            | <b>Enorm 2 VA</b>         | <b>Enorm 2 INOX GLT-201</b>       | <b>Rekord 2A-H NT</b>                   |
|                                       |                         |  |                           |                                   |   |
| <b>C0203000.5012</b>                  | C0203100.5012           | C020C300.5012  | <b>C0503000.5012</b>      | <b>C050J300.5012</b>              | C0100501.5011                           |
| <b>C0203000.5013</b>                  | C0203100.5013           | C020C300.5013  | <b>C0503000.5013</b>      | <b>C050J300.5013</b>              | <b>C0100501.5012</b>                    |
|                                       |                         |  | <b>C0503000.5014</b>      | <b>C050J300.5014</b>              | <b>C0100501.5013</b>                    |
| <b>C0203000.5015</b>                  | C0203100.5015           | C020C300.5015  | <b>C0503000.5015</b>      | <b>C050J300.5015</b>              | <b>C0100501.5014</b>                    |
| <b>C0203000.5016</b>                  | C0203100.5016           | C020C300.5016  | <b>C0503000.5016</b>      | <b>C050J300.5016</b>              | <b>C0100501.5015</b>                    |
| <b>C0203000.5017</b>                  | C0203100.5017           | C020C300.5017  |                           |                                   | <b>C0100501.5016</b>                    |
| <b>C0203000.5018</b>                  | C0203100.5018           | C020C300.5018  | <b>C0503000.5018</b>      | <b>C050J300.5018</b>              | <b>C0100501.5017</b>                    |
|                                       |                         |  |                           |                                   | <b>C0100501.5018</b>                    |
|                                       |                         |  |                           |                                   | 1" - 8                                  |
|                                       |                         |  |                           |                                   | 1 1/8 - 7                               |
|                                       |                         |  |                           |                                   | 1 1/4 - 7                               |
|                                       |                         |  |                           |                                   | 1 3/8 - 6                               |
|                                       |                         |  |                           |                                   | 1 1/2 - 6                               |
|                                       |                         |  |                           |                                   | 1 3/4 - 5                               |
|                                       |                         |  |                           |                                   | 2" - 4 1/2                              |
|                                       |                         |  |                           |                                   |   |

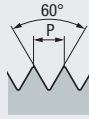
|                        |
|------------------------|
| Product Finder         |
| V <sub>c</sub>         |
| M                      |
| MF                     |
| <b>UNC</b><br>UN-8     |
| UNF<br>UNEF            |
| G, Rp<br>NPSM, NPSF    |
| NPT, NPTF<br>Rc, W     |
| BSW, BSF               |
| Pg                     |
| MJ<br>UNJC, UNJF       |
| EG (STI)               |
| SELF-LOCK              |
| Tr, Tr-F<br>Rd         |
| Zubehör<br>Accessories |



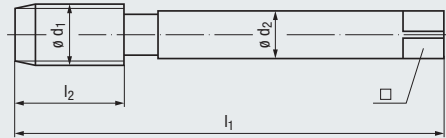
- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC**  
UN-8
- UNF  
UNEF
- G, Rp  
NPSM, NPSF
- NPT, NPTF  
Rc, W
- BSW, BSF
- Pg
- MJ  
UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F  
Rd
- Zubehör  
Accessories

# UNC

ASME B1.1



≈ DIN 376



Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material



Technische Informationen  
Technical information

Gewindetiefe und Lochform  
Thread depth and hole type

Einsatzgebiete – Material  
Applications – material



max. 3 x d<sub>1</sub>



|                       |                  |                       |                  |
|-----------------------|------------------|-----------------------|------------------|
| <b>P</b> 1.1-4.1      | <b>P</b> 1.1-3.1 | <b>P</b> 1.1-4.1      | <b>P</b> 1.1-3.1 |
| <b>M</b> 1.1-4.1      |                  | <b>M</b> 1.1-4.1      |                  |
| <b>K</b> 1.1-3.2      |                  | <b>N</b> 1.4, 2.1-2.2 |                  |
| <b>N</b> 1.4, 2.1-2.2 |                  | <b>N</b> 2.4-2.5      |                  |
| <b>N</b> 2.4-2.5      |                  | <b>S</b> 1.1          |                  |
| <b>S</b> 1.1          |                  |                       |                  |

| ∅ d <sub>1</sub><br>inch | P<br>Gg/1" (tpi) | l <sub>1</sub> | l <sub>2</sub> | ∅ d <sub>2</sub> | □    | Enorm 2-Z<br>PM-GLT-1 | Enorm 2-Z            | Enorm 2-Z<br>GLT-1   | Enorm 2-Z/E          |
|--------------------------|------------------|----------------|----------------|------------------|------|-----------------------|----------------------|----------------------|----------------------|
| 1/4                      | 0.2500 20        | 80             | 13             | 4,5              | 3,4  |                       |                      |                      |                      |
| 5/16                     | 0.3125 18        | 90             | 14             | 6                | 4,9  |                       |                      |                      |                      |
| 3/8                      | 0.3750 16        | 100            | 16             | 7                | 5,5  |                       |                      |                      |                      |
| 7/16                     | 0.4375 14        | 100            | 18             | 8                | 6,2  | <b>C616A601.5012</b>  | <b>C0503500.5012</b> | <b>C050C400.5012</b> | <b>C0513500.5011</b> |
| 1/2                      | 0.5000 13        | 110            | 20             | 9                | 7    | <b>C616A601.5013</b>  | <b>C0503500.5013</b> | <b>C050C400.5013</b> | <b>C0513500.5012</b> |
| 9/16                     | 0.5625 12        | 110            | 20             | 11               | 9    |                       | <b>C0503500.5014</b> | <b>C050C400.5014</b> | <b>C0513500.5014</b> |
| 5/8                      | 0.6250 11        | 110            | 22             | 12               | 9    | <b>C616A601.5015</b>  | <b>C0503500.5015</b> | <b>C050C400.5015</b> | <b>C0513500.5015</b> |
| 3/4                      | 0.7500 10        | 125            | 25             | 14               | 11   | <b>C616A601.5016</b>  | <b>C0503500.5016</b> | <b>C050C400.5016</b> | <b>C0513500.5016</b> |
| 7/8                      | 0.8750 9         | 140            | 27             | 18               | 14,5 |                       | <b>C0503500.5017</b> | <b>C050C400.5017</b> | <b>C0513500.5017</b> |
| 1"                       | 1.0000 8         | 160            | 30             | 18               | 14,5 | <b>C616A601.5018</b>  | <b>C0503500.5018</b> | <b>C050C400.5018</b> | <b>C0513500.5018</b> |
| 1 1/8                    | 1.1250 7         | 180            | 35             | 22               | 18   |                       | <b>C0503500.5019</b> |                      |                      |
| 1 1/4                    | 1.2500 7         | 180            | 35             | 22               | 18   |                       |                      |                      |                      |
| 1 3/8                    | 1.3750 6         | 200            | 40             | 28               | 22   |                       |                      |                      |                      |
| 1 1/2                    | 1.5000 6         | 200            | 40             | 28               | 22   |                       |                      |                      |                      |
| 1 3/4                    | 1.7500 5         | 220            | 45             | 36               | 29   |                       |                      |                      |                      |
| 2"                       | 2.0000 4 1/2     | 250            | 50             | 40               | 32   |                       |                      |                      |                      |

≈ DIN 371



206

206

206

206

| Z<br>CNC-controlled machines                              |   |                      |   |                  |   |  |  |  |            |
|---|---|----------------------|---|------------------|---|--|--|--|------------|
|   | <b>new</b>  | <b>new</b>           | <b>new</b>  |                  | <b>new</b>  |  |  |  |            |
| 2B  | 2B  | <b>3B</b>            | <b>3B</b>   | 2B +0,05 2)      | 2B +0,05 2)   |  |  |  |            |
| TIN   | GLT-1   |                      | GLT-1   |                  | GLT-1   |  |  |  |            |
| HSSE  | HSSE  | HSSE                 | HSSE  | HSSE             | HSSE  |  |  |  |            |
| R45   | R45   | R45                  | R45   | R45              | R45   |  |  |  |            |
| E / 1,5-2   | E / 1,5-2   | C / 2-3              | C / 2-3   | C / 2-3          | C / 2-3   |  |  |  |            |
| E / O / P   | E / O / P   | E / O / P            | E / O / P   | E / O / P        | E / O / P   |  |  |  |            |
| max. 3 x d <sub>1</sub>                                   |   |                      |   |                  |   |  |  |  |            |
|   |   |                      |   |                  |   |  |  |  |            |
| <b>P</b> 1.1-4.1<br><b>N</b> 2.2, 2.4-2.5<br><b>S</b> 1.1 | <b>P</b> 1.1-4.1<br><b>M</b> 1.1-4.1<br><b>N</b> 1.4, 2.1-2.2<br><b>N</b> 2.4-2.5<br><b>S</b> 1.1 | <b>P</b> 1.1-3.1     | <b>P</b> 1.1-4.1<br><b>M</b> 1.1-4.1<br><b>N</b> 1.4, 2.1-2.2<br><b>N</b> 2.4-2.5<br><b>S</b> 1.1 | <b>P</b> 1.1-3.1 | <b>P</b> 1.1-4.1<br><b>M</b> 1.1-4.1<br><b>N</b> 1.4, 2.1-2.2<br><b>N</b> 2.4-2.5<br><b>S</b> 1.1 |  |  |  |            |
| <b>Enorm 2-Z/E TIN</b>                                    | <b>Enorm 2-Z/E GLT-1</b>  | <b>Enorm 2-Z</b>     | <b>Enorm 2-Z GLT-1</b>  | <b>Enorm 2-Z</b> | <b>Enorm 2-Z GLT-1</b>  |  |  |  |            |
|   |   | C0503510.5011        | C050C410.5011   | C0503530.5012    | C050C430.5012   |  |  |  | 1/4 - 20   |
| <b>C0513700.5012</b>                                      | <b>C051C400.5012</b>  | <b>C0503510.5012</b> | <b>C050C410.5012</b>  | C0503530.5013    | C050C430.5013   |  |  |  | 5/16 - 18  |
| <b>C0513700.5013</b>                                      | <b>C051C400.5013</b>  | <b>C0503510.5013</b> | <b>C050C410.5013</b>  | C0503530.5014    | C050C430.5014   |  |  |  | 3/8 - 16   |
| C0513700.5014   | C051C400.5014   | C0503510.5014        | C050C410.5014   | C0503530.5015    | C050C430.5015   |  |  |  | 7/16 - 14  |
| <b>C0513700.5015</b>                                      | <b>C051C400.5015</b>  | <b>C0503510.5015</b> | <b>C050C410.5015</b>  | C0503530.5016    | C050C430.5016   |  |  |  | 1/2 - 13   |
| C0513700.5016   | C051C400.5016   | C0503510.5016        | C050C410.5016   | C0503530.5017    | C050C430.5017   |  |  |  | 9/16 - 12  |
| C0513700.5017   | C051C400.5017   | C0503510.5018        | C050C410.5018   | C0503530.5018    | C050C430.5018   |  |  |  | 5/8 - 11   |
| <b>C0513700.5018</b>                                      | <b>C051C400.5018</b>  |                      |   |                  |   |  |  |  | 3/4 - 10   |
|   |   |                      |   |                  |   |  |  |  | 7/8 - 9    |
|   |   |                      |   |                  |   |  |  |  | 1" - 8     |
|   |   |                      |   |                  |   |  |  |  | 1 1/8 - 7  |
|   |   |                      |   |                  |   |  |  |  | 1 1/4 - 7  |
|   |   |                      |   |                  |   |  |  |  | 1 3/8 - 6  |
|   |   |                      |   |                  |   |  |  |  | 1 1/2 - 6  |
|   |   |                      |   |                  |   |  |  |  | 1 3/4 - 5  |
|   |   |                      |   |                  |   |  |  |  | 2" - 4 1/2 |
|   |   |                      |   |                  |   |  |  |  |            |

2) Vorbohrdurchmesser für Gewindebohrer mit Übermaß um 0,05 mm anheben  
Increase drill diameter for taps with oversize by 0.05 mm

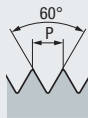
|                        |
|------------------------|
| Product Finder         |
| V <sub>c</sub>         |
| M                      |
| MF                     |
| <b>UNC</b><br>UN-8     |
| UNF<br>UNEF            |
| G, Rp<br>NPSM, NPSF    |
| NPT, NPTF<br>Rc, W     |
| BSW, BSF               |
| Pg                     |
| MJ<br>UNJC, UNJF       |
| EG (STI)               |
| SELF-LOCK              |
| Tr, Tr-F<br>Rd         |
| Zubehör<br>Accessories |



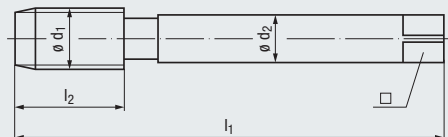
- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC  
UN-8
- UNF  
UNEF
- G, Rp  
NPSM, NPSF
- NPT, NPTF  
Rc, W
- BSW, BSF
- Pg
- MJ  
UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F  
Rd
- Zubehör  
Accessories

# UN-8

ASME B1.1



≈ DIN 374



**STEEL**  
Steel materials



NEW



**Z**  
CNC-controlled machines



NEW



Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material

Technische Informationen  
Technical information



- 2B
- TIN
- HSSE
- R35
- C / 2-3
- E / O

- 2B
- HSSE
- R45
- C / 2-3
- E / O / P

Gewindetiefe und Lochform  
Thread depth and hole type

max. 2,5 x d<sub>1</sub>



max. 3 x d<sub>1</sub>



Einsatzgebiete – Material  
Applications – material

» 78

- P 1.1-3.1
- N 2.2

- P 1.1-3.1

| ø d <sub>1</sub> | inch   | P<br>Gg/1" (tpi) | l <sub>1</sub> | l <sub>2</sub> | ø d <sub>2</sub> | □  |  |      |
|------------------|--------|------------------|----------------|----------------|------------------|----|--|------|
|                  |        |                  |                |                |                  |    |  |      |
| 1 1/8            | 1.1250 | 8                | 180            | 30             | 22               | 18 |  | 25,4 |
| 1 1/4            | 1.2500 | 8                | 180            | 30             | 22               | 18 |  | 28,6 |
| 1 3/8            | 1.3750 | 8                | 200            | 30             | 28               | 22 |  | 31,8 |
| 1 1/2            | 1.5000 | 8                | 200            | 30             | 28               | 22 |  | 35   |
| 1 5/8            | 1.6250 | 8                | 200            | 30             | 32               | 24 |  | 38,1 |
| 1 3/4            | 1.7500 | 8                | 200            | 30             | 36               | 29 |  | 41,3 |
| 1 7/8            | 1.8750 | 8                | 225            | 33             | 36               | 29 |  | 44,5 |
| 2"               | 2.0000 | 8                | 225            | 33             | 40               | 32 |  | 47,7 |

**Enorm 2-STEEL  
TIN**

**Enorm 2-Z**

- C0501400.5249
- C0501400.5251
- C0501400.5253
- C0501400.5255
- C0501400.5257
- C0501400.5259
- C0501400.5261

C0503500.5247



Schnellwechsel-Aufnahmen Typ KSN  
siehe Seite 652 - 661

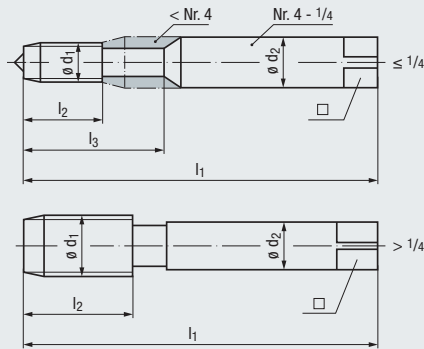
Quick-change tap holders type KSN,  
see page 652 - 661

# UNC

ASME B1.1



≈ DIN 352



Technische Informationen  
Technical information

Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material



HSSE

HSSE

2BX

2BX

A / 5-6

D / 3-4

C / 2-3

C / 2-3

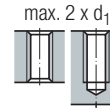
O / P

O / P

O / P

O / P

Gewindetiefe und Lochform  
Thread depth and hole type



Einsatzgebiete – Material  
Applications – material

» 78

P 1.1-3.1

P 1.1-3.1

P 1.1-3.1

P 1.1-3.1

| Ø d <sub>1</sub><br>inch | P<br>inch | Gg/1" (tpi) | l <sub>1</sub> | l <sub>2</sub> | l <sub>3</sub> | Ø d <sub>2</sub> | □    |       | HGB-Set              | HGB-Set              | HGB-Set              | HGB-Set-3S           |
|--------------------------|-----------|-------------|----------------|----------------|----------------|------------------|------|-------|----------------------|----------------------|----------------------|----------------------|
|                          |           |             |                |                |                |                  |      |       | V-Nr.1               | M-Nr.2               | F                    | (Nr.1, Nr.2, F)      |
| Nr. 1                    | 0.0730    | 64          | 36             | 8              | —              | 2,8              | 2,1  | 1,55  | H0111019.5000        | H0111029.5000        | H0111001.5000        | H0101001.5000        |
| Nr. 2                    | 0.0860    | 56          | 36             | 9              | —              | 2,8              | 2,1  | 1,85  | H0111019.5001        | H0111029.5001        | H0111001.5001        | H0101001.5001        |
| Nr. 3                    | 0.0990    | 48          | 40             | 9              | —              | 2,8              | 2,1  | 2,1   | H0111019.5002        | H0111029.5002        | H0111001.5002        | H0101001.5002        |
| Nr. 4                    | 0.1120    | 40          | 40             | 10             | 18             | 3,5              | 2,7  | 2,35  | <b>H0111019.5003</b> | <b>H0111029.5003</b> | <b>H0111001.5003</b> | <b>H0101001.5003</b> |
| Nr. 5                    | 0.1250    | 40          | 40             | 10             | 18             | 3,5              | 2,7  | 2,65  |                      |                      |                      |                      |
| Nr. 6                    | 0.1380    | 32          | 45             | 11             | 20             | 4                | 3    | 2,85  | <b>H0111019.5005</b> | <b>H0111029.5005</b> | <b>H0111001.5005</b> | <b>H0101001.5005</b> |
| Nr. 8                    | 0.1640    | 32          | 45             | 12             | 22             | 4,5              | 3,4  | 3,5   | <b>H0111019.5006</b> | <b>H0111029.5006</b> | <b>H0111001.5006</b> | <b>H0101001.5006</b> |
| Nr. 10                   | 0.1900    | 24          | 50             | 14             | 25             | 6                | 4,9  | 3,9   | <b>H0111019.5007</b> | <b>H0111029.5007</b> | <b>H0111001.5007</b> | <b>H0101001.5007</b> |
| Nr. 12                   | 0.2160    | 24          | 56             | 16             | 28             | 6                | 4,9  | 4,5   |                      |                      |                      |                      |
| 1/4                      | 0.2500    | 20          | 56             | 16             | 28             | 6                | 4,9  | 5,1   | <b>H0111019.5009</b> | <b>H0111029.5009</b> | <b>H0111001.5009</b> | <b>H0101001.5009</b> |
| 5/16                     | 0.3125    | 18          | 63             | 20             | —              | 6                | 4,9  | 6,6   | H0111019.5010        | H0111029.5010        | H0111001.5010        | H0101001.5010        |
| 3/8                      | 0.3750    | 16          | 70             | 22             | —              | 7                | 5,5  | 8     | <b>H0111019.5011</b> | <b>H0111029.5011</b> | <b>H0111001.5011</b> | <b>H0101001.5011</b> |
| 7/16                     | 0.4375    | 14          | 70             | 22             | —              | 8                | 6,2  | 9,4   | H0111019.5012        | H0111029.5012        | H0111001.5012        | H0101001.5012        |
| 1/2                      | 0.5000    | 13          | 75             | 25             | —              | 9                | 7    | 10,8  | <b>H0111019.5013</b> | <b>H0111029.5013</b> | <b>H0111001.5013</b> | <b>H0101001.5013</b> |
| 9/16                     | 0.5625    | 12          | 80             | 26             | —              | 11               | 9    | 12,2  |                      |                      |                      |                      |
| 5/8                      | 0.6250    | 11          | 80             | 27             | —              | 12               | 9    | 13,5  | H0111019.5015        | H0111029.5015        | H0111001.5015        | H0101001.5015        |
| 3/4                      | 0.7500    | 10          | 95             | 32             | —              | 14               | 11   | 16,5  | H0111019.5016        | H0111029.5016        | H0111001.5016        | H0101001.5016        |
| 7/8                      | 0.8750    | 9           | 100            | 32             | —              | 18               | 14,5 | 19,5  |                      |                      |                      |                      |
| 1"                       | 1.0000    | 8           | 110            | 36             | —              | 18               | 14,5 | 22,25 | H0111019.5018        | H0111029.5018        | H0111001.5018        | H0101001.5018        |
| 1 1/8                    | 1.1250    | 7           | 125            | 40             | —              | 22               | 18   | 25    |                      |                      |                      |                      |
| 1 1/4                    | 1.2500    | 7           | 125            | 40             | —              | 22               | 18   | 28    | H0111019.5020        | H0111029.5020        | H0111001.5020        | H0101001.5020        |
| 1 3/8                    | 1.3750    | 6           | 150            | 50             | —              | 28               | 22   | 30,75 |                      |                      |                      |                      |
| 1 1/2                    | 1.5000    | 6           | 150            | 50             | —              | 28               | 22   | 34    | H0111019.5022        | H0111029.5022        | H0111001.5022        | H0101001.5022        |
| 1 3/4                    | 1.7500    | 5           | 160            | 58             | —              | 36               | 29   | 39,5  | H0111019.5023        | H0111029.5023        | H0111001.5023        | H0101001.5023        |
| 2"                       | 2.0000    | 4 1/2       | 180            | 65             | —              | 40               | 32   | 45    | H0111019.5024        | H0111029.5024        | H0111001.5024        | H0101001.5024        |

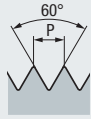
- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC  
UN-8
- UNC  
UNEF
- G, Rp  
NPSM, NPSF
- NPT, NPTF  
Rc, W
- BSW, BSF
- Pg
- MJ  
UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F  
Rd
- Zubehör  
Accessories



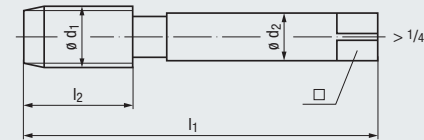
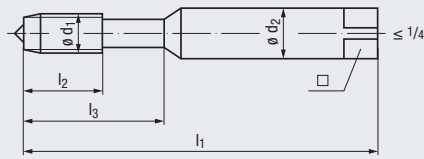
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- V<sub>c</sub>
- M
- MF
- UNC**  
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- UNF  
UNEF
- G, Rp  
NPSM, NPSF
- NPT, NPTF  
Rc, W
- BSW, BSF
- Pg
- MJ  
UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F  
Rd
- Zubehör  
Accessories

# UNC

ASME B1.1



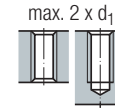
≈ DIN  
352



Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material

|         |         |         |             |
|---------|---------|---------|-------------|
| HSSE    | HSSE    | HSSE    | 2BX<br>HSSE |
| C / 2-3 | C / 2-3 | C / 2-3 | C / 2-3     |
| O / P   | O / P   | O / P   | O / P       |

Gewindetiefe und Lochform  
Thread depth and hole type



Einsatzgebiete – Material  
Applications – material



|                       |                       |                       |                       |
|-----------------------|-----------------------|-----------------------|-----------------------|
| <b>P</b> 1.1-5.1      | <b>P</b> 1.1-5.1      | <b>P</b> 1.1-5.1      | <b>P</b> 1.1-5.1      |
| <b>M</b> 1.1-4.1      | <b>M</b> 1.1-4.1      | <b>M</b> 1.1-4.1      | <b>M</b> 1.1-4.1      |
| <b>K</b> 1.1-4.2      | <b>K</b> 1.1-4.2      | <b>K</b> 1.1-4.2      | <b>K</b> 1.1-4.2      |
| <b>N</b> 1.1-2.6      | <b>N</b> 1.1-2.6      | <b>N</b> 1.1-2.6      | <b>N</b> 1.1-2.6      |
| <b>S</b> 2.1-2.2, 2.4 | <b>S</b> 2.1-2.2, 2.4 | <b>S</b> 2.1-2.2, 2.4 | <b>S</b> 2.1-2.2, 2.4 |

| Ø d <sub>1</sub><br>inch | P<br>Gg/1" (tpi) | l <sub>1</sub> | l <sub>2</sub> | l <sub>3</sub> | Ø d <sub>2</sub> | □  | Image of tap | WM-Set  | WM-Set        | WM-Set        | WM-Set        |               |
|--------------------------|------------------|----------------|----------------|----------------|------------------|----|--------------|---------|---------------|---------------|---------------|---------------|
|                          |                  |                |                |                |                  |    |              | V-Nr.1Z | V-Nr.1        | M-Nr.2        | F             |               |
| 1/4                      | 0.2500           | 20             | 56             | 16             | 28               | 6  | 4,9          | 5,1     | H0413019.5009 | H0423019.5009 | H0423029.5009 | H0423001.5009 |
| 5/16                     | 0.3125           | 18             | 63             | 20             | –                | 6  | 4,9          | 6,6     | H0413019.5010 | H0423019.5010 | H0423029.5010 | H0423001.5010 |
| 3/8                      | 0.3750           | 16             | 70             | 22             | –                | 7  | 5,5          | 8       | H0413019.5011 | H0423019.5011 | H0423029.5011 | H0423001.5011 |
| 7/16                     | 0.4375           | 14             | 70             | 22             | –                | 8  | 6,2          | 9,4     | H0413019.5012 | H0423019.5012 | H0423029.5012 | H0423001.5012 |
| 1/2                      | 0.5000           | 13             | 75             | 25             | –                | 9  | 7            | 10,8    | H0413019.5013 | H0423019.5013 | H0423029.5013 | H0423001.5013 |
| 9/16                     | 0.5625           | 12             | 80             | 26             | –                | 11 | 9            | 12,2    |               |               |               |               |
| 5/8                      | 0.6250           | 11             | 80             | 27             | –                | 12 | 9            | 13,5    | H0413019.5015 | H0423019.5015 | H0423029.5015 | H0423001.5015 |
| 3/4                      | 0.7500           | 10             | 95             | 32             | –                | 14 | 11           | 16,5    | H0413019.5016 | H0423019.5016 | H0423029.5016 | H0423001.5016 |
| 7/8                      | 0.8750           | 9              | 100            | 32             | –                | 18 | 14,5         | 19,5    |               |               |               |               |
| 1"                       | 1.0000           | 8              | 110            | 36             | –                | 18 | 14,5         | 22,25   | H0413019.5018 | H0423019.5018 | H0423029.5018 | H0423001.5018 |

1) Der Vorschneider Nr.1Z mit Führungszapfen ist eine zusätzliche Hilfe zum winkelrechten Anschneiden von Hand. Er kann z.B. auf der Maschine weggelassen werden. Die Profilabstufung von Nr.1Z und Nr.1 ist gleich.  
The taper tap No. 1Z with cylindrical pilot is an additional aid for true alignment especially when tapping by hand. It can be deleted when tapping by machine. The profile graduation of No.1Z, and No.1 is the same.



2)

2)

2BX

2BX

2BX

2BX

HSSE

HSSE

HSSE

HSSE

C / 2-3

C / 2-3

C / 2-3

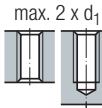
C / 2-3

O / P

O / P

O / P

O / P



- P** 1.1-5.1
- M** 1.1-4.1
- K** 1.1-4.2
- N** 1.1-2.6
- S** 2.1-2.2, 2.4

- P** 1.1-5.1
- M** 1.1-4.1
- K** 1.1-4.2
- N** 1.1-2.6
- S** 2.1-2.2, 2.4

- P** 1.1-5.1
- M** 1.1-4.1
- K** 1.1-4.2
- N** 1.1-2.6
- S** 2.1-2.2, 2.4

- P** 1.1-5.1
- M** 1.1-4.1
- K** 1.1-4.2
- N** 1.1-2.6
- S** 2.1-2.2, 2.4

**WM-Set-3S**  
(Nr.1Z, Nr.1, F)

**WM-Set-2S**  
(Nr.1, F)

**WM-Set-4S**  
(Nr.1Z, Nr.1, Nr.2, F)

**WM-Set-3S**  
(Nr.1, Nr.2, F)

H0453001.5009  
H0453001.5010  
H0453001.5011  
H0453001.5012  
H0453001.5013

H0483001.5009  
H0483001.5010  
H0483001.5011  
H0483001.5012  
H0483001.5013

H0403001.5009  
H0403001.5010  
H0403001.5011  
H0403001.5012  
H0403001.5013

H0433001.5009  
H0433001.5010  
H0433001.5011  
H0433001.5012  
H0433001.5013

H0453001.5015  
H0453001.5016

H0483001.5015  
H0483001.5016

H0403001.5015  
H0403001.5016

H0433001.5015  
H0433001.5016

H0453001.5018

H0483001.5018

H0403001.5018

H0433001.5018

1/4 - 20  
5/16 - 18  
3/8 - 16  
7/16 - 14  
1/2 - 13  
9/16 - 12  
5/8 - 11  
3/4 - 10  
7/8 - 9  
1" - 8

2) Beim Gewindebohren von Hand in Durchgangslöcher entfällt Nr.1  
No.1 is not needed when tapping in through holes by hand

|                        |
|------------------------|
| Product Finder         |
| V <sub>c</sub>         |
| M                      |
| MF                     |
| UNC<br>UN-8            |
| UNF<br>UNEF            |
| G, Rp<br>NPSM, NPSF    |
| NPT, NPTF<br>Rc, W     |
| BSW, BSF               |
| Pg                     |
| MJ<br>UNJC, UNJF       |
| EG (STI)               |
| SELF-LOCK              |
| Tr, Tr-F<br>Rd         |
| Zubehör<br>Accessories |



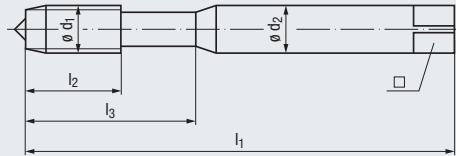
- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC UN-8
- UNF** UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories

# UNF

ASME B1.1



≈ DIN 371



**STEEL**  
Steel materials



NEW



l<sub>2</sub> ≈ 10 x P



l<sub>2</sub> ≈ 10 x P

Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material

Technische Informationen  
Technical information



|         |           |                |                |
|---------|-----------|----------------|----------------|
| 2B      | <b>3B</b> | 2B             | 2B             |
| HSSE    | HSSE      | HSSE           | TIN<br>HSSE    |
| B / 4-5 | B / 4-5   | R35<br>C / 2-3 | R35<br>C / 2-3 |
| E / O   | E / O     | E / O          | E / O          |

Gewindetiefe und Lochform  
Thread depth and hole type

max. 3 x d<sub>1</sub>



max. 2,5 x d<sub>1</sub>



Einsatzgebiete – Material  
Applications – material

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|           |           |           |           |
|-----------|-----------|-----------|-----------|
| P 1.1-3.1 | P 1.1-3.1 | P 1.1-3.1 | P 1.1-3.1 |
| N 2.2     | N 2.2     | N 2.2     | N 2.2     |

| Nr.    | ø d <sub>1</sub> |       | P<br>Gg/1" (tpi) | l <sub>1</sub> | l <sub>2</sub> | l <sub>3</sub> | ø d <sub>2</sub> |     | □    | l <sub>1</sub> | Rekord<br>1B-STEEL-L | Rekord<br>1B-STEEL-L | Enorm 1<br>STEEL | Enorm 1<br>STEEL<br>TIN |
|--------|------------------|-------|------------------|----------------|----------------|----------------|------------------|-----|------|----------------|----------------------|----------------------|------------------|-------------------------|
|        | inch             | mm    |                  |                |                |                | mm               | mm  |      |                |                      |                      |                  |                         |
| Nr. 2  | 0.0860           | 2.185 | 64               | 45             | 7              | 12             | 2,8              | 2,1 | 1,85 | B0208900.5035  |                      |                      |                  |                         |
| Nr. 3  | 0.0990           | 2.515 | 56               | 50             | 9              | 14             | 2,8              | 2,1 | 2,15 | B0208900.5036  |                      |                      |                  |                         |
| Nr. 4  | 0.1120           | 2.845 | 48               | 56             | 11             | 18             | 3,5              | 2,7 | 2,4  | B0208900.5037  |                      |                      |                  |                         |
| Nr. 5  | 0.1250           | 3.175 | 44               | 56             | 11             | 18             | 3,5              | 2,7 | 2,7  | B0208900.5038  |                      |                      |                  |                         |
| Nr. 6  | 0.1380           | 3.505 | 40               | 56             | 12             | 20             | 4                | 3   | 2,95 | B0208900.5039  | B0208910.5039        |                      |                  |                         |
| Nr. 8  | 0.1640           | 4.175 | 36               | 63             | 13             | 21             | 4,5              | 3,4 | 3,5  | B0208900.5040  | B0208910.5040        |                      |                  |                         |
| Nr. 10 | 0.1900           | 4.845 | 32               | 70             | 15             | 25             | 6                | 4,9 | 4,1  | B0208900.5041  | B0208910.5041        | B0501000.5041        | B0501400.5041    |                         |
| Nr. 12 | 0.2160           | 5.515 | 28               | 80             | 16             | 30             | 6                | 4,9 | 4,6  |                |                      |                      |                  |                         |
| 1/4    | 0.2500           | 6.350 | 28               | 80             | 17             | 30             | 7                | 5,5 | 5,5  | B0208900.5043  | B0208910.5043        | B0501000.5043        | B0501400.5043    |                         |
| 5/16   | 0.3125           | 7.938 | 24               | 90             | 17             | 35             | 8                | 6,2 | 6,9  | B0208900.5044  | B0208910.5044        | B0501000.5044        | B0501400.5044    |                         |
| 3/8    | 0.3750           | 9.525 | 24               | 90             | 18             | 35             | 10               | 8   | 8,5  | B0208900.5045  | B0208910.5045        | B0501000.5045        | B0501400.5045    |                         |

≈ DIN 374



» 220

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» 220

» 220



| VA<br>Stainless steel materials |                         |                           |                           | INOX<br>Stainless steel materials | H<br>Materials of high tensile strength |
|---------------------------------|-------------------------|---------------------------|---------------------------|-----------------------------------|---|
|                                 |                         |                           |                           |                                   |   |
| 2B                              | 2B                      | 2B                        | 2B                        | 2B                                | 2BX                                     |
| NT                              | TIN                     | GLT-1                     | HSSE                      | GLT-201                           | NT                                      |
| HSSE                            | HSSE                    | HSSE                      | HSSE                      | HSSE                              | HSSE                                    |
| B / 4-5                         | B / 4-5                 | B / 4-5                   | R35                       | R45                               | C / 2-3                                 |
| E / O / P                       | E / O / P               | E / O / P                 | C / 2-3                   | C / 2-3                           | E / O / P                               |
| max. 3 x d <sub>1</sub>         |                         |                           | max. 2,5 x d <sub>1</sub> | max. 2,5 x d <sub>1</sub>         | max. 2 x d <sub>1</sub>                 |
|                                 |                         |                           |                           |                                   |   |
| <b>P</b> 2.1-3.1                | <b>P</b> 1.1-4.1        | <b>P</b> 1.1-4.1          | <b>P</b> 1.1-3.1          | <b>M</b> 1.1-2.1                  | <b>K</b> 1.1-4.2                        |
| <b>N</b> 2.2, 2.5               |                         | <b>M</b> 1.1-4.1          |                           |                                   | <b>N</b> 4.1                            |
|                                 |                         | <b>N</b> 2.2              |                           |                                   |   |
| <b>Rekord 1B-VA NT</b>          | <b>Rekord 1B-VA TIN</b> | <b>Rekord 1B-VA GLT-1</b> | <b>Enorm 1 VA</b>         | <b>Enorm 1 INOX GLT-201</b>       | <b>Rekord 1A-H NT</b>                   |
| <b>B0203000.5037</b>            | B0203100.5037           | B020C300.5037             |                           |                                   | B0100501.5037                           |
| <b>B0203000.5039</b>            | B0203100.5039           | B020C300.5039             |                           |                                   | B0100501.5038                           |
| <b>B0203000.5040</b>            | B0203100.5040           | B020C300.5040             |                           |                                   | <b>B0100501.5039</b>                    |
| <b>B0203000.5041</b>            | B0203100.5041           | B020C300.5041             | <b>B0503000.5041</b>      | <b>B050J300.5041</b>              | <b>B0100501.5040</b>                    |
| <b>B0203000.5043</b>            | B0203100.5043           | B020C300.5043             | <b>B0503000.5043</b>      | <b>B050J300.5043</b>              | <b>B0100501.5041</b>                    |
| <b>B0203000.5044</b>            | B0203100.5044           | B020C300.5044             | <b>B0503000.5044</b>      | <b>B050J300.5044</b>              | B0100501.5042                           |
| <b>B0203000.5045</b>            | B0203100.5045           | B020C300.5045             | <b>B0503000.5045</b>      | <b>B050J300.5045</b>              | <b>B0100501.5043</b>                    |
|                                 |                         |                           |                           |                                   |   |

|                     |
|---------------------|
| Product Finder      |
| V <sub>c</sub>      |
| M                   |
| MF                  |
| UNC UN-8            |
| UNF UNEF            |
| G, Rp NPSM, NPSF    |
| NPT, NPTF Rc, W     |
| BSW, BSF            |
| Pg                  |
| MJ UNJC, UNJF       |
| EG (STI)            |
| SELF-LOCK           |
| Tr, Tr-F Rd         |
| Zubehör Accessories |



|             |
|-------------|
| Nr. 2 - 64  |
| Nr. 3 - 56  |
| Nr. 4 - 48  |
| Nr. 5 - 44  |
| Nr. 6 - 40  |
| Nr. 8 - 36  |
| Nr. 10 - 32 |
| Nr. 12 - 28 |
| 1/4 - 28    |
| 5/16 - 24   |
| 3/8 - 24    |

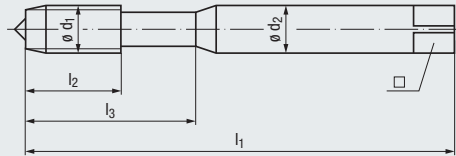
- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories

# UNF

ASME B1.1



≈ DIN 371



Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material



Technische Informationen  
Technical information

Gewindetiefe und Lochform  
Thread depth and hole type

Einsatzgebiete – Material  
Applications – material

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| Nr.    | ø d <sub>1</sub> |      | P<br>Gg/1" (tpi) | l <sub>1</sub> | l <sub>2</sub> | l <sub>3</sub> | ø d <sub>2</sub> |      | □ | l <sub>1</sub> |
|--------|------------------|------|------------------|----------------|----------------|----------------|------------------|------|---|----------------|
|        | inch             | inch |                  |                |                |                | mm               | mm   |   |                |
| Nr. 2  | 0.0860           | 64   | 45               | 4,5            | 12             | 2,8            | 2,1              | 1,85 |   |                |
| Nr. 3  | 0.0990           | 56   | 50               | 5              | 14             | 2,8            | 2,1              | 2,15 |   |                |
| Nr. 4  | 0.1120           | 48   | 56               | 6              | 18             | 3,5            | 2,7              | 2,4  |   |                |
| Nr. 5  | 0.1250           | 44   | 56               | 7              | 18             | 3,5            | 2,7              | 2,7  |   |                |
| Nr. 6  | 0.1380           | 40   | 56               | 7              | 20             | 4              | 3                | 2,95 |   |                |
| Nr. 8  | 0.1640           | 36   | 63               | 8              | 21             | 4,5            | 3,4              | 3,5  |   |                |
| Nr. 10 | 0.1900           | 32   | 70               | 10             | 25             | 6              | 4,9              | 4,1  |   |                |
| Nr. 12 | 0.2160           | 28   | 80               | 10             | 30             | 6              | 4,9              | 4,6  |   |                |
| 1/4    | 0.2500           | 28   | 80               | 10             | 30             | 7              | 5,5              | 5,5  |   |                |
| 5/16   | 0.3125           | 24   | 90               | 10             | 35             | 8              | 6,2              | 6,9  |   |                |
| 3/8    | 0.3750           | 24   | 90               | 10             | 35             | 10             | 8                | 8,5  |   |                |

≈ DIN 374



Z  
CNC-controlled machines

| QR             | QR        | QR        | QR               |
|----------------|-----------|-----------|------------------|
| NEW            | NEW       | NEW       |                  |
| 2BX            | 2B        | 2B        | 2B               |
| GLT-1          |           | GLT-1     |                  |
| <b>HSSE-PM</b> | HSSE      | HSSE      | HSSE             |
| R45            | R45       | R45       | R45              |
| C / 2-3        | C / 2-3   | C / 2-3   | <b>E / 1,5-2</b> |
| E / 0 / P      | E / 0 / P | E / 0 / P | E / 0 / P        |

max. 3 x d<sub>1</sub>



| P 1.1-4.1      | P 1.1-3.1 | P 1.1-4.1      | P 1.1-3.1 |
|----------------|-----------|----------------|-----------|
| M 1.1-4.1      |           | M 1.1-4.1      |           |
| K 1.1-3.2      |           | N 1.4, 2.1-2.2 |           |
| N 1.4, 2.1-2.2 |           | N 2.4-2.5      |           |
| N 2.4-2.5      |           | S 1.1          |           |
| S 1.1          |           |                |           |

| Enorm 1-Z PM-GLT-1   | Enorm 1-Z            | Enorm 1-Z GLT-1      | Enorm 1-Z/E          |
|----------------------|----------------------|----------------------|----------------------|
|                      | B0503500.5035        |                      | B0513500.5035        |
|                      | B0503500.5036        |                      | B0513500.5036        |
|                      | <b>B0503500.5037</b> |                      | B0513500.5037        |
|                      | B0503500.5038        |                      | B0513500.5038        |
|                      | <b>B0503500.5039</b> | <b>B050C400.5039</b> | <b>B0513500.5039</b> |
|                      | <b>B0503500.5040</b> | <b>B050C400.5040</b> | <b>B0513500.5040</b> |
| <b>B616A601.5041</b> | <b>B0503500.5041</b> | <b>B050C400.5041</b> | <b>B0513500.5041</b> |
|                      | B0503500.5042        |                      | B0513500.5042        |
|                      | <b>B0503500.5043</b> | <b>B050C400.5043</b> | <b>B0513500.5043</b> |
| <b>B616A601.5044</b> | <b>B0503500.5044</b> | <b>B050C400.5044</b> | <b>B0513500.5044</b> |
| <b>B616A601.5045</b> | <b>B0503500.5045</b> | <b>B050C400.5045</b> | <b>B0513500.5045</b> |

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Werkzeug-Aufnahmen der Typenreihe Softsynchro® siehe Seite 617 - 644

Tool holders of our Softsynchro® series, see page 617 - 644

| Z<br>CNC-controlled machines   |   |   |   |   |   |  |  |
|--|---|---|---|---|---|--|--|
|  |   |   |   |   |   |  |  |
|  | <b>new</b>  | <b>new</b>  | <b>new</b>  |   | <b>new</b>  |  |  |
| 2B   | 2B  | <b>3B</b>   | <b>3B</b>   | 2B +0,05 2)   | 2B +0,05 2)   |  |  |
| TIN  | GLT-1   |   | GLT-1   |   | GLT-1   |  |  |
| HSSE   | HSSE  | HSSE  | HSSE  | HSSE  | HSSE  |  |  |
| R45  | R45   | R45   | R45   | R45   | R45   |  |  |
| E / 1,5-2  | E / 1,5-2   | C / 2-3   | C / 2-3   | E / 1,5-2   | E / 1,5-2   |  |  |
| E / O / P  | E / O / P   | E / O / P   | E / O / P   | E / O / P   | E / O / P   |  |  |
| max. 3 x d <sub>1</sub>  |   |   |   |   |   |  |  |
|  |   |   |   |   |   |  |  |
| <b>P</b> 1.1-4.1<br><b>N</b> 2.2, 2.4-2.5<br><b>S</b> 1.1            | <b>P</b> 1.1-4.1<br><b>M</b> 1.1-4.1<br><b>N</b> 1.4, 2.1-2.2<br><b>N</b> 2.4-2.5<br><b>S</b> 1.1 | <b>P</b> 1.1-3.1  | <b>P</b> 1.1-4.1<br><b>M</b> 1.1-4.1<br><b>N</b> 1.4, 2.1-2.2<br><b>N</b> 2.4-2.5<br><b>S</b> 1.1 | <b>P</b> 1.1-3.1  | <b>P</b> 1.1-4.1<br><b>M</b> 1.1-4.1<br><b>N</b> 1.4, 2.1-2.2<br><b>N</b> 2.4-2.5<br><b>S</b> 1.1 |  |  |
| <b>Enorm 1-Z/E TIN</b>   | <b>Enorm 1-Z/E GLT-1</b>  | <b>Enorm 1-Z</b>  | <b>Enorm 1-Z GLT-1</b>  | <b>Enorm 1-Z/E</b>  | <b>Enorm 1-Z/E GLT-1</b>  |  |  |
| B0513700.5037  | B051C400.5037   |   |   | B0513530.5035<br>B0513530.5036<br>B0513530.5037<br>B0513530.5038                      | B051C430.5037   |  | Nr. 2 - 64<br>Nr. 3 - 56<br>Nr. 4 - 48<br>Nr. 5 - 44   |
| <b>B0513700.5039</b><br><b>B0513700.5040</b><br><b>B0513700.5041</b> | <b>B051C400.5039</b><br><b>B051C400.5040</b><br><b>B051C400.5041</b>                              | <b>B0503510.5039</b><br><b>B0503510.5040</b><br><b>B0503510.5041</b><br>B0503510.5042 | <b>B050C410.5039</b><br><b>B050C410.5040</b><br><b>B050C410.5041</b><br>B050C410.5042             | <b>B0513530.5039</b><br><b>B0513530.5040</b><br><b>B0513530.5041</b><br>B0513530.5042 | <b>B051C430.5039</b><br><b>B051C430.5040</b><br><b>B051C430.5041</b>                              |  | Nr. 6 - 40<br>Nr. 8 - 36<br>Nr. 10 - 32<br>Nr. 12 - 28 |
| <b>B0513700.5043</b><br><b>B0513700.5044</b><br><b>B0513700.5045</b> | <b>B051C400.5043</b><br><b>B051C400.5044</b><br><b>B051C400.5045</b>                              | <b>B0503510.5043</b><br><b>B0503510.5044</b><br><b>B0503510.5045</b>                  | <b>B050C410.5043</b><br><b>B050C410.5044</b><br><b>B050C410.5045</b>                              | <b>B0513530.5043</b><br><b>B0513530.5044</b><br><b>B0513530.5045</b>                  | <b>B051C430.5043</b><br><b>B051C430.5044</b><br><b>B051C430.5045</b>                              |  | 1/4 - 28<br>5/16 - 24<br>3/8 - 24                      |
|  |   |   |   |   |   |  |  |

2) Vorbohrdurchmesser für Gewindebohrer mit Übermaß um 0,05 mm anheben  
Increase drill diameter for taps with oversize by 0.05 mm

|                     |
|---------------------|
| Product Finder      |
| V <sub>c</sub>      |
| M                   |
| MF                  |
| UNC UN-8            |
| UNF UNEF            |
| G, Rp NPSM, NPSF    |
| NPT, NPTF Rc, W     |
| BSW, BSF            |
| Pg                  |
| MJ UNJC, UNJF       |
| EG (STI)            |
| SELF-LOCK           |
| Tr, Tr-F Rd         |
| Zubehör Accessories |



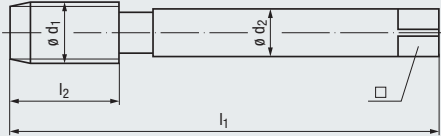
- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC  
UN-8
- UNF**  
UNEF
- G, Rp  
NPSM, NPSF
- NPT, NPTF  
Rc, W
- BSW, BSF
- Pg
- MJ  
UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F  
Rd
- Zubehör  
Accessories

# UNF

ASME B1.1



≈ DIN  
374



**STEEL**  
Steel  
materials



NEW

$l_2 \approx 10 \times P$

$l_2 \approx 10 \times P$

Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material

Technische Informationen  
Technical information

Tr, Tr-F  
Rd

Zubehör  
Accessories

|         |           |                |                |
|---------|-----------|----------------|----------------|
| 2B      | <b>3B</b> | 2B             | 2B             |
| HSSE    | HSSE      | HSSE           | TIN<br>HSSE    |
| B / 4-5 | B / 4-5   | R35<br>C / 2-3 | R35<br>C / 2-3 |
| E / O   | E / O     | E / O          | E / O          |

Gewindetiefe und Lochform  
Thread depth and hole type



Einsatzgebiete – Material  
Applications – material

» 78

|                    |                    |                    |                    |
|--------------------|--------------------|--------------------|--------------------|
| P 1.1-3.1<br>N 2.2 | P 1.1-3.1<br>N 2.2 | P 1.1-3.1<br>N 2.2 | P 1.1-3.1<br>N 2.2 |
|--------------------|--------------------|--------------------|--------------------|

| ø d <sub>1</sub><br>inch | P<br>Gg/1" (tpi) | l <sub>1</sub> | l <sub>2</sub> | ø d <sub>2</sub> | □   | ✎    | Rekord     | Rekord        | Enorm                          | Enorm                          |
|--------------------------|------------------|----------------|----------------|------------------|-----|------|------------|---------------|--------------------------------|--------------------------------|
|                          |                  |                |                |                  |     |      | 2B-STEEL-L | 2B-STEEL-L    | 2-STEEL                        | 2-STEEL<br>TIN                 |
| 1/4                      | 0.2500           | 28             | 80             | 17               | 4,5 | 3,4  | 5,5        |               |                                |                                |
| 5/16                     | 0.3125           | 24             | 90             | 17               | 6   | 4,9  | 6,9        |               |                                |                                |
| 3/8                      | 0.3750           | 24             | 90             | 18               | 7   | 5,5  | 8,5        |               |                                |                                |
| 7/16                     | 0.4375           | 20             | 100            | 22               | 8   | 6,2  | 9,9        | C0208910.5046 |                                |                                |
| 1/2                      | 0.5000           | 20             | 100            | 22               | 9   | 7    | 11,5       | C0208910.5047 | C0208910.5045                  |                                |
| 9/16                     | 0.5625           | 18             | 100            | 22               | 11  | 9    | 12,9       | C0208910.5048 | C0208910.5048                  |                                |
| 5/8                      | 0.6250           | 18             | 100            | 22               | 12  | 9    | 14,5       | C0208910.5049 | C0208910.5049                  |                                |
| 3/4                      | 0.7500           | 16             | 110            | 25               | 14  | 11   | 17,5       | C0208910.5050 | C0208910.5050                  |                                |
| 7/8                      | 0.8750           | 14             | 125            | 25               | 18  | 14,5 | 20,4       | C0208910.5051 |                                |                                |
| 1"                       | 1.0000           | 12             | 140            | 28               | 18  | 14,5 | 23,25      | C0208910.5052 |                                |                                |
| 1 1/8                    | 1.1250           | 12             | 150            | 28               | 22  | 18   | 26,5       | C0208910.5053 |                                |                                |
| 1 1/4                    | 1.2500           | 12             | 150            | 28               | 22  | 18   | 29,5       | C0208910.5054 |                                |                                |
| 1 3/8                    | 1.3750           | 12             | 170            | 30               | 28  | 22   | 32,75      | C0208910.5055 | C0501000.5054                  | C0501400.5054                  |
| 1 1/2                    | 1.5000           | 12             | 170            | 30               | 28  | 22   | 36         | C0208910.5056 | C0501000.5055<br>C0501000.5056 | C0501400.5055<br>C0501400.5056 |

≈ DIN 371

























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216

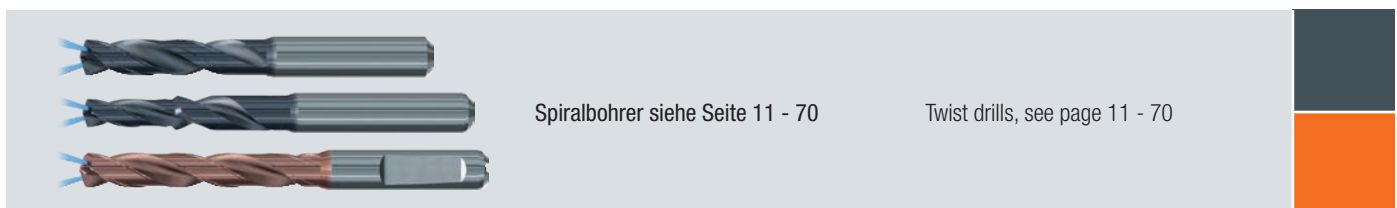
216

216

| VA<br>Stainless steel materials   |   |   |  | INOX<br>Stainless steel materials  | H<br>Materials of high tensile strength  |
|---|---|---|--|--|--|
|        |        |        |                                     |                                     |   |
|        |        |        |                                     |                                     |   |
| 2B  | 2B  | 2B  | 2B   | 2B   | 2BX  |
| NT  | TIN   | GLT-1   |  | GLT-201  | NT   |
| HSSE  | HSSE  | HSSE  | HSSE   | HSSE   | HSSE   |
| B / 4-5   | B / 4-5   | B / 4-5   | R35  | R45  |  |
| E / O / P   | E / O / P   | E / O / P   | C / 2-3  | C / 2-3  | C / 2-3  |
|   |   |   | E / O / P  | E / 0  | E / O / P  |
| max. 3 x d <sub>1</sub>   |   |   | max. 2,5 x d <sub>1</sub>  | max. 2,5 x d <sub>1</sub>  | max. 2 x d <sub>1</sub>  |
|       |   |   |                                    |                                    |    |
| <b>P</b> 2.1-3.1<br><b>N</b> 2.2, 2.5   | <b>P</b> 1.1-4.1  | <b>P</b> 1.1-4.1<br><b>M</b> 1.1-4.1<br><b>N</b> 2.2                                    | <b>P</b> 1.1-3.1   | <b>M</b> 1.1-2.1   | <b>K</b> 1.1-4.2<br><b>N</b> 4.1   |
| <b>Rekord 2B-VA NT</b>  | <b>Rekord 2B-VA TIN</b>   | <b>Rekord 2B-VA GLT-1</b>   | <b>Enorm 2 VA</b>  | <b>Enorm 2 INOX GLT-201</b>  | <b>Rekord 2A-H NT</b>  |
|   |   |   |  |  |  |
| <b>C0203000.5046</b><br><b>C0203000.5047</b>  | C0203100.5046<br>C0203100.5047  | C020C300.5046<br>C020C300.5047  | <b>C0503000.5046</b><br><b>C0503000.5047</b><br><b>C0503000.5048</b><br><b>C0503000.5049</b><br><b>C0503000.5050</b> | <b>C050J300.5046</b><br><b>C050J300.5047</b><br><b>C050J300.5048</b><br><b>C050J300.5049</b><br><b>C050J300.5050</b> | <b>C0100501.5046</b><br><b>C0100501.5047</b><br><b>C0100501.5048</b><br><b>C0100501.5049</b><br><b>C0100501.5050</b><br><b>C0100501.5051</b><br><b>C0100501.5052</b>           |
|   |   |   |  |  | 1/4 - 28<br>5/16 - 24<br>3/8 - 24<br>7/16 - 20<br>1/2 - 20<br>9/16 - 18<br>5/8 - 18<br>3/4 - 16<br>7/8 - 14<br>1" - 12<br>1 1/8 - 12<br>1 1/4 - 12<br>1 3/8 - 12<br>1 1/2 - 12 |
|  217 |  217 |  217 |  217                              |  217                              |  217  |

Product Finder

- V<sub>c</sub>
- M
- MF
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories



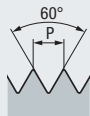
Spiralbohrer siehe Seite 11 - 70

Twist drills, see page 11 - 70

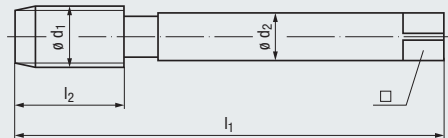
- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC  
UN-8
- UNF**  
UNEF
- G, Rp  
NPSM, NPSF
- NPT, NPTF  
Rc, W
- BSW, BSF
- Pg
- MJ  
UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F  
Rd
- Zubehör  
Accessories

# UNF

ASME B1.1



≈ DIN  
374



Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material



Technische Informationen  
Technical information

Gewindetiefe und Lochform  
Thread depth and hole type

Einsatzgebiete – Material  
Applications – material

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max. 3 x d<sub>1</sub>



|                  |   |                  |   |
|------------------|---|------------------|---|
| <b>P</b> 1.1-3.1 | <b>P</b> 1.1-4.1<br><b>M</b> 1.1-4.1<br><b>N</b> 1.4, 2.1-2.2<br><b>N</b> 2.4-2.5<br><b>S</b> 1.1 | <b>P</b> 1.1-3.1 | <b>P</b> 1.1-4.1<br><b>N</b> 2.2, 2.4-2.5<br><b>S</b> 1.1 |
|------------------|---|------------------|---|

| ø d <sub>1</sub><br>inch | inch   | P<br>Gg/1" (tpi) | l <sub>1</sub> | l <sub>2</sub> | ø d <sub>2</sub> | □    |       | Enorm<br>2-Z  | Enorm<br>2-Z<br>GLT-1 | Enorm<br>2-Z/E | Enorm<br>2-Z/E<br>TIN |
|--------------------------|--------|------------------|----------------|----------------|------------------|------|-------|---------------|-----------------------|----------------|-----------------------|
|                          |        |                  |                |                |                  |      |       | 1/4           | 0.2500                | 28             | 80                    |
| 5/16                     | 0.3125 | 24               | 90             | 10             | 6                | 4,9  | 6,9   | C0503500.5044 |                       |                |                       |
| 3/8                      | 0.3750 | 24               | 90             | 10             | 7                | 5,5  | 8,5   | C0503500.5045 |                       |                |                       |
| 7/16                     | 0.4375 | 20               | 100            | 13             | 8                | 6,2  | 9,9   | C0503500.5046 | C050C400.5046         | C0513500.5046  | C0513700.5046         |
| 1/2                      | 0.5000 | 20               | 100            | 13             | 9                | 7    | 11,5  | C0503500.5047 | C050C400.5047         | C0513500.5047  | C0513700.5047         |
| 9/16                     | 0.5625 | 18               | 100            | 15             | 11               | 9    | 12,9  | C0503500.5048 | C050C400.5048         | C0513500.5048  | C0513700.5048         |
| 5/8                      | 0.6250 | 18               | 100            | 15             | 12               | 9    | 14,5  | C0503500.5049 | C050C400.5049         | C0513500.5049  | C0513700.5049         |
| 3/4                      | 0.7500 | 16               | 110            | 17             | 14               | 11   | 17,5  | C0503500.5050 | C050C400.5050         | C0513500.5050  | C0513700.5050         |
| 7/8                      | 0.8750 | 14               | 125            | 17             | 18               | 14,5 | 20,4  | C0503500.5051 | C050C400.5051         | C0513500.5051  | C0513700.5051         |
| 1"                       | 1.0000 | 12               | 140            | 20             | 18               | 14,5 | 23,25 | C0503500.5052 | C050C400.5052         | C0513500.5052  | C0513700.5052         |
| 1 1/8                    | 1.1250 | 12               | 150            | 22             | 22               | 18   | 26,5  | C0503500.5053 |                       |                |                       |
| 1 1/4                    | 1.2500 | 12               | 150            | 22             | 22               | 18   | 29,5  |               |                       |                |                       |
| 1 3/8                    | 1.3750 | 12               | 170            | 24             | 28               | 22   | 32,75 |               |                       |                |                       |
| 1 1/2                    | 1.5000 | 12               | 170            | 24             | 28               | 22   | 36    |               |                       |                |                       |

≈ DIN 371



















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» 218

» 218

» 219

| Z<br>CNC-controlled machines  |   |   |   |   |  |  |  |            |
|---|---|---|---|---|--|--|--|------------|
|        |        |        |        |        |  |  |  |            |
| <b>new</b>  | <b>new</b>  | <b>new</b>  |   | <b>new</b>  |  |  |  |            |
|        |        |        |        |        |  |  |  |            |
| 2B  | 3B  | 3B  | 2B +0,05 2)   | 2B +0,05 2)   |  |  |  |            |
| GLT-1   |   | GLT-1   |   | GLT-1   |  |  |  |            |
| HSSE  | HSSE  | HSSE  | HSSE  | HSSE  |  |  |  |            |
| R45   | R45   | R45   | R45   | R45   |  |  |  |            |
| E / 1,5-2   | C / 2-3   | C / 2-3   | E / 1,5-2   | E / 1,5-2   |  |  |  |            |
| E / O / P   | E / O / P   | E / O / P   | E / O / P   | E / O / P   |  |  |  |            |
| max. 3 x d <sub>1</sub>   |   |   |   |   |  |  |  |            |
|       |   |   |   |   |  |  |  |            |
| <b>P</b> 1.1-4.1  | <b>P</b> 1.1-3.1  | <b>P</b> 1.1-4.1  | <b>P</b> 1.1-3.1  | <b>P</b> 1.1-4.1  |  |  |  |            |
| <b>M</b> 1.1-4.1  |   | <b>M</b> 1.1-4.1  |   | <b>M</b> 1.1-4.1  |  |  |  |            |
| <b>N</b> 1.4, 2.1-2.2   |   | <b>N</b> 1.4, 2.1-2.2   |   | <b>N</b> 1.4, 2.1-2.2   |  |  |  |            |
| <b>N</b> 2.4-2.5  |   | <b>N</b> 2.4-2.5  |   | <b>N</b> 2.4-2.5  |  |  |  |            |
| <b>S</b> 1.1  |   | <b>S</b> 1.1  |   | <b>S</b> 1.1  |  |  |  |            |
| Enorm 2-Z/E GLT-1   | Enorm 2-Z   | Enorm 2-Z GLT-1   | Enorm 2-Z/E   | Enorm 2-Z/E GLT-1   |  |  |  |            |
|   | C0503510.5045   | C050C410.5045   |   |   |  |  |  |            |
| C051C400.5046   | C0503510.5046   | C050C410.5046   | C0513530.5046   | C051C430.5046   |  |  |  | 1/4 - 28   |
| C051C400.5047   | C0503510.5047   | C050C410.5047   | C0513530.5047   | C051C430.5047   |  |  |  | 5/16 - 24  |
| C051C400.5048   | C0503510.5048   | C050C410.5048   | C0513530.5048   | C051C430.5048   |  |  |  | 3/8 - 24   |
| C051C400.5049   | C0503510.5049   | C050C410.5049   | C0513530.5049   | C051C430.5049   |  |  |  | 7/16 - 20  |
| C051C400.5050   | C0503510.5050   | C050C410.5050   | C0513530.5050   | C051C430.5050   |  |  |  | 1/2 - 20   |
| C051C400.5051   | C0503510.5051   | C050C410.5051   | C0513530.5051   | C051C430.5051   |  |  |  | 9/16 - 18  |
| C051C400.5052   |   |   | C0513530.5052   | C051C430.5052   |  |  |  | 5/8 - 18   |
|   |   |   |   |   |  |  |  | 3/4 - 16   |
|   |   |   |   |   |  |  |  | 7/8 - 14   |
|   |   |   |   |   |  |  |  | 1" - 12    |
|   |   |   |   |   |  |  |  | 1 1/8 - 12 |
|   |   |   |   |   |  |  |  | 1 1/4 - 12 |
|   |   |   |   |   |  |  |  | 1 3/8 - 12 |
|   |   |   |   |   |  |  |  | 1 1/2 - 12 |
|  219 |  219 |  219 |  219 |  219 |  |  |  |            |

|                     |
|---------------------|
| Product Finder      |
| V <sub>c</sub>      |
| M                   |
| MF                  |
| UNC UN-8            |
| UNF UNEF            |
| G, Rp NPSM, NPSF    |
| NPT, NPTF Rc, W     |
| BSW, BSF            |
| Pg                  |
| MJ UNJC, UNJF       |
| EG (STI)            |
| SELF-LOCK           |
| Tr, Tr-F Rd         |
| Zubehör Accessories |



2) Vorbohrdurchmesser für Gewindebohrer mit Übermaß um 0,05 mm anheben  
Increase drill diameter for taps with oversize by 0.05 mm



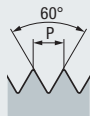
Gewinde-Tiefenlehndorne  
siehe Seite 588 - 591

Thread depth plug gauges,  
see page 588 - 591

- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC  
UN-8
- UNF**  
UNEF
- G, Rp  
NPSM, NPSF
- NPT, NPTF  
Rc, W
- BSW, BSF
- Pg
- MJ  
UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F  
Rd
- Zubehör  
Accessories

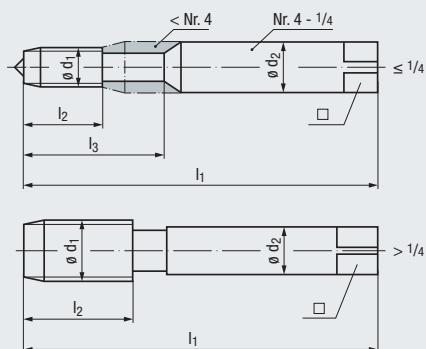
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ASME B1.1



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2181

**STEEL**  
Steel  
materials

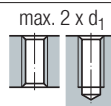


**Technische Informationen**  
Technical information

Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material

- 2BX
- HSSE
- C / 2-3
- E / 0

**Gewindetiefe und Lochform**  
Thread depth and hole type



**Einsatzgebiete – Material**  
Applications – material

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- K** 1.1-4.2
- N** 2.3

| Nr.    | ø d <sub>1</sub> |       | P<br>Gg/1" (tpi) | l <sub>1</sub> | l <sub>2</sub> | l <sub>3</sub> | ø d <sub>2</sub> | □    | L     | Rekord<br>A-STEEL |
|--------|------------------|-------|------------------|----------------|----------------|----------------|------------------|------|-------|-------------------|
|        | inch             | mm    |                  |                |                |                |                  |      |       |                   |
| Nr. 1  | 0.0730           | 1.85  | 72               | 36             | 8              | –              | 2,8              | 2,1  | 1,55  | A0101001.5034     |
| Nr. 2  | 0.0860           | 2,15  | 64               | 36             | 9              | –              | 2,8              | 2,1  | 1,85  | A0101001.5035     |
| Nr. 3  | 0.0990           | 2,4   | 56               | 40             | 9              | –              | 2,8              | 2,1  | 2,15  |                   |
| Nr. 4  | 0.1120           | 2,7   | 48               | 40             | 10             | 18             | 3,5              | 2,7  | 2,4   | A0101001.5037     |
| Nr. 5  | 0.1250           | 2,7   | 44               | 40             | 10             | 18             | 3,5              | 2,7  | 2,7   |                   |
| Nr. 6  | 0.1380           | 2,95  | 40               | 45             | 11             | 20             | 4                | 3    | 2,95  | A0101001.5039     |
| Nr. 8  | 0.1640           | 3,4   | 36               | 45             | 12             | 22             | 4,5              | 3,4  | 3,5   | A0101001.5040     |
| Nr. 10 | 0.1900           | 4,1   | 32               | 50             | 14             | 25             | 6                | 4,9  | 4,1   | A0101001.5041     |
| Nr. 12 | 0.2160           | 4,6   | 28               | 56             | 16             | 28             | 6                | 4,9  | 4,6   |                   |
| 1/4    | 0.2500           | 5,5   | 28               | 56             | 16             | 28             | 6                | 4,9  | 5,5   | A0101001.5043     |
| 5/16   | 0.3125           | 6,9   | 24               | 63             | 17             | –              | 6                | 4,9  | 6,9   | A0101001.5044     |
| 3/8    | 0.3750           | 8,5   | 24               | 63             | 18             | –              | 7                | 5,5  | 8,5   | A0101001.5045     |
| 7/16   | 0.4375           | 9,9   | 20               | 70             | 22             | –              | 8                | 6,2  | 9,9   | A0101001.5046     |
| 1/2    | 0.5000           | 11,5  | 20               | 70             | 20             | –              | 9                | 7    | 11,5  | A0101001.5047     |
| 9/16   | 0.5625           | 12,9  | 18               | 70             | 20             | –              | 11               | 9    | 12,9  |                   |
| 5/8    | 0.6250           | 14,5  | 18               | 70             | 20             | –              | 12               | 9    | 14,5  | A0101001.5049     |
| 3/4    | 0.7500           | 17,5  | 16               | 80             | 22             | –              | 14               | 11   | 17,5  | A0101001.5050     |
| 7/8    | 0.8750           | 20,4  | 14               | 80             | 22             | –              | 18               | 14,5 | 20,4  |                   |
| 1"     | 1.0000           | 23,25 | 12               | 90             | 22             | –              | 18               | 14,5 | 23,25 | A0101001.5052     |
| 1 1/8  | 1.1250           | 26,5  | 12               | 90             | 22             | –              | 22               | 18   | 26,5  | A0101001.5053     |
| 1 1/4  | 1.2500           | 29,5  | 12               | 90             | 22             | –              | 22               | 18   | 29,5  | A0101001.5054     |
| 1 3/8  | 1.3750           | 32,75 | 12               | 125            | 30             | –              | 28               | 22   | 32,75 | A0101001.5055     |
| 1 1/2  | 1.5000           | 36    | 12               | 125            | 30             | –              | 28               | 22   | 36    | A0101001.5056     |

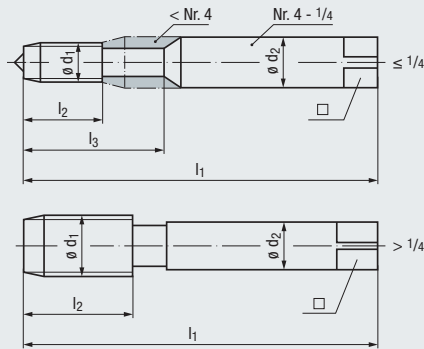


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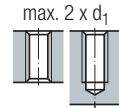
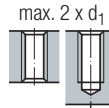


Technische Informationen  
Technical information

Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material



Gewindetiefe und Lochform  
Thread depth and hole type



Einsatzgebiete – Material  
Applications – material

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P 1.1-3.1

P 1.1-3.1

P 1.1-3.1

| Ø d <sub>1</sub><br>inch | P<br>inch | Gg/1" (tpi) | L <sub>1</sub> |                |                | L <sub>2</sub> |                | L <sub>3</sub> | Ø d <sub>2</sub> | □             |               | HGB-Set<br>V-Nr.1 | HGB-Set<br>F | HGB-Set-2S<br>(Nr.1, F) |
|--------------------------|-----------|-------------|----------------|----------------|----------------|----------------|----------------|----------------|------------------|---------------|---------------|-------------------|--------------|-------------------------|
|                          |           |             | l <sub>1</sub> | l <sub>2</sub> | l <sub>3</sub> | l <sub>1</sub> | l <sub>2</sub> |                |                  |               |               |                   |              |                         |
| Nr. 1                    | 0.0730    | 72          | 36             | 8              | —              | 2,8            | 2,1            | 1,55           | H0211009.5034    | H0211001.5034 | H0201001.5034 |                   |              |                         |
| Nr. 2                    | 0.0860    | 64          | 36             | 9              | —              | 2,8            | 2,1            | 1,85           | H0211009.5035    | H0211001.5035 | H0201001.5035 |                   |              |                         |
| Nr. 3                    | 0.0990    | 56          | 40             | 9              | —              | 2,8            | 2,1            | 2,15           |                  |               |               |                   |              |                         |
| Nr. 4                    | 0.1120    | 48          | 40             | 10             | 18             | 3,5            | 2,7            | 2,4            | H0211009.5037    | H0211001.5037 | H0201001.5037 |                   |              |                         |
| Nr. 5                    | 0.1250    | 44          | 40             | 10             | 18             | 3,5            | 2,7            | 2,7            |                  |               |               |                   |              |                         |
| Nr. 6                    | 0.1380    | 40          | 45             | 11             | 20             | 4              | 3              | 2,95           | H0211009.5039    | H0211001.5039 | H0201001.5039 |                   |              |                         |
| Nr. 8                    | 0.1640    | 36          | 45             | 12             | 22             | 4,5            | 3,4            | 3,5            | H0211009.5040    | H0211001.5040 | H0201001.5040 |                   |              |                         |
| Nr. 10                   | 0.1900    | 32          | 50             | 14             | 25             | 6              | 4,9            | 4,1            | H0211009.5041    | H0211001.5041 | H0201001.5041 |                   |              |                         |
| Nr. 12                   | 0.2160    | 28          | 56             | 16             | 28             | 6              | 4,9            | 4,6            |                  |               |               |                   |              |                         |
| 1/4                      | 0.2500    | 28          | 56             | 16             | 28             | 6              | 4,9            | 5,5            | H0211009.5043    | H0211001.5043 | H0201001.5043 |                   |              |                         |
| 5/16                     | 0.3125    | 24          | 63             | 17             | —              | 6              | 4,9            | 6,9            | H0211009.5044    | H0211001.5044 | H0201001.5044 |                   |              |                         |
| 3/8                      | 0.3750    | 24          | 63             | 18             | —              | 7              | 5,5            | 8,5            | H0211009.5045    | H0211001.5045 | H0201001.5045 |                   |              |                         |
| 7/16                     | 0.4375    | 20          | 70             | 22             | —              | 8              | 6,2            | 9,9            | H0211009.5046    | H0211001.5046 | H0201001.5046 |                   |              |                         |
| 1/2                      | 0.5000    | 20          | 70             | 20             | —              | 9              | 7              | 11,5           | H0211009.5047    | H0211001.5047 | H0201001.5047 |                   |              |                         |
| 9/16                     | 0.5625    | 18          | 70             | 20             | —              | 11             | 9              | 12,9           |                  |               |               |                   |              |                         |
| 5/8                      | 0.6250    | 18          | 70             | 20             | —              | 12             | 9              | 14,5           | H0211009.5049    | H0211001.5049 | H0201001.5049 |                   |              |                         |
| 3/4                      | 0.7500    | 16          | 80             | 22             | —              | 14             | 11             | 17,5           | H0211009.5050    | H0211001.5050 | H0201001.5050 |                   |              |                         |
| 7/8                      | 0.8750    | 14          | 80             | 22             | —              | 18             | 14,5           | 20,4           |                  |               |               |                   |              |                         |
| 1"                       | 1.0000    | 12          | 90             | 22             | —              | 18             | 14,5           | 23,25          | H0211009.5052    | H0211001.5052 | H0201001.5052 |                   |              |                         |
| 1 1/8                    | 1.1250    | 12          | 90             | 22             | —              | 22             | 18             | 26,5           | H0211009.5053    | H0211001.5053 | H0201001.5053 |                   |              |                         |
| 1 1/4                    | 1.2500    | 12          | 90             | 22             | —              | 22             | 18             | 29,5           | H0211009.5054    | H0211001.5054 | H0201001.5054 |                   |              |                         |
| 1 3/8                    | 1.3750    | 12          | 125            | 30             | —              | 28             | 22             | 32,75          | H0211009.5055    | H0211001.5055 | H0201001.5055 |                   |              |                         |
| 1 1/2                    | 1.5000    | 12          | 125            | 30             | —              | 28             | 22             | 36             | H0211009.5056    | H0211001.5056 | H0201001.5056 |                   |              |                         |

- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories



Verstellbare Windeisen siehe Seite 305

Adjustable tap wrenches, see page 305

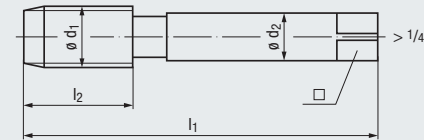
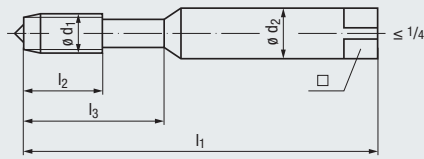
- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC  
UN-8
- UNF**  
UNEF
- G, Rp  
NPSM, NPSF
- NPT, NPTF  
Rc, W
- BSW, BSF
- Pg
- MJ  
UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F  
Rd
- Zubehör  
Accessories



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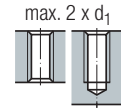
Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material

Technische Informationen  
Technical information



|         |         |             |
|---------|---------|-------------|
| HSSE    | HSSE    | 2BX<br>HSSE |
| C / 2-3 | C / 2-3 | C / 2-3     |
| O / P   | O / P   | O / P       |

Gewindetiefe und Lochform  
Thread depth and hole type







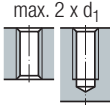
Einsatzgebiete – Material  
Applications – material



|                       |                       |                       |
|-----------------------|-----------------------|-----------------------|
| <b>P</b> 1.1-5.1      | <b>P</b> 1.1-5.1      | <b>P</b> 1.1-5.1      |
| <b>M</b> 1.1-4.1      | <b>M</b> 1.1-4.1      | <b>M</b> 1.1-4.1      |
| <b>K</b> 1.1-4.2      | <b>K</b> 1.1-4.2      | <b>K</b> 1.1-4.2      |
| <b>N</b> 1.1-2.6      | <b>N</b> 1.1-2.6      | <b>N</b> 1.1-2.6      |
| <b>S</b> 2.1-2.2, 2.4 | <b>S</b> 2.1-2.2, 2.4 | <b>S</b> 2.1-2.2, 2.4 |

| Ø d <sub>1</sub><br>inch | P<br>Gg/1" (tpi) | l <sub>1</sub> | l <sub>2</sub> | l <sub>3</sub> | Ø d <sub>2</sub> | □  | Image of tap | WM-Set  | WM-Set               | WM-Set               |                      |
|--------------------------|------------------|----------------|----------------|----------------|------------------|----|--------------|---------|----------------------|----------------------|----------------------|
|                          |                  |                |                |                |                  |    |              | V-Nr.1Z | V-Nr.1               | F                    |                      |
| 1/4                      | 0.2500           | 28             | 56             | 16             | 28               | 6  | 4,9          | 5,5     | <b>H0463009.5043</b> | <b>H0473009.5043</b> | <b>H0473001.5043</b> |
| 5/16                     | 0.3125           | 24             | 63             | 17             | –                | 6  | 4,9          | 6,9     | <b>H0463009.5044</b> | <b>H0473009.5044</b> | <b>H0473001.5044</b> |
| 3/8                      | 0.3750           | 24             | 63             | 18             | –                | 7  | 5,5          | 8,5     | <b>H0463009.5045</b> | <b>H0473009.5045</b> | <b>H0473001.5045</b> |
| 7/16                     | 0.4375           | 20             | 70             | 22             | –                | 8  | 6,2          | 9,9     | <b>H0463009.5046</b> | <b>H0473009.5046</b> | <b>H0473001.5046</b> |
| 1/2                      | 0.5000           | 20             | 70             | 20             | –                | 9  | 7            | 11,5    | <b>H0463009.5047</b> | <b>H0473009.5047</b> | <b>H0473001.5047</b> |
| 9/16                     | 0.5625           | 18             | 70             | 20             | –                | 11 | 9            | 12,9    |                      |                      |                      |
| 5/8                      | 0.6250           | 18             | 70             | 20             | –                | 12 | 9            | 14,5    | H0463009.5049        | H0473009.5049        | H0473001.5049        |
| 3/4                      | 0.7500           | 16             | 80             | 22             | –                | 14 | 11           | 17,5    | H0463009.5050        | H0473009.5050        | H0473001.5050        |
| 7/8                      | 0.8750           | 14             | 80             | 22             | –                | 18 | 14,5         | 20,4    |                      |                      |                      |
| 1"                       | 1.0000           | 12             | 90             | 22             | –                | 18 | 14,5         | 23,25   | H0463009.5052        | H0473009.5052        | H0473001.5052        |

1) Der Vorschneider Nr.1Z mit Führungszapfen ist eine zusätzliche Hilfe zum winkelrechten Anschneiden von Hand. Er kann z.B. auf der Maschine weggelassen werden. Die Profilabstufung von Nr.1Z und Nr.1 ist gleich.  
The taper tap No. 1Z with cylindrical pilot is an additional aid for true alignment especially when tapping by hand. It can be deleted when tapping by machine. The profile graduation of No.1Z, and No.1 is the same.

|  |  |  |  |  |
|--|--|--|--|--|
| <br><br><br>2) | <br><br> |  |  | Product Finder<br>V <sub>c</sub><br>M<br>MF<br>UNC<br>UN-8<br><b>UNF</b><br>UNEF<br>G, Rp<br>NPSM, NPSF<br>NPT, NPTF<br>Rc, W<br>BSW, BSF<br>Pg<br>MJ<br>UNJC, UNJF<br>EG (STI)<br>SELF-LOCK<br>Tr, Tr-F<br>Rd<br>Zubehör<br>Accessories |
| 2BX<br><br>HSSE<br><br>C / 2-3<br>O / P  | 2BX<br><br>HSSE<br><br>C / 2-3<br>O / P  |  |  |  |
|   |  |  |  |  |
| <b>P</b> 1.1-5.1<br><b>M</b> 1.1-4.1<br><b>K</b> 1.1-4.2<br><b>N</b> 1.1-2.6<br><b>S</b> 2.1-2.2, 2.4  | <b>P</b> 1.1-5.1<br><b>M</b> 1.1-4.1<br><b>K</b> 1.1-4.2<br><b>N</b> 1.1-2.6<br><b>S</b> 2.1-2.2, 2.4  |  |  |  |
| <b>WM-Set-3S</b><br>(Nr.1Z, Nr.1, F)   | <b>WM-Set-2S</b><br>(Nr.1, F)  |  |  |  |
| H0453001.5043  | H0483001.5043  |  |  | 1/4 - 28   |
| H0453001.5044  | H0483001.5044  |  |  | 5/16 - 24  |
| H0453001.5045  | H0483001.5045  |  |  | 3/8 - 24   |
| H0453001.5046  | H0483001.5046  |  |  | 7/16 - 20  |
| H0453001.5047  | H0483001.5047  |  |  | 1/2 - 20   |
| H0453001.5049  | H0483001.5049  |  |  | 9/16 - 18  |
| H0453001.5050  | H0483001.5050  |  |  | 5/8 - 18   |
|  |  |  |  | 3/4 - 16   |
|  |  |  |  | 7/8 - 14   |
| H0453001.5052  | H0483001.5052  |  |  | 1" - 12  |

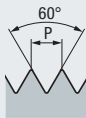
2) Beim Gewindebohren von Hand in Durchgangslöcher entfällt Nr.1  
 No.1 is not needed when tapping in through holes by hand



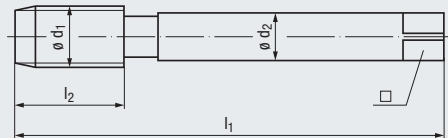
- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories

# UNEF

ASME B1.1



≈ DIN 374



Technische Informationen  
Technical information

Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material



Gewindetiefe und Lochform  
Thread depth and hole type

Einsatzgebiete – Material  
Applications – material

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**STEEL**  
Steel materials



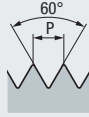
**VA**  
Stainless steel materials



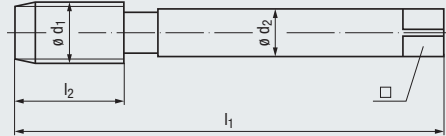
|                         |                          |                         |
|-------------------------|--------------------------|-------------------------|
| 2BX                     | 2B                       | 2B                      |
| HSSE                    | HSSE                     | TIN                     |
| C / 2-3                 | R15                      | HSSE                    |
| E / 0                   | <b>E / 1,5-2</b>         | B / 4-5                 |
|                         | E / 0                    | E / 0 / P               |
| max. 2 x d <sub>1</sub> | max. 2 x d <sub>1</sub>  | max. 3 x d <sub>1</sub> |
|                         |                          |                         |
| <b>K 1.1-4.2</b>        | <b>P 2.1-3.1</b>         | <b>P 1.1-4.1</b>        |
| <b>N 2.3</b>            |                          |                         |
| <b>Rekord 2A-STEEL</b>  | <b>Rekord 2D-STEEL/E</b> | <b>Rekord 2B-VA TIN</b> |
| 1/4                     | <b>C0461000.5058</b>     | <b>C0203100.5058</b>    |
| 5/16                    | <b>C0101001.5059</b>     | <b>C0461000.5059</b>    |
| 3/8                     | <b>C0101001.5060</b>     | <b>C0203100.5059</b>    |
| 7/16                    | <b>C0101001.5061</b>     | <b>C0461000.5060</b>    |
| 1/2                     | <b>C0101001.5062</b>     | <b>C0203100.5060</b>    |
| 9/16                    | <b>C0101001.5063</b>     | <b>C0461000.5061</b>    |
| 5/8                     | <b>C0101001.5064</b>     | <b>C0203100.5061</b>    |
| 3/4                     | <b>C0101001.5066</b>     | <b>C0461000.5062</b>    |
| 7/8                     | <b>C0101001.5068</b>     | <b>C0203100.5062</b>    |
| 1"                      | <b>C0101001.5070</b>     | <b>C0461000.5063</b>    |
|                         |                          | <b>C0203100.5063</b>    |
|                         |                          | <b>C0461000.5064</b>    |
|                         |                          | <b>C0203100.5064</b>    |
|                         |                          | <b>C0461000.5066</b>    |
|                         |                          | <b>C0203100.5066</b>    |
|                         |                          | <b>C0461000.5068</b>    |
|                         |                          | <b>C0203100.5068</b>    |
|                         |                          | <b>C0461000.5070</b>    |
|                         |                          | <b>C0203100.5070</b>    |

# UNEF

ASME B1.1



≈ DIN 374



Technische Informationen  
Technical information

Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material



Gewindetiefe und Lochform  
Thread depth and hole type

Einsatzgebiete – Material  
Applications – material

» 78

| $\varnothing d_1$<br>inch | P<br>Gg/1" (tpi) | $l_1$ | $l_2$ | $\varnothing d_2$ | $\square$ |       | Rekord<br>2B-VA<br>GLT-1 | Enorm<br>2-Z  | Enorm<br>2-Z<br>GLT-1 |
|---------------------------|------------------|-------|-------|-------------------|-----------|-------|--------------------------|---------------|-----------------------|
| 1/4                       | 0.2500 32        | 80    | 14    | 4,5               | 3,4       | 5,55  | C020C300.5058            | C0503500.5058 | C050C400.5058         |
| 5/16                      | 0.3125 32        | 80    | 14    | 6                 | 4,9       | 7,15  | C020C300.5059            | C0503500.5059 | C050C400.5059         |
| 3/8                       | 0.3750 32        | 90    | 18    | 7                 | 5,5       | 8,7   | C020C300.5060            | C0503500.5060 | C050C400.5060         |
| 7/16                      | 0.4375 28        | 90    | 18    | 8                 | 6,2       | 10,2  | C020C300.5061            | C0503500.5061 | C050C400.5061         |
| 1/2                       | 0.5000 28        | 100   | 18    | 9                 | 7         | 11,8  | C020C300.5062            | C0503500.5062 | C050C400.5062         |
| 9/16                      | 0.5625 24        | 100   | 18    | 11                | 9         | 13,2  | C020C300.5063            | C0503500.5063 | C050C400.5063         |
| 5/8                       | 0.6250 24        | 100   | 18    | 12                | 9         | 14,8  | C020C300.5064            | C0503500.5064 | C050C400.5064         |
| 3/4                       | 0.7500 20        | 110   | 25    | 14                | 11        | 17,8  | C020C300.5066            | C0503500.5066 | C050C400.5066         |
| 7/8                       | 0.8750 20        | 125   | 25    | 18                | 14,5      | 20,95 | C020C300.5068            | C0503500.5068 | C050C400.5068         |
| 1"                        | 1.0000 20        | 140   | 28    | 18                | 14,5      | 24,15 | C020C300.5070            | C0503500.5070 | C050C400.5070         |

**VA**  
Stainless steel  
materials



**Z**  
CNC-controlled  
machines



new



new



$l_2 \approx 10 \times P$

$l_2 \approx 10 \times P$

- 2B
- GLT-1
- HSSE
- B / 4-5
- E / O / P

max. 3 x  $d_1$



- 2B
- GLT-1
- HSSE
- R45
- C / 2-3
- E / O / P

max. 3 x  $d_1$



- P 1.1-4.1
- M 1.1-4.1
- N 2.2

P 1.1-3.1

- P 1.1-4.1
- M 1.1-4.1
- N 1.4, 2.1-2.2
- N 2.4-2.5
- S 1.1

Product  
Finder

V<sub>c</sub>

M

MF

UNC  
UN-8

UNF  
UNEF

G, Rp  
NPSM, NPSF

NPT, NPTF  
Rc, W

BSW, BSF

Pg

MJ  
UNJC, UNJF

EG (STI)

SELF-LOCK

Tr, Tr-F  
Rd

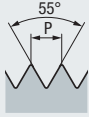
Zubehör  
Accessories



- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories

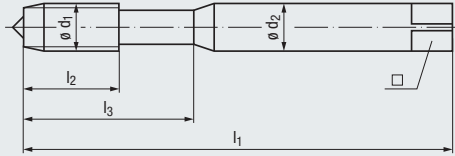
# G (BSP)

DIN EN ISO 228



≈ DIN 371

**HCUT**  
Hardened steels



Technische Informationen  
Technical information

Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material



„X“

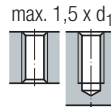
TICN

**HSSE-PM**

C / 2-3

O / P

Gewindetiefe und Lochform  
Thread depth and hole type



Einsatzgebiete – Material  
Applications – material

» 78

H 1.1-1.2

Nenngröße

Nom. size

Ø d<sub>1</sub>

Ø d<sub>1</sub>

mm

P

Gg/1" (tpi)

l<sub>1</sub>

l<sub>2</sub>

l<sub>3</sub>

Ø d<sub>2</sub>

□



8,8

**Rekord  
1A-HCUT  
PM-TICN**

**B010J901.4035**

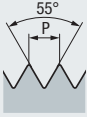
DIN 5156



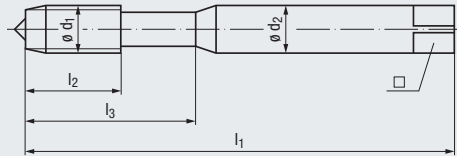
» 235

**G (BSP)**

DIN EN ISO 228



≈ DIN 371



Technische Informationen  
Technical information

Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material





Gewindetiefe und Lochform  
Thread depth and hole type



Einsatzgebiete – Material  
Applications – material

» 78



| Nenngröße<br>Nom. size | Ø d <sub>1</sub><br>mm | P<br>Gg/1" (tpi) | l <sub>1</sub> | l <sub>2</sub> | l <sub>3</sub> | Ø d <sub>2</sub> | □  | □    | □ |
|------------------------|------------------------|------------------|----------------|----------------|----------------|------------------|----|------|---|
|                        |                        |                  |                |                |                |                  |    |      |   |
| <b>G</b> 1/8           | 9,73                   | 28               | 100            | 18             | 38             | 10               | 8  | 8,8  |   |
| 1/4                    | 13,16                  | 19               | 110            | 24             | 44             | 14               | 11 | 11,9 |   |

**HCUT**  
Hardened steels

|         |         |
|---------|---------|
| „X“     | „X“     |
| TICN    | TICN    |
| VHM     | VHM     |
| D / 4-5 | C / 2-3 |
| O / P   | O / P   |

|  |  |
|--|--|
| max. 1,5 x d <sub>1</sub>  | max. 1,5 x d <sub>1</sub>  |
|  |  |

|           |           |
|-----------|-----------|
| H 1.3-1.4 | H 1.3-1.4 |
|-----------|-----------|

|                                 |                                 |
|---------------------------------|---------------------------------|
| VHM-Rekord<br>1A-HCUT/D<br>TICN | VHM-Rekord<br>1A-HCUT/C<br>TICN |
| B016K101.4035<br>B016K101.4036  | B010K101.4035<br>B010K101.4036  |

Product Finder

|                           |
|---------------------------|
| V <sub>c</sub>            |
| M                         |
| MF                        |
| UNC<br>UN-8               |
| UNF<br>UNEF               |
| <b>G</b> Rp<br>NPSM, NPSF |
| NPT, NPTF<br>Rc, W        |
| BSW, BSF                  |
| Pg                        |
| MJ<br>UNJC, UNJF          |
| EG (STI)                  |
| SELF-LOCK                 |
| Tr, Tr-F<br>Rd            |
| Zubehör<br>Accessories    |



2) Achtung: VHM-Rekord 1A-HCUT/D-TICN als Vorschneider verwenden!  
Please note: Use solid carbide tap VHM-Rekord 1A-HCUT/D-TICN as No.1 tap!



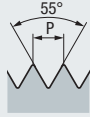
Spiralbohrer Typ EF-Drill-HCUT  
siehe Seite 62

Twist drills type EF-Drill-HCUT,  
see page 62

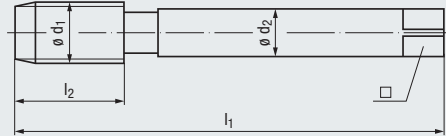
- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories

# G (BSP)

DIN EN ISO 228



**DIN 5157**



**STEEL**  
Steel materials



|  |                                 |         |         |         |         |
|--|---------------------------------|---------|---------|---------|---------|
| <b>Technische Informationen</b><br>Technical information | Toleranz · Tolerance            | „X“     | „X“     | „X“     | „X“     |
|  | Beschichtung · Coating          | HSSE    | HSSE    | TIN     | HSSE    |
|  | Schneidstoff · Cutting material | C / 2-3 | B / 4-5 | B / 4-5 | R15     |
|  |                                 | E / 0   | E / 0   | E / 0   | C / 2-3 |

|  |                         |                         |  |                         |
|--|-------------------------|-------------------------|--|-------------------------|
| <b>Gewindetiefe und Lochform</b><br>Thread depth and hole type | max. 2 x d <sub>1</sub> | max. 3 x d <sub>1</sub> |  | max. 2 x d <sub>1</sub> |
|  |                         |                         |  |                         |

|   |                    |                    |           |           |
|---|--------------------|--------------------|-----------|-----------|
| <b>Einsatzgebiete – Material</b><br>Applications – material | K 1.1-4.2<br>N 2.3 | P 1.1-3.1<br>N 2.2 | P 1.1-4.1 | P 2.1-3.1 |
|---|--------------------|--------------------|-----------|-----------|

| Nenngröße<br>Norm. size | Ø d <sub>1</sub><br>mm | P<br>Gg/1" (tpi) | l <sub>1</sub> | l <sub>2</sub> | Ø d <sub>2</sub> | □    |       | Rekord        | Rekord        | Rekord            | Rekord        |
|-------------------------|------------------------|------------------|----------------|----------------|------------------|------|-------|---------------|---------------|-------------------|---------------|
|                         |                        |                  |                |                |                  |      |       | 2A-STEEL      | 2B-STEEL-L    | 2B-STEEL-L<br>TIN | 2D-STEEL      |
| <b>G</b> 1/16           | 7,72                   | 28               | 90             | 17             | 6                | 4,9  | 6,8   | C0101001.4034 |               |                   | C0451001.4034 |
| 1/8                     | 9,73                   | 28               | 90             | 18             | 7                | 5,5  | 8,8   | C0101001.4035 | C0208901.4035 | C0208401.4035     | C0451001.4035 |
| 1/4                     | 13,16                  | 19               | 100            | 22             | 11               | 9    | 11,8  | C0101001.4036 | C0208901.4036 | C0208401.4036     | C0451001.4036 |
| 3/8                     | 16,66                  | 19               | 100            | 22             | 12               | 9    | 15,25 | C0101001.4037 | C0208901.4037 | C0208401.4037     | C0451001.4037 |
| 1/2                     | 20,96                  | 14               | 125            | 25             | 16               | 12   | 19    | C0101001.4038 | C0208901.4038 | C0208401.4038     | C0451001.4038 |
| 5/8                     | 22,91                  | 14               | 125            | 25             | 18               | 14,5 | 21    | C0101001.4039 | C0208901.4039 | C0208401.4039     | C0451001.4039 |
| 3/4                     | 26,44                  | 14               | 140            | 28             | 20               | 16   | 24,5  | C0101001.4040 | C0208901.4040 | C0208401.4040     | C0451001.4040 |
| 7/8                     | 30,20                  | 14               | 150            | 28             | 22               | 18   | 28,25 | C0101001.4041 |               |                   | C0451001.4041 |
| 1"                      | 33,25                  | 11               | 160            | 30             | 25               | 20   | 30,75 | C0101001.4042 | C0208901.4042 | C0208401.4042     | C0451001.4042 |
| 1 1/8                   | 37,90                  | 11               | 170            | 30             | 28               | 22   | 35,5  | C0101001.4043 | C0208901.4043 |                   | C0451001.4043 |
| 1 1/4                   | 41,91                  | 11               | 170            | 30             | 32               | 24   | 39,5  | C0101001.4044 | C0208901.4044 |                   | C0451001.4044 |
| 1 3/8                   | 44,32                  | 11               | 180            | 32             | 36               | 29   | 41,75 | C0101001.4045 | C0208901.4045 |                   | C0451001.4045 |
| 1 1/2                   | 47,80                  | 11               | 190            | 32             | 36               | 29   | 45,25 | C0101001.4046 | C0208901.4046 |                   | C0451001.4046 |
| 1 5/8                   | 52,00                  | 11               | 190            | 32             | 40               | 32   | 49,5  | C0101001.4047 | C0208901.4047 |                   |               |
| 1 3/4                   | 53,75                  | 11               | 190            | 32             | 40               | 32   | 51    | C0101001.4048 | C0208901.4048 |                   | C0451001.4048 |
| 2"                      | 59,61                  | 11               | 220            | 40             | 45               | 35   | 57    | C0101001.4050 | C0208901.4050 |                   | C0451001.4050 |

≈ DIN 371

DIN 5157

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| STEEL<br>Steel materials   |   |   |   | VA<br>Stainless steel materials  |  |  |  |
|--|---|---|---|--|--|--|--|
|  |   |   |   |  |  |  |  |
| „X“  | „X“   | „X“   | „X“   | „X“  | „X“  | „X“  |  |
| HSSE   | TIN<br>HSSE   | HSSE  | TIN<br>HSSE   | NT<br>HSSE   | TIN<br>HSSE  | GLT-1<br>HSSE  |  |
| R15  | R15   | R35   | R35   | B / 4-5  | B / 4-5  | B / 4-5  |  |
| E / 1,5-2  | C / 2-3   | C / 2-3   | C / 2-3   | E / 0 / P  | E / 0 / P  | E / 0 / P  |  |
| E / 0  | E / 0   | E / 0   | E / 0   |  |  |  |  |
| max. 2 x d <sub>1</sub><br>  |   | max. 2,5 x d <sub>1</sub><br>   |   | max. 3 x d <sub>1</sub><br>  |  |  |  |
| P 2.1-3.1  | P 3.1-4.1   | P 1.1-3.1<br>N 2.2  | P 1.1-3.1<br>N 2.2  | P 2.1-3.1<br>N 2.2, 2.5  | P 1.1-4.1  | P 1.1-4.1<br>M 1.1-4.1<br>N 2.2  |  |
| <b>Rekord 2D-STEEL/E</b>   | <b>Rekord 2DF-STEEL TIN</b>   | <b>Enorm 2-STEEL</b>  | <b>Enorm 2-STEEL TIN</b>  | <b>Rekord 2B-VA NT</b>   | <b>Rekord 2B-VA TIN</b>  | <b>Rekord 2B-VA GLT-1</b>  |  |
| C0461001.4034<br><b>C0461001.4035</b><br>C0461001.4036<br>C0461001.4037<br>C0461001.4038<br>C0461001.4039<br><b>C0461001.4040</b><br>C0461001.4041<br><b>C0461001.4042</b> | C0401401.4035<br><b>C0401401.4036</b><br>C0401401.4037<br>C0401401.4038 | C0501001.4035<br><b>C0501001.4036</b><br>C0501001.4037<br>C0501001.4038<br><b>C0501001.4040</b><br>C0501001.4041<br><b>C0501001.4042</b><br>C0501001.4043<br><b>C0501001.4044</b><br>C0501001.4045<br><b>C0501001.4046</b><br>C0501001.4047<br>C0501001.4048<br>C0501001.4050 | C0501401.4035<br><b>C0501401.4036</b><br>C0501401.4037<br>C0501401.4038<br><b>C0501401.4040</b><br>C0501401.4041<br><b>C0501401.4042</b><br>C0501401.4043<br><b>C0501401.4044</b><br>C0501401.4045<br><b>C0501401.4046</b><br>C0501401.4047<br>C0501401.4048<br>C0501401.4050 | C0203001.4035<br><b>C0203001.4036</b><br>C0203001.4037<br><b>C0203001.4038</b><br><b>C0203001.4040</b><br><b>C0203001.4042</b> | C0203101.4035<br>C0203101.4036<br>C0203101.4037<br>C0203101.4038<br>C0203101.4040<br>C0203101.4042 | C020C301.4035<br>C020C301.4036<br>C020C301.4037<br>C020C301.4038<br>C020C301.4040<br>C020C301.4042 | <b>G</b> 1/16 - 28<br>1/8 - 28<br>1/4 - 19<br>3/8 - 19<br>1/2 - 14<br>5/8 - 14<br>3/4 - 14<br>7/8 - 14<br>1" - 11<br>1 1/8 - 11<br>1 1/4 - 11<br>1 3/8 - 11<br>1 1/2 - 11<br>1 5/8 - 11<br>1 3/4 - 11<br>2" - 11 |

|                     |
|---------------------|
| Product Finder      |
| V <sub>c</sub>      |
| M                   |
| MF                  |
| UNC UN-8            |
| UNF UNF             |
| G Rp NPSM, NPSF     |
| NPT, NPTF Rc, W     |
| BSW, BSF            |
| Pg                  |
| MJ UNJC, UNJF       |
| EG (STI)            |
| SELF-LOCK           |
| Tr, Tr-F Rd         |
| Zubehör Accessories |



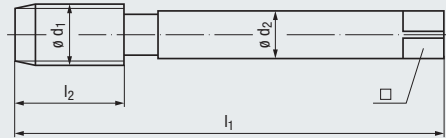
- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories

# G (BSP)

DIN EN ISO 228



**DIN 5156**



**VA**  
Stainless steel materials



l<sub>2</sub> ≈ 10 x P

**INOX**  
Stainless steel materials



**NEW**



l<sub>2</sub> ≈ 10 x P

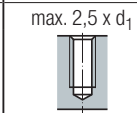
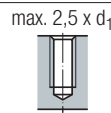
**Technische Informationen**  
Technical information

Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material

- „X“
- HSSE
- R35
- C / 2-3
- E / O / P

- „X“
- GLT-201
- HSSE
- R45
- C / 2-3
- E / O

**Gewindetiefe und Lochform**  
Thread depth and hole type



**Einsatzgebiete – Material**  
Applications – material

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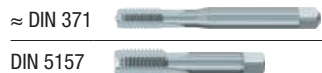
**P 1.1-3.1**

**M 1.1-2.1**

| Nenngröße<br>Nom. size | Ø d <sub>1</sub><br>mm | P<br>Gg/1" (tpi) | l              |                | Ø d <sub>2</sub> | □    | l <sub>2</sub>      | l <sub>1</sub> |
|------------------------|------------------------|------------------|----------------|----------------|------------------|------|---------------------|----------------|
|                        |                        |                  | l <sub>1</sub> | l <sub>2</sub> |                  |      |                     |                |
| <b>G</b> 1/16          | 7,72                   | 28               | 90             | 17             | 6                | 4,9  | 6,8                 |                |
| 1/8                    | 9,73                   | 28               | 90             | 18             | 7                | 5,5  | 8,8                 |                |
| 1/4                    | 13,16                  | 19               | 100            | 22             | 11               | 9    | 11,8 <sup>2)</sup>  |                |
| 3/8                    | 16,66                  | 19               | 100            | 22             | 12               | 9    | 15,25 <sup>2)</sup> |                |
| 1/2                    | 20,96                  | 14               | 125            | 25             | 16               | 12   | 19 <sup>2)</sup>    |                |
| 5/8                    | 22,91                  | 14               | 125            | 25             | 18               | 14,5 | 21                  |                |
| 3/4                    | 26,44                  | 14               | 140            | 28             | 20               | 16   | 24,5                |                |
| 7/8                    | 30,20                  | 14               | 150            | 28             | 22               | 18   | 28,25               |                |
| 1"                     | 33,25                  | 11               | 160            | 30             | 25               | 20   | 30,75               |                |
| 1 1/8                  | 37,90                  | 11               | 170            | 30             | 28               | 22   | 35,5                |                |
| 1 1/4                  | 41,91                  | 11               | 170            | 30             | 32               | 24   | 39,5                |                |
| 1 3/8                  | 44,32                  | 11               | 180            | 32             | 36               | 29   | 41,75               |                |
| 1 1/2                  | 47,80                  | 11               | 190            | 32             | 36               | 29   | 45,25               |                |
| 1 5/8                  | 52,00                  | 11               | 190            | 32             | 40               | 32   | 49,5                |                |
| 1 3/4                  | 53,75                  | 11               | 190            | 32             | 40               | 32   | 51                  |                |
| 2"                     | 59,61                  | 11               | 220            | 40             | 45               | 35   | 57                  |                |

**Enorm 2 VA**

**Enorm 2 INOX  
GLT-201**



<sup>2)</sup> Vorbohrerdurchmesser für Gewindebohrer Rekord 2A-HCUT-PM-TiCN ab G 1/4 um 0,1 mm anheben  
Increase drill diameter for taps Rekord 2A-HCUT-PM-TiCN from G 1/4 by 0.1 mm

| H<br>Materials of high tensile strength   |  |   | HCUT<br>Hardened steels  | Z<br>CNC-controlled machines  |  |
|---|--|---|--|---|--|
|   |  |   |  |   |  |
|   |  |   |  |   |  |
| „X“   | „X“  | „X“   | „X“  | „X“   | „X“  |
| NT  | TICN   |   | TICN   | GLT-1   | GLT-1  |
| HSSE  | HSSE   | VHM/KHM   | HSSE-PM  | HSSE-PM   | HSSE-PM  |
| C / 2-3   | C / 2-3  | E / 1,5-2   | C / 2-3  | R45   | R45  |
| E / O / P   | E / O / P  | E / O   | O / P  | C / 2-3   | E / 1,5-2  |
|   |  |   |  | E / O / P   | E / O / P  |
| max. 2 x d <sub>1</sub><br>   |  | max. 2 x d <sub>1</sub><br>   | max. 1,5 x d <sub>1</sub><br>  | max. 3 x d <sub>1</sub><br>   |  |
| <b>K</b> 1.1-4.2<br><b>N</b> 4.1  | <b>K</b> 1.1-4.2<br><b>N</b> 1.5-1.6, 2.6<br><b>N</b> 4.1, 5.1   | <b>K</b> 1.1-4.2<br><b>N</b> 1.5-1.6<br><b>N</b> 2.6-2.8<br><b>N</b> 4.1, 4.3-4.4<br><b>N</b> 5.1-5.2 | <b>H</b> 1.1-1.2   | <b>P</b> 1.1-4.1<br><b>M</b> 1.1-4.1<br><b>K</b> 1.1-3.2<br><b>N</b> 1.4, 2.1-2.2<br><b>N</b> 2.4-2.5<br><b>S</b> 1.1           | <b>P</b> 1.1-4.1<br><b>M</b> 1.1-4.1<br><b>K</b> 1.1-3.2<br><b>N</b> 1.4, 2.1-2.2<br><b>N</b> 2.4-2.5<br><b>S</b> 1.1  |
| <b>Rekord 2A-H NT</b>   | <b>Rekord 2A-H TICN</b>  | <b>VHM/KHM-Rekord 2A-H/E-1KZ</b>  | <b>Rekord 2A-HCUT PM-TICN</b>  | <b>Enorm 2-Z PM-GLT-1</b>   | <b>Enorm 2-Z/E PM-GLT-1</b>  |
| C0100501.4034<br><b>C0100501.4035</b><br>C0100501.4036<br>C0100501.4037<br><b>C0100501.4038</b><br>C0100501.4039<br><b>C0100501.4040</b><br>C0100501.4041<br><b>C0100501.4042</b><br>C0100501.4043<br><b>C0100501.4044</b><br>C0100501.4045<br><b>C0100501.4046</b><br><br>C0100501.4048<br>C0100501.4050 | C0109101.4035<br><b>C0109101.4036</b><br>C0109101.4037<br><b>C0109101.4038</b><br>C0109101.4040<br><br>C0109101.4042 | C1960901.4035<br><b>C1960901.4036</b><br>C1960901.4037<br><b>C1960901.4038</b>                        | C010J901.4035<br><b>C010J901.4036</b><br>C010J901.4037<br><b>C010J901.4038</b> | C616A601.4035<br><b>C616A601.4036</b><br>C616A601.4037<br><b>C616A601.4038</b><br><br>C616A601.4040<br><br><b>C616A601.4042</b> | C498A601.4035<br><b>C498A601.4036</b><br>C498A601.4037<br><b>C498A601.4038</b><br><br>C498A601.4040<br><br><b>C498A601.4042</b>  |
|   |  |   |  |   | <b>G</b> 1/16 - 28<br>1/8 - 28<br>1/4 - 19<br>3/8 - 19<br>1/2 - 14<br>5/8 - 14<br>3/4 - 14<br>7/8 - 14<br>1" - 11<br>1 1/8 - 11<br>1 1/4 - 11<br>1 3/8 - 11<br>1 1/2 - 11<br>1 5/8 - 11<br>1 3/4 - 11<br>2" - 11 |
|   |  |   |  |   |  |
|   |  |   |  |   |  |

|                     |
|---------------------|
| Product Finder      |
| V <sub>c</sub>      |
| M                   |
| MF                  |
| UNC UN-8            |
| UNF UNEF            |
| G Rp NPSM, NPSF     |
| NPT, NPTF Rc, W     |
| BSW, BSF            |
| Pg                  |
| MJ UNJC, UNJF       |
| EG (STI)            |
| SELF-LOCK           |
| Tr, Tr-F Rd         |
| Zubehör Accessories |



1) Gewindebohren in Durchgangslöcher nur mit externer Kühlschmierung möglich  
Threading in through holes is possible only with external cooling/lubrication



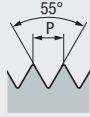
Schnellwechsel-Aufnahmen  
Typ KSN/HD siehe Seite 662 - 669

Quick-change tap holders  
type KSN/HD, see page 662 - 669

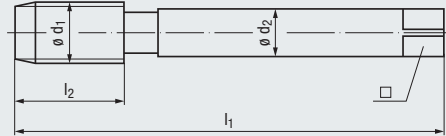
- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories

# G (BSP)

DIN EN ISO 228



**DIN 5156**



**Z**  
CNC-controlled machines

|                  |           |           |                  |
|------------------|-----------|-----------|------------------|
|                  |           |           |                  |
|                  |           |           |                  |
| „X“              | „X“       | „X“       | „X“              |
| GLT-1            |           | GLT-1     |                  |
| <b>HSSE-PM</b>   | HSSE      | HSSE      | HSSE             |
| R45              | R45       | R45       | R45              |
| <b>E / 1,5-2</b> | C / 2-3   | C / 2-3   | <b>E / 1,5-2</b> |
| E / O            | E / O / P | E / O / P | E / O / P        |

Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material

Technische Informationen  
Technical information

Gewindetiefe und Lochform  
Thread depth and hole type

max. 3 x d<sub>1</sub>



Einsatzgebiete – Material  
Applications – material

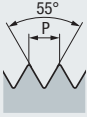
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|                       |                  |                       |                  |
|-----------------------|------------------|-----------------------|------------------|
| <b>P 1.1-4.1</b>      | <b>P 1.1-3.1</b> | <b>P 1.1-4.1</b>      | <b>P 1.1-3.1</b> |
| <b>M 1.1-4.1</b>      |                  | <b>M 1.1-4.1</b>      |                  |
| <b>K 1.1-3.2</b>      |                  | <b>N 1.4, 2.1-2.2</b> |                  |
| <b>N 1.4, 2.1-2.2</b> |                  | <b>N 2.4-2.5</b>      |                  |
| <b>N 2.4-2.5</b>      |                  | <b>S 1.1</b>          |                  |
| <b>S 1.1</b>          |                  |                       |                  |

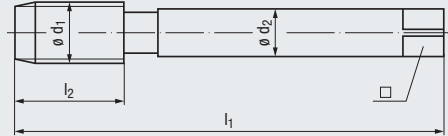
| Nenngröße<br>Nom. size | Ø d <sub>1</sub><br>mm | P<br>Gg/1" (tpi) | L <sub>1</sub> |                |                  |      | L <sub>2</sub> |  | Ø d <sub>2</sub> | □                    |                      | Enorm<br>2-Z/E-IKZ<br>PM-GLT-1 | Enorm<br>2-Z         | Enorm<br>2-Z<br>GLT-1 | Enorm<br>2-Z/E |
|------------------------|------------------------|------------------|----------------|----------------|------------------|------|----------------|--|------------------|----------------------|----------------------|--------------------------------|----------------------|-----------------------|----------------|
|                        |                        |                  | l <sub>1</sub> | l <sub>2</sub> | Ø d <sub>2</sub> | □    |                |  |                  |                      |                      |                                |                      |                       |                |
| <b>G</b> 1/16          | 7,72                   | 28               | 90             | 10             | 6                | 4,9  | 6,8            |  |                  |                      |                      |                                |                      | C0513501.4034         |                |
| 1/8                    | 9,73                   | 28               | 90             | 10             | 7                | 5,5  | 8,8            |  |                  | <b>C590A601.4035</b> | <b>C0503501.4035</b> | <b>C050C401.4035</b>           | <b>C0513501.4035</b> | <b>C0513501.4035</b>  |                |
| 1/4                    | 13,16                  | 19               | 100            | 15             | 11               | 9    | 11,8           |  |                  | <b>C590A601.4036</b> | <b>C0503501.4036</b> | <b>C050C401.4036</b>           | <b>C0513501.4036</b> | <b>C0513501.4036</b>  |                |
| 3/8                    | 16,66                  | 19               | 100            | 15             | 12               | 9    | 15,25          |  |                  | <b>C590A601.4037</b> | <b>C0503501.4037</b> | <b>C050C401.4037</b>           | <b>C0513501.4037</b> | <b>C0513501.4037</b>  |                |
| 1/2                    | 20,96                  | 14               | 125            | 17             | 16               | 12   | 19             |  |                  | <b>C590A601.4038</b> | <b>C0503501.4038</b> | <b>C050C401.4038</b>           | <b>C0513501.4038</b> | <b>C0513501.4038</b>  |                |
| 5/8                    | 22,91                  | 14               | 125            | 17             | 18               | 14,5 | 21             |  |                  | <b>C590A601.4040</b> | <b>C0503501.4039</b> | <b>C050C401.4039</b>           | <b>C0513501.4039</b> | <b>C0513501.4039</b>  |                |
| 3/4                    | 26,44                  | 14               | 140            | 20             | 20               | 16   | 24,5           |  |                  | <b>C590A601.4040</b> | <b>C0503501.4040</b> | <b>C050C401.4040</b>           | <b>C0513501.4040</b> | <b>C0513501.4040</b>  |                |
| 7/8                    | 30,20                  | 14               | 150            | 22             | 22               | 18   | 28,25          |  |                  |                      |                      |                                |                      | <b>C0513501.4041</b>  |                |
| 1"                     | 33,25                  | 11               | 160            | 24             | 25               | 20   | 30,75          |  |                  | <b>C590A601.4042</b> |                      |                                |                      | <b>C0513501.4042</b>  |                |
| 1 1/8                  | 37,90                  | 11               | 170            | 24             | 28               | 22   | 35,5           |  |                  |                      |                      |                                |                      |                       |                |
| 1 1/4                  | 41,91                  | 11               | 170            | 25             | 32               | 24   | 39,5           |  |                  |                      |                      |                                |                      | <b>C0513501.4044</b>  |                |
| 1 3/8                  | 44,32                  | 11               | 180            | 27             | 36               | 29   | 41,75          |  |                  |                      |                      |                                |                      |                       |                |
| 1 1/2                  | 47,80                  | 11               | 190            | 27             | 36               | 29   | 45,25          |  |                  |                      |                      |                                |                      | <b>C0513501.4046</b>  |                |
| 1 5/8                  | 52,00                  | 11               | 190            | 27             | 40               | 32   | 49,5           |  |                  |                      |                      |                                |                      |                       |                |
| 1 3/4                  | 53,75                  | 11               | 190            | 27             | 40               | 32   | 51             |  |                  |                      |                      |                                |                      |                       |                |
| 2"                     | 59,61                  | 11               | 220            | 32             | 45               | 35   | 57             |  |                  |                      |                      |                                |                      |                       |                |

**G (BSP)**

DIN EN ISO 228



**DIN 5156**



Technische Informationen  
Technical information

Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material



Gewindetiefe und Lochform  
Thread depth and hole type

Einsatzgebiete – Material  
Applications – material

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max. 3 x d<sub>1</sub>



|                       |                       |                  |                       |
|-----------------------|-----------------------|------------------|-----------------------|
| <b>P</b> 1.1-4.1      | <b>P</b> 1.1-4.1      | <b>P</b> 1.1-3.1 | <b>P</b> 1.1-4.1      |
| <b>N</b> 2.2, 2.4-2.5 | <b>M</b> 1.1-4.1      |                  | <b>M</b> 1.1-4.1      |
| <b>S</b> 1.1          | <b>N</b> 1.4, 2.1-2.2 |                  | <b>N</b> 1.4, 2.1-2.2 |
|                       | <b>N</b> 2.4-2.5      |                  | <b>N</b> 2.4-2.5      |
|                       | <b>S</b> 1.1          |                  | <b>S</b> 1.1          |

| Nenngröße<br>Nom. size | ø d <sub>1</sub><br>mm | P<br>Gg/1" (tpi) | l <sub>1</sub> | l <sub>2</sub> | ø d <sub>2</sub> | □    | □     | □                    | Z<br>CNC-controlled machines |                      |                      |                      |  |
|------------------------|------------------------|------------------|----------------|----------------|------------------|------|-------|----------------------|------------------------------|----------------------|----------------------|----------------------|--|
|                        |                        |                  |                |                |                  |      |       |                      | Enorm 2-Z/E<br>TIN           | Enorm 2-Z/E<br>GLT-1 | Enorm 2-Z/E          | Enorm 2-Z/E<br>GLT-1 |  |
| <b>G</b> 1/16          | 7,72                   | 28               | 90             | 10             | 6                | 4,9  | 6,8   |                      |                              |                      |                      |                      |  |
| 1/8                    | 9,73                   | 28               | 90             | 10             | 7                | 5,5  | 8,8   | <b>C0513701.4035</b> | <b>C051C401.4035</b>         | <b>C0513531.4035</b> | <b>C051C431.4035</b> |                      |  |
| 1/4                    | 13,16                  | 19               | 100            | 15             | 11               | 9    | 11,8  | <b>C0513701.4036</b> | <b>C051C401.4036</b>         | <b>C0513531.4036</b> | <b>C051C431.4036</b> |                      |  |
| 3/8                    | 16,66                  | 19               | 100            | 15             | 12               | 9    | 15,25 | <b>C0513701.4037</b> | <b>C051C401.4037</b>         | <b>C0513531.4037</b> | <b>C051C431.4037</b> |                      |  |
| 1/2                    | 20,96                  | 14               | 125            | 17             | 16               | 12   | 19    | <b>C0513701.4038</b> | <b>C051C401.4038</b>         | <b>C0513531.4038</b> | <b>C051C431.4038</b> |                      |  |
| 5/8                    | 22,91                  | 14               | 125            | 17             | 18               | 14,5 | 21    | C0513701.4039        | C051C401.4039                | C0513531.4039        | C051C431.4039        |                      |  |
| 3/4                    | 26,44                  | 14               | 140            | 20             | 20               | 16   | 24,5  | <b>C0513701.4040</b> | <b>C051C401.4040</b>         | <b>C0513531.4040</b> | <b>C051C431.4040</b> |                      |  |
| 7/8                    | 30,20                  | 14               | 150            | 22             | 22               | 18   | 28,25 | C0513701.4041        | C051C401.4041                | C0513531.4041        | C051C431.4041        |                      |  |
| 1"                     | 33,25                  | 11               | 160            | 24             | 25               | 20   | 30,75 | <b>C0513701.4042</b> | <b>C051C401.4042</b>         | C0513531.4042        | C051C431.4042        |                      |  |
| 1 1/8                  | 37,90                  | 11               | 170            | 24             | 28               | 22   | 35,5  |                      |                              |                      |                      |                      |  |
| 1 1/4                  | 41,91                  | 11               | 170            | 25             | 32               | 24   | 39,5  |                      |                              |                      |                      |                      |  |
| 1 3/8                  | 44,32                  | 11               | 180            | 27             | 36               | 29   | 41,75 |                      |                              |                      |                      |                      |  |
| 1 1/2                  | 47,80                  | 11               | 190            | 27             | 36               | 29   | 45,25 |                      |                              |                      |                      |                      |  |
| 1 5/8                  | 52,00                  | 11               | 190            | 27             | 40               | 32   | 49,5  |                      |                              |                      |                      |                      |  |
| 1 3/4                  | 53,75                  | 11               | 190            | 27             | 40               | 32   | 51    |                      |                              |                      |                      |                      |  |
| 2"                     | 59,61                  | 11               | 220            | 32             | 45               | 35   | 57    |                      |                              |                      |                      |                      |  |

2) Vorbohrdurchmesser für Gewindebohrer mit Übermaß um 0,05 mm anheben  
Increase drill diameter for taps with oversize by 0.05 mm

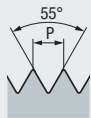
- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC UN-8
- UNF UNEF
- G** Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories



- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories

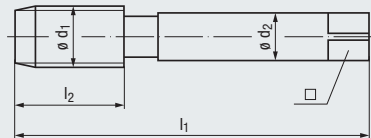
# G (BSP)

DIN EN ISO 228



**DIN 5157**

**STEEL**  
Steel materials



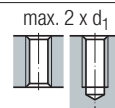
Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material

Technische Informationen  
Technical information



- „X“
- HSSE
- C / 2-3
- E / 0

Gewindetiefe und Lochform  
Thread depth and hole type



Einsatzgebiete – Material  
Applications – material

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- K** 1.1-4.2
- N** 2.3

| Nenngröße<br>Nom. size | Ø d <sub>1</sub><br>mm | P<br>Gg/1" (tpi) | Längen         |                |                |                | Ø d <sub>2</sub> | □                    | L <sub>1</sub> | L <sub>2</sub> | L <sub>3</sub> | L <sub>4</sub> | Rekord<br>A-STEEL |
|------------------------|------------------------|------------------|----------------|----------------|----------------|----------------|------------------|----------------------|----------------|----------------|----------------|----------------|-------------------|
|                        |                        |                  | l <sub>1</sub> | l <sub>2</sub> | l <sub>3</sub> | l <sub>4</sub> |                  |                      |                |                |                |                |                   |
| <b>G</b> 1/16          | 7,72                   | 28               | 63             | 17             | 6              | 4,9            | 6,8              | A0101001.4034        |                |                |                |                |                   |
| 1/8                    | 9,73                   | 28               | 63             | 18             | 7              | 5,5            | 8,8              | <b>A0101001.4035</b> |                |                |                |                |                   |
| 1/4                    | 13,16                  | 19               | 70             | 20             | 11             | 9              | 11,8             | <b>A0101001.4036</b> |                |                |                |                |                   |
| 3/8                    | 16,66                  | 19               | 70             | 20             | 12             | 9              | 15,25            | <b>A0101001.4037</b> |                |                |                |                |                   |
| 1/2                    | 20,96                  | 14               | 80             | 22             | 16             | 12             | 19               | <b>A0101001.4038</b> |                |                |                |                |                   |
| 5/8                    | 22,91                  | 14               | 80             | 22             | 18             | 14,5           | 21               | A0101001.4039        |                |                |                |                |                   |
| 3/4                    | 26,44                  | 14               | 90             | 22             | 20             | 16             | 24,5             | <b>A0101001.4040</b> |                |                |                |                |                   |
| 7/8                    | 30,20                  | 14               | 90             | 22             | 22             | 18             | 28,25            | A0101001.4041        |                |                |                |                |                   |
| 1"                     | 33,25                  | 11               | 100            | 25             | 25             | 20             | 30,75            | A0101001.4042        |                |                |                |                |                   |
| 1 1/8                  | 37,90                  | 11               | 125            | 30             | 28             | 22             | 35,5             | A0101001.4043        |                |                |                |                |                   |
| 1 1/4                  | 41,91                  | 11               | 125            | 30             | 32             | 24             | 39,5             | A0101001.4044        |                |                |                |                |                   |
| 1 3/8                  | 44,32                  | 11               | 125            | 30             | 36             | 29             | 41,75            | A0101001.4045        |                |                |                |                |                   |
| 1 1/2                  | 47,80                  | 11               | 140            | 30             | 36             | 29             | 45,25            | A0101001.4046        |                |                |                |                |                   |
| 1 3/4                  | 53,75                  | 11               | 140            | 32             | 40             | 32             | 51               | A0101001.4048        |                |                |                |                |                   |
| 2"                     | 59,61                  | 11               | 160            | 36             | 45             | 35             | 57               | A0101001.4050        |                |                |                |                |                   |

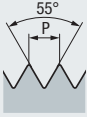
≈ DIN 371

DIN 5156

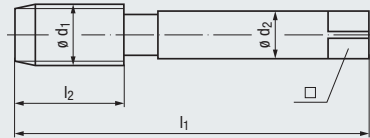
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**G (BSP)**

DIN EN ISO 228



**DIN 5157**



Technische Informationen  
Technical information

Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material



HSSE

HSSE

HSSE

D / 3-4

C / 2-3

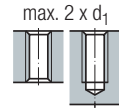
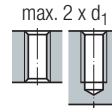
C / 2-3

O / P

O / P

O / P

Gewindetiefe und Lochform  
Thread depth and hole type



Einsatzgebiete – Material  
Applications – material

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P 1.1-3.1

P 1.1-3.1

P 1.1-3.1

| Nenngröße<br>Nom. size | Ø d <sub>1</sub><br>mm | P<br>Gg/1" (tpi) | l <sub>1</sub> | l <sub>2</sub> | Ø d <sub>2</sub> | □    |       | HGB-Set              | HGB-Set              | HGB-Set-2S           |
|------------------------|------------------------|------------------|----------------|----------------|------------------|------|-------|----------------------|----------------------|----------------------|
|                        |                        |                  |                |                |                  |      |       | V-Nr.1               | F                    | (Nr.1, F)            |
| <b>G</b> 1/16          | 7,72                   | 28               | 63             | 17             | 6                | 4,9  | 6,8   |                      |                      |                      |
| 1/8                    | 9,73                   | 28               | 63             | 18             | 7                | 5,5  | 8,8   | <b>H0211009.4035</b> | <b>H0211001.4035</b> | <b>H0201001.4035</b> |
| 1/4                    | 13,16                  | 19               | 70             | 20             | 11               | 9    | 11,8  | <b>H0211009.4036</b> | <b>H0211001.4036</b> | <b>H0201001.4036</b> |
| 3/8                    | 16,66                  | 19               | 70             | 20             | 12               | 9    | 15,25 | <b>H0211009.4037</b> | <b>H0211001.4037</b> | <b>H0201001.4037</b> |
| 1/2                    | 20,96                  | 14               | 80             | 22             | 16               | 12   | 19    | <b>H0211009.4038</b> | <b>H0211001.4038</b> | <b>H0201001.4038</b> |
| 5/8                    | 22,91                  | 14               | 80             | 22             | 18               | 14,5 | 21    | H0211009.4039        | H0211001.4039        | H0201001.4039        |
| 3/4                    | 26,44                  | 14               | 90             | 22             | 20               | 16   | 24,5  | <b>H0211009.4040</b> | <b>H0211001.4040</b> | <b>H0201001.4040</b> |
| 7/8                    | 30,20                  | 14               | 90             | 22             | 22               | 18   | 28,25 |                      |                      |                      |
| 1"                     | 33,25                  | 11               | 100            | 25             | 25               | 20   | 30,75 | H0211009.4042        | H0211001.4042        | H0201001.4042        |
| 1 1/8                  | 37,90                  | 11               | 125            | 30             | 28               | 22   | 35,5  | H0211009.4043        | H0211001.4043        | H0201001.4043        |
| 1 1/4                  | 41,91                  | 11               | 125            | 30             | 32               | 24   | 39,5  | H0211009.4044        | H0211001.4044        | H0201001.4044        |
| 1 3/8                  | 44,32                  | 11               | 125            | 30             | 36               | 29   | 41,75 | H0211009.4045        | H0211001.4045        | H0201001.4045        |
| 1 1/2                  | 47,80                  | 11               | 140            | 30             | 36               | 29   | 45,25 | H0211009.4046        | H0211001.4046        | H0201001.4046        |
| 1 3/4                  | 53,75                  | 11               | 140            | 32             | 40               | 32   | 51    | H0211009.4048        | H0211001.4048        | H0201001.4048        |
| 2"                     | 59,61                  | 11               | 160            | 36             | 45               | 35   | 57    | H0211009.4050        | H0211001.4050        | H0201001.4050        |

- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC UN-8
- UNF UNEF
- G Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories



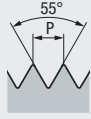
Verstellbare Windeisen siehe Seite 305

Adjustable tap wrenches, see page 305

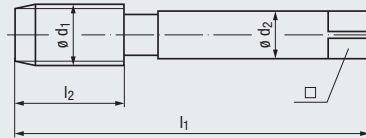
- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories

# G (BSP)

DIN EN ISO 228



DIN 5157



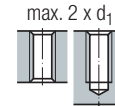
Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material

Technische Informationen  
Technical information



|         |         |             |
|---------|---------|-------------|
| HSSE    | HSSE    | „X“<br>HSSE |
| C / 2-3 | C / 2-3 | C / 2-3     |
| O / P   | O / P   | O / P       |

Gewindetiefe und Lochform  
Thread depth and hole type



Einsatzgebiete – Material  
Applications – material





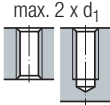
» 78

|                       |                       |                       |
|-----------------------|-----------------------|-----------------------|
| <b>P</b> 1.1-5.1      | <b>P</b> 1.1-5.1      | <b>P</b> 1.1-5.1      |
| <b>M</b> 1.1-4.1      | <b>M</b> 1.1-4.1      | <b>M</b> 1.1-4.1      |
| <b>K</b> 1.1-4.2      | <b>K</b> 1.1-4.2      | <b>K</b> 1.1-4.2      |
| <b>N</b> 1.1-2.6      | <b>N</b> 1.1-2.6      | <b>N</b> 1.1-2.6      |
| <b>S</b> 2.1-2.2, 2.4 | <b>S</b> 2.1-2.2, 2.4 | <b>S</b> 2.1-2.2, 2.4 |

| Nenngröße<br>Nom. size | Ø d <sub>1</sub><br>mm | P<br>Gg/1" (tpi) | l <sub>1</sub> l <sub>2</sub> |                | Ø d <sub>2</sub> | □    | 8,8   | 11,8  | 15,25 | 19    | 21    | 24,5  | 30,75         | WM-Set<br>V-Nr.1Z | WM-Set<br>V-Nr.1 | WM-Set<br>F   |
|------------------------|------------------------|------------------|-------------------------------|----------------|------------------|------|-------|-------|-------|-------|-------|-------|---------------|-------------------|------------------|---------------|
|                        |                        |                  | l <sub>1</sub>                | l <sub>2</sub> |                  |      |       |       |       |       |       |       |               |                   |                  |               |
| <b>G</b> 1/8           | 9,73                   | 28               | 63                            | 18             | 7                | 5,5  | 8,8   | 11,8  | 15,25 | 19    | 21    | 24,5  | 30,75         | H0463009.4035     | H0473009.4035    | H0473001.4035 |
| 1/4                    | 13,16                  | 19               | 70                            | 20             | 11               | 9    | 11,8  | 15,25 | 19    | 21    | 24,5  | 30,75 | H0463009.4036 | H0473009.4036     | H0473001.4036    |               |
| 3/8                    | 16,66                  | 19               | 70                            | 20             | 12               | 9    | 15,25 | 19    | 21    | 24,5  | 30,75 |       | H0463009.4037 | H0473009.4037     | H0473001.4037    |               |
| 1/2                    | 20,96                  | 14               | 80                            | 22             | 16               | 12   | 19    | 21    | 24,5  | 30,75 |       |       | H0463009.4038 | H0473009.4038     | H0473001.4038    |               |
| 5/8                    | 22,91                  | 14               | 80                            | 22             | 18               | 14,5 | 21    | 24,5  | 30,75 |       |       |       | H0463009.4040 | H0473009.4040     | H0473001.4040    |               |
| 3/4                    | 26,44                  | 14               | 90                            | 22             | 20               | 16   | 24,5  | 30,75 |       |       |       |       | H0463009.4042 | H0473009.4042     | H0473001.4042    |               |
| 1"                     | 33,25                  | 11               | 100                           | 25             | 25               | 20   | 30,75 |       |       |       |       |       | H0463009.4042 | H0473009.4042     | H0473001.4042    |               |

1) Der Vorschneider Nr.1Z mit Führungszapfen ist eine zusätzliche Hilfe zum winkelrechten Anschneiden von Hand. Er kann z.B. auf der Maschine weggelassen werden. Die Profilabstufung von Nr.1Z und Nr.1 ist gleich.  
The taper tap No. 1Z with cylindrical pilot is an additional aid for true alignment especially when tapping by hand. It can be deleted when tapping by machine. The profile graduation of No.1Z, and No.1 is the same.



|  |  |  |  |  |
|--|--|--|--|--|
| <br><br><br>2) | <br><br> |  |  | Product Finder<br>V <sub>c</sub><br>M<br>MF<br>UNC UN-8<br>UNF UNEF<br>G Rp<br>NPSM, NPSF<br>NPT, NPTF<br>Rc, W<br>BSW, BSF<br>Pg<br>MJ<br>UNJC, UNJF<br>EG (STI)<br>SELF-LOCK<br>Tr, Tr-F<br>Rd<br>Zubehör<br>Accessories |
| „X“<br>HSSE<br>C / 2-3<br>O / P  | „X“<br>HSSE<br>C / 2-3<br>O / P  |  |  |  |
|   |  |  |  |  |
| <b>P</b> 1.1-5.1<br><b>M</b> 1.1-4.1<br><b>K</b> 1.1-4.2<br><b>N</b> 1.1-2.6<br><b>S</b> 2.1-2.2, 2.4  | <b>P</b> 1.1-5.1<br><b>M</b> 1.1-4.1<br><b>K</b> 1.1-4.2<br><b>N</b> 1.1-2.6<br><b>S</b> 2.1-2.2, 2.4  |  |  |  |
| <b>WM-Set-3S</b><br>(Nr.1Z, Nr.1, F)   | <b>WM-Set-2S</b><br>(Nr.1, F)  |  |  |  |
| H0453001.4035<br>H0453001.4036<br>H0453001.4037<br>H0453001.4038   | H0483001.4035<br>H0483001.4036<br>H0483001.4037<br>H0483001.4038   |  |  | <b>G</b> 1/8 - 28<br>1/4 - 19<br>3/8 - 19<br>1/2 - 14<br>5/8 - 14  |
| H0453001.4040<br>H0453001.4042   | H0483001.4040<br>H0483001.4042   |  |  | 3/4 - 14<br>1" - 11  |

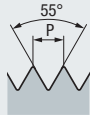
2) Beim Gewindebohren von Hand in Durchgangslöcher entfällt Nr.1  
 No.1 is not needed when tapping in through holes by hand



- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories

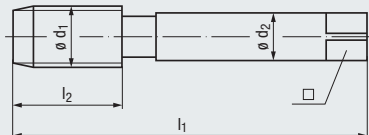
## G (BSP)

DIN EN ISO 228



≈ DIN 5157

Für dünnwandige Messing-Rohre  
For thin-walled brass tubes



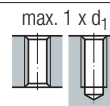
**MS**  
Copper-zinc alloys



|   |                                 |        |              |             |
|---|---------------------------------|--------|--------------|-------------|
| Technische Informationen<br>Technical information | Toleranz · Tolerance            | „X“    | „X“ +0,05 2) | „X“ +0,1 2) |
|   | Beschichtung · Coating          | HSSE   | HSSE         | HSSE        |
|   | Schneidstoff · Cutting material | max. 1 | max. 1       | max. 1      |
|   |                                 | E      | E            | E           |



Gewindetiefe und Lochform  
Thread depth and hole type



Einsatzgebiete – Material  
Applications – material

» 78

N 2.3, 2.6

N 2.3, 2.6

N 2.3, 2.6

| Nenngröße<br>Nom. size | Ø d <sub>1</sub><br>mm | P<br>Gg/1" (tpi) | l <sub>1</sub> | l <sub>2</sub> | Ø d <sub>2</sub> | □    | 8     | AUT-A         | AUT-A         | AUT-A         |
|------------------------|------------------------|------------------|----------------|----------------|------------------|------|-------|---------------|---------------|---------------|
|                        |                        |                  |                |                |                  |      |       | MS-R          | MS-R          | MS-R          |
| <b>G</b> 1/8           | 9,73                   | 28               | 63             | 18             | 7                | 5,5  | 8,8   | A6622501.4035 | A6622531.4035 | A662254A.4035 |
| 1/4                    | 13,16                  | 19               | 70             | 20             | 10 1)            | 8    | 11,8  | A6622501.4036 | A6622531.4036 | A662254A.4036 |
| 3/8                    | 16,66                  | 19               | 70             | 20             | 12               | 9    | 15,25 | A6622501.4037 | A6622531.4037 | A662254A.4037 |
| 1/2                    | 20,96                  | 14               | 80             | 22             | 15 1)            | 12   | 19    | A6622501.4038 | A6622531.4038 | A662254A.4038 |
| 3/4                    | 26,44                  | 14               | 90             | 22             | 18 1)            | 14,5 | 24,5  | A6622501.4040 | A6622531.4040 | A662254A.4040 |
| 7/8                    | 30,20                  | 14               | 90             | 22             | 18 1)            | 14,5 | 28,25 |               |               |               |
| 1"                     | 33,25                  | 11               | 100            | 25             | 18 1)            | 14,5 | 30,75 | A6622501.4042 | A6622531.4042 | A662254A.4042 |
| 1 1/8                  | 37,90                  | 11               | 125            | 30             | 18 1)            | 14,5 | 35,5  | A6622501.4043 |               |               |
| 1 1/4                  | 41,91                  | 11               | 125            | 30             | 18 1)            | 14,5 | 39,5  | A6622501.4044 |               |               |
| 1 3/8                  | 44,32                  | 11               | 125            | 30             | 18 1)            | 14,5 | 41,75 | A6622501.4045 |               |               |
| 1 1/2                  | 47,80                  | 11               | 140            | 30             | 18 1)            | 14,5 | 45,25 | A6622501.4046 |               |               |

1) Spezieller AUT-Schaft  
Special shank for "AUT" taps

2) Vorbohrdurchmesser für Gewindebohrer mit Übermaß um 0,05 bzw. 0,1 mm anheben  
Increase drill diameter for taps with oversize by 0.05 resp. 0.1 mm

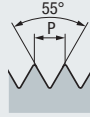


Gewindelehren  
siehe Seite 541 - 594

Thread gauges,  
see page 541 - 594

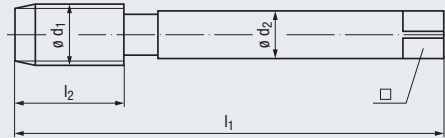
**Rp (BSPP)**

DIN EN 10226-1, ISO 7-1



**DIN 5156**

**STEEL**  
Steel materials

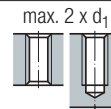


Technische Informationen  
Technical information

Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material



Gewindetiefe und Lochform  
Thread depth and hole type



Einsatzgebiete – Material  
Applications – material

» 78

**K 1.1-4.2**  
**N 2.3**

| Nenngröße<br>Nom. size | $\varnothing d_1$<br>mm | P<br>Gg/1" (tpi) | $l_1$ | $l_2$ | $\varnothing d_2$ | $\square$ |       |                      | Rekord<br>2A-STEEL   |
|------------------------|-------------------------|------------------|-------|-------|-------------------|-----------|-------|----------------------|----------------------|
|                        |                         |                  |       |       |                   |           |       |                      |                      |
| <b>Rp</b>              | 1/16                    | 7,72             | 28    | 90    | 17                | 6         | 4,9   | 6,55                 | C0101001.4091        |
|                        | 1/8                     | 9,73             | 28    | 90    | 18                | 7         | 5,5   | 8,6                  | <b>C0101001.4092</b> |
|                        | 1/4                     | 13,16            | 19    | 100   | 22                | 11        | 9     | 11,5                 | <b>C0101001.4093</b> |
|                        | 3/8                     | 16,66            | 19    | 100   | 22                | 12        | 9     | 15                   | <b>C0101001.4094</b> |
|                        | 1/2                     | 20,96            | 14    | 125   | 25                | 16        | 12    | 18,5                 | <b>C0101001.4095</b> |
|                        | 3/4                     | 26,44            | 14    | 140   | 28                | 20        | 16    | 24                   | <b>C0101001.4096</b> |
| 1"                     | 33,25                   | 11               | 160   | 30    | 25                | 20        | 30,25 | <b>C0101001.4097</b> |                      |

Zugehöriges Außengewinde ist kegelig, siehe Schneideisen Seite 535  
The appropriate external thread is tapered, see dies, page 535

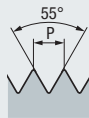
- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories



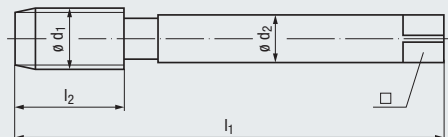
- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC UN-8
- UNF UNEF
- G **Rp** NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories

# Rp (BSPP)

DIN EN 10226-1, ISO 7-1



**DIN 5156**



**Z**  
CNC-controlled machines



**new**



**Technische Informationen**  
Technical information

Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material

|           |           |
|-----------|-----------|
| HSSE      | GLT-1     |
| R45       | HSSE      |
| E / 1,5-2 | R45       |
| E / 0 / P | E / 1,5-2 |
|           | E / 0 / P |

**Gewindetiefe und Lochform**  
Thread depth and hole type

max. 3 x d<sub>1</sub>



**Einsatzgebiete – Material**  
Applications – material

» 78

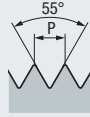
|                  |                       |
|------------------|-----------------------|
| <b>P</b> 1.1-3.1 | <b>P</b> 1.1-4.1      |
|                  | <b>M</b> 1.1-4.1      |
|                  | <b>N</b> 1.4, 2.1-2.2 |
|                  | <b>N</b> 2.4-2.5      |
|                  | <b>S</b> 1.1          |

| Nenngröße<br>Nom. size | ø d <sub>1</sub><br>mm | P<br>Gg/1" (tpi) | l <sub>1</sub> | l <sub>2</sub> | ø d <sub>2</sub> | □   |       |                      | Enorm 2-Z/E          | Enorm 2-Z/E GLT-1 |
|------------------------|------------------------|------------------|----------------|----------------|------------------|-----|-------|----------------------|----------------------|-------------------|
|                        |                        |                  |                |                |                  |     |       |                      |                      |                   |
| <b>Rp</b> 1/16         | 7,72                   | 28               | 90             | 10             | 6                | 4,9 | 6,55  | C0513500.4091        | C051C400.4091        |                   |
| 1/8                    | 9,73                   | 28               | 90             | 10             | 7                | 5,5 | 8,6   | <b>C0513500.4092</b> | <b>C051C400.4092</b> |                   |
| 1/4                    | 13,16                  | 19               | 100            | 15             | 11               | 9   | 11,5  | <b>C0513500.4093</b> | <b>C051C400.4093</b> |                   |
| 3/8                    | 16,66                  | 19               | 100            | 15             | 12               | 9   | 15    | <b>C0513500.4094</b> | <b>C051C400.4094</b> |                   |
| 1/2                    | 20,96                  | 14               | 125            | 17             | 16               | 12  | 18,5  | <b>C0513500.4095</b> | <b>C051C400.4095</b> |                   |
| 3/4                    | 26,44                  | 14               | 140            | 20             | 20               | 16  | 24    | <b>C0513500.4096</b> | C051C400.4096        |                   |
| 1"                     | 33,25                  | 11               | 160            | 24             | 25               | 20  | 30,25 | <b>C0513500.4097</b> | C051C400.4097        |                   |

Zugehöriges Außengewinde ist kegelig, siehe Schneideisen Seite 535  
The appropriate external thread is tapered, see dies, page 535

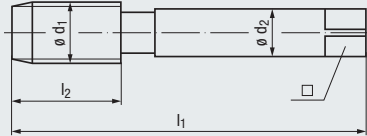
**Rp (BSPP)**

DIN EN 10226-1, ISO 7-1



≈ DIN 352

Für dünnwandige Messing-Rohre  
For thin-walled brass tubes



Technische Informationen  
Technical information

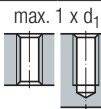
Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material



Gewindetiefe und Lochform  
Thread depth and hole type

Einsatzgebiete – Material  
Applications – material

» 78



**N 2.3, 2.6**

**N 2.3, 2.6**

| Nenngröße<br>Nom. size | $\varnothing d_1$<br>mm | P<br>Gg/1" (tpi) | $l_1$ | $l_2$ | $\varnothing d_2$ | $\square$ |       | AUT-A MS-R    |               |
|------------------------|-------------------------|------------------|-------|-------|-------------------|-----------|-------|---------------|---------------|
|                        |                         |                  |       |       |                   |           |       | AUT-A MS-R    | AUT-A MS-R    |
| <b>Rp</b> 1/8          | 9,73                    | 28               | 63    | 18    | 7                 | 5,5       | 8,6   | A6622501.4092 | A6622531.4092 |
| 1/4                    | 13,16                   | 19               | 70    | 20    | 10 <sup>1)</sup>  | 8         | 11,5  | A6622501.4093 | A6622531.4093 |
| 3/8                    | 16,66                   | 19               | 70    | 20    | 12                | 9         | 15    | A6622501.4094 | A6622531.4094 |
| 1/2                    | 20,96                   | 14               | 80    | 22    | 15 <sup>1)</sup>  | 12        | 18,5  | A6622501.4095 | A6622531.4095 |
| 3/4                    | 26,44                   | 14               | 90    | 22    | 18 <sup>1)</sup>  | 14,5      | 24    | A6622501.4096 | A6622531.4096 |
| 1"                     | 33,25                   | 11               | 100   | 25    | 18 <sup>1)</sup>  | 14,5      | 30,25 | A6622501.4097 | A6622531.4097 |

Zugehöriges Außengewinde ist kegelig, siehe Schneideisen Seite 535  
The appropriate external thread is tapered, see dies, page 535

- 1) Spezieller AUT-Schaft  
Special shank for "AUT" taps
- 2) Vorbohrdurchmesser für Gewindebohrer mit Übermaß um 0,05 mm anheben  
Increase drill diameter for taps with oversize by 0.05 mm

| MS<br>Copper-zinc alloys |              |
|--------------------------|--------------|
|                          |              |
|                          |              |
| „X“                      | „X“ +0,05 2) |
| HSSE                     | HSSE         |
| max. 1                   | max. 1       |
| E                        | E            |

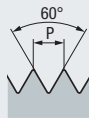
|                     |
|---------------------|
| Product Finder      |
| V <sub>c</sub>      |
| M                   |
| MF                  |
| UNC UN-8            |
| UNF UNEF            |
| G, Rp NPSM, NPSF    |
| NPT, NPTF Rc, W     |
| BSW, BSF            |
| Pg                  |
| MJ UNJC, UNJF       |
| EG (STI)            |
| SELF-LOCK           |
| Tr, Tr-F Rd         |
| Zubehör Accessories |



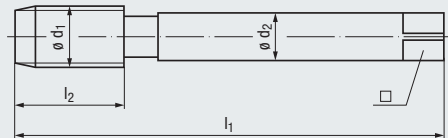
- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSC
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories

# NPSM

ANSI B1.20.1



≈ DIN 5156



Technische Informationen  
Technical information

Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material



Gewindetiefe und Lochform  
Thread depth and hole type

Einsatzgebiete – Material  
Applications – material

» 78

| Nenngröße<br>Nom. size | ø d <sub>1</sub><br>mm | P<br>Gg/1" (tpi) | NPSM           |                |                  |     | NPSC           |                | Rekord<br>2A-STEEL   | Enorm<br>2-Z/E       | Enorm<br>2-Z/E<br>GLT-1 |
|------------------------|------------------------|------------------|----------------|----------------|------------------|-----|----------------|----------------|----------------------|----------------------|-------------------------|
|                        |                        |                  | l <sub>1</sub> | l <sub>2</sub> | ø d <sub>2</sub> | □   | l <sub>1</sub> | l <sub>2</sub> |                      |                      |                         |
| 1/8                    | 10,100                 | 27               | 90             | 18             | 7                | 5,5 | 9,1            | 8,8            | <b>C0101001.5858</b> | <b>C0513500.5858</b> | <b>C051C400.5858</b>    |
| 1/4                    | 13,404                 | 18               | 100            | 22             | 11               | 9   | 12             | 11,4           | <b>C0101001.5859</b> | <b>C0513500.5859</b> | <b>C051C400.5859</b>    |
| 3/8                    | 16,843                 | 18               | 100            | 22             | 12               | 9   | 15,5           | 14,9           | C0101001.5860        | <b>C0513500.5860</b> | C051C400.5860           |
| 1/2                    | 20,949                 | 14               | 125            | 25             | 16               | 12  | 19             | 18,4           | C0101001.5861        | <b>C0513500.5861</b> | C051C400.5861           |
| 3/4                    | 26,296                 | 14               | 140            | 28             | 20               | 16  | 24,5           | 23,7           | C0101001.5862        | <b>C0513500.5862</b> | C051C400.5862           |
| 1"                     | 32,895                 | 11 1/2           | 160            | 30             | 25               | 20  | 30,5           | 29,8           | C0101001.5863        | C0513500.5863        | C051C400.5863           |

NPSM auch für NPSC verwendbar  
NPSM can also be used for NPSC thread

**STEEL**  
Steel materials

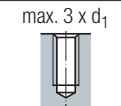
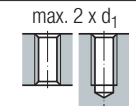


**Z**  
CNC-controlled machines



- „X“
- HSSE
- C / 2-3
- E / 0

- GLT-1
- HSSE
- R45
- E / 1,5-2
- E / 0 / P



- K 1.1-4.2**
- N 2.3**

- P 1.1-3.1**
- P 1.1-4.1**
- M 1.1-4.1**
- N 1.4, 2.1-2.2**
- N 2.4-2.5**
- S 1.1**



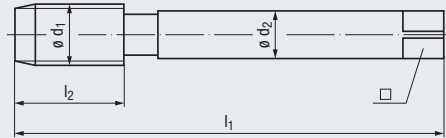
Kühlschmierstoffe siehe Seite 300 - 301    Coolant-lubricants, see page 300 - 301

# NPSF

ANSI B1.20.3



≈ DIN 5156



Technische Informationen  
Technical information

Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material



Gewindetiefe und Lochform  
Thread depth and hole type

Einsatzgebiete – Material  
Applications – material

» 78

| Nenngröße<br>Nom. size | $\varnothing d_1$<br>mm | P<br>Gg/1" (tpi) | $l_1$ | $l_2$ | $\varnothing d_2$ | $\square$ |       |
|------------------------|-------------------------|------------------|-------|-------|-------------------|-----------|-------|
| 1/16                   | 7,582                   | 27               | 90    | 17    | 6                 | 4,9       | 6,35  |
| 1/8                    | 9,929                   | 27               | 90    | 18    | 7                 | 5,5       | 8,7   |
| 1/4                    | 13,236                  | 18               | 100   | 22    | 11                | 9         | 11,3  |
| 3/8                    | 16,673                  | 18               | 100   | 22    | 12                | 9         | 14,75 |
| 1/2                    | 20,819                  | 14               | 125   | 25    | 16                | 12        | 18,2  |
| 3/4                    | 26,166                  | 14               | 140   | 28    | 20                | 16        | 23,5  |
| 1"                     | 32,718                  | 11 1/2           | 160   | 30    | 25                | 20        | 29,5  |

**STEEL**  
Steel materials

**Z**  
CNC-controlled machines

**new**

$l_2 \approx 10 \times P$

„X“

HSSE

C / 2-3

E / O

max. 2 x  $d_1$

GLT-1

HSSE

R45

E / 1,5-2

E / O / P

max. 3 x  $d_1$

**K** 1.1-4.2

**N** 2.3

**P** 1.1-3.1

**P** 1.1-4.1

**M** 1.1-4.1

**N** 1.4, 2.1-2.2

**N** 2.4-2.5

**S** 1.1

**Rekord**  
2A-STEEL

C0101001.5904

C0101001.5905

C0101001.5906

C0101001.5907

C0101001.5908

C0101001.5909

C0101001.5910

**Enorm**  
2-Z/E

C0513500.5904

C0513500.5905

C0513500.5906

C0513500.5907

C0513500.5908

C0513500.5909

C0513500.5910

**Enorm**  
2-Z/E  
GLT-1

C051C400.5904

C051C400.5905

C051C400.5906

C051C400.5907

C051C400.5908

C051C400.5909

C051C400.5910

Product Finder

V<sub>c</sub>

M

MF

UNC UN-8

UNF UNEF

G, Rp  
NPSM, NPSF

NPT, NPTF  
Rc, W

BSW, BSF

Pg

MJ  
UNJC, UNJF

EG (STI)

SELF-LOCK

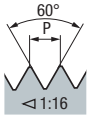
Tr, Tr-F  
Rd

Zubehör  
Accessories



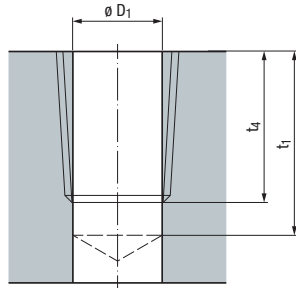
- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT NPTF** Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories

# NPT



ANSI/ASME B1.20.1

a) Zylindrisch vorarbeiten  
Cylindrical preparation of thread hole

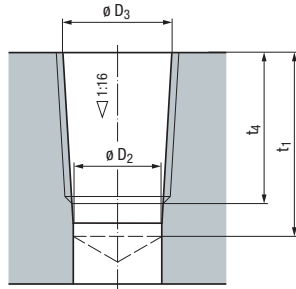


**EMUGE NPT-Gewindebohrer sind für die Lochformen a) bis c) geeignet. Für Gewinde mit höheren Anforderungen, z.B. NPT-Gewinde für die Luftfahrt, empfehlen wir, das Kernloch nach Form b) bzw. c) auszuführen.**

EMUGE NPT taps are suited for the hole forms a) to c).  
For threads with higher demands, e.g. NPT threads for the aircraft industry, we recommend preparing the thread hole to form b), resp. c).

| Nenngröße<br>Nom. size<br>$\varnothing d_1$ | P<br>Gg/1" (tpi) | $\varnothing D_1$ | $t_1$ 1) | $t_4$ |
|---|------------------|-------------------|----------|-------|
| 1/16  | 27               | 6,15              | 11,8     | 9,70  |
| 1/8   | 27               | 8,50              | 11,9     | 9,75  |
| 1/4   | 18               | 11,00             | 17,4     | 14,25 |
| 3/8   | 18               | 14,40             | 17,7     | 14,55 |
| 1/2   | 14               | 17,80             | 23,1     | 19,00 |
| 3/4   | 14               | 23,15             | 23,6     | 19,50 |
| 1"  | 11 1/2           | 29,05             | 28,4     | 23,40 |
| 1 1/4                                       | 11 1/2           | 37,80             | 28,9     | 23,90 |
| 1 1/2                                       | 11 1/2           | 43,85             | 28,9     | 23,90 |
| 2"  | 11 1/2           | 55,85             | 29,3     | 24,35 |

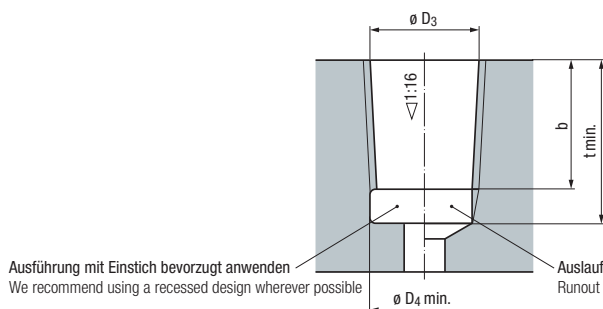
b) Kegelig vorarbeiten  
Tapered preparation of thread hole



| Nenngröße<br>Nom. size<br>$\varnothing d_1$ | P<br>Gg/1" (tpi) | $\varnothing D_2$ | $\varnothing D_3$<br>+0,05 | $t_1$ 1) | $t_4$ |
|---|------------------|-------------------|----------------------------|----------|-------|
| 1/16  | 27               | 5,95              | 6,39                       | 11,8     | 9,70  |
| 1/8   | 27               | 8,30              | 8,74                       | 11,9     | 9,75  |
| 1/4   | 18               | 10,75             | 11,36                      | 17,4     | 14,25 |
| 3/8   | 18               | 14,15             | 14,80                      | 17,7     | 14,55 |
| 1/2   | 14               | 17,45             | 18,32                      | 23,1     | 19,00 |
| 3/4   | 14               | 22,80             | 23,67                      | 23,6     | 19,50 |
| 1"  | 11 1/2           | 28,65             | 29,69                      | 28,4     | 23,40 |
| 1 1/4                                       | 11 1/2           | 37,35             | 38,45                      | 28,9     | 23,90 |
| 1 1/2                                       | 11 1/2           | 43,45             | 44,52                      | 28,9     | 23,90 |
| 2"  | 11 1/2           | 55,45             | 56,56                      | 29,3     | 24,35 |

1) Die Vorbohrtiefe  $t_1$  berücksichtigt die Längen  $L_1$  und  $L_3$  nach ASME-Norm, sowie die Anschnittlänge des Gewindebohrers und 1 bis 2 Gewindegänge Sicherheit. Tiefbohren ist erforderlich, wenn Gewindebohrer mit Maximal-Gewindelängen nach ASME B94.9 angewendet werden sollen.  
The drill depth  $t_1$  takes into account the lengths  $L_1$  and  $L_3$  acc. ASME standards, the chamfer length of the tap and 1-2 threads safety margin.  
Deep drilling is necessary whenever taps with maximum thread length acc. ASME B94.9 are to be used.

c) Vorarbeiten von Grundlöchern  
Preparation of blind holes



| Nenngröße<br>Nom. size<br>$\varnothing d_1$ | P<br>Gg/1" (tpi) | $\varnothing D_3$<br>+0,05 | b    | t<br>min. 2) | $\varnothing D_4$<br>min. |
|---|------------------|----------------------------|------|--------------|---------------------------|
| 1/16  | 27               | 6,39                       | 7,0  | 10,0         | 7,6                       |
| 1/8   | 27               | 8,74                       | 7,0  | 10,0         | 10,0                      |
| 1/4   | 18               | 11,36                      | 10,2 | 14,5         | 13,1                      |
| 3/8   | 18               | 14,80                      | 10,6 | 15,0         | 16,5                      |
| 1/2   | 14               | 18,32                      | 13,8 | 19,0         | 20,5                      |
| 3/4   | 14               | 23,67                      | 14,2 | 20,0         | 25,8                      |
| 1"  | 11 1/2           | 29,69                      | 17,0 | 24,0         | 32,2                      |
| 1 1/4                                       | 11 1/2           | 38,45                      | 17,5 | 24,5         | 41,0                      |
| 1 1/2                                       | 11 1/2           | 44,52                      | 17,5 | 24,5         | 47,2                      |
| 2"  | 11 1/2           | 56,56                      | 18,0 | 25,0         | 59,2                      |

2) Die Kernlochmaße sind auf Minimallängen nach ASME-Norm aufgebaut. Für Grundlöcher, welche die angegebenen Mindestdiefen  $t$  nicht zulassen, sind Sondergewindebohrer erforderlich. Eine bemaßte Grundlochskizze ist zur Beurteilung notwendig.  
The thread hole dimensions are based on minimal lengths acc. ASME standards. For blind holes which do not permit the indicated minimal depth  $t$ , special taps are necessary. A thread hole sketch with full dimensional specifications is necessary for making a decision.

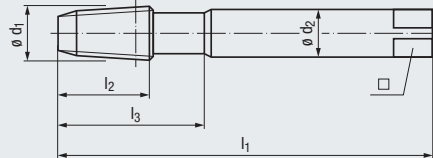


**NPT**



ANSI/ASME B1.20.1

≈ DIN 371



Technische Informationen  
Technical information

Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material



Einsatzgebiete – Material  
Applications – material

» 78

Nenngröße

Nom. size

| $\varnothing d_1$ | P<br>Gg/1" (tpi) | $l_1$ | $l_2$ | $l_3$ | $\varnothing d_2$ | $\square$ |
|-------------------|------------------|-------|-------|-------|-------------------|-----------|
| 1/16              | 27               | 90    | 12    | 26    | 8                 | 6,2       |
| 1/8               | 27               | 90    | 12    | 26    | 10                | 8         |
| 1/4               | 18               | 100   | 18    | 34,5  | 14                | 11        |
| 3/8               | 18               | 110   | 18    | 37,5  | 18                | 14,5      |
| 1/2               | 14               | 140   | 23    | 45    | 22                | 18        |

≈ DIN 374



» 251

≈ DIN 2181



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**STEEL**  
Steel materials



**VA**  
Stainless steel materials



HSSE  
C / 2-3  
E / O

**P 3.1**  
**K 1.1-1.2**  
**N 2.3**

**Rekord 1-KEG-STEEL**

**B0181000.5763**  
**B0181000.5764**  
**B0181000.5765**

HSSE  
C / 2-3  
E / O / P

**P 2.1-4.1**  
**K 2.1-4.2**  
**N 1.5, 2.6**

**Rekord 1-KEG-VA**

**B0183000.5763**  
**B0183000.5764**  
**B0183000.5765**

HSSE  
C / 2-3  
E / O / P

**P 2.1-4.1**  
**K 2.1-4.2**  
**N 1.5, 2.6**

**Rekord 1-KEG-VA-AZ**

**B0193000.5763**  
**B0193000.5764**  
**B0193000.5765**

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» 251

Gewindekernloch-Vorfertigungsdurchmesser für NPT-Gewinde siehe Seite 248  
Thread hole preparatory diameters for NPT threads, see page 248

Kegelige Gewindebohrer mit langer Gewindelänge nach ANSI B94.9 auf Anfrage  
Tapered taps with long thread length acc. ANSI B94.9 upon request



Kegelreibahlen 1:16 für kegelige Gewinde  
Taper reamers 1:16 for tapered threads

» 265

Product Finder

V<sub>c</sub>

M

MF

UNC  
UN-8

UNF  
UNEF

G, Rp  
NPSM, NPSF

**NPT** NPTF  
Rc, W

BSW, BSF

Pg

MJ  
UNJC, UNJF

EG (STI)

SELF-LOCK

Tr, Tr-F  
Rd

Zubehör  
Accessories



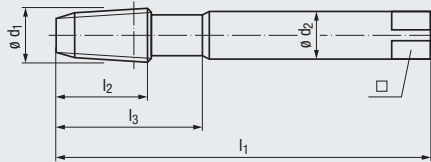
- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT NPTF** Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories



# NPT

ANSI/ASME B1.20.1

≈ DIN 371



Technische Informationen  
Technical information

Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material



Einsatzgebiete – Material  
Applications – material

» 78

Nenngröße

Nom. size

$\varnothing d_1$

P

Gg/1" (tpi)

$l_1$

$l_2$

$l_3$

$\varnothing d_2$

□

|      |    |     |    |      |    |      |
|------|----|-----|----|------|----|------|
| 1/16 | 27 | 90  | 12 | 26   | 8  | 6,2  |
| 1/8  | 27 | 90  | 12 | 26   | 10 | 8    |
| 1/4  | 18 | 100 | 18 | 34,5 | 14 | 11   |
| 3/8  | 18 | 110 | 18 | 37,5 | 18 | 14,5 |
| 1/2  | 14 | 140 | 23 | 45   | 22 | 18   |

≈ DIN 374



≈ DIN 2181



**VA**  
Stainless steel materials



**NI**  
Nickel alloys



HSSE  
R35  
C / 2-3  
E / O / P

HSSE  
R35  
C / 2-3  
E / O / P

TICN  
**HSSE-PM**  
R10  
C / 2-3  
O / P

**P** 1.1-3.1

**M** 1.1-3.1

**P** 1.1-3.1

**M** 1.1-3.1

**N** 2.8

**S** 2.3, 2.5-2.6

**Rekord**  
**1-KEG-R35-VA**

**B1583000.5763**

**B1583000.5764**

**B1583000.5765**

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**Rekord**  
**1-KEG-R35-VA-AZ**

**B1593000.5763**

**B1593000.5764**

**B1593000.5765**

» 252

**Rekord**  
**1-KEG-R10-NI  
PM-TICN**

B670J400.5764

B670J400.5765

B670J400.5766

B670J400.5767

Gewindekernloch-Vorfertigungsdurchmesser für NPT-Gewinde siehe Seite 248  
Thread hole preparatory diameters for NPT threads, see page 248

Kegelige Gewindebohrer mit langer Gewindelänge nach ANSI B94.9 auf Anfrage  
Tapered taps with long thread length acc. ANSI B94.9 upon request



Kegelreibahlen 1:16 für kegelige Gewinde  
Taper reamers 1:16 for tapered threads

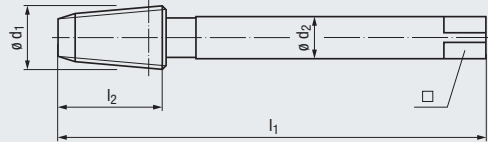
» 265

**NPT**



ANSI/ASME B1.20.1

≈ DIN 374



Technische Informationen  
Technical information

Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material



Einsatzgebiete – Material  
Applications – material

» 78

Nenngröße  
Nom. size

| Nenngröße<br>Nom. size | P<br>Gg/1" (tpi) | $l_1$ | $l_2$      | $\varnothing d_2$ | $\square$ | Rekord<br>2-KEG-STEEL | Rekord<br>2-KEG-VA   | Rekord<br>2-KEG-VA-AZ |
|------------------------|------------------|-------|------------|-------------------|-----------|-----------------------|----------------------|-----------------------|
| 3/8                    | 18               | 110   | 18         | 14                | 11        | <b>C0181000.5766</b>  | <b>C0183000.5766</b> | <b>C0193000.5766</b>  |
| 1/2                    | 14               | 140   | 23         | 16                | 12        | <b>C0181000.5767</b>  | <b>C0183000.5767</b> | <b>C0193000.5767</b>  |
| 3/4                    | 14               | 150   | 24         | 20                | 16        | <b>C0181000.5768</b>  | <b>C0183000.5768</b> | <b>C0193000.5768</b>  |
| 1"                     | 11 1/2           | 170   | 30         | 25                | 20        | <b>C0181000.5769</b>  | <b>C0183000.5769</b> | <b>C0193000.5769</b>  |
| 1 1/4                  | 11 1/2           | 190   | 32         | 32                | 24        | C0181000.5770         |                      |                       |
| 1 1/2                  | 11 1/2           | 200   | 32         | 36                | 29        | C0181000.5771         |                      |                       |
| 2"                     | 11 1/2           | 220   | 34         | 45                | 35        | C0181000.5772         |                      |                       |
|                        |                  |       | ≈ DIN 371  |                   |           | » 249                 | » 249                | » 249                 |
|                        |                  |       | ≈ DIN 2181 |                   |           | » 253                 |                      |                       |

Gewidekernloch-Vorfertigungsdurchmesser für NPT-Gewinde siehe Seite 248  
Thread hole preparatory diameters for NPT threads, see page 248

Kegelige Gewindebohrer mit langer Gewindelänge nach ANSI B94.9 auf Anfrage  
Tapered taps with long thread length acc. ANSI B94.9 upon request



Kegelreibahlen 1:16 für kegelige Gewinde  
Taper reamers 1:16 for tapered threads » 265

**STEEL**  
Steel materials



**VA**  
Stainless steel materials



HSSE

C / 2-3

E / O

**P 3.1**

**K 1.1-1.2**

**N 2.3**

HSSE

C / 2-3

E / O / P

**P 2.1-4.1**

**K 2.1-4.2**

**N 1.5, 2.6**

HSSE

C / 2-3

E / O / P

**P 2.1-4.1**

**K 2.1-4.2**

**N 1.5, 2.6**

Product Finder

V<sub>c</sub>

M

MF

UNC  
UN-8

UNF  
UNEF

G, Rp  
NPSM, NPSF

**NPT** NPTF  
Rc, W

BSW, BSF

Pg

MJ  
UNJC, UNJF

EG (STI)

SELF-LOCK

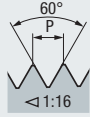
Tr, Tr-F  
Rd

Zubehör  
Accessories



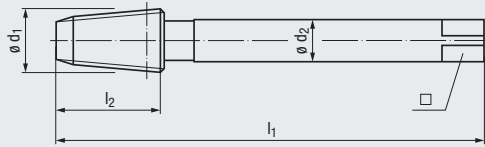
- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT NPTF** Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories

# NPT



ANSI/ASME B1.20.1

≈ DIN 374



**VA**  
Stainless steel materials



Technische Informationen  
Technical information

Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material

|           |           |
|-----------|-----------|
| HSSE      | HSSE      |
| R35       | R35       |
| C / 2-3   | C / 2-3   |
| E / O / P | E / O / P |

Einsatzgebiete – Material  
Applications – material

» 78

|                  |                  |
|------------------|------------------|
| <b>P</b> 1.1-3.1 | <b>P</b> 1.1-3.1 |
| <b>M</b> 1.1-3.1 | <b>M</b> 1.1-3.1 |

| Nenngröße<br>Nom. size | P<br>Gg/1" (tpi) | $l_1$ | $l_2$ | $\phi d_2$ | $\square$ | Rekord<br>2-KEG-R35-VA | Rekord<br>2-KEG-R35-VA-AZ |
|------------------------|------------------|-------|-------|------------|-----------|------------------------|---------------------------|
| 3/8                    | 18               | 110   | 18    | 14         | 11        | <b>C1583000.5766</b>   | <b>C1593000.5766</b>      |
| 1/2                    | 14               | 140   | 23    | 16         | 12        | <b>C1583000.5767</b>   | <b>C1593000.5767</b>      |
| 3/4                    | 14               | 150   | 24    | 20         | 16        | <b>C1583000.5768</b>   | <b>C1593000.5768</b>      |
| 1"                     | 11 1/2           | 170   | 30    | 25         | 20        | <b>C1583000.5769</b>   | <b>C1593000.5769</b>      |
| 1 1/4                  | 11 1/2           | 190   | 32    | 32         | 24        | C1583000.5770          | C1593000.5770             |
| 1 1/2                  | 11 1/2           | 200   | 32    | 36         | 29        | C1583000.5771          | C1593000.5771             |
| 2"                     | 11 1/2           | 220   | 34    | 45         | 35        | C1583000.5772          | C1593000.5772             |
| ≈ DIN 371              |                  |       |       |            |           | » 250                  | » 250                     |
| ≈ DIN 2181             |                  |       |       |            |           |                        |                           |

Gewindekernloch-Vorfertigungsdurchmesser für NPT-Gewinde siehe Seite 248  
Thread hole preparatory diameters for NPT threads, see page 248

Kegelige Gewindebohrer mit langer Gewindelänge nach ANSI B94.9 auf Anfrage  
Tapered taps with long thread length acc. ANSI B94.9 upon request



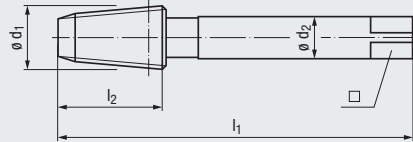
Kegelreibahlen 1:16 für kegelige Gewinde » 265  
Taper reamers 1:16 for tapered threads

**NPT**



ANSI/ASME B1.20.1

≈ DIN 2181



**STEEL**  
Steel materials



Technische Informationen  
Technical information

Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material



HSSE

HSSE

C / 2-3

C / 2-3

E / 0

E / 0

Einsatzgebiete – Material  
Applications – material

» 78

**P 3.1**  
**K 1.1-1.2**  
**N 2.3**

**P 3.1**  
**K 1.1-1.2**  
**N 2.3**

Nenngröße  
Nom. size

P

Gg/1" (tpi)

$l_1$

$l_2$

$\varnothing d_2$

□

**Rekord  
KEG-STEEL**

**Rekord  
KEG-STEEL-AZ**

|       |        |     |    |    |     |                      |                      |
|-------|--------|-----|----|----|-----|----------------------|----------------------|
| 1/16  | 27     | 63  | 12 | 6  | 4,9 | <b>A0181000.5763</b> | A0191000.5763        |
| 1/8   | 27     | 63  | 12 | 7  | 5,5 | <b>A0181000.5764</b> | A0191000.5764        |
| 1/4   | 18     | 63  | 18 | 11 | 9   | <b>A0181000.5765</b> | <b>A0191000.5765</b> |
| 3/8   | 18     | 70  | 18 | 12 | 9   | <b>A0181000.5766</b> | <b>A0191000.5766</b> |
| 1/2   | 14     | 80  | 23 | 16 | 12  | <b>A0181000.5767</b> | <b>A0191000.5767</b> |
| 3/4   | 14     | 100 | 24 | 20 | 16  | <b>A0181000.5768</b> | <b>A0191000.5768</b> |
| 1"    | 11 1/2 | 110 | 30 | 25 | 20  | <b>A0181000.5769</b> | A0191000.5769        |
| 1 1/4 | 11 1/2 | 125 | 32 | 32 | 24  | A0181000.5770        | A0191000.5770        |
| 1 1/2 | 11 1/2 | 140 | 32 | 36 | 29  | A0181000.5771        | A0191000.5771        |
| 2"    | 11 1/2 | 160 | 34 | 45 | 35  | A0181000.5772        | A0191000.5772        |

≈ DIN 371



» 249

≈ DIN 374



» 251

Gewidekernloch-Vorfertigungsdurchmesser für NPT-Gewinde siehe Seite 248  
Thread hole preparatory diameters for NPT threads, see page 248

Kegelige Gewindebohrer mit langer Gewindelänge nach ANSI B94.9 auf Anfrage  
Tapered taps with long thread length acc. ANSI B94.9 upon request



Kegelreibahlen 1:16 für kegelige Gewinde  
Taper reamers 1:16 for tapered threads

» 265

Product Finder

V<sub>c</sub>

M

MF

UNC  
UN-8

UNF  
UNEF

G, Rp  
NPSM, NPSF

**NPT** NPTF  
Rc, W

BSW, BSF

Pg

MJ  
UNJC, UNJF

EG (STI)

SELF-LOCK

Tr, Tr-F  
Rd

Zubehör  
Accessories



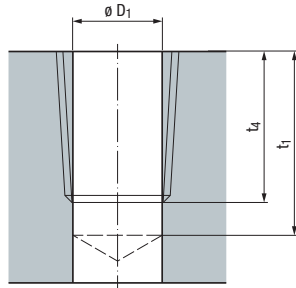
- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories

# NPTF



ANSI B1.20.3

a) Zylindrisch vorarbeiten  
Cylindrical preparation of thread hole

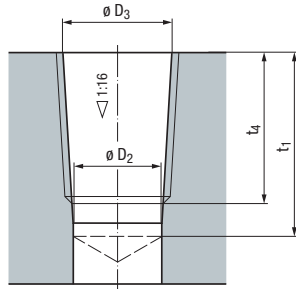


EMUGE NPTF-Gewindebohrer sind für die Lochformen a) bis c) geeignet. Für Gewinde mit höheren Anforderungen, z.B. NPTF-Gewinde für die Luftfahrt, empfehlen wir, das Kernloch nach Form b) bzw. c) auszuführen.

EMUGE NPTF taps are suited for the hole forms a) to c). For threads with higher demands, e.g. NPTF threads for the aircraft industry, we recommend preparing the thread hole to form b), resp. c).

| Nenngröße<br>Nom. size<br>$\varnothing d_1$ | P<br>Gg/1" (tpi) | $\varnothing D_1$ | $t_1$ 1) | $t_4$ |
|---|------------------|-------------------|----------|-------|
| 1/16  | 27               | 6,10              | 13,0     | 10,65 |
| 1/8   | 27               | 8,45              | 13,0     | 10,70 |
| 1/4   | 18               | 10,90             | 19,2     | 15,65 |
| 3/8   | 18               | 14,30             | 19,5     | 16,00 |
| 1/2   | 14               | 17,60             | 25,4     | 20,85 |
| 3/4   | 14               | 23,00             | 25,9     | 21,30 |
| 1"  | 11 1/2           | 28,75             | 31,1     | 25,60 |
| 1 1/4                                       | 11 1/2           | 37,50             | 31,7     | 26,15 |
| 1 1/2                                       | 11 1/2           | 43,75             | 31,7     | 26,15 |
| 2"  | 11 1/2           | 55,75             | 32,1     | 26,55 |

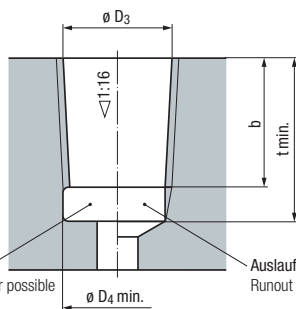
b) Kegelig vorarbeiten  
Tapered preparation of thread hole



| Nenngröße<br>Nom. size<br>$\varnothing d_1$ | P<br>Gg/1" (tpi) | $\varnothing D_2$ | $\varnothing D_3$<br>+0,05 | $t_1$ 1) | $t_4$ |
|---|------------------|-------------------|----------------------------|----------|-------|
| 1/16  | 27               | 5,95              | 6,41                       | 13,0     | 10,65 |
| 1/8   | 27               | 8,30              | 8,76                       | 13,0     | 10,70 |
| 1/4   | 18               | 10,75             | 11,40                      | 19,2     | 15,65 |
| 3/8   | 18               | 14,15             | 14,84                      | 19,5     | 16,00 |
| 1/2   | 14               | 17,45             | 18,33                      | 25,4     | 20,85 |
| 3/4   | 14               | 22,80             | 23,68                      | 25,9     | 21,30 |
| 1"  | 11 1/2           | 28,65             | 29,72                      | 31,1     | 25,60 |
| 1 1/4                                       | 11 1/2           | 37,35             | 38,48                      | 31,7     | 26,15 |
| 1 1/2                                       | 11 1/2           | 43,45             | 44,55                      | 31,7     | 26,15 |
| 2"  | 11 1/2           | 55,45             | 56,59                      | 32,1     | 26,55 |

1) Die Vorbohrtiefe  $t_1$  berücksichtigt die Längen  $L_1$  und  $L_3$  nach ASME-Norm, sowie die Anschnittlänge des Gewindebohrers und 1 bis 2 Gewindegänge Sicherheit. Tiefbohren ist erforderlich, wenn Gewindebohrer mit Maximal-Gewindelängen nach ASME B94.9 angewendet werden sollen. The drill depth  $t_1$  takes into account the lengths  $L_1$  and  $L_3$  acc. ASME standards, the chamfer length of the tap and 1-2 threads safety margin. Deep drilling is necessary whenever taps with maximum thread length acc. ASME B94.9 are to be used.

c) Vorarbeiten von Grundlöchern  
Preparation of blind holes



Ausführung mit Einstich bevorzugt anwenden  
We recommend using a recessed design wherever possible

Auslauf  
Runout

| Nenngröße<br>Nom. size<br>$\varnothing d_1$ | P<br>Gg/1" (tpi) | $\varnothing D_3$<br>+0,05 | b    | t<br>min. 2) | $\varnothing D_4$<br>min. |
|---|------------------|----------------------------|------|--------------|---------------------------|
| 1/16  | 27               | 6,41                       | 8,0  | 11,0         | 7,4                       |
| 1/8   | 27               | 8,76                       | 8,0  | 11,0         | 9,8                       |
| 1/4   | 18               | 11,40                      | 11,6 | 15,5         | 12,9                      |
| 3/8   | 18               | 14,84                      | 12,0 | 16,0         | 16,3                      |
| 1/2   | 14               | 18,33                      | 15,6 | 20,5         | 20,3                      |
| 3/4   | 14               | 23,68                      | 16,0 | 21,5         | 25,6                      |
| 1"  | 11 1/2           | 29,72                      | 19,2 | 26,0         | 32,0                      |
| 1 1/4                                       | 11 1/2           | 38,48                      | 19,7 | 26,5         | 40,8                      |
| 1 1/2                                       | 11 1/2           | 44,55                      | 19,7 | 26,5         | 47,0                      |
| 2"  | 11 1/2           | 56,59                      | 20,2 | 27,0         | 59,0                      |

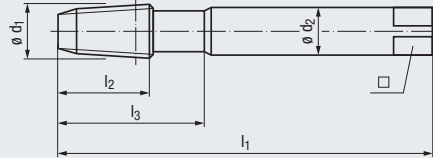
2) Die Kernlochmaße sind auf Minimallängen nach ASME-Norm aufgebaut. Für Grundlöcher, welche die angegebenen Mindestdiefen  $t$  nicht zulassen, sind Sondergewindebohrer erforderlich. Eine bemaßte Grundlochskizze ist zur Beurteilung notwendig. The thread hole dimensions are based on minimal lengths acc. ASME standards. For blind holes which do not permit the indicated minimal depth  $t$ , special taps are necessary. A thread hole sketch with full dimensional specifications is necessary for making a decision.

# NPTF

ANSI B1.20.3



≈ DIN 371



Technische Informationen  
Technical information

Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material



Einsatzgebiete – Material  
Applications – material

» 78

Nenngröße

Nom. size

| $\varnothing d_1$ | P<br>Gg/1" (tpi) | $l_1$ | $l_2$ | $l_3$ | $\varnothing d_2$ | $\square$ |
|-------------------|------------------|-------|-------|-------|-------------------|-----------|
| 1/16              | 27               | 90    | 12    | 26    | 8                 | 6,2       |
| 1/8               | 27               | 90    | 12    | 26    | 10                | 8         |
| 1/4               | 18               | 100   | 18    | 34,5  | 14                | 11        |
| 3/8               | 18               | 110   | 18    | 37,5  | 18                | 14,5      |
| 1/2               | 14               | 140   | 23    | 45    | 22                | 18        |

≈ DIN 374



» 257

≈ DIN 2181



» 258

**STEEL**  
Steel materials



**VA**

Stainless steel materials



HSSE  
C / 2-3  
E / O

**P 3.1**  
**K 1.1-1.2**  
**N 2.3**

**Rekord 1-KEG-STEEL**

**B0181000.5782**  
**B0181000.5783**  
**B0181000.5784**

HSSE  
C / 2-3  
E / O / P

**P 2.1-4.1**  
**K 2.1-4.2**  
**N 1.5, 2.6**

**Rekord 1-KEG-VA**

**B0183000.5782**  
**B0183000.5783**  
**B0183000.5784**

HSSE  
R35  
C / 2-3  
E / O / P

**P 1.1-3.1**  
**M 1.1-3.1**

**Rekord 1-KEG-R35-VA**

**B1583000.5782**  
**B1583000.5783**  
**B1583000.5784**

Gewindekernloch-Vorfertigungsdurchmesser für NPTF-Gewinde siehe Seite 254  
Thread hole preparatory diameters for NPTF threads, see page 254

Kegelige Gewindebohrer mit langer Gewindelänge nach ANSI B94.9 auf Anfrage  
Tapered taps with long thread length acc. ANSI B94.9 upon request



Kegelreibahlen 1:16 für kegelige Gewinde  
Taper reamers 1:16 for tapered threads

» 265

Product Finder

V<sub>c</sub>

M

MF

UNC UN-8

UNF UNEF

G, Rp NPSM, NPSF

**NPT, NPTF** Rc, W

BSW, BSF

Pg

MJ UNJC, UNJF

EG (STI)

SELF-LOCK

Tr, Tr-F Rd

Zubehör Accessories



- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF** Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories

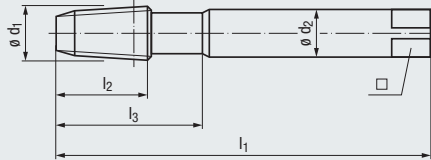
# NPTF

ANSI B1.20.3



≈ DIN 371

**NI**  
Nickel alloys



Technische Informationen  
Technical information

Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material



- TICN
- HSSE-PM**
- R10
- C / 2-3
- O / P

Einsatzgebiete – Material  
Applications – material

» 78

- N 2.8**
- S 2.3, 2.5-2.6**

**Nenngröße**

| Nom. size         | P           |       |       |       |                   |           |               |
|-------------------|-------------|-------|-------|-------|-------------------|-----------|---------------|
| $\varnothing d_1$ | Gg/1" (tpi) | $l_1$ | $l_2$ | $l_3$ | $\varnothing d_2$ | $\square$ |               |
| 1/16              | 27          | 90    | 12    | 26    | 8                 | 6,2       |               |
| 1/8               | 27          | 90    | 12    | 26    | 10                | 8         | B670J400.5783 |
| 1/4               | 18          | 100   | 18    | 34,5  | 14                | 11        | B670J400.5784 |
| 3/8               | 18          | 110   | 18    | 37,5  | 18                | 14,5      | B670J400.5785 |
| 1/2               | 14          | 140   | 23    | 45    | 22                | 18        | B670J400.5786 |

**Rekord**  
**1-KEG-R10-NI**  
**PM-TICN**

Gewindekernloch-Vorfertigungsdurchmesser für NPTF-Gewinde siehe Seite 254  
Thread hole preparatory diameters for NPTF threads, see page 254

Kegelige Gewindebohrer mit langer Gewindelänge nach ANSI B94.9 auf Anfrage  
Tapered taps with long thread length acc. ANSI B94.9 upon request

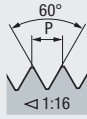


Kegelreibahlen 1:16 für kegelige Gewinde » 265  
Taper reamers 1:16 for tapered threads

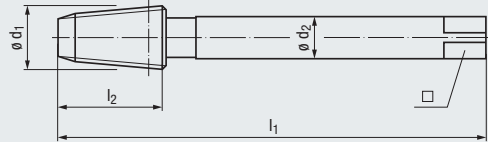


# NPTF

ANSI B1.20.3



≈ DIN 374



Technische Informationen  
Technical information

Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material



Einsatzgebiete – Material  
Applications – material

» 78

Nenngröße  
Nom. size

| Nenngröße<br>Nom. size | P<br>Gg/1" (tpi) | $l_1$ | $l_2$ | $\varnothing d_2$ | $\square$ | Rekord<br>2-KEG-STEEL | Rekord<br>2-KEG-VA   | Rekord<br>2-KEG-R35-VA |
|------------------------|------------------|-------|-------|-------------------|-----------|-----------------------|----------------------|------------------------|
| 3/8                    | 18               | 110   | 18    | 14                | 11        | <b>C0181000.5785</b>  | <b>C0183000.5785</b> | <b>C1583000.5785</b>   |
| 1/2                    | 14               | 140   | 23    | 16                | 12        | <b>C0181000.5786</b>  | <b>C0183000.5786</b> | <b>C1583000.5786</b>   |
| 3/4                    | 14               | 150   | 24    | 20                | 16        | <b>C0181000.5787</b>  | <b>C0183000.5787</b> | <b>C1583000.5787</b>   |
| 1"                     | 11 1/2           | 170   | 30    | 25                | 20        | C0181000.5788         | C0183000.5788        | C1583000.5788          |
| 1 1/4                  | 11 1/2           | 190   | 32    | 32                | 24        | C0181000.5789         |                      | C1583000.5789          |
| 1 1/2                  | 11 1/2           | 200   | 32    | 36                | 29        | C0181000.5790         |                      | C1583000.5790          |
| 2"                     | 11 1/2           | 220   | 34    | 45                | 35        | C0181000.5791         |                      | C1583000.5791          |

≈ DIN 371



» 255

» 255

» 255

≈ DIN 2181



» 258

Gewidekernloch-Vorfertigungsdurchmesser für NPTF-Gewinde siehe Seite 254  
Thread hole preparatory diameters for NPTF threads, see page 254

Kegelige Gewindebohrer mit langer Gewindelänge nach ANSI B94.9 auf Anfrage  
Tapered taps with long thread length acc. ANSI B94.9 upon request



Kegelreibahlen 1:16 für kegelige Gewinde  
Taper reamers 1:16 for tapered threads

» 265



Gewindefräser für kegelige Gewinde  
Typ GF-KEG siehe Seite 449 - 462

Thread milling cutters for tapered threads  
type GF-KEG, see page 449 - 462

Product  
Finder

V<sub>c</sub>

M

MF

UNC  
UN-8

UNF  
UNEF

G, Rp  
NPSM, NPSF

NPT, NPTF  
Rc, W

BSW, BSF

Pg

MJ  
UNJC, UNJF

EG (STI)

SELF-LOCK

Tr, Tr-F  
Rd

Zubehör  
Accessories



- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories

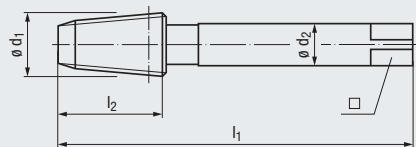


# NPTF

ANSI B1.20.3

≈ DIN 2181

**STEEL**  
Steel materials



Technische Informationen  
Technical information

Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material

- HSSE
- C / 2-3
- E / 0

Einsatzgebiete – Material  
Applications – material

» 78

- P** 3.1
- K** 1.1-1.2
- N** 2.3

| Nenngröße<br>Nom. size | P<br>Gg/1" (tpi) |                   |       |       |                   | □             | Rekord<br>KEG-STEEL |
|------------------------|------------------|-------------------|-------|-------|-------------------|---------------|---------------------|
|                        |                  | $\varnothing d_1$ | $l_1$ | $l_2$ | $\varnothing d_2$ |               |                     |
| 1/16                   | 27               | 63                | 12    | 6     | 4,9               | A0181000.5782 |                     |
| 1/8                    | 27               | 63                | 12    | 7     | 5,5               | A0181000.5783 |                     |
| 1/4                    | 18               | 63                | 18    | 11    | 9                 | A0181000.5784 |                     |
| 3/8                    | 18               | 70                | 18    | 12    | 9                 | A0181000.5785 |                     |
| 1/2                    | 14               | 80                | 23    | 16    | 12                | A0181000.5786 |                     |
| 3/4                    | 14               | 100               | 24    | 20    | 16                | A0181000.5787 |                     |
| 1"                     | 11 1/2           | 110               | 30    | 25    | 20                | A0181000.5788 |                     |
| 1 1/4                  | 11 1/2           | 125               | 32    | 32    | 24                | A0181000.5789 |                     |
| 1 1/2                  | 11 1/2           | 140               | 32    | 36    | 29                | A0181000.5790 |                     |
| 2"                     | 11 1/2           | 160               | 34    | 45    | 35                | A0181000.5791 |                     |

≈ DIN 371

» 255

≈ DIN 374

» 257

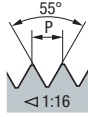
Gewindekernloch-Vorfertigungsdurchmesser für NPTF-Gewinde siehe Seite 254  
Thread hole preparatory diameters for NPTF threads, see page 254

Kegelige Gewindebohrer mit langer Gewindelänge nach ANSI B94.9 auf Anfrage  
Tapered taps with long thread length acc. ANSI B94.9 upon request



Kegelreibahlen 1:16 für kegelige Gewinde » 265  
Taper reamers 1:16 for tapered threads

# RC (BSPT)

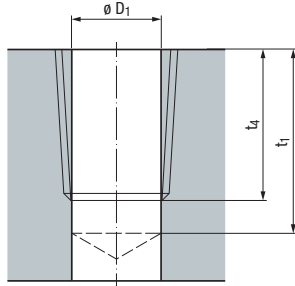


DIN EN 10226-2, ISO 7-1

**EMUGE Rc-Gewindebohrer sind für die Lochformen a) bis c) geeignet. Die Lochform a) kann angewendet werden, wenn keine Dichtprobleme zu befürchten sind.**

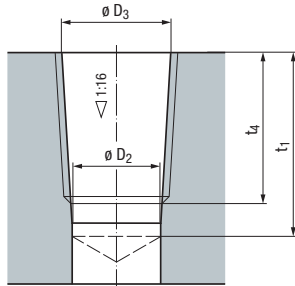
EMUGE Rc taps are suited for the hole forms a) to c). Hole type a) can be used when there is no reason to worry about sealing problems.

a) Zylindrisch vorarbeiten  
Cylindrical preparation of thread hole



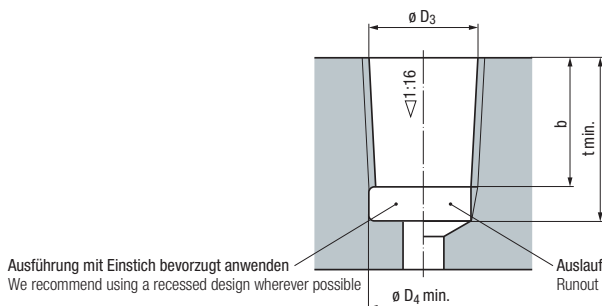
| Nenngröße<br>Nom. size<br>$\varnothing d_1$ | P<br>Gg/1" (tpi) | $\varnothing D_1$ | $t_1$ | $t_2$ |
|---|------------------|-------------------|-------|-------|
| <b>Rc</b> 1/16                              | 28               | 6,15              | 11,1  | 9,5   |
| 1/8   | 28               | 8,15              | 11,1  | 9,5   |
| 1/4   | 19               | 10,85             | 16,3  | 14,0  |
| 3/8   | 19               | 14,30             | 16,7  | 14,4  |
| 1/2   | 14               | 17,80             | 22,3  | 19,1  |
| 3/4   | 14               | 23,20             | 23,6  | 20,4  |
| 1"  | 11               | 29,20             | 28,3  | 24,3  |

b) Kegelig vorarbeiten  
Tapered preparation of thread hole



| Nenngröße<br>Nom. size<br>$\varnothing d_1$ | P<br>Gg/1" (tpi) | $\varnothing D_2$ | $\varnothing D_3$<br>JS11 | $t_1$ | $t_2$ |
|---|------------------|-------------------|---------------------------|-------|-------|
| <b>Rc</b> 1/16                              | 28               | 6,10              | 6,56                      | 11,1  | 9,5   |
| 1/8   | 28               | 8,10              | 8,57                      | 11,1  | 9,5   |
| 1/4   | 19               | 10,75             | 11,45                     | 16,3  | 14,0  |
| 3/8   | 19               | 14,25             | 14,95                     | 16,7  | 14,4  |
| 1/2   | 14               | 17,70             | 18,63                     | 22,3  | 19,1  |
| 3/4   | 14               | 23,10             | 24,12                     | 23,6  | 20,4  |
| 1"  | 11               | 29,10             | 30,29                     | 28,3  | 24,3  |

c) Vorarbeiten von Grundlöchern  
Preparation of blind holes



| Nenngröße<br>Nom. size<br>$\varnothing d_1$ | P<br>Gg/1" (tpi) | $\varnothing D_3$<br>JS11 | b    | t<br>min. 2) | $\varnothing D_4$<br>min. |
|---|------------------|---------------------------|------|--------------|---------------------------|
| <b>Rc</b> 1/16                              | 28               | 6,56                      | 5,6  | 9,9          | 7,6 +0,3                  |
| 1/8   | 28               | 8,57                      | 5,6  | 9,9          | 9,6 +0,3                  |
| 1/4   | 19               | 11,45                     | 8,4  | 14,6         | 13,0 +0,5                 |
| 3/8   | 19               | 14,95                     | 8,8  | 15,0         | 16,5 +0,5                 |
| 1/2   | 14               | 18,63                     | 11,4 | 20,0         | 20,6 +0,5                 |
| 3/4   | 14               | 24,12                     | 12,7 | 21,3         | 26,0 +0,5                 |
| 1"  | 11               | 30,29                     | 14,5 | 25,4         | 32,8 +0,5                 |

2) Für Grundlöcher, welche die angegebenen Mindesttiefen t nicht zulassen, sind Sondergewindebohrer erforderlich. Eine bemaßte Grundlochskizze ist zur Beurteilung notwendig.  
For blind holes which do not permit the indicated minimal depth t, special taps are necessary. A thread hole sketch with full dimensional specifications is necessary for making a decision.

Product Finder

- V<sub>c</sub>
- M
- MF
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories



- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories

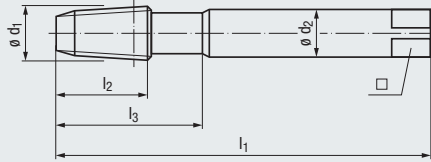
# Rc (BSPT)

DIN EN 10226-2, ISO 7-1



≈ DIN 371

**VA**  
Stainless steel materials



Technische Informationen  
Technical information

Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material



HSSE

C / 2-3

E / 0 / P

Einsatzgebiete – Material  
Applications – material

» 78

- P** 2.1-4.1
- K** 2.1-4.2
- N** 1.5, 2.6

| Nenngröße<br>Nom. size | P<br>Gg/1" (tpi) | l <sub>1</sub> | l <sub>2</sub> | l <sub>3</sub> | ø d <sub>2</sub> | □  | Rekord<br>1-KEG-VA   |          |
|------------------------|------------------|----------------|----------------|----------------|------------------|----|----------------------|----------|
|                        |                  |                |                |                |                  |    | Part No.             | Part No. |
| <b>Rc</b> 1/8          | 28               | 90             | 12             | 26             | 10               | 8  | <b>B0183000.4115</b> |          |
| 1/4                    | 19               | 100            | 18             | 34,5           | 14               | 11 | <b>B0183000.4116</b> |          |
| ≈ DIN 374              |                  |                |                |                |                  |    | » 261                |          |

Gewidekernloch-Vorfertigungsdurchmesser für Rc-Gewinde siehe Seite 259  
Thread hole preparatory diameters for Rc threads, see page 259



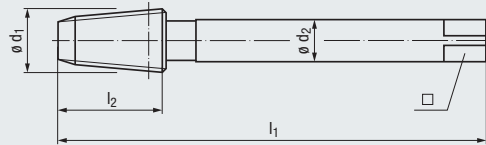
Kegelreibahlen 1:16 für kegelige Gewinde » 265  
Taper reamers 1:16 for tapered threads

# Rc (BSPT)

DIN EN 10226-2, ISO 7-1



≈ DIN 374



**VA**  
Stainless steel materials



|                     |
|---------------------|
| Product Finder      |
| V <sub>c</sub>      |
| M                   |
| MF                  |
| UNC UN-8            |
| UNF UNEF            |
| G, Rp NPSM, NPSF    |
| NPT, NPTF Rc, W     |
| BSW, BSF            |
| Pg                  |
| MJ UNJC, UNJF       |
| EG (STI)            |
| SELF-LOCK           |
| Tr, Tr-F Rd         |
| Zubehör Accessories |

Technische Informationen  
Technical information

Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material



Einsatzgebiete – Material  
Applications – material



| Nenngröße<br>Nom. size | P<br>Gg/1" (tpi) | $l_1$ | $l_2$ | $\varnothing d_2$ | $\square$ | Rekord<br>2-KEG-VA   |
|------------------------|------------------|-------|-------|-------------------|-----------|----------------------|
| <b>Rc</b> 1/4          | 19               | 100   | 18    | 11                | 9         | <b>C0183000.4116</b> |
| 3/8                    | 19               | 110   | 18    | 14                | 11        | <b>C0183000.4117</b> |
| 1/2                    | 14               | 140   | 23    | 16                | 12        | <b>C0183000.4118</b> |
| 3/4                    | 14               | 150   | 24    | 20                | 16        | <b>C0183000.4119</b> |
| 1"                     | 11               | 170   | 30    | 25                | 20        | <b>C0183000.4120</b> |

- P** 2.1-4.1
- K** 2.1-4.2
- N** 1.5, 2.6

- HSSE
- C / 2-3
- E / O / P

≈ DIN 371



260

Gewindekernloch-Vorfertigungsdurchmesser für Rc-Gewinde siehe Seite 259  
Thread hole preparatory diameters for Rc threads, see page 259



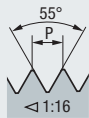
Kegelreibahlen 1:16 für kegelige Gewinde  
Taper reamers 1:16 for tapered threads



- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories

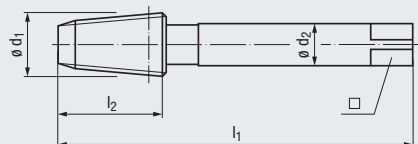
# Rc (BSPT)

DIN EN 10226-2, ISO 7-1



≈ DIN 2181

**STEEL**  
Steel materials



**Technische Informationen**  
Technical information

Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material

|         |
|---------|
| HSSE    |
| C / 2-3 |
| E / 0   |

Einsatzgebiete – Material  
Applications – material

» 78

|          |         |
|----------|---------|
| <b>P</b> | 3.1     |
| <b>K</b> | 1.1-1.2 |
| <b>N</b> | 2.3     |

| Nenngröße<br>Nom. size | P<br>Gg/1" (tpi) | l <sub>1</sub> | l <sub>2</sub> | ∅ d <sub>2</sub> | □   | Rekord<br>KEG-STEEL  |
|------------------------|------------------|----------------|----------------|------------------|-----|----------------------|
|                        |                  |                |                |                  |     |                      |
| <b>Rc</b> 1/16         | 28               | 63             | 12             | 6                | 4,9 | A0181000.4114        |
| 1/8                    | 28               | 63             | 12             | 7                | 5,5 | <b>A0181000.4115</b> |
| 1/4                    | 19               | 63             | 18             | 11               | 9   | <b>A0181000.4116</b> |
| 3/8                    | 19               | 70             | 18             | 12               | 9   | <b>A0181000.4117</b> |
| 1/2                    | 14               | 80             | 23             | 16               | 12  | <b>A0181000.4118</b> |
| 3/4                    | 14               | 100            | 24             | 20               | 16  | <b>A0181000.4119</b> |
| 1"                     | 11               | 110            | 30             | 25               | 20  | <b>A0181000.4120</b> |

Gewindekernloch-Vorfertigungsdurchmesser für Rc-Gewinde siehe Seite 259  
Thread hole preparatory diameters for Rc threads, see page 259

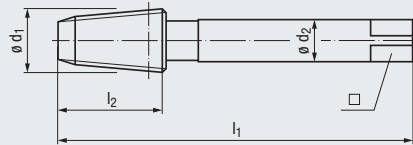
Kegelreibahnen 1:16 für kegelige Gewinde » 265  
Taper reamers 1:16 for tapered threads

Gewindelehren für kegelige Gewinde  
siehe Seite 573 - 575

Thread gauges for tapered threads,  
see page 573 - 575

# W keg

DIN EN ISO 11363  
DIN 477 kegelig · tapered



Technische Informationen  
Technical information

Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material



Einsatzgebiete – Material  
Applications – material

» 78

**STEEL**  
Steel materials



HSSE

C / 2-3

E / 0

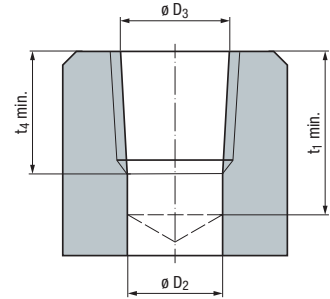
**P** 3.1

**K** 1.1-1.2

**N** 2.3

**Rekord  
KEG-STEEL**

Kegelig vorarbeiten  
Tapered preparation of the thread hole



| $\varnothing d_1$   | P<br>Gg/1" (tpi) | $l_1$ | $l_2$ | $\varnothing d_2$ | $\square$ | Rekord<br>KEG-STEEL | $\varnothing D_2$ | $\varnothing D_3$<br>$\pm 0,06$ | $t_1$<br>min. | $t_4$<br>min. |
|---------------------|------------------|-------|-------|-------------------|-----------|---------------------|-------------------|---------------------------------|---------------|---------------|
| 17E / <b>W</b> 19,8 | 14               | 95    | 30    | 16                | 12        | A0181000.3286       | 14,6              | 16,82                           | 24,5          | 22,5          |
| 25E / <b>W</b> 28,8 | 14               | 100   | 35    | 22                | 18        | A0181000.3287       | 22,6              | 25,42                           | 29,5          | 27,5          |

Product Finder

V<sub>c</sub>

M

MF

UNC  
UN-8

UNF  
UNEF

G, Rp  
NPSM, NPSF

NPT, NPTF  
Rc, W

BSW, BSF

Pg

MJ  
UNJC, UNJF

EG (STI)

SELF-LOCK

Tr, Tr-F  
Rd

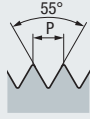
Zubehör  
Accessories



- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories

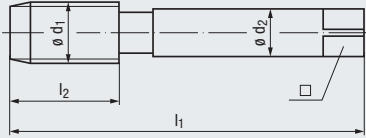
# W zyl

DIN 477 zylindrisch · cylindrical



≈ DIN 5157

**MS**  
Copper-zinc alloys



Technische Informationen  
Technical information

Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material



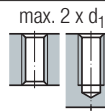
„X“

HSSE

C / 2-3

E

Gewindetiefe und Lochform  
Thread depth and hole type




**N 2.3**

Einsatzgebiete – Material  
Applications – material

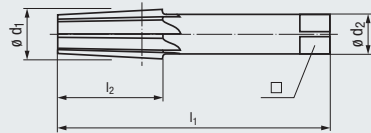


**Rekord A-MS**

|          | $\varnothing d_1$<br>mm | P<br>Gg/1" (tpi) | $l_1$ | $l_2$ | $\varnothing d_2$ | $\square$ |  |               |  |  |
|----------|-------------------------|------------------|-------|-------|-------------------|-----------|---|---------------|--|--|
| <b>W</b> | 21,8                    | 14               | 80    | 22    | 18                | 14,5      | 19,8  | A0102501.3284 |  |  |
|          | 24,32                   | 14               | 90    | 22    | 18                | 14,5      | 22,3  | A0102501.3285 |  |  |



Für konische Gewinde NPT, NPTF, Rc (BSPT), Kegel 1:16  
 For tapered pipe threads NPT, NPTF, Rc (BSPT), taper 1:16



Technische Informationen  
 Technical information

Schneidstoff · Cutting material

Nenngröße

Nom. size

$\varnothing d_1$

$l_1$

$l_2$

$\varnothing d_2$

□

Z

(Flutes)

HSSE

HSSE

L7

**KEG-RB  
 1:16  
 Form A**

**KEG-RB  
 1:16  
 Form B**

| Nenngröße<br>Nom. size<br>$\varnothing d_1$ | $l_1$ | $l_2$ | $\varnothing d_2$ | □   | Z<br>(Flutes) | <b>KEG-RB<br/>1:16<br/>Form A</b> | <b>KEG-RB<br/>1:16<br/>Form B</b> |
|---|-------|-------|-------------------|-----|---------------|-----------------------------------|-----------------------------------|
| 1/16  | 70    | 17    | 6                 | 4,9 | 6             | <b>G0037165.5763</b>              | <b>G0037175.5763</b>              |
| 1/8   | 70    | 17    | 7                 | 5,5 | 6             | <b>G0037165.5764</b>              | <b>G0037175.5764</b>              |
| 1/4   | 80    | 27    | 11                | 9   | 6             | <b>G0037165.5765</b>              | <b>G0037175.5765</b>              |
| 3/8   | 85    | 27    | 12                | 9   | 8             | <b>G0037165.5766</b>              | <b>G0037175.5766</b>              |
| 1/2   | 95    | 35    | 16                | 12  | 8             | <b>G0037165.5767</b>              | <b>G0037175.5767</b>              |
| 3/4   | 105   | 35    | 20                | 16  | 10            | <b>G0037165.5768</b>              | <b>G0037175.5768</b>              |
| 1"  | 130   | 43    | 25                | 20  | 10            | <b>G0037165.5769</b>              | <b>G0037175.5769</b>              |
| 1 1/4                                       | 140   | 44    | 32                | 24  | 12            | <b>G0037165.5770</b>              | <b>G0037175.5770</b>              |
| 1 1/2                                       | 150   | 45    | 36                | 29  | 12            | <b>G0037165.5771</b>              | <b>G0037175.5771</b>              |
| 2"  | 160   | 46    | 45                | 35  | 14            | <b>G0037165.5772</b>              | <b>G0037175.5772</b>              |

Achtung! Die Reibahlen sind ggf. durch Kürzung von vorne der aktuellen Lochtiefe anzupassen.  
 Please note: If needed, the reamers can be fitted to the required hole depth by shortening the cutting part.

|                            |
|----------------------------|
| Product Finder             |
| $v_c$                      |
| M                          |
| MF                         |
| UNC<br>UN-8                |
| UNF<br>UNEF                |
| G, Rp<br>NPSM, NPSF        |
| <b>NPT, NPTF<br/>Rc, W</b> |
| BSW, BSF                   |
| Pg                         |
| MJ<br>UNJC, UNJF           |
| EG (STI)                   |
| SELF-LOCK                  |
| Tr, Tr-F<br>Rd             |
| Zubehör<br>Accessories     |



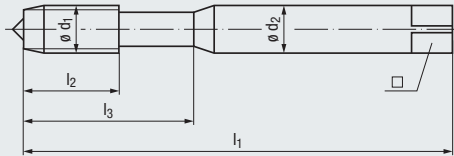
- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories

# BSW

BS 84



≈ DIN 371



Technische Informationen  
Technical information

Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material



Gewindetiefe und Lochform  
Thread depth and hole type

Einsatzgebiete – Material  
Applications – material

» 78

**VA**  
Stainless steel materials



**Z**  
CNC-controlled machines



new



l<sub>2</sub> ≈ 10 x P



new



l<sub>2</sub> ≈ 10 x P

med.  
GLT-1  
HSSE  
B / 4-5  
E / O / P

max. 3 x d<sub>1</sub>



med.  
HSSE  
R45  
C / 2-3  
E / O / P

max. 3 x d<sub>1</sub>



**P** 1.1-4.1  
**M** 1.1-4.1  
**N** 2.2

**P** 1.1-3.1

**P** 1.1-4.1  
**M** 1.1-4.1  
**N** 1.4, 2.1-2.2  
**N** 2.4-2.5  
**S** 1.1

|            | $\varnothing d_1$<br>inch | $\varnothing d_1$<br>mm | P<br>Gg/1" (tpi) | l <sub>1</sub> | l <sub>2</sub> | l <sub>3</sub> | $\varnothing d_2$ | □   |      |
|------------|---------------------------|-------------------------|------------------|----------------|----------------|----------------|-------------------|-----|------|
| <b>BSW</b> | 1/8                       | 3,18                    | 40               | 56             | 11             | 18             | 3,5               | 2,7 | 2,55 |
|            | 5/32                      | 3,97                    | 32               | 63             | 13             | 21             | 4,5               | 3,4 | 3,2  |
|            | 3/16                      | 4,76                    | 24               | 70             | 15             | 25             | 6                 | 4,9 | 3,7  |
|            | 7/32                      | 5,56                    | 24               | 80             | 16             | 30             | 6                 | 4,9 | 4,5  |
|            | 1/4                       | 6,35                    | 20               | 80             | 17             | 30             | 7                 | 5,5 | 5,1  |
|            | 5/16                      | 7,94                    | 18               | 90             | 20             | 35             | 8                 | 6,2 | 6,5  |
|            | 3/8                       | 9,53                    | 16               | 100            | 22             | 39             | 10                | 8   | 7,9  |

≈ DIN 376



**Rekord 1B-VA GLT-1**  
B020C300.3046  
B020C300.3047  
B020C300.3048  
B020C300.3049  
B020C300.3050  
B020C300.3051  
B020C300.3052

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**Enorm 1-Z**  
B0503500.3046  
B0503500.3047  
B0503500.3048  
B0503500.3049  
B0503500.3050  
B0503500.3051  
B0503500.3052

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**Enorm 1-Z GLT-1**  
B050C400.3046  
B050C400.3047  
B050C400.3048  
B050C400.3049  
B050C400.3050  
B050C400.3051  
B050C400.3052

» 268

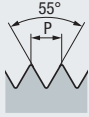


Schnellwechsel-Aufnahmen der Typenreihe SFM siehe Seite 699 - 704

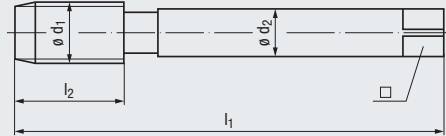
Quick-change tap holders of our SFM series, see page 699 - 704

# BSW

BS 84



≈ DIN 376



Technische Informationen  
Technical information


Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material



Gewindetiefe und Lochform  
Thread depth and hole type

Einsatzgebiete – Material  
Applications – material

» 78

|            | $\varnothing d_1$<br>inch | $\varnothing d_1$<br>mm | P<br>Gg/1" (tpi) | $l_1$ | $l_2$ | $\varnothing d_2$ | $\square$ |  |
|------------|---------------------------|-------------------------|------------------|-------|-------|-------------------|-----------|---|
| <b>BSW</b> | 7/16                      | 11,11                   | 14               | 100   | 22    | 8                 | 6,2       | 9,25  |
|            | 1/2                       | 12,70                   | 12               | 110   | 25    | 9                 | 7         | 10,5  |
|            | 9/16                      | 14,29                   | 12               | 110   | 26    | 11                | 9         | 12  |
|            | 5/8                       | 15,88                   | 11               | 110   | 27    | 12                | 9         | 13,5  |
|            | 3/4                       | 19,05                   | 10               | 125   | 30    | 14                | 11        | 16,4  |
|            | 7/8                       | 22,23                   | 9                | 140   | 32    | 18                | 14,5      | 19,25   |
|            | 1"                        | 25,40                   | 8                | 160   | 36    | 18                | 14,5      | 22  |
|            | 1 1/8                     | 28,58                   | 7                | 180   | 40    | 22                | 18        | 24,75   |
|            | 1 1/4                     | 31,75                   | 7                | 180   | 40    | 22                | 18        | 27,75   |
|            | 1 3/8                     | 34,93                   | 6                | 200   | 50    | 28                | 22        | 30,5  |
|            | 1 1/2                     | 38,10                   | 6                | 200   | 50    | 28                | 22        | 33,5  |
|            | 1 3/4                     | 44,45                   | 5                | 220   | 58    | 36                | 29        | 39  |
|            | 2"                        | 50,80                   | 4 1/2            | 250   | 65    | 40                | 32        | 44,5  |

≈ DIN 371



**STEEL**  
Steel materials



$l_2 \approx 10 \times P$

**VA**  
Stainless steel materials



med.

HSSE  
R35  
C / 2-3  
E / 0

max. 2,5 x  $d_1$



**P** 1.1-3.1  
**N** 2.2

med.

GLT-1  
HSSE

B / 4-5  
E / 0 / P

max. 3 x  $d_1$



**P** 1.1-4.1  
**M** 1.1-4.1  
**N** 2.2

**Enorm**  
**2-STEEL**

**Rekord**  
**2B-VA**  
**GLT-1**

**C020C300.3053**  
**C020C300.3054**  
**C020C300.3055**  
**C020C300.3056**  
**C020C300.3058**  
**C020C300.3060**  
**C020C300.3062**

C0501000.3064  
C0501000.3065  
C0501000.3066  
C0501000.3070

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Product Finder

V<sub>c</sub>

M

MF

UNC  
UN-8

UNF  
UNEF

G, Rp  
NPSM, NPSF

NPT, NPTF  
Rc, W

**BSW, BSF**

Pg

MJ  
UNJC, UNJF

EG (STI)

SELF-LOCK

Tr, Tr-F  
Rd

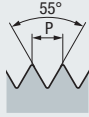
Zubehör  
Accessories



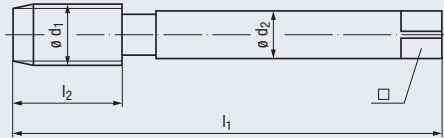
- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories

# BSW

BS 84



≈ DIN 376



Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material

**Technische Informationen**  
Technical information

|           |           |
|-----------|-----------|
| med.      | med.      |
| HSSE      | GLT-1     |
| R45       | HSSE      |
| C / 2-3   | R45       |
| E / O / P | C / 2-3   |
| E / O / P | E / O / P |

**Gewindetiefe und Lochform**  
Thread depth and hole type

max. 3 x d<sub>1</sub>



**Einsatzgebiete – Material**  
Applications – material

» 78

|                  |                       |
|------------------|-----------------------|
| <b>P</b> 1.1-3.1 | <b>P</b> 1.1-4.1      |
|                  | <b>M</b> 1.1-4.1      |
|                  | <b>N</b> 1.4, 2.1-2.2 |
|                  | <b>N</b> 2.4-2.5      |
|                  | <b>S</b> 1.1          |

|            | $\varnothing d_1$<br>inch | $\varnothing d_1$<br>mm | P<br>Gg/1" (tpi) | $l_1$ | $l_2$ | $\varnothing d_2$ | □    |       | Enorm<br>2-Z  | Enorm<br>2-Z<br>GLT-1 |
|------------|---------------------------|-------------------------|------------------|-------|-------|-------------------|------|-------|---------------|-----------------------|
| <b>BSW</b> | 7/16                      | 11,11                   | 14               | 100   | 18    | 8                 | 6,2  | 9,25  | C0503500.3053 | C050C400.3053         |
|            | 1/2                       | 12,70                   | 12               | 110   | 20    | 9                 | 7    | 10,5  | C0503500.3054 | C050C400.3054         |
|            | 9/16                      | 14,29                   | 12               | 110   | 20    | 11                | 9    | 12    |               |                       |
|            | 5/8                       | 15,88                   | 11               | 110   | 22    | 12                | 9    | 13,5  | C0503500.3056 | C050C400.3056         |
|            | 3/4                       | 19,05                   | 10               | 125   | 25    | 14                | 11   | 16,4  | C0503500.3058 | C050C400.3058         |
|            | 7/8                       | 22,23                   | 9                | 140   | 27    | 18                | 14,5 | 19,25 | C0503500.3060 |                       |
|            | 1"                        | 25,40                   | 8                | 160   | 30    | 18                | 14,5 | 22    | C0503500.3062 | C050C400.3062         |
|            | 1 1/8                     | 28,58                   | 7                | 180   | 35    | 22                | 18   | 24,75 | C0503500.3063 |                       |
|            | 1 1/4                     | 31,75                   | 7                | 180   | 35    | 22                | 18   | 27,75 |               |                       |
|            | 1 3/8                     | 34,93                   | 6                | 200   | 40    | 28                | 22   | 30,5  |               |                       |
|            | 1 1/2                     | 38,10                   | 6                | 200   | 40    | 28                | 22   | 33,5  |               |                       |
|            | 1 3/4                     | 44,45                   | 5                | 220   | 45    | 36                | 29   | 39    |               |                       |
|            | 2"                        | 50,80                   | 4 1/2            | 250   | 50    | 40                | 32   | 44,5  |               |                       |

≈ DIN 371



» 266

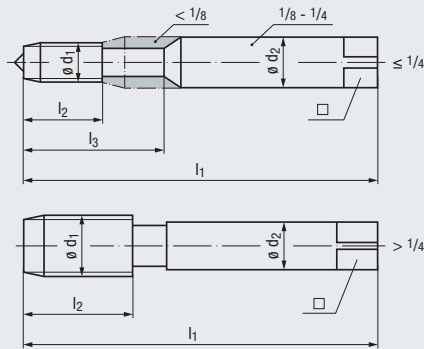
» 266

# BSW



≈ DIN 352

BS 84



Toleranz · Tolerance  
 Beschichtung · Coating  
 Schneidstoff · Cutting material



Technische Informationen  
 Technical information

HSSE

A / 5-6

O / P

HSSE

D / 3-4

O / P

med. „X“

HSSE

C / 2-3

O / P

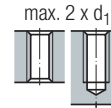
med. „X“

HSSE

C / 2-3

O / P

Gewindetiefe und Lochform  
 Thread depth and hole type



Einsatzgebiete – Material  
 Applications – material

» 78

P 1.1-3.1

P 1.1-3.1

P 1.1-3.1

P 1.1-3.1

| BSW | ø d <sub>1</sub><br>inch | ø d <sub>1</sub><br>mm | P<br>Gg/1" (tpi) | l <sub>1</sub> | l <sub>2</sub> | l <sub>3</sub> | ø d <sub>2</sub> | □    |       | HGB-Set       | HGB-Set       | HGB-Set       | HGB-Set-3S      |
|-----|--------------------------|------------------------|------------------|----------------|----------------|----------------|------------------|------|-------|---------------|---------------|---------------|-----------------|
|     |                          |                        |                  |                |                |                |                  |      |       | V-Nr.1        | M-Nr.2        | F             | (Nr.1, Nr.2, F) |
|     | 1/16                     | 1,59                   | 60               | 32             | 8              | –              | 2,5              | 2,1  | 1,15  | H0111019.3044 | H0111029.3044 | H0111001.3044 | H0101001.3044   |
|     | 1/8                      | 3,18                   | 40               | 40             | 10             | 18             | 3,5              | 2,7  | 2,55  | H0111019.3046 | H0111029.3046 | H0111001.3046 | H0101001.3046   |
|     | 5/32                     | 3,97                   | 32               | 45             | 12             | 22             | 4,5              | 3,4  | 3,2   | H0111019.3048 | H0111029.3048 | H0111001.3048 | H0101001.3048   |
|     | 3/16                     | 4,76                   | 24               | 50             | 14             | 25             | 6                | 4,9  | 3,7   | H0111019.3050 | H0111029.3050 | H0111001.3050 | H0101001.3050   |
|     | 7/32                     | 5,56                   | 24               | 56             | 16             | 28             | 6                | 4,9  | 4,5   | H0111019.3051 | H0111029.3051 | H0111001.3051 | H0101001.3051   |
|     | 1/4                      | 6,35                   | 20               | 56             | 16             | 28             | 6                | 4,9  | 5,1   | H0111019.3052 | H0111029.3052 | H0111001.3052 | H0101001.3052   |
|     | 5/16                     | 7,94                   | 18               | 63             | 20             | –              | 6                | 4,9  | 6,5   | H0111019.3053 | H0111029.3053 | H0111001.3053 | H0101001.3053   |
|     | 3/8                      | 9,53                   | 16               | 70             | 22             | –              | 7                | 5,5  | 7,9   | H0111019.3054 | H0111029.3054 | H0111001.3054 | H0101001.3054   |
|     | 7/16                     | 11,11                  | 14               | 70             | 22             | –              | 8                | 6,2  | 9,25  | H0111019.3056 | H0111029.3056 | H0111001.3056 | H0101001.3056   |
|     | 1/2                      | 12,70                  | 12               | 75             | 25             | –              | 9                | 7    | 10,5  | H0111019.3058 | H0111029.3058 | H0111001.3058 | H0101001.3058   |
|     | 9/16                     | 14,29                  | 12               | 80             | 26             | –              | 11               | 9    | 12    | H0111019.3062 | H0111029.3062 | H0111001.3062 | H0101001.3062   |
|     | 5/8                      | 15,88                  | 11               | 80             | 27             | –              | 12               | 9    | 13,5  | H0111019.3063 | H0111029.3063 | H0111001.3063 | H0101001.3063   |
|     | 3/4                      | 19,05                  | 10               | 95             | 32             | –              | 14               | 11   | 16,4  | H0111019.3064 | H0111029.3064 | H0111001.3064 | H0101001.3064   |
|     | 7/8                      | 22,23                  | 9                | 100            | 32             | –              | 18               | 14,5 | 19,25 | H0111019.3065 | H0111029.3065 | H0111001.3065 | H0101001.3065   |
|     | 1"                       | 25,40                  | 8                | 110            | 36             | –              | 18               | 14,5 | 22    | H0111019.3066 | H0111029.3066 | H0111001.3066 | H0101001.3066   |
|     | 1 1/8                    | 28,58                  | 7                | 125            | 40             | –              | 22               | 18   | 24,75 |               |               |               |                 |
|     | 1 1/4                    | 31,75                  | 7                | 125            | 40             | –              | 22               | 18   | 27,75 |               |               |               |                 |
|     | 1 3/8                    | 34,93                  | 6                | 150            | 50             | –              | 28               | 22   | 30,5  |               |               |               |                 |
|     | 1 1/2                    | 38,10                  | 6                | 150            | 50             | –              | 28               | 22   | 33,5  |               |               |               |                 |
|     | 1 3/4                    | 44,45                  | 5                | 160            | 58             | –              | 36               | 29   | 39    |               |               |               |                 |
|     | 2"                       | 50,80                  | 4 1/2            | 180            | 65             | –              | 40               | 32   | 44,5  |               |               |               |                 |

- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC UN-8
- UNF UNF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF**
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories



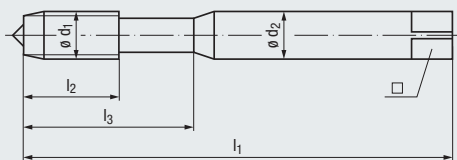
- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories



BS 84

≈ DIN 371

**STEEL**  
Steel materials



Technische Informationen  
Technical information

Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material



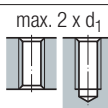
med. „X“

HSSE

C / 2-3

E / 0


Gewindetiefe und Lochform  
Thread depth and hole type



Einsatzgebiete – Material  
Applications – material



**K** 1.1-4.2  
**N** 2.3

|            | $\phi d_1$<br>inch | $\phi d_1$<br>mm | P<br>Gg/1" (tpi) | $l_1$ | $l_2$ | $l_3$ | $\phi d_2$ | □   |  |
|------------|--------------------|------------------|------------------|-------|-------|-------|------------|-----|---|
| <b>BSF</b> | 1/4                | 6,35             | 26               | 80    | 17    | 30    | 7          | 5,5 | 5,3   |
|            | 5/16               | 7,94             | 22               | 90    | 17    | 35    | 8          | 6,2 | 6,8   |
|            | 3/8                | 9,53             | 20               | 100   | 18    | 39    | 10         | 8   | 8,3   |

≈ DIN 374



**Rekord  
1A-STEEL**

**B0101001.3090**  
**B0101001.3092**  
**B0101001.3093**

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Werkzeug-Aufnahmen der Typenreihe  
Softsynchro® siehe Seite 617 - 644

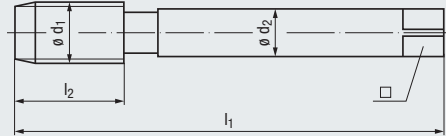
Tool holders of our Softsynchro® series,  
see page 617 - 644



BS 84

≈ DIN 374

**STEEL**  
Steel materials



Technische Informationen  
Technical information

Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material



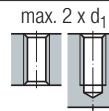
med. „X“

HSSE

C / 2-3

E / 0

Gewindetiefe und Lochform  
Thread depth and hole type




Einsatzgebiete – Material  
Applications – material

» 78

**K** 1.1-4.2

**N** 2.3

**Rekord  
2A-STEEL**

|            | $\phi d_1$<br>inch | $\phi d_1$<br>mm | P<br>Gg/1" (tpi) | $l_1$ | $l_2$ | $\phi d_2$ | $\square$ |  |               |
|------------|--------------------|------------------|------------------|-------|-------|------------|-----------|---|---------------|
| <b>BSF</b> | 7/16               | 11,11            | 18               | 100   | 22    | 8          | 6,2       | 9,7   | C0101001.3094 |
|            | 1/2                | 12,70            | 16               | 100   | 22    | 9          | 7         | 11,1  | C0101001.3095 |
|            | 5/8                | 15,88            | 14               | 110   | 27    | 12         | 9         | 14  | C0101001.3097 |
|            | 3/4                | 19,05            | 12               | 125   | 27    | 14         | 11        | 16,75   | C0101001.3099 |
|            | 7/8                | 22,23            | 11               | 140   | 32    | 18         | 14,5      | 19,75   | C0101001.3101 |
|            | 1"                 | 25,40            | 10               | 160   | 36    | 18         | 14,5      | 22,75   | C0101001.3102 |

≈ DIN 371



» 270

Product Finder

V<sub>c</sub>

M

MF

UNC  
UN-8

UNF  
UNEF

G, Rp  
NPSM, NPSF

NPT, NPTF  
Rc, W

**BSW, BSF**

Pg

MJ  
UNJC, UNJF

EG (STI)

SELF-LOCK

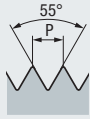
Tr, Tr-F  
Rd

Zubehör  
Accessories



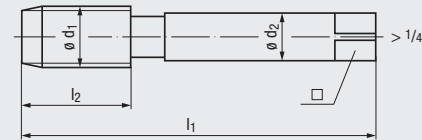
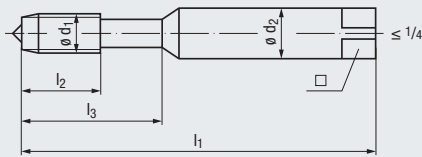
- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories

# BSF



≈ DIN 352

BS 84



Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material

Technische Informationen  
Technical information



HSSE

HSSE

med. „X“

med. „X“

A / 5-6

D / 3-4

C / 2-3

C / 2-3

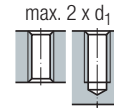
O / P

O / P

O / P

O / P

Gewindetiefe und Lochform  
Thread depth and hole type



Einsatzgebiete – Material  
Applications – material



P 1.1-3.1

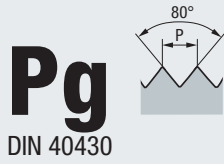
P 1.1-3.1

P 1.1-3.1

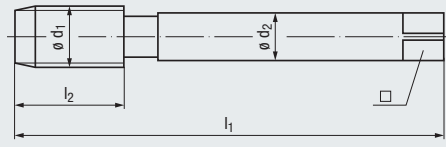
P 1.1-3.1

|            | ø d <sub>1</sub><br>inch | ø d <sub>1</sub><br>mm | P<br>Gg/1" (tpi) | l <sub>1</sub> | l <sub>2</sub> | l <sub>3</sub> | ø d <sub>2</sub> | □    |       | HGB-Set       | HGB-Set       | HGB-Set       | HGB-Set-3S      |
|------------|--------------------------|------------------------|------------------|----------------|----------------|----------------|------------------|------|-------|---------------|---------------|---------------|-----------------|
|            |                          |                        |                  |                |                |                |                  |      |       | V-Nr.1        | M-Nr.2        | F             | (Nr.1, Nr.2, F) |
| <b>BSF</b> | 3/16                     | 4,76                   | 32               | 50             | 14             | 25             | 6                | 4,9  | 4     | H0111019.3088 | H0111029.3088 | H0111001.3088 | H0101001.3088   |
|            | 1/4                      | 6,35                   | 26               | 56             | 16             | 28             | 6                | 4,9  | 5,3   | H0111019.3090 | H0111029.3090 | H0111001.3090 | H0101001.3090   |
|            | 5/16                     | 7,94                   | 22               | 63             | 17             | –              | 6                | 4,9  | 6,8   | H0111019.3092 | H0111029.3092 | H0111001.3092 | H0101001.3092   |
|            | 3/8                      | 9,53                   | 20               | 70             | 22             | –              | 7                | 5,5  | 8,3   | H0111019.3093 | H0111029.3093 | H0111001.3093 | H0101001.3093   |
|            | 7/16                     | 11,11                  | 18               | 70             | 22             | –              | 8                | 6,2  | 9,7   | H0111019.3094 | H0111029.3094 | H0111001.3094 | H0101001.3094   |
|            | 1/2                      | 12,70                  | 16               | 70             | 20             | –              | 9                | 7    | 11,1  | H0111019.3095 | H0111029.3095 | H0111001.3095 | H0101001.3095   |
|            | 5/8                      | 15,88                  | 14               | 80             | 27             | –              | 12               | 9    | 14    | H0111019.3097 | H0111029.3097 | H0111001.3097 | H0101001.3097   |
|            | 3/4                      | 19,05                  | 12               | 80             | 22             | –              | 14               | 11   | 16,75 | H0111019.3099 | H0111029.3099 | H0111001.3099 | H0101001.3099   |
|            | 7/8                      | 22,23                  | 11               | 80             | 22             | –              | 18               | 14,5 | 19,75 |               |               |               |                 |
|            | 1"                       | 25,40                  | 10               | 110            | 36             | –              | 18               | 14,5 | 22,75 | H0111019.3102 | H0111029.3102 | H0111001.3102 | H0101001.3102   |





**DIN 40433**



Technische Informationen  
Technical information

Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material



Gewindetiefe und Lochform  
Thread depth and hole type

Einsatzgebiete – Material  
Applications – material

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| Nenngröße<br>Nom. size | $\phi d_1$<br>mm | P<br>Gg/1" (tpi) | $l_1$ | $l_2$ | $\phi d_2$ | $\square$ |       | Rekord               |                      |
|------------------------|------------------|------------------|-------|-------|------------|-----------|-------|----------------------|----------------------|
|                        |                  |                  |       |       |            |           |       | 2A-STEEL             | 2A-H NT              |
| <b>Pg</b> 7            | 12,5             | 20               | 100   | 22    | 9          | 7         | 11,35 | <b>C0101001.4153</b> | <b>C0100501.4153</b> |
| 9                      | 15,2             | 18               | 100   | 22    | 12         | 9         | 13,95 | <b>C0101001.4154</b> | <b>C0100501.4154</b> |
| 11                     | 18,6             | 18               | 110   | 25    | 14         | 11        | 17,35 | <b>C0101001.4155</b> | <b>C0100501.4155</b> |
| 13,5                   | 20,4             | 18               | 125   | 25    | 16         | 12        | 19,15 | <b>C0101001.4156</b> | <b>C0100501.4156</b> |
| 16                     | 22,5             | 18               | 125   | 25    | 18         | 14,5      | 21,25 | <b>C0101001.4157</b> | <b>C0100501.4157</b> |
| 21                     | 28,3             | 16               | 150   | 28    | 22         | 18        | 26,95 | C0101001.4158        | C0100501.4158        |
| 29                     | 37,0             | 16               | 170   | 30    | 28         | 22        | 35,6  | C0101001.4159        | C0100501.4159        |
| 36                     | 47,0             | 16               | 190   | 32    | 36         | 29        | 45,6  | C0101001.4160        |                      |
| 42                     | 54,0             | 16               | 190   | 32    | 40         | 32        | 52,6  | C0101001.4161        |                      |
| 48                     | 59,3             | 16               | 220   | 36    | 45         | 35        | 57,9  | C0101001.4162        |                      |

| STEEL<br>Steel materials         | H<br>Materials of high tensile strength |
|----------------------------------|---|
|                                  |   |
|                                  |   |
| „X“                              | „X“                                     |
| HSSE                             | NT<br>HSSE                              |
| C / 2-3<br>E / O                 | C / 2-3<br>E / O / P                    |
| max. 2 x $d_1$<br>               | max. 2 x $d_1$<br>                      |
| <b>K 1.1-4.2</b><br><b>N 2.3</b> | <b>K 1.1-4.2</b><br><b>N 4.1</b>        |
| <b>Rekord 2A-STEEL</b>           | <b>Rekord 2A-H NT</b>                   |

Product Finder

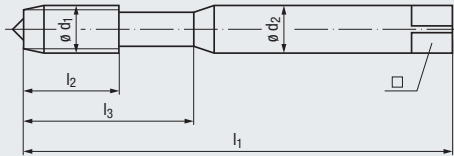
- V<sub>c</sub>
- M
- MF
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg**
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories



- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ** UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories



DIN ISO 5855



DIN 371

**AL**  
Aluminium wrought alloys



NEW



$l_2 \approx 10 \times P$

**Ti**  
Titanium



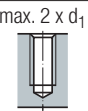
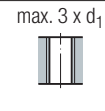
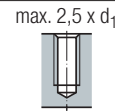
**Technische Informationen**  
Technical information

Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material

- 4H
- GLT-104
- HSSE
- R45
- C / 2-3
- E / O

- |           |           |
|-----------|-----------|
| 4HX       | 4HX       |
| TICN      | TICN      |
| HSSE      | HSSE      |
| L15       | R15       |
| D / 4-5   | C / 2-3   |
| E / O / P | E / O / P |

**Gewindetiefe und Lochform**  
Thread depth and hole type



**Einsatzgebiete – Material**  
Applications – material

» 78

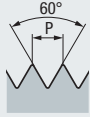
**N** 1.1-1.4, 2.1

- |                       |                       |
|-----------------------|-----------------------|
| <b>P</b> 4.1-5.1      | <b>P</b> 4.1-5.1      |
| <b>M</b> 3.1-4.1      | <b>M</b> 3.1-4.1      |
| <b>N</b> 2.4-2.5, 2.7 | <b>N</b> 2.4-2.5, 2.7 |
| <b>S</b> 1.1-2.2, 2.4 | <b>S</b> 1.1-2.2, 2.4 |

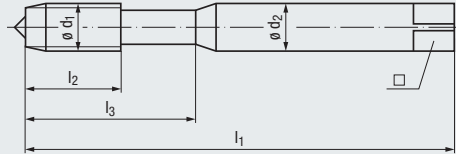
|           | $\phi d_1$<br>mm | P<br>mm | $l_1$ | $l_2$ | $l_3$ | $\phi d_2$ | $\square$ |     | Enorm<br>1-AL<br>GLT-104 | Rekord<br>1C-Ti<br>TICN | Rekord<br>1D-Ti<br>TICN |
|-----------|------------------|---------|-------|-------|-------|------------|-----------|-----|--------------------------|-------------------------|-------------------------|
| <b>MJ</b> | 3                | x 0,5   | 56    | 11    | 18    | 3,5        | 2,7       | 2,6 | <b>B0503G10.1229</b>     | <b>B0309611.1229</b>    | <b>B0459611.1229</b>    |
|           | 4                | x 0,7   | 63    | 13    | 21    | 4,5        | 3,4       | 3,4 | <b>B0503G10.1231</b>     | <b>B0309611.1231</b>    | <b>B0459611.1231</b>    |
|           | 5                | x 0,8   | 70    | 15    | 25    | 6          | 4,9       | 4,3 | <b>B0503G10.1232</b>     | <b>B0309611.1232</b>    | <b>B0459611.1232</b>    |
|           | 6                | x 1     | 80    | 17    | 30    | 6          | 4,9       | 5,1 | <b>B0503G10.1233</b>     | <b>B0309611.1233</b>    | <b>B0459611.1233</b>    |
|           | 8                | x 1     | 90    | 17    | 35    | 8          | 6,2       | 7,1 | <b>B0503G10.1235</b>     | <b>B0309611.1235</b>    | <b>B0459611.1235</b>    |
|           | 8                | x 1,25  | 90    | 20    | 35    | 8          | 6,2       | 6,9 | <b>B0503G10.2026</b>     | <b>B0309611.2026</b>    | <b>B0459611.2026</b>    |
|           | 10               | x 1,25  | 100   | 18    | 39    | 10         | 8         | 8,9 | <b>B0503G10.1236</b>     | <b>B0309611.1236</b>    | <b>B0459611.1236</b>    |
|           | 10               | x 1,5   | 100   | 22    | 39    | 10         | 8         | 8,6 | <b>B0503G10.2308</b>     | <b>B0309611.2308</b>    | <b>B0459611.2308</b>    |

**MJ**

DIN ISO 5855



DIN  
371



Technische Informationen  
Technical information

Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material



Gewindetiefe und Lochform  
Thread depth and hole type

Einsatzgebiete – Material  
Applications – material

» 78

NI  
Nickel  
alloys



4HX  
TICN  
HSSE-PM  
L08  
D / 4-5  
O / P

4HX  
TICN  
HSSE-PM  
R10  
C / 2-3  
O / P

max. 3 x d<sub>1</sub>




max. 2 x d<sub>1</sub>



N 2.8  
S 2.3, 2.5-2.6

N 2.8  
S 2.3, 2.5-2.6

|           | $\phi d_1$<br>mm | P<br>mm | $l_1$ | $l_2$ | $l_3$ | $\phi d_2$ | □   |  | Rekord<br>1C-Ni<br>PM-TiCN | Rekord<br>1DF-Ni<br>PM-TiCN |
|-----------|------------------|---------|-------|-------|-------|------------|-----|---|----------------------------|-----------------------------|
| <b>MJ</b> | 3                | x 0,5   | 56    | 11    | 18    | 3,5        | 2,7 | 2,6   | B030J411.1229              | B438J411.1229               |
|           | 4                | x 0,7   | 63    | 13    | 21    | 4,5        | 3,4 | 3,4   | B030J411.1231              | B438J411.1231               |
|           | 5                | x 0,8   | 70    | 15    | 25    | 6          | 4,9 | 4,3   | B030J411.1232              | B438J411.1232               |
|           | 6                | x 1     | 80    | 17    | 30    | 6          | 4,9 | 5,1   | B030J411.1233              | B438J411.1233               |
|           | 8                | x 1     | 90    | 17    | 35    | 8          | 6,2 | 7,1   | B030J411.1235              | B438J411.1235               |
|           | 8                | x 1,25  | 90    | 20    | 35    | 8          | 6,2 | 6,9   | B030J411.2026              | B438J411.2026               |
|           | 10               | x 1,25  | 100   | 18    | 39    | 10         | 8   | 8,9   | B030J411.1236              | B438J411.1236               |
|           | 10               | x 1,5   | 100   | 22    | 39    | 10         | 8   | 8,6   | B030J411.2308              | B438J411.2308               |

Product  
Finder

V<sub>c</sub>

M

MF

UNC  
UN-8

UNF  
UNEF

G, Rp  
NPSM, NPSF

NPT, NPTF  
Rc, W

BSW, BSF

Pg

**MJ**  
UNJC, UNJF

EG (STI)

SELF-LOCK

Tr, Tr-F  
Rd

Zubehör  
Accessories



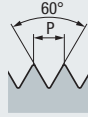
Spiralbohrer siehe Seite 11 - 70

Twist drills, see page 11 - 70

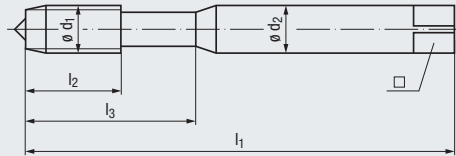
- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC  
UN-8
- UNF  
UNEF
- G, Rp  
NPSM, NPSF
- NPT, NPTF  
Rc, W
- BSW, BSF
- Pg
- MJ  
UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F  
Rd
- Zubehör  
Accessories

# UNJC

ASME B1.1 1)



≈ DIN 371



**AL**  
Aluminium  
wrought alloys



NEW



l<sub>2</sub> ≈ 10 x P

**TI**  
Titanium



| Technische Informationen<br>Technical information  | Toleranz · Tolerance      |                | Beschichtung · Coating                                     |                | Schneidstoff · Cutting material                            |                  |     |      |      |             |  |  |  |  |  |  |       |        |    |    |    |    |     |     |     |       |        |    |    |    |    |   |   |      |       |        |    |    |    |    |     |     |     |        |        |    |    |    |    |   |     |     |     |        |    |    |    |    |   |     |      |      |        |    |    |    |    |   |     |     |     |        |    |     |    |    |    |   |     |  |  |  |  |  |  |
|--|---------------------------|----------------|--|----------------|--|------------------|-----|------|------|-------------|--|--|--|--|--|--|-------|--------|----|----|----|----|-----|-----|-----|-------|--------|----|----|----|----|---|---|------|-------|--------|----|----|----|----|-----|-----|-----|--------|--------|----|----|----|----|---|-----|-----|-----|--------|----|----|----|----|---|-----|------|------|--------|----|----|----|----|---|-----|-----|-----|--------|----|-----|----|----|----|---|-----|--|--|--|--|--|--|
|  | 3B                        | GLT-104        | HSSE   | R45            | C / 2-3  | E / O            |     |      |      |             |  |  |  |  |  |  |       |        |    |    |    |    |     |     |     |       |        |    |    |    |    |   |   |      |       |        |    |    |    |    |     |     |     |        |        |    |    |    |    |   |     |     |     |        |    |    |    |    |   |     |      |      |        |    |    |    |    |   |     |     |     |        |    |     |    |    |    |   |     |  |  |  |  |  |  |
| Gewindetiefe und Lochform<br>Thread depth and hole type  | max. 2,5 x d <sub>1</sub> |                | max. 3 x d <sub>1</sub>                                    |                | max. 2 x d <sub>1</sub>                                    |                  |     |      |      |             |  |  |  |  |  |  |       |        |    |    |    |    |     |     |     |       |        |    |    |    |    |   |   |      |       |        |    |    |    |    |     |     |     |        |        |    |    |    |    |   |     |     |     |        |    |    |    |    |   |     |      |      |        |    |    |    |    |   |     |     |     |        |    |     |    |    |    |   |     |  |  |  |  |  |  |
|  |                           |                |  |                |  |                  |     |      |      |             |  |  |  |  |  |  |       |        |    |    |    |    |     |     |     |       |        |    |    |    |    |   |   |      |       |        |    |    |    |    |     |     |     |        |        |    |    |    |    |   |     |     |     |        |    |    |    |    |   |     |      |      |        |    |    |    |    |   |     |     |     |        |    |     |    |    |    |   |     |  |  |  |  |  |  |
| Einsatzgebiete – Material<br>Applications – material   | N 1.1-1.4, 2.1            |                | P 4.1-5.1<br>M 3.1-4.1<br>N 2.4-2.5, 2.7<br>S 1.1-2.2, 2.4 |                | P 4.1-5.1<br>M 3.1-4.1<br>N 2.4-2.5, 2.7<br>S 1.1-2.2, 2.4 |                  |     |      |      |             |  |  |  |  |  |  |       |        |    |    |    |    |     |     |     |       |        |    |    |    |    |   |   |      |       |        |    |    |    |    |     |     |     |        |        |    |    |    |    |   |     |     |     |        |    |    |    |    |   |     |      |      |        |    |    |    |    |   |     |     |     |        |    |     |    |    |    |   |     |  |  |  |  |  |  |
|  | Enorm 1-AL<br>GLT-104     |                | Rekord 1C-TI<br>TICN                                       |                | Rekord 1D-TI<br>TICN                                       |                  |     |      |      |             |  |  |  |  |  |  |       |        |    |    |    |    |     |     |     |       |        |    |    |    |    |   |   |      |       |        |    |    |    |    |     |     |     |        |        |    |    |    |    |   |     |     |     |        |    |    |    |    |   |     |      |      |        |    |    |    |    |   |     |     |     |        |    |     |    |    |    |   |     |  |  |  |  |  |  |
| <table border="1"> <thead> <tr> <th>Ø d<sub>1</sub></th> <th>P</th> <th>l<sub>1</sub></th> <th>l<sub>2</sub></th> <th>l<sub>3</sub></th> <th>Ø d<sub>2</sub></th> <th>□</th> <th></th> </tr> <tr> <th>inch</th> <th>Gg/1" (tpi)</th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> </tr> </thead> <tbody> <tr> <td>Nr. 4</td> <td>0.1120</td> <td>40</td> <td>56</td> <td>11</td> <td>18</td> <td>3,5</td> <td>2,7</td> <td>2,3</td> </tr> <tr> <td>Nr. 6</td> <td>0.1380</td> <td>32</td> <td>56</td> <td>12</td> <td>20</td> <td>4</td> <td>3</td> <td>2,85</td> </tr> <tr> <td>Nr. 8</td> <td>0.1640</td> <td>32</td> <td>63</td> <td>13</td> <td>21</td> <td>4,5</td> <td>3,4</td> <td>3,5</td> </tr> <tr> <td>Nr. 10</td> <td>0.1900</td> <td>24</td> <td>70</td> <td>15</td> <td>25</td> <td>6</td> <td>4,9</td> <td>3,9</td> </tr> <tr> <td>1/4</td> <td>0.2500</td> <td>20</td> <td>80</td> <td>17</td> <td>30</td> <td>7</td> <td>5,5</td> <td>5,25</td> </tr> <tr> <td>5/16</td> <td>0.3125</td> <td>18</td> <td>90</td> <td>20</td> <td>35</td> <td>8</td> <td>6,2</td> <td>6,7</td> </tr> <tr> <td>3/8</td> <td>0.3750</td> <td>16</td> <td>100</td> <td>22</td> <td>39</td> <td>10</td> <td>8</td> <td>8,1</td> </tr> </tbody> </table> | Ø d <sub>1</sub>          | P              | l <sub>1</sub>   | l <sub>2</sub> | l <sub>3</sub>   | Ø d <sub>2</sub> | □   |      | inch | Gg/1" (tpi) |  |  |  |  |  |  | Nr. 4 | 0.1120 | 40 | 56 | 11 | 18 | 3,5 | 2,7 | 2,3 | Nr. 6 | 0.1380 | 32 | 56 | 12 | 20 | 4 | 3 | 2,85 | Nr. 8 | 0.1640 | 32 | 63 | 13 | 21 | 4,5 | 3,4 | 3,5 | Nr. 10 | 0.1900 | 24 | 70 | 15 | 25 | 6 | 4,9 | 3,9 | 1/4 | 0.2500 | 20 | 80 | 17 | 30 | 7 | 5,5 | 5,25 | 5/16 | 0.3125 | 18 | 90 | 20 | 35 | 8 | 6,2 | 6,7 | 3/8 | 0.3750 | 16 | 100 | 22 | 39 | 10 | 8 | 8,1 |  |  |  |  |  |  |
| Ø d <sub>1</sub>   | P                         | l <sub>1</sub> | l <sub>2</sub>   | l <sub>3</sub> | Ø d <sub>2</sub>   | □                |     |      |      |             |  |  |  |  |  |  |       |        |    |    |    |    |     |     |     |       |        |    |    |    |    |   |   |      |       |        |    |    |    |    |     |     |     |        |        |    |    |    |    |   |     |     |     |        |    |    |    |    |   |     |      |      |        |    |    |    |    |   |     |     |     |        |    |     |    |    |    |   |     |  |  |  |  |  |  |
| inch   | Gg/1" (tpi)               |                |  |                |  |                  |     |      |      |             |  |  |  |  |  |  |       |        |    |    |    |    |     |     |     |       |        |    |    |    |    |   |   |      |       |        |    |    |    |    |     |     |     |        |        |    |    |    |    |   |     |     |     |        |    |    |    |    |   |     |      |      |        |    |    |    |    |   |     |     |     |        |    |     |    |    |    |   |     |  |  |  |  |  |  |
| Nr. 4  | 0.1120                    | 40             | 56   | 11             | 18   | 3,5              | 2,7 | 2,3  |      |             |  |  |  |  |  |  |       |        |    |    |    |    |     |     |     |       |        |    |    |    |    |   |   |      |       |        |    |    |    |    |     |     |     |        |        |    |    |    |    |   |     |     |     |        |    |    |    |    |   |     |      |      |        |    |    |    |    |   |     |     |     |        |    |     |    |    |    |   |     |  |  |  |  |  |  |
| Nr. 6  | 0.1380                    | 32             | 56   | 12             | 20   | 4                | 3   | 2,85 |      |             |  |  |  |  |  |  |       |        |    |    |    |    |     |     |     |       |        |    |    |    |    |   |   |      |       |        |    |    |    |    |     |     |     |        |        |    |    |    |    |   |     |     |     |        |    |    |    |    |   |     |      |      |        |    |    |    |    |   |     |     |     |        |    |     |    |    |    |   |     |  |  |  |  |  |  |
| Nr. 8  | 0.1640                    | 32             | 63   | 13             | 21   | 4,5              | 3,4 | 3,5  |      |             |  |  |  |  |  |  |       |        |    |    |    |    |     |     |     |       |        |    |    |    |    |   |   |      |       |        |    |    |    |    |     |     |     |        |        |    |    |    |    |   |     |     |     |        |    |    |    |    |   |     |      |      |        |    |    |    |    |   |     |     |     |        |    |     |    |    |    |   |     |  |  |  |  |  |  |
| Nr. 10   | 0.1900                    | 24             | 70   | 15             | 25   | 6                | 4,9 | 3,9  |      |             |  |  |  |  |  |  |       |        |    |    |    |    |     |     |     |       |        |    |    |    |    |   |   |      |       |        |    |    |    |    |     |     |     |        |        |    |    |    |    |   |     |     |     |        |    |    |    |    |   |     |      |      |        |    |    |    |    |   |     |     |     |        |    |     |    |    |    |   |     |  |  |  |  |  |  |
| 1/4  | 0.2500                    | 20             | 80   | 17             | 30   | 7                | 5,5 | 5,25 |      |             |  |  |  |  |  |  |       |        |    |    |    |    |     |     |     |       |        |    |    |    |    |   |   |      |       |        |    |    |    |    |     |     |     |        |        |    |    |    |    |   |     |     |     |        |    |    |    |    |   |     |      |      |        |    |    |    |    |   |     |     |     |        |    |     |    |    |    |   |     |  |  |  |  |  |  |
| 5/16   | 0.3125                    | 18             | 90   | 20             | 35   | 8                | 6,2 | 6,7  |      |             |  |  |  |  |  |  |       |        |    |    |    |    |     |     |     |       |        |    |    |    |    |   |   |      |       |        |    |    |    |    |     |     |     |        |        |    |    |    |    |   |     |     |     |        |    |    |    |    |   |     |      |      |        |    |    |    |    |   |     |     |     |        |    |     |    |    |    |   |     |  |  |  |  |  |  |
| 3/8  | 0.3750                    | 16             | 100  | 22             | 39   | 10               | 8   | 8,1  |      |             |  |  |  |  |  |  |       |        |    |    |    |    |     |     |     |       |        |    |    |    |    |   |   |      |       |        |    |    |    |    |     |     |     |        |        |    |    |    |    |   |     |     |     |        |    |    |    |    |   |     |      |      |        |    |    |    |    |   |     |     |     |        |    |     |    |    |    |   |     |  |  |  |  |  |  |

1) früher ASME B1.15  
formerly ASME B1.15

| NI<br>Nickel alloys         |                              | Z<br>CNC-controlled machines |                        |  |  |             |
|-----------------------------|------------------------------|------------------------------|------------------------|--|--|-------------|
|                             |                              |                              |                        |  |  |             |
|                             |                              |                              |                        |  |  |             |
| 3BX                         | 3BX                          | 3B                           | 3B                     |  |  |             |
| TICN                        | TICN                         | GLT-1                        | GLT-1                  |  |  |             |
| <b>HSSE-PM</b>              | <b>HSSE-PM</b>               | HSSE                         | HSSE                   |  |  |             |
| L08                         | R10                          | R45                          | R45                    |  |  |             |
| D / 4-5                     | C / 2-3                      | C / 2-3                      | C / 2-3                |  |  |             |
| O / P                       | O / P                        | E / O / P                    | E / O / P              |  |  |             |
| max. 3 x d <sub>1</sub>     | max. 2 x d <sub>1</sub>      | max. 3 x d <sub>1</sub>      |                        |  |  |             |
|                             |                              |                              |                        |  |  |             |
| <b>N 2.8</b>                | <b>N 2.8</b>                 | <b>P 1.1-3.1</b>             | <b>P 1.1-4.1</b>       |  |  |             |
| <b>S 2.3, 2.5-2.6</b>       | <b>S 2.3, 2.5-2.6</b>        |                              | <b>M 1.1-4.1</b>       |  |  |             |
|                             |                              |                              | <b>N 1.4, 2.1-2.2</b>  |  |  |             |
|                             |                              |                              | <b>N 2.4-2.5</b>       |  |  |             |
|                             |                              |                              | <b>S 1.1</b>           |  |  |             |
| <b>Rekord 1C-NI PM-TICN</b> | <b>Rekord 1DF-NI PM-TICN</b> | <b>Enorm 1-Z</b>             | <b>Enorm 1-Z GLT-1</b> |  |  |             |
| B030J411.5479               | B438J411.5479                | <b>B0503510.5479</b>         | <b>B050C410.5479</b>   |  |  | Nr. 4 - 40  |
| B030J411.5481               | B438J411.5481                | <b>B0503510.5481</b>         | <b>B050C410.5481</b>   |  |  | Nr. 6 - 32  |
| B030J411.5482               | B438J411.5482                | <b>B0503510.5482</b>         | <b>B050C410.5482</b>   |  |  | Nr. 8 - 32  |
| B030J411.5483               | B438J411.5483                | <b>B0503510.5483</b>         | <b>B050C410.5483</b>   |  |  | Nr. 10 - 24 |
| B030J411.5485               | B438J411.5485                | <b>B0503510.5485</b>         | <b>B050C410.5485</b>   |  |  | 1/4 - 20    |
| B030J411.5486               | B438J411.5486                | <b>B0503510.5486</b>         | <b>B050C410.5486</b>   |  |  | 5/16 - 18   |
| B030J411.5487               | B438J411.5487                | <b>B0503510.5487</b>         | <b>B050C410.5487</b>   |  |  | 3/8 - 16    |

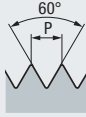
|                     |
|---------------------|
| Product Finder      |
| V <sub>c</sub>      |
| M                   |
| MF                  |
| UNC UN-8            |
| UNF UNEF            |
| G, Rp NPSM, NPSF    |
| NPT, NPTF Rc, W     |
| BSW, BSF            |
| Pg                  |
| MJ UNJC, UNJF       |
| EG (STI)            |
| SELF-LOCK           |
| Tr, Tr-F Rd         |
| Zubehör Accessories |



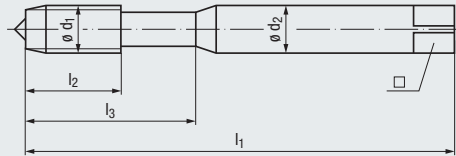
- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC  
UN-8
- UNF  
UNEF
- G, Rp  
NPSM, NPSF
- NPT, NPTF  
Rc, W
- BSW, BSF
- Pg
- MJ  
UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F  
Rd
- Zubehör  
Accessories

# UNJF

ASME B1.1 1)



≈ DIN 371



**AL**  
Aluminium wrought alloys



NEW



l<sub>2</sub> ≈ 10 x P

**TI**  
Titanium



Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material

**Technische Informationen**  
Technical information



- 3B
- GLT-104
- HSSE
- R45
- C / 2-3
- E / O

- |           |           |
|-----------|-----------|
| 3BX       | 3BX       |
| TICN      | TICN      |
| HSSE      | HSSE      |
| L15       | R15       |
| D / 4-5   | C / 2-3   |
| E / O / P | E / O / P |

Gewindetiefe und Lochform  
Thread depth and hole type

max. 2,5 x d<sub>1</sub>



max. 3 x d<sub>1</sub>



max. 2 x d<sub>1</sub>



Einsatzgebiete – Material  
Applications – material

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**N** 1.1-1.4, 2.1

- |                       |                       |
|-----------------------|-----------------------|
| <b>P</b> 4.1-5.1      | <b>P</b> 4.1-5.1      |
| <b>M</b> 3.1-4.1      | <b>M</b> 3.1-4.1      |
| <b>N</b> 2.4-2.5, 2.7 | <b>N</b> 2.4-2.5, 2.7 |
| <b>S</b> 1.1-2.2, 2.4 | <b>S</b> 1.1-2.2, 2.4 |

| Nr.    | ø d <sub>1</sub> |      | P<br>Gg/1" (tpi) | l <sub>1</sub> | l <sub>2</sub> | l <sub>3</sub> | ø d <sub>2</sub> |     | □    | l <sub>2</sub> ≈ 10 x P |
|--------|------------------|------|------------------|----------------|----------------|----------------|------------------|-----|------|-------------------------|
|        | inch             | mm   |                  |                |                |                | mm               | mm  |      |                         |
| Nr. 4  | 0.1120           | 2.85 | 48               | 56             | 11             | 18             | 3,5              | 2,7 | 2,4  | 2,4                     |
| Nr. 6  | 0.1380           | 3.50 | 40               | 56             | 12             | 20             | 4                | 3   | 3    | 3                       |
| Nr. 8  | 0.1640           | 4.15 | 36               | 63             | 13             | 21             | 4,5              | 3,4 | 3,55 | 3,55                    |
| Nr. 10 | 0.1900           | 4.80 | 32               | 70             | 15             | 25             | 6                | 4,9 | 4,15 | 4,15                    |
| 1/4    | 0.2500           | 6.35 | 28               | 80             | 17             | 30             | 7                | 5,5 | 5,55 | 5,55                    |
| 5/16   | 0.3125           | 7.92 | 24               | 90             | 17             | 35             | 8                | 6,2 | 7    | 7                       |
| 3/8    | 0.3750           | 9.52 | 24               | 90             | 18             | 35             | 10               | 8   | 8,6  | 8,6                     |

**Enorm 1-AL**  
**GLT-104**

**Rekord 1C-TI**  
**TICN**

**Rekord 1D-TI**  
**TICN**

- |                      |                      |
|----------------------|----------------------|
| <b>B0309611.5505</b> | <b>B0459611.5505</b> |
| <b>B0309611.5507</b> | <b>B0459611.5507</b> |
| <b>B0309611.5508</b> | <b>B0459611.5508</b> |
| <b>B0309611.5509</b> | <b>B0459611.5509</b> |
| <b>B0309611.5511</b> | <b>B0459611.5511</b> |
| <b>B0309611.5512</b> | <b>B0459611.5512</b> |
| <b>B0309611.5513</b> | <b>B0459611.5513</b> |

1) früher ASME B1.15  
formerly ASME B1.15



Spannzangen-Aufnahmen mit integrierter Übersetzung der Typenreihe Speedsynchro® Modular NFC siehe Seite 646 - 648

Collet holders with integrated transmission of our Speedsynchro® Modular NFC series, see page 646 - 648

| NI<br>Nickel alloys         |                              | Z<br>CNC-controlled machines |                        |  |  |             |
|-----------------------------|------------------------------|------------------------------|------------------------|--|--|-------------|
|                             |                              |                              |                        |  |  |             |
|                             |                              |                              |                        |  |  |             |
| 3BX                         | 3BX                          | 3B                           | 3B                     |  |  |             |
| TICN                        | TICN                         | GLT-1                        | GLT-1                  |  |  |             |
| <b>HSSE-PM</b>              | <b>HSSE-PM</b>               | HSSE                         | HSSE                   |  |  |             |
| L08                         | R10                          | R45                          | R45                    |  |  |             |
| D / 4-5                     | C / 2-3                      | C / 2-3                      | C / 2-3                |  |  |             |
| O / P                       | O / P                        | E / O / P                    | E / O / P              |  |  |             |
| max. 3 x d <sub>1</sub>     | max. 2 x d <sub>1</sub>      | max. 3 x d <sub>1</sub>      |                        |  |  |             |
|                             |                              |                              |                        |  |  |             |
| <b>N 2.8</b>                | <b>N 2.8</b>                 | <b>P 1.1-3.1</b>             | <b>P 1.1-4.1</b>       |  |  |             |
| <b>S 2.3, 2.5-2.6</b>       | <b>S 2.3, 2.5-2.6</b>        |                              | <b>M 1.1-4.1</b>       |  |  |             |
|                             |                              |                              | <b>N 1.4, 2.1-2.2</b>  |  |  |             |
|                             |                              |                              | <b>N 2.4-2.5</b>       |  |  |             |
|                             |                              |                              | <b>S 1.1</b>           |  |  |             |
| <b>Rekord 1C-NI PM-TICN</b> | <b>Rekord 1DF-NI PM-TICN</b> | <b>Enorm 1-Z</b>             | <b>Enorm 1-Z GLT-1</b> |  |  |             |
| B030J411.5505               | B438J411.5505                | <b>B0503510.5505</b>         | <b>B050C410.5505</b>   |  |  | Nr. 4 - 48  |
| B030J411.5507               | B438J411.5507                | <b>B0503510.5507</b>         | <b>B050C410.5507</b>   |  |  | Nr. 6 - 40  |
| B030J411.5508               | B438J411.5508                | <b>B0503510.5508</b>         | <b>B050C410.5508</b>   |  |  | Nr. 8 - 36  |
| B030J411.5509               | B438J411.5509                | <b>B0503510.5509</b>         | <b>B050C410.5509</b>   |  |  | Nr. 10 - 32 |
| B030J411.5511               | B438J411.5511                | <b>B0503510.5511</b>         | <b>B050C410.5511</b>   |  |  | 1/4 - 28    |
| B030J411.5512               | B438J411.5512                | <b>B0503510.5512</b>         | <b>B050C410.5512</b>   |  |  | 5/16 - 24   |
| B030J411.5513               | B438J411.5513                | <b>B0503510.5513</b>         | <b>B050C410.5513</b>   |  |  | 3/8 - 24    |

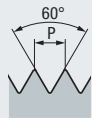
|                     |
|---------------------|
| Product Finder      |
| V <sub>c</sub>      |
| M                   |
| MF                  |
| UNC UN-8            |
| UNF UNEF            |
| G, Rp NPSM, NPSF    |
| NPT, NPTF Rc, W     |
| BSW, BSF            |
| Pg                  |
| MJ UNJC UNJF        |
| EG (STI)            |
| SELF-LOCK           |
| Tr, Tr-F Rd         |
| Zubehör Accessories |



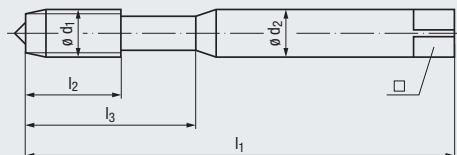
- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories

# EG M (STI)

DIN 8140-2



**DIN 40435**



**VA**  
Stainless steel materials



**AL**  
Aluminium wrought alloys



**NEW**



Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material

Technische Informationen  
Technical information

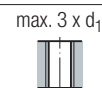
Tr, Tr-F Rd

Zubehör Accessories

6H mod.  
GLT-1  
HSSE  
B / 4-5  
E / O / P

6H mod.  
GLT-104  
HSSE  
B / ≈3  
E / O

Gewindetiefe und Lochform  
Thread depth and hole type



Einsatzgebiete – Material  
Applications – material

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**P** 1.1-4.1  
**M** 1.1-4.1  
**N** 2.2

**N** 1.4  
**N** 1.1-1.4, 2.1














| Nenngröße<br>Nom. size | Ø d <sub>1</sub><br>mm | P<br>mm | l <sub>1</sub> | l <sub>2</sub> | l <sub>3</sub> | Ø d <sub>2</sub> | □   | Image | Rekord               | Rekord               | Rekord               |
|------------------------|------------------------|---------|----------------|----------------|----------------|------------------|-----|-------|----------------------|----------------------|----------------------|
|                        |                        |         |                |                |                |                  |     |       | 1B-VA<br>GLT-1       | 1B-AL                | 1B-AL<br>GLT-104     |
| <b>EG M</b> 2,5        | 3,085                  | 0,45    | 56             | 11             | 18             | 3,5              | 2,7 | 2,65  | <b>B020C300.0965</b> | <b>B0204500.0965</b> | <b>B0203G00.0965</b> |
| 3                      | 3,650                  | 0,5     | 63             | 10             | 21             | 4,5              | 3,4 | 3,15  | <b>B020C300.0966</b> | <b>B0204500.0966</b> | <b>B0203G00.0966</b> |
| 4                      | 4,910                  | 0,7     | 70             | 12             | 25             | 6                | 4,9 | 4,2   | <b>B020C300.0968</b> | <b>B0204500.0968</b> | <b>B0203G00.0968</b> |
| 5                      | 6,040                  | 0,8     | 80             | 13             | 30             | 6                | 4,9 | 5,25  | <b>B020C300.0970</b> | <b>B0204500.0970</b> | <b>B0203G00.0970</b> |
| 6                      | 7,300                  | 1       | 90             | 17             | 35             | 8                | 6,2 | 6,3   | <b>B020C300.0971</b> | <b>B0204500.0971</b> | <b>B0203G00.0971</b> |
| 8                      | 9,624                  | 1,25    | 100            | 18             | 39             | 10               | 8   | 8,4   | <b>B020C300.0973</b> | <b>B0204500.0973</b> | <b>B0203G00.0973</b> |

DIN 40435



» 282



| AL<br>Aluminium wrought alloys   |  | Z<br>CNC-controlled machines   |  |  |  |  |  |
|--|--|--|--|--|--|--|--|
|  <p>new</p> <p>l<sub>2</sub> ≈ 10 x P</p> |                   |  <p>new</p> <p>l<sub>2</sub> ≈ 10 x P</p> |  <p>new</p> <p>l<sub>2</sub> ≈ 10 x P</p> |  <p>new</p> <p>l<sub>2</sub> ≈ 10 x P</p> |  <p>new</p> <p>l<sub>2</sub> ≈ 10 x P</p> |  |  |
|  |  |  |  |  |  |  |  |
| max. 2,5 x d <sub>1</sub>  | max. 3 x d <sub>1</sub>  |  |  |  |  |  |  |
|    |                  |  |  |  |  |  |  |
| <b>N</b> 1.1-1.4, 2.1  | <b>P</b> 1.1-3.1   | <b>P</b> 1.1-4.1<br><b>M</b> 1.1-4.1<br><b>N</b> 1.4, 2.1-2.2<br><b>N</b> 2.4-2.5<br><b>S</b> 1.1                          | <b>P</b> 1.1-3.1   | <b>P</b> 1.1-4.1<br><b>M</b> 1.1-4.1<br><b>N</b> 1.4, 2.1-2.2<br><b>N</b> 2.4-2.5<br><b>S</b> 1.1                          |  |  |  |
| <b>Enorm 1-AL</b><br>GLT-104   | <b>Enorm 1-Z</b>   | <b>Enorm 1-Z</b><br>GLT-1  | <b>Enorm 1-Z/E</b>   | <b>Enorm 1-Z/E</b><br>GLT-1  |  |  |  |
| B0503G00.0965<br>B0503G00.0966<br>B0503G00.0968<br>B0503G00.0970<br>B0503G00.0971<br>B0503G00.0973                         | B0503500.0965<br>B0503500.0966<br>B0503500.0968<br>B0503500.0970<br>B0503500.0971<br>B0503500.0973 | B050C400.0965<br>B050C400.0966<br>B050C400.0968<br>B050C400.0970<br>B050C400.0971<br>B050C400.0973                         | B0513500.0965<br>B0513500.0966<br>B0513500.0968<br>B0513500.0970<br>B0513500.0971<br>B0513500.0973                         | B051C400.0965<br>B051C400.0966<br>B051C400.0968<br>B051C400.0970<br>B051C400.0971<br>B051C400.0973                         |  |  | <b>EG M</b> 2,5<br>3<br>4<br>5<br>6<br>8 |
|  282                                    |  283            |  283                                    |  283                                    |  283                                    |  |  |  |

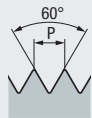
- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)**
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories



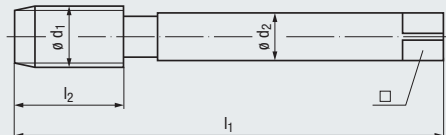
- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories

# EG M (STI)

DIN 8140-2



**DIN 40435**



**VA**  
Stainless steel materials



**AL**  
Aluminium wrought alloys



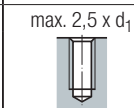
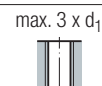
**Technische Informationen**  
Technical information

Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material

- 6H mod.
- GLT-1
- HSSE
- B / 4-5
- E / O / P

- 6H mod.
- GLT-104
- HSSE
- R35
- C / 2-3
- E / O

**Gewindetiefe und Lochform**  
Thread depth and hole type



**Einsatzgebiete – Material**  
Applications – material

» 78

- P** 1.1-4.1
- M** 1.1-4.1
- N** 2.2

- N** 1.1-1.4, 2.1

| Nenngröße<br>Nom. size | Ø d <sub>1</sub><br>mm | P<br>mm | l <sub>1</sub> | l <sub>2</sub> | Ø d <sub>2</sub> | □  |      |       |
|------------------------|------------------------|---------|----------------|----------------|------------------|----|------|-------|
|                        |                        |         |                |                |                  |    |      |       |
| <b>EG M</b>            | 10                     | 11,948  | 1,5            | 100            | 22               | 9  | 7    | 10,5  |
|                        | 12                     | 14,274  | 1,75           | 110            | 26               | 11 | 9    | 12,5  |
|                        | 14                     | 16,598  | 2              | 110            | 27               | 12 | 9    | 14,5  |
|                        | 16                     | 18,598  | 2              | 125            | 27               | 14 | 11   | 16,5  |
|                        | 18                     | 21,248  | 2,5            | 140            | 32               | 18 | 14,5 | 18,75 |
|                        | 20                     | 23,248  | 2,5            | 160            | 34               | 18 | 14,5 | 20,75 |

**Rekord**  
2B-VA  
GLT-1

**Enorm**  
2-AL  
GLT-104

- C020C300.0975
- C020C300.0977
- C020C300.0979
- C020C300.0981

- C0503G00.0975
- C0503G00.0977

DIN 40435



» 280

» 281

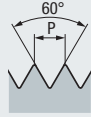


Bohrgewindefräser für  
Metrisches EG-Gewinde  
siehe Seite 386 - 387

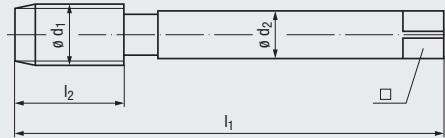
Drill thread mills for  
Metric STI thread,  
see page 386 - 387

# EG M (STI)

DIN 8140-2



DIN 40435



Technische Informationen  
Technical information

Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material



Gewindetiefe und Lochform  
Thread depth and hole type

Einsatzgebiete – Material  
Applications – material

» 78

| Nenngröße<br>Nom. size | $\varnothing d_1$<br>mm | P<br>mm | $l_1$ | $l_2$ | $\varnothing d_2$ | $\square$ |       |
|------------------------|-------------------------|---------|-------|-------|-------------------|-----------|-------|
| <b>EG M</b> 10         | 11,948                  | 1,5     | 100   | 15    | 9                 | 7         | 10,5  |
| 12                     | 14,274                  | 1,75    | 110   | 20    | 11                | 9         | 12,5  |
| 14                     | 16,598                  | 2       | 110   | 20    | 12                | 9         | 14,5  |
| 16                     | 18,598                  | 2       | 125   | 20    | 14                | 11        | 16,5  |
| 18                     | 21,248                  | 2,5     | 140   | 27    | 18                | 14,5      | 18,75 |
| 20                     | 23,248                  | 2,5     | 160   | 30    | 18                | 14,5      | 20,75 |

DIN 40435



max. 3 x  $d_1$



| P 1.1-3.1                                    |  | P 1.1-4.1                                    |  | P 1.1-3.1 |  | P 1.1-4.1             |  |
|--|--|--|--|-----------|--|-----------------------|--|
|  |  | <b>M</b> 1.1-4.1                             |  |           |  | <b>M</b> 1.1-4.1      |  |
|  |  | <b>N</b> 1.4, 2.1-2.2                        |  |           |  | <b>N</b> 1.4, 2.1-2.2 |  |
|  |  | <b>N</b> 2.4-2.5                             |  |           |  | <b>N</b> 2.4-2.5      |  |
|  |  | <b>S</b> 1.1                                 |  |           |  | <b>S</b> 1.1          |  |
| <b>Enorm 2-Z</b>                             | <b>Enorm 2-Z GLT-1</b>                       | <b>Enorm 2-Z/E</b>                           | <b>Enorm 2-Z/E GLT-1</b>                     |           |  |                       |  |
| <b>C0503500.0975</b><br><b>C0503500.0977</b> | <b>C050C400.0975</b><br><b>C050C400.0977</b> | <b>C0513500.0975</b><br><b>C0513500.0977</b> | <b>C051C400.0975</b><br><b>C051C400.0977</b> |           |  |                       |  |
| <b>C0503500.0979</b>                         | <b>C050C400.0979</b>                         | <b>C0513500.0979</b>                         | <b>C051C400.0979</b>                         |           |  |                       |  |
| <b>C0503500.0981</b>                         | <b>C050C400.0981</b>                         | <b>C0513500.0981</b>                         | <b>C051C400.0981</b>                         |           |  |                       |  |
| » 281  | » 281  | » 281  | » 281  |           |  |                       |  |

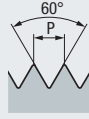
- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)**
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories



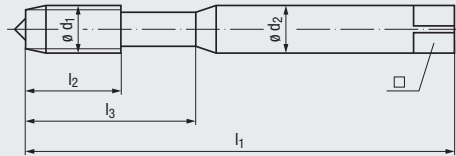
- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC  
UN-8
- UNF  
UNEF
- G, Rp  
NPSM, NPSF
- NPT, NPTF  
Rc, W
- BSW, BSF
- Pg
- MJ  
UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F  
Rd
- Zubehör  
Accessories

# EG UNC (STI)

ASME B18.29.1



≈ DIN 371



**VA**  
Stainless steel materials



**AL**  
Aluminium wrought alloys



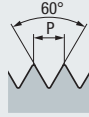
NEW



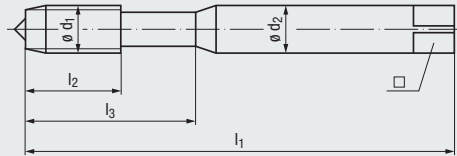
| <b>Technische Informationen</b><br>Technische information   | Toleranz · Tolerance<br>Beschichtung · Coating<br>Schneidstoff · Cutting material | 2B<br>GLT-1<br>HSSE             | 2B<br>GLT-104<br>HSSE         |                  |                |                |                |                  |     |                      |                          |                        |                          |                |                  |                |                  |    |           |   |                          |    |                          |    |    |     |     |     |                      |                      |                      |  |   |       |    |    |    |    |   |     |     |                      |                      |                      |  |   |       |    |    |    |    |   |     |     |                      |                      |                      |  |    |       |    |    |    |    |   |     |     |                      |                      |                      |  |     |       |    |    |    |    |   |     |     |                      |                      |                      |  |  |      |       |    |     |    |    |    |   |     |                      |                      |  |  |           |     |  |
|---|---|---------------------------------|-------------------------------|------------------|----------------|----------------|----------------|------------------|-----|----------------------|--------------------------|------------------------|--------------------------|----------------|------------------|----------------|------------------|----|-----------|---|--------------------------|----|--------------------------|----|----|-----|-----|-----|----------------------|----------------------|----------------------|--|---|-------|----|----|----|----|---|-----|-----|----------------------|----------------------|----------------------|--|---|-------|----|----|----|----|---|-----|-----|----------------------|----------------------|----------------------|--|----|-------|----|----|----|----|---|-----|-----|----------------------|----------------------|----------------------|--|-----|-------|----|----|----|----|---|-----|-----|----------------------|----------------------|----------------------|--|--|------|-------|----|-----|----|----|----|---|-----|----------------------|----------------------|--|--|-----------|-----|--|
|   |   | B / 4-5<br>E / O / P            | R45<br>C / 2-3<br>E / O       |                  |                |                |                |                  |     |                      |                          |                        |                          |                |                  |                |                  |    |           |   |                          |    |                          |    |    |     |     |     |                      |                      |                      |  |   |       |    |    |    |    |   |     |     |                      |                      |                      |  |   |       |    |    |    |    |   |     |     |                      |                      |                      |  |    |       |    |    |    |    |   |     |     |                      |                      |                      |  |     |       |    |    |    |    |   |     |     |                      |                      |                      |  |  |      |       |    |     |    |    |    |   |     |                      |                      |  |  |           |     |  |
| <b>Gewindetiefe und Lochform</b><br>Thread depth and hole type  |   | max. 3 x d <sub>1</sub><br>     | max. 2,5 x d <sub>1</sub><br> |                  |                |                |                |                  |     |                      |                          |                        |                          |                |                  |                |                  |    |           |   |                          |    |                          |    |    |     |     |     |                      |                      |                      |  |   |       |    |    |    |    |   |     |     |                      |                      |                      |  |   |       |    |    |    |    |   |     |     |                      |                      |                      |  |    |       |    |    |    |    |   |     |     |                      |                      |                      |  |     |       |    |    |    |    |   |     |     |                      |                      |                      |  |  |      |       |    |     |    |    |    |   |     |                      |                      |  |  |           |     |  |
| <b>Einsatzgebiete – Material</b><br>Applications – material   | ▶ 78  | P 1.1-4.1<br>M 1.1-4.1<br>N 2.2 | N 1.1-1.4, 2.1                |                  |                |                |                |                  |     |                      |                          |                        |                          |                |                  |                |                  |    |           |   |                          |    |                          |    |    |     |     |     |                      |                      |                      |  |   |       |    |    |    |    |   |     |     |                      |                      |                      |  |   |       |    |    |    |    |   |     |     |                      |                      |                      |  |    |       |    |    |    |    |   |     |     |                      |                      |                      |  |     |       |    |    |    |    |   |     |     |                      |                      |                      |  |  |      |       |    |     |    |    |    |   |     |                      |                      |  |  |           |     |  |
| <table border="1"> <thead> <tr> <th rowspan="2">Nenngröße<br/>Nom. size</th> <th rowspan="2">Nr.</th> <th rowspan="2">Ø d<sub>1</sub><br/>mm</th> <th rowspan="2">P<br/>Gg/1" (tpi)</th> <th rowspan="2">l<sub>1</sub></th> <th rowspan="2">l<sub>2</sub></th> <th rowspan="2">l<sub>3</sub></th> <th rowspan="2">Ø d<sub>2</sub></th> <th rowspan="2">□</th> <th rowspan="2"> </th> <th colspan="2">Rekord<br/>1B-VA<br/>GLT-1</th> <th colspan="2">Enorm<br/>1-AL<br/>GLT-104</th> </tr> <tr> <th>Ø d<sub>1</sub></th> <th>mm</th> <th>Ø d<sub>1</sub></th> <th>mm</th> </tr> </thead> <tbody> <tr> <td rowspan="5"><b>EG</b></td> <td>4</td> <td>3,671</td> <td>40</td> <td>63</td> <td>13</td> <td>21</td> <td>4,5</td> <td>3,4</td> <td>3,1</td> <td><b>B020C300.5611</b></td> <td><b>B0503G00.5611</b></td> <td><b>B0503G00.5613</b></td> <td></td> </tr> <tr> <td>6</td> <td>4,536</td> <td>32</td> <td>70</td> <td>14</td> <td>25</td> <td>6</td> <td>4,9</td> <td>3,8</td> <td><b>B020C300.5613</b></td> <td><b>B0503G00.5613</b></td> <td><b>B0503G00.5614</b></td> <td></td> </tr> <tr> <td>8</td> <td>5,197</td> <td>32</td> <td>80</td> <td>16</td> <td>30</td> <td>6</td> <td>4,9</td> <td>4,4</td> <td><b>B020C300.5614</b></td> <td><b>B0503G00.5614</b></td> <td><b>B0503G00.5615</b></td> <td></td> </tr> <tr> <td>10</td> <td>6,200</td> <td>24</td> <td>80</td> <td>17</td> <td>30</td> <td>7</td> <td>5,5</td> <td>5,2</td> <td><b>B020C300.5615</b></td> <td><b>B0503G00.5615</b></td> <td><b>B0503G00.5617</b></td> <td></td> </tr> <tr> <td>1/4</td> <td>8,002</td> <td>20</td> <td>90</td> <td>20</td> <td>35</td> <td>8</td> <td>6,2</td> <td>6,7</td> <td><b>B020C300.5617</b></td> <td><b>B0503G00.5617</b></td> <td><b>B0503G00.5618</b></td> <td></td> </tr> <tr> <td></td> <td>5/16</td> <td>9,771</td> <td>18</td> <td>100</td> <td>22</td> <td>39</td> <td>10</td> <td>8</td> <td>8,4</td> <td><b>B020C300.5618</b></td> <td><b>B0503G00.5618</b></td> <td></td> <td></td> </tr> </tbody> </table> | Nenngröße<br>Nom. size  | Nr.                             | Ø d <sub>1</sub><br>mm        | P<br>Gg/1" (tpi) | l <sub>1</sub> | l <sub>2</sub> | l <sub>3</sub> | Ø d <sub>2</sub> | □   |                      | Rekord<br>1B-VA<br>GLT-1 |                        | Enorm<br>1-AL<br>GLT-104 |                | Ø d <sub>1</sub> | mm             | Ø d <sub>1</sub> | mm | <b>EG</b> | 4 | 3,671                    | 40 | 63                       | 13 | 21 | 4,5 | 3,4 | 3,1 | <b>B020C300.5611</b> | <b>B0503G00.5611</b> | <b>B0503G00.5613</b> |  | 6 | 4,536 | 32 | 70 | 14 | 25 | 6 | 4,9 | 3,8 | <b>B020C300.5613</b> | <b>B0503G00.5613</b> | <b>B0503G00.5614</b> |  | 8 | 5,197 | 32 | 80 | 16 | 30 | 6 | 4,9 | 4,4 | <b>B020C300.5614</b> | <b>B0503G00.5614</b> | <b>B0503G00.5615</b> |  | 10 | 6,200 | 24 | 80 | 17 | 30 | 7 | 5,5 | 5,2 | <b>B020C300.5615</b> | <b>B0503G00.5615</b> | <b>B0503G00.5617</b> |  | 1/4 | 8,002 | 20 | 90 | 20 | 35 | 8 | 6,2 | 6,7 | <b>B020C300.5617</b> | <b>B0503G00.5617</b> | <b>B0503G00.5618</b> |  |  | 5/16 | 9,771 | 18 | 100 | 22 | 39 | 10 | 8 | 8,4 | <b>B020C300.5618</b> | <b>B0503G00.5618</b> |  |  | ≈ DIN 376 | 286 |  |
| Nenngröße<br>Nom. size  |   |                                 |                               |                  |                |                |                |                  |     |                      | Nr.                      | Ø d <sub>1</sub><br>mm | P<br>Gg/1" (tpi)         | l <sub>1</sub> | l <sub>2</sub>   | l <sub>3</sub> | Ø d <sub>2</sub> | □  |           |   | Rekord<br>1B-VA<br>GLT-1 |    | Enorm<br>1-AL<br>GLT-104 |    |    |     |     |     |                      |                      |                      |  |   |       |    |    |    |    |   |     |     |                      |                      |                      |  |   |       |    |    |    |    |   |     |     |                      |                      |                      |  |    |       |    |    |    |    |   |     |     |                      |                      |                      |  |     |       |    |    |    |    |   |     |     |                      |                      |                      |  |  |      |       |    |     |    |    |    |   |     |                      |                      |  |  |           |     |  |
|   | Ø d <sub>1</sub>  | mm                              | Ø d <sub>1</sub>              | mm               |                |                |                |                  |     |                      |                          |                        |                          |                |                  |                |                  |    |           |   |                          |    |                          |    |    |     |     |     |                      |                      |                      |  |   |       |    |    |    |    |   |     |     |                      |                      |                      |  |   |       |    |    |    |    |   |     |     |                      |                      |                      |  |    |       |    |    |    |    |   |     |     |                      |                      |                      |  |     |       |    |    |    |    |   |     |     |                      |                      |                      |  |  |      |       |    |     |    |    |    |   |     |                      |                      |  |  |           |     |  |
| <b>EG</b>   | 4   | 3,671                           | 40                            | 63               | 13             | 21             | 4,5            | 3,4              | 3,1 | <b>B020C300.5611</b> | <b>B0503G00.5611</b>     | <b>B0503G00.5613</b>   |                          |                |                  |                |                  |    |           |   |                          |    |                          |    |    |     |     |     |                      |                      |                      |  |   |       |    |    |    |    |   |     |     |                      |                      |                      |  |   |       |    |    |    |    |   |     |     |                      |                      |                      |  |    |       |    |    |    |    |   |     |     |                      |                      |                      |  |     |       |    |    |    |    |   |     |     |                      |                      |                      |  |  |      |       |    |     |    |    |    |   |     |                      |                      |  |  |           |     |  |
|   | 6   | 4,536                           | 32                            | 70               | 14             | 25             | 6              | 4,9              | 3,8 | <b>B020C300.5613</b> | <b>B0503G00.5613</b>     | <b>B0503G00.5614</b>   |                          |                |                  |                |                  |    |           |   |                          |    |                          |    |    |     |     |     |                      |                      |                      |  |   |       |    |    |    |    |   |     |     |                      |                      |                      |  |   |       |    |    |    |    |   |     |     |                      |                      |                      |  |    |       |    |    |    |    |   |     |     |                      |                      |                      |  |     |       |    |    |    |    |   |     |     |                      |                      |                      |  |  |      |       |    |     |    |    |    |   |     |                      |                      |  |  |           |     |  |
|   | 8   | 5,197                           | 32                            | 80               | 16             | 30             | 6              | 4,9              | 4,4 | <b>B020C300.5614</b> | <b>B0503G00.5614</b>     | <b>B0503G00.5615</b>   |                          |                |                  |                |                  |    |           |   |                          |    |                          |    |    |     |     |     |                      |                      |                      |  |   |       |    |    |    |    |   |     |     |                      |                      |                      |  |   |       |    |    |    |    |   |     |     |                      |                      |                      |  |    |       |    |    |    |    |   |     |     |                      |                      |                      |  |     |       |    |    |    |    |   |     |     |                      |                      |                      |  |  |      |       |    |     |    |    |    |   |     |                      |                      |  |  |           |     |  |
|   | 10  | 6,200                           | 24                            | 80               | 17             | 30             | 7              | 5,5              | 5,2 | <b>B020C300.5615</b> | <b>B0503G00.5615</b>     | <b>B0503G00.5617</b>   |                          |                |                  |                |                  |    |           |   |                          |    |                          |    |    |     |     |     |                      |                      |                      |  |   |       |    |    |    |    |   |     |     |                      |                      |                      |  |   |       |    |    |    |    |   |     |     |                      |                      |                      |  |    |       |    |    |    |    |   |     |     |                      |                      |                      |  |     |       |    |    |    |    |   |     |     |                      |                      |                      |  |  |      |       |    |     |    |    |    |   |     |                      |                      |  |  |           |     |  |
|   | 1/4   | 8,002                           | 20                            | 90               | 20             | 35             | 8              | 6,2              | 6,7 | <b>B020C300.5617</b> | <b>B0503G00.5617</b>     | <b>B0503G00.5618</b>   |                          |                |                  |                |                  |    |           |   |                          |    |                          |    |    |     |     |     |                      |                      |                      |  |   |       |    |    |    |    |   |     |     |                      |                      |                      |  |   |       |    |    |    |    |   |     |     |                      |                      |                      |  |    |       |    |    |    |    |   |     |     |                      |                      |                      |  |     |       |    |    |    |    |   |     |     |                      |                      |                      |  |  |      |       |    |     |    |    |    |   |     |                      |                      |  |  |           |     |  |
|   | 5/16  | 9,771                           | 18                            | 100              | 22             | 39             | 10             | 8                | 8,4 | <b>B020C300.5618</b> | <b>B0503G00.5618</b>     |                        |                          |                |                  |                |                  |    |           |   |                          |    |                          |    |    |     |     |     |                      |                      |                      |  |   |       |    |    |    |    |   |     |     |                      |                      |                      |  |   |       |    |    |    |    |   |     |     |                      |                      |                      |  |    |       |    |    |    |    |   |     |     |                      |                      |                      |  |     |       |    |    |    |    |   |     |     |                      |                      |                      |  |  |      |       |    |     |    |    |    |   |     |                      |                      |  |  |           |     |  |

# EG UNC (STI)

ASME B18.29.1



≈ DIN 371



Technische Informationen  
Technical information

Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material



Gewindetiefe und Lochform  
Thread depth and hole type

Einsatzgebiete – Material  
Applications – material

» 78

| Nenngröße<br>Nom. size | Ø d <sub>1</sub><br>mm | P<br>Gg/1" (tpi) | l <sub>1</sub> | l <sub>2</sub> | l <sub>3</sub> | Ø d <sub>2</sub> | □   | □   | □   | □   |
|------------------------|------------------------|------------------|----------------|----------------|----------------|------------------|-----|-----|-----|-----|
|                        |                        |                  |                |                |                |                  |     |     |     |     |
| <b>EG</b> Nr. 4        | 3,671                  | 40               | 63             | 7              | 21             | 4,5              | 3,4 | 3,1 | 3,1 | 3,1 |
| Nr. 6                  | 4,536                  | 32               | 70             | 8              | 25             | 6                | 4,9 | 3,8 | 3,8 | 3,8 |
| Nr. 8                  | 5,197                  | 32               | 80             | 8              | 30             | 6                | 4,9 | 4,4 | 4,4 | 4,4 |
| Nr. 10                 | 6,200                  | 24               | 80             | 10             | 30             | 7                | 5,5 | 5,2 | 5,2 | 5,2 |
| 1/4                    | 8,002                  | 20               | 90             | 14             | 35             | 8                | 6,2 | 6,7 | 6,7 | 6,7 |
| 5/16                   | 9,771                  | 18               | 100            | 16             | 39             | 10               | 8   | 8,4 | 8,4 | 8,4 |

≈ DIN 376



max. 3 x d<sub>1</sub>



P 1.1-3.1

P 1.1-4.1

M 1.1-4.1

N 1.4, 2.1-2.2

N 2.4-2.5

S 1.1

Enorm 1-Z/E

Enorm 1-Z/E  
GLT-1

B0513500.5611  
B0513500.5613  
B0513500.5614  
B0513500.5615  
B0513500.5617  
B0513500.5618

B051C400.5611  
B051C400.5613  
B051C400.5614  
B051C400.5615  
B051C400.5617  
B051C400.5618

» 286

» 286

Product Finder

V<sub>c</sub>

M

MF

UNC  
UN-8

UNF  
UNEF

G, Rp  
NPSM, NPSF

NPT, NPTF  
Rc, W

BSW, BSF

Pg

MJ  
UNJC, UNJF

EG (STI)

SELF-LOCK

Tr, Tr-F  
Rd

Zubehör  
Accessories



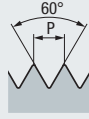
Kühlschmierstoffe siehe Seite 300 - 301

Coolant-lubricants, see page 300 - 301

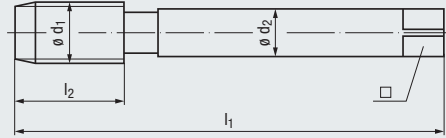
- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories

# EG UNC (STI)

ASME B18.29.1



≈ DIN 376



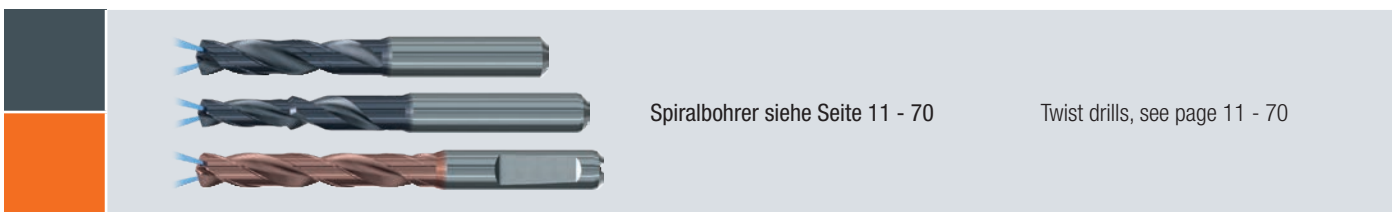
**VA**  
Stainless steel materials



**Z**  
CNC-controlled machines



| <b>Technische Informationen</b><br>Technische information<br>Toleranz · Tolerance<br>Beschichtung · Coating<br>Schneidstoff · Cutting material<br>   | 2B<br>GLT-1<br>HSSE<br>B / 4-5<br>E / 0 / P          | 2B<br>GLT-1<br>HSSE<br>R45<br><b>E / 1,5-2</b><br>E / 0 / P                                       | 2B<br>GLT-1<br>HSSE<br>R45<br><b>E / 1,5-2</b><br>E / 0 / P                                       |                             |                |                  |       |                      |                          |                      |                         |                |                  |   |               |                          |                |                         |    |   |   |    |                      |                      |                      |      |        |    |     |    |    |   |      |                      |               |               |     |        |    |     |    |    |   |      |                      |                      |                      |      |        |    |     |    |    |   |      |                      |               |               |     |        |    |     |    |    |    |      |                      |                      |                      |     |        |    |     |    |    |      |       |                      |                      |                      |               |               |               |
|--|--|---|---|-----------------------------|----------------|------------------|-------|----------------------|--------------------------|----------------------|-------------------------|----------------|------------------|---|---------------|--------------------------|----------------|-------------------------|----|---|---|----|----------------------|----------------------|----------------------|------|--------|----|-----|----|----|---|------|----------------------|---------------|---------------|-----|--------|----|-----|----|----|---|------|----------------------|----------------------|----------------------|------|--------|----|-----|----|----|---|------|----------------------|---------------|---------------|-----|--------|----|-----|----|----|----|------|----------------------|----------------------|----------------------|-----|--------|----|-----|----|----|------|-------|----------------------|----------------------|----------------------|---------------|---------------|---------------|
|  | max. 3 x d <sub>1</sub><br>                          | max. 3 x d <sub>1</sub><br>   | max. 3 x d <sub>1</sub><br>   | max. 3 x d <sub>1</sub><br> |                |                  |       |                      |                          |                      |                         |                |                  |   |               |                          |                |                         |    |   |   |    |                      |                      |                      |      |        |    |     |    |    |   |      |                      |               |               |     |        |    |     |    |    |   |      |                      |                      |                      |      |        |    |     |    |    |   |      |                      |               |               |     |        |    |     |    |    |    |      |                      |                      |                      |     |        |    |     |    |    |      |       |                      |                      |                      |               |               |               |
| <b>Einsatzgebiete – Material</b><br>Applications – material<br>▶ 78  | <b>P</b> 1.1-4.1<br><b>M</b> 1.1-4.1<br><b>N</b> 2.2 | <b>P</b> 1.1-3.1<br><b>M</b> 1.1-4.1<br><b>N</b> 1.4, 2.1-2.2<br><b>N</b> 2.4-2.5<br><b>S</b> 1.1 | <b>P</b> 1.1-4.1<br><b>M</b> 1.1-4.1<br><b>N</b> 1.4, 2.1-2.2<br><b>N</b> 2.4-2.5<br><b>S</b> 1.1 |                             |                |                  |       |                      |                          |                      |                         |                |                  |   |               |                          |                |                         |    |   |   |    |                      |                      |                      |      |        |    |     |    |    |   |      |                      |               |               |     |        |    |     |    |    |   |      |                      |                      |                      |      |        |    |     |    |    |   |      |                      |               |               |     |        |    |     |    |    |    |      |                      |                      |                      |     |        |    |     |    |    |      |       |                      |                      |                      |               |               |               |
| <table border="1"> <thead> <tr> <th rowspan="2">Nenngröße<br/>Nom. size</th> <th rowspan="2">Ø d<sub>1</sub><br/>mm</th> <th rowspan="2">P<br/>Gg/1" (tpi)</th> <th rowspan="2">l<sub>1</sub></th> <th rowspan="2">l<sub>2</sub></th> <th rowspan="2">Ø d<sub>2</sub></th> <th rowspan="2">□</th> <th rowspan="2"> </th> <th>Rekord<br/>2B-VA<br/>GLT-1</th> <th>Enorm<br/>2-Z/E</th> <th>Enorm<br/>2-Z/E<br/>GLT-1</th> </tr> <tr> <th></th> <th></th> <th></th> </tr> </thead> <tbody> <tr> <td><b>EG</b> 3/8</td> <td>11,587</td> <td>16</td> <td>100</td> <td>22</td> <td>9</td> <td>7</td> <td>10</td> <td><b>C020C300.5619</b></td> <td><b>C0513500.5619</b></td> <td><b>C051C400.5619</b></td> </tr> <tr> <td>7/16</td> <td>13,469</td> <td>14</td> <td>110</td> <td>26</td> <td>11</td> <td>9</td> <td>11,6</td> <td><b>C020C300.5620</b></td> <td>C0513500.5620</td> <td>C051C400.5620</td> </tr> <tr> <td>1/2</td> <td>15,237</td> <td>13</td> <td>110</td> <td>27</td> <td>12</td> <td>9</td> <td>13,3</td> <td><b>C020C300.5621</b></td> <td><b>C0513500.5621</b></td> <td><b>C051C400.5621</b></td> </tr> <tr> <td>9/16</td> <td>17,039</td> <td>12</td> <td>110</td> <td>27</td> <td>12</td> <td>9</td> <td>14,9</td> <td><b>C020C300.5622</b></td> <td>C0513500.5622</td> <td>C051C400.5622</td> </tr> <tr> <td>5/8</td> <td>18,875</td> <td>11</td> <td>125</td> <td>30</td> <td>14</td> <td>11</td> <td>16,5</td> <td><b>C020C300.5623</b></td> <td><b>C0513500.5623</b></td> <td><b>C051C400.5623</b></td> </tr> <tr> <td>3/4</td> <td>22,349</td> <td>10</td> <td>140</td> <td>32</td> <td>18</td> <td>14,5</td> <td>19,75</td> <td><b>C020C300.5624</b></td> <td><b>C0513500.5624</b></td> <td><b>C051C400.5624</b></td> </tr> </tbody> </table> | Nenngröße<br>Nom. size                               | Ø d <sub>1</sub><br>mm  | P<br>Gg/1" (tpi)  | l <sub>1</sub>              | l <sub>2</sub> | Ø d <sub>2</sub> | □     |                      | Rekord<br>2B-VA<br>GLT-1 | Enorm<br>2-Z/E       | Enorm<br>2-Z/E<br>GLT-1 |                |                  |   | <b>EG</b> 3/8 | 11,587                   | 16             | 100                     | 22 | 9 | 7 | 10 | <b>C020C300.5619</b> | <b>C0513500.5619</b> | <b>C051C400.5619</b> | 7/16 | 13,469 | 14 | 110 | 26 | 11 | 9 | 11,6 | <b>C020C300.5620</b> | C0513500.5620 | C051C400.5620 | 1/2 | 15,237 | 13 | 110 | 27 | 12 | 9 | 13,3 | <b>C020C300.5621</b> | <b>C0513500.5621</b> | <b>C051C400.5621</b> | 9/16 | 17,039 | 12 | 110 | 27 | 12 | 9 | 14,9 | <b>C020C300.5622</b> | C0513500.5622 | C051C400.5622 | 5/8 | 18,875 | 11 | 125 | 30 | 14 | 11 | 16,5 | <b>C020C300.5623</b> | <b>C0513500.5623</b> | <b>C051C400.5623</b> | 3/4 | 22,349 | 10 | 140 | 32 | 18 | 14,5 | 19,75 | <b>C020C300.5624</b> | <b>C0513500.5624</b> | <b>C051C400.5624</b> | ≈ DIN 371<br> | ≈ DIN 284<br> | ≈ DIN 285<br> |
| Nenngröße<br>Nom. size   |  |   |   |                             |                |                  |       |                      | Ø d <sub>1</sub><br>mm   | P<br>Gg/1" (tpi)     | l <sub>1</sub>          | l <sub>2</sub> | Ø d <sub>2</sub> | □ |               | Rekord<br>2B-VA<br>GLT-1 | Enorm<br>2-Z/E | Enorm<br>2-Z/E<br>GLT-1 |    |   |   |    |                      |                      |                      |      |        |    |     |    |    |   |      |                      |               |               |     |        |    |     |    |    |   |      |                      |                      |                      |      |        |    |     |    |    |   |      |                      |               |               |     |        |    |     |    |    |    |      |                      |                      |                      |     |        |    |     |    |    |      |       |                      |                      |                      |               |               |               |
|  |  |   |   |                             |                |                  |       |                      |                          |                      |                         |                |                  |   |               |                          |                |                         |    |   |   |    |                      |                      |                      |      |        |    |     |    |    |   |      |                      |               |               |     |        |    |     |    |    |   |      |                      |                      |                      |      |        |    |     |    |    |   |      |                      |               |               |     |        |    |     |    |    |    |      |                      |                      |                      |     |        |    |     |    |    |      |       |                      |                      |                      |               |               |               |
| <b>EG</b> 3/8  | 11,587   | 16  | 100   | 22                          | 9              | 7                | 10    | <b>C020C300.5619</b> | <b>C0513500.5619</b>     | <b>C051C400.5619</b> |                         |                |                  |   |               |                          |                |                         |    |   |   |    |                      |                      |                      |      |        |    |     |    |    |   |      |                      |               |               |     |        |    |     |    |    |   |      |                      |                      |                      |      |        |    |     |    |    |   |      |                      |               |               |     |        |    |     |    |    |    |      |                      |                      |                      |     |        |    |     |    |    |      |       |                      |                      |                      |               |               |               |
| 7/16   | 13,469   | 14  | 110   | 26                          | 11             | 9                | 11,6  | <b>C020C300.5620</b> | C0513500.5620            | C051C400.5620        |                         |                |                  |   |               |                          |                |                         |    |   |   |    |                      |                      |                      |      |        |    |     |    |    |   |      |                      |               |               |     |        |    |     |    |    |   |      |                      |                      |                      |      |        |    |     |    |    |   |      |                      |               |               |     |        |    |     |    |    |    |      |                      |                      |                      |     |        |    |     |    |    |      |       |                      |                      |                      |               |               |               |
| 1/2  | 15,237   | 13  | 110   | 27                          | 12             | 9                | 13,3  | <b>C020C300.5621</b> | <b>C0513500.5621</b>     | <b>C051C400.5621</b> |                         |                |                  |   |               |                          |                |                         |    |   |   |    |                      |                      |                      |      |        |    |     |    |    |   |      |                      |               |               |     |        |    |     |    |    |   |      |                      |                      |                      |      |        |    |     |    |    |   |      |                      |               |               |     |        |    |     |    |    |    |      |                      |                      |                      |     |        |    |     |    |    |      |       |                      |                      |                      |               |               |               |
| 9/16   | 17,039   | 12  | 110   | 27                          | 12             | 9                | 14,9  | <b>C020C300.5622</b> | C0513500.5622            | C051C400.5622        |                         |                |                  |   |               |                          |                |                         |    |   |   |    |                      |                      |                      |      |        |    |     |    |    |   |      |                      |               |               |     |        |    |     |    |    |   |      |                      |                      |                      |      |        |    |     |    |    |   |      |                      |               |               |     |        |    |     |    |    |    |      |                      |                      |                      |     |        |    |     |    |    |      |       |                      |                      |                      |               |               |               |
| 5/8  | 18,875   | 11  | 125   | 30                          | 14             | 11               | 16,5  | <b>C020C300.5623</b> | <b>C0513500.5623</b>     | <b>C051C400.5623</b> |                         |                |                  |   |               |                          |                |                         |    |   |   |    |                      |                      |                      |      |        |    |     |    |    |   |      |                      |               |               |     |        |    |     |    |    |   |      |                      |                      |                      |      |        |    |     |    |    |   |      |                      |               |               |     |        |    |     |    |    |    |      |                      |                      |                      |     |        |    |     |    |    |      |       |                      |                      |                      |               |               |               |
| 3/4  | 22,349   | 10  | 140   | 32                          | 18             | 14,5             | 19,75 | <b>C020C300.5624</b> | <b>C0513500.5624</b>     | <b>C051C400.5624</b> |                         |                |                  |   |               |                          |                |                         |    |   |   |    |                      |                      |                      |      |        |    |     |    |    |   |      |                      |               |               |     |        |    |     |    |    |   |      |                      |                      |                      |      |        |    |     |    |    |   |      |                      |               |               |     |        |    |     |    |    |    |      |                      |                      |                      |     |        |    |     |    |    |      |       |                      |                      |                      |               |               |               |

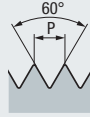


Spiralbohrer siehe Seite 11 - 70

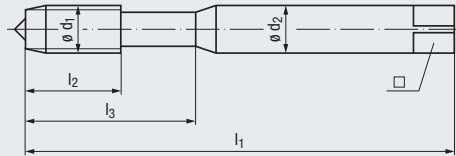
Twist drills, see page 11 - 70

# EG UNF (STI)

ASME B18.29.1



≈ DIN 371



Technische Informationen  
Technical information

Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material



Gewindetiefe und Lochform  
Thread depth and hole type

Einsatzgebiete – Material  
Applications – material

» 78

| Nenngröße<br>Nom. size | $\phi d_1$ | $\phi d_1$<br>mm | P<br>Gg/1" (tpi) | $l_1$ | $l_2$ | $l_3$ | $\phi d_2$ | $\square$ |                      | Rekord |                      | Enorm |         |
|------------------------|------------|------------------|------------------|-------|-------|-------|------------|-----------|----------------------|--------|----------------------|-------|---------|
|                        |            |                  |                  |       |       |       |            |           |                      | 1B-VA  | GLT-1                | 1-AL  | GLT-104 |
| <b>EG</b> Nr. 4        | 3,533      | 48               | 56               | 9     | 20    | 4     | 3          | 3         | <b>B020C300.5633</b> |        | <b>B0503G00.5633</b> |       |         |
| Nr. 6                  | 4,330      | 40               | 70               | 11    | 25    | 6     | 4,9        | 3,7       | <b>B020C300.5635</b> |        | <b>B0503G00.5635</b> |       |         |
| Nr. 8                  | 5,083      | 36               | 80               | 13    | 30    | 6     | 4,9        | 4,4       | <b>B020C300.5636</b> |        | <b>B0503G00.5636</b> |       |         |
| Nr. 10                 | 5,858      | 32               | 80               | 13    | 30    | 6     | 4,9        | 5,1       | <b>B020C300.5637</b> |        | <b>B0503G00.5637</b> |       |         |
| 1/4                    | 7,528      | 28               | 90               | 17    | 35    | 8     | 6,2        | 6,6       | <b>B020C300.5639</b> |        | <b>B0503G00.5639</b> |       |         |
| 5/16                   | 9,312      | 24               | 90               | 18    | 35    | 10    | 8          | 8,25      | <b>B020C300.5640</b> |        | <b>B0503G00.5640</b> |       |         |

≈ DIN 374



**VA**  
Stainless steel materials



**AL**  
Aluminium wrought alloys



new



$l_2 \approx 10 \times P$

- 2B
- GLT-1
- HSSE
- B / 4-5
- E / O / P

max. 3 x  $d_1$



- P** 1.1-4.1
- M** 1.1-4.1
- N** 2.2

- 2B
- GLT-104
- HSSE
- R45
- C / 2-3
- E / O

max. 2,5 x  $d_1$



- N** 1.1-1.4, 2.1

Rekord  
1B-VA  
GLT-1

Enorm  
1-AL  
GLT-104

» 289

Product Finder

V<sub>c</sub>

M

MF

UNC  
UN-8

UNF  
UNEF

G, Rp  
NPSM, NPSF

NPT, NPTF  
Rc, W

BSW, BSF

Pg

MJ  
UNJC, UNJF

**EG (STI)**

SELF-LOCK

Tr, Tr-F  
Rd

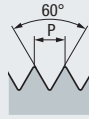
Zubehör  
Accessories



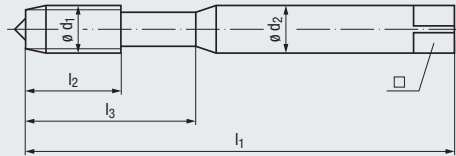
- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)**
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories

# EG UNF (STI)

ASME B18.29.1



≈ DIN 371



**Z**  
CNC-controlled machines



**new**



Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material

Technische Informationen  
Technical information



|           |           |
|-----------|-----------|
| 2B        | 2B        |
| HSSE      | GLT-1     |
| R45       | HSSE      |
| E / 1,5-2 | E / 1,5-2 |
| E / O / P | E / O / P |

Gewindetiefe und Lochform  
Thread depth and hole type

max. 3 x d<sub>1</sub>



Einsatzgebiete – Material  
Applications – material

» 78

|                  |                       |
|------------------|-----------------------|
| <b>P</b> 1.1-3.1 | <b>P</b> 1.1-4.1      |
|                  | <b>M</b> 1.1-4.1      |
|                  | <b>N</b> 1.4, 2.1-2.2 |
|                  | <b>N</b> 2.4-2.5      |
|                  | <b>S</b> 1.1          |

| Nenngröße<br>Nom. size | Nr.  | Ø d <sub>1</sub><br>mm | P<br>Gg/1" (tpi) | Längen         |                |                | Ø d <sub>2</sub> |                  | Ø d <sub>1</sub> | Ø d <sub>2</sub> |
|------------------------|------|------------------------|------------------|----------------|----------------|----------------|------------------|------------------|------------------|------------------|
|                        |      |                        |                  | l <sub>1</sub> | l <sub>2</sub> | l <sub>3</sub> | Ø d <sub>2</sub> | Ø d <sub>2</sub> |                  |                  |
| <b>EG</b>              | 4    | 3,533                  | 48               | 56             | 7              | 20             | 4                | 3                | 3                | 3                |
|                        | 6    | 4,330                  | 40               | 70             | 8              | 25             | 6                | 4,9              | 3,7              | 3,7              |
|                        | 8    | 5,083                  | 36               | 80             | 8              | 30             | 6                | 4,9              | 4,4              | 4,4              |
|                        | 10   | 5,858                  | 32               | 80             | 8              | 30             | 6                | 4,9              | 5,1              | 5,1              |
|                        | 1/4  | 7,528                  | 28               | 90             | 10             | 35             | 8                | 6,2              | 6,6              | 6,6              |
|                        | 5/16 | 9,312                  | 24               | 90             | 10             | 35             | 10               | 8                | 8,25             | 8,25             |

| Enorm 1-Z/E          | Enorm 1-Z/E GLT-1    |
|----------------------|----------------------|
| <b>B0513500.5633</b> | <b>B051C400.5633</b> |
| <b>B0513500.5635</b> | <b>B051C400.5635</b> |
| <b>B0513500.5636</b> | <b>B051C400.5636</b> |
| <b>B0513500.5637</b> | <b>B051C400.5637</b> |
| <b>B0513500.5639</b> | <b>B051C400.5639</b> |
| <b>B0513500.5640</b> | <b>B051C400.5640</b> |

≈ DIN 374



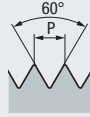
» 289

» 289

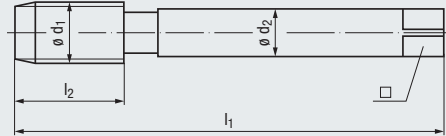


# EG UNF (STI)

ASME B18.29.1



≈ DIN 374



Technische Informationen  
Technical information

Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material



Gewindetiefe und Lochform  
Thread depth and hole type

Einsatzgebiete – Material  
Applications – material



| Nenngröße<br>Nom. size | $\varnothing d_1$<br>mm | P<br>Gg/1" (tpi) | $l_1$ | $l_2$ | $\varnothing d_2$ | $\square$ |       | Rekord<br>2B-VA<br>GLT-1 |                      | Enorm<br>2-Z/E       |   | Enorm<br>2-Z/E<br>GLT-1 |  |
|------------------------|-------------------------|------------------|-------|-------|-------------------|-----------|-------|--------------------------|----------------------|----------------------|---|-------------------------|--|
|                        |                         |                  |       |       |                   |           |       | P                        | M                    | N                    | S |                         |  |
| <b>EG</b> 3/8          | 10,899                  | 24               | 90    | 18    | 8                 | 6,2       | 9,8   | <b>C020C300.5641</b>     | <b>C0513500.5641</b> | <b>C051C400.5641</b> |   |                         |  |
| 7/16                   | 12,763                  | 20               | 100   | 22    | 9                 | 7         | 11,5  | <b>C020C300.5642</b>     | C0513500.5642        | C051C400.5642        |   |                         |  |
| 1/2                    | 14,352                  | 20               | 100   | 22    | 11                | 9         | 13,1  | <b>C020C300.5643</b>     | <b>C0513500.5643</b> | <b>C051C400.5643</b> |   |                         |  |
| 9/16                   | 16,121                  | 18               | 100   | 22    | 12                | 9         | 14,7  | <b>C020C300.5644</b>     | C0513500.5644        | C051C400.5644        |   |                         |  |
| 5/8                    | 17,709                  | 18               | 110   | 25    | 14                | 11        | 16,25 | <b>C020C300.5645</b>     | <b>C0513500.5645</b> | <b>C051C400.5645</b> |   |                         |  |
| 3/4                    | 21,112                  | 16               | 125   | 25    | 16                | 12        | 19,5  | <b>C020C300.5646</b>     | <b>C0513500.5646</b> | <b>C051C400.5646</b> |   |                         |  |

≈ DIN 371



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288

288

**VA**  
Stainless steel materials



**Z**  
CNC-controlled machines



new

$l_2 \approx 10 \times P$

$l_2 \approx 10 \times P$

2B

GLT-1

HSSE

B / 4-5

E / 0 / P

max. 3 x  $d_1$



**P** 1.1-4.1

**M** 1.1-4.1

**N** 2.2

Rekord  
2B-VA  
GLT-1

**C020C300.5641**  
**C020C300.5642**  
**C020C300.5643**  
**C020C300.5644**  
**C020C300.5645**  
**C020C300.5646**

2B

2B

HSSE

GLT-1

R45

HSSE

E / 1,5-2

R45

E / 0 / P

E / 1,5-2

max. 3 x  $d_1$



**P** 1.1-3.1

**P** 1.1-4.1

**M** 1.1-4.1

**N** 1.4, 2.1-2.2

**N** 2.4-2.5

**S** 1.1

Enorm  
2-Z/E

Enorm  
2-Z/E  
GLT-1

**C0513500.5641**  
C0513500.5642  
**C0513500.5643**  
C0513500.5644  
**C0513500.5645**  
C0513500.5646

**C051C400.5641**  
C051C400.5642  
**C051C400.5643**  
C051C400.5644  
**C051C400.5645**  
C051C400.5646

Product Finder

V<sub>c</sub>

M

MF

UNC  
UN-8

UNF  
UNEF

G, Rp  
NPSM, NPSF

NPT, NPTF  
Rc, W

BSW, BSF

Pg

MJ  
UNJC, UNJF

EG (STI)

SELF-LOCK

Tr, Tr-F  
Rd

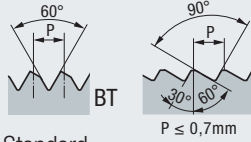
Zubehör  
Accessories



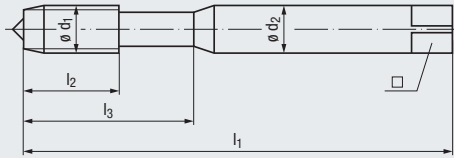
- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories

## LK-M

EMUGE-Norm · EMUGE Standard



DIN 371



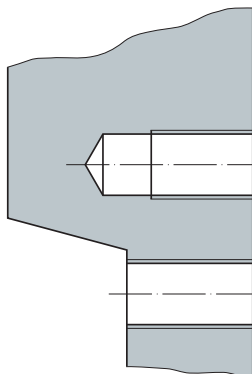
**VA**  
Stainless steel materials



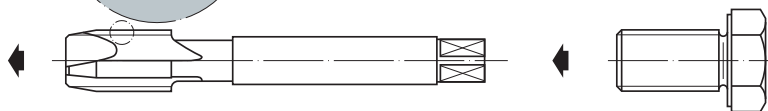
**GG**  
Cast iron



| <b>Technische Informationen</b><br>Technische information  | Toleranz · Tolerance<br>Beschichtung · Coating<br>Schneidstoff · Cutting material | GLT-1<br>HSSE<br>B / 4-5<br>E / O / P | NT<br>HSSE<br>C / 2-3<br>E  |       |                   |                   |      |                          |                          |                       |               |     |    |    |    |     |     |     |  |  |   |     |    |    |    |     |     |      |  |  |   |     |    |    |    |   |     |     |               |               |   |   |    |    |    |   |     |     |               |               |   |      |    |    |    |   |     |   |               |               |    |     |     |    |    |    |   |     |               |               |             |     |             |     |
|--|---|---------------------------------------|-----------------------------|-------|-------------------|-------------------|------|--------------------------|--------------------------|-----------------------|---------------|-----|----|----|----|-----|-----|-----|--|--|---|-----|----|----|----|-----|-----|------|--|--|---|-----|----|----|----|---|-----|-----|---------------|---------------|---|---|----|----|----|---|-----|-----|---------------|---------------|---|------|----|----|----|---|-----|---|---------------|---------------|----|-----|-----|----|----|----|---|-----|---------------|---------------|-------------|-----|-------------|-----|
|  | Gewindetiefe und Lochform<br>Thread depth and hole type                           | max. 3 x d <sub>1</sub><br>           | max. 2 x d <sub>1</sub><br> |       |                   |                   |      |                          |                          |                       |               |     |    |    |    |     |     |     |  |  |   |     |    |    |    |     |     |      |  |  |   |     |    |    |    |   |     |     |               |               |   |   |    |    |    |   |     |     |               |               |   |      |    |    |    |   |     |   |               |               |    |     |     |    |    |    |   |     |               |               |             |     |             |     |
| Einsatzgebiete – Material<br>Applications – material   | ▶ 78  | P 1.1-4.1<br>M 1.1-4.1<br>N 2.2       | K 1.1-1.2                   |       |                   |                   |      |                          |                          |                       |               |     |    |    |    |     |     |     |  |  |   |     |    |    |    |     |     |      |  |  |   |     |    |    |    |   |     |     |               |               |   |   |    |    |    |   |     |     |               |               |   |      |    |    |    |   |     |   |               |               |    |     |     |    |    |    |   |     |               |               |             |     |             |     |
| <table border="1"> <thead> <tr> <th><math>\varnothing d_1</math><br/>mm</th> <th>P<br/>mm</th> <th><math>l_1</math></th> <th><math>l_2</math></th> <th><math>l_3</math></th> <th><math>\varnothing d_2</math></th> <th>□</th> <th></th> <th>Rekord<br/>1B-VA<br/>GLT-1</th> <th>Rekord<br/>1A-GG<br/>NT</th> </tr> </thead> <tbody> <tr> <td><b>LK-M</b> 3</td> <td>0,5</td> <td>56</td> <td>11</td> <td>18</td> <td>3,5</td> <td>2,7</td> <td>2,7</td> <td></td> <td></td> </tr> <tr> <td>4</td> <td>0,7</td> <td>63</td> <td>13</td> <td>21</td> <td>4,5</td> <td>3,4</td> <td>3,55</td> <td></td> <td></td> </tr> <tr> <td>5</td> <td>0,8</td> <td>70</td> <td>15</td> <td>25</td> <td>6</td> <td>4,9</td> <td>4,4</td> <td>B020C300.1050</td> <td>B0102000.1048</td> </tr> <tr> <td>6</td> <td>1</td> <td>80</td> <td>17</td> <td>30</td> <td>6</td> <td>4,9</td> <td>5,2</td> <td>B020C300.1052</td> <td>B0102000.1052</td> </tr> <tr> <td>8</td> <td>1,25</td> <td>90</td> <td>20</td> <td>35</td> <td>8</td> <td>6,2</td> <td>7</td> <td>B020C300.1054</td> <td>B0102000.1054</td> </tr> <tr> <td>10</td> <td>1,5</td> <td>100</td> <td>22</td> <td>39</td> <td>10</td> <td>8</td> <td>8,8</td> <td>B020C300.1056</td> <td>B0102000.1056</td> </tr> </tbody> </table> | $\varnothing d_1$<br>mm   | P<br>mm                               | $l_1$                       | $l_2$ | $l_3$             | $\varnothing d_2$ | □    |                          | Rekord<br>1B-VA<br>GLT-1 | Rekord<br>1A-GG<br>NT | <b>LK-M</b> 3 | 0,5 | 56 | 11 | 18 | 3,5 | 2,7 | 2,7 |  |  | 4 | 0,7 | 63 | 13 | 21 | 4,5 | 3,4 | 3,55 |  |  | 5 | 0,8 | 70 | 15 | 25 | 6 | 4,9 | 4,4 | B020C300.1050 | B0102000.1048 | 6 | 1 | 80 | 17 | 30 | 6 | 4,9 | 5,2 | B020C300.1052 | B0102000.1052 | 8 | 1,25 | 90 | 20 | 35 | 8 | 6,2 | 7 | B020C300.1054 | B0102000.1054 | 10 | 1,5 | 100 | 22 | 39 | 10 | 8 | 8,8 | B020C300.1056 | B0102000.1056 | DIN 376<br> | 292 | DIN 376<br> | 292 |
| $\varnothing d_1$<br>mm  | P<br>mm   | $l_1$                                 | $l_2$                       | $l_3$ | $\varnothing d_2$ | □                 |      | Rekord<br>1B-VA<br>GLT-1 | Rekord<br>1A-GG<br>NT    |                       |               |     |    |    |    |     |     |     |  |  |   |     |    |    |    |     |     |      |  |  |   |     |    |    |    |   |     |     |               |               |   |   |    |    |    |   |     |     |               |               |   |      |    |    |    |   |     |   |               |               |    |     |     |    |    |    |   |     |               |               |             |     |             |     |
| <b>LK-M</b> 3  | 0,5   | 56                                    | 11                          | 18    | 3,5               | 2,7               | 2,7  |                          |                          |                       |               |     |    |    |    |     |     |     |  |  |   |     |    |    |    |     |     |      |  |  |   |     |    |    |    |   |     |     |               |               |   |   |    |    |    |   |     |     |               |               |   |      |    |    |    |   |     |   |               |               |    |     |     |    |    |    |   |     |               |               |             |     |             |     |
| 4  | 0,7   | 63                                    | 13                          | 21    | 4,5               | 3,4               | 3,55 |                          |                          |                       |               |     |    |    |    |     |     |     |  |  |   |     |    |    |    |     |     |      |  |  |   |     |    |    |    |   |     |     |               |               |   |   |    |    |    |   |     |     |               |               |   |      |    |    |    |   |     |   |               |               |    |     |     |    |    |    |   |     |               |               |             |     |             |     |
| 5  | 0,8   | 70                                    | 15                          | 25    | 6                 | 4,9               | 4,4  | B020C300.1050            | B0102000.1048            |                       |               |     |    |    |    |     |     |     |  |  |   |     |    |    |    |     |     |      |  |  |   |     |    |    |    |   |     |     |               |               |   |   |    |    |    |   |     |     |               |               |   |      |    |    |    |   |     |   |               |               |    |     |     |    |    |    |   |     |               |               |             |     |             |     |
| 6  | 1   | 80                                    | 17                          | 30    | 6                 | 4,9               | 5,2  | B020C300.1052            | B0102000.1052            |                       |               |     |    |    |    |     |     |     |  |  |   |     |    |    |    |     |     |      |  |  |   |     |    |    |    |   |     |     |               |               |   |   |    |    |    |   |     |     |               |               |   |      |    |    |    |   |     |   |               |               |    |     |     |    |    |    |   |     |               |               |             |     |             |     |
| 8  | 1,25  | 90                                    | 20                          | 35    | 8                 | 6,2               | 7    | B020C300.1054            | B0102000.1054            |                       |               |     |    |    |    |     |     |     |  |  |   |     |    |    |    |     |     |      |  |  |   |     |    |    |    |   |     |     |               |               |   |   |    |    |    |   |     |     |               |               |   |      |    |    |    |   |     |   |               |               |    |     |     |    |    |    |   |     |               |               |             |     |             |     |
| 10   | 1,5   | 100                                   | 22                          | 39    | 10                | 8                 | 8,8  | B020C300.1056            | B0102000.1056            |                       |               |     |    |    |    |     |     |     |  |  |   |     |    |    |    |     |     |      |  |  |   |     |    |    |    |   |     |     |               |               |   |   |    |    |    |   |     |     |               |               |   |      |    |    |    |   |     |   |               |               |    |     |     |    |    |    |   |     |               |               |             |     |             |     |



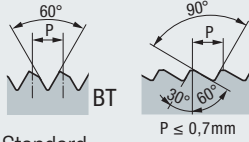
### Ausführung BT Type BT



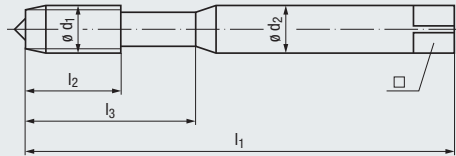
BT = Keilfläche nach hinten geneigt  
 BT = Wedge ramp inclined backwards

# LK-M

EMUGE-Norm · EMUGE Standard



DIN 371



Technische Informationen  
Technical information

Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material



Gewindetiefe und Lochform  
Thread depth and hole type

Einsatzgebiete – Material  
Applications – material

» 78

| LK-M    | $\phi d_1$ | P    | $l_1$ | $l_2$ | $l_3$ | $\phi d_2$ | □   |      | AL            |               | Z             |             |
|---------|------------|------|-------|-------|-------|------------|-----|------|---------------|---------------|---------------|-------------|
|         | mm         | mm   |       |       |       |            |     |      | Enorm 1-AL    | GLT-104       | Enorm 1-Z/E   | Enorm 1-Z/E |
|         | 3          | 0,5  | 56    | 6     | 18    | 3,5        | 2,7 | 2,7  | B0503G00.1046 | B0513500.1046 | B051C400.1046 |             |
|         | 4          | 0,7  | 63    | 7     | 21    | 4,5        | 3,4 | 3,55 | B0503G00.1048 | B0513500.1048 | B051C400.1048 |             |
|         | 5          | 0,8  | 70    | 8     | 25    | 6          | 4,9 | 4,4  | B0503G00.1050 | B0513500.1050 | B051C400.1050 |             |
|         | 6          | 1    | 80    | 10    | 30    | 6          | 4,9 | 5,2  | B0503G00.1052 | B0513500.1052 | B051C400.1052 |             |
|         | 8          | 1,25 | 90    | 14    | 35    | 8          | 6,2 | 7    | B0503G00.1054 | B0513500.1054 | B051C400.1054 |             |
|         | 10         | 1,5  | 100   | 16    | 39    | 10         | 8   | 8,8  | B0503G00.1056 | B0513500.1056 | B051C400.1056 |             |
| DIN 376 |            |      |       |       |       |            |     |      |               |               | » 293         | » 293       |

**AL**  
Aluminium wrought alloys

**new**

**Z**  
CNC-controlled machines

**new**

|         |           |
|---------|-----------|
| GLT-104 | GLT-1     |
| HSSE    | HSSE      |
| R45     | R45       |
| C / 2-3 | E / 1,5-2 |
| E / 0   | E / 0 / P |



|                       |                  |                       |
|-----------------------|------------------|-----------------------|
| <b>N</b> 1.1-1.4, 2.1 | <b>P</b> 1.1-3.1 | <b>P</b> 1.1-4.1      |
|                       |                  | <b>M</b> 1.1-4.1      |
|                       |                  | <b>N</b> 1.4, 2.1-2.2 |
|                       |                  | <b>N</b> 2.4-2.5      |
|                       |                  | <b>S</b> 1.1          |

- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories

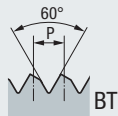


Werkzeug-Aufnahmen der Typenreihe Softsynchro® siehe Seite 617 - 644

Tool holders of our Softsynchro® series, see page 617 - 644

- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories

## LK-M



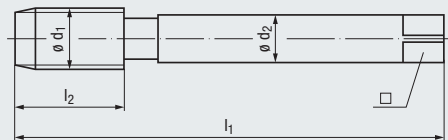
EMUGE-Norm · EMUGE Standard

DIN 376

**VA**  
Stainless steel materials



**GG**  
Cast iron



Technische Informationen  
Technical information

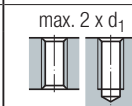
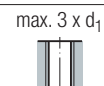
Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material



- GLT-1
- HSSE
- B / 4-5
- E / O / P

- NT
- HSSE
- C / 2-3
- E

Gewindetiefe und Lochform  
Thread depth and hole type



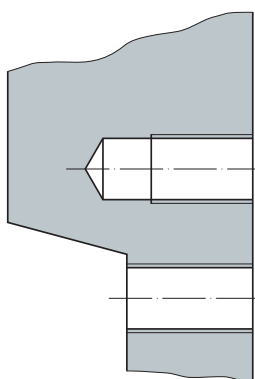
Einsatzgebiete – Material  
Applications – material

» 78

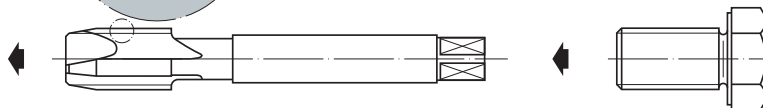
- P** 1.1-4.1
- M** 1.1-4.1
- N** 2.2

- K** 1.1-1.2

|             | $\phi d_1$<br>mm | P<br>mm | $l_1$ | $l_2$ | $\phi d_2$ | □    |      | Rekord<br>2B-VA<br>GLT-1 | Rekord<br>2A-GG<br>NT |     |
|-------------|------------------|---------|-------|-------|------------|------|------|--------------------------|-----------------------|-----|
| <b>LK-M</b> | 12               | 1,75    | 110   | 24    | 9          | 7    | 10,7 | <b>C020C300.1058</b>     | C0102000.1058         |     |
|             | 14               | 2       | 110   | 26    | 11         | 9    | 12,5 |                          |                       |     |
|             | 16               | 2       | 110   | 27    | 12         | 9    | 14,5 | <b>C020C300.1060</b>     | C0102000.1060         |     |
|             | 20               | 2,5     | 140   | 32    | 16         | 12   | 18   | <b>C020C300.1062</b>     | C0102000.1062         |     |
|             | 24               | 3       | 160   | 34    | 18         | 14,5 | 21,5 |                          | C0102000.1064         |     |
|             | DIN 371          |         |       |       |            |      |      | 290                      |                       | 290 |

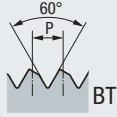


**Ausführung BT**  
Type BT



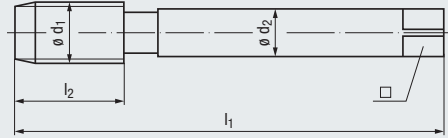
BT = Keilfläche nach hinten geneigt  
BT = Wedge ramp inclined backwards

**LK-M**



EMUGE-Norm · EMUGE Standard

DIN 376



Technische Informationen  
Technical information

Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material



Gewindetiefe und Lochform  
Thread depth and hole type

Einsatzgebiete – Material  
Applications – material

» 78

**Z**  
CNC-controlled machines

|           |           |
|-----------|-----------|
| HSSE      | GLT-1     |
| R45       | HSSE      |
| E / 1,5-2 | R45       |
| E / 0 / P | E / 1,5-2 |
|           | E / 0 / P |

max. 3 x  $d_1$

|                  |                       |
|------------------|-----------------------|
| <b>P</b> 1.1-3.1 | <b>P</b> 1.1-4.1      |
|                  | <b>M</b> 1.1-4.1      |
|                  | <b>N</b> 1.4, 2.1-2.2 |
|                  | <b>N</b> 2.4-2.5      |
|                  | <b>S</b> 1.1          |

|             | $\varnothing d_1$<br>mm | P<br>mm | $l_1$ | $l_2$ | $\varnothing d_2$ | $\square$ |      | Enorm 2-Z/E          | Enorm 2-Z/E GLT-1    |
|-------------|-------------------------|---------|-------|-------|-------------------|-----------|------|----------------------|----------------------|
| <b>LK-M</b> | 12                      | 1,75    | 110   | 18    | 9                 | 7         | 10,7 | <b>C0513500.1058</b> | <b>C051C400.1058</b> |
|             | 14                      | 2       | 110   | 20    | 11                | 9         | 12,5 |                      |                      |
|             | 16                      | 2       | 110   | 22    | 12                | 9         | 14,5 | <b>C0513500.1060</b> | <b>C051C400.1060</b> |
|             | 20                      | 2,5     | 140   | 25    | 16                | 12        | 18   | C0513500.1062        | C051C400.1062        |
|             | 24                      | 3       | 160   | 30    | 18                | 14,5      | 21,5 | C0513500.1064        | C051C400.1064        |

DIN 371



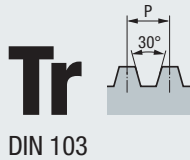
» 291

» 291

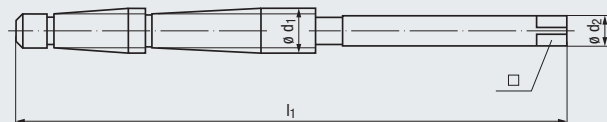
- Product Finder
- $v_c$
- M
- MF
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories



- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories

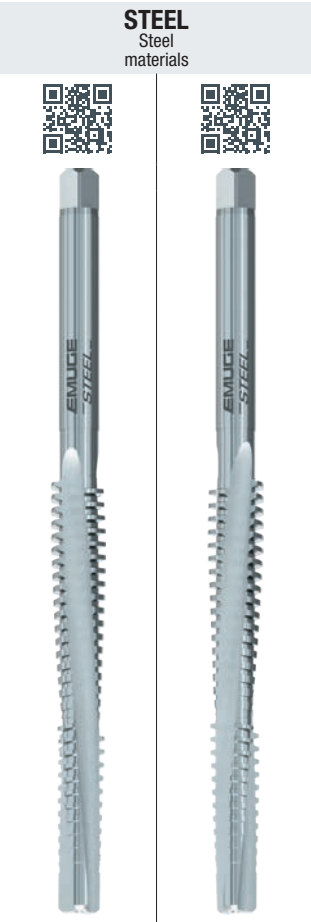


2-Stufen-Ausführung  
2-step design



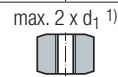
**Technische Informationen**  
Technical information

Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material



|      |         |
|------|---------|
| 7H   | 7H      |
| HSSE | HSSE    |
| L05  | LH, R05 |
| 0    | 0       |

**Gewindetiefe und Lochform**  
Thread depth and hole type



**Einsatzgebiete – Material**  
Applications – material

» 78

|                  |                  |
|------------------|------------------|
| <b>P</b> 2.1-3.1 | <b>P</b> 2.1-3.1 |
| <b>K</b> 1.1-4.2 | <b>K</b> 1.1-4.2 |
| <b>N</b> 2.4-2.6 | <b>N</b> 2.4-2.6 |

| Tr | ∅ d <sub>1</sub><br>mm | x | P<br>mm | l <sub>1</sub> | ∅ d <sub>2</sub> | □    |       | TRAPEZ<br>2Stuf<br>STEEL | TRAPEZ<br>2Stuf<br>STEEL-LH |
|----|------------------------|---|---------|----------------|------------------|------|-------|--------------------------|-----------------------------|
|    | 8                      | x | 1,5     | 105            | 6                | 4,9  | 6,6   | G0351000.7040            | G0351050.7040               |
|    | 9                      | x | 2       | 130            | 7                | 5,5  | 7,2   | G0351000.7042            | G0351050.7042               |
|    | 10                     | x | 2       | 130            | 7                | 5,5  | 8,2   | G0351000.7043            | G0351050.7043               |
|    | 10                     | x | 3       | 155            | 7                | 5,5  | 7,25  | G0351000.7044            | G0351050.7044               |
|    | 11                     | x | 3       | 155            | 8                | 6,2  | 8,25  | G0351000.7045            | G0351050.7045               |
|    | 12                     | x | 3       | 160            | 9                | 7    | 9,25  | G0351000.7046            | G0351050.7046               |
|    | 14                     | x | 3       | 170            | 10               | 8    | 11,25 | G0351000.7047            | G0351050.7047               |
|    | 14                     | x | 4       | 195            | 10               | 8    | 10,25 | G0351000.7048            | G0351050.7048               |
|    | 16                     | x | 4       | 225            | 12               | 9    | 12,25 | G0351000.7051            | G0351050.7051               |
|    | 18                     | x | 4       | 225            | 14               | 11   | 14,25 | G0351000.7052            | G0351050.7052               |
|    | 20                     | x | 4       | 225            | 16               | 12   | 16,25 | G0351000.7053            | G0351050.7053               |
|    | 22                     | x | 5       | 260            | 16               | 12   | 17,25 | G0351000.7054            | G0351050.7054               |
|    | 24                     | x | 5       | 285            | 18               | 14,5 | 19,25 | G0351000.7055            | G0351050.7055               |
|    | 26                     | x | 5       | 285            | 20               | 16   | 21,25 | G0351000.7057            | G0351050.7057               |
|    | 28                     | x | 5       | 300            | 22               | 18   | 23,25 | G0351000.7058            | G0351050.7058               |
|    | 30                     | x | 6       | 335            | 22               | 18   | 24,25 | G0351000.7059            | G0351050.7059               |
|    | 32                     | x | 6       | 335            | 25               | 20   | 26,25 | G0351000.7060            | G0351050.7060               |
|    | 34                     | x | 6       | 350            | 28               | 22   | 28,25 | G0351000.7061            | G0351050.7061               |
|    | 36                     | x | 6       | 350            | 28               | 22   | 30,25 | G0351000.7062            | G0351050.7062               |
|    | 38                     | x | 7       | 385            | 28               | 22   | 31,5  | G0351000.7063            | G0351050.7063               |
|    | 40                     | x | 7       | 400            | 32               | 24   | 33,5  | G0351000.7064            | G0351050.7064               |
|    | 42                     | x | 7       | 400            | 32               | 24   | 35,5  | G0351000.7065            | G0351050.7065               |
|    | 44                     | x | 7       | 410            | 36               | 29   | 37,5  | G0351000.7066            | G0351050.7066               |
|    | 46                     | x | 8       | 440            | 36               | 29   | 38,5  | G0351000.7067            | G0351050.7067               |
|    | 48                     | x | 8       | 455            | 40               | 32   | 40,5  | G0351000.7068            | G0351050.7068               |
|    | 50                     | x | 8       | 470            | 40               | 32   | 42,5  | G0351000.7069            | G0351050.7069               |
|    | 52                     | x | 8       | 470            | 40               | 32   | 44,5  | G0351000.7070            | G0351050.7070               |

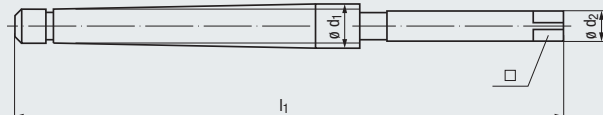
1) Bei entsprechender Einspannlänge bis ca. 2,5 x d<sub>1</sub>  
With sufficient clamping length up to approx. 2.5 x d<sub>1</sub>



DIN 103

NC

Muss mit zwangsläufiger Steigung geschnitten werden  
Positive feed control is necessary



Technische Informationen  
Technical information

Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material



Gewindetiefe und Lochform  
Thread depth and hole type

max. 1,5 x d<sub>1</sub>



Einsatzgebiete – Material  
Applications – material



|                  |                  |
|------------------|------------------|
| <b>P</b> 2.1-3.1 | <b>P</b> 2.1-3.1 |
| <b>K</b> 1.1-4.2 | <b>K</b> 1.1-4.2 |
| <b>N</b> 2.4-2.6 | <b>N</b> 2.4-2.6 |

| TRAPEZ AM-VA NT | TRAPEZ AM-VA-LH NT |
|-----------------|--------------------|
|-----------------|--------------------|

| Tr | ø d <sub>1</sub><br>mm | x | P<br>mm | l <sub>1</sub> | ø d <sub>2</sub> | □    |       | TRAPEZ AM-VA NT | TRAPEZ AM-VA-LH NT |
|----|------------------------|---|---------|----------------|------------------|------|-------|-----------------|--------------------|
|    | 8                      | x | 1,5     | 90             | 6                | 4,9  | 6,6   | G0303000.7040   | G0303050.7040      |
|    | 9                      | x | 2       | 110            | 7                | 5,5  | 7,2   | G0303000.7042   | G0303050.7042      |
|    | 10                     | x | 2       | 110            | 7                | 5,5  | 8,2   | G0303000.7043   | G0303050.7043      |
|    | 10                     | x | 3       | 130            | 7                | 5,5  | 7,25  | G0303000.7044   | G0303050.7044      |
|    | 11                     | x | 3       | 130            | 8                | 6,2  | 8,25  | G0303000.7045   | G0303050.7045      |
|    | 12                     | x | 3       | 140            | 9                | 7    | 9,25  | G0303000.7046   | G0303050.7046      |
|    | 14                     | x | 3       | 145            | 10               | 8    | 11,25 | G0303000.7047   | G0303050.7047      |
|    | 14                     | x | 4       | 165            | 10               | 8    | 10,25 | G0303000.7048   | G0303050.7048      |
|    | 16                     | x | 4       | 190            | 12               | 9    | 12,25 | G0303000.7051   | G0303050.7051      |
|    | 18                     | x | 4       | 195            | 14               | 11   | 14,25 | G0303000.7052   | G0303050.7052      |
|    | 20                     | x | 4       | 195            | 16               | 12   | 16,25 | G0303000.7053   | G0303050.7053      |
|    | 22                     | x | 5       | 220            | 16               | 12   | 17,25 | G0303000.7054   | G0303050.7054      |
|    | 24                     | x | 5       | 245            | 18               | 14,5 | 19,25 | G0303000.7055   | G0303050.7055      |
|    | 26                     | x | 5       | 245            | 20               | 16   | 21,25 | G0303000.7057   | G0303050.7057      |
|    | 28                     | x | 5       | 260            | 22               | 18   | 23,25 | G0303000.7058   | G0303050.7058      |
|    | 30                     | x | 6       | 285            | 22               | 18   | 24,25 | G0303000.7059   | G0303050.7059      |

- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories



- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories



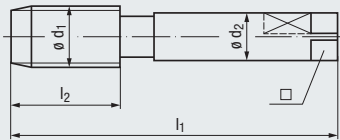
**Tr**  
DIN 103

≈ DIN 352

**MS**  
Copper-zinc alloys



Speziell für Drehautomaten  
Specially made for automatic lathes



|   |                                 |           |  |  |
|---|---------------------------------|-----------|--|--|
| Technische Informationen<br>Technical information | Toleranz · Tolerance            | 7H        |  |  |
|   | Beschichtung · Coating          | HSSE      |  |  |
| Zubehör<br>Accessories                            | Schneidstoff · Cutting material | E / 1,5-2 |  |  |
|   |                                 | 0         |  |  |

|   |                         |  |  |  |
|---|-------------------------|--|--|--|
| Gewindetiefe und Lochform<br>Thread depth and hole type | max. 1 x d <sub>1</sub> |  |  |  |
|---|-------------------------|--|--|--|

|  |              |  |  |  |
|--|--------------|--|--|--|
| Einsatzgebiete – Material<br>Applications – material | <b>N 2.3</b> |  |  |  |
|--|--------------|--|--|--|

|           | $\phi d_1$<br>mm | P<br>mm | $l_1$ | $l_2$ | $\phi d_2$       | □   |       | TRAPEZ<br>AUT-A<br>MS-R |
|-----------|------------------|---------|-------|-------|------------------|-----|-------|-------------------------|
| <b>Tr</b> | 8                | x 1,5   | 70    | 22    | 8 <sup>1)</sup>  | 6,2 | 6,6   | G0442500.7040           |
|           | 8                | x 2     | 70    | 22    | 8 <sup>1)</sup>  | 6,2 | 6,2   | G0442500.7041           |
|           | 9                | x 2     | 70    | 22    | 8 <sup>1)</sup>  | 6,2 | 7,2   | G0442500.7042           |
|           | 10               | x 2     | 70    | 22    | 8 <sup>1)</sup>  | 6,2 | 8,2   | G0442500.7043           |
|           | 10               | x 3     | 70    | 22    | 8 <sup>1)</sup>  | 6,2 | 7,25  | G0442500.7044           |
|           | 11               | x 3     | 75    | 24    | 9                | 7   | 8,25  | G0442500.7045           |
|           | 12               | x 3     | 75    | 25    | 9                | 7   | 9,25  | G0442500.7046           |
|           | 14               | x 3     | 80    | 26    | 10 <sup>1)</sup> | 8   | 11,25 | G0442500.7047           |
|           | 14               | x 4     | 80    | 26    | 10 <sup>1)</sup> | 8   | 10,25 | G0442500.7048           |
|           | 16               | x 4     | 80    | 27    | 12               | 9   | 12,25 | G0442500.7051           |
|           | 18               | x 4     | 95    | 32    | 12 <sup>1)</sup> | 9   | 14,25 | G0442500.7052           |
|           | 20               | x 4     | 95    | 32    | 15 <sup>1)</sup> | 12  | 16,25 | G0442500.7053           |

1) Spezieller AUT-Schaft  
Special shank for "AUT" taps

Schneideisen für Trapez-Gewinde  
siehe Seite 538 - 539

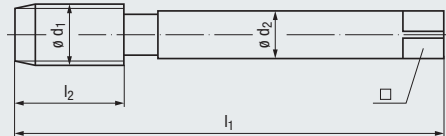
Dies for trapezoidal threads,  
see page 538 - 539





DIN 103

≈ DIN  
374/376



Technische Informationen  
Technical information

Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material



Gewindetiefe und Lochform  
Thread depth and hole type

Einsatzgebiete – Material  
Applications – material

» 78

**STEEL**  
Steel materials



**VA**  
Stainless steel materials



7H

7H

HSSE

HSSE

L15

LH, R15

0

0

7H

NT

HSSE

L25

0

max. 2 x d<sub>1</sub><sup>2)</sup>



max. 2 x d<sub>1</sub>



**P 1.1-2.1**

**P 1.1-2.1**

**P 1.1-3.1**

**K 2.1-4.2**

**N 2.4-2.6**

| Tr | ø d <sub>1</sub><br>mm | P<br>mm | l <sub>1</sub> | l <sub>2</sub> | ø d <sub>2</sub> | □    |       | TRAPEZ             | TRAPEZ                | TRAPEZ             |
|----|------------------------|---------|----------------|----------------|------------------|------|-------|--------------------|-----------------------|--------------------|
|    |                        |         |                |                |                  |      |       | Rekord<br>2C-STEEL | Rekord<br>2C-STEEL-LH | Rekord<br>2C-VA-NT |
|    | 9                      | x 1,5   | 100            | 22             | 7                | 5,5  | 7,6   | G0321000.7111      | G0321050.7111         | G0323000.7111      |
|    | 10                     | x 1,5   | 100            | 22             | 7                | 5,5  | 8,6   | G0321000.7112      | G0321050.7112         | G0323000.7112      |
|    | 11                     | x 2     | 100            | 22             | 8                | 6,2  | 9,2   | G0321000.7128      | G0321050.7128         | G0323000.7128      |
|    | 12                     | x 2     | 110            | 25             | 9                | 7    | 10,2  | G0321000.7129      | G0321050.7129         | G0323000.7129      |
|    | 14                     | x 2     | 110            | 26             | 11               | 9    | 12,2  | G0321000.7130      | G0321050.7130         | G0323000.7130      |
|    | 16                     | x 2     | 110            | 27             | 12               | 9    | 14,2  | G0321000.7132      | G0321050.7132         | G0323000.7132      |
|    | 18                     | x 2     | 125            | 27             | 14               | 11   | 16,2  | G0321000.7133      | G0321050.7133         | G0323000.7133      |
|    | 20                     | x 2     | 140            | 27             | 16               | 12   | 18,2  | G0321000.7134      | G0321050.7134         | G0323000.7134      |
|    | 22                     | x 3     | 160            | 34             | 18               | 14,5 | 19,25 | G0321000.7156      | G0321050.7156         | G0323000.7156      |
|    | 24                     | x 3     | 160            | 36             | 18               | 14,5 | 21,25 | G0321000.7157      | G0321050.7157         | G0323000.7157      |
|    | 26                     | x 3     | 160            | 36             | 20               | 16   | 23,25 | G0321000.7159      | G0321050.7159         | G0323000.7159      |
|    | 28                     | x 3     | 180            | 40             | 22               | 18   | 25,25 | G0321000.7160      | G0321050.7160         | G0323000.7160      |
|    | 30                     | x 3     | 180            | 40             | 22               | 18   | 27,25 | G0321000.7161      | G0321050.7161         | G0323000.7161      |

2) Bei entsprechender Einspannlänge bis ca. 2,5 x d<sub>1</sub>  
With sufficient clamping length up to approx. 2.5 x d<sub>1</sub>

3) Muss mit zwangsläufiger Steigung geschnitten werden  
Positive feed control is necessary

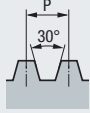
Product Finder

|                        |
|------------------------|
| V <sub>c</sub>         |
| M                      |
| MF                     |
| UNC<br>UN-8            |
| UNF<br>UNEF            |
| G, Rp<br>NPSM, NPSF    |
| NPT, NPTF<br>Rc, W     |
| BSW, BSF               |
| Pg                     |
| MJ<br>UNJC, UNJF       |
| EG (STI)               |
| SELF-LOCK              |
| Tr, Tr-F<br>Rd         |
| Zubehör<br>Accessories |



- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories

# Tr-F



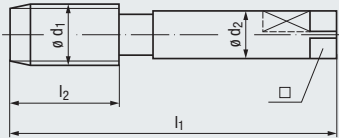
DIN 103

≈ DIN 352

**MS**  
Copper-zinc alloys



Speziell für Drehautomaten  
Specially made for automatic lathes



Technische Informationen  
Technical information

Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material



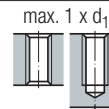
7H

HSSE

E / 1,5-2

0


Gewindetiefe und Lochform  
Thread depth and hole type



**N 2.3**

Einsatzgebiete – Material  
Applications – material

» 78

|    | $\varnothing d_1$<br>mm | P<br>mm | $l_1$ | $l_2$ | $\varnothing d_2$ | □    |  | TRAPEZ<br>AUT-A<br>MS-R |
|----|-------------------------|---------|-------|-------|-------------------|------|---|-------------------------|
| Tr | 9                       | x 1,5   | 70    | 22    | 8 <sup>1)</sup>   | 6,2  | 7,6   | G0442500.7111           |
|    | 10                      | x 1,5   | 70    | 22    | 8 <sup>1)</sup>   | 6,2  | 8,6   | G0442500.7112           |
|    | 11                      | x 2     | 75    | 24    | 9                 | 7    | 9,2   | G0442500.7128           |
|    | 12                      | x 2     | 75    | 25    | 9                 | 7    | 10,2  | G0442500.7129           |
|    | 14                      | x 2     | 80    | 26    | 10 <sup>1)</sup>  | 8    | 12,2  | G0442500.7130           |
|    | 16                      | x 2     | 80    | 27    | 12                | 9    | 14,2  | G0442500.7132           |
|    | 18                      | x 2     | 80    | 22    | 12 <sup>1)</sup>  | 9    | 16,2  | G0442500.7133           |
|    | 20                      | x 2     | 80    | 22    | 15 <sup>1)</sup>  | 12   | 18,2  | G0442500.7134           |
|    | 22                      | x 3     | 100   | 32    | 15 <sup>1)</sup>  | 12   | 19,25   | G0442500.7156           |
|    | 24                      | x 3     | 110   | 36    | 18                | 14,5 | 21,25   | G0442500.7157           |
|    | 26                      | x 3     | 110   | 36    | 18                | 14,5 | 23,25   | G0442500.7159           |
|    | 28                      | x 3     | 125   | 36    | 18 <sup>1)</sup>  | 14,5 | 25,25   | G0442500.7160           |
|    | 30                      | x 3     | 125   | 34    | 18 <sup>1)</sup>  | 14,5 | 27,25   | G0442500.7161           |

1) Spezieller AUT-Schaft  
Special shank for "AUT" taps

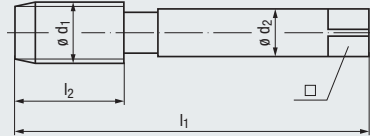


**Rd**

DIN 405

≈ DIN 352

**STEEL**  
Steel materials



Technische Informationen  
Technical information

Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material



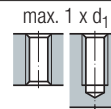
7H

HSSE

C / 2-3

0

Gewindetiefe und Lochform  
Thread depth and hole type

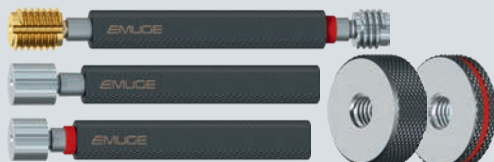


Einsatzgebiete – Material  
Applications – material

» 78

**K** 1.1-4.2  
**N** 2.3

|           | Ø d <sub>1</sub><br>mm |   | P<br>Gg/1" (tpi) | l <sub>1</sub> | l <sub>2</sub> | Ø d <sub>2</sub> | □    |      | <b>RUND<br/>Rekord<br/>A-STEEL</b> |
|-----------|------------------------|---|------------------|----------------|----------------|------------------|------|------|------------------------------------|
| <b>Rd</b> | 8                      | x | 10               | 70             | 22             | 8                | 6,2  | 6    | G0401000.7287                      |
|           | 9                      | x | 10               | 70             | 22             | 8                | 6,2  | 7    | G0401000.7288                      |
|           | 10                     | x | 10               | 70             | 22             | 8                | 6,2  | 8    | G0401000.7289                      |
|           | 11                     | x | 10               | 70             | 22             | 8                | 6,2  | 9    | G0401000.7290                      |
|           | 12                     | x | 10               | 75             | 25             | 9                | 7    | 10   | G0401000.7291                      |
|           | 14                     | x | 8                | 80             | 26             | 11               | 9    | 11,5 | G0401000.7293                      |
|           | 16                     | x | 8                | 80             | 27             | 12               | 9    | 13,5 | G0401000.7294                      |
|           | 18                     | x | 8                | 95             | 32             | 14               | 11   | 15,5 | G0401000.7295                      |
|           | 20                     | x | 8                | 95             | 32             | 16               | 12   | 17,5 | G0401000.7296                      |
|           | 22                     | x | 8                | 100            | 32             | 18               | 14,5 | 19,5 | G0401000.7297                      |
|           | 24                     | x | 8                | 110            | 36             | 18               | 14,5 | 21,5 | G0401000.7298                      |
|           | 26                     | x | 8                | 110            | 36             | 20               | 16   | 23,5 | G0401000.7299                      |
|           | 28                     | x | 8                | 125            | 34             | 22               | 18   | 25,5 | G0401000.7300                      |
|           | 30                     | x | 8                | 125            | 34             | 22               | 18   | 27,5 | G0401000.7301                      |



Gewindelehren  
siehe Seite 541 - 594

Thread gauges,  
see page 541 - 594

- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC  
UN-8
- UNF  
UNEF
- G, Rp  
NPSM, NPSF
- NPT, NPTF  
Rc, W
- BSW, BSF
- Pg
- MJ  
UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F  
Rd
- Zubehör  
Accessories



- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories

## Gewindeschneidöle und -pasten

Mit seinen chlorfreien Gewindeschneidölen und -pasten erbringt EMUGE-FRANKEN einen weiteren Beitrag zum Thema Umweltschutz.

Die Kühlschmierstoffe sind überwiegend kennzeichnungsfrei und erfüllen alle Anforderungen der aktuellen EU-Verordnung zur Registrierung, Bewertung, Zulassung und Beschränkung chemischer Stoffe (REACH).







Besondere Bedeutung sollte bei der Herstellung von Gewinden dem Kühlschmierstoff zugeordnet werden. EMUGE-Kühlschmierstoffe sind speziell auf den zu bearbeitenden Werkstoff bzw. auf die vorhandenen Arbeitsbedingungen abgestimmt.







## Thread cutting oils and pastes

EMUGE-FRANKEN makes another contribution to the protection of the environment with its chlorine-free cutting oils and pastes.

Most coolant-lubricants do not require a hazard classification and meet all the requirements of the current EU Regulation concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH).

In the production of threads, special attention should always be paid to the use of coolant-lubricant. EMUGE coolant-lubricants are specially designed for the materials they are recommended for, and for typical modern work conditions as known from our experience.

|   |   | Gewindeschneidöle, chlorfrei   | Thread cutting oils, chlorine-free  |   |   |   |   |  |  |
|---|---|--------------------------------|-------------------------------------|---|---|---|---|--|--|
|    | <table border="1"> <tr><td>P</td><td>M</td></tr> <tr><td>K</td><td>N</td></tr> <tr><td>S</td><td>H</td></tr> </table> | P                              | M                                   | K | N | S | H | <b>Für Stahlwerkstoffe</b><br>Kann sowohl für Pinsel- als auch für Umlaufschmierung verwendet werden.<br>Für die Bearbeitung von Buntmetallen nur bedingt geeignet!  | <b>For steel materials</b><br>Can be used for brush and circulation lubrication.<br>Limited suitability for the machining of non-ferrous materials!  |
| P   | M   |                                |                                     |   |   |   |   |  |  |
| K   | N   |                                |                                     |   |   |   |   |  |  |
| S   | H   |                                |                                     |   |   |   |   |  |  |
|   | <table border="1"> <tr><td>P</td><td>M</td></tr> <tr><td>K</td><td>N</td></tr> <tr><td>S</td><td>H</td></tr> </table> | P                              | M                                   | K | N | S | H | <b>Für Gusswerkstoffe</b><br>Kann sowohl für Pinsel- als auch für Umlaufschmierung verwendet werden.   | <b>For cast materials</b><br>Can be used for brush and circulation lubrication.  |
| P   | M   |                                |                                     |   |   |   |   |  |  |
| K   | N   |                                |                                     |   |   |   |   |  |  |
| S   | H   |                                |                                     |   |   |   |   |  |  |
|  | <table border="1"> <tr><td>P</td><td>M</td></tr> <tr><td>K</td><td>N</td></tr> <tr><td>S</td><td>H</td></tr> </table> | P                              | M                                   | K | N | S | H | <b>Für nahezu alle Werkstoffe</b><br>Als Emulsion im Mischungsverhältnis 1:8 einzusetzen. Kann auch im unverdünnten Zustand verwendet werden.<br>Für die Bearbeitung von Buntmetallen nur bedingt geeignet!  | <b>For almost all materials</b><br>For use as emulsion in a mixing ratio of 1:8. Can be used in undiluted state also.<br>Limited suitability for the machining of non-ferrous materials!   |
| P   | M   |                                |                                     |   |   |   |   |  |  |
| K   | N   |                                |                                     |   |   |   |   |  |  |
| S   | H   |                                |                                     |   |   |   |   |  |  |
|  | <table border="1"> <tr><td>P</td><td>M</td></tr> <tr><td>K</td><td>N</td></tr> <tr><td>S</td><td>H</td></tr> </table> | P                              | M                                   | K | N | S | H | <b>Für Nichteisen-Werkstoffe</b><br>Kann sowohl für Pinsel- als auch für Umlaufschmierung verwendet werden.  | <b>For non ferrous materials</b><br>Can be used for brush and circulation lubrication.   |
| P   | M   |                                |                                     |   |   |   |   |  |  |
| K   | N   |                                |                                     |   |   |   |   |  |  |
| S   | H   |                                |                                     |   |   |   |   |  |  |
|  | <table border="1"> <tr><td>P</td><td>M</td></tr> <tr><td>K</td><td>N</td></tr> <tr><td>S</td><td>H</td></tr> </table> | P                              | M                                   | K | N | S | H | <b>Für schwer zerspanbare Werkstoffe</b><br>Zum Gewindeformen hervorragend geeignet.<br>Kann sowohl für Pinsel- als auch für Umlaufschmierung verwendet werden.<br>Für die Bearbeitung von Buntmetallen nicht geeignet!  | <b>For difficult materials</b><br>Perfectly suitable for the cold forming of threads.<br>Can be used for brush and circulation lubrication.<br>Limited suitability for the machining of non-ferrous materials!   |
| P   | M   |                                |                                     |   |   |   |   |  |  |
| K   | N   |                                |                                     |   |   |   |   |  |  |
| S   | H   |                                |                                     |   |   |   |   |  |  |
|   |   | Gewindeschneidpaste, chlorfrei | Thread cutting paste, chlorine-free |   |   |   |   |  |  |
|  | <table border="1"> <tr><td>P</td><td>M</td></tr> <tr><td>K</td><td>N</td></tr> <tr><td>S</td><td>H</td></tr> </table> | P                              | M                                   | K | N | S | H | <b>Für schwer zerspanbare Werkstoffe</b><br>Zum Gewindeformen hervorragend geeignet.<br>Besonders vorteilhaft bei waagrechter Bearbeitung, großen Abmessungen und Durchgangslochgewinden.<br>Kann nur für Pinselschmierung verwendet werden.<br>Für die Bearbeitung von Buntmetallen nur bedingt geeignet! | <b>For difficult materials</b><br>Perfectly suitable for the cold forming of threads.<br>Especially useful in horizontal machining, with large thread sizes and through hole threads.<br>To be used only for brush lubrication.<br>Limited suitability for the machining of non-ferrous materials! |
| P   | M   |                                |                                     |   |   |   |   |  |  |
| K   | N   |                                |                                     |   |   |   |   |  |  |
| S   | H   |                                |                                     |   |   |   |   |  |  |

| Nr. No.   | Gebinde Container size |              |
|---|------------------------|--------------|
|  | 1 kg                   | FZ191015.01  |
|   | 5 kg                   | FZ191015.05  |
|   | 10 kg                  | FZ191015.10  |
|   | 20 kg                  | FZ191015.20  |
|  | 1 kg                   | FZ191115.01  |
|   | 5 kg                   | FZ191115.05  |
|   | 10 kg                  | FZ191115.10  |
|   | 20 kg                  | FZ191115.20  |
|  | 1 kg                   | FZ191215.01  |
|   | 5 kg                   | FZ191215.05  |
|   | 10 kg                  | FZ191215.10  |
|   | 20 kg                  | FZ191215.20  |
|  | 1 kg                   | FZ191315.01  |
|   | 5 kg                   | FZ191315.05  |
|   | 10 kg                  | FZ191315.10  |
|   | 20 kg                  | FZ191315.20  |
|  | 1 kg                   | FZ191415.01  |
|   | 5 kg                   | FZ191415.05  |
|   | 10 kg                  | FZ191415.10  |
|   | 20 kg                  | FZ191415.20  |
|  | 0,26 kg <sup>1)</sup>  | FZ191515.003 |
|   | 0,45 kg                | FZ191515.005 |
|   | 4,5 kg                 | FZ191515.05  |



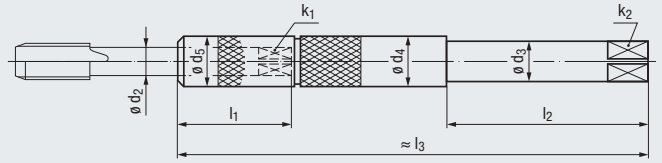
1) 310 ml Kartusche für den Einsatz in Kartuschenpresse  
310 ml cartridge for use in cartridge press



|                     |
|---------------------|
| Product Finder      |
| V <sub>c</sub>      |
| M                   |
| MF                  |
| UNC UN-8            |
| UNF UNEF            |
| G, Rp NPSM, NPSF    |
| NPT, NPTF Rc, W     |
| BSW, BSF            |
| Pg                  |
| MJ UNJC, UNJF       |
| EG (STI)            |
| SELF-LOCK           |
| Tr, Tr-F Rd         |
| Zubehör Accessories |





Kurze Ausführung  
Short design

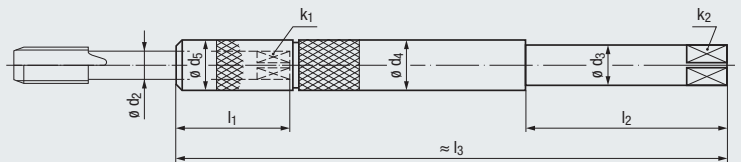
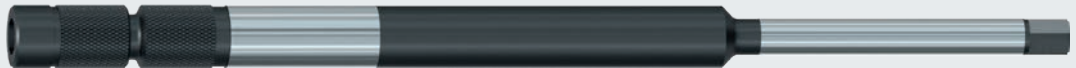


Für den Einsatz auf CNC-Maschinen und herkömmlichen Gewindeschneideinrichtungen

For use on CNC machines and conventional thread cutting machinery



| Größe<br>Size | Baumaße Gewindebohrer / Gewindeformer<br>Dimensions of tap / cold-forming tap |       |   |   | Baumaße Schaftverlängerung<br>Dimensions of extension |                         |              |       |                         |       | QR          |
|---------------|---|-------|---|---|---|-------------------------|--------------|-------|-------------------------|-------|-------------|
|               | $\varnothing d_2$   | $k_1$ |  |  | $l_1$   | $\varnothing d_3$<br>h9 | $k_2$<br>h12 | $l_2$ | $\varnothing d_4 / d_5$ | $l_3$ |             |
| 1             | 2,8   | 2,1   | M 2 - M2,6  | M 4   | 21  | 6                       | 4,9          | 60    | 6,1                     | 130   | FZ111300.01 |
| 2             | 3,5   | 2,7   | M 3   | M 4,5 - M5  | 22  | 6                       | 4,9          | 60    | 7,5                     | 130   | FZ111300.02 |
| 3             | 4   | 3     | M 3,5   | M 5,5   | 22  | 6                       | 4,9          | 60    | 8,4                     | 130   | FZ111300.03 |
| 4             | 4,5   | 3,4   | M 4   | M 6   | 22  | 6                       | 4,9          | 60    | 8,4                     | 130   | FZ111300.04 |
| 5             | 6   | 4,9   | M 4,5 - M6  | M 8   | 25  | 7                       | 5,5          | 60    | 12,1                    | 130   | FZ111300.05 |
| 6             | 7   | 5,5   | M 7   | M 9 - M10   | 25  | 7                       | 5,5          | 60    | 12,1                    | 130   | FZ111300.06 |
| 7             | 8   | 6,2   | M 8   | M11   | 29  | 8                       | 6,2          | 60    | 13                      | 130   | FZ111300.07 |
| 8             | 9   | 7     | M 9   | M12   | 30  | 9                       | 7            | 60    | 15                      | 130   | FZ111300.08 |
| 9             | 10  | 8     | M10   | –   | 32  | 10                      | 8            | 60    | 15                      | 130   | FZ111300.09 |
| 10            | 11  | 9     | –   | M14   | 35  | 11                      | 9            | 90    | 18                      | 180   | FZ111300.10 |
| 11            | 12  | 9     | (M12)   | M16   | 35  | 12                      | 9            | 90    | 18                      | 180   | FZ111300.11 |
| 12            | 14  | 11    | –   | M18   | 39  | 14                      | 11           | 90    | 22                      | 180   | FZ111300.12 |
| 13            | 16  | 12    | –   | M20   | 40  | 16                      | 12           | 90    | 22                      | 180   | FZ111300.13 |
| 14            | 18  | 14,5  | –   | M22 - M24   | 42  | 18                      | 14,5         | 100   | 26                      | 200   | FZ111300.14 |
| 15            | 20  | 16    | –   | M27   | 44  | 20                      | 16           | 100   | 28                      | 200   | FZ111300.15 |
| 16            | 22  | 18    | –   | M30   | 46  | 22                      | 18           | 100   | 30                      | 200   | FZ111300.16 |
| 17            | 25  | 20    | –   | M33   | 49  | 25                      | 20           | 100   | 35                      | 200   | FZ111300.17 |

Lange Ausführung  
Long design



Für den Einsatz auf CNC-Maschinen und herkömmlichen Gewindeschneideinrichtungen

For use on CNC machines and conventional thread cutting machinery

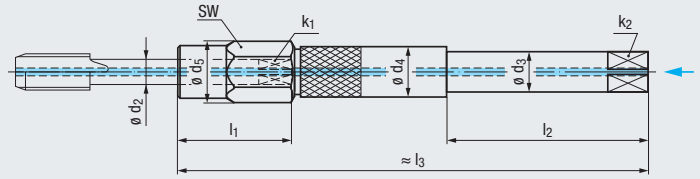
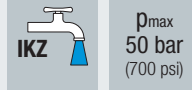
| Größe<br>Size | Baumaße Gewindebohrer / Gewindeformer<br>Dimensions of tap / cold-forming tap |       |   |   | Baumaße Schaftverlängerung<br>Dimensions of extension |                         |              |       |                         |       | QR          |
|---------------|---|-------|---|---|---|-------------------------|--------------|-------|-------------------------|-------|-------------|
|               | $\varnothing d_2$   | $k_1$ |  |  | $l_1$   | $\varnothing d_3$<br>h9 | $k_2$<br>h12 | $l_2$ | $\varnothing d_4 / d_5$ | $l_3$ |             |
| 1             | 2,8   | 2,1   | M 2 - M2,6  | M 4   | 21  | 6                       | 4,9          | 65    | 6,1                     | 230   | FZ111310.01 |
| 2             | 3,5   | 2,7   | M 3   | M 4,5 - M5  | 22  | 6                       | 4,9          | 70    | 7,5                     | 230   | FZ111310.02 |
| 3             | 4   | 3     | M 3,5   | M 5,5   | 22  | 6                       | 4,9          | 70    | 8,4                     | 230   | FZ111310.03 |
| 4             | 4,5   | 3,4   | M 4   | M 6   | 22  | 6                       | 4,9          | 70    | 8,4                     | 230   | FZ111310.04 |
| 5             | 6   | 4,9   | M 4,5 - M6  | M 8   | 25  | 7                       | 5,5          | 70    | 12,1                    | 230   | FZ111310.05 |
| 6             | 7   | 5,5   | M 7   | M 9 - M10   | 25  | 7                       | 5,5          | 70    | 12,1                    | 230   | FZ111310.06 |
| 7             | 8   | 6,2   | M 8   | M11   | 29  | 8                       | 6,2          | 80    | 13                      | 230   | FZ111310.07 |
| 8             | 9   | 7     | M 9   | M12   | 30  | 9                       | 7            | 80    | 15                      | 230   | FZ111310.08 |
| 9             | 10  | 8     | M10   | –   | 32  | 10                      | 8            | 80    | 15                      | 230   | FZ111310.09 |
| 10            | 11  | 9     | –   | M14   | 35  | 11                      | 9            | 90    | 18                      | 330   | FZ111310.10 |
| 11            | 12  | 9     | (M12)   | M16   | 35  | 12                      | 9            | 90    | 18                      | 330   | FZ111310.11 |
| 12            | 14  | 11    | –   | M18   | 39  | 14                      | 11           | 90    | 22                      | 330   | FZ111310.12 |
| 13            | 16  | 12    | –   | M20   | 40  | 16                      | 12           | 90    | 22                      | 330   | FZ111310.13 |
| 14            | 18  | 14,5  | –   | M22 - M24   | 42  | 18                      | 14,5         | 100   | 26                      | 330   | FZ111310.14 |
| 15            | 20  | 16    | –   | M27   | 44  | 20                      | 16           | 100   | 28                      | 330   | FZ111310.15 |
| 16            | 22  | 18    | –   | M30   | 46  | 22                      | 18           | 100   | 30                      | 330   | FZ111310.16 |
| 17            | 25  | 20    | –   | M33   | 49  | 25                      | 20           | 100   | 35                      | 330   | FZ111310.17 |

Weitere Ausführungen auf Anfrage  
Further designs upon request



Ersatz-Spannkappen oder Sechskant-Spannkappen auf Anfrage  
Spare clamping nuts or hexagon clamping nuts are available upon request

Kurze Ausführung, mit innerer Kühlschmierstoff-Zufuhr  
Short design, with internal coolant supply

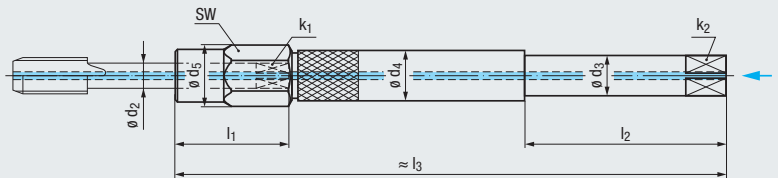
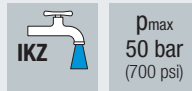


Für den Einsatz auf CNC-Maschinen und herkömmlichen Gewindeschneideinrichtungen

For use on CNC machines and conventional thread cutting machinery

| Größe<br>Size | Baumaße Gewindebohrer / Gewindeformer<br>Dimensions of tap / cold-forming tap |       |            |            | Baumaße Schaftverlängerung<br>Dimensions of extension |                         |              |       |                   |                   |       | Spannkappe<br>Clamping nut |                | QR          |
|---------------|---|-------|------------|------------|---|-------------------------|--------------|-------|-------------------|-------------------|-------|----------------------------|----------------|-------------|
|               | $\varnothing d_2$   | $k_1$ |            |            | $l_1$   | $\varnothing d_3$<br>h9 | $k_2$<br>h12 | $l_2$ | $\varnothing d_4$ | $\varnothing d_5$ | $l_3$ | SW<br>(W/F)                | $M_d$ 1)<br>Nm |             |
| 1             | 2,8   | 2,1   | M 2 - M2,6 | M 4        | 21  | 6                       | 4,9          | 60    | 6,1               | 6,5               | 130   | 6                          | 2              | FZ112600.01 |
| 2             | 3,5   | 2,7   | M 3        | M 4,5 - M5 | 22  | 6                       | 4,9          | 60    | 7,5               | 9                 | 130   | 8                          | 2              | FZ112600.02 |
| 3             | 4   | 3     | M 3,5      | M 5,5      | 22  | 6                       | 4,9          | 60    | 8,4               | 10                | 130   | 9                          | 2,5            | FZ112600.03 |
| 4             | 4,5   | 3,4   | M 4        | M 6        | 22  | 6                       | 4,9          | 60    | 8,4               | 10                | 130   | 9                          | 3              | FZ112600.04 |
| 5             | 6   | 4,9   | M 4,5 - M6 | M 8        | 25  | 7                       | 5,5          | 60    | 12,1              | 13,5              | 130   | 12                         | 3,5            | FZ112600.05 |
| 6             | 7   | 5,5   | M 7        | M 9 - M10  | 25  | 7                       | 5,5          | 60    | 12,1              | 13,5              | 130   | 12                         | 5              | FZ112600.06 |
| 7             | 8   | 6,2   | M 8        | M11        | 29  | 8                       | 6,2          | 60    | 13                | 14,5              | 130   | 13                         | 6              | FZ112600.07 |
| 8             | 9   | 7     | M 9        | M12        | 30  | 9                       | 7            | 60    | 15                | 16,5              | 130   | 15                         | 8              | FZ112600.08 |
| 9             | 10  | 8     | M10        | -          | 32  | 10                      | 8            | 60    | 15                | 16,5              | 130   | 15                         | 11             | FZ112600.09 |
| 10            | 11  | 9     | -          | M14        | 35  | 11                      | 9            | 90    | 18                | 20                | 180   | 18                         | 15             | FZ112600.10 |
| 11            | 12  | 9     | (M12)      | M16        | 35  | 12                      | 9            | 90    | 18                | 20                | 180   | 18                         | 20             | FZ112600.11 |
| 12            | 14  | 11    | -          | M18        | 39  | 14                      | 11           | 90    | 22                | 25                | 180   | 22                         | 25             | FZ112600.12 |
| 13            | 16  | 12    | -          | M20        | 40  | 16                      | 12           | 90    | 22                | 25                | 180   | 22                         | 33             | FZ112600.13 |
| 14            | 18  | 14,5  | -          | M22 - M24  | 42  | 18                      | 14,5         | 100   | 26                | 29                | 200   | 26                         | 45             | FZ112600.14 |
| 15            | 20  | 16    | -          | M27        | 44  | 20                      | 16           | 100   | 28                | 32                | 200   | 28                         | 60             | FZ112600.15 |
| 16            | 22  | 18    | -          | M30        | 46  | 22                      | 18           | 100   | 30                | 34                | 200   | 30                         | 77             | FZ112600.16 |
| 17            | 25  | 20    | -          | M33        | 49  | 25                      | 20           | 100   | 35                | 41                | 200   | 36                         | 100            | FZ112600.17 |

Lange Ausführung, mit innerer Kühlschmierstoff-Zufuhr  
Long design, with internal coolant supply



Für den Einsatz auf CNC-Maschinen und herkömmlichen Gewindeschneideinrichtungen

For use on CNC machines and conventional thread cutting machinery

| Größe<br>Size | Baumaße Gewindebohrer / Gewindeformer<br>Dimensions of tap / cold-forming tap |       |            |            | Baumaße Schaftverlängerung<br>Dimensions of extension |                         |              |       |                   |                   |       | Spannkappe<br>Clamping nut |                | QR          |
|---------------|---|-------|------------|------------|---|-------------------------|--------------|-------|-------------------|-------------------|-------|----------------------------|----------------|-------------|
|               | $\varnothing d_2$   | $k_1$ |            |            | $l_1$   | $\varnothing d_3$<br>h9 | $k_2$<br>h12 | $l_2$ | $\varnothing d_4$ | $\varnothing d_5$ | $l_3$ | SW<br>(W/F)                | $M_d$ 1)<br>Nm |             |
| 1             | 2,8   | 2,1   | M 2 - M2,6 | M 4        | 21  | 6                       | 4,9          | 65    | 6,1               | 6,5               | 230   | 6                          | 2              | FZ112610.01 |
| 2             | 3,5   | 2,7   | M 3        | M 4,5 - M5 | 22  | 6                       | 4,9          | 70    | 7,5               | 9                 | 230   | 8                          | 2              | FZ112610.02 |
| 3             | 4   | 3     | M 3,5      | M 5,5      | 22  | 6                       | 4,9          | 70    | 8,4               | 10                | 230   | 9                          | 2,5            | FZ112610.03 |
| 4             | 4,5   | 3,4   | M 4        | M 6        | 22  | 6                       | 4,9          | 70    | 8,4               | 10                | 230   | 9                          | 3              | FZ112610.04 |
| 5             | 6   | 4,9   | M 4,5 - M6 | M 8        | 25  | 7                       | 5,5          | 70    | 12,1              | 13,5              | 230   | 12                         | 3,5            | FZ112610.05 |
| 6             | 7   | 5,5   | M 7        | M 9 - M10  | 25  | 7                       | 5,5          | 70    | 12,1              | 13,5              | 230   | 12                         | 5              | FZ112610.06 |
| 7             | 8   | 6,2   | M 8        | M11        | 29  | 8                       | 6,2          | 80    | 13                | 14,5              | 230   | 13                         | 6              | FZ112610.07 |
| 8             | 9   | 7     | M 9        | M12        | 30  | 9                       | 7            | 80    | 15                | 16,5              | 230   | 15                         | 8              | FZ112610.08 |
| 9             | 10  | 8     | M10        | -          | 32  | 10                      | 8            | 80    | 15                | 16,5              | 230   | 15                         | 11             | FZ112610.09 |
| 10            | 11  | 9     | -          | M14        | 35  | 11                      | 9            | 90    | 18                | 20                | 330   | 18                         | 15             | FZ112610.10 |
| 11            | 12  | 9     | (M12)      | M16        | 35  | 12                      | 9            | 90    | 18                | 20                | 330   | 18                         | 20             | FZ112610.11 |
| 12            | 14  | 11    | -          | M18        | 39  | 14                      | 11           | 90    | 22                | 25                | 330   | 22                         | 25             | FZ112610.12 |
| 13            | 16  | 12    | -          | M20        | 40  | 16                      | 12           | 90    | 22                | 25                | 330   | 22                         | 33             | FZ112610.13 |
| 14            | 18  | 14,5  | -          | M22 - M24  | 42  | 18                      | 14,5         | 100   | 26                | 29                | 330   | 26                         | 45             | FZ112610.14 |
| 15            | 20  | 16    | -          | M27        | 44  | 20                      | 16           | 100   | 28                | 32                | 330   | 28                         | 60             | FZ112610.15 |
| 16            | 22  | 18    | -          | M30        | 46  | 22                      | 18           | 100   | 30                | 34                | 330   | 30                         | 77             | FZ112610.16 |
| 17            | 25  | 20    | -          | M33        | 49  | 25                      | 20           | 100   | 35                | 41                | 330   | 36                         | 100            | FZ112610.17 |

1) empfohlenes Anzugsdrehmoment  
Recommend tightening torque

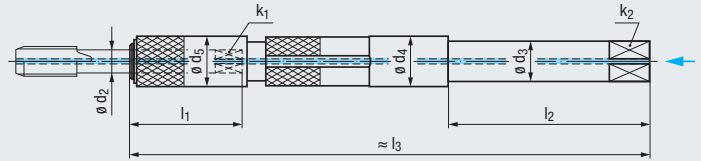


Ersatz-Sechskant-Spannkappen auf Anfrage  
Spare hexagon clamping nuts are available upon request



Kurze Ausführung E-Lock/IKZ, mit innerer Kühlschmierstoff-Zufuhr  
Short design E-Lock/IKZ, with internal coolant supply



$p_{max}$   
50 bar  
(700 psi)



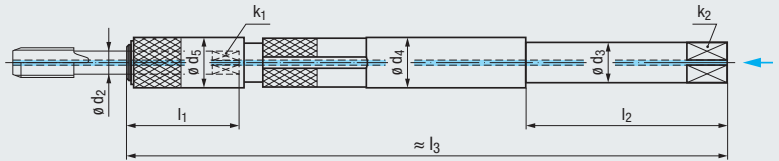
Für den Einsatz auf CNC-Maschinen und herkömmlichen Gewindeschneideeinrichtungen  
For use on CNC machines and conventional thread cutting machinery

| Größe<br>Size | Baumaße Gewindebohrer / Gewindeformer<br>Dimensions of tap / cold-forming tap |       |   |   | Baumaße Schaftverlängerung<br>Dimensions of extension |                         |              |       |                         |       | Rillenform<br>Slot shape | QR Code     |
|---------------|---|-------|---|---|---|-------------------------|--------------|-------|-------------------------|-------|--------------------------|-------------|
|               | $\varnothing d_2$   | $k_1$ |  |  | $l_1$   | $\varnothing d_3$<br>h9 | $k_2$<br>h12 | $l_2$ | $\varnothing d_4 / d_5$ | $l_3$ |                          |             |
| 4             | <b>4,5</b>  | 3,4   | M 4   | M 6   | 23  | 10                      | 8            | 60    | 12,1                    | 160   | A                        | FZ115490.04 |
| 5             | <b>6</b>  | 4,9   | M 4,5 - M6  | M 8   | 25  | 10                      | 8            | 60    | 12,1                    | 160   | A                        | FZ115490.05 |
| 7             | <b>8</b>  | 6,2   | M 8   | M11   | 29  | 12                      | 9            | 60    | 13                      | 160   | A                        | FZ115510.07 |
| 8             | <b>9</b>  | 7     | M 9   | M12   | 30  | 12                      | 9            | 60    | 15                      | 160   | A                        | FZ115510.08 |
| 9             | <b>10</b>   | 8     | M10   | -   | 32  | 12                      | 9            | 60    | 15                      | 160   | A                        | FZ115510.09 |
| 11            | <b>12</b>   | 9     | (M12)   | M16   | 35  | 16                      | 12           | 60    | 18                      | 160   | B                        | FZ115530.11 |



Lange Ausführung E-Lock/IKZ, mit innerer Kühlschmierstoff-Zufuhr  
Long design E-Lock/IKZ, with internal coolant supply



$p_{max}$   
50 bar  
(700 psi)

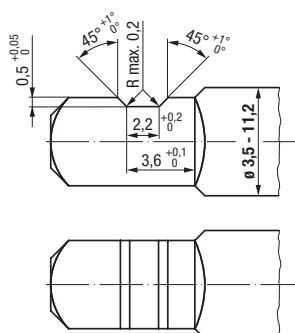


Für den Einsatz auf CNC-Maschinen und herkömmlichen Gewindeschneideeinrichtungen  
For use on CNC machines and conventional thread cutting machinery

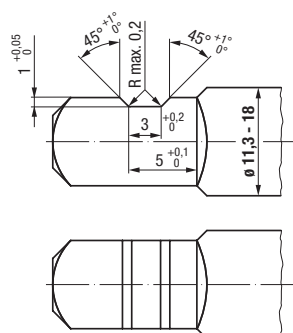
| Größe<br>Size | Baumaße Gewindebohrer / Gewindeformer<br>Dimensions of tap / cold-forming tap |       |   |   | Baumaße Schaftverlängerung<br>Dimensions of extension |                         |              |       |                         |       | Rillenform<br>Slot shape | QR Code     |
|---------------|---|-------|---|---|---|-------------------------|--------------|-------|-------------------------|-------|--------------------------|-------------|
|               | $\varnothing d_2$   | $k_1$ |  |  | $l_1$   | $\varnothing d_3$<br>h9 | $k_2$<br>h12 | $l_2$ | $\varnothing d_4 / d_5$ | $l_3$ |                          |             |
| 4             | <b>4,5</b>  | 3,4   | M 4   | M 6   | 23  | 10                      | 8            | 100   | 12,1                    | 230   | A                        | FZ115480.04 |
| 5             | <b>6</b>  | 4,9   | M 4,5 - M6  | M 8   | 25  | 10                      | 8            | 100   | 12,1                    | 230   | A                        | FZ115480.05 |
| 7             | <b>8</b>  | 6,2   | M 8   | M11   | 29  | 12                      | 9            | 100   | 13                      | 230   | A                        | FZ115500.07 |
| 8             | <b>9</b>  | 7     | M 9   | M12   | 30  | 12                      | 9            | 100   | 15                      | 230   | A                        | FZ115500.08 |
| 9             | <b>10</b>   | 8     | M10   | -   | 32  | 12                      | 9            | 100   | 15                      | 230   | A                        | FZ115500.09 |
| 11            | <b>12</b>   | 9     | (M12)   | M16   | 35  | 16                      | 12           | 100   | 18                      | 230   | B                        | FZ115520.11 |

## Bearbeitungsmaße für Rillenform am Gewindebohrer- / Gewindeformer-Vierkant Machining specifications for the slot shape on the driving square of taps / cold-forming taps

### Form A



### Form B



Lehren für E-Lock-Rillenform siehe Seite 725  
Gauges for E-Lock slots, see page 725

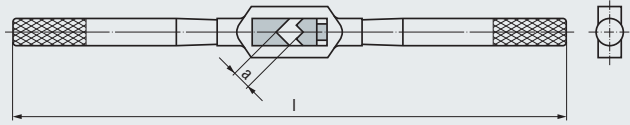




Für normale Beanspruchung  
For normal use



≈ DIN  
1814



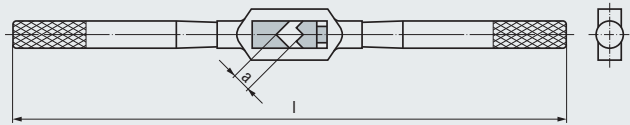
| Größe<br>Size | Baumaße<br>Dimensions                       |     | QR Code     |
|---------------|---|-----|-------------|
|               | a <sub>min.</sub> - a <sub>max.</sub><br>mm | l   |             |
| 0             | 2 - 5                                       | 125 |             |
| 1             | 2 - 6                                       | 180 |             |
| 1 1/2         | 2,5 - 8                                     | 200 |             |
| 2             | 4 - 9                                       | 280 |             |
| 3             | 4,9 - 12                                    | 375 |             |
| 4             | 5,5 - 16                                    | 500 | FZ111010.04 |
| 5             | 7 - 20                                      | 750 |             |

Für starke Beanspruchung  
For heavy use



Aus gehärtetem Stahl (Gehäuse: Temperguss oder Stahl geschmiedet)  
Made of hardened steel (casing: malleable iron or forged steel)

≈ DIN  
1814



| Größe<br>Size | Baumaße<br>Dimensions                       |      | QR Code     |
|---------------|---|------|-------------|
|               | a <sub>min.</sub> - a <sub>max.</sub><br>mm | l    |             |
| 0             | 2 - 5                                       | 125  |             |
| 1             | 2 - 6                                       | 180  |             |
| 1 1/2         | 2,5 - 8                                     | 200  |             |
| 2             | 4 - 9                                       | 280  |             |
| 3             | 4,9 - 12                                    | 375  |             |
| 4             | 5,5 - 16                                    | 500  |             |
| 5             | 7 - 20                                      | 750  |             |
| 6             | 9 - 25                                      | 1000 | FZ111000.06 |
| 7             | 16 - 32                                     | 1250 |             |

- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC UN-8
- UNF UNEF
- G, Rp NPSM, NPSF
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Zubehör Accessories



- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC  
UN-8
- UNF  
UNEF
- G, Rp  
NPSM, NPSF
- NPT, NPTF  
Rc, W
- BSW, BSF
- Pg
- MJ  
UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F  
Rd
- Zubehör  
Accessories

## Für Gewindebohrer mit 3 geraden Nuten For taps with 3 straight flutes



für Gewinde  
for thread size



|  |     |               |
|--|-----|---------------|
|  | M 3 | FZ111100.03/3 |
|  | M 4 | FZ111100.04/3 |
|  | M 5 | FZ111100.05/3 |
|  | M 6 | FZ111100.06/3 |
|  | M 8 | FZ111100.08/3 |
|  | M10 | FZ111100.10/3 |
|  | M12 | FZ111100.12/3 |
|  | M14 | FZ111100.14/3 |
|  | M16 | FZ111100.16/3 |
|  | M20 | FZ111100.20/3 |

Weitere Ausführungen auf Anfrage  
Further designs upon request

## Für Gewindebohrer mit 4 geraden Nuten For taps with 4 straight flutes



für Gewinde  
for thread size



|  |     |               |
|--|-----|---------------|
|  | M 8 | FZ111100.08/4 |
|  | M10 | FZ111100.10/4 |
|  | M12 | FZ111100.12/4 |
|  | M16 | FZ111100.16/4 |
|  | M20 | FZ111100.20/4 |





## Gewindeformer Cold-Forming Taps

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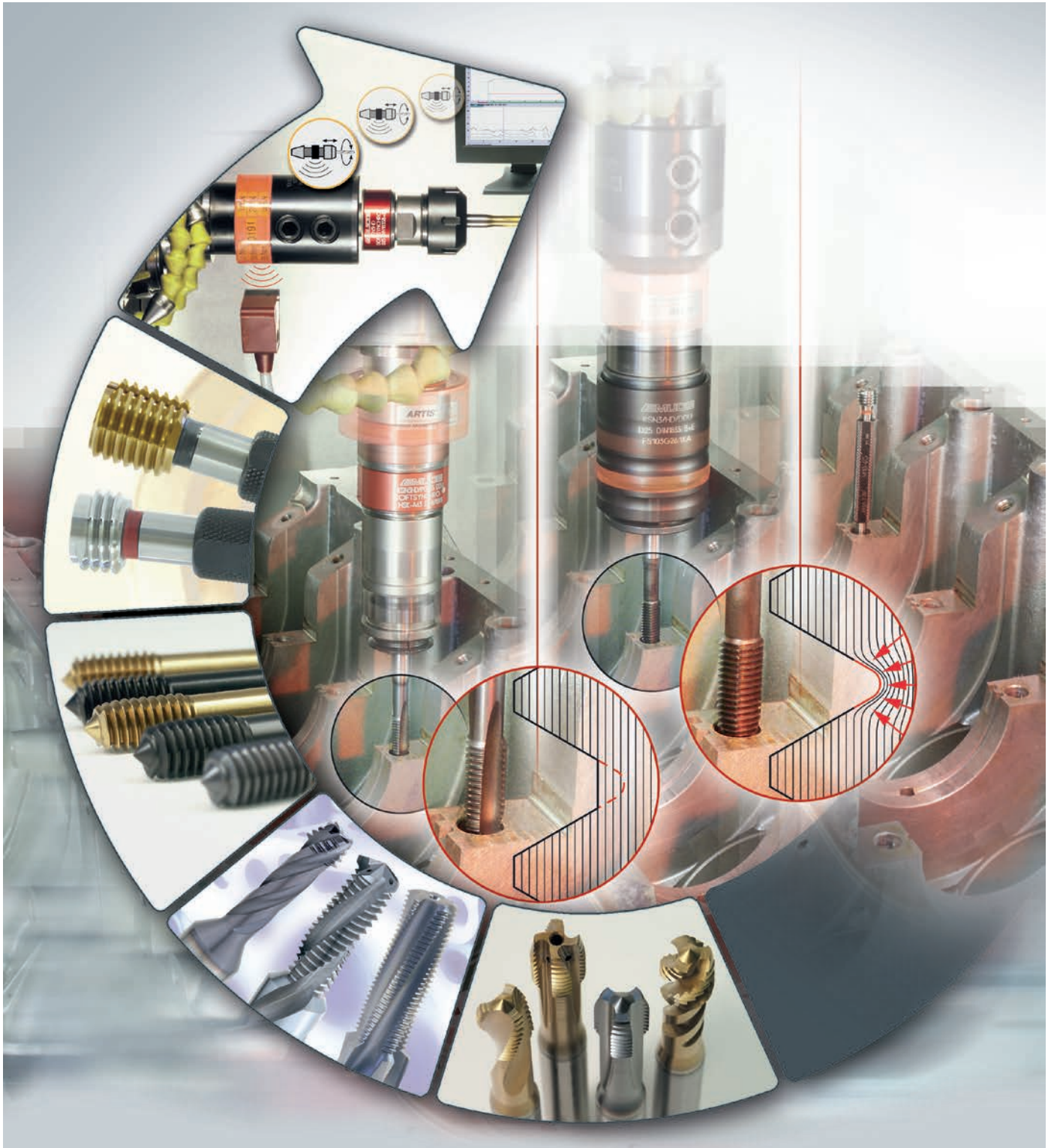
|                            |                                 |           |
|----------------------------|---------------------------------|-----------|
| Übersichten                | Contents                        | 308 - 311 |
| Wegweiser und Schnittwerte | Product finder and cutting data | 312 - 317 |
| Produktseiten              | Product pages                   | 318 - 350 |

**Cut&Form – Innengewindefertigung durch Kombination von Spanen und Umformen**

Das Innengewinde-Fertigungssystem Cut&Form ist eine Kombination aus spanenden und umformenden Verfahren, welche jeweils einen bestimmten Teil des Gewindeprofils erzeugen.

**Cut&Form – Production of internal threads by a combination of machining and cold forming**

The internal thread production system Cut&Form is a combination of machining and cold-forming processes which each produce a specific part of the thread profile.





**Vorteile**

- Verfestigung des Gewindes und Erhöhung der Dauerfestigkeit
- Gewindeformen von großen Gewindesteigungen
- Gewindeformen von schlecht fließenden Werkstoffen
- Erzeugung eines eng tolerierten Innengewindekerndurchmessers ohne „Kralle“
- Glättung der Gewindeoberfläche

**Advantages**

- Strengthened threads and increased long-term resistance
- Cold forming of large threads with coarse pitch
- Cold forming of threads in difficult materials
- Production of a narrow-tolerance minor diameter without space pocket
- Extra smooth thread surfaces

|                |
|----------------|
| Product Finder |
| V <sub>c</sub> |
| M              |
| MF             |
| UNC            |
| UNF            |
| G              |
| SELF-LOCK      |

|   |   |   |  |
|---|---|---|--|
| <p>Gewindeformer mit verstärktem Schaft<br/>Cold-forming taps with reinforced shank</p>  <p><b>Drück 1</b><br/><b>InnoForm 1</b></p> | <p>Gewindeformer mit durchfallendem Schaft<br/>Cold-forming taps with reduced shank</p>  <p><b>Drück 2</b><br/><b>InnoForm 2</b></p> | <p>Gewindeformer mit extra-langem Schaft<br/>Cold-forming taps with extra long shank</p>  <p><b>InnoForm 1-LS</b><br/><b>InnoForm 2-LS</b></p> | <p>Gewindeformer mit langen Nuten und langem Schaft<br/>Cold-forming taps with long flutes and long shank</p>  <p><b>InnoForm 2-LF3</b><br/><b>InnoForm 2-LF4</b></p> |
|---|---|---|--|

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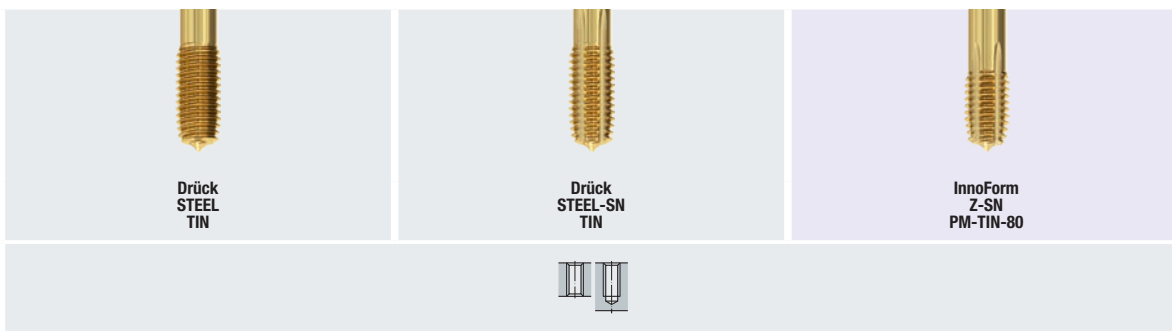
|           |           |          |           |                |
|-----------|-----------|----------|-----------|----------------|
| 318 - 325 | 327 - 330 | 326, 331 | 332 - 333 | <b>M</b>       |
| 334 - 335 | 336 - 339 |          |           | <b>MF</b>      |
| 340 - 341 | 342 - 343 |          |           | <b>UNC</b>     |
| 344 - 345 | 346 - 347 |          |           | <b>UNF</b>     |
|           | 348 - 349 |          |           | <b>G (BSP)</b> |
| 350       |           |          |           | <b>LK-M</b>    |

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|  |                  |
|--|------------------|
|  <p>Kühlschmierstoffe<br/>Coolant-lubricants</p>                  | <p>300 - 301</p> |
|  <p>Spezial-Schaftverlängerungen<br/>Special shank extensions</p> | <p>302 - 304</p> |



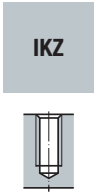
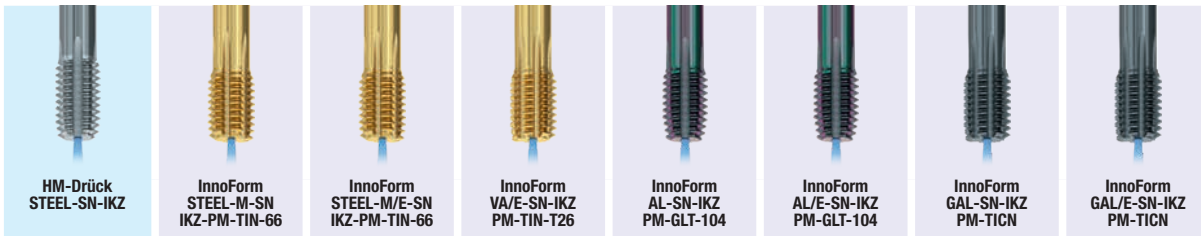
|                |
|----------------|
| Product Finder |
| Vc             |
| M              |
| MF             |
| UNC            |
| UNF            |
| G              |
| SELF-LOCK      |



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|   |     |     |     |     |
|---|-----|-----|-----|-----|
| M | 6GX | 319 | 319 | 325 |
|---|-----|-----|-----|-----|





IKZ

HM-Drück  
STEEL-SN-**IKZ**

InnoForm  
STEEL-M-SN  
IKZ-PM-TIN-66

InnoForm  
STEEL-M/E-SN  
IKZ-PM-TIN-66

InnoForm  
VA/E-SN-**IKZ**  
PM-TIN-T26

InnoForm  
AL-SN-**IKZ**  
PM-GLT-104

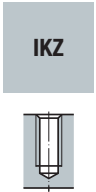
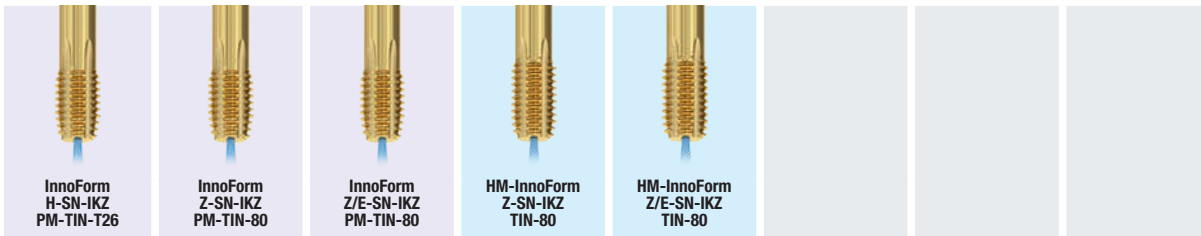
InnoForm  
AL/E-SN-**IKZ**  
PM-GLT-104

InnoForm  
GAL-SN-**IKZ**  
PM-TiCN

InnoForm  
GAL/E-SN-**IKZ**  
PM-TiCN

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|     |          |          |     |     |     |     |     |         |
|-----|----------|----------|-----|-----|-----|-----|-----|---------|
| 319 | 319, 327 | 319, 328 | 320 | 321 | 321 | 321 | 322 | M       |
|     | 336      | 337      |     |     |     |     |     | MF      |
|     |          |          |     |     |     |     |     | UNC     |
|     |          |          |     |     |     |     |     | UNF     |
|     |          |          |     |     |     |     |     | G (BSP) |



IKZ

InnoForm  
H-SN-**IKZ**  
PM-TIN-T26

InnoForm  
Z-SN-**IKZ**  
PM-TIN-80

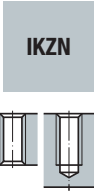
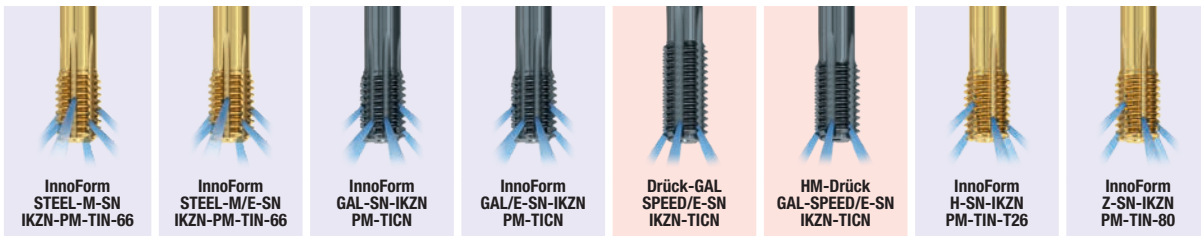
InnoForm  
Z/E-SN-**IKZ**  
PM-TIN-80

HM-InnoForm  
Z-SN-**IKZ**  
TIN-80

HM-InnoForm  
Z/E-SN-**IKZ**  
TIN-80

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|                    |                    |          |     |     |  |  |  |         |
|--------------------|--------------------|----------|-----|-----|--|--|--|---------|
| 323, 329, 332, 333 | 324, 326, 329, 331 | 325, 330 | 325 | 325 |  |  |  | M       |
| 338                | 335, 339           |          |     |     |  |  |  | MF      |
|                    | 341, 343           |          |     |     |  |  |  | UNC     |
|                    | 345, 347           |          |     |     |  |  |  | UNF     |
|                    | 349                |          |     |     |  |  |  | G (BSP) |



IKZN

InnoForm  
STEEL-M-SN  
IKZN-PM-TIN-66

InnoForm  
STEEL-M/E-SN  
IKZN-PM-TIN-66

InnoForm  
GAL-SN-**IKZN**  
PM-TiCN

InnoForm  
GAL/E-SN-**IKZN**  
PM-TiCN

Drück-GAL  
SPEED/E-SN  
IKZN-TiCN

HM-Drück  
GAL-SPEED/E-SN  
IKZN-TiCN

InnoForm  
H-SN-**IKZN**  
PM-TIN-T26

InnoForm  
Z-SN-**IKZN**  
PM-TIN-80

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|          |          |     |     |          |          |          |          |         |
|----------|----------|-----|-----|----------|----------|----------|----------|---------|
| 319, 328 | 320, 328 | 321 | 322 | 323, 329 | 323, 329 | 332, 333 | 324, 330 | M       |
| 334, 337 | 335, 337 |     |     | 335, 337 | 335, 337 |          |          | MF      |
|          |          |     |     |          |          |          |          | UNC     |
|          |          |     |     |          |          |          |          | UNF     |
|          |          |     |     |          |          |          |          | G (BSP) |

- Product Finder
- V<sub>c</sub>**
- M
- MF
- UNC
- UNF
- G
- SELF-LOCK

# Einsatzempfehlungen und Schnittwerte

**Bitte beachten:**

Die in den jeweiligen Spalten angegebenen Umfangsgeschwindigkeiten (v<sub>c</sub> in m/min) sind Richtwerte, welche je nach Einsatzbedingungen (Material, Schmierung, Maschine, usw.) angepasst werden müssen.

**Die empfohlenen Umfangsgeschwindigkeiten sind bezogen auf einen Gewinde- Nenndurchmesser von 10 mm.**

= DIN-Form / Gänge (Anformkegellänge)

# Application recommendation and cutting data

**Please note:**

The circumferential speeds (v<sub>c</sub> in m/min) listed in the respective columns are standard values which have to be adjusted to individual work conditions (material, lubrication, machine etc.).

**The recommended circumferential speeds are related to a nominal thread diameter of 10 mm.**

= DIN form / threads (lead taper length)

Internationaler Werkstoffvergleich siehe Seite 764 - 785

International comparison of materials, see page 764 - 785

| Einsatzgebiete – Material<br>Applications – material |  | Material-Beispiele<br>Material examples   | Material-Nummern<br>Material numbers                                |
|--|--|---|---|
| <b>P</b>   | <b>Stahlwerkstoffe</b><br>Kaltfließpressstähle, Baustähle, Automatenstähle, u.a. | <b>Steel materials</b><br>Cold-extrusion steels, Construction steels, Free-cutting steels, etc. | Cq15 1.1132<br>S235JR (St37-2) 1.0037<br>10SPb20 1.0722             |
|  | 2.1 Baustähle, Einsatzstähle, Stahlguss, u.a.                                    | Construction steels, Cementation steels, Steel castings, etc.                                   | E360 (St70-2) 1.0070<br>16MnCr5 1.7131<br>GS-25CrMo4 1.7218         |
|  | 3.1 Einsatzstähle, Vergütungsstähle, Kaltarbeitsstähle, u.a.                     | Cementation steels, Heat-treatable steels, Cold work steels, etc.                               | 20MoCr3 1.7320<br>42CrMo4 1.7225<br>102Cr6 1.2067<br>50CrMo4 1.7228 |
|  | 4.1 Vergütungsstähle, Kaltarbeitsstähle, Nitrierstähle, u.a.                     | Heat-treatable steels, Cold work steels, Nitriding steels, etc.                                 | X45NiCrMo4 1.2767<br>31CrMo12 1.8515                                |
|  | 5.1 Hochlegierte Stähle, Kaltarbeitsstähle, Warmarbeitsstähle, u.a.              | High-alloyed steels, Cold work steels, Hot work steels, etc.                                    | X38CrMoV5-3 1.2367<br>X100CrMoV8-1-1 1.2990<br>X40CrMoV5-1 1.2344   |
| <b>M</b>   | <b>Nichtrostende Stahlwerkstoffe</b><br>1.1 Ferritisch, martensitisch            | <b>Stainless steel materials</b><br>Ferritic, martensitic                                       | X2CrTi12 1.4512   |
|  | 2.1 Austenitisch   | Austenitic  | X6CrNiMoTi17-12-2 1.4571  |
|  | 3.1 Austenitisch-ferritisch (Duplex)   | Austenitic-ferritic (Duplex)  | X2CrNiMoN22-5-3 1.4462  |
|  | 4.1 Austenitisch-ferritisch hitzebeständig (Super Duplex)                        | Austenitic-ferritic heat-resistant (Super Duplex)   | X2CrNiMoN25-7-4 1.4410  |
| <b>K</b>   | <b>Gusswerkstoffe</b><br>1.1 Gusseisen mit Lamellengrafit (GJL)                  | <b>Cast materials</b><br>Cast iron with lamellar graphite (GJL)                                 | EN-GJL-200 (GG20) EN-JL-1030  |
|  | 1.2 Gusseisen mit Kugelgrafit (GJS)  | Cast iron with nodular graphite (GJS)   | EN-GJL-300 (GG30) EN-JL-1050  |
|  | 2.1 Gusseisen mit Kugelgrafit (GJS)  | Cast iron with nodular graphite (GJS)   | EN-GJS-400-15 (GGG40) EN-JS-1030                                    |
|  | 2.2 Gusseisen mit Kugelgrafit (GJS)  | Cast iron with nodular graphite (GJS)   | EN-GJS-700-2 (GGG70) EN-JS-1070                                     |
|  | 3.1 Gusseisen mit Vermiculargrafit (GJV)   | Cast iron with vermicular graphite (GJV)  | GJV 300   |
|  | 3.2 Gusseisen mit Vermiculargrafit (GJV)   | Cast iron with vermicular graphite (GJV)  | GJV 450   |
|  | 4.1 Temperguss (GTMW, GTMB)  | Malleable cast iron (GTMW, GTMB)  | EN-GJMW-350-4 (GTW-35) EN-JM-1010                                   |
| 4.2 Temperguss (GTMW, GTMB)                          | Malleable cast iron (GTMW, GTMB)   | EN-GJMB-450-6 (GTS-45) EN-JM-1140   |   |
| <b>N</b>   | <b>Nichteisenwerkstoffe</b><br>1.1 Aluminium-Legierungen                         | <b>Non ferrous materials</b><br>Aluminium alloys  |   |
|  | 1.2 Aluminium-Knetlegierungen  | Aluminium wrought alloys  | EN AW-AlMn1 EN AW-3103  |
|  | 1.3 Aluminium-Knetlegierungen  | Aluminium wrought alloys  | EN AW-AlMgSi EN AW-6060   |
|  | 1.4 Aluminium-Knetlegierungen  | Aluminium wrought alloys  | EN AW-AlZn5Mg3Cu EN AW-7022   |
|  | 1.5 Aluminium-Gusslegierungen  | Aluminium cast alloys   | Si ≤ 7% EN AC-AlMg5 EN AC-307 G                                     |
|  | 1.6 Aluminium-Gusslegierungen  | Aluminium cast alloys   | 7% < Si ≤ 12% EN AC-AISi9Cu3 EN AC-46500                            |
|  | 12% < Si ≤ 17% GD-AISI17Cu4FeMg  |   |   |
|  | 2.1 Reinkupfer, niedriglegiertes Kupfer  | Pure copper, low-alloyed copper   | E-Cu 57 EN CW 004 A   |
|  | 2.2 Kupfer-Zink-Legierungen (Messing, langspanend)                               | Copper-zinc alloys (brass, long-chipping)   | CuZn37 (Ms63) EN CW 508 L   |
|  | 2.3 Kupfer-Zink-Legierungen (Messing, kurzspanend)                               | Copper-zinc alloys (brass, short-chipping)  | CuZn36Pb3 (Ms58) EN CW 603 N  |
|  | 2.4 Kupfer-Aluminium-Legierungen (Alubronze, langspanend)                        | Copper-aluminium alloys (alu bronze, long-chipping)   | CuAl10Ni5Fe4 EN CW 307 G  |
|  | 2.5 Kupfer-Zinn-Legierungen (Zinnbronze, langspanend)                            | Copper-tin alloys (tin bronze, long-chipping)   | CuSn8P EN CW 459 K  |
|  | 2.6 Kupfer-Zinn-Legierungen (Zinnbronze, kurzspanend)                            | Copper-tin alloys (tin bronze, short-chipping)  | CuSn7 ZnPb (Rg7) 2.1090   |
|  | 2.7 Kupfer-Sonderlegierungen   | Special copper alloys   | (AMPCO® 8)  |
|  | 2.8 Kupfer-Sonderlegierungen   | Special copper alloys   | (AMPCO® 45)   |
|  | 3.1 Magnesium-Knetlegierungen  | Magnesium wrought alloys  | MgAl6Zn 3.5612  |
| 3.2 Magnesium-Gusslegierungen                        | Magnesium cast alloys  | EN-MCMgAl9Zn1 EN-MC21120  |   |
| <b>S</b>   | <b>Kunststoffe</b><br>4.1 Duroplaste (kurzspanend)                               | <b>Synthetics</b><br>Duroplastics (short-chipping)  | Bakelit, Pertinax   |
|  | 4.2 Thermoplaste (langspanend)   | Thermoplastics (long-chipping)  | PMMA, POM, PVC  |
|  | 4.3 Faserverstärkte Kunststoffe (Faseranteil ≤ 30%)                              | Fibre-reinforced synthetics (fibre content ≤ 30%)   | GFK, CFK, AFK   |
|  | 4.4 Faserverstärkte Kunststoffe (Faseranteil > 30%)                              | Fibre-reinforced synthetics (fibre content > 30%)   | GFK, CFK, AFK   |
|  | <b>Besondere Werkstoffe</b><br>5.1 Graphit                                       | <b>Special materials</b><br>Graphite  | C 8000  |
|  | 5.2 Wolfram-Kupfer-Legierungen   | Tungsten-copper alloys  | W-Cu 80/20  |
|  | 5.3 Verbundwerkstoffe  | Composite materials   | Hyllite, Alucobond  |
|  | <b>Spezialwerkstoffe</b><br>Titan-Legierungen                                    | <b>Special materials</b><br>Titanium alloys   |   |
| 1.1 Reintitan  | Pure titanium  | Ti1 3.7025  |   |
| 1.2 Titan-Legierungen                                | Titanium alloys  | TiAl6V4 3.7165  |   |
| 1.3 Titan-Legierungen                                | Titanium alloys  | TiAl4Mo4Sn2 3.7185  |   |
| <b>S</b>   | <b>Nickel-, Kobalt- und Eisen-Legierungen</b><br>2.1 Reinnickel                  | <b>Nickel alloys, cobalt alloys and iron alloys</b><br>Pure nickel                              | Ni 99.6 2.4060  |
|  | 2.2 Nickel-Basis-Legierungen   | Nickel-base alloys  | Monel 400 2.4360  |
|  | 2.3 Nickel-Basis-Legierungen   | Nickel-base alloys  | Inconel 718 2.4668  |
|  | 2.4 Nickel-Basis-Legierungen   | Nickel-base alloys  | Udimet 605  |
|  | 2.5 Kobalt-Basis-Legierungen   | Cobalt-base alloys  | Haynes 25 2.4964  |
|  | 2.6 Eisen-Basis-Legierungen  | Iron-base alloys  | Incoloy 800 1.4958  |
| <b>H</b>   | <b>Harte Werkstoffe</b><br>1.1 Hochfeste Stähle, gehärtete Stähle, Hartguss      | <b>Hard materials</b><br>High strength steels, hardened steels, hard castings                   | Weldox 1100<br>Hardox 550<br>Armax 600T<br>Ferro-Titanit<br>HSSE    |
|  | 1.2 Hochfeste Stähle, gehärtete Stähle, Hartguss                                 | High strength steels, hardened steels, hard castings  |   |
|  | 1.3 Hochfeste Stähle, gehärtete Stähle, Hartguss                                 | High strength steels, hardened steels, hard castings  |   |
|  | 1.4 Hochfeste Stähle, gehärtete Stähle, Hartguss                                 | High strength steels, hardened steels, hard castings  |   |
|  | 1.5 Hochfeste Stähle, gehärtete Stähle, Hartguss                                 | High strength steels, hardened steels, hard castings  |   |



| Drück STEEL NT          | Drück STEEL TIN                              | Drück STEEL-SN NT | Drück STEEL-SN TIN                      | HM-Drück STEEL-SN-IKZ   | InnoForm STEEL-BL/D PM-TIN          | InnoForm STEEL-M-SN PM-TIN-66 | InnoForm STEEL-M-SN IKZ-PM-TIN-66 | InnoForm STEEL-M-SN IKZN-PM-TIN-66 | InnoForm STEEL-M/E-SN IKZ-PM-TIN-66 |  |
|-------------------------|--|-------------------|---|-------------------------|-------------------------------------|-------------------------------|-----------------------------------|------------------------------------|-------------------------------------|--|
| C / 2-3                 | C / 2-3                                      | C / 2-3           | C / 2-3                                 | C / 2-3                 | D / 4-5                             | C / 2-3                       | C / 2-3                           | C / 2-3                            | E / 1,5-2                           |  |
| max. 3 x d <sub>1</sub> |  |                   |   | max. 3 x d <sub>1</sub> |                                     | max. 3 x d <sub>1</sub>       |                                   | max. 3 x d <sub>1</sub>            |                                     | Gewindetiefe und Lochform<br>Thread depth and hole type  |
| 318                     | 318, 327<br>334, 336<br>340, 342<br>344, 346 | 318, 327          | 318<br>334, 336<br>340, 342<br>344, 346 | 319                     | 319                                 | 319, 327<br>334, 336          | 319, 327<br>336                   | 319, 328<br>334, 337               | 319, 328<br>337                     | M<br>MF<br>UNC<br>UNF<br>UNEF, UN-8<br>G, Rp<br>NPSM, NPSF<br>NPT, NPTF, Rc<br>W<br>BSW, BSF<br>Pg<br>MJ<br>UNJC, UNJF<br>EG (STI)<br>LK-M<br>Tr, Tr-F, Rd |
| min. emp. rec.          | min. emp. rec.                               | min. emp. rec.    | min. emp. rec.                          | min. emp. rec.          | min. emp. rec.                      | min. emp. rec.                | min. emp. rec.                    | min. emp. rec.                     | min. emp. rec.                      | vc [m/min]   |
|                         | 15 <b>30</b> 45                              |                   | 15 <b>30</b> 45                         |                         | 15 <b>30</b> 45                     |                               |                                   |                                    |                                     | 1.1  |
| 5 <b>8</b> 12           | 10 <b>20</b> 40                              | 5 <b>8</b> 12     | 10 <b>20</b> 40                         |                         | 10 <b>20</b> 40                     | 10 <b>20</b> 40               | 10 <b>20</b> 40                   | 10 <b>20</b> 40                    | 10 <b>20</b> 40                     | 2.1  |
|                         | 10 <b>15</b> 25                              |                   | 10 <b>15</b> 25                         |                         | 10 <b>15</b> 25                     | 10 <b>15</b> 25               | 10 <b>15</b> 25                   | 10 <b>15</b> 25                    | 10 <b>15</b> 25                     | 3.1  |
|                         |  |                   |   |                         | 5 <b>10</b> 20                      | 5 <b>10</b> 20                | 5 <b>10</b> 20                    | 5 <b>10</b> 20                     | 5 <b>10</b> 20                      | 4.1  |
|                         |  |                   |   |                         |                                     | 5 <b>10</b> 15                | 5 <b>10</b> 15                    | 5 <b>10</b> 15 <sup>3)</sup>       | 5 <b>10</b> 15                      | 5.1  |
|                         |  |                   |   |                         |                                     |                               |                                   |                                    |                                     | 1.1  |
|                         |  |                   |   |                         |                                     |                               |                                   |                                    |                                     | 2.1  |
|                         |  |                   |   |                         |                                     |                               |                                   |                                    |                                     | 3.1  |
|                         |  |                   |   |                         |                                     |                               |                                   |                                    |                                     | 4.1  |
|                         |  |                   |   |                         |                                     |                               |                                   |                                    |                                     | 1.1  |
| 10 <b>15</b> 20         |  | 10 <b>15</b> 20   |   |                         |                                     |                               |                                   |                                    |                                     | 1.2  |
|                         |  |                   |   |                         |                                     |                               |                                   |                                    |                                     | 2.1  |
|                         |  |                   |   |                         |                                     |                               |                                   |                                    |                                     | 2.2  |
|                         |  |                   |   |                         |                                     |                               |                                   |                                    |                                     | 3.1  |
|                         |  |                   |   |                         |                                     |                               |                                   |                                    |                                     | 3.2  |
|                         |  |                   |   |                         |                                     |                               |                                   |                                    |                                     | 4.1  |
|                         |  |                   |   |                         |                                     |                               |                                   |                                    |                                     | 4.2  |
|                         |  |                   |   |                         |                                     |                               |                                   |                                    |                                     | 1.1  |
| 10 <b>20</b> 30         | 20 <b>40</b> 60<br>20 <b>40</b> 60           | 10 <b>20</b> 30   | 20 <b>40</b> 60<br>20 <b>40</b> 60      | 40 <b>80</b> 160        | 40 <b>80</b> 160<br>40 <b>60</b> 80 |                               |                                   |                                    |                                     | 1.2  |
|                         |  |                   |   |                         |                                     |                               |                                   |                                    |                                     | 1.3  |
|                         |  |                   |   |                         |                                     |                               |                                   |                                    |                                     | 1.4  |
|                         |  |                   |   |                         |                                     |                               |                                   |                                    |                                     | 1.5  |
|                         |  |                   |   |                         |                                     |                               |                                   |                                    |                                     | 1.6  |
|                         | 10 <b>20</b> 40                              |                   | 10 <b>20</b> 40                         |                         |                                     |                               |                                   |                                    |                                     | 2.1  |
|                         |  |                   |   |                         |                                     |                               |                                   |                                    |                                     | 2.2  |
|                         |  |                   |   |                         |                                     |                               |                                   |                                    |                                     | 2.3  |
|                         |  |                   |   |                         |                                     |                               |                                   |                                    |                                     | 2.4  |
|                         |  |                   |   |                         |                                     |                               |                                   |                                    |                                     | 2.5  |
|                         |  |                   |   |                         |                                     |                               |                                   |                                    |                                     | 2.6  |
|                         |  |                   |   |                         |                                     |                               |                                   |                                    |                                     | 2.7  |
|                         |  |                   |   |                         |                                     |                               |                                   |                                    |                                     | 2.8  |
|                         |  |                   |   |                         |                                     |                               |                                   |                                    |                                     | 3.1  |
|                         |  |                   |   |                         |                                     |                               |                                   |                                    |                                     | 3.2  |
|                         |  |                   |   |                         |                                     |                               |                                   |                                    |                                     | 4.1  |
|                         |  |                   |   |                         |                                     |                               |                                   |                                    |                                     | 4.2  |
|                         |  |                   |   |                         |                                     |                               |                                   |                                    |                                     | 4.3  |
|                         |  |                   |   |                         |                                     |                               |                                   |                                    |                                     | 4.4  |
|                         |  |                   |   |                         |                                     |                               |                                   |                                    |                                     | 5.1  |
|                         |  |                   |   |                         |                                     |                               |                                   |                                    |                                     | 5.2  |
|                         |  |                   |   |                         |                                     |                               |                                   |                                    |                                     | 5.3  |
|                         |  |                   |   |                         |                                     |                               |                                   |                                    |                                     | 1.1  |
|                         |  |                   |   |                         |                                     |                               |                                   |                                    |                                     | 1.2  |
|                         |  |                   |   |                         |                                     |                               |                                   |                                    |                                     | 1.3  |
|                         |  |                   |   |                         |                                     |                               |                                   |                                    |                                     | 2.1  |
|                         |  |                   |   |                         |                                     |                               |                                   |                                    |                                     | 2.2  |
|                         |  |                   |   |                         |                                     |                               |                                   |                                    |                                     | 2.3  |
|                         |  |                   |   |                         |                                     |                               |                                   |                                    |                                     | 2.4  |
|                         |  |                   |   |                         |                                     |                               |                                   |                                    |                                     | 2.5  |
|                         |  |                   |   |                         |                                     |                               |                                   |                                    |                                     | 2.6  |
|                         |  |                   |   |                         |                                     |                               |                                   |                                    |                                     | 1.1  |
|                         |  |                   |   |                         |                                     |                               |                                   |                                    |                                     | 1.2  |
|                         |  |                   |   |                         |                                     |                               |                                   |                                    |                                     | 1.3  |
|                         |  |                   |   |                         |                                     |                               |                                   |                                    |                                     | 1.4  |
|                         |  |                   |   |                         |                                     |                               |                                   |                                    |                                     | 1.5  |

**Product Finder**

**v<sub>c</sub>**

**M**

**MF**

**UNC**

**UNF**

**G**

**SELF-LOCK**



<sup>1)</sup> Gewindeformen in Durchgangslöcher nur mit externer Kühlschmierung möglich  
Cold-forming in through holes is possible only with external cooling/lubrication

<sup>3)</sup> InnoForm 1 mit IKZN nur geeignet für Materialgruppen  
InnoForm 1 with IKZN only suitable for material groups

EMUGE  
-STEEL-

EMUGE  
-VA-

EMUGE  
-AL-

EMUGE  
-GAL-

Product  
Finder

v<sub>c</sub>

M

MF

UNC

UNF

G

SELF-LOCK

InnoForm  
STEEL-M/E-SN  
IKZN-PM-TIN-66

InnoForm  
VA/E-SN  
PM-TIN-T26

InnoForm  
VA/E-SN-IKZ  
PM-TIN-T26

InnoForm  
AL-SN  
PM-GLT-104

InnoForm  
AL-SN-IKZ  
PM-GLT-104

InnoForm  
AL/E-SN  
PM-GLT-104

InnoForm  
AL/E-SN-IKZ  
PM-GLT-104

InnoForm  
GAL-SN  
PM-TICN

InnoForm  
GAL-SN-IKZ  
PM-TICN

InnoForm  
GAL-SN-IKZN  
PM-TICN

|  | E / 1,5-2                   | E / 1,5-2                   | E / 1,5-2                   | C / 2-3                     | C / 2-3                     | E / 1,5-2                   | E / 1,5-2                   | C / 2-3                     | C / 2-3                     | C / 2-3                     |
|--|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| Gewindtiefe und Lochform<br>Thread depth and hole type | max. 3 x d <sub>1</sub><br> | max. 3 x d <sub>1</sub><br> | max. 3 x d <sub>1</sub><br> | max. 3 x d <sub>1</sub><br> | max. 3 x d <sub>1</sub><br> | max. 3 x d <sub>1</sub><br> | max. 3 x d <sub>1</sub><br> | max. 3 x d <sub>1</sub><br> | max. 3 x d <sub>1</sub><br> | max. 3 x d <sub>1</sub><br> |
| M  | 320, 328                    | 320                         | 320                         | 321                         | 321                         | 321                         | 321                         | 321                         | 321                         | 321                         |
| MF   | 335, 337                    |                             |                             |                             |                             |                             |                             |                             |                             |                             |
| UNC  |                             |                             |                             |                             |                             |                             |                             |                             |                             |                             |
| UNF  |                             |                             |                             |                             |                             |                             |                             |                             |                             |                             |
| G  |                             |                             |                             |                             |                             |                             |                             |                             |                             |                             |
| SELF-LOCK  |                             |                             |                             |                             |                             |                             |                             |                             |                             |                             |
| v <sub>c</sub> [m/min]                                 | min. empf. max.<br>rec.     | min. empf. max.<br>rec.     | min. empf. max.<br>rec.     | min. empf. max.<br>rec.     | min. empf. max.<br>rec.     | min. empf. max.<br>rec.     | min. empf. max.<br>rec.     | min. empf. max.<br>rec.     | min. empf. max.<br>rec.     | min. empf. max.<br>rec.     |

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|          |     |                              |               |                 |                 |                 |                 |                 |                 |                 |
|----------|-----|------------------------------|---------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| <b>P</b> | 1.1 |                              |               |                 |                 |                 |                 |                 |                 |                 |
|          | 2.1 | 10 <b>20</b> 40              |               |                 |                 |                 |                 |                 |                 |                 |
|          | 3.1 | 10 <b>15</b> 25              |               |                 |                 |                 |                 |                 |                 |                 |
|          | 4.1 | 5 <b>10</b> 20               |               |                 |                 |                 |                 |                 |                 |                 |
|          | 5.1 | 5 <b>10</b> 15 <sup>3)</sup> |               |                 |                 |                 |                 |                 |                 |                 |
| <b>M</b> | 1.1 |                              | 5 <b>8</b> 12 | 5 <b>8</b> 12   |                 |                 |                 |                 |                 |                 |
|          | 2.1 |                              | 2 <b>5</b> 8  | 2 <b>5</b> 8    |                 |                 |                 |                 |                 |                 |
|          | 3.1 |                              | 2 <b>5</b> 8  | 2 <b>5</b> 8    |                 |                 |                 |                 |                 |                 |
|          | 4.1 |                              |               |                 |                 |                 |                 |                 |                 |                 |
| <b>K</b> | 1.1 |                              |               |                 |                 |                 |                 |                 |                 |                 |
|          | 1.2 |                              |               |                 |                 |                 |                 |                 |                 |                 |
|          | 2.1 |                              |               |                 |                 |                 |                 |                 |                 |                 |
|          | 2.2 |                              |               |                 |                 |                 |                 |                 |                 |                 |
|          | 3.1 |                              |               |                 |                 |                 |                 |                 |                 |                 |
|          | 3.2 |                              |               |                 |                 |                 |                 |                 |                 |                 |
|          | 4.1 |                              |               |                 |                 |                 |                 |                 |                 |                 |
| 4.2      |     |                              |               |                 |                 |                 |                 |                 |                 |                 |
| <b>N</b> | 1.1 |                              |               | 20 <b>40</b> 60 | 20 <b>40</b> 60 | 20 <b>40</b> 60 | 20 <b>40</b> 60 |                 |                 |                 |
|          | 1.2 |                              |               | 20 <b>40</b> 60 | 20 <b>40</b> 60 | 20 <b>40</b> 60 | 20 <b>40</b> 60 |                 |                 |                 |
|          | 1.3 |                              |               | 20 <b>40</b> 60 | 20 <b>40</b> 60 | 20 <b>40</b> 60 | 20 <b>40</b> 60 |                 |                 |                 |
|          | 1.4 |                              |               | 20 <b>40</b> 60 | 20 <b>40</b> 60 | 20 <b>40</b> 60 | 20 <b>40</b> 60 |                 |                 |                 |
|          | 1.5 |                              |               | 20 <b>40</b> 60 | 20 <b>40</b> 60 | 20 <b>40</b> 60 | 20 <b>40</b> 60 | 20 <b>40</b> 60 | 20 <b>40</b> 60 | 20 <b>40</b> 60 |
|          | 1.6 |                              |               | 20 <b>40</b> 60 | 20 <b>40</b> 60 | 20 <b>40</b> 60 | 20 <b>40</b> 60 | 20 <b>40</b> 60 | 20 <b>40</b> 60 | 20 <b>40</b> 60 |
|          | 2.1 |                              |               | 5 <b>15</b> 30  | 5 <b>15</b> 30  | 5 <b>15</b> 30  | 5 <b>15</b> 30  |                 |                 |                 |
|          | 2.2 |                              |               | 10 <b>20</b> 40 | 10 <b>20</b> 40 | 10 <b>20</b> 40 | 10 <b>20</b> 40 |                 |                 |                 |
|          | 2.3 |                              |               |                 |                 |                 |                 |                 |                 |                 |
|          | 2.4 |                              |               |                 |                 |                 |                 |                 |                 |                 |
|          | 2.5 |                              |               |                 |                 |                 |                 |                 |                 |                 |
|          | 2.6 |                              |               |                 |                 |                 |                 |                 |                 |                 |
|          | 2.7 |                              |               |                 |                 |                 |                 |                 |                 |                 |
|          | 2.8 |                              |               |                 |                 |                 |                 |                 |                 |                 |
|          | 3.1 |                              |               |                 |                 |                 |                 |                 |                 |                 |
|          | 3.2 |                              |               |                 |                 |                 |                 |                 |                 |                 |
| 4.1      |     |                              |               |                 |                 |                 |                 |                 |                 |                 |
| 4.2      |     |                              |               |                 |                 |                 |                 |                 |                 |                 |
| 4.3      |     |                              |               |                 |                 |                 |                 |                 |                 |                 |
| 4.4      |     |                              |               |                 |                 |                 |                 |                 |                 |                 |
| 5.1      |     |                              |               |                 |                 |                 |                 |                 |                 |                 |
| 5.2      |     |                              |               |                 |                 |                 |                 |                 |                 |                 |
| 5.3      |     |                              |               |                 |                 |                 |                 |                 |                 |                 |
| <b>S</b> | 1.1 |                              |               |                 |                 |                 |                 |                 |                 |                 |
|          | 1.2 |                              |               |                 |                 |                 |                 |                 |                 |                 |
|          | 1.3 |                              |               |                 |                 |                 |                 |                 |                 |                 |
|          | 2.1 |                              |               |                 |                 |                 |                 |                 |                 |                 |
|          | 2.2 |                              |               |                 |                 |                 |                 |                 |                 |                 |
|          | 2.6 |                              |               |                 |                 |                 |                 |                 |                 |                 |
| <b>H</b> | 1.1 |                              |               |                 |                 |                 |                 |                 |                 |                 |
|          | 1.2 |                              |               |                 |                 |                 |                 |                 |                 |                 |
|          | 1.3 |                              |               |                 |                 |                 |                 |                 |                 |                 |
|          | 1.4 |                              |               |                 |                 |                 |                 |                 |                 |                 |
|          | 1.5 |                              |               |                 |                 |                 |                 |                 |                 |                 |

EMUGE  
GAL

EMUGE  
SPEED

EMUGE  
NF

EMUGE  
H

Product  
Finder

V<sub>c</sub>

M

MF

UNC

UN

G

SELF-LOCK

InnoForm  
GAL/E-SN  
PM-TiCN

InnoForm  
GAL/E-SN-  
IKZ  
PM-TiCN

InnoForm  
GAL/E-SN-  
IKZN  
PM-TiCN

Drück  
GAL-SPEED/  
E-SN  
IKZN-TiCN

HM-Drück  
GAL-SPEED/  
E-SN  
IKZN-TiCN

Drück  
NF  
GLT-104

Drück  
NF-SN  
GLT-104

InnoForm  
H-SN  
PM-TiN-T26

InnoForm  
H-SN-  
IKZ-  
PM  
TiN-T26

InnoForm  
H-SN-  
IKZ-  
LF3  
PM-TiN-T26

E / 1,5-2

E / 1,5-2

E / 1,5-2

E / 1,5-2

E / 1,5-2

C / 2-3

C / 2-3

C / 2-3

C / 2-3

C / 2-3

max. 3 x d<sub>1</sub>

max. 3 x d<sub>1</sub>

max. 3 x d<sub>1</sub>

max. 3 x d<sub>1</sub>

max. 3 x d<sub>1</sub>

max. 3 x d<sub>1</sub>

max. 3 x d<sub>1</sub>

Gewindetiefe  
und Lochform  
Thread depth  
and hole type

Seite - Page

min. empf. max.  
rec.

min. empf. max.  
rec.

min. empf. max.  
rec.

min. empf. max.  
rec.

min. empf. max.  
rec.

min. empf. max.  
rec.

min. empf. max.  
rec.

min. empf. max.  
rec.

min. empf. max.  
rec.

min. empf. max.  
rec.

v<sub>c</sub> [m/min]

1.1

2.1

3.1

4.1

5.1

1.1

2.1

3.1

4.1

1.1

1.2

1.3

1.4

1.5

1.6

2.1

2.2

2.3

2.4

2.5

2.6

2.7

2.8

3.1

3.2

4.1

4.2

4.3

4.4

5.1

5.2

5.3

1.1

1.2

1.3

2.1

2.2

2.3

2.4

2.5

2.6

1.1

1.2

1.3

1.4

1.5

1.6

P

M

K

N

S

H



1) Gewindeformen in Durchgangslöcher nur mit externer Kühlungsmöglichkeit  
Cold-forming in through holes is possible only with external cooling/lubrication



**Gewidekernloch-Vorfertigungsdurchmesser für Gewindeformer**

Die empfohlenen Vorfertigungsdurchmesser ermöglichen einen ausgeformten Kerndurchmesser innerhalb der Toleranz (bei M und MF nach DIN 13-50). Voraussetzung ist stabile Werkzeug- und Werkstückspannung sowie Verwendung von neuwertigen VHM-Spiralbohrern.

Zur Standzeitoptimierung kann auch mit größeren Vorfertigungsdurchmessern gearbeitet werden. Es muss jedoch sichergestellt sein, dass die Kerndurchmesser-Toleranz eingehalten wird (bei M und MF nach DIN 13-50).

Bei schlecht ausformenden Werkstoffen (z.B. GAL) empfehlen wir bei  $P \geq 1$  mm bzw. 24 Gg./1" um 0,05 mm kleiner vorzubohren.

Die empfohlenen Vorfertigungsdurchmesser sind sorgfältig ermittelt und in der Praxis geprüft. In seltenen Fällen kann es vorkommen, dass die empfohlenen Vorfertigungsdurchmesser nicht zum gewünschten Innengewinde-Kerndurchmesser führen. In diesen Fällen sind die geeigneten Vorfertigungsdurchmesser im Versuch zu ermitteln.

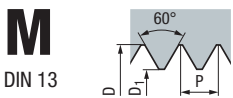
**Thread hole preparatory diameter for cold-forming taps**

The recommended preparatory diameters enable a cold-formed minor diameter of the thread within tolerance (for M and MF according to DIN 13-50). Preconditions include a stable clamping of tool and workpiece as well as solid carbide twist drills which are new or as good as new.

In order to optimise tool life, larger thread hole preparatory diameters may be used. But it is necessary to ensure that the minor diameter of the thread complies with the tolerance (for M and MF according to DIN 13-50).

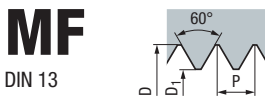
We recommend a smaller preparatory diameter by 0.05 mm for difficult to form materials (such as aluminium cast alloys) for  $P \geq 1$  mm respectively from 24 threads/1".

The recommended preparatory diameters were carefully determined and tested in the field. In rare cases it may happen that the recommended preparatory diameters do not provide the desired minor diameter of the internal thread. In such cases the suitable preparatory diameters must be determined in tests.



M  
DIN 13

| Nenngröße<br>Nom. size |         | D <sub>1</sub> (6H) *) |            |                     |
|------------------------|---------|------------------------|------------|---------------------|
| D<br>mm                | P<br>mm | min.<br>mm             | max.<br>mm | empf.<br>rec.<br>mm |
| <b>M</b> 1             | 0,25    | 0,89                   | 0,93       | <b>0,9</b>          |
| 1,1                    | 0,25    | 0,99                   | 1,03       | <b>1</b>            |
| 1,2                    | 0,25    | 1,09                   | 1,13       | <b>1,1</b>          |
| 1,4                    | 0,3     | 1,27                   | 1,31       | <b>1,28</b>         |
| 1,6                    | 0,35    | 1,46                   | 1,50       | <b>1,47</b>         |
| 1,7                    | 0,35    | 1,56                   | 1,60       | <b>1,57</b>         |
| 1,8                    | 0,35    | 1,66                   | 1,70       | <b>1,67</b>         |
| 2                      | 0,4     | 1,84                   | 1,88       | <b>1,85</b>         |
| 2,2                    | 0,45    | 2,02                   | 2,06       | <b>2,03</b>         |
| 2,3                    | 0,4     | 2,14                   | 2,18       | <b>2,15</b>         |
| 2,5                    | 0,45    | 2,32                   | 2,36       | <b>2,33</b>         |
| 2,6                    | 0,45    | 2,42                   | 2,46       | <b>2,43</b>         |
| 3                      | 0,5     | 2,79                   | 2,83       | <b>2,8</b>          |
| 3,5                    | 0,6     | 3,24                   | 3,28       | <b>3,25</b>         |
| 4                      | 0,7     | 3,69                   | 3,73       | <b>3,7</b>          |
| 4,5                    | 0,75    | 4,16                   | 4,23       | <b>4,2</b>          |
| 5                      | 0,8     | 4,64                   | 4,68       | <b>4,65</b>         |
| 5,5                    | 0,9     | 5,09                   | 5,13       | <b>5,1</b>          |
| 6                      | 1       | 5,55                   | 5,63       | <b>5,6</b>          |
| 7                      | 1       | 6,55                   | 6,64       | <b>6,6</b>          |
| 8                      | 1,25    | 7,41                   | 7,49       | <b>7,45</b>         |
| 9                      | 1,25    | 8,41                   | 8,49       | <b>8,45</b>         |
| 10                     | 1,5     | 9,28                   | 9,39       | <b>9,35</b>         |
| 12                     | 1,75    | 11,16                  | 11,29      | <b>11,25</b>        |
| 14                     | 2       | 13,02                  | 13,14      | <b>13,1</b>         |
| 16                     | 2       | 15,02                  | 15,14      | <b>15,1</b>         |
| 18                     | 2,5     | 16,73                  | 16,89      | <b>16,85</b>        |
| 20                     | 2,5     | 18,73                  | 18,90      | <b>18,85</b>        |
| 22                     | 2,5     | 20,73                  | 20,90      | <b>20,85</b>        |
| 24                     | 3       | 22,47                  | 22,65      | <b>22,6</b>         |
| 27                     | 3       | 25,47                  | 25,65      | <b>25,6</b>         |
| 30                     | 3,5     | 28,19                  | 28,40      | <b>28,35</b>        |
| 33                     | 3,5     | 31,19                  | 31,41      | <b>31,35</b>        |
| 36                     | 4       | 33,92                  | 34,16      | <b>34,1</b>         |
| 39                     | 4       | 36,92                  | 37,16      | <b>37,1</b>         |
| 42                     | 4,5     | 39,64                  | 39,91      | <b>39,85</b>        |
| 45                     | 4,5     | 42,64                  | 42,91      | <b>42,85</b>        |
| 48                     | 5       | 45,37                  | 45,71      | <b>45,65</b>        |

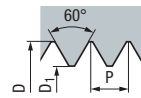


MF  
DIN 13

| Nenngröße<br>Nom. size |         | D <sub>1</sub> (6H) |            |                     |
|------------------------|---------|---------------------|------------|---------------------|
| D<br>mm                | P<br>mm | min.<br>mm          | max.<br>mm | empf.<br>rec.<br>mm |
| <b>M</b> 2,5 x 0,35    |         | 2,36                | 2,40       | <b>2,37</b>         |
| 2,6 x 0,35             |         | 2,46                | 2,50       | <b>2,47</b>         |
| 3 x 0,35               |         | 2,87                | 2,91       | <b>2,88</b>         |
| 3,5 x 0,35             |         | 3,37                | 3,41       | <b>3,38</b>         |
| 4 x 0,5                |         | 3,79                | 3,83       | <b>3,8</b>          |
| 5 x 0,5                |         | 4,79                | 4,83       | <b>4,8</b>          |
| 6 x 0,5                |         | 5,80                | 5,83       | <b>5,8</b>          |
| 6 x 0,75               |         | 5,67                | 5,73       | <b>5,7</b>          |
| 7 x 0,75               |         | 6,67                | 6,74       | <b>6,7</b>          |
| 8 x 0,75               |         | 7,67                | 7,74       | <b>7,7</b>          |
| 8 x 1                  |         | 7,55                | 7,64       | <b>7,6</b>          |
| 9 x 0,75               |         | 8,67                | 8,74       | <b>8,7</b>          |
| 9 x 1                  |         | 8,55                | 8,64       | <b>8,6</b>          |
| 10 x 0,75              |         | 9,67                | 9,74       | <b>9,7</b>          |
| 10 x 1                 |         | 9,55                | 9,64       | <b>9,6</b>          |
| 10 x 1,25              |         | 9,41                | 9,49       | <b>9,45</b>         |
| 11 x 1                 |         | 10,55               | 10,64      | <b>10,6</b>         |
| 12 x 1                 |         | 11,55               | 11,64      | <b>11,6</b>         |
| 12 x 1,25              |         | 11,43               | 11,49      | <b>11,45</b>        |
| 12 x 1,5               |         | 11,29               | 11,39      | <b>11,35</b>        |
| 14 x 1                 |         | 13,55               | 13,64      | <b>13,6</b>         |
| 14 x 1,25              |         | 13,43               | 13,49      | <b>13,45</b>        |
| 14 x 1,5               |         | 13,29               | 13,39      | <b>13,35</b>        |
| 15 x 1                 |         | 14,55               | 14,64      | <b>14,6</b>         |
| 16 x 1                 |         | 15,55               | 15,64      | <b>15,6</b>         |
| 16 x 1,5               |         | 15,29               | 15,39      | <b>15,35</b>        |
| 18 x 1                 |         | 17,55               | 17,64      | <b>17,6</b>         |
| 18 x 1,5               |         | 17,29               | 17,39      | <b>17,35</b>        |
| 18 x 2                 |         | 17,02               | 17,14      | <b>17,1</b>         |
| 20 x 1                 |         | 19,55               | 19,65      | <b>19,6</b>         |
| 20 x 1,5               |         | 19,29               | 19,40      | <b>19,35</b>        |
| 20 x 2                 |         | 19,02               | 19,15      | <b>19,1</b>         |
| 24 x 2                 |         | 23,03               | 23,15      | <b>23,1</b>         |
| 30 x 2                 |         | 29,03               | 29,15      | <b>29,1</b>         |
| 36 x 3                 |         | 34,47               | 34,66      | <b>34,6</b>         |
| 42 x 4                 |         | 39,92               | 40,16      | <b>40,1</b>         |
| 48 x 3                 |         | 46,48               | 46,66      | <b>46,6</b>         |
| 48 x 4                 |         | 45,93               | 46,21      | <b>46,15</b>        |

**UNC**

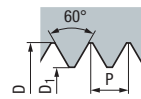
ASME B1.1



| Nenngröße<br>Nom. size |                  | D <sub>1</sub> (2B) |            |                     |
|------------------------|------------------|---------------------|------------|---------------------|
| D<br>inch              | P<br>Gg/1" (tpi) | min.<br>mm          | max.<br>mm | empf.<br>rec.<br>mm |
| Nr. 4                  | - 40             | 2,55                | 2,58       | <b>2,55</b>         |
| Nr. 5                  | - 40             | 2,88                | 2,93       | <b>2,9</b>          |
| Nr. 6                  | - 32             | 3,12                | 3,18       | <b>3,15</b>         |
| Nr. 8                  | - 32             | 3,79                | 3,83       | <b>3,8</b>          |
| Nr. 10                 | - 24             | 4,31                | 4,38       | <b>4,35</b>         |
| Nr. 12                 | - 24             | 4,97                | 5,03       | <b>5</b>            |
| 1/4                    | - 20             | 5,72                | 5,78       | <b>5,75</b>         |
| 5/16                   | - 18             | 7,23                | 7,34       | <b>7,3</b>          |
| 3/8                    | - 16             | 8,73                | 8,84       | <b>8,8</b>          |
| 7/16                   | - 14             | 10,20               | 10,29      | <b>10,25</b>        |
| 1/2                    | - 13             | 11,71               | 11,84      | <b>11,8</b>         |
| 9/16                   | - 12             | 13,21               | 13,34      | <b>13,3</b>         |
| 5/8                    | - 11             | 14,70               | 14,84      | <b>14,8</b>         |
| 3/4                    | - 10             | 17,73               | 17,89      | <b>17,85</b>        |
| 7/8                    | - 9              | 20,75               | 20,95      | <b>20,9</b>         |
| 1"                     | - 8              | 23,74               | 23,95      | <b>23,9</b>         |

**UNF**

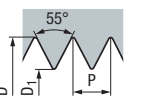
ASME B1.1



| Nenngröße<br>Nom. size |                  | D <sub>1</sub> (2B) |            |                     |
|------------------------|------------------|---------------------|------------|---------------------|
| D<br>inch              | P<br>Gg/1" (tpi) | min.<br>mm          | max.<br>mm | empf.<br>rec.<br>mm |
| Nr. 2                  | - 64             | 2,01                | 2,05       | <b>2,02</b>         |
| Nr. 3                  | - 56             | 2,31                | 2,35       | <b>2,32</b>         |
| Nr. 4                  | - 48             | 2,60                | 2,65       | <b>2,62</b>         |
| Nr. 5                  | - 44             | 2,91                | 2,95       | <b>2,92</b>         |
| Nr. 6                  | - 40             | 3,21                | 3,25       | <b>3,22</b>         |
| Nr. 8                  | - 36             | 3,83                | 3,88       | <b>3,85</b>         |
| Nr. 10                 | - 32             | 4,45                | 4,48       | <b>4,45</b>         |
| Nr. 12                 | - 28             | 5,05                | 5,13       | <b>5,1</b>          |
| 1/4                    | - 28             | 5,92                | 5,98       | <b>5,95</b>         |
| 5/16                   | - 24             | 7,43                | 7,49       | <b>7,45</b>         |
| 3/8                    | - 24             | 9,02                | 9,09       | <b>9,05</b>         |
| 7/16                   | - 20             | 10,49               | 10,59      | <b>10,55</b>        |
| 1/2                    | - 20             | 12,08               | 12,19      | <b>12,15</b>        |
| 9/16                   | - 18             | 13,60               | 13,69      | <b>13,65</b>        |
| 5/8                    | - 18             | 15,19               | 15,29      | <b>15,25</b>        |
| 3/4                    | - 16             | 18,27               | 18,40      | <b>18,35</b>        |
| 7/8                    | - 14             | 21,33               | 21,45      | <b>21,4</b>         |
| 1"                     | - 12             | 24,34               | 24,50      | <b>24,45</b>        |

**G (BSP)**

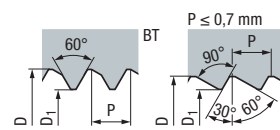
DIN EN ISO 228



| Nenngröße<br>Nom. size |                  | D <sub>1</sub> |            |                     |
|------------------------|------------------|----------------|------------|---------------------|
| D                      | P<br>Gg/1" (tpi) | min.<br>mm     | max.<br>mm | empf.<br>rec.<br>mm |
| <b>G</b> 1/16          | - 28             | 7,25           | 7,29       | <b>7,25</b>         |
| 1/8                    | - 28             | 9,25           | 9,29       | <b>9,25</b>         |
| 1/4                    | - 19             | 12,48          | 12,59      | <b>12,55</b>        |
| 3/8                    | - 19             | 15,99          | 16,09      | <b>16,05</b>        |
| 1/2                    | - 14             | 20,02          | 20,15      | <b>20,1</b>         |
| 5/8                    | - 14             | 21,97          | 22,10      | <b>22,05</b>        |
| 3/4                    | - 14             | 25,50          | 25,65      | <b>25,6</b>         |
| 7/8                    | - 14             | 29,26          | 29,40      | <b>29,35</b>        |
| 1"                     | - 11             | 32,05          | 32,21      | <b>32,15</b>        |

**LK-M**

EMUGE-Norm  
EMUGE standard



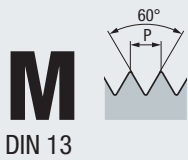
| Nenngröße<br>Nom. size |         | D <sub>1</sub> |            |                     |
|------------------------|---------|----------------|------------|---------------------|
| D<br>mm                | P<br>mm | min.<br>mm     | max.<br>mm | empf.<br>rec.<br>mm |
| <b>LK-M</b> 3          | 0,5     | 2,82           | 2,88       | <b>2,85</b>         |
| 4                      | 0,7     | 3,77           | 3,83       | <b>3,8</b>          |
| 5                      | 0,8     | 4,77           | 4,83       | <b>4,8</b>          |
| 6                      | 1       | 5,70           | 5,78       | <b>5,7</b>          |
| 8                      | 1,25    | 7,58           | 7,68       | <b>7,6</b>          |
| 10                     | 1,5     | 9,48           | 9,58       | <b>9,5</b>          |

\*) P ≤ 0,3 mm = Tol. 5H

|                |
|----------------|
| Product Finder |
| V <sub>c</sub> |
| M              |
| MF             |
| UNC            |
| UN             |
| G              |
| SELF-LOCK      |

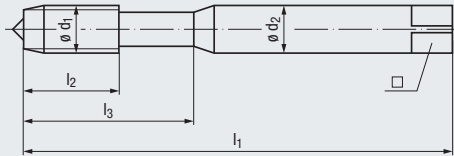


- Product Finder
- Vc
- M
- MF
- UNC
- UNF
- G
- SELF-LOCK



DIN  
2174

STEEL  
Steel  
materials

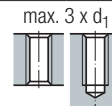


Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material

Technische Informationen  
Technical information

|         |           |         |           |
|---------|-----------|---------|-----------|
| 6HX *)  | 6HX       | 6HX     | 6HX       |
| NT      | TIN       | NT      | TIN       |
| HSSE    | HSSE      | HSSE    | HSSE      |
| C / 2-3 | C / 2-3   | C / 2-3 | C / 2-3   |
| O / P   | E / O / P | O / P   | E / O / P |

Gewindetiefe und Lochform  
Thread depth and hole type



Einsatzgebiete – Material  
Applications – material

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|              |                       |              |                       |
|--------------|-----------------------|--------------|-----------------------|
| <b>P 2.1</b> | <b>P 1.1-3.1</b>      | <b>P 2.1</b> | <b>P 1.1-3.1</b>      |
| <b>K 2.1</b> | <b>N 1.5-1.6, 2.2</b> | <b>K 2.1</b> | <b>N 1.5-1.6, 2.2</b> |
| <b>N 1.5</b> |                       | <b>N 1.5</b> |                       |

| $\varnothing d_1$<br>mm | P<br>mm | $l_1$ | $l_2$ | $l_3$ | $\varnothing d_2$ | $\square$ |       | Drück<br>1-STEEL<br>NT | Drück<br>1-STEEL<br>TIN | Drück<br>1-STEEL-SN<br>NT | Drück<br>1-STEEL-SN<br>TIN |
|-------------------------|---------|-------|-------|-------|-------------------|-----------|-------|------------------------|-------------------------|---------------------------|----------------------------|
| <b>M</b> 1              | 0,25    | 40    | 5     | –     | 2,5               | 2,1       | 0,9   | <b>B0911000.0010</b>   |                         |                           |                            |
| 1,1                     | 0,25    | 40    | 5     | –     | 2,5               | 2,1       | 1     | <b>B0911000.0011</b>   |                         |                           |                            |
| 1,2                     | 0,25    | 40    | 5     | –     | 2,5               | 2,1       | 1,1   | <b>B0911000.0012</b>   |                         |                           |                            |
| 1,4                     | 0,3     | 40    | 6     | –     | 2,5               | 2,1       | 1,28  | <b>B0911000.0014</b>   |                         |                           |                            |
| 1,6                     | 0,35    | 40    | 6     | 11    | 2,5               | 2,1       | 1,47  | <b>B0911000.0016</b>   | <b>B0911400.0016</b>    |                           |                            |
| 1,7                     | 0,35    | 40    | 6     | 11    | 2,5               | 2,1       | 1,57  | <b>B0911000.0017</b>   |                         |                           |                            |
| 1,8                     | 0,35    | 40    | 6     | 11    | 2,5               | 2,1       | 1,67  | <b>B0911000.0018</b>   |                         |                           |                            |
| 2                       | 0,4     | 45    | 7     | 12    | 2,8               | 2,1       | 1,85  | <b>B0911000.0020</b>   | <b>B0911400.0020</b>    | B0921000.0020             | <b>B0921400.0020</b>       |
| 2,2                     | 0,45    | 45    | 7     | 12    | 2,8               | 2,1       | 2,03  | <b>B0911000.0022</b>   |                         | B0921000.0022             |                            |
| 2,3                     | 0,4     | 45    | 7     | 12    | 2,8               | 2,1       | 2,15  | <b>B0911000.0023</b>   |                         | B0921000.0023             |                            |
| 2,5                     | 0,45    | 50    | 9     | 14    | 2,8               | 2,1       | 2,33  | <b>B0911000.0025</b>   | <b>B0911400.0025</b>    | B0921000.0025             | <b>B0921400.0025</b>       |
| 2,6                     | 0,45    | 50    | 9     | 14    | 2,8               | 2,1       | 2,43  | <b>B0911000.0026</b>   | B0911400.0026           | B0921000.0026             | B0921400.0026              |
| 3                       | 0,5     | 56    | 11    | 18    | 3,5               | 2,7       | 2,8   | <b>B0911000.0030</b>   | <b>B0911400.0030</b>    | <b>B0921000.0030</b>      | <b>B0921400.0030</b>       |
| 3,5                     | 0,6     | 56    | 12    | 20    | 4                 | 3         | 3,25  | <b>B0911000.0035</b>   | <b>B0911400.0035</b>    | B0921000.0035             | <b>B0921400.0035</b>       |
| 4                       | 0,7     | 63    | 13    | 21    | 4,5               | 3,4       | 3,7   | <b>B0911000.0040</b>   | <b>B0911400.0040</b>    | <b>B0921000.0040</b>      | <b>B0921400.0040</b>       |
| 4,5                     | 0,75    | 70    | 14    | 25    | 6                 | 4,9       | 4,2   |                        |                         |                           |                            |
| 5                       | 0,8     | 70    | 15    | 25    | 6                 | 4,9       | 4,65  | <b>B0911000.0050</b>   | <b>B0911400.0050</b>    | <b>B0921000.0050</b>      | <b>B0921400.0050</b>       |
| 5,5                     | 0,9     | 80    | 16    | 30    | 6                 | 4,9       | 5,1   |                        |                         |                           |                            |
| 6                       | 1       | 80    | 17    | 30    | 6                 | 4,9       | 5,6   | <b>B0911000.0060</b>   | <b>B0911400.0060</b>    | <b>B0921000.0060</b>      | <b>B0921400.0060</b>       |
| 7                       | 1       | 80    | 17    | 30    | 7                 | 5,5       | 6,6   | <b>B0911000.0070</b>   | <b>B0911400.0070</b>    | B0921000.0070             | <b>B0921400.0070</b>       |
| 8                       | 1,25    | 90    | 20    | 35    | 8                 | 6,2       | 7,45  | <b>B0911000.0080</b>   | <b>B0911400.0080</b>    | <b>B0921000.0080</b>      | <b>B0921400.0080</b>       |
| 9                       | 1,25    | 90    | 20    | 35    | 9                 | 7         | 8,45  |                        |                         |                           |                            |
| 10                      | 1,5     | 100   | 22    | 39    | 10                | 8         | 9,35  | <b>B0911000.0100</b>   | <b>B0911400.0100</b>    | <b>B0921000.0100</b>      | <b>B0921400.0100</b>       |
| 12                      | 1,75    | 110   | 24    | 44    | 12                | 9         | 11,25 |                        |                         |                           |                            |

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\*)  $\leq$  M1,4 Tol. 4HX/5HX



Bei schlecht ausformenden Werkstoffen (z.B. GAL) empfehlen wir bei  $P \geq 1$  mm um 0,05 mm kleiner vorzubohren.

Weitere Informationen zu den empfohlenen Vorfertigungsdurchmessern siehe Seite 317.

We recommend a smaller preparatory diameter by 0.05 mm for difficult to form materials (such as aluminium cast alloys) for  $P \geq 1$  mm.

For further information regarding the recommended preparatory diameters, see page 317.

**STEEL**  
Steel  
materials

Product  
Finder

V<sub>c</sub>

M

MF

UNC

UNF

G

SELF-LOCK

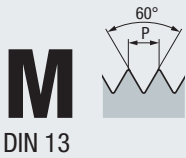
| STEEL<br>Steel<br>materials    |                             |                             |                                    |                                       |   |  |   |
|--------------------------------|-----------------------------|-----------------------------|------------------------------------|---------------------------------------|---|--|---|
|                                |                             |                             |                                    |                                       |   |  |   |
|                                |                             |                             |                                    |                                       |   |  |   |
| $l_2 \approx 10 \times P$      |                             |                             |                                    | $l_2 \approx 10 \times P$             | $l_2 \approx 10 \times P$                 | $l_2 \approx 10 \times P$                  | $l_2 \approx 10 \times P$                   |
| 6HX                            | 6GX                         | 6GX                         | 6HX                                | 6HX                                   | 6HX                                       | 6HX  | 6HX   |
| VHM                            | TIN<br>HSSE                 | TIN<br>HSSE                 | TIN<br>HSSE-PM                     | TIN-66<br>HSSE-PM                     | TIN-66<br>HSSE-PM                         | TIN-66<br>HSSE-PM                          | TIN-66<br>HSSE-PM                           |
| C / 2-3<br>E / O               | C / 2-3<br>E / O / P        | C / 2-3<br>E / O / P        | D / 4-5<br>E / O / P               | C / 2-3<br>E / O / P                  | C / 2-3<br>E / O                          | C / 2-3<br>E / O                           | E / 1,5-2<br>E / O                          |
| max. 3 x d <sub>1</sub><br>    | max. 3 x d <sub>1</sub><br> | max. 3 x d <sub>1</sub><br> | max. 3 x d <sub>1</sub><br>        | max. 3 x d <sub>1</sub><br>           | max. 3 x d <sub>1</sub><br>               | max. 3 x d <sub>1</sub><br>                | max. 3 x d <sub>1</sub><br>                 |
| N 1.5-1.6                      | P 1.1-3.1<br>N 1.5-1.6, 2.2 | P 1.1-3.1<br>N 1.5-1.6, 2.2 | P 1.1-4.1                          | P 2.1-5.1                             | P 2.1-5.1                                 | P 2.1-4.1                                  | P 2.1-5.1                                   |
| VHM-Drück<br>1-STEEL<br>SN-IKZ | Drück<br>1-STEEL<br>TIN     | Drück<br>1-STEEL-SN<br>TIN  | InnoForm<br>1-STEEL-BL/D<br>PM-TIN | InnoForm<br>1-STEEL-M-SN<br>PM-TIN-66 | InnoForm<br>1-STEEL-M-SN<br>IKZ-PM-TIN-66 | InnoForm<br>1-STEEL-M-SN<br>IKZN-PM-TIN-66 | InnoForm<br>1-STEEL-M/E-SN<br>IKZ-PM-TIN-66 |
|                                |                             |                             |                                    |                                       |   |  |   |
|                                |                             |                             |                                    |                                       |   |  |   |
|                                |                             |                             |                                    |                                       |   |  |   |
|                                |                             |                             |                                    |                                       |   |  |   |
|                                |                             |                             |                                    |                                       |   |  |   |
|                                | B0911420.0020               | B0921420.0020               |                                    |                                       |   |  |   |
|                                |                             |                             |                                    |                                       |   |  |   |
|                                |                             |                             |                                    |                                       |   |  |   |
|                                | B0911420.0025               | B0921420.0025               |                                    |                                       |   |  |   |
|                                | B0911420.0026               | B0921420.0026               |                                    |                                       |   |  |   |
|                                | B0911420.0030               | B0921420.0030               | B535P300.0030                      | B5217F00.0030                         |   |  |   |
|                                | B0911420.0035               | B0921420.0035               |                                    |                                       |   |  |   |
|                                | B0911420.0040               | B0921420.0040               | B535P300.0040                      | B5217F00.0040                         | B5237F00.0040                             | B5267F00.0040                              | B5317F00.0040                               |
|                                |                             |                             |                                    |                                       |   |  |   |
| B1970100.0050                  | B0911420.0050               | B0921420.0050               | B535P300.0050                      | B5217F00.0050                         | B5237F00.0050                             | B5267F00.0050                              | B5317F00.0050                               |
|                                |                             |                             |                                    |                                       |   |  |   |
| B1970100.0060                  | B0911420.0060               | B0921420.0060               | B535P300.0060                      | B5217F00.0060                         | B5237F00.0060                             | B5267F00.0060                              | B5317F00.0060                               |
|                                |                             |                             |                                    |                                       |   |  |   |
| B1970100.0080                  | B0911420.0080               | B0921420.0080               | B535P300.0080                      | B5217F00.0080                         | B5237F00.0080                             | B5267F00.0080                              | B5317F00.0080                               |
|                                |                             |                             |                                    |                                       |   |  |   |
| B1970100.0100                  | B0911420.0100               | B0921420.0100               | B535P300.0100                      | B5217F00.0100                         | B5237F00.0100                             | B5267F00.0100                              | B5317F00.0100                               |
|                                |                             |                             |                                    |                                       |   |  |   |
|                                |                             |                             |                                    |                                       |   |  |   |

|   |     |
|---|-----|
| M | 1   |
|   | 1,1 |
|   | 1,2 |
|   | 1,4 |
|   | 1,6 |
|   | 1,7 |
|   | 1,8 |
|   | 2   |
|   | 2,2 |
|   | 2,3 |
|   | 2,5 |
|   | 2,6 |
|   | 3   |
|   | 3,5 |
|   | 4   |
|   | 4,5 |
|   | 5   |
|   | 5,5 |
|   | 6   |
|   | 7   |
|   | 8   |
|   | 9   |
|   | 10  |
|   | 12  |

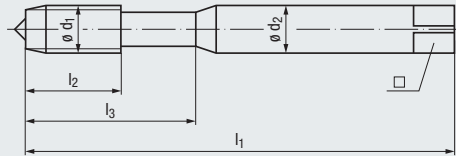
1) Gewindeformen in Durchgangslöcher nur mit externer Kühlschmierung möglich  
Cold-forming in through holes is possible only with external cooling/lubrication

2) Zum Patent angemeldet  
Patent pending

- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC
- UNF
- G
- SELF-LOCK



DIN 13



DIN 2174

**STEEL**  
Steel materials



**VA**  
Stainless steel materials

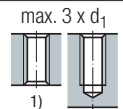
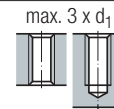
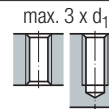


Technische Informationen  
Technical information

Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material



Gewindetiefe und Lochform  
Thread depth and hole type



Einsatzgebiete – Material  
Applications – material

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P 2.1-4.1

M 1.1-3.1

M 1.1-3.1

| M | $\phi d_1$<br>mm | P<br>mm | $l_1$ | $l_2$ | $l_3$ | $\phi d_2$ | □   |       | InnoForm                         | InnoForm                | InnoForm                        |
|---|------------------|---------|-------|-------|-------|------------|-----|-------|----------------------------------|-------------------------|---------------------------------|
|   |                  |         |       |       |       |            |     |       | 1-STEEL-M/E-SN<br>IKZN-PM-TIN-66 | 1-VA/E-SN<br>PM-TIN-T26 | 1-VA/E-SN-<br>IKZ<br>PM-TIN-T26 |
|   | 1                | 0,25    | 40    | 2,5   | –     | 2,5        | 2,1 | 0,9   |                                  |                         |                                 |
|   | 1,1              | 0,25    | 40    | 2,5   | –     | 2,5        | 2,1 | 1     |                                  |                         |                                 |
|   | 1,2              | 0,25    | 40    | 2,5   | –     | 2,5        | 2,1 | 1,1   |                                  |                         |                                 |
|   | 1,4              | 0,3     | 40    | 3     | –     | 2,5        | 2,1 | 1,28  |                                  |                         |                                 |
|   | 1,6              | 0,35    | 40    | 4     | 11    | 2,5        | 2,1 | 1,47  |                                  |                         |                                 |
|   | 1,7              | 0,35    | 40    | 4     | 11    | 2,5        | 2,1 | 1,57  |                                  |                         |                                 |
|   | 1,8              | 0,35    | 40    | 4     | 11    | 2,5        | 2,1 | 1,67  |                                  |                         |                                 |
|   | 2                | 0,4     | 45    | 4     | 12    | 2,8        | 2,1 | 1,85  |                                  |                         |                                 |
|   | 2,2              | 0,45    | 45    | 4,5   | 12    | 2,8        | 2,1 | 2,03  |                                  |                         |                                 |
|   | 2,3              | 0,4     | 45    | 4,5   | 12    | 2,8        | 2,1 | 2,15  |                                  |                         |                                 |
|   | 2,5              | 0,45    | 50    | 5     | 14    | 2,8        | 2,1 | 2,33  |                                  |                         |                                 |
|   | 2,6              | 0,45    | 50    | 5     | 14    | 2,8        | 2,1 | 2,43  |                                  |                         |                                 |
|   | 3                | 0,5     | 56    | 6     | 18    | 3,5        | 2,7 | 2,8   |                                  | B5296A00.0030           |                                 |
|   | 3,5              | 0,6     | 56    | 7     | 20    | 4          | 3   | 3,25  |                                  |                         |                                 |
|   | 4                | 0,7     | 63    | 7     | 21    | 4,5        | 3,4 | 3,7   | B5337F00.0040                    | B5296A00.0040           | B5316A00.0040                   |
|   | 4,5              | 0,75    | 70    | 8     | 25    | 6          | 4,9 | 4,2   |                                  |                         |                                 |
|   | 5                | 0,8     | 70    | 8     | 25    | 6          | 4,9 | 4,65  | B5337F00.0050                    | B5296A00.0050           | B5316A00.0050                   |
|   | 5,5              | 0,9     | 80    | 10    | 30    | 6          | 4,9 | 5,1   |                                  |                         |                                 |
|   | 6                | 1       | 80    | 10    | 30    | 6          | 4,9 | 5,6   | B5337F00.0060                    | B5296A00.0060           | B5316A00.0060                   |
|   | 7                | 1       | 80    | 10    | 30    | 7          | 5,5 | 6,6   |                                  |                         |                                 |
|   | 8                | 1,25    | 90    | 14    | 35    | 8          | 6,2 | 7,45  | B5337F00.0080                    | B5296A00.0080           | B5316A00.0080                   |
|   | 9                | 1,25    | 90    | 14    | 35    | 9          | 7   | 8,45  |                                  |                         |                                 |
|   | 10               | 1,5     | 100   | 16    | 39    | 10         | 8   | 9,35  | B5337F00.0100                    | B5296A00.0100           | B5316A00.0100                   |
|   | 12               | 1,75    | 110   | 18    | 44    | 12         | 9   | 11,25 |                                  |                         |                                 |

DIN 2174



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1) Gewindeformen in Durchgangslöcher nur mit externer Kühlschmierung möglich  
Cold-forming in through holes is possible only with external cooling/lubrication

2) Zum Patent angemeldet  
Patent pending



|                |
|----------------|
| Product Finder |
| V <sub>c</sub> |
| M              |
| MF             |
| UNC            |
| UNF            |
| G              |
| SELF-LOCK      |

| AL<br>Aluminium<br>wrought alloys |   |                                     |   | GAL<br>Aluminium<br>cast alloys |   |  |
|-----------------------------------|---|-------------------------------------|---|---------------------------------|---|--|
|                                   |   |                                     |   |                                 |   |  |
| <b>new</b><br>                    | <b>new</b><br>                            | <b>new</b><br>                      | <b>new</b><br>                              |                                 |   |  |
| 6HX *)<br>GLT-104<br>HSSE-PM      | 6HX<br>GLT-104<br>HSSE-PM                 | 6HX<br>GLT-104<br>HSSE-PM           | 6HX<br>GLT-104<br>HSSE-PM                   | 6HX<br>TICN<br>HSSE-PM          | 6HX<br>TICN<br>HSSE-PM                  | 6HX<br>TICN<br>HSSE-PM                   |
| C / 2-3<br>E / O / P              | C / 2-3<br>E / O                          | E / 1,5-2<br>E / O / P              | E / 1,5-2<br>E / O                          | C / 2-3<br>E / O / P            | C / 2-3<br>E / O                        | C / 2-3<br>E / O                         |
| max. 3 x d <sub>1</sub><br>       | max. 3 x d <sub>1</sub><br>               | max. 3 x d <sub>1</sub><br>         | max. 3 x d <sub>1</sub><br>                 | max. 3 x d <sub>1</sub><br>     | max. 3 x d <sub>1</sub><br>             | max. 3 x d <sub>1</sub><br>              |
| N 1.1-1.4<br>N 2.1-2.2            | N 1.1-1.4<br>N 2.1-2.2                    | N 1.1-1.4<br>N 2.1-2.2              | N 1.1-1.4<br>N 2.1-2.2                      | N 1.5-1.6                       | N 1.5-1.6                               | N 1.5-1.6                                |
| InnoForm<br>1-AL-SN<br>PM-GLT-104 | InnoForm<br>1-AL-SN-<br>IKZ<br>PM-GLT-104 | InnoForm<br>1-AL/E-SN<br>PM-GLT-104 | InnoForm<br>1-AL/E-SN-<br>IKZ<br>PM-GLT-104 | InnoForm<br>1-GAL-SN<br>PM-TICN | InnoForm<br>1-GAL-SN-<br>IKZ<br>PM-TICN | InnoForm<br>1-GAL-SN-<br>IKZN<br>PM-TICN |
| B5211Q00.0010                     |   |                                     |   |                                 |   |  |
| B5211Q00.0012                     |   |                                     |   |                                 |   |  |
| B5211Q00.0014                     |   |                                     |   |                                 |   |  |
| B5211Q00.0016                     |   |                                     |   |                                 |   |  |
| <b>B5211Q00.0020</b>              |   | <b>B5291Q00.0020</b>                |   |                                 |   |  |
|                                   |   |                                     |   |                                 |   |  |
| <b>B5211Q00.0025</b>              |   | <b>B5291Q00.0025</b>                |   |                                 |   |  |
|                                   |   |                                     |   |                                 |   |  |
| <b>B5211Q00.0030</b>              |   | <b>B5291Q00.0030</b>                |   |                                 |   |  |
|                                   |   |                                     |   |                                 |   |  |
| <b>B5211Q00.0040</b>              | <b>B5231Q00.0040</b>                      | <b>B5291Q00.0040</b>                | <b>B5311Q00.0040</b>                        |                                 |   |  |
|                                   |   |                                     |   |                                 |   |  |
| <b>B5211Q00.0050</b>              | <b>B5231Q00.0050</b>                      | <b>B5291Q00.0050</b>                | <b>B5311Q00.0050</b>                        | <b>B521Q200.0050</b>            | <b>B523Q200.0050</b>                    | B526Q200.0050                            |
|                                   |   |                                     |   |                                 |   |  |
| <b>B5211Q00.0060</b>              | <b>B5231Q00.0060</b>                      | <b>B5291Q00.0060</b>                | <b>B5311Q00.0060</b>                        | <b>B521Q200.0060</b>            | <b>B523Q200.0060</b>                    | B526Q200.0060                            |
|                                   |   |                                     |   |                                 |   |  |
| <b>B5211Q00.0080</b>              | <b>B5231Q00.0080</b>                      | <b>B5291Q00.0080</b>                | <b>B5311Q00.0080</b>                        | <b>B521Q200.0080</b>            | <b>B523Q200.0080</b>                    | B526Q200.0080                            |
|                                   |   |                                     |   |                                 |   |  |
| <b>B5211Q00.0100</b>              | <b>B5231Q00.0100</b>                      | <b>B5291Q00.0100</b>                | <b>B5311Q00.0100</b>                        | <b>B521Q200.0100</b>            | <b>B523Q200.0100</b>                    | B526Q200.0100                            |
|                                   |   |                                     |   |                                 |   |  |

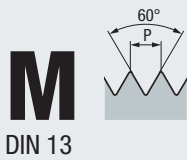
|   |     |
|---|-----|
| M | 1   |
|   | 1,1 |
|   | 1,2 |
|   | 1,4 |
|   | 1,6 |
|   | 1,7 |
|   | 1,8 |
|   | 2   |
|   | 2,2 |
|   | 2,3 |
|   | 2,5 |
|   | 2,6 |
|   | 3   |
|   | 3,5 |
|   | 4   |
|   | 4,5 |
|   | 5   |
|   | 5,5 |
|   | 6   |
|   | 7   |
|   | 8   |
|   | 9   |
|   | 10  |
|   | 12  |

\*) ≤ M1,4 Tol. 4HX/5HX

Bei schlecht ausformenden Werkstoffen (z.B. GAL) empfehlen wir bei P ≥ 1 mm um 0,05 mm kleiner vorzubohren.  
 Weitere Informationen zu den empfohlenen Vorfertigungsdurchmessern siehe Seite 317.

We recommend a smaller preparatory diameter by 0.05 mm for difficult to form materials (such as aluminium cast alloys) for P ≥ 1 mm.  
 For further information regarding the recommended preparatory diameters, see page 317.

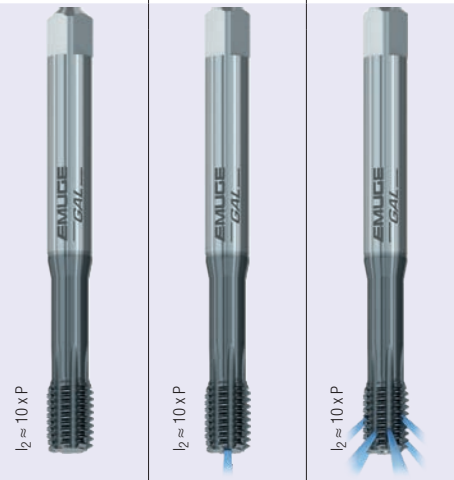
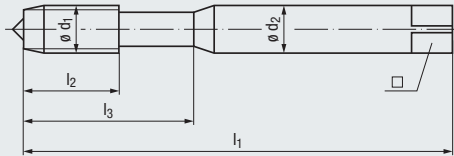
- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC
- UNF
- G
- SELF-LOCK



DIN 13

DIN 2174

**GAL**  
Aluminium  
cast alloys



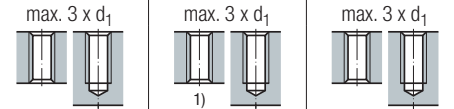
Technische Informationen  
Technical information

Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material



|           |           |           |
|-----------|-----------|-----------|
| 6HX       | 6HX       | 6HX       |
| TICN      | TICN      | TICN      |
| HSSE-PM   | HSSE-PM   | HSSE-PM   |
| E / 1,5-2 | E / 1,5-2 | E / 1,5-2 |
| E / 0 / P | E / 0     | E / 0     |

Gewindetiefe und Lochform  
Thread depth and hole type



Einsatzgebiete – Material  
Applications – material

» 312

**N 1.5-1.6**    **N 1.5-1.6**    **N 1.5-1.6**

| M | $\phi d_1$ | P    | $l_1$ | $l_2$ | $l_3$ | $\phi d_2$ | □   | R     | InnoForm<br>1-GAL/E-SN<br>PM-TICN | InnoForm<br>1-GAL/E-SN-<br>IKZ<br>PM-TICN | InnoForm<br>1-GAL/E-SN-<br>IKZN<br>PM-TICN |
|---|------------|------|-------|-------|-------|------------|-----|-------|-----------------------------------|---|--|
|   | mm         | mm   |       |       |       |            |     |       |                                   |   |  |
|   | 1          | 0,25 | 40    | 5     | –     | 2,5        | 2,1 | 0,9   |                                   |   |  |
|   | 1,1        | 0,25 | 40    | 5     | –     | 2,5        | 2,1 | 1     |                                   |   |  |
|   | 1,2        | 0,25 | 40    | 5     | –     | 2,5        | 2,1 | 1,1   |                                   |   |  |
|   | 1,4        | 0,3  | 40    | 6     | –     | 2,5        | 2,1 | 1,28  |                                   |   |  |
|   | 1,6        | 0,35 | 40    | 6     | 11    | 2,5        | 2,1 | 1,47  |                                   |   |  |
|   | 1,7        | 0,35 | 40    | 6     | 11    | 2,5        | 2,1 | 1,57  |                                   |   |  |
|   | 1,8        | 0,35 | 40    | 6     | 11    | 2,5        | 2,1 | 1,67  |                                   |   |  |
|   | 2          | 0,4  | 45    | 7     | 12    | 2,8        | 2,1 | 1,85  |                                   |   |  |
|   | 2,2        | 0,45 | 45    | 7     | 12    | 2,8        | 2,1 | 2,03  |                                   |   |  |
|   | 2,3        | 0,4  | 45    | 7     | 12    | 2,8        | 2,1 | 2,15  |                                   |   |  |
|   | 2,5        | 0,45 | 50    | 9     | 14    | 2,8        | 2,1 | 2,33  |                                   |   |  |
|   | 2,6        | 0,45 | 50    | 9     | 14    | 2,8        | 2,1 | 2,43  |                                   |   |  |
|   | 3          | 0,5  | 56    | 11    | 18    | 3,5        | 2,7 | 2,8   |                                   |   |  |
|   | 3,5        | 0,6  | 56    | 12    | 20    | 4          | 3   | 3,25  |                                   |   |  |
|   | 4          | 0,7  | 63    | 13    | 21    | 4,5        | 3,4 | 3,7   |                                   |   |  |
|   | 4,5        | 0,75 | 70    | 14    | 25    | 6          | 4,9 | 4,2   |                                   |   |  |
|   | 5          | 0,8  | 70    | 15    | 25    | 6          | 4,9 | 4,65  | B529Q200.0050                     | B531Q200.0050                             | B533Q200.0050                              |
|   | 5,5        | 0,9  | 80    | 16    | 30    | 6          | 4,9 | 5,1   |                                   |   |  |
|   | 6          | 1    | 80    | 17    | 30    | 6          | 4,9 | 5,6   | B529Q200.0060                     | B531Q200.0060                             | B533Q200.0060                              |
|   | 7          | 1    | 80    | 17    | 30    | 7          | 5,5 | 6,6   |                                   |   |  |
|   | 8          | 1,25 | 90    | 20    | 35    | 8          | 6,2 | 7,45  | B529Q200.0080                     | B531Q200.0080                             | B533Q200.0080                              |
|   | 9          | 1,25 | 90    | 20    | 35    | 9          | 7   | 8,45  |                                   |   |  |
|   | 10         | 1,5  | 100   | 22    | 39    | 10         | 8   | 9,35  | B529Q200.0100                     | B531Q200.0100                             | B533Q200.0100                              |
|   | 12         | 1,75 | 110   | 24    | 44    | 12         | 9   | 11,25 |                                   |   |  |

DIN 2174

1) Gewindeformen in Durchgangslöcher nur mit externer Kühlschmierung möglich  
Cold-forming in through holes is possible only with external cooling/lubrication



Bei schlecht ausformenden Werkstoffen (z.B. GAL) empfehlen wir bei  $P \geq 1$  mm um 0,05 mm kleiner vorzubohren.  
Weitere Informationen zu den empfohlenen Vorfertigungsdurchmessern siehe Seite 317.

We recommend a smaller preparatory diameter by 0.05 mm for difficult to form materials (such as aluminium cast alloys) for  $P \geq 1$  mm.  
For further information regarding the recommended preparatory diameters, see page 317.

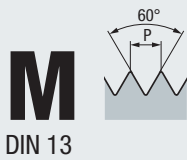
| SPEED<br>High-speed cutting             |   | NF<br>Non ferrous materials          |                                      | H<br>Materials of high tensile strength |                                       | Product Finder |
|---|---|--------------------------------------|--------------------------------------|---|---------------------------------------|----------------|
|   |   |                                      |                                      |   |                                       | V <sub>c</sub> |
|   |   |                                      |                                      |   |                                       | M              |
| 6HX<br>TICN<br>HSSE                     | 6HX<br>TICN<br><b>VHM</b>                   | 6HX<br>GLT-104<br>HSSE               | 6HX<br>GLT-104<br>HSSE               | 6HX<br>TIN-T26<br><b>HSSE-PM</b>        | 6HX<br>TIN-T26<br><b>HSSE-PM</b>      | MF             |
| E / 1,5-2<br>E / O                      | E / 1,5-2<br>E / O                          | C / 2-3<br>E / O / P                 | C / 2-3<br>E / O / P                 | C / 2-3<br>E / O / P                    | C / 2-3<br>E / O                      | UNC            |
|   |   |                                      |                                      |   |                                       | UNF            |
| <b>N 1.4-1.6</b>                        | <b>N 1.4-1.6</b>                            | <b>N 1.1-1.4</b><br><b>N 2.1-2.2</b> | <b>N 1.1-1.4</b><br><b>N 2.1-2.2</b> | <b>P 3.1-5.1</b><br><b>K 2.1</b>        | <b>P 3.1-5.1</b><br><b>K 2.1</b>      | G              |
| <b>Drück 1-GAL-SPEED/E SN-IKZN-TICN</b> | <b>VHM-Drück 1-GAL-SPEED/E SN-IKZN-TICN</b> | <b>Drück 1-NF GLT-104</b>            | <b>Drück 1-NF-SN GLT-104</b>         | <b>InnoForm 1-H-SN PM-TIN-T26</b>       | <b>InnoForm 1-H-SN-IKZ PM-TIN-T26</b> | SELF-LOCK      |
|   |   |                                      |                                      |   |                                       | M 1            |
|   |   |                                      |                                      |   |                                       | 1,1            |
|   |   |                                      |                                      |   |                                       | 1,2            |
|   |   |                                      |                                      |   |                                       | 1,4            |
|   |   |                                      |                                      |   |                                       | 1,6            |
|   |   |                                      |                                      |   |                                       | 1,7            |
|   |   |                                      |                                      |   |                                       | 1,8            |
|   |   | <b>B0915G00.0020</b>                 | <b>B0925G00.0020</b>                 |   |                                       | 2              |
|   |   |                                      |                                      |   |                                       | 2,2            |
|   |   | <b>B0915G00.0025</b>                 | <b>B0925G00.0025</b>                 |   |                                       | 2,3            |
|   |   |                                      |                                      |   |                                       | 2,5            |
|   |   | <b>B0915G00.0030</b>                 | <b>B0925G00.0030</b>                 |   |                                       | 2,6            |
|   |   | <b>B0915G00.0035</b>                 | <b>B0925G00.0035</b>                 |   |                                       | 3              |
| B5059500.0040                           | B505Q800.0040                               | <b>B0915G00.0040</b>                 | <b>B0925G00.0040</b>                 |   |                                       | 3,5            |
|   |   |                                      |                                      |   |                                       | 4              |
|   |   |                                      |                                      |   |                                       | 4,5            |
| B5059500.0050                           | B505Q800.0050                               | <b>B0915G00.0050</b>                 | <b>B0925G00.0050</b>                 | <b>B521W700.0050</b>                    | <b>B523W700.0050</b>                  | 5              |
|   |   |                                      |                                      |   |                                       | 5,5            |
| B5059500.0060                           | B505Q800.0060                               | <b>B0915G00.0060</b>                 | <b>B0925G00.0060</b>                 | <b>B521W700.0060</b>                    | <b>B523W700.0060</b>                  | 6              |
|   |   |                                      |                                      |   |                                       | 7              |
| B5059500.0080                           | B505Q800.0080                               | <b>B0915G00.0080</b>                 | <b>B0925G00.0080</b>                 | <b>B521W700.0080</b>                    | <b>B523W700.0080</b>                  | 8              |
|   |   |                                      |                                      |   |                                       | 9              |
| B5059500.0100                           | B505Q800.0100                               | <b>B0915G00.0100</b>                 | <b>B0925G00.0100</b>                 | <b>B521W700.0100</b>                    | <b>B523W700.0100</b>                  | 10             |
|   |   |                                      |                                      |   |                                       | 12             |
|   |   |                                      |                                      |   |                                       |                |



Spannzangen-Aufnahmen mit integrierter Übersetzung der Typenreihe Speedsynchro® Modular NFC siehe Seite 646 - 648

Collet holders with integrated transmission of our Speedsynchro® Modular NFC series, see page 646 - 648

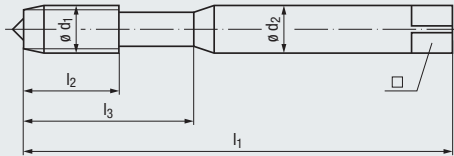
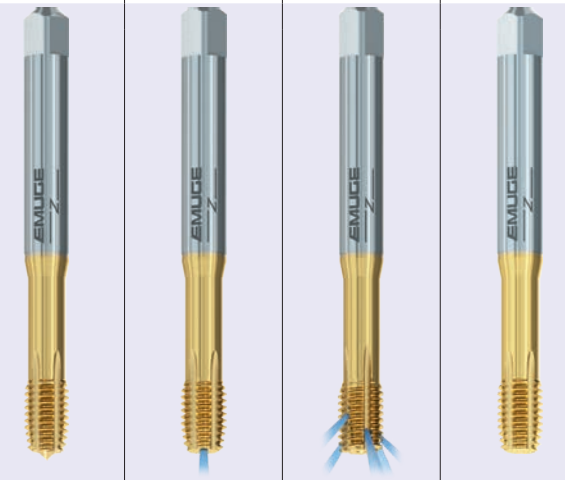
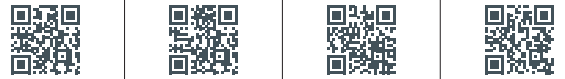
- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC
- UNF
- G
- SELF-LOCK



DIN 13

DIN 2174

Z  
CNC-controlled machines



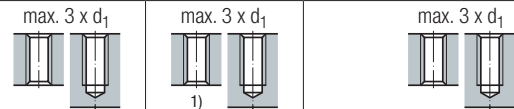
Technische Informationen  
Technical information

Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material



|           |         |         |           |
|-----------|---------|---------|-----------|
| 6HX       | 6HX     | 6HX     | 6HX       |
| TIN-80    | TIN-80  | TIN-80  | TIN-80    |
| HSSE-PM   | HSSE-PM | HSSE-PM | HSSE-PM   |
| C / 2-3   | C / 2-3 | C / 2-3 | E / 1,5-2 |
| E / 0 / P | E / 0   | E / 0   | E / 0 / P |

Gewindetiefe und Lochform  
Thread depth and hole type



Einsatzgebiete – Material  
Applications – material

» 312

|                |                |                |                |
|----------------|----------------|----------------|----------------|
| P 1.1-4.1      | P 1.1-4.1      | P 1.1-4.1      | P 1.1-4.1      |
| K 2.1          | K 2.1          | K 2.1          | K 2.1          |
| N 2.2, 2.4-2.5 | N 2.2, 2.4-2.5 | N 2.2, 2.4-2.5 | N 2.2, 2.4-2.5 |

| M | $\varnothing d_1$<br>mm | P<br>mm | $l_1$ | $l_2$ | $l_3$ | $\varnothing d_2$ | □   |       | InnoForm            | InnoForm                    | InnoForm                     | InnoForm              |
|---|-------------------------|---------|-------|-------|-------|-------------------|-----|-------|---------------------|-----------------------------|------------------------------|-----------------------|
|   |                         |         |       |       |       |                   |     |       | 1-Z-SN<br>PM-TIN-80 | 1-Z-SN-<br>IKZ<br>PM-TIN-80 | 1-Z-SN-<br>IKZN<br>PM-TIN-80 | 1-Z/E-SN<br>PM-TIN-80 |
|   | 1                       | 0,25    | 40    | 2,5   | –     | 2,5               | 2,1 | 0,9   |                     |                             |                              |                       |
|   | 1,1                     | 0,25    | 40    | 2,5   | –     | 2,5               | 2,1 | 1     |                     |                             |                              |                       |
|   | 1,2                     | 0,25    | 40    | 2,5   | –     | 2,5               | 2,1 | 1,1   |                     |                             |                              |                       |
|   | 1,4                     | 0,3     | 40    | 3     | –     | 2,5               | 2,1 | 1,28  |                     |                             |                              |                       |
|   | 1,6                     | 0,35    | 40    | 4     | 11    | 2,5               | 2,1 | 1,47  | B521Z700.0016       |                             |                              |                       |
|   | 1,7                     | 0,35    | 40    | 4     | 11    | 2,5               | 2,1 | 1,57  |                     |                             |                              |                       |
|   | 1,8                     | 0,35    | 40    | 4     | 11    | 2,5               | 2,1 | 1,67  |                     |                             |                              |                       |
|   | 2                       | 0,4     | 45    | 4     | 12    | 2,8               | 2,1 | 1,85  | B521Z700.0020       |                             |                              |                       |
|   | 2,2                     | 0,45    | 45    | 4,5   | 12    | 2,8               | 2,1 | 2,03  |                     |                             |                              |                       |
|   | 2,3                     | 0,4     | 45    | 4,5   | 12    | 2,8               | 2,1 | 2,15  |                     |                             |                              |                       |
|   | 2,5                     | 0,45    | 50    | 5     | 14    | 2,8               | 2,1 | 2,33  | B521Z700.0025       |                             |                              |                       |
|   | 2,6                     | 0,45    | 50    | 5     | 14    | 2,8               | 2,1 | 2,43  |                     |                             |                              |                       |
|   | 3                       | 0,5     | 56    | 6     | 18    | 3,5               | 2,7 | 2,8   | B521Z700.0030       |                             |                              | B529Z700.0030         |
|   | 3,5                     | 0,6     | 56    | 7     | 20    | 4                 | 3   | 3,25  |                     |                             |                              |                       |
|   | 4                       | 0,7     | 63    | 7     | 21    | 4,5               | 3,4 | 3,7   | B521Z700.0040       | B523Z700.0040               | B526Z700.0040                | B529Z700.0040         |
|   | 4,5                     | 0,75    | 70    | 8     | 25    | 6                 | 4,9 | 4,2   |                     |                             |                              |                       |
|   | 5                       | 0,8     | 70    | 8     | 25    | 6                 | 4,9 | 4,65  | B521Z700.0050       | B523Z700.0050               | B526Z700.0050                | B529Z700.0050         |
|   | 5,5                     | 0,9     | 80    | 10    | 30    | 6                 | 4,9 | 5,1   |                     |                             |                              |                       |
|   | 6                       | 1       | 80    | 10    | 30    | 6                 | 4,9 | 5,6   | B521Z700.0060       | B523Z700.0060               | B526Z700.0060                | B529Z700.0060         |
|   | 7                       | 1       | 80    | 10    | 30    | 7                 | 5,5 | 6,6   |                     |                             |                              |                       |
|   | 8                       | 1,25    | 90    | 14    | 35    | 8                 | 6,2 | 7,45  | B521Z700.0080       | B523Z700.0080               | B526Z700.0080                | B529Z700.0080         |
|   | 9                       | 1,25    | 90    | 14    | 35    | 9                 | 7   | 8,45  |                     |                             |                              |                       |
|   | 10                      | 1,5     | 100   | 16    | 39    | 10                | 8   | 9,35  | B521Z700.0100       | B523Z700.0100               | B526Z700.0100                | B529Z700.0100         |
|   | 12                      | 1,75    | 110   | 18    | 44    | 12                | 9   | 11,25 |                     |                             |                              |                       |

DIN 2174



» 329

» 329

» 330

» 330

1) Gewindeformen in Durchgangslöcher nur mit externer Kühlschmierung möglich  
Cold-forming in through holes is possible only with external cooling/lubrication



Bei schlecht ausformenden Werkstoffen (z.B. GAL) empfehlen wir bei  $P \geq 1$  mm um 0,05 mm kleiner vorzubohren.

Weitere Informationen zu den empfohlenen Vorfertigungsdurchmessern siehe Seite 317.

We recommend a smaller preparatory diameter by 0.05 mm for difficult to form materials (such as aluminium cast alloys) for  $P \geq 1$  mm.

For further information regarding the recommended preparatory diameters, see page 317.

| Z<br>CNC-controlled machines         |                                      |                                      |                                      |  |  |  |  |     |
|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--|--|--|--|-----|
|                                      |                                      |                                      |                                      |  |  |  |  |     |
|                                      |                                      |                                      |                                      |  |  |  |  |     |
| 6HX                                  | 6GX                                  | 6HX                                  | 6HX                                  |  |  |  |  |     |
| TIN-80                               | TIN-80                               | TIN-80                               | TIN-80                               |  |  |  |  |     |
| HSSE-PM                              | HSSE-PM                              | VHM                                  | VHM                                  |  |  |  |  |     |
| E / 1,5-2                            | C / 2-3                              | C / 2-3                              | E / 1,5-2                            |  |  |  |  |     |
| E / 0                                | E / 0 / P                            | E / 0                                | E / 0                                |  |  |  |  |     |
| max. 3 x d <sub>1</sub><br>          | max. 3 x d <sub>1</sub><br>          | max. 3 x d <sub>1</sub><br>          | max. 3 x d <sub>1</sub><br>          |  |  |  |  |     |
| P 1.1-4.1<br>K 2.1<br>N 2.2, 2.4-2.5 | P 1.1-4.1<br>K 2.1<br>N 2.2, 2.4-2.5 | P 1.1-4.1<br>K 2.1<br>N 2.2, 2.4-2.5 | P 1.1-4.1<br>K 2.1<br>N 2.2, 2.4-2.5 |  |  |  |  |     |
| InnoForm 1-Z/E-SN-<br>IKZ PM-TIN-80  | InnoForm 1-Z-SN<br>PM-TIN-80         | VHM-InnoForm 1-Z-SN-<br>IKZ TIN-80   | VHM-InnoForm 1-Z/E-SN-<br>IKZ TIN-80 |  |  |  |  |     |
|                                      |                                      |                                      |                                      |  |  |  |  | M 1 |
|                                      |                                      |                                      |                                      |  |  |  |  | 1,1 |
|                                      |                                      |                                      |                                      |  |  |  |  | 1,2 |
|                                      |                                      |                                      |                                      |  |  |  |  | 1,4 |
|                                      |                                      |                                      |                                      |  |  |  |  | 1,6 |
|                                      |                                      |                                      |                                      |  |  |  |  | 1,7 |
|                                      |                                      |                                      |                                      |  |  |  |  | 1,8 |
|                                      |                                      |                                      |                                      |  |  |  |  | 2   |
|                                      |                                      |                                      |                                      |  |  |  |  | 2,2 |
|                                      |                                      |                                      |                                      |  |  |  |  | 2,3 |
|                                      |                                      |                                      |                                      |  |  |  |  | 2,5 |
|                                      |                                      |                                      |                                      |  |  |  |  | 2,6 |
|                                      | B521Z720.0030                        |                                      |                                      |  |  |  |  | 3   |
| B531Z700.0040                        | B521Z720.0040                        |                                      |                                      |  |  |  |  | 3,5 |
|                                      |                                      |                                      |                                      |  |  |  |  | 4   |
| B531Z700.0050                        | B521Z720.0050                        | B523Z800.0050                        | B531Z800.0050                        |  |  |  |  | 4,5 |
|                                      |                                      |                                      |                                      |  |  |  |  | 5   |
| B531Z700.0060                        | B521Z720.0060                        | B523Z800.0060                        | B531Z800.0060                        |  |  |  |  | 5,5 |
|                                      |                                      |                                      |                                      |  |  |  |  | 6   |
| B531Z700.0080                        | B521Z720.0080                        | B523Z800.0080                        | B531Z800.0080                        |  |  |  |  | 7   |
|                                      |                                      |                                      |                                      |  |  |  |  | 8   |
| B531Z700.0100                        | B521Z720.0100                        | B523Z800.0100                        | B531Z800.0100                        |  |  |  |  | 9   |
|                                      |                                      |                                      |                                      |  |  |  |  | 10  |
|                                      |                                      |                                      |                                      |  |  |  |  | 12  |
|                                      |                                      |                                      |                                      |  |  |  |  |     |

- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC
- UNF
- G
- SELF-LOCK



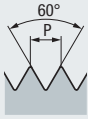
Werkzeug-Aufnahmen für  
Minimalmengenschmierung  
siehe Seite 677 - 698

Tool holders for  
minimum-quantity lubrication,  
see page 677 - 698

- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC
- UNF
- G
- SELF-LOCK

# M

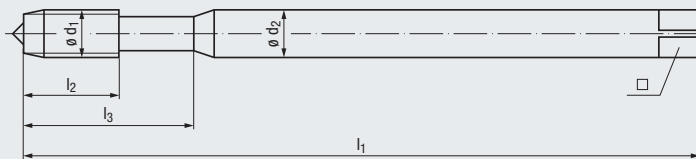
DIN 13



**Z**  
CNC-controlled machines



Mit extra langem Schaft  
With extra long shank



Technische Informationen  
Technical information

Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material



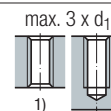
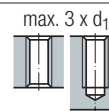
6HX  
TIN-80  
HSSE-PM

6HX  
TIN-80  
HSSE-PM

C / 2-3  
E / O / P

C / 2-3  
E / O

Gewindetiefe und Lochform  
Thread depth and hole type



Einsatzgebiete – Material  
Applications – material

» 312

**P** 1.1-4.1  
**K** 2.1  
**N** 2.2, 2.4-2.5

**P** 1.1-4.1  
**K** 2.1  
**N** 2.2, 2.4-2.5

| M | ∅ d <sub>1</sub><br>mm | P<br>mm | l <sub>1</sub> | l <sub>2</sub> | l <sub>3</sub> | ∅ d <sub>2</sub> | □   | InnoForm<br>1-Z-SN-LS<br>PM-TIN-80 | InnoForm<br>1-Z-SN-LS<br>PM-TIN-80 |
|---|------------------------|---------|----------------|----------------|----------------|------------------|-----|------------------------------------|------------------------------------|
|   |                        |         |                |                |                |                  |     |                                    |                                    |
|   | 3                      | 0,5     | 100            | 6              | 18             | 3,5              | 2,7 | B555Z700.0030                      |                                    |
|   | 4                      | 0,7     | 125            | 7              | 21             | 4,5              | 3,4 | B555Z700.0040                      |                                    |
|   | 5                      | 0,8     | 140            | 8              | 25             | 6                | 4,9 | B555Z700.0050                      | B544Z700.0050                      |
|   | 6                      | 1       | 160            | 10             | 30             | 6                | 4,9 | B555Z700.0060                      | B544Z700.0060                      |
|   | 8                      | 1,25    | 180            | 14             | 35             | 8                | 6,2 | B555Z700.0080                      | B544Z700.0080                      |
|   | 10                     | 1,5     | 200            | 16             | 39             | 10               | 8   | B555Z700.0100                      | B544Z700.0100                      |



312

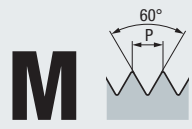
312

1) Gewindeformen in Durchgangslöcher nur mit externer Kühlschmierung möglich  
Cold-forming in through holes is possible only with external cooling/lubrication



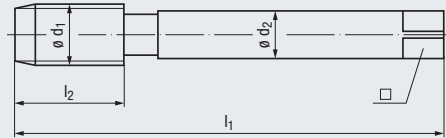
Bei schlecht ausformenden Werkstoffen (z.B. GAL) empfehlen wir bei P ≥ 1 mm um 0,05 mm kleiner vorzubohren.  
Weitere Informationen zu den empfohlenen Vorfertigungsdurchmessern siehe Seite 317.

We recommend a smaller preparatory diameter by 0.05 mm for difficult to form materials (such as aluminium cast alloys) for P ≥ 1 mm.  
For further information regarding the recommended preparatory diameters, see page 317.



DIN 13

DIN 2174



Technische Informationen  
Technical information

Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material



Gewindetiefe und Lochform  
Thread depth and hole type

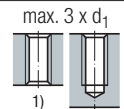
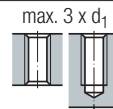
Einsatzgebiete – Material  
Applications – material



STEEL  
Steel materials



|           |           |           |         |
|-----------|-----------|-----------|---------|
| 6HX       | 6HX       | 6HX       | 6HX     |
| TIN       | TIN       | TIN-66    | TIN-66  |
| HSSE      | HSSE      | HSSE-PM   | HSSE-PM |
| C / 2-3   | C / 2-3   | C / 2-3   | C / 2-3 |
| E / O / P | E / O / P | E / O / P | E / O   |



|                |                |           |           |
|----------------|----------------|-----------|-----------|
| P 1.1-3.1      | P 1.1-3.1      | P 2.1-5.1 | P 2.1-5.1 |
| N 1.5-1.6, 2.2 | N 1.5-1.6, 2.2 |           |           |

| M | $\phi d_1$<br>mm | P<br>mm | $l_1$ | $l_2$ | $\phi d_2$ | □    |       |               | Drück          | Drück             | InnoForm                  | InnoForm                      |
|---|------------------|---------|-------|-------|------------|------|-------|---------------|----------------|-------------------|---------------------------|-------------------------------|
|   |                  |         |       |       |            |      |       |               | 2-STEEL<br>TIN | 2-STEEL-SN<br>TIN | 2-STEEL-M-SN<br>PM-TIN-66 | 2-STEEL-M-SN<br>IKZ-PM-TIN-66 |
|   | 10               | 1,5     | 100   | 22    | 7          | 5,5  | 9,35  |               |                |                   |                           |                               |
|   | 12               | 1,75    | 110   | 24    | 9          | 7    | 11,25 | C0911400.0112 | C0921400.0112  | C5217F00.0112     | C5237F00.0112             |                               |
|   | 14               | 2       | 110   | 26    | 11         | 9    | 13,1  | C0911400.0114 | C0921400.0114  | C5217F00.0114     | C5237F00.0114             |                               |
|   | 16               | 2       | 110   | 27    | 12         | 9    | 15,1  | C0911400.0116 | C0921400.0116  | C5217F00.0116     | C5237F00.0116             |                               |
|   | 18               | 2,5     | 125   | 30    | 14         | 11   | 16,85 |               |                |                   |                           |                               |
|   | 20               | 2,5     | 140   | 32    | 16         | 12   | 18,85 |               |                |                   |                           |                               |
|   | 22               | 2,5     | 140   | 32    | 18         | 14,5 | 20,85 |               |                |                   |                           |                               |
|   | 24               | 3       | 160   | 34    | 18         | 14,5 | 22,6  |               |                |                   |                           |                               |
|   | 27               | 3       | 160   | 36    | 20         | 16   | 25,6  |               |                |                   |                           |                               |
|   | 30               | 3,5     | 180   | 40    | 22         | 18   | 28,35 |               |                |                   |                           |                               |
|   | 33               | 3,5     | 180   | 40    | 25         | 20   | 31,35 |               |                |                   |                           |                               |
|   | 36               | 4       | 200   | 50    | 28         | 22   | 34,1  |               |                |                   |                           |                               |
|   | 39               | 4       | 200   | 50    | 32         | 24   | 37,1  |               |                |                   |                           |                               |
|   | 42               | 4,5     | 200   | 56    | 32         | 24   | 39,85 |               |                |                   |                           |                               |
|   | 45               | 4,5     | 220   | 58    | 36         | 29   | 42,85 |               |                |                   |                           |                               |
|   | 48               | 5       | 250   | 65    | 36         | 29   | 45,65 |               |                |                   |                           |                               |

DIN 2174

318      318      319      319

1) Gewindeformen in Durchgangslöcher nur mit externer Kühlschmierung möglich  
Cold-forming in through holes is possible only with external cooling/lubrication

2) Zum Patent angemeldet  
Patent pending



Bei schlecht ausformenden Werkstoffen (z.B. GAL) empfehlen wir bei  $P \geq 1$  mm um 0,05 mm kleiner vorzubohren.

Weitere Informationen zu den empfohlenen Vorfertigungsdurchmessern siehe Seite 317.

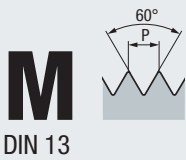
We recommend a smaller preparatory diameter by 0.05 mm for difficult to form materials (such as aluminium cast alloys) for  $P \geq 1$  mm.

For further information regarding the recommended preparatory diameters, see page 317.

- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC
- UNF
- G
- SELF-LOCK

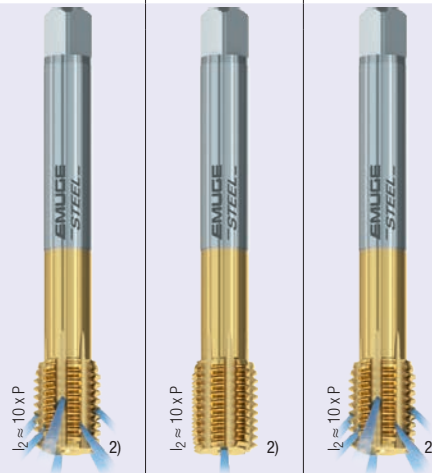
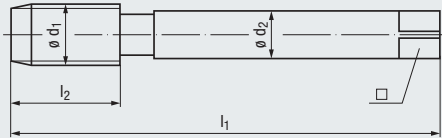


- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC
- UNF
- G
- SELF-LOCK



**DIN 2174**

**STEEL**  
Steel materials



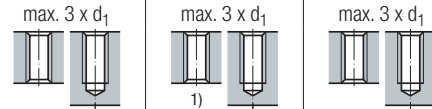
Technische Informationen  
Technical information

Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material



|         |           |           |
|---------|-----------|-----------|
| 6HX     | 6HX       | 6HX       |
| TIN-66  | TIN-66    | TIN-66    |
| HSSE-PM | HSSE-PM   | HSSE-PM   |
| C / 2-3 | E / 1,5-2 | E / 1,5-2 |
| E / 0   | E / 0     | E / 0     |

Gewindetiefe und Lochform  
Thread depth and hole type



Einsatzgebiete – Material  
Applications – material

» 312

**P 2.1-5.1**    **P 2.1-5.1**    **P 2.1-5.1**

| $\phi d_1$<br>mm | P<br>mm | $l_1$ | $l_2$ | $\phi d_2$ | $\square$ |       | InnoForm<br>2-STEEL-M-SN<br>IKZN-PM-TIN-66 | InnoForm<br>2-STEEL-M/E-SN<br>IKZ-PM-TIN-66 | InnoForm<br>2-STEEL-M/E-SN<br>IKZN-PM-TIN-66 |
|------------------|---------|-------|-------|------------|-----------|-------|--|---|--|
| <b>M</b> 10      | 1,5     | 100   | 22    | 7          | 5,5       | 9,35  |  |   |  |
| 12               | 1,75    | 110   | 24    | 9          | 7         | 11,25 | C5267F00.0112                              | <b>C5317F00.0112</b>                        | C5337F00.0112                                |
| 14               | 2       | 110   | 26    | 11         | 9         | 13,1  | C5267F00.0114                              | C5317F00.0114                               | C5337F00.0114                                |
| 16               | 2       | 110   | 27    | 12         | 9         | 15,1  | C5267F00.0116                              | <b>C5317F00.0116</b>                        | C5337F00.0116                                |
| 18               | 2,5     | 125   | 30    | 14         | 11        | 16,85 |  |   |  |
| 20               | 2,5     | 140   | 32    | 16         | 12        | 18,85 | C5267F00.0120                              |   |  |
| 22               | 2,5     | 140   | 32    | 18         | 14,5      | 20,85 |  |   |  |
| 24               | 3       | 160   | 34    | 18         | 14,5      | 22,6  | C5267F00.0124                              |   |  |
| 27               | 3       | 160   | 36    | 20         | 16        | 25,6  | C5267F00.0127                              |   |  |
| 30               | 3,5     | 180   | 40    | 22         | 18        | 28,35 | C5267F00.0130                              |   |  |
| 33               | 3,5     | 180   | 40    | 25         | 20        | 31,35 |  |   |  |
| 36               | 4       | 200   | 50    | 28         | 22        | 34,1  | C5267F00.0136                              |   |  |
| 39               | 4       | 200   | 50    | 32         | 24        | 37,1  |  |   |  |
| 42               | 4,5     | 200   | 56    | 32         | 24        | 39,85 |  |   |  |
| 45               | 4,5     | 220   | 58    | 36         | 29        | 42,85 |  |   |  |
| 48               | 5       | 250   | 65    | 36         | 29        | 45,65 |  |   |  |

DIN 2174

» 319

» 319

» 320

1) Gewindeformen in Durchgangslöcher nur mit externer Kühlschmierung möglich  
Cold-forming in through holes is possible only with external cooling/lubrication

2) Zum Patent angemeldet  
Patent pending



Bei schlecht ausformenden Werkstoffen (z.B. GAL) empfehlen wir bei  $P \geq 1$  mm um 0,05 mm kleiner vorzubohren.

Weitere Informationen zu den empfohlenen Vorfertigungsdurchmessern siehe Seite 317.

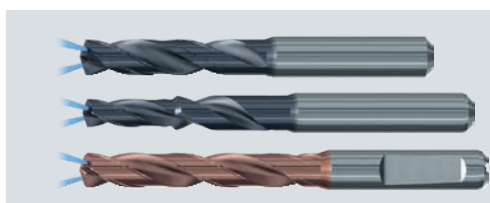
We recommend a smaller preparatory diameter by 0.05 mm for difficult to form materials (such as aluminium cast alloys) for  $P \geq 1$  mm.

For further information regarding the recommended preparatory diameters, see page 317.



- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC
- UNF
- G
- SELF-LOCK

| SPEED<br>High-speed cutting             |   | H<br>Materials of high tensile strength |                                       | Z<br>CNC-controlled machines                              |   |
|---|---|---|---------------------------------------|---|---|
|   |   |   |                                       |   |   |
|   |   |   |                                       |   |   |
| 6HX<br>TICN<br>HSSE                     | 6HX<br>TICN<br><b>KHM</b>                   | 6HX<br>TIN-T26<br><b>HSSE-PM</b>        | 6HX<br>TIN-T26<br><b>HSSE-PM</b>      | 6HX<br>TIN-80<br><b>HSSE-PM</b>                           | 6HX<br>TIN-80<br><b>HSSE-PM</b>   |
| E / 1,5-2<br>E / O                      | E / 1,5-2<br>E / O                          | C / 2-3<br>E / O / P                    | C / 2-3<br>E                          | C / 2-3<br>E / O / P                                      | C / 2-3<br>E / O  |
|   |   |   |                                       |   |   |
| <b>N 1.4-1.6</b>                        | <b>N 1.4-1.6</b>                            | <b>P 3.1-5.1</b><br><b>K 2.1</b>        | <b>P 3.1-5.1</b><br><b>K 2.1</b>      | <b>P 1.1-4.1</b><br><b>K 2.1</b><br><b>N 2.2, 2.4-2.5</b> | <b>P 1.1-4.1</b><br><b>K 2.1</b><br><b>N 2.2, 2.4-2.5</b>   |
| <b>Drück 2-GAL-SPEED/E SN-IKZN-TICN</b> | <b>KHM-Drück 2-GAL-SPEED/E SN-IKZN-TICN</b> | <b>InnoForm 2-H-SN PM-TIN-T26</b>       | <b>InnoForm 2-H-SN-IKZ PM-TIN-T26</b> | <b>InnoForm 2-Z-SN PM-TIN-80</b>                          | <b>InnoForm 2-Z-SN-IKZ PM-TIN-80</b>  |
| C5059500.0112                           | C505Q800.0112                               | <b>C521W700.0112</b>                    | <b>C523W700.0112</b>                  | <b>C521Z700.0112</b>                                      | <b>C523Z700.0112</b>  |
|   |   | <b>C521W700.0116</b>                    | <b>C523W700.0116</b>                  | <b>C521Z700.0114</b>                                      | <b>C523Z700.0114</b>  |
|   |   | <b>C521W700.0120</b>                    | <b>C523W700.0120</b>                  | <b>C521Z700.0116</b>                                      | <b>C523Z700.0116</b>  |
|   |   | <b>C521W700.0124</b>                    | <b>C523W700.0124</b>                  | <b>C521Z700.0120</b>                                      | <b>C523Z700.0120</b>  |
|   |   |   | C523W700.0127                         |   |   |
|   |   |   | <b>C523W700.0130</b>                  |   |   |
|   |   |   | C523W700.0133                         |   |   |
|   |   |   | C523W700.0136                         |   |   |
|   |   |   | C523W700.0139                         |   |   |
|   |   |   | C523W700.0142                         |   |   |
|   |   |   | C523W700.0145                         |   |   |
|   |   |   | C523W700.0148                         |   |   |
|   |   |   |                                       |   |   |
|   |   |   |                                       |   | <b>M</b> 10<br>12<br>14<br>16<br>18<br>20<br>22<br>24<br>27<br>30<br>33<br>36<br>39<br>42<br>45<br>48 |



Spiralbohrer siehe Seite 11 - 70

Twist drills, see page 11 - 70

- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC
- UNF
- G
- SELF-LOCK

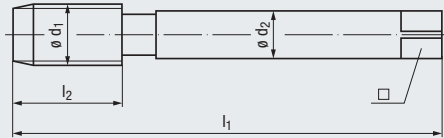
# M

DIN 13



**DIN 2174**

**Z**  
CNC-controlled machines



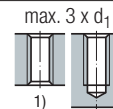
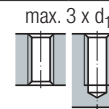
Technische Informationen  
Technical information

Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material



|         |           |           |
|---------|-----------|-----------|
| 6HX     | 6HX       | 6HX       |
| TIN-80  | TIN-80    | TIN-80    |
| HSSE-PM | HSSE-PM   | HSSE-PM   |
| C / 2-3 | E / 1,5-2 | E / 1,5-2 |
| E / 0   | E / 0 / P | E / 0     |

Gewindetiefe und Lochform  
Thread depth and hole type



Einsatzgebiete – Material  
Applications – material

» 312

|                       |                       |                       |
|-----------------------|-----------------------|-----------------------|
| <b>P</b> 1.1-4.1      | <b>P</b> 1.1-4.1      | <b>P</b> 1.1-4.1      |
| <b>K</b> 2.1          | <b>K</b> 2.1          | <b>K</b> 2.1          |
| <b>N</b> 2.2, 2.4-2.5 | <b>N</b> 2.2, 2.4-2.5 | <b>N</b> 2.2, 2.4-2.5 |

|          | $\phi d_1$<br>mm | P<br>mm | $l_1$ | $l_2$ | $\phi d_2$ | $\square$ |       | InnoForm<br>2-Z-SN- <b>IKZN</b><br>PM-TIN-80 | InnoForm<br>2-Z/E-SN<br>PM-TIN-80 | InnoForm<br>2-Z/E-SN- <b>IKZ</b><br>PM-TIN-80 |
|----------|------------------|---------|-------|-------|------------|-----------|-------|--|-----------------------------------|---|
| <b>M</b> | 10               | 1,5     | 100   | 16    | 7          | 5,5       | 9,35  |  |                                   |   |
|          | 12               | 1,75    | 110   | 18    | 9          | 7         | 11,25 | C526Z700.0112                                | <b>C529Z700.0112</b>              | <b>C531Z700.0112</b>                          |
|          | 14               | 2       | 110   | 20    | 11         | 9         | 13,1  | C526Z700.0114                                | <b>C529Z700.0114</b>              | <b>C531Z700.0114</b>                          |
|          | 16               | 2       | 110   | 22    | 12         | 9         | 15,1  | C526Z700.0116                                | <b>C529Z700.0116</b>              | <b>C531Z700.0116</b>                          |
|          | 18               | 2,5     | 125   | 25    | 14         | 11        | 16,85 |  |                                   |   |
|          | 20               | 2,5     | 140   | 25    | 16         | 12        | 18,85 | C526Z700.0120                                |                                   |   |
|          | 22               | 2,5     | 140   | 27    | 18         | 14,5      | 20,85 |  |                                   |   |
|          | 24               | 3       | 160   | 30    | 18         | 14,5      | 22,6  |  |                                   |   |
|          | 27               | 3       | 160   | 30    | 20         | 16        | 25,6  |  |                                   |   |
|          | 30               | 3,5     | 180   | 35    | 22         | 18        | 28,35 |  |                                   |   |
|          | 33               | 3,5     | 180   | 35    | 25         | 20        | 31,35 |  |                                   |   |
|          | 36               | 4       | 200   | 40    | 28         | 22        | 34,1  |  |                                   |   |
|          | 39               | 4       | 200   | 40    | 32         | 24        | 37,1  |  |                                   |   |
|          | 42               | 4,5     | 200   | 45    | 32         | 24        | 39,85 |  |                                   |   |
|          | 45               | 4,5     | 220   | 45    | 36         | 29        | 42,85 |  |                                   |   |
|          | 48               | 5       | 250   | 50    | 36         | 29        | 45,65 |  |                                   |   |

DIN 2174



» 324

» 324

» 325



Bei schlecht ausformenden Werkstoffen (z.B. GAL) empfehlen wir bei  $P \geq 1$  mm um 0,05 mm kleiner vorzubohren.

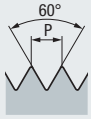
Weitere Informationen zu den empfohlenen Vorfertigungsdurchmessern siehe Seite 317.

We recommend a smaller preparatory diameter by 0.05 mm for difficult to form materials (such as aluminium cast alloys) for  $P \geq 1$  mm.

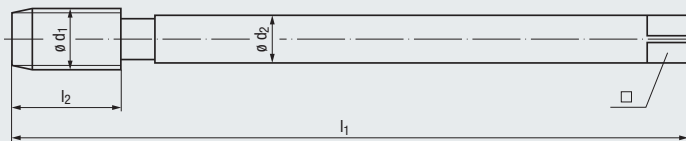
For further information regarding the recommended preparatory diameters, see page 317.

**M**

DIN 13



Mit extra langem Schaft  
With extra long shank



Technische Informationen  
Technical information

Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material



Gewindetiefe und Lochform  
Thread depth and hole type

Einsatzgebiete – Material  
Applications – material

» 312

| $\varnothing d_1$<br>mm | P<br>mm | $l_1$ | $l_2$ | $\varnothing d_2$ | $\square$ |       |
|-------------------------|---------|-------|-------|-------------------|-----------|-------|
| <b>M</b> 10             | 1,5     | 200   | 16    | 7                 | 5,5       | 9,35  |
| 12                      | 1,75    | 224   | 18    | 9                 | 7         | 11,25 |
| 14                      | 2       | 224   | 20    | 11                | 9         | 13,1  |
| 16                      | 2       | 224   | 22    | 12                | 9         | 15,1  |
| 18                      | 2,5     | 250   | 25    | 14                | 11        | 16,85 |
| 20                      | 2,5     | 280   | 25    | 16                | 12        | 18,85 |

**Z**  
CNC-controlled  
machines



| 6HX                                       | 6HX  |
|---|--|
| TIN-80                                    | TIN-80   |
| <b>HSSE-PM</b>                            | <b>HSSE-PM</b>   |
| C / 2-3                                   | C / 2-3  |
| E / O / P                                 | E / O  |
| max. 3 x $d_1$                            | max. 3 x $d_1$   |
|   |  |
| <b>P</b> 1.1-4.1                          | <b>P</b> 1.1-4.1                                       |
| <b>K</b> 2.1                              | <b>K</b> 2.1   |
| <b>N</b> 2.2, 2.4-2.5                     | <b>N</b> 2.2, 2.4-2.5                                  |
| <b>InnoForm</b><br>2-Z-SN-LS<br>PM-TIN-80 | <b>InnoForm</b><br>2-Z-SN- <b>IKZ</b> -LS<br>PM-TIN-80 |
| C555Z700.0112                             | C544Z700.0112  |
| C555Z700.0114                             | C544Z700.0114  |
| <b>C555Z700.0116</b>                      | C544Z700.0116  |
| C555Z700.0120                             | C544Z700.0120  |
| » 326                                     | » 326  |

- Product Finder
- V<sub>c</sub>
- M**
- MF
- UNC
- UNF
- G
- SELF-LOCK



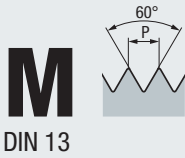
1) Gewindeformen in Durchgangslöcher nur mit externer Kühlschmierung möglich  
Cold-forming in through holes is possible only with external cooling/lubrication



Bei schlecht ausformenden Werkstoffen (z.B. GAL) empfehlen wir bei  $P \geq 1$  mm um 0,05 mm kleiner vorzubohren.  
Weitere Informationen zu den empfohlenen Vorfertigungsdurchmessern siehe Seite 317.

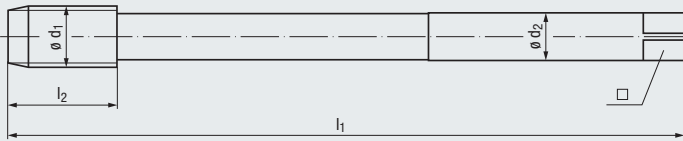
We recommend a smaller preparatory diameter by 0.05 mm for difficult to form materials (such as aluminium cast alloys) for  $P \geq 1$  mm.  
For further information regarding the recommended preparatory diameters, see page 317.

- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC
- UNF
- G
- SELF-LOCK

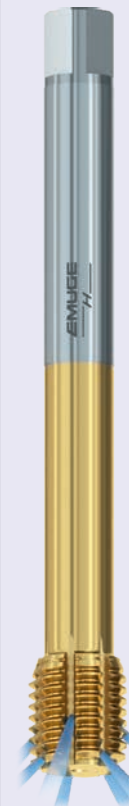


DIN 13

Für Gewindetiefen bis max. 3 x d<sub>1</sub>  
For thread depths up to max. 3 x d<sub>1</sub>



**H**  
Materials of high tensile strength



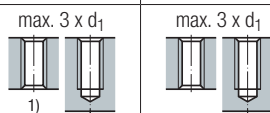
Technische Informationen  
Technical information

Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material



|                |                |
|----------------|----------------|
| 6HX            | 6HX            |
| TIN-T26        | TIN-T26        |
| <b>HSSE-PM</b> | <b>HSSE-PM</b> |
| C / 2-3        | C / 2-3        |
| E / 0          | E / 0          |


Gewindetiefe und Lochform  
Thread depth and hole type



Einsatzgebiete – Material  
Applications – material

» 312

|                  |                  |
|------------------|------------------|
| <b>P</b> 3.1-5.1 | <b>P</b> 3.1-5.1 |
| <b>K</b> 2.1     | <b>K</b> 2.1     |

| Ø d <sub>1</sub><br>mm | P<br>mm | l <sub>1</sub> | l <sub>2</sub> | Ø d <sub>2</sub> | □    |  | InnoForm<br>2-H-SN- <b>IKZ-LF3</b><br>PM-TIN-T26 | InnoForm<br>2-H-SN- <b>IKZN-LF3</b><br>PM-TIN-T26 |
|------------------------|---------|----------------|----------------|------------------|------|---|--|---|
| <b>M</b> 24            | 3       | 215            | 30             | 18               | 14,5 | 22,6  | C599W700.0124                                    | C500W700.0124                                     |
| 30                     | 3,5     | 240            | 35             | 22               | 18   | 28,35   | C599W700.0130                                    | C500W700.0130                                     |
| 33                     | 3,5     | 255            | 35             | 25               | 20   | 31,35   | C599W700.0133                                    | C500W700.0133                                     |
| 36                     | 4       | 275            | 40             | 28               | 22   | 34,1  | C599W700.0136                                    | C500W700.0136                                     |
| 42                     | 4,5     | 295            | 45             | 32               | 24   | 39,85   | C599W700.0142                                    | C500W700.0142                                     |

1) Gewindeformen in Durchgangslöchern nur mit externer Kühlschmierung möglich  
Cold-forming in through holes is possible only with external cooling/lubrication



Bei schlecht ausformenden Werkstoffen (z.B. GAL) empfehlen wir bei P ≥ 1 mm um 0,05 mm kleiner vorzubohren.

Weitere Informationen zu den empfohlenen Vorfertigungsdurchmessern siehe Seite 317.

We recommend a smaller preparatory diameter by 0.05 mm for difficult to form materials (such as aluminium cast alloys) for P ≥ 1 mm.

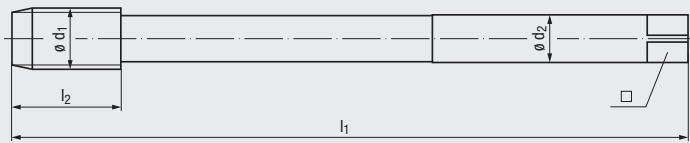
For further information regarding the recommended preparatory diameters, see page 317.

**M**

DIN 13



Für Gewindetiefen bis max. 4 x d<sub>1</sub>  
For thread depths up to max. 4 x d<sub>1</sub>

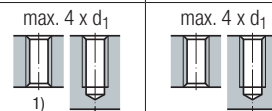


Technische Informationen  
Technical information

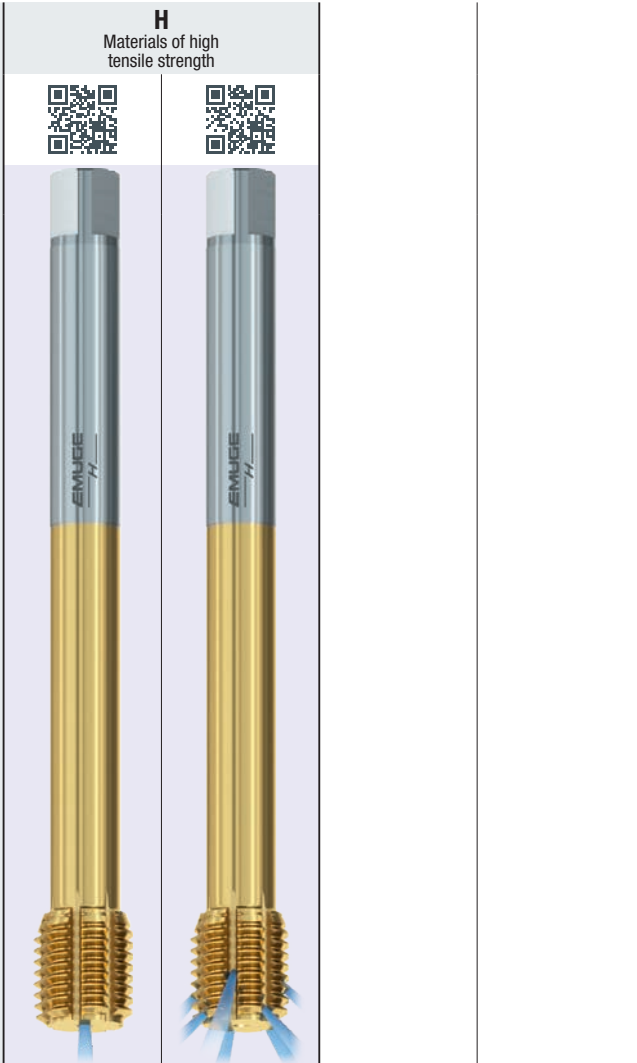
Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material



Gewindetiefe und Lochform  
Thread depth and hole type



Einsatzgebiete – Material  
Applications – material



|         |         |
|---------|---------|
| 6HX     | 6HX     |
| TIN-T26 | TIN-T26 |
| HSSE-PM | HSSE-PM |
| C / 2-3 | C / 2-3 |
| E / 0   | E / 0   |

|                         |                         |
|-------------------------|-------------------------|
| max. 4 x d <sub>1</sub> | max. 4 x d <sub>1</sub> |
|-------------------------|-------------------------|

|                  |                  |
|------------------|------------------|
| <b>P</b> 3.1-5.1 | <b>P</b> 3.1-5.1 |
| <b>K</b> 2.1     | <b>K</b> 2.1     |

| Ø d <sub>1</sub><br>mm | P<br>mm | l <sub>1</sub> | l <sub>2</sub> | Ø d <sub>2</sub> | □    |       | InnoForm<br>2-H-SN- <b>IKZ</b> -LF4<br>PM-TIN-T26 | InnoForm<br>2-H-SN- <b>IKZN</b> -LF4<br>PM-TIN-T26 |
|------------------------|---------|----------------|----------------|------------------|------|-------|---|--|
| <b>M</b> 24            | 3       | 240            | 30             | 18               | 14,5 | 22,6  | C594W700.0124                                     | C595W700.0124                                      |
| 30                     | 3,5     | 270            | 35             | 22               | 18   | 28,35 | C594W700.0130                                     | C595W700.0130                                      |
| 33                     | 3,5     | 290            | 35             | 25               | 20   | 31,35 | C594W700.0133                                     | C595W700.0133                                      |
| 36                     | 4       | 310            | 40             | 28               | 22   | 34,1  | C594W700.0136                                     | C595W700.0136                                      |
| 42                     | 4,5     | 340            | 45             | 32               | 24   | 39,85 | C594W700.0142                                     | C595W700.0142                                      |

1) Gewindeformen in Durchgangslöchern nur mit externer Kühlschmierung möglich  
Cold-forming in through holes is possible only with external cooling/lubrication



Bei schlecht ausformenden Werkstoffen (z.B. GAL) empfehlen wir bei P ≥ 1 mm um 0,05 mm kleiner vorzubohren.

Weitere Informationen zu den empfohlenen Vorfertigungsdurchmessern siehe Seite 317.

We recommend a smaller preparatory diameter by 0.05 mm for difficult to form materials (such as aluminium cast alloys) for P ≥ 1 mm.

For further information regarding the recommended preparatory diameters, see page 317.

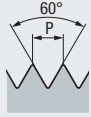
- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC
- UNF
- G
- SELF-LOCK



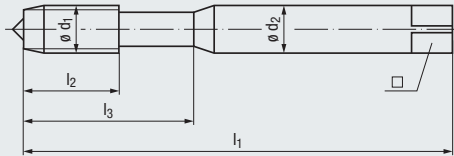
- Product Finder
- V<sub>c</sub>
- M
- MF**
- UNC
- UNF
- G
- SELF-LOCK

# MF

DIN 13



**DIN 2174**



**STEEL**  
Steel materials



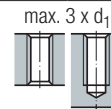
Technische Informationen  
Technical information

Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material



|           |           |                |                |
|-----------|-----------|----------------|----------------|
| 6HX       | 6HX       | 6HX            | 6HX            |
| TIN       | TIN       | TIN-66         | TIN-66         |
| HSSE      | HSSE      | <b>HSSE-PM</b> | <b>HSSE-PM</b> |
| C / 2-3   | C / 2-3   | C / 2-3        | C / 2-3        |
| E / O / P | E / O / P | E / O / P      | E / O          |

Gewindetiefe und Lochform  
Thread depth and hole type



Einsatzgebiete – Material  
Applications – material

» 312

|   |   |                  |                  |
|---|---|------------------|------------------|
| <b>P</b> 1.1-3.1<br><b>N</b> 1.5-1.6, 2.2 | <b>P</b> 1.1-3.1<br><b>N</b> 1.5-1.6, 2.2 | <b>P</b> 2.1-5.1 | <b>P</b> 2.1-4.1 |
|---|---|------------------|------------------|

| $\phi d_1$<br>mm | P<br>mm | $l_1$ | $l_2$ | $l_3$ | $\phi d_2$ | $\square$ |      | Drück<br>1-STEEL<br>TIN | Drück<br>1-STEEL-SN<br>TIN | InnoForm<br>1-STEEL-M-SN<br>PM-TIN-66 | InnoForm<br>1-STEEL-M-SN<br>IKZN-PM-TIN-66 |
|------------------|---------|-------|-------|-------|------------|-----------|------|-------------------------|----------------------------|---------------------------------------|--|
| <b>M</b> 2,5     | x 0,35  | 50    | 7     | 12    | 2,8        | 2,1       | 2,37 |                         |                            |                                       |  |
| 2,6              | x 0,35  | 50    | 7     | 12    | 2,8        | 2,1       | 2,47 |                         |                            |                                       |  |
| 3                | x 0,35  | 56    | 8     | 18    | 3,5        | 2,7       | 2,88 |                         |                            |                                       |  |
| 3,5              | x 0,35  | 56    | 9     | 20    | 4          | 3         | 3,38 |                         |                            |                                       |  |
| 4                | x 0,5   | 63    | 10    | 21    | 4,5        | 3,4       | 3,8  | <b>B0911400.0210</b>    | <b>B0921400.0210</b>       |                                       |  |
| 5                | x 0,5   | 70    | 11    | 25    | 6          | 4,9       | 4,8  | <b>B0911400.0218</b>    | <b>B0921400.0218</b>       |                                       |  |
| 6                | x 0,5   | 80    | 13    | 30    | 6          | 4,9       | 5,8  | <b>B0911400.0228</b>    | <b>B0921400.0228</b>       |                                       |  |
| 6                | x 0,75  | 80    | 13    | 30    | 6          | 4,9       | 5,7  | <b>B0911400.0229</b>    | <b>B0921400.0229</b>       |                                       |  |
| 7                | x 0,75  | 80    | 13    | 30    | 7          | 5,5       | 6,7  |                         |                            |                                       |  |
| 8                | x 0,75  | 80    | 14    | 30    | 8          | 6,2       | 7,7  | <b>B0911400.0250</b>    | <b>B0921400.0250</b>       |                                       |  |
| 8                | x 1     | 90    | 17    | 35    | 8          | 6,2       | 7,6  | <b>B0911400.0251</b>    | <b>B0921400.0251</b>       | <b>B5217F00.0251</b>                  | B5267F00.0251                              |
| 9                | x 0,75  | 90    | 14    | 35    | 9          | 7         | 8,7  |                         |                            |                                       |  |
| 9                | x 1     | 90    | 17    | 35    | 9          | 7         | 8,6  |                         |                            |                                       |  |
| 10               | x 0,75  | 90    | 15    | 35    | 10         | 8         | 9,7  |                         |                            |                                       |  |
| 10               | x 1     | 90    | 18    | 35    | 10         | 8         | 9,6  | <b>B0911400.0276</b>    | <b>B0921400.0276</b>       | <b>B5217F00.0276</b>                  | B5267F00.0276                              |
| 10               | x 1,25  | 100   | 18    | 39    | 10         | 8         | 9,45 |                         |                            |                                       | B5267F00.0277                              |
| <b>DIN 2174</b>  |         |       |       |       |            |           |      | » 336                   | » 336                      | » 336                                 | » 337                                      |

1) Gewindeformen in Durchgangslöcher nur mit externer Kühlschmierung möglich  
Cold-forming in through holes is possible only with external cooling/lubrication

2) Zum Patent angemeldet  
Patent pending



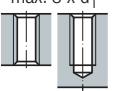







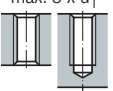
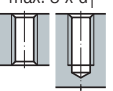
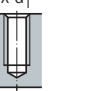
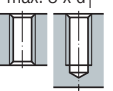
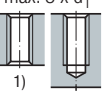


Bei schlecht ausformenden Werkstoffen (z.B. GAL) empfehlen wir bei  $P \geq 1$  mm um 0,05 mm kleiner vorzubohren.

Weitere Informationen zu den empfohlenen Vorfertigungsdurchmessern siehe Seite 317.

We recommend a smaller preparatory diameter by 0.05 mm for difficult to form materials (such as aluminium cast alloys) for  $P \geq 1$  mm.

For further information regarding the recommended preparatory diameters, see page 317.

| <p><b>STEEL</b><br/>Steel materials</p>   <p><math>l_2 \approx 10 \times P</math><br/>2)</p> <p>6HX<br/>TIN-66<br/>HSSE-PM</p> <p>E / 1,5-2<br/>E / 0</p> <p>max. 3 x d<sub>1</sub></p>  <p>P 2.1-4.1</p> <p>InnoForm 1-STEEL-M/E-SN IKZN-PM-TIN-66</p> |                      | <p><b>SPEED</b><br/>High-speed cutting</p>   <p><math>l_2 \approx 10 \times P</math></p> <p>6HX<br/>TICN<br/>HSSE</p> <p>E / 1,5-2<br/>E / 0</p> <p>max. 3 x d<sub>1</sub></p> <p>N 1.4-1.6</p> <p>Drück 1-GAL-SPEED/E SN-IKZN-TICN</p> |  | <p><b>Z</b><br/>CNC-controlled machines</p>   <p><math>l_2 \approx 10 \times P</math></p> <p>6HX<br/>TIN-80<br/>HSSE-PM</p> <p>C / 2-3<br/>E / 0/P</p> <p>max. 3 x d<sub>1</sub></p> <p>P 1.1-4.1<br/>K 2.1<br/>N 2.2, 2.4-2.5</p> <p>InnoForm 1-Z-SN PM-TIN-80</p> |   | <p><b>Z</b><br/>CNC-controlled machines</p>   <p><math>l_2 \approx 10 \times P</math></p> <p>6HX<br/>TIN-80<br/>HSSE-PM</p> <p>C / 2-3<br/>E / 0</p> <p>max. 3 x d<sub>1</sub></p> <p>P 1.1-4.1<br/>K 2.1<br/>N 2.2, 2.4-2.5</p> <p>InnoForm 1-Z-SN-IKZ PM-TIN-80</p> |  | <p>Product Finder</p> <p>V<sub>c</sub></p> <p>M</p> <p>MF</p> <p>UNC</p> <p>UNF</p> <p>G</p> <p>SELF-LOCK</p> <p>M 2,5 x 0,35<br/>2,6 x 0,35<br/>3 x 0,35<br/>3,5 x 0,35<br/>4 x 0,5<br/>5 x 0,5<br/>6 x 0,5<br/>6 x 0,75<br/>7 x 0,75<br/>8 x 0,75<br/>8 x 1<br/>9 x 0,75<br/>9 x 1<br/>10 x 0,75<br/>10 x 1<br/>10 x 1,25</p>  |
|--|----------------------|---|--|--|---|---|--|---|
| <p>6HX<br/>TIN-66<br/>HSSE-PM</p> <p>E / 1,5-2<br/>E / 0</p>   |                      | <p>6HX<br/>TICN<br/>HSSE</p> <p>E / 1,5-2<br/>E / 0</p>   | <p>6HX<br/>TICN<br/>VHM</p> <p>E / 1,5-2<br/>E / 0</p>   |  | <p>6HX<br/>TIN-80<br/>HSSE-PM</p> <p>C / 2-3<br/>E / 0/P</p>  | <p>6HX<br/>TIN-80<br/>HSSE-PM</p> <p>C / 2-3<br/>E / 0</p>  |  |   |
| <p>max. 3 x d<sub>1</sub></p>    |                      | <p>max. 3 x d<sub>1</sub></p>   | <p>max. 3 x d<sub>1</sub></p>  |  | <p>max. 3 x d<sub>1</sub></p>  | <p>max. 3 x d<sub>1</sub></p>  <p>1)</p>  |  |   |
| <p>P 2.1-4.1</p>   |                      | <p>N 1.4-1.6</p>  | <p>N 1.4-1.6</p>   |  | <p>P 1.1-4.1<br/>K 2.1<br/>N 2.2, 2.4-2.5</p>   | <p>P 1.1-4.1<br/>K 2.1<br/>N 2.2, 2.4-2.5</p>   |  |   |
| <p>InnoForm 1-STEEL-M/E-SN IKZN-PM-TIN-66</p>  |                      | <p>Drück 1-GAL-SPEED/E SN-IKZN-TICN</p>   | <p>VHM-Drück 1-GAL-SPEED/E SN-IKZN-TICN</p>  |  | <p>InnoForm 1-Z-SN PM-TIN-80</p>  | <p>InnoForm 1-Z-SN-IKZ PM-TIN-80</p>  |  |   |
| <p>B5337F00.0251</p>   | <p>B5059500.0229</p> | <p>B5059500.0251</p>  | <p>B505Q800.0229</p>   |  | <p>B521Z700.0251</p>  | <p>B523Z700.0251</p>  |  |   |
| <p>B5337F00.0276</p>   | <p>B5059500.0277</p> | <p>B5059500.0277</p>  | <p>B505Q800.0277</p>   |  | <p>B521Z700.0276</p>  | <p>B523Z700.0276</p>  |  |   |
| <p>337</p>   | <p>337</p>           | <p>337</p>  | <p>337</p>   |  | <p>339</p>  | <p>339</p>  |  |   |



Bei schlecht ausformenden Werkstoffen (z.B. GAL) empfehlen wir bei P ≥ 1 mm um 0,05 mm kleiner vorzubohren.

Weitere Informationen zu den empfohlenen Vorfertigungsdurchmessern siehe Seite 317.

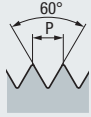
We recommend a smaller preparatory diameter by 0.05 mm for difficult to form materials (such as aluminium cast alloys) for P ≥ 1 mm.

For further information regarding the recommended preparatory diameters, see page 317.

- Product Finder
- V<sub>c</sub>
- M
- MF**
- UNC
- UNF
- G
- SELF-LOCK

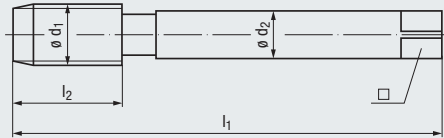
# MF

DIN 13



**DIN 2174**

**STEEL**  
Steel materials



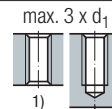
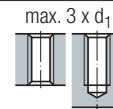
Technische Informationen  
Technical information

Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material



|           |           |                |                |
|-----------|-----------|----------------|----------------|
| 6HX       | 6HX       | 6HX            | 6HX            |
| TIN       | TIN       | TIN-66         | TIN-66         |
| HSSE      | HSSE      | <b>HSSE-PM</b> | <b>HSSE-PM</b> |
| C / 2-3   | C / 2-3   | C / 2-3        | C / 2-3        |
| E / O / P | E / O / P | E / O / P      | E / O          |

Gewindetiefe und Lochform  
Thread depth and hole type



Einsatzgebiete – Material  
Applications – material

» 312

|   |   |                  |                  |
|---|---|------------------|------------------|
| <b>P</b> 1.1-3.1<br><b>N</b> 1.5-1.6, 2.2 | <b>P</b> 1.1-3.1<br><b>N</b> 1.5-1.6, 2.2 | <b>P</b> 2.1-5.1 | <b>P</b> 2.1-5.1 |
|---|---|------------------|------------------|

| M | ø d <sub>1</sub> |   | P    | l <sub>1</sub> | l <sub>2</sub> | ø d <sub>2</sub> |      | □ | L     | Drück<br>2-STEEL<br>TIN | Drück<br>2-STEEL-SN<br>TIN | InnoForm<br>2-STEEL-M-SN<br>PM-TIN-66 | InnoForm<br>2-STEEL-M-SN<br>IKZ-PM-TIN-66 |
|---|------------------|---|------|----------------|----------------|------------------|------|---|-------|-------------------------|----------------------------|---------------------------------------|---|
|   | mm               | x |      |                |                | mm               | mm   |   |       |                         |                            |                                       |   |
|   | 11               | x | 1    | 90             | 18             | 8                | 6,2  |   | 10,6  |                         |                            |                                       |   |
|   | 12               | x | 1    | 100            | 18             | 9                | 7    |   | 11,6  | <b>C0911400.0301</b>    | <b>C0921400.0301</b>       |                                       |   |
|   | 12               | x | 1,25 | 100            | 22             | 9                | 7    |   | 11,45 |                         |                            |                                       |   |
|   | 12               | x | 1,5  | 100            | 22             | 9                | 7    |   | 11,35 | <b>C0911400.0303</b>    | <b>C0921400.0303</b>       | <b>C5217F00.0303</b>                  | <b>C5237F00.0303</b>                      |
|   | 14               | x | 1    | 100            | 18             | 11               | 9    |   | 13,6  |                         |                            |                                       |   |
|   | 14               | x | 1,25 | 100            | 22             | 11               | 9    |   | 13,45 |                         |                            |                                       |   |
|   | 14               | x | 1,5  | 100            | 22             | 11               | 9    |   | 13,35 | <b>C0911400.0331</b>    | <b>C0921400.0331</b>       | <b>C5217F00.0331</b>                  | <b>C5237F00.0331</b>                      |
|   | 15               | x | 1    | 100            | 18             | 12               | 9    |   | 14,6  |                         |                            |                                       |   |
|   | 15               | x | 1,5  | 100            | 22             | 12               | 9    |   | 14,35 |                         |                            |                                       |   |
|   | 16               | x | 1    | 100            | 18             | 12               | 9    |   | 15,6  | C0911400.0357           | C0921400.0357              |                                       |   |
|   | 16               | x | 1,5  | 100            | 22             | 12               | 9    |   | 15,35 | <b>C0911400.0359</b>    | <b>C0921400.0359</b>       | <b>C5217F00.0359</b>                  | <b>C5237F00.0359</b>                      |
|   | 18               | x | 1    | 110            | 20             | 14               | 11   |   | 17,6  |                         |                            |                                       |   |
|   | 18               | x | 1,5  | 110            | 25             | 14               | 11   |   | 17,35 |                         |                            |                                       |   |
|   | 18               | x | 2    | 125            | 26             | 14               | 11   |   | 17,1  |                         |                            |                                       |   |
|   | 20               | x | 1    | 125            | 20             | 16               | 12   |   | 19,6  |                         |                            |                                       |   |
|   | 20               | x | 1,5  | 125            | 25             | 16               | 12   |   | 19,35 | <b>C0911400.0422</b>    | <b>C0921400.0422</b>       |                                       |   |
|   | 20               | x | 2    | 140            | 27             | 16               | 12   |   | 19,1  |                         |                            |                                       |   |
|   | 22               | x | 1,5  | 125            | 25             | 18               | 14,5 |   | 21,35 |                         |                            |                                       |   |
|   | 22               | x | 2    | 140            | 27             | 18               | 14,5 |   | 21,1  |                         |                            |                                       |   |
|   | 24               | x | 1,5  | 140            | 27             | 18               | 14,5 |   | 23,35 |                         |                            |                                       |   |
|   | 24               | x | 2    | 140            | 27             | 18               | 14,5 |   | 23,1  |                         |                            |                                       |   |
|   | 27               | x | 2    | 140            | 28             | 20               | 16   |   | 26,1  |                         |                            |                                       |   |
|   | 30               | x | 2    | 150            | 28             | 22               | 18   |   | 29,1  |                         |                            |                                       |   |
|   | 33               | x | 1,5  | 160            | 30             | 25               | 20   |   | 32,35 |                         |                            |                                       |   |
|   | 33               | x | 2    | 160            | 30             | 25               | 20   |   | 32,1  |                         |                            |                                       |   |
|   | 36               | x | 1,5  | 170            | 30             | 28               | 22   |   | 35,35 |                         |                            |                                       |   |
|   | 36               | x | 3    | 200            | 42             | 28               | 22   |   | 34,6  |                         |                            |                                       |   |

DIN 2174



» 334

» 334

» 334

1) Gewindeformen in Durchgangslöcher nur mit externer Kühlschmierung möglich  
Cold-forming in through holes is possible only with external cooling/lubrication

2) Zum Patent angemeldet  
Patent pending



| STEEL<br>Steel materials                    |  |   | SPEED<br>High-speed cutting             |   |  |  | Product Finder |
|---|--|---|---|---|--|--|----------------|
|   |  |   |   |   |  |  | V <sub>c</sub> |
|   |  |   |   |   |  |  | M              |
|   |  |   |   |   |  |  | MF             |
|   |  |   |   |   |  |  | UNC            |
|   |  |   |   |   |  |  | UNF            |
|   |  |   |   |   |  |  | G              |
|   |  |   |   |   |  |  | SELF-LOCK      |
| 6HX<br>TIN-66<br>HSSE-PM                    | 6HX<br>TIN-66<br>HSSE-PM                     | 6HX<br>TIN-66<br>HSSE-PM                      | 6HX<br>TICN<br>HSSE                     | 6HX<br>TICN<br>KHM                          |  |  |                |
| C / 2-3<br>E / 0                            | E / 1,5-2<br>E / 0                           | E / 1,5-2<br>E / 0                            | E / 1,5-2<br>E / 0                      | E / 1,5-2<br>E / 0                          |  |  |                |
| max. 3 x d <sub>1</sub><br>                 | max. 3 x d <sub>1</sub><br>                  | max. 3 x d <sub>1</sub><br>                   | max. 3 x d <sub>1</sub><br>             |   |  |  |                |
| P 2.1-5.1                                   | P 2.1-5.1                                    | P 2.1-5.1                                     | N 1.4-1.6                               | N 1.4-1.6                                   |  |  |                |
| <b>InnoForm 2-STEEL-M-SN IKZN-PM-TIN-66</b> | <b>InnoForm 2-STEEL-M/E-SN IKZ-PM-TIN-66</b> | <b>InnoForm 2-STEEL-M/E-SN IKZN-PM-TIN-66</b> | <b>Drück 2-GAL-SPEED/E SN-IKZN-TICN</b> | <b>KHM-Drück 2-GAL-SPEED/E SN-IKZN-TICN</b> |  |  |                |
| C5267F00.0301                               |  |   | C5059500.0302                           | C505Q800.0302                               |  |  | M 11 x 1       |
| C5267F00.0302                               |  |   | C5059500.0303                           | C505Q800.0303                               |  |  | 12 x 1         |
| C5267F00.0303                               | <b>C5317F00.0303</b>                         | C5337F00.0303                                 |   |   |  |  | 12 x 1,25      |
| C5267F00.0329                               |  |   |   |   |  |  | 12 x 1,5       |
| C5267F00.0330                               |  |   |   |   |  |  | 14 x 1         |
| C5267F00.0331                               | <b>C5317F00.0331</b>                         | C5337F00.0331                                 | C5059500.0331                           | C505Q800.0331                               |  |  | 14 x 1,25      |
|   |  |   |   |   |  |  | 14 x 1,5       |
|   |  |   |   |   |  |  | 15 x 1         |
|   |  |   |   |   |  |  | 15 x 1,5       |
| C5267F00.0359                               | <b>C5317F00.0359</b>                         | C5337F00.0359                                 | C5059500.0359                           | C505Q800.0359                               |  |  | 16 x 1         |
|   |  |   |   |   |  |  | 16 x 1,5       |
| C5267F00.0390                               |  |   |   |   |  |  | 18 x 1         |
|   |  |   |   |   |  |  | 18 x 1,5       |
|   |  |   |   |   |  |  | 18 x 2         |
|   |  |   |   |   |  |  | 20 x 1         |
|   |  |   |   |   |  |  | 20 x 1,5       |
| C5267F00.0422                               |  |   |   |   |  |  | 20 x 2         |
| C5267F00.0423                               |  |   |   |   |  |  | 22 x 1,5       |
| C5267F00.0438                               |  |   |   |   |  |  | 22 x 2         |
| C5267F00.0439                               |  |   |   |   |  |  | 24 x 1,5       |
| C5267F00.0452                               |  |   |   |   |  |  | 24 x 2         |
| C5267F00.0453                               |  |   |   |   |  |  | 24 x 2         |
| C5267F00.0471                               |  |   |   |   |  |  | 27 x 2         |
| C5267F00.0491                               |  |   |   |   |  |  | 30 x 2         |
| C5267F00.0511                               |  |   |   |   |  |  | 33 x 1,5       |
| C5267F00.0512                               |  |   |   |   |  |  | 33 x 2         |
| C5267F00.0532                               |  |   |   |   |  |  | 36 x 1,5       |
| C5267F00.0534                               |  |   |   |   |  |  | 36 x 3         |
|   |  |   |   |   |  |  |                |
| 334   |  | 335   | 335                                     | 335   |  |  |                |

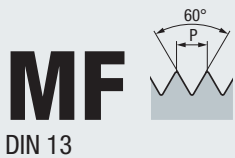
- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC
- UNF
- G
- SELF-LOCK



Bei schlecht ausformenden Werkstoffen (z.B. GAL) empfehlen wir bei P ≥ 1 mm um 0,05 mm kleiner vorzubohren. Weitere Informationen zu den empfohlenen Vorfertigungsdurchmessern siehe Seite 317.

We recommend a smaller preparatory diameter by 0.05 mm for difficult to form materials (such as aluminium cast alloys) for P ≥ 1 mm. For further information regarding the recommended preparatory diameters, see page 317.

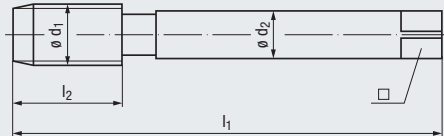
- Product Finder
- V<sub>c</sub>
- M
- MF**
- UNC
- UNF
- G
- SELF-LOCK



DIN 13

DIN 2174

**H**  
Materials of high tensile strength



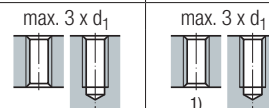
Technische Informationen  
Technical information

Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material



|                |                |
|----------------|----------------|
| 6HX            | 6HX            |
| TIN-T26        | TIN-T26        |
| <b>HSSE-PM</b> | <b>HSSE-PM</b> |
| C / 2-3        | C / 2-3        |
| E / O / P      | E              |

Gewindetiefe und Lochform  
Thread depth and hole type



Einsatzgebiete – Material  
Applications – material

» 312

|                  |                  |
|------------------|------------------|
| <b>P</b> 3.1-5.1 | <b>P</b> 3.1-5.1 |
| <b>K</b> 2.1     | <b>K</b> 2.1     |

| $\phi d_1$<br>mm | P<br>mm | $l_1$ | $l_2$ | $\phi d_2$ | $\square$ |                      | InnoForm<br>2-H-SN<br>PM-TIN-T26 | InnoForm<br>2-H-SN- <b>IKZ</b><br>PM-TIN-T26 |
|------------------|---------|-------|-------|------------|-----------|----------------------|----------------------------------|--|
| <b>M</b> 11 x 1  | 90      | 11    | 8     | 6,2        | 10,6      |                      |                                  |  |
| 12 x 1           | 100     | 11    | 9     | 7          | 11,6      |                      |                                  |  |
| 12 x 1,25        | 100     | 15    | 9     | 7          | 11,45     |                      |                                  |  |
| 12 x 1,5         | 100     | 15    | 9     | 7          | 11,35     | <b>C521W700.0303</b> | <b>C523W700.0303</b>             |  |
| 14 x 1           | 100     | 11    | 11    | 9          | 13,6      |                      |                                  |  |
| 14 x 1,25        | 100     | 15    | 11    | 9          | 13,45     |                      |                                  |  |
| 14 x 1,5         | 100     | 15    | 11    | 9          | 13,35     | <b>C521W700.0331</b> | <b>C523W700.0331</b>             |  |
| 15 x 1           | 100     | 12    | 12    | 9          | 14,6      |                      |                                  |  |
| 15 x 1,5         | 100     | 15    | 12    | 9          | 14,35     |                      |                                  |  |
| 16 x 1           | 100     | 12    | 12    | 9          | 15,6      |                      |                                  |  |
| 16 x 1,5         | 100     | 15    | 12    | 9          | 15,35     | <b>C521W700.0359</b> | <b>C523W700.0359</b>             |  |
| 18 x 1           | 110     | 13    | 14    | 11         | 17,6      |                      |                                  |  |
| 18 x 1,5         | 110     | 17    | 14    | 11         | 17,35     |                      |                                  |  |
| 18 x 2           | 125     | 20    | 14    | 11         | 17,1      |                      |                                  |  |
| 20 x 1           | 125     | 14    | 16    | 12         | 19,6      |                      |                                  |  |
| 20 x 1,5         | 125     | 17    | 16    | 12         | 19,35     |                      |                                  |  |
| 20 x 2           | 140     | 20    | 16    | 12         | 19,1      |                      |                                  |  |

1) Gewindeformen in Durchgangslöcher nur mit externer Kühlschmierung möglich  
Cold-forming in through holes is possible only with external cooling/lubrication



Bei schlecht ausformenden Werkstoffen (z.B. GAL) empfehlen wir bei  $P \geq 1$  mm um 0,05 mm kleiner vorzubohren.

Weitere Informationen zu den empfohlenen Vorfertigungsdurchmessern siehe Seite 317.

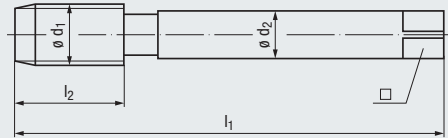
We recommend a smaller preparatory diameter by 0.05 mm for difficult to form materials (such as aluminium cast alloys) for  $P \geq 1$  mm.

For further information regarding the recommended preparatory diameters, see page 317.



DIN 13

DIN 2174



Technische Informationen  
Technical information

Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material

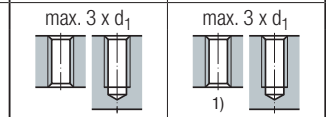


Gewindetiefe und Lochform  
Thread depth and hole type

Einsatzgebiete – Material  
Applications – material



|           |         |
|-----------|---------|
| 6HX       | 6HX     |
| TIN-80    | TIN-80  |
| HSSE-PM   | HSSE-PM |
| C / 2-3   | C / 2-3 |
| E / O / P | E / O   |



|                       |                       |
|-----------------------|-----------------------|
| <b>P</b> 1.1-4.1      | <b>P</b> 1.1-4.1      |
| <b>K</b> 2.1          | <b>K</b> 2.1          |
| <b>N</b> 2.2, 2.4-2.5 | <b>N</b> 2.2, 2.4-2.5 |

|          | $\phi d_1$<br>mm | P<br>mm | $l_1$ | $l_2$ | $\phi d_2$ | $\square$ |       |
|----------|------------------|---------|-------|-------|------------|-----------|-------|
| <b>M</b> | 11               | x 1     | 90    | 11    | 8          | 6,2       | 10,6  |
|          | 12               | x 1     | 100   | 11    | 9          | 7         | 11,6  |
|          | 12               | x 1,25  | 100   | 15    | 9          | 7         | 11,45 |
|          | 12               | x 1,5   | 100   | 15    | 9          | 7         | 11,35 |
|          | 14               | x 1     | 100   | 11    | 11         | 9         | 13,6  |
|          | 14               | x 1,25  | 100   | 15    | 11         | 9         | 13,45 |
|          | 14               | x 1,5   | 100   | 15    | 11         | 9         | 13,35 |
|          | 15               | x 1     | 100   | 12    | 12         | 9         | 14,6  |
|          | 15               | x 1,5   | 100   | 15    | 12         | 9         | 14,35 |
|          | 16               | x 1     | 100   | 12    | 12         | 9         | 15,6  |
|          | 16               | x 1,5   | 100   | 15    | 12         | 9         | 15,35 |
|          | 18               | x 1     | 110   | 13    | 14         | 11        | 17,6  |
|          | 18               | x 1,5   | 110   | 17    | 14         | 11        | 17,35 |
|          | 18               | x 2     | 125   | 20    | 14         | 11        | 17,1  |
|          | 20               | x 1     | 125   | 14    | 16         | 12        | 19,6  |
|          | 20               | x 1,5   | 125   | 17    | 16         | 12        | 19,35 |
|          | 20               | x 2     | 140   | 20    | 16         | 12        | 19,1  |

DIN 2174

|                                  |                                      |
|----------------------------------|--------------------------------------|
| <b>InnoForm 2-Z-SN PM-TIN-80</b> | <b>InnoForm 2-Z-SN-1KZ PM-TIN-80</b> |
| <b>C521Z700.0303</b>             | <b>C523Z700.0303</b>                 |
| <b>C521Z700.0331</b>             | <b>C523Z700.0331</b>                 |
| <b>C521Z700.0359</b>             | <b>C523Z700.0359</b>                 |

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1) Gewindeformen in Durchgangslöcher nur mit externer Kühlschmierung möglich  
Cold-forming in through holes is possible only with external cooling/lubrication



Bei schlecht ausformenden Werkstoffen (z.B. GAL) empfehlen wir bei  $P \geq 1$  mm um 0,05 mm kleiner vorzubohren.

Weitere Informationen zu den empfohlenen Vorfertigungsdurchmessern siehe Seite 317.

We recommend a smaller preparatory diameter by 0.05 mm for difficult to form materials (such as aluminium cast alloys) for  $P \geq 1$  mm.

For further information regarding the recommended preparatory diameters, see page 317.

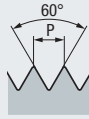
- Product Finder
- V<sub>c</sub>
- M
- MF**
- UNC
- UNF
- G
- SELF-LOCK



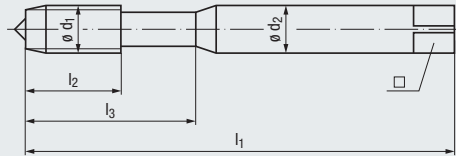
- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC**
- UNF
- G
- SELF-LOCK

# UNC

ASME B1.1



≈ DIN 2174



**STEEL**  
Steel materials



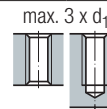
Technische Informationen  
Technical information

Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material



|           |           |
|-----------|-----------|
| 2BX       | 2BX       |
| TIN       | TIN       |
| HSSE      | HSSE      |
| C / 2-3   | C / 2-3   |
| E / O / P | E / O / P |

Gewindetiefe und Lochform  
Thread depth and hole type



Einsatzgebiete – Material  
Applications – material

» 312

|                       |                       |
|-----------------------|-----------------------|
| <b>P</b> 1.1-3.1      | <b>P</b> 1.1-3.1      |
| <b>N</b> 1.5-1.6, 2.2 | <b>N</b> 1.5-1.6, 2.2 |

| Nr.    | ø d <sub>1</sub> |      | P<br>Gg/1" (tpi) | l <sub>1</sub> | l <sub>2</sub> | l <sub>3</sub> | ø d <sub>2</sub> |     | □    | Image |
|--------|------------------|------|------------------|----------------|----------------|----------------|------------------|-----|------|-------|
|        | inch             | mm   |                  |                |                |                | mm               | mm  |      |       |
| Nr. 4  | 0.1120           | 2.85 | 40               | 56             | 11             | 18             | 3,5              | 2,7 | 2,55 |       |
| Nr. 5  | 0.1250           | 3.18 | 40               | 56             | 11             | 18             | 3,5              | 2,7 | 2,9  |       |
| Nr. 6  | 0.1380           | 3.50 | 32               | 56             | 12             | 20             | 4                | 3   | 3,15 |       |
| Nr. 8  | 0.1640           | 4.16 | 32               | 63             | 13             | 21             | 4,5              | 3,4 | 3,8  |       |
| Nr. 10 | 0.1900           | 4.83 | 24               | 70             | 15             | 25             | 6                | 4,9 | 4,35 |       |
| Nr. 12 | 0.2160           | 5.49 | 24               | 80             | 16             | 30             | 6                | 4,9 | 5    |       |
| 1/4    | 0.2500           | 6.35 | 20               | 80             | 17             | 30             | 7                | 5,5 | 5,75 |       |
| 5/16   | 0.3125           | 7.94 | 18               | 90             | 20             | 35             | 8                | 6,2 | 7,3  |       |
| 3/8    | 0.3750           | 9.53 | 16               | 100            | 22             | 39             | 10               | 8   | 8,8  |       |

| Drück<br>1-STEEL<br>TIN | Drück<br>1-STEEL-SN<br>TIN |
|-------------------------|----------------------------|
| <b>B0911400.5003</b>    | <b>B0921400.5003</b>       |
| <b>B0911400.5005</b>    | <b>B0921400.5005</b>       |
| <b>B0911400.5006</b>    | <b>B0921400.5006</b>       |
| <b>B0911400.5007</b>    | <b>B0921400.5007</b>       |
| <b>B0911400.5009</b>    | <b>B0921400.5009</b>       |
| <b>B0911400.5010</b>    | <b>B0921400.5010</b>       |
| <b>B0911400.5011</b>    | <b>B0921400.5011</b>       |

≈ DIN 2174



» 342

» 342



Bei schlecht ausformenden Werkstoffen (z.B. GAL) empfehlen wir bei P = 24 Gg./1" und größer um 0,05 mm kleiner vorzubohren.

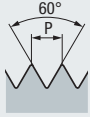
Weitere Informationen zu den empfohlenen Vorfertigungsdurchmessern siehe Seite 317.

We recommend a smaller preparatory diameter by 0.05 mm for difficult to form materials (such as aluminium cast alloys) for P = 24 threads/1" and coarser threads.

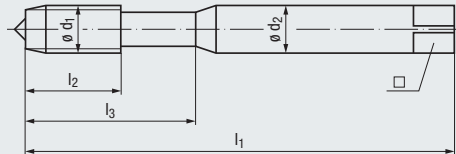
For further information regarding the recommended preparatory diameters, see page 317.

**UNC**

ASME B1.1



≈ DIN 2174



Technische Informationen  
Technical information

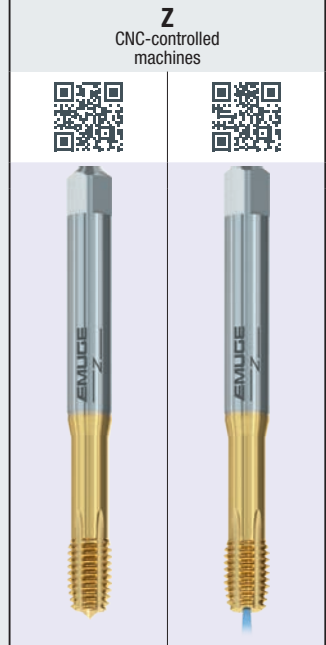
Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material



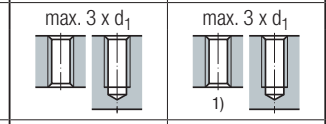
Gewindetiefe und Lochform  
Thread depth and hole type

Einsatzgebiete – Material  
Applications – material

» 312



|           |         |
|-----------|---------|
| 2BX       | 2BX     |
| TIN-80    | TIN-80  |
| HSSE-PM   | HSSE-PM |
| C / 2-3   | C / 2-3 |
| E / O / P | E / O   |



|                       |                       |
|-----------------------|-----------------------|
| <b>P</b> 1.1-4.1      | <b>P</b> 1.1-4.1      |
| <b>K</b> 2.1          | <b>K</b> 2.1          |
| <b>N</b> 2.2, 2.4-2.5 | <b>N</b> 2.2, 2.4-2.5 |

| Nr.    | ø d <sub>1</sub> |     | P<br>Gg/1" (tpi) | l <sub>1</sub> | l <sub>2</sub> | l <sub>3</sub> | ø d <sub>2</sub> |     | □    | Image |
|--------|------------------|-----|------------------|----------------|----------------|----------------|------------------|-----|------|-------|
|        | inch             | mm  |                  |                |                |                | mm               | mm  |      |       |
| Nr. 4  | 0.1120           | 2.9 | 40               | 56             | 6              | 18             | 3,5              | 2,7 | 2,55 |       |
| Nr. 5  | 0.1250           | 3.2 | 40               | 56             | 7              | 18             | 3,5              | 2,7 | 2,9  |       |
| Nr. 6  | 0.1380           | 3.5 | 32               | 56             | 7              | 20             | 4                | 3   | 3,15 |       |
| Nr. 8  | 0.1640           | 4.2 | 32               | 63             | 8              | 21             | 4,5              | 3,4 | 3,8  |       |
| Nr. 10 | 0.1900           | 4.8 | 24               | 70             | 10             | 25             | 6                | 4,9 | 4,35 |       |
| Nr. 12 | 0.2160           | 5.5 | 24               | 80             | 10             | 30             | 6                | 4,9 | 5    |       |
| 1/4    | 0.2500           | 6.4 | 20               | 80             | 13             | 30             | 7                | 5,5 | 5,75 |       |
| 5/16   | 0.3125           | 7.9 | 18               | 90             | 14             | 35             | 8                | 6,2 | 7,3  |       |
| 3/8    | 0.3750           | 9.5 | 16               | 100            | 16             | 39             | 10               | 8   | 8,8  |       |

| InnoForm 1-Z-SN PM-TIN-80 | InnoForm 1-Z-SN-1KZ PM-TIN-80 |
|---------------------------|-------------------------------|
| B521Z700.5003             |                               |
| B521Z700.5005             |                               |
| B521Z700.5006             |                               |
| B521Z700.5007             | B523Z700.5007                 |
| B521Z700.5009             | B523Z700.5009                 |
| B521Z700.5010             | B523Z700.5010                 |
| B521Z700.5011             | B523Z700.5011                 |

≈ DIN 2174 343

1) Gewindeformen in Durchgangslöchern nur mit externer Kühlschmierung möglich  
Cold-forming in through holes is possible only with external cooling/lubrication

Bei schlecht ausformenden Werkstoffen (z.B. GAL) empfehlen wir bei P = 24 Gg./1" und größer um 0,05 mm kleiner vorzubohren.  
Weitere Informationen zu den empfohlenen Vorfertigungsdurchmessern siehe Seite 317.

We recommend a smaller preparatory diameter by 0.05 mm for difficult to form materials (such as aluminium cast alloys) for P = 24 threads/1" and coarser threads.  
For further information regarding the recommended preparatory diameters, see page 317.

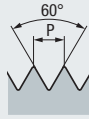
- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC**
- UNF
- G
- SELF-LOCK



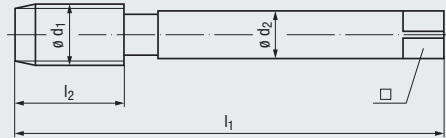
- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC**
- UNF
- G
- SELF-LOCK

# UNC

ASME B1.1



≈ DIN 2174



**STEEL**  
Steel materials



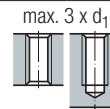
Technische Informationen  
Technical information

Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material



|           |           |
|-----------|-----------|
| 2BX       | 2BX       |
| TIN       | TIN       |
| HSSE      | HSSE      |
| C / 2-3   | C / 2-3   |
| E / O / P | E / O / P |

Gewindetiefe und Lochform  
Thread depth and hole type



Einsatzgebiete – Material  
Applications – material

» 312

|                       |                       |
|-----------------------|-----------------------|
| <b>P</b> 1.1-3.1      | <b>P</b> 1.1-3.1      |
| <b>N</b> 1.5-1.6, 2.2 | <b>N</b> 1.5-1.6, 2.2 |

| ø d <sub>1</sub><br>inch | P<br>Gg/1" (tpi) | l <sub>1</sub> | l <sub>2</sub> | ø d <sub>2</sub> | □  | Drück<br>2-STEEL<br>TIN | Drück<br>2-STEEL-SN<br>TIN |                      |                      |
|--------------------------|------------------|----------------|----------------|------------------|----|-------------------------|----------------------------|----------------------|----------------------|
| 7/16                     | 0.4375           | 14             | 100            | 22               | 8  | 6,2                     | 10,25                      | <b>C0911400.5012</b> | <b>C0921400.5012</b> |
| 1/2                      | 0.5000           | 13             | 110            | 25               | 9  | 7                       | 11,8                       | <b>C0911400.5013</b> | <b>C0921400.5013</b> |
| 9/16                     | 0.5625           | 12             | 110            | 26               | 11 | 9                       | 13,3                       | <b>C0911400.5014</b> | <b>C0921400.5014</b> |
| 5/8                      | 0.6250           | 11             | 110            | 27               | 12 | 9                       | 14,8                       | <b>C0911400.5015</b> | <b>C0921400.5015</b> |
| 3/4                      | 0.7500           | 10             | 125            | 30               | 14 | 11                      | 17,85                      | <b>C0911400.5016</b> | <b>C0921400.5016</b> |
| 7/8                      | 0.8750           | 9              | 140            | 32               | 18 | 14,5                    | 20,9                       |                      |                      |
| 1"                       | 1.0000           | 8              | 160            | 36               | 18 | 14,5                    | 23,9                       |                      |                      |

≈ DIN 2174



» 340

» 340



Bei schlecht ausformenden Werkstoffen (z.B. GAL) empfehlen wir bei P = 24 Gg./1" und größer um 0,05 mm kleiner vorzubohren.

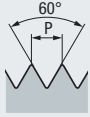
Weitere Informationen zu den empfohlenen Vorfertigungsdurchmessern siehe Seite 317.

We recommend a smaller preparatory diameter by 0.05 mm for difficult to form materials (such as aluminium cast alloys) for P = 24 threads/1" and coarser threads.

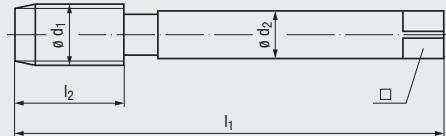
For further information regarding the recommended preparatory diameters, see page 317.

**UNC**

ASME B1.1



≈ DIN 2174



Technische Informationen  
Technical information

Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material



Gewindetiefe und Lochform  
Thread depth and hole type

Einsatzgebiete – Material  
Applications – material

» 312

| $\phi d_1$ |        | P           | $l_1$ | $l_2$ | $\phi d_2$ | $\square$ |       |
|------------|--------|-------------|-------|-------|------------|-----------|-------|
| inch       |        | Gg/1" (tpi) |       |       |            |           |       |
| 7/16       | 0.4375 | 14          | 100   | 18    | 8          | 6,2       | 10,25 |
| 1/2        | 0.5000 | 13          | 110   | 20    | 9          | 7         | 11,8  |
| 9/16       | 0.5625 | 12          | 110   | 20    | 11         | 9         | 13,3  |
| 5/8        | 0.6250 | 11          | 110   | 22    | 12         | 9         | 14,8  |
| 3/4        | 0.7500 | 10          | 125   | 25    | 14         | 11        | 17,85 |
| 7/8        | 0.8750 | 9           | 140   | 27    | 18         | 14,5      | 20,9  |
| 1"         | 1.0000 | 8           | 160   | 30    | 18         | 14,5      | 23,9  |

≈ DIN 2174



| Z<br>CNC-controlled machines   |                                |
|--------------------------------|--------------------------------|
|                                |                                |
|                                |                                |
| 2BX                            | 2BX                            |
| TIN-80                         | TIN-80                         |
| HSSE-PM                        | HSSE-PM                        |
| C / 2-3                        | C / 2-3                        |
| E / O / P                      | E / O                          |
| max. 3 x $d_1$                 | max. 3 x $d_1$                 |
|                                |                                |
| P 1.1-4.1                      | P 1.1-4.1                      |
| K 2.1                          | K 2.1                          |
| N 2.2, 2.4-2.5                 | N 2.2, 2.4-2.5                 |
| InnoForm 2-Z-SN PM-TIN-80      | InnoForm 2-Z-SN-1KZ PM-TIN-80  |
| C521Z700.5012<br>C521Z700.5013 | C523Z700.5012<br>C523Z700.5013 |
| C521Z700.5015<br>C521Z700.5016 | C523Z700.5015<br>C523Z700.5016 |
| 341                            | 341                            |

- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC**
- UNF
- G
- SELF-LOCK

1) Gewindeformen in Durchgangslöchern nur mit externer Kühlschmierung möglich  
Cold-forming in through holes is possible only with external cooling/lubrication



Bei schlecht ausformenden Werkstoffen (z.B. GAL) empfehlen wir bei P = 24 Gg./1" und größer um 0,05 mm kleiner vorzubohren.

Weitere Informationen zu den empfohlenen Vorfertigungsdurchmessern siehe Seite 317.

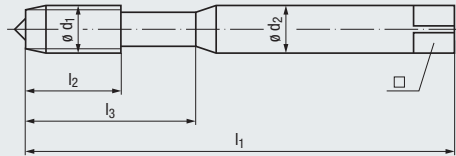
We recommend a smaller preparatory diameter by 0.05 mm for difficult to form materials (such as aluminium cast alloys) for P = 24 threads/1" and coarser threads.

For further information regarding the recommended preparatory diameters, see page 317.

- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC
- UNF**
- G
- SELF-LOCK



≈ DIN 2174



**STEEL**  
Steel materials



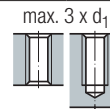
Technische Informationen  
Technical information

Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material



|           |           |
|-----------|-----------|
| 2BX       | 2BX       |
| TIN       | TIN       |
| HSSE      | HSSE      |
| C / 2-3   | C / 2-3   |
| E / O / P | E / O / P |

Gewindetiefe und Lochform  
Thread depth and hole type



Einsatzgebiete – Material  
Applications – material

» 312

|                       |                       |
|-----------------------|-----------------------|
| <b>P</b> 1.1-3.1      | <b>P</b> 1.1-3.1      |
| <b>N</b> 1.5-1.6, 2.2 | <b>N</b> 1.5-1.6, 2.2 |

| Nr.    | ø d <sub>1</sub> |      | P<br>Gg/1" (tpi) | l <sub>1</sub> | l <sub>2</sub> | l <sub>3</sub> | ø d <sub>2</sub> |     | □    | Drück<br>1-STEEL<br>TIN | Drück<br>1-STEEL-SN<br>TIN |
|--------|------------------|------|------------------|----------------|----------------|----------------|------------------|-----|------|-------------------------|----------------------------|
|        | inch             | mm   |                  |                |                |                | mm               | mm  |      |                         |                            |
| Nr. 2  | 0.0860           | 2.18 | 64               | 45             | 7              | 12             | 2,8              | 2,1 | 2,02 |                         |                            |
| Nr. 3  | 0.0990           | 2.51 | 56               | 50             | 9              | 14             | 2,8              | 2,1 | 2,32 |                         |                            |
| Nr. 4  | 0.1120           | 2.85 | 48               | 56             | 11             | 18             | 3,5              | 2,7 | 2,62 | <b>B0911400.5037</b>    | <b>B0921400.5037</b>       |
| Nr. 5  | 0.1250           | 3.18 | 44               | 56             | 11             | 18             | 3,5              | 2,7 | 2,92 |                         |                            |
| Nr. 6  | 0.1380           | 3.51 | 40               | 56             | 12             | 20             | 4                | 3   | 3,22 | <b>B0911400.5039</b>    | <b>B0921400.5039</b>       |
| Nr. 8  | 0.1640           | 4.18 | 36               | 63             | 13             | 21             | 4,5              | 3,4 | 3,85 | <b>B0911400.5040</b>    | <b>B0921400.5040</b>       |
| Nr. 10 | 0.1900           | 4.85 | 32               | 70             | 15             | 25             | 6                | 4,9 | 4,45 | <b>B0911400.5041</b>    | <b>B0921400.5041</b>       |
| Nr. 12 | 0.2160           | 5.51 | 28               | 80             | 16             | 30             | 6                | 4,9 | 5,1  |                         |                            |
| 1/4    | 0.2500           | 6.35 | 28               | 80             | 17             | 30             | 7                | 5,5 | 5,95 | <b>B0911400.5043</b>    | <b>B0921400.5043</b>       |
| 5/16   | 0.3125           | 7.92 | 24               | 90             | 17             | 35             | 8                | 6,2 | 7,45 | <b>B0911400.5044</b>    | <b>B0921400.5044</b>       |
| 3/8    | 0.3750           | 9.52 | 24               | 90             | 18             | 35             | 10               | 8   | 9,05 | <b>B0911400.5045</b>    | <b>B0921400.5045</b>       |

≈ DIN 2174



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» 346



Bei schlecht ausformenden Werkstoffen (z.B. GAL) empfehlen wir bei P = 24 Gg./1" und gröber um 0,05 mm kleiner vorzubohren.

Weitere Informationen zu den empfohlenen Vorfertigungsdurchmessern siehe Seite 317.

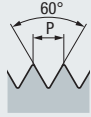
We recommend a smaller preparatory diameter by 0.05 mm for difficult to form materials (such as aluminium cast alloys) for P = 24 threads/1" and coarser threads.

For further information regarding the recommended preparatory diameters, see page 317.

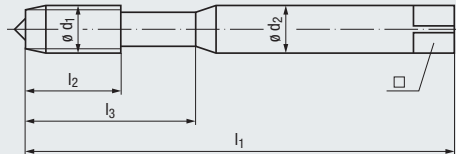


**UNF**

ASME B1.1



≈ DIN 2174



Technische Informationen  
Technical information

Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material



Gewindetiefe und Lochform  
Thread depth and hole type

Einsatzgebiete – Material  
Applications – material

» 312

| Nr.    | ø d <sub>1</sub> |      | P<br>Gg/1" (tpi) | l <sub>1</sub> | l <sub>2</sub> | l <sub>3</sub> | ø d <sub>2</sub> |     | □ | L <sub>1</sub> |
|--------|------------------|------|------------------|----------------|----------------|----------------|------------------|-----|---|----------------|
|        | inch             | mm   |                  |                |                |                | mm               | mm  |   |                |
| Nr. 2  | 0.0860           | 2.18 | 64               | 45             | 4,5            | 12             | 2,8              | 2,1 |   | 2,02           |
| Nr. 3  | 0.0990           | 2.51 | 56               | 50             | 5              | 14             | 2,8              | 2,1 |   | 2,32           |
| Nr. 4  | 0.1120           | 2.85 | 48               | 56             | 6              | 18             | 3,5              | 2,7 |   | 2,62           |
| Nr. 5  | 0.1250           | 3.18 | 44               | 56             | 7              | 18             | 3,5              | 2,7 |   | 2,92           |
| Nr. 6  | 0.1380           | 3.51 | 40               | 56             | 7              | 20             | 4                | 3   |   | 3,22           |
| Nr. 8  | 0.1640           | 4.18 | 36               | 63             | 8              | 21             | 4,5              | 3,4 |   | 3,85           |
| Nr. 10 | 0.1900           | 4.85 | 32               | 70             | 10             | 25             | 6                | 4,9 |   | 4,45           |
| Nr. 12 | 0.2160           | 5.52 | 28               | 80             | 10             | 30             | 6                | 4,9 |   | 5,1            |
| 1/4    | 0.2500           | 6.35 | 28               | 80             | 10             | 30             | 7                | 5,5 |   | 5,95           |
| 5/16   | 0.3125           | 7.92 | 24               | 90             | 10             | 35             | 8                | 6,2 |   | 7,45           |
| 3/8    | 0.3750           | 9.52 | 24               | 90             | 10             | 35             | 10               | 8   |   | 9,05           |

≈ DIN 2174



| Z<br>CNC-controlled machines                    |   |
|---|---|
|   |   |
|   |   |
| 2BX   | 2BX   |
| TIN-80  | TIN-80  |
| HSSE-PM   | HSSE-PM   |
| C / 2-3   | C / 2-3   |
| E / O / P                                       | E / O   |
| max. 3 x d <sub>1</sub><br>                     | max. 3 x d <sub>1</sub><br>                     |
| P 1.1-4.1<br>K 2.1<br>N 2.2, 2.4-2.5            | P 1.1-4.1<br>K 2.1<br>N 2.2, 2.4-2.5            |
| InnoForm 1-Z-SN PM-TIN-80                       | InnoForm 1-Z-SN-1KZ PM-TIN-80                   |
| B521Z700.5039<br>B521Z700.5040<br>B521Z700.5041 | B523Z700.5041                                   |
| B521Z700.5043<br>B521Z700.5044<br>B521Z700.5045 | B523Z700.5043<br>B523Z700.5044<br>B523Z700.5045 |
| » 347   | » 347   |

- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC
- UNF**
- G
- SELF-LOCK

1) Gewindeformen in Durchgangslöchern nur mit externer Kühlschmierung möglich  
Cold-forming in through holes is possible only with external cooling/lubrication



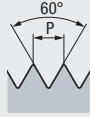
Bei schlecht ausformenden Werkstoffen (z.B. GAL) empfehlen wir bei P = 24 Gg./1" und größer um 0,05 mm kleiner vorzubohren.  
Weitere Informationen zu den empfohlenen Vorfertigungsdurchmessern siehe Seite 317.

We recommend a smaller preparatory diameter by 0.05 mm for difficult to form materials (such as aluminium cast alloys) for P = 24 threads/1" and coarser threads.  
For further information regarding the recommended preparatory diameters, see page 317.

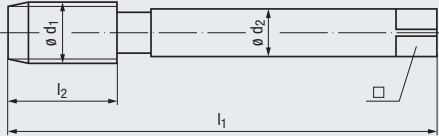
- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC
- UNF**
- G
- SELF-LOCK

# UNF

ASME B1.1



≈ DIN 2174



**STEEL**  
Steel materials



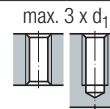
Technische Informationen  
Technical information

Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material



|           |           |
|-----------|-----------|
| 2BX       | 2BX       |
| TIN       | TIN       |
| HSSE      | HSSE      |
| C / 2-3   | C / 2-3   |
| E / O / P | E / O / P |

Gewindetiefe und Lochform  
Thread depth and hole type



Einsatzgebiete – Material  
Applications – material

» 312

|                       |                       |
|-----------------------|-----------------------|
| <b>P</b> 1.1-3.1      | <b>P</b> 1.1-3.1      |
| <b>N</b> 1.5-1.6, 2.2 | <b>N</b> 1.5-1.6, 2.2 |

| $\phi d_1$<br>inch | P<br>Gg/1" (tpi) | $l_1$ | $l_2$ | $\phi d_2$ | $\square$ |      | Drück<br>2-STEEL<br>TIN | Drück<br>2-STEEL-SN<br>TIN |               |
|--------------------|------------------|-------|-------|------------|-----------|------|-------------------------|----------------------------|---------------|
| 7/16               | 0.4375           | 20    | 100   | 22         | 8         | 6,2  | 10,55                   | C0911400.5046              | C0921400.5046 |
| 1/2                | 0.5000           | 20    | 100   | 22         | 9         | 7    | 12,15                   | C0911400.5047              | C0921400.5047 |
| 9/16               | 0.5625           | 18    | 100   | 22         | 11        | 9    | 13,65                   | C0911400.5048              | C0921400.5048 |
| 5/8                | 0.6250           | 18    | 100   | 22         | 12        | 9    | 15,25                   | C0911400.5049              | C0921400.5049 |
| 3/4                | 0.7500           | 16    | 110   | 25         | 14        | 11   | 18,35                   | C0911400.5050              | C0921400.5050 |
| 7/8                | 0.8750           | 14    | 125   | 25         | 18        | 14,5 | 21,4                    |                            |               |
| 1"                 | 1.0000           | 12    | 140   | 28         | 18        | 14,5 | 24,45                   |                            |               |

≈ DIN 2174



» 344

» 344



Bei schlecht ausformenden Werkstoffen (z.B. GAL) empfehlen wir bei P = 24 Gg./1" und gröber um 0,05 mm kleiner vorzubohren.

Weitere Informationen zu den empfohlenen Vorfertigungsdurchmessern siehe Seite 317.

We recommend a smaller preparatory diameter by 0.05 mm for difficult to form materials (such as aluminium cast alloys) for P = 24 threads/1" and coarser threads.

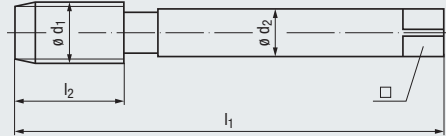
For further information regarding the recommended preparatory diameters, see page 317.

**UNF**

ASME B1.1



≈ DIN 2174



Technische Informationen  
Technical information

Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material



Gewindetiefe und Lochform  
Thread depth and hole type

Einsatzgebiete – Material  
Applications – material

» 312

| $\varnothing d_1$<br>inch | P<br>Gg/1" (tpi) | $l_1$ | $l_2$ | $\varnothing d_2$ | $\square$ |      |
|---------------------------|------------------|-------|-------|-------------------|-----------|------|
| 7/16                      | 0.4375           | 20    | 100   | 13                | 8         | 6,2  |
| 1/2                       | 0.5000           | 20    | 100   | 13                | 9         | 7    |
| 9/16                      | 0.5625           | 18    | 100   | 15                | 11        | 9    |
| 5/8                       | 0.6250           | 18    | 100   | 15                | 12        | 9    |
| 3/4                       | 0.7500           | 16    | 110   | 17                | 14        | 11   |
| 7/8                       | 0.8750           | 14    | 125   | 17                | 18        | 14,5 |
| 1"                        | 1.0000           | 12    | 140   | 20                | 18        | 14,5 |

≈ DIN 2174



**Z**  
CNC-controlled machines

|           |         |
|-----------|---------|
| 2BX       | 2BX     |
| TIN-80    | TIN-80  |
| HSSE-PM   | HSSE-PM |
| C / 2-3   | C / 2-3 |
| E / O / P | E / O   |

|                |                |
|----------------|----------------|
| max. 3 x $d_1$ | max. 3 x $d_1$ |
|                |                |

|                       |                       |
|-----------------------|-----------------------|
| <b>P</b> 1.1-4.1      | <b>P</b> 1.1-4.1      |
| <b>K</b> 2.1          | <b>K</b> 2.1          |
| <b>N</b> 2.2, 2.4-2.5 | <b>N</b> 2.2, 2.4-2.5 |

|                                  |                                      |
|----------------------------------|--------------------------------------|
| <b>InnoForm 2-Z-SN PM-TIN-80</b> | <b>InnoForm 2-Z-SN-1KZ PM-TIN-80</b> |
| <b>C521Z700.5046</b>             | <b>C523Z700.5046</b>                 |
| <b>C521Z700.5047</b>             | <b>C523Z700.5047</b>                 |

|       |       |
|-------|-------|
| » 345 | » 345 |
|-------|-------|

- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC
- UNF**
- G
- SELF-LOCK

1) Gewindeformen in Durchgangslöchern nur mit externer Kühlschmierung möglich  
Cold-forming in through holes is possible only with external cooling/lubrication



Bei schlecht ausformenden Werkstoffen (z.B. GAL) empfehlen wir bei P = 24 Gg./1" und größer um 0,05 mm kleiner vorzubohren.

Weitere Informationen zu den empfohlenen Vorfertigungsdurchmessern siehe Seite 317.

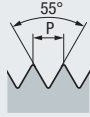
We recommend a smaller preparatory diameter by 0.05 mm for difficult to form materials (such as aluminium cast alloys) for P = 24 threads/1" and coarser threads.

For further information regarding the recommended preparatory diameters, see page 317.

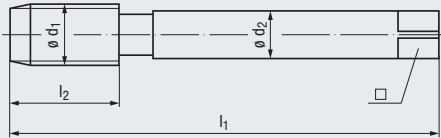
- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC
- UNF
- G**
- SELF-LOCK

# G (BSP)

DIN EN ISO 228



**DIN 2189**



**STEEL**  
Steel materials



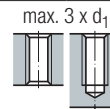
Technische Informationen  
Technical information

Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material



|           |           |
|-----------|-----------|
| „X“       | „X“       |
| TIN       | TIN       |
| HSSE      | HSSE      |
| C / 2-3   | C / 2-3   |
| E / 0 / P | E / 0 / P |

Gewindetiefe und Lochform  
Thread depth and hole type



Einsatzgebiete – Material  
Applications – material

» 312

|                       |                       |
|-----------------------|-----------------------|
| <b>P</b> 1.1-3.1      | <b>P</b> 1.1-3.1      |
| <b>N</b> 1.5-1.6, 2.2 | <b>N</b> 1.5-1.6, 2.2 |

| Nenngröße<br>Nom. size | Ø d <sub>1</sub><br>mm | P<br>Gg/1" (tpi) | l <sub>1</sub> | l <sub>2</sub> | Ø d <sub>2</sub> | □    |       |                      | Drück                | Drück             |
|------------------------|------------------------|------------------|----------------|----------------|------------------|------|-------|----------------------|----------------------|-------------------|
|                        |                        |                  |                |                |                  |      |       |                      | 2-STEEL<br>TIN       | 2-STEEL-SN<br>TIN |
| <b>G</b> 1/16          | 7,72                   | 28               | 90             | 17             | 6                | 4,9  | 7,25  |                      |                      |                   |
| 1/8                    | 9,73                   | 28               | 90             | 18             | 7                | 5,5  | 9,25  | <b>C0911400.4035</b> | <b>C0921400.4035</b> |                   |
| 1/4                    | 13,16                  | 19               | 100            | 22             | 11               | 9    | 12,55 | <b>C0911400.4036</b> | <b>C0921400.4036</b> |                   |
| 3/8                    | 16,66                  | 19               | 100            | 22             | 12               | 9    | 16,05 | <b>C0911400.4037</b> | <b>C0921400.4037</b> |                   |
| 1/2                    | 20,96                  | 14               | 125            | 25             | 16               | 12   | 20,1  | <b>C0911400.4038</b> | <b>C0921400.4038</b> |                   |
| 5/8                    | 22,91                  | 14               | 125            | 25             | 18               | 14,5 | 22,05 |                      |                      |                   |
| 3/4                    | 26,44                  | 14               | 140            | 28             | 20               | 16   | 25,6  |                      | C0921400.4040        |                   |
| 7/8                    | 30,20                  | 14               | 150            | 28             | 22               | 18   | 29,35 |                      |                      |                   |
| 1"                     | 33,25                  | 11               | 160            | 30             | 25               | 20   | 32,15 |                      | C0921400.4042        |                   |



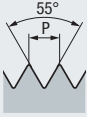
Bei schlecht ausformenden Werkstoffen (z.B. GAL) empfehlen wir bei P = 24 Gg./1" und größer um 0,05 mm kleiner vorzubohren.

Weitere Informationen zu den empfohlenen Vorfertigungsdurchmessern siehe Seite 317.

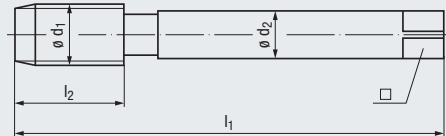
We recommend a smaller preparatory diameter by 0.05 mm for difficult to form materials (such as aluminium cast alloys) for P = 24 threads/1" and coarser threads.

For further information regarding the recommended preparatory diameters, see page 317.

**G (BSP)**  
DIN EN ISO 228



**DIN 2189**



- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC
- UNF
- G**
- SELF-LOCK

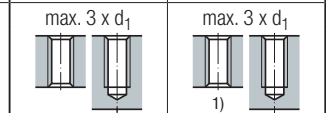
Technische Informationen  
Technical information

Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material



|                |                |
|----------------|----------------|
| „X“            | „X“            |
| TIN-80         | TIN-80         |
| <b>HSSE-PM</b> | <b>HSSE-PM</b> |
| C / 2-3        | C / 2-3        |
| E / O / P      | E / O          |

Gewindetiefe und Lochform  
Thread depth and hole type



Einsatzgebiete – Material  
Applications – material

» 312

|                       |                       |
|-----------------------|-----------------------|
| <b>P 1.1-4.1</b>      | <b>P 1.1-4.1</b>      |
| <b>K 2.1</b>          | <b>K 2.1</b>          |
| <b>N 2.2, 2.4-2.5</b> | <b>N 2.2, 2.4-2.5</b> |

| Nenngröße<br>Nom. size | $\phi d_1$ | $\phi d_1$<br>mm | P<br>Gg/1" (tpi) | $l_1$ | $l_2$ | $\phi d_2$ | $\square$ |                      | InnoForm<br>2-Z-SN<br>PM-TIN-80 | InnoForm<br>2-Z-SN-1KZ<br>PM-TIN-80 |
|------------------------|------------|------------------|------------------|-------|-------|------------|-----------|----------------------|---------------------------------|-------------------------------------|
|                        |            |                  |                  |       |       |            |           |                      |                                 |                                     |
| <b>G</b> 1/16          | 7,72       | 28               | 90               | 10    | 6     | 4,9        | 7,25      |                      |                                 |                                     |
| 1/8                    | 9,73       | 28               | 90               | 10    | 7     | 5,5        | 9,25      | <b>C521Z700.4035</b> | <b>C523Z700.4035</b>            |                                     |
| 1/4                    | 13,16      | 19               | 100              | 15    | 11    | 9          | 12,55     | <b>C521Z700.4036</b> | <b>C523Z700.4036</b>            |                                     |
| 3/8                    | 16,66      | 19               | 100              | 15    | 12    | 9          | 16,05     | <b>C521Z700.4037</b> | <b>C523Z700.4037</b>            |                                     |
| 1/2                    | 20,96      | 14               | 125              | 17    | 16    | 12         | 20,1      | <b>C521Z700.4038</b> | <b>C523Z700.4038</b>            |                                     |
| 5/8                    | 22,91      | 14               | 125              | 17    | 18    | 14,5       | 22,05     |                      |                                 |                                     |
| 3/4                    | 26,44      | 14               | 140              | 20    | 20    | 16         | 25,6      |                      |                                 |                                     |
| 7/8                    | 30,20      | 14               | 150              | 22    | 22    | 18         | 29,35     |                      |                                 |                                     |
| 1"                     | 33,25      | 11               | 160              | 24    | 25    | 20         | 32,15     |                      |                                 |                                     |

1) Gewindeformen in Durchgangslöcher nur mit externer Kühlschmierung möglich  
Cold-forming in through holes is possible only with external cooling/lubrication



Bei schlecht ausformenden Werkstoffen (z.B. GAL) empfehlen wir bei P = 24 Gg./1" und größer um 0,05 mm kleiner vorzubohren.

Weitere Informationen zu den empfohlenen Vorfertigungsdurchmessern siehe Seite 317.

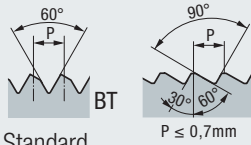
We recommend a smaller preparatory diameter by 0.05 mm for difficult to form materials (such as aluminium cast alloys) for P = 24 threads/1" and coarser threads.

For further information regarding the recommended preparatory diameters, see page 317.

- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC
- UNF
- G
- SELF-LOCK

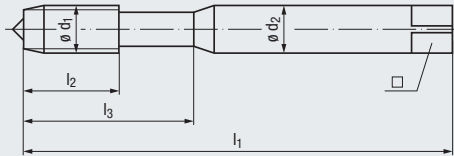
# LK-M

EMUGE-Norm · EMUGE Standard



DIN 2174

STEEL  
Steel materials



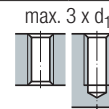
Technische Informationen  
Technical information

Toleranz · Tolerance  
Beschichtung · Coating  
Schneidstoff · Cutting material



|           |           |
|-----------|-----------|
| TIN       | TIN       |
| HSSE      | HSSE      |
| C / 2-3   | C / 2-3   |
| E / 0 / P | E / 0 / P |

Gewindetiefe und Lochform  
Thread depth and hole type

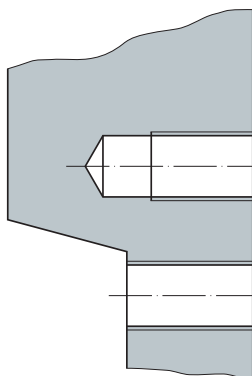


Einsatzgebiete – Material  
Applications – material

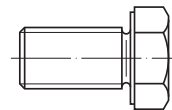
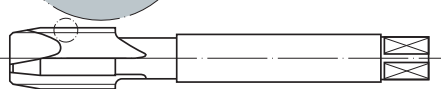
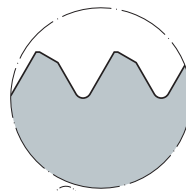
» 312

|                |                |
|----------------|----------------|
| P 1.1-3.1      | P 1.1-3.1      |
| N 1.5-1.6, 2.2 | N 1.5-1.6, 2.2 |

| LK-M | $\phi d_1$<br>mm | P<br>mm | $l_1$ | $l_2$ | $l_3$ | $\phi d_2$ | $\square$ |      | Drück          | Drück             |
|------|------------------|---------|-------|-------|-------|------------|-----------|------|----------------|-------------------|
|      |                  |         |       |       |       |            |           |      | 1-STEEL<br>TIN | 1-STEEL-SN<br>TIN |
|      | 3                | 0,5     | 56    | 11    | 18    | 3,5        | 2,7       | 2,85 | B0911400.1046  | B0921400.1046     |
|      | 4                | 0,7     | 63    | 13    | 21    | 4,5        | 3,4       | 3,8  | B0911400.1048  | B0921400.1048     |
|      | 5                | 0,8     | 70    | 15    | 25    | 6          | 4,9       | 4,8  | B0911400.1050  | B0921400.1050     |
|      | 6                | 1       | 80    | 17    | 30    | 6          | 4,9       | 5,7  | B0911400.1052  | B0921400.1052     |
|      | 8                | 1,25    | 90    | 20    | 35    | 8          | 6,2       | 7,6  | B0911400.1054  | B0921400.1054     |
|      | 10               | 1,5     | 100   | 22    | 39    | 10         | 8         | 9,5  | B0911400.1056  | B0921400.1056     |



### Ausführung BT Type BT



BT = Keilfläche nach hinten geneigt  
BT = Wedge ramp inclined backwards



Bei schlecht ausformenden Werkstoffen (z.B. GAL) empfehlen wir bei  $P \geq 1$  mm um 0,05 mm kleiner vorzubohren.

Weitere Informationen zu den empfohlenen Vorfertigungsdurchmessern siehe Seite 317.

We recommend a smaller preparatory diameter by 0.05 mm for difficult to form materials (such as aluminium cast alloys) for  $P \geq 1$  mm.

For further information regarding the recommended preparatory diameters, see page 317.



## Gewindefräser Thread Milling Cutters



Seite · Page

Übersichten

Contents

352 - 357

Einsatzempfehlungen und Schnittwerte

Application recommendation and cutting data

358 - 368

Produktseiten

Product pages

369 - 512

Product Finder

V<sub>c</sub> / f<sub>z</sub>

M

MF

UNC  
UN, UNS

UNF  
UNEF

G, Rp

NPT, NPTF  
Rc, W

BSW, BSF

Pg

MJ  
UNJC, UNJF

EG (STI)

SELF-LOCK

Tr

Zubehör  
Accessories



**BGF-Z2**

**Bohrgewindefräser**

- Zur Herstellung von Kernloch, Senkfase und Innengewinde in einem Arbeitsgang
- Kein vorgearbeitetes Kernloch notwendig
- Abmessungsgebunden

**Drill thread mills**

- For the production of thread hole, chamfer and internal thread in one work process
- A premachined thread hole is not necessary
- For one thread size only



**BGF-Z3**

**Bohrgewindefräser**

- Zur Herstellung von Kernloch, Senkfase und Innengewinde in einem Arbeitsgang
- Kein vorgearbeitetes Kernloch notwendig
- Abmessungsgebunden
- Speziell für vorgegossene Kernlöcher

**Drill thread mills**

- For the production of thread hole, chamfer and internal thread in one work process
- A premachined thread hole is not necessary
- For one thread size only
- Especially for pre-cast thread holes



**BGF-Z4**

**Bohrgewindefräser**

- Zur Herstellung von Kernloch, Senkfase und Innengewinde in einem Arbeitsgang
- Kein vorgearbeitetes Kernloch notwendig
- Abmessungsgebunden
- Kurze Bearbeitungszeit durch 4 Nuten

**Drill thread mills**

- For the production of thread hole, chamfer and internal thread in one work process
- A premachined thread hole is not necessary
- For one thread size only
- Short machining time due to 4 flutes



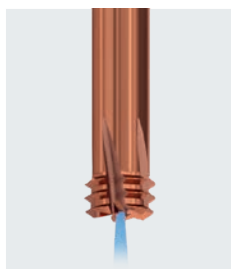
**ZBGF**

**Zirkular-Bohrgewindefräser**

- Zur Herstellung von Kernloch und Innengewinde in einem Arbeitsgang
- Anfasen des Kernlochs mit Stirnfase möglich
- Kein vorgearbeitetes Kernloch notwendig
- Abmessungsgebunden

**Circular drill thread mills**

- For the production of thread hole, chamfer and internal thread in one work process
- Chamfering the thread hole with face chamfer possible
- A premachined thread hole is not necessary
- For one thread size only



**ZBGF-S-CUT**

**Zirkular-Bohrgewindefräser**

- Zur Herstellung von Kernloch und Innengewinde in einem Arbeitsgang
- Anfasen des Kernlochs mit Stirnfase möglich
- Kein vorgearbeitetes Kernloch notwendig
- Abmessungsgebunden
- Für nichtrostende Stahlwerkstoffe und Spezialwerkstoffe wie Inconel oder Titan

**Circular drill thread mills**

- For the production of thread hole and internal thread in one work process
- Chamfering the thread hole with face chamfer possible
- A premachined thread hole is not necessary
- For one thread size only
- For stainless steel materials and special materials such as Inconel or titanium



**ZBGF-HCUT**

**Zirkular-Bohrgewindefräser**

- Zur Herstellung von Kernloch und Innengewinde in einem Arbeitsgang
- Anfasen des Kernlochs mit Stirnfase möglich
- Kein vorgearbeitetes Kernloch notwendig
- Abmessungsgebunden
- Für harte Werkstoffe ab 44 HRC

**Circular drill thread mills**

- For the production of thread hole and internal thread in one work process
- Chamfering the thread hole with face chamfer possible
- A premachined thread hole is not necessary
- For one thread size only
- For hard materials from 44 HRC



**GSF**

**Gewindefräser mit Senkfase**

- Zur Herstellung von Senkfase und Innengewinde in einem Arbeitsgang
- Vorgearbeitetes Kernloch notwendig
- Abmessungsgebunden

**Thread milling cutters with countersinking step**

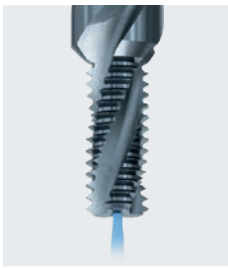
- For the production of countersunk chamfer and internal thread in one work process
- A premachined thread hole is necessary
- For one thread size only

369 - 388

389 - 404

405 - 426



**GSF-R30****Gewindefräser mit Senkfase**

- Zur Herstellung von Senkfase und Innengewinde in einem Arbeitsgang
- Vorgearbeitetes Kernloch notwendig
- Abmessungsgebunden
- Ruhiges Fräsen durch Nuten mit 30° Drallwinkel

**Thread milling cutters with countersinking step**

- For the production of countersunk chamfer and internal thread in one work process
- A premachined thread hole is necessary
- For one thread size only
- Smooth milling thanks to flutes with 30° helix angle

405 - 426

**GSF-Z****Gewindefräser mit Senkfase**

- Zur Herstellung von Senkfase und Innengewinde in einem Arbeitsgang
- Vorgearbeitetes Kernloch notwendig
- Abmessungsgebunden
- Ruhiges Fräsen durch Nuten mit 15° Drallwinkel
- Kurze Bearbeitungszeit durch mehr Nuten

**Thread milling cutters with countersinking step**

- For the production of countersunk chamfer and internal thread in one work process
- A premachined thread hole is necessary
- For one thread size only
- Smooth milling thanks to flutes with 15° helix angle
- Short machining time due to increased number of flutes

**GF****Gewindefräser**

- Zur Herstellung von Innengewinden
- Vorgearbeitetes Kernloch notwendig
- Steigungsgebunden
- Abmessungsübergreifend

**Thread milling cutters**

- For the production of internal threads
- A premachined thread hole is necessary
- For one pitch only
- For different thread sizes

**GF-R30****Gewindefräser**

- Zur Herstellung von Innengewinden
- Vorgearbeitetes Kernloch notwendig
- Steigungsgebunden
- Abmessungsübergreifend
- Ruhiges Fräsen durch Nuten mit 30° Drallwinkel

**Thread milling cutters**

- For the production of internal threads
- A premachined thread hole is necessary
- For one pitch only
- For different thread sizes
- Smooth milling thanks to flutes with 30° helix angle

**GF-R30-Long****Gewindefräser**

- Zur Herstellung von Innengewinden
- Vorgearbeitetes Kernloch notwendig
- Steigungsgebunden
- Abmessungsübergreifend
- Ruhiges Fräsen durch Nuten mit 30° Drallwinkel
- Langes Gewindeteil für tiefe Gewinde

**Thread milling cutters**

- For the production of internal threads
- A premachined thread hole is necessary
- For one pitch only
- For different thread sizes
- Smooth milling thanks to flutes with 30° helix angle
- Long thread part for deep threads

427 - 441

**GF-Z****Gewindefräser**

- Zur Herstellung von Innengewinden
- Vorgearbeitetes Kernloch notwendig
- Steigungsgebunden
- Abmessungsübergreifend
- Ruhiges Fräsen durch Nuten mit 15° Drallwinkel
- Kurze Bearbeitungszeit durch mehr Nuten

**Thread milling cutters**

- For the production of internal threads
- A premachined thread hole is necessary
- For one pitch only
- For different thread sizes
- Smooth milling thanks to flutes with 15° helix angle
- Short machining time due to increased number of flutes

**GF-Z-Extern****Gewindefräser**

- Zur Herstellung von Außengewinden
- Vorgearbeiteter Bolzen notwendig
- Steigungsgebunden
- Abmessungsübergreifend
- Ruhiges Fräsen durch Nuten mit 15° Drallwinkel

**Thread milling cutters**

- For the production of external threads
- A premachined bolt is necessary
- For one pitch only
- For different thread sizes
- Smooth milling thanks to flutes with 15° helix angle

Product Finder

$V_c / f_z$

M

MF

UNC  
UN, UNS

UNF  
UNEF

G, Rp

NPT, NPTF  
Rc, W

BSW, BSF

Pg

MJ  
UNJC, UNJF

EG (STI)

SELF-LOCK

Tr

Zubehör  
Accessories

BGF

ZBGF

GSF

GF

GF-VZ

GF-KEG

ZGF

ZIRK-GF

Gigant

MoSys



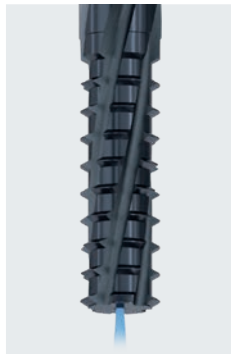
## GF-Vario-Z

### Gewindefräser

- Zur Herstellung von Innengewinden
- Vorgearbeitetes Kernloch notwendig
- Steigungsgebunden
- Abmessungsübergreifend
- Ruhiges Fräsen durch Nuten mit 15° Drallwinkel
- Kurze Bearbeitungszeit durch mehr Nuten
- Zum Entfernen des unvollständigen Ganges am Gewindeanfang

### Thread milling cutters

- For the production of internal threads
- A premachined thread hole is necessary
- For one pitch only
- For different thread sizes
- Smooth milling thanks to flutes with 15° helix angle
- Short machining time due to increased number of flutes
- For removing the incomplete thread at the start of the thread



## GF-Vario-Z-AZR1

### Gewindefräser

- Zur Herstellung von Innengewinden
- Vorgearbeitetes Kernloch notwendig
- Steigungsgebunden
- Abmessungsübergreifend
- Ruhiges Fräsen durch Nuten mit 15° Drallwinkel
- Kurze Bearbeitungszeit durch mehr Nuten
- Zum Entfernen des unvollständigen Ganges am Gewindeanfang
- Stark reduzierte Axialkräfte durch ausgesetzte Zahnreihen

### Thread milling cutters

- For the production of internal threads
- A premachined thread hole is necessary
- For one pitch only
- For different thread sizes
- Smooth milling thanks to flutes with 15° helix angle
- Short machining time due to increased number of flutes
- For removing the incomplete thread at the start of the thread
- Significantly reduced radial forces due to alternating tooth rows



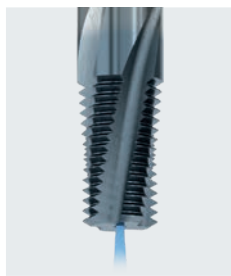
## GF-KEG

### Gewindefräser

- Zur Herstellung von kegeligen Innengewinden
- Zylindrisch oder besser kegelig vorgearbeitetes Kernloch notwendig
- Steigungsgebunden
- Abmessungsübergreifend

### Thread milling cutters

- For the production of tapered internal threads
- A premachined cylindrical, or preferably, a tapered thread hole is necessary
- For one pitch only
- For different thread sizes



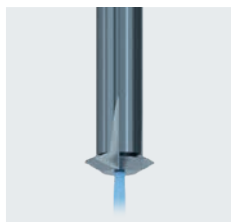
## GF-KEG-R15-Long

### Gewindefräser

- Zur Herstellung von kegeligen Innengewinden
- Zylindrisch oder besser kegelig vorgearbeitetes Kernloch notwendig
- Steigungsgebunden
- Abmessungsübergreifend
- Ruhiges Fräsen durch Nuten mit 15° Drallwinkel
- Langes Gewindeteil für tiefe Gewinde

### Thread milling cutters

- For the production of tapered internal threads
- A premachined cylindrical, or preferably, a tapered thread hole is necessary
- For one pitch only
- For different thread sizes
- Smooth milling thanks to flutes with 15° helix angle
- Long thread part for deep threads



## ZGF

### Zirkular-Gewindefräser

- Zur Herstellung von Innengewinden
- Vorgearbeitetes Kernloch notwendig
- Steigungsübergreifend
- Abmessungsübergreifend
- Anfasen des Kernlochs mit Stirnfase möglich

### Circular thread milling cutters

- For the production of internal threads
- A premachined thread hole is necessary
- For different thread pitches
- For different thread sizes
- Chamfering the thread hole with face chamfer possible



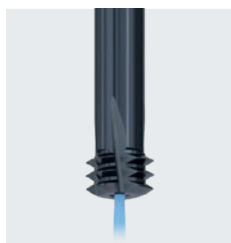
## ZGF-Z

### Zirkular-Gewindefräser

- Zur Herstellung von Innengewinden
- Vorgearbeitetes Kernloch notwendig
- Steigungsübergreifend
- Abmessungsübergreifend
- Anfasen des Kernlochs mit Stirnfase möglich
- Kurze Bearbeitungszeit durch mehr Nuten

### Circular thread milling cutters

- For the production of internal threads
- A premachined thread hole is necessary
- For different thread pitches
- For different thread sizes
- Chamfering the thread hole with face chamfer possible
- Short machining time due to increased number of flutes



## ZGF-S-CUT

### Zirkular-Gewindefräser

- Zur Herstellung von Innengewinden
- Vorgearbeitetes Kernloch notwendig
- Steigungsgebunden
- Abmessungsübergreifend
- Für nichtrostende Stahlwerkstoffe und Spezialwerkstoffe wie Inconel oder Titan

### Circular thread milling cutters

- For the production of internal threads
- A premachined thread hole is necessary
- For one pitch only
- For different thread sizes
- For stainless steel materials and special materials such as Inconel or titanium

442 - 448

449 - 462

463 - 378

**ZGF-HCUT****Zirkular-Gewindefräser**

- Zur Herstellung von Innengewinden
- Vorgearbeitetes Kernloch notwendig
- Steigungsgebunden
- Abmessungsübergreifend
- Für harte Werkstoffe ab 44 HRC

**Circular thread milling cutters**

- For the production of internal threads
- A premachined thread hole is necessary
- For one pitch only
- For different thread sizes
- For hard materials from 44 HRC

463 - 378

**ZIRK-GF****Zirkular-Gewindefräskörper mit einer oder zwei Mehrzahn-Wechselplatten (MZP)**

- Zur Herstellung von Innen- oder Außengewinden
- Vorgearbeitetes Kernloch oder vorgearbeiteter Bolzen notwendig
- Steigungsgebunden
- Abmessungsübergreifend

**Circular thread milling bodies****with one or two multi-tooth exchangeable inserts (MZP)**

- For the production of internal or external threads
- A premachined thread hole or a premachined bolt is necessary
- For one pitch only
- For different thread sizes

**ZIRK-GF****Zirkular-Gewindefräskörper mit 3-Zahn-Wechselplatte (3ZP)**

- Zur Herstellung von Innen- oder Außengewinden
- Vorgearbeitetes Kernloch oder vorgearbeiteter Bolzen notwendig
- Steigungsübergreifend
- Abmessungsübergreifend

**Circular thread milling bodies****with 3-tooth exchangeable inserts (3ZP)**

- For the production of internal or external threads
- A premachined thread hole or a premachined bolt is necessary
- For different thread pitches
- For different thread sizes

479 - 490

**ZIRK-GF****Zirkular-Gewindefräskörper mit Stirn-Wechselplatte (SWP)**

- Zur Herstellung von Innen- oder Außengewinden
- Vorgearbeitetes Kernloch oder vorgearbeiteter Bolzen notwendig
- Steigungsübergreifend
- Abmessungsübergreifend
- Kurze Bearbeitungszeit durch mehr Nuten

**Circular thread milling bodies****with exchangeable face insert (SWP)**

- For the production of internal or external threads
- A premachined thread hole or a premachined bolt is necessary
- For different thread pitches
- For different thread sizes
- Short machining time due to increased number of flutes

**Gigant****Zirkular-Gewindefräskörper mit 2-Zahn- oder 4-Zahn-Wendeplatten**

- Zur Herstellung von Innen- oder Außengewinden
- Vorgearbeitetes Kernloch oder vorgearbeiteter Bolzen notwendig
- Steigungsübergreifend
- Abmessungsübergreifend

**Circular thread milling bodies****with 2-tooth or 4-tooth indexable inserts**

- For the production of internal or external threads
- A premachined thread hole or a premachined bolt is necessary
- For different thread pitches
- For different thread sizes

491 - 509

**Gigant****Fräsringe****für Gigant Zirkular-Gewindefräskörper**

- Zum Entfernen des unvollständigen Ganges am Gewindeanfang
- Kein zeitlicher Mehraufwand

**Milling rings****for Gigant circular thread milling bodies**

- For removing the incomplete thread at the start of the thread
- No additional time required

**MoSys****Kombinierbares Plan- und Stufsenk-System**

- Zur Komplettbearbeitung von z.B. Bohrung, Gewinde und Plansenkung

**Counterbore and stepped bore system for free combination**

- For the complete machining of thread hole, thread and spot face

510 - 512



Product Finder

**Mögliche Modifikationen an Gewindefräsern**

**Possible modifications on thread milling cutters**

$v_c / f_z$

M

MF

UNC  
UN, UNS

UNF  
UNEF

G, Rp

NPT, NPTF  
Rc, W

BSW, BSF

Pg

MJ  
UNJC, UNJF

EG (STI)

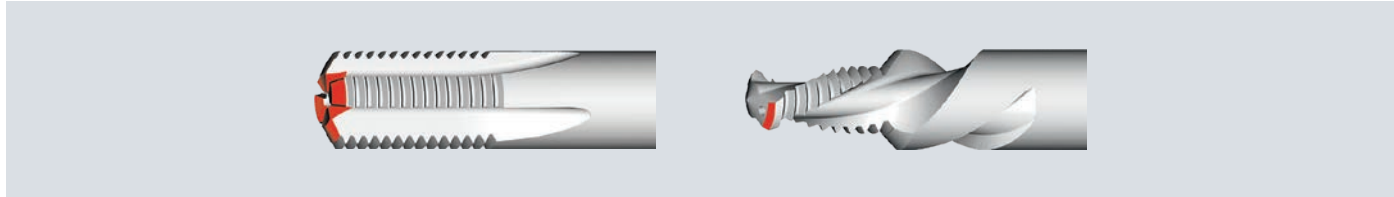
SELF-LOCK

Tr

Zubehör  
Accessories

**Stirrfase (ohne oder mit Stirnschnitt)**

**Face chamfer (with or without cutting face)**



**Geeignet für:**

- Alle Typen GF und GSF
- Alle Typen BGF (Stirrfase am Bohrteil)

**Suitable for:**

- All types GF and GSF
- All types BGF (face chamfer on the drilling part)

**Bemerkung:**

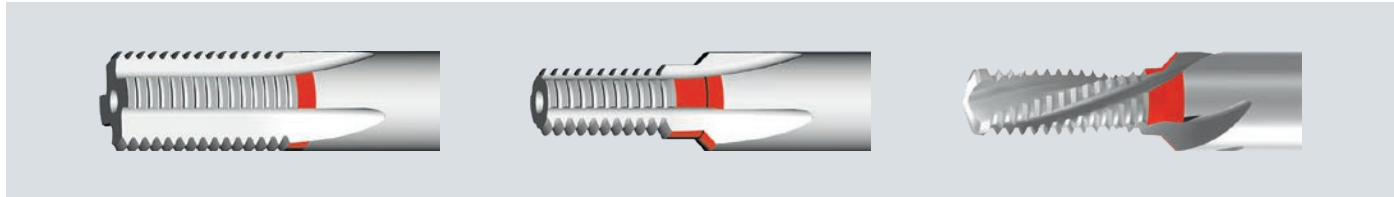
- Stirrfase für zirkulares Anfasen des Kernloches
- Zusätzlicher Stirnschnitt für zirkulares Planfräsen

**Note:**

- Face chamfer for circular chamfering of the thread hole
- Additional cutting face for circular face milling

**Unvollständigen Gang entfernen**

**Removal of incomplete thread**



**Geeignet für:**

- Alle Typen GF, GSF und BGF

**Suitable for:**

- All types GF, GSF and BGF

**Bemerkung:**

- Am schaftseitigen Ende des Frästeils wird eine Stufe mit einer Länge von min. 1 x P hinterschleifen
- Bei entsprechender Eintauchtiefe wird beim Gewindefräsen der unvollständige, gratbehaftete Gewindevauslauf abgefräst (entfernt)

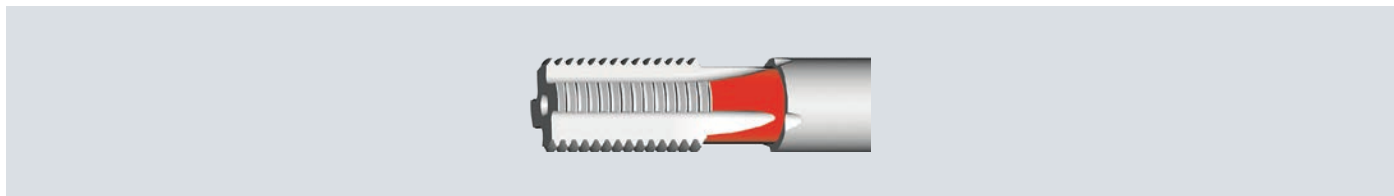
**Note:**

- At the rear end of the thread part, a step with a length of min. 1 x P is relief-ground
- If the tool plunges to a correct depth during the thread milling process, the incomplete thread run-out with its burr is milled off (removed)



**Halsfreischliff**

**Recessed neck**



**Geeignet für:**

- Alle Typen GF und GSF (Senkfase entfällt)

**Suitable for:**

- All types GF and GSF (no countersinking step)

**Bemerkung:**

- Für größere Gewindetiefen (gesamte Gewindetiefe setzt sich aus zwei Fräsdurchläufen zusammen)
- Für einen konstanten Schnittdruck wird die Frästeillänge und die Halslänge im Verhältnis 1:1 aufgeteilt!
- Die Frästeillänge und der Versatz für einen zweiten Fräsdurchlauf sind immer ein ganzzahliges Vielfaches der Profilleitung

**Note:**

- For larger thread depths (total thread depth is achieved by a double milling process)
- For constant cutting pressure, the thread part length and the neck length are arranged in a ratio of 1:1!
- The thread part length and the offset for a second milling process are always a whole-number multiple of the thread pitch

## Mögliche Modifikationen an Gewindefräsern

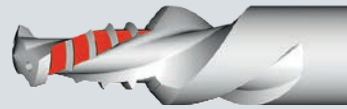
## Possible modifications on thread milling cutters

## AZR

## Radial ausgesetzte Zahnreihen



## Radially alternating tooth rows



## Geeignet für:

- Alle Typen GF, GSF und BGF

## Bemerkung:

- Durch radial ausgesetzte Zahnreihen werden die Seitenkräfte beim Gewindefräsen reduziert; die zyklisch fehlenden Gewindelücken werden durch zusätzliche zirkuläre Fräsumläufe gefräst

## Suitable for:

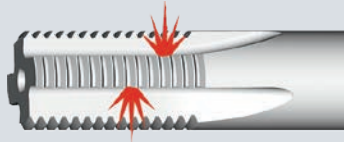
- All types GF, GSF and BGF

## Note:

- Radially alternating tooth rows help to reduce lateral forces in thread milling; the alternating missing gaps in the thread are produced by additional circular milling orbits

## IKZN

## Innere Kühlschmierstoff-Zufuhr mit Austritt in den Nuten



## Internal coolant supply exiting in the flutes

## Geeignet für:

- Alle Typen GF und GSF

## Bemerkung:

- Stirnseitig verschlossene Axialbohrung für die Bearbeitung von Durchgangslöchern
- Für maximale Stabilität des Frästeils sind die seitlichen Austrittsbohrungen axial versetzt angeordnet

## Suitable for:

- All types GF and GSF

## Note:

- Axial coolant bore closed up at the tool face for the production of through hole threads
- For maximum stability of the cutting part, the lateral coolant holes are axially staggered

## Schaftkühlritzen



## Coolant grooves along the shank



## Geeignet für:

- Alle Typen GF, GSF und BGF

## Bemerkung:

- Für die Bearbeitung von Durchgangslöchern
- Zusätzlich oder ersatzweise zu IKZ oder IKZN
- Ggf. unterstützend zur Kühlung der Senkfase bei GSF und BGF oder des Plankenkers bei MoSys-Anwendungen

## Suitable for:

- All types GF, GSF and BGF

## Note:

- For the production of through hole threads
- In addition or as an alternative to IKZ or IKZN
- Possible support in the cooling of the countersinking step of GSF and BGF type tools, or of the plane milling head in MoSys applications

Product  
Finder $v_c / f_z$ 

M

MF

UNC  
UN, UNSUNF  
UNEF

G, Rp

NPT, NPTF  
Rc, W

BSW, BSF

Pg

MJ  
UNJC, UNJF

EG (STI)

SELF-LOCK

Tr

Zubehör  
Accessories

BGF

ZBGF

GSF

GF

GF-VZ

GF-KEG

ZGF

ZIRK-GF

Gigant

MoSys



Product Finder

$v_c / f_z$

M

MF

UNC  
UN, UNS

UNF  
UNEF

G, Rp

NPT, NPTF  
Rc, W

BSW, BSF

Pg

MJ  
UNJC, UNJF

EG (STI)

SELF-LOCK

Tr

Zubehör  
Accessories

BGF

ZBGF

GSF

GF

GF-VZ

GF-KEG

ZGF

ZIRK-GF

Gigant

MoSys



## Einsatzempfehlungen und Schnittwerte

### Bitte beachten:

Die in den jeweiligen Spalten angegebenen Schnittwerte sind Richtwerte, welche je nach Einsatzbedingungen (Werkzeugspannung, Werkstückspannung, Gewindetiefe, usw.) angepasst werden müssen.

$v_c$  = Schnittgeschwindigkeit [m/min]

$f_z$  = Vorschub pro Zahn [mm]

$f_b$  = Vorschub beim Bohren [mm/U]

Internationaler Werkstoffvergleich siehe Seite 764 - 785

## Application recommendation and cutting data

### Please note:

The cutting values listed in the respective columns are standard values which have to be adjusted to individual work conditions (tool clamping, workpiece clamping, thread depth, etc.).







$v_c$  = Cutting speed [m/min]

$f_z$  = Feed per tooth [mm]

$f_b$  = Drilling feed [mm/rev.]

International comparison of materials, see page 764 - 785

| Einsatzgebiete – Material<br>Applications – material |   | Material-Beispiele<br>Material examples   | Material-Nummern<br>Material numbers   |                    |
|--|---|---|--|--------------------|
| P  | <b>Stahlwerkstoffe</b><br>Kaltfließpressstähle, Baustähle, Automatenstähle, u.a.  | <b>Steel materials</b><br>Cold-extrusion steels, Construction steels, Free-cutting steels, etc.   |  |                    |
|  | 1.1   | $\leq 600$ N/mm <sup>2</sup>  | Cq15 1.1132<br>S235JR (St37-2) 1.0037<br>10SPb20 1.0722  |                    |
|  | 2.1   | $\leq 800$ N/mm <sup>2</sup>  | E360 (St70-2) 1.0070<br>16MnCr5 1.7131<br>GS-25CrMo4 1.7218  |                    |
|  | 3.1   | $\leq 1000$ N/mm <sup>2</sup>   | 20MoCr3 1.7320<br>42CrMo4 1.7225<br>102Cr6 1.2067<br>50CrMo4 1.7228  |                    |
|  | 4.1   | $\leq 1200$ N/mm <sup>2</sup>   | X45NiCrMo4 1.2767<br>31CrMo12 1.8515<br>X38CrMoV5-3 1.2367   |                    |
|  | 5.1   | $\leq 1400$ N/mm <sup>2</sup>   | X100CrMoV8-1-1 1.2990<br>X40CrMoV5-1 1.2344  |                    |
| M  | <b>Nichtrostende Stahlwerkstoffe</b><br>1.1 Ferritisch, martensitisch<br>2.1 Austenitisch<br>3.1 Austenitisch-ferritisch (Duplex)<br>4.1 Austenitisch-ferritisch hitzebeständig (Super Duplex)                | <b>Stainless steel materials</b><br>Ferritic, martensitic<br>Austenitic<br>Austenitic-ferritic (Duplex)<br>Austenitic-ferritic heat-resistant (Super Duplex)  |  |                    |
|  | 1.1   | $\leq 950$ N/mm <sup>2</sup>  | X2CrTi12 1.4512  |                    |
|  | 2.1   | $\leq 950$ N/mm <sup>2</sup>  | X6CrNiMoTi17-12-2 1.4571   |                    |
|  | 3.1   | $\leq 1100$ N/mm <sup>2</sup>   | X2CrNiMoN22-5-3 1.4462   |                    |
|  | 4.1   | $\leq 1250$ N/mm <sup>2</sup>   | X2CrNiMoN25-7-4 1.4410   |                    |
| K  | <b>Gusswerkstoffe</b><br>1.1 Gusseisen mit Lamellengrafit (GJL)<br>1.2<br>2.1 Gusseisen mit Kugelgrafit (GJS)<br>2.2<br>3.1 Gusseisen mit Vermiculargrafit (GJV)<br>3.2<br>4.1 Temperguss (GTMW, GTMB)<br>4.2 | <b>Cast materials</b><br>Cast iron with lamellar graphite (GJL)<br>Cast iron with nodular graphite (GJS)<br>Cast iron with vermicular graphite (GJV)<br>Malleable cast iron (GTMW, GTMB)            |  |                    |
|  | 1.1   | 100-250 N/mm <sup>2</sup>   | EN-GJL-200 (GG20) EN-JL-1030   |                    |
|  | 1.2   | 250-450 N/mm <sup>2</sup>   | EN-GJL-300 (GG30) EN-JL-1050   |                    |
|  | 2.1   | 350-500 N/mm <sup>2</sup>   | EN-GJS-400-15 (GGG40) EN-JS-1030   |                    |
|  | 2.2   | 500-900 N/mm <sup>2</sup>   | EN-GJS-700-2 (GGG70) EN-JS-1070  |                    |
|  | 3.1   | 300-400 N/mm <sup>2</sup>   | GJV 300  |                    |
|  | 3.2   | 400-500 N/mm <sup>2</sup>   | GJV 450  |                    |
| 4.1  | 250-500 N/mm <sup>2</sup>   | EN-GJMW-350-4 (GTW-35) EN-JM-1010   |  |                    |
| 4.2  | 500-800 N/mm <sup>2</sup>   | EN-GJMB-450-6 (GTS-45) EN-JM-1140   |  |                    |
| N  | <b>Nichteisenwerkstoffe</b><br>1.1 Aluminium-Legierungen<br>1.2 Aluminium-Knetlegierungen<br>1.3<br>1.4<br>1.5 Aluminium-Gusslegierungen<br>1.6   | <b>Non ferrous materials</b><br>Aluminium alloys<br>Aluminium wrought alloys<br>Aluminium cast alloys   |  |                    |
|  | 1.1   | $\leq 200$ N/mm <sup>2</sup>  | EN AW-AlMn1 EN AW-3103   |                    |
|  | 1.2   | $\leq 350$ N/mm <sup>2</sup>  | EN AW-AlMgSi EN AW-6060  |                    |
|  | 1.3   | $\leq 550$ N/mm <sup>2</sup>  | EN AW-AlZn5Mg3Cu EN AW-7022  |                    |
|  | 1.4   | Si $\leq$ 7%  | EN AC-AlMg5 EN AC-51300  |                    |
|  | 1.5   | 7% < Si $\leq$ 12%  | EN AC-AISi9Cu3 EN AC-46500   |                    |
|  | 1.6   | 12% < Si $\leq$ 17%   | GD-AISi17Cu4FeMg   |                    |
|  | 2.1   | $\leq 400$ N/mm <sup>2</sup>  | E-Cu 57 EN CW 004 A  |                    |
|  | 2.2   | $\leq 550$ N/mm <sup>2</sup>  | CuZn37 (Ms63) EN CW 508 L  |                    |
|  | 2.3   | $\leq 550$ N/mm <sup>2</sup>  | CuZn36Pb3 (Ms58) EN CW 603 N   |                    |
|  | 2.4   | $\leq 800$ N/mm <sup>2</sup>  | CuAl10Ni5Fe4 EN CW 307 G   |                    |
|  | 2.5   | $\leq 700$ N/mm <sup>2</sup>  | CuSn8P EN CW 459 K   |                    |
|  | 2.6   | $\leq 400$ N/mm <sup>2</sup>  | CuSn7 ZnPb (Rg7) 2.1090  |                    |
|  | 2.7   | $\leq 600$ N/mm <sup>2</sup>  | (AMPCO® 8)   |                    |
|  | 2.8   | $\leq 1400$ N/mm <sup>2</sup>   | (AMPCO® 45)  |                    |
|  | 3.1   | $\leq 500$ N/mm <sup>2</sup>  | MgAl6Zn 3.5612   |                    |
| 3.2  | $\leq 500$ N/mm <sup>2</sup>  | EN-MCMgAl9Zn1 EN-MC21120  |  |                    |
| S  | <b>Kunststoffe</b><br>4.1 Duroplaste (kurzspanend)<br>4.2 Thermoplaste (langspanend)<br>4.3 Faserverstärkte Kunststoffe (Faseranteil $\leq$ 30%)<br>4.4 Faserverstärkte Kunststoffe (Faseranteil > 30%)       | <b>Synthetics</b><br>Duroplastics (short-chipping)<br>Thermoplastics (long-chipping)<br>Fibre-reinforced synthetics (fibre content $\leq$ 30%)<br>Fibre-reinforced synthetics (fibre content > 30%) |  |                    |
|  | 4.1   |   | Bakelit, Pertinax  |                    |
|  | 4.2   |   | PMMA, POM, PVC   |                    |
|  | 4.3   |   | GFK, CFK, AFK  |                    |
|  | 4.4   |   | GFK, CFK, AFK  |                    |
| H  | <b>Besondere Werkstoffe</b><br>5.1 Grafit<br>5.2 Wolfram-Kupfer-Legierungen<br>5.3 Verbundwerkstoffe  | <b>Special materials</b><br>Graphite<br>Tungsten-copper alloys<br>Composite materials   |  |                    |
|  | 5.1   |   | C 8000   |                    |
|  | 5.2   |   | W-Cu 80/20   |                    |
|  | 5.3   |   | Hyllite, Alucobond   |                    |
|  | S   | <b>Spezialwerkstoffe</b><br>1.1 Titan-Legierungen<br>1.2<br>1.3<br>2.1 Nickel-, Kobalt- und Eisen-Legierungen<br>2.2<br>2.3<br>2.4<br>2.5<br>2.6  | <b>Special materials</b><br>Titanium alloys<br>Titanium alloys<br>Titanium alloys<br>Nickel alloys, cobalt alloys and iron alloys<br>Pure nickel<br>Nickel-base alloys<br>Nickel-base alloys<br>Cobalt-base alloys<br>Iron-base alloys |                    |
|  |   | 1.1   | $\leq 450$ N/mm <sup>2</sup>   | Ti1 3.7025         |
|  |   | 1.2   | $\leq 900$ N/mm <sup>2</sup>   | TiAl6V4 3.7165     |
|  |   | 1.3   | $\leq 1250$ N/mm <sup>2</sup>  | TiAl4Mo4Sn2 3.7185 |
|  |   | 2.1   | $\leq 600$ N/mm <sup>2</sup>   | Ni 99.6 2.4060     |
|  |   | 2.2   | $\leq 1000$ N/mm <sup>2</sup>  | Monel 400 2.4360   |
| 2.3  |   | $\leq 1600$ N/mm <sup>2</sup>   | Inconel 718 2.4668   |                    |
| 2.4  | $\leq 1000$ N/mm <sup>2</sup>   | Udimet 605  |  |                    |
| 2.5  | $\leq 1600$ N/mm <sup>2</sup>   | Haynes 25 2.4964  |  |                    |
| 2.6  | $\leq 1500$ N/mm <sup>2</sup>   | Incoloy 800 1.4958  |  |                    |
| H  | <b>Harte Werkstoffe</b><br>1.1<br>1.2<br>1.3<br>1.4<br>1.5  | <b>Hard materials</b><br>High strength steels, hardened steels, hard castings   |  |                    |
|  | 1.1   | 44 - 50 HRC   | Weldox 1100  |                    |
|  | 1.2   | 50 - 55 HRC   | Hardox 550   |                    |
|  | 1.3   | 55 - 60 HRC   | Armax 600T   |                    |
|  | 1.4   | 60 - 63 HRC   | Ferro-Titanit  |                    |
|  | 1.5   | 63 - 66 HRC   | HSSE   |                    |

| BGF-Z2  |   | BGF-Z3  |   | BGF-Z4  |   |                        |                      |                      |                      |     |
|---|---|---|---|---|---|------------------------|----------------------|----------------------|----------------------|-----|
|  |  |  |  |  |  |                        |                      |                      |                      |     |
| $v_c$ [m/min]   | $v_c$ [m/min]   | $v_c$ [m/min]   | $v_c$ [m/min]   | $v_c$ [m/min]   | $v_c$ [m/min]   | $f_b$ [mm/U · mm/rev.] |                      | $f_z$ [mm]           |                      |     |
| min. empf. max. rec.  | min. empf. max. rec.  | min. empf. max. rec.  | min. empf. max. rec.  | min. empf. max. rec.  | min. empf. max. rec.  | min. empf. max. rec.   | min. empf. max. rec. | min. empf. max. rec. | min. empf. max. rec. |     |
|   |   |   |   |   |   |                        |                      |                      |                      | 1.1 |
|   |   |   |   |   |   |                        |                      |                      |                      | 2.1 |
|   |   |   |   |   |   |                        |                      |                      |                      | 3.1 |
|   |   |   |   |   |   |                        |                      |                      |                      | 4.1 |
|   |   |   |   |   |   |                        |                      |                      |                      | 5.1 |
|   |   |   |   |   |   |                        |                      |                      |                      | 1.1 |
|   |   |   |   |   |   |                        |                      |                      |                      | 2.1 |
|   |   |   |   |   |   |                        |                      |                      |                      | 3.1 |
|   |   |   |   |   |   |                        |                      |                      |                      | 4.1 |
|   |   |   |   |   |   |                        |                      |                      |                      | 1.1 |
|   |   |   |   |   |   |                        |                      |                      |                      | 1.2 |
|   |   |   |   |   |   |                        |                      |                      |                      | 2.1 |
|   |   |   |   |   |   |                        |                      |                      |                      | 2.2 |
|   |   |   |   |   |   |                        |                      |                      |                      | 3.1 |
|   |   |   |   |   |   |                        |                      |                      |                      | 3.2 |
|   |   |   |   |   |   |                        |                      |                      |                      | 4.1 |
|   |   |   |   |   |   |                        |                      |                      |                      | 4.2 |
|   |   |   |   |   |   |                        |                      |                      |                      | 1.1 |
|   |   |   |   |   |   |                        |                      |                      |                      | 1.2 |
|   |   |   |   |   |   |                        |                      |                      |                      | 1.3 |
|   |   |   |   |   |   |                        |                      |                      |                      | 1.4 |
|   |   |   |   |   |   |                        |                      |                      |                      | 1.5 |
|   |   |   |   |   |   |                        |                      |                      |                      | 1.6 |
|   |   |   |   |   |   |                        |                      |                      |                      | 2.1 |
|   |   |   |   |   |   |                        |                      |                      |                      | 2.2 |
|   |   |   |   |   |   |                        |                      |                      |                      | 2.3 |
|   |   |   |   |   |   |                        |                      |                      |                      | 2.4 |
|   |   |   |   |   |   |                        |                      |                      |                      | 2.5 |
|   |   |   |   |   |   |                        |                      |                      |                      | 2.6 |
|   |   |   |   |   |   |                        |                      |                      |                      | 2.7 |
|   |   |   |   |   |   |                        |                      |                      |                      | 2.8 |
|   |   |   |   |   |   |                        |                      |                      |                      | 3.1 |
|   |   |   |   |   |   |                        |                      |                      |                      | 3.2 |
|   |   |   |   |   |   |                        |                      |                      |                      | 4.1 |
|   |   |   |   |   |   |                        |                      |                      |                      | 4.2 |
|   |   |   |   |   |   |                        |                      |                      |                      | 4.3 |
|   |   |   |   |   |   |                        |                      |                      |                      | 4.4 |
|   |   |   |   |   |   |                        |                      |                      |                      | 5.1 |
|   |   |   |   |   |   |                        |                      |                      |                      | 5.2 |
|   |   |   |   |   |   |                        |                      |                      |                      | 5.3 |
|   |   |   |   |   |   |                        |                      |                      |                      | 1.1 |
|   |   |   |   |   |   |                        |                      |                      |                      | 1.2 |
|   |   |   |   |   |   |                        |                      |                      |                      | 1.3 |
|   |   |   |   |   |   |                        |                      |                      |                      | 2.1 |
|   |   |   |   |   |   |                        |                      |                      |                      | 2.2 |
|   |   |   |   |   |   |                        |                      |                      |                      | 2.3 |
|   |   |   |   |   |   |                        |                      |                      |                      | 2.4 |
|   |   |   |   |   |   |                        |                      |                      |                      | 2.5 |
|   |   |   |   |   |   |                        |                      |                      |                      | 2.6 |
|   |   |   |   |   |   |                        |                      |                      |                      | 1.1 |
|   |   |   |   |   |   |                        |                      |                      |                      | 1.2 |
|   |   |   |   |   |   |                        |                      |                      |                      | 1.3 |
|   |   |   |   |   |   |                        |                      |                      |                      | 1.4 |
|   |   |   |   |   |   |                        |                      |                      |                      | 1.5 |

Product Finder

$v_c / f_z$

M

MF

UNC  
UN, UNS

UNF  
UNEF

G, Rp

NPT, NPTF  
Rc, W

BSW, BSF

Pg

MJ  
UNJC, UNJF

EG (STI)

SELF-LOCK

Tr

Zubehör  
Accessories

BGF

ZBGF

GSF

GF

GF-VZ

GF-KEG

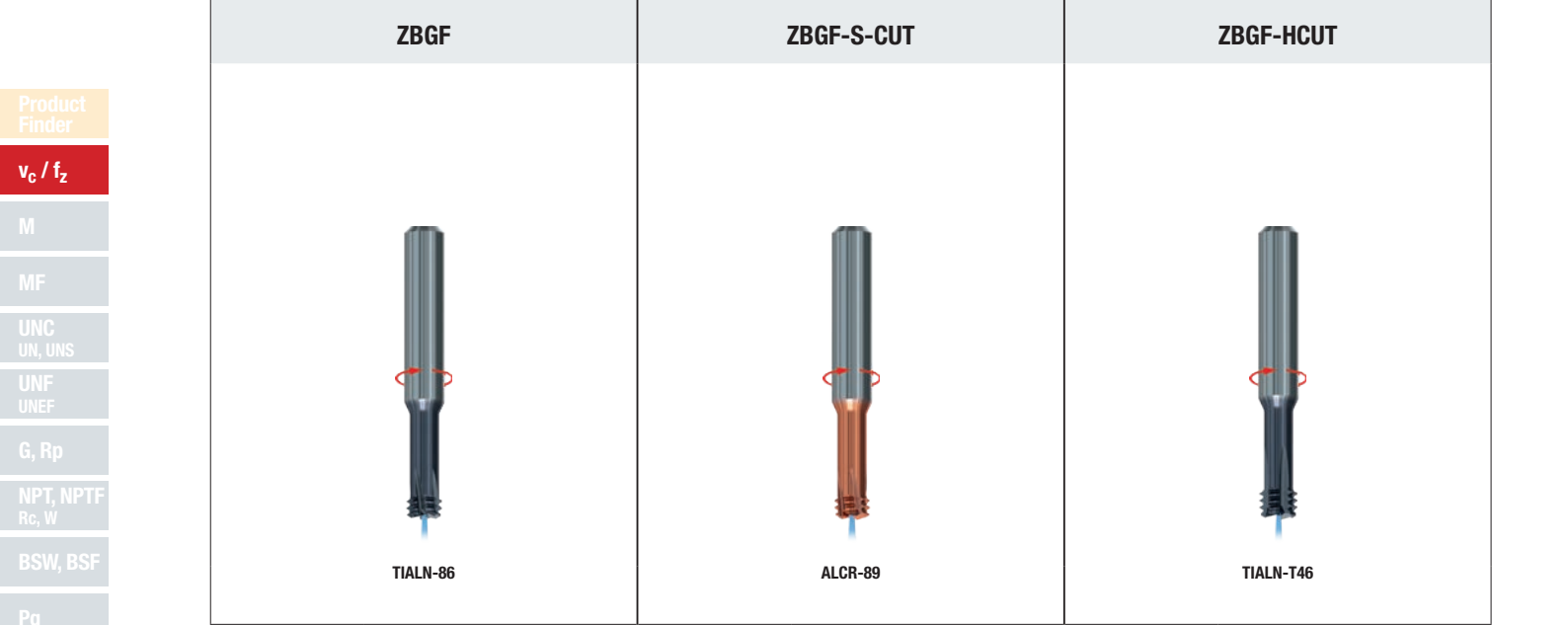
ZGF

ZIRK-GF

Gigant







MoSys





|     |     | ZBGF          |            |       | ZBGF-S-CUT   |              |                  | ZBGF-HCUT        |            |            |            |              |              |                  |                  |
|-----|-----|---------------|------------|-------|--------------|--------------|------------------|------------------|------------|------------|------------|--------------|--------------|------------------|------------------|
|     |     | $v_c$ [m/min] |            |       | $f_z$ [mm]   |              |                  | $v_c$ [m/min]    |            |            | $f_z$ [mm] |              |              |                  |                  |
|     |     | min.          | empf. rec. | max.  | min.         | empf. rec.   | max.             | min.             | empf. rec. | max.       | min.       | empf. rec.   | max.         |                  |                  |
| P   | 1.1 | 126           | <b>180</b> | 234   | 0,006        | <b>0,010</b> | 0,014            | x d <sub>F</sub> | 126        | <b>180</b> | 234        | 0,006        | <b>0,010</b> | 0,014            | x d <sub>F</sub> |
|     | 2.1 | 105           | <b>150</b> | 195   | 0,005        | <b>0,009</b> | 0,013            | x d <sub>F</sub> | 105        | <b>150</b> | 195        | 0,005        | <b>0,009</b> | 0,013            | x d <sub>F</sub> |
|     | 3.1 | 84            | <b>120</b> | 156   | 0,005        | <b>0,008</b> | 0,011            | x d <sub>F</sub> | 84         | <b>120</b> | 156        | 0,005        | <b>0,008</b> | 0,011            | x d <sub>F</sub> |
|     | 4.1 | 70            | <b>100</b> | 130   | 0,004        | <b>0,007</b> | 0,010            | x d <sub>F</sub> | 70         | <b>100</b> | 130        | 0,004        | <b>0,007</b> | 0,010            | x d <sub>F</sub> |
|     | 5.1 | 56            | <b>80</b>  | 104   | 0,004        | <b>0,006</b> | 0,008            | x d <sub>F</sub> | 56         | <b>80</b>  | 104        | 0,004        | <b>0,006</b> | 0,008            | x d <sub>F</sub> |
| M   | 1.1 | 63            | <b>90</b>  | 117   | 0,005        | <b>0,008</b> | 0,011            | x d <sub>F</sub> | 63         | <b>90</b>  | 117        | 0,005        | <b>0,008</b> | 0,011            | x d <sub>F</sub> |
|     | 2.1 | 63            | <b>90</b>  | 117   | 0,005        | <b>0,009</b> | 0,013            | x d <sub>F</sub> | 63         | <b>90</b>  | 117        | 0,005        | <b>0,008</b> | 0,011            | x d <sub>F</sub> |
|     | 3.1 | 42            | <b>60</b>  | 78    | 0,004        | <b>0,007</b> | 0,010            | x d <sub>F</sub> | 42         | <b>60</b>  | 78         | 0,004        | <b>0,007</b> | 0,010            | x d <sub>F</sub> |
|     | 4.1 | 35            | <b>50</b>  | 65    | 0,004        | <b>0,006</b> | 0,008            | x d <sub>F</sub> | 35         | <b>50</b>  | 65         | 0,004        | <b>0,006</b> | 0,008            | x d <sub>F</sub> |
| K   | 1.1 | 112           | <b>160</b> | 208   | 0,005        | <b>0,009</b> | 0,013            | x d <sub>F</sub> | 112        | <b>160</b> | 208        | 0,005        | <b>0,009</b> | 0,013            | x d <sub>F</sub> |
|     | 1.2 | 112           | <b>160</b> | 208   | 0,005        | <b>0,009</b> | 0,013            | x d <sub>F</sub> | 112        | <b>160</b> | 208        | 0,005        | <b>0,009</b> | 0,013            | x d <sub>F</sub> |
|     | 2.1 | 105           | <b>150</b> | 195   | 0,005        | <b>0,009</b> | 0,013            | x d <sub>F</sub> | 105        | <b>150</b> | 195        | 0,005        | <b>0,009</b> | 0,013            | x d <sub>F</sub> |
|     | 2.2 | 105           | <b>150</b> | 195   | 0,005        | <b>0,009</b> | 0,013            | x d <sub>F</sub> | 105        | <b>150</b> | 195        | 0,005        | <b>0,009</b> | 0,013            | x d <sub>F</sub> |
|     | 3.1 | 105           | <b>150</b> | 195   | 0,005        | <b>0,009</b> | 0,013            | x d <sub>F</sub> | 105        | <b>150</b> | 195        | 0,005        | <b>0,009</b> | 0,013            | x d <sub>F</sub> |
|     | 3.2 | 105           | <b>150</b> | 195   | 0,005        | <b>0,009</b> | 0,013            | x d <sub>F</sub> | 105        | <b>150</b> | 195        | 0,005        | <b>0,009</b> | 0,013            | x d <sub>F</sub> |
|     | 4.1 | 105           | <b>150</b> | 195   | 0,005        | <b>0,009</b> | 0,013            | x d <sub>F</sub> | 105        | <b>150</b> | 195        | 0,005        | <b>0,009</b> | 0,013            | x d <sub>F</sub> |
|     | 4.2 | 105           | <b>150</b> | 195   | 0,005        | <b>0,009</b> | 0,013            | x d <sub>F</sub> | 105        | <b>150</b> | 195        | 0,005        | <b>0,009</b> | 0,013            | x d <sub>F</sub> |
| N   | 1.1 | 196           | <b>280</b> | 364   | 0,007        | <b>0,012</b> | 0,017            | x d <sub>F</sub> | 196        | <b>280</b> | 364        | 0,007        | <b>0,012</b> | 0,017            | x d <sub>F</sub> |
|     | 1.2 | 196           | <b>280</b> | 364   | 0,007        | <b>0,012</b> | 0,017            | x d <sub>F</sub> | 196        | <b>280</b> | 364        | 0,007        | <b>0,012</b> | 0,017            | x d <sub>F</sub> |
|     | 1.3 | 196           | <b>280</b> | 364   | 0,007        | <b>0,012</b> | 0,017            | x d <sub>F</sub> | 196        | <b>280</b> | 364        | 0,007        | <b>0,012</b> | 0,017            | x d <sub>F</sub> |
|     | 1.4 | 196           | <b>280</b> | 364   | 0,007        | <b>0,012</b> | 0,017            | x d <sub>F</sub> | 196        | <b>280</b> | 364        | 0,007        | <b>0,012</b> | 0,017            | x d <sub>F</sub> |
|     | 1.5 | 196           | <b>280</b> | 364   | 0,007        | <b>0,012</b> | 0,017            | x d <sub>F</sub> | 196        | <b>280</b> | 364        | 0,007        | <b>0,012</b> | 0,017            | x d <sub>F</sub> |
|     | 1.6 | 105           | <b>150</b> | 195   | 0,007        | <b>0,012</b> | 0,017            | x d <sub>F</sub> | 105        | <b>150</b> | 195        | 0,007        | <b>0,012</b> | 0,017            | x d <sub>F</sub> |
|     | 2.1 | 196           | <b>280</b> | 364   | 0,007        | <b>0,012</b> | 0,017            | x d <sub>F</sub> | 196        | <b>280</b> | 364        | 0,007        | <b>0,012</b> | 0,017            | x d <sub>F</sub> |
|     | 2.2 | 196           | <b>280</b> | 364   | 0,007        | <b>0,012</b> | 0,017            | x d <sub>F</sub> | 196        | <b>280</b> | 364        | 0,007        | <b>0,012</b> | 0,017            | x d <sub>F</sub> |
|     | 2.3 | 196           | <b>280</b> | 364   | 0,007        | <b>0,012</b> | 0,017            | x d <sub>F</sub> | 196        | <b>280</b> | 364        | 0,007        | <b>0,012</b> | 0,017            | x d <sub>F</sub> |
|     | 2.4 | 126           | <b>180</b> | 234   | 0,006        | <b>0,010</b> | 0,014            | x d <sub>F</sub> | 126        | <b>180</b> | 234        | 0,006        | <b>0,010</b> | 0,014            | x d <sub>F</sub> |
|     | 2.5 | 126           | <b>180</b> | 234   | 0,006        | <b>0,010</b> | 0,014            | x d <sub>F</sub> | 126        | <b>180</b> | 234        | 0,006        | <b>0,010</b> | 0,014            | x d <sub>F</sub> |
|     | 2.6 | 126           | <b>180</b> | 234   | 0,006        | <b>0,010</b> | 0,014            | x d <sub>F</sub> | 126        | <b>180</b> | 234        | 0,006        | <b>0,010</b> | 0,014            | x d <sub>F</sub> |
|     | 2.7 | 42            | <b>60</b>  | 78    | 0,005        | <b>0,008</b> | 0,011            | x d <sub>F</sub> | 42         | <b>60</b>  | 78         | 0,005        | <b>0,008</b> | 0,011            | x d <sub>F</sub> |
|     | 2.8 | 35            | <b>50</b>  | 65    | 0,005        | <b>0,008</b> | 0,011            | x d <sub>F</sub> | 35         | <b>50</b>  | 65         | 0,005        | <b>0,008</b> | 0,011            | x d <sub>F</sub> |
|     | 3.1 | 196           | <b>280</b> | 364   | 0,007        | <b>0,012</b> | 0,017            | x d <sub>F</sub> | 196        | <b>280</b> | 364        | 0,007        | <b>0,012</b> | 0,017            | x d <sub>F</sub> |
|     | 3.2 | 196           | <b>280</b> | 364   | 0,007        | <b>0,012</b> | 0,017            | x d <sub>F</sub> | 196        | <b>280</b> | 364        | 0,007        | <b>0,012</b> | 0,017            | x d <sub>F</sub> |
| 4.1 | 196 | <b>280</b>    | 364        | 0,007 | <b>0,012</b> | 0,017        | x d <sub>F</sub> | 196              | <b>280</b> | 364        | 0,007      | <b>0,012</b> | 0,017        | x d <sub>F</sub> |                  |
| 4.2 | 196 | <b>280</b>    | 364        | 0,007 | <b>0,012</b> | 0,017        | x d <sub>F</sub> | 196              | <b>280</b> | 364        | 0,007      | <b>0,012</b> | 0,017        | x d <sub>F</sub> |                  |
| 4.3 | 105 | <b>150</b>    | 195        | 0,007 | <b>0,012</b> | 0,017        | x d <sub>F</sub> | 105              | <b>150</b> | 195        | 0,007      | <b>0,012</b> | 0,017        | x d <sub>F</sub> |                  |
| 4.4 | 105 | <b>150</b>    | 195        | 0,007 | <b>0,012</b> | 0,017        | x d <sub>F</sub> | 105              | <b>150</b> | 195        | 0,007      | <b>0,012</b> | 0,017        | x d <sub>F</sub> |                  |
| 5.1 | 105 | <b>150</b>    | 195        | 0,007 | <b>0,012</b> | 0,017        | x d <sub>F</sub> | 105              | <b>150</b> | 195        | 0,007      | <b>0,012</b> | 0,017        | x d <sub>F</sub> |                  |
| 5.2 | 35  | <b>50</b>     | 65         | 0,004 | <b>0,007</b> | 0,010        | x d <sub>F</sub> | 35               | <b>50</b>  | 65         | 0,004      | <b>0,007</b> | 0,010        | x d <sub>F</sub> |                  |
| 5.3 | 105 | <b>150</b>    | 195        | 0,007 | <b>0,012</b> | 0,017        | x d <sub>F</sub> | 105              | <b>150</b> | 195        | 0,007      | <b>0,012</b> | 0,017        | x d <sub>F</sub> |                  |
| S   | 1.1 |               |            |       |              |              |                  |                  | 42         | <b>60</b>  | 78         | 0,004        | <b>0,006</b> | 0,008            | x d <sub>F</sub> |
|     | 1.2 |               |            |       |              |              |                  |                  | 42         | <b>60</b>  | 78         | 0,004        | <b>0,006</b> | 0,008            | x d <sub>F</sub> |
|     | 1.3 |               |            |       |              |              |                  |                  | 35         | <b>50</b>  | 65         | 0,002        | <b>0,004</b> | 0,006            | x d <sub>F</sub> |
|     | 2.1 |               |            |       |              |              |                  |                  | 32         | <b>45</b>  | 59         | 0,002        | <b>0,004</b> | 0,006            | x d <sub>F</sub> |
|     | 2.2 |               |            |       |              |              |                  |                  | 32         | <b>45</b>  | 59         | 0,002        | <b>0,004</b> | 0,006            | x d <sub>F</sub> |
|     | 2.3 |               |            |       |              |              |                  |                  | 21         | <b>30</b>  | 39         | 0,002        | <b>0,004</b> | 0,006            | x d <sub>F</sub> |
|     | 2.4 |               |            |       |              |              |                  |                  | 32         | <b>45</b>  | 59         | 0,002        | <b>0,004</b> | 0,006            | x d <sub>F</sub> |
| 2.5 |     |               |            |       |              |              |                  | 21               | <b>30</b>  | 39         | 0,002      | <b>0,004</b> | 0,006        | x d <sub>F</sub> |                  |
| 2.6 |     |               |            |       |              |              |                  | 21               | <b>30</b>  | 39         | 0,002      | <b>0,004</b> | 0,006        | x d <sub>F</sub> |                  |
| H   | 1.1 |               |            |       |              |              |                  |                  | 42         | <b>60</b>  | 78         | 0,004        | <b>0,007</b> | 0,010            | x d <sub>F</sub> |
|     | 1.2 |               |            |       |              |              |                  |                  | 35         | <b>50</b>  | 65         | 0,004        | <b>0,006</b> | 0,008            | x d <sub>F</sub> |
|     | 1.3 |               |            |       |              |              |                  |                  | 32         | <b>45</b>  | 59         | 0,003        | <b>0,005</b> | 0,007            | x d <sub>F</sub> |
|     | 1.4 |               |            |       |              |              |                  |                  | 21         | <b>30</b>  | 39         | 0,002        | <b>0,004</b> | 0,006            | x d <sub>F</sub> |
|     | 1.5 |               |            |       |              |              |                  |                  | 18         | <b>25</b>  | 33         | 0,002        | <b>0,003</b> | 0,004            | x d <sub>F</sub> |



| GSF   |            |     | GSF-R30   |            |     | GSF-Z   |            |     |   | Product Finder |     |   |            |     |   |            |     |                                       |              |       |                  |                |   |                        |                    |
|---|------------|-----|---|------------|-----|---|------------|-----|---|----------------|-----|---|------------|-----|---|------------|-----|---------------------------------------|--------------|-------|------------------|----------------|---|------------------------|--------------------|
|  |            |     |  |            |     |  |            |     |  |                |     |  |            |     |  |            |     |                                       | $v_c / f_z$  |       |                  |                |   |                        |                    |
| <b>Unbeschichtet</b><br>Uncoated  |            |     | <b>TiCN</b>   |            |     | <b>Unbeschichtet</b><br>Uncoated  |            |     | <b>TiCN</b>   |                |     | <b>Unbeschichtet</b><br>Uncoated  |            |     | <b>TiCN</b>   |            |     |                                       | M            |       |                  |                |   |                        |                    |
| $v_c$ [m/min]<br>min. empf. max.<br>rec.  |            |     | $v_c$ [m/min]<br>min. empf. max.<br>rec.  |            |     | $v_c$ [m/min]<br>min. empf. max.<br>rec.  |            |     | $v_c$ [m/min]<br>min. empf. max.<br>rec.  |                |     | $v_c$ [m/min]<br>min. empf. max.<br>rec.  |            |     | $v_c$ [m/min]<br>min. empf. max.<br>rec.  |            |     | $f_z$ [mm]<br>min. empf. max.<br>rec. |              |       |                  | MF             |   |                        |                    |
|   |            |     |   |            |     |   |            |     |   |                |     |   |            |     |   |            |     |                                       |              |       |                  | UNC<br>UN, UNS |   |                        |                    |
|   |            |     |   |            |     |   |            |     |   |                |     |   |            |     |   |            |     |                                       |              |       |                  |                |   |                        | UNF<br>UNEF        |
|   |            |     |   |            |     |   |            |     |   |                |     |   |            |     |   |            |     |                                       |              |       |                  |                |   |                        | G, Rp              |
|   |            |     |   |            |     |   |            |     |   |                |     |   |            |     |   |            |     |                                       |              |       |                  |                |   |                        | NPT, NPTF<br>Rc, W |
|   |            |     |   |            |     |   |            |     |   |                |     |   |            |     |   |            |     |                                       |              |       |                  |                |   |                        | BSW, BSF           |
|   |            |     |   |            |     |   |            |     |   |                |     |   |            |     |   |            |     |                                       |              |       |                  |                |   |                        | Pg                 |
|   |            |     |   |            |     |   |            |     |   |                |     |   |            |     |   |            |     |                                       |              |       |                  |                |   |                        | MJ<br>UNJC, UNJF   |
| 63  | <b>90</b>  | 117 | 126   | <b>180</b> | 234 | 63  | <b>90</b>  | 117 | 126   | <b>180</b>     | 234 | 63  | <b>90</b>  | 117 | 126   | <b>180</b> | 234 | 0,006                                 | <b>0,010</b> | 0,014 | x d <sub>F</sub> | 1.1            | P | EG (STI)               |                    |
| 53  | <b>75</b>  | 98  | 105   | <b>150</b> | 195 | 53  | <b>75</b>  | 98  | 105   | <b>150</b>     | 195 | 53  | <b>75</b>  | 98  | 105   | <b>150</b> | 195 | 0,005                                 | <b>0,009</b> | 0,013 | x d <sub>F</sub> | 2.1            |   | SELF-LOCK              |                    |
| 42  | <b>60</b>  | 78  | 84  | <b>120</b> | 156 | 42  | <b>60</b>  | 78  | 84  | <b>120</b>     | 156 | 42  | <b>60</b>  | 78  | 84  | <b>120</b> | 156 | 0,005                                 | <b>0,008</b> | 0,011 | x d <sub>F</sub> | 3.1            |   | Tr                     |                    |
| 35  | <b>50</b>  | 65  | 70  | <b>100</b> | 130 |   |            |     |   |                |     | 35  | <b>50</b>  | 65  | 70  | <b>100</b> | 130 | 0,004                                 | <b>0,007</b> | 0,010 | x d <sub>F</sub> | 4.1            |   | Zubehör<br>Accessories |                    |
| 28  | <b>40</b>  | 52  | 56  | <b>80</b>  | 104 |   |            |     |   |                |     | 28  | <b>40</b>  | 52  | 56  | <b>80</b>  | 104 | 0,004                                 | <b>0,006</b> | 0,008 | x d <sub>F</sub> | 5.1            |   |                        |                    |
|   |            |     | 63  | <b>90</b>  | 117 |   |            |     | 63  | <b>90</b>      | 117 |   |            |     | 63  | <b>90</b>  | 117 | 0,005                                 | <b>0,008</b> | 0,011 | x d <sub>F</sub> | 1.1            | M | BGF                    |                    |
|   |            |     | 63  | <b>90</b>  | 117 |   |            |     | 63  | <b>90</b>      | 117 |   |            |     | 63  | <b>90</b>  | 117 | 0,005                                 | <b>0,009</b> | 0,013 | x d <sub>F</sub> | 2.1            |   | ZBGF                   |                    |
|   |            |     | 42  | <b>60</b>  | 78  |   |            |     | 42  | <b>60</b>      | 78  |   |            |     | 42  | <b>60</b>  | 78  | 0,004                                 | <b>0,007</b> | 0,010 | x d <sub>F</sub> | 3.1            |   |                        |                    |
|   |            |     | 35  | <b>50</b>  | 65  |   |            |     | 35  | <b>50</b>      | 65  |   |            |     | 35  | <b>50</b>  | 65  | 0,004                                 | <b>0,006</b> | 0,008 | x d <sub>F</sub> | 4.1            |   | GSF                    |                    |
| 70  | <b>100</b> | 130 | 112   | <b>160</b> | 208 | 70  | <b>100</b> | 130 | 112   | <b>160</b>     | 208 | 70  | <b>100</b> | 130 | 112   | <b>160</b> | 208 | 0,005                                 | <b>0,009</b> | 0,013 | x d <sub>F</sub> | 1.1            | K | GF                     |                    |
| 70  | <b>100</b> | 130 | 112   | <b>160</b> | 208 | 70  | <b>100</b> | 130 | 112   | <b>160</b>     | 208 | 70  | <b>100</b> | 130 | 112   | <b>160</b> | 208 | 0,005                                 | <b>0,012</b> | 0,017 | x d <sub>F</sub> | 1.2            |   | GF-VZ                  |                    |
| 63  | <b>90</b>  | 117 | 105   | <b>150</b> | 195 | 63  | <b>90</b>  | 117 | 105   | <b>150</b>     | 195 | 63  | <b>90</b>  | 117 | 105   | <b>150</b> | 195 | 0,005                                 | <b>0,009</b> | 0,013 | x d <sub>F</sub> | 2.1            |   | GF-KEG                 |                    |
| 63  | <b>90</b>  | 117 | 105   | <b>150</b> | 195 | 63  | <b>90</b>  | 117 | 105   | <b>150</b>     | 195 | 63  | <b>90</b>  | 117 | 105   | <b>150</b> | 195 | 0,005                                 | <b>0,009</b> | 0,013 | x d <sub>F</sub> | 2.2            |   | ZGF                    |                    |
| 63  | <b>90</b>  | 117 | 105   | <b>150</b> | 195 | 63  | <b>90</b>  | 117 | 105   | <b>150</b>     | 195 | 63  | <b>90</b>  | 117 | 105   | <b>150</b> | 195 | 0,005                                 | <b>0,009</b> | 0,013 | x d <sub>F</sub> | 3.1            |   | ZIRK-GF                |                    |
| 63  | <b>90</b>  | 117 | 105   | <b>150</b> | 195 | 63  | <b>90</b>  | 117 | 105   | <b>150</b>     | 195 | 63  | <b>90</b>  | 117 | 105   | <b>150</b> | 195 | 0,005                                 | <b>0,009</b> | 0,013 | x d <sub>F</sub> | 3.2            |   | Gigant                 |                    |
| 63  | <b>90</b>  | 117 | 105   | <b>150</b> | 195 | 63  | <b>90</b>  | 117 | 105   | <b>150</b>     | 195 | 63  | <b>90</b>  | 117 | 105   | <b>150</b> | 195 | 0,005                                 | <b>0,009</b> | 0,013 | x d <sub>F</sub> | 4.1            |   | MoSys                  |                    |
| 63  | <b>90</b>  | 117 | 105   | <b>150</b> | 195 | 63  | <b>90</b>  | 117 | 105   | <b>150</b>     | 195 | 63  | <b>90</b>  | 117 | 105   | <b>150</b> | 195 | 0,005                                 | <b>0,009</b> | 0,013 | x d <sub>F</sub> | 4.2            |   |                        |                    |
| 126   | <b>180</b> | 234 | 196   | <b>280</b> | 364 | 126   | <b>180</b> | 234 | 196   | <b>280</b>     | 364 | 126   | <b>180</b> | 234 | 196   | <b>280</b> | 364 | 0,007                                 | <b>0,012</b> | 0,017 | x d <sub>F</sub> | 1.1            | N |                        |                    |
| 126   | <b>180</b> | 234 | 196   | <b>280</b> | 364 | 126   | <b>180</b> | 234 | 196   | <b>280</b>     | 364 | 126   | <b>180</b> | 234 | 196   | <b>280</b> | 364 | 0,007                                 | <b>0,012</b> | 0,017 | x d <sub>F</sub> | 1.2            |   |                        |                    |
| 126   | <b>180</b> | 234 | 196   | <b>280</b> | 364 | 126   | <b>180</b> | 234 | 196   | <b>280</b>     | 364 | 126   | <b>180</b> | 234 | 196   | <b>280</b> | 364 | 0,007                                 | <b>0,012</b> | 0,017 | x d <sub>F</sub> | 1.3            |   |                        |                    |
| 126   | <b>180</b> | 234 | 196   | <b>280</b> | 364 | 126   | <b>180</b> | 234 | 196   | <b>280</b>     | 364 | 126   | <b>180</b> | 234 | 196   | <b>280</b> | 364 | 0,007                                 | <b>0,012</b> | 0,017 | x d <sub>F</sub> | 1.4            |   |                        |                    |
| 126   | <b>180</b> | 234 | 196   | <b>280</b> | 364 | 126   | <b>180</b> | 234 | 196   | <b>280</b>     | 364 | 126   | <b>180</b> | 234 | 196   | <b>280</b> | 364 | 0,007                                 | <b>0,012</b> | 0,017 | x d <sub>F</sub> | 1.5            |   |                        |                    |
|   |            |     | 105   | <b>150</b> | 195 |   |            |     | 105   | <b>150</b>     | 195 |   |            |     | 105   | <b>150</b> | 195 | 0,007                                 | <b>0,012</b> | 0,017 | x d <sub>F</sub> | 1.6            |   |                        |                    |
| 126   | <b>180</b> | 234 | 196   | <b>280</b> | 364 | 126   | <b>180</b> | 234 | 196   | <b>280</b>     | 364 | 126   | <b>180</b> | 234 | 196   | <b>280</b> | 364 | 0,007                                 | <b>0,012</b> | 0,017 | x d <sub>F</sub> | 2.1            |   |                        |                    |
| 126   | <b>180</b> | 234 | 196   | <b>280</b> | 364 | 126   | <b>180</b> | 234 | 196   | <b>280</b>     | 364 | 126   | <b>180</b> | 234 | 196   | <b>280</b> | 364 | 0,007                                 | <b>0,012</b> | 0,017 | x d <sub>F</sub> | 2.2            |   |                        |                    |
| 126   | <b>180</b> | 234 | 196   | <b>280</b> | 364 | 126   | <b>180</b> | 234 | 196   | <b>280</b>     | 364 | 126   | <b>180</b> | 234 | 196   | <b>280</b> | 364 | 0,007                                 | <b>0,012</b> | 0,017 | x d <sub>F</sub> | 2.3            |   |                        |                    |
| 77  | <b>110</b> | 143 | 126   | <b>180</b> | 234 | 77  | <b>110</b> | 143 | 126   | <b>180</b>     | 234 | 77  | <b>110</b> | 143 | 126   | <b>180</b> | 234 | 0,006                                 | <b>0,010</b> | 0,014 | x d <sub>F</sub> | 2.4            |   |                        |                    |
| 77  | <b>110</b> | 143 | 126   | <b>180</b> | 234 | 77  | <b>110</b> | 143 | 126   | <b>180</b>     | 234 | 77  | <b>110</b> | 143 | 126   | <b>180</b> | 234 | 0,006                                 | <b>0,010</b> | 0,014 | x d <sub>F</sub> | 2.5            |   |                        |                    |
| 105   | <b>150</b> | 195 | 126   | <b>180</b> | 234 | 105   | <b>150</b> | 195 | 126   | <b>180</b>     | 234 | 105   | <b>150</b> | 195 | 126   | <b>180</b> | 234 | 0,006                                 | <b>0,010</b> | 0,014 | x d <sub>F</sub> | 2.6            |   |                        |                    |
|   |            |     | 42  | <b>60</b>  | 78  |   |            |     | 42  | <b>60</b>      | 78  |   |            |     | 42  | <b>60</b>  | 78  | 0,005                                 | <b>0,008</b> | 0,011 | x d <sub>F</sub> | 2.7            |   |                        |                    |
|   |            |     | 35  | <b>50</b>  | 65  |   |            |     | 35  | <b>50</b>      | 65  |   |            |     | 35  | <b>50</b>  | 65  | 0,005                                 | <b>0,008</b> | 0,011 | x d <sub>F</sub> | 2.8            |   |                        |                    |
| 126   | <b>180</b> | 234 | 196   | <b>280</b> | 364 | 126   | <b>180</b> | 234 | 196   | <b>280</b>     | 364 | 126   | <b>180</b> | 234 | 196   | <b>280</b> | 364 | 0,007                                 | <b>0,012</b> | 0,017 | x d <sub>F</sub> | 3.1            |   |                        |                    |
| 126   | <b>180</b> | 234 | 196   | <b>280</b> | 364 | 126   | <b>180</b> | 234 | 196   | <b>280</b>     | 364 | 126   | <b>180</b> | 234 | 196   | <b>280</b> | 364 | 0,007                                 | <b>0,012</b> | 0,017 | x d <sub>F</sub> | 3.2            |   |                        |                    |
| 77  | <b>110</b> | 143 | 196   | <b>280</b> | 364 | 77  | <b>110</b> | 143 | 196   | <b>280</b>     | 364 | 77  | <b>110</b> | 143 | 196   | <b>280</b> | 364 | 0,007                                 | <b>0,012</b> | 0,017 | x d <sub>F</sub> | 4.1            |   |                        |                    |
| 77  | <b>110</b> | 143 | 196   | <b>280</b> | 364 | 77  | <b>110</b> | 143 | 196   | <b>280</b>     | 364 | 77  | <b>110</b> | 143 | 196   | <b>280</b> | 364 | 0,007                                 | <b>0,012</b> | 0,017 | x d <sub>F</sub> | 4.2            |   |                        |                    |
|   |            |     | 105   | <b>150</b> | 195 |   |            |     | 105   | <b>150</b>     | 195 |   |            |     | 105   | <b>150</b> | 195 | 0,007                                 | <b>0,012</b> | 0,017 | x d <sub>F</sub> | 4.3            |   |                        |                    |
|   |            |     | 105   | <b>150</b> | 195 |   |            |     | 105   | <b>150</b>     | 195 |   |            |     | 105   | <b>150</b> | 195 | 0,007                                 | <b>0,012</b> | 0,017 | x d <sub>F</sub> | 4.4            |   |                        |                    |
| 70  | <b>100</b> | 130 | 105   | <b>150</b> | 195 | 70  | <b>100</b> | 130 | 105   | <b>150</b>     | 195 | 70  | <b>100</b> | 130 | 105   | <b>150</b> | 195 | 0,007                                 | <b>0,012</b> | 0,017 | x d <sub>F</sub> | 5.1            |   |                        |                    |
| 21  | <b>30</b>  | 39  | 35  | <b>50</b>  | 65  | 21  | <b>30</b>  | 39  | 35  | <b>50</b>      | 65  | 21  | <b>30</b>  | 39  | 35  | <b>50</b>  | 65  | 0,004                                 | <b>0,007</b> | 0,010 | x d <sub>F</sub> | 5.2            |   |                        |                    |
|   |            |     | 105   | <b>150</b> | 195 |   |            |     | 105   | <b>150</b>     | 195 |   |            |     | 105   | <b>150</b> | 195 | 0,007                                 | <b>0,012</b> | 0,017 | x d <sub>F</sub> | 5.3            |   |                        |                    |
| 28  | <b>40</b>  | 52  | 42  | <b>60</b>  | 78  | 28  | <b>40</b>  | 52  | 42  | <b>60</b>      | 78  | 28  | <b>40</b>  | 52  | 42  | <b>60</b>  | 78  | 0,004                                 | <b>0,006</b> | 0,008 | x d <sub>F</sub> | 1.1            | S |                        |                    |
| 28  | <b>40</b>  | 52  | 42  | <b>60</b>  | 78  | 28  | <b>40</b>  | 52  | 42  | <b>60</b>      | 78  | 28  | <b>40</b>  | 52  | 42  | <b>60</b>  | 78  | 0,004                                 | <b>0,006</b> | 0,008 | x d <sub>F</sub> | 1.2            |   |                        |                    |
| 21  | <b>30</b>  | 39  | 35  | <b>50</b>  | 65  |   |            |     | 21  | <b>30</b>      | 39  | 35  | <b>50</b>  | 65  | 35  | <b>50</b>  | 65  | 0,002                                 | <b>0,004</b> | 0,006 | x d <sub>F</sub> | 1.3            |   |                        |                    |
|   |            |     | 32  | <b>45</b>  | 59  |   |            |     | 35  | <b>50</b>      | 65  |   |            |     | 32  | <b>45</b>  | 59  | 0,002                                 | <b>0,004</b> | 0,006 | x d <sub>F</sub> | 2.1            |   |                        |                    |
|   |            |     | 32  | <b>45</b>  | 59  |   |            |     |   |                |     |   |            |     | 32  | <b>45</b>  | 59  | 0,002                                 | <b>0,004</b> | 0,006 | x d <sub>F</sub> | 2.2            |   |                        |                    |
|   |            |     | 21  | <b>30</b>  | 39  |   |            |     |   |                |     |   |            |     | 21  | <b>30</b>  | 39  | 0,002                                 | <b>0,004</b> | 0,006 | x d <sub>F</sub> | 2.3            |   |                        |                    |
|   |            |     | 32  | <b>45</b>  | 59  |   |            |     |   |                |     |   |            |     | 32  | <b>45</b>  | 59  | 0,002                                 | <b>0,004</b> | 0,006 | x d <sub>F</sub> | 2.4            |   |                        |                    |
|   |            |     | 21  | <b>30</b>  | 39  |   |            |     |   |                |     |   |            |     | 21  | <b>30</b>  | 39  | 0,002                                 | <b>0,004</b> | 0,006 | x d <sub>F</sub> | 2.5            |   |                        |                    |
|   |            |     | 21  | <b>30</b>  | 39  |   |            |     |   |                |     |   |            |     | 21  | <b>30</b>  | 39  | 0,002                                 | <b>0,004</b> | 0,006 | x d <sub>F</sub> | 2.6            |   |                        |                    |
|   |            |     | 32  | <b>45</b>  | 59  |   |            |     |   |                |     |   |            |     | 32  | <b>45</b>  | 59  | 0,002                                 | <b>0,004</b> | 0,006 | x d <sub>F</sub> | 1.1            | H |                        |                    |
|   |            |     | 28  | <b>40</b>  | 52  |   |            |     |   |                |     |   |            |     | 28  | <b>40</b>  | 52  | 0,002                                 | <b>0,004</b> | 0,006 | x d              |                |   |                        |                    |



GF-Z

GF-Z-Extern

GF-Vario-Z

GF-Vario-Z-AZR1



Unbeschichtet  
Uncoated

TICN

TIALN-86

TIALN-86

TIALN-86

**v<sub>c</sub>** [m/min]  
min. empf. max.  
rec.

**v<sub>c</sub>** [m/min]  
min. empf. max.  
rec.

**v<sub>c</sub>** [m/min]  
min. empf. max.  
rec.

**v<sub>c</sub>** [m/min]  
min. empf. max.  
rec.

**v<sub>c</sub>** [m/min]  
min. empf. max.  
rec.

**f<sub>z</sub>** [mm]  
min. empf. max.  
rec.

Product  
Finder

v<sub>c</sub> / f<sub>z</sub>

M

MF

UNC  
UN, UNS

UNF  
UNEF

G, Rp

NPT, NPTF  
Rc, W

BSW, BSF

Pg

MJ  
UNJC, UNJF

EG (STI)

SELF-LOCK

Tr

Zubehör  
Accessories

BGF

ZBGF

GSF

GF

GF-VZ

GF-KEG

ZGF

ZIRK-GF

Gigant

MoSys



N

S

H





## ZGF-S-CUT


## ZGF-HCUT



TIALN-T46



TIALN-T46

- Product Finder
- $v_c / f_z$
- M
- MF
- UNC  
UN, UNS
- UNF  
UNEF
- G, Rp
- NPT, NPTF  
Rc, W
- BSW, BSF
- Pg
- MJ  
UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr
- Zubehör  
Accessories
- BGF
- ZBGF
- GSF
- GF
- GF-VZ
- GF-KEG
- ZGF
- ZIRK-GF
- Gigant
- MoSys
- 

|     |     | $v_c$ [m/min] |            |       | $f_z$ [mm]   |              |         |         | $v_c$ [m/min] |            |       | $f_z$ [mm]   |              |         |         |  |
|-----|-----|---------------|------------|-------|--------------|--------------|---------|---------|---------------|------------|-------|--------------|--------------|---------|---------|--|
|     |     | min.          | empf. rec. | max.  | min.         | empf. rec.   | max.    | $x d_F$ | min.          | empf. rec. | max.  | min.         | empf. rec.   | max.    | $x d_F$ |  |
| P   | 1.1 | 126           | <b>180</b> | 234   | 0,006        | <b>0,010</b> | 0,014   | $x d_F$ |               |            |       |              |              |         |         |  |
|     | 2.1 | 105           | <b>150</b> | 195   | 0,005        | <b>0,009</b> | 0,013   | $x d_F$ |               |            |       |              |              |         |         |  |
|     | 3.1 | 84            | <b>120</b> | 156   | 0,005        | <b>0,008</b> | 0,011   | $x d_F$ |               |            |       |              |              |         |         |  |
|     | 4.1 | 70            | <b>100</b> | 130   | 0,004        | <b>0,007</b> | 0,010   | $x d_F$ |               |            |       |              |              |         |         |  |
|     | 5.1 | 56            | <b>80</b>  | 104   | 0,004        | <b>0,006</b> | 0,008   | $x d_F$ |               |            |       |              |              |         |         |  |
| M   | 1.1 | 63            | <b>90</b>  | 117   | 0,005        | <b>0,008</b> | 0,011   | $x d_F$ |               |            |       |              |              |         |         |  |
|     | 2.1 | 63            | <b>90</b>  | 117   | 0,005        | <b>0,008</b> | 0,011   | $x d_F$ |               |            |       |              |              |         |         |  |
|     | 3.1 | 42            | <b>60</b>  | 78    | 0,004        | <b>0,007</b> | 0,010   | $x d_F$ |               |            |       |              |              |         |         |  |
|     | 4.1 | 35            | <b>50</b>  | 65    | 0,004        | <b>0,006</b> | 0,008   | $x d_F$ |               |            |       |              |              |         |         |  |
| K   | 1.1 | 112           | <b>160</b> | 208   | 0,005        | <b>0,009</b> | 0,013   | $x d_F$ |               |            |       |              |              |         |         |  |
|     | 1.2 | 112           | <b>160</b> | 208   | 0,005        | <b>0,009</b> | 0,013   | $x d_F$ |               |            |       |              |              |         |         |  |
|     | 2.1 | 105           | <b>150</b> | 195   | 0,005        | <b>0,009</b> | 0,013   | $x d_F$ |               |            |       |              |              |         |         |  |
|     | 2.2 | 105           | <b>150</b> | 195   | 0,005        | <b>0,009</b> | 0,013   | $x d_F$ |               |            |       |              |              |         |         |  |
|     | 3.1 | 105           | <b>150</b> | 195   | 0,005        | <b>0,009</b> | 0,013   | $x d_F$ |               |            |       |              |              |         |         |  |
|     | 3.2 | 105           | <b>150</b> | 195   | 0,005        | <b>0,009</b> | 0,013   | $x d_F$ |               |            |       |              |              |         |         |  |
| 4.1 | 105 | <b>150</b>    | 195        | 0,005 | <b>0,009</b> | 0,013        | $x d_F$ |         |               |            |       |              |              |         |         |  |
|     | 105 | <b>150</b>    | 195        | 0,005 | <b>0,009</b> | 0,013        | $x d_F$ |         |               |            |       |              |              |         |         |  |
| N   | 1.1 | 196           | <b>280</b> | 364   | 0,007        | <b>0,012</b> | 0,017   | $x d_F$ |               |            |       |              |              |         |         |  |
|     | 1.2 | 196           | <b>280</b> | 364   | 0,007        | <b>0,012</b> | 0,017   | $x d_F$ |               |            |       |              |              |         |         |  |
|     | 1.3 | 196           | <b>280</b> | 364   | 0,007        | <b>0,012</b> | 0,017   | $x d_F$ |               |            |       |              |              |         |         |  |
|     | 1.4 | 196           | <b>280</b> | 364   | 0,007        | <b>0,012</b> | 0,017   | $x d_F$ |               |            |       |              |              |         |         |  |
|     | 1.5 | 196           | <b>280</b> | 364   | 0,007        | <b>0,012</b> | 0,017   | $x d_F$ |               |            |       |              |              |         |         |  |
|     | 1.6 | 105           | <b>150</b> | 195   | 0,007        | <b>0,012</b> | 0,017   | $x d_F$ |               |            |       |              |              |         |         |  |
| N   | 2.1 | 196           | <b>280</b> | 364   | 0,007        | <b>0,012</b> | 0,017   | $x d_F$ |               |            |       |              |              |         |         |  |
|     | 2.2 | 196           | <b>280</b> | 364   | 0,007        | <b>0,012</b> | 0,017   | $x d_F$ |               |            |       |              |              |         |         |  |
|     | 2.3 | 196           | <b>280</b> | 364   | 0,007        | <b>0,012</b> | 0,017   | $x d_F$ |               |            |       |              |              |         |         |  |
|     | 2.4 | 126           | <b>180</b> | 234   | 0,006        | <b>0,010</b> | 0,014   | $x d_F$ |               |            |       |              |              |         |         |  |
|     | 2.5 | 126           | <b>180</b> | 234   | 0,006        | <b>0,010</b> | 0,014   | $x d_F$ |               |            |       |              |              |         |         |  |
|     | 2.6 | 126           | <b>180</b> | 234   | 0,006        | <b>0,010</b> | 0,014   | $x d_F$ |               |            |       |              |              |         |         |  |
|     | 2.7 | 42            | <b>60</b>  | 78    | 0,005        | <b>0,008</b> | 0,011   | $x d_F$ | 35            | <b>50</b>  | 65    | 0,002        | <b>0,004</b> | 0,006   | $x d_F$ |  |
|     | 2.8 | 35            | <b>50</b>  | 65    | 0,005        | <b>0,008</b> | 0,011   | $x d_F$ | 35            | <b>50</b>  | 65    | 0,002        | <b>0,004</b> | 0,006   | $x d_F$ |  |
|     | 3.1 | 196           | <b>280</b> | 364   | 0,007        | <b>0,012</b> | 0,017   | $x d_F$ |               |            |       |              |              |         |         |  |
|     |     | 196           | <b>280</b> | 364   | 0,007        | <b>0,012</b> | 0,017   | $x d_F$ |               |            |       |              |              |         |         |  |
| 4.1 | 196 | <b>280</b>    | 364        | 0,007 | <b>0,012</b> | 0,017        | $x d_F$ |         |               |            |       |              |              |         |         |  |
|     | 196 | <b>280</b>    | 364        | 0,007 | <b>0,012</b> | 0,017        | $x d_F$ |         |               |            |       |              |              |         |         |  |
|     | 105 | <b>150</b>    | 195        | 0,007 | <b>0,012</b> | 0,017        | $x d_F$ |         |               |            |       |              |              |         |         |  |
|     | 105 | <b>150</b>    | 195        | 0,007 | <b>0,012</b> | 0,017        | $x d_F$ |         |               |            |       |              |              |         |         |  |
| 5.1 | 105 | <b>150</b>    | 195        | 0,007 | <b>0,012</b> | 0,017        | $x d_F$ |         |               |            |       |              |              |         |         |  |
|     | 35  | <b>50</b>     | 65         | 0,004 | <b>0,007</b> | 0,010        | $x d_F$ |         |               |            |       |              |              |         |         |  |
|     | 105 | <b>150</b>    | 195        | 0,007 | <b>0,012</b> | 0,017        | $x d_F$ |         |               |            |       |              |              |         |         |  |
| S   | 1.1 | 42            | <b>60</b>  | 78    | 0,004        | <b>0,006</b> | 0,008   | $x d_F$ |               |            |       |              |              |         |         |  |
|     | 1.2 | 42            | <b>60</b>  | 78    | 0,004        | <b>0,006</b> | 0,008   | $x d_F$ |               |            |       |              |              |         |         |  |
|     | 1.3 | 35            | <b>50</b>  | 65    | 0,002        | <b>0,004</b> | 0,006   | $x d_F$ |               |            |       |              |              |         |         |  |
|     | 2.1 | 32            | <b>45</b>  | 59    | 0,002        | <b>0,004</b> | 0,006   | $x d_F$ |               |            |       |              |              |         |         |  |
|     | 2.2 | 32            | <b>45</b>  | 59    | 0,002        | <b>0,004</b> | 0,006   | $x d_F$ |               |            |       |              |              |         |         |  |
|     | 2.3 | 21            | <b>30</b>  | 39    | 0,002        | <b>0,004</b> | 0,006   | $x d_F$ |               |            |       |              |              |         |         |  |
| H   | 2.4 | 32            | <b>45</b>  | 59    | 0,002        | <b>0,004</b> | 0,006   | $x d_F$ |               |            |       |              |              |         |         |  |
|     | 2.5 | 21            | <b>30</b>  | 39    | 0,002        | <b>0,004</b> | 0,006   | $x d_F$ |               |            |       |              |              |         |         |  |
|     | 2.6 | 21            | <b>30</b>  | 39    | 0,002        | <b>0,004</b> | 0,006   | $x d_F$ |               |            |       |              |              |         |         |  |
|     | 1.1 | 32            | <b>45</b>  | 59    | 0,002        | <b>0,004</b> | 0,006   | $x d_F$ | 42            | <b>60</b>  | 78    | 0,004        | <b>0,007</b> | 0,010   | $x d_F$ |  |
|     | 1.2 | 28            | <b>40</b>  | 52    | 0,002        | <b>0,004</b> | 0,006   | $x d_F$ | 35            | <b>50</b>  | 65    | 0,004        | <b>0,006</b> | 0,008   | $x d_F$ |  |
|     | 1.3 |               |            |       |              |              |         |         | 32            | <b>45</b>  | 59    | 0,003        | <b>0,005</b> | 0,007   | $x d_F$ |  |
| 1.4 |     |               |            |       |              |              |         | 21      | <b>30</b>     | 39         | 0,002 | <b>0,004</b> | 0,006        | $x d_F$ |         |  |
| 1.5 |     |               |            |       |              |              |         | 18      | <b>25</b>     | 33         | 0,002 | <b>0,003</b> | 0,004        | $x d_F$ |         |  |

ZIRK-GF (MZP)

ZIRK-GF (3ZP)

ZIRK-GF (SWP)



TIALN-T4



TIALN-T4



ALCR-T42

| v <sub>c</sub> [m/min] |            |      | f <sub>z</sub> [mm] |              |       | v <sub>c</sub> [m/min] |            |      | f <sub>z</sub> [mm] |              |       | v <sub>c</sub> [m/min] |            |      | f <sub>z</sub> [mm] |              |                        |     |
|------------------------|------------|------|---------------------|--------------|-------|------------------------|------------|------|---------------------|--------------|-------|------------------------|------------|------|---------------------|--------------|------------------------|-----|
| min.                   | empf. rec. | max. | min.                | empf. rec.   | max.  | min.                   | empf. rec. | max. | min.                | empf. rec.   | max.  | min.                   | empf. rec. | max. | min.                | empf. rec.   | max.                   |     |
| 126                    | <b>180</b> | 234  | 0,066               | <b>0,110</b> | 0,165 | 126                    | <b>180</b> | 234  | 0,066               | <b>0,110</b> | 0,165 | 126                    | <b>180</b> | 234  | 0,006               | <b>0,010</b> | 0,014 x d <sub>F</sub> | 1.1 |
| 105                    | <b>150</b> | 195  | 0,060               | <b>0,100</b> | 0,150 | 105                    | <b>150</b> | 195  | 0,060               | <b>0,100</b> | 0,150 | 105                    | <b>150</b> | 195  | 0,005               | <b>0,009</b> | 0,013 x d <sub>F</sub> | 2.1 |
| 84                     | <b>120</b> | 156  | 0,054               | <b>0,090</b> | 0,135 | 84                     | <b>120</b> | 156  | 0,054               | <b>0,090</b> | 0,135 | 84                     | <b>120</b> | 156  | 0,005               | <b>0,008</b> | 0,011 x d <sub>F</sub> | 3.1 |
| 70                     | <b>100</b> | 130  | 0,048               | <b>0,080</b> | 0,120 | 70                     | <b>100</b> | 130  | 0,048               | <b>0,080</b> | 0,120 | 70                     | <b>100</b> | 130  | 0,004               | <b>0,007</b> | 0,010 x d <sub>F</sub> | 4.1 |
| 56                     | <b>80</b>  | 104  | 0,042               | <b>0,070</b> | 0,105 | 56                     | <b>80</b>  | 104  | 0,042               | <b>0,070</b> | 0,105 | 56                     | <b>80</b>  | 104  | 0,004               | <b>0,006</b> | 0,008 x d <sub>F</sub> | 5.1 |
| 63                     | <b>90</b>  | 117  | 0,048               | <b>0,080</b> | 0,120 | 63                     | <b>90</b>  | 117  | 0,048               | <b>0,080</b> | 0,120 | 63                     | <b>90</b>  | 117  | 0,005               | <b>0,008</b> | 0,011 x d <sub>F</sub> | 1.1 |
| 63                     | <b>90</b>  | 117  | 0,060               | <b>0,100</b> | 0,120 | 63                     | <b>90</b>  | 117  | 0,048               | <b>0,080</b> | 0,120 | 63                     | <b>90</b>  | 117  | 0,005               | <b>0,008</b> | 0,011 x d <sub>F</sub> | 2.1 |
| 42                     | <b>60</b>  | 78   | 0,042               | <b>0,070</b> | 0,105 | 42                     | <b>60</b>  | 78   | 0,042               | <b>0,070</b> | 0,105 | 42                     | <b>60</b>  | 78   | 0,004               | <b>0,007</b> | 0,010 x d <sub>F</sub> | 3.1 |
| 35                     | <b>50</b>  | 65   | 0,036               | <b>0,060</b> | 0,090 | 35                     | <b>50</b>  | 65   | 0,036               | <b>0,060</b> | 0,090 | 35                     | <b>50</b>  | 65   | 0,004               | <b>0,006</b> | 0,008 x d <sub>F</sub> | 4.1 |
| 112                    | <b>160</b> | 208  | 0,060               | <b>0,100</b> | 0,150 | 112                    | <b>160</b> | 208  | 0,060               | <b>0,100</b> | 0,150 | 112                    | <b>160</b> | 208  | 0,005               | <b>0,009</b> | 0,013 x d <sub>F</sub> | 1.1 |
| 112                    | <b>160</b> | 208  | 0,060               | <b>0,100</b> | 0,150 | 112                    | <b>160</b> | 208  | 0,060               | <b>0,100</b> | 0,150 | 112                    | <b>160</b> | 208  | 0,005               | <b>0,009</b> | 0,013 x d <sub>F</sub> | 1.2 |
| 105                    | <b>150</b> | 195  | 0,060               | <b>0,100</b> | 0,150 | 105                    | <b>150</b> | 195  | 0,060               | <b>0,100</b> | 0,150 | 105                    | <b>150</b> | 195  | 0,005               | <b>0,009</b> | 0,013 x d <sub>F</sub> | 2.1 |
| 105                    | <b>150</b> | 195  | 0,060               | <b>0,100</b> | 0,150 | 105                    | <b>150</b> | 195  | 0,060               | <b>0,100</b> | 0,150 | 105                    | <b>150</b> | 195  | 0,005               | <b>0,009</b> | 0,013 x d <sub>F</sub> | 2.2 |
| 105                    | <b>150</b> | 195  | 0,060               | <b>0,100</b> | 0,150 | 105                    | <b>150</b> | 195  | 0,060               | <b>0,100</b> | 0,150 | 105                    | <b>150</b> | 195  | 0,005               | <b>0,009</b> | 0,013 x d <sub>F</sub> | 3.1 |
| 105                    | <b>150</b> | 195  | 0,060               | <b>0,100</b> | 0,150 | 105                    | <b>150</b> | 195  | 0,060               | <b>0,100</b> | 0,150 | 105                    | <b>150</b> | 195  | 0,005               | <b>0,009</b> | 0,013 x d <sub>F</sub> | 3.2 |
| 105                    | <b>150</b> | 195  | 0,060               | <b>0,100</b> | 0,150 | 105                    | <b>150</b> | 195  | 0,060               | <b>0,100</b> | 0,150 | 105                    | <b>150</b> | 195  | 0,005               | <b>0,009</b> | 0,013 x d <sub>F</sub> | 4.1 |
| 105                    | <b>150</b> | 195  | 0,060               | <b>0,100</b> | 0,150 | 105                    | <b>150</b> | 195  | 0,060               | <b>0,100</b> | 0,150 | 105                    | <b>150</b> | 195  | 0,005               | <b>0,009</b> | 0,013 x d <sub>F</sub> | 4.2 |
| 196                    | <b>280</b> | 364  | 0,072               | <b>0,120</b> | 0,180 | 196                    | <b>280</b> | 364  | 0,072               | <b>0,120</b> | 0,180 | 196                    | <b>280</b> | 364  | 0,007               | <b>0,012</b> | 0,017 x d <sub>F</sub> | 1.1 |
| 196                    | <b>280</b> | 364  | 0,072               | <b>0,120</b> | 0,180 | 196                    | <b>280</b> | 364  | 0,072               | <b>0,120</b> | 0,180 | 196                    | <b>280</b> | 364  | 0,007               | <b>0,012</b> | 0,017 x d <sub>F</sub> | 1.2 |
| 196                    | <b>280</b> | 364  | 0,072               | <b>0,120</b> | 0,180 | 196                    | <b>280</b> | 364  | 0,072               | <b>0,120</b> | 0,180 | 196                    | <b>280</b> | 364  | 0,007               | <b>0,012</b> | 0,017 x d <sub>F</sub> | 1.3 |
| 196                    | <b>280</b> | 364  | 0,072               | <b>0,120</b> | 0,180 | 196                    | <b>280</b> | 364  | 0,072               | <b>0,120</b> | 0,180 | 196                    | <b>280</b> | 364  | 0,007               | <b>0,012</b> | 0,017 x d <sub>F</sub> | 1.4 |
| 196                    | <b>280</b> | 364  | 0,072               | <b>0,120</b> | 0,180 | 196                    | <b>280</b> | 364  | 0,072               | <b>0,120</b> | 0,180 | 196                    | <b>280</b> | 364  | 0,007               | <b>0,012</b> | 0,017 x d <sub>F</sub> | 1.5 |
| 105                    | <b>150</b> | 195  | 0,072               | <b>0,120</b> | 0,180 | 105                    | <b>150</b> | 195  | 0,072               | <b>0,120</b> | 0,180 | 105                    | <b>150</b> | 195  | 0,007               | <b>0,012</b> | 0,017 x d <sub>F</sub> | 1.6 |
| 196                    | <b>280</b> | 364  | 0,072               | <b>0,120</b> | 0,180 | 196                    | <b>280</b> | 364  | 0,072               | <b>0,120</b> | 0,180 | 196                    | <b>280</b> | 364  | 0,007               | <b>0,012</b> | 0,017 x d <sub>F</sub> | 2.1 |
| 196                    | <b>280</b> | 364  | 0,072               | <b>0,120</b> | 0,180 | 196                    | <b>280</b> | 364  | 0,072               | <b>0,120</b> | 0,180 | 196                    | <b>280</b> | 364  | 0,007               | <b>0,012</b> | 0,017 x d <sub>F</sub> | 2.2 |
| 196                    | <b>280</b> | 364  | 0,072               | <b>0,120</b> | 0,180 | 196                    | <b>280</b> | 364  | 0,072               | <b>0,120</b> | 0,180 | 196                    | <b>280</b> | 364  | 0,007               | <b>0,012</b> | 0,017 x d <sub>F</sub> | 2.3 |
| 126                    | <b>180</b> | 234  | 0,060               | <b>0,100</b> | 0,150 | 126                    | <b>180</b> | 234  | 0,060               | <b>0,100</b> | 0,150 | 126                    | <b>180</b> | 234  | 0,006               | <b>0,010</b> | 0,014 x d <sub>F</sub> | 2.4 |
| 126                    | <b>180</b> | 234  | 0,060               | <b>0,100</b> | 0,150 | 126                    | <b>180</b> | 234  | 0,060               | <b>0,100</b> | 0,150 | 126                    | <b>180</b> | 234  | 0,006               | <b>0,010</b> | 0,014 x d <sub>F</sub> | 2.5 |
| 126                    | <b>180</b> | 234  | 0,060               | <b>0,100</b> | 0,150 | 126                    | <b>180</b> | 234  | 0,060               | <b>0,100</b> | 0,150 | 126                    | <b>180</b> | 234  | 0,006               | <b>0,010</b> | 0,014 x d <sub>F</sub> | 2.6 |
| 42                     | <b>60</b>  | 78   | 0,048               | <b>0,080</b> | 0,120 | 42                     | <b>60</b>  | 78   | 0,048               | <b>0,080</b> | 0,120 | 42                     | <b>60</b>  | 78   | 0,005               | <b>0,008</b> | 0,011 x d <sub>F</sub> | 2.7 |
| 35                     | <b>50</b>  | 65   | 0,048               | <b>0,080</b> | 0,120 | 35                     | <b>50</b>  | 65   | 0,048               | <b>0,080</b> | 0,120 | 35                     | <b>50</b>  | 65   | 0,005               | <b>0,008</b> | 0,011 x d <sub>F</sub> | 2.8 |
| 196                    | <b>280</b> | 364  | 0,072               | <b>0,120</b> | 0,180 | 196                    | <b>280</b> | 364  | 0,072               | <b>0,120</b> | 0,180 | 196                    | <b>280</b> | 364  | 0,007               | <b>0,012</b> | 0,017 x d <sub>F</sub> | 3.1 |
| 196                    | <b>280</b> | 364  | 0,072               | <b>0,120</b> | 0,180 | 196                    | <b>280</b> | 364  | 0,072               | <b>0,120</b> | 0,180 | 196                    | <b>280</b> | 364  | 0,007               | <b>0,012</b> | 0,017 x d <sub>F</sub> | 3.2 |
| 196                    | <b>280</b> | 364  | 0,078               | <b>0,130</b> | 0,195 | 196                    | <b>280</b> | 364  | 0,078               | <b>0,130</b> | 0,195 | 196                    | <b>280</b> | 364  | 0,007               | <b>0,012</b> | 0,017 x d <sub>F</sub> | 4.1 |
| 196                    | <b>280</b> | 364  | 0,078               | <b>0,130</b> | 0,195 | 196                    | <b>280</b> | 364  | 0,078               | <b>0,130</b> | 0,195 | 196                    | <b>280</b> | 364  | 0,007               | <b>0,012</b> | 0,017 x d <sub>F</sub> | 4.2 |
| 105                    | <b>150</b> | 195  | 0,078               | <b>0,130</b> | 0,195 | 105                    | <b>150</b> | 195  | 0,078               | <b>0,130</b> | 0,195 | 105                    | <b>150</b> | 195  | 0,007               | <b>0,012</b> | 0,017 x d <sub>F</sub> | 4.3 |
| 105                    | <b>150</b> | 195  | 0,078               | <b>0,130</b> | 0,195 | 105                    | <b>150</b> | 195  | 0,078               | <b>0,130</b> | 0,195 | 105                    | <b>150</b> | 195  | 0,007               | <b>0,012</b> | 0,017 x d <sub>F</sub> | 4.4 |
| 105                    | <b>150</b> | 195  | 0,078               | <b>0,130</b> | 0,195 | 105                    | <b>150</b> | 195  | 0,078               | <b>0,130</b> | 0,195 | 105                    | <b>150</b> | 195  | 0,007               | <b>0,012</b> | 0,017 x d <sub>F</sub> | 5.1 |
| 35                     | <b>50</b>  | 65   | 0,036               | <b>0,060</b> | 0,090 | 35                     | <b>50</b>  | 65   | 0,036               | <b>0,060</b> | 0,090 | 35                     | <b>50</b>  | 65   | 0,004               | <b>0,007</b> | 0,010 x d <sub>F</sub> | 5.2 |
| 105                    | <b>150</b> | 195  | 0,078               | <b>0,130</b> | 0,195 | 105                    | <b>150</b> | 195  | 0,078               | <b>0,130</b> | 0,195 | 105                    | <b>150</b> | 195  | 0,007               | <b>0,012</b> | 0,017 x d <sub>F</sub> | 5.3 |
| 42                     | <b>60</b>  | 78   | 0,036               | <b>0,060</b> | 0,090 | 42                     | <b>60</b>  | 78   | 0,036               | <b>0,060</b> | 0,090 | 42                     | <b>60</b>  | 78   | 0,004               | <b>0,006</b> | 0,008 x d <sub>F</sub> | 1.1 |
| 42                     | <b>60</b>  | 78   | 0,036               | <b>0,060</b> | 0,090 | 42                     | <b>60</b>  | 78   | 0,036               | <b>0,060</b> | 0,090 | 42                     | <b>60</b>  | 78   | 0,004               | <b>0,006</b> | 0,008 x d <sub>F</sub> | 1.2 |
| 35                     | <b>50</b>  | 65   | 0,030               | <b>0,050</b> | 0,075 | 35                     | <b>50</b>  | 65   | 0,030               | <b>0,050</b> | 0,075 | 35                     | <b>50</b>  | 65   | 0,002               | <b>0,004</b> | 0,006 x d <sub>F</sub> | 1.3 |
| 32                     | <b>45</b>  | 59   | 0,030               | <b>0,050</b> | 0,075 | 32                     | <b>45</b>  | 59   | 0,030               | <b>0,050</b> | 0,075 | 32                     | <b>45</b>  | 59   | 0,002               | <b>0,004</b> | 0,006 x d <sub>F</sub> | 2.1 |
| 32                     | <b>45</b>  | 59   | 0,030               | <b>0,050</b> | 0,075 | 32                     | <b>45</b>  | 59   | 0,030               | <b>0,050</b> | 0,075 | 32                     | <b>45</b>  | 59   | 0,002               | <b>0,004</b> | 0,006 x d <sub>F</sub> | 2.2 |
| 21                     | <b>30</b>  | 39   | 0,030               | <b>0,050</b> | 0,075 | 21                     | <b>30</b>  | 39   | 0,030               | <b>0,050</b> | 0,075 | 21                     | <b>30</b>  | 39   | 0,002               | <b>0,004</b> | 0,006 x d <sub>F</sub> | 2.3 |
| 32                     | <b>45</b>  | 59   | 0,030               | <b>0,050</b> | 0,075 | 32                     | <b>45</b>  | 59   | 0,030               | <b>0,050</b> | 0,075 | 32                     | <b>45</b>  | 59   | 0,002               | <b>0,004</b> | 0,006 x d <sub>F</sub> | 2.4 |
| 21                     | <b>30</b>  | 39   | 0,030               | <b>0,050</b> | 0,075 | 21                     | <b>30</b>  | 39   | 0,030               | <b>0,050</b> | 0,075 | 21                     | <b>30</b>  | 39   | 0,002               | <b>0,004</b> | 0,006 x d <sub>F</sub> | 2.5 |
| 21                     | <b>30</b>  | 39   | 0,030               | <b>0,050</b> | 0,075 | 21                     | <b>30</b>  | 39   | 0,030               | <b>0,050</b> | 0,075 | 21                     | <b>30</b>  | 39   | 0,002               | <b>0,004</b> | 0,006 x d <sub>F</sub> | 2.6 |
| 32                     | <b>45</b>  | 59   | 0,030               | <b>0,050</b> | 0,075 | 32                     | <b>45</b>  | 59   | 0,030               | <b>0,050</b> | 0,075 |                        |            |      | 1.1                 |              |                        |     |
| 28                     | <b>40</b>  | 52   | 0,030               | <b>0,050</b> | 0,075 | 28                     | <b>40</b>  | 52   | 0,030               | <b>0,050</b> | 0,075 |                        |            |      | 1.2                 |              |                        |     |
|                        |            |      |                     |              |       |                        |            |      |                     |              |       |                        |            |      | 1.3                 |              |                        |     |
|                        |            |      |                     |              |       |                        |            |      |                     |              |       |                        |            |      | 1.4                 |              |                        |     |
|                        |            |      |                     |              |       |                        |            |      |                     |              |       |                        |            |      | 1.5                 |              |                        |     |

Product Finder

v<sub>c</sub> / f<sub>z</sub>

M

MF

UNC  
UN, UNS

UNF  
UNEF

G, Rp

NPT, NPTF  
Rc, W

BSW, BSF

Pg

MJ  
UNJC, UNJF

EG (STI)

SELF-LOCK

Tr

Zubehör  
Accessories

BGF

ZBGF

GSF

GF

GF-VZ

GF-KEG

ZGF

ZIRK-GF

Gigant

MoSys

# Gigant

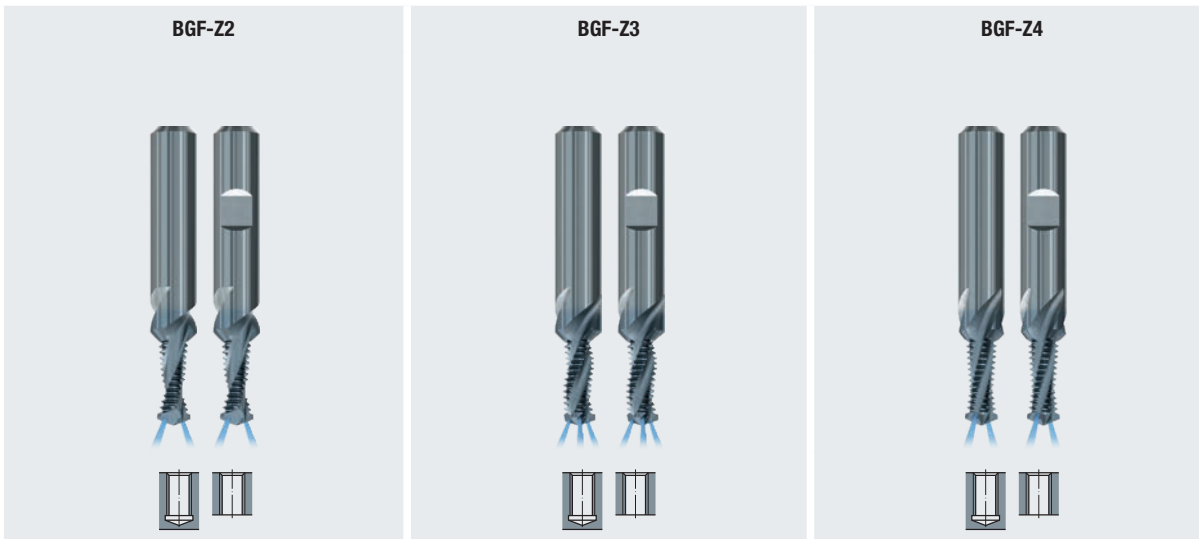


TIN  
TIALN-T4

- Product Finder
- v<sub>c</sub> / f<sub>z</sub>**
- M
- MF
- UNC  
UN, UNS
- UNF  
UNEF
- G, Rp
- NPT, NPTF  
Rc, W
- BSW, BSF
- Pg
- MJ  
UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr
- Zubehör  
Accessories
- BGF
- ZBGF
- GSF
- GF
- GF-VZ
- GF-KEG
- ZGF
- ZIRK-GF
- Gigant
- MoSys
- 

|     |     | v <sub>c</sub> [m/min] |            |       | f <sub>z</sub> [mm] |              |       |
|-----|-----|------------------------|------------|-------|---------------------|--------------|-------|
|     |     | min.                   | empf. rec. | max.  | min.                | empf. rec.   | max.  |
| P   | 1.1 | 231                    | <b>330</b> | 495   | 0,140               | <b>0,200</b> | 0,260 |
|     | 2.1 | 210                    | <b>300</b> | 450   | 0,126               | <b>0,180</b> | 0,234 |
|     | 3.1 | 140                    | <b>200</b> | 300   | 0,112               | <b>0,160</b> | 0,208 |
|     | 4.1 | 119                    | <b>170</b> | 255   | 0,098               | <b>0,140</b> | 0,182 |
|     | 5.1 | 105                    | <b>150</b> | 225   | 0,084               | <b>0,120</b> | 0,156 |
| M   | 1.1 | 70                     | <b>100</b> | 150   | 0,084               | <b>0,120</b> | 0,156 |
|     | 2.1 | 70                     | <b>100</b> | 150   | 0,084               | <b>0,120</b> | 0,156 |
|     | 3.1 | 56                     | <b>80</b>  | 120   | 0,070               | <b>0,100</b> | 0,130 |
|     | 4.1 | 49                     | <b>70</b>  | 105   | 0,063               | <b>0,090</b> | 0,117 |
| K   | 1.1 | 189                    | <b>270</b> | 405   | 0,140               | <b>0,200</b> | 0,260 |
|     | 1.2 | 189                    | <b>270</b> | 405   | 0,140               | <b>0,200</b> | 0,260 |
|     | 2.1 | 175                    | <b>250</b> | 375   | 0,140               | <b>0,200</b> | 0,260 |
|     | 2.2 | 175                    | <b>250</b> | 375   | 0,140               | <b>0,200</b> | 0,260 |
|     | 3.1 | 175                    | <b>250</b> | 375   | 0,140               | <b>0,200</b> | 0,260 |
|     | 3.2 | 175                    | <b>250</b> | 375   | 0,140               | <b>0,200</b> | 0,260 |
|     | 4.1 | 175                    | <b>250</b> | 375   | 0,140               | <b>0,200</b> | 0,260 |
| ZGF | 4.2 | 175                    | <b>250</b> | 375   | 0,140               | <b>0,200</b> | 0,260 |
| N   | 1.1 | 231                    | <b>330</b> | 495   | 0,161               | <b>0,230</b> | 0,299 |
|     | 1.2 | 231                    | <b>330</b> | 495   | 0,161               | <b>0,230</b> | 0,299 |
|     | 1.3 | 231                    | <b>330</b> | 495   | 0,161               | <b>0,230</b> | 0,299 |
|     | 1.4 | 231                    | <b>330</b> | 495   | 0,161               | <b>0,230</b> | 0,299 |
|     | 1.5 | 231                    | <b>330</b> | 495   | 0,161               | <b>0,230</b> | 0,299 |
|     | 1.6 | 119                    | <b>170</b> | 255   | 0,161               | <b>0,230</b> | 0,299 |
|     | 2.1 | 231                    | <b>330</b> | 495   | 0,140               | <b>0,200</b> | 0,260 |
|     | 2.2 | 231                    | <b>330</b> | 495   | 0,140               | <b>0,200</b> | 0,260 |
|     | 2.3 | 231                    | <b>330</b> | 495   | 0,140               | <b>0,200</b> | 0,260 |
|     | 2.4 | 119                    | <b>170</b> | 255   | 0,126               | <b>0,180</b> | 0,234 |
|     | 2.5 | 119                    | <b>170</b> | 255   | 0,126               | <b>0,180</b> | 0,234 |
|     | 2.6 | 119                    | <b>170</b> | 255   | 0,126               | <b>0,180</b> | 0,234 |
|     | 2.7 | 70                     | <b>100</b> | 150   | 0,105               | <b>0,150</b> | 0,195 |
|     | 2.8 | 70                     | <b>100</b> | 150   | 0,105               | <b>0,150</b> | 0,195 |
|     | 3.1 | 231                    | <b>330</b> | 495   | 0,161               | <b>0,230</b> | 0,299 |
|     | 3.2 | 231                    | <b>330</b> | 495   | 0,161               | <b>0,230</b> | 0,299 |
| 4.1 | 189 | <b>270</b>             | 405        | 0,140 | <b>0,200</b>        | 0,260        |       |
| 4.2 | 189 | <b>270</b>             | 405        | 0,140 | <b>0,200</b>        | 0,260        |       |
| 4.3 | 84  | <b>120</b>             | 180        | 0,140 | <b>0,200</b>        | 0,260        |       |
| 4.4 | 84  | <b>120</b>             | 180        | 0,140 | <b>0,200</b>        | 0,260        |       |
| 5.1 | 42  | <b>60</b>              | 90         | 0,084 | <b>0,120</b>        | 0,156        |       |
| 5.2 | 42  | <b>60</b>              | 90         | 0,084 | <b>0,120</b>        | 0,156        |       |
| 5.3 | 35  | <b>50</b>              | 75         | 0,084 | <b>0,120</b>        | 0,156        |       |
| S   | 1.1 | 56                     | <b>80</b>  | 120   | 0,070               | <b>0,100</b> | 0,130 |
|     | 1.2 | 56                     | <b>80</b>  | 120   | 0,070               | <b>0,100</b> | 0,130 |
|     | 1.3 | 49                     | <b>70</b>  | 105   | 0,056               | <b>0,080</b> | 0,104 |
|     | 2.1 | 42                     | <b>60</b>  | 90    | 0,056               | <b>0,080</b> | 0,104 |
|     | 2.2 | 42                     | <b>60</b>  | 90    | 0,056               | <b>0,080</b> | 0,104 |
|     | 2.3 | 32                     | <b>45</b>  | 68    | 0,056               | <b>0,080</b> | 0,104 |
|     | 2.4 | 42                     | <b>60</b>  | 90    | 0,056               | <b>0,080</b> | 0,104 |
| 2.5 | 32  | <b>45</b>              | 68         | 0,056 | <b>0,080</b>        | 0,104        |       |
| 2.6 | 32  | <b>45</b>              | 68         | 0,056 | <b>0,080</b>        | 0,104        |       |
| H   | 1.1 | 35                     | <b>50</b>  | 75    | 0,056               | <b>0,080</b> | 0,104 |
|     | 1.2 | 32                     | <b>45</b>  | 68    | 0,056               | <b>0,080</b> | 0,104 |
|     | 1.3 |                        |            |       |                     |              |       |
|     | 1.4 |                        |            |       |                     |              |       |
|     | 1.5 |                        |            |       |                     |              |       |





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| 370 - 371 | 372 - 373 | 374 - 375 | <b>M</b>          |
| 376 - 377 |           | 378 - 379 | <b>MF</b>         |
| 380 - 381 |           |           | <b>UNC</b>        |
| 382 - 383 |           |           | <b>UNF</b>        |
| 384 - 385 |           |           | <b>G (BSP)</b>    |
| 386 - 387 |           |           | <b>EG M (STI)</b> |

Mögliche Modifikationen siehe Seite 356 - 357  
Possible modifications, see pages 356 - 357

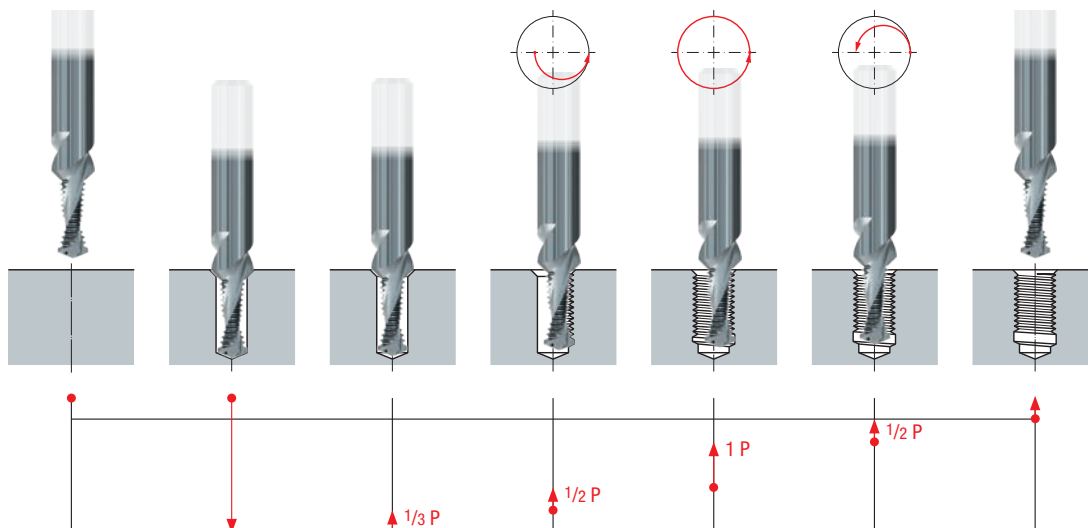
**Product Finder**

|                        |
|------------------------|
| $v_c / f_z$            |
| M                      |
| MF                     |
| UNC<br>UN, UNS         |
| UNF<br>UNEF            |
| G, Rp                  |
| NPT, NPTF<br>Rc, W     |
| BSW, BSF               |
| Pg                     |
| MJ<br>UNJC, UNJF       |
| EG (STI)               |
| SELF-LOCK              |
| Tr                     |
| Zubehör<br>Accessories |

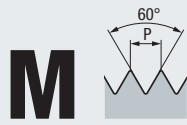
|            |
|------------|
| <b>BGF</b> |
| ZBGF       |
| GSF        |
| GF         |
| GF-VZ      |
| GF-KEG     |
| ZGF        |
| ZIRK-GF    |
| Gigant     |
| MoSys      |



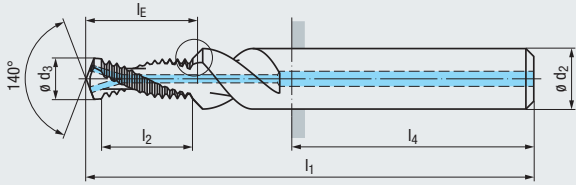
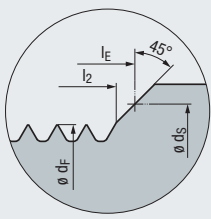
**Gewindefräszyklus · Thread milling cycle**



- Product Finder
- $v_c / f_z$
- M
- MF
- UNC  
UN, UNS
- UNF  
UNEF
- G, Rp
- NPT, NPTF  
Rc, W
- BSW, BSF
- Pg
- MJ  
UNJC, UNJF
- EG (STI)



DIN 13



**VHM Carbide**

**R30 RH + LH**

**Z2** **DIN 6535**

HA HB

90°  $\phi d_1$

### BGF-Z2



**K** 1.1-3.2 **N** 1.1-1.5  
**N** 2.2-2.3, 2.6 **N** 3.1-4.1

Einsatzgebiete – Material  
 Applications – material

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Gewindetiefe  
 Thread depth

## 1,5 x d<sub>1</sub>

|          | $\phi d_1$<br>mm | P<br>mm | $\phi d_F$<br>mm | $\phi d_2$ | $\phi d_3$ | $\phi d_S$ | $l_1$ | $l_2$ | $l_4$ | $l_E$ | Z<br>(Flutes) |
|----------|------------------|---------|------------------|------------|------------|------------|-------|-------|-------|-------|---------------|
| <b>M</b> | 4                | 0,7     | 3,16             | 6          | 3,3        | 4,2        | 49    | 5,6   | 36    | 7,4   | 2             |
|          | 5                | 0,8     | 4,04             | 6          | 4,2        | 5,3        | 55    | 7,2   | 36    | 9,4   | 2             |
|          | 6                | 1       | 4,8              | 8          | 5          | 6,3        | 62    | 9,1   | 36    | 11,7  | 2             |
|          | 8                | 1,25    | 6,5              | 10         | 6,75       | 8,4        | 74    | 11,3  | 40    | 14,7  | 2             |
|          | 10               | 1,5     | 8,2              | 12         | 8,5        | 10,5       | 79    | 15,1  | 45    | 19,3  | 2             |
|          | 12               | 1,75    | 9,9              | 14         | 10,25      | 12,6       | 89    | 17,6  | 45    | 22,5  | 2             |
|          | 14               | 2       | 11,6             | 16         | 12         | 14,7       | 102   | 20,1  | 48    | 25,8  | 2             |
|          | 16               | 2       | 13,6             | 18         | 14         | 16,8       | 102   | 24,1  | 48    | 30,3  | 2             |

**BGF-Z2**  
**1,5xd<sub>1</sub>**  
**R30-IKZ-HA**

**BGF-Z2**  
**1,5xd<sub>1</sub>**  
**R30-IKZ-HB**

- GF422801.0040
- GF422801.0050
- GF422801.0060
- GF422801.0080
- GF422801.0100
- GF422801.0112
- GF422801.0114
- GF422801.0116

- GF422201.0040
- GF422201.0050
- GF422201.0060
- GF422201.0080
- GF422201.0100
- GF422201.0112
- GF422201.0114
- GF422201.0116

Gewindetiefe  
 Thread depth

## 2 x d<sub>1</sub>

|          | $\phi d_1$<br>mm | P<br>mm | $\phi d_F$<br>mm | $\phi d_2$ | $\phi d_3$ | $\phi d_S$ | $l_1$ | $l_2$ | $l_4$ | $l_E$ | Z<br>(Flutes) |
|----------|------------------|---------|------------------|------------|------------|------------|-------|-------|-------|-------|---------------|
| <b>M</b> | 4                | 0,7     | 3,16             | 6          | 3,3        | 4,2        | 49    | 7,7   | 36    | 9,5   | 2             |
|          | 5                | 0,8     | 4,04             | 6          | 4,2        | 5,3        | 55    | 9,6   | 36    | 11,8  | 2             |
|          | 6                | 1       | 4,8              | 8          | 5          | 6,3        | 62    | 12,1  | 36    | 14,7  | 2             |
|          | 8                | 1,25    | 6,5              | 10         | 6,75       | 8,4        | 74    | 15,1  | 40    | 18,5  | 2             |
|          | 10               | 1,5     | 8,2              | 12         | 8,5        | 10,5       | 79    | 19,6  | 45    | 23,8  | 2             |
|          | 12               | 1,75    | 9,9              | 14         | 10,25      | 12,6       | 89    | 22,9  | 45    | 27,8  | 2             |
|          | 14               | 2       | 11,6             | 16         | 12         | 14,7       | 102   | 28,1  | 48    | 33,8  | 2             |
|          | 16               | 2       | 13,6             | 18         | 14         | 16,8       | 102   | 32,1  | 48    | 38,3  | 2             |

**BGF-Z2**  
**2xd<sub>1</sub>**  
**R30-IKZ-HA**

**BGF-Z2**  
**2xd<sub>1</sub>**  
**R30-IKZ-HB**

- GF432801.0040
- GF432801.0050
- GF432801.0060
- GF432801.0080
- GF432801.0100
- GF432801.0112
- GF432801.0114
- GF432801.0116

- GF432201.0040
- GF432201.0050
- GF432201.0060
- GF432201.0080
- GF432201.0100
- GF432201.0112
- GF432201.0114
- GF432201.0116

Gewindetiefe  
 Thread depth

## 2,5 x d<sub>1</sub>

|          | $\phi d_1$<br>mm | P<br>mm | $\phi d_F$<br>mm | $\phi d_2$ | $\phi d_3$ | $\phi d_S$ | $l_1$ | $l_2$ | $l_4$ | $l_E$ | Z<br>(Flutes) |
|----------|------------------|---------|------------------|------------|------------|------------|-------|-------|-------|-------|---------------|
| <b>M</b> | 6                | 1       | 4,8              | 8          | 5          | 6,3        | 65    | 15,1  | 36    | 17,7  | 2             |
|          | 8                | 1,25    | 6,5              | 10         | 6,75       | 8,4        | 80    | 20,1  | 40    | 23,5  | 2             |
|          | 10               | 1,5     | 8,2              | 12         | 8,5        | 10,5       | 85    | 25,6  | 45    | 29,8  | 2             |
|          | 12               | 1,75    | 9,9              | 14         | 10,25      | 12,6       | 95    | 29,9  | 45    | 34,8  | 2             |

**BGF-Z2**  
**2,5xd<sub>1</sub>**  
**R30-IKZ-HA**

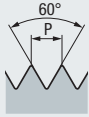
**BGF-Z2**  
**2,5xd<sub>1</sub>**  
**R30-IKZ-HB**

- GF442801.0060
- GF442801.0080
- GF442801.0100
- GF442801.0112

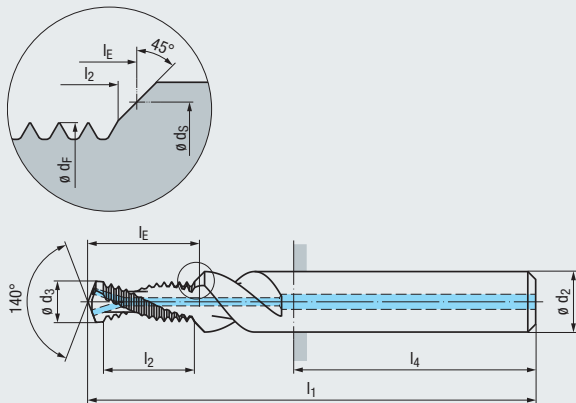
- GF442201.0060
- GF442201.0080
- GF442201.0100
- GF442201.0112

Weitere Ausführungen auf Anfrage  
 Further designs upon request

**M**



DIN 13



|             |          |
|-------------|----------|
| VHM Carbide | TICN     |
| R30         | RH + LH  |
| Z2          | DIN 6535 |
|             | HA HB    |
|             | ø d1     |
|             |          |

**BGF-Z2**



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|                       |                  |
|-----------------------|------------------|
| <b>K</b> 1.1-3.2      | <b>N</b> 1.1-1.6 |
| <b>N</b> 2.2-2.3, 2.6 | <b>N</b> 3.1-4.1 |

Gewindetiefe Thread depth

**1,5 x d<sub>1</sub>**

|          | ø d <sub>1</sub> mm | P mm | ø d <sub>F</sub> mm | ø d <sub>2</sub> | ø d <sub>3</sub> | ø d <sub>S</sub> | l <sub>1</sub> | l <sub>2</sub> | l <sub>4</sub> | l <sub>E</sub> | Z (Flutes) |
|----------|---------------------|------|---------------------|------------------|------------------|------------------|----------------|----------------|----------------|----------------|------------|
| <b>M</b> | 4                   | 0,7  | 3,16                | 6                | 3,3              | 4,2              | 49             | 5,6            | 36             | 7,4            | 2          |
|          | 5                   | 0,8  | 4,04                | 6                | 4,2              | 5,3              | 55             | 7,2            | 36             | 9,4            | 2          |
|          | 6                   | 1    | 4,8                 | 8                | 5                | 6,3              | 62             | 9,1            | 36             | 11,7           | 2          |
|          | 8                   | 1,25 | 6,5                 | 10               | 6,75             | 8,4              | 74             | 11,3           | 40             | 14,7           | 2          |
|          | 10                  | 1,5  | 8,2                 | 12               | 8,5              | 10,5             | 79             | 15,1           | 45             | 19,3           | 2          |
|          | 12                  | 1,75 | 9,9                 | 14               | 10,25            | 12,6             | 89             | 17,6           | 45             | 22,5           | 2          |
|          | 14                  | 2    | 11,6                | 16               | 12               | 14,7             | 102            | 20,1           | 48             | 25,8           | 2          |
|          | 16                  | 2    | 13,6                | 18               | 14               | 16,8             | 102            | 24,1           | 48             | 30,3           | 2          |



Gewindetiefe Thread depth

**2 x d<sub>1</sub>**

|          | ø d <sub>1</sub> mm | P mm | ø d <sub>F</sub> mm | ø d <sub>2</sub> | ø d <sub>3</sub> | ø d <sub>S</sub> | l <sub>1</sub> | l <sub>2</sub> | l <sub>4</sub> | l <sub>E</sub> | Z (Flutes) |
|----------|---------------------|------|---------------------|------------------|------------------|------------------|----------------|----------------|----------------|----------------|------------|
| <b>M</b> | 4                   | 0,7  | 3,16                | 6                | 3,3              | 4,2              | 49             | 7,7            | 36             | 9,5            | 2          |
|          | 5                   | 0,8  | 4,04                | 6                | 4,2              | 5,3              | 55             | 9,6            | 36             | 11,8           | 2          |
|          | 6                   | 1    | 4,8                 | 8                | 5                | 6,3              | 62             | 12,1           | 36             | 14,7           | 2          |
|          | 8                   | 1,25 | 6,5                 | 10               | 6,75             | 8,4              | 74             | 15,1           | 40             | 18,5           | 2          |
|          | 10                  | 1,5  | 8,2                 | 12               | 8,5              | 10,5             | 79             | 19,6           | 45             | 23,8           | 2          |
|          | 12                  | 1,75 | 9,9                 | 14               | 10,25            | 12,6             | 89             | 22,9           | 45             | 27,8           | 2          |
|          | 14                  | 2    | 11,6                | 16               | 12               | 14,7             | 102            | 28,1           | 48             | 33,8           | 2          |
|          | 16                  | 2    | 13,6                | 18               | 14               | 16,8             | 102            | 32,1           | 48             | 38,3           | 2          |



Gewindetiefe Thread depth

**2,5 x d<sub>1</sub>**

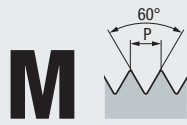
|          | ø d <sub>1</sub> mm | P mm | ø d <sub>F</sub> mm | ø d <sub>2</sub> | ø d <sub>3</sub> | ø d <sub>S</sub> | l <sub>1</sub> | l <sub>2</sub> | l <sub>4</sub> | l <sub>E</sub> | Z (Flutes) |
|----------|---------------------|------|---------------------|------------------|------------------|------------------|----------------|----------------|----------------|----------------|------------|
| <b>M</b> | 6                   | 1    | 4,8                 | 8                | 5                | 6,3              | 65             | 15,1           | 36             | 17,7           | 2          |
|          | 8                   | 1,25 | 6,5                 | 10               | 6,75             | 8,4              | 80             | 20,1           | 40             | 23,5           | 2          |
|          | 10                  | 1,5  | 8,2                 | 12               | 8,5              | 10,5             | 85             | 25,6           | 45             | 29,8           | 2          |
|          | 12                  | 1,75 | 9,9                 | 14               | 10,25            | 12,6             | 95             | 29,9           | 45             | 34,8           | 2          |

Weitere Ausführungen auf Anfrage Further designs upon request

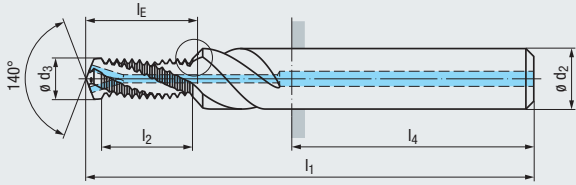
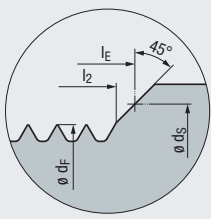
- Product Finder
- v<sub>c</sub> / f<sub>z</sub>
- M
- MF
- UNC UN, UNS
- UNF UNEF
- G, Rp
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr
- Zubehör Accessories
- BGF
- ZBGF
- GSF
- GF
- GF-VZ
- GF-KEG
- ZGF
- ZIRK-GF
- Gigant
- MoSys



- Product Finder
- $v_c / f_z$
- M
- MF
- UNC  
UN, UNS
- UNF  
UNEF
- G, Rp
- NPT, NPTF  
Rc, W
- BSW, BSF
- Pg
- MJ  
UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr
- Zubehör  
Accessories
- BGF
- ZBGF
- GSF
- GF
- GF-VZ
- GF-KEG
- ZGF
- ZIRK-GF
- Gigant
- MoSys



**M**  
DIN 13



**VHM Carbide**

**R30**    **RH + LH**

**Z3**    **DIN 6535**

**90°**

### BGF-Z3



**K** 1.1-1.2  
**N** 1.5, 2.3

Einsatzgebiete – Material    Applications – material    >> 358

Gewindetiefe  
Thread depth

## 1,5 x d<sub>1</sub>

|          | $\varnothing d_1$<br>mm | P<br>mm | $\varnothing d_F$<br>mm | $\varnothing d_2$ | $\varnothing d_3$ | $\varnothing d_S$ | $l_1$ | $l_2$ | $l_4$ | $l_E$ | Z<br>(Flutes) |
|----------|-------------------------|---------|-------------------------|-------------------|-------------------|-------------------|-------|-------|-------|-------|---------------|
| <b>M</b> | 6                       | 1       | 4,8                     | 8                 | 5                 | 6,3               | 62    | 9,1   | 36    | 11,7  | 3             |
|          | 8                       | 1,25    | 6,5                     | 10                | 6,75              | 8,4               | 74    | 11,3  | 40    | 14,7  | 3             |
|          | 10                      | 1,5     | 8,2                     | 12                | 8,5               | 10,5              | 79    | 15,1  | 45    | 19,3  | 3             |
|          | 12                      | 1,75    | 9,9                     | 14                | 10,25             | 12,6              | 89    | 17,6  | 45    | 22,5  | 3             |
|          | 16                      | 2       | 13,6                    | 18                | 14                | 16,8              | 102   | 24,1  | 48    | 30,3  | 3             |

| BGF-Z3<br>1,5x d <sub>1</sub><br>R30-IKZ-HA | BGF-Z3<br>1,5x d <sub>1</sub><br>R30-IKZ-HB |
|---|---|
| GF422851.0060                               | GF422251.0060                               |
| GF422851.0080                               | GF422251.0080                               |
| GF422851.0100                               | GF422251.0100                               |
| GF422851.0112                               | GF422251.0112                               |
| GF422851.0116                               | GF422251.0116                               |



Gewindetiefe  
Thread depth

## 2 x d<sub>1</sub>

|          | $\varnothing d_1$<br>mm | P<br>mm | $\varnothing d_F$<br>mm | $\varnothing d_2$ | $\varnothing d_3$ | $\varnothing d_S$ | $l_1$ | $l_2$ | $l_4$ | $l_E$ | Z<br>(Flutes) |
|----------|-------------------------|---------|-------------------------|-------------------|-------------------|-------------------|-------|-------|-------|-------|---------------|
| <b>M</b> | 6                       | 1       | 4,8                     | 8                 | 5                 | 6,3               | 62    | 12,1  | 36    | 14,7  | 3             |
|          | 8                       | 1,25    | 6,5                     | 10                | 6,75              | 8,4               | 74    | 15,1  | 40    | 18,5  | 3             |
|          | 10                      | 1,5     | 8,2                     | 12                | 8,5               | 10,5              | 79    | 19,6  | 45    | 23,8  | 3             |
|          | 12                      | 1,75    | 9,9                     | 14                | 10,25             | 12,6              | 89    | 22,9  | 45    | 27,8  | 3             |
|          | 16                      | 2       | 13,6                    | 18                | 14                | 16,8              | 102   | 32,1  | 48    | 38,3  | 3             |

| BGF-Z3<br>2x d <sub>1</sub><br>R30-IKZ-HA | BGF-Z3<br>2x d <sub>1</sub><br>R30-IKZ-HB |
|---|---|
| GF432851.0060                             | GF432251.0060                             |
| GF432851.0080                             | GF432251.0080                             |
| GF432851.0100                             | GF432251.0100                             |
| GF432851.0112                             | GF432251.0112                             |
| GF432851.0116                             | GF432251.0116                             |



Gewindetiefe  
Thread depth

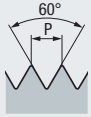
## 2,5 x d<sub>1</sub>

|          | $\varnothing d_1$<br>mm | P<br>mm | $\varnothing d_F$<br>mm | $\varnothing d_2$ | $\varnothing d_3$ | $\varnothing d_S$ | $l_1$ | $l_2$ | $l_4$ | $l_E$ | Z<br>(Flutes) |
|----------|-------------------------|---------|-------------------------|-------------------|-------------------|-------------------|-------|-------|-------|-------|---------------|
| <b>M</b> | 6                       | 1       | 4,8                     | 8                 | 5                 | 6,3               | 65    | 15,1  | 36    | 17,7  | 3             |
|          | 8                       | 1,25    | 6,5                     | 10                | 6,75              | 8,4               | 80    | 20,1  | 40    | 23,5  | 3             |
|          | 10                      | 1,5     | 8,2                     | 12                | 8,5               | 10,5              | 85    | 25,6  | 45    | 29,8  | 3             |
|          | 12                      | 1,75    | 9,9                     | 14                | 10,25             | 12,6              | 95    | 29,9  | 45    | 34,8  | 3             |
|          | 16                      | 2       | 13,6                    | 18                | 14                | 16,8              | 110   | 40,1  | 48    | 46,3  | 3             |

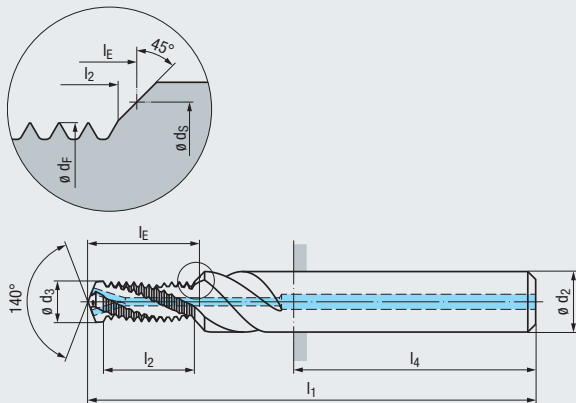
| BGF-Z3<br>2,5x d <sub>1</sub><br>R30-IKZ-HA | BGF-Z3<br>2,5x d <sub>1</sub><br>R30-IKZ-HB |
|---|---|
| GF442851.0060                               | GF442251.0060                               |
| GF442851.0080                               | GF442251.0080                               |
| GF442851.0100                               | GF442251.0100                               |
| GF442851.0112                               | GF442251.0112                               |
| GF442851.0116                               | GF442251.0116                               |

Weitere Ausführungen auf Anfrage  
Further designs upon request

**M**



DIN 13



|             |          |
|-------------|----------|
| VHM Carbide | TICN     |
| R30         | RH + LH  |
| Z3          | DIN 6535 |
|             | HA<br>HB |
| 90°         | ø d1     |
|             |          |
|             |          |

**BGF-Z3**



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Gewindetiefe Thread depth

**K 1.1-1.2**  
**N 1.5-1.6, 2,3**

**1,5 x d<sub>1</sub>**

|          | ø d <sub>1</sub><br>mm | P<br>mm | ø d <sub>F</sub><br>mm | ø d <sub>2</sub> | ø d <sub>3</sub> | ø d <sub>S</sub> | l <sub>1</sub> | l <sub>2</sub> | l <sub>4</sub> | l <sub>E</sub> | Z<br>(Flutes) |
|----------|------------------------|---------|------------------------|------------------|------------------|------------------|----------------|----------------|----------------|----------------|---------------|
| <b>M</b> | 6                      | 1       | 4,8                    | 8                | 5                | 6,3              | 62             | 9,1            | 36             | 11,7           | 3             |
|          | 8                      | 1,25    | 6,5                    | 10               | 6,75             | 8,4              | 74             | 11,3           | 40             | 14,7           | 3             |
|          | 10                     | 1,5     | 8,2                    | 12               | 8,5              | 10,5             | 79             | 15,1           | 45             | 19,3           | 3             |
|          | 12                     | 1,75    | 9,9                    | 14               | 10,25            | 12,6             | 89             | 17,6           | 45             | 22,5           | 3             |
|          | 16                     | 2       | 13,6                   | 18               | 14               | 16,8             | 102            | 24,1           | 48             | 30,3           | 3             |

| BGF-Z3<br>1,5xd <sub>1</sub><br>R30-IKZ-HA<br>TICN | BGF-Z3<br>1,5xd <sub>1</sub><br>R30-IKZ-HB<br>TICN |
|--|--|
| GF422856.0060                                      | GF422256.0060                                      |
| GF422856.0080                                      | GF422256.0080                                      |
| GF422856.0100                                      | GF422256.0100                                      |
| GF422856.0112                                      | GF422256.0112                                      |
| GF422856.0116                                      | GF422256.0116                                      |

Gewindetiefe Thread depth

|          | ø d <sub>1</sub><br>mm | P<br>mm | ø d <sub>F</sub><br>mm | ø d <sub>2</sub> | ø d <sub>3</sub> | ø d <sub>S</sub> | l <sub>1</sub> | l <sub>2</sub> | l <sub>4</sub> | l <sub>E</sub> | Z<br>(Flutes) |
|----------|------------------------|---------|------------------------|------------------|------------------|------------------|----------------|----------------|----------------|----------------|---------------|
| <b>M</b> | 6                      | 1       | 4,8                    | 8                | 5                | 6,3              | 62             | 12,1           | 36             | 14,7           | 3             |
|          | 8                      | 1,25    | 6,5                    | 10               | 6,75             | 8,4              | 74             | 15,1           | 40             | 18,5           | 3             |
|          | 10                     | 1,5     | 8,2                    | 12               | 8,5              | 10,5             | 79             | 19,6           | 45             | 23,8           | 3             |
|          | 12                     | 1,75    | 9,9                    | 14               | 10,25            | 12,6             | 89             | 22,9           | 45             | 27,8           | 3             |
|          | 16                     | 2       | 13,6                   | 18               | 14               | 16,8             | 102            | 32,1           | 48             | 38,3           | 3             |

| BGF-Z3<br>2xd <sub>1</sub><br>R30-IKZ-HA<br>TICN | BGF-Z3<br>2xd <sub>1</sub><br>R30-IKZ-HB<br>TICN |
|--|--|
| GF432856.0060                                    | GF432256.0060                                    |
| GF432856.0080                                    | GF432256.0080                                    |
| GF432856.0100                                    | GF432256.0100                                    |
| GF432856.0112                                    | GF432256.0112                                    |
| GF432856.0116                                    | GF432256.0116                                    |

Gewindetiefe Thread depth

|          | ø d <sub>1</sub><br>mm | P<br>mm | ø d <sub>F</sub><br>mm | ø d <sub>2</sub> | ø d <sub>3</sub> | ø d <sub>S</sub> | l <sub>1</sub> | l <sub>2</sub> | l <sub>4</sub> | l <sub>E</sub> | Z<br>(Flutes) |
|----------|------------------------|---------|------------------------|------------------|------------------|------------------|----------------|----------------|----------------|----------------|---------------|
| <b>M</b> | 6                      | 1       | 4,8                    | 8                | 5                | 6,3              | 65             | 15,1           | 36             | 17,7           | 3             |
|          | 8                      | 1,25    | 6,5                    | 10               | 6,75             | 8,4              | 80             | 20,1           | 40             | 23,5           | 3             |
|          | 10                     | 1,5     | 8,2                    | 12               | 8,5              | 10,5             | 85             | 25,6           | 45             | 29,8           | 3             |
|          | 12                     | 1,75    | 9,9                    | 14               | 10,25            | 12,6             | 95             | 29,9           | 45             | 34,8           | 3             |
|          | 16                     | 2       | 13,6                   | 18               | 14               | 16,8             | 110            | 40,1           | 48             | 46,3           | 3             |

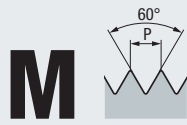
| BGF-Z3<br>2,5xd <sub>1</sub><br>R30-IKZ-HA<br>TICN | BGF-Z3<br>2,5xd <sub>1</sub><br>R30-IKZ-HB<br>TICN |
|--|--|
| GF442856.0060                                      | GF442256.0060                                      |
| GF442856.0080                                      | GF442256.0080                                      |
| GF442856.0100                                      | GF442256.0100                                      |
| GF442856.0112                                      | GF442256.0112                                      |
| GF442856.0116                                      | GF442256.0116                                      |

Weitere Ausführungen auf Anfrage  
Further designs upon request

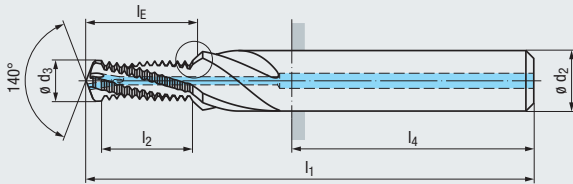
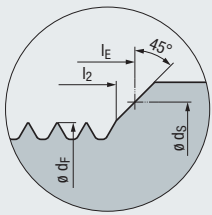
- Product Finder
- v<sub>c</sub> / f<sub>z</sub>
- M
- MF
- UNC  
UN, UNS
- UNF  
UNEF
- G, Rp
- NPT, NPTF  
Rc, W
- BSW, BSF
- Pg
- MJ  
UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr
- Zubehör  
Accessories
- BGF
- ZBGF
- GSF
- GF
- GF-VZ
- GF-KEG
- ZGF
- ZIRK-GF
- Gigant
- MoSys



- Product Finder
- $v_c / f_z$
- M
- MF
- UNC  
UN, UNS
- UNF  
UNEF
- G, Rp
- NPT, NPTF  
Rc, W
- BSW, BSF
- Pg
- MJ  
UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr
- Zubehör  
Accessories
- BGF
- ZBGF
- GSF
- GF
- GF-VZ
- GF-KEG
- ZGF
- ZIRK-GF
- Gigant
- MoSys



**M**  
DIN 13



|                    |                 |
|--------------------|-----------------|
| <b>VHM Carbide</b> | <b>TICN</b>     |
| <b>R20</b>         | <b>RH + LH</b>  |
| <b>Z4</b>          | <b>DIN 6535</b> |
|                    |                 |
|                    |                 |
|                    |                 |

### BGF-Z4



Einsatzgebiete – Material  
Applications – material

» 358

**K** 1.1-1.2

**N** 1.5-1.6.2.3

Gewindetiefe  
Thread depth

## 1,5 x d<sub>1</sub>

|          | $\varnothing d_1$<br>mm | P<br>mm | $\varnothing d_F$<br>mm | $\varnothing d_2$ | $\varnothing d_3$ | $\varnothing d_S$ | $l_1$ | $l_2$ | $l_4$ | $l_E$ | Z<br>(Flutes) |
|----------|-------------------------|---------|-------------------------|-------------------|-------------------|-------------------|-------|-------|-------|-------|---------------|
| <b>M</b> | 6                       | 1       | 4,8                     | 8                 | 5                 | 6,3               | 62    | 9,1   | 36    | 11,7  | 4             |
|          | 8                       | 1,25    | 6,5                     | 10                | 6,75              | 8,4               | 74    | 11,3  | 40    | 14,7  | 4             |
|          | 10                      | 1,5     | 8,2                     | 12                | 8,5               | 10,5              | 79    | 15,1  | 45    | 19,3  | 4             |
|          | 12                      | 1,75    | 9,9                     | 14                | 10,25             | 12,6              | 89    | 17,6  | 45    | 22,5  | 4             |

**BGF-Z4**  
**1,5xd<sub>1</sub>**  
**R20-IKZ-HA**  
**TICN**

**BGF-Z4**  
**1,5xd<sub>1</sub>**  
**R20-IKZ-HB**  
**TICN**

GF429846.0060  
GF429846.0080  
GF429846.0100  
GF429846.0112

GF429246.0060  
GF429246.0080  
GF429246.0100  
GF429246.0112



Gewindetiefe  
Thread depth

## 2 x d<sub>1</sub>

|          | $\varnothing d_1$<br>mm | P<br>mm | $\varnothing d_F$<br>mm | $\varnothing d_2$ | $\varnothing d_3$ | $\varnothing d_S$ | $l_1$ | $l_2$ | $l_4$ | $l_E$ | Z<br>(Flutes) |
|----------|-------------------------|---------|-------------------------|-------------------|-------------------|-------------------|-------|-------|-------|-------|---------------|
| <b>M</b> | 6                       | 1       | 4,8                     | 8                 | 5                 | 6,3               | 62    | 12,1  | 36    | 14,7  | 4             |
|          | 8                       | 1,25    | 6,5                     | 10                | 6,75              | 8,4               | 74    | 15,1  | 40    | 18,5  | 4             |
|          | 10                      | 1,5     | 8,2                     | 12                | 8,5               | 10,5              | 79    | 19,6  | 45    | 23,8  | 4             |
|          | 12                      | 1,75    | 9,9                     | 14                | 10,25             | 12,6              | 89    | 22,9  | 45    | 27,8  | 4             |
|          | 16                      | 2       | 13,6                    | 18                | 14                | 16,8              | 102   | 32,1  | 48    | 38,3  | 4             |

**BGF-Z4**  
**2xd<sub>1</sub>**  
**R20-IKZ-HA**  
**TICN**

**BGF-Z4**  
**2xd<sub>1</sub>**  
**R20-IKZ-HB**  
**TICN**

GF439846.0060  
GF439846.0080  
GF439846.0100  
GF439846.0112  
GF439846.0116

GF439246.0060  
GF439246.0080  
GF439246.0100  
GF439246.0112  
GF439246.0116



Gewindetiefe  
Thread depth

## 2,5 x d<sub>1</sub>

|          | $\varnothing d_1$<br>mm | P<br>mm | $\varnothing d_F$<br>mm | $\varnothing d_2$ | $\varnothing d_3$ | $\varnothing d_S$ | $l_1$ | $l_2$ | $l_4$ | $l_E$ | Z<br>(Flutes) |
|----------|-------------------------|---------|-------------------------|-------------------|-------------------|-------------------|-------|-------|-------|-------|---------------|
| <b>M</b> | 6                       | 1       | 4,8                     | 8                 | 5                 | 6,3               | 65    | 15,1  | 36    | 17,7  | 4             |
|          | 8                       | 1,25    | 6,5                     | 10                | 6,75              | 8,4               | 80    | 20,1  | 40    | 23,5  | 4             |
|          | 10                      | 1,5     | 8,2                     | 12                | 8,5               | 10,5              | 85    | 25,6  | 45    | 29,8  | 4             |
|          | 12                      | 1,75    | 9,9                     | 14                | 10,25             | 12,6              | 95    | 29,9  | 45    | 34,8  | 4             |
|          | 16                      | 2       | 13,6                    | 18                | 14                | 16,8              | 110   | 40,1  | 48    | 46,3  | 4             |

**BGF-Z4**  
**2,5xd<sub>1</sub>**  
**R20-IKZ-HA**  
**TICN**

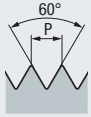
**BGF-Z4**  
**2,5xd<sub>1</sub>**  
**R20-IKZ-HB**  
**TICN**

GF449846.0060  
GF449846.0080  
GF449846.0100  
GF449846.0112  
GF449846.0116

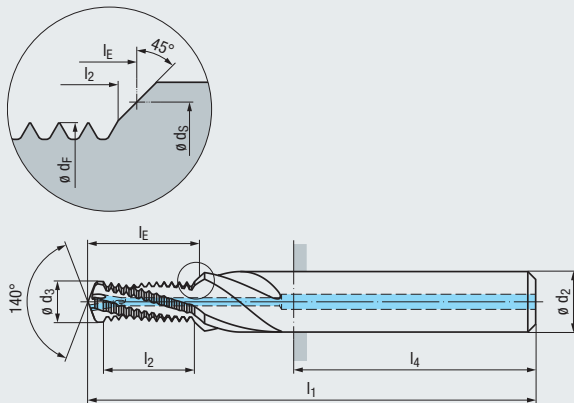
GF449246.0060  
GF449246.0080  
GF449246.0100  
GF449246.0112  
GF449246.0116

Weitere Ausführungen auf Anfrage  
Further designs upon request

**M**







DIN 13



|             |          |
|-------------|----------|
| VHM Carbide | TIALN T3 |
| R20         | RH + LH  |
| Z4          | DIN 6535 |
|             | HA<br>HB |
| 90°         | ø d1     |
|             |          |

**BGF-Z4**

Product Finder

$v_c / f_z$

M

MF

UNC UN, UNS

UNF UNEF

G, Rp

NPT, NPTF Rc, W

BSW, BSF

Pg

MJ UNJC, UNJF

EG (STI)

SELF-LOCK

Tr

Zubehör Accessories

Einsatzgebiete – Material Applications – material [» 358](#)

Gewindetiefe Thread depth

**1,5 x d<sub>1</sub>**

|          | ø d <sub>1</sub> mm | P mm | ø d <sub>F</sub> mm | ø d <sub>2</sub> | ø d <sub>3</sub> | ø d <sub>S</sub> | l <sub>1</sub> | l <sub>2</sub> | l <sub>4</sub> | l <sub>E</sub> | Z (Flutes) |
|----------|---------------------|------|---------------------|------------------|------------------|------------------|----------------|----------------|----------------|----------------|------------|
| <b>M</b> | 6                   | 1    | 4,8                 | 8                | 5                | 6,3              | 62             | 9,1            | 36             | 11,7           | 4          |
|          | 8                   | 1,25 | 6,5                 | 10               | 6,75             | 8,4              | 74             | 11,3           | 40             | 14,7           | 4          |
|          | 10                  | 1,5  | 8,2                 | 12               | 8,5              | 10,5             | 79             | 15,1           | 45             | 19,3           | 4          |
|          | 12                  | 1,75 | 9,9                 | 14               | 10,25            | 12,6             | 89             | 17,6           | 45             | 22,5           | 4          |

|  | BGF-Z4<br>1,5xd <sub>1</sub><br>R20-IKZ-HA<br>TIALN-T3 | BGF-Z4<br>1,5xd <sub>1</sub><br>R20-IKZ-HB<br>TIALN-T3 |
|--|--|--|
|  | GF429848.0060  | GF429248.0060  |
|  | GF429848.0080  | GF429248.0080  |
|  | GF429848.0100  | GF429248.0100  |
|  | GF429848.0112  | GF429248.0112  |

Gewindetiefe Thread depth

**2 x d<sub>1</sub>**

|          | ø d <sub>1</sub> mm | P mm | ø d <sub>F</sub> mm | ø d <sub>2</sub> | ø d <sub>3</sub> | ø d <sub>S</sub> | l <sub>1</sub> | l <sub>2</sub> | l <sub>4</sub> | l <sub>E</sub> | Z (Flutes) |
|----------|---------------------|------|---------------------|------------------|------------------|------------------|----------------|----------------|----------------|----------------|------------|
| <b>M</b> | 6                   | 1    | 4,8                 | 8                | 5                | 6,3              | 62             | 12,1           | 36             | 14,7           | 4          |
|          | 8                   | 1,25 | 6,5                 | 10               | 6,75             | 8,4              | 74             | 15,1           | 40             | 18,5           | 4          |
|          | 10                  | 1,5  | 8,2                 | 12               | 8,5              | 10,5             | 79             | 19,6           | 45             | 23,8           | 4          |
|          | 12                  | 1,75 | 9,9                 | 14               | 10,25            | 12,6             | 89             | 22,9           | 45             | 27,8           | 4          |
|          | 16                  | 2    | 13,6                | 18               | 14               | 16,8             | 102            | 32,1           | 48             | 38,3           | 4          |

|  | BGF-Z4<br>2xd <sub>1</sub><br>R20-IKZ-HA<br>TIALN-T3 | BGF-Z4<br>2xd <sub>1</sub><br>R20-IKZ-HB<br>TIALN-T3 |
|--|--|--|
|  | GF439848.0060  | GF439248.0060  |
|  | GF439848.0080  | GF439248.0080  |
|  | GF439848.0100  | GF439248.0100  |
|  | GF439848.0112  | GF439248.0112  |
|  | GF439848.0116  | GF439248.0116  |

Gewindetiefe Thread depth

**2,5 x d<sub>1</sub>**

|          | ø d <sub>1</sub> mm | P mm | ø d <sub>F</sub> mm | ø d <sub>2</sub> | ø d <sub>3</sub> | ø d <sub>S</sub> | l <sub>1</sub> | l <sub>2</sub> | l <sub>4</sub> | l <sub>E</sub> | Z (Flutes) |
|----------|---------------------|------|---------------------|------------------|------------------|------------------|----------------|----------------|----------------|----------------|------------|
| <b>M</b> | 6                   | 1    | 4,8                 | 8                | 5                | 6,3              | 65             | 15,1           | 36             | 17,7           | 4          |
|          | 8                   | 1,25 | 6,5                 | 10               | 6,75             | 8,4              | 80             | 20,1           | 40             | 23,5           | 4          |
|          | 10                  | 1,5  | 8,2                 | 12               | 8,5              | 10,5             | 85             | 25,6           | 45             | 29,8           | 4          |
|          | 12                  | 1,75 | 9,9                 | 14               | 10,25            | 12,6             | 95             | 29,9           | 45             | 34,8           | 4          |
|          | 16                  | 2    | 13,6                | 18               | 14               | 16,8             | 110            | 40,1           | 48             | 46,3           | 4          |

|  | BGF-Z4<br>2,5xd <sub>1</sub><br>R20-IKZ-HA<br>TIALN-T3 | BGF-Z4<br>2,5xd <sub>1</sub><br>R20-IKZ-HB<br>TIALN-T3 |
|--|--|--|
|  | GF449848.0060  | GF449248.0060  |
|  | GF449848.0080  | GF449248.0080  |
|  | GF449848.0100  | GF449248.0100  |
|  | GF449848.0112  | GF449248.0112  |
|  | GF449848.0116  | GF449248.0116  |

Weitere Ausführungen auf Anfrage  
Further designs upon request

BGF

ZBGF

GSF

GF

GF-VZ

GF-KEG

ZGF

ZIRK-GF

Gigant

MoSys

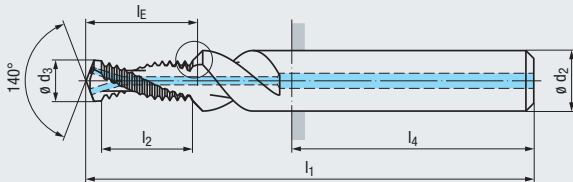
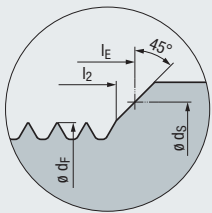


- Product Finder
- $v_c / f_z$
- M
- MF
- UNC  
UN, UNS
- UNF  
UNEF
- G, Rp
- NPT, NPTF  
Rc, W
- BSW, BSF
- Pg
- MJ  
UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr
- Zubehör  
Accessories
- BGF
- ZBGF
- GSF
- GF
- GF-VZ
- GF-KEG
- ZGF
- ZIRK-GF
- Gigant
- MoSys

# MF



DIN 13



VHM  
Carbide

R30

RH + LH

Z2

DIN 6535



BGF-Z2



**K** 1.1-3.2    **N** 1.1-1.5  
**N** 2.2-2.3, 2.6    **N** 3.1-4.1

Einsatzgebiete – Material  
 Applications – material    >> 358

Gewindetiefe  
 Thread depth

### 1,5 x d<sub>1</sub>

|          | $\phi d_1$<br>mm | P<br>mm | $\phi d_F$<br>mm | $\phi d_2$ | $\phi d_3$ | $\phi d_S$ | $l_1$ | $l_2$ | $l_4$ | $l_E$ | Z<br>(Flutes) |
|----------|------------------|---------|------------------|------------|------------|------------|-------|-------|-------|-------|---------------|
| <b>M</b> | 6 x              | 0,75    | 5,05             | 8          | 5,25       | 6,3        | 62    | 9,1   | 36    | 11,4  | 2             |
|          | 8 x              | 1       | 6,75             | 10         | 7          | 8,4        | 74    | 12,1  | 40    | 15,2  | 2             |
|          | 10 x             | 1       | 8,7              | 12         | 9          | 10,5       | 79    | 15,1  | 45    | 18,6  | 2             |
|          | 10 x             | 1,25    | 8,4              | 12         | 8,75       | 10,5       | 79    | 15,1  | 45    | 19    | 2             |
|          | 12 x             | 1,25    | 10,4             | 14         | 10,75      | 12,6       | 89    | 18,9  | 45    | 23,2  | 2             |
|          | 12 x             | 1,5     | 10,15            | 14         | 10,5       | 12,6       | 89    | 18,1  | 45    | 22,7  | 2             |
|          | 14 x             | 1,5     | 12,1             | 16         | 12,5       | 14,7       | 102   | 21,1  | 48    | 26,2  | 2             |
|          | 16 x             | 1,5     | 14,1             | 18         | 14,5       | 16,8       | 102   | 24,1  | 48    | 29,6  | 2             |

BGF-Z2  
1,5xd<sub>1</sub>  
R30-1KZ-HA

BGF-Z2  
1,5xd<sub>1</sub>  
R30-1KZ-HB

|               |               |
|---------------|---------------|
| GF422801.0229 | GF422201.0229 |
| GF422801.0251 | GF422201.0251 |
| GF422801.0276 | GF422201.0276 |
| GF422801.0277 | GF422201.0277 |
| GF422801.0302 | GF422201.0302 |
| GF422801.0303 | GF422201.0303 |
| GF422801.0331 | GF422201.0331 |
| GF422801.0359 | GF422201.0359 |

Gewindetiefe  
 Thread depth

### 2 x d<sub>1</sub>

|          | $\phi d_1$<br>mm | P<br>mm | $\phi d_F$<br>mm | $\phi d_2$ | $\phi d_3$ | $\phi d_S$ | $l_1$ | $l_2$ | $l_4$ | $l_E$ | Z<br>(Flutes) |
|----------|------------------|---------|------------------|------------|------------|------------|-------|-------|-------|-------|---------------|
| <b>M</b> | 6 x              | 0,75    | 5,05             | 8          | 5,25       | 6,3        | 62    | 12,1  | 36    | 14,4  | 2             |
|          | 8 x              | 1       | 6,75             | 10         | 7          | 8,4        | 74    | 16,1  | 40    | 19,2  | 2             |
|          | 10 x             | 1       | 8,7              | 12         | 9          | 10,5       | 79    | 20,1  | 45    | 23,6  | 2             |
|          | 10 x             | 1,25    | 8,4              | 12         | 8,75       | 10,5       | 79    | 20,1  | 45    | 24    | 2             |
|          | 12 x             | 1,25    | 10,4             | 14         | 10,75      | 12,6       | 89    | 23,9  | 45    | 28,2  | 2             |
|          | 12 x             | 1,5     | 10,15            | 14         | 10,5       | 12,6       | 89    | 24,1  | 45    | 28,7  | 2             |
|          | 14 x             | 1,5     | 12,1             | 16         | 12,5       | 14,7       | 102   | 27,1  | 48    | 32,2  | 2             |
|          | 16 x             | 1,5     | 14,1             | 18         | 14,5       | 16,8       | 102   | 31,6  | 48    | 37,1  | 2             |



BGF-Z2  
2xd<sub>1</sub>  
R30-1KZ-HA

BGF-Z2  
2xd<sub>1</sub>  
R30-1KZ-HB

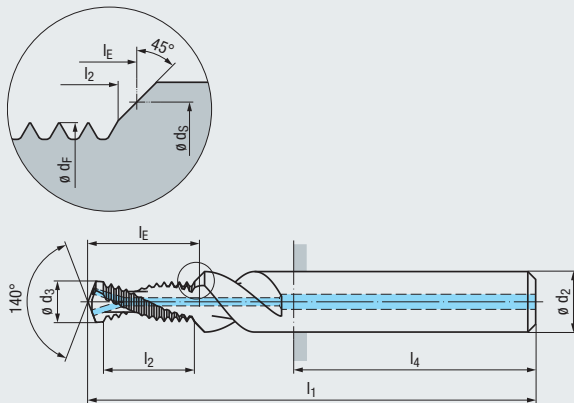
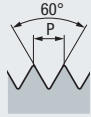
|               |               |
|---------------|---------------|
| GF432801.0229 | GF432201.0229 |
| GF432801.0251 | GF432201.0251 |
| GF432801.0276 | GF432201.0276 |
| GF432801.0277 | GF432201.0277 |
| GF432801.0302 | GF432201.0302 |
| GF432801.0303 | GF432201.0303 |
| GF432801.0331 | GF432201.0331 |
| GF432801.0359 | GF432201.0359 |

Weitere Ausführungen auf Anfrage  
 Further designs upon request



**MF**

DIN 13



|             |          |
|-------------|----------|
| VHM Carbide | TICN     |
| R30         | RH + LH  |
| Z2          | DIN 6535 |
|             | HA<br>HB |
| 90°         | ø d1     |
|             |          |

**BGF-Z2**



Einsatzgebiete – Material Applications – material [» 358](#)

Gewindetiefe Thread depth

|                       |                  |
|-----------------------|------------------|
| <b>K</b> 1.1-3.2      | <b>N</b> 1.1-1.6 |
| <b>N</b> 2.2-2.3, 2.6 | <b>N</b> 3.1-4.1 |

**1,5 x d<sub>1</sub>**

|  | ø d <sub>1</sub><br>mm | P<br>mm | ø d <sub>F</sub><br>mm | ø d <sub>2</sub> | ø d <sub>3</sub> | ø d <sub>S</sub> | l <sub>1</sub> | l <sub>2</sub> | l <sub>4</sub> | l <sub>E</sub> | Z<br>(Flutes) | BGF-Z2<br>1,5xd <sub>1</sub><br>R30- <b>IKZ</b> -HA<br>TICN | BGF-Z2<br>1,5xd <sub>1</sub><br>R30- <b>IKZ</b> -HB<br>TICN |
|--|------------------------|---------|------------------------|------------------|------------------|------------------|----------------|----------------|----------------|----------------|---------------|---|---|
|  |                        |         |                        |                  |                  |                  |                |                |                |                |               | <b>M</b>  | 6 x   |
|  | 8 x                    | 1       | 6,75                   | 10               | 7                | 8,4              | 74             | 12,1           | 40             | 15,2           | 2             | GF422806.0251   | GF422206.0251   |
|  | 10 x                   | 1       | 8,7                    | 12               | 9                | 10,5             | 79             | 15,1           | 45             | 18,6           | 2             | GF422806.0276   | GF422206.0276   |
|  | 10 x                   | 1,25    | 8,4                    | 12               | 8,75             | 10,5             | 79             | 15,1           | 45             | 19             | 2             | GF422806.0277   | GF422206.0277   |
|  | 12 x                   | 1,25    | 10,4                   | 14               | 10,75            | 12,6             | 89             | 18,9           | 45             | 23,2           | 2             | GF422806.0302   | GF422206.0302   |
|  | 12 x                   | 1,5     | 10,15                  | 14               | 10,5             | 12,6             | 89             | 18,1           | 45             | 22,7           | 2             | GF422806.0303   | GF422206.0303   |
|  | 14 x                   | 1,5     | 12,1                   | 16               | 12,5             | 14,7             | 102            | 21,1           | 48             | 26,2           | 2             | GF422806.0331   | GF422206.0331   |
|  | 16 x                   | 1,5     | 14,1                   | 18               | 14,5             | 16,8             | 102            | 24,1           | 48             | 29,6           | 2             | GF422806.0359   | GF422206.0359   |

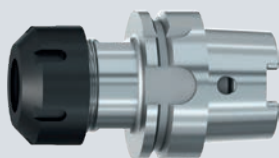


Gewindetiefe Thread depth

**2 x d<sub>1</sub>**

|  | ø d <sub>1</sub><br>mm | P<br>mm | ø d <sub>F</sub><br>mm | ø d <sub>2</sub> | ø d <sub>3</sub> | ø d <sub>S</sub> | l <sub>1</sub> | l <sub>2</sub> | l <sub>4</sub> | l <sub>E</sub> | Z<br>(Flutes) | BGF-Z2<br>2xd <sub>1</sub><br>R30- <b>IKZ</b> -HA<br>TICN | BGF-Z2<br>2xd <sub>1</sub><br>R30- <b>IKZ</b> -HB<br>TICN |
|--|------------------------|---------|------------------------|------------------|------------------|------------------|----------------|----------------|----------------|----------------|---------------|---|---|
|  |                        |         |                        |                  |                  |                  |                |                |                |                |               | <b>M</b>  | 6 x   |
|  | 8 x                    | 1       | 6,75                   | 10               | 7                | 8,4              | 74             | 16,1           | 40             | 19,2           | 2             | GF432806.0251   | GF432206.0251   |
|  | 10 x                   | 1       | 8,7                    | 12               | 9                | 10,5             | 79             | 20,1           | 45             | 23,6           | 2             | GF432806.0276   | GF432206.0276   |
|  | 10 x                   | 1,25    | 8,4                    | 12               | 8,75             | 10,5             | 79             | 20,1           | 45             | 24             | 2             | GF432806.0277   | GF432206.0277   |
|  | 12 x                   | 1,25    | 10,4                   | 14               | 10,75            | 12,6             | 89             | 23,9           | 45             | 28,2           | 2             | GF432806.0302   | GF432206.0302   |
|  | 12 x                   | 1,5     | 10,15                  | 14               | 10,5             | 12,6             | 89             | 24,1           | 45             | 28,7           | 2             | GF432806.0303   | GF432206.0303   |
|  | 14 x                   | 1,5     | 12,1                   | 16               | 12,5             | 14,7             | 102            | 27,1           | 48             | 32,2           | 2             | GF432806.0331   | GF432206.0331   |
|  | 16 x                   | 1,5     | 14,1                   | 18               | 14,5             | 16,8             | 102            | 31,6           | 48             | 37,1           | 2             | GF432806.0359   | GF432206.0359   |

Weitere Ausführungen auf Anfrage  
Further designs upon request



Spannzangen-Aufnahmen  
Typ KSN/Synchro  
siehe Seite 675 - 676

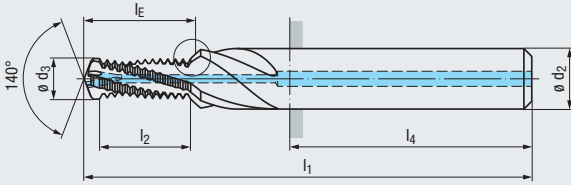
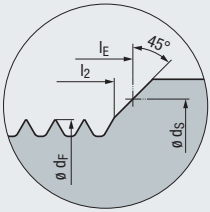
Collet holders  
type KSN/Synchro,  
see page 675 - 676

- Product Finder
- $v_c / f_z$
- M
- MF
- UNC  
UN, UNS
- UNF  
UNEF
- G, Rp
- NPT, NPTF  
Rc, W
- BSW, BSF
- Pg
- MJ  
UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr
- Zubehör  
Accessories
- BGF
- ZBGF
- GSF
- GF
- GF-VZ
- GF-KEG
- ZGF
- ZIRK-GF
- Gigant
- MoSys

# MF



DIN 13



|                    |                 |
|--------------------|-----------------|
| <b>VHM Carbide</b> | <b>TICN</b>     |
| <b>R20</b>         | <b>RH + LH</b>  |
| <b>Z4</b>          | <b>DIN 6535</b> |
|                    |                 |
|                    |                 |
|                    |                 |

**BGF-Z4**



Einsatzgebiete – Material  
Applications – material

» 358

**K** 1.1-1.2  
**N** 1.5-1.6, 2.3

Gewindetiefe  
Thread depth

**2 x d<sub>1</sub>**

|          | $\phi d_1$<br>mm |   | P<br>mm | $\phi d_F$<br>mm | $\phi d_2$ | $\phi d_3$ | $\phi d_S$ | $l_1$ | $l_2$ | $l_4$ | $l_E$ | Z<br>(Flutes) |
|----------|------------------|---|---------|------------------|------------|------------|------------|-------|-------|-------|-------|---------------|
| <b>M</b> | 8                | x | 1       | 6,75             | 10         | 7          | 8,4        | 74    | 16,1  | 40    | 19,2  | 4             |
|          | 10               | x | 1       | 8,7              | 12         | 9          | 10,5       | 79    | 20,1  | 45    | 23,6  | 4             |
|          | 12               | x | 1,5     | 10,15            | 14         | 10,5       | 12,6       | 89    | 24,1  | 45    | 28,7  | 4             |
|          | 16               | x | 1,5     | 14,1             | 18         | 14,5       | 16,8       | 102   | 31,6  | 48    | 37,1  | 4             |

**BGF-Z4**  
**2xd<sub>1</sub>**  
**R20-1KZ-HA**  
**TICN**

**BGF-Z4**  
**2xd<sub>1</sub>**  
**R20-1KZ-HB**  
**TICN**

**GF439846.0251**  
**GF439846.0276**  
**GF439846.0303**  
**GF439846.0359**

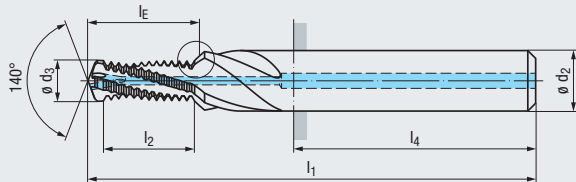
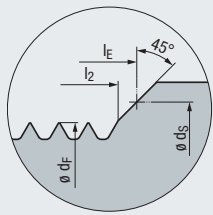
**GF439246.0251**  
**GF439246.0276**  
**GF439246.0303**  
**GF439246.0359**

Weitere Ausführungen auf Anfrage  
Further designs upon request



**MF**

DIN 13



|                    |                 |
|--------------------|-----------------|
| <b>VHM Carbide</b> | <b>TIALN T3</b> |
| <b>R20</b>         | <b>RH + LH</b>  |
| <b>Z4</b>          | <b>DIN 6535</b> |
|                    |                 |
|                    |                 |
|                    |                 |

**BGF-Z4**

- Product Finder
- $v_c / f_z$
- M
- MF**
- UNC UN, UNS
- UNF UNEF
- G, Rp
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr
- Zubehör Accessories
- BGF**
- ZBGF
- GSF
- GF
- GF-VZ
- GF-KEG
- ZGF
- ZIRK-GF
- Gigant
- MoSys

Einsatzgebiete – Material Applications – material » 358

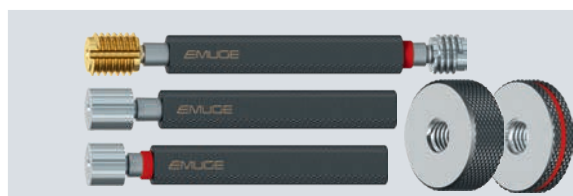
Gewindetiefe Thread depth

**K 1.1-1.2**  
**N 1.5-1.6, 2,3**

|   |   |
|---|---|
| <b>2 x d<sub>1</sub></b>                          |   |
| <b>BGF-Z4 2xd<sub>1</sub> R20-IKZ-HA TIALN-T3</b> | <b>BGF-Z4 2xd<sub>1</sub> R20-IKZ-HB TIALN-T3</b> |
| <b>GF439848.0251</b>                              | <b>GF439248.0251</b>                              |
| <b>GF439848.0276</b>                              | <b>GF439248.0276</b>                              |
| <b>GF439848.0303</b>                              | <b>GF439248.0303</b>                              |
| <b>GF439848.0359</b>                              | <b>GF439248.0359</b>                              |

|          | $\varnothing d_1$<br>mm | P<br>mm | $\varnothing d_F$<br>mm | $\varnothing d_2$ | $\varnothing d_3$ | $\varnothing d_5$ | $l_1$ | $l_2$ | $l_4$ | $l_E$ | Z<br>(Flutes) |
|----------|-------------------------|---------|-------------------------|-------------------|-------------------|-------------------|-------|-------|-------|-------|---------------|
| <b>M</b> | 8                       | x 1     | 6,75                    | 10                | 7                 | 8,4               | 74    | 16,1  | 40    | 19,2  | 4             |
|          | 10                      | x 1     | 8,7                     | 12                | 9                 | 10,5              | 79    | 20,1  | 45    | 23,6  | 4             |
|          | 12                      | x 1,5   | 10,15                   | 14                | 10,5              | 12,6              | 89    | 24,1  | 45    | 28,7  | 4             |
|          | 16                      | x 1,5   | 14,1                    | 18                | 14,5              | 16,8              | 102   | 31,6  | 48    | 37,1  | 4             |

Weitere Ausführungen auf Anfrage  
Further designs upon request



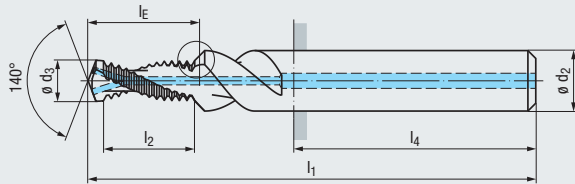
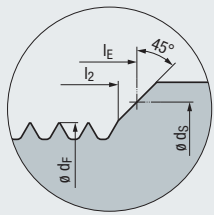
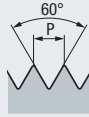
Gewindelehren  
siehe Seite 541 - 594

Thread gauges,  
see page 541 - 594

- Product Finder
- V<sub>c</sub> / f<sub>z</sub>
- M
- MF
- UNC**  
UN, UNS
- UNF  
UNEF
- G, Rp
- NPT, NPTF  
Rc, W
- BSW, BSF
- Pg
- MJ  
UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr
- Zubehör  
Accessories
- BGF**
- ZBGF
- GSF
- GF
- GF-VZ
- GF-KEG
- ZGF
- ZIRK-GF
- Gigant
- MoSys

# UNC

ASME B1.1



**VHM**  
Carbide

**R30**

**RH + LH**

**Z2**

**DIN 6535**



**BGF-Z2**



Einsatzgebiete – Material  
Applications – material

» 358

**K** 1.1-3.2    **N** 1.1-1.5  
**N** 2.2-2.3, 2.6    **N** 3.1-4.1

Gewindetiefe  
Thread depth

**1,5 x d<sub>1</sub>**

| ø d <sub>1</sub><br>inch | P<br>Gg/1" (tpi) | ø d <sub>F</sub><br>mm | ø d <sub>2</sub> | ø d <sub>3</sub> | ø d <sub>S</sub> | l <sub>1</sub> | l <sub>2</sub> | l <sub>4</sub> | l <sub>E</sub> | Z<br>(Flutes) |
|--------------------------|------------------|------------------------|------------------|------------------|------------------|----------------|----------------|----------------|----------------|---------------|
| 1/4                      | 20               | 4,85                   | 8                | 5,2              | 6,7              | 62             | 9              | 36             | 12,1           | 2             |
| 5/16                     | 18               | 6,25                   | 10               | 6,6              | 8,3              | 74             | 11,4           | 40             | 15             | 2             |
| 3/8                      | 16               | 7,65                   | 12               | 8                | 10               | 79             | 14,4           | 45             | 18,6           | 2             |
| 7/16                     | 14               | 9                      | 12               | 9,4              | 11,7             | 79             | 16,5           | 45             | 21,3           | 2             |
| 1/2                      | 13               | 10,35                  | 14               | 10,8             | 13,3             | 89             | 17,7           | 45             | 23,1           | 2             |
| 9/16                     | 12               | 11,8                   | 16               | 12,25            | 15               | 102            | 21,3           | 48             | 27,2           | 2             |
| 5/8                      | 11               | 13,1                   | 18               | 13,5             | 16,7             | 102            | 23,2           | 48             | 29,7           | 2             |

**BGF-Z2**  
**1,5xd<sub>1</sub>**  
**R30-1KZ-HA**

**BGF-Z2**  
**1,5xd<sub>1</sub>**  
**R30-1KZ-HB**

GF422801.5009  
GF422801.5010  
GF422801.5011  
GF422801.5012  
GF422801.5013  
GF422801.5014  
GF422801.5015

GF422201.5009  
GF422201.5010  
GF422201.5011  
GF422201.5012  
GF422201.5013  
GF422201.5014  
GF422201.5015

Gewindetiefe  
Thread depth

**2 x d<sub>1</sub>**

| ø d <sub>1</sub><br>inch | P<br>Gg/1" (tpi) | ø d <sub>F</sub><br>mm | ø d <sub>2</sub> | ø d <sub>3</sub> | ø d <sub>S</sub> | l <sub>1</sub> | l <sub>2</sub> | l <sub>4</sub> | l <sub>E</sub> | Z<br>(Flutes) |
|--------------------------|------------------|------------------------|------------------|------------------|------------------|----------------|----------------|----------------|----------------|---------------|
| 1/4                      | 20               | 4,85                   | 8                | 5,2              | 6,7              | 62             | 12,8           | 36             | 15,9           | 2             |
| 5/16                     | 18               | 6,25                   | 10               | 6,6              | 8,3              | 74             | 15,6           | 40             | 19,2           | 2             |
| 3/8                      | 16               | 7,65                   | 12               | 8                | 10               | 79             | 19,2           | 45             | 23,3           | 2             |
| 7/16                     | 14               | 9                      | 12               | 9,4              | 11,7             | 79             | 21,9           | 45             | 26,7           | 2             |
| 1/2                      | 13               | 10,35                  | 14               | 10,8             | 13,3             | 89             | 25,5           | 45             | 30,9           | 2             |
| 9/16                     | 12               | 11,8                   | 16               | 12,25            | 15               | 102            | 27,7           | 48             | 33,6           | 2             |
| 5/8                      | 11               | 13,1                   | 18               | 13,5             | 16,7             | 102            | 30,1           | 48             | 36,7           | 2             |



**BGF-Z2**  
**2xd<sub>1</sub>**  
**R30-1KZ-HA**

**BGF-Z2**  
**2xd<sub>1</sub>**  
**R30-1KZ-HB**

GF432801.5009  
GF432801.5010  
GF432801.5011  
GF432801.5012  
GF432801.5013  
GF432801.5014  
GF432801.5015

GF432201.5009  
GF432201.5010  
GF432201.5011  
GF432201.5012  
GF432201.5013  
GF432201.5014  
GF432201.5015

Gewindetiefe  
Thread depth

**2,5 x d<sub>1</sub>**

| ø d <sub>1</sub><br>inch | P<br>Gg/1" (tpi) | ø d <sub>F</sub><br>mm | ø d <sub>2</sub> | ø d <sub>3</sub> | ø d <sub>S</sub> | l <sub>1</sub> | l <sub>2</sub> | l <sub>4</sub> | l <sub>E</sub> | Z<br>(Flutes) |
|--------------------------|------------------|------------------------|------------------|------------------|------------------|----------------|----------------|----------------|----------------|---------------|
| 3/8                      | 16               | 7,65                   | 12               | 8                | 10               | 85             | 23,9           | 45             | 28,1           | 2             |
| 7/16                     | 14               | 9                      | 12               | 9,4              | 11,7             | 85             | 27,3           | 45             | 32,2           | 2             |
| 1/2                      | 13               | 10,35                  | 14               | 10,8             | 13,3             | 95             | 31,4           | 45             | 36,7           | 2             |
| 9/16                     | 12               | 11,8                   | 16               | 12,25            | 15               | 110            | 34             | 48             | 39,9           | 2             |



**BGF-Z2**  
**2,5xd<sub>1</sub>**  
**R30-1KZ-HA**

**BGF-Z2**  
**2,5xd<sub>1</sub>**  
**R30-1KZ-HB**

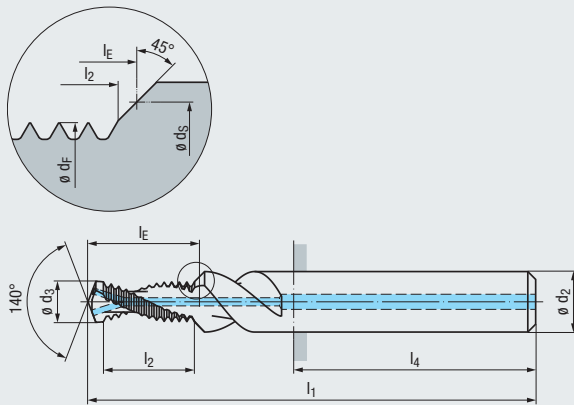
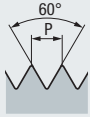
GF442801.5011  
GF442801.5012  
GF442801.5013  
GF442801.5014

GF442201.5011  
GF442201.5012  
GF442201.5013  
GF442201.5014

Weitere Ausführungen auf Anfrage  
Further designs upon request



**UNC**



ASME B1.1



|             |          |
|-------------|----------|
| VHM Carbide | TICN     |
| R30         | RH + LH  |
| Z2          | DIN 6535 |
|             |          |
|             |          |
|             |          |
|             |          |
|             |          |
|             |          |
|             |          |
|             |          |
|             |          |

**BGF-Z2**

|                |
|----------------|
| Product Finder |
| $v_c / f_z$    |
| M              |
| MF             |
| <b>UNC</b>     |
| UN, UNS        |
| UNF            |
| UNEF           |
| G, Rp          |
| NPT, NPTF      |
| Rc, W          |
| BSW, BSF       |
| Pg             |
| MJ             |
| UNJC, UNJF     |
| EG (STI)       |
| SELF-LOCK      |
| Tr             |
| Zubehör        |
| Accessories    |

Einsatzgebiete – Material Applications – material » 358

Gewindetiefe Thread depth

**K 1.1-3.2 N 1.1-1.6**  
**N 2.2-2.3, 2.6 N 3.1-4.1**

| $\varnothing d_1$<br>inch | P<br>Gg/1" (tpi) | $\varnothing d_F$<br>mm | $\varnothing d_2$ | $\varnothing d_3$ | $\varnothing d_S$ | $l_1$ | $l_2$ | $l_4$ | $l_E$ | Z<br>(Flutes) |
|---------------------------|------------------|-------------------------|-------------------|-------------------|-------------------|-------|-------|-------|-------|---------------|
| 1/4                       | 20               | 4,85                    | 8                 | 5,2               | 6,7               | 62    | 9     | 36    | 12,1  | 2             |
| 5/16                      | 18               | 6,25                    | 10                | 6,6               | 8,3               | 74    | 11,4  | 40    | 15    | 2             |
| 3/8                       | 16               | 7,65                    | 12                | 8                 | 10                | 79    | 14,4  | 45    | 18,6  | 2             |
| 7/16                      | 14               | 9                       | 12                | 9,4               | 11,7              | 79    | 16,5  | 45    | 21,3  | 2             |
| 1/2                       | 13               | 10,35                   | 14                | 10,8              | 13,3              | 89    | 17,7  | 45    | 23,1  | 2             |
| 9/16                      | 12               | 11,8                    | 16                | 12,25             | 15                | 102   | 21,3  | 48    | 27,2  | 2             |
| 5/8                       | 11               | 13,1                    | 18                | 13,5              | 16,7              | 102   | 23,2  | 48    | 29,7  | 2             |

| <b>1,5 x d<sub>1</sub></b>                         |  |
|--|--|
| BGF-Z2<br>1,5xd <sub>1</sub><br>R30-IKZ-HA<br>TICN | BGF-Z2<br>1,5xd <sub>1</sub><br>R30-IKZ-HB<br>TICN |
| GF422806.5009                                      | GF422206.5009                                      |
| GF422806.5010                                      | GF422206.5010                                      |
| GF422806.5011                                      | GF422206.5011                                      |
| GF422806.5012                                      | GF422206.5012                                      |
| GF422806.5013                                      | GF422206.5013                                      |
| GF422806.5014                                      | GF422206.5014                                      |
| GF422806.5015                                      | GF422206.5015                                      |



Gewindetiefe Thread depth

| $\varnothing d_1$<br>inch | P<br>Gg/1" (tpi) | $\varnothing d_F$<br>mm | $\varnothing d_2$ | $\varnothing d_3$ | $\varnothing d_S$ | $l_1$ | $l_2$ | $l_4$ | $l_E$ | Z<br>(Flutes) |
|---------------------------|------------------|-------------------------|-------------------|-------------------|-------------------|-------|-------|-------|-------|---------------|
| 1/4                       | 20               | 4,85                    | 8                 | 5,2               | 6,7               | 62    | 12,8  | 36    | 15,9  | 2             |
| 5/16                      | 18               | 6,25                    | 10                | 6,6               | 8,3               | 74    | 15,6  | 40    | 19,2  | 2             |
| 3/8                       | 16               | 7,65                    | 12                | 8                 | 10                | 79    | 19,2  | 45    | 23,3  | 2             |
| 7/16                      | 14               | 9                       | 12                | 9,4               | 11,7              | 79    | 21,9  | 45    | 26,7  | 2             |
| 1/2                       | 13               | 10,35                   | 14                | 10,8              | 13,3              | 89    | 25,5  | 45    | 30,9  | 2             |
| 9/16                      | 12               | 11,8                    | 16                | 12,25             | 15                | 102   | 27,7  | 48    | 33,6  | 2             |
| 5/8                       | 11               | 13,1                    | 18                | 13,5              | 16,7              | 102   | 30,1  | 48    | 36,7  | 2             |

| <b>2 x d<sub>1</sub></b>                         |  |
|--|--|
| BGF-Z2<br>2xd <sub>1</sub><br>R30-IKZ-HA<br>TICN | BGF-Z2<br>2xd <sub>1</sub><br>R30-IKZ-HB<br>TICN |
| GF432806.5009                                    | GF432206.5009                                    |
| GF432806.5010                                    | GF432206.5010                                    |
| GF432806.5011                                    | GF432206.5011                                    |
| GF432806.5012                                    | GF432206.5012                                    |
| GF432806.5013                                    | GF432206.5013                                    |
| GF432806.5014                                    | GF432206.5014                                    |
| GF432806.5015                                    | GF432206.5015                                    |



Gewindetiefe Thread depth

| $\varnothing d_1$<br>inch | P<br>Gg/1" (tpi) | $\varnothing d_F$<br>mm | $\varnothing d_2$ | $\varnothing d_3$ | $\varnothing d_S$ | $l_1$ | $l_2$ | $l_4$ | $l_E$ | Z<br>(Flutes) |
|---------------------------|------------------|-------------------------|-------------------|-------------------|-------------------|-------|-------|-------|-------|---------------|
| 3/8                       | 16               | 7,65                    | 12                | 8                 | 10                | 85    | 23,9  | 45    | 28,1  | 2             |
| 7/16                      | 14               | 9                       | 12                | 9,4               | 11,7              | 85    | 27,3  | 45    | 32,2  | 2             |
| 1/2                       | 13               | 10,35                   | 14                | 10,8              | 13,3              | 95    | 31,4  | 45    | 36,7  | 2             |
| 9/16                      | 12               | 11,8                    | 16                | 12,25             | 15                | 110   | 34    | 48    | 39,9  | 2             |

| <b>2,5 x d<sub>1</sub></b>                         |  |
|--|--|
| BGF-Z2<br>2,5xd <sub>1</sub><br>R30-IKZ-HA<br>TICN | BGF-Z2<br>2,5xd <sub>1</sub><br>R30-IKZ-HB<br>TICN |
| GF442806.5011                                      | GF442206.5011                                      |
| GF442806.5012                                      | GF442206.5012                                      |
| GF442806.5013                                      | GF442206.5013                                      |
| GF442806.5014                                      | GF442206.5014                                      |

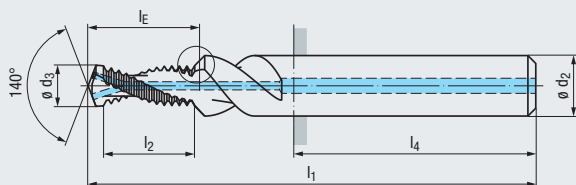
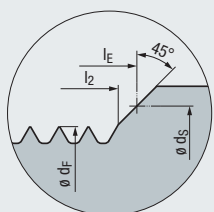
Weitere Ausführungen auf Anfrage  
Further designs upon request



- Product Finder
- V<sub>c</sub> / f<sub>z</sub>
- M
- MF
- UNC  
UN, UNS
- UNF**  
UNEF
- G, Rp
- NPT, NPTF  
Rc, W
- BSW, BSF
- Pg
- MJ  
UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr
- Zubehör  
Accessories
- BGF
- ZBGF
- GSF
- GF
- GF-VZ
- GF-KEG
- ZGF
- ZIRK-GF
- Gigant
- MoSys



ASME B1.1



VHM  
Carbide

R30

RH + LH

Z2

DIN 6535



### BGF-Z2



**K** 1.1-3.2    **N** 1.1-1.5  
**N** 2.2-2.3, 2.6    **N** 3.1-4.1

Einsatzgebiete – Material  
 Applications – material    >> 358

Gewindetiefe  
 Thread depth

### 1,5 x d<sub>1</sub>

| Ø d <sub>1</sub><br>inch | P<br>Gg/1" (tpi) | Ø d <sub>F</sub><br>mm | Ø d <sub>2</sub> | Ø d <sub>3</sub> | Ø d <sub>S</sub> | l <sub>1</sub> | l <sub>2</sub> | l <sub>4</sub> | l <sub>E</sub> | Z<br>(Flutes) |
|--------------------------|------------------|------------------------|------------------|------------------|------------------|----------------|----------------|----------------|----------------|---------------|
| 1/4                      | 28               | 5,26                   | 8                | 5,5              | 6,7              | 62             | 9,2            | 36             | 11,8           | 2             |
| 5/16                     | 24               | 6,6                    | 10               | 6,9              | 8,3              | 74             | 11,7           | 40             | 14,9           | 2             |
| 3/8                      | 24               | 8,2                    | 12               | 8,5              | 10               | 79             | 13,9           | 45             | 17,3           | 2             |
| 7/16                     | 20               | 9,55                   | 12               | 9,9              | 11,7             | 79             | 17,9           | 45             | 22             | 2             |
| 1/2                      | 20               | 11,1                   | 14               | 11,5             | 13,3             | 89             | 19,2           | 45             | 23,6           | 2             |
| 9/16                     | 18               | 12,5                   | 16               | 12,9             | 15               | 102            | 21,3           | 48             | 26,3           | 2             |
| 5/8                      | 18               | 14,1                   | 18               | 14,5             | 16,7             | 102            | 22,7           | 48             | 28,1           | 2             |

BGF-Z2  
1,5xd<sub>1</sub>  
R30-IKZ-HA

BGF-Z2  
1,5xd<sub>1</sub>  
R30-IKZ-HB

GF422801.5043  
GF422801.5044  
GF422801.5045  
GF422801.5046  
GF422801.5047  
GF422801.5048  
GF422801.5049

GF422201.5043  
GF422201.5044  
GF422201.5045  
GF422201.5046  
GF422201.5047  
GF422201.5048  
GF422201.5049



Gewindetiefe  
 Thread depth

### 2 x d<sub>1</sub>

| Ø d <sub>1</sub><br>inch | P<br>Gg/1" (tpi) | Ø d <sub>F</sub><br>mm | Ø d <sub>2</sub> | Ø d <sub>3</sub> | Ø d <sub>S</sub> | l <sub>1</sub> | l <sub>2</sub> | l <sub>4</sub> | l <sub>E</sub> | Z<br>(Flutes) |
|--------------------------|------------------|------------------------|------------------|------------------|------------------|----------------|----------------|----------------|----------------|---------------|
| 1/4                      | 28               | 5,26                   | 8                | 5,5              | 6,7              | 62             | 12,8           | 36             | 15,4           | 2             |
| 5/16                     | 24               | 6,6                    | 10               | 6,9              | 8,3              | 74             | 16             | 40             | 19,1           | 2             |
| 3/8                      | 24               | 8,2                    | 12               | 8,5              | 10               | 79             | 19,2           | 45             | 22,6           | 2             |
| 7/16                     | 20               | 9,55                   | 12               | 9,9              | 11,7             | 79             | 21,7           | 45             | 25,8           | 2             |
| 1/2                      | 20               | 11,1                   | 14               | 11,5             | 13,3             | 89             | 25,6           | 45             | 30             | 2             |
| 9/16                     | 18               | 12,5                   | 16               | 12,9             | 15               | 102            | 28,4           | 48             | 33,4           | 2             |
| 5/8                      | 18               | 14,1                   | 18               | 14,5             | 16,7             | 102            | 31,2           | 48             | 36,5           | 2             |

BGF-Z2  
2xd<sub>1</sub>  
R30-IKZ-HA

BGF-Z2  
2xd<sub>1</sub>  
R30-IKZ-HB

GF432801.5043  
GF432801.5044  
GF432801.5045  
GF432801.5046  
GF432801.5047  
GF432801.5048  
GF432801.5049

GF432201.5043  
GF432201.5044  
GF432201.5045  
GF432201.5046  
GF432201.5047  
GF432201.5048  
GF432201.5049

Weitere Ausführungen auf Anfrage  
 Further designs upon request

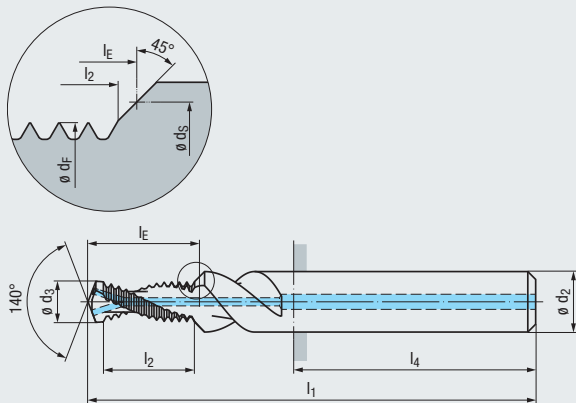


Gewinde-Tiefenlehrdorne  
 siehe Seite 588 - 591

Thread depth plug gauges,  
 see page 588 - 591

**UNF**

ASME B1.1



|             |                   |
|-------------|-------------------|
| VHM Carbide | TICN              |
| R30         | RH + LH           |
| Z2          | DIN 6535          |
|             | HA<br>HB          |
|             | $\varnothing d_1$ |
|             |                   |

**BGF-Z2**

|                        |
|------------------------|
| Product Finder         |
| $v_c / f_z$            |
| M                      |
| MF                     |
| UNC<br>UN, UNS         |
| <b>UNF</b><br>UNEF     |
| G, Rp                  |
| NPT, NPTF<br>Rc, W     |
| BSW, BSF               |
| Pg                     |
| MJ<br>UNJC, UNJF       |
| EG (STI)               |
| SELF-LOCK              |
| Tr                     |
| Zubehör<br>Accessories |
| <b>BGF</b>             |
| ZBGF                   |
| GSF                    |
| GF                     |
| GF-VZ                  |
| GF-KEG                 |
| ZGF                    |
| ZIRK-GF                |
| Gigant                 |
| MoSys                  |

Einsatzgebiete – Material Applications – material [» 358](#)

|                       |                  |
|-----------------------|------------------|
| <b>K</b> 1.1-3.2      | <b>N</b> 1.1-1.6 |
| <b>N</b> 2.2-2.3, 2.6 | <b>N</b> 3.1-4.1 |

Gewindetiefe Thread depth

**1,5 x d<sub>1</sub>**

| $\varnothing d_1$<br>inch | P<br>Gg/1" (tpi) | $\varnothing d_F$<br>mm | $\varnothing d_2$ | $\varnothing d_3$ | $\varnothing d_5$ | $l_1$ | $l_2$ | $l_4$ | $l_E$ | Z<br>(Flutes) | BGF-Z2<br>1,5xd <sub>1</sub><br>R30- <b>IKZ</b> -HA<br>TICN | BGF-Z2<br>1,5xd <sub>1</sub><br>R30- <b>IKZ</b> -HB<br>TICN |
|---------------------------|------------------|-------------------------|-------------------|-------------------|-------------------|-------|-------|-------|-------|---------------|---|---|
| 1/4                       | 28               | 5,26                    | 8                 | 5,5               | 6,7               | 62    | 9,2   | 36    | 11,8  | 2             | GF422806.5043   | GF422206.5043   |
| 5/16                      | 24               | 6,6                     | 10                | 6,9               | 8,3               | 74    | 11,7  | 40    | 14,9  | 2             | GF422806.5044   | GF422206.5044   |
| 3/8                       | 24               | 8,2                     | 12                | 8,5               | 10                | 79    | 13,9  | 45    | 17,3  | 2             | GF422806.5045   | GF422206.5045   |
| 7/16                      | 20               | 9,55                    | 12                | 9,9               | 11,7              | 79    | 17,9  | 45    | 22    | 2             | GF422806.5046   | GF422206.5046   |
| 1/2                       | 20               | 11,1                    | 14                | 11,5              | 13,3              | 89    | 19,2  | 45    | 23,6  | 2             | GF422806.5047   | GF422206.5047   |
| 9/16                      | 18               | 12,5                    | 16                | 12,9              | 15                | 102   | 21,3  | 48    | 26,3  | 2             | GF422806.5048   | GF422206.5048   |
| 5/8                       | 18               | 14,1                    | 18                | 14,5              | 16,7              | 102   | 22,7  | 48    | 28,1  | 2             | GF422806.5049   | GF422206.5049   |

Gewindetiefe Thread depth

**2 x d<sub>1</sub>**

| $\varnothing d_1$<br>inch | P<br>Gg/1" (tpi) | $\varnothing d_F$<br>mm | $\varnothing d_2$ | $\varnothing d_3$ | $\varnothing d_5$ | $l_1$ | $l_2$ | $l_4$ | $l_E$ | Z<br>(Flutes) | BGF-Z2<br>2xd <sub>1</sub><br>R30- <b>IKZ</b> -HA<br>TICN | BGF-Z2<br>2xd <sub>1</sub><br>R30- <b>IKZ</b> -HB<br>TICN |
|---------------------------|------------------|-------------------------|-------------------|-------------------|-------------------|-------|-------|-------|-------|---------------|---|---|
| 1/4                       | 28               | 5,26                    | 8                 | 5,5               | 6,7               | 62    | 12,8  | 36    | 15,4  | 2             | GF432806.5043   | GF432206.5043   |
| 5/16                      | 24               | 6,6                     | 10                | 6,9               | 8,3               | 74    | 16    | 40    | 19,1  | 2             | GF432806.5044   | GF432206.5044   |
| 3/8                       | 24               | 8,2                     | 12                | 8,5               | 10                | 79    | 19,2  | 45    | 22,6  | 2             | GF432806.5045   | GF432206.5045   |
| 7/16                      | 20               | 9,55                    | 12                | 9,9               | 11,7              | 79    | 21,7  | 45    | 25,8  | 2             | GF432806.5046   | GF432206.5046   |
| 1/2                       | 20               | 11,1                    | 14                | 11,5              | 13,3              | 89    | 25,6  | 45    | 30    | 2             | GF432806.5047   | GF432206.5047   |
| 9/16                      | 18               | 12,5                    | 16                | 12,9              | 15                | 102   | 28,4  | 48    | 33,4  | 2             | GF432806.5048   | GF432206.5048   |
| 5/8                       | 18               | 14,1                    | 18                | 14,5              | 16,7              | 102   | 31,2  | 48    | 36,5  | 2             | GF432806.5049   | GF432206.5049   |

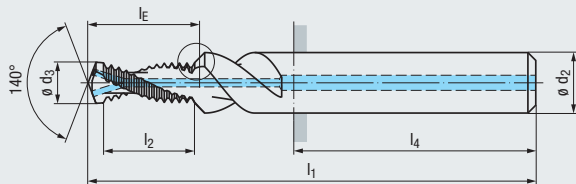
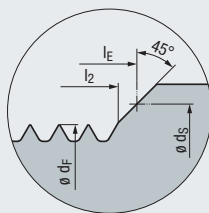
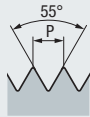
Weitere Ausführungen auf Anfrage  
Further designs upon request



- Product Finder
- $v_c / f_z$
- M
- MF
- UNC  
UN, UNS
- UNF  
UNEF
- G, Rp**
- NPT, NPTF  
Rc, W
- BSW, BSF
- Pg
- MJ  
UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr
- Zubehör  
Accessories
- BGF**
- ZBGF
- GSF
- GF
- GF-VZ
- GF-KEG
- ZGF
- ZIRK-GF
- Gigant
- MoSys

# G (BSP)

DIN EN ISO 228



**VHM  
Carbide**

**R30**

**RH + LH**

**Z2**

**DIN 6535**



**BGF-Z2**



Einsatzgebiete – Material  
Applications – material

» 358

**K** 1.1-3.2    **N** 1.1-1.5  
**N** 2.2-2.3, 2.6    **N** 3.1-4.1

Gewindetiefe  
Thread depth

### 1,5 x d<sub>1</sub>

Nenngröße

| Nom. size        | P           | ø d <sub>F</sub> | ø d <sub>2</sub> | ø d <sub>3</sub> | ø d <sub>S</sub> | l <sub>1</sub> | l <sub>2</sub> | l <sub>4</sub> | l <sub>E</sub> | Z        |
|------------------|-------------|------------------|------------------|------------------|------------------|----------------|----------------|----------------|----------------|----------|
| ø d <sub>1</sub> | Gg/1" (tpi) | mm               |                  |                  |                  |                |                |                |                | (Flutes) |
| <b>G</b> 1/8     | 28          | 8,5              | 12               | 8,8              | 10,2             | 79             | 14,6           | 45             | 17,9           | 2        |
| 1/4              | 19          | 11,4             | 16               | 11,8             | 13,8             | 102            | 18,8           | 48             | 23,4           | 2        |
| 3/8              | 19          | 14,85            | 18               | 15,25            | 17,5             | 102            | 25,5           | 48             | 30,9           | 2        |

**BGF-Z2  
1,5xd<sub>1</sub>  
R30-1KZ-HA**

**BGF-Z2  
1,5xd<sub>1</sub>  
R30-1KZ-HB**

**GF422801.4035**  
**GF422801.4036**  
**GF422801.4037**

**GF422201.4035**  
**GF422201.4036**  
**GF422201.4037**

Gewindetiefe  
Thread depth

### 2 x d<sub>1</sub>

Nenngröße

| Nom. size        | P           | ø d <sub>F</sub> | ø d <sub>2</sub> | ø d <sub>3</sub> | ø d <sub>S</sub> | l <sub>1</sub> | l <sub>2</sub> | l <sub>4</sub> | l <sub>E</sub> | Z        |
|------------------|-------------|------------------|------------------|------------------|------------------|----------------|----------------|----------------|----------------|----------|
| ø d <sub>1</sub> | Gg/1" (tpi) | mm               |                  |                  |                  |                |                |                |                | (Flutes) |
| <b>G</b> 1/8     | 28          | 8,5              | 12               | 8,8              | 10,2             | 79             | 19,1           | 45             | 22,4           | 2        |
| 1/4              | 19          | 11,4             | 16               | 11,8             | 13,8             | 102            | 25,5           | 48             | 30,1           | 2        |
| 3/8              | 19          | 14,85            | 18               | 15,25            | 17,5             | 102            | 33,5           | 48             | 38,9           | 2        |

**BGF-Z2  
2xd<sub>1</sub>  
R30-1KZ-HA**

**BGF-Z2  
2xd<sub>1</sub>  
R30-1KZ-HB**

**GF432801.4035**  
**GF432801.4036**  
**GF432801.4037**

**GF432201.4035**  
**GF432201.4036**  
**GF432201.4037**

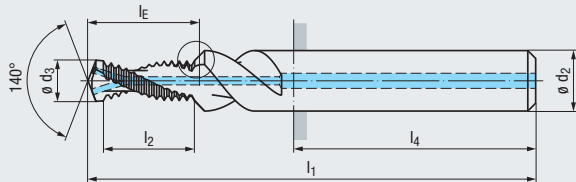
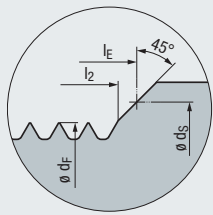
Weitere Ausführungen auf Anfrage  
Further designs upon request





# G (BSP)

DIN EN ISO 228



|             |                   |
|-------------|-------------------|
| VHM Carbide | TICN              |
| R30         | RH + LH           |
| Z2          | DIN 6535          |
|             | HA<br>HB          |
|             | $\varnothing d_1$ |
|             |                   |

**BGF-Z2**

|                        |
|------------------------|
| Product Finder         |
| $v_c / f_z$            |
| M                      |
| MF                     |
| UNC<br>UN, UNS         |
| UNF<br>UNEF            |
| <b>G</b> Rp            |
| NPT, NPTF<br>Rc, W     |
| BSW, BSF               |
| Pg                     |
| MJ<br>UNJC, UNJF       |
| EG (STI)               |
| SELF-LOCK              |
| Tr                     |
| Zubehör<br>Accessories |

Einsatzgebiete – Material Applications – material [» 358](#)

|                       |                  |
|-----------------------|------------------|
| <b>K</b> 1.1-3.2      | <b>N</b> 1.1-1.6 |
| <b>N</b> 2.2-2.3, 2.6 | <b>N</b> 3.1-4.1 |

Gewindetiefe Thread depth

| <b>1,5 x d<sub>1</sub></b>                         |  |
|--|--|
| BGF-Z2<br>1,5xd <sub>1</sub><br>R30-IKZ-HA<br>TICN | BGF-Z2<br>1,5xd <sub>1</sub><br>R30-IKZ-HB<br>TICN |
| GF422806.4035                                      | GF422206.4035                                      |
| GF422806.4036                                      | GF422206.4036                                      |
| GF422806.4037                                      | GF422206.4037                                      |

| Nenngröße<br>Nom. size | P<br>Gg/1" (tpi) | $\varnothing d_F$<br>mm | $\varnothing d_2$ | $\varnothing d_3$ | $\varnothing d_5$ | $l_1$ | $l_2$ | $l_4$ | $l_E$ | Z<br>(Flutes) |
|------------------------|------------------|-------------------------|-------------------|-------------------|-------------------|-------|-------|-------|-------|---------------|
|                        |                  |                         |                   |                   |                   |       |       |       |       |               |
| <b>G</b> 1/8           | 28               | 8,5                     | 12                | 8,8               | 10,2              | 79    | 14,6  | 45    | 17,9  | 2             |
| 1/4                    | 19               | 11,4                    | 16                | 11,8              | 13,8              | 102   | 18,8  | 48    | 23,4  | 2             |
| 3/8                    | 19               | 14,85                   | 18                | 15,25             | 17,5              | 102   | 25,5  | 48    | 30,9  | 2             |

Gewindetiefe Thread depth

| <b>2 x d<sub>1</sub></b>                         |  |
|--|--|
| BGF-Z2<br>2xd <sub>1</sub><br>R30-IKZ-HA<br>TICN | BGF-Z2<br>2xd <sub>1</sub><br>R30-IKZ-HB<br>TICN |
| GF432806.4035                                    | GF432206.4035                                    |
| GF432806.4036                                    | GF432206.4036                                    |
| GF432806.4037                                    | GF432206.4037                                    |

| Nenngröße<br>Nom. size | P<br>Gg/1" (tpi) | $\varnothing d_F$<br>mm | $\varnothing d_2$ | $\varnothing d_3$ | $\varnothing d_5$ | $l_1$ | $l_2$ | $l_4$ | $l_E$ | Z<br>(Flutes) |
|------------------------|------------------|-------------------------|-------------------|-------------------|-------------------|-------|-------|-------|-------|---------------|
|                        |                  |                         |                   |                   |                   |       |       |       |       |               |
| <b>G</b> 1/8           | 28               | 8,5                     | 12                | 8,8               | 10,2              | 79    | 19,1  | 45    | 22,4  | 2             |
| 1/4                    | 19               | 11,4                    | 16                | 11,8              | 13,8              | 102   | 25,5  | 48    | 30,1  | 2             |
| 3/8                    | 19               | 14,85                   | 18                | 15,25             | 17,5              | 102   | 33,5  | 48    | 38,9  | 2             |

Weitere Ausführungen auf Anfrage  
Further designs upon request

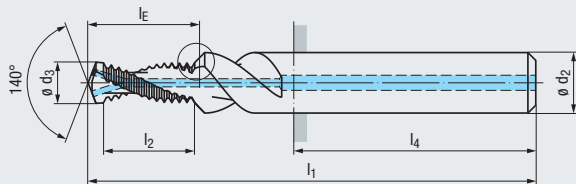
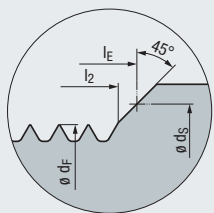
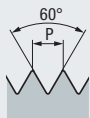
|            |
|------------|
| <b>BGF</b> |
| ZBGF       |
| GSF        |
| GF         |
| GF-VZ      |
| GF-KEG     |
| ZGF        |
| ZIRK-GF    |
| Gigant     |
| MoSys      |



- Product Finder
- $v_c / f_z$
- M
- MF
- UNC  
UN, UNS
- UNF  
UNEF
- G, Rp
- NPT, NPTF  
Rc, W
- BSW, BSF
- Pg
- MJ  
UNJC, UNJF
- EG (STI)**

## EG M (STI)

DIN 8140-2



**VHM Carbide**

**R30**

**RH + LH**

**Z2**

**DIN 6535**



### BGF-Z2



**K** 1.1-3.2    **N** 1.1-1.5  
**N** 2.2-2.3, 2.6    **N** 3.1-4.1

Einsatzgebiete – Material  
 Applications – material

» 358

Gewindetiefe  
 Thread depth

## 1,5 x d<sub>1</sub>

|             | Nenngröße<br>Nom. size |                  | $\phi d_F$<br>mm | $\phi d_2$ | $\phi d_3$ | $\phi d_S$ | $l_1$ | $l_2$ | $l_4$ | $l_E$ | Z<br>(Flutes) |
|-------------|------------------------|------------------|------------------|------------|------------|------------|-------|-------|-------|-------|---------------|
|             | $\phi d_1$             | P<br>Gg/1" (tpi) |                  |            |            |            |       |       |       |       |               |
| <b>EG M</b> | 6                      | 1                | 6                | 10         | 6,3        | 7,7        | 74    | 10,1  | 40    | 13,1  | 2             |
|             | 8                      | 1,25             | 8,1              | 12         | 8,4        | 10,1       | 79    | 12,6  | 45    | 16,4  | 2             |
|             | 10                     | 1,5              | 10               | 14         | 10,4       | 12,5       | 89    | 16,6  | 45    | 21,3  | 2             |
|             | 12                     | 1,75             | 12,1             | 16         | 12,5       | 15         | 102   | 19,4  | 48    | 24,8  | 2             |
|             | 14                     | 2                | 14,1             | 18         | 14,5       | 17,4       | 102   | 22,1  | 48    | 28,4  | 2             |
|             | 16                     | 2                | 16               | 20         | 16,5       | 19,5       | 115   | 26,1  | 50    | 32,9  | 2             |

**BGF-Z2**  
**1,5xd<sub>1</sub>**  
**R30-IKZ-HA**

**BGF-Z2**  
**1,5xd<sub>1</sub>**  
**R30-IKZ-HB**

- GF422801.0971
- GF422801.0973
- GF422801.0975
- GF422801.0977
- GF422801.0978
- GF422801.0979

- GF422201.0971
- GF422201.0973
- GF422201.0975
- GF422201.0977
- GF422201.0978
- GF422201.0979

Gewindetiefe  
 Thread depth

## 2 x d<sub>1</sub>

|             | Nenngröße<br>Nom. size |                  | $\phi d_F$<br>mm | $\phi d_2$ | $\phi d_3$ | $\phi d_S$ | $l_1$ | $l_2$ | $l_4$ | $l_E$ | Z<br>(Flutes) |
|-------------|------------------------|------------------|------------------|------------|------------|------------|-------|-------|-------|-------|---------------|
|             | $\phi d_1$             | P<br>Gg/1" (tpi) |                  |            |            |            |       |       |       |       |               |
| <b>EG M</b> | 6                      | 1                | 6                | 10         | 6,3        | 7,7        | 74    | 13,1  | 40    | 16,1  | 2             |
|             | 8                      | 1,25             | 8,1              | 12         | 8,4        | 10,1       | 79    | 16,3  | 45    | 20,1  | 2             |
|             | 10                     | 1,5              | 10               | 14         | 10,4       | 12,5       | 89    | 21,1  | 45    | 25,8  | 2             |
|             | 12                     | 1,75             | 12,1             | 16         | 12,5       | 15         | 102   | 24,6  | 48    | 30,1  | 2             |
|             | 14                     | 2                | 14,1             | 18         | 14,5       | 17,4       | 102   | 30,1  | 48    | 36,4  | 2             |
|             | 16                     | 2                | 16               | 20         | 16,5       | 19,5       | 115   | 34,1  | 50    | 40,9  | 2             |



**BGF-Z2**  
**2xd<sub>1</sub>**  
**R30-IKZ-HA**

**BGF-Z2**  
**2xd<sub>1</sub>**  
**R30-IKZ-HB**

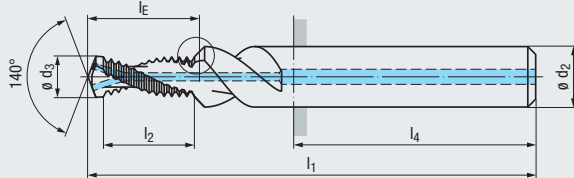
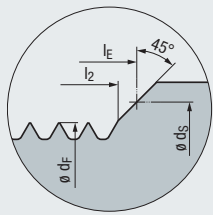
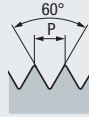
- GF432801.0971
- GF432801.0973
- GF432801.0975
- GF432801.0977
- GF432801.0978
- GF432801.0979

- GF432201.0971
- GF432201.0973
- GF432201.0975
- GF432201.0977
- GF432201.0978
- GF432201.0979

Weitere Ausführungen auf Anfrage  
 Further designs upon request



# EG M (STI)



DIN 8140-2



|             |                   |
|-------------|-------------------|
| VHM Carbide | TICN              |
| R30         | RH + LH           |
| Z2          | DIN 6535          |
|             | HA<br>HB          |
|             | $\varnothing d_1$ |
|             |                   |

**BGF-Z2**

|                 |
|-----------------|
| Product Finder  |
| $v_c / f_z$     |
| M               |
| MF              |
| UNC UN, UNS     |
| UNF UNEF        |
| G, Rp           |
| NPT, NPTF Rc, W |
| BSW, BSF        |
| Pg              |
| MJ UNJC, UNJF   |
| <b>EG (STI)</b> |

Einsatzgebiete – Material Applications – material [» 358](#)

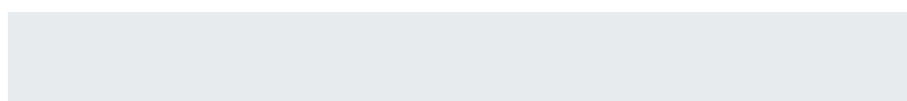
|                       |                  |
|-----------------------|------------------|
| <b>K</b> 1.1-3.2      | <b>N</b> 1.1-1.6 |
| <b>N</b> 2.2-2.3, 2.6 | <b>N</b> 3.1-4.1 |

Gewindetiefe Thread depth

**1,5 x d<sub>1</sub>**

|             | BGF-Z2<br>1,5xd <sub>1</sub><br>R30-IKZ-HA<br>TICN | BGF-Z2<br>1,5xd <sub>1</sub><br>R30-IKZ-HB<br>TICN |
|-------------|--|--|
| <b>EG M</b> | GF422806.0971                                      | GF422206.0971                                      |
|             | GF422806.0973                                      | GF422206.0973                                      |
|             | GF422806.0975                                      | GF422206.0975                                      |
|             | GF422806.0977                                      | GF422206.0977                                      |
|             | GF422806.0978                                      | GF422206.0978                                      |
|             | GF422806.0979                                      | GF422206.0979                                      |

| Nenngröße<br>Nom. size | P<br>Gg/1" (tpi) | $\varnothing d_F$<br>mm | $\varnothing d_2$ | $\varnothing d_3$ | $\varnothing d_5$ | l <sub>1</sub> | l <sub>2</sub> | l <sub>4</sub> | l <sub>E</sub> | Z<br>(Flutes) |                   |
|------------------------|------------------|-------------------------|-------------------|-------------------|-------------------|----------------|----------------|----------------|----------------|---------------|-------------------|
|                        |                  |                         |                   |                   |                   |                |                |                |                |               | $\varnothing d_1$ |
| <b>EG M</b>            | 6                | 1                       | 6                 | 10                | 6,3               | 7,7            | 74             | 10,1           | 40             | 13,1          | 2                 |
|                        | 8                | 1,25                    | 8,1               | 12                | 8,4               | 10,1           | 79             | 12,6           | 45             | 16,4          | 2                 |
|                        | 10               | 1,5                     | 10                | 14                | 10,4              | 12,5           | 89             | 16,6           | 45             | 21,3          | 2                 |
|                        | 12               | 1,75                    | 12,1              | 16                | 12,5              | 15             | 102            | 19,4           | 48             | 24,8          | 2                 |
|                        | 14               | 2                       | 14,1              | 18                | 14,5              | 17,4           | 102            | 22,1           | 48             | 28,4          | 2                 |
|                        | 16               | 2                       | 16                | 20                | 16,5              | 19,5           | 115            | 26,1           | 50             | 32,9          | 2                 |



Gewindetiefe Thread depth

**2 x d<sub>1</sub>**

|             | BGF-Z2<br>2xd <sub>1</sub><br>R30-IKZ-HA<br>TICN | BGF-Z2<br>2xd <sub>1</sub><br>R30-IKZ-HB<br>TICN |
|-------------|--|--|
| <b>EG M</b> | GF432806.0971                                    | GF432206.0971                                    |
|             | GF432806.0973                                    | GF432206.0973                                    |
|             | GF432806.0975                                    | GF432206.0975                                    |
|             | GF432806.0977                                    | GF432206.0977                                    |
|             | GF432806.0978                                    | GF432206.0978                                    |
|             | GF432806.0979                                    | GF432206.0979                                    |

| Nenngröße<br>Nom. size | P<br>Gg/1" (tpi) | $\varnothing d_F$<br>mm | $\varnothing d_2$ | $\varnothing d_3$ | $\varnothing d_5$ | l <sub>1</sub> | l <sub>2</sub> | l <sub>4</sub> | l <sub>E</sub> | Z<br>(Flutes) |                   |
|------------------------|------------------|-------------------------|-------------------|-------------------|-------------------|----------------|----------------|----------------|----------------|---------------|-------------------|
|                        |                  |                         |                   |                   |                   |                |                |                |                |               | $\varnothing d_1$ |
| <b>EG M</b>            | 6                | 1                       | 6                 | 10                | 6,3               | 7,7            | 74             | 13,1           | 40             | 16,1          | 2                 |
|                        | 8                | 1,25                    | 8,1               | 12                | 8,4               | 10,1           | 79             | 16,3           | 45             | 20,1          | 2                 |
|                        | 10               | 1,5                     | 10                | 14                | 10,4              | 12,5           | 89             | 21,1           | 45             | 25,8          | 2                 |
|                        | 12               | 1,75                    | 12,1              | 16                | 12,5              | 15             | 102            | 24,6           | 48             | 30,1          | 2                 |
|                        | 14               | 2                       | 14,1              | 18                | 14,5              | 17,4           | 102            | 30,1           | 48             | 36,4          | 2                 |
|                        | 16               | 2                       | 16                | 20                | 16,5              | 19,5           | 115            | 34,1           | 50             | 40,9          | 2                 |

Weitere Ausführungen auf Anfrage  
Further designs upon request



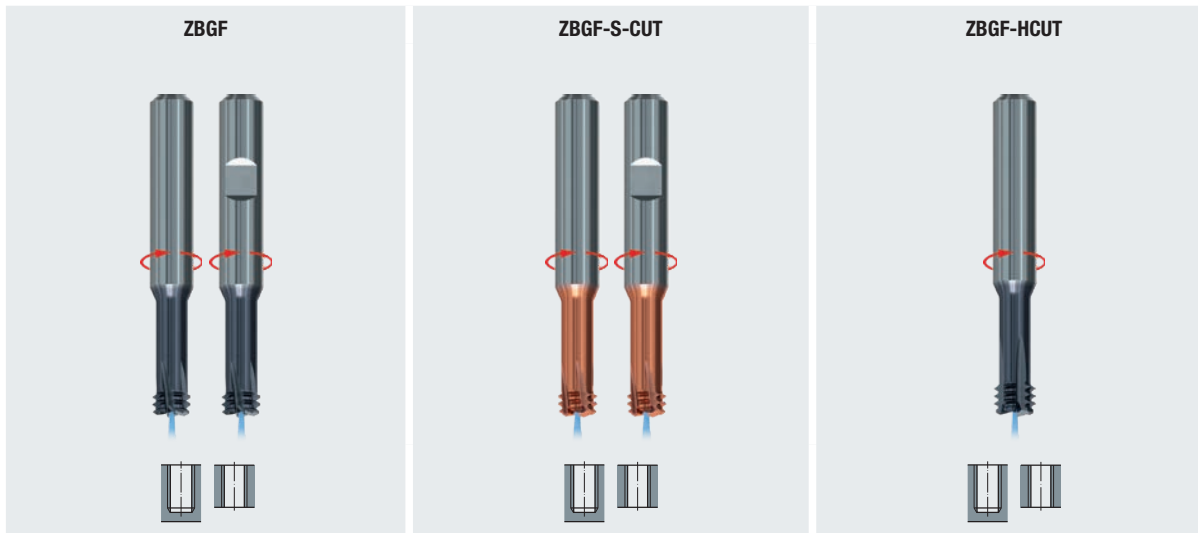
Gewindebohrer für Metrisches EG-Gewinde siehe Seite 280 - 283

Taps for Metric STI thread, see page 280 - 283

|                        |
|------------------------|
| Product Finder         |
| $v_c / f_z$            |
| M                      |
| MF                     |
| UNC<br>UN, UNS         |
| UNF<br>UNEF            |
| G, Rp                  |
| NPT, NPTF<br>Rc, W     |
| BSW, BSF               |
| Pg                     |
| MJ<br>UNJC, UNJF       |
| EG (STI)               |
| SELF-LOCK              |
| Tr                     |
| Zubehör<br>Accessories |

|            |
|------------|
| <b>BGF</b> |
| ZBGF       |
| GSF        |
| GF         |
| GF-VZ      |
| GF-KEG     |
| ZGF        |
| ZIRK-GF    |
| Gigant     |
| MoSys      |





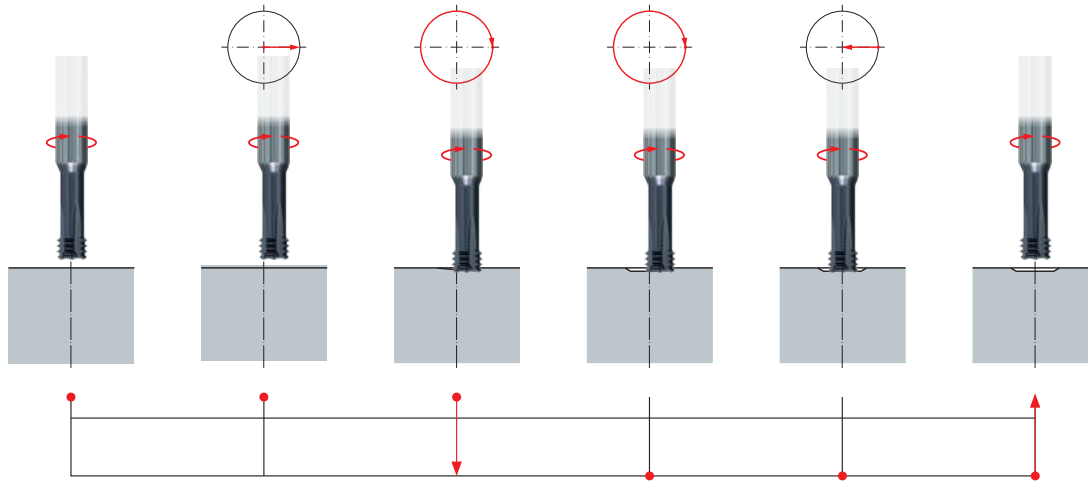
Seite · Page

|     |     |     |             |
|-----|-----|-----|-------------|
| 390 | 394 | 401 | <b>M</b>    |
| 391 | 395 |     | <b>MF</b>   |
| 392 | 396 | 402 | <b>UNC</b>  |
| 393 | 397 | 403 | <b>UNF</b>  |
|     | 398 |     | <b>MJ</b>   |
|     | 399 |     | <b>UNJC</b> |
|     | 400 |     | <b>UNJF</b> |

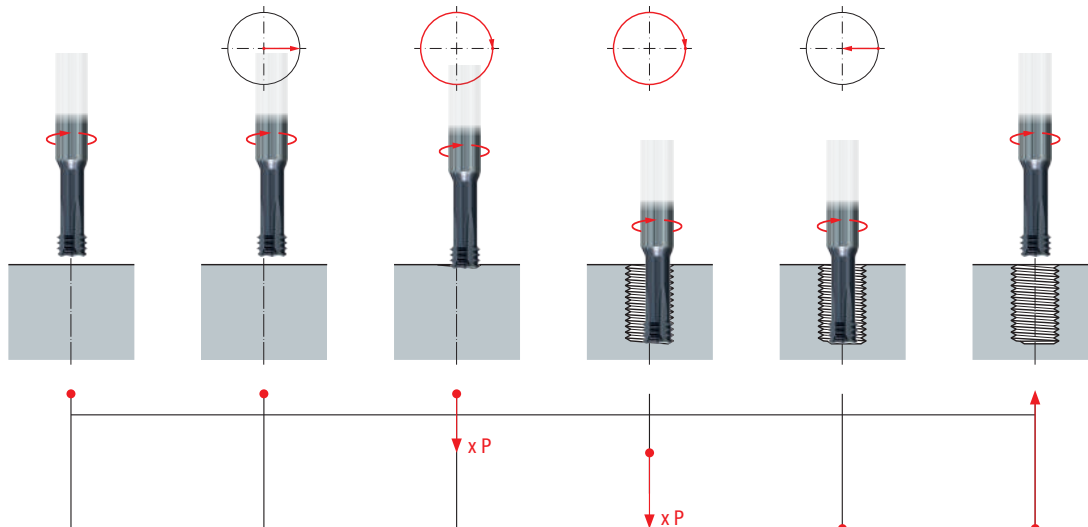
Mögliche Modifikationen siehe Seite 356 - 357  
Possible modifications, see pages 356 - 357

|                        |
|------------------------|
| <b>Product Finder</b>  |
| $v_c / f_z$            |
| M                      |
| MF                     |
| UNC<br>UN, UNS         |
| UNF<br>UNEF            |
| G, Rp                  |
| NPT, NPTF<br>Rc, W     |
| BSW, BSF               |
| Pg                     |
| MJ                     |
| UNJC, UNJF             |
| EG (STI)               |
| SELF-LOCK              |
| Tr                     |
| Zubehör<br>Accessories |

**Zirkulares Anfasen · Circular chamfering**



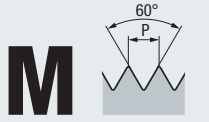
**Gewindefräszklus · Thread milling cycle**



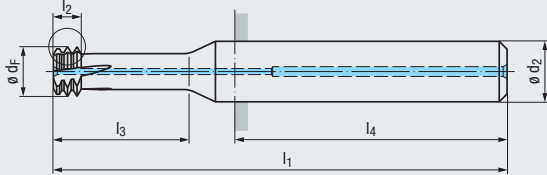
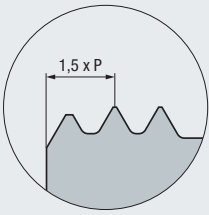
|             |
|-------------|
| BGF         |
| <b>ZBGF</b> |
| GSF         |
| GF          |
| GF-VZ       |
| GF-KEG      |
| ZGF         |
| ZIRK-GF     |
| Gigant      |
| MoSys       |



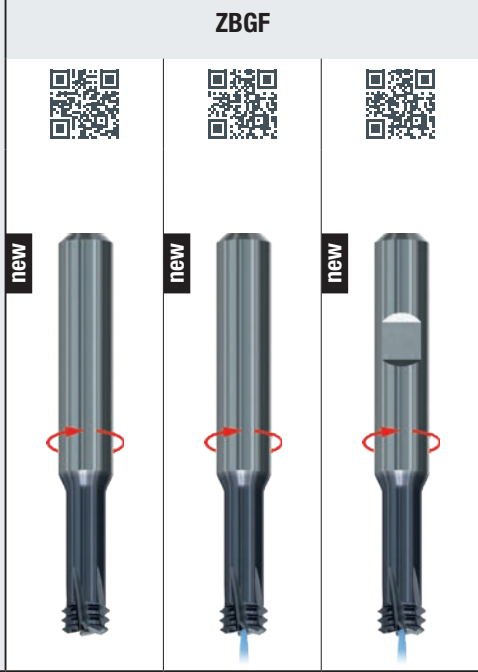
- Product Finder
- $v_c / f_z$
- M
- MF
- UNC  
UN, UNS
- UNF  
UNEF
- G, Rp
- NPT, NPTF  
Rc, W
- BSW, BSF
- Pg
- MJ  
UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr
- Zubehör  
Accessories
- BGF
- ZBGF
- GSF
- GF
- GF-VZ
- GF-KEG
- ZGF
- ZIRK-GF
- Gigant
- MoSys



**M**  
DIN 13



|   |                   |
|---|-------------------|
| VHM<br>Carbide                                  | TIALN<br>86       |
| RH + LH   | LH-rot.           |
| L10   | Z4 - Z5           |
| DIN 6535<br>HA<br>HB                            | $\varnothing d_1$ |
| Zum Anfasen geeignet<br>Suitable for chamfering |                   |



Einsatzgebiete – Material  
Applications – material

» 358

P 1.1-5.1 M 1.1-4.1  
K 1.1-4.2 N 1.1-5.3

Gewindetiefe  
Thread depth

**2,5 x d<sub>1</sub>**

|          | $\varnothing d_1$<br>mm | P<br>mm | $\varnothing d_F$<br>mm | $\varnothing d_2$ | $l_1$ | $l_2$ | $l_3$ | $l_4$ | Z<br>(Flutes) | ZBGF<br>2,5xd <sub>1</sub><br>L10-HA<br>TIALN-86 | ZBGF<br>2,5xd <sub>1</sub><br>L10-IKZ-HA<br>TIALN-86 | ZBGF<br>2,5xd <sub>1</sub><br>L10-IKZ-HB<br>TIALN-86 |
|----------|-------------------------|---------|-------------------------|-------------------|-------|-------|-------|-------|---------------|--|--|--|
| <b>M</b> | 3                       | 0,5     | 2,25                    | 3                 | 39    | 1,5   | 8,3   | 28    | 4             | <b>GF74682C.0030</b>                             |  |  |
|          | 4                       | 0,7     | 2,95                    | 4                 | 42    | 2,1   | 11,1  | 28    | 4             | <b>GF74682C.0040</b>                             |  |  |
|          | 5                       | 0,8     | 3,8                     | 6                 | 55    | 2,4   | 13,7  | 36    | 4             |  | GF74682C.0050  | GF74622C.0050  |
|          | 6                       | 1       | 4,5                     | 6                 | 58    | 3     | 16,5  | 36    | 4             |  | GF74682C.0060  | GF74622C.0060  |
| GSF      | 8                       | 1,25    | 6,13                    | 8                 | 63    | 3,8   | 21,9  | 36    | 4             |  | GF74682C.0080  | GF74622C.0080  |
|          | 10                      | 1,5     | 7,75                    | 10                | 74    | 4,5   | 27,3  | 40    | 4             |  | GF74682C.0100  | GF74622C.0100  |
| GF       | 12                      | 1,75    | 9,38                    | 10                | 78    | 5,3   | 32,6  | 40    | 5             |  | GF74682C.0112  | GF74622C.0112  |
|          | 14                      | 2       | 11                      | 12                | 88    | 6     | 38    | 45    | 5             |  | GF74682C.0114  | GF74622C.0114  |
| GF-VZ    | 16                      | 2       | 13                      | 14                | 95    | 6     | 43    | 45    | 5             |  | GF74682C.0116  | GF74622C.0116  |
|          | 20                      | 2,5     | 16,25                   | 18                | 110   | 7,5   | 53,8  | 48    | 5             |  | GF74682C.0120  | GF74622C.0120  |
| GF-KEG   | 24                      | 3       | 19,5                    | 20                | 123   | 9     | 64,5  | 50    | 5             |  | GF74682C.0124  | GF74622C.0124  |

Weitere Ausführungen auf Anfrage  
Further designs upon request

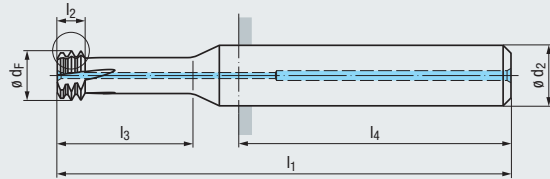
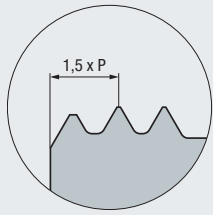
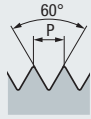


Kühlschmierstoffe siehe Seite 300 - 301

Coolant-lubricants, see page 300 - 301

**MF**

DIN 13



|   |                   |
|---|-------------------|
| VHM Carbide                                     | TIALN 86          |
| RH + LH   | LH-rot.           |
| L10   | Z5                |
| DIN 6535<br>HA<br>HB                            | $\varnothing d_1$ |
| Zum Anfasen geeignet<br>Suitable for chamfering |                   |

**ZBGF**

**new**

**new**

Einsatzgebiete – Material  
Applications – material » 358

Gewindetiefe  
Thread depth

|                  |                  |
|------------------|------------------|
| <b>P</b> 1.1-5.1 | <b>M</b> 1.1-4.1 |
| <b>K</b> 1.1-4.2 | <b>N</b> 1.1-5.3 |

**2,5 x d<sub>1</sub>**

|  | $\varnothing d_1$<br>mm | P<br>mm | $\varnothing d_F$<br>mm | $\varnothing d_2$ | $l_1$ | $l_2$ | $l_3$ | $l_4$ | Z<br>(Flutes) | ZBGF<br>2,5xd <sub>1</sub><br>L10-IKZ-HA<br>TIALN-86 | ZBGF<br>2,5xd <sub>1</sub><br>L10-IKZ-HB<br>TIALN-86 |
|--|-------------------------|---------|-------------------------|-------------------|-------|-------|-------|-------|---------------|--|--|
|  |                         |         |                         |                   |       |       |       |       |               | <b>M</b>   | 8 x 1  |
|  | 10 x 1                  | 8,5     | 10                      | 74                | 3     | 26,5  | 40    | 5     | GF74682C.0276 | GF74622C.0276  |  |
|  | 10 x 1,25               | 8,13    | 10                      | 74                | 3,8   | 26,9  | 40    | 5     | GF74682C.0277 | GF74622C.0277  |  |
|  | 12 x 1                  | 10,5    | 12                      | 83                | 3     | 31,5  | 45    | 5     | GF74682C.0301 | GF74622C.0301  |  |
|  | 12 x 1,25               | 10,13   | 12                      | 83                | 3,8   | 31,9  | 45    | 5     | GF74682C.0302 | GF74622C.0302  |  |
|  | 12 x 1,5                | 9,75    | 12                      | 83                | 4,5   | 32,3  | 45    | 5     | GF74682C.0303 | GF74622C.0303  |  |
|  | 14 x 1,5                | 11,75   | 12                      | 85                | 4,5   | 37,3  | 45    | 5     | GF74682C.0331 | GF74622C.0331  |  |
|  | 16 x 1,5                | 13,75   | 14                      | 93                | 4,5   | 42,3  | 45    | 5     | GF74682C.0359 | GF74622C.0359  |  |

Weitere Ausführungen auf Anfrage  
Further designs upon request

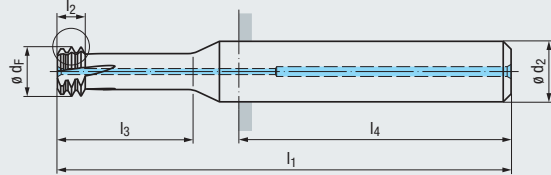
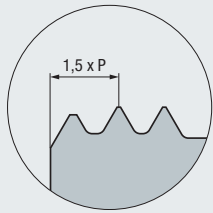
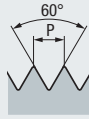
- Product Finder
- $v_c / f_z$
- M
- MF
- UNC  
UN, UNS
- UNF  
UNEF
- G, Rp
- NPT, NPTF  
Rc, W
- BSW, BSF
- Pg
- MJ  
UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr
- Zubehör  
Accessories
- BGF
- ZBGF
- GSF
- GF
- GF-VZ
- GF-KEG
- ZGF
- ZIRK-GF
- Gigant
- MoSys



- Product Finder
- V<sub>c</sub> / f<sub>z</sub>
- M
- MF
- UNC**  
UN, UNS
- UNF  
UNEF
- G, Rp
- NPT, NPTF  
Rc, W
- BSW, BSF
- Pg
- MJ  
UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr
- Zubehör  
Accessories
- BGF
- ZBGF
- GSF
- GF
- GF-VZ
- GF-KEG
- ZGF
- ZIRK-GF
- Gigant
- MoSys

# UNC

ASME B1.1



|  |                    |
|--|--------------------|
| <b>VHM</b><br>Carbide                                  | <b>TIALN</b><br>86 |
| <b>RH + LH</b>   | <b>LH-rot.</b>     |
| <b>L10</b>   | <b>Z3 - Z5</b>     |
| <b>DIN 6535</b><br>HA<br>HB                            | $\varnothing d_1$  |
| <b>Zum Anfasen geeignet</b><br>Suitable for chamfering |                    |

**ZBGF**

**new**

**new**

**new**

Einsatzgebiete – Material  
Applications – material » 358

Gewindetiefe  
Thread depth

**P 1.1-5.1**    **M 1.1-4.1**  
**K 1.1-4.2**    **N 1.1-5.3**

### 2,5 x d<sub>1</sub>

|       | $\varnothing d_1$<br>inch | P<br>Gg/1" (tpi) | $\varnothing d_F$<br>mm | $\varnothing d_2$ | l <sub>1</sub> | l <sub>2</sub> | l <sub>3</sub> | l <sub>4</sub> | Z<br>(Flutes) | ZBGF<br>2,5xd <sub>1</sub><br>L10-HA<br>TIALN-86 | ZBGF<br>2,5xd <sub>1</sub><br>L10- <b>IKZ</b> -HA<br>TIALN-86 | ZBGF<br>2,5xd <sub>1</sub><br>L10- <b>IKZ</b> -HB<br>TIALN-86 |
|-------|---------------------------|------------------|-------------------------|-------------------|----------------|----------------|----------------|----------------|---------------|--|---|---|
|       |                           |                  |                         |                   |                |                |                |                |               |  |   |   |
| Nr. 6 |                           | 32               | 2,45                    | 3                 | 41             | 2,4            | 10             | 28             | 3             | <b>GF74682C.5005</b>                             |   |   |
| Nr. 8 |                           | 32               | 3,1                     | 4                 | 43             | 2,4            | 11,6           | 28             | 3             | <b>GF74682C.5006</b>                             |   |   |
| Nr.10 |                           | 24               | 3,37                    | 4                 | 45             | 3,2            | 13,7           | 28             | 3             | <b>GF74682C.5007</b>                             |   |   |
| 1/4   |                           | 20               | 4,47                    | 6                 | 58             | 3,8            | 17,8           | 36             | 3             |  | <b>GF74682C.5009</b>  | <b>GF74622C.5009</b>  |
| 5/16  |                           | 18               | 5,89                    | 8                 | 64             | 4,2            | 22             | 36             | 4             |  | <b>GF74682C.5010</b>  | <b>GF74622C.5010</b>  |
| 3/8   |                           | 16               | 7,21                    | 8                 | 67             | 4,8            | 26,2           | 36             | 4             |  | <b>GF74682C.5011</b>  | <b>GF74622C.5011</b>  |
| 7/16  |                           | 14               | 8,49                    | 10                | 77             | 5,4            | 30,5           | 40             | 4             |  | <b>GF74682C.5012</b>  | <b>GF74622C.5012</b>  |
| 1/2   |                           | 13               | 9,82                    | 12                | 85             | 5,9            | 34,7           | 45             | 4             |  | <b>GF74682C.5013</b>  | <b>GF74622C.5013</b>  |
| 9/16  |                           | 12               | 11,14                   | 12                | 89             | 6,4            | 38,9           | 45             | 5             |  | <b>GF74682C.5014</b>  | <b>GF74622C.5014</b>  |
| 5/8   |                           | 11               | 12,35                   | 14                | 95             | 6,9            | 43,2           | 45             | 5             |  | <b>GF74682C.5015</b>  | <b>GF74622C.5015</b>  |
| 3/4   |                           | 10               | 15,23                   | 16                | 106            | 7,6            | 51,4           | 48             | 5             |  | <b>GF74682C.5016</b>  | <b>GF74622C.5016</b>  |

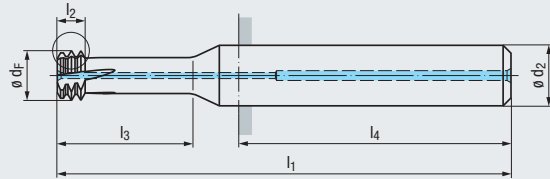
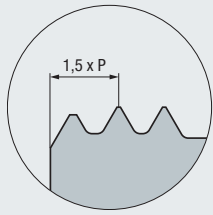
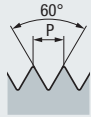
Weitere Ausführungen auf Anfrage  
Further designs upon request





**UNF**

ASME B1.1



|   |                   |
|---|-------------------|
| VHM Carbide                                     | TIALN 86          |
| RH + LH   | LH-rot.           |
| L10   | Z4 - Z5           |
| DIN 6535<br>HA<br>HB                            | $\varnothing d_1$ |
| Zum Anfasen geeignet<br>Suitable for chamfering |                   |

**ZBGF**

new

new

new

Einsatzgebiete – Material  
Applications – material [» 358](#)

**P** 1.1-5.1    **M** 1.1-4.1  
**K** 1.1-4.2    **N** 1.1-5.3

Gewindetiefe  
Thread depth

**2,5 x d<sub>1</sub>**

| $\varnothing d_1$<br>inch | P<br>Gg/1" (tpi) | $\varnothing d_F$<br>mm | $\varnothing d_2$ | l <sub>1</sub> | l <sub>2</sub> | l <sub>3</sub> | l <sub>4</sub> | Z<br>(Flutes) | ZBGF<br>2,5xd <sub>1</sub><br>L10-HA<br>TIALN-86 | ZBGF<br>2,5xd <sub>1</sub><br>L10-IKZ-HA<br>TIALN-86 | ZBGF<br>2,5xd <sub>1</sub><br>L10-IKZ-HB<br>TIALN-86 |
|---------------------------|------------------|-------------------------|-------------------|----------------|----------------|----------------|----------------|---------------|--|--|--|
|                           |                  |                         |                   |                |                |                |                |               | GF74682C.5039<br>GF74682C.5040<br>GF74682C.5041  |  |  |
| Nr. 6                     | 40               | 2,63                    | 3                 | 40             | 1,9            | 9,7            | 28             | 4             |  |  |  |
| Nr. 8                     | 36               | 3,15                    | 4                 | 43             | 2,1            | 11,5           | 28             | 4             |  |  |  |
| Nr.10                     | 32               | 3,7                     | 4                 | 45             | 2,4            | 13,3           | 28             | 4             |  |  |  |
| 1/4                       | 28               | 5,05                    | 6                 | 58             | 2,7            | 17,2           | 36             | 4             |  |  |  |
| 5/16                      | 24               | 6,37                    | 8                 | 62             | 3,2            | 21,4           | 36             | 5             |  |  |  |
| 3/8                       | 24               | 7,97                    | 8                 | 65             | 3,2            | 25,4           | 36             | 5             |  | GF74682C.5043  | GF74622C.5043  |
| 7/16                      | 20               | 9,27                    | 10                | 74             | 3,8            | 29,7           | 40             | 5             |  | GF74682C.5044  | GF74622C.5044  |
| 1/2                       | 20               | 10,87                   | 12                | 84             | 3,8            | 33,7           | 45             | 5             |  | GF74682C.5045  | GF74622C.5045  |
| 9/16                      | 18               | 11,9                    | 12                | 87             | 4,2            | 37,8           | 45             | 5             |  | GF74682C.5046  | GF74622C.5046  |
| 5/8                       | 18               | 13,51                   | 14                | 91             | 4,2            | 41,8           | 45             | 5             |  | GF74682C.5047  | GF74622C.5047  |
| 3/4                       | 16               | 15,9                    | 16                | 102            | 4,8            | 50             | 48             | 5             |  | GF74682C.5048  | GF74622C.5048  |
|                           |                  |                         |                   |                |                |                |                |               |  | GF74682C.5049  | GF74622C.5049  |
|                           |                  |                         |                   |                |                |                |                |               |  | GF74682C.5050  | GF74622C.5050  |

Weitere Ausführungen auf Anfrage  
Further designs upon request

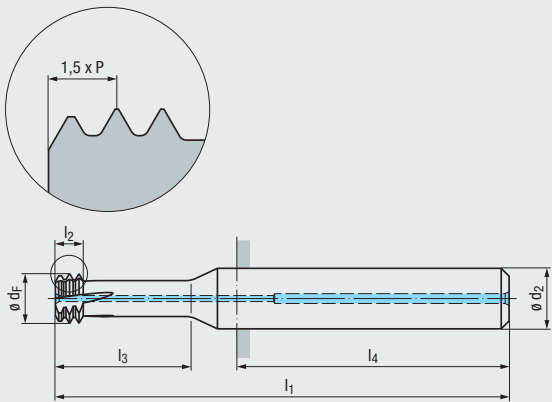
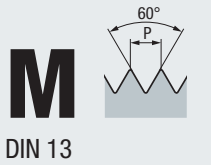
- Product Finder
- v<sub>c</sub> / f<sub>z</sub>
- M
- MF
- UNC  
UN, UNS
- UNF  
UNEF
- G, Rp
- NPT, NPTF  
Rc, W
- BSW, BSF
- Pg
- MJ  
UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr
- Zubehör  
Accessories
- BGF
- ZBGF
- GSF
- GF
- GF-VZ
- GF-KEG
- ZGF
- ZIRK-GF
- Gigant
- MoSys



Gewindelehren  
siehe Seite 541 - 594

Thread gauges,  
see page 541 - 594

- Product Finder
- $V_c / f_z$
- M
- MF
- UNC  
UN, UNS
- UNF  
UNEF
- G, Rp
- NPT, NPTF  
Rc, W
- BSW, BSF
- Pg
- MJ  
UNJC, UNJF
- EG (STI)



|   |                   |
|---|-------------------|
| <b>VHM Carbide</b>                                    | <b>ALCR 89</b>    |
| <b>RH + LH</b>  | <b>LH-rot.</b>    |
| <b>L10</b>  | <b>Z4 - Z5</b>    |
| <b>DIN 6535</b>                                       | $\varnothing d_1$ |
| HA<br>HB  |                   |
| <b>Zum Afasen geeignet</b><br>Suitable for chamfering |                   |
|   |                   |

### ZBGF-S-CUT

Einsatzgebiete – Material Applications – material [» 358](#)

|                  |                  |                  |
|------------------|------------------|------------------|
| <b>P</b> 1.1-5.1 | <b>M</b> 1.1-4.1 | <b>K</b> 1.1-4.2 |
| <b>N</b> 1.1-5.3 | <b>S</b> 1.1-2.6 |                  |

Gewindetiefe Thread depth

**2 x d<sub>1</sub>**

|          | $\varnothing d_1$<br>mm | P<br>mm | $\varnothing d_F$<br>mm | $\varnothing d_2$ | $l_1$ | $l_2$ | $l_3$ | $l_4$ | Z<br>(Flutes) |
|----------|-------------------------|---------|-------------------------|-------------------|-------|-------|-------|-------|---------------|
| <b>M</b> | 3                       | 0,5     | 2,25                    | 3                 | 39    | 1,5   | 6,8   | 28    | 4             |
|          | 4                       | 0,7     | 2,95                    | 4                 | 42    | 2,1   | 9,1   | 28    | 4             |
|          | 5                       | 0,8     | 3,8                     | 6                 | 52    | 2,4   | 11,2  | 36    | 4             |
|          | 6                       | 1       | 4,5                     | 6                 | 55    | 3     | 13,5  | 36    | 4             |
|          | 8                       | 1,25    | 6,13                    | 8                 | 60    | 3,8   | 17,9  | 36    | 4             |
|          | 10                      | 1,5     | 7,75                    | 10                | 70    | 4,5   | 22,3  | 40    | 4             |
|          | 12                      | 1,75    | 9,38                    | 10                | 74    | 5,3   | 26,6  | 40    | 5             |
|          | 14                      | 2       | 11                      | 12                | 80    | 6     | 31    | 45    | 5             |
|          | 16                      | 2       | 13                      | 14                | 85    | 6     | 35    | 45    | 5             |
|          | 20                      | 2,5     | 16,25                   | 18                | 100   | 7,5   | 43,8  | 48    | 5             |
|          | 24                      | 3       | 19,5                    | 20                | 110   | 9     | 52,5  | 50    | 5             |

| ZBGF-S-CUT<br>2xd <sub>1</sub><br>L10-HA<br>ALCR-89 | ZBGF-S-CUT<br>2xd <sub>1</sub><br>L10- <b>IKZ</b> -HA<br>ALCR-89   | ZBGF-S-CUT<br>2xd <sub>1</sub><br>L10- <b>IKZ</b> -HB<br>ALCR-89   |
|---|--|--|
| <b>GF7B682B.0030</b><br><b>GF7B682B.0040</b>        |  |  |
|   | <b>GF7B682B.0050</b><br><b>GF7B682B.0060</b><br><b>GF7B682B.0080</b><br><b>GF7B682B.0100</b><br><b>GF7B682B.0112</b><br><b>GF7B682B.0114</b><br><b>GF7B682B.0116</b><br><b>GF7B682B.0120</b><br><b>GF7B682B.0124</b> | <b>GF7B622B.0050</b><br><b>GF7B622B.0060</b><br><b>GF7B622B.0080</b><br><b>GF7B622B.0100</b><br><b>GF7B622B.0112</b><br><b>GF7B622B.0114</b><br><b>GF7B622B.0116</b><br><b>GF7B622B.0120</b><br><b>GF7B622B.0124</b> |

**new** **new** **new**

Gewindetiefe Thread depth

**2,5 x d<sub>1</sub>**

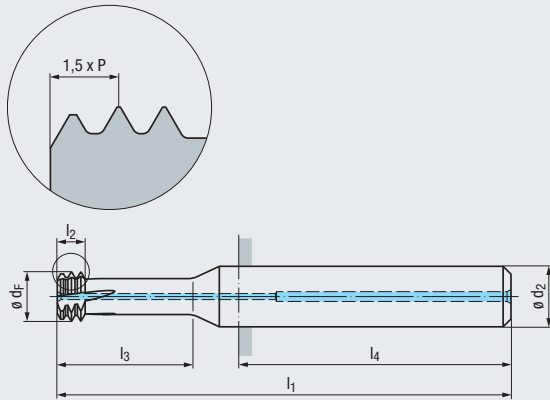
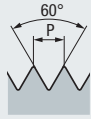
|          | $\varnothing d_1$<br>mm | P<br>mm | $\varnothing d_F$<br>mm | $\varnothing d_2$ | $l_1$ | $l_2$ | $l_3$ | $l_4$ | Z<br>(Flutes) |
|----------|-------------------------|---------|-------------------------|-------------------|-------|-------|-------|-------|---------------|
| <b>M</b> | 3                       | 0,5     | 2,25                    | 3                 | 39    | 1,5   | 8,3   | 28    | 4             |
|          | 4                       | 0,7     | 2,95                    | 4                 | 42    | 2,1   | 11,1  | 28    | 4             |
|          | 5                       | 0,8     | 3,8                     | 6                 | 55    | 2,4   | 13,7  | 36    | 4             |
|          | 6                       | 1       | 4,5                     | 6                 | 58    | 3     | 16,5  | 36    | 4             |
|          | 8                       | 1,25    | 6,13                    | 8                 | 63    | 3,8   | 21,9  | 36    | 4             |
|          | 10                      | 1,5     | 7,75                    | 10                | 74    | 4,5   | 27,3  | 40    | 4             |
|          | 12                      | 1,75    | 9,38                    | 10                | 78    | 5,3   | 32,6  | 40    | 5             |
|          | 14                      | 2       | 11                      | 12                | 88    | 6     | 38    | 45    | 5             |
|          | 16                      | 2       | 13                      | 14                | 95    | 6     | 43    | 45    | 5             |
|          | 20                      | 2,5     | 16,25                   | 18                | 110   | 7,5   | 53,8  | 48    | 5             |
|          | 24                      | 3       | 19,5                    | 20                | 123   | 9     | 64,5  | 50    | 5             |

| ZBGF-S-CUT<br>2,5xd <sub>1</sub><br>L10-HA<br>ALCR-89 | ZBGF-S-CUT<br>2,5xd <sub>1</sub><br>L10- <b>IKZ</b> -HA<br>ALCR-89   | ZBGF-S-CUT<br>2,5xd <sub>1</sub><br>L10- <b>IKZ</b> -HB<br>ALCR-89   |
|---|--|--|
| <b>GF7C682B.0030</b><br><b>GF7C682B.0040</b>          |  |  |
|   | <b>GF7C682B.0050</b><br><b>GF7C682B.0060</b><br><b>GF7C682B.0080</b><br><b>GF7C682B.0100</b><br><b>GF7C682B.0112</b><br><b>GF7C682B.0114</b><br><b>GF7C682B.0116</b><br><b>GF7C682B.0120</b><br><b>GF7C682B.0124</b> | <b>GF7C622B.0050</b><br><b>GF7C622B.0060</b><br><b>GF7C622B.0080</b><br><b>GF7C622B.0100</b><br><b>GF7C622B.0112</b><br><b>GF7C622B.0114</b><br><b>GF7C622B.0116</b><br><b>GF7C622B.0120</b><br><b>GF7C622B.0124</b> |

Weitere Ausführungen auf Anfrage  
Further designs upon request

**MF**

DIN 13



**VHM Carbide** **ALCR 89**

**RH + LH** **LH-rot.**

**L10** **Z5**

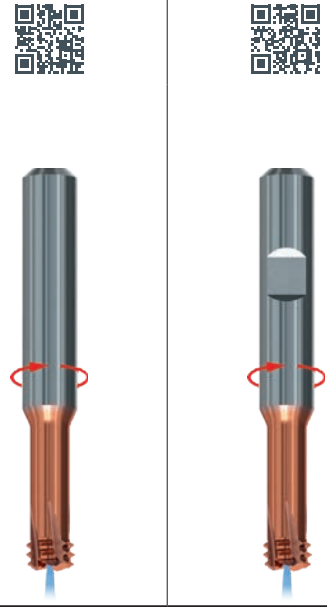
**DIN 6535**

HA HB

$\varnothing d_1$

Zum Anfasen geeignet  
Suitable for chamfering

**ZBGF-S-CUT**



Einsatzgebiete – Material Applications – material [358](#)

**P** 1.1-5.1 **M** 1.1-4.1 **K** 1.1-4.2

**N** 1.1-5.3 **S** 1.1-2.6

Gewindetiefe Thread depth

**2 x d<sub>1</sub>**

| $\varnothing d_1$ mm | P mm  | $\varnothing d_F$ mm | $\varnothing d_2$ | l <sub>1</sub> | l <sub>2</sub> | l <sub>3</sub> | l <sub>4</sub> | Z (Flutes) |
|----------------------|-------|----------------------|-------------------|----------------|----------------|----------------|----------------|------------|
| <b>M</b> 8 x 1       | 6,5   | 8                    | 60                | 3              | 17,5           | 36             | 5              |            |
| 10 x 1               | 8,5   | 10                   | 70                | 3              | 21,5           | 40             | 5              |            |
| 10 x 1,25            | 8,13  | 10                   | 70                | 3,8            | 21,9           | 40             | 5              |            |
| 12 x 1               | 10,5  | 12                   | 80                | 3              | 25,5           | 45             | 5              |            |
| 12 x 1,25            | 10,13 | 12                   | 80                | 3,8            | 25,9           | 45             | 5              |            |
| 12 x 1,5             | 9,75  | 12                   | 80                | 4,5            | 26,3           | 45             | 5              |            |
| 14 x 1,5             | 11,75 | 12                   | 80                | 4,5            | 30,3           | 45             | 5              |            |
| 16 x 1,5             | 13,75 | 14                   | 84                | 4,5            | 34,3           | 45             | 5              |            |

| ZBGF-S-CUT 2xd <sub>1</sub> L10-IKZ-HA ALCR-89 | ZBGF-S-CUT 2xd <sub>1</sub> L10-IKZ-HB ALCR-89 |
|--|--|
| GF7B682B.0251                                  | GF7B622B.0251                                  |
| GF7B682B.0276                                  | GF7B622B.0276                                  |
| GF7B682B.0277                                  | GF7B622B.0277                                  |
| GF7B682B.0301                                  | GF7B622B.0301                                  |
| GF7B682B.0302                                  | GF7B622B.0302                                  |
| GF7B682B.0303                                  | GF7B622B.0303                                  |
| GF7B682B.0331                                  | GF7B622B.0331                                  |
| GF7B682B.0359                                  | GF7B622B.0359                                  |

Gewindetiefe Thread depth

**2,5 x d<sub>1</sub>**

| $\varnothing d_1$ mm | P mm  | $\varnothing d_F$ mm | $\varnothing d_2$ | l <sub>1</sub> | l <sub>2</sub> | l <sub>3</sub> | l <sub>4</sub> | Z (Flutes) |
|----------------------|-------|----------------------|-------------------|----------------|----------------|----------------|----------------|------------|
| <b>M</b> 8 x 1       | 6,5   | 8                    | 63                | 3              | 21,5           | 36             | 5              |            |
| 10 x 1               | 8,5   | 10                   | 74                | 3              | 26,5           | 40             | 5              |            |
| 10 x 1,25            | 8,13  | 10                   | 74                | 3,8            | 26,9           | 40             | 5              |            |
| 12 x 1               | 10,5  | 12                   | 83                | 3              | 31,5           | 45             | 5              |            |
| 12 x 1,25            | 10,13 | 12                   | 83                | 3,8            | 31,9           | 45             | 5              |            |
| 12 x 1,5             | 9,75  | 12                   | 83                | 4,5            | 32,3           | 45             | 5              |            |
| 14 x 1,5             | 11,75 | 12                   | 85                | 4,5            | 37,3           | 45             | 5              |            |
| 16 x 1,5             | 13,75 | 14                   | 93                | 4,5            | 42,3           | 45             | 5              |            |

**new**

**new**

| ZBGF-S-CUT 2,5xd <sub>1</sub> L10-IKZ-HA ALCR-89 | ZBGF-S-CUT 2,5xd <sub>1</sub> L10-IKZ-HB ALCR-89 |
|--|--|
| GF7C682B.0251                                    | GF7C622B.0251                                    |
| GF7C682B.0276                                    | GF7C622B.0276                                    |
| GF7C682B.0277                                    | GF7C622B.0277                                    |
| GF7C682B.0301                                    | GF7C622B.0301                                    |
| GF7C682B.0302                                    | GF7C622B.0302                                    |
| GF7C682B.0303                                    | GF7C622B.0303                                    |
| GF7C682B.0331                                    | GF7C622B.0331                                    |
| GF7C682B.0359                                    | GF7C622B.0359                                    |

Weitere Ausführungen auf Anfrage  
Further designs upon request

Product Finder

v<sub>c</sub> / f<sub>z</sub>

M

**MF**

UNC UN, UNS

UNF UNEF

G, Rp

NPT, NPTF Rc, W

BSW, BSF

Pg

MJ UNJC, UNJF

EG (STI)

SELF-LOCK

Tr

Zubehör Accessories

BGF

**ZBGF**

GSF

GF

GF-VZ

GF-KEG

ZGF

ZIRK-GF

Gigant

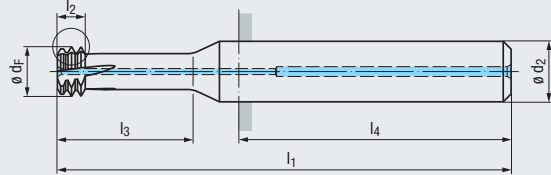
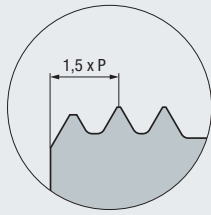
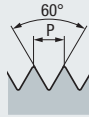
MoSys



- Product Finder
- $v_c / f_z$
- M
- MF
- UNC**  
UN, UNS
- UNF  
UNEF
- G, Rp
- NPT, NPTF  
Rc, W
- BSW, BSF
- Pg
- MJ  
UNJC, UNJF
- EG (STI)

# UNC

ASME B1.1



|  |                   |
|--|-------------------|
| <b>VHM Carbide</b>                                     | <b>ALCR 89</b>    |
| <b>RH + LH</b>   | <b>LH-rot.</b>    |
| <b>L10</b>   | <b>Z3 - Z5</b>    |
| <b>DIN 6535</b><br>HA<br>HB                            | $\varnothing d_1$ |
| <b>Zum Afansen geeignet</b><br>Suitable for chamfering |                   |

### ZBGF-S-CUT

Einsatzgebiete – Material  
Applications – material » 358

|                  |                  |                  |
|------------------|------------------|------------------|
| <b>P</b> 1.1-5.1 | <b>M</b> 1.1-4.1 | <b>K</b> 1.1-4.2 |
| <b>N</b> 1.1-5.3 | <b>S</b> 1.1-2.6 |                  |

Gewindetiefe  
Thread depth

## 2 x d<sub>1</sub>

| $\varnothing d_1$<br>inch | P<br>Gg/1" (tpi) | $\varnothing d_F$<br>mm | $\varnothing d_2$ | $l_1$ | $l_2$ | $l_3$ | $l_4$ | Z<br>(Flutes) |
|---------------------------|------------------|-------------------------|-------------------|-------|-------|-------|-------|---------------|
| Nr. 6                     | 32               | 2,45                    | 3                 | 39    | 2,4   | 8,2   | 28    | 3             |
| Nr. 8                     | 32               | 3,1                     | 4                 | 40    | 2,4   | 9,5   | 28    | 3             |
| Nr.10                     | 24               | 3,37                    | 4                 | 42    | 3,2   | 11,2  | 28    | 3             |
| 1/4                       | 20               | 4,47                    | 6                 | 55    | 3,8   | 14,6  | 36    | 3             |
| 5/16                      | 18               | 5,89                    | 8                 | 62    | 4,2   | 18    | 36    | 4             |
| 3/8                       | 16               | 7,21                    | 8                 | 62    | 4,8   | 21,4  | 36    | 4             |
| 7/16                      | 14               | 8,49                    | 10                | 70    | 5,4   | 25    | 40    | 4             |
| 1/2                       | 13               | 9,82                    | 12                | 80    | 5,9   | 28,3  | 45    | 4             |
| 9/16                      | 12               | 11,14                   | 12                | 82    | 6,4   | 31,8  | 45    | 5             |
| 5/8                       | 11               | 12,35                   | 14                | 87    | 6,9   | 35,2  | 45    | 5             |
| 3/4                       | 10               | 15,23                   | 16                | 96    | 7,6   | 41,9  | 48    | 5             |

| ZBGF-S-CUT<br>2xd <sub>1</sub><br>L10-HA<br>ALCR-89                  | ZBGF-S-CUT<br>2xd <sub>1</sub><br>L10- <b>IKZ</b> -HA<br>ALCR-89   | ZBGF-S-CUT<br>2xd <sub>1</sub><br>L10- <b>IKZ</b> -HB<br>ALCR-89   |
|--|--|--|
| <b>GF7B682B.5005</b><br><b>GF7B682B.5006</b><br><b>GF7B682B.5007</b> |  |  |
|  | <b>GF7B682B.5009</b><br><b>GF7B682B.5010</b><br><b>GF7B682B.5011</b><br><b>GF7B682B.5012</b><br><b>GF7B682B.5013</b><br><b>GF7B682B.5014</b><br><b>GF7B682B.5015</b><br><b>GF7B682B.5016</b> | <b>GF7B622B.5009</b><br><b>GF7B622B.5010</b><br><b>GF7B622B.5011</b><br><b>GF7B622B.5012</b><br><b>GF7B622B.5013</b><br><b>GF7B622B.5014</b><br><b>GF7B622B.5015</b><br><b>GF7B622B.5016</b> |

**new**

**new**

**new**

Gewindetiefe  
Thread depth

## 2,5 x d<sub>1</sub>

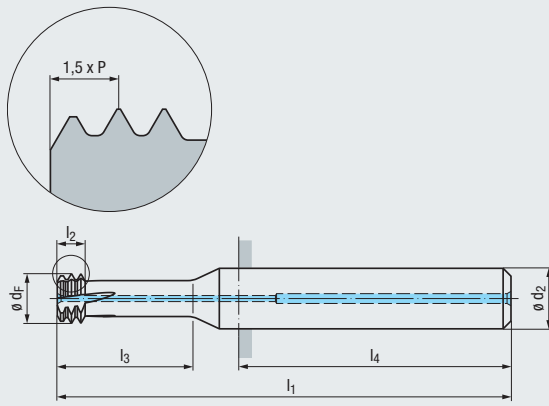
| $\varnothing d_1$<br>inch | P<br>Gg/1" (tpi) | $\varnothing d_F$<br>mm | $\varnothing d_2$ | $l_1$ | $l_2$ | $l_3$ | $l_4$ | Z<br>(Flutes) |
|---------------------------|------------------|-------------------------|-------------------|-------|-------|-------|-------|---------------|
| Nr. 6                     | 32               | 2,45                    | 3                 | 41    | 2,4   | 10    | 28    | 3             |
| Nr. 8                     | 32               | 3,1                     | 4                 | 43    | 2,4   | 11,6  | 28    | 3             |
| Nr.10                     | 24               | 3,37                    | 4                 | 45    | 3,2   | 13,7  | 28    | 3             |
| 1/4                       | 20               | 4,47                    | 6                 | 58    | 3,8   | 17,8  | 36    | 3             |
| 5/16                      | 18               | 5,89                    | 8                 | 64    | 4,2   | 22    | 36    | 4             |
| 3/8                       | 16               | 7,21                    | 8                 | 67    | 4,8   | 26,2  | 36    | 4             |
| 7/16                      | 14               | 8,49                    | 10                | 77    | 5,4   | 30,5  | 40    | 4             |
| 1/2                       | 13               | 9,82                    | 12                | 85    | 5,9   | 34,7  | 45    | 4             |
| 9/16                      | 12               | 11,14                   | 12                | 89    | 6,4   | 38,9  | 45    | 5             |
| 5/8                       | 11               | 12,35                   | 14                | 95    | 6,9   | 43,2  | 45    | 5             |
| 3/4                       | 10               | 15,23                   | 16                | 106   | 7,6   | 51,4  | 48    | 5             |

| ZBGF-S-CUT<br>2,5xd <sub>1</sub><br>L10-HA<br>ALCR-89                | ZBGF-S-CUT<br>2,5xd <sub>1</sub><br>L10- <b>IKZ</b> -HA<br>ALCR-89   | ZBGF-S-CUT<br>2,5xd <sub>1</sub><br>L10- <b>IKZ</b> -HB<br>ALCR-89   |
|--|--|--|
| <b>GF7C682B.5005</b><br><b>GF7C682B.5006</b><br><b>GF7C682B.5007</b> |  |  |
|  | <b>GF7C682B.5009</b><br><b>GF7C682B.5010</b><br><b>GF7C682B.5011</b><br><b>GF7C682B.5012</b><br><b>GF7C682B.5013</b><br><b>GF7C682B.5014</b><br><b>GF7C682B.5015</b><br><b>GF7C682B.5016</b> | <b>GF7C622B.5009</b><br><b>GF7C622B.5010</b><br><b>GF7C622B.5011</b><br><b>GF7C622B.5012</b><br><b>GF7C622B.5013</b><br><b>GF7C622B.5014</b><br><b>GF7C622B.5015</b><br><b>GF7C622B.5016</b> |

Weitere Ausführungen auf Anfrage  
Further designs upon request



ASME B1.1



|  |                |
|--|----------------|
| <b>VHM Carbide</b>                                     | <b>ALCR 89</b> |
| <b>RH + LH</b>   | <b>LH-rot.</b> |
| <b>L10</b>   | <b>Z4 - Z5</b> |
| <b>DIN 6535</b>  | $\theta d_1$   |
| HA<br>HB   |                |
|  |                |
| <b>Zum Anfasen geeignet</b><br>Suitable for chamfering |                |
|  |                |

**ZBGF-S-CUT**

Einsatzgebiete – Material  
Applications – material » 358

|                  |                  |                  |
|------------------|------------------|------------------|
| <b>P</b> 1.1-5.1 | <b>M</b> 1.1-4.1 | <b>K</b> 1.1-4.2 |
| <b>N</b> 1.1-5.3 | <b>S</b> 1.1-2.6 |                  |

Gewindetiefe  
Thread depth

**2 x d<sub>1</sub>**

| $\theta d_1$<br>inch | P<br>Gg/1" (tpi) | $\theta d_F$<br>mm | $\theta d_2$ | $l_1$ | $l_2$ | $l_3$ | $l_4$ | Z<br>(Flutes) |
|----------------------|------------------|--------------------|--------------|-------|-------|-------|-------|---------------|
| Nr. 6                | 40               | 2,63               | 3            | 39    | 1,9   | 8     | 28    | 4             |
| Nr. 8                | 36               | 3,15               | 4            | 40    | 2,1   | 9,4   | 28    | 4             |
| Nr.10                | 32               | 3,7                | 4            | 42    | 2,4   | 10,8  | 28    | 4             |
| 1/4                  | 28               | 5,05               | 6            | 55    | 2,7   | 14,1  | 36    | 4             |
| 5/16                 | 24               | 6,37               | 8            | 58    | 3,2   | 17,5  | 36    | 5             |
| 3/8                  | 24               | 7,97               | 8            | 62    | 3,2   | 20,6  | 36    | 5             |
| 7/16                 | 20               | 9,27               | 10           | 70    | 3,8   | 24,1  | 40    | 5             |
| 1/2                  | 20               | 10,87              | 12           | 80    | 3,8   | 27,3  | 45    | 5             |
| 9/16                 | 18               | 11,9               | 12           | 80    | 4,2   | 30,7  | 45    | 5             |
| 5/8                  | 18               | 13,51              | 14           | 83    | 4,2   | 33,9  | 45    | 5             |
| 3/4                  | 16               | 15,9               | 16           | 93    | 4,8   | 40,5  | 48    | 5             |

| ZBGF-S-CUT<br>2xd <sub>1</sub><br>L10-HA<br>ALCR-89 | ZBGF-S-CUT<br>2xd <sub>1</sub><br>L10-IKZ-HA<br>ALCR-89 | ZBGF-S-CUT<br>2xd <sub>1</sub><br>L10-IKZ-HB<br>ALCR-89 |
|---|---|---|
| GF7B682B.5039                                       |   |   |
| GF7B682B.5040                                       |   |   |
| GF7B682B.5041                                       |   |   |
|   | GF7B682B.5043   | GF7B622B.5043   |
|   | GF7B682B.5044   | GF7B622B.5044   |
|   | GF7B682B.5045   | GF7B622B.5045   |
|   | GF7B682B.5046   | GF7B622B.5046   |
|   | GF7B682B.5047   | GF7B622B.5047   |
|   | GF7B682B.5048   | GF7B622B.5048   |
|   | GF7B682B.5049   | GF7B622B.5049   |
|   | GF7B682B.5050   | GF7B622B.5050   |

Gewindetiefe  
Thread depth

**new**

**new**

**new**

**2,5 x d<sub>1</sub>**

| $\theta d_1$<br>inch | P<br>Gg/1" (tpi) | $\theta d_F$<br>mm | $\theta d_2$ | $l_1$ | $l_2$ | $l_3$ | $l_4$ | Z<br>(Flutes) |
|----------------------|------------------|--------------------|--------------|-------|-------|-------|-------|---------------|
| Nr. 6                | 40               | 2,63               | 3            | 40    | 1,9   | 9,7   | 28    | 4             |
| Nr. 8                | 36               | 3,15               | 4            | 43    | 2,1   | 11,5  | 28    | 4             |
| Nr.10                | 32               | 3,7                | 4            | 45    | 2,4   | 13,3  | 28    | 4             |
| 1/4                  | 28               | 5,05               | 6            | 58    | 2,7   | 17,2  | 36    | 4             |
| 5/16                 | 24               | 6,37               | 8            | 62    | 3,2   | 21,4  | 36    | 5             |
| 3/8                  | 24               | 7,97               | 8            | 65    | 3,2   | 25,4  | 36    | 5             |
| 7/16                 | 20               | 9,27               | 10           | 74    | 3,8   | 29,7  | 40    | 5             |
| 1/2                  | 20               | 10,87              | 12           | 84    | 3,8   | 33,7  | 45    | 5             |
| 9/16                 | 18               | 11,9               | 12           | 87    | 4,2   | 37,8  | 45    | 5             |
| 5/8                  | 18               | 13,51              | 14           | 91    | 4,2   | 41,8  | 45    | 5             |
| 3/4                  | 16               | 15,9               | 16           | 102   | 4,8   | 50    | 48    | 5             |

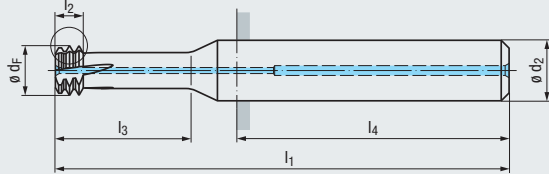
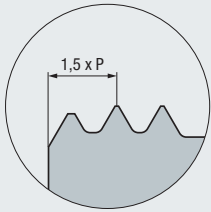
| ZBGF-S-CUT<br>2,5xd <sub>1</sub><br>L10-HA<br>ALCR-89 | ZBGF-S-CUT<br>2,5xd <sub>1</sub><br>L10-IKZ-HA<br>ALCR-89 | ZBGF-S-CUT<br>2,5xd <sub>1</sub><br>L10-IKZ-HB<br>ALCR-89 |
|---|---|---|
| GF7C682B.5039   |   |   |
| GF7C682B.5040   |   |   |
| GF7C682B.5041   |   |   |
|   | GF7C682B.5043   | GF7C622B.5043   |
|   | GF7C682B.5044   | GF7C622B.5044   |
|   | GF7C682B.5045   | GF7C622B.5045   |
|   | GF7C682B.5046   | GF7C622B.5046   |
|   | GF7C682B.5047   | GF7C622B.5047   |
|   | GF7C682B.5048   | GF7C622B.5048   |
|   | GF7C682B.5049   | GF7C622B.5049   |
|   | GF7C682B.5050   | GF7C622B.5050   |

Weitere Ausführungen auf Anfrage  
Further designs upon request

- Product Finder
- V<sub>c</sub> / f<sub>z</sub>
- M
- MF
- UNC  
UN, UNS
- UNF  
UNEF
- G, Rp
- NPT, NPTF  
Rc, W
- BSW, BSF
- Pg
- MJ  
UNJC, UNJF
- EG (STI)

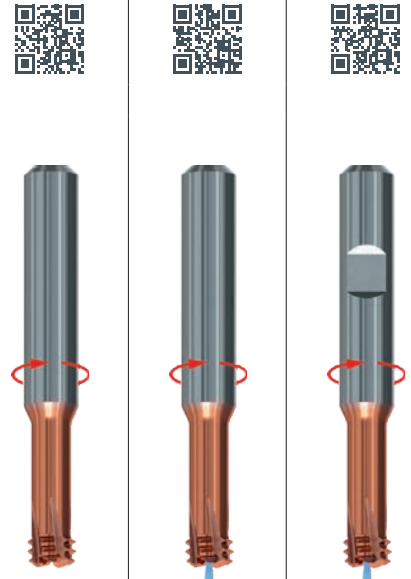
# MJ

DIN ISO 5855



|  |                   |
|--|-------------------|
| <b>VHM</b><br>Carbide                                  | <b>ALCR</b><br>89 |
| <b>RH + LH</b>   | <b>LH-rot.</b>    |
| <b>L10</b>   | <b>Z4 - Z5</b>    |
| <b>DIN 6535</b><br>HA<br>HB                            | $\varnothing d_1$ |
| <b>Zum Afansen geeignet</b><br>Suitable for chamfering |                   |

### ZBGF-S-CUT



Einsatzgebiete – Material  
Applications – material

» 358

|                  |                  |                  |
|------------------|------------------|------------------|
| <b>P</b> 1.1-5.1 | <b>M</b> 1.1-4.1 | <b>K</b> 1.1-4.2 |
| <b>N</b> 1.1-5.3 | <b>S</b> 1.1-2.6 |                  |

Gewindetiefe  
Thread depth

## 2 x d<sub>1</sub>

|                | $\varnothing d_1$<br>mm | P<br>mm | $\varnothing d_F$<br>mm | $\varnothing d_2$ | l <sub>1</sub> | l <sub>2</sub> | l <sub>3</sub> | l <sub>4</sub> | Z<br>(Flutes) | ZBGF-S-CUT<br>2xd <sub>1</sub><br>L10-HA<br>ALCR-89 | ZBGF-S-CUT<br>2xd <sub>1</sub><br>L10- <b>IKZ</b> -HA<br>ALCR-89 | ZBGF-S-CUT<br>2xd <sub>1</sub><br>L10- <b>IKZ</b> -HB<br>ALCR-89 |
|----------------|-------------------------|---------|-------------------------|-------------------|----------------|----------------|----------------|----------------|---------------|---|--|--|
| <b>MJ</b>      | 3                       | x 0,5   | 2,25                    | 3                 | 39             | 1,5            | 6,8            | 28             | 4             | <b>GF7B682B.1229</b><br><b>GF7B682B.1231</b>        |  |  |
|                | 4                       | x 0,7   | 2,95                    | 4                 | 42             | 2,1            | 9,1            | 28             | 4             |   |  |  |
| <b>ZBGF</b>    | 5                       | x 0,8   | 3,8                     | 6                 | 52             | 2,4            | 11,2           | 36             | 4             |   | <b>GF7B682B.1232</b>   | <b>GF7B622B.1232</b>   |
|                | 6                       | x 1     | 4,5                     | 6                 | 55             | 3              | 13,5           | 36             | 4             |   | <b>GF7B682B.1233</b>   | <b>GF7B622B.1233</b>   |
| <b>GSF</b>     | 8                       | x 1     | 6,5                     | 8                 | 60             | 3              | 17,5           | 36             | 5             |   | <b>GF7B682B.1235</b>   | <b>GF7B622B.1235</b>   |
|                | 8                       | x 1,25  | 6,13                    | 8                 | 60             | 3,8            | 17,9           | 36             | 4             |   | <b>GF7B682B.2026</b>   | <b>GF7B622B.2026</b>   |
| <b>GF</b>      | 10                      | x 1     | 8,5                     | 10                | 70             | 3              | 21,5           | 40             | 5             |   | <b>GF7B682B.1764</b>   | <b>GF7B622B.1764</b>   |
|                | 10                      | x 1,25  | 8,13                    | 10                | 70             | 3,8            | 21,9           | 40             | 5             |   | <b>GF7B682B.1236</b>   | <b>GF7B622B.1236</b>   |
| <b>GF-VZ</b>   | 10                      | x 1,5   | 7,75                    | 10                | 70             | 4,5            | 22,3           | 40             | 4             |   | <b>GF7B682B.2308</b>   | <b>GF7B622B.2308</b>   |
|                | 12                      | x 1     | 10,5                    | 12                | 80             | 3              | 25,5           | 45             | 5             |   | <b>GF7B682B.2310</b>   | <b>GF7B622B.2310</b>   |
| <b>GF-KEG</b>  | 12                      | x 1,25  | 10,13                   | 12                | 80             | 3,8            | 25,9           | 45             | 5             |   | <b>GF7B682B.1237</b>   | <b>GF7B622B.1237</b>   |
|                | 12                      | x 1,5   | 9,75                    | 12                | 80             | 4,5            | 26,3           | 45             | 5             |   | <b>GF7B682B.2056</b>   | <b>GF7B622B.2056</b>   |
| <b>ZGF</b>     | 12                      | x 1,75  | 9,38                    | 10                | 74             | 5,3            | 26,6           | 40             | 5             |   | <b>GF7B682B.1912</b>   | <b>GF7B622B.1912</b>   |
|                | 14                      | x 1,5   | 11,75                   | 12                | 80             | 4,5            | 30,3           | 45             | 5             |   | <b>GF7B682B.1238</b>   | <b>GF7B622B.1238</b>   |
| <b>ZIRK-GF</b> | 14                      | x 2     | 11                      | 12                | 80             | 6              | 31             | 45             | 5             |   | <b>GF7B682B.2505</b>   | <b>GF7B622B.2505</b>   |
|                | 16                      | x 1,5   | 13,75                   | 14                | 84             | 4,5            | 34,3           | 45             | 5             |   | <b>GF7B682B.1239</b>   | <b>GF7B622B.1239</b>   |
| <b>Gigant</b>  | 16                      | x 2     | 13                      | 14                | 85             | 6              | 35             | 45             | 5             |   | <b>GF7B682B.1955</b>   | <b>GF7B622B.1955</b>   |
|                | 20                      | x 2,5   | 16,25                   | 18                | 100            | 7,5            | 43,8           | 48             | 5             |   | <b>GF7B682B.1954</b>   | <b>GF7B622B.1954</b>   |
| <b>MoSys</b>   | 24                      | x 3     | 19,5                    | 20                | 110            | 9              | 52,5           | 50             | 5             |   | <b>GF7B682B.9222</b>   | <b>GF7B622B.9222</b>   |

new



new



new



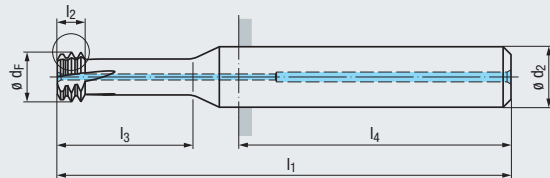
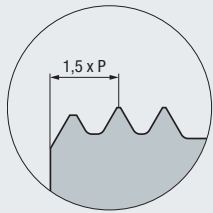
Gewindetiefe  
Thread depth

## 2,5 x d<sub>1</sub>

|           | $\varnothing d_1$<br>mm | P<br>mm | $\varnothing d_F$<br>mm | $\varnothing d_2$ | l <sub>1</sub> | l <sub>2</sub> | l <sub>3</sub> | l <sub>4</sub> | Z<br>(Flutes) | ZBGF-S-CUT<br>2,5xd <sub>1</sub><br>L10-HA<br>ALCR-89 | ZBGF-S-CUT<br>2,5xd <sub>1</sub><br>L10- <b>IKZ</b> -HA<br>ALCR-89 | ZBGF-S-CUT<br>2,5xd <sub>1</sub><br>L10- <b>IKZ</b> -HB<br>ALCR-89 |
|-----------|-------------------------|---------|-------------------------|-------------------|----------------|----------------|----------------|----------------|---------------|---|--|--|
| <b>MJ</b> | 3                       | x 0,5   | 2,25                    | 3                 | 39             | 1,5            | 8,3            | 28             | 4             | <b>GF7C682B.1229</b><br><b>GF7C682B.1231</b>          |  |  |
|           | 4                       | x 0,7   | 2,95                    | 4                 | 42             | 2,1            | 11,1           | 28             | 4             |   |  |  |
|           | 5                       | x 0,8   | 3,8                     | 6                 | 55             | 2,4            | 13,7           | 36             | 4             |   | <b>GF7C682B.1232</b>   | <b>GF7C622B.1232</b>   |
|           | 6                       | x 1     | 4,5                     | 6                 | 58             | 3              | 16,5           | 36             | 4             |   | <b>GF7C682B.1233</b>   | <b>GF7C622B.1233</b>   |
|           | 8                       | x 1     | 6,5                     | 8                 | 63             | 3              | 21,5           | 36             | 5             |   | <b>GF7C682B.1235</b>   | <b>GF7C622B.1235</b>   |
|           | 8                       | x 1,25  | 6,13                    | 8                 | 63             | 3,8            | 21,9           | 36             | 4             |   | <b>GF7C682B.2026</b>   | <b>GF7C622B.2026</b>   |
|           | 10                      | x 1     | 8,5                     | 10                | 74             | 3              | 26,5           | 40             | 5             |   | <b>GF7C682B.1764</b>   | <b>GF7C622B.1764</b>   |
|           | 10                      | x 1,25  | 8,13                    | 10                | 74             | 3,8            | 26,9           | 40             | 5             |   | <b>GF7C682B.1236</b>   | <b>GF7C622B.1236</b>   |
|           | 10                      | x 1,5   | 7,75                    | 10                | 74             | 4,5            | 27,3           | 40             | 4             |   | <b>GF7C682B.2308</b>   | <b>GF7C622B.2308</b>   |
|           | 12                      | x 1     | 10,5                    | 12                | 83             | 3              | 31,5           | 45             | 5             |   | <b>GF7C682B.2310</b>   | <b>GF7C622B.2310</b>   |
|           | 12                      | x 1,25  | 10,13                   | 12                | 83             | 3,8            | 31,9           | 45             | 5             |   | <b>GF7C682B.1237</b>   | <b>GF7C622B.1237</b>   |
|           | 12                      | x 1,5   | 9,75                    | 12                | 83             | 4,5            | 32,3           | 45             | 5             |   | <b>GF7C682B.2056</b>   | <b>GF7C622B.2056</b>   |
|           | 12                      | x 1,75  | 9,38                    | 10                | 78             | 5,3            | 32,6           | 40             | 5             |   | <b>GF7B682B.1912</b>   | <b>GF7B622B.1912</b>   |
|           | 14                      | x 1,5   | 11,75                   | 12                | 85             | 4,5            | 37,3           | 45             | 5             |   | <b>GF7C682B.1238</b>   | <b>GF7C622B.1238</b>   |
|           | 14                      | x 2     | 11                      | 12                | 88             | 6              | 38             | 45             | 5             |   | <b>GF7C682B.2505</b>   | <b>GF7C622B.2505</b>   |
|           | 16                      | x 1,5   | 13,75                   | 14                | 93             | 4,5            | 42,3           | 45             | 5             |   | <b>GF7C682B.1239</b>   | <b>GF7C622B.1239</b>   |
|           | 16                      | x 2     | 13                      | 14                | 95             | 6              | 43             | 45             | 5             |   | <b>GF7B682B.1955</b>   | <b>GF7B622B.1955</b>   |
|           | 20                      | x 2,5   | 16,25                   | 18                | 110            | 7,5            | 53,8           | 48             | 5             |   | <b>GF7B682B.1954</b>   | <b>GF7B622B.1954</b>   |
|           | 24                      | x 3     | 19,5                    | 20                | 123            | 9              | 64,5           | 50             | 5             |   | <b>GF7B682B.9222</b>   | <b>GF7B622B.9222</b>   |

# UNJC

ASME B1.1 1)



|  |                   |
|--|-------------------|
| <b>VHM Carbide</b>                                     | <b>ALCR 89</b>    |
| <b>RH + LH</b>   | <b>LH-rot.</b>    |
| <b>L10</b>   | <b>Z3 - Z5</b>    |
| <b>DIN 6535</b>  | $\varnothing d_1$ |
| HA<br>HB   |                   |
|  |                   |
| <b>Zum Anfasen geeignet</b><br>Suitable for chamfering |                   |
|  |                   |

**ZBGF-S-CUT**

|                    |
|--------------------|
| Product Finder     |
| $v_c / f_z$        |
| M                  |
| MF                 |
| UNC<br>UN, UNS     |
| UNF<br>UNEF        |
| G, Rp              |
| NPT, NPTF<br>Rc, W |
| BSW, BSF           |
| Pg                 |
| MJ<br>UNJC, UNJF   |
| EG (STI)           |

Einsatzgebiete – Material  
Applications – material » 358

|                  |                  |                  |
|------------------|------------------|------------------|
| <b>P</b> 1.1-5.1 | <b>M</b> 1.1-4.1 | <b>K</b> 1.1-4.2 |
| <b>N</b> 1.1-5.3 | <b>S</b> 1.1-2.6 |                  |

Gewindetiefe  
Thread depth

**2 x d<sub>1</sub>**

| $\varnothing d_1$<br>inch | P<br>Gg/1" (tpi) | $\varnothing d_F$<br>mm | $\varnothing d_2$ | $l_1$ | $l_2$ | $l_3$ | $l_4$ | Z<br>(Flutes) | ZBGF-S-CUT<br>2xd <sub>1</sub><br>L10-HA<br>ALCR-89 | ZBGF-S-CUT<br>2xd <sub>1</sub><br>L10-IKZ-HA<br>ALCR-89 | ZBGF-S-CUT<br>2xd <sub>1</sub><br>L10-IKZ-HB<br>ALCR-89 |
|---------------------------|------------------|-------------------------|-------------------|-------|-------|-------|-------|---------------|---|---|---|
| Nr. 6                     | 32               | 2,45                    | 3                 | 39    | 2,4   | 8,2   | 28    | 3             | GF7B682B.5481                                       |   |   |
| Nr. 8                     | 32               | 3,1                     | 4                 | 40    | 2,4   | 9,5   | 28    | 3             | GF7B682B.5482                                       |   |   |
| Nr.10                     | 24               | 3,37                    | 4                 | 42    | 3,2   | 11,2  | 28    | 3             | GF7B682B.5483                                       |   |   |
| 1/4                       | 20               | 4,47                    | 6                 | 55    | 3,8   | 14,6  | 36    | 3             |   |   |   |
| 5/16                      | 18               | 5,89                    | 8                 | 62    | 4,2   | 18    | 36    | 4             |   | GF7B682B.5485   | GF7B622B.5485   |
| 3/8                       | 16               | 7,21                    | 8                 | 62    | 4,8   | 21,4  | 36    | 4             |   | GF7B682B.5486   | GF7B622B.5486   |
| 7/16                      | 14               | 8,49                    | 10                | 70    | 5,4   | 25    | 40    | 4             |   | GF7B682B.5487   | GF7B622B.5487   |
| 1/2                       | 13               | 9,82                    | 12                | 80    | 5,9   | 28,3  | 45    | 4             |   | GF7B682B.5488   | GF7B622B.5488   |
| 9/16                      | 12               | 11,14                   | 12                | 82    | 6,4   | 31,8  | 45    | 5             |   | GF7B682B.5489   | GF7B622B.5489   |
| 5/8                       | 11               | 12,35                   | 14                | 87    | 6,9   | 35,2  | 45    | 5             |   | GF7B682B.5490   | GF7B622B.5490   |
| 3/4                       | 10               | 15,23                   | 16                | 96    | 7,6   | 41,9  | 48    | 5             |   | GF7B682B.5491   | GF7B622B.5491   |
|                           |                  |                         |                   |       |       |       |       |               |   | GF7B682B.5492   | GF7B622B.5492   |

|                        |
|------------------------|
| SELF-LOCK              |
| Tr                     |
| Zubehör<br>Accessories |
| BGF                    |
| ZBGF                   |
| GSF                    |
| GF                     |
| GF-VZ                  |
| GF-KEG                 |

Gewindetiefe  
Thread depth

**2,5 x d<sub>1</sub>**

| $\varnothing d_1$<br>inch | P<br>Gg/1" (tpi) | $\varnothing d_F$<br>mm | $\varnothing d_2$ | $l_1$ | $l_2$ | $l_3$ | $l_4$ | Z<br>(Flutes) | ZBGF-S-CUT<br>2,5xd <sub>1</sub><br>L10-HA<br>ALCR-89 | ZBGF-S-CUT<br>2,5xd <sub>1</sub><br>L10-IKZ-HA<br>ALCR-89 | ZBGF-S-CUT<br>2,5xd <sub>1</sub><br>L10-IKZ-HB<br>ALCR-89 |
|---------------------------|------------------|-------------------------|-------------------|-------|-------|-------|-------|---------------|---|---|---|
| Nr. 6                     | 32               | 2,45                    | 3                 | 41    | 2,4   | 10    | 28    | 3             | GF7C682B.5481   |   |   |
| Nr. 8                     | 32               | 3,1                     | 4                 | 43    | 2,4   | 11,6  | 28    | 3             | GF7C682B.5482   |   |   |
| Nr.10                     | 24               | 3,37                    | 4                 | 45    | 3,2   | 13,7  | 28    | 3             | GF7C682B.5483   |   |   |
| 1/4                       | 20               | 4,47                    | 6                 | 58    | 3,8   | 17,8  | 36    | 3             |   |   |   |
| 5/16                      | 18               | 5,89                    | 8                 | 64    | 4,2   | 22    | 36    | 4             |   | GF7C682B.5485   | GF7C622B.5485   |
| 3/8                       | 16               | 7,21                    | 8                 | 67    | 4,8   | 26,2  | 36    | 4             |   | GF7C682B.5486   | GF7C622B.5486   |
| 7/16                      | 14               | 8,49                    | 10                | 77    | 5,4   | 30,5  | 40    | 4             |   | GF7C682B.5487   | GF7C622B.5487   |
| 1/2                       | 13               | 9,82                    | 12                | 85    | 5,9   | 34,7  | 45    | 4             |   | GF7C682B.5488   | GF7C622B.5488   |
| 9/16                      | 12               | 11,14                   | 12                | 89    | 6,4   | 38,9  | 45    | 5             |   | GF7C682B.5489   | GF7C622B.5489   |
| 5/8                       | 11               | 12,35                   | 14                | 95    | 6,9   | 43,2  | 45    | 5             |   | GF7C682B.5490   | GF7C622B.5490   |
| 3/4                       | 10               | 15,23                   | 16                | 106   | 7,6   | 51,4  | 48    | 5             |   | GF7C682B.5491   | GF7C622B.5491   |
|                           |                  |                         |                   |       |       |       |       |               |   | GF7C682B.5492   | GF7C622B.5492   |

|         |
|---------|
| ZGF     |
| ZIRK-GF |
| Gigant  |
| MoSys   |

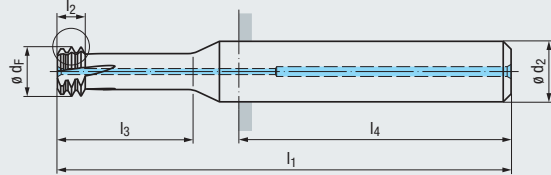
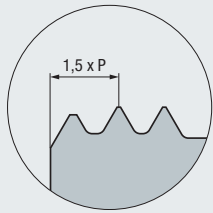
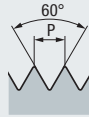
1) früher ASME B1.15  
formerly ASME B1.15

Weitere Ausführungen auf Anfrage  
Further designs upon request

- Product Finder
- $v_c / f_z$
- M
- MF
- UNC  
UN, UNS
- UNF  
UNEF
- G, Rp
- NPT, NPTF  
Rc, W
- BSW, BSF
- Pg
- MJ  
UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr
- Zubehör  
Accessories
- BGF
- ZBGF
- GSF
- GF
- GF-VZ
- GF-KEG
- ZGF
- ZIRK-GF
- Gigant
- MoSys

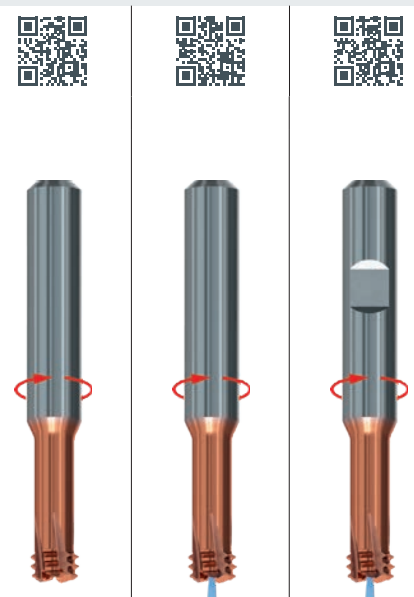
# UNJF

ASME B1.1 1)



|  |                   |
|--|-------------------|
| <b>VHM</b><br>Carbide                          | <b>ALCR</b><br>89 |
| <b>RH + LH</b>                                 | <b>LH-rot.</b>    |
| <b>L10</b>                                     | <b>Z4 - Z5</b>    |
| <b>DIN 6535</b><br>HA<br>HB                    | $\varnothing d_1$ |
| Zum Afasen geeignet<br>Suitable for chamfering |                   |

### ZBGF-S-CUT



Einsatzgebiete – Material  
Applications – material

» 358

|                  |                  |                  |
|------------------|------------------|------------------|
| <b>P</b> 1.1-5.1 | <b>M</b> 1.1-4.1 | <b>K</b> 1.1-4.2 |
| <b>N</b> 1.1-5.3 | <b>S</b> 1.1-2.6 |                  |

Gewindetiefe  
Thread depth

### 2 x d<sub>1</sub>

|       | $\varnothing d_1$<br>inch | P<br>Gg/1" (tpi) | $\varnothing d_F$<br>mm | $\varnothing d_2$ | l <sub>1</sub> | l <sub>2</sub> | l <sub>3</sub> | l <sub>4</sub> | Z<br>(Flutes) | ZBGF-S-CUT<br>2xd <sub>1</sub><br>L10-HA<br>ALCR-89 | ZBGF-S-CUT<br>2xd <sub>1</sub><br>L10- <b>IKZ</b> -HA<br>ALCR-89 | ZBGF-S-CUT<br>2xd <sub>1</sub><br>L10- <b>IKZ</b> -HB<br>ALCR-89 |
|-------|---------------------------|------------------|-------------------------|-------------------|----------------|----------------|----------------|----------------|---------------|---|--|--|
|       |                           |                  |                         |                   |                |                |                |                |               | GF7B682B.5507<br>GF7B682B.5508<br>GF7B682B.5509     |  |  |
| Nr. 6 |                           | 40               | 2,63                    | 3                 | 39             | 1,9            | 8              | 28             | 4             |   |  |  |
| Nr. 8 |                           | 36               | 3,15                    | 4                 | 40             | 2,1            | 9,4            | 28             | 4             |   |  |  |
| Nr.10 |                           | 32               | 3,7                     | 4                 | 42             | 2,4            | 10,8           | 28             | 4             |   |  |  |
| 1/4   |                           | 28               | 5,05                    | 6                 | 55             | 2,7            | 14,1           | 36             | 4             |   | GF7B682B.5511  | GF7B622B.5511  |
| 5/16  |                           | 24               | 6,37                    | 8                 | 58             | 3,2            | 17,5           | 36             | 5             |   | GF7B682B.5512  | GF7B622B.5512  |
| 3/8   |                           | 24               | 7,97                    | 8                 | 62             | 3,2            | 20,6           | 36             | 5             |   | GF7B682B.5513  | GF7B622B.5513  |
| 7/16  |                           | 20               | 9,27                    | 10                | 70             | 3,8            | 24,1           | 40             | 5             |   | GF7B682B.5514  | GF7B622B.5514  |
| 1/2   |                           | 20               | 10,87                   | 12                | 80             | 3,8            | 27,3           | 45             | 5             |   | GF7B682B.5515  | GF7B622B.5515  |
| 9/16  |                           | 18               | 11,9                    | 12                | 80             | 4,2            | 30,7           | 45             | 5             |   | GF7B682B.5516  | GF7B622B.5516  |
| 5/8   |                           | 18               | 13,51                   | 14                | 83             | 4,2            | 33,9           | 45             | 5             |   | GF7B682B.5517  | GF7B622B.5517  |
| 3/4   |                           | 16               | 15,9                    | 16                | 93             | 4,8            | 40,5           | 48             | 5             |   | GF7B682B.5518  | GF7B622B.5518  |

Gewindetiefe  
Thread depth

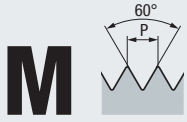
### 2,5 x d<sub>1</sub>

|       | $\varnothing d_1$<br>inch | P<br>Gg/1" (tpi) | $\varnothing d_F$<br>mm | $\varnothing d_2$ | l <sub>1</sub> | l <sub>2</sub> | l <sub>3</sub> | l <sub>4</sub> | Z<br>(Flutes) | ZBGF-S-CUT<br>2,5xd <sub>1</sub><br>L10-HA<br>ALCR-89 | ZBGF-S-CUT<br>2,5xd <sub>1</sub><br>L10- <b>IKZ</b> -HA<br>ALCR-89 | ZBGF-S-CUT<br>2,5xd <sub>1</sub><br>L10- <b>IKZ</b> -HB<br>ALCR-89 |
|-------|---------------------------|------------------|-------------------------|-------------------|----------------|----------------|----------------|----------------|---------------|---|--|--|
|       |                           |                  |                         |                   |                |                |                |                |               | GF7C682B.5507<br>GF7C682B.5508<br>GF7C682B.5509       |  |  |
| Nr. 6 |                           | 40               | 2,63                    | 3                 | 40             | 1,9            | 9,7            | 28             | 4             |   |  |  |
| Nr. 8 |                           | 36               | 3,15                    | 4                 | 43             | 2,1            | 11,5           | 28             | 4             |   |  |  |
| Nr.10 |                           | 32               | 3,7                     | 4                 | 45             | 2,4            | 13,3           | 28             | 4             |   |  |  |
| 1/4   |                           | 28               | 5,05                    | 6                 | 58             | 2,7            | 17,2           | 36             | 4             |   | GF7C682B.5511  | GF7C622B.5511  |
| 5/16  |                           | 24               | 6,37                    | 8                 | 62             | 3,2            | 21,4           | 36             | 5             |   | GF7C682B.5512  | GF7C622B.5512  |
| 3/8   |                           | 24               | 7,97                    | 8                 | 65             | 3,2            | 25,4           | 36             | 5             |   | GF7C682B.5513  | GF7C622B.5513  |
| 7/16  |                           | 20               | 9,27                    | 10                | 74             | 3,8            | 29,7           | 40             | 5             |   | GF7C682B.5514  | GF7C622B.5514  |
| 1/2   |                           | 20               | 10,87                   | 12                | 84             | 3,8            | 33,7           | 45             | 5             |   | GF7C682B.5515  | GF7C622B.5515  |
| 9/16  |                           | 18               | 11,9                    | 12                | 87             | 4,2            | 37,8           | 45             | 5             |   | GF7C682B.5516  | GF7C622B.5516  |
| 5/8   |                           | 18               | 13,51                   | 14                | 91             | 4,2            | 41,8           | 45             | 5             |   | GF7C682B.5517  | GF7C622B.5517  |
| 3/4   |                           | 16               | 15,9                    | 16                | 102            | 4,8            | 50             | 48             | 5             |   | GF7C682B.5518  | GF7C622B.5518  |

1) früher ASME B1.15  
formerly ASME B1.15

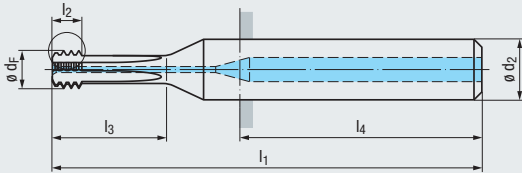
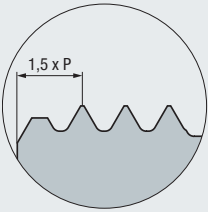
Weitere Ausführungen auf Anfrage  
Further designs upon request





**M**

DIN 13



**VHM Carbide**

**TIALN T46**

**RH + LH**    **LH-rot.**



**Z4 - Z5**

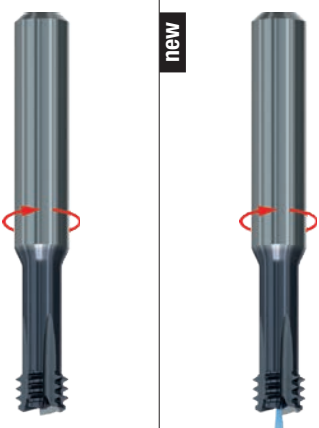
**DIN 6535**

HA

Zum Anfasen geeignet  
Suitable for chamfering

**ZBGF-HCUT**

**new**  **new** 



Product Finder

$v_c / f_z$

**M**

MF

UNC UN, UNS

UNF UNEF

G, Rp


NPT, NPTF Rc, W

BSW, BSF

Pg

MJ UNJC, UNJF

EG (STI)


Einsatzgebiete – Material Applications – material  358

**N** 2.7-2.8  
**H** 1.1-1.5

Gewindetiefe Thread depth

**2 x d<sub>1</sub>**

| M | ø d <sub>1</sub><br>mm | P<br>mm | ø d <sub>F</sub><br>mm | ø d <sub>2</sub> | l <sub>1</sub> | l <sub>2</sub> | l <sub>3</sub> | l <sub>4</sub> | Z<br>(Flutes) | ZBGF-HCUT<br>2xd <sub>1</sub><br>HA<br>TIALN-T46 | ZBGF-HCUT<br>2xd <sub>1</sub><br>IKZ-HA<br>TIALN-T46   |
|---|------------------------|---------|------------------------|------------------|----------------|----------------|----------------|----------------|---------------|--|--|
|   |                        |         |                        |                  |                |                |                |                |               | GF733709.0030<br>GF733709.0040<br>GF733709.0050  | GF733709.0060<br>GF733709.0080<br>GF733709.0100<br>GF733709.0112<br>GF733709.0114<br>GF733709.0116 |
|   | 3                      | 0,5     | 2,3                    | 6                | 51             | 2              | 7              | 36             | 4             |  |  |
|   | 4                      | 0,7     | 3                      | 6                | 51             | 2,8            | 9,4            | 36             | 4             |  |  |
|   | 5                      | 0,8     | 3,8                    | 6                | 53             | 3,2            | 11,6           | 36             | 4             |  |  |
|   | 6                      | 1       | 4,6                    | 6                | 55             | 4              | 14             | 36             | 4             |  |  |
|   | 8                      | 1,25    | 6,2                    | 8                | 60             | 5              | 18,5           | 36             | 4             |  |  |
|   | 10                     | 1,5     | 7,8                    | 8                | 64             | 6              | 23             | 36             | 4             |  |  |
|   | 12                     | 1,75    | 9,5                    | 10               | 74             | 7              | 27,5           | 40             | 4             |  |  |
|   | 14                     | 2       | 11,1                   | 12               | 83             | 8              | 32             | 45             | 4             |  |  |
|   | 16                     | 2       | 13,1                   | 14               | 88             | 8              | 36             | 45             | 5             |  |  |

**new**  **new** 

Gewindetiefe Thread depth

**2,5 x d<sub>1</sub>**

| M | ø d <sub>1</sub><br>mm | P<br>mm | ø d <sub>F</sub><br>mm | ø d <sub>2</sub> | l <sub>1</sub> | l <sub>2</sub> | l <sub>3</sub> | l <sub>4</sub> | Z<br>(Flutes) | ZBGF-HCUT<br>2,5xd <sub>1</sub><br>HA<br>TIALN-T46 | ZBGF-HCUT<br>2,5xd <sub>1</sub><br>IKZ-HA<br>TIALN-T46   |
|---|------------------------|---------|------------------------|------------------|----------------|----------------|----------------|----------------|---------------|--|--|
|   |                        |         |                        |                  |                |                |                |                |               | GF743709.0030<br>GF743709.0040<br>GF743709.0050    | GF743709.0060<br>GF743709.0080<br>GF743709.0100<br>GF743709.0112<br>GF743709.0114<br>GF743709.0116 |
|   | 3                      | 0,5     | 2,3                    | 6                | 51             | 2              | 8,5            | 36             | 4             |  |  |
|   | 4                      | 0,7     | 3                      | 6                | 55             | 2,8            | 11,4           | 36             | 4             |  |  |
|   | 5                      | 0,8     | 3,8                    | 6                | 55             | 3,2            | 14,1           | 36             | 4             |  |  |
|   | 6                      | 1       | 4,6                    | 6                | 58             | 4              | 17             | 36             | 4             |  |  |
|   | 8                      | 1,25    | 6,2                    | 8                | 65             | 5              | 22,5           | 36             | 4             |  |  |
|   | 10                     | 1,5     | 7,8                    | 8                | 68             | 6              | 28             | 36             | 4             |  |  |
|   | 12                     | 1,75    | 9,5                    | 10               | 78             | 7              | 33,5           | 40             | 4             |  |  |
|   | 14                     | 2       | 11,1                   | 12               | 90             | 8              | 39             | 45             | 4             |  |  |
|   | 16                     | 2       | 13,1                   | 14               | 95             | 8              | 44             | 45             | 5             |  |  |

Weitere Ausführungen auf Anfrage  
Further designs upon request

Zubehör  
Accessories

BGF

**ZBGF**

GSF

GF

GF-VZ


GF-KEG

ZGF

ZIRK-GF

Gigant

MoSys



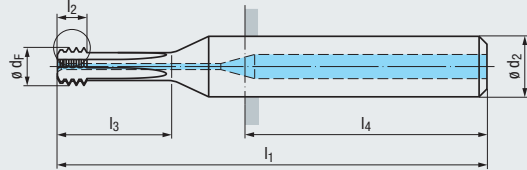
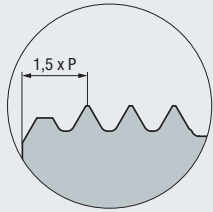
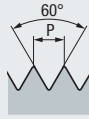

Gewinde-Tiefenlehndorne  
siehe Seite 588 - 591

Thread depth plug gauges,  
see page 588 - 591

- Product Finder
- $v_c / f_z$
- M
- MF
- UNC**  
UN, UNS
- UNF  
UNEF
- G, Rp
- NPT, NPTF  
Rc, W
- BSW, BSF
- Pg
- MJ  
UNJC, UNJF
- EG (STI)

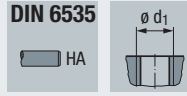
# UNC

ASME B1.1

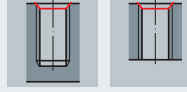


**VHM Carbide**  
**TIALN T46**

**RH + LH**    **LH-rot.**



Zum Anfassen geeignet  
Suitable for chamfering



### ZBGF-HCUT



new



new



Einsatzgebiete – Material  
Applications – material    >> 358

**N 2.7-2.8**  
**H 1.1-1.5**

Gewindetiefe  
Thread depth

## 2 x d<sub>1</sub>

| $\varnothing d_1$<br>inch | P<br>Gg/1" (tpi) | $\varnothing d_F$<br>mm | $\varnothing d_2$ | $l_1$ | $l_2$ | $l_3$ | $l_4$ | Z<br>(Flutes) |
|---------------------------|------------------|-------------------------|-------------------|-------|-------|-------|-------|---------------|
| Nr.10                     | 24               | 3,3                     | 6                 | 55    | 4,2   | 11,8  | 36    | 3             |
| 1/4                       | 20               | 4,5                     | 6                 | 56    | 5,1   | 15,2  | 36    | 3             |
| 5/16                      | 18               | 5,9                     | 6                 | 58    | 5,6   | 18,7  | 36    | 4             |
| 3/8                       | 16               | 7,2                     | 8                 | 64    | 6,4   | 22,2  | 36    | 4             |
| 7/16                      | 14               | 8,5                     | 10                | 72    | 7,3   | 25,9  | 40    | 4             |
| 1/2                       | 13               | 9,9                     | 10                | 74    | 7,8   | 29,3  | 40    | 4             |
| 5/8                       | 11               | 12,5                    | 14                | 88    | 9,2   | 36,4  | 45    | 4             |
| 3/4                       | 10               | 15,4                    | 16                | 98    | 10,2  | 43,2  | 48    | 5             |

**ZBGF-HCUT**  
**2xd<sub>1</sub>**  
**HA**  
**TIALN-T46**

**ZBGF-HCUT**  
**2xd<sub>1</sub>**  
**IKZ-HA**  
**TIALN-T46**

**GF733709.5007**  
**GF733709.5009**

**GF733709.5010**  
**GF733709.5011**  
**GF733709.5012**  
**GF733709.5013**  
**GF733709.5015**  
**GF733709.5016**

Gewindetiefe  
Thread depth

## 2,5 x d<sub>1</sub>

| $\varnothing d_1$<br>inch | P<br>Gg/1" (tpi) | $\varnothing d_F$<br>mm | $\varnothing d_2$ | $l_1$ | $l_2$ | $l_3$ | $l_4$ | Z<br>(Flutes) |
|---------------------------|------------------|-------------------------|-------------------|-------|-------|-------|-------|---------------|
| Nr.10                     | 24               | 3,3                     | 6                 | 55    | 4,2   | 14,2  | 36    | 3             |
| 1/4                       | 20               | 4,5                     | 6                 | 60    | 5,1   | 18,4  | 36    | 3             |
| 5/16                      | 18               | 5,9                     | 6                 | 62    | 5,6   | 22,7  | 36    | 4             |
| 3/8                       | 16               | 7,2                     | 8                 | 68    | 6,4   | 27    | 36    | 4             |
| 7/16                      | 14               | 8,5                     | 10                | 78    | 7,3   | 31,4  | 40    | 4             |
| 1/2                       | 13               | 9,9                     | 10                | 82    | 7,8   | 35,7  | 40    | 4             |
| 5/8                       | 11               | 12,5                    | 14                | 98    | 9,2   | 44,3  | 45    | 4             |
| 3/4                       | 10               | 15,4                    | 16                | 110   | 10,2  | 52,7  | 48    | 5             |

**ZBGF-HCUT**  
**2,5xd<sub>1</sub>**  
**HA**  
**TIALN-T46**

**ZBGF-HCUT**  
**2,5xd<sub>1</sub>**  
**IKZ-HA**  
**TIALN-T46**

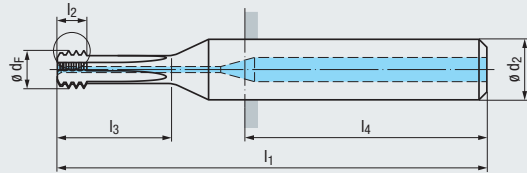
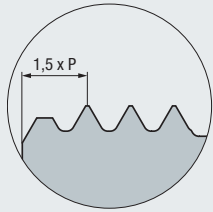
**GF743709.5007**  
**GF743709.5009**

**GF743709.5010**  
**GF743709.5011**  
**GF743709.5012**  
**GF743709.5013**  
**GF743709.5015**  
**GF743709.5016**

Weitere Ausführungen auf Anfrage  
Further designs upon request

**UNF**

ASME B1.1



**VHM Carbide**    **TIALN T46**



**RH + LH**    **LH-rot.**

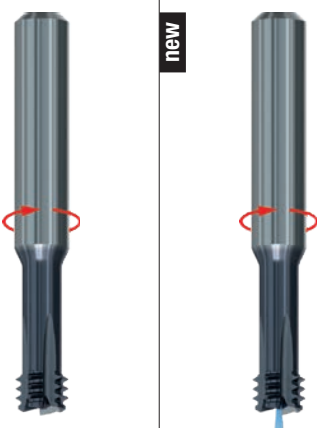
**Z4 - Z5**

**DIN 6535**  
HA

**Zum Anfasen geeignet**  
Suitable for chamfering

**ZBGF-HCUT**

**new**  **new** 



Product Finder

$v_c / f_z$

M

MF

UNC  
UN, UNS

**UNF**  
UNEF

G, Rp


NPT, NPTF  
Rc, W

BSW, BSF

Pg

MJ  
UNJC, UNJF

EG (STI)


Einsatzgebiete – Material Applications – material     358

**N** 2.7-2.8  
**H** 1.1-1.5

Gewindetiefe Thread depth

**2 x d<sub>1</sub>**

| $\varnothing d_1$<br>inch | P<br>Gg/1" (tpi) | $\varnothing d_F$<br>mm | $\varnothing d_2$ | $l_1$ | $l_2$ | $l_3$ | $l_4$ | Z<br>(Flutes) | ZBGF-HCUT<br>2xd <sub>1</sub><br>HA<br>TIALN-T46<br>GF733709.5041 | ZBGF-HCUT<br>2xd <sub>1</sub><br>IKZ-HA<br>TIALN-T46 |
|---------------------------|------------------|-------------------------|-------------------|-------|-------|-------|-------|---------------|---|--|
| Nr.10                     | 32               | 3,5                     | 6                 | 52    | 3,2   | 11,2  | 36    | 4             |   |  |
| 1/4                       | 28               | 4,8                     | 6                 | 55    | 3,6   | 14,5  | 36    | 4             |   | GF733709.5043  |
| 5/16                      | 24               | 6,2                     | 8                 | 60    | 4,2   | 18    | 36    | 4             |   | GF733709.5044  |
| 3/8                       | 24               | 7,7                     | 8                 | 62    | 4,2   | 21,2  | 36    | 4             |   | GF733709.5045  |
| 7/16                      | 20               | 8,9                     | 10                | 70    | 5,1   | 24,8  | 40    | 4             |   | GF733709.5046  |
| 1/2                       | 20               | 10,5                    | 12                | 80    | 5,1   | 27,9  | 45    | 4             |   | GF733709.5047  |
| 9/16                      | 18               | 11,8                    | 12                | 80    | 5,6   | 31,4  | 45    | 4             |   | GF733709.5048  |
| 5/8                       | 18               | 13,3                    | 14                | 85    | 5,6   | 34,6  | 45    | 5             |   | GF733709.5049  |
| 3/4                       | 16               | 15,9                    | 16                | 95    | 6,4   | 41,3  | 48    | 5             |   | GF733709.5050  |

**new**  **new** 

Gewindetiefe Thread depth

**2,5 x d<sub>1</sub>**

| $\varnothing d_1$<br>inch | P<br>Gg/1" (tpi) | $\varnothing d_F$<br>mm | $\varnothing d_2$ | $l_1$ | $l_2$ | $l_3$ | $l_4$ | Z<br>(Flutes) | ZBGF-HCUT<br>2,5xd <sub>1</sub><br>HA<br>TIALN-T46<br>GF743709.5041 | ZBGF-HCUT<br>2,5xd <sub>1</sub><br>IKZ-HA<br>TIALN-T46 |
|---------------------------|------------------|-------------------------|-------------------|-------|-------|-------|-------|---------------|---|--|
| Nr.10                     | 32               | 3,5                     | 6                 | 55    | 3,2   | 13,7  | 36    | 4             |   |  |
| 1/4                       | 28               | 4,8                     | 6                 | 58    | 3,6   | 17,7  | 36    | 4             |   | GF743709.5043  |
| 5/16                      | 24               | 6,2                     | 8                 | 64    | 4,2   | 22    | 36    | 4             |   | GF743709.5044  |
| 3/8                       | 24               | 7,7                     | 8                 | 66    | 4,2   | 25,9  | 36    | 4             |   | GF743709.5045  |
| 7/16                      | 20               | 8,9                     | 10                | 76    | 5,1   | 30,3  | 40    | 4             |   | GF743709.5046  |
| 1/2                       | 20               | 10,5                    | 12                | 85    | 5,1   | 34,3  | 45    | 4             |   | GF743709.5047  |
| 9/16                      | 18               | 11,8                    | 12                | 90    | 5,6   | 38,5  | 45    | 4             |   | GF743709.5048  |
| 5/8                       | 18               | 13,3                    | 14                | 93    | 5,6   | 42,5  | 45    | 5             |   | GF743709.5049  |
| 3/4                       | 16               | 15,9                    | 16                | 105   | 6,4   | 50,8  | 48    | 5             |   | GF743709.5050  |

Weitere Ausführungen auf Anfrage  
Further designs upon request

SELF-LOCK

Tr

Zubehör  
Accessories

BGF

**ZBGF**

GSF

GF

GF-VZ


GF-KEG

ZGF

ZIRK-GF

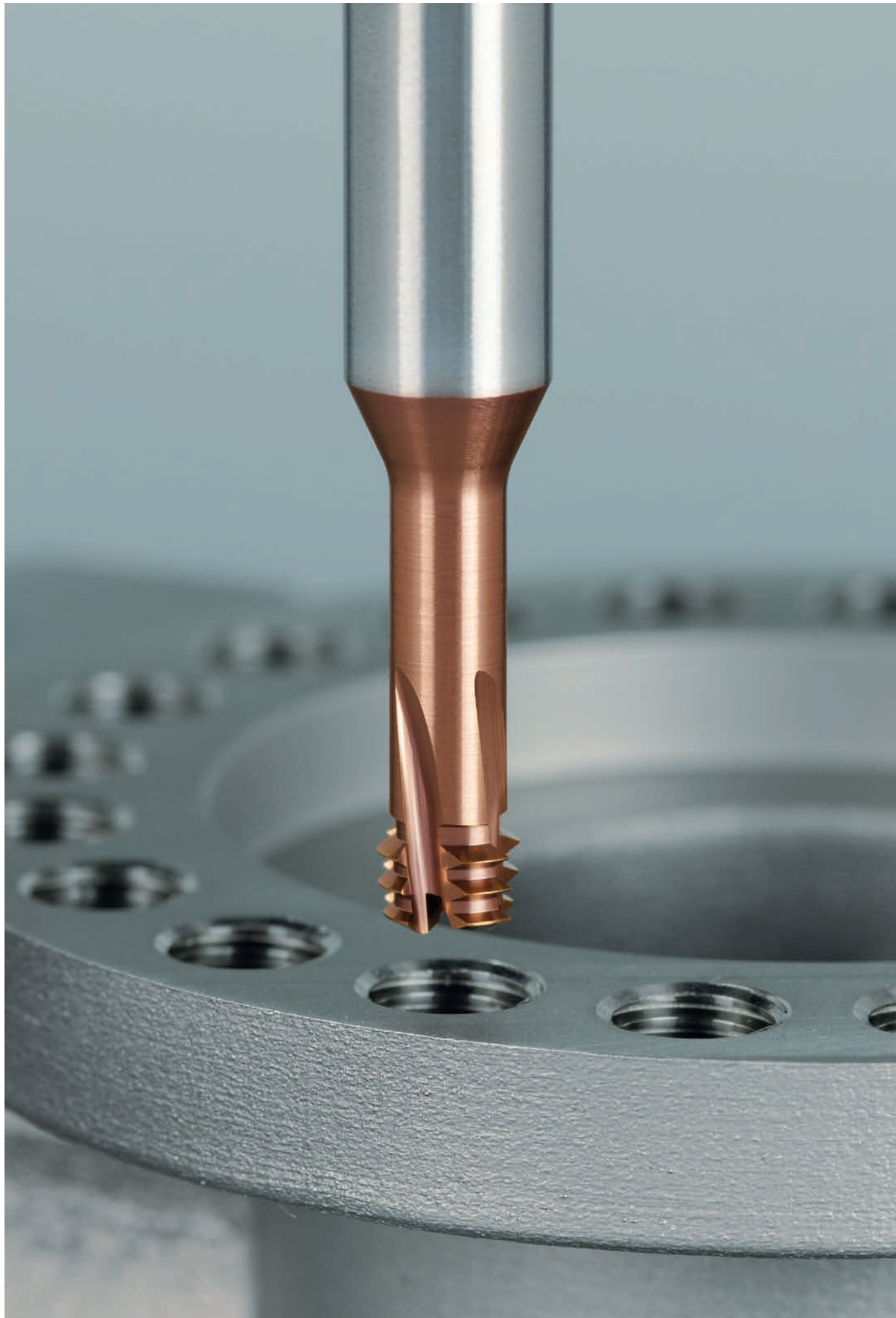
Gigant

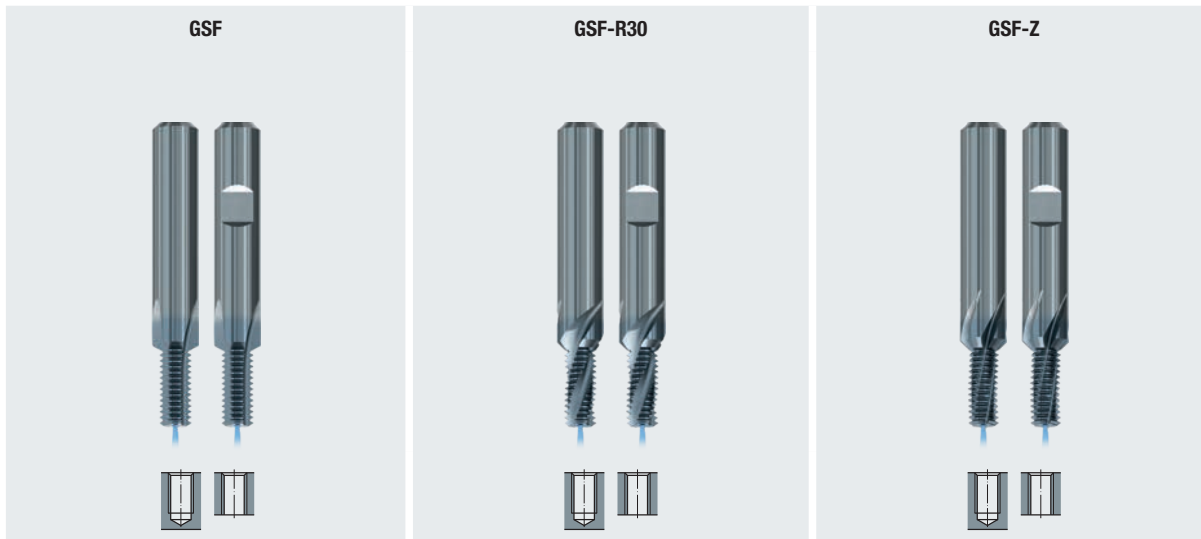
MoSys



|                        |
|------------------------|
| Product Finder         |
| $v_c / f_z$            |
| M                      |
| MF                     |
| UNC<br>UN, UNS         |
| UNF<br>UNEF            |
| G, Rp                  |
| NPT, NPTF<br>Rc, W     |
| BSW, BSF               |
| Pg                     |
| MJ<br>UNJC, UNJF       |
| EG (STI)               |
| SELF-LOCK              |
| Tr                     |
| Zubehör<br>Accessories |

|             |
|-------------|
| BGF         |
| <b>ZBGF</b> |
| GSF         |
| GF          |
| GF-VZ       |
| GF-KEG      |
| ZGF         |
| ZIRK-GF     |
| Gigant      |
| MoSys       |





Seite · Page

|           |           |           |                |
|-----------|-----------|-----------|----------------|
| 406 - 407 | 408 - 409 | 410 - 411 | <b>M</b>       |
| 412 - 413 | 414 - 415 | 416 - 417 | <b>MF</b>      |
|           | 418 - 419 |           | <b>UNC</b>     |
|           | 420 - 421 |           | <b>UNF</b>     |
|           | 422 - 423 |           | <b>G (BSP)</b> |
| 424 - 425 |           |           | <b>LK-M</b>    |

Mögliche Modifikationen siehe Seite 356 - 357  
Possible modifications, see pages 356 - 357

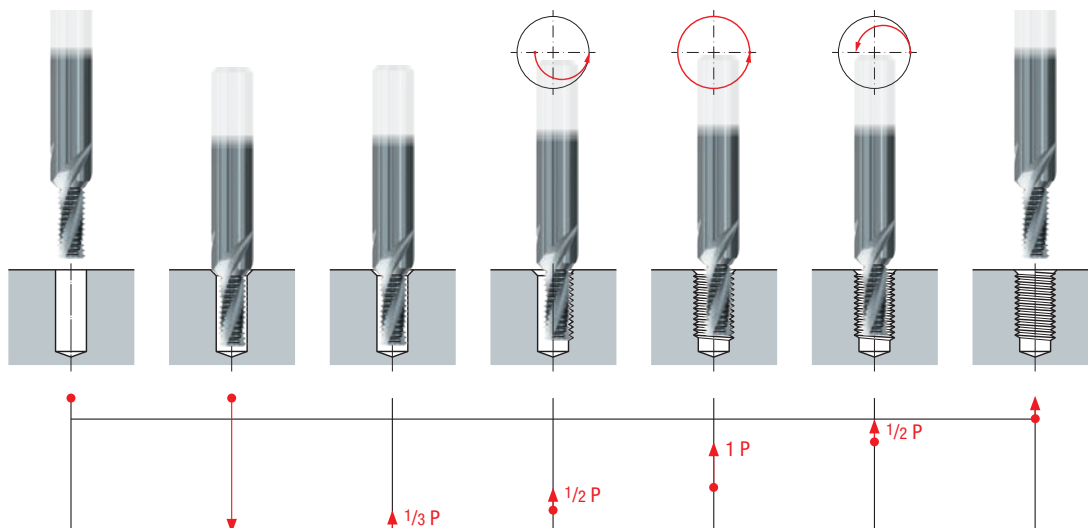
**Product Finder**

|                        |
|------------------------|
| $v_c / f_z$            |
| M                      |
| MF                     |
| UNC<br>UN, UNS         |
| UNF<br>UNEF            |
| G, Rp                  |
| NPT, NPTF<br>Rc, W     |
| BSW, BSF               |
| Pg                     |
| MJ<br>UNJC, UNJF       |
| EG (STI)               |
| SELF-LOCK              |
| Tr                     |
| Zubehör<br>Accessories |

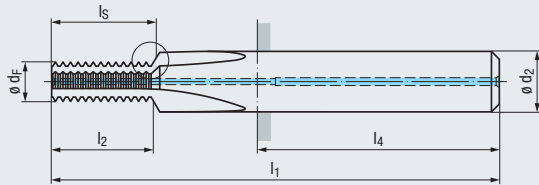
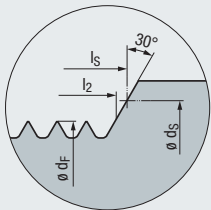
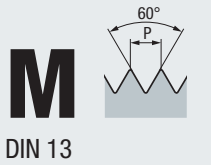
|            |
|------------|
| BGF        |
| ZBGF       |
| <b>GSF</b> |
| GF         |
| GF-VZ      |
| GF-KEG     |
| ZGF        |
| ZIRK-GF    |
| Gigant     |
| MoSys      |



**Gewindefräszyklus · Thread milling cycle**



- Product Finder
- $v_c / f_z$
- M
- MF
- UNC  
UN, UNS
- UNF  
UNEF
- G, Rp
- NPT, NPTF  
Rc, W
- BSW, BSF
- Pg
- MJ  
UNJC, UNJF



**VHM Carbide**

**RH + LH**

**Z3 - Z4** **DIN 6535**

HA HB

120°

$\varnothing d_1$

**GSF**

Einsatzgebiete – Material Applications – material [» 358](#)

|                  |                  |                           |
|------------------|------------------|---------------------------|
| <b>P</b> 1.1-5.1 | <b>K</b> 1.1-4.2 | <b>N</b> 1.1-1.5, 2.1-2.6 |
| <b>N</b> 3.1-4.2 | <b>N</b> 5.1-5.2 | <b>S</b> 1.1-1.3          |

Gewindetiefe Thread depth

**1,5 x d<sub>1</sub>**

|          | GSF 1,5xd <sub>1</sub> HA | GSF 1,5xd <sub>1</sub> IKZ-HA | GSF 1,5xd <sub>1</sub> IKZ-HB |
|----------|---------------------------|-------------------------------|-------------------------------|
| <b>M</b> | GF303701.0030             | GF323701.0040                 | GF323101.0040                 |
|          |                           | GF323701.0050                 | GF323101.0050                 |
|          |                           | GF323701.0060                 | GF323101.0060                 |
|          |                           | GF323701.0080                 | GF323101.0080                 |
|          |                           | GF323701.0100                 | GF323101.0100                 |
|          |                           | GF323701.0112                 | GF323101.0112                 |
|          |                           | GF323701.0114                 | GF323101.0114                 |
|          |                           | GF323701.0116                 | GF323101.0116                 |

|            | $\varnothing d_1$ mm | P mm | $\varnothing d_F$ mm | $\varnothing d_2$ | $\varnothing d_S$ | $l_1$ | $l_2$ | $l_4$ | $l_S$ | Z (Flutes) |
|------------|----------------------|------|----------------------|-------------------|-------------------|-------|-------|-------|-------|------------|
| <b>M</b>   | 3                    | 0,5  | 2,4                  | 4                 | 3,2               | 42    | 4,7   | 28    | 5     | 3          |
|            | 4                    | 0,7  | 3,15                 | 6                 | 4,2               | 55    | 5,9   | 36    | 6,2   | 3          |
|            | 5                    | 0,8  | 4                    | 6                 | 5,3               | 55    | 7,6   | 36    | 8     | 3          |
|            | 6                    | 1    | 4,8                  | 8                 | 6,3               | 62    | 9,5   | 36    | 9,9   | 3          |
|            | 8                    | 1,25 | 6,5                  | 10                | 8,4               | 74    | 13,1  | 40    | 13,7  | 3          |
|            | 10                   | 1,5  | 8,2                  | 12                | 10,5              | 80    | 15,7  | 45    | 16,4  | 3          |
| <b>GSF</b> | 12                   | 1,75 | 9,9                  | 14                | 12,6              | 90    | 18,3  | 45    | 19,1  | 4          |
|            | 14                   | 2    | 11,6                 | 16                | 14,7              | 100   | 23    | 48    | 23,9  | 4          |
| <b>GF</b>  | 16                   | 2    | 13,6                 | 18                | 16,8              | 102   | 25    | 48    | 25,9  | 4          |

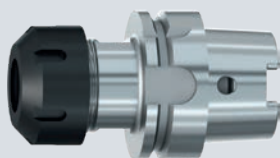
Gewindetiefe Thread depth

**2 x d<sub>1</sub>**

|          | GSF 2xd <sub>1</sub> HA | GSF 2xd <sub>1</sub> IKZ-HA | GSF 2xd <sub>1</sub> IKZ-HB |
|----------|-------------------------|-----------------------------|-----------------------------|
| <b>M</b> | GF313701.0030           | GF333701.0040               | GF333101.0040               |
|          |                         | GF333701.0050               | GF333101.0050               |
|          |                         | GF333701.0060               | GF333101.0060               |
|          |                         | GF333701.0080               | GF333101.0080               |
|          |                         | GF333701.0100               | GF333101.0100               |
|          |                         | GF333701.0112               | GF333101.0112               |
|          |                         | GF333701.0114               | GF333101.0114               |
|          |                         | GF333701.0116               | GF333101.0116               |

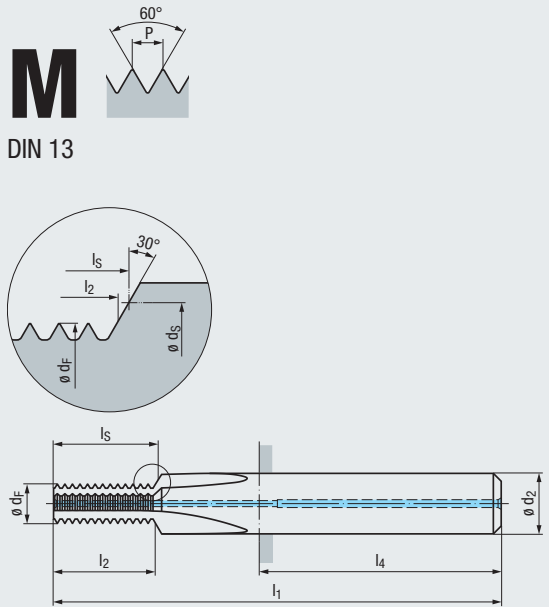
|          | $\varnothing d_1$ mm | P mm | $\varnothing d_F$ mm | $\varnothing d_2$ | $\varnothing d_S$ | $l_1$ | $l_2$ | $l_4$ | $l_S$ | Z (Flutes) |
|----------|----------------------|------|----------------------|-------------------|-------------------|-------|-------|-------|-------|------------|
| <b>M</b> | 3                    | 0,5  | 2,4                  | 4                 | 3,2               | 42    | 6,2   | 28    | 6,5   | 3          |
|          | 4                    | 0,7  | 3,15                 | 6                 | 4,2               | 55    | 8,7   | 36    | 9     | 3          |
|          | 5                    | 0,8  | 4                    | 6                 | 5,3               | 55    | 10,8  | 36    | 11,2  | 3          |
|          | 6                    | 1    | 4,8                  | 8                 | 6,3               | 62    | 12,5  | 36    | 12,9  | 3          |
|          | 8                    | 1,25 | 6,5                  | 10                | 8,4               | 74    | 16,8  | 40    | 17,4  | 3          |
|          | 10                   | 1,5  | 8,2                  | 12                | 10,5              | 80    | 20,2  | 45    | 20,9  | 3          |
|          | 12                   | 1,75 | 9,9                  | 14                | 12,6              | 90    | 25,3  | 45    | 26,1  | 4          |
|          | 14                   | 2    | 11,6                 | 16                | 14,7              | 100   | 29    | 48    | 29,9  | 4          |
|          | 16                   | 2    | 13,6                 | 18                | 16,8              | 102   | 33    | 48    | 33,9  | 4          |

Weitere Ausführungen auf Anfrage  
Further designs upon request



Spannzangen-Aufnahmen  
Typ KSN/Synchro  
siehe Seite 675 - 676

Collet holders  
type KSN/Synchro,  
see page 675 - 676



**M**  
DIN 13

**VHM Carbide**    **TICN**

**RH + LH**

**Z3 - Z4**    **DIN 6535**

**GSF**

Product Finder

$v_c / f_z$

**M**

MF

UNC UN, UNS

UNF UNEF

G, Rp

NPT, NPTF Rc, W

BSW, BSF

Pg

MJ UNJC, UNJF

Einsatzgebiete – Material Applications – material    358

**P** 1.1-5.1    **M** 1.1-4.1    **K** 1.1-4.2

**N** 1.1-5.3    **S** 1.1-2.6    **H** 1.1-1.2

EG (STI)

Gewindetiefe Thread depth

**1,5 x d<sub>1</sub>**

|          | $\varnothing d_1$<br>mm | P<br>mm | $\varnothing d_F$<br>mm | $\varnothing d_2$ | $\varnothing d_S$ | $l_1$ | $l_2$ | $l_4$ | $l_S$ | Z<br>(Flutes) |
|----------|-------------------------|---------|-------------------------|-------------------|-------------------|-------|-------|-------|-------|---------------|
| <b>M</b> | 3                       | 0,5     | 2,4                     | 4                 | 3,2               | 42    | 4,7   | 28    | 5     | 3             |
|          | 4                       | 0,7     | 3,15                    | 6                 | 4,2               | 55    | 5,9   | 36    | 6,2   | 3             |
|          | 5                       | 0,8     | 4                       | 6                 | 5,3               | 55    | 7,6   | 36    | 8     | 3             |
|          | 6                       | 1       | 4,8                     | 8                 | 6,3               | 62    | 9,5   | 36    | 9,9   | 3             |
|          | 8                       | 1,25    | 6,5                     | 10                | 8,4               | 74    | 13,1  | 40    | 13,7  | 3             |
|          | 10                      | 1,5     | 8,2                     | 12                | 10,5              | 80    | 15,7  | 45    | 16,4  | 3             |
|          | 12                      | 1,75    | 9,9                     | 14                | 12,6              | 90    | 18,3  | 45    | 19,1  | 4             |
|          | 14                      | 2       | 11,6                    | 16                | 14,7              | 100   | 23    | 48    | 23,9  | 4             |
|          | 16                      | 2       | 13,6                    | 18                | 16,8              | 102   | 25    | 48    | 25,9  | 4             |

| GSF<br>1,5xd <sub>1</sub><br>HA<br>TICN | GSF<br>1,5xd <sub>1</sub><br>IKZ-HA<br>TICN | GSF<br>1,5xd <sub>1</sub><br>IKZ-HB<br>TICN |
|---|---|---|
| <b>GF303706.0030</b>                    | <b>GF323706.0040</b>                        | <b>GF323106.0040</b>                        |
|   | <b>GF323706.0050</b>                        | <b>GF323106.0050</b>                        |
|   | <b>GF323706.0060</b>                        | <b>GF323106.0060</b>                        |
|   | <b>GF323706.0080</b>                        | <b>GF323106.0080</b>                        |
|   | <b>GF323706.0100</b>                        | <b>GF323106.0100</b>                        |
|   | <b>GF323706.0112</b>                        | <b>GF323106.0112</b>                        |
|   | <b>GF323706.0114</b>                        | <b>GF323106.0114</b>                        |
|   | <b>GF323706.0116</b>                        | <b>GF323106.0116</b>                        |

SELF-LOCK

Tr

Zubehör Accessories

Gewindetiefe Thread depth

**2 x d<sub>1</sub>**

|          | $\varnothing d_1$<br>mm | P<br>mm | $\varnothing d_F$<br>mm | $\varnothing d_2$ | $\varnothing d_S$ | $l_1$ | $l_2$ | $l_4$ | $l_S$ | Z<br>(Flutes) |
|----------|-------------------------|---------|-------------------------|-------------------|-------------------|-------|-------|-------|-------|---------------|
| <b>M</b> | 3                       | 0,5     | 2,4                     | 4                 | 3,2               | 42    | 6,2   | 28    | 6,5   | 3             |
|          | 4                       | 0,7     | 3,15                    | 6                 | 4,2               | 55    | 8,7   | 36    | 9     | 3             |
|          | 5                       | 0,8     | 4                       | 6                 | 5,3               | 55    | 10,8  | 36    | 11,2  | 3             |
|          | 6                       | 1       | 4,8                     | 8                 | 6,3               | 62    | 12,5  | 36    | 12,9  | 3             |
|          | 8                       | 1,25    | 6,5                     | 10                | 8,4               | 74    | 16,8  | 40    | 17,4  | 3             |
|          | 10                      | 1,5     | 8,2                     | 12                | 10,5              | 80    | 20,2  | 45    | 20,9  | 3             |
|          | 12                      | 1,75    | 9,9                     | 14                | 12,6              | 90    | 25,3  | 45    | 26,1  | 4             |
|          | 14                      | 2       | 11,6                    | 16                | 14,7              | 100   | 29    | 48    | 29,9  | 4             |
|          | 16                      | 2       | 13,6                    | 18                | 16,8              | 102   | 33    | 48    | 33,9  | 4             |

| GSF<br>2xd <sub>1</sub><br>HA<br>TICN | GSF<br>2xd <sub>1</sub><br>IKZ-HA<br>TICN | GSF<br>2xd <sub>1</sub><br>IKZ-HB<br>TICN |
|---------------------------------------|---|---|
| <b>GF313706.0030</b>                  | <b>GF333706.0040</b>                      | <b>GF333106.0040</b>                      |
|                                       | <b>GF333706.0050</b>                      | <b>GF333106.0050</b>                      |
|                                       | <b>GF333706.0060</b>                      | <b>GF333106.0060</b>                      |
|                                       | <b>GF333706.0080</b>                      | <b>GF333106.0080</b>                      |
|                                       | <b>GF333706.0100</b>                      | <b>GF333106.0100</b>                      |
|                                       | <b>GF333706.0112</b>                      | <b>GF333106.0112</b>                      |
|                                       | <b>GF333706.0114</b>                      | <b>GF333106.0114</b>                      |
|                                       | <b>GF333706.0116</b>                      | <b>GF333106.0116</b>                      |

GF-VZ

GF-KEG

ZGF

ZIRK-GF

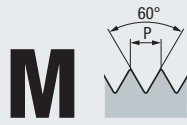
Gigant

MoSys

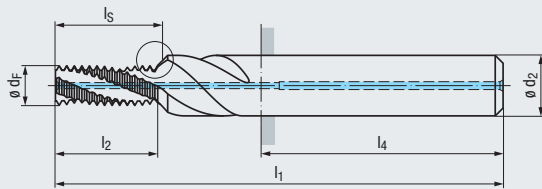
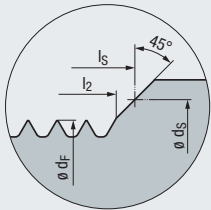
Weitere Ausführungen auf Anfrage  
Further designs upon request



- Product Finder
- $v_c / f_z$
- M
- MF
- UNC  
UN, UNS
- UNF  
UNEF
- G, Rp
- NPT, NPTF  
Rc, W
- BSW, BSF
- Pg
- MJ  
UNJC, UNJF



**M**  
DIN 13



**VHM**  
Carbide

**R30**

**RH + LH**

**Z3 - Z4**

**DIN 6535**



**GSF-R30**



Einsatzgebiete – Material Applications – material » 358

|                  |                  |                           |
|------------------|------------------|---------------------------|
| <b>P</b> 1.1-3.1 | <b>K</b> 1.1-4.2 | <b>N</b> 1.1-1.5, 2.1-2.6 |
| <b>N</b> 3.1-4.2 | <b>N</b> 5.1-5.2 | <b>S</b> 1.1-1.2          |

Gewindetiefe Thread depth

**1,5 x d<sub>1</sub>**

|             | $\varnothing d_1$<br>mm | P<br>mm | $\varnothing d_f$<br>mm | $\varnothing d_2$ | $\varnothing d_s$ | $l_1$ | $l_2$ | $l_4$ | $l_s$ | Z<br>(Flutes) |
|-------------|-------------------------|---------|-------------------------|-------------------|-------------------|-------|-------|-------|-------|---------------|
| <b>M</b>    | 5                       | 0,8     | 4                       | 6                 | 5,3               | 55    | 7,6   | 36    | 8,2   | 3             |
|             | 6                       | 1       | 4,8                     | 8                 | 6,3               | 62    | 9,5   | 36    | 10,2  | 3             |
| <b>BGF</b>  | 8                       | 1,25    | 6,5                     | 10                | 8,4               | 74    | 13,2  | 40    | 14    | 3             |
|             | 10                      | 1,5     | 8,2                     | 12                | 10,5              | 80    | 15,8  | 45    | 16,8  | 3             |
| <b>ZBGF</b> | 12                      | 1,75    | 9,9                     | 14                | 12,6              | 90    | 18,4  | 45    | 19,6  | 4             |
|             | 14                      | 2       | 11,6                    | 16                | 14,7              | 100   | 23,1  | 48    | 24,4  | 4             |
| <b>GSF</b>  | 16                      | 2       | 13,6                    | 18                | 16,8              | 102   | 25,1  | 48    | 26,5  | 4             |

**GSF**  
1,5x d<sub>1</sub>  
R30-IKZ-HA

**GSF**  
1,5x d<sub>1</sub>  
R30-IKZ-HB

|                      |                      |
|----------------------|----------------------|
| <b>GF322701.0050</b> | <b>GF322101.0050</b> |
| <b>GF322701.0060</b> | <b>GF322101.0060</b> |
| <b>GF322701.0080</b> | <b>GF322101.0080</b> |
| <b>GF322701.0100</b> | <b>GF322101.0100</b> |
| <b>GF322701.0112</b> | <b>GF322101.0112</b> |
| <b>GF322701.0114</b> | <b>GF322101.0114</b> |
| <b>GF322701.0116</b> | <b>GF322101.0116</b> |

Gewindetiefe Thread depth

**2 x d<sub>1</sub>**

|             | $\varnothing d_1$<br>mm | P<br>mm | $\varnothing d_f$<br>mm | $\varnothing d_2$ | $\varnothing d_s$ | $l_1$ | $l_2$ | $l_4$ | $l_s$ | Z<br>(Flutes) |
|-------------|-------------------------|---------|-------------------------|-------------------|-------------------|-------|-------|-------|-------|---------------|
| <b>M</b>    | 5                       | 0,8     | 4                       | 6                 | 5,3               | 55    | 10,8  | 36    | 11,4  | 3             |
|             | 6                       | 1       | 4,8                     | 8                 | 6,3               | 62    | 12,5  | 36    | 13,2  | 3             |
| <b>BGF</b>  | 8                       | 1,25    | 6,5                     | 10                | 8,4               | 74    | 16,9  | 40    | 17,8  | 3             |
|             | 10                      | 1,5     | 8,2                     | 12                | 10,5              | 80    | 20,3  | 45    | 21,3  | 3             |
| <b>ZBGF</b> | 12                      | 1,75    | 9,9                     | 14                | 12,6              | 90    | 25,4  | 45    | 26,6  | 4             |
|             | 14                      | 2       | 11,6                    | 16                | 14,7              | 100   | 29,1  | 48    | 30,4  | 4             |
| <b>GSF</b>  | 16                      | 2       | 13,6                    | 18                | 16,8              | 102   | 33,1  | 48    | 34,5  | 4             |

**GSF**  
2x d<sub>1</sub>  
R30-IKZ-HA

**GSF**  
2x d<sub>1</sub>  
R30-IKZ-HB

|                      |                      |
|----------------------|----------------------|
| <b>GF332701.0050</b> | <b>GF332101.0050</b> |
| <b>GF332701.0060</b> | <b>GF332101.0060</b> |
| <b>GF332701.0080</b> | <b>GF332101.0080</b> |
| <b>GF332701.0100</b> | <b>GF332101.0100</b> |
| <b>GF332701.0112</b> | <b>GF332101.0112</b> |
| <b>GF332701.0114</b> | <b>GF332101.0114</b> |
| <b>GF332701.0116</b> | <b>GF332101.0116</b> |

Gewindetiefe Thread depth

**2,5 x d<sub>1</sub>**

|             | $\varnothing d_1$<br>mm | P<br>mm | $\varnothing d_f$<br>mm | $\varnothing d_2$ | $\varnothing d_s$ | $l_1$ | $l_2$ | $l_4$ | $l_s$ | Z<br>(Flutes) |
|-------------|-------------------------|---------|-------------------------|-------------------|-------------------|-------|-------|-------|-------|---------------|
| <b>M</b>    | 5                       | 0,8     | 4                       | 6                 | 5,3               | 58    | 13,2  | 36    | 13,8  | 3             |
|             | 6                       | 1       | 4,8                     | 8                 | 6,3               | 65    | 15,5  | 36    | 16,2  | 3             |
| <b>BGF</b>  | 8                       | 1,25    | 6,5                     | 10                | 8,4               | 78    | 20,7  | 40    | 21,5  | 3             |
|             | 10                      | 1,5     | 8,2                     | 12                | 10,5              | 85    | 26,3  | 45    | 27,3  | 3             |
| <b>ZBGF</b> | 12                      | 1,75    | 9,9                     | 14                | 12,6              | 95    | 30,7  | 45    | 31,9  | 4             |
|             | 16                      | 2       | 13,6                    | 18                | 16,8              | 110   | 41,1  | 48    | 42,5  | 4             |

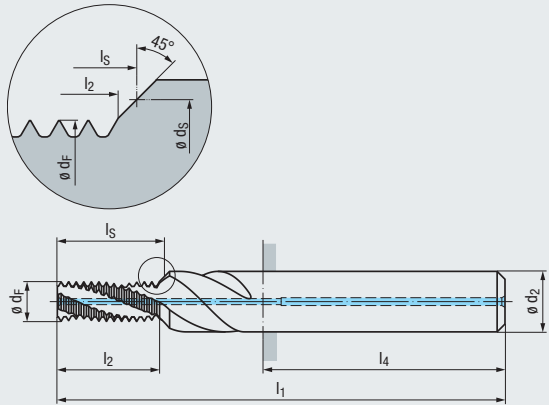
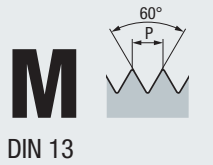
**GSF**  
2,5x d<sub>1</sub>  
R30-IKZ-HA

**GSF**  
2,5x d<sub>1</sub>  
R30-IKZ-HB

|                      |                      |
|----------------------|----------------------|
| <b>GF342701.0050</b> | <b>GF342101.0050</b> |
| <b>GF342701.0060</b> | <b>GF342101.0060</b> |
| <b>GF342701.0080</b> | <b>GF342101.0080</b> |
| <b>GF342701.0100</b> | <b>GF342101.0100</b> |
| <b>GF342701.0112</b> | <b>GF342101.0112</b> |
| <b>GF342701.0116</b> | <b>GF342101.0116</b> |



Weitere Ausführungen auf Anfrage  
Further designs upon request







|             |          |
|-------------|----------|
| VHM Carbide | TICN     |
| R30         | RH + LH  |
| Z3 - Z4     | DIN 6535 |
|             | HA<br>HB |
|             |          |
|             |          |

**GSF-R30**

- Product Finder
- $v_c / f_z$
- M
- MF
- UNC UN, UNS
- UNF UNEF
- G, Rp
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr
- Zubehör Accessories
- BGF
- ZBGF
- GSF
- GF
- GF-VZ
- GF-KEG
- ZGF
- ZIRK-GF
- Gigant
- MoSys

Einsatzgebiete – Material Applications – material » 358

|           |           |                |
|-----------|-----------|----------------|
| P 1.1-3.1 | M 1.1-2.1 | K 1.1-4.2      |
| N 1.1-2.7 | N 3.1-5.3 | S 1.1-1.2, 2.1 |

Gewindetiefe Thread depth

**1,5 x d<sub>1</sub>**

| GSF 1,5xd <sub>1</sub> R30-IKZ-HA TICN | GSF 1,5xd <sub>1</sub> R30-IKZ-HB TICN |
|--|--|
| GF322706.0050                          | GF322106.0050                          |
| GF322706.0060                          | GF322106.0060                          |
| GF322706.0080                          | GF322106.0080                          |
| GF322706.0100                          | GF322106.0100                          |
| GF322706.0112                          | GF322106.0112                          |
| GF322706.0114                          | GF322106.0114                          |
| GF322706.0116                          | GF322106.0116                          |

|          | $\varnothing d_1$<br>mm | P<br>mm | $\varnothing d_F$<br>mm | $\varnothing d_2$ | $\varnothing d_S$ | $l_1$ | $l_2$ | $l_4$ | $l_5$ | Z<br>(Flutes) |
|----------|-------------------------|---------|-------------------------|-------------------|-------------------|-------|-------|-------|-------|---------------|
| <b>M</b> | 5                       | 0,8     | 4                       | 6                 | 5,3               | 55    | 7,6   | 36    | 8,2   | 3             |
|          | 6                       | 1       | 4,8                     | 8                 | 6,3               | 62    | 9,5   | 36    | 10,2  | 3             |
|          | 8                       | 1,25    | 6,5                     | 10                | 8,4               | 74    | 13,2  | 40    | 14    | 3             |
|          | 10                      | 1,5     | 8,2                     | 12                | 10,5              | 80    | 15,8  | 45    | 16,8  | 3             |
|          | 12                      | 1,75    | 9,9                     | 14                | 12,6              | 90    | 18,4  | 45    | 19,6  | 4             |
|          | 14                      | 2       | 11,6                    | 16                | 14,7              | 100   | 23,1  | 48    | 24,4  | 4             |
|          | 16                      | 2       | 13,6                    | 18                | 16,8              | 102   | 25,1  | 48    | 26,5  | 4             |

Gewindetiefe Thread depth

**2 x d<sub>1</sub>**

| GSF 2xd <sub>1</sub> R30-IKZ-HA TICN | GSF 2xd <sub>1</sub> R30-IKZ-HB TICN |
|--------------------------------------|--------------------------------------|
| GF332706.0050                        | GF332106.0050                        |
| GF332706.0060                        | GF332106.0060                        |
| GF332706.0080                        | GF332106.0080                        |
| GF332706.0100                        | GF332106.0100                        |
| GF332706.0112                        | GF332106.0112                        |
| GF332706.0114                        | GF332106.0114                        |
| GF332706.0116                        | GF332106.0116                        |

|          | $\varnothing d_1$<br>mm | P<br>mm | $\varnothing d_F$<br>mm | $\varnothing d_2$ | $\varnothing d_S$ | $l_1$ | $l_2$ | $l_4$ | $l_5$ | Z<br>(Flutes) |
|----------|-------------------------|---------|-------------------------|-------------------|-------------------|-------|-------|-------|-------|---------------|
| <b>M</b> | 5                       | 0,8     | 4                       | 6                 | 5,3               | 55    | 10,8  | 36    | 11,4  | 3             |
|          | 6                       | 1       | 4,8                     | 8                 | 6,3               | 62    | 12,5  | 36    | 13,2  | 3             |
|          | 8                       | 1,25    | 6,5                     | 10                | 8,4               | 74    | 16,9  | 40    | 17,8  | 3             |
|          | 10                      | 1,5     | 8,2                     | 12                | 10,5              | 80    | 20,3  | 45    | 21,3  | 3             |
|          | 12                      | 1,75    | 9,9                     | 14                | 12,6              | 90    | 25,4  | 45    | 26,6  | 4             |
|          | 14                      | 2       | 11,6                    | 16                | 14,7              | 100   | 29,1  | 48    | 30,4  | 4             |
|          | 16                      | 2       | 13,6                    | 18                | 16,8              | 102   | 33,1  | 48    | 34,5  | 4             |

Gewindetiefe Thread depth

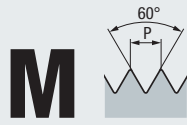
**2,5 x d<sub>1</sub>**

| GSF 2,5xd <sub>1</sub> R30-IKZ-HA TICN | GSF 2,5xd <sub>1</sub> R30-IKZ-HB TICN |
|--|--|
| GF342706.0050                          | GF342106.0050                          |
| GF342706.0060                          | GF342106.0060                          |
| GF342706.0080                          | GF342106.0080                          |
| GF342706.0100                          | GF342106.0100                          |
| GF342706.0112                          | GF342106.0112                          |
| GF342706.0116                          | GF342106.0116                          |

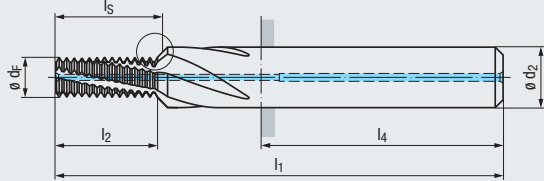
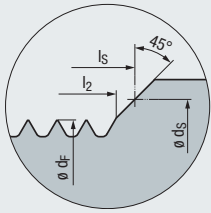
|          | $\varnothing d_1$<br>mm | P<br>mm | $\varnothing d_F$<br>mm | $\varnothing d_2$ | $\varnothing d_S$ | $l_1$ | $l_2$ | $l_4$ | $l_5$ | Z<br>(Flutes) |
|----------|-------------------------|---------|-------------------------|-------------------|-------------------|-------|-------|-------|-------|---------------|
| <b>M</b> | 5                       | 0,8     | 4                       | 6                 | 5,3               | 58    | 13,2  | 36    | 13,8  | 3             |
|          | 6                       | 1       | 4,8                     | 8                 | 6,3               | 65    | 15,5  | 36    | 16,2  | 3             |
|          | 8                       | 1,25    | 6,5                     | 10                | 8,4               | 78    | 20,7  | 40    | 21,5  | 3             |
|          | 10                      | 1,5     | 8,2                     | 12                | 10,5              | 85    | 26,3  | 45    | 27,3  | 3             |
|          | 12                      | 1,75    | 9,9                     | 14                | 12,6              | 95    | 30,7  | 45    | 31,9  | 4             |
|          | 16                      | 2       | 13,6                    | 18                | 16,8              | 110   | 41,1  | 48    | 42,5  | 4             |

Weitere Ausführungen auf Anfrage  
Further designs upon request

- Product Finder
- $v_c / f_z$
- M
- MF
- UNC  
UN, UNS
- UNF  
UNEF
- G, Rp
- NPT, NPTF  
Rc, W
- BSW, BSF
- Pg
- MJ  
UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr
- Zubehör  
Accessories
- BGF
- ZBGF
- GSF
- GF
- GF-VZ
- GF-KEG
- ZGF
- ZIRK-GF
- Gigant
- MoSys



**M**  
DIN 13



**VHM Carbide**

**R15 RH + LH**

**Z4 - Z5 DIN 6535**

HA HB

90°

theta d\_1

**GSF-Z**

**Mit höherer Nutenzahl**  
With increased number of flutes

Einsatzgebiete – Material Applications – material » 358

**P** 1.1-5.1 **K** 1.1-4.2 **N** 1.1-1.5, 2.1-2.6  
**N** 3.1-4.2 **N** 5.1-5.2 **S** 1.1-1.3

Gewindetiefe Thread depth

2 x d<sub>1</sub>

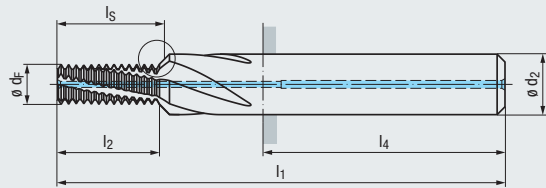
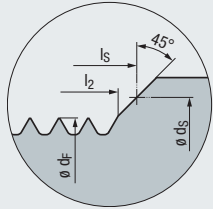
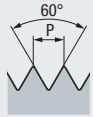
|            | ø d <sub>1</sub><br>mm | P<br>mm | ø d <sub>F</sub><br>mm | ø d <sub>2</sub> | ø d <sub>S</sub> | l <sub>1</sub> | l <sub>2</sub> | l <sub>4</sub> | l <sub>S</sub> | Z<br>(Flutes) | GSF-Z<br>2xd <sub>1</sub> |                      |
|------------|------------------------|---------|------------------------|------------------|------------------|----------------|----------------|----------------|----------------|---------------|---------------------------|----------------------|
|            |                        |         |                        |                  |                  |                |                |                |                |               | R15-IKZ-HA                | R15-IKZ-HB           |
| <b>M</b>   | 6                      | 1       | 4,8                    | 8                | 6,3              | 62             | 12,5           | 36             | 13,2           | 4             | <b>GF335721.0060</b>      | <b>GF335121.0060</b> |
|            | 8                      | 1,25    | 6,5                    | 10               | 8,4              | 74             | 16,9           | 40             | 17,7           | 4             | <b>GF335721.0080</b>      | <b>GF335121.0080</b> |
| <b>GSF</b> | 10                     | 1,5     | 8,2                    | 12               | 10,5             | 80             | 20,3           | 45             | 21,3           | 5             | <b>GF335721.0100</b>      | <b>GF335121.0100</b> |
|            | 12                     | 1,75    | 9,9                    | 14               | 12,6             | 90             | 25,4           | 45             | 26,6           | 5             | <b>GF335721.0112</b>      | <b>GF335121.0112</b> |

Weitere Ausführungen auf Anfrage  
Further designs upon request



**M**

DIN 13



|                    |                 |
|--------------------|-----------------|
| <b>VHM Carbide</b> | <b>TICN</b>     |
| <b>R15</b>         | <b>RH + LH</b>  |
| <b>Z4 - Z5</b>     | <b>DIN 6535</b> |
|                    |                 |
|                    |                 |
|                    |                 |

**GSF-Z**

**Mit höherer Nutenzahl**  
With increased number of flutes

- Product Finder
- $v_c / f_z$
- M
- MF
- UNC UN, UNS
- UNF UNEF
- G, Rp
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr
- Zubehör Accessories
- BGF
- ZBGF
- GSF**
- GF
- GF-VZ
- GF-KEG
- ZGF
- ZIRK-GF
- Gigant
- MoSys

Einsatzgebiete – Material Applications – material [» 358](#)

|                  |                  |                  |
|------------------|------------------|------------------|
| <b>P</b> 1.1-5.1 | <b>M</b> 1.1-4.1 | <b>K</b> 1.1-4.2 |
| <b>N</b> 1.1-5.3 | <b>S</b> 1.1-2.6 | <b>H</b> 1.1-1.2 |

Gewindetiefe Thread depth

**2 x d<sub>1</sub>**

|          | ø d <sub>1</sub><br>mm | P<br>mm | ø d <sub>F</sub><br>mm | ø d <sub>2</sub> | ø d <sub>S</sub> | l <sub>1</sub> | l <sub>2</sub> | l <sub>4</sub> | l <sub>S</sub> | Z<br>(Flutes) | GSF-Z<br>2xd <sub>1</sub><br>R15- <b>IKZ</b> - <b>HA</b><br>TICN |               | GSF-Z<br>2xd <sub>1</sub><br>R15- <b>IKZ</b> - <b>HB</b><br>TICN |               |
|----------|------------------------|---------|------------------------|------------------|------------------|----------------|----------------|----------------|----------------|---------------|--|---------------|--|---------------|
|          |                        |         |                        |                  |                  |                |                |                |                |               | GF335726.0060  | GF335726.0080 | GF335726.0100  | GF335726.0112 |
| <b>M</b> | 6                      | 1       | 4,8                    | 8                | 6,3              | 62             | 12,5           | 36             | 13,2           | 4             |  |               |  |               |
|          | 8                      | 1,25    | 6,5                    | 10               | 8,4              | 74             | 16,9           | 40             | 17,7           | 4             |  |               |  |               |
|          | 10                     | 1,5     | 8,2                    | 12               | 10,5             | 80             | 20,3           | 45             | 21,3           | 5             |  |               |  |               |
|          | 12                     | 1,75    | 9,9                    | 14               | 12,6             | 90             | 25,4           | 45             | 26,6           | 5             |  |               |  |               |

Weitere Ausführungen auf Anfrage  
Further designs upon request

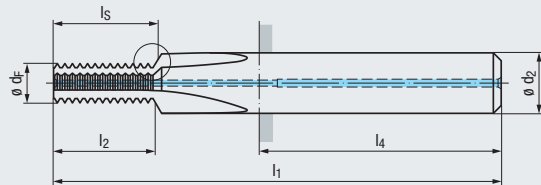
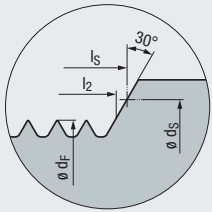
Spiralbohrer siehe Seite 11 - 70

Twist drills, see page 11 - 70

- Product Finder
- $v_c / f_z$
- M
- MF
- UNC  
UN, UNS
- UNF  
UNEF
- G, Rp
- NPT, NPTF  
Rc, W
- BSW, BSF
- Pg
- MJ  
UNJC, UNJF

# MF

DIN 13



VHM  
Carbide

RH + LH

Z3 - Z4



DIN 6535



GSF



Einsatzgebiete – Material  
Applications – material

» 358

P 1.1-5.1 K 1.1-4.2 N 1.1-1.5, 2.1-2.6  
N 3.1-4.2 N 5.1-5.2 S 1.1-1.3

Gewindetiefe  
Thread depth

### 1,5 x d<sub>1</sub>

|             | $\emptyset d_1$<br>mm | x | P<br>mm | $\emptyset d_F$<br>mm | $\emptyset d_2$ | $\emptyset d_S$ | l <sub>1</sub> | l <sub>2</sub> | l <sub>4</sub> | l <sub>S</sub> | Z<br>(Flutes) | GSF<br>1,5x d <sub>1</sub><br>IKZ-HA | GSF<br>1,5x d <sub>1</sub><br>IKZ-HB |
|-------------|-----------------------|---|---------|-----------------------|-----------------|-----------------|----------------|----------------|----------------|----------------|---------------|--------------------------------------|--------------------------------------|
|             |                       |   |         |                       |                 |                 |                |                |                |                |               |                                      |                                      |
| <b>M</b>    | 6                     | x | 0,75    | 5                     | 8               | 6,3             | 62             | 9,4            | 36             | 9,7            | 3             | GF323701.0229                        | GF323101.0229                        |
|             | 8                     | x | 1       | 6,7                   | 10              | 8,4             | 74             | 12,5           | 40             | 13             | 3             | GF323701.0251                        | GF323101.0251                        |
|             | 10                    | x | 1       | 8,7                   | 12              | 10,5            | 80             | 15,5           | 45             | 16             | 3             | GF323701.0276                        | GF323101.0276                        |
| <b>BGF</b>  | 10                    | x | 1,25    | 8,4                   | 12              | 10,5            | 80             | 15,6           | 45             | 16,2           | 3             | GF323701.0277                        | GF323101.0277                        |
|             | 12                    | x | 1       | 10,6                  | 14              | 12,6            | 90             | 18,5           | 45             | 19,1           | 4             | GF323701.0301                        | GF323101.0301                        |
| <b>ZBGF</b> | 12                    | x | 1,25    | 10,4                  | 14              | 12,6            | 90             | 18,1           | 45             | 18,7           | 4             | GF323701.0302                        | GF323101.0302                        |
|             | 12                    | x | 1,5     | 10,1                  | 14              | 12,6            | 90             | 18,7           | 45             | 19,4           | 4             | GF323701.0303                        | GF323101.0303                        |
| <b>GSF</b>  | 14                    | x | 1,5     | 12,1                  | 16              | 14,7            | 100            | 21,7           | 48             | 22,5           | 4             | GF323701.0331                        | GF323101.0331                        |
| <b>GF</b>   | 16                    | x | 1,5     | 14                    | 18              | 16,8            | 102            | 24,7           | 48             | 25,5           | 4             | GF323701.0359                        | GF323101.0359                        |

Gewindetiefe  
Thread depth

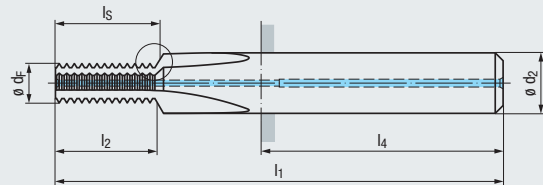
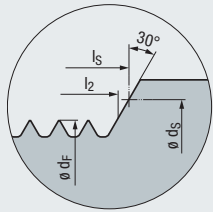
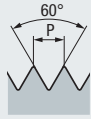
### 2 x d<sub>1</sub>

|             | $\emptyset d_1$<br>mm | x | P<br>mm | $\emptyset d_F$<br>mm | $\emptyset d_2$ | $\emptyset d_S$ | l <sub>1</sub> | l <sub>2</sub> | l <sub>4</sub> | l <sub>S</sub> | Z<br>(Flutes) | GSF<br>2x d <sub>1</sub><br>IKZ-HA | GSF<br>2x d <sub>1</sub><br>IKZ-HB |
|-------------|-----------------------|---|---------|-----------------------|-----------------|-----------------|----------------|----------------|----------------|----------------|---------------|------------------------------------|------------------------------------|
|             |                       |   |         |                       |                 |                 |                |                |                |                |               |                                    |                                    |
| <b>M</b>    | 6                     | x | 0,75    | 5                     | 8               | 6,3             | 62             | 12,4           | 36             | 12,7           | 3             | GF333701.0229                      | GF333101.0229                      |
|             | 8                     | x | 1       | 6,7                   | 10              | 8,4             | 74             | 16,5           | 40             | 17             | 3             | GF333701.0251                      | GF333101.0251                      |
|             | 10                    | x | 1       | 8,7                   | 12              | 10,5            | 80             | 20,5           | 45             | 21             | 3             | GF333701.0276                      | GF333101.0276                      |
| <b>BGF</b>  | 10                    | x | 1,25    | 8,4                   | 12              | 10,5            | 80             | 20,6           | 45             | 21,2           | 3             | GF333701.0277                      | GF333101.0277                      |
|             | 12                    | x | 1       | 10,6                  | 14              | 12,6            | 90             | 24,5           | 45             | 25,1           | 4             | GF333701.0301                      | GF333101.0301                      |
| <b>ZBGF</b> | 12                    | x | 1,25    | 10,4                  | 14              | 12,6            | 90             | 24,3           | 45             | 25             | 4             | GF333701.0302                      | GF333101.0302                      |
|             | 12                    | x | 1,5     | 10,1                  | 14              | 12,6            | 90             | 24,7           | 45             | 25,4           | 4             | GF333701.0303                      | GF333101.0303                      |
| <b>GSF</b>  | 14                    | x | 1,5     | 12,1                  | 16              | 14,7            | 100            | 29,2           | 48             | 30             | 4             | GF333701.0331                      | GF333101.0331                      |
| <b>GF</b>   | 16                    | x | 1,5     | 14                    | 18              | 16,8            | 102            | 32,2           | 48             | 33             | 4             | GF333701.0359                      | GF333101.0359                      |

Weitere Ausführungen auf Anfrage  
Further designs upon request

**MF**

DIN 13



VHM Carbide

TICN

RH + LH

Z3 - Z4

DIN 6535



GSF



Einsatzgebiete – Material  
Applications – material

» 358

P 1.1-5.1 M 1.1-4.1 K 1.1-4.2  
N 1.1-5.3 S 1.1-2.6 H 1.1-1.2

Gewindetiefe  
Thread depth

1,5 x d<sub>1</sub>

|   | ∅ d <sub>1</sub><br>mm | P<br>mm | ∅ d <sub>F</sub><br>mm | ∅ d <sub>2</sub> | ∅ d <sub>S</sub> | l <sub>1</sub> | l <sub>2</sub> | l <sub>4</sub> | l <sub>S</sub> | Z<br>(Flutes) |
|---|------------------------|---------|------------------------|------------------|------------------|----------------|----------------|----------------|----------------|---------------|
| M | 6                      | x 0,75  | 5                      | 8                | 6,3              | 62             | 9,4            | 36             | 9,7            | 3             |
|   | 8                      | x 1     | 6,7                    | 10               | 8,4              | 74             | 12,5           | 40             | 13             | 3             |
|   | 10                     | x 1     | 8,7                    | 12               | 10,5             | 80             | 15,5           | 45             | 16             | 3             |
|   | 10                     | x 1,25  | 8,4                    | 12               | 10,5             | 80             | 15,6           | 45             | 16,2           | 3             |
|   | 12                     | x 1     | 10,6                   | 14               | 12,6             | 90             | 18,5           | 45             | 19,1           | 4             |
|   | 12                     | x 1,25  | 10,4                   | 14               | 12,6             | 90             | 18,1           | 45             | 18,7           | 4             |
|   | 12                     | x 1,5   | 10,1                   | 14               | 12,6             | 90             | 18,7           | 45             | 19,4           | 4             |
|   | 14                     | x 1,5   | 12,1                   | 16               | 14,7             | 100            | 21,7           | 48             | 22,5           | 4             |
|   | 16                     | x 1,5   | 14                     | 18               | 16,8             | 102            | 24,7           | 48             | 25,5           | 4             |

GSF  
1,5xd<sub>1</sub>  
IKZ-HA  
TICN

GSF  
1,5xd<sub>1</sub>  
IKZ-HB  
TICN

|               |               |
|---------------|---------------|
| GF323706.0229 | GF323106.0229 |
| GF323706.0251 | GF323106.0251 |
| GF323706.0276 | GF323106.0276 |
| GF323706.0277 | GF323106.0277 |
| GF323706.0301 | GF323106.0301 |
| GF323706.0302 | GF323106.0302 |
| GF323706.0303 | GF323106.0303 |
| GF323706.0331 | GF323106.0331 |
| GF323706.0359 | GF323106.0359 |

Gewindetiefe  
Thread depth

2 x d<sub>1</sub>

|   | ∅ d <sub>1</sub><br>mm | P<br>mm | ∅ d <sub>F</sub><br>mm | ∅ d <sub>2</sub> | ∅ d <sub>S</sub> | l <sub>1</sub> | l <sub>2</sub> | l <sub>4</sub> | l <sub>S</sub> | Z<br>(Flutes) |
|---|------------------------|---------|------------------------|------------------|------------------|----------------|----------------|----------------|----------------|---------------|
| M | 6                      | x 0,75  | 5                      | 8                | 6,3              | 62             | 12,4           | 36             | 12,7           | 3             |
|   | 8                      | x 1     | 6,7                    | 10               | 8,4              | 74             | 16,5           | 40             | 17             | 3             |
|   | 10                     | x 1     | 8,7                    | 12               | 10,5             | 80             | 20,5           | 45             | 21             | 3             |
|   | 10                     | x 1,25  | 8,4                    | 12               | 10,5             | 80             | 20,6           | 45             | 21,2           | 3             |
|   | 12                     | x 1     | 10,6                   | 14               | 12,6             | 90             | 24,5           | 45             | 25,1           | 4             |
|   | 12                     | x 1,25  | 10,4                   | 14               | 12,6             | 90             | 24,3           | 45             | 25             | 4             |
|   | 12                     | x 1,5   | 10,1                   | 14               | 12,6             | 90             | 24,7           | 45             | 25,4           | 4             |
|   | 14                     | x 1,5   | 12,1                   | 16               | 14,7             | 100            | 29,2           | 48             | 30             | 4             |
|   | 16                     | x 1,5   | 14                     | 18               | 16,8             | 102            | 32,2           | 48             | 33             | 4             |



GSF  
2xd<sub>1</sub>  
IKZ-HA  
TICN

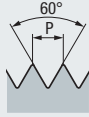
GSF  
2xd<sub>1</sub>  
IKZ-HB  
TICN

|               |               |
|---------------|---------------|
| GF333706.0229 | GF333106.0229 |
| GF333706.0251 | GF333106.0251 |
| GF333706.0276 | GF333106.0276 |
| GF333706.0277 | GF333106.0277 |
| GF333706.0301 | GF333106.0301 |
| GF333706.0302 | GF333106.0302 |
| GF333706.0303 | GF333106.0303 |
| GF333706.0331 | GF333106.0331 |
| GF333706.0359 | GF333106.0359 |

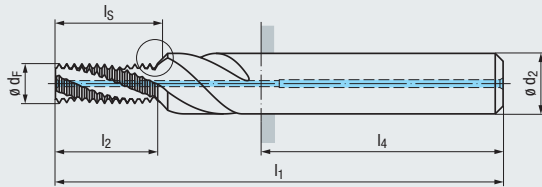
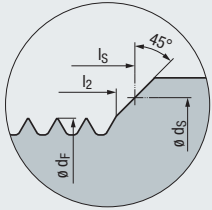
Weitere Ausführungen auf Anfrage  
Further designs upon request

- Product Finder
- $v_c / f_z$
- M
- MF
- UNC  
UN, UNS
- UNF  
UNEF
- G, Rp
- NPT, NPTF  
Rc, W
- BSW, BSF
- Pg
- MJ  
UNJC, UNJF

# MF



DIN 13



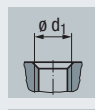
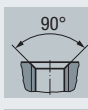
VHM  
Carbide

R30

RH + LH

Z3 - Z4

DIN 6535



GSF-R30



Einsatzgebiete – Material  
Applications – material

» 358

P 1.1-3.1 K 1.1-4.2 N 1.1-1.5, 2.1-2.6  
N 3.1-4.2 N 5.1-5.2 S 1.1-1.2

Gewindetiefe  
Thread depth

### 1,5 x d<sub>1</sub>

|      | ø d <sub>1</sub><br>mm | P<br>mm | ø d <sub>f</sub><br>mm | ø d <sub>2</sub> | ø d <sub>s</sub> | l <sub>1</sub> | l <sub>2</sub> | l <sub>4</sub> | l <sub>s</sub> | Z<br>(Flutes) | GSF<br>1,5x d <sub>1</sub><br>R30-IKZ-HA | GSF<br>1,5x d <sub>1</sub><br>R30-IKZ-HB |
|------|------------------------|---------|------------------------|------------------|------------------|----------------|----------------|----------------|----------------|---------------|--|--|
|      |                        |         |                        |                  |                  |                |                |                |                |               | <b>M</b>                                 | 6 x 0,75                                 |
|      | 8 x 1                  | 6,7     | 10                     | 8,4              | 74               | 12,5           | 40             | 13,3           | 3              | GF322701.0251 | GF322101.0251                            |  |
| BGF  | 10 x 1                 | 8,7     | 12                     | 10,5             | 80               | 15,5           | 45             | 16,3           | 3              | GF322701.0276 | GF322101.0276                            |  |
|      | 10 x 1,25              | 8,4     | 12                     | 10,5             | 80               | 15,7           | 45             | 16,6           | 3              | GF322701.0277 | GF322101.0277                            |  |
| ZBGF | 12 x 1                 | 10,6    | 14                     | 12,6             | 90               | 18,6           | 45             | 19,4           | 4              | GF322701.0301 | GF322101.0301                            |  |
|      | 12 x 1,25              | 10,4    | 14                     | 12,6             | 90               | 18,2           | 45             | 19,1           | 4              | GF322701.0302 | GF322101.0302                            |  |
| GSF  | 12 x 1,5               | 10,1    | 14                     | 12,6             | 90               | 18,8           | 45             | 19,9           | 4              | GF322701.0303 | GF322101.0303                            |  |
|      | 14 x 1,5               | 12,1    | 16                     | 14,7             | 100              | 21,8           | 48             | 23             | 4              | GF322701.0331 | GF322101.0331                            |  |
| GF   | 16 x 1,5               | 14      | 18                     | 16,8             | 102              | 24,8           | 48             | 26,1           | 4              | GF322701.0359 | GF322101.0359                            |  |

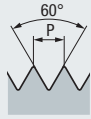
Gewindetiefe  
Thread depth

### 2 x d<sub>1</sub>

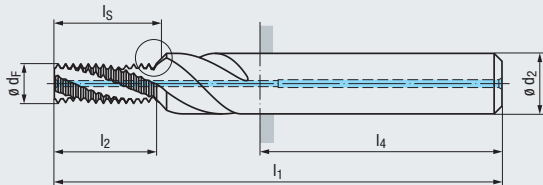
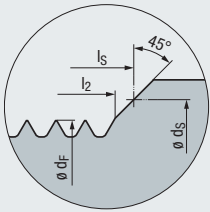
|  | ø d <sub>1</sub><br>mm | P<br>mm | ø d <sub>f</sub><br>mm | ø d <sub>2</sub> | ø d <sub>s</sub> | l <sub>1</sub> | l <sub>2</sub> | l <sub>4</sub> | l <sub>s</sub> | Z<br>(Flutes) | GSF<br>2x d <sub>1</sub><br>R30-IKZ-HA | GSF<br>2x d <sub>1</sub><br>R30-IKZ-HB |
|--|------------------------|---------|------------------------|------------------|------------------|----------------|----------------|----------------|----------------|---------------|--|--|
|  |                        |         |                        |                  |                  |                |                |                |                |               | <b>M</b>                               | 6 x 0,75                               |
|  | 8 x 1                  | 6,7     | 10                     | 8,4              | 74               | 16,5           | 40             | 17,3           | 3              | GF332701.0251 | GF332101.0251                          |  |
|  | 10 x 1                 | 8,7     | 12                     | 10,5             | 80               | 20,5           | 45             | 21,3           | 3              | GF332701.0276 | GF332101.0276                          |  |
|  | 10 x 1,25              | 8,4     | 12                     | 10,5             | 80               | 20,7           | 45             | 21,6           | 3              | GF332701.0277 | GF332101.0277                          |  |
|  | 12 x 1                 | 10,6    | 14                     | 12,6             | 90               | 24,6           | 45             | 25,4           | 4              | GF332701.0301 | GF332101.0301                          |  |
|  | 12 x 1,25              | 10,4    | 14                     | 12,6             | 90               | 24,4           | 45             | 25,4           | 4              | GF332701.0302 | GF332101.0302                          |  |
|  | 12 x 1,5               | 10,1    | 14                     | 12,6             | 90               | 24,8           | 45             | 25,9           | 4              | GF332701.0303 | GF332101.0303                          |  |
|  | 14 x 1,5               | 12,1    | 16                     | 14,7             | 100              | 29,3           | 48             | 30,5           | 4              | GF332701.0331 | GF332101.0331                          |  |
|  | 16 x 1,5               | 14      | 18                     | 16,8             | 102              | 32,3           | 48             | 33,6           | 4              | GF332701.0359 | GF332101.0359                          |  |

Weitere Ausführungen auf Anfrage  
Further designs upon request

**MF**



DIN 13



|             |                   |
|-------------|-------------------|
| VHM Carbide | TICN              |
| R30         | RH + LH           |
| Z3 - Z4     | DIN 6535          |
|             | HA<br>HB          |
|             | $\varnothing d_1$ |
|             |                   |

**GSF-R30**

|                 |
|-----------------|
| Product Finder  |
| $v_c / f_z$     |
| M               |
| MF              |
| UNC UN, UNS     |
| UNF UNEF        |
| G, Rp           |
| NPT, NPTF Rc, W |
| BSW, BSF        |
| Pg              |
| MJ UNJC, UNJF   |
| EG (STI)        |

Einsatzgebiete – Material Applications – material » 358

|           |           |                |
|-----------|-----------|----------------|
| P 1.1-3.1 | M 1.1-2.1 | K 1.1-4.2      |
| N 1.1-2.7 | N 3.1-5.3 | S 1.1-1.2, 2.1 |

Gewindetiefe Thread depth

**1,5 x d<sub>1</sub>**

| M  | $\varnothing d_1$<br>mm | P<br>mm | $\varnothing d_F$<br>mm | $\varnothing d_2$ | $\varnothing d_S$ | l <sub>1</sub> | l <sub>2</sub> | l <sub>4</sub> | l <sub>S</sub> | Z<br>(Flutes) | GSF<br>1,5xd <sub>1</sub><br>R30- <b>IKZ</b> -HA<br>TICN | GSF<br>1,5xd <sub>1</sub><br>R30- <b>IKZ</b> -HB<br>TICN |
|----|-------------------------|---------|-------------------------|-------------------|-------------------|----------------|----------------|----------------|----------------|---------------|--|--|
|    |                         |         |                         |                   |                   |                |                |                |                |               | GF322706.0229  | GF322106.0229  |
| 8  | x                       | 1       | 6,7                     | 10                | 8,4               | 74             | 12,5           | 40             | 13,3           | 3             | GF322706.0251  | GF322106.0251  |
| 10 | x                       | 1       | 8,7                     | 12                | 10,5              | 80             | 15,5           | 45             | 16,3           | 3             | GF322706.0276  | GF322106.0276  |
| 10 | x                       | 1,25    | 8,4                     | 12                | 10,5              | 80             | 15,7           | 45             | 16,6           | 3             | GF322706.0277  | GF322106.0277  |
| 12 | x                       | 1       | 10,6                    | 14                | 12,6              | 90             | 18,6           | 45             | 19,4           | 4             | GF322706.0301  | GF322106.0301  |
| 12 | x                       | 1,25    | 10,4                    | 14                | 12,6              | 90             | 18,2           | 45             | 19,1           | 4             | GF322706.0302  | GF322106.0302  |
| 12 | x                       | 1,5     | 10,1                    | 14                | 12,6              | 90             | 18,8           | 45             | 19,9           | 4             | GF322706.0303  | GF322106.0303  |
| 14 | x                       | 1,5     | 12,1                    | 16                | 14,7              | 100            | 21,8           | 48             | 23             | 4             | GF322706.0331  | GF322106.0331  |
| 16 | x                       | 1,5     | 14                      | 18                | 16,8              | 102            | 24,8           | 48             | 26,1           | 4             | GF322706.0359  | GF322106.0359  |

Gewindetiefe Thread depth

**2 x d<sub>1</sub>**

| M  | $\varnothing d_1$<br>mm | P<br>mm | $\varnothing d_F$<br>mm | $\varnothing d_2$ | $\varnothing d_S$ | l <sub>1</sub> | l <sub>2</sub> | l <sub>4</sub> | l <sub>S</sub> | Z<br>(Flutes) | GSF<br>2xd <sub>1</sub><br>R30- <b>IKZ</b> -HA<br>TICN | GSF<br>2xd <sub>1</sub><br>R30- <b>IKZ</b> -HB<br>TICN |
|----|-------------------------|---------|-------------------------|-------------------|-------------------|----------------|----------------|----------------|----------------|---------------|--|--|
|    |                         |         |                         |                   |                   |                |                |                |                |               | GF332706.0229  | GF332106.0229  |
| 8  | x                       | 1       | 6,7                     | 10                | 8,4               | 74             | 16,5           | 40             | 17,3           | 3             | GF332706.0251  | GF332106.0251  |
| 10 | x                       | 1       | 8,7                     | 12                | 10,5              | 80             | 20,5           | 45             | 21,3           | 3             | GF332706.0276  | GF332106.0276  |
| 10 | x                       | 1,25    | 8,4                     | 12                | 10,5              | 80             | 20,7           | 45             | 21,6           | 3             | GF332706.0277  | GF332106.0277  |
| 12 | x                       | 1       | 10,6                    | 14                | 12,6              | 90             | 24,6           | 45             | 25,4           | 4             | GF332706.0301  | GF332106.0301  |
| 12 | x                       | 1,25    | 10,4                    | 14                | 12,6              | 90             | 24,4           | 45             | 25,4           | 4             | GF332706.0302  | GF332106.0302  |
| 12 | x                       | 1,5     | 10,1                    | 14                | 12,6              | 90             | 24,8           | 45             | 25,9           | 4             | GF332706.0303  | GF332106.0303  |
| 14 | x                       | 1,5     | 12,1                    | 16                | 14,7              | 100            | 29,3           | 48             | 30,5           | 4             | GF332706.0331  | GF332106.0331  |
| 16 | x                       | 1,5     | 14                      | 18                | 16,8              | 102            | 32,3           | 48             | 33,6           | 4             | GF332706.0359  | GF332106.0359  |

Weitere Ausführungen auf Anfrage  
Further designs upon request

|                     |
|---------------------|
| SELF-LOCK           |
| Tr                  |
| Zubehör Accessories |
| BGF                 |
| ZBGF                |
| GSF                 |
| GF                  |
| GF-VZ               |
| GF-KEG              |
| ZGF                 |
| ZIRK-GF             |
| Gigant              |
| MoSys               |

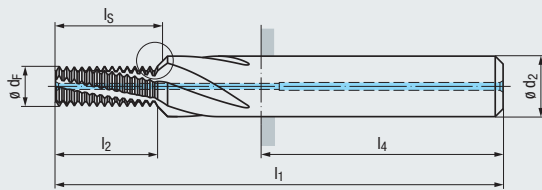
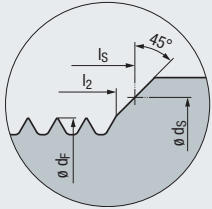


- Product Finder
- $v_c / f_z$
- M
- MF**
- UNC  
UN, UNS
- UNF  
UNEF
- G, Rp
- NPT, NPTF  
Rc, W
- BSW, BSF
- Pg
- MJ  
UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr
- Zubehör  
Accessories
- BGF
- ZBGF
- GSF**
- GF
- GF-VZ
- GF-KEG
- ZGF
- ZIRK-GF
- Gigant
- MoSys



# MF

DIN 13



**VHM**  
Carbide

**R15**

**RH + LH**

**Z4 - Z5**



**DIN 6535**



**GSF-Z**



**Mit höherer Nutenzahl**  
With increased number of flutes



Einsatzgebiete – Material  
Applications – material 358

**P** 1.1-5.1 **K** 1.1-4.2 **N** 1.1-1.5, 2.1-2.6  
**N** 3.1-4.2 **N** 5.1-5.2 **S** 1.1-1.3

Gewindetiefe  
Thread depth

**2 x d<sub>1</sub>**

|            | $\varnothing d_1$<br>mm | P<br>mm | $\varnothing d_F$<br>mm | $\varnothing d_2$ | $\varnothing d_3$ | $l_1$ | $l_2$ | $l_4$ | $l_3$ | Z<br>(Flutes) | GSF-Z<br>2xd <sub>1</sub> |                      |
|------------|-------------------------|---------|-------------------------|-------------------|-------------------|-------|-------|-------|-------|---------------|---------------------------|----------------------|
|            |                         |         |                         |                   |                   |       |       |       |       |               | R15- <b>IKZ</b> -HA       | R15- <b>IKZ</b> -HB  |
| <b>M</b>   | 8                       | x 1     | 6,7                     | 10                | 8,4               | 74    | 16,5  | 40    | 17,3  | 4             | <b>GF335721.0251</b>      | <b>GF335121.0251</b> |
|            | 10                      | x 1     | 8,7                     | 12                | 10,5              | 80    | 20,5  | 45    | 21,3  | 5             | <b>GF335721.0276</b>      | <b>GF335121.0276</b> |
| <b>GSF</b> | 12                      | x 1,25  | 10,4                    | 14                | 12,6              | 90    | 24,4  | 45    | 25,4  | 5             | <b>GF335721.0302</b>      | <b>GF335121.0302</b> |

Weitere Ausführungen auf Anfrage  
Further designs upon request



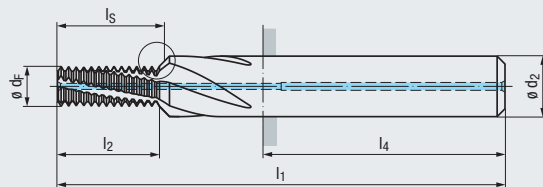
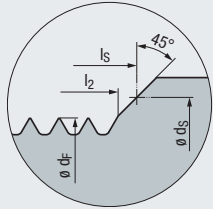
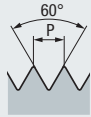
Kühlschmierstoffe siehe Seite 300 - 301

Coolant-lubricants, see page 300 - 301



**MF**

DIN 13



|             |          |
|-------------|----------|
| VHM Carbide | TICN     |
| R15         | RH + LH  |
| Z4 - Z5     | DIN 6535 |
|             |          |
|             |          |
|             |          |

**GSF-Z**

**Mit höherer Nutenzahl**  
With increased number of flutes

Einsatzgebiete – Material Applications – material » 358

Gewindetiefe Thread depth

|                  |                  |                  |
|------------------|------------------|------------------|
| <b>P</b> 1.1-5.1 | <b>M</b> 1.1-4.1 | <b>K</b> 1.1-4.2 |
| <b>N</b> 1.1-5.3 | <b>S</b> 1.1-2.6 | <b>H</b> 1.1-1.2 |

**2 x d<sub>1</sub>**

|          | Ø d <sub>1</sub><br>mm | P<br>mm | Ø d <sub>F</sub><br>mm | Ø d <sub>2</sub> | Ø d <sub>S</sub> | l <sub>1</sub> | l <sub>2</sub> | l <sub>4</sub> | l <sub>S</sub> | Z<br>(Flutes) |
|----------|------------------------|---------|------------------------|------------------|------------------|----------------|----------------|----------------|----------------|---------------|
| <b>M</b> | 8                      | x 1     | 6,7                    | 10               | 8,4              | 74             | 16,5           | 40             | 17,3           | 4             |
|          | 10                     | x 1     | 8,7                    | 12               | 10,5             | 80             | 20,5           | 45             | 21,3           | 5             |
|          | 12                     | x 1,25  | 10,4                   | 14               | 12,6             | 90             | 24,4           | 45             | 25,4           | 5             |

| GSF-Z<br>2xd <sub>1</sub><br>R15-1KZ-HA<br>TICN | GSF-Z<br>2xd <sub>1</sub><br>R15-1KZ-HB<br>TICN |
|---|---|
| <b>GF335726.0251</b>                            | <b>GF335126.0251</b>                            |
| <b>GF335726.0276</b>                            | <b>GF335126.0276</b>                            |
| <b>GF335726.0302</b>                            | <b>GF335126.0302</b>                            |

Weitere Ausführungen auf Anfrage  
Further designs upon request

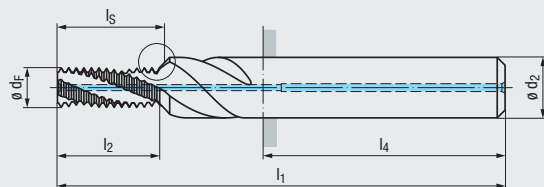
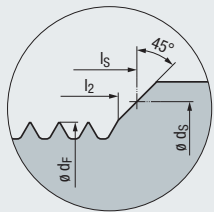
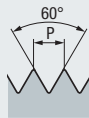
- Product Finder
- v<sub>c</sub> / f<sub>z</sub>
- M
- MF
- UNC  
UN, UNS
- UNF  
UNEF
- G, Rp
- NPT, NPTF  
Rc, W
- BSW, BSF
- Pg
- MJ  
UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr
- Zubehör  
Accessories
- BGF
- ZBGF
- GSF
- GF
- GF-VZ
- GF-KEG
- ZGF
- ZIRK-GF
- Gigant
- MoSys



- Product Finder
- V<sub>c</sub> / f<sub>z</sub>
- M
- MF
- UNC**  
UN, UNS
- UNF  
UNEF
- G, Rp
- NPT, NPTF  
Rc, W
- BSW, BSF
- Pg
- MJ  
UNJC, UNJF

# UNC

ASME B1.1



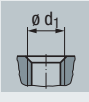
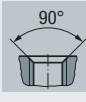
VHM  
Carbide

R30

RH + LH

Z3 - Z5

DIN 6535



GSF-R30



Einsatzgebiete – Material  
Applications – material

» 358

P 1.1-3.1 K 1.1-4.2 N 1.1-1.5, 2.1-2.6  
N 3.1-4.2 N 5.1-5.2 S 1.1-1.2

Gewindetiefe  
Thread depth

### 1,5 x d<sub>1</sub>

| ø d <sub>1</sub><br>inch | P<br>Gg/1" (tpi) | ø d <sub>F</sub><br>mm | ø d <sub>2</sub> | ø d <sub>S</sub> | l <sub>1</sub> | l <sub>2</sub> | l <sub>4</sub> | l <sub>S</sub> | Z<br>(Flutes) |
|--------------------------|------------------|------------------------|------------------|------------------|----------------|----------------|----------------|----------------|---------------|
| 1/4                      | 20               | 4,7                    | 8                | 6,7              | 62             | 10,8           | 36             | 11,7           | 3             |
| 5/16                     | 18               | 6,15                   | 10               | 8,3              | 74             | 13,4           | 40             | 14,4           | 3             |
| 3/8                      | 16               | 7,65                   | 12               | 10               | 80             | 15,1           | 45             | 16,2           | 3             |
| 7/16                     | 14               | 9                      | 12               | 11,7             | 80             | 17,3           | 45             | 18,5           | 3             |
| 1/2                      | 13               | 10,35                  | 14               | 13,3             | 90             | 20,6           | 45             | 21,9           | 4             |
| 9/16                     | 12               | 11,8                   | 16               | 15               | 100            | 22,3           | 48             | 23,7           | 4             |
| 5/8                      | 11               | 13,1                   | 18               | 16,7             | 102            | 24,3           | 48             | 25,9           | 4             |
| 3/4                      | 10               | 16                     | 20               | 20               | 110            | 29,3           | 50             | 31,1           | 5             |

GSF  
1,5xd<sub>1</sub>  
R30-IKZ-HA

GSF  
1,5xd<sub>1</sub>  
R30-IKZ-HB

|               |               |
|---------------|---------------|
| GF322701.5009 | GF322101.5009 |
| GF322701.5010 | GF322101.5010 |
| GF322701.5011 | GF322101.5011 |
| GF322701.5012 | GF322101.5012 |
| GF322701.5013 | GF322101.5013 |
| GF322701.5014 | GF322101.5014 |
| GF322701.5015 | GF322101.5015 |
| GF322701.5016 | GF322101.5016 |

Gewindetiefe  
Thread depth

### 2 x d<sub>1</sub>

| ø d <sub>1</sub><br>inch | P<br>Gg/1" (tpi) | ø d <sub>F</sub><br>mm | ø d <sub>2</sub> | ø d <sub>S</sub> | l <sub>1</sub> | l <sub>2</sub> | l <sub>4</sub> | l <sub>S</sub> | Z<br>(Flutes) |
|--------------------------|------------------|------------------------|------------------|------------------|----------------|----------------|----------------|----------------|---------------|
| 1/4                      | 20               | 4,7                    | 8                | 6,7              | 62             | 13,4           | 36             | 14,3           | 3             |
| 5/16                     | 18               | 6,15                   | 10               | 8,3              | 74             | 16,3           | 40             | 17,2           | 3             |
| 3/8                      | 16               | 7,65                   | 12               | 10               | 80             | 19,9           | 45             | 20,9           | 3             |
| 7/16                     | 14               | 9                      | 12               | 11,7             | 80             | 22,7           | 45             | 23,9           | 3             |
| 1/2                      | 13               | 10,35                  | 14               | 13,3             | 90             | 26,4           | 45             | 27,8           | 4             |
| 9/16                     | 12               | 11,8                   | 16               | 15               | 100            | 30,8           | 48             | 32,2           | 4             |
| 5/8                      | 11               | 13,1                   | 18               | 16,7             | 102            | 33,5           | 48             | 35,2           | 4             |
| 3/4                      | 10               | 16                     | 20               | 20               | 110            | 39,4           | 50             | 41,2           | 5             |

GSF  
2xd<sub>1</sub>  
R30-IKZ-HA

GSF  
2xd<sub>1</sub>  
R30-IKZ-HB

|               |               |
|---------------|---------------|
| GF332701.5009 | GF332101.5009 |
| GF332701.5010 | GF332101.5010 |
| GF332701.5011 | GF332101.5011 |
| GF332701.5012 | GF332101.5012 |
| GF332701.5013 | GF332101.5013 |
| GF332701.5014 | GF332101.5014 |
| GF332701.5015 | GF332101.5015 |
| GF332701.5016 | GF332101.5016 |

Gewindetiefe  
Thread depth

### 2,5 x d<sub>1</sub>

| ø d <sub>1</sub><br>inch | P<br>Gg/1" (tpi) | ø d <sub>F</sub><br>mm | ø d <sub>2</sub> | ø d <sub>S</sub> | l <sub>1</sub> | l <sub>2</sub> | l <sub>4</sub> | l <sub>S</sub> | Z<br>(Flutes) |
|--------------------------|------------------|------------------------|------------------|------------------|----------------|----------------|----------------|----------------|---------------|
| 3/8                      | 16               | 7,65                   | 12               | 10               | 85             | 24,7           | 45             | 25,7           | 3             |
| 7/16                     | 14               | 9                      | 12               | 11,7             | 85             | 28,2           | 45             | 29,4           | 3             |
| 1/2                      | 13               | 10,35                  | 14               | 13,3             | 96             | 32,3           | 45             | 33,6           | 4             |
| 9/16                     | 12               | 11,8                   | 16               | 15               | 107            | 37,1           | 48             | 38,5           | 4             |
| 5/8                      | 11               | 13,1                   | 18               | 16,7             | 110            | 40,5           | 48             | 42,1           | 4             |

GSF  
2,5xd<sub>1</sub>  
R30-IKZ-HA

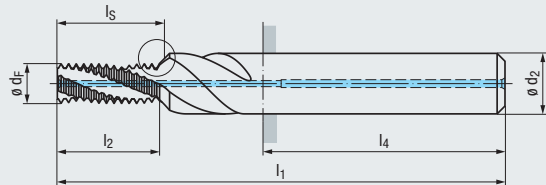
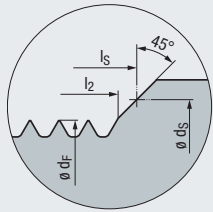
GSF  
2,5xd<sub>1</sub>  
R30-IKZ-HB

|               |               |
|---------------|---------------|
| GF342701.5011 | GF342101.5011 |
| GF342701.5012 | GF342101.5012 |
| GF342701.5013 | GF342101.5013 |
| GF342701.5014 | GF342101.5014 |
| GF342701.5015 | GF342101.5015 |

Weitere Ausführungen auf Anfrage  
Further designs upon request



**UNC**



ASME B1.1



|                    |                 |
|--------------------|-----------------|
| <b>VHM Carbide</b> | <b>TICN</b>     |
| <b>R30</b>         | <b>RH + LH</b>  |
| <b>Z3 - Z5</b>     | <b>DIN 6535</b> |
|                    |                 |
|                    |                 |
|                    |                 |

**GSF-R30**

|                |
|----------------|
| Product Finder |
| $v_c / f_z$    |
| M              |
| MF             |
| <b>UNC</b>     |
| UN, UNS        |
| UNF            |
| UNEF           |
| G, Rp          |
| NPT, NPTF      |
| Rc, W          |
| BSW, BSF       |
| Pg             |
| MJ             |
| UNJC, UNJF     |
| EG (STI)       |
| SELF-LOCK      |
| Tr             |
| Zubehör        |
| Accessories    |
| BGF            |
| ZBGF           |
| <b>GSF</b>     |
| GF             |
| GF-VZ          |
| GF-KEG         |
| ZGF            |
| ZIRK-GF        |
| Gigant         |
| MoSys          |

Einsatzgebiete – Material Applications – material » 358

|                  |                  |                       |
|------------------|------------------|-----------------------|
| <b>P</b> 1.1-3.1 | <b>M</b> 1.1-2.1 | <b>K</b> 1.1-4.2      |
| <b>N</b> 1.1-2.7 | <b>N</b> 3.1-5.3 | <b>S</b> 1.1-1.2, 2.1 |

Gewindetiefe Thread depth

**1,5 x d<sub>1</sub>**

| $\varnothing d_1$<br>inch | P<br>Gg/1" (tpi) | $\varnothing d_F$<br>mm | $\varnothing d_2$ | $\varnothing d_S$ | $l_1$ | $l_2$ | $l_4$ | $l_S$ | Z<br>(Flutes) | GSF                                      |  |
|---------------------------|------------------|-------------------------|-------------------|-------------------|-------|-------|-------|-------|---------------|--|--|
|                           |                  |                         |                   |                   |       |       |       |       |               | 1,5xd <sub>1</sub><br>R30-IKZ-HA<br>TICN | 1,5xd <sub>1</sub><br>R30-IKZ-HB<br>TICN |
| 1/4                       | 20               | 4,7                     | 8                 | 6,7               | 62    | 10,8  | 36    | 11,7  | 3             | GF322706.5009                            | GF322106.5009                            |
| 5/16                      | 18               | 6,15                    | 10                | 8,3               | 74    | 13,4  | 40    | 14,4  | 3             | GF322706.5010                            | GF322106.5010                            |
| 3/8                       | 16               | 7,65                    | 12                | 10                | 80    | 15,1  | 45    | 16,2  | 3             | GF322706.5011                            | GF322106.5011                            |
| 7/16                      | 14               | 9                       | 12                | 11,7              | 80    | 17,3  | 45    | 18,5  | 3             | GF322706.5012                            | GF322106.5012                            |
| 1/2                       | 13               | 10,35                   | 14                | 13,3              | 90    | 20,6  | 45    | 21,9  | 4             | GF322706.5013                            | GF322106.5013                            |
| 9/16                      | 12               | 11,8                    | 16                | 15                | 100   | 22,3  | 48    | 23,7  | 4             | GF322706.5014                            | GF322106.5014                            |
| 5/8                       | 11               | 13,1                    | 18                | 16,7              | 102   | 24,3  | 48    | 25,9  | 4             | GF322706.5015                            | GF322106.5015                            |
| 3/4                       | 10               | 16                      | 20                | 20                | 110   | 29,3  | 50    | 31,1  | 5             | GF322706.5016                            | GF322106.5016                            |




Gewindetiefe Thread depth

**2 x d<sub>1</sub>**

| $\varnothing d_1$<br>inch | P<br>Gg/1" (tpi) | $\varnothing d_F$<br>mm | $\varnothing d_2$ | $\varnothing d_S$ | $l_1$ | $l_2$ | $l_4$ | $l_S$ | Z<br>(Flutes) | GSF                                    |  |
|---------------------------|------------------|-------------------------|-------------------|-------------------|-------|-------|-------|-------|---------------|--|--|
|                           |                  |                         |                   |                   |       |       |       |       |               | 2xd <sub>1</sub><br>R30-IKZ-HA<br>TICN | 2xd <sub>1</sub><br>R30-IKZ-HB<br>TICN |
| 1/4                       | 20               | 4,7                     | 8                 | 6,7               | 62    | 13,4  | 36    | 14,3  | 3             | GF332706.5009                          | GF332106.5009                          |
| 5/16                      | 18               | 6,15                    | 10                | 8,3               | 74    | 16,3  | 40    | 17,2  | 3             | GF332706.5010                          | GF332106.5010                          |
| 3/8                       | 16               | 7,65                    | 12                | 10                | 80    | 19,9  | 45    | 20,9  | 3             | GF332706.5011                          | GF332106.5011                          |
| 7/16                      | 14               | 9                       | 12                | 11,7              | 80    | 22,7  | 45    | 23,9  | 3             | GF332706.5012                          | GF332106.5012                          |
| 1/2                       | 13               | 10,35                   | 14                | 13,3              | 90    | 26,4  | 45    | 27,8  | 4             | GF332706.5013                          | GF332106.5013                          |
| 9/16                      | 12               | 11,8                    | 16                | 15                | 100   | 30,8  | 48    | 32,2  | 4             | GF332706.5014                          | GF332106.5014                          |
| 5/8                       | 11               | 13,1                    | 18                | 16,7              | 102   | 33,5  | 48    | 35,2  | 4             | GF332706.5015                          | GF332106.5015                          |
| 3/4                       | 10               | 16                      | 20                | 20                | 110   | 39,4  | 50    | 41,2  | 5             | GF332706.5016                          | GF332106.5016                          |




Gewindetiefe Thread depth

**2,5 x d<sub>1</sub>**

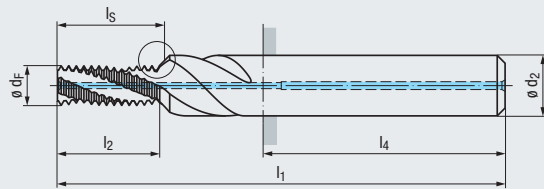
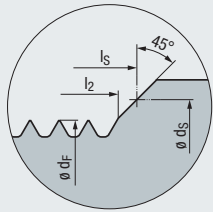
| $\varnothing d_1$<br>inch | P<br>Gg/1" (tpi) | $\varnothing d_F$<br>mm | $\varnothing d_2$ | $\varnothing d_S$ | $l_1$ | $l_2$ | $l_4$ | $l_S$ | Z<br>(Flutes) | GSF                                      |  |
|---------------------------|------------------|-------------------------|-------------------|-------------------|-------|-------|-------|-------|---------------|--|--|
|                           |                  |                         |                   |                   |       |       |       |       |               | 2,5xd <sub>1</sub><br>R30-IKZ-HA<br>TICN | 2,5xd <sub>1</sub><br>R30-IKZ-HB<br>TICN |
| 3/8                       | 16               | 7,65                    | 12                | 10                | 85    | 24,7  | 45    | 25,7  | 3             | GF342706.5011                            | GF342106.5011                            |
| 7/16                      | 14               | 9                       | 12                | 11,7              | 85    | 28,2  | 45    | 29,4  | 3             | GF342706.5012                            | GF342106.5012                            |
| 1/2                       | 13               | 10,35                   | 14                | 13,3              | 96    | 32,3  | 45    | 33,6  | 4             | GF342706.5013                            | GF342106.5013                            |
| 9/16                      | 12               | 11,8                    | 16                | 15                | 107   | 37,1  | 48    | 38,5  | 4             | GF342706.5014                            | GF342106.5014                            |
| 5/8                       | 11               | 13,1                    | 18                | 16,7              | 110   | 40,5  | 48    | 42,1  | 4             | GF342706.5015                            | GF342106.5015                            |

Weitere Ausführungen auf Anfrage  
Further designs upon request

- Product Finder
- V<sub>c</sub> / f<sub>z</sub>
- M
- MF
- UNC  
UN, UNS
- UNF**  
UNEF
- G, Rp
- NPT, NPTF  
Rc, W
- BSW, BSF
- Pg
- MJ  
UNJC, UNJF

# UNF

ASME B1.1



**VHM**  
Carbide

**R30**

**RH + LH**

**Z3 - Z5**

**DIN 6535**



**GSF-R30**



Einsatzgebiete – Material  
Applications – material

» 358

**P** 1.1-3.1    **K** 1.1-4.2    **N** 1.1-1.5, 2.1-2.6  
**N** 3.1-4.2    **N** 5.1-5.2    **S** 1.1-1.2

Gewindetiefe  
Thread depth

**1,5 x d<sub>1</sub>**

| Ø d <sub>1</sub><br>inch | P<br>Gg/1" (tpi) | Ø d <sub>F</sub><br>mm | Ø d <sub>2</sub> | Ø d <sub>S</sub> | l <sub>1</sub> | l <sub>2</sub> | l <sub>4</sub> | l <sub>S</sub> | Z<br>(Flutes) |
|--------------------------|------------------|------------------------|------------------|------------------|----------------|----------------|----------------|----------------|---------------|
| Nr.10                    | 32               | 3,8                    | 6                | 5,1              | 55             | 7,6            | 36             | 8,1            | 3             |
| 1/4                      | 28               | 5,15                   | 8                | 6,7              | 62             | 10,5           | 36             | 11,1           | 3             |
| 5/16                     | 24               | 6,6                    | 10               | 8,3              | 74             | 12,2           | 40             | 13             | 3             |
| 3/8                      | 24               | 8,2                    | 12               | 10               | 80             | 14,3           | 45             | 15,1           | 3             |
| 7/16                     | 20               | 9,55                   | 12               | 11,7             | 80             | 17,2           | 45             | 18,1           | 3             |
| 1/2                      | 20               | 11,1                   | 14               | 13,3             | 90             | 19,7           | 45             | 20,7           | 4             |
| 9/16                     | 18               | 12,5                   | 16               | 15               | 100            | 21,9           | 48             | 23             | 4             |
| 5/8                      | 18               | 14,1                   | 18               | 16,7             | 102            | 24,8           | 48             | 25,9           | 4             |

**GSF**  
**1,5xd<sub>1</sub>**  
**R30-1KZ-HA**

**GSF**  
**1,5xd<sub>1</sub>**  
**R30-1KZ-HB**

|                      |                      |
|----------------------|----------------------|
| <b>GF322701.5041</b> | <b>GF322101.5041</b> |
| <b>GF322701.5043</b> | <b>GF322101.5043</b> |
| <b>GF322701.5044</b> | <b>GF322101.5044</b> |
| <b>GF322701.5045</b> | <b>GF322101.5045</b> |
| <b>GF322701.5046</b> | <b>GF322101.5046</b> |
| <b>GF322701.5047</b> | <b>GF322101.5047</b> |
| <b>GF322701.5048</b> | <b>GF322101.5048</b> |
| <b>GF322701.5049</b> | <b>GF322101.5049</b> |

Gewindetiefe  
Thread depth

**2 x d<sub>1</sub>**

| Ø d <sub>1</sub><br>inch | P<br>Gg/1" (tpi) | Ø d <sub>F</sub><br>mm | Ø d <sub>2</sub> | Ø d <sub>S</sub> | l <sub>1</sub> | l <sub>2</sub> | l <sub>4</sub> | l <sub>S</sub> | Z<br>(Flutes) |
|--------------------------|------------------|------------------------|------------------|------------------|----------------|----------------|----------------|----------------|---------------|
| Nr.10                    | 32               | 3,8                    | 6                | 5,1              | 55             | 10             | 36             | 10,5           | 3             |
| 1/4                      | 28               | 5,15                   | 8                | 6,7              | 62             | 13,2           | 36             | 13,9           | 3             |
| 5/16                     | 24               | 6,6                    | 10               | 8,3              | 74             | 16,4           | 40             | 17,2           | 3             |
| 3/8                      | 24               | 8,2                    | 12               | 10               | 80             | 19,6           | 45             | 20,4           | 3             |
| 7/16                     | 20               | 9,55                   | 12               | 11,7             | 80             | 22,3           | 45             | 23,2           | 3             |
| 1/2                      | 20               | 11,1                   | 14               | 13,3             | 90             | 26,1           | 45             | 27             | 4             |
| 9/16                     | 18               | 12,5                   | 16               | 15               | 100            | 29             | 48             | 30,1           | 4             |
| 5/8                      | 18               | 14,1                   | 18               | 16,7             | 102            | 33,2           | 48             | 34,4           | 4             |
| 3/4                      | 16               | 17                     | 20               | 20               | 110            | 39             | 50             | 40,3           | 5             |

**GSF**  
**2xd<sub>1</sub>**  
**R30-1KZ-HA**

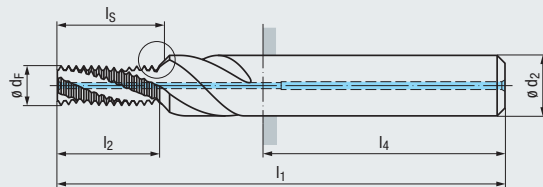
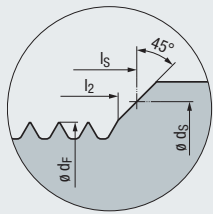
**GSF**  
**2xd<sub>1</sub>**  
**R30-1KZ-HB**

|                      |                      |
|----------------------|----------------------|
| <b>GF332701.5041</b> | <b>GF332101.5041</b> |
| <b>GF332701.5043</b> | <b>GF332101.5043</b> |
| <b>GF332701.5044</b> | <b>GF332101.5044</b> |
| <b>GF332701.5045</b> | <b>GF332101.5045</b> |
| <b>GF332701.5046</b> | <b>GF332101.5046</b> |
| <b>GF332701.5047</b> | <b>GF332101.5047</b> |
| <b>GF332701.5048</b> | <b>GF332101.5048</b> |
| <b>GF332701.5049</b> | <b>GF332101.5049</b> |
| <b>GF332701.5050</b> | <b>GF332101.5050</b> |

Weitere Ausführungen auf Anfrage  
Further designs upon request



**UNF**



ASME B1.1



|                    |                 |
|--------------------|-----------------|
| <b>VHM Carbide</b> | <b>TICN</b>     |
| <b>R30</b>         | <b>RH + LH</b>  |
| <b>Z3 - Z5</b>     | <b>DIN 6535</b> |
|                    |                 |
|                    |                 |
|                    |                 |

**GSF-R30**

Product Finder

v<sub>c</sub> / f<sub>z</sub>

M

MF

UNC  
UN, UNS

**UNF**  
UNEF

G, Rp

NPT, NPTF  
Rc, W

BSW, BSF

Pg

MJ  
UNJC, UNJF

EG (STI)

SELF-LOCK

Tr

Zubehör  
Accessories

BGF

ZBGF

**GSF**

GF

GF-VZ

GF-KEG

ZGF

ZIRK-GF

Gigant

MoSys



Einsatzgebiete – Material Applications – material [» 358](#)

|                  |                  |                       |
|------------------|------------------|-----------------------|
| <b>P</b> 1.1-3.1 | <b>M</b> 1.1-2.1 | <b>K</b> 1.1-4.2      |
| <b>N</b> 1.1-2.7 | <b>N</b> 3.1-5.3 | <b>S</b> 1.1-1.2, 2.1 |

Gewindetiefe Thread depth

**1,5 x d<sub>1</sub>**

| ø d <sub>1</sub><br>inch | P<br>Gg/1" (tpi) | ø d <sub>F</sub><br>mm | ø d <sub>2</sub> | ø d <sub>S</sub> | l <sub>1</sub> | l <sub>2</sub> | l <sub>4</sub> | l <sub>S</sub> | Z<br>(Flutes) | GSF<br>1,5xd <sub>1</sub><br>R30-IKZ-HA<br>TICN | GSF<br>1,5xd <sub>1</sub><br>R30-IKZ-HB<br>TICN |
|--------------------------|------------------|------------------------|------------------|------------------|----------------|----------------|----------------|----------------|---------------|---|---|
| Nr.10                    | 32               | 3,8                    | 6                | 5,1              | 55             | 7,6            | 36             | 8,1            | 3             | GF322706.5041                                   | GF322106.5041                                   |
| 1/4                      | 28               | 5,15                   | 8                | 6,7              | 62             | 10,5           | 36             | 11,1           | 3             | GF322706.5043                                   | GF322106.5043                                   |
| 5/16                     | 24               | 6,6                    | 10               | 8,3              | 74             | 12,2           | 40             | 13             | 3             | GF322706.5044                                   | GF322106.5044                                   |
| 3/8                      | 24               | 8,2                    | 12               | 10               | 80             | 14,3           | 45             | 15,1           | 3             | GF322706.5045                                   | GF322106.5045                                   |
| 7/16                     | 20               | 9,55                   | 12               | 11,7             | 80             | 17,2           | 45             | 18,1           | 3             | GF322706.5046                                   | GF322106.5046                                   |
| 1/2                      | 20               | 11,1                   | 14               | 13,3             | 90             | 19,7           | 45             | 20,7           | 4             | GF322706.5047                                   | GF322106.5047                                   |
| 9/16                     | 18               | 12,5                   | 16               | 15               | 100            | 21,9           | 48             | 23             | 4             | GF322706.5048                                   | GF322106.5048                                   |
| 5/8                      | 18               | 14,1                   | 18               | 16,7             | 102            | 24,8           | 48             | 25,9           | 4             | GF322706.5049                                   | GF322106.5049                                   |

Gewindetiefe Thread depth

**2 x d<sub>1</sub>**

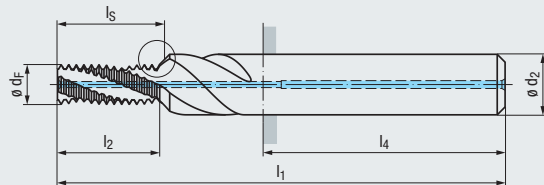
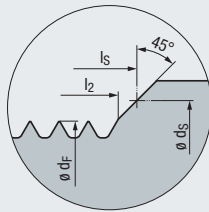
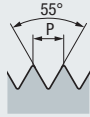
| ø d <sub>1</sub><br>inch | P<br>Gg/1" (tpi) | ø d <sub>F</sub><br>mm | ø d <sub>2</sub> | ø d <sub>S</sub> | l <sub>1</sub> | l <sub>2</sub> | l <sub>4</sub> | l <sub>S</sub> | Z<br>(Flutes) | GSF<br>2xd <sub>1</sub><br>R30-IKZ-HA<br>TICN | GSF<br>2xd <sub>1</sub><br>R30-IKZ-HB<br>TICN |
|--------------------------|------------------|------------------------|------------------|------------------|----------------|----------------|----------------|----------------|---------------|---|---|
| Nr.10                    | 32               | 3,8                    | 6                | 5,1              | 55             | 10             | 36             | 10,5           | 3             | GF332706.5041                                 | GF332106.5041                                 |
| 1/4                      | 28               | 5,15                   | 8                | 6,7              | 62             | 13,2           | 36             | 13,9           | 3             | GF332706.5043                                 | GF332106.5043                                 |
| 5/16                     | 24               | 6,6                    | 10               | 8,3              | 74             | 16,4           | 40             | 17,2           | 3             | GF332706.5044                                 | GF332106.5044                                 |
| 3/8                      | 24               | 8,2                    | 12               | 10               | 80             | 19,6           | 45             | 20,4           | 3             | GF332706.5045                                 | GF332106.5045                                 |
| 7/16                     | 20               | 9,55                   | 12               | 11,7             | 80             | 22,3           | 45             | 23,2           | 3             | GF332706.5046                                 | GF332106.5046                                 |
| 1/2                      | 20               | 11,1                   | 14               | 13,3             | 90             | 26,1           | 45             | 27             | 4             | GF332706.5047                                 | GF332106.5047                                 |
| 9/16                     | 18               | 12,5                   | 16               | 15               | 100            | 29             | 48             | 30,1           | 4             | GF332706.5048                                 | GF332106.5048                                 |
| 5/8                      | 18               | 14,1                   | 18               | 16,7             | 102            | 33,2           | 48             | 34,4           | 4             | GF332706.5049                                 | GF332106.5049                                 |
| 3/4                      | 16               | 17                     | 20               | 20               | 110            | 39             | 50             | 40,3           | 5             | GF332706.5050                                 | GF332106.5050                                 |

Weitere Ausführungen auf Anfrage  
Further designs upon request

- Product Finder
- $v_c / f_z$
- M
- MF
- UNC  
UN, UNS
- UNF  
UNEF
- G, Rp
- NPT, NPTF  
Rc, W
- BSW, BSF
- Pg
- MJ  
UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr
- Zubehör  
Accessories
- BGF
- ZBGF
- GSF
- GF
- GF-VZ
- GF-KEG
- ZGF
- ZIRK-GF
- Gigant
- MoSys

# G (BSP)

DIN EN ISO 228



VHM  
Carbide

R30

RH + LH

Z3 - Z4



DIN 6535



GSF-R30



Einsatzgebiete – Material  
Applications – material

» 358

|   |         |   |         |   |                  |
|---|---------|---|---------|---|------------------|
| P | 1.1-3.1 | K | 1.1-4.2 | N | 1.1-1.5, 2.1-2.6 |
| N | 3.1-4.2 | N | 5.1-5.2 | S | 1.1-1.2          |

Gewindetiefe  
Thread depth

### 1,5 x d<sub>1</sub>

| Nenngröße<br>Nom. size | P<br>Gg/1" (tpi) | ø d <sub>F</sub><br>mm | ø d <sub>2</sub> | ø d <sub>S</sub> | l <sub>1</sub> | l <sub>2</sub> | l <sub>4</sub> | l <sub>S</sub> | Z<br>(Flutes) |
|------------------------|------------------|------------------------|------------------|------------------|----------------|----------------|----------------|----------------|---------------|
|                        |                  |                        |                  |                  |                |                |                |                |               |
| <b>G</b> 1/8           | 28               | 8,2                    | 12               | 10,2             | 80             | 15             | 45             | 15,9           | 3             |
| 1/4                    | 19               | 11                     | 16               | 13,8             | 100            | 20,7           | 48             | 22             | 4             |
| 3/8                    | 19               | 14,5                   | 18               | 17,5             | 102            | 26,1           | 48             | 27,4           | 4             |

GSF  
1,5xd<sub>1</sub>  
R30-IKZ-HA

GSF  
1,5xd<sub>1</sub>  
R30-IKZ-HB

GF322701.4035  
GF322701.4036  
GF322701.4037

GF322101.4035  
GF322101.4036  
GF322101.4037



Gewindetiefe  
Thread depth

### 2 x d<sub>1</sub>

| Nenngröße<br>Nom. size | P<br>Gg/1" (tpi) | ø d <sub>F</sub><br>mm | ø d <sub>2</sub> | ø d <sub>S</sub> | l <sub>1</sub> | l <sub>2</sub> | l <sub>4</sub> | l <sub>S</sub> | Z<br>(Flutes) |
|------------------------|------------------|------------------------|------------------|------------------|----------------|----------------|----------------|----------------|---------------|
|                        |                  |                        |                  |                  |                |                |                |                |               |
| <b>G</b> 1/8           | 28               | 8,2                    | 12               | 10,2             | 80             | 20,4           | 45             | 21,3           | 3             |
| 1/4                    | 19               | 11                     | 16               | 13,8             | 100            | 27,4           | 48             | 28,7           | 4             |
| 3/8                    | 19               | 14,5                   | 18               | 17,5             | 102            | 34,1           | 48             | 35,4           | 4             |

GSF  
2xd<sub>1</sub>  
R30-IKZ-HA

GSF  
2xd<sub>1</sub>  
R30-IKZ-HB

GF332701.4035  
GF332701.4036  
GF332701.4037

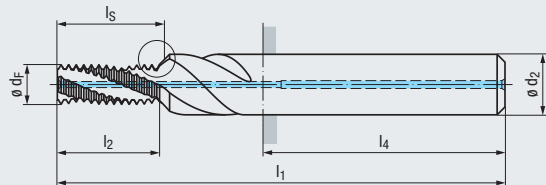
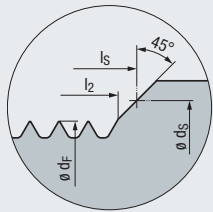
GF332101.4035  
GF332101.4036  
GF332101.4037

Weitere Ausführungen auf Anfrage  
Further designs upon request



**G (BSP)**

DIN EN ISO 228



|             |                   |
|-------------|-------------------|
| VHM Carbide | TICN              |
| R30         | RH + LH           |
| Z3 - Z4     | DIN 6535          |
|             | HA<br>HB          |
|             | $\varnothing d_1$ |
|             |                   |

**GSF-R30**

|                     |
|---------------------|
| Product Finder      |
| $v_c / f_z$         |
| M                   |
| MF                  |
| UNC UN, UNS         |
| UNF UNEF            |
| <b>G Rp</b>         |
| NPT, NPTF Rc, W     |
| BSW, BSF            |
| Pg                  |
| MJ UNJC, UNJF       |
| EG (STI)            |
| SELF-LOCK           |
| Tr                  |
| Zubehör Accessories |
| BGF                 |
| ZBGF                |
| <b>GSF</b>          |
| GF                  |
| GF-VZ               |
| GF-KEG              |
| ZGF                 |
| ZIRK-GF             |
| Gigant              |
| MoSys               |

Einsatzgebiete – Material Applications – material 358

|                  |                  |                       |
|------------------|------------------|-----------------------|
| <b>P</b> 1.1-3.1 | <b>M</b> 1.1-2.1 | <b>K</b> 1.1-4.2      |
| <b>N</b> 1.1-2.7 | <b>N</b> 3.1-5.3 | <b>S</b> 1.1-1.2, 2.1 |

Gewindetiefe Thread depth

**1,5 x d<sub>1</sub>**

| GSF 1,5xd <sub>1</sub> R30-1KZ-HA TICN | GSF 1,5xd <sub>1</sub> R30-1KZ-HB TICN |
|--|--|
| GF322706.4035                          | GF322106.4035                          |
| GF322706.4036                          | GF322106.4036                          |
| GF322706.4037                          | GF322106.4037                          |

| Nenngröße Nom. size | P Gg/1" (tpi) | $\varnothing d_F$ mm | $\varnothing d_2$ | $\varnothing d_S$ | $l_1$ | $l_2$ | $l_4$ | $l_S$ | Z (Flutes) |
|---------------------|---------------|----------------------|-------------------|-------------------|-------|-------|-------|-------|------------|
| <b>G</b> 1/8        | 28            | 8,2                  | 12                | 10,2              | 80    | 15    | 45    | 15,9  | 3          |
| 1/4                 | 19            | 11                   | 16                | 13,8              | 100   | 20,7  | 48    | 22    | 4          |
| 3/8                 | 19            | 14,5                 | 18                | 17,5              | 102   | 26,1  | 48    | 27,4  | 4          |

Gewindetiefe Thread depth

**2 x d<sub>1</sub>**

| GSF 2xd <sub>1</sub> R30-1KZ-HA TICN | GSF 2xd <sub>1</sub> R30-1KZ-HB TICN |
|--------------------------------------|--------------------------------------|
| GF332706.4035                        | GF332106.4035                        |
| GF332706.4036                        | GF332106.4036                        |
| GF332706.4037                        | GF332106.4037                        |

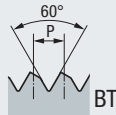
| Nenngröße Nom. size | P Gg/1" (tpi) | $\varnothing d_F$ mm | $\varnothing d_2$ | $\varnothing d_S$ | $l_1$ | $l_2$ | $l_4$ | $l_S$ | Z (Flutes) |
|---------------------|---------------|----------------------|-------------------|-------------------|-------|-------|-------|-------|------------|
| <b>G</b> 1/8        | 28            | 8,2                  | 12                | 10,2              | 80    | 20,4  | 45    | 21,3  | 3          |
| 1/4                 | 19            | 11                   | 16                | 13,8              | 100   | 27,4  | 48    | 28,7  | 4          |
| 3/8                 | 19            | 14,5                 | 18                | 17,5              | 102   | 34,1  | 48    | 35,4  | 4          |

Weitere Ausführungen auf Anfrage  
Further designs upon request

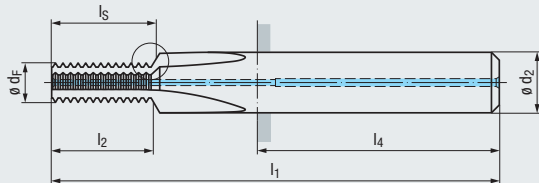
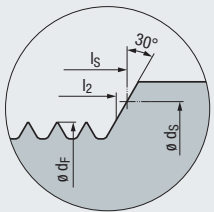


- Product Finder
- $v_c / f_z$
- M
- MF
- UNC  
UN, UNS
- UNF  
UNEF
- G, Rp
- NPT, NPTF  
Rc, W
- BSW, BSF
- Pg
- MJ  
UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr
- Zubehör  
Accessories
- BGF
- ZBGF
- GSF
- GF
- GF-VZ
- GF-KEG
- ZGF
- ZIRK-GF
- Gigant
- MoSys

# LK-M



EMUGE-Norm · EMUGE Standard



VHM  
Carbide

RH + LH

Z3 - Z4



DIN 6535



### GSF



Einsatzgebiete – Material  
Applications – material

» 358

|   |         |   |         |   |                  |
|---|---------|---|---------|---|------------------|
| P | 1.1-5.1 | K | 1.1-4.2 | N | 1.1-1.5, 2.1-2.6 |
| N | 3.1-4.2 | N | 5.1-5.2 | S | 1.1-1.3          |

Gewindetiefe  
Thread depth

## 2 x d<sub>1</sub>

|             | $\varnothing d_1$<br>mm | P<br>mm | $\varnothing d_F$<br>mm | $\varnothing d_2$ | $\varnothing d_S$ | $l_1$ | $l_2$ | $l_4$ | $l_S$ | Z<br>(Flutes) |
|-------------|-------------------------|---------|-------------------------|-------------------|-------------------|-------|-------|-------|-------|---------------|
| <b>LK-M</b> | 5                       | 0,8     | 4                       | 6                 | 5,3               | 55    | 10,7  | 36    | 11,1  | 3             |
|             | 6                       | 1       | 4,8                     | 8                 | 6,3               | 62    | 12,4  | 36    | 12,8  | 3             |
|             | 8                       | 1,25    | 6,5                     | 10                | 8,4               | 74    | 16,7  | 40    | 17,3  | 3             |
| BGF         | 10                      | 1,5     | 8,2                     | 12                | 10,5              | 80    | 20,1  | 45    | 20,8  | 3             |
|             | 12                      | 1,75    | 9,9                     | 14                | 12,6              | 90    | 25,2  | 45    | 26    | 4             |

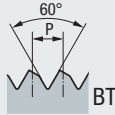
| GSF<br>2xd <sub>1</sub><br>IKZ-HA | GSF<br>2xd <sub>1</sub><br>IKZ-HB |
|-----------------------------------|-----------------------------------|
| GF333701.1050                     | GF333101.1050                     |
| GF333701.1052                     | GF333101.1052                     |
| GF333701.1054                     | GF333101.1054                     |
| GF333701.1056                     | GF333101.1056                     |
| GF333701.1058                     | GF333101.1058                     |

Weitere Ausführungen auf Anfrage  
Further designs upon request

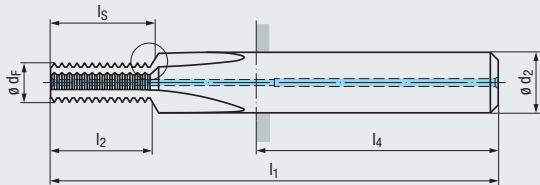
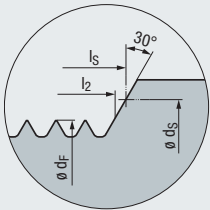




# LK-M



EMUGE-Norm · EMUGE Standard



|             |                   |
|-------------|-------------------|
| VHM Carbide | TICN              |
|             | RH + LH           |
| Z3 - Z4     | DIN 6535          |
|             | HA HB             |
|             | $\varnothing d_1$ |
|             |                   |

**GSF**

- Product Finder
- $v_c / f_z$
- M
- MF
- UNC UN, UNS
- UNF UNEF
- G, Rp
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr
- Zubehör Accessories
- BGF
- ZBGF
- GSF
- GF
- GF-VZ
- GF-KEG
- ZGF
- ZIRK-GF
- Gigant
- MoSys

Einsatzgebiete – Material Applications – material » 358

|   |         |   |         |   |         |
|---|---------|---|---------|---|---------|
| P | 1.1-5.1 | M | 1.1-4.1 | K | 1.1-4.2 |
| N | 1.1-5.3 | S | 1.1-2.6 | H | 1.1-1.2 |

Gewindetiefe Thread depth

| <b>2 x d<sub>1</sub></b>                  |   |
|---|---|
| GSF<br>2xd <sub>1</sub><br>IKZ-HA<br>TICN | GSF<br>2xd <sub>1</sub><br>IKZ-HB<br>TICN |
| GF333706.1050                             | GF333106.1050                             |
| GF333706.1052                             | GF333106.1052                             |
| GF333706.1054                             | GF333106.1054                             |
| GF333706.1056                             | GF333106.1056                             |
| GF333706.1058                             | GF333106.1058                             |

|             | $\varnothing d_1$<br>mm | P<br>mm | $\varnothing d_F$<br>mm | $\varnothing d_2$ | $\varnothing d_S$ | $l_1$ | $l_2$ | $l_4$ | $l_3$ | Z<br>(Flutes) |
|-------------|-------------------------|---------|-------------------------|-------------------|-------------------|-------|-------|-------|-------|---------------|
| <b>LK-M</b> | 5                       | 0,8     | 4                       | 6                 | 5,3               | 55    | 10,7  | 36    | 11,1  | 3             |
|             | 6                       | 1       | 4,8                     | 8                 | 6,3               | 62    | 12,4  | 36    | 12,8  | 3             |
|             | 8                       | 1,25    | 6,5                     | 10                | 8,4               | 74    | 16,7  | 40    | 17,3  | 3             |
|             | 10                      | 1,5     | 8,2                     | 12                | 10,5              | 80    | 20,1  | 45    | 20,8  | 3             |
|             | 12                      | 1,75    | 9,9                     | 14                | 12,6              | 90    | 25,2  | 45    | 26    | 4             |

Weitere Ausführungen auf Anfrage  
Further designs upon request

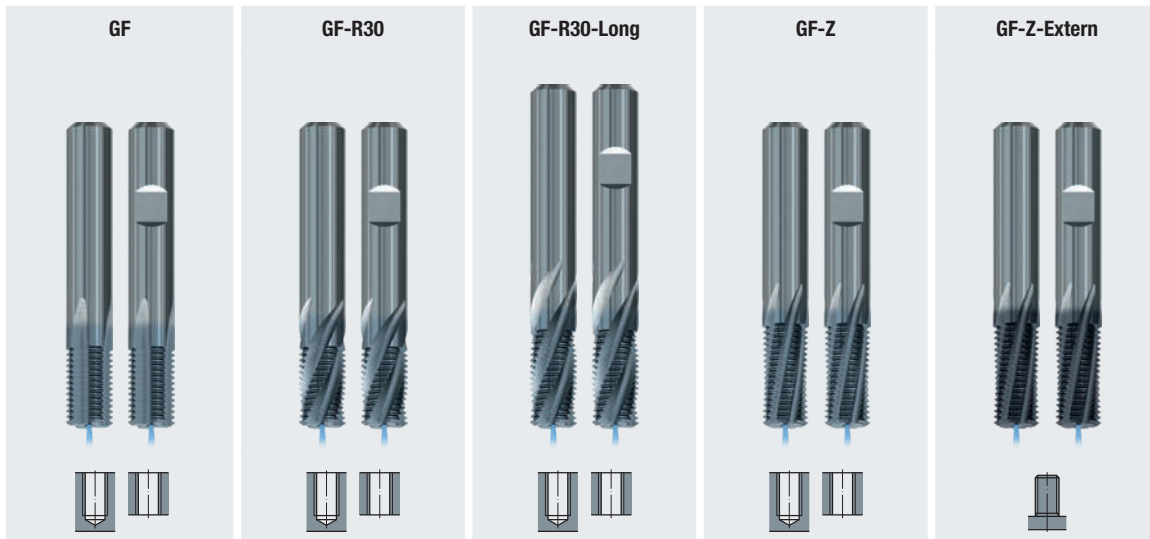


Gewindebohrer für Metrisches SELF-LOCK-Gewinde  
siehe Seite 290 - 293

Taps for Metric SELF-LOCK thread,  
see page 290 - 293

|                        |
|------------------------|
| Product Finder         |
| $v_c / f_z$            |
| M                      |
| MF                     |
| UNC<br>UN, UNS         |
| UNF<br>UNEF            |
| G, Rp                  |
| NPT, NPTF<br>Rc, W     |
| BSW, BSF               |
| Pg                     |
| MJ<br>UNJC, UNJF       |
| EG (STI)               |
| SELF-LOCK              |
| Tr                     |
| Zubehör<br>Accessories |
| BGF                    |
| ZBGF                   |
| <b>GSF</b>             |
| GF                     |
| GF-VZ                  |
| GF-KEG                 |
| ZGF                    |
| ZIRK-GF                |
| Gigant                 |
| MoSys                  |





Seite · Page

|     |     |     |     |     |                              |
|-----|-----|-----|-----|-----|------------------------------|
| 428 | 429 | 430 | 431 | 432 | <b>M</b>                     |
| 428 | 429 | 430 | 431 | 432 | <b>MF</b>                    |
| 433 |     | 434 |     | 435 | <b>UN</b>                    |
| 436 | 437 |     | 438 |     | <b>G (BSP), Rp (BSPP), W</b> |
| 439 |     |     |     |     | <b>LK-M</b>                  |
| 439 |     |     |     |     | <b>LK-MF</b>                 |
| 440 | 441 |     |     |     | <b>Pg</b>                    |

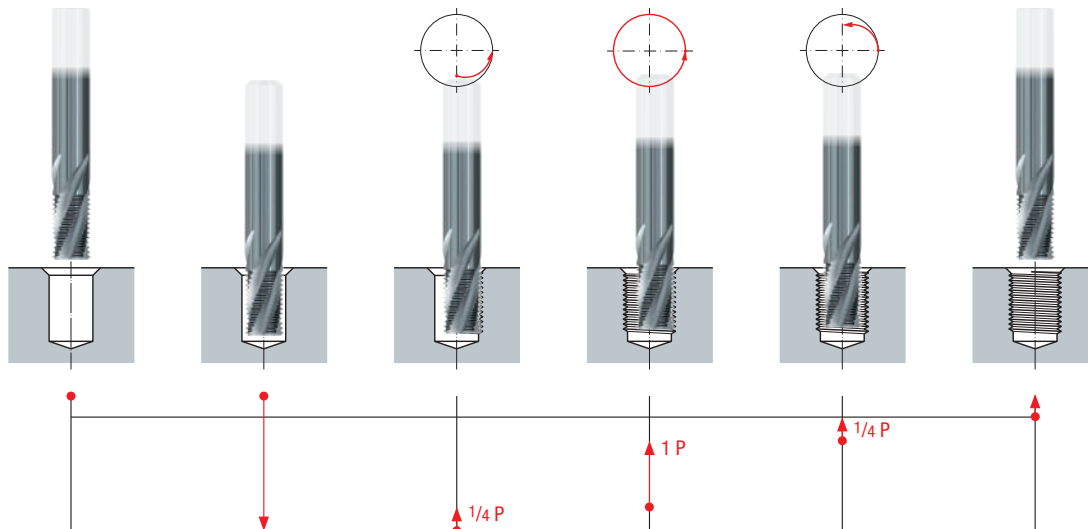
Mögliche Modifikationen siehe Seite 356 - 357  
Possible modifications, see pages 356 - 357

|                        |
|------------------------|
| Product Finder         |
| $v_c / f_z$            |
| M                      |
| MF                     |
| UNC<br>UN, UNS         |
| UNF<br>UNEF            |
| G, Rp                  |
| NPT, NPTF<br>Rc, W     |
| BSW, BSF               |
| Pg                     |
| MJ<br>UNJC, UNJF       |
| EG (STI)               |
| SELF-LOCK              |
| Tr                     |
| Zubehör<br>Accessories |

|           |
|-----------|
| BGF       |
| ZBGF      |
| GSF       |
| <b>GF</b> |
| GF-VZ     |
| GF-KEG    |
| ZGF       |
| ZIRK-GF   |
| Gigant    |
| MoSys     |



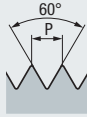
Gewindefräszyklus · Thread milling cycle



- Product Finder
- $v_c / f_z$
- M
- MF
- UNC  
UN, UNS
- UNF  
UNEF
- G, Rp
- NPT, NPTF  
Rc, W
- BSW, BSF
- Pg
- MJ  
UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr
- Zubehör  
Accessories
- BGF
- ZBGF
- GSF
- GF
- GF-VZ
- GF-KEG
- ZGF
- ZIRK-GF
- Gigant
- MoSys

# M, MF

DIN 13



**VHM**  
Carbide

**RH + LH**

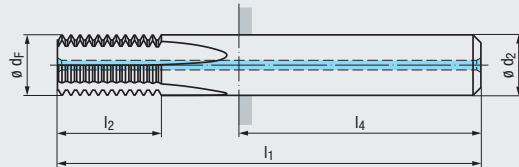
**Z3 - Z5**



**DIN 6535**



Für Innengewinde  
For internal threads



**GF**



Einsatzgebiete – Material  
Applications – material

» 358

**P** 1.1-5.1 **K** 1.1-4.2 **N** 1.1-1.5, 2.1-2.6  
**N** 3.1-4.2 **N** 5.1-5.2 **S** 1.1-1.3

| Tr | P<br>mm | $\varnothing d_1$<br>mm | $\varnothing d_F$<br>mm | $\varnothing d_2$ | $l_1$ | $l_2$ | $l_4$ | Z<br>(Flutes) | GF            |               |
|----|---------|-------------------------|-------------------------|-------------------|-------|-------|-------|---------------|---------------|---------------|
|    |         |                         |                         |                   |       |       |       |               | IKZ-HA        | IKZ-HB        |
|    | 0,5     | $\geq M10$              | 7,9                     | 8                 | 63    | 12,2  | 36    | 3             | GF163701.9506 | GF163101.9506 |
|    | 0,5     | $\geq M12$              | 9,9                     | 10                | 70    | 16,2  | 40    | 4             | GF163811.9506 | GF163211.9506 |
|    | 0,75    | $\geq M11$              | 7,9                     | 8                 | 63    | 12,3  | 36    | 3             | GF163701.9509 | GF163101.9509 |
|    | 0,75    | $\geq M13$              | 9,9                     | 10                | 70    | 16,8  | 40    | 4             | GF163811.9509 | GF163211.9509 |
|    | 1       | $\geq M14$              | 9,9                     | 10                | 70    | 16,4  | 40    | 4             | GF163811.9512 | GF163211.9512 |
|    | 1       | $\geq M16$              | 11,9                    | 12                | 80    | 20,4  | 45    | 4             | GF163721.9512 | GF163121.9512 |
|    | 1       | $\geq M22$              | 15,9                    | 16                | 90    | 25,4  | 48    | 5             | GF163731.9512 | GF163131.9512 |
|    | 1       | $\geq M27$              | 19,9                    | 20                | 105   | 32,4  | 50    | 5             | GF163751.9512 | GF163151.9512 |
|    | 1,5     | $\geq M14$              | 9,9                     | 10                | 70    | 17,2  | 40    | 4             | GF163811.9514 | GF163211.9514 |
|    | 1,5     | $\geq M16$              | 11,9                    | 12                | 80    | 21,7  | 45    | 4             | GF163721.9514 | GF163121.9514 |
|    | 1,5     | $\geq M22$              | 15,9                    | 16                | 90    | 26,2  | 48    | 5             | GF163731.9514 | GF163131.9514 |
|    | 1,5     | $\geq M27$              | 19,9                    | 20                | 105   | 33,7  | 50    | 5             | GF163751.9514 | GF163151.9514 |
|    | 2       | $\geq M22$              | 15,9                    | 16                | 90    | 26,9  | 48    | 5             | GF163731.9516 | GF163131.9516 |
|    | 2       | $\geq M27$              | 19,9                    | 20                | 105   | 32,9  | 50    | 5             | GF163751.9516 | GF163151.9516 |
|    | 3       | $\geq M24$              | 15,9                    | 16                | 90    | 28,3  | 48    | 5             | GF163731.9518 | GF163131.9518 |
|    | 3       | $\geq M30$              | 19,9                    | 20                | 105   | 34,3  | 50    | 5             | GF163751.9518 | GF163151.9518 |

**TICN**



Einsatzgebiete – Material  
Applications – material

» 358

**P** 1.1-5.1 **M** 1.1-4.1 **K** 1.1-4.2  
**N** 1.1-5.3 **S** 1.1-2.6 **H** 1.1-1.2

| Tr | P<br>mm | $\varnothing d_1$<br>mm | $\varnothing d_F$<br>mm | $\varnothing d_2$ | $l_1$ | $l_2$ | $l_4$ | Z<br>(Flutes) | GF             |                |
|----|---------|-------------------------|-------------------------|-------------------|-------|-------|-------|---------------|----------------|----------------|
|    |         |                         |                         |                   |       |       |       |               | IKZ-HA<br>TICN | IKZ-HB<br>TICN |
|    | 0,5     | $\geq M10$              | 7,9                     | 8                 | 63    | 12,2  | 36    | 3             | GF163706.9506  | GF163106.9506  |
|    | 0,5     | $\geq M12$              | 9,9                     | 10                | 70    | 16,2  | 40    | 4             | GF163816.9506  | GF163216.9506  |
|    | 0,75    | $\geq M11$              | 7,9                     | 8                 | 63    | 12,3  | 36    | 3             | GF163706.9509  | GF163106.9509  |
|    | 0,75    | $\geq M13$              | 9,9                     | 10                | 70    | 16,8  | 40    | 4             | GF163816.9509  | GF163216.9509  |
|    | 1       | $\geq M14$              | 9,9                     | 10                | 70    | 16,4  | 40    | 4             | GF163816.9512  | GF163216.9512  |
|    | 1       | $\geq M16$              | 11,9                    | 12                | 80    | 20,4  | 45    | 4             | GF163726.9512  | GF163126.9512  |
|    | 1       | $\geq M22$              | 15,9                    | 16                | 90    | 25,4  | 48    | 5             | GF163736.9512  | GF163136.9512  |
|    | 1       | $\geq M27$              | 19,9                    | 20                | 105   | 32,4  | 50    | 5             | GF163756.9512  | GF163156.9512  |
|    | 1,5     | $\geq M14$              | 9,9                     | 10                | 70    | 17,2  | 40    | 4             | GF163816.9514  | GF163216.9514  |
|    | 1,5     | $\geq M16$              | 11,9                    | 12                | 80    | 21,7  | 45    | 4             | GF163726.9514  | GF163126.9514  |
|    | 1,5     | $\geq M22$              | 15,9                    | 16                | 90    | 26,2  | 48    | 5             | GF163736.9514  | GF163136.9514  |
|    | 1,5     | $\geq M27$              | 19,9                    | 20                | 105   | 33,7  | 50    | 5             | GF163756.9514  | GF163156.9514  |
|    | 2       | $\geq M22$              | 15,9                    | 16                | 90    | 26,9  | 48    | 5             | GF163736.9516  | GF163136.9516  |
|    | 2       | $\geq M27$              | 19,9                    | 20                | 105   | 32,9  | 50    | 5             | GF163756.9516  | GF163156.9516  |
|    | 3       | $\geq M24$              | 15,9                    | 16                | 90    | 28,3  | 48    | 5             | GF163736.9518  | GF163136.9518  |
|    | 3       | $\geq M30$              | 19,9                    | 20                | 105   | 34,3  | 50    | 5             | GF163756.9518  | GF163156.9518  |

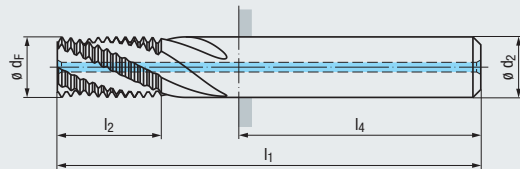
Weitere Ausführungen auf Anfrage  
Further designs upon request

# M, MF

DIN 13



Für Innengewinde  
For internal threads



VHM  
Carbide

R30

RH + LH

Z3 - Z5

DIN 6535



GF-R30



Einsatzgebiete – Material  
Applications – material

» 358

P 1.1-3.1 K 1.1-4.2 N 1.1-1.5, 2.1-2.6  
N 3.1-4.2 N 5.1-5.2 S 1.1-1.2

| P<br>mm | ø d <sub>1</sub><br>mm | ø d <sub>F</sub><br>mm | ø d <sub>2</sub> | l <sub>1</sub> | l <sub>2</sub> | l <sub>4</sub> | Z<br>(Flutes) | GF            |               |
|---------|------------------------|------------------------|------------------|----------------|----------------|----------------|---------------|---------------|---------------|
|         |                        |                        |                  |                |                |                |               | R30-IKZ-HA    | R30-IKZ-HB    |
| 0,5     | ≥ M10                  | 7,9                    | 8                | 63             | 12,2           | 36             | 3             | GF162701.9506 | GF162101.9506 |
| 0,75    | ≥ M11                  | 7,9                    | 8                | 63             | 12,3           | 36             | 3             | GF162701.9509 | GF162101.9509 |
| 1       | ≥ M14                  | 9,9                    | 10               | 70             | 16,4           | 40             | 4             | GF162811.9512 | GF162211.9512 |
| 1       | ≥ M16                  | 11,9                   | 12               | 80             | 20,4           | 45             | 4             | GF162721.9512 | GF162121.9512 |
| 1       | ≥ M22                  | 15,9                   | 16               | 90             | 25,4           | 48             | 5             | GF162731.9512 | GF162131.9512 |
| 1       | ≥ M27                  | 19,9                   | 20               | 105            | 32,4           | 50             | 5             | GF162751.9512 | GF162151.9512 |
| 1,5     | ≥ M14                  | 9,9                    | 10               | 70             | 17,2           | 40             | 4             | GF162811.9514 | GF162211.9514 |
| 1,5     | ≥ M16                  | 11,9                   | 12               | 80             | 21,7           | 45             | 4             | GF162721.9514 | GF162121.9514 |
| 1,5     | ≥ M22                  | 15,9                   | 16               | 90             | 26,2           | 48             | 5             | GF162731.9514 | GF162131.9514 |
| 1,5     | ≥ M27                  | 19,9                   | 20               | 105            | 33,7           | 50             | 5             | GF162751.9514 | GF162151.9514 |
| 2       | ≥ M18                  | 11,9                   | 12               | 80             | 20,9           | 45             | 4             | GF162721.9516 | GF162121.9516 |
| 2       | ≥ M22                  | 15,9                   | 16               | 90             | 26,9           | 48             | 5             | GF162731.9516 | GF162131.9516 |
| 2       | ≥ M27                  | 19,9                   | 20               | 105            | 32,9           | 50             | 5             | GF162751.9516 | GF162151.9516 |
| 3       | ≥ M24                  | 15,9                   | 16               | 90             | 28,3           | 48             | 5             | GF162731.9518 | GF162131.9518 |
| 3       | ≥ M30                  | 19,9                   | 20               | 105            | 34,3           | 50             | 5             | GF162751.9518 | GF162151.9518 |

Einsatzgebiete – Material  
Applications – material

» 358

TICN



P 1.1-3.1 M 1.1-2.1 K 1.1-4.2  
N 1.1-2.7 N 3.1-5.3 S 1.1-1.2, 2.1

| P<br>mm | ø d <sub>1</sub><br>mm | ø d <sub>F</sub><br>mm | ø d <sub>2</sub> | l <sub>1</sub> | l <sub>2</sub> | l <sub>4</sub> | Z<br>(Flutes) | GF                 |                    |
|---------|------------------------|------------------------|------------------|----------------|----------------|----------------|---------------|--------------------|--------------------|
|         |                        |                        |                  |                |                |                |               | R30-IKZ-HA<br>TICN | R30-IKZ-HB<br>TICN |
| 0,5     | ≥ M10                  | 7,9                    | 8                | 63             | 12,2           | 36             | 3             | GF162706.9506      | GF162106.9506      |
| 0,75    | ≥ M11                  | 7,9                    | 8                | 63             | 12,3           | 36             | 3             | GF162706.9509      | GF162106.9509      |
| 1       | ≥ M14                  | 9,9                    | 10               | 70             | 16,4           | 40             | 4             | GF162816.9512      | GF162216.9512      |
| 1       | ≥ M16                  | 11,9                   | 12               | 80             | 20,4           | 45             | 4             | GF162726.9512      | GF162126.9512      |
| 1       | ≥ M22                  | 15,9                   | 16               | 90             | 25,4           | 48             | 5             | GF162736.9512      | GF162136.9512      |
| 1       | ≥ M27                  | 19,9                   | 20               | 105            | 32,4           | 50             | 5             | GF162756.9512      | GF162156.9512      |
| 1,5     | ≥ M14                  | 9,9                    | 10               | 70             | 17,2           | 40             | 4             | GF162816.9514      | GF162216.9514      |
| 1,5     | ≥ M16                  | 11,9                   | 12               | 80             | 21,7           | 45             | 4             | GF162726.9514      | GF162126.9514      |
| 1,5     | ≥ M22                  | 15,9                   | 16               | 90             | 26,2           | 48             | 5             | GF162736.9514      | GF162136.9514      |
| 1,5     | ≥ M27                  | 19,9                   | 20               | 105            | 33,7           | 50             | 5             | GF162756.9514      | GF162156.9514      |
| 2       | ≥ M18                  | 11,9                   | 12               | 80             | 20,9           | 45             | 4             | GF162726.9516      | GF162126.9516      |
| 2       | ≥ M22                  | 15,9                   | 16               | 90             | 26,9           | 48             | 5             | GF162736.9516      | GF162136.9516      |
| 2       | ≥ M27                  | 19,9                   | 20               | 105            | 32,9           | 50             | 5             | GF162756.9516      | GF162156.9516      |
| 3       | ≥ M24                  | 15,9                   | 16               | 90             | 28,3           | 48             | 5             | GF162736.9518      | GF162136.9518      |
| 3       | ≥ M30                  | 19,9                   | 20               | 105            | 34,3           | 50             | 5             | GF162756.9518      | GF162156.9518      |

Weitere Ausführungen auf Anfrage  
Further designs upon request

Product Finder

v<sub>c</sub> / f<sub>z</sub>

M

MF

UNC  
UN, UNS

UNF  
UNEF

G, Rp

NPT, NPTF  
Rc, W

BSW, BSF

Pg

MJ  
UNJC, UNJF

EG (STI)

SELF-LOCK

Tr

Zubehör  
Accessories

BGF

ZBGF

GSF

GF

GF-VZ

GF-KEG

ZGF

ZIRK-GF

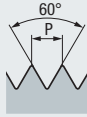
Gigant

MoSys

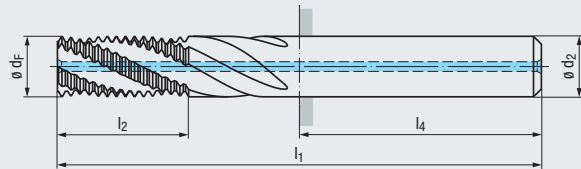
- Product Finder
- $v_c / f_z$
- M
- MF
- UNC  
UN, UNS
- UNF  
UNEF
- G, Rp
- NPT, NPTF  
Rc, W
- BSW, BSF
- Pg
- MJ  
UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr
- Zubehör  
Accessories
- BGF
- ZBGF
- GSF
- GF
- GF-VZ
- GF-KEG
- ZGF
- ZIRK-GF
- Gigant
- MoSys

# M, MF

DIN 13



Für Innengewinde  
For internal threads



VHM  
Carbide

R30

RH + LH

Z4 - Z5

DIN 6535



GF-R30-Long



Einsatzgebiete – Material  
Applications – material

» 358

P 1.1-3.1 K 1.1-4.2 N 1.1-1.5, 2.1-2.6  
N 3.1-4.2 N 5.1-5.2 S 1.1-1.2

| P<br>mm | $\varnothing d_1$<br>mm | $\varnothing d_f$<br>mm | $\varnothing d_2$ | $l_1$ | $l_2$ | $l_4$ | Z<br>(Flutes) | GF<br>R30-Long-IKZ-HA | GF<br>R30-Long-IKZ-HB |
|---------|-------------------------|-------------------------|-------------------|-------|-------|-------|---------------|-----------------------|-----------------------|
|         |                         |                         |                   |       |       |       |               | 1                     | $\geq$ M14            |
| 1       | $\geq$ M16              | 11,9                    | 12                | 90    | 25,4  | 45    | 4             | GF162921.9512         | GF162321.9512         |
| 1       | $\geq$ M22              | 15,9                    | 16                | 100   | 32,4  | 48    | 5             | GF162931.9512         | GF162331.9512         |
| 1,5     | $\geq$ M14              | 9,9                     | 10                | 80    | 21,7  | 40    | 4             | GF162911.9514         | GF162311.9514         |
| 1,5     | $\geq$ M16              | 11,9                    | 12                | 90    | 26,2  | 45    | 4             | GF162921.9514         | GF162321.9514         |
| 1,5     | $\geq$ M22              | 15,9                    | 16                | 100   | 33,7  | 48    | 5             | GF162931.9514         | GF162331.9514         |
| 1,5     | $\geq$ M27              | 19,9                    | 20                | 115   | 41,2  | 50    | 5             | GF162951.9514         | GF162351.9514         |
| 2       | $\geq$ M18              | 11,9                    | 12                | 90    | 26,9  | 45    | 4             | GF162921.9516         | GF162321.9516         |
| 2       | $\geq$ M22              | 15,9                    | 16                | 100   | 32,9  | 48    | 5             | GF162931.9516         | GF162331.9516         |
| 2       | $\geq$ M27              | 19,9                    | 20                | 115   | 40,9  | 50    | 5             | GF162951.9516         | GF162351.9516         |
| 3       | $\geq$ M24              | 15,9                    | 16                | 100   | 34,3  | 48    | 5             | GF162931.9518         | GF162331.9518         |
| 3       | $\geq$ M30              | 19,9                    | 20                | 115   | 43,3  | 50    | 5             | GF162951.9518         | GF162351.9518         |

TICN



Einsatzgebiete – Material  
Applications – material

» 358

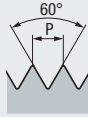
P 1.1-3.1 M 1.1-2.1 K 1.1-4.2  
N 1.1-2.7 N 3.1-5.3 S 1.1-1.2, 2.1

| P<br>mm | $\varnothing d_1$<br>mm | $\varnothing d_f$<br>mm | $\varnothing d_2$ | $l_1$ | $l_2$ | $l_4$ | Z<br>(Flutes) | GF<br>R30-Long-IKZ-HA<br>TICN | GF<br>R30-Long-IKZ-HB<br>TICN |
|---------|-------------------------|-------------------------|-------------------|-------|-------|-------|---------------|-------------------------------|-------------------------------|
|         |                         |                         |                   |       |       |       |               | 1                             | $\geq$ M14                    |
| 1       | $\geq$ M16              | 11,9                    | 12                | 90    | 25,4  | 45    | 4             | GF162926.9512                 | GF162326.9512                 |
| 1       | $\geq$ M22              | 15,9                    | 16                | 100   | 32,4  | 48    | 5             | GF162936.9512                 | GF162336.9512                 |
| 1,5     | $\geq$ M14              | 9,9                     | 10                | 80    | 21,7  | 40    | 4             | GF162916.9514                 | GF162316.9514                 |
| 1,5     | $\geq$ M16              | 11,9                    | 12                | 90    | 26,2  | 45    | 4             | GF162926.9514                 | GF162326.9514                 |
| 1,5     | $\geq$ M22              | 15,9                    | 16                | 100   | 33,7  | 48    | 5             | GF162936.9514                 | GF162336.9514                 |
| 1,5     | $\geq$ M27              | 19,9                    | 20                | 115   | 41,2  | 50    | 5             | GF162956.9514                 | GF162356.9514                 |
| 2       | $\geq$ M18              | 11,9                    | 12                | 90    | 26,9  | 45    | 4             | GF162926.9516                 | GF162326.9516                 |
| 2       | $\geq$ M22              | 15,9                    | 16                | 100   | 32,9  | 48    | 5             | GF162936.9516                 | GF162336.9516                 |
| 2       | $\geq$ M27              | 19,9                    | 20                | 115   | 40,9  | 50    | 5             | GF162956.9516                 | GF162356.9516                 |
| 3       | $\geq$ M24              | 15,9                    | 16                | 100   | 34,3  | 48    | 5             | GF162936.9518                 | GF162336.9518                 |
| 3       | $\geq$ M30              | 19,9                    | 20                | 115   | 43,3  | 50    | 5             | GF162956.9518                 | GF162356.9518                 |

Weitere Ausführungen auf Anfrage  
Further designs upon request

# M, MF

DIN 13



VHM Carbide

R15

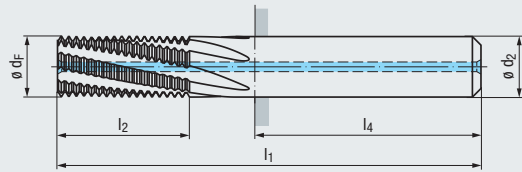
RH + LH

Z6

DIN 6535



Für Innengewinde  
For internal threads



Einsatzgebiete – Material  
Applications – material

» 358

P 1.1-5.1 K 1.1-4.2 N 1.1-1.5, 2.1-2.6  
N 3.1-4.2 N 5.1-5.2 S 1.1-1.3

| P<br>mm | ø d <sub>1</sub><br>mm | ø d <sub>F</sub><br>mm | ø d <sub>2</sub> | l <sub>1</sub> | l <sub>2</sub> | l <sub>4</sub> | Z<br>(Flutes) | GF-Z          |               |
|---------|------------------------|------------------------|------------------|----------------|----------------|----------------|---------------|---------------|---------------|
|         |                        |                        |                  |                |                |                |               | R15-IKZ-HA    | R15-IKZ-HB    |
| 1       | ≥ M14                  | 9,9                    | 10               | 70             | 20,4           | 40             | 6             | GF165961.9512 | GF165361.9512 |
| 1,5     | ≥ M16                  | 11,9                   | 12               | 80             | 26,2           | 45             | 6             | GF165971.9514 | GF165371.9514 |
| 2       | ≥ M22                  | 15,9                   | 16               | 90             | 32,9           | 48             | 6             | GF165981.9516 | GF165381.9516 |
| 3       | ≥ M30                  | 19,9                   | 20               | 105            | 43,3           | 50             | 6             | GF165991.9518 | GF165391.9518 |

Einsatzgebiete – Material  
Applications – material

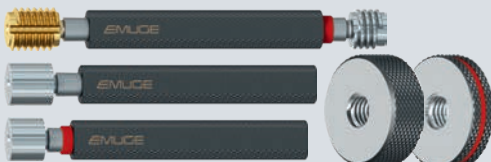
» 358

P 1.1-5.1 M 1.1-4.1 K 1.1-4.2  
N 1.1-5.3 S 1.1-2.6 H 1.1-1.2

| P<br>mm | ø d <sub>1</sub><br>mm | ø d <sub>F</sub><br>mm | ø d <sub>2</sub> | l <sub>1</sub> | l <sub>2</sub> | l <sub>4</sub> | Z<br>(Flutes) | GF-Z               |                    |
|---------|------------------------|------------------------|------------------|----------------|----------------|----------------|---------------|--------------------|--------------------|
|         |                        |                        |                  |                |                |                |               | R15-IKZ-HA<br>TICN | R15-IKZ-HB<br>TICN |
| 1       | ≥ M14                  | 9,9                    | 10               | 70             | 20,4           | 40             | 6             | GF165966.9512      | GF165366.9512      |
| 1,5     | ≥ M16                  | 11,9                   | 12               | 80             | 26,2           | 45             | 6             | GF165976.9514      | GF165376.9514      |
| 2       | ≥ M22                  | 15,9                   | 16               | 90             | 32,9           | 48             | 6             | GF165986.9516      | GF165386.9516      |
| 3       | ≥ M30                  | 19,9                   | 20               | 105            | 43,3           | 50             | 6             | GF165996.9518      | GF165396.9518      |

Weitere Ausführungen auf Anfrage  
Further designs upon request

- Product Finder
- v<sub>c</sub> / f<sub>z</sub>
- M
- MF
- UNC  
UN, UNS
- UNF  
UNEF
- G, Rp
- NPT, NPTF  
Rc, W
- BSW, BSF
- Pg
- MJ  
UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr
- Zubehör  
Accessories
- BGF
- ZBGF
- GSF
- GF
- GF-VZ
- GF-KEG
- ZGF
- ZIRK-GF
- Gigant
- MoSys



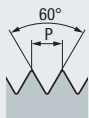
Gewindelehren  
siehe Seite 541 - 594

Thread gauges,  
see page 541 - 594

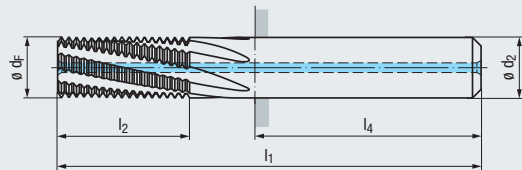
- Product Finder
- $v_c / f_z$
- M
- MF
- UNC  
UN, UNS
- UNF  
UNEF
- G, Rp
- NPT, NPTF  
Rc, W
- BSW, BSF
- Pg
- MJ  
UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr
- Zubehör  
Accessories
- BGF
- ZBGF
- GSF
- GF
- GF-VZ
- GF-KEG
- ZGF
- ZIRK-GF
- Gigant
- MoSys

# M, MF

DIN 13



Für Außengewinde  
For external threads



VHM  
Carbide

TIALN  
86

R15

RH + LH

Z5 - Z9



DIN 6535



GF-Z-Extern



Mit höherer Nutenzahl  
With increased number of flutes

new



new



Einsatzgebiete – Material  
Applications – material

» 358

|   |         |   |         |   |         |
|---|---------|---|---------|---|---------|
| P | 1.1-5.1 | M | 1.1-4.1 | K | 1.1-4.2 |
| N | 1.1-5.3 | S | 1.1-2.6 | H | 1.1-1.2 |

| P<br>mm | $\geq$ M    | $\varnothing d_1$<br>mm | $\varnothing d_F$<br>mm | $\varnothing d_2$ | $l_1$ | $l_2$ | $l_4$ | Z<br>(Flutes)                                   | GF-Z<br>R15-Extern- <b>IKZ-HA</b><br>TIALN-86   | GF-Z<br>R15-Extern- <b>IKZ-HB</b><br>TIALN-86   |
|---------|-------------|-------------------------|-------------------------|-------------------|-------|-------|-------|---|---|---|
|         |             |                         |                         |                   |       |       |       |   | GF1649CC.9506<br>GF1649CC.9509<br>GF1649BC.9512 | GF1643CC.9506<br>GF1643CC.9509<br>GF1643BC.9512 |
| 0,5     | $\geq$ M 5  | 5,9                     | 6                       | 55                | 12,3  | 36    | 9     | GF1649CC.9510<br>GF16496C.9512                  | GF1643CC.9510<br>GF16436C.9512                  |   |
| 0,75    | $\geq$ M 5  | 5,9                     | 6                       | 55                | 12,4  | 36    | 6     | GF16496C.9513<br>GF16496C.9514                  | GF16436C.9513<br>GF16436C.9514                  |   |
| 1       | $\geq$ M 6  | 7,9                     | 8                       | 63                | 16,5  | 36    | 6     | GF16497C.9514<br>GF16497C.9516<br>GF16498C.9516 | GF16437C.9514<br>GF16437C.9516<br>GF16438C.9516 |   |
| 0,8     | $\geq$ M 5  | 5,9                     | 6                       | 55                | 12,4  | 36    | 6     | GF16498C.9517                                   | GF16438C.9517                                   |   |
| 1       | $\geq$ M 8  | 9,9                     | 10                      | 70                | 20,5  | 40    | 8     |   |   |   |
| 1,25    | $\geq$ M 8  | 9,9                     | 10                      | 70                | 20,6  | 40    | 6     |   |   |   |
| 1,5     | $\geq$ M 8  | 9,9                     | 10                      | 70                | 21,8  | 40    | 5     |   |   |   |
| 1,5     | $\geq$ M 10 | 11,9                    | 12                      | 80                | 26,3  | 45    | 6     |   |   |   |
| 2       | $\geq$ M 10 | 11,9                    | 12                      | 80                | 27    | 45    | 5     |   |   |   |
| 2       | $\geq$ M 14 | 15,9                    | 16                      | 90                | 33    | 48    | 6     |   |   |   |
| 2,5     | $\geq$ M 14 | 15,9                    | 16                      | 90                | 33,8  | 48    | 5     |   |   |   |

Weitere Ausführungen auf Anfrage  
Further designs upon request

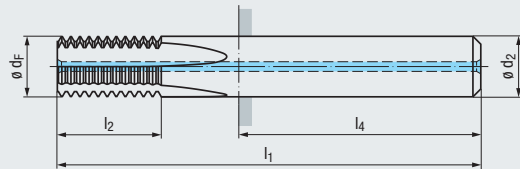






ASME B1.1

Für Innengewinde  
For internal threads



VHM  
Carbide

RH + LH

Z4 - Z5

DIN 6535



GF



Einsatzgebiete – Material  
Applications – material



|   |         |   |         |   |                  |
|---|---------|---|---------|---|------------------|
| P | 1.1-5.1 | K | 1.1-4.2 | N | 1.1-1.5, 2.1-2.6 |
| N | 3.1-4.2 | N | 5.1-5.2 | S | 1.1-1.3          |

| P<br>Gg/1" (tpi) | ø d <sub>1</sub><br>inch | ø d <sub>F</sub><br>mm | ø d <sub>2</sub> | l <sub>1</sub> | l <sub>2</sub> | l <sub>4</sub> | Z<br>(Flutes) |
|------------------|--------------------------|------------------------|------------------|----------------|----------------|----------------|---------------|
| 24               | ≥ 1/2                    | 9,9                    | 10               | 70             | 16,3           | 40             | 4             |
| 20               | ≥ 1/2                    | 9,9                    | 10               | 70             | 17,1           | 40             | 4             |
| 20               | ≥ 11/16                  | 11,9                   | 12               | 80             | 20,9           | 45             | 4             |
| 20               | ≥ 7/8                    | 15,9                   | 16               | 90             | 26             | 48             | 5             |
| 20               | ≥ 1"                     | 19,9                   | 20               | 105            | 32,3           | 50             | 5             |
| 18               | ≥ 1/2                    | 9,9                    | 10               | 70             | 17,6           | 40             | 4             |
| 16               | ≥ 1/2                    | 9,9                    | 10               | 70             | 16,6           | 40             | 4             |
| 16               | ≥ 11/16                  | 11,9                   | 12               | 80             | 21,3           | 45             | 4             |
| 16               | ≥ 7/8                    | 15,9                   | 16               | 90             | 26,1           | 48             | 5             |
| 16               | ≥ 1"                     | 19,9                   | 20               | 105            | 32,5           | 50             | 5             |
| 14               | ≥ 7/8                    | 15,9                   | 16               | 90             | 26,2           | 48             | 5             |
| 12               | ≥ 11/16                  | 11,9                   | 12               | 80             | 22,1           | 45             | 4             |
| 12               | ≥ 7/8                    | 15,9                   | 16               | 90             | 26,3           | 48             | 5             |
| 12               | ≥ 1"                     | 19,9                   | 20               | 105            | 32,7           | 50             | 5             |
| 10               | ≥ 11/16                  | 11,9                   | 12               | 80             | 21,4           | 45             | 4             |
| 9                | ≥ 11/16                  | 11,9                   | 12               | 80             | 21             | 45             | 4             |
| 8                | ≥ 7/8                    | 15,9                   | 16               | 90             | 26,8           | 48             | 5             |
| 8                | ≥ 1"                     | 19,9                   | 20               | 105            | 33,2           | 50             | 5             |
| 6                | ≥ 1"                     | 19,9                   | 20               | 105            | 35,8           | 50             | 5             |

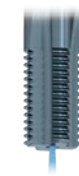
| GF<br>IKZ-HA  | GF<br>IKZ-HB  |
|---------------|---------------|
| GF163811.9579 | GF163211.9579 |
| GF163811.9580 | GF163211.9580 |
| GF163721.9580 | GF163121.9580 |
| GF163731.9580 | GF163131.9580 |
| GF163751.9580 | GF163151.9580 |
| GF163811.9581 | GF163211.9581 |
| GF163811.9582 | GF163211.9582 |
| GF163721.9582 | GF163121.9582 |
| GF163731.9582 | GF163131.9582 |
| GF163751.9582 | GF163151.9582 |
| GF163731.9583 | GF163131.9583 |
| GF163721.9585 | GF163121.9585 |
| GF163731.9585 | GF163131.9585 |
| GF163751.9585 | GF163151.9585 |
| GF163721.9587 | GF163121.9587 |
| GF163721.9588 | GF163121.9588 |
| GF163731.9589 | GF163131.9589 |
| GF163751.9589 | GF163151.9589 |
| GF163751.9591 | GF163151.9591 |

Einsatzgebiete – Material  
Applications – material



| P<br>Gg/1" (tpi) | ø d <sub>1</sub><br>inch | ø d <sub>F</sub><br>mm | ø d <sub>2</sub> | l <sub>1</sub> | l <sub>2</sub> | l <sub>4</sub> | Z<br>(Flutes) |
|------------------|--------------------------|------------------------|------------------|----------------|----------------|----------------|---------------|
| 24               | ≥ 1/2                    | 9,9                    | 10               | 70             | 16,3           | 40             | 4             |
| 20               | ≥ 1/2                    | 9,9                    | 10               | 70             | 17,1           | 40             | 4             |
| 20               | ≥ 11/16                  | 11,9                   | 12               | 80             | 20,9           | 45             | 4             |
| 20               | ≥ 7/8                    | 15,9                   | 16               | 90             | 26             | 48             | 5             |
| 20               | ≥ 1"                     | 19,9                   | 20               | 105            | 32,3           | 50             | 5             |
| 18               | ≥ 1/2                    | 9,9                    | 10               | 70             | 17,6           | 40             | 4             |
| 16               | ≥ 1/2                    | 9,9                    | 10               | 70             | 16,6           | 40             | 4             |
| 16               | ≥ 11/16                  | 11,9                   | 12               | 80             | 21,3           | 45             | 4             |
| 16               | ≥ 7/8                    | 15,9                   | 16               | 90             | 26,1           | 48             | 5             |
| 16               | ≥ 1"                     | 19,9                   | 20               | 105            | 32,5           | 50             | 5             |
| 14               | ≥ 7/8                    | 15,9                   | 16               | 90             | 26,2           | 48             | 5             |
| 12               | ≥ 11/16                  | 11,9                   | 12               | 80             | 22,1           | 45             | 4             |
| 12               | ≥ 7/8                    | 15,9                   | 16               | 90             | 26,3           | 48             | 5             |
| 12               | ≥ 1"                     | 19,9                   | 20               | 105            | 32,7           | 50             | 5             |
| 10               | ≥ 11/16                  | 11,9                   | 12               | 80             | 21,4           | 45             | 4             |
| 9                | ≥ 11/16                  | 11,9                   | 12               | 80             | 21             | 45             | 4             |
| 8                | ≥ 7/8                    | 15,9                   | 16               | 90             | 26,8           | 48             | 5             |
| 8                | ≥ 1"                     | 19,9                   | 20               | 105            | 33,2           | 50             | 5             |
| 6                | ≥ 1"                     | 19,9                   | 20               | 105            | 35,8           | 50             | 5             |

TICN

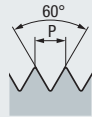


|   |         |   |         |   |         |
|---|---------|---|---------|---|---------|
| P | 1.1-5.1 | M | 1.1-4.1 | K | 1.1-4.2 |
| N | 1.1-5.3 | S | 1.1-2.6 | H | 1.1-1.2 |

| GF<br>IKZ-HA<br>TICN | GF<br>IKZ-HB<br>TICN |
|----------------------|----------------------|
| GF163816.9579        | GF163216.9579        |
| GF163816.9580        | GF163216.9580        |
| GF163726.9580        | GF163126.9580        |
| GF163736.9580        | GF163136.9580        |
| GF163756.9580        | GF163156.9580        |
| GF163816.9581        | GF163216.9581        |
| GF163816.9582        | GF163216.9582        |
| GF163726.9582        | GF163126.9582        |
| GF163736.9582        | GF163136.9582        |
| GF163756.9582        | GF163156.9582        |
| GF163736.9583        | GF163136.9583        |
| GF163726.9585        | GF163126.9585        |
| GF163736.9585        | GF163136.9585        |
| GF163756.9585        | GF163156.9585        |
| GF163726.9587        | GF163126.9587        |
| GF163726.9588        | GF163126.9588        |
| GF163736.9589        | GF163136.9589        |
| GF163756.9589        | GF163156.9589        |
| GF163756.9591        | GF163156.9591        |

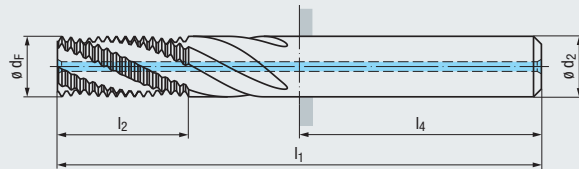
- Product Finder
- V<sub>c</sub> / f<sub>z</sub>
- M
- MF
- UNC  
UN, UNS
- UNF  
UNEF
- G, Rp
- NPT, NPTF  
Rc, W
- BSW, BSF
- Pg
- MJ  
UNJC, UNJF

# UN



ASME B.1.1

Für Innengewinde  
For internal threads



VHM  
Carbide

R30

RH + LH

Z4 - Z5

DIN 6535



GF-R30-Long



Einsatzgebiete – Material  
Applications – material

» 358

P 1.1-3.1 K 1.1-4.2 N 1.1-1.5, 2.1-2.6  
N 3.1-4.2 N 5.1-5.2 S 1.1-1.2

| Tr | P<br>Gg/1" (tpi) | $\varnothing d_1$<br>inch | $\varnothing d_F$<br>mm | $\varnothing d_2$ | $l_1$ | $l_2$ | $l_4$ | Z<br>(Flutes) | GF              | GF              |
|----|------------------|---------------------------|-------------------------|-------------------|-------|-------|-------|---------------|-----------------|-----------------|
|    |                  |                           |                         |                   |       |       |       |               | R30-Long-IKZ-HA | R30-Long-IKZ-HB |
|    | 24               | ≥ 1/2                     | 9,9                     | 10                | 80    | 20,6  | 40    | 4             | GF162911.9579   | GF162311.9579   |
|    | 20               | ≥ 1/2                     | 9,9                     | 10                | 80    | 20,9  | 40    | 4             | GF162911.9580   | GF162311.9580   |
|    | 20               | ≥ 11/16                   | 11,9                    | 12                | 90    | 26    | 45    | 4             | GF162921.9580   | GF162321.9580   |
|    | 20               | ≥ 7/8                     | 15,9                    | 16                | 100   | 32,3  | 48    | 5             | GF162931.9580   | GF162331.9580   |
|    | 20               | ≥ 1"                      | 19,9                    | 20                | 115   | 41,2  | 50    | 5             | GF162951.9580   | GF162351.9580   |
|    | 18               | ≥ 1/2                     | 9,9                     | 10                | 80    | 20,4  | 40    | 4             | GF162911.9581   | GF162311.9581   |
|    | 16               | ≥ 1/2                     | 9,9                     | 10                | 80    | 21,3  | 40    | 4             | GF162911.9582   | GF162311.9582   |
|    | 16               | ≥ 11/16                   | 11,9                    | 12                | 90    | 26,1  | 45    | 4             | GF162921.9582   | GF162321.9582   |
|    | 16               | ≥ 7/8                     | 15,9                    | 16                | 100   | 32,5  | 48    | 5             | GF162931.9582   | GF162331.9582   |
|    | 16               | ≥ 1"                      | 19,9                    | 20                | 115   | 40,4  | 50    | 5             | GF162951.9582   | GF162351.9582   |
|    | 14               | ≥ 7/8                     | 15,9                    | 16                | 100   | 33,4  | 48    | 5             | GF162931.9583   | GF162331.9583   |
|    | 12               | ≥ 11/16                   | 11,9                    | 12                | 90    | 26,3  | 45    | 4             | GF162921.9585   | GF162321.9585   |
|    | 12               | ≥ 7/8                     | 15,9                    | 16                | 100   | 32,7  | 48    | 5             | GF162931.9585   | GF162331.9585   |
|    | 12               | ≥ 1"                      | 19,9                    | 20                | 115   | 41,2  | 50    | 5             | GF162951.9585   | GF162351.9585   |
|    | 10               | ≥ 11/16                   | 11,9                    | 12                | 90    | 26,5  | 45    | 4             | GF162921.9587   | GF162321.9587   |
|    | 9                | ≥ 11/16                   | 11,9                    | 12                | 90    | 26,6  | 45    | 4             | GF162921.9588   | GF162321.9588   |
|    | 8                | ≥ 7/8                     | 15,9                    | 16                | 100   | 33,1  | 48    | 5             | GF162931.9589   | GF162331.9589   |
|    | 8                | ≥ 1"                      | 19,9                    | 20                | 115   | 42,7  | 50    | 5             | GF162951.9589   | GF162351.9589   |
|    | 6                | ≥ 1"                      | 19,9                    | 20                | 115   | 44,3  | 50    | 5             | GF162951.9591   | GF162351.9591   |

TICN



Einsatzgebiete – Material  
Applications – material

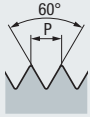
» 358

P 1.1-3.1 M 1.1-2.1 K 1.1-4.2  
N 1.1-2.7 N 3.1-5.3 S 1.1-1.2, 2.1

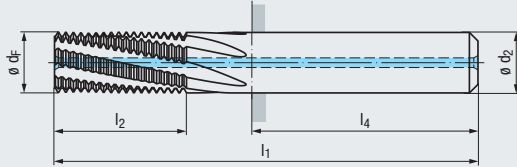
| Tr | P<br>Gg/1" (tpi) | $\varnothing d_1$<br>inch | $\varnothing d_F$<br>mm | $\varnothing d_2$ | $l_1$ | $l_2$ | $l_4$ | Z<br>(Flutes) | GF                      | GF                      |
|----|------------------|---------------------------|-------------------------|-------------------|-------|-------|-------|---------------|-------------------------|-------------------------|
|    |                  |                           |                         |                   |       |       |       |               | R30-Long-IKZ-HA<br>TICN | R30-Long-IKZ-HB<br>TICN |
|    | 24               | ≥ 1/2                     | 9,9                     | 10                | 80    | 20,6  | 40    | 4             | GF162916.9579           | GF162316.9579           |
|    | 20               | ≥ 1/2                     | 9,9                     | 10                | 80    | 20,9  | 40    | 4             | GF162916.9580           | GF162316.9580           |
|    | 20               | ≥ 11/16                   | 11,9                    | 12                | 90    | 26    | 45    | 4             | GF162926.9580           | GF162326.9580           |
|    | 20               | ≥ 7/8                     | 15,9                    | 16                | 100   | 32,3  | 48    | 5             | GF162936.9580           | GF162336.9580           |
|    | 20               | ≥ 1"                      | 19,9                    | 20                | 115   | 41,2  | 50    | 5             | GF162956.9580           | GF162356.9580           |
|    | 18               | ≥ 1/2                     | 9,9                     | 10                | 80    | 20,4  | 40    | 4             | GF162916.9581           | GF162316.9581           |
|    | 16               | ≥ 1/2                     | 9,9                     | 10                | 80    | 21,3  | 40    | 4             | GF162916.9582           | GF162316.9582           |
|    | 16               | ≥ 11/16                   | 11,9                    | 12                | 90    | 26,1  | 45    | 4             | GF162926.9582           | GF162326.9582           |
|    | 16               | ≥ 7/8                     | 15,9                    | 16                | 100   | 32,5  | 48    | 5             | GF162936.9582           | GF162336.9582           |
|    | 16               | ≥ 1"                      | 19,9                    | 20                | 115   | 40,4  | 50    | 5             | GF162956.9582           | GF162356.9582           |
|    | 14               | ≥ 7/8                     | 15,9                    | 16                | 100   | 33,4  | 48    | 5             | GF162936.9583           | GF162336.9583           |
|    | 12               | ≥ 11/16                   | 11,9                    | 12                | 90    | 26,3  | 45    | 4             | GF162926.9585           | GF162326.9585           |
|    | 12               | ≥ 7/8                     | 15,9                    | 16                | 100   | 32,7  | 48    | 5             | GF162936.9585           | GF162336.9585           |
|    | 12               | ≥ 1"                      | 19,9                    | 20                | 115   | 41,2  | 50    | 5             | GF162956.9585           | GF162356.9585           |
|    | 10               | ≥ 11/16                   | 11,9                    | 12                | 90    | 26,5  | 45    | 4             | GF162926.9587           | GF162326.9587           |
|    | 9                | ≥ 11/16                   | 11,9                    | 12                | 90    | 26,6  | 45    | 4             | GF162926.9588           | GF162326.9588           |
|    | 8                | ≥ 7/8                     | 15,9                    | 16                | 100   | 33,1  | 48    | 5             | GF162936.9589           | GF162336.9589           |
|    | 8                | ≥ 1"                      | 19,9                    | 20                | 115   | 42,7  | 50    | 5             | GF162956.9589           | GF162356.9589           |
|    | 6                | ≥ 1"                      | 19,9                    | 20                | 115   | 44,3  | 50    | 5             | GF162956.9591           | GF162356.9591           |

**UN**

ASME B.1.1



Für Außengewinde  
For external threads



|             |          |
|-------------|----------|
| VHM Carbide | TIALN 86 |
| R15         | RH + LH  |
| Z4 - Z7     | DIN 6535 |
|             | HA<br>HB |
|             |          |
|             |          |

**GF-Z-Extern**

Mit höherer Nutenzahl  
With increased number of flutes

**new**

**new**

Einsatzgebiete – Material  
Applications – material [» 358](#)

|                  |                  |                  |
|------------------|------------------|------------------|
| <b>P</b> 1.1-5.1 | <b>M</b> 1.1-4.1 | <b>K</b> 1.1-4.2 |
| <b>N</b> 1.1-5.3 | <b>S</b> 1.1-2.6 | <b>H</b> 1.1-1.2 |

| P<br>Gg/1" (tpi) | ø d <sub>1</sub><br>inch | ø d <sub>F</sub><br>mm | ø d <sub>2</sub> | l <sub>1</sub> | l <sub>2</sub> | l <sub>4</sub> | Z<br>(Flutes) | GF-Z<br>R15-Extern-IKZ-HA<br>TIALN-86 | GF-Z<br>R15-Extern-IKZ-HB<br>TIALN-86 |
|------------------|--------------------------|------------------------|------------------|----------------|----------------|----------------|---------------|---------------------------------------|---------------------------------------|
|                  |                          |                        |                  |                |                |                |               | 32                                    | ≥ Nr.10                               |
| 28               | ≥ Nr.12                  | 7,9                    | 8                | 63             | 16,8           | 36             | GF1649BC.9578 | GF1643BC.9578                         |                                       |
| 24               | ≥ Nr.12                  | 7,9                    | 8                | 63             | 16,4           | 36             | GF1649BC.9579 | GF1643BC.9579                         |                                       |
| 20               | ≥ 1/4                    | 7,9                    | 8                | 63             | 17,1           | 36             | GF1649BC.9580 | GF1643BC.9580                         |                                       |
| 18               | ≥ 5/16                   | 9,9                    | 10               | 70             | 20,5           | 40             | GF16496C.9581 | GF16436C.9581                         |                                       |
| 16               | ≥ 3/8                    | 9,9                    | 10               | 70             | 21,4           | 40             | GF16496C.9582 | GF16436C.9582                         |                                       |
| 16               | ≥ 7/16                   | 11,9                   | 12               | 80             | 26,2           | 45             | GF16497C.9582 | GF16437C.9582                         |                                       |
| 14               | ≥ 7/16                   | 11,9                   | 12               | 80             | 26,3           | 45             | GF16497C.9583 | GF16437C.9583                         |                                       |
| 12               | ≥ 9/16                   | 11,9                   | 12               | 80             | 26,5           | 45             | GF16497C.9585 | GF16437C.9585                         |                                       |
| 12               | ≥ 9/16                   | 15,9                   | 16               | 90             | 32,8           | 48             | GF16498C.9585 | GF16438C.9585                         |                                       |
| 10               | ≥ 3/4                    | 15,9                   | 16               | 90             | 34,3           | 48             | GF16498C.9587 | GF16438C.9587                         |                                       |

Weitere Ausführungen auf Anfrage  
Further designs upon request

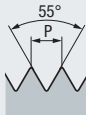
- Product Finder
- v<sub>c</sub> / f<sub>z</sub>
- M
- MF
- UNC  
UN, UNS
- UNF  
UNEF
- G, Rp
- NPT, NPTF  
Rc, W
- BSW, BSF
- Pg
- MJ  
UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr
- Zubehör  
Accessories
- BGF
- ZBGF
- GSF
- GF
- GF-VZ
- GF-KEG
- ZGF
- ZIRK-GF
- Gigant
- MoSys



- Product Finder
- $v_c / f_z$
- M
- MF
- UNC  
UN, UNS
- UNF  
UNEF
- G, Rp
- NPT, NPTF  
Rc, W
- BSW, BSF
- Pg
- MJ  
UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr
- Zubehör  
Accessories
- BGF
- ZBGF
- GSF
- GF
- GF-VZ
- GF-KEG
- ZGF
- ZIRK-GF
- Gigant
- MoSys

## G (BSP), Rp (BSPP), W

DIN EN ISO 228, DIN EN 10226-1, ISO 7/1, BS 84



VHM  
Carbide

RH + LH

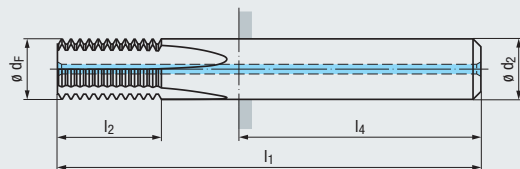
Z4 - Z5



DIN 6535



Für Innen- und Außengewinde  
For internal and external threads



GF



Einsatzgebiete – Material Applications – material [» 358](#)

|   |         |   |         |   |                  |
|---|---------|---|---------|---|------------------|
| P | 1.1-5.1 | K | 1.1-4.2 | N | 1.1-1.5, 2.1-2.6 |
| N | 3.1-4.2 | N | 5.1-5.2 | S | 1.1-1.3          |

| P<br>Gg/1" (tpi) | $\varnothing d_1$<br>inch | $\varnothing d_f$<br>mm | $\varnothing d_2$ | $l_1$ | $l_2$ | $l_4$ | Z<br>(Flutes) |
|------------------|---------------------------|-------------------------|-------------------|-------|-------|-------|---------------|
| 19               | $\geq 1/4$                | 9,9                     | 10                | 70    | 16,7  | 40    | 4             |
| 14               | $\geq 1/2$                | 15,9                    | 16                | 90    | 26,3  | 48    | 5             |
| 11               | $\geq 1"$                 | 15,9                    | 16                | 90    | 26,6  | 48    | 5             |
| 11               | $\geq 1"$                 | 19,9                    | 20                | 105   | 33,5  | 50    | 5             |

| GF<br>IKZ-HA  | GF<br>IKZ-HB  |
|---------------|---------------|
| GF163811.9545 | GF163211.9545 |
| GF163731.9548 | GF163131.9548 |
| GF163731.9550 | GF163131.9550 |
| GF163751.9550 | GF163151.9550 |

TICN



Einsatzgebiete – Material Applications – material [» 358](#)

|   |         |   |         |   |         |
|---|---------|---|---------|---|---------|
| P | 1.1-5.1 | M | 1.1-4.1 | K | 1.1-4.2 |
| N | 1.1-5.3 | S | 1.1-2.6 | H | 1.1-1.2 |

| P<br>Gg/1" (tpi) | $\varnothing d_1$<br>inch | $\varnothing d_f$<br>mm | $\varnothing d_2$ | $l_1$ | $l_2$ | $l_4$ | Z<br>(Flutes) |
|------------------|---------------------------|-------------------------|-------------------|-------|-------|-------|---------------|
| 19               | $\geq 1/4$                | 9,9                     | 10                | 70    | 16,7  | 40    | 4             |
| 14               | $\geq 1/2$                | 15,9                    | 16                | 90    | 26,3  | 48    | 5             |
| 11               | $\geq 1"$                 | 15,9                    | 16                | 90    | 26,6  | 48    | 5             |
| 11               | $\geq 1"$                 | 19,9                    | 20                | 105   | 33,5  | 50    | 5             |

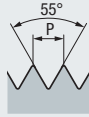
| GF<br>IKZ-HA<br>TICN | GF<br>IKZ-HB<br>TICN |
|----------------------|----------------------|
| GF163816.9545        | GF163216.9545        |
| GF163736.9548        | GF163136.9548        |
| GF163736.9550        | GF163136.9550        |
| GF163756.9550        | GF163156.9550        |

1) Durchmesser bezogen auf Rohr-Innengewinde bzw. Rohr-Außengewinde  
Diameter related to internal pipe thread resp. external pipe thread

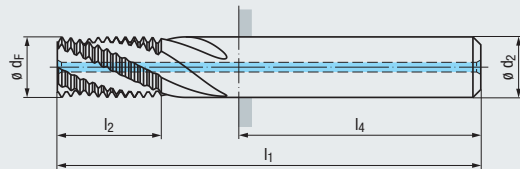
Weitere Ausführungen auf Anfrage  
Further designs upon request

# G (BSP), Rp (BSPP), W

DIN EN ISO 228, DIN EN 10226-1, ISO 7/1, BS 84



Für Innen- und Außengewinde  
For internal and external threads



VHM  
Carbide

R30

RH + LH

Z4 - Z5

DIN 6535



$\varnothing d_1$

$\varnothing d_1$



GF-R30



Einsatzgebiete – Material  
Applications – material



358

P 1.1-3.1 K 1.1-4.2 N 1.1-1.5, 2.1-2.6  
N 3.1-4.2 N 5.1-5.2 S 1.1-1.2

| P<br>Gg/1" (tpi) | $\varnothing d_1$<br>inch | $\varnothing d_F$<br>mm | $\varnothing d_2$ | $l_1$ | $l_2$ | $l_4$ | Z<br>(Flutes) |
|------------------|---------------------------|-------------------------|-------------------|-------|-------|-------|---------------|
| 19               | $\geq 1/4$                | 9,9                     | 10                | 70    | 16,7  | 40    | 4             |
| 14               | $\geq 1/2$                | 11,9                    | 12                | 80    | 20,9  | 45    | 4             |
| 14               | $\geq 1/2$                | 15,9                    | 16                | 90    | 26,3  | 48    | 5             |
| 11               | $\geq 1"$                 | 15,9                    | 16                | 90    | 26,6  | 48    | 5             |
| 11               | $\geq 1"$                 | 19,9                    | 20                | 105   | 33,5  | 50    | 5             |

| GF<br>R30-IKZ-HA | GF<br>R30-IKZ-HB |
|------------------|------------------|
| GF162811.9545    | GF162211.9545    |
| GF162721.9548    | GF162121.9548    |
| GF162731.9548    | GF162131.9548    |
| GF162731.9550    | GF162131.9550    |
| GF162751.9550    | GF162151.9550    |

Einsatzgebiete – Material  
Applications – material



358

| P<br>Gg/1" (tpi) | $\varnothing d_1$<br>inch | $\varnothing d_F$<br>mm | $\varnothing d_2$ | $l_1$ | $l_2$ | $l_4$ | Z<br>(Flutes) |
|------------------|---------------------------|-------------------------|-------------------|-------|-------|-------|---------------|
| 19               | $\geq 1/4$                | 9,9                     | 10                | 70    | 16,7  | 40    | 4             |
| 14               | $\geq 1/2$                | 11,9                    | 12                | 80    | 20,9  | 45    | 4             |
| 14               | $\geq 1/2$                | 15,9                    | 16                | 90    | 26,3  | 48    | 5             |
| 11               | $\geq 1"$                 | 15,9                    | 16                | 90    | 26,6  | 48    | 5             |
| 11               | $\geq 1"$                 | 19,9                    | 20                | 105   | 33,5  | 50    | 5             |

TICN



P 1.1-3.1 M 1.1-2.1 K 1.1-4.2  
N 1.1-2.7 N 3.1-5.3 S 1.1-1.2, 2.1

| GF<br>R30-IKZ-HA<br>TICN | GF<br>R30-IKZ-HB<br>TICN |
|--------------------------|--------------------------|
| GF162816.9545            | GF162216.9545            |
| GF162726.9548            | GF162126.9548            |
| GF162736.9548            | GF162136.9548            |
| GF162736.9550            | GF162136.9550            |
| GF162756.9550            | GF162156.9550            |

1) Durchmesser bezogen auf Rohr-Innengewinde bzw. Rohr-Außengewinde  
Diameter related to internal pipe thread resp. external pipe thread

Weitere Ausführungen auf Anfrage  
Further designs upon request

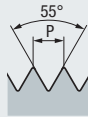
- Product Finder
- $v_c / f_z$
- M
- MF
- UNC  
UN, UNS
- UNF  
UNEF
- G, Rp
- NPT, NPTF  
Rc, W
- BSW, BSF
- Pg
- MJ  
UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr
- Zubehör  
Accessories
- BGF
- ZBGF
- GSF
- GF
- GF-VZ
- GF-KEG
- ZGF
- ZIRK-GF
- Gigant
- MoSys



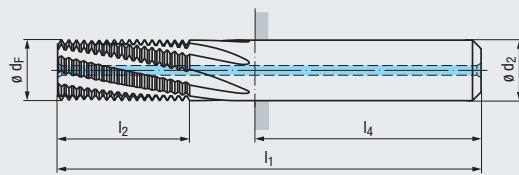
- Product Finder
- $v_c / f_z$
- M
- MF
- UNC  
UN, UNS
- UNF  
UNEF
- G, Rp
- NPT, NPTF  
Rc, W
- BSW, BSF
- Pg
- MJ  
UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr

# G (BSP), Rp (BSPP), W

DIN EN ISO 228, DIN EN 10226-1, ISO 7/1, BS 84



Für Innen- und Außengewinde  
For internal and external threads



**VHM**  
Carbide

**R15**

**RH + LH**

**Z5 - Z8**

**DIN 6535**



**GF-Z**



Mit höherer Nutenzahl  
With increased number of flutes



Einsatzgebiete – Material  
Applications – material [» 358](#)

**P** 1.1-5.1 **K** 1.1-4.2 **N** 1.1-1.5, 2.1-2.6  
**N** 3.1-4.2 **N** 5.1-5.2 **S** 1.1-1.3

| P<br>Gg/1" (tpi) | $\varnothing d_1$<br>inch | $\varnothing d_F$<br>mm | $\varnothing d_2$ | $l_1$ | $l_2$ | $l_4$ | Z<br>(Flutes) |
|------------------|---------------------------|-------------------------|-------------------|-------|-------|-------|---------------|
| 19               | $\geq 1/4$                | 9,9                     | 10                | 70    | 20,7  | 40    | 6             |
| 14               | $\geq 1/2$                | 11,9                    | 12                | 80    | 26,3  | 45    | 5             |
| 14               | $\geq 1/2$                | 15,9                    | 16                | 90    | 33,6  | 48    | 6             |
| 14               | $\geq 3/4$                | 19,9                    | 20                | 105   | 40,8  | 50    | 8             |
| 11               | $\geq 1"$                 | 15,9                    | 16                | 90    | 33,5  | 48    | 5             |
| 11               | $\geq 1"$                 | 19,9                    | 20                | 105   | 42,7  | 50    | 6             |

| GF-Z<br>R15-IKZ-HA | GF-Z<br>R15-IKZ-HB |
|--------------------|--------------------|
| GF165961.9545      | GF165361.9545      |
| GF165971.9548      | GF165371.9548      |
| GF165981.9548      | GF165381.9548      |
| GF165991.9548      | GF165391.9548      |
| GF165981.9550      | GF165381.9550      |
| GF165991.9550      | GF165391.9550      |

Einsatzgebiete – Material  
Applications – material [» 358](#)

**TICN**



**P** 1.1-5.1 **M** 1.1-4.1 **K** 1.1-4.2  
**N** 1.1-5.3 **S** 1.1-2.6 **H** 1.1-1.2

| P<br>Gg/1" (tpi) | $\varnothing d_1$<br>inch | $\varnothing d_F$<br>mm | $\varnothing d_2$ | $l_1$ | $l_2$ | $l_4$ | Z<br>(Flutes) |
|------------------|---------------------------|-------------------------|-------------------|-------|-------|-------|---------------|
| 19               | $\geq 1/4$                | 9,9                     | 10                | 70    | 20,7  | 40    | 6             |
| 14               | $\geq 1/2$                | 11,9                    | 12                | 80    | 26,3  | 45    | 5             |
| 14               | $\geq 1/2$                | 15,9                    | 16                | 90    | 33,6  | 48    | 6             |
| 14               | $\geq 3/4$                | 19,9                    | 20                | 105   | 40,8  | 50    | 8             |
| 11               | $\geq 1"$                 | 15,9                    | 16                | 90    | 33,5  | 48    | 5             |
| 11               | $\geq 1"$                 | 19,9                    | 20                | 105   | 42,7  | 50    | 6             |

| GF-Z<br>R15-IKZ-HA<br>TICN | GF-Z<br>R15-IKZ-HB<br>TICN |
|----------------------------|----------------------------|
| GF165966.9545              | GF165366.9545              |
| GF165976.9548              | GF165376.9548              |
| GF165986.9548              | GF165386.9548              |
| GF165996.9548              | GF165396.9548              |
| GF165986.9550              | GF165386.9550              |
| GF165996.9550              | GF165396.9550              |

1) Durchmesser bezogen auf Rohr-Innengewinde bzw. Rohr-Außengewinde  
Diameter related to internal pipe thread resp. external pipe thread

Weitere Ausführungen auf Anfrage  
Further designs upon request

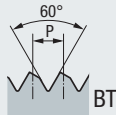


Gewinde-Tiefenlehrdorne  
siehe Seite 588 - 591

Thread depth plug gauges,  
see page 588 - 591

# LK-M, LK-MF

EMUGE-Norm · EMUGE Standard



**VHM Carbide**

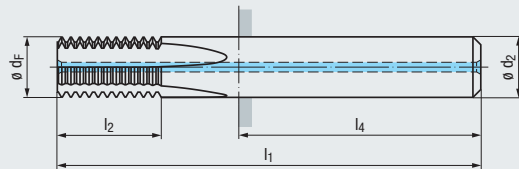
**RH + LH**

**Z4 - Z5**

**DIN 6535**



Für Innengewinde  
For internal threads



Einsatzgebiete – Material  
Applications – material

» 358

**P** 1.1-5.1 **K** 1.1-4.2 **N** 1.1-1.5, 2.1-2.6  
**N** 3.1-4.2 **N** 5.1-5.2 **S** 1.1-1.3

| P<br>mm | ø d <sub>1</sub><br>mm | ø d <sub>F</sub><br>mm | ø d <sub>2</sub> | l <sub>1</sub> | l <sub>2</sub> | l <sub>4</sub> | Z<br>(Flutes) | GF            |               |
|---------|------------------------|------------------------|------------------|----------------|----------------|----------------|---------------|---------------|---------------|
|         |                        |                        |                  |                |                |                |               | IKZ-HA        | IKZ-HB        |
| 1       | ≥ LK-M14               | 9,9                    | 10               | 70             | 16,4           | 40             | 4             | GF163811.9757 | GF163211.9757 |
| 1       | ≥ LK-M16               | 11,9                   | 12               | 80             | 20,4           | 45             | 4             | GF163721.9757 | GF163121.9757 |
| 1,5     | ≥ LK-M14               | 9,9                    | 10               | 70             | 17,1           | 40             | 4             | GF163811.9664 | GF163211.9664 |
| 1,5     | ≥ LK-M16               | 11,9                   | 12               | 80             | 21,6           | 45             | 4             | GF163721.9664 | GF163121.9664 |
| 2       | ≥ LK-M22               | 15,9                   | 16               | 90             | 26,7           | 48             | 5             | GF163731.9705 | GF163131.9705 |
| 3       | ≥ LK-M30               | 19,9                   | 20               | 105            | 34,1           | 50             | 5             | GF163751.9767 | GF163151.9767 |

Einsatzgebiete – Material  
Applications – material

» 358

**P** 1.1-5.1 **M** 1.1-4.1 **K** 1.1-4.2  
**N** 1.1-5.3 **S** 1.1-2.6 **H** 1.1-1.2

| P<br>mm | ø d <sub>1</sub><br>mm | ø d <sub>F</sub><br>mm | ø d <sub>2</sub> | l <sub>1</sub> | l <sub>2</sub> | l <sub>4</sub> | Z<br>(Flutes) | GF             |                |
|---------|------------------------|------------------------|------------------|----------------|----------------|----------------|---------------|----------------|----------------|
|         |                        |                        |                  |                |                |                |               | IKZ-HA<br>TICN | IKZ-HB<br>TICN |
| 1       | ≥ LK-M14               | 9,9                    | 10               | 70             | 16,4           | 40             | 4             | GF163816.9757  | GF163216.9757  |
| 1       | ≥ LK-M16               | 11,9                   | 12               | 80             | 20,4           | 45             | 4             | GF163726.9757  | GF163126.9757  |
| 1,5     | ≥ LK-M14               | 9,9                    | 10               | 70             | 17,1           | 40             | 4             | GF163816.9664  | GF163216.9664  |
| 1,5     | ≥ LK-M16               | 11,9                   | 12               | 80             | 21,6           | 45             | 4             | GF163726.9664  | GF163126.9664  |
| 2       | ≥ LK-M22               | 15,9                   | 16               | 90             | 26,7           | 48             | 5             | GF163736.9705  | GF163136.9705  |
| 3       | ≥ LK-M30               | 19,9                   | 20               | 105            | 34,1           | 50             | 5             | GF163756.9767  | GF163156.9767  |

Weitere Ausführungen auf Anfrage  
Further designs upon request

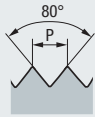
- Product Finder
- v<sub>c</sub> / f<sub>z</sub>
- M
- MF
- UNC UN, UNS
- UNF UNEF
- G, Rp
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr
- Zubehör Accessories
- BGF
- ZBGF
- GSF
- GF
- GF-VZ
- GF-KEG
- ZGF
- ZIRK-GF
- Gigant
- MoSys



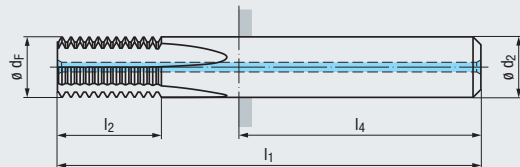
- Product Finder
- $v_c / f_z$
- M
- MF
- UNC  
UN, UNS
- UNF  
UNEF
- G, Rp
- NPT, NPTF  
Rc, W
- BSW, BSF
- Pg**
- MJ  
UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr
- Zubehör  
Accessories

## Pg

DIN 40430



Für Innen- und Außengewinde  
For internal and external threads



VHM  
Carbide

RH + LH

Z4

DIN 6535



GF



Einsatzgebiete – Material  
Applications – material [» 358](#)

**P** 1.1-5.1 **K** 1.1-4.2 **N** 1.1-1.5, 2.1-2.6  
**N** 3.1-4.2 **N** 5.1-5.2 **S** 1.1-1.3

Nenngröße

| Nom. size<br>$\varnothing d_1^{1)}$ | P<br>Gg/1" (tpi) | $\varnothing d_f$<br>mm | $\varnothing d_2$ | $l_1$ | $l_2$ | $l_4$ | Z<br>(Flutes) |
|-------------------------------------|------------------|-------------------------|-------------------|-------|-------|-------|---------------|
| <b>Pg</b> 7                         | 20               | 9,9                     | 10                | 70    | 17,1  | 40    | 4             |
| 9                                   | 18               | 11,9                    | 12                | 80    | 20,5  | 45    | 4             |
| 21                                  | 16               | 11,9                    | 12                | 80    | 21,4  | 45    | 4             |

GF  
IKZ-HA

GF  
IKZ-HB

GF163811.9661  
GF163721.9662  
GF163721.9663

GF163211.9661  
GF163121.9662  
GF163121.9663

- BGF
- ZBGF
- GSF
- GF**
- GF-VZ
- GF-KEG
- ZGF
- ZIRK-GF
- Gigant
- MoSys

TICN



Einsatzgebiete – Material  
Applications – material [» 358](#)

**P** 1.1-5.1 **M** 1.1-4.1 **K** 1.1-4.2  
**N** 1.1-5.3 **S** 1.1-2.6 **H** 1.1-1.2

Nenngröße

| Nom. size<br>$\varnothing d_1^{1)}$ | P<br>Gg/1" (tpi) | $\varnothing d_f$<br>mm | $\varnothing d_2$ | $l_1$ | $l_2$ | $l_4$ | Z<br>(Flutes) |
|-------------------------------------|------------------|-------------------------|-------------------|-------|-------|-------|---------------|
| <b>Pg</b> 7                         | 20               | 9,9                     | 10                | 70    | 17,1  | 40    | 4             |
| 9                                   | 18               | 11,9                    | 12                | 80    | 20,5  | 45    | 4             |
| 21                                  | 16               | 11,9                    | 12                | 80    | 21,4  | 45    | 4             |

GF  
IKZ-HA  
TICN

GF  
IKZ-HB  
TICN

GF163811.9661  
GF163726.9662  
GF163726.9663

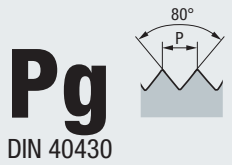
GF163211.9661  
GF163126.9662  
GF163126.9663

1) Durchmesser bezogen auf Rohr-Innengewinde bzw. Rohr-Außengewinde  
Diameter related to internal pipe thread resp. external pipe thread

Weitere Ausführungen auf Anfrage  
Further designs upon request

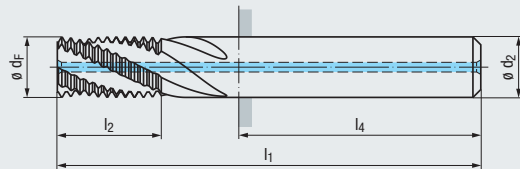






**Pg**  
DIN 40430

Für Innen- und Außengewinde  
For internal and external threads



**VHM Carbide**

**R30**    **RH + LH**

**Z4**    **DIN 6535**

**GF-R30**

Product Finder

$v_c / f_z$

M

MF

UNC  
UN, UNS

UNF  
UNEF

G, Rp

NPT, NPTF  
Rc, W

BSW, BSF

**Pg**

MJ  
UNJC, UNJF

EG (STI)

SELF-LOCK

Tr

Zubehör  
Accessories

Einsatzgebiete – Material    Applications – material    358

Nenngröße  
Nom. size  
 $\varnothing d_1$ <sup>1)</sup>

| P           | $\varnothing d_F$ | $\varnothing d_2$ | $l_1$ | $l_2$ | $l_4$ | Z        |   |
|-------------|-------------------|-------------------|-------|-------|-------|----------|---|
| Gg/1" (tpi) | mm                | mm                | mm    | mm    | mm    | (Flutes) |   |
| <b>Pg</b> 7 | 20                | 9,9               | 10    | 70    | 17,1  | 40       | 4 |
| 9           | 18                | 11,9              | 12    | 80    | 20,5  | 45       | 4 |
| 21          | 16                | 11,9              | 12    | 80    | 21,4  | 45       | 4 |

|                  |                  |                           |
|------------------|------------------|---------------------------|
| <b>P</b> 1.1-3.1 | <b>K</b> 1.1-4.2 | <b>N</b> 1.1-1.5, 2.1-2.6 |
| <b>N</b> 3.1-4.2 | <b>N</b> 5.1-5.2 | <b>S</b> 1.1-1.2          |

| GF R30-IKZ-HA        | GF R30-IKZ-HB        |
|----------------------|----------------------|
| <b>GF162811.9661</b> | <b>GF162211.9661</b> |
| <b>GF162721.9662</b> | <b>GF162121.9662</b> |
| <b>GF162721.9663</b> | <b>GF162121.9663</b> |

**TICN**

BGF

ZBGF

GSF

**GF**

GF-VZ

GF-KEG

ZGF

ZIRK-GF

Gigant

MoSys

Einsatzgebiete – Material    Applications – material    358

Nenngröße  
Nom. size  
 $\varnothing d_1$ <sup>1)</sup>

| P           | $\varnothing d_F$ | $\varnothing d_2$ | $l_1$ | $l_2$ | $l_4$ | Z        |   |
|-------------|-------------------|-------------------|-------|-------|-------|----------|---|
| Gg/1" (tpi) | mm                | mm                | mm    | mm    | mm    | (Flutes) |   |
| <b>Pg</b> 7 | 20                | 9,9               | 10    | 70    | 17,1  | 40       | 4 |
| 9           | 18                | 11,9              | 12    | 80    | 20,5  | 45       | 4 |
| 21          | 16                | 11,9              | 12    | 80    | 21,4  | 45       | 4 |

|                  |                  |                       |
|------------------|------------------|-----------------------|
| <b>P</b> 1.1-3.1 | <b>M</b> 1.1-2.1 | <b>K</b> 1.1-4.2      |
| <b>N</b> 1.1-2.7 | <b>N</b> 3.1-5.3 | <b>S</b> 1.1-1.2, 2.1 |

| GF R30-IKZ-HA TICN   | GF R30-IKZ-HB TICN   |
|----------------------|----------------------|
| <b>GF162816.9661</b> | <b>GF162216.9661</b> |
| <b>GF162726.9662</b> | <b>GF162126.9662</b> |
| <b>GF162726.9663</b> | <b>GF162126.9663</b> |

<sup>1)</sup> Durchmesser bezogen auf Rohr-Innengewinde bzw. Rohr-Außengewinde  
Diameter related to internal pipe thread resp. external pipe thread

Weitere Ausführungen auf Anfrage  
Further designs upon request



|                        |
|------------------------|
| Product Finder         |
| $V_c / f_z$            |
| M                      |
| MF                     |
| UNC<br>UN, UNS         |
| UNF<br>UNEF            |
| G, Rp                  |
| NPT, NPTF<br>Rc, W     |
| BSW, BSF               |
| Pg                     |
| MJ                     |
| UNJC, UNJF             |
| EG (STI)               |
| SELF-LOCK              |
| Tr                     |
| Zubehör<br>Accessories |



GF-Vario-Z

Seite · Page

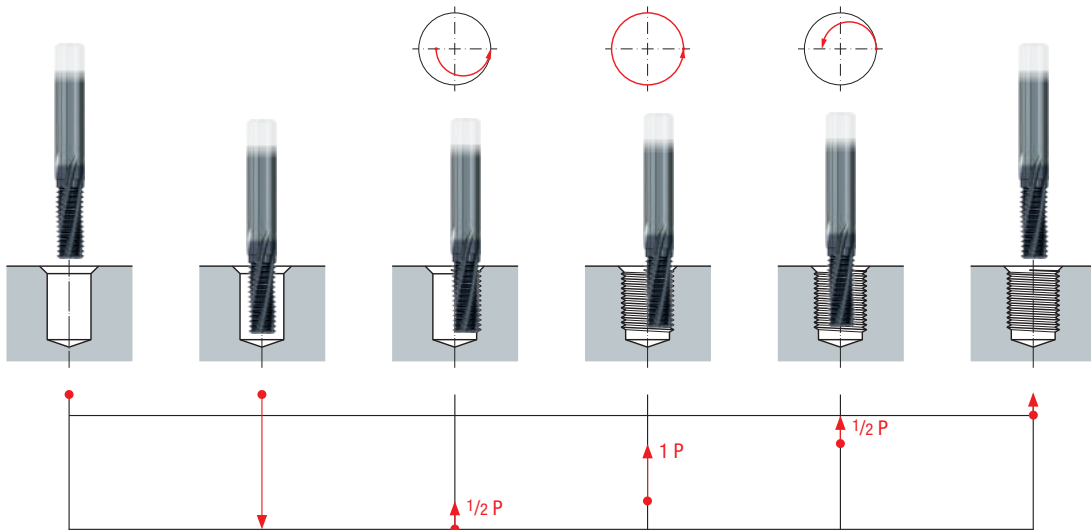
|     |     |
|-----|-----|
| M   | 444 |
| MF  | 444 |
| UNC | 445 |
| UNF | 445 |
| UN  | 445 |

Mögliche Modifikationen siehe Seite 356 - 357

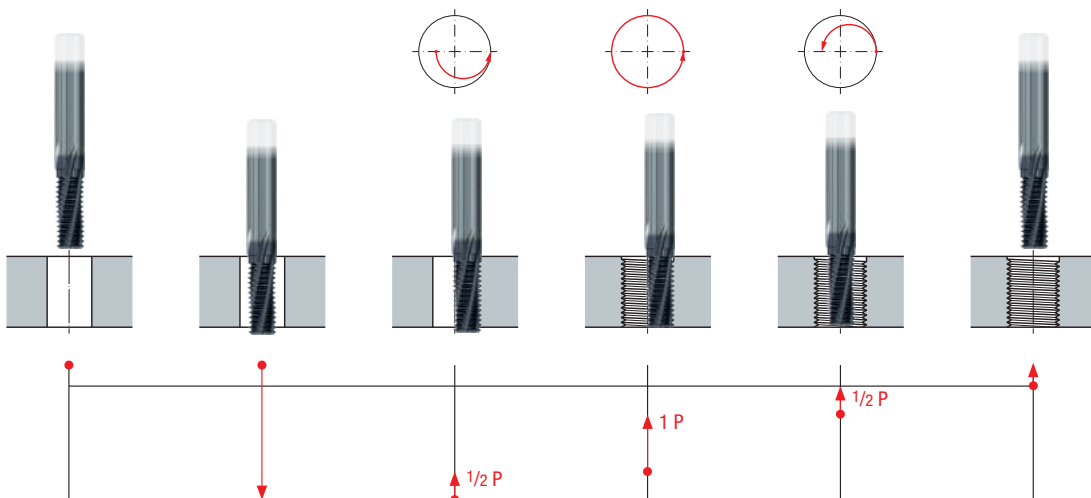
Possible modifications, see pages 356 - 357

|              |
|--------------|
| BGF          |
| ZBGF         |
| GSF          |
| GF           |
| <b>GF-VZ</b> |
| GF-KEG       |
| ZGF          |
| ZIRK-GF      |
| Gigant       |
| MoSys        |

### Gewindefräszyklus · Thread milling cycle



### Gewindefräszyklus mit Entfernen des unvollständigen Ganges · Thread milling cycle with removal of incomplete thread



GF-Vario-Z-AZR1



Seite · Page

446

446

447

447

447

Product Finder

$v_c / f_z$

M

MF

UNC  
UN, UNS

UNF  
UNEF

G, Rp

NPT, NPTF  
Rc, W

BSW, BSF

Pg

M  
UNJC, UNJF

**MF**

EG (STI)

**UNC**

SELF-LOCK

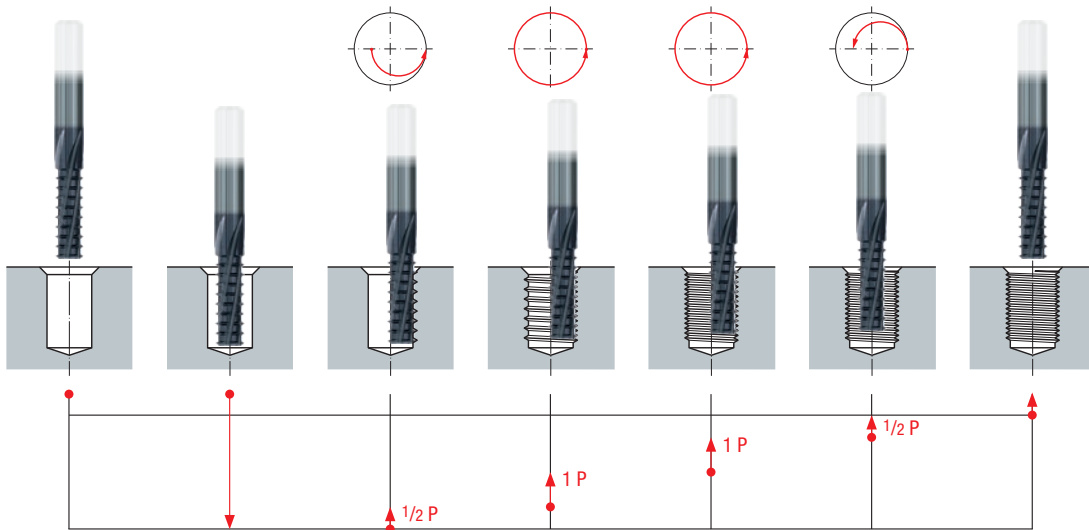
**UNF**

**UN**

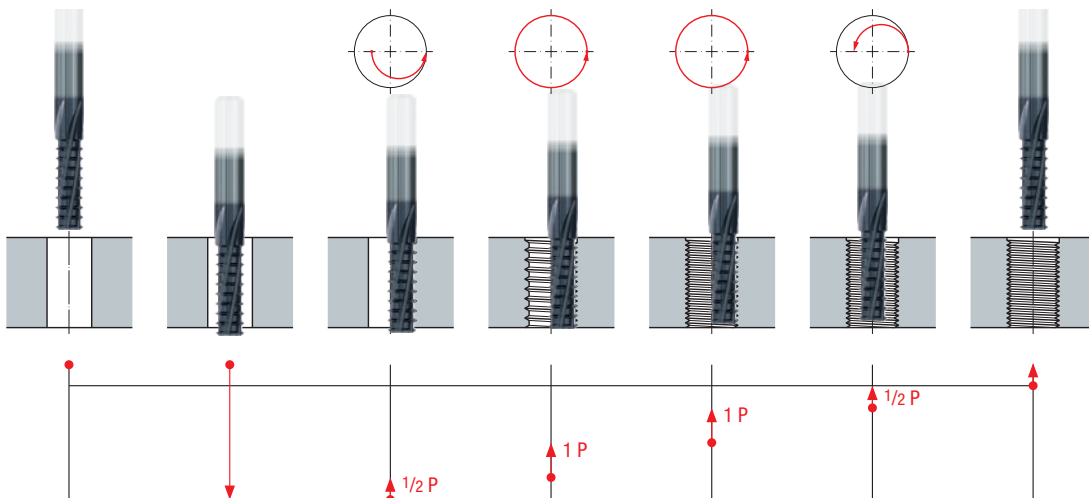
Tr

Zubehör  
Accessories

**Gewindefräszyklus · Thread milling cycle**



**Gewindefräszyklus mit Entfernen des unvollständigen Ganges · Thread milling cycle with removal of incomplete thread**



BGF

ZBGF

GSF

GF

**GF-VZ**

GF-KEG

ZGF

ZIRK-GF

Gigant

MoSys



- Product Finder
- $v_c / f_z$
- M
- MF
- UNC  
UN, UNS
- UNF  
UNEF
- G, Rp
- NPT, NPTF  
Rc, W
- BSW, BSF
- Pg
- MJ  
UNJC, UNJF
- EG (STI)
- SELF-LOCK

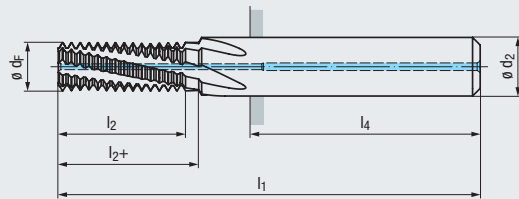
# M, MF

DIN 13



Für Innengewinde  
For internal threads

Mit Option zum Entfernen des unvollständigen Ganges  
With option to remove the incomplete thread



VHM  
Carbide

TIALN  
86

R15

RH + LH

Z4 - Z7

DIN 6535



HA  
HB



Unvollständigen  
Gang entfernen  
Removal of  
incomplete thread



## GF-Vario-Z



Mit höherer Nutenzahl  
With increased number of flutes

new



new



new



Einsatzgebiete – Material  
Applications – material

» 358

|   |         |   |         |   |         |
|---|---------|---|---------|---|---------|
| P | 1.1-5.1 | M | 1.1-4.1 | K | 1.1-4.2 |
| N | 1.1-5.3 | S | 1.1-2.6 | H | 1.1-1.2 |

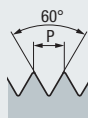
Gewindetiefe  
Thread depth

## 2 x d<sub>1</sub>

|         | P<br>mm | ø d <sub>1</sub><br>mm | ø d <sub>F</sub><br>mm | ø d <sub>2</sub> | mit Option<br>with option |                |                 |                | Z<br>(Flutes) | GF-Vario-Z<br>2xd <sub>1</sub><br>R15-HA<br>TIALN-86 | GF-Vario-Z<br>2xd <sub>1</sub><br>R15-1KZ-HA<br>TIALN-86 | GF-Vario-Z<br>2xd <sub>1</sub><br>R15-1KZ-HB<br>TIALN-86 |
|---------|---------|------------------------|------------------------|------------------|---------------------------|----------------|-----------------|----------------|---------------|--|--|--|
|         |         |                        |                        |                  | l <sub>1</sub>            | l <sub>2</sub> | l <sub>2+</sub> | l <sub>4</sub> |               | GFB3572C.0030  | GFB3572C.0040<br>GFB3572C.0050<br>GFB3572C.0060          | GFB3512C.0040<br>GFB3512C.0050<br>GFB3512C.0060          |
| ZBGF    | 0,5     | ≥ M 3                  | 2,4                    | 6                | 51                        | 6,3            | 7               | 36             | 4             |  |  |  |
| GSF     | 0,7     | ≥ M 4                  | 3,15                   | 6                | 55                        | 8,7            | 9,8             | 36             | 4             |  |  |  |
|         | 0,8     | ≥ M 5                  | 4                      | 6                | 55                        | 10,8           | 12              | 36             | 4             |  |  |  |
| GF      | 1       | ≥ M 6                  | 4,8                    | 6                | 58                        | 12,5           | 14              | 36             | 4             |  |  |  |
|         | 1,25    | ≥ M 8                  | 6,5                    | 8                | 62                        | 16,9           | 18,7            | 36             | 4             |  |  |  |
| GF-VZ   | 1,5     | ≥ M10                  | 8,2                    | 10               | 72                        | 21,7           | 24              | 40             | 5             |  |  |  |
|         | 1,75    | ≥ M12                  | 9,9                    | 10               | 78                        | 25,3           | 28              | 40             | 5             |  |  |  |
| GF-KEG  | 2       | ≥ M14                  | 11,6                   | 12               | 88                        | 29             | 32              | 45             | 5             |  |  |  |
|         | 2       | ≥ M16                  | 13,6                   | 14               | 95                        | 33             | 36              | 45             | 5             |  |  |  |
| ZGF     | 2,5     | ≥ M18                  | 15                     | 16               | 103                       | 38,7           | 42,4            | 48             | 5             |  |  |  |
|         | 2,5     | ≥ M20                  | 17                     | 18               | 108                       | 41,2           | 44,9            | 48             | 6             |  |  |  |
| ZIRK-GF | 3       | ≥ M24                  | 19,9                   | 20               | 120                       | 49,4           | 53,9            | 50             | 6             |  |  |  |

# MF

DIN 13



new



new



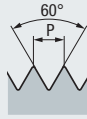
Gewindetiefe  
Thread depth

|  | P<br>mm | ø d <sub>1</sub><br>mm | ø d <sub>F</sub><br>mm | ø d <sub>2</sub> | mit Option<br>with option |                |                 |                | Z<br>(Flutes) | GF-Vario-Z<br>2xd <sub>1</sub><br>R15-1KZ-HA<br>TIALN-86 | GF-Vario-Z<br>2xd <sub>1</sub><br>R15-1KZ-HB<br>TIALN-86 |
|--|---------|------------------------|------------------------|------------------|---------------------------|----------------|-----------------|----------------|---------------|--|--|
|  |         |                        |                        |                  | l <sub>1</sub>            | l <sub>2</sub> | l <sub>2+</sub> | l <sub>4</sub> |               | GFB3572C.0251<br>GFB3572C.0276<br>GFB3572C.0301          | GFB3512C.0251<br>GFB3512C.0276<br>GFB3512C.0301          |
|  | 1       | ≥ M 8                  | 6,7                    | 8                | 62                        | 16,5           | 18              | 36             | 4             |  |  |
|  | 1       | ≥ M10                  | 8,7                    | 10               | 72                        | 20,5           | 22              | 40             | 5             |  |  |
|  | 1       | ≥ M12                  | 10,6                   | 12               | 82                        | 24,5           | 26              | 45             | 7             |  |  |
|  | 1,25    | ≥ M10                  | 8,4                    | 10               | 74                        | 20,6           | 22,5            | 40             | 6             |  |  |
|  | 1,25    | ≥ M12                  | 10,4                   | 12               | 82                        | 24,4           | 26,2            | 45             | 6             |  |  |
|  | 1,5     | ≥ M12                  | 10,1                   | 12               | 82                        | 24,7           | 27              | 45             | 5             |  |  |
|  | 1,5     | ≥ M14                  | 12,1                   | 14               | 90                        | 29,2           | 31,5            | 45             | 6             |  |  |
|  | 1,5     | ≥ M16                  | 14,1                   | 16               | 100                       | 33,7           | 36              | 48             | 5             |  |  |

Weitere Ausführungen auf Anfrage  
Further designs upon request

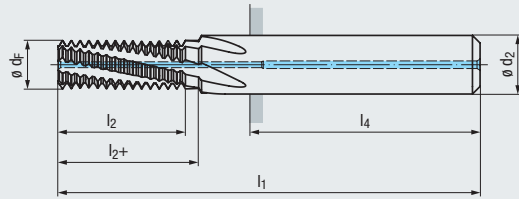
# UNC, UNF, UN

ASME B1.1



Für Innengewinde  
For internal threads

Mit Option zum Entfernen des unvollständigen Ganges  
With option to remove the incomplete thread



|  |                   |
|--|-------------------|
| VHM Carbide  | TIALN 86          |
| R15  | RH + LH           |
| Z4 - Z8  | DIN 6535          |
|  | HA<br>HB          |
|  | $\varnothing d_1$ |
|  |                   |
| Unvollständigen Gang entfernen<br>Removal of incomplete thread |                   |
|  |                   |

**GF-Vario-Z**

Mit höherer Nutenzahl  
With increased number of flutes

**new**

**new**

Einsatzgebiete – Material Applications – material » 358

|           |           |           |
|-----------|-----------|-----------|
| P 1.1-5.1 | M 1.1-4.1 | K 1.1-4.2 |
| N 1.1-5.3 | S 1.1-2.6 | H 1.1-1.2 |

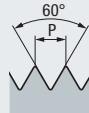
Gewindetiefe  
Thread depth

**2 x d<sub>1</sub>**

| P<br>Gg/1" (tpi) | $\varnothing d_1$<br>inch | $\varnothing d_F$<br>mm | $\varnothing d_2$ | mit Option<br>with option |                |                 |                | Z<br>(Flutes) | GF-Vario-Z<br>2xd <sub>1</sub><br>R15-IKZ-HA<br>TIALN-86 | GF-Vario-Z<br>2xd <sub>1</sub><br>R15-IKZ-HB<br>TIALN-86 |
|------------------|---------------------------|-------------------------|-------------------|---------------------------|----------------|-----------------|----------------|---------------|--|--|
|                  |                           |                         |                   | l <sub>1</sub>            | l <sub>2</sub> | l <sub>2+</sub> | l <sub>4</sub> |               | GFB3572C.5007  | GFB3512C.5007  |
| 24               | ≥ Nr.10                   | 3,7                     | 6                 | 55                        | 10             | 11,6            | 36             | 4             | GFB3572C.5009  | GFB3512C.5009  |
| 20               | ≥ 1/4                     | 4,85                    | 6                 | 58                        | 13,3           | 15,2            | 36             | 4             | GFB3572C.5010  | GFB3512C.5010  |
| 18               | ≥ 9/16                    | 6,3                     | 8                 | 62                        | 16,2           | 18,3            | 36             | 4             | GFB3572C.5011  | GFB3512C.5011  |
| 16               | ≥ 3/8                     | 7,65                    | 8                 | 65                        | 19,8           | 22,2            | 36             | 5             | GFB3572C.5012  | GFB3512C.5012  |
| 14               | ≥ 7/16                    | 9                       | 10                | 74                        | 22,6           | 25,4            | 40             | 5             | GFB3572C.5013  | GFB3512C.5013  |
| 13               | ≥ 1/2                     | 10,4                    | 12                | 85                        | 26,3           | 29,3            | 45             | 5             | GFB3572C.5014  | GFB3512C.5014  |
| 12               | ≥ 9/16                    | 11,8                    | 12                | 88                        | 30,6           | 33,8            | 45             | 5             | GFB3572C.5015  | GFB3512C.5015  |
| 11               | ≥ 5/8                     | 13                      | 14                | 94                        | 33,4           | 36,9            | 45             | 5             | GFB3572C.5016  | GFB3512C.5016  |
| 10               | ≥ 3/4                     | 15,9                    | 16                | 105                       | 39,3           | 43,1            | 48             | 5             |  |  |

# UNF, UN

ASME B1.1



| P<br>Gg/1" (tpi) | $\varnothing d_1$<br>inch | $\varnothing d_F$<br>mm | $\varnothing d_2$ | mit Option<br>with option |                |                 |                | Z<br>(Flutes) | GF-Vario-Z<br>2xd <sub>1</sub><br>R15-IKZ-HA<br>TIALN-86 | GF-Vario-Z<br>2xd <sub>1</sub><br>R15-IKZ-HB<br>TIALN-86 |
|------------------|---------------------------|-------------------------|-------------------|---------------------------|----------------|-----------------|----------------|---------------|--|--|
|                  |                           |                         |                   | l <sub>1</sub>            | l <sub>2</sub> | l <sub>2+</sub> | l <sub>4</sub> |               | GFB3572C.5041  | GFB3512C.5041  |
| 32               | ≥ Nr.10                   | 3,9                     | 6                 | 55                        | 9,9            | 11,1            | 36             | 4             | GFB3572C.5042  | GFB3512C.5042  |
| 28               | ≥ Nr.12                   | 4,45                    | 6                 | 56                        | 11,3           | 12,7            | 36             | 4             | GFB3572C.5043  | GFB3512C.5043  |
| 28               | ≥ 1/4                     | 5,25                    | 6                 | 58                        | 13,1           | 14,5            | 36             | 4             | GFB3572C.5044  | GFB3512C.5044  |
| 24               | ≥ 5/16                    | 6,6                     | 8                 | 62                        | 16,4           | 18              | 36             | 5             | GFB3572C.5045  | GFB3512C.5045  |
| 24               | ≥ 3/8                     | 8,2                     | 10                | 71                        | 19,6           | 21,1            | 40             | 6             | GFB3572C.5046  | GFB3512C.5046  |
| 20               | ≥ 7/16                    | 9,55                    | 10                | 74                        | 22,2           | 24,1            | 40             | 6             | GFB3572C.5047  | GFB3512C.5047  |
| 20               | ≥ 1/4                     | 11,1                    | 12                | 84                        | 26             | 27,9            | 45             | 7             | GFB3572C.5048  | GFB3512C.5048  |
| 18               | ≥ 9/16                    | 12,5                    | 14                | 90                        | 28,9           | 31              | 45             | 7             | GFB3572C.5049  | GFB3512C.5049  |
| 18               | ≥ 5/8                     | 13,9                    | 14                | 95                        | 33,1           | 35,2            | 45             | 8             | GFB3572C.5050  | GFB3512C.5050  |
| 16               | ≥ 3/4                     | 17                      | 18                | 105                       | 38,9           | 41,3            | 48             | 8             |  |  |

**new**

**new**

Weitere Ausführungen auf Anfrage  
Further designs upon request

- Product Finder
- $v_c / f_z$
- M
- MF
- UNC  
UN, UNS
- UNF  
UNEF
- G, Rp
- NPT, NPTF  
Rc, W
- BSW, BSF
- Pg
- MJ  
UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr
- Zubehör  
Accessories

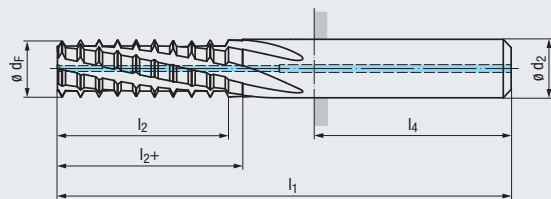
# M, MF

DIN 13



Für Innengewinde  
For internal threads

Mit Option zum Entfernen des unvollständigen Ganges  
With option to remove the incomplete thread



VHM  
Carbide

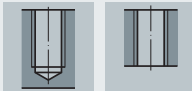
TIALN  
86

R15

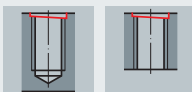
RH + LH

Z4 - Z7

DIN 6535



Unvollständigen  
Gang entfernen  
Removal of  
incomplete thread



## GF-Vario-Z-AZR1



Mit höherer Nutenzahl  
With increased number of flutes

new



new



Einsatzgebiete – Material  
Applications – material

» 358

|   |         |   |         |   |         |
|---|---------|---|---------|---|---------|
| P | 1.1-5.1 | M | 1.1-4.1 | K | 1.1-4.2 |
| N | 1.1-5.3 | S | 1.1-2.6 | H | 1.1-1.2 |

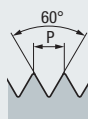
Gewindetiefe  
Thread depth

## 2,5 x d<sub>1</sub>

|         | mit Option<br>with option |                        |                        |                  |                |                |                 |                | Z<br>(Flutes) | GF-Vario-Z<br>2,5xd <sub>1</sub><br>AZR1-R15-IKZ-HA<br>TIALN-86 | GF-Vario-Z<br>2,5xd <sub>1</sub><br>AZR1-R15-IKZ-HB<br>TIALN-86 |
|---------|---------------------------|------------------------|------------------------|------------------|----------------|----------------|-----------------|----------------|---------------|---|---|
|         | P<br>mm                   | ø d <sub>1</sub><br>mm | ø d <sub>F</sub><br>mm | ø d <sub>2</sub> | l <sub>1</sub> | l <sub>2</sub> | l <sub>2+</sub> | l <sub>4</sub> |               | GFB4573C.0040   | GFB4513C.0040   |
| BGF     |                           |                        |                        |                  |                |                |                 |                |               |   |   |
| ZBGF    |                           |                        |                        |                  |                |                |                 |                |               |   |   |
| GSF     | 0,7                       | ≥ M 4                  | 3,15                   | 6                | 55             | 10,1           | 11,2            | 36             | 4             | GFB4573C.0050   | GFB4513C.0050   |
| GF      | 0,8                       | ≥ M 5                  | 4                      | 6                | 58             | 13,2           | 14,4            | 36             | 4             | GFB4573C.0060   | GFB4513C.0060   |
|         | 1                         | ≥ M 6                  | 4,8                    | 6                | 61             | 15,5           | 17              | 36             | 4             | GFB4573C.0080   | GFB4513C.0080   |
|         | 1,25                      | ≥ M 8                  | 6,5                    | 8                | 68             | 20,6           | 22,5            | 36             | 4             | GFB4573C.0100   | GFB4513C.0100   |
| GF-VZ   | 1,5                       | ≥ M10                  | 8,2                    | 10               | 78             | 26,2           | 28,5            | 40             | 5             | GFB4573C.0112   | GFB4513C.0112   |
|         | 1,75                      | ≥ M12                  | 9,9                    | 10               | 84             | 30,6           | 33,2            | 40             | 5             | GFB4573C.0114   | GFB4513C.0114   |
| GF-KEG  | 2                         | ≥ M14                  | 11,6                   | 12               | 98             | 37             | 40              | 45             | 5             | GFB4573C.0116   | GFB4513C.0116   |
|         | 2                         | ≥ M16                  | 13,6                   | 14               | 102            | 41             | 44              | 45             | 5             | GFB4573C.0118   | GFB4513C.0118   |
| ZGF     | 2,5                       | ≥ M18                  | 15                     | 16               | 115            | 46,2           | 49,9            | 48             | 5             | GFB4573C.0120   | GFB4513C.0120   |
|         | 2,5                       | ≥ M20                  | 17                     | 18               | 120            | 51,2           | 54,9            | 48             | 6             | GFB4573C.0124   | GFB4513C.0124   |
| ZIRK-GF | 3                         | ≥ M24                  | 19,9                   | 20               | 135            | 61,4           | 65,9            | 50             | 6             |   |   |

# MF

DIN 13



new



new



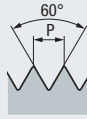
mit Option  
with option

|  | mit Option<br>with option |                        |                        |                  |                |                |                 |                | Z<br>(Flutes) | GF-Vario-Z<br>2,5xd <sub>1</sub><br>AZR1-R15-IKZ-HA<br>TIALN-86 | GF-Vario-Z<br>2,5xd <sub>1</sub><br>AZR1-R15-IKZ-HB<br>TIALN-86 |
|--|---------------------------|------------------------|------------------------|------------------|----------------|----------------|-----------------|----------------|---------------|---|---|
|  | P<br>mm                   | ø d <sub>1</sub><br>mm | ø d <sub>F</sub><br>mm | ø d <sub>2</sub> | l <sub>1</sub> | l <sub>2</sub> | l <sub>2+</sub> | l <sub>4</sub> |               | GFB4573C.0251   | GFB4513C.0251   |
|  | 1                         | ≥ M 8                  | 6,7                    | 8                | 68             | 20,5           | 22              | 36             | 4             | GFB4573C.0276   | GFB4513C.0276   |
|  | 1                         | ≥ M10                  | 8,7                    | 10               | 78             | 25,5           | 27              | 40             | 5             | GFB4573C.0301   | GFB4513C.0301   |
|  | 1                         | ≥ M12                  | 10,6                   | 12               | 88             | 30,5           | 32              | 45             | 7             | GFB4573C.0277   | GFB4513C.0277   |
|  | 1,25                      | ≥ M10                  | 8,4                    | 10               | 78             | 25,6           | 27,5            | 40             | 6             | GFB4573C.0302   | GFB4513C.0302   |
|  | 1,25                      | ≥ M12                  | 10,4                   | 12               | 88             | 30,6           | 32,5            | 45             | 6             | GFB4573C.0303   | GFB4513C.0303   |
|  | 1,5                       | ≥ M12                  | 10,1                   | 12               | 88             | 30,7           | 33              | 45             | 5             | GFB4573C.0331   | GFB4513C.0331   |
|  | 1,5                       | ≥ M14                  | 12,1                   | 14               | 95             | 35,2           | 37,5            | 45             | 6             | GFB4573C.0359   | GFB4513C.0359   |
|  | 1,5                       | ≥ M16                  | 14,1                   | 16               | 110            | 41,2           | 43,5            | 48             | 5             |   |   |

Weitere Ausführungen auf Anfrage  
Further designs upon request

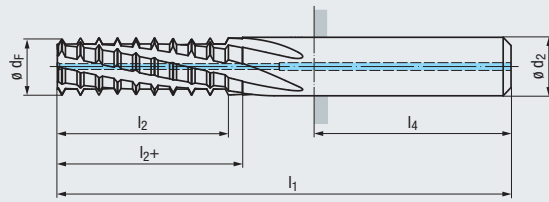
# UNC, UNF, UN

ASME B1.1

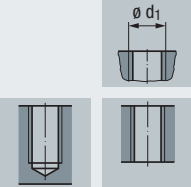


Für Innengewinde  
For internal threads

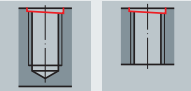
Mit Option zum Entfernen des unvollständigen Ganges  
With option to remove the incomplete thread



- VHM Carbide
- TIALN 86
- R15
- RH + LH
- Z4 - Z8
- DIN 6535
- HA HB



Unvollständigen Gang entfernen  
Removal of incomplete thread



## GF-Vario-Z-AZR1



Mit höherer Nutenzahl  
With increased number of flutes

new



new



Einsatzgebiete – Material  
Applications – material



|   |         |   |         |   |         |
|---|---------|---|---------|---|---------|
| P | 1.1-5.1 | M | 1.1-4.1 | K | 1.1-4.2 |
| N | 1.1-5.3 | S | 1.1-2.6 | H | 1.1-1.2 |

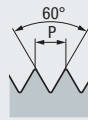
Gewindetiefe  
Thread depth

### 2,5 x d<sub>1</sub>

| P<br>Gg/1" (tpi) | ø d <sub>1</sub><br>inch | ø d <sub>F</sub><br>mm | ø d <sub>2</sub> | mit Option<br>with option |                |                 |                | Z<br>(Flutes) | GF-Vario-Z<br>2,5xd <sub>1</sub><br>AZR1-R15-IKZ-HA<br>TIALN-86   | GF-Vario-Z<br>2,5xd <sub>1</sub><br>AZR1-R15-IKZ-HB<br>TIALN-86   |
|------------------|--------------------------|------------------------|------------------|---------------------------|----------------|-----------------|----------------|---------------|---|---|
|                  |                          |                        |                  | l <sub>1</sub>            | l <sub>2</sub> | l <sub>2+</sub> | l <sub>4</sub> |               | GFB4573C.5007<br>GFB4573C.5009<br>GFB4573C.5010<br>GFB4573C.5011<br>GFB4573C.5012<br>GFB4573C.5013<br>GFB4573C.5014<br>GFB4573C.5015<br>GFB4573C.5016 | GFB4513C.5007<br>GFB4513C.5009<br>GFB4513C.5010<br>GFB4513C.5011<br>GFB4513C.5012<br>GFB4513C.5013<br>GFB4513C.5014<br>GFB4513C.5015<br>GFB4513C.5016 |
| 24               | ≥ Nr.10                  | 3,7                    | 6                | 58                        | 12,2           | 13,7            | 36             | 4             |   |   |
| 20               | ≥ 1/4                    | 4,85                   | 6                | 64                        | 17,1           | 19              | 36             | 4             |   |   |
| 18               | ≥ 5/16                   | 6,3                    | 8                | 68                        | 20,4           | 22,5            | 36             | 4             |   |   |
| 16               | ≥ 3/8                    | 7,65                   | 8                | 72                        | 24,6           | 27              | 36             | 5             |   |   |
| 14               | ≥ 7/16                   | 9                      | 10               | 82                        | 28,1           | 30,8            | 40             | 5             |   |   |
| 13               | ≥ 1/2                    | 10,4                   | 12               | 93                        | 32,2           | 35,1            | 45             | 5             |   |   |
| 12               | ≥ 9/16                   | 11,8                   | 12               | 98                        | 37             | 40,2            | 45             | 5             |   |   |
| 11               | ≥ 5/8                    | 13                     | 14               | 102                       | 40,3           | 43,8            | 45             | 5             |   |   |
| 10               | ≥ 3/4                    | 15,9                   | 16               | 117                       | 49,5           | 53,3            | 48             | 5             |   |   |

# UNF, UN

ASME B1.1



mit Option  
with option

| P<br>Gg/1" (tpi) | ø d <sub>1</sub><br>inch | ø d <sub>F</sub><br>mm | ø d <sub>2</sub> | mit Option<br>with option |                |                 |                | Z<br>(Flutes) | GF-Vario-Z<br>2,5xd <sub>1</sub><br>AZR1-R15-IKZ-HA<br>TIALN-86  | GF-Vario-Z<br>2,5xd <sub>1</sub><br>AZR1-R15-IKZ-HB<br>TIALN-86  |
|------------------|--------------------------|------------------------|------------------|---------------------------|----------------|-----------------|----------------|---------------|--|--|
|                  |                          |                        |                  | l <sub>1</sub>            | l <sub>2</sub> | l <sub>2+</sub> | l <sub>4</sub> |               | GFB4573C.5041<br>GFB4573C.5042<br>GFB4573C.5043<br>GFB4573C.5044<br>GFB4573C.5046<br>GFB4573C.5048<br>GFB4573C.5049<br>GFB4573C.5050 | GFB4513C.5041<br>GFB4513C.5042<br>GFB4513C.5043<br>GFB4513C.5044<br>GFB4513C.5046<br>GFB4513C.5048<br>GFB4513C.5049<br>GFB4513C.5050 |
| 32               | ≥ Nr.10                  | 3,9                    | 6                | 58                        | 12,3           | 13,5            | 36             | 4             |  |  |
| 28               | ≥ Nr.12                  | 4,45                   | 6                | 60                        | 14             | 15,4            | 36             | 4             |  |  |
| 28               | ≥ 1/4                    | 5,25                   | 6                | 64                        | 16,8           | 18,1            | 36             | 4             |  |  |
| 24               | ≥ 5/16                   | 6,6                    | 8                | 68                        | 20,6           | 22,2            | 36             | 5             |  |  |
| 20               | ≥ 7/16                   | 9,55                   | 10               | 82                        | 28,6           | 30,5            | 40             | 6             |  |  |
| 18               | ≥ 9/16                   | 12,5                   | 14               | 98                        | 36             | 38,1            | 45             | 7             |  |  |
| 18               | ≥ 5/8                    | 13,9                   | 14               | 102                       | 40,2           | 42,3            | 45             | 8             |  |  |
| 16               | ≥ 3/4                    | 17                     | 18               | 115                       | 48,4           | 50,8            | 48             | 8             |  |  |

Weitere Ausführungen auf Anfrage  
Further designs upon request

- Product Finder
- v<sub>c</sub> / f<sub>z</sub>
- M
- MF
- UNC UN, UNS
- UNF UNEF
- G, Rp
- NPT, NPTF Rc, W
- BSW, BSF
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr
- Zubehör Accessories

- BGF
- ZBGF
- GSF
- GF
- GF-VZ
- GF-KEG
- ZGF
- ZIRK-GF
- Gigant
- MoSys

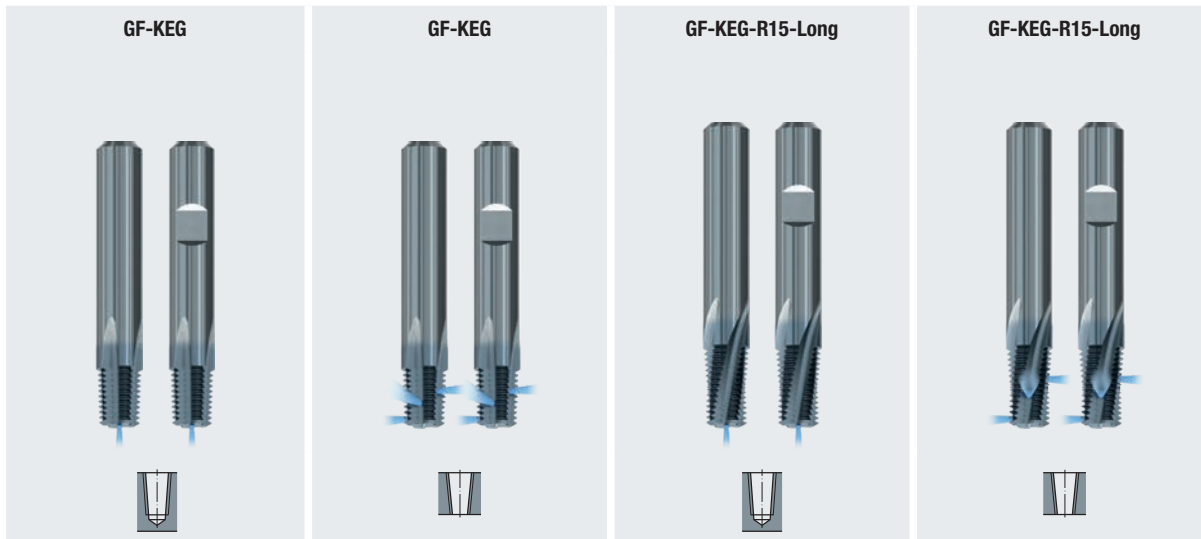


|                        |
|------------------------|
| Product Finder         |
| $v_c / f_z$            |
| M                      |
| MF                     |
| UNC<br>UN, UNS         |
| UNF<br>UNEF            |
| G, Rp                  |
| NPT, NPTF<br>Rc, W     |
| BSW, BSF               |
| Pg                     |
| MJ<br>UNJC, UNJF       |
| EG (STI)               |
| SELF-LOCK              |
| Tr                     |
| Zubehör<br>Accessories |

|              |
|--------------|
| BGF          |
| ZBGF         |
| GSF          |
| GF           |
| <b>GF-VZ</b> |
| GF-KEG       |
| ZGF          |
| ZIRK-GF      |
| Gigant       |
| MoSys        |







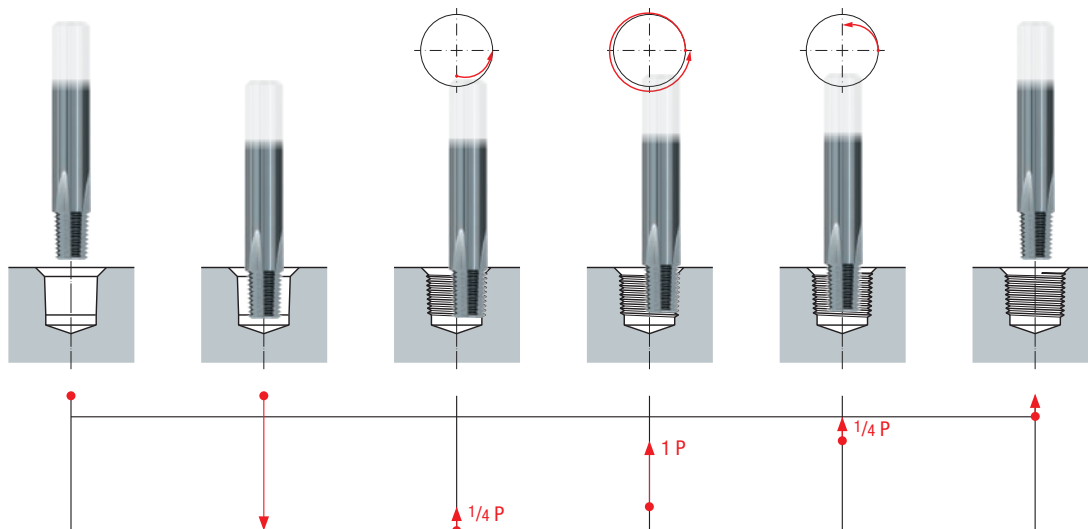
Seite · Page

|     |     |     |     |                     |
|-----|-----|-----|-----|---------------------|
| 451 | 452 | 453 | 454 | <b>NPT</b>          |
|     |     |     |     | <b>NPT (API-LP)</b> |
| 456 | 457 | 458 | 459 | <b>NPTF</b>         |
| 461 | 462 |     |     | <b>Rc (BSPT)</b>    |

Mögliche Modifikationen siehe Seite 356 - 357  
Possible modifications, see pages 356 - 357

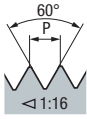
|                        |
|------------------------|
| Product Finder         |
| $v_c / f_z$            |
| M                      |
| MF                     |
| UNC<br>UN, UNS         |
| UNF<br>UNEF            |
| G, Rp                  |
| NPT, NPTF<br>Rc, W     |
| BSW, BSF               |
| Pg                     |
| MJ<br>UNJC, UNJF       |
| EG (STI)               |
| SELF-LOCK              |
| Tr                     |
| Zubehör<br>Accessories |
| BGF                    |
| ZBGF                   |
| GSF                    |
| GF                     |
| GF-VZ                  |
| <b>GF-KEG</b>          |
| ZGF                    |
| ZIRK-GF                |
| Gigant                 |
| MoSys                  |

**Gewindefräszyklus · Thread milling cycle**



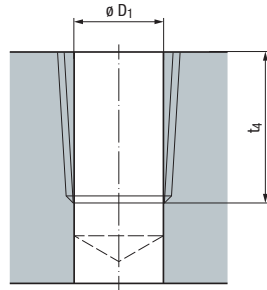
- Product Finder
- $v_c / f_z$
- M
- MF
- UNC  
UN, UNS
- UNF  
UNEF
- G, Rp
- NPT NPTF**  
Rc, W
- BSW, BSF
- Pg
- MJ  
UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr
- Zubehör  
Accessories
- BGF
- ZBGF
- GSF
- GF
- GF-VZ
- GF-KEG**
- ZGF
- ZIRK-GF
- Gigant
- MoSys

# NPT



ANSI/ASME B1.20.1

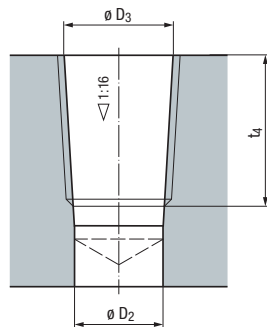
a) Zylindrisch vorarbeiten  
Cylindrical preparation of thread hole



EMUGE NPT-Gewindefräser sind für die Lochformen a) und b) geeignet.  
EMUGE NPT thread milling cutters are suited for the hole forms a) and b).

| Nenngröße<br>Nom. size<br>$\varnothing d_1$ | P<br>Gg/1" (tpi) | $\varnothing D_1$ | $t_4$ |
|---|------------------|-------------------|-------|
| 1/16  | 27               | 6,15              | 8,30  |
| 1/8   | 27               | 8,50              | 8,30  |
| 1/4   | 18               | 11,00             | 12,15 |
| 3/8   | 18               | 14,40             | 12,45 |
| 1/2   | 14               | 17,80             | 16,30 |
| 3/4   | 14               | 23,15             | 16,30 |
| 1"  | 11 1/2           | 29,05             | 19,55 |
| 1 1/4                                       | 11 1/2           | 37,80             | 20,05 |
| 1 1/2                                       | 11 1/2           | 43,85             | 20,05 |
| 2"  | 11 1/2           | 55,85             | 20,45 |

b) Kegelig vorarbeiten  
Tapered preparation of thread hole



| Nenngröße<br>Nom. size<br>$\varnothing d_1$ | P<br>Gg/1" (tpi) | $\varnothing D_2$ | $\varnothing D_3$<br>+0,05 | $t_4$ |
|---|------------------|-------------------|----------------------------|-------|
| 1/16  | 27               | 5,95              | 6,39                       | 8,30  |
| 1/8   | 27               | 8,30              | 8,74                       | 8,30  |
| 1/4   | 18               | 10,75             | 11,36                      | 12,15 |
| 3/8   | 18               | 14,15             | 14,80                      | 12,45 |
| 1/2   | 14               | 17,45             | 18,32                      | 16,30 |
| 3/4   | 14               | 22,80             | 23,67                      | 16,30 |
| 1"  | 11 1/2           | 28,65             | 29,69                      | 19,55 |
| 1 1/4                                       | 11 1/2           | 37,35             | 38,45                      | 20,05 |
| 1 1/2                                       | 11 1/2           | 43,45             | 44,52                      | 20,05 |
| 2"  | 11 1/2           | 55,45             | 56,56                      | 20,45 |

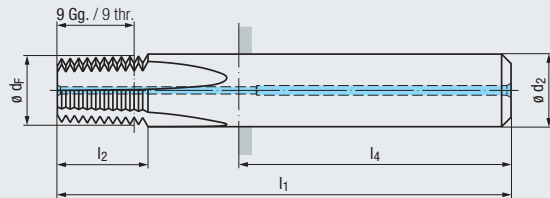


**NPT**



ANSI/ASME B1.20.1

Für kegeliges Innengewinde  
For internal tapered threads



VHM  
Carbide

RH + LH

Z3 - Z5

DIN 6535



GF-KEG



Einsatzgebiete – Material  
Applications – material

» 358

P 1.1-5.1 K 1.1-4.2 N 1.1-1.5, 2.1-2.6  
N 3.1-4.2 N 5.1-5.2 S 1.1-1.3

| Nenngröße<br>Nom. size |             | P | $\varnothing d_f$<br>mm | $\varnothing d_2$ | $l_1$ | $l_2$ | $l_4$ | Z<br>(Flutes) |
|------------------------|-------------|---|-------------------------|-------------------|-------|-------|-------|---------------|
| $\varnothing d_1$      | Gg/1" (tpi) |   |                         |                   |       |       |       |               |
| 1/16                   | 27          |   | 5,9                     | 8                 | 55    | 9,9   | 36    | 3             |
| 1/8                    | 27          |   | 7,65                    | 8                 | 55    | 9,9   | 36    | 3             |
| 1/4                    | 18          |   | 10,15                   | 12                | 75    | 14,8  | 45    | 4             |
| 3/8                    | 18          |   | 11,15                   | 12                | 75    | 14,8  | 45    | 4             |
| 1/2 - 3/4              | 14          |   | 14,25                   | 16                | 80    | 19    | 48    | 4             |
| 1" - 2"                | 11 1/2      |   | 19,6                    | 20                | 90    | 23,1  | 50    | 5             |

| GF-KEG<br>IKZ-HA | GF-KEG<br>IKZ-HB |
|------------------|------------------|
| GF173701.5763    | GF173101.5763    |
| GF173701.5764    | GF173101.5764    |
| GF173711.5765    | GF173111.5765    |
| GF173711.5766    | GF173111.5766    |
| GF173731.9678    | GF173131.9678    |
| GF173751.9679    | GF173151.9679    |

Einsatzgebiete – Material  
Applications – material

» 358

| Nenngröße<br>Nom. size |             | P | $\varnothing d_f$<br>mm | $\varnothing d_2$ | $l_1$ | $l_2$ | $l_4$ | Z<br>(Flutes) |
|------------------------|-------------|---|-------------------------|-------------------|-------|-------|-------|---------------|
| $\varnothing d_1$      | Gg/1" (tpi) |   |                         |                   |       |       |       |               |
| 1/16                   | 27          |   | 5,9                     | 8                 | 55    | 9,9   | 36    | 3             |
| 1/8                    | 27          |   | 7,65                    | 8                 | 55    | 9,9   | 36    | 3             |
| 1/4                    | 18          |   | 10,15                   | 12                | 75    | 14,8  | 45    | 4             |
| 3/8                    | 18          |   | 11,15                   | 12                | 75    | 14,8  | 45    | 4             |
| 1/2 - 3/4              | 14          |   | 14,25                   | 16                | 80    | 19    | 48    | 4             |
| 1" - 2"                | 11 1/2      |   | 19,6                    | 20                | 90    | 23,1  | 50    | 5             |

P 1.1-5.1 M 1.1-4.1 K 1.1-4.2  
N 1.1-5.3 S 1.1-2.6 H 1.1-1.2

| GF-KEG<br>IKZ-HA<br>TICN | GF-KEG<br>IKZ-HB<br>TICN |
|--------------------------|--------------------------|
| GF173706.5763            | GF173106.5763            |
| GF173706.5764            | GF173106.5764            |
| GF173716.5765            | GF173116.5765            |
| GF173716.5766            | GF173116.5766            |
| GF173736.9678            | GF173136.9678            |
| GF173756.9679            | GF173156.9679            |

Weitere Ausführungen auf Anfrage  
Further designs upon request

**Anwendungshinweis:** Es wird ein NC-Programm für schneckenförmiges Wendelnutfräsen benötigt, da sonst ein Absatz im gefrästen Gewinde entsteht  
**Application recommendation:** You must have an NC programme for spiral-worm keyway milling, otherwise the finished thread will have a stepped profile



Gewindebohrer für kegelige  
Innengewinde siehe Seite 248 - 263

Taps for internal tapered threads,  
see page 248 - 263

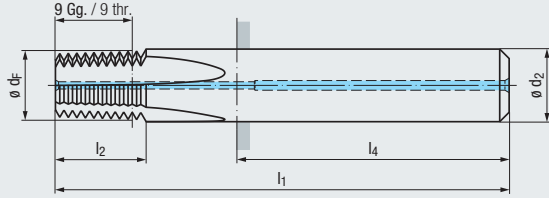
- Product Finder
- V<sub>c</sub> / f<sub>z</sub>
- M
- MF
- UNC  
UN, UNS
- UNF  
UNEF
- G, Rp
- NPT NPTF  
Rc, W
- BSW, BSF
- Pg
- MJ  
UNJC, UNJF

# NPT



ANSI/ASME B1.20.1

Für kegeliges Innengewinde  
For internal tapered threads



VHM  
Carbide

RH + LH

Z3 - Z5



DIN 6535



GF-KEG



Einsatzgebiete – Material  
Applications – material [» 358](#)

**P** 1.1-5.1 **K** 1.1-4.2 **N** 1.1-1.5, 2.1-2.6  
**N** 3.1-4.2 **N** 5.1-5.2 **S** 1.1-1.3

Nenngröße

| Nom. size         | P           | $\varnothing d_f$ | $\varnothing d_2$ | $l_1$ | $l_2$ | $l_4$ | Z        |
|-------------------|-------------|-------------------|-------------------|-------|-------|-------|----------|
| $\varnothing d_1$ | Gg/1" (tpi) | mm                |                   |       |       |       | (Flutes) |
| 1/16              | 27          | 5,9               | 8                 | 55    | 9,9   | 36    | 3        |
| 1/8               | 27          | 7,65              | 8                 | 55    | 9,9   | 36    | 3        |
| 1/4               | 18          | 10,15             | 12                | 75    | 14,8  | 45    | 4        |
| 3/8               | 18          | 11,15             | 12                | 75    | 14,8  | 45    | 4        |
| 1/2 - 3/4         | 14          | 14,25             | 16                | 80    | 19    | 48    | 4        |
| 1" - 2"           | 11 1/2      | 19,6              | 20                | 90    | 23,1  | 50    | 5        |

| GF-KEG<br>IKZN-HA | GF-KEG<br>IKZN-HB |
|-------------------|-------------------|
| GF193701.5763     | GF193101.5763     |
| GF193701.5764     | GF193101.5764     |
| GF193711.5765     | GF193111.5765     |
| GF193711.5766     | GF193111.5766     |
| GF193731.9678     | GF193131.9678     |
| GF193751.9679     | GF193151.9679     |

- BGF
- ZBGF
- GSF
- GF
- GF-VZ
- GF-KEG
- ZGF
- ZIRK-GF
- Gigant
- MoSys

TICN



Einsatzgebiete – Material  
Applications – material [» 358](#)

**P** 1.1-5.1 **M** 1.1-4.1 **K** 1.1-4.2  
**N** 1.1-5.3 **S** 1.1-2.6 **H** 1.1-1.2

Nenngröße

| Nom. size         | P           | $\varnothing d_f$ | $\varnothing d_2$ | $l_1$ | $l_2$ | $l_4$ | Z        |
|-------------------|-------------|-------------------|-------------------|-------|-------|-------|----------|
| $\varnothing d_1$ | Gg/1" (tpi) | mm                |                   |       |       |       | (Flutes) |
| 1/16              | 27          | 5,9               | 8                 | 55    | 9,9   | 36    | 3        |
| 1/8               | 27          | 7,65              | 8                 | 55    | 9,9   | 36    | 3        |
| 1/4               | 18          | 10,15             | 12                | 75    | 14,8  | 45    | 4        |
| 3/8               | 18          | 11,15             | 12                | 75    | 14,8  | 45    | 4        |
| 1/2 - 3/4         | 14          | 14,25             | 16                | 80    | 19    | 48    | 4        |
| 1" - 2"           | 11 1/2      | 19,6              | 20                | 90    | 23,1  | 50    | 5        |

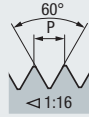
| GF-KEG<br>IKZN-HA<br>TICN | GF-KEG<br>IKZN-HB<br>TICN |
|---------------------------|---------------------------|
| GF193706.5763             | GF193106.5763             |
| GF193706.5764             | GF193106.5764             |
| GF193716.5765             | GF193116.5765             |
| GF193716.5766             | GF193116.5766             |
| GF193736.9678             | GF193136.9678             |
| GF193756.9679             | GF193156.9679             |

Weitere Ausführungen auf Anfrage  
Further designs upon request

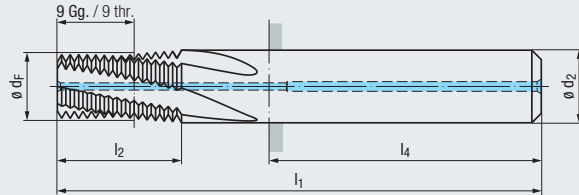
**Anwendungshinweis:** Es wird ein NC-Programm für schneckenförmiges Wendelnutfräsen benötigt, da sonst ein Absatz im gefrästen Gewinde entsteht  
**Application recommendation:** You must have an NC programme for spiral-worm keyway milling, otherwise the finished thread will have a stepped profile

# NPT (API-LP)

ANSI/ASME B1.20.1



Für kegeliges Innengewinde  
For internal tapered threads



VHM  
Carbide

R15

RH + LH

Z3 - Z5

DIN 6535



## GF-KEG-R15-Long



Einsatzgebiete – Material  
Applications – material

| Nenngröße<br>Nom. size |             | P | $\varnothing d_F$<br>mm | $\varnothing d_2$ | $l_1$ | $l_2$ | $l_4$ | Z<br>(Flutes) |
|------------------------|-------------|---|-------------------------|-------------------|-------|-------|-------|---------------|
| $\varnothing d_1$      | Gg/1" (tpi) |   |                         |                   |       |       |       |               |
| 1/16                   | 27          |   | 5,9                     | 8                 | 60    | 13,6  | 36    | 3             |
| 1/8                    | 27          |   | 7,65                    | 8                 | 60    | 13,6  | 36    | 3             |
| 1/4                    | 18          |   | 10,15                   | 12                | 80    | 20,4  | 45    | 4             |
| 3/8                    | 18          |   | 11,15                   | 12                | 80    | 20,4  | 45    | 4             |
| 1/2 - 3/4              | 14          |   | 14,25                   | 16                | 85    | 26,3  | 48    | 4             |
| 1" - 2"                | 11 1/2      |   | 19,6                    | 20                | 95    | 32    | 50    | 5             |

P 1.1-5.1 K 1.1-4.2 N 1.1-1.5, 2.1-2.6  
N 3.1-4.2 N 5.1-5.2 S 1.1-1.3

| GF-KEG<br>R15-Long- <b>IKZ-HA</b> | GF-KEG<br>R15-Long- <b>IKZ-HB</b> |
|-----------------------------------|-----------------------------------|
| GF175901.5763                     | GF175301.5763                     |
| GF175901.5764                     | GF175301.5764                     |
| GF175911.5765                     | GF175311.5765                     |
| GF175911.5766                     | GF175311.5766                     |
| GF175931.9678                     | GF175331.9678                     |
| GF175951.9679                     | GF175351.9679                     |

Einsatzgebiete – Material  
Applications – material

| Nenngröße<br>Nom. size |             | P | $\varnothing d_F$<br>mm | $\varnothing d_2$ | $l_1$ | $l_2$ | $l_4$ | Z<br>(Flutes) |
|------------------------|-------------|---|-------------------------|-------------------|-------|-------|-------|---------------|
| $\varnothing d_1$      | Gg/1" (tpi) |   |                         |                   |       |       |       |               |
| 1/16                   | 27          |   | 5,9                     | 8                 | 60    | 13,6  | 36    | 3             |
| 1/8                    | 27          |   | 7,65                    | 8                 | 60    | 13,6  | 36    | 3             |
| 1/4                    | 18          |   | 10,15                   | 12                | 80    | 20,4  | 45    | 4             |
| 3/8                    | 18          |   | 11,15                   | 12                | 80    | 20,4  | 45    | 4             |
| 1/2 - 3/4              | 14          |   | 14,25                   | 16                | 85    | 26,3  | 48    | 4             |
| 1" - 2"                | 11 1/2      |   | 19,6                    | 20                | 95    | 32    | 50    | 5             |

P 1.1-5.1 M 1.1-4.1 K 1.1-4.2  
N 1.1-5.3 S 1.1-2.6 H 1.1-1.2

| GF-KEG<br>R15-Long- <b>IKZ-HA</b><br>TICN | GF-KEG<br>R15-Long- <b>IKZ-HB</b><br>TICN |
|---|---|
| GF175906.5763                             | GF175306.5763                             |
| GF175906.5764                             | GF175306.5764                             |
| GF175916.5765                             | GF175316.5765                             |
| GF175916.5766                             | GF175316.5766                             |
| GF175936.9678                             | GF175336.9678                             |
| GF175956.9679                             | GF175356.9679                             |

Weitere Ausführungen auf Anfrage  
Further designs upon request

**Anwendungshinweis:** Es wird ein NC-Programm für schneckenförmiges Wendelnutfräsen benötigt, da sonst ein Absatz im gefrästen Gewinde entsteht  
**Application recommendation:** You must have an NC programme for spiral-worm keyway milling, otherwise the finished thread will have a stepped profile

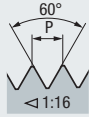
- Product Finder
- $v_c / f_z$
- M
- MF
- UNC  
UN, UNS
- UNF  
UNEF
- G, Rp
- NPT NPTF  
Rc, W
- BSW, BSF
- Pg
- MJ  
UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr
- Zubehör  
Accessories
- BGF
- ZBGF
- GSF
- GF
- GF-VZ
- GF-KEG
- ZGF
- ZIRK-GF
- Gigant
- MoSys



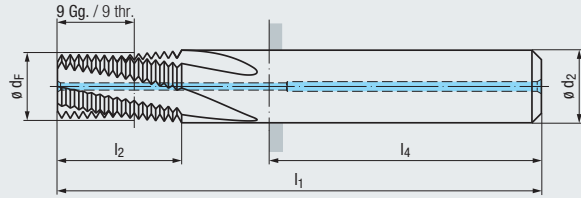
- Product Finder
- V<sub>c</sub> / f<sub>z</sub>
- M
- MF
- UNC  
UN, UNS
- UNF  
UNEF
- G, Rp
- NPT NPTF  
Rc, W
- BSW, BSF
- Pg
- MJ  
UNJC, UNJF

# NPT (API-LP)

ANSI/ASME B1.20.1



Für kegeliges Innengewinde  
For internal tapered threads



VHM  
Carbide

R15

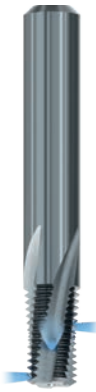
RH + LH

Z3 - Z5

DIN 6535



### GF-KEG-R15-Long



Einsatzgebiete – Material  
Applications – material

» 358

P 1.1-5.1 K 1.1-4.2 N 1.1-1.5, 2.1-2.6  
N 3.1-4.2 N 5.1-5.2 S 1.1-1.3

Nenngröße

| Nom. size        | P           | ø d <sub>F</sub> | ø d <sub>2</sub> | l <sub>1</sub> | l <sub>2</sub> | l <sub>4</sub> | Z        |
|------------------|-------------|------------------|------------------|----------------|----------------|----------------|----------|
| ø d <sub>1</sub> | Gg/1" (tpi) | mm               |                  |                |                |                | (Flutes) |
| 1/16             | 27          | 5,9              | 8                | 60             | 13,6           | 36             | 3        |
| 1/8              | 27          | 7,65             | 8                | 60             | 13,6           | 36             | 3        |
| 1/4              | 18          | 10,15            | 12               | 80             | 20,4           | 45             | 4        |
| 3/8              | 18          | 11,15            | 12               | 80             | 20,4           | 45             | 4        |
| 1/2 - 3/4        | 14          | 14,25            | 16               | 85             | 26,3           | 48             | 4        |
| 1" - 2"          | 11 1/2      | 19,6             | 20               | 95             | 32             | 50             | 5        |

GF-KEG  
R15-Long-**IKZN-HA**

GF-KEG  
R15-Long-**IKZN-HB**

GF195901.5763  
GF195901.5764  
GF195911.5765  
GF195911.5766  
GF195931.9678  
GF195951.9679

GF195301.5763  
GF195301.5764  
GF195311.5765  
GF195311.5766  
GF195331.9678  
GF195351.9679

**TICN**

Einsatzgebiete – Material  
Applications – material

» 358

P 1.1-5.1 M 1.1-4.1 K 1.1-4.2  
N 1.1-5.3 S 1.1-2.6 H 1.1-1.2

Nenngröße

| Nom. size        | P           | ø d <sub>F</sub> | ø d <sub>2</sub> | l <sub>1</sub> | l <sub>2</sub> | l <sub>4</sub> | Z        |
|------------------|-------------|------------------|------------------|----------------|----------------|----------------|----------|
| ø d <sub>1</sub> | Gg/1" (tpi) | mm               |                  |                |                |                | (Flutes) |
| 1/16             | 27          | 5,9              | 8                | 60             | 13,6           | 36             | 3        |
| 1/8              | 27          | 7,65             | 8                | 60             | 13,6           | 36             | 3        |
| 1/4              | 18          | 10,15            | 12               | 80             | 20,4           | 45             | 4        |
| 3/8              | 18          | 11,15            | 12               | 80             | 20,4           | 45             | 4        |
| 1/2 - 3/4        | 14          | 14,25            | 16               | 85             | 26,3           | 48             | 4        |
| 1" - 2"          | 11 1/2      | 19,6             | 20               | 95             | 32             | 50             | 5        |

GF-KEG  
R15-Long-**IKZN-HA**  
TICN

GF-KEG  
R15-Long-**IKZN-HB**  
TICN

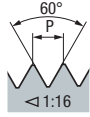
GF195906.5763  
GF195906.5764  
GF195916.5765  
GF195916.5766  
GF195936.9678  
GF195956.9679

GF195306.5763  
GF195306.5764  
GF195316.5765  
GF195316.5766  
GF195336.9678  
GF195356.9679

Weitere Ausführungen auf Anfrage  
Further designs upon request

**Anwendungshinweis:** Es wird ein NC-Programm für schneckenförmiges Wendelnutfräsen benötigt, da sonst ein Absatz im gefrästen Gewinde entsteht  
**Application recommendation:** You must have an NC programme for spiral-worm keyway milling, otherwise the finished thread will have a stepped profile

**NPTF**



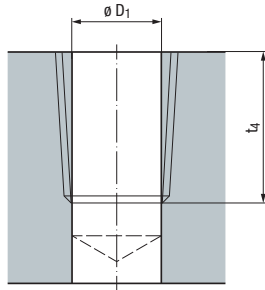
ANSI B1.20.3

EMUGE NPTF-Gewindefräser sind für die Lochformen a) und b) geeignet.

EMUGE NPTF thread milling cutters are suited for the hole forms a) and b).

a) Zylindrisch vorarbeiten

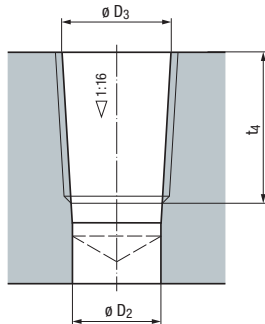
Cylindrical preparation of thread hole



| Nenngröße<br>Nom. size<br>$\varnothing d_1$ | P<br>Gg/1" (tpi) | $\varnothing D_1$ | $t_4$ |
|---|------------------|-------------------|-------|
| 1/16  | 27               | 6,10              | 8,30  |
| 1/8   | 27               | 8,45              | 8,30  |
| 1/4   | 18               | 10,90             | 12,15 |
| 3/8   | 18               | 14,30             | 12,45 |
| 1/2   | 14               | 17,60             | 16,30 |
| 3/4   | 14               | 23,00             | 16,30 |
| 1"  | 11 1/2           | 28,75             | 19,55 |
| 1 1/4                                       | 11 1/2           | 37,50             | 20,05 |
| 1 1/2                                       | 11 1/2           | 43,75             | 20,05 |
| 2"  | 11 1/2           | 55,75             | 20,45 |

b) Kegelig vorarbeiten

Tapered preparation of thread hole



| Nenngröße<br>Nom. size<br>$\varnothing d_1$ | P<br>Gg/1" (tpi) | $\varnothing D_2$ | $\varnothing D_3$<br>+0,05 | $t_4$ |
|---|------------------|-------------------|----------------------------|-------|
| 1/16  | 27               | 5,95              | 6,41                       | 8,30  |
| 1/8   | 27               | 8,30              | 8,76                       | 8,30  |
| 1/4   | 18               | 10,75             | 11,40                      | 12,15 |
| 3/8   | 18               | 14,15             | 14,84                      | 12,45 |
| 1/2   | 14               | 17,45             | 18,33                      | 16,30 |
| 3/4   | 14               | 22,80             | 23,68                      | 16,30 |
| 1"  | 11 1/2           | 28,65             | 29,72                      | 19,55 |
| 1 1/4                                       | 11 1/2           | 37,35             | 38,48                      | 20,05 |
| 1 1/2                                       | 11 1/2           | 43,45             | 44,55                      | 20,05 |
| 2"  | 11 1/2           | 55,45             | 56,59                      | 20,45 |

- Product Finder
- $v_c / f_z$
- M
- MF
- UNC  
UN, UNS
- UNF  
UNEF
- G, Rp
- NPT, NPTF**  
Rc, W
- BSW, BSF
- Pg
- MJ  
UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr
- Zubehör  
Accessories
- BGF
- ZBGF
- GSF
- GF
- GF-VZ
- GF-KEG**
- ZGF
- ZIRK-GF
- Gigant
- MoSys



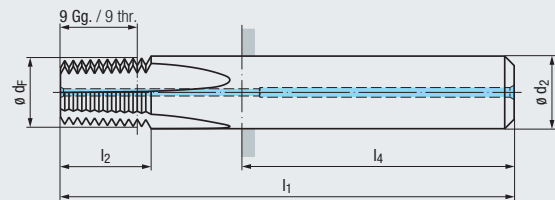
- Product Finder
- V<sub>c</sub> / f<sub>z</sub>
- M
- MF
- UNC  
UN, UNS
- UNF  
UNEF
- G, Rp
- NPT, NPTF  
Rc, W
- BSW, BSF
- Pg
- MJ  
UNJC, UNJF

# NPTF



ANSI B1.20.3

Für kegeliges Innengewinde  
For internal tapered threads



VHM  
Carbide

RH + LH

Z3 - Z5



DIN 6535



GF-KEG



Einsatzgebiete – Material  
Applications – material [» 358](#)

P 1.1-5.1 K 1.1-4.2 N 1.1-1.5, 2.1-2.6  
N 3.1-4.2 N 5.1-5.2 S 1.1-1.3

Nenngröße

| Nom. size        | P           | ø d <sub>f</sub> | ø d <sub>2</sub> | l <sub>1</sub> | l <sub>2</sub> | l <sub>4</sub> | Z        |
|------------------|-------------|------------------|------------------|----------------|----------------|----------------|----------|
| ø d <sub>1</sub> | Gg/1" (tpi) | mm               |                  |                |                |                | (Flutes) |
| 1/16             | 27          | 5,9              | 8                | 55             | 9,8            | 36             | 3        |
| 1/8              | 27          | 7,65             | 8                | 55             | 9,8            | 36             | 3        |
| 1/4              | 18          | 10,15            | 12               | 75             | 14,8           | 45             | 4        |
| 3/8              | 18          | 11,15            | 12               | 75             | 14,8           | 45             | 4        |
| 1/2              | 14          | 14,25            | 16               | 80             | 19             | 48             | 4        |
| 3/4              | 14          | 14,25            | 16               | 80             | 19             | 48             | 4        |
| 1" - 2"          | 11 1/2      | 19,6             | 20               | 90             | 23,1           | 50             | 5        |

| GF-KEG<br>IKZ-HA | GF-KEG<br>IKZ-HB |
|------------------|------------------|
| GF173701.5782    | GF173101.5782    |
| GF173701.5783    | GF173101.5783    |
| GF173711.5784    | GF173111.5784    |
| GF173711.5785    | GF173111.5785    |
| GF173731.5786    | GF173131.5786    |
| GF173731.5787    | GF173131.5787    |
| GF173751.9684    | GF173151.9684    |

TICN



Einsatzgebiete – Material  
Applications – material [» 358](#)

P 1.1-5.1 M 1.1-4.1 K 1.1-4.2  
N 1.1-5.3 S 1.1-2.6 H 1.1-1.2

Nenngröße

| Nom. size        | P           | ø d <sub>f</sub> | ø d <sub>2</sub> | l <sub>1</sub> | l <sub>2</sub> | l <sub>4</sub> | Z        |
|------------------|-------------|------------------|------------------|----------------|----------------|----------------|----------|
| ø d <sub>1</sub> | Gg/1" (tpi) | mm               |                  |                |                |                | (Flutes) |
| 1/16             | 27          | 5,9              | 8                | 55             | 9,8            | 36             | 3        |
| 1/8              | 27          | 7,65             | 8                | 55             | 9,8            | 36             | 3        |
| 1/4              | 18          | 10,15            | 12               | 75             | 14,8           | 45             | 4        |
| 3/8              | 18          | 11,15            | 12               | 75             | 14,8           | 45             | 4        |
| 1/2              | 14          | 14,25            | 16               | 80             | 19             | 48             | 4        |
| 3/4              | 14          | 14,25            | 16               | 80             | 19             | 48             | 4        |
| 1" - 2"          | 11 1/2      | 19,6             | 20               | 90             | 23,1           | 50             | 5        |

| GF-KEG<br>IKZ-HA<br>TICN | GF-KEG<br>IKZ-HB<br>TICN |
|--------------------------|--------------------------|
| GF173706.5782            | GF173106.5782            |
| GF173706.5783            | GF173106.5783            |
| GF173716.5784            | GF173116.5784            |
| GF173716.5785            | GF173116.5785            |
| GF173736.5786            | GF173136.5786            |
| GF173736.5787            | GF173136.5787            |
| GF173756.9684            | GF173156.9684            |

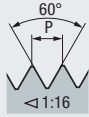
Weitere Ausführungen auf Anfrage  
Further designs upon request

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**Application recommendation:** You must have an NC programme for spiral-worm keyway milling, otherwise the finished thread will have a stepped profile

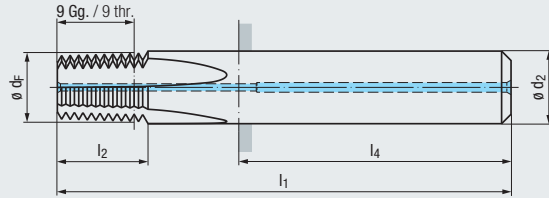


# NPTF

ANSI B1.20.3



Für kegeliges Innengewinde  
For internal tapered threads



VHM  
Carbide

RH + LH

Z3 - Z5

DIN 6535



GF-KEG



Einsatzgebiete – Material  
Applications – material

» 358

P 1.1-5.1 K 1.1-4.2 N 1.1-1.5, 2.1-2.6  
N 3.1-4.2 N 5.1-5.2 S 1.1-1.3

Nenngröße

| Nom. size         | P           | $\varnothing d_f$ | $\varnothing d_2$ | $l_1$ | $l_2$ | $l_4$ | Z        |
|-------------------|-------------|-------------------|-------------------|-------|-------|-------|----------|
| $\varnothing d_1$ | Gg/1" (tpi) | mm                |                   |       |       |       | (Flutes) |
| 1/16              | 27          | 5,9               | 8                 | 55    | 9,8   | 36    | 3        |
| 1/8               | 27          | 7,65              | 8                 | 55    | 9,8   | 36    | 3        |
| 1/4               | 18          | 10,15             | 12                | 75    | 14,8  | 45    | 4        |
| 3/8               | 18          | 11,15             | 12                | 75    | 14,8  | 45    | 4        |
| 1/2               | 14          | 14,25             | 16                | 80    | 19    | 48    | 4        |
| 3/4               | 14          | 14,25             | 16                | 80    | 19    | 48    | 4        |
| 1" - 2"           | 11 1/2      | 19,6              | 20                | 90    | 23,1  | 50    | 5        |

GF-KEG  
IKZN-HA

GF-KEG  
IKZN-HB

|               |
|---------------|
| GF193701.5782 |
| GF193701.5783 |
| GF193711.5784 |
| GF193711.5785 |
| GF193731.5786 |
| GF193731.5787 |
| GF193751.9684 |

|               |
|---------------|
| GF193101.5782 |
| GF193101.5783 |
| GF193111.5784 |
| GF193111.5785 |
| GF193131.5786 |
| GF193131.5787 |
| GF193151.9684 |

Einsatzgebiete – Material  
Applications – material

» 358

| Nom. size         | P           | $\varnothing d_f$ | $\varnothing d_2$ | $l_1$ | $l_2$ | $l_4$ | Z        |
|-------------------|-------------|-------------------|-------------------|-------|-------|-------|----------|
| $\varnothing d_1$ | Gg/1" (tpi) | mm                |                   |       |       |       | (Flutes) |
| 1/16              | 27          | 5,9               | 8                 | 55    | 9,8   | 36    | 3        |
| 1/8               | 27          | 7,65              | 8                 | 55    | 9,8   | 36    | 3        |
| 1/4               | 18          | 10,15             | 12                | 75    | 14,8  | 45    | 4        |
| 3/8               | 18          | 11,15             | 12                | 75    | 14,8  | 45    | 4        |
| 1/2               | 14          | 14,25             | 16                | 80    | 19    | 48    | 4        |
| 3/4               | 14          | 14,25             | 16                | 80    | 19    | 48    | 4        |
| 1" - 2"           | 11 1/2      | 19,6              | 20                | 90    | 23,1  | 50    | 5        |

P 1.1-5.1 M 1.1-4.1 K 1.1-4.2  
N 1.1-5.3 S 1.1-2.6 H 1.1-1.2



GF-KEG  
IKZN-HA  
TICN

GF-KEG  
IKZN-HB  
TICN

|               |
|---------------|
| GF193706.5782 |
| GF193706.5783 |
| GF193716.5784 |
| GF193716.5785 |
| GF193736.5786 |
| GF193736.5787 |
| GF193756.9684 |

|               |
|---------------|
| GF193106.5782 |
| GF193106.5783 |
| GF193116.5784 |
| GF193116.5785 |
| GF193136.5786 |
| GF193136.5787 |
| GF193156.9684 |

Weitere Ausführungen auf Anfrage  
Further designs upon request

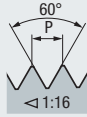
**Anwendungshinweis:** Es wird ein NC-Programm für schneckenförmiges Wendelnutfräsen benötigt, da sonst ein Absatz im gefrästen Gewinde entsteht  
**Application recommendation:** You must have an NC programme for spiral-worm keyway milling, otherwise the finished thread will have a stepped profile

|                        |
|------------------------|
| Product Finder         |
| $v_c / f_z$            |
| M                      |
| MF                     |
| UNC<br>UN, UNS         |
| UNF<br>UNEF            |
| G, Rp                  |
| NPT, NPTF<br>Rc, W     |
| BSW, BSF               |
| Pg                     |
| MJ<br>UNJC, UNJF       |
| EG (STI)               |
| SELF-LOCK              |
| Tr                     |
| Zubehör<br>Accessories |
| BGF                    |
| ZBGF                   |
| GSF                    |
| GF                     |
| GF-VZ                  |
| GF-KEG                 |
| ZGF                    |
| ZIRK-GF                |
| Gigant                 |
| MoSys                  |



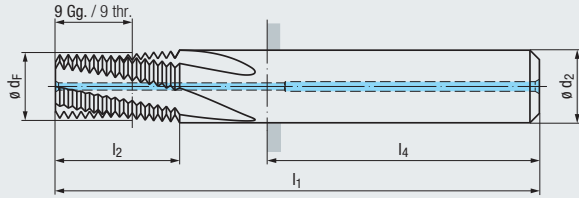
- Product Finder
- V<sub>c</sub> / f<sub>z</sub>
- M
- MF
- UNC  
UN, UNS
- UNF  
UNEF
- G, Rp
- NPT, NPTF  
Rc, W
- BSW, BSF
- Pg
- MJ  
UNJC, UNJF

# NPTF



ANSI B1.20.3

Für kegeliges Innengewinde  
For internal tapered threads



VHM  
Carbide

R15

RH + LH

Z3 - Z5

DIN 6535



### GF-KEG-R15-Long



P 1.1-5.1 K 1.1-4.2 N 1.1-1.5, 2.1-2.6  
N 3.1-4.2 N 5.1-5.2 S 1.1-1.3

Einsatzgebiete – Material  
Applications – material

» 358

Nenngröße

| Nom. size        | P           | ø d <sub>F</sub> | ø d <sub>2</sub> | l <sub>1</sub> | l <sub>2</sub> | l <sub>4</sub> | Z        |
|------------------|-------------|------------------|------------------|----------------|----------------|----------------|----------|
| ø d <sub>1</sub> | Gg/1" (tpi) | mm               |                  |                |                |                | (Flutes) |
| 1/16             | 27          | 5,9              | 8                | 60             | 13,6           | 36             | 3        |
| 1/8              | 27          | 7,65             | 8                | 60             | 13,6           | 36             | 3        |
| 1/4              | 18          | 10,15            | 12               | 80             | 20,4           | 45             | 4        |
| 3/8              | 18          | 11,15            | 12               | 80             | 20,4           | 45             | 4        |
| 1/2              | 14          | 14,25            | 16               | 85             | 26,3           | 48             | 4        |
| 3/4              | 14          | 14,25            | 16               | 85             | 26,2           | 48             | 4        |
| 1" - 2"          | 11 1/2      | 19,6             | 20               | 95             | 32             | 50             | 5        |

GF-KEG  
R15-Long-IKZ-HA

GF-KEG  
R15-Long-IKZ-HB

|               |               |
|---------------|---------------|
| GF175901.5782 | GF175301.5782 |
| GF175901.5783 | GF175301.5783 |
| GF175911.5784 | GF175311.5784 |
| GF175911.5785 | GF175311.5785 |
| GF175931.5786 | GF175331.5786 |
| GF175931.5787 | GF175331.5787 |
| GF175951.9684 | GF175351.9684 |

- EG (STI)
- SELF-LOCK
- Tr
- Zubehör  
Accessories
- BGF

- ZBGF
- GSF
- GF
- GF-VZ
- GF-KEG
- ZGF

TICN



P 1.1-5.1 M 1.1-4.1 K 1.1-4.2  
N 1.1-5.3 S 1.1-2.6 H 1.1-1.2

Einsatzgebiete – Material  
Applications – material

» 358

Nenngröße

| Nom. size        | P           | ø d <sub>F</sub> | ø d <sub>2</sub> | l <sub>1</sub> | l <sub>2</sub> | l <sub>4</sub> | Z        |
|------------------|-------------|------------------|------------------|----------------|----------------|----------------|----------|
| ø d <sub>1</sub> | Gg/1" (tpi) | mm               |                  |                |                |                | (Flutes) |
| 1/16             | 27          | 5,9              | 8                | 60             | 13,6           | 36             | 3        |
| 1/8              | 27          | 7,65             | 8                | 60             | 13,6           | 36             | 3        |
| 1/4              | 18          | 10,15            | 12               | 80             | 20,4           | 45             | 4        |
| 3/8              | 18          | 11,15            | 12               | 80             | 20,4           | 45             | 4        |
| 1/2              | 14          | 14,25            | 16               | 85             | 26,3           | 48             | 4        |
| 3/4              | 14          | 14,25            | 16               | 85             | 26,2           | 48             | 4        |
| 1" - 2"          | 11 1/2      | 19,6             | 20               | 95             | 32             | 50             | 5        |

GF-KEG  
R15-Long-IKZ-HA  
TICN

GF-KEG  
R15-Long-IKZ-HB  
TICN

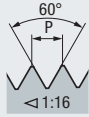
|               |               |
|---------------|---------------|
| GF175906.5782 | GF175306.5782 |
| GF175906.5783 | GF175306.5783 |
| GF175916.5784 | GF175316.5784 |
| GF175916.5785 | GF175316.5785 |
| GF175936.5786 | GF175336.5786 |
| GF175936.5787 | GF175336.5787 |
| GF175956.9684 | GF175356.9684 |



Weitere Ausführungen auf Anfrage  
Further designs upon request

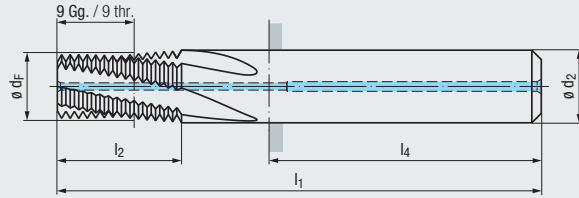
**Anwendungshinweis:** Es wird ein NC-Programm für schneckenförmiges Wendelnutfräsen benötigt, da sonst ein Absatz im gefrästen Gewinde entsteht  
**Application recommendation:** You must have an NC programme for spiral-worm keyway milling, otherwise the finished thread will have a stepped profile

**NPTF**



ANSI B1.20.3

Für kegeliges Innengewinde  
For internal tapered threads



**VHM Carbide**

**R15 RH + LH**

**Z3 - Z5** **DIN 6535**

HA HB

**GF-KEG-R15-Long**

Einsatzgebiete – Material Applications – material **358**

| Nenngröße |             | P     | $\varnothing d_F$ | $\varnothing d_2$ | $l_1$ | $l_2$ | $l_4$ | Z |
|-----------|-------------|-------|-------------------|-------------------|-------|-------|-------|---|
| Nom. size | Gg/1" (tpi) |       |                   |                   |       |       |       |   |
| 1/16      | 27          | 5,9   | 8                 | 60                | 13,6  | 36    | 3     |   |
| 1/8       | 27          | 7,65  | 8                 | 60                | 13,6  | 36    | 3     |   |
| 1/4       | 18          | 10,15 | 12                | 80                | 20,4  | 45    | 4     |   |
| 3/8       | 18          | 11,15 | 12                | 80                | 20,4  | 45    | 4     |   |
| 1/2       | 14          | 14,25 | 16                | 85                | 26,3  | 48    | 4     |   |
| 3/4       | 14          | 14,25 | 16                | 85                | 26,2  | 48    | 4     |   |
| 1" - 2"   | 11 1/2      | 19,6  | 20                | 95                | 32    | 50    | 5     |   |

| GF-KEG R15-Long- <b>IKZN-HA</b> |                      | GF-KEG R15-Long- <b>IKZN-HB</b> |  |
|---------------------------------|----------------------|---------------------------------|--|
| <b>P</b> 1.1-5.1                | <b>K</b> 1.1-4.2     | <b>N</b> 1.1-1.5, 2.1-2.6       |  |
| <b>N</b> 3.1-4.2                | <b>N</b> 5.1-5.2     | <b>S</b> 1.1-1.3                |  |
| <b>GF195901.5782</b>            | <b>GF195301.5782</b> |                                 |  |
| <b>GF195901.5783</b>            | <b>GF195301.5783</b> |                                 |  |
| <b>GF195911.5784</b>            | <b>GF195311.5784</b> |                                 |  |
| <b>GF195911.5785</b>            | <b>GF195311.5785</b> |                                 |  |
| <b>GF195931.5786</b>            | <b>GF195331.5786</b> |                                 |  |
| <b>GF195931.5787</b>            | <b>GF195331.5787</b> |                                 |  |
| <b>GF195951.9684</b>            | <b>GF195351.9684</b> |                                 |  |

**TICN**

Einsatzgebiete – Material Applications – material **358**

| Nenngröße |             | P     | $\varnothing d_F$ | $\varnothing d_2$ | $l_1$ | $l_2$ | $l_4$ | Z |
|-----------|-------------|-------|-------------------|-------------------|-------|-------|-------|---|
| Nom. size | Gg/1" (tpi) |       |                   |                   |       |       |       |   |
| 1/16      | 27          | 5,9   | 8                 | 60                | 13,6  | 36    | 3     |   |
| 1/8       | 27          | 7,65  | 8                 | 60                | 13,6  | 36    | 3     |   |
| 1/4       | 18          | 10,15 | 12                | 80                | 20,4  | 45    | 4     |   |
| 3/8       | 18          | 11,15 | 12                | 80                | 20,4  | 45    | 4     |   |
| 1/2       | 14          | 14,25 | 16                | 85                | 26,3  | 48    | 4     |   |
| 3/4       | 14          | 14,25 | 16                | 85                | 26,2  | 48    | 4     |   |
| 1" - 2"   | 11 1/2      | 19,6  | 20                | 95                | 32    | 50    | 5     |   |

| GF-KEG R15-Long- <b>IKZN-HA</b> |                      | GF-KEG R15-Long- <b>IKZN-HB</b> |  |
|---------------------------------|----------------------|---------------------------------|--|
| <b>P</b> 1.1-5.1                | <b>M</b> 1.1-4.1     | <b>K</b> 1.1-4.2                |  |
| <b>N</b> 1.1-5.3                | <b>S</b> 1.1-2.6     | <b>H</b> 1.1-1.2                |  |
| <b>GF195906.5782</b>            | <b>GF195306.5782</b> |                                 |  |
| <b>GF195906.5783</b>            | <b>GF195306.5783</b> |                                 |  |
| <b>GF195916.5784</b>            | <b>GF195316.5784</b> |                                 |  |
| <b>GF195916.5785</b>            | <b>GF195316.5785</b> |                                 |  |
| <b>GF195936.5786</b>            | <b>GF195336.5786</b> |                                 |  |
| <b>GF195936.5787</b>            | <b>GF195336.5787</b> |                                 |  |
| <b>GF195956.9684</b>            | <b>GF195356.9684</b> |                                 |  |

Weitere Ausführungen auf Anfrage  
Further designs upon request

**Anwendungshinweis:** Es wird ein NC-Programm für schneckenförmiges Wendelnutfräsen benötigt, da sonst ein Absatz im gefrästen Gewinde entsteht  
**Application recommendation:** You must have an NC programme for spiral-worm keyway milling, otherwise the finished thread will have a stepped profile

Product Finder

$v_c / f_z$

M

MF

UNC UN, UNS

UNF UNEF

G, Rp

NPT, NPTF Rc, W

BSW, BSF

Pg

MJ UNJC, UNJF

EG (STI)

SELF-LOCK

Tr

Zubehör Accessories

BGF

ZBGF

GSF

GF

GF-VZ

GF-KEG

ZGF

ZIRK-GF

Gigant

MoSys

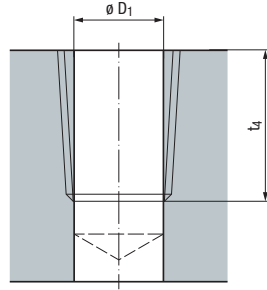
- Product Finder
- $v_c / f_z$
- M
- MF
- UNC  
UN, UNS
- UNF  
UNEF
- G, Rp
- NPT, NPTF  
Rc, W
- BSW, BSF
- Pg
- MJ  
UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr
- Zubehör  
Accessories
- BGF
- ZBGF
- GSF
- GF
- GF-VZ
- GF-KEG
- ZGF
- ZIRK-GF
- Gigant
- MoSys

# Rc (BSPT)

DIN EN 10226-2, ISO 7-1



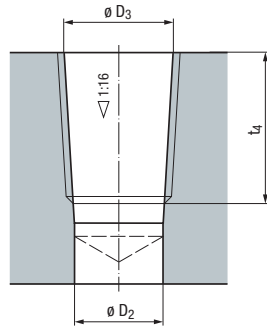
a) Zylindrisch vorarbeiten  
Cylindrical preparation of thread hole



EMUGE Rc-Gewidefräser sind für die Lochformen a) und b) geeignet.  
EMUGE Rc thread milling cutters are suited for the hole forms a) and b).

| Nenngröße<br>Nom. size<br>$\varnothing d_1$ | P<br>Gg/1" (tpi) | $\varnothing D_1$ | $t_4$ |
|---|------------------|-------------------|-------|
| 1/16  | 28               | 6,15              | 7,85  |
| 1/8   | 28               | 8,15              | 7,85  |
| 1/4   | 19               | 10,85             | 11,65 |
| 3/8   | 19               | 14,3              | 12,05 |
| 1/2   | 14               | 17,8              | 15,9  |
| 3/4   | 14               | 23,2              | 16,75 |
| 1"  | 11               | 29,2              | 19,65 |
| 1 1/4                                       | 11               | 37,8              | 21,95 |
| 1 1/2                                       | 11               | 43,7              | 21,95 |
| 2"  | 11               | 55,2              | 26,25 |

b) Kegelig vorarbeiten  
Tapered preparation of thread hole

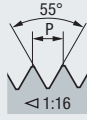


| Nenngröße<br>Nom. size<br>$\varnothing d_1$ | P<br>Gg/1" (tpi) | $\varnothing D_2$ | $\varnothing D_3$<br>(JS11) | $t_4$ |
|---|------------------|-------------------|-----------------------------|-------|
| 1/16  | 28               | 6,1               | 6,56                        | 7,85  |
| 1/8   | 28               | 8,1               | 8,57                        | 7,85  |
| 1/4   | 19               | 10,75             | 11,45                       | 11,65 |
| 3/8   | 19               | 14,25             | 14,95                       | 12,05 |
| 1/2   | 14               | 17,7              | 18,63                       | 15,9  |
| 3/4   | 14               | 23,1              | 24,12                       | 16,75 |
| 1"  | 11               | 29,1              | 30,29                       | 19,65 |
| 1 1/4                                       | 11               | 37,6              | 38,95                       | 21,95 |
| 1 1/2                                       | 11               | 43,5              | 44,85                       | 21,95 |
| 2"  | 11               | 55                | 56,66                       | 26,25 |



# Rc (BSPT)

DIN EN 10226-2, ISO 7-1



**VHM Carbide**

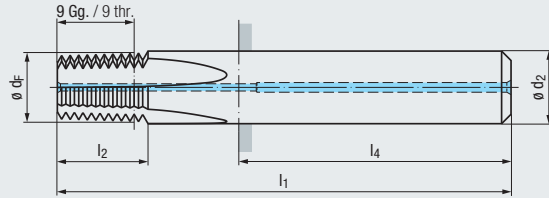
**RH + LH**

**Z3 - Z5**

**DIN 6535**



Für kegeliges Innengewinde  
For internal tapered threads



Einsatzgebiete – Material  
Applications – material



| Nenngröße<br>Nom. size |             | P | $\varnothing d_f$<br>mm | $\varnothing d_2$ | $l_1$ | $l_2$ | $l_4$ | Z<br>(Flutes) |
|------------------------|-------------|---|-------------------------|-------------------|-------|-------|-------|---------------|
| $\varnothing d_1$      | Gg/1" (tpi) |   |                         |                   |       |       |       |               |
| 1/8                    | 28          |   | 7,65                    | 8                 | 55    | 8,6   | 36    | 3             |
| 1/4                    | 19          |   | 10,15                   | 12                | 75    | 14    | 45    | 4             |
| 3/8                    | 19          |   | 11,15                   | 12                | 75    | 13,9  | 45    | 4             |
| 1/2 - 3/4              | 14          |   | 14,25                   | 16                | 80    | 19,1  | 48    | 4             |
| 1" - 1 1/2             | 11          |   | 19,6                    | 20                | 90    | 24,3  | 50    | 5             |

**P** 1.1-5.1 **K** 1.1-4.2 **N** 1.1-1.5, 2.1-2.6  
**N** 3.1-4.2 **N** 5.1-5.2 **S** 1.1-1.3

| GF-KEG<br>IKZ-HA | GF-KEG<br>IKZ-HB |
|------------------|------------------|
| GF173701.4115    | GF173101.4115    |
| GF173711.4116    | GF173111.4116    |
| GF173711.4117    | GF173111.4117    |
| GF173731.9561    | GF173131.9561    |
| GF173751.9562    | GF173151.9562    |

Einsatzgebiete – Material  
Applications – material



| Nenngröße<br>Nom. size |             | P | $\varnothing d_f$<br>mm | $\varnothing d_2$ | $l_1$ | $l_2$ | $l_4$ | Z<br>(Flutes) |
|------------------------|-------------|---|-------------------------|-------------------|-------|-------|-------|---------------|
| $\varnothing d_1$      | Gg/1" (tpi) |   |                         |                   |       |       |       |               |
| 1/8                    | 28          |   | 7,65                    | 8                 | 55    | 8,6   | 36    | 3             |
| 1/4                    | 19          |   | 10,15                   | 12                | 75    | 14    | 45    | 4             |
| 3/8                    | 19          |   | 11,15                   | 12                | 75    | 13,9  | 45    | 4             |
| 1/2 - 3/4              | 14          |   | 14,25                   | 16                | 80    | 19,1  | 48    | 4             |
| 1" - 1 1/2             | 11          |   | 19,6                    | 20                | 90    | 24,3  | 50    | 5             |

**P** 1.1-5.1 **M** 1.1-4.1 **K** 1.1-4.2  
**N** 1.1-5.3 **S** 1.1-2.6 **H** 1.1-1.2

| GF-KEG<br>IKZ-HA<br>TICN | GF-KEG<br>IKZ-HB<br>TICN |
|--------------------------|--------------------------|
| GF173706.4115            | GF173106.4115            |
| GF173716.4116            | GF173116.4116            |
| GF173716.4117            | GF173116.4117            |
| GF173736.9561            | GF173136.9561            |
| GF173756.9562            | GF173156.9562            |

Weitere Ausführungen auf Anfrage  
Further designs upon request

**Anwendungshinweis:** Es wird ein NC-Programm für schneckenförmiges Wendelnutfräsen benötigt, da sonst ein Absatz im gefrästen Gewinde entsteht  
**Application recommendation:** You must have an NC programme for spiral-worm keyway milling, otherwise the finished thread will have a stepped profile



Schneideisen für kegelige  
Außengewinde siehe Seite 533 - 535

Dies for external tapered threads,  
see page 533 - 535

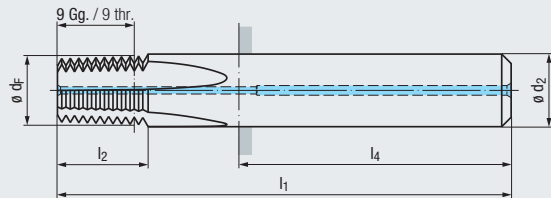
- Product Finder
- $v_c / f_z$
- M
- MF
- UNC  
UN, UNS
- UNF  
UNEF
- G, Rp
- NPT, NPTF  
Rc, W
- BSW, BSF
- Pg
- MJ  
UNJC, UNJF

## Rc (BSPT)

DIN EN 10226-2, ISO 7-1



Für kegeliges Innengewinde  
For internal tapered threads



VHM  
Carbide

RH + LH

Z3 - Z5



DIN 6535



### GF-KEG



Einsatzgebiete – Material  
Applications – material



P 1.1-5.1 K 1.1-4.2 N 1.1-1.5, 2.1-2.6  
N 3.1-4.2 N 5.1-5.2 S 1.1-1.3

Nenngröße

| Nom. size         | P           | $\varnothing d_f$ | $\varnothing d_2$ | $l_1$ | $l_2$ | $l_4$ | Z        |
|-------------------|-------------|-------------------|-------------------|-------|-------|-------|----------|
| $\varnothing d_1$ | Gg/1" (tpi) | mm                | mm                | mm    | mm    | mm    | (Flutes) |
| 1/8               | 28          | 7,65              | 8                 | 55    | 8,6   | 36    | 3        |
| 1/4               | 19          | 10,15             | 12                | 75    | 14    | 45    | 4        |
| 3/8               | 19          | 11,15             | 12                | 75    | 13,9  | 45    | 4        |
| 1/2 - 3/4         | 14          | 14,25             | 16                | 80    | 19,1  | 48    | 4        |
| 1" - 1 1/2        | 11          | 19,6              | 20                | 90    | 24,3  | 50    | 5        |

GF-KEG  
IKZN-HA

GF-KEG  
IKZN-HB

|               |               |
|---------------|---------------|
| GF193701.4115 | GF193101.4115 |
| GF193711.4116 | GF193111.4116 |
| GF193711.4117 | GF193111.4117 |
| GF193731.9561 | GF193131.9561 |
| GF193751.9562 | GF193151.9562 |

- BGF
- ZBGF
- GSF
- GF
- GF-VZ
- GF-KEG

TICN



Einsatzgebiete – Material  
Applications – material



P 1.1-5.1 M 1.1-4.1 K 1.1-4.2  
N 1.1-5.3 S 1.1-2.6 H 1.1-1.2

Nenngröße

| Nom. size         | P           | $\varnothing d_f$ | $\varnothing d_2$ | $l_1$ | $l_2$ | $l_4$ | Z        |
|-------------------|-------------|-------------------|-------------------|-------|-------|-------|----------|
| $\varnothing d_1$ | Gg/1" (tpi) | mm                | mm                | mm    | mm    | mm    | (Flutes) |
| 1/8               | 28          | 7,65              | 8                 | 55    | 8,6   | 36    | 3        |
| 1/4               | 19          | 10,15             | 12                | 75    | 14    | 45    | 4        |
| 3/8               | 19          | 11,15             | 12                | 75    | 13,9  | 45    | 4        |
| 1/2 - 3/4         | 14          | 14,25             | 16                | 80    | 19,1  | 48    | 4        |
| 1" - 1 1/2        | 11          | 19,6              | 20                | 90    | 24,3  | 50    | 5        |

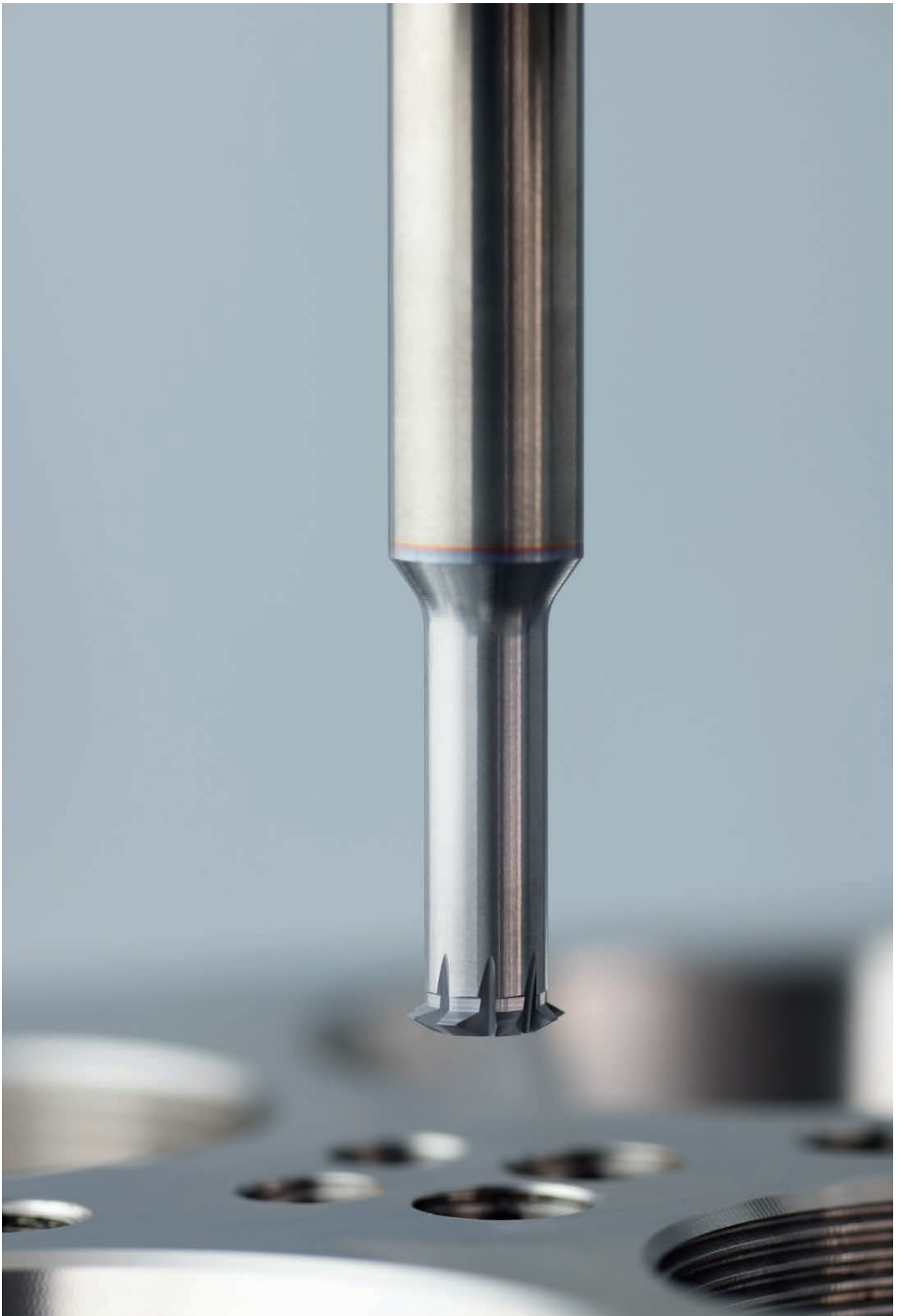
GF-KEG  
IKZN-HA  
TICN

GF-KEG  
IKZN-HB  
TICN

|               |               |
|---------------|---------------|
| GF193706.4115 | GF193106.4115 |
| GF193716.4116 | GF193116.4116 |
| GF193716.4117 | GF193116.4117 |
| GF193736.9561 | GF193136.9561 |
| GF193756.9562 | GF193156.9562 |

Weitere Ausführungen auf Anfrage  
Further designs upon request

**Anwendungshinweis:** Es wird ein NC-Programm für schneckenförmiges Wendelutfräsen benötigt, da sonst ein Absatz im gefrästen Gewinde entsteht  
**Application recommendation:** You must have an NC programme for spiral-worm keyway milling, otherwise the finished thread will have a stepped profile



Product  
Finder

$v_c / f_z$

M

MF

UNC  
UN, UNS

UNF  
UNEF

G, Rp

NPT, NPTF  
Rc, W

BSW, BSF

Pg

MJ  
UNJC, UNJF

EG (STI)

SELF-LOCK

Tr

Zubehör  
Accessories

BGF

ZBGF

GSF

GF

GF-VZ

GF-KEG

**ZGF**

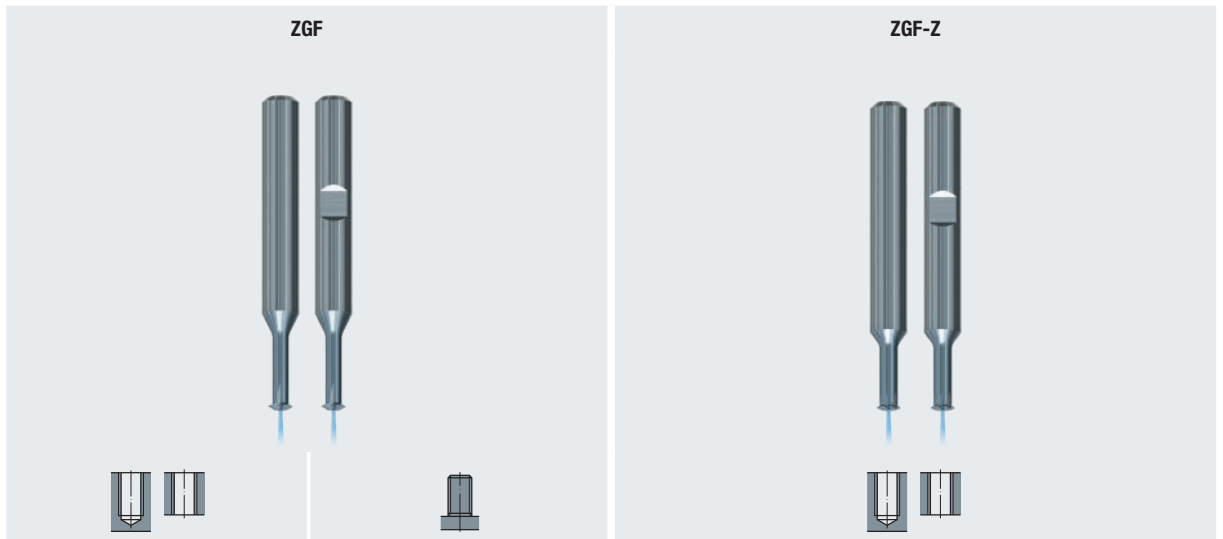
ZIRK-GF

Gigant

MoSys



|                        |
|------------------------|
| Product Finder         |
| $v_c / f_z$            |
| M                      |
| MF                     |
| UNC<br>UN, UNS         |
| UNF<br>UNEF            |
| G, Rp                  |
| NPT, NPTF<br>Rc, W     |
| BSW, BSF               |
| Pg                     |
| MJ<br>UNJC, UNJF       |
| EG (STI)               |
| SELF-LOCK              |
| Tr                     |
| Zubehör<br>Accessories |

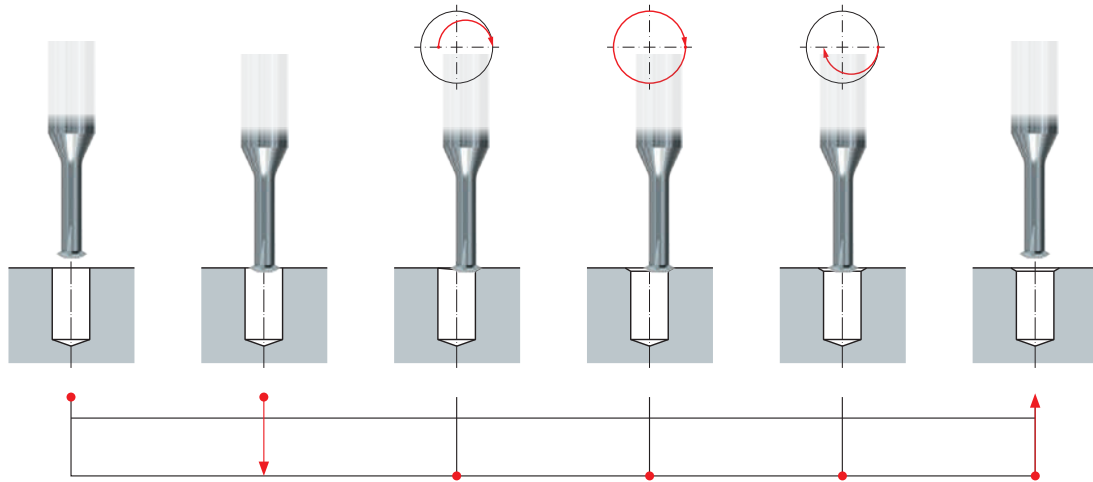


Seite · Page

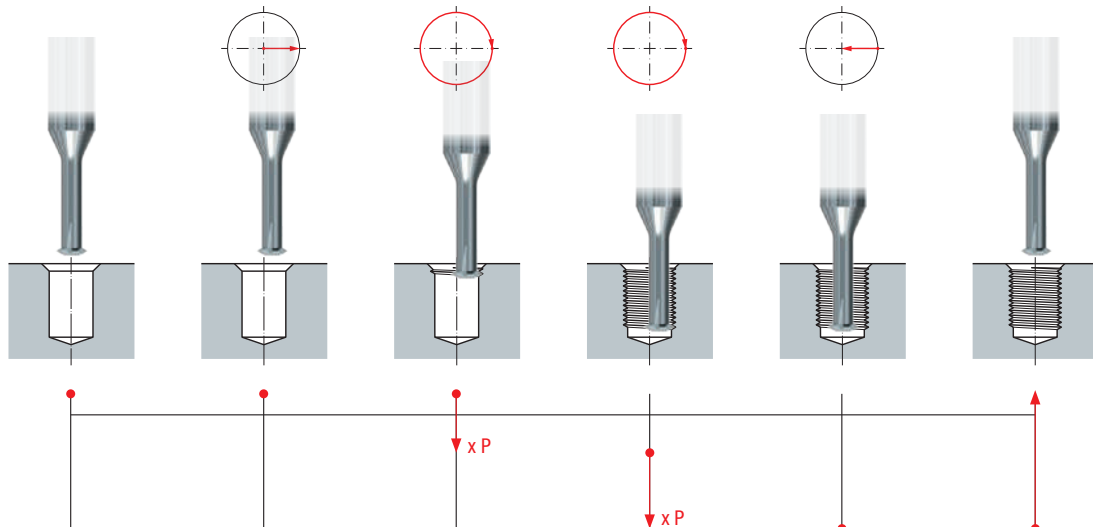
|                |           |     |     |
|----------------|-----------|-----|-----|
| <b>M</b>       | 466 - 468 |     | 469 |
| <b>MF</b>      | 466 - 468 |     | 469 |
| <b>UNC</b>     | 470 - 471 |     |     |
| <b>UNF</b>     | 470 - 471 |     |     |
| <b>G (BSP)</b> | 472       | 472 |     |

|            |
|------------|
| BGF        |
| ZBGF       |
| GSF        |
| GF         |
| GF-VZ      |
| GF-KEG     |
| <b>ZGF</b> |
| ZIRK-GF    |
| Gigant     |
| MoSys      |

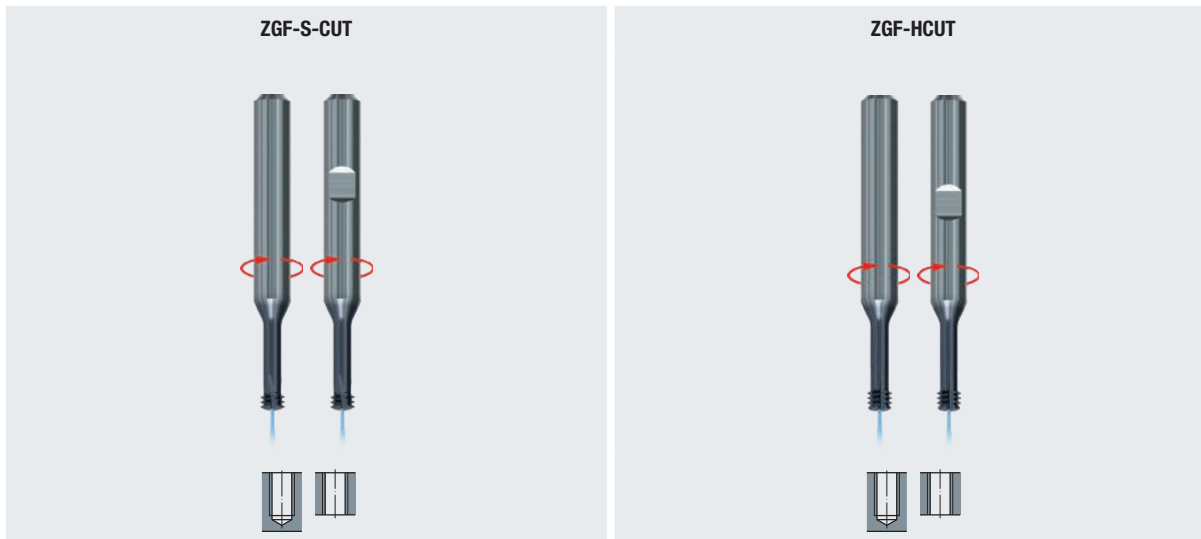
### Zirkulares Anfasen · Circular chamfering



### Gewindefräszyklus · Thread milling cycle







Seite · Page

|           |           |                |
|-----------|-----------|----------------|
| 473       | 476       | <b>M</b>       |
| 473       | 476       | <b>MF</b>      |
| 474       | 477       | <b>UNC</b>     |
| 474 - 475 | 477 - 478 | <b>UNF</b>     |
|           |           | <b>G (BSP)</b> |

Product Finder

$v_c / f_z$

M

MF

UNC  
UN, UNS

UNF  
UNEF

G, Rp

NPT, NPTF  
Rc, W

BSW, BSF

Pg

MJ  
UNJC, UNJF

EG (STI)

SELF-LOCK

Tr

Zubehör  
Accessories

BGF

ZBGF

GSF

GF

GF-VZ

GF-KEG

**ZGF**

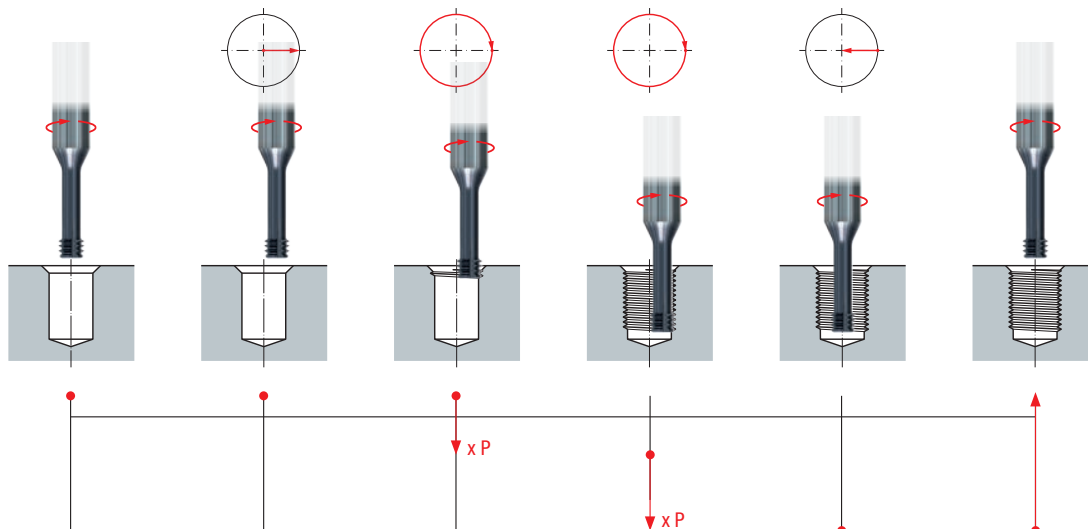
ZIRK-GF

Gigant

MoSys



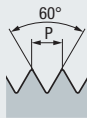
Gewindefräszyklus · Thread milling cycle



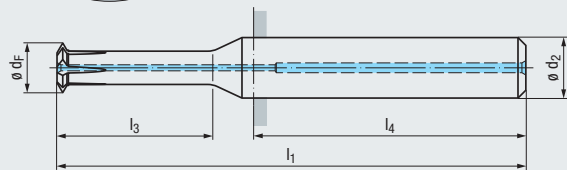
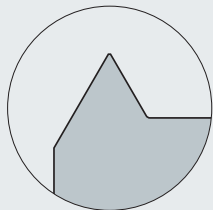
- Product Finder
- $v_c / f_z$
- M
- MF
- UNC  
UN, UNS
- UNF  
UNEF
- G, Rp
- NPT, NPTF  
Rc, W
- BSW, BSF
- Pg
- MJ  
UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr
- Zubehör  
Accessories

## M, MF

DIN 13



Für Innengewinde  
For internal threads



VHM  
Carbide

RH + LH

Z3 - Z5

DIN 6535



Zum Anfasen geeignet  
Suitable for chamfering



ZGF



Einsatzgebiete – Material  
Applications – material [» 358](#)

|   |         |   |         |   |                  |
|---|---------|---|---------|---|------------------|
| P | 1.1-5.1 | K | 1.1-4.2 | N | 1.1-1.5, 2.1-2.6 |
| N | 3.1-4.2 | N | 5.1-5.2 | S | 1.1-1.3          |

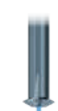
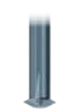
Gewindetiefe  
Thread depth

2 x  $d_1$

|       | $\varnothing d_1$<br>mm | P<br>mm     | $\varnothing d_f$<br>mm | $\varnothing d_2$ | $l_1$ | $l_3$ | $l_4$ | Z<br>(Flutes) | ZGF<br>2xd <sub>1</sub><br>HA | ZGF<br>2xd <sub>1</sub><br>IKZ-HA | ZGF<br>2xd <sub>1</sub><br>IKZ-HB |
|-------|-------------------------|-------------|-------------------------|-------------------|-------|-------|-------|---------------|-------------------------------|-----------------------------------|-----------------------------------|
| ZBGF  | ≥ M 1                   | 0,1 - 0,25  | 0,7                     | 3                 | 39    | 3,3   | 28    | 3             | GF253701.0010                 |                                   |                                   |
|       | ≥ M 1,4                 | 0,12 - 0,35 | 1,04                    | 3                 | 39    | 3,7   | 28    | 3             | GF253701.0014                 |                                   |                                   |
| GSF   | ≥ M 2                   | 0,15 - 0,45 | 1,52                    | 3                 | 39    | 5     | 28    | 3             | GF253701.0020                 |                                   |                                   |
|       | ≥ M 2,5                 | 0,17 - 0,5  | 1,95                    | 3                 | 39    | 6,3   | 28    | 3             | GF253701.0025                 |                                   |                                   |
| GF    | ≥ M 3,5                 | 0,22 - 0,75 | 2,78                    | 4                 | 42    | 9,4   | 28    | 3             | GF253701.0035                 |                                   |                                   |
|       | ≥ M 5                   | 0,3 - 1     | 4                       | 6                 | 55    | 14,5  | 36    | 4             | GF253701.0050                 |                                   |                                   |
| GF-VZ | ≥ M 8                   | 0,43 - 1,5  | 6,5                     | 8                 | 62    | 20,6  | 36    | 5             |                               | GF253701.0080                     | GF253101.0080                     |
|       | ≥ M12                   | 0,6 - 2     | 9,9                     | 10                | 78    | 32,8  | 40    | 5             |                               | GF253701.0112                     | GF253101.0112                     |

- BGF
- ZBGF
- GSF
- GF
- GF-VZ
- GF-KEG
- ZGF
- ZIRK-GF
- Gigant
- MoSys

TICN



Einsatzgebiete – Material  
Applications – material [» 358](#)

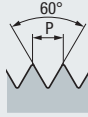
|   |         |   |         |   |         |
|---|---------|---|---------|---|---------|
| P | 1.1-5.1 | M | 1.1-4.1 | K | 1.1-4.2 |
| N | 1.1-5.3 | S | 1.1-2.6 | H | 1.1-1.2 |

|  | $\varnothing d_1$<br>mm | P<br>mm     | $\varnothing d_f$<br>mm | $\varnothing d_2$ | $l_1$ | $l_3$ | $l_4$ | Z<br>(Flutes) | ZGF<br>2xd <sub>1</sub><br>HA<br>TICN | ZGF<br>2xd <sub>1</sub><br>IKZ-HA<br>TICN | ZGF<br>2xd <sub>1</sub><br>IKZ-HB<br>TICN |
|--|-------------------------|-------------|-------------------------|-------------------|-------|-------|-------|---------------|---------------------------------------|---|---|
|  | ≥ M 1                   | 0,1 - 0,25  | 0,7                     | 3                 | 39    | 3,3   | 28    | 3             | GF253706.0010                         |   |   |
|  | ≥ M 1,4                 | 0,12 - 0,35 | 1,04                    | 3                 | 39    | 3,7   | 28    | 3             | GF253706.0014                         |   |   |
|  | ≥ M 2                   | 0,15 - 0,45 | 1,52                    | 3                 | 39    | 5     | 28    | 3             | GF253706.0020                         |   |   |
|  | ≥ M 2,5                 | 0,17 - 0,5  | 1,95                    | 3                 | 39    | 6,3   | 28    | 3             | GF253706.0025                         |   |   |
|  | ≥ M 3,5                 | 0,22 - 0,75 | 2,78                    | 4                 | 42    | 9,4   | 28    | 3             | GF253706.0035                         |   |   |
|  | ≥ M 5                   | 0,3 - 1     | 4                       | 6                 | 55    | 14,5  | 36    | 4             | GF253706.0050                         |   |   |
|  | ≥ M 8                   | 0,43 - 1,5  | 6,5                     | 8                 | 62    | 20,6  | 36    | 5             |                                       | GF253706.0080                             | GF253106.0080                             |
|  | ≥ M12                   | 0,6 - 2     | 9,9                     | 10                | 78    | 32,8  | 40    | 5             |                                       | GF253706.0112                             | GF253106.0112                             |

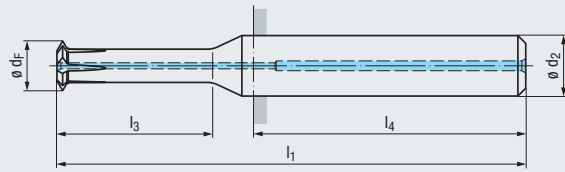
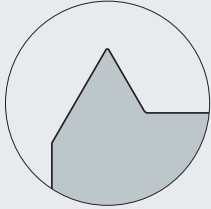
Weitere Ausführungen auf Anfrage  
Further designs upon request

# M, MF

DIN 13



Für Innengewinde  
For internal threads



**VHM**  
Carbide

**RH + LH**

**Z3 - Z5**

**DIN 6535**



Zum Anfasen geeignet  
Suitable for chamfering






Einsatzgebiete – Material  
Applications – material



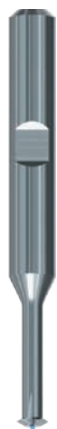
» 358

Gewindetiefe  
Thread depth

| $\varnothing d_1$<br>mm | P<br>mm     | $\varnothing d_f$<br>mm | $\varnothing d_2$ | $l_1$ | $l_3$ | $l_4$ | Z<br>(Flutes) |
|-------------------------|-------------|-------------------------|-------------------|-------|-------|-------|---------------|
| ≥ M 1                   | 0,1 - 0,25  | 0,7                     | 3                 | 39    | 3,3   | 28    | 3             |
| ≥ M 1,6                 | 0,14 - 0,35 | 1,18                    | 3                 | 39    | 5,2   | 28    | 3             |
| ≥ M 2                   | 0,15 - 0,4  | 1,52                    | 3                 | 39    | 6,4   | 28    | 3             |
| ≥ M 2,5                 | 0,17 - 0,45 | 1,96                    | 3                 | 39    | 8     | 28    | 3             |
| ≥ M 3                   | 0,18 - 0,5  | 2,4                     | 3                 | 41    | 9,5   | 28    | 3             |
| ≥ M 4                   | 0,26 - 0,7  | 3,15                    | 4                 | 44    | 12,7  | 28    | 3             |
| ≥ M 5                   | 0,28 - 0,8  | 4,04                    | 6                 | 56    | 15,8  | 36    | 4             |
| ≥ M 6                   | 0,35 - 1    | 4,8                     | 6                 | 59    | 19    | 36    | 4             |
| ≥ M 8                   | 0,43 - 1,25 | 6,5                     | 8                 | 65    | 25,3  | 36    | 5             |
| ≥ M10                   | 0,51 - 1,5  | 8,2                     | 10                | 77    | 31,5  | 40    | 5             |
| ≥ M12                   | 0,6 - 1,75  | 9,9                     | 10                | 82    | 37,8  | 40    | 5             |
| ≥ M14                   | 0,68 - 2    | 11,6                    | 12                | 94    | 44    | 45    | 5             |
| ≥ M16                   | 0,68 - 2    | 13,6                    | 14                | 100   | 50    | 45    | 5             |

**ZGF**

|                  |                  |                           |
|------------------|------------------|---------------------------|
| <b>P</b> 1.1-5.1 | <b>K</b> 1.1-4.2 | <b>N</b> 1.1-1.5, 2.1-2.6 |
| <b>N</b> 3.1-4.2 | <b>N</b> 5.1-5.2 | <b>S</b> 1.1-1.3          |

**3 x d<sub>1</sub>**




| ZGF<br>3xd <sub>1</sub><br>HA | ZGF<br>3xd <sub>1</sub><br>IKZ-HA | ZGF<br>3xd <sub>1</sub><br>IKZ-HB |
|-------------------------------|-----------------------------------|-----------------------------------|
| GF273701.0010                 |                                   |                                   |
| GF273701.0016                 |                                   |                                   |
| GF273701.0020                 |                                   |                                   |
| GF273701.0025                 |                                   |                                   |
| GF273701.0030                 |                                   |                                   |
| GF273701.0040                 |                                   |                                   |
| GF273701.0050                 |                                   |                                   |
| GF273701.0060                 |                                   |                                   |
|                               | GF273701.0080                     | GF273101.0080                     |
|                               | GF273701.0100                     | GF273101.0100                     |
|                               | GF273701.0112                     | GF273101.0112                     |
|                               | GF273701.0114                     | GF273101.0114                     |
|                               | GF273701.0116                     | GF273101.0116                     |




Einsatzgebiete – Material  
Applications – material

» 358

| $\varnothing d_1$<br>mm | P<br>mm     | $\varnothing d_f$<br>mm | $\varnothing d_2$ | $l_1$ | $l_3$ | $l_4$ | Z<br>(Flutes) |
|-------------------------|-------------|-------------------------|-------------------|-------|-------|-------|---------------|
| ≥ M 1                   | 0,1 - 0,25  | 0,7                     | 3                 | 39    | 3,3   | 28    | 3             |
| ≥ M 1,6                 | 0,14 - 0,35 | 1,18                    | 3                 | 39    | 5,2   | 28    | 3             |
| ≥ M 2                   | 0,15 - 0,4  | 1,52                    | 3                 | 39    | 6,4   | 28    | 3             |
| ≥ M 2,5                 | 0,17 - 0,45 | 1,96                    | 3                 | 39    | 8     | 28    | 3             |
| ≥ M 3                   | 0,18 - 0,5  | 2,4                     | 3                 | 41    | 9,5   | 28    | 3             |
| ≥ M 4                   | 0,26 - 0,7  | 3,15                    | 4                 | 44    | 12,7  | 28    | 3             |
| ≥ M 5                   | 0,28 - 0,8  | 4,04                    | 6                 | 56    | 15,8  | 36    | 4             |
| ≥ M 6                   | 0,35 - 1    | 4,8                     | 6                 | 59    | 19    | 36    | 4             |
| ≥ M 8                   | 0,43 - 1,25 | 6,5                     | 8                 | 65    | 25,3  | 36    | 5             |
| ≥ M10                   | 0,51 - 1,5  | 8,2                     | 10                | 77    | 31,5  | 40    | 5             |
| ≥ M12                   | 0,6 - 1,75  | 9,9                     | 10                | 82    | 37,8  | 40    | 5             |
| ≥ M14                   | 0,68 - 2    | 11,6                    | 12                | 94    | 44    | 45    | 5             |
| ≥ M16                   | 0,68 - 2    | 13,6                    | 14                | 100   | 50    | 45    | 5             |

**TICN**

|                  |                  |                  |
|------------------|------------------|------------------|
| <b>P</b> 1.1-5.1 | <b>M</b> 1.1-4.1 | <b>K</b> 1.1-4.2 |
| <b>N</b> 1.1-5.3 | <b>S</b> 1.1-2.6 | <b>H</b> 1.1-1.2 |

| ZGF<br>3xd <sub>1</sub><br>HA<br>TICN | ZGF<br>3xd <sub>1</sub><br>IKZ-HA<br>TICN | ZGF<br>3xd <sub>1</sub><br>IKZ-HB<br>TICN |
|---------------------------------------|---|---|
| GF273706.0010                         |   |   |
| GF273706.0016                         |   |   |
| GF273706.0020                         |   |   |
| GF273706.0025                         |   |   |
| GF273706.0030                         |   |   |
| GF273706.0040                         |   |   |
| GF273706.0050                         |   |   |
| GF273706.0060                         |   |   |
|                                       | GF273706.0080                             | GF273106.0080                             |
|                                       | GF273706.0100                             | GF273106.0100                             |
|                                       | GF273706.0112                             | GF273106.0112                             |
|                                       | GF273706.0114                             | GF273106.0114                             |
|                                       | GF273706.0116                             | GF273106.0116                             |

Weitere Ausführungen auf Anfrage  
Further designs upon request

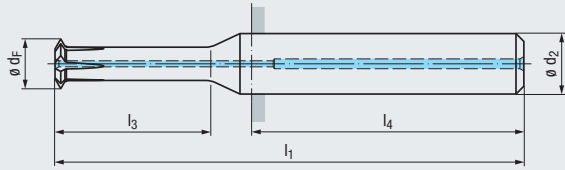
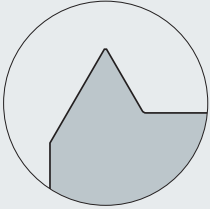
- Product Finder
- $v_c / f_z$
- M
- MF
- UNC  
UN, UNS
- UNF  
UNEF
- G, Rp
- NPT, NPTF  
Rc, W
- BSW, BSF
- Pg
- MJ  
UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr
- Zubehör  
Accessories

# M, MF

DIN 13



Für Innengewinde  
For internal threads



VHM  
Carbide

TICN

RH + LH

Z2 - Z5



DIN 6535



Zum Anfasen geeignet  
Suitable for chamfering



ZGF



new



new



new



Einsatzgebiete – Material  
Applications – material

» 358

|   |         |   |         |   |         |
|---|---------|---|---------|---|---------|
| P | 1.1-5.1 | M | 1.1-4.1 | K | 1.1-4.2 |
| N | 1.1-5.3 | S | 1.1-2.6 | H | 1.1-1.2 |

Gewindetiefe  
Thread depth

4 x  $d_1$

| BGF    | $\varnothing d_1$<br>mm | P<br>mm     | $\varnothing d_f$<br>mm | $\varnothing d_2$ | $l_1$ | $l_3$ | $l_4$ | Z<br>(Flutes) | ZGF<br>4xd <sub>1</sub><br>HA<br>TICN | ZGF<br>4xd <sub>1</sub><br>IKZ-HA<br>TICN | ZGF<br>4xd <sub>1</sub><br>IKZ-HB<br>TICN |
|--------|-------------------------|-------------|-------------------------|-------------------|-------|-------|-------|---------------|---------------------------------------|---|---|
|        |                         |             |                         |                   |       |       |       |               | ZBGF                                  | ≥ M 1,6                                   | 0,14 - 0,35                               |
|        | ≥ M 2                   | 0,15 - 0,4  | 1,52                    | 3                 | 39    | 8,4   | 28    | 3             | GF2A3706.0020                         |   |   |
| GSF    | ≥ M 2,5                 | 0,17 - 0,45 | 1,96                    | 3                 | 40    | 10,5  | 28    | 3             | GF2A3706.0025                         |   |   |
|        | ≥ M 3                   | 0,18 - 0,5  | 2,4                     | 3                 | 42    | 12,5  | 28    | 3             | GF2A3706.0030                         |   |   |
| GF     | ≥ M 4                   | 0,26 - 0,7  | 3,15                    | 4                 | 46    | 16,7  | 28    | 3             | GF2A3706.0040                         |   |   |
|        | ≥ M 5                   | 0,28 - 0,8  | 4,04                    | 6                 | 59    | 20,8  | 36    | 4             | GF2A3706.0050                         |   |   |
| GF-VZ  | ≥ M 6                   | 0,35 - 1    | 4,8                     | 6                 | 63    | 25    | 36    | 4             | GF2A3706.0060                         |   |   |
|        | ≥ M 8                   | 0,43 - 1,25 | 6,5                     | 8                 | 72    | 33,3  | 36    | 5             |                                       | GF2A3706.0080                             | GF2A3106.0080                             |
| GF-KEG | ≥ M10                   | 0,51 - 1,5  | 8,2                     | 10                | 84    | 41,5  | 40    | 5             |                                       | GF2A3706.0100                             | GF2A3106.0100                             |
|        | ≥ M12                   | 0,6 - 1,75  | 9,9                     | 10                | 92    | 49,8  | 40    | 5             |                                       | GF2A3706.0112                             | GF2A3106.0112                             |
| ZGF    | ≥ M14                   | 0,68 - 2    | 11,6                    | 12                | 105   | 58    | 45    | 5             |                                       | GF2A3706.0114                             | GF2A3106.0114                             |
|        | ≥ M16                   | 0,68 - 2    | 13,6                    | 14                | 113   | 66    | 45    | 5             |                                       | GF2A3706.0116                             | GF2A3106.0116                             |

Weitere Ausführungen auf Anfrage  
Further designs upon request



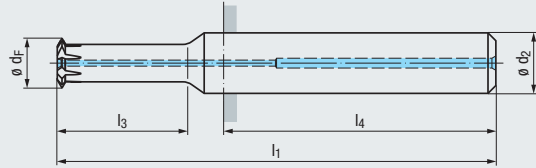
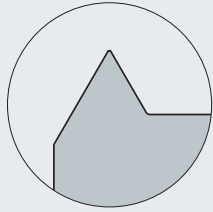
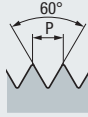
Gewindelehren  
siehe Seite 541 - 594

Thread gauges,  
see page 541 - 594

# M, MF

DIN 13

Für Innengewinde  
For internal threads



VHM  
Carbide

TICN

RH + LH

Z5 - Z8

DIN 6535



Zum Anfasen geeignet  
Suitable for chamfering



## ZGF-Z



Product  
Finder

$v_c / f_z$

M

MF

UNC  
UN, UNS

UNF  
UNEF

G, Rp

NPT, NPTF  
Rc, W

BSW, BSF

Pg

MJ  
UNJC, UNJF

EG (STI)

SELF-LOCK

Tr

Zubehör  
Accessories

BGF

ZBGF

GSF

GF

GF-VZ

GF-KEG

ZGF

ZIRK-GF

Gigant

MoSys

Einsatzgebiete – Material  
Applications – material

» 358

P 1.1-5.1 M 1.1-4.1 K 1.1-4.2  
N 1.1-5.3 S 1.1-2.6 H 1.1-1.2

Gewindetiefe  
Thread depth

2 x  $d_1$

| $\varnothing d_1$<br>mm | P<br>mm     | $\varnothing d_f$<br>mm | $\varnothing d_2$ | $l_1$ | $l_3$ | $l_4$ | Z<br>(Flutes) | ZGF-Z<br>2xd <sub>1</sub><br>HA<br>TICN | ZGF-Z<br>2xd <sub>1</sub><br>IKZ-HA<br>TICN | ZGF-Z<br>2xd <sub>1</sub><br>IKZ-HB<br>TICN |
|-------------------------|-------------|-------------------------|-------------------|-------|-------|-------|---------------|---|---|---|
| ≥ M 1,6                 | 0,14 - 0,35 | 1,18                    | 3                 | 39    | 3,6   | 28    | 5             | GF293746.0016                           |   |   |
| ≥ M 2                   | 0,15 - 0,4  | 1,52                    | 3                 | 39    | 4,4   | 28    | 6             | GF293746.0020                           |   |   |
| ≥ M 2,5                 | 0,17 - 0,45 | 1,96                    | 3                 | 39    | 5,5   | 28    | 6             | GF293746.0025                           |   |   |
| ≥ M 3                   | 0,18 - 0,5  | 2,4                     | 3                 | 39    | 6,5   | 28    | 6             | GF293746.0030                           |   |   |
| ≥ M 4                   | 0,26 - 0,7  | 3,15                    | 4                 | 41    | 8,7   | 28    | 6             | GF293746.0040                           |   |   |
| ≥ M 5                   | 0,28 - 0,8  | 4,04                    | 6                 | 51    | 10,8  | 36    | 7             | GF293746.0050                           |   |   |
| ≥ M 6                   | 0,36 - 1    | 4,8                     | 6                 | 53    | 13    | 36    | 7             | GF293746.0060                           |   |   |
| ≥ M 8                   | 0,44 - 1,25 | 6,5                     | 8                 | 58    | 17,3  | 36    | 7             |   | GF293746.0080                               | GF293146.0080                               |
| ≥ M10                   | 0,52 - 1,5  | 8,2                     | 10                | 67    | 21,5  | 40    | 8             |   | GF293746.0100                               | GF293146.0100                               |
| ≥ M12                   | 0,6 - 1,75  | 9,9                     | 10                | 70    | 25,8  | 40    | 8             |   | GF293746.0112                               | GF293146.0112                               |

Weitere Ausführungen auf Anfrage  
Further designs upon request

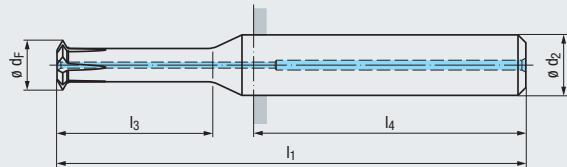
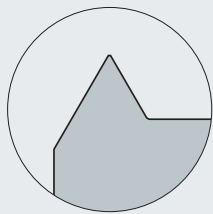
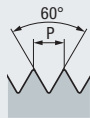


- Product Finder
- $v_c / f_z$
- M
- MF
- UNC**  
UN, UNS
- UNF**  
UNEF
- G, Rp
- NPT, NPTF  
Rc, W
- BSW, BSF
- Pg
- MJ  
UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr
- Zubehör  
Accessories
- BGF
- ZBGF
- GSF
- GF
- GF-VZ
- GF-KEG
- ZGF**
- ZIRK-GF
- Gigant
- MoSys

# UNC, UNF

ASME B1.1

Für Innengewinde  
For internal threads



**VHM**  
Carbide

**RH + LH**

**Z3**

**DIN 6535**



**HA**



Zum Anfasen geeignet  
Suitable for chamfering



**ZGF**



Einsatzgebiete – Material  
Applications – material [» 358](#)

**P** 1.1-5.1 **K** 1.1-4.2 **N** 1.1-1.5, 2.1-2.6  
**N** 3.1-4.2 **N** 5.1-5.2 **S** 1.1-1.3

Gewindetiefe  
Thread depth

**2 x d<sub>1</sub>**

| $\varnothing d_1$<br>inch | P<br>Gg/1" (tpi) | $\varnothing d_F$<br>mm | $\varnothing d_2$ | $l_1$ | $l_3$ | $l_4$ | Z<br>(Flutes) | ZGF<br>2xd <sub>1</sub><br>HA |
|---------------------------|------------------|-------------------------|-------------------|-------|-------|-------|---------------|-------------------------------|
| ≥ Nr. 4                   | 80 - 40          | 2,06                    | 3                 | 39    | 6,7   | 28    | 3             | GF253701.5003                 |
| ≥ Nr. 6                   | 80 - 40          | 2,55                    | 3                 | 39    | 7,4   | 28    | 3             | GF253701.5005                 |
| ≥ Nr. 8                   | 80 - 32          | 3,21                    | 4                 | 42    | 8,8   | 28    | 3             | GF253701.5006                 |

**TICN**



Einsatzgebiete – Material  
Applications – material [» 358](#)

**P** 1.1-5.1 **M** 1.1-4.1 **K** 1.1-4.2  
**N** 1.1-5.3 **S** 1.1-2.6 **H** 1.1-1.2

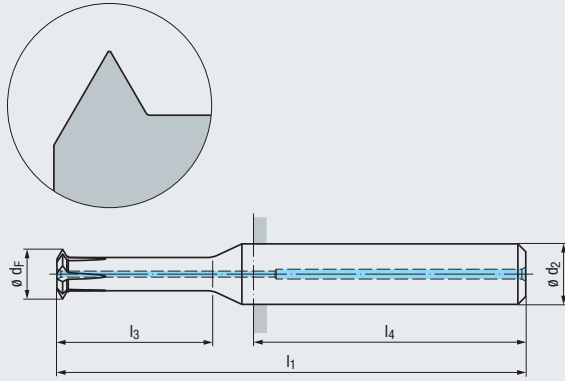
| $\varnothing d_1$<br>inch | P<br>Gg/1" (tpi) | $\varnothing d_F$<br>mm | $\varnothing d_2$ | $l_1$ | $l_3$ | $l_4$ | Z<br>(Flutes) | ZGF<br>2xd <sub>1</sub><br>HA<br>TICN |
|---------------------------|------------------|-------------------------|-------------------|-------|-------|-------|---------------|---------------------------------------|
| ≥ Nr. 4                   | 80 - 40          | 2,06                    | 3                 | 39    | 6,7   | 28    | 3             | GF253706.5003                         |
| ≥ Nr. 6                   | 80 - 40          | 2,55                    | 3                 | 39    | 7,4   | 28    | 3             | GF253706.5005                         |
| ≥ Nr. 8                   | 80 - 32          | 3,21                    | 4                 | 42    | 8,8   | 28    | 3             | GF253706.5006                         |

Weitere Ausführungen auf Anfrage  
Further designs upon request

# UNC, UNF

ASME B1.1

Für Innengewinde  
For internal threads



**VHM Carbide** **TICN**

**RH + LH**

**Z3 - Z6** **DIN 6535**

HA HB

$\varnothing d_1$

Zum Anfasen geeignet  
Suitable for chamfering

**ZGF**

Product Finder

$V_c / f_z$

M

MF

UNC  
UN, UNS

UNF  
UNEF

G, Rp

NPT, NPTF  
Rc, W

BSW, BSF

Pg

MJ  
UNJC, UNJF

EG (STI)

SELF-LOCK

Tr

Zubehör  
Accessories

Einsatzgebiete – Material  
Applications – material [358](#)

**P 1.1-5.1** **M 1.1-4.1** **K 1.1-4.2**  
**N 1.1-5.3** **S 1.1-2.6** **H 1.1-1.2**

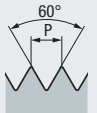
Gewindetiefe  
Thread depth

**3 x d<sub>1</sub>**

| $\varnothing d_1$<br>inch | P<br>Gg/1" (tpi) | $\varnothing d_F$<br>mm | $\varnothing d_2$ | $l_1$ | $l_3$ | $l_4$ | Z<br>(Flutes) | ZGF<br>3xd <sub>1</sub><br>HA<br>TICN | ZGF<br>3xd <sub>1</sub><br>IKZ-HA<br>TICN | ZGF<br>3xd <sub>1</sub><br>IKZ-HB<br>TICN |
|---------------------------|------------------|-------------------------|-------------------|-------|-------|-------|---------------|---------------------------------------|---|---|
| ≥ Nr. 2                   | 80-56            | 1,7                     | 3                 | 39    | 7     | 28    | 3             | GF273706.5001                         |   |   |
| ≥ Nr. 4                   | 80-40            | 2,15                    | 3                 | 40    | 9,2   | 28    | 3             | GF273706.5003                         |   |   |
| ≥ Nr. 6                   | 80-32            | 2,7                     | 3                 | 42    | 11,3  | 28    | 3             | GF273706.5005                         |   |   |
| ≥ Nr. 8                   | 80-32            | 3,21                    | 4                 | 44    | 13,3  | 28    | 3             | GF273706.5006                         |   |   |
| ≥ Nr.10                   | 72-24            | 3,7                     | 4                 | 46    | 15,5  | 28    | 3             | GF273706.5007                         |   |   |
| ≥ 1/4                     | 56-20            | 4,95                    | 6                 | 59    | 20,3  | 36    | 4             | GF273706.5009                         |   |   |
| ≥ 5/16                    | 48-18            | 6,3                     | 8                 | 65    | 25,2  | 36    | 4             |                                       | GF273706.5010                             | GF273106.5010                             |
| ≥ 3/8                     | 48-16            | 7,7                     | 8                 | 68    | 30,2  | 36    | 5             |                                       | GF273706.5011                             | GF273106.5011                             |
| ≥ 7/16                    | 40-14            | 9                       | 10                | 78    | 35,2  | 40    | 5             |                                       | GF273706.5012                             | GF273106.5012                             |
| ≥ 1/2                     | 36-12            | 10,35                   | 12                | 90    | 40,1  | 45    | 5             |                                       | GF273706.5013                             | GF273106.5013                             |

# UNF

ASME B1.1



**ZGF**

Einsatzgebiete – Material  
Applications – material [358](#)

**P 1.1-5.1** **M 1.1-4.1** **K 1.1-4.2**  
**N 1.1-5.3** **S 1.1-2.6** **H 1.1-1.2**

| $\varnothing d_1$<br>inch | P<br>Gg/1" (tpi) | $\varnothing d_F$<br>mm | $\varnothing d_2$ | $l_1$ | $l_3$ | $l_4$ | Z<br>(Flutes) | ZGF<br>3xd <sub>1</sub><br>HA<br>TICN | ZGF<br>3xd <sub>1</sub><br>IKZ-HA<br>TICN | ZGF<br>3xd <sub>1</sub><br>IKZ-HB<br>TICN |
|---------------------------|------------------|-------------------------|-------------------|-------|-------|-------|---------------|---------------------------------------|---|---|
| ≥ Nr. 2                   | 80-64            | 1,76                    | 3                 | 39    | 7     | 28    | 4             | GF273706.5035                         |   |   |
| ≥ Nr. 4                   | 80-48            | 2,27                    | 3                 | 39    | 9,1   | 28    | 3             | GF273706.5037                         |   |   |
| ≥ Nr. 6                   | 80-40            | 2,79                    | 3                 | 42    | 11,2  | 28    | 4             | GF273706.5039                         |   |   |
| ≥ Nr. 8                   | 80-36            | 3,34                    | 4                 | 45    | 13,2  | 28    | 4             | GF273706.5040                         |   |   |
| ≥ Nr.10                   | 80-32            | 3,9                     | 4                 | 46    | 15,3  | 28    | 4             | GF273706.5041                         |   |   |
| ≥ 1/4                     | 80-28            | 5,25                    | 6                 | 59    | 20    | 36    | 4             | GF273706.5043                         |   |   |
| ≥ 5/16                    | 64-24            | 6,6                     | 8                 | 65    | 24,9  | 36    | 5             |                                       | GF273706.5044                             | GF273106.5044                             |
| ≥ 3/8                     | 64-24            | 8,2                     | 10                | 74    | 29,6  | 40    | 5             |                                       | GF273706.5045                             | GF273106.5045                             |
| ≥ 7/16                    | 60-20            | 9,55                    | 10                | 77    | 34,6  | 40    | 5             |                                       | GF273706.5046                             | GF273106.5046                             |
| ≥ 1/2                     | 60-20            | 11,1                    | 12                | 90    | 39,4  | 45    | 6             |                                       | GF273706.5047                             | GF273106.5047                             |

Weitere Ausführungen auf Anfrage  
Further designs upon request

BGF

ZBGF

GSF

GF

GF-VZ

GF-KEG

ZGF

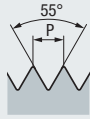
ZIRK-GF

Gigant

MoSys

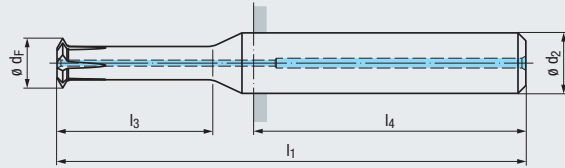
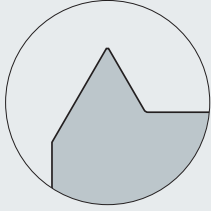
- Product Finder
- $v_c / f_z$
- M
- MF
- UNC  
UN, UNS
- UNF  
UNEF
- G, Rp
- NPT, NPTF  
Rc, W
- BSW, BSF
- Pg
- MJ  
UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr
- Zubehör  
Accessories
- BGF
- ZBGF
- GSF
- GF
- GF-VZ
- GF-KEG
- ZGF
- ZIRK-GF
- Gigant
- MoSys

# G (BSP)



DIN EN ISO 228

Für Innen- und Außengewinde  
For internal and external threads



VHM  
Carbide

TICN

RH + LH

Z5

DIN 6535



Zum Anfasen geeignet  
Suitable for chamfering



ZGF



Einsatzgebiete – Material  
Applications – material 358

P 1.1-5.1 M 1.1-4.1 K 1.1-4.2  
N 1.1-5.3 S 1.1-2.6 H 1.1-1.2

Gewindetiefe  
Thread depth

**2 x d<sub>1</sub>**

| $\varnothing d_1$<br>inch | P<br>Gg/1" (tpi) | $\varnothing d_F$<br>mm | $\varnothing d_2$ | $l_1$ | $l_3$ | $l_4$ | Z<br>(Flutes) | ZGF<br>2xd <sub>1</sub><br>IKZ-HA<br>TICN | ZGF<br>2xd <sub>1</sub><br>IKZ-HB<br>TICN |
|---------------------------|------------------|-------------------------|-------------------|-------|-------|-------|---------------|---|---|
| G 1/8                     | 28               | 7,9                     | 8                 | 62    | 20,4  | 36    | 5             | GF253706.4035                             | GF253106.4035                             |
| G 1/4 - G 3/8             | 19               | 9,9                     | 10                | 78    | 34,6  | 40    | 5             | GF253706.4036                             | GF253106.4036                             |

Weitere Ausführungen auf Anfrage  
Further designs upon request



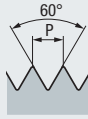
Gewinde-Tiefenlehrdorne  
siehe Seite 588 - 591

Thread depth plug gauges,  
see page 588 - 591

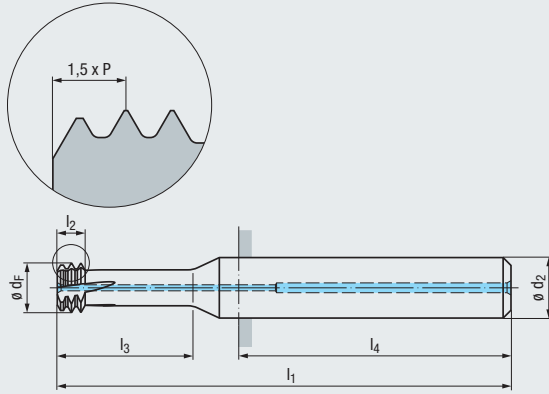


# M, MF

DIN 13



Für Innengewinde  
For internal threads



|                    |                  |
|--------------------|------------------|
| <b>VHM Carbide</b> | <b>TIALN T46</b> |
| <b>RH + LH</b>     | <b>LH-rot.</b>   |
| <b>Z3 - Z6</b>     | <b>DIN 6535</b>  |
|                    |                  |
| <b>L10</b>         |                  |
|                    |                  |

**ZGF-S-CUT**

Einsatzgebiete – Material  
Applications – material » 358

|                  |                  |                  |
|------------------|------------------|------------------|
| <b>P</b> 1.1-5.1 | <b>M</b> 1.1-4.1 | <b>K</b> 1.1-4.2 |
| <b>N</b> 1.1-5.3 | <b>S</b> 1.1-2.6 | <b>H</b> 1.1-1.2 |

Gewindetiefe  
Thread depth

**2 x d<sub>1</sub>**

| ø d <sub>1</sub><br>mm | P<br>mm | ø d <sub>F</sub><br>mm | ø d <sub>2</sub> | l <sub>1</sub> | l <sub>2</sub> | l <sub>3</sub> | l <sub>4</sub> | Z<br>(Flutes) | ZGF-S-CUT<br>2xd <sub>1</sub><br>HA<br>TIALN-T46 | ZGF-S-CUT<br>2xd <sub>1</sub><br>IKZ-HA<br>TIALN-T46 | ZGF-S-CUT<br>2xd <sub>1</sub><br>IKZ-HB<br>TIALN-T46 |
|------------------------|---------|------------------------|------------------|----------------|----------------|----------------|----------------|---------------|--|--|--|
|                        |         |                        |                  |                |                |                |                |               | ≥ M 1,6  | 0,35   | 1,18   |
| ≥ M 2                  | 0,4     | 1,52                   | 3                | 39             | 1,2            | 4,6            | 28             | 3             | GF26A729.0020                                    |  |  |
| ≥ M 2,5                | 0,45    | 1,95                   | 3                | 39             | 1,4            | 5,7            | 28             | 3             | GF26A729.0025                                    |  |  |
| ≥ M 3                  | 0,5     | 2,4                    | 3                | 39             | 1,5            | 6,8            | 28             | 4             | GF26A729.0030                                    |  |  |
| ≥ M 4                  | 0,7     | 3,15                   | 4                | 42             | 2,1            | 9,1            | 28             | 4             | GF26A729.0040                                    |  |  |
| ≥ M 5                  | 0,8     | 4,04                   | 6                | 52             | 2,4            | 11,2           | 36             | 4             |  | GF26A729.0050  | GF26A129.0050  |
| ≥ M 6                  | 1       | 4,8                    | 6                | 55             | 3              | 13,5           | 36             | 4             |  | GF26A729.0060  | GF26A129.0060  |
| ≥ M 8                  | 1,25    | 6,5                    | 8                | 60             | 3,8            | 17,9           | 36             | 4             |  | GF26A729.0080  | GF26A129.0080  |
| ≥ M10                  | 1,5     | 8,2                    | 10               | 70             | 4,5            | 22,3           | 40             | 5             |  | GF26A729.0100  | GF26A129.0100  |
| ≥ M12                  | 1,75    | 9,9                    | 10               | 74             | 5,3            | 26,6           | 40             | 5             |  | GF26A729.0112  | GF26A129.0112  |
| ≥ M14                  | 2       | 11,6                   | 12               | 80             | 6              | 31             | 45             | 5             |  | GF26A729.0114  | GF26A129.0114  |
| ≥ M16                  | 2       | 13,6                   | 14               | 85             | 6              | 35             | 45             | 6             |  | GF26A729.0116  | GF26A129.0116  |
| ≥ M20                  | 2,5     | 17                     | 18               | 102            | 7,5            | 43,8           | 48             | 6             |  | GF26A729.0120  | GF26A129.0120  |
| ≥ M24                  | 3       | 19,9                   | 20               | 110            | 9              | 52,5           | 50             | 6             |  | GF26A729.0124  | GF26A129.0124  |

Gewindetiefe  
Thread depth

**3 x d<sub>1</sub>**

| ø d <sub>1</sub><br>mm | P<br>mm | ø d <sub>F</sub><br>mm | ø d <sub>2</sub> | l <sub>1</sub> | l <sub>2</sub> | l <sub>3</sub> | l <sub>4</sub> | Z<br>(Flutes) | ZGF-S-CUT<br>3xd <sub>1</sub><br>HA<br>TIALN-T46 | ZGF-S-CUT<br>3xd <sub>1</sub><br>IKZ-HA<br>TIALN-T46 | ZGF-S-CUT<br>3xd <sub>1</sub><br>IKZ-HB<br>TIALN-T46 |
|------------------------|---------|------------------------|------------------|----------------|----------------|----------------|----------------|---------------|--|--|--|
|                        |         |                        |                  |                |                |                |                |               | ≥ M 1,6  | 0,35   | 1,18   |
| ≥ M 2                  | 0,4     | 1,52                   | 3                | 39             | 1,2            | 6,6            | 28             | 3             | GF2BA729.0020                                    |  |  |
| ≥ M 2,5                | 0,45    | 1,95                   | 3                | 39             | 1,4            | 8,2            | 28             | 3             | GF2BA729.0025                                    |  |  |
| ≥ M 3                  | 0,5     | 2,4                    | 3                | 41             | 1,5            | 9,8            | 28             | 4             | GF2BA729.0030                                    |  |  |
| ≥ M 4                  | 0,7     | 3,15                   | 4                | 44             | 2,1            | 13,1           | 28             | 4             | GF2BA729.0040                                    |  |  |
| ≥ M 5                  | 0,8     | 4,04                   | 6                | 57             | 2,4            | 16,2           | 36             | 4             |  | GF2BA729.0050  | GF2BA129.0050  |
| ≥ M 6                  | 1       | 4,8                    | 6                | 60             | 3              | 19,5           | 36             | 4             |  | GF2BA729.0060  | GF2BA129.0060  |
| ≥ M 8                  | 1,25    | 6,5                    | 8                | 67             | 3,8            | 25,9           | 36             | 4             |  | GF2BA729.0080  | GF2BA129.0080  |
| ≥ M10                  | 1,5     | 8,2                    | 10               | 78             | 4,5            | 32,3           | 40             | 5             |  | GF2BA729.0100  | GF2BA129.0100  |
| ≥ M12                  | 1,75    | 9,9                    | 10               | 83             | 5,3            | 38,6           | 40             | 5             |  | GF2BA729.0112  | GF2BA129.0112  |
| ≥ M14                  | 2       | 11,6                   | 12               | 95             | 6              | 45             | 45             | 5             |  | GF2BA729.0114  | GF2BA129.0114  |
| ≥ M16                  | 2       | 13,6                   | 14               | 101            | 6              | 51             | 45             | 6             |  | GF2BA729.0116  | GF2BA129.0116  |
| ≥ M20                  | 2,5     | 17                     | 18               | 120            | 7,5            | 63,8           | 48             | 6             |  | GF2BA729.0120  | GF2BA129.0120  |
| ≥ M24                  | 3       | 19,9                   | 20               | 135            | 9              | 76,5           | 50             | 6             |  | GF2BA729.0124  | GF2BA129.0124  |

Weitere Ausführungen auf Anfrage  
Further designs upon request

Product Finder

v<sub>c</sub> / f<sub>z</sub>

M

MF

UNC UN, UNS

UNF UNEF

G, Rp

NPT, NPTF Rc, W

BSW, BSF

Pg

MJ UNJC, UNJF

EG (STI)

SELF-LOCK

Tr

Zubehör Accessories

BGF

ZBGF

GSF

GF

GF-VZ

GF-KEG

ZGF

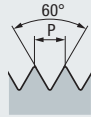
ZIRK-GF

Gigant

MoSys

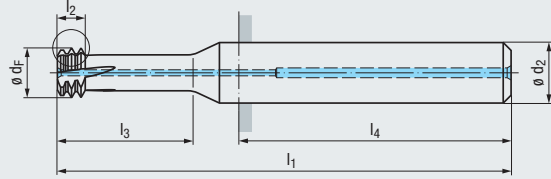
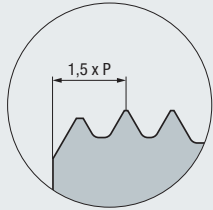
- Product Finder
- V<sub>c</sub> / f<sub>z</sub>
- M
- MF
- UNC  
UN, UNS
- UNF  
UNEF
- G, Rp
- NPT, NPTF  
Rc, W
- BSW, BSF
- Pg
- MJ  
UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr
- Zubehör  
Accessories

# UNC, UNF



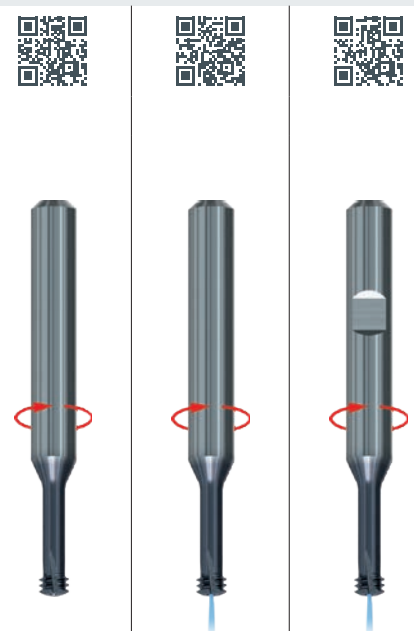
ASME B1.1

Für Innengewinde  
For internal threads



|                    |                  |
|--------------------|------------------|
| <b>VHM Carbide</b> | <b>TIALN T46</b> |
| <b>RH + LH</b>     | <b>LH-rot.</b>   |
| <b>Z3 - Z5</b>     | <b>DIN 6535</b>  |
|                    |                  |
| <b>L10</b>         |                  |
|                    |                  |

## ZGF-S-CUT



Einsatzgebiete – Material  
Applications – material [» 358](#)

|                  |                  |                  |
|------------------|------------------|------------------|
| <b>P</b> 1.1-5.1 | <b>M</b> 1.1-4.1 | <b>K</b> 1.1-4.2 |
| <b>N</b> 1.1-5.3 | <b>S</b> 1.1-2.6 | <b>H</b> 1.1-1.2 |

Gewindetiefe  
Thread depth

### 2 x d<sub>1</sub>

| BGF | Ø d <sub>1</sub><br>inch | P<br>Gg/1" (tpi) | Ø d <sub>F</sub><br>mm | Ø d <sub>2</sub> | l <sub>1</sub> | l <sub>2</sub> | l <sub>3</sub> | l <sub>4</sub> | Z<br>(Flutes) | ZGF-S-CUT<br>2xd <sub>1</sub><br>HA<br>TIALN-T46   | ZGF-S-CUT<br>2xd <sub>1</sub><br>IKZ-HA<br>TIALN-T46                       | ZGF-S-CUT<br>2xd <sub>1</sub><br>IKZ-HB<br>TIALN-T46                                       |
|-----|--------------------------|------------------|------------------------|------------------|----------------|----------------|----------------|----------------|---------------|--|--|--|
|     |                          |                  |                        |                  |                |                |                |                |               | ≥ Nr. 2<br>≥ Nr. 4<br>≥ Nr. 6<br>≥ Nr. 8<br>≥ Nr.10<br>≥ 1/4<br>≥ 5/16<br>≥ 3/8<br>≥ 7/16<br>≥ 1/2<br>≥ 9/16<br>≥ 5/8<br>≥ 3/4 | 56<br>40<br>32<br>32<br>24<br>20<br>18<br>16<br>14<br>13<br>12<br>11<br>10 | 1,7<br>2,15<br>2,7<br>3,35<br>3,7<br>4,95<br>6,3<br>7,7<br>9<br>10,4<br>11,8<br>13<br>15,9 |

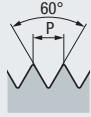
Gewindetiefe  
Thread depth

### 3 x d<sub>1</sub>

| BGF | Ø d <sub>1</sub><br>inch | P<br>Gg/1" (tpi) | Ø d <sub>F</sub><br>mm | Ø d <sub>2</sub> | l <sub>1</sub> | l <sub>2</sub> | l <sub>3</sub> | l <sub>4</sub> | Z<br>(Flutes) | ZGF-S-CUT<br>3xd <sub>1</sub><br>HA<br>TIALN-T46   | ZGF-S-CUT<br>3xd <sub>1</sub><br>IKZ-HA<br>TIALN-T46                       | ZGF-S-CUT<br>3xd <sub>1</sub><br>IKZ-HB<br>TIALN-T46                                       |
|-----|--------------------------|------------------|------------------------|------------------|----------------|----------------|----------------|----------------|---------------|--|--|--|
|     |                          |                  |                        |                  |                |                |                |                |               | ≥ Nr. 2<br>≥ Nr. 4<br>≥ Nr. 6<br>≥ Nr. 8<br>≥ Nr.10<br>≥ 1/4<br>≥ 5/16<br>≥ 3/8<br>≥ 7/16<br>≥ 1/2<br>≥ 9/16<br>≥ 5/8<br>≥ 3/4 | 56<br>40<br>32<br>32<br>24<br>20<br>18<br>16<br>14<br>13<br>12<br>11<br>10 | 1,7<br>2,15<br>2,7<br>3,35<br>3,7<br>4,95<br>6,3<br>7,7<br>9<br>10,4<br>11,8<br>13<br>15,9 |

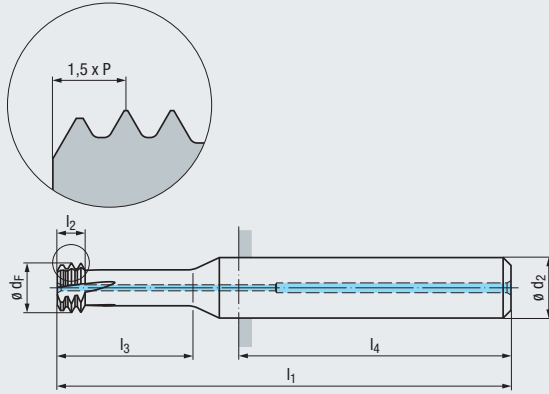
Weitere Ausführungen auf Anfrage  
Further designs upon request

# UNF



ASME B1.1

Für Innengewinde  
For internal threads



|                    |                  |
|--------------------|------------------|
| <b>VHM Carbide</b> | <b>TIALN T46</b> |
| <b>RH + LH</b>     | <b>LH-rot.</b>   |
| <b>Z3 - Z9</b>     | <b>DIN 6535</b>  |
|                    |                  |
| <b>L10</b>         |                  |
|                    |                  |

**ZGF-S-CUT**

Einsatzgebiete – Material  
Applications – material » 358

|                  |                  |                  |
|------------------|------------------|------------------|
| <b>P</b> 1.1-5.1 | <b>M</b> 1.1-4.1 | <b>K</b> 1.1-4.2 |
| <b>N</b> 1.1-5.3 | <b>S</b> 1.1-2.6 | <b>H</b> 1.1-1.2 |

Gewindetiefe  
Thread depth

**2 x d<sub>1</sub>**

| ø d <sub>1</sub><br>inch | P<br>Gg/1" (tpi) | ø d <sub>F</sub><br>mm | ø d <sub>2</sub> | l <sub>1</sub> | l <sub>2</sub> | l <sub>3</sub> | l <sub>4</sub> | Z<br>(Flutes) | ZGF-S-CUT<br>2xd <sub>1</sub><br>HA<br>TIALN-T46 | ZGF-S-CUT<br>2xd <sub>1</sub><br>IKZ-HA<br>TIALN-T46 | ZGF-S-CUT<br>2xd <sub>1</sub><br>IKZ-HB<br>TIALN-T46 |
|--------------------------|------------------|------------------------|------------------|----------------|----------------|----------------|----------------|---------------|--|--|--|
|                          |                  |                        |                  |                |                |                |                |               | GF26A729.5035                                    |  |  |
| ≥ Nr. 2                  | 64               | 1,76                   | 3                | 39             | 1,2            | 5              | 28             | 4             | GF26A729.5035                                    |  |  |
| ≥ Nr. 4                  | 48               | 2,27                   | 3                | 39             | 1,6            | 6,5            | 28             | 3             | GF26A729.5037                                    |  |  |
| ≥ Nr. 6                  | 40               | 2,79                   | 3                | 39             | 1,9            | 8              | 28             | 4             | GF26A729.5039                                    |  |  |
| ≥ Nr. 8                  | 36               | 3,34                   | 4                | 42             | 2,1            | 9,4            | 28             | 4             | GF26A729.5040                                    |  |  |
| ≥ Nr.10                  | 32               | 3,9                    | 4                | 42             | 2,4            | 10,8           | 28             | 4             | GF26A729.5041                                    |  |  |
| ≥ 1/4                    | 28               | 5,25                   | 6                | 55             | 2,7            | 14,1           | 36             | 5             |  | GF26A729.5043  | GF26A129.5043  |
| ≥ 5/16                   | 24               | 6,6                    | 8                | 58             | 3,2            | 17,5           | 36             | 5             |  | GF26A729.5044  | GF26A129.5044  |
| ≥ 3/8                    | 24               | 8,2                    | 10               | 67             | 3,2            | 20,6           | 40             | 6             |  | GF26A729.5045  | GF26A129.5045  |
| ≥ 7/16                   | 20               | 9,55                   | 10               | 74             | 3,8            | 24,1           | 40             | 6             |  | GF26A729.5046  | GF26A129.5046  |
| ≥ 1/2                    | 20               | 11,1                   | 12               | 78             | 3,8            | 27,3           | 45             | 7             |  | GF26A729.5047  | GF26A129.5047  |
| ≥ 9/16                   | 18               | 12,5                   | 14               | 80             | 4,2            | 30,7           | 45             | 7             |  | GF26A729.5048  | GF26A129.5048  |
| ≥ 5/8                    | 18               | 13,9                   | 14               | 85             | 4,2            | 33,9           | 45             | 8             |  | GF26A729.5049  | GF26A129.5049  |
| ≥ 3/4                    | 16               | 17                     | 18               | 95             | 4,8            | 40,5           | 48             | 9             |  | GF26A729.5050  | GF26A129.5050  |

Gewindetiefe  
Thread depth

**3 x d<sub>1</sub>**

| ø d <sub>1</sub><br>inch | P<br>Gg/1" (tpi) | ø d <sub>F</sub><br>mm | ø d <sub>2</sub> | l <sub>1</sub> | l <sub>2</sub> | l <sub>3</sub> | l <sub>4</sub> | Z<br>(Flutes) | ZGF-S-CUT<br>3xd <sub>1</sub><br>HA<br>TIALN-T46 | ZGF-S-CUT<br>3xd <sub>1</sub><br>IKZ-HA<br>TIALN-T46 | ZGF-S-CUT<br>3xd <sub>1</sub><br>IKZ-HB<br>TIALN-T46 |
|--------------------------|------------------|------------------------|------------------|----------------|----------------|----------------|----------------|---------------|--|--|--|
|                          |                  |                        |                  |                |                |                |                |               | GF2BA729.5035                                    |  |  |
| ≥ Nr. 2                  | 64               | 1,76                   | 3                | 39             | 1,2            | 7,2            | 28             | 4             | GF2BA729.5035                                    |  |  |
| ≥ Nr. 4                  | 48               | 2,27                   | 3                | 39             | 1,6            | 9,3            | 28             | 3             | GF2BA729.5037                                    |  |  |
| ≥ Nr. 6                  | 40               | 2,79                   | 3                | 42             | 1,9            | 11,5           | 28             | 4             | GF2BA729.5039                                    |  |  |
| ≥ Nr. 8                  | 36               | 3,34                   | 4                | 45             | 2,1            | 13,6           | 28             | 4             | GF2BA729.5040                                    |  |  |
| ≥ Nr.10                  | 32               | 3,9                    | 4                | 46             | 2,4            | 15,7           | 28             | 4             | GF2BA729.5041                                    |  |  |
| ≥ 1/4                    | 28               | 5,25                   | 6                | 60             | 2,7            | 20,4           | 36             | 5             |  | GF2BA729.5043  | GF2BA129.5043  |
| ≥ 5/16                   | 24               | 6,6                    | 8                | 66             | 3,2            | 25,4           | 36             | 5             |  | GF2BA729.5044  | GF2BA129.5044  |
| ≥ 3/8                    | 24               | 8,2                    | 10               | 75             | 3,2            | 30,2           | 40             | 6             |  | GF2BA729.5045  | GF2BA129.5045  |
| ≥ 7/16                   | 20               | 9,55                   | 10               | 79             | 3,8            | 35,2           | 40             | 6             |  | GF2BA729.5046  | GF2BA129.5046  |
| ≥ 1/2                    | 20               | 11,1                   | 12               | 90             | 3,8            | 40             | 45             | 7             |  | GF2BA729.5047  | GF2BA129.5047  |
| ≥ 9/16                   | 18               | 12,5                   | 14               | 95             | 4,2            | 45             | 45             | 7             |  | GF2BA729.5048  | GF2BA129.5048  |
| ≥ 5/8                    | 18               | 13,9                   | 14               | 100            | 4,2            | 49,7           | 45             | 8             |  | GF2BA729.5049  | GF2BA129.5049  |
| ≥ 3/4                    | 16               | 17                     | 18               | 115            | 4,8            | 59,5           | 48             | 9             |  | GF2BA729.5050  | GF2BA129.5050  |

Weitere Ausführungen auf Anfrage  
Further designs upon request

Product Finder

V<sub>c</sub> / f<sub>z</sub>

M

MF

UNC  
UN, UNS

**UNF  
UNEF**

G, Rp

NPT, NPTF  
Rc, W

BSW, BSF

Pg

MJ  
UNJC, UNJF

EG (STI)

SELF-LOCK

Tr

Zubehör  
Accessories

BGF

ZBGF

GSF

GF

GF-VZ

GF-KEG

**ZGF**

ZIRK-GF

Gigant

MoSys

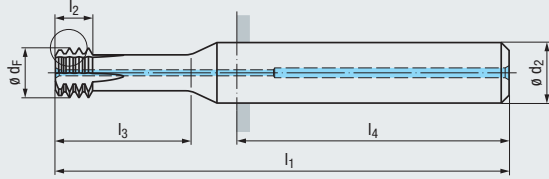
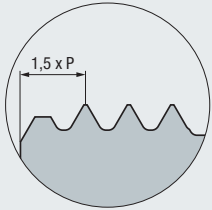
- Product Finder
- $v_c / f_z$
- M
- MF
- UNC  
UN, UNS
- UNF  
UNEF
- G, Rp
- NPT, NPTF  
Rc, W
- BSW, BSF
- Pg
- MJ  
UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr
- Zubehör  
Accessories

# M, MF



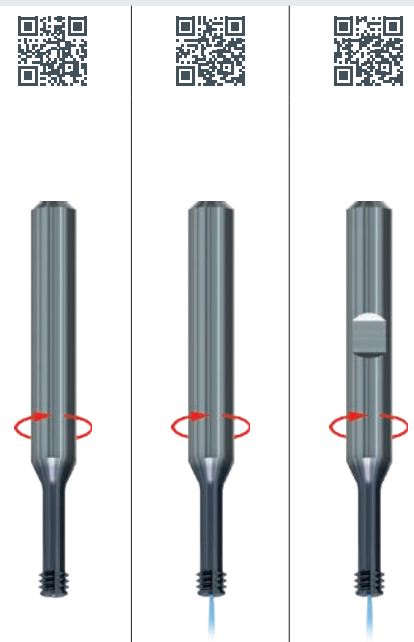
DIN 13

Für Innengewinde  
For internal threads



|                       |                             |
|-----------------------|-----------------------------|
| <b>VHM</b><br>Carbide | <b>TIALN</b><br>T46         |
| <b>RH + LH</b>        | <b>LH-rot.</b>              |
| <b>Z4 - Z6</b><br>    | <b>DIN 6535</b><br>HA<br>HB |
|                       | $\varnothing d_1$<br>       |
|                       |                             |

## ZGF-HCUT



Einsatzgebiete – Material  
Applications – material [» 358](#)

**N** 2.7-2.8  
**H** 1.1-1.5

Gewindetiefe  
Thread depth

**2 x d<sub>1</sub>**

| BGF   | $\varnothing d_1$<br>mm | P<br>mm | $\varnothing d_f$<br>mm | $\varnothing d_2$ | $l_1$ | $l_2$ | $l_3$ | $l_4$ | Z<br>(Flutes) | ZGF-HCUT<br>2xd <sub>1</sub><br>HA<br>TIALN-T46 | ZGF-HCUT<br>2xd <sub>1</sub><br>IKZ-HA<br>TIALN-T46  | ZGF-HCUT<br>2xd <sub>1</sub><br>IKZ-HB<br>TIALN-T46  |
|-------|-------------------------|---------|-------------------------|-------------------|-------|-------|-------|-------|---------------|---|--|--|
|       |                         |         |                         |                   |       |       |       |       |               | GF283729.0030<br>GF283729.0040                  | GF283729.0050<br>GF283729.0060<br>GF283729.0080<br>GF283729.0100<br>GF283729.0112<br>GF283729.0114<br>GF283729.0116<br>GF283729.0120 | GF283129.0050<br>GF283129.0060<br>GF283129.0080<br>GF283129.0100<br>GF283129.0112<br>GF283129.0114<br>GF283129.0116<br>GF283129.0120 |
| ≥ M 3 | 0,5                     | 2,4     | 6                       | 51                | 2     | 6,8   | 36    | 4     |               |   |  |  |
| ≥ M 4 | 0,7                     | 3,15    | 6                       | 51                | 2,8   | 9,1   | 36    | 4     |               |   |  |  |
| ≥ M 5 | 0,8                     | 4,04    | 6                       | 52                | 3,2   | 11,2  | 36    | 4     |               |   |  |  |
| ≥ M 6 | 1                       | 4,8     | 6                       | 55                | 3,9   | 13,3  | 36    | 4     |               |   |  |  |
| ≥ M 8 | 1,25                    | 6,5     | 8                       | 60                | 4,9   | 17,9  | 36    | 4     |               |   |  |  |
| ≥ M10 | 1,5                     | 8,2     | 10                      | 70                | 5,9   | 22,3  | 40    | 5     |               |   |  |  |
| ≥ M12 | 1,75                    | 9,9     | 10                      | 74                | 6,8   | 26,6  | 40    | 5     |               |   |  |  |
| ≥ M14 | 2                       | 11,6    | 12                      | 85                | 7,8   | 31    | 45    | 5     |               |   |  |  |
| ≥ M16 | 2                       | 13,6    | 14                      | 90                | 7,8   | 35    | 45    | 5     |               |   |  |  |
| ≥ M20 | 2,5                     | 17      | 18                      | 102               | 9,7   | 43,8  | 48    | 6     |               |   |  |  |

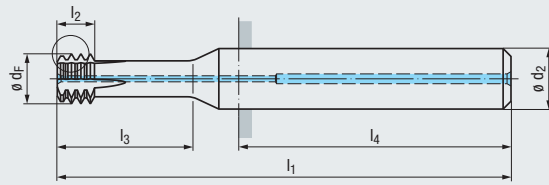
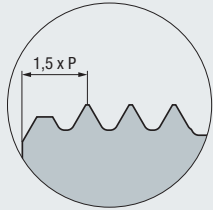
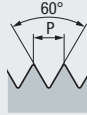
Weitere Ausführungen auf Anfrage  
Further designs upon request



# UNC, UNF

ASME B1.1

Für Innengewinde  
For internal threads



|                    |                  |
|--------------------|------------------|
| <b>VHM Carbide</b> | <b>TIALN T46</b> |
| <b>RH + LH</b>     | <b>LH-rot.</b>   |
| <b>Z3 - Z5</b>     | <b>DIN 6535</b>  |
|                    |                  |
|                    |                  |

**ZGF-HCUT**

**new**

**new**

**new**

Einsatzgebiete – Material  
Applications – material [» 358](#)

Gewindetiefe  
Thread depth

**N 2.7-2.8**  
**H 1.1-1.5**

**2 x d<sub>1</sub>**

| Ø d <sub>1</sub><br>inch | P<br>Gg/1" (tpi) | Ø d <sub>F</sub><br>mm | Ø d <sub>2</sub> | l <sub>1</sub> | l <sub>2</sub> | l <sub>3</sub> | l <sub>4</sub> | Z<br>(Flutes) | ZGF-HCUT<br>2xd <sub>1</sub><br>HA<br>TIALN-T46                                   | ZGF-HCUT<br>2xd <sub>1</sub><br>IKZ-HA<br>TIALN-T46  | ZGF-HCUT<br>2xd <sub>1</sub><br>IKZ-HB<br>TIALN-T46  |
|--------------------------|------------------|------------------------|------------------|----------------|----------------|----------------|----------------|---------------|---|--|--|
|                          |                  |                        |                  |                |                |                |                |               | GF283729.5001<br>GF283729.5003<br>GF283729.5005<br>GF283729.5006<br>GF283729.5007 | GF283729.5009<br>GF283729.5010<br>GF283729.5011<br>GF283729.5012<br>GF283729.5013<br>GF283729.5014<br>GF283729.5015<br>GF283729.5016 | GF283129.5009<br>GF283129.5010<br>GF283129.5011<br>GF283129.5012<br>GF283129.5013<br>GF283129.5014<br>GF283129.5015<br>GF283129.5016 |
| ≥ Nr. 2                  | 56               | 1,7                    | 3                | 39             | 1,8            | 5,1            | 28             | 3             |   |  |  |
| ≥ Nr. 4                  | 40               | 2,15                   | 3                | 39             | 2,5            | 6,6            | 28             | 3             |   |  |  |
| ≥ Nr. 6                  | 32               | 2,7                    | 3                | 39             | 3,1            | 8,2            | 28             | 3             |   |  |  |
| ≥ Nr. 8                  | 32               | 3,21                   | 4                | 42             | 3,1            | 9,5            | 28             | 3             |   |  |  |
| ≥ Nr.10                  | 24               | 3,7                    | 4                | 42             | 4,1            | 11,2           | 28             | 3             |   |  |  |
| ≥ 1/4                    | 20               | 4,95                   | 6                | 55             | 5              | 14,6           | 36             | 3             |   |  |  |
| ≥ 5/16                   | 18               | 6,3                    | 8                | 58             | 5,5            | 18             | 36             | 4             |   |  |  |
| ≥ 3/8                    | 16               | 7,65                   | 8                | 62             | 6,2            | 21,4           | 36             | 4             |   |  |  |
| ≥ 7/16                   | 14               | 9                      | 10               | 70             | 7,1            | 25             | 40             | 4             |   |  |  |
| ≥ 1/2                    | 13               | 10,4                   | 12               | 80             | 7,6            | 28,3           | 45             | 4             |   |  |  |
| ≥ 9/16                   | 12               | 11,8                   | 12               | 82             | 8,2            | 31,8           | 45             | 4             |   |  |  |
| ≥ 5/8                    | 11               | 13                     | 14               | 87             | 9              | 35,2           | 45             | 5             |   |  |  |
| ≥ 3/4                    | 10               | 15,9                   | 16               | 95             | 9,9            | 41,9           | 48             | 5             |   |  |  |

Weitere Ausführungen auf Anfrage  
Further designs upon request

Product Finder

V<sub>c</sub> / f<sub>z</sub>

M

MF

UNC  
UN, UNS

UNF  
UNEF

G, Rp

NPT, NPTF  
Rc, W

BSW, BSF

Pg

MJ  
UNJC, UNJF

EG (STI)

SELF-LOCK

Tr

Zubehör  
Accessories

BGF

ZBGF

GSF

GF

GF-VZ

GF-KEG

**ZGF**

ZIRK-GF

Gigant

MoSys



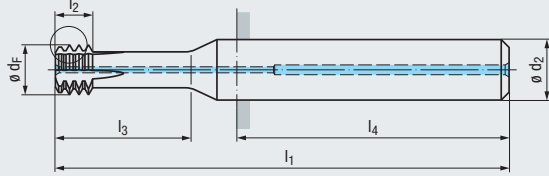
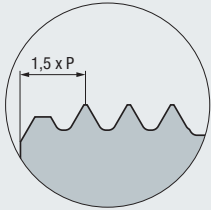
- Product Finder
- $v_c / f_z$
- M
- MF
- UNC  
UN, UNS
- UNF  
UNEF
- G, Rp
- NPT, NPTF  
Rc, W
- BSW, BSF
- Pg
- MJ  
UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr
- Zubehör  
Accessories

# UNF



ASME B1.1

Für Innengewinde  
For internal threads



VHM  
Carbide

TIALN  
T46

RH + LH

LH-rot.

Z3 - Z8

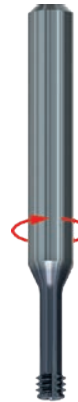
DIN 6535



ZGF-HCUT



new



new



new



Einsatzgebiete – Material  
Applications – material

» 358

N 2.7-2.8

H 1.1-1.5

Gewindetiefe  
Thread depth

2 x  $d_1$

| BGF     | $\varnothing d_1$<br>inch | P<br>Gg/1" (tpi) | $\varnothing d_f$<br>mm | $\varnothing d_2$ | $l_1$ | $l_2$ | $l_3$ | $l_4$ | Z<br>(Flutes) | ZGF-HCUT<br>2xd <sub>1</sub><br>HA<br>TIALN-T46 | ZGF-HCUT<br>2xd <sub>1</sub><br>IKZ-HA<br>TIALN-T46 | ZGF-HCUT<br>2xd <sub>1</sub><br>IKZ-HB<br>TIALN-T46 |
|---------|---------------------------|------------------|-------------------------|-------------------|-------|-------|-------|-------|---------------|---|---|---|
|         |                           |                  |                         |                   |       |       |       |       |               | GF283729.5035                                   | GF283729.5043                                       | GF283129.5043                                       |
| ZBGF    | ≥ Nr. 2                   | 64               | 1,76                    | 3                 | 39    | 1,6   | 5     | 28    | 3             | GF283729.5037                                   |   |   |
|         | ≥ Nr. 4                   | 48               | 2,27                    | 3                 | 39    | 2,1   | 6,5   | 28    | 3             | GF283729.5039                                   |   |   |
| GSF     | ≥ Nr. 6                   | 40               | 2,79                    | 3                 | 39    | 2,5   | 8     | 28    | 3             | GF283729.5040                                   |   |   |
|         | ≥ Nr. 8                   | 36               | 3,34                    | 4                 | 42    | 2,8   | 9,4   | 28    | 4             | GF283729.5041                                   |   |   |
| GF      | ≥ Nr.10                   | 32               | 3,9                     | 4                 | 42    | 3,1   | 10,8  | 28    | 4             |   |   |   |
|         | ≥ 1/4                     | 28               | 5,25                    | 6                 | 55    | 3,6   | 14,1  | 36    | 5             |   | GF283729.5043                                       | GF283129.5043                                       |
| GF-VZ   | ≥ 5/16                    | 24               | 6,6                     | 8                 | 58    | 4,1   | 17,5  | 36    | 5             |   | GF283729.5044                                       | GF283129.5044                                       |
|         | ≥ 3/8                     | 24               | 7,9                     | 8                 | 60    | 4,1   | 20,6  | 36    | 6             |   | GF283729.5045                                       | GF283129.5045                                       |
| GF-KEG  | ≥ 7/16                    | 20               | 9,55                    | 10                | 70    | 5     | 24,1  | 40    | 6             |   | GF283729.5046                                       | GF283129.5046                                       |
|         | ≥ 1/2                     | 20               | 11,1                    | 12                | 78    | 5     | 27,3  | 45    | 7             |   | GF283729.5047                                       | GF283129.5047                                       |
| ZGF     | ≥ 9/16                    | 18               | 12,5                    | 14                | 82    | 5,5   | 30,7  | 45    | 7             |   | GF283729.5048                                       | GF283129.5048                                       |
|         | ≥ 5/8                     | 18               | 13,9                    | 14                | 85    | 5,5   | 33,9  | 45    | 8             |   | GF283729.5049                                       | GF283129.5049                                       |
| ZIRK-GF | ≥ 3/4                     | 16               | 17                      | 18                | 95    | 6,2   | 40,5  | 48    | 8             |   | GF283729.5050                                       | GF283129.5050                                       |

Weitere Ausführungen auf Anfrage  
Further designs upon request





Product  
Finder

$v_c / f_z$

M

MF

UNC  
UN, UNS

UNF  
UNEF

G, Rp

NPT, NPTF  
Rc, W

BSW, BSF

Pg

MJ  
UNJC, UNJF

EG (STI)

SELF-LOCK

Tr

Zubehör  
Accessories

BGF

ZBGF

GSF

GF

GF-VZ

GF-KEG

ZGF

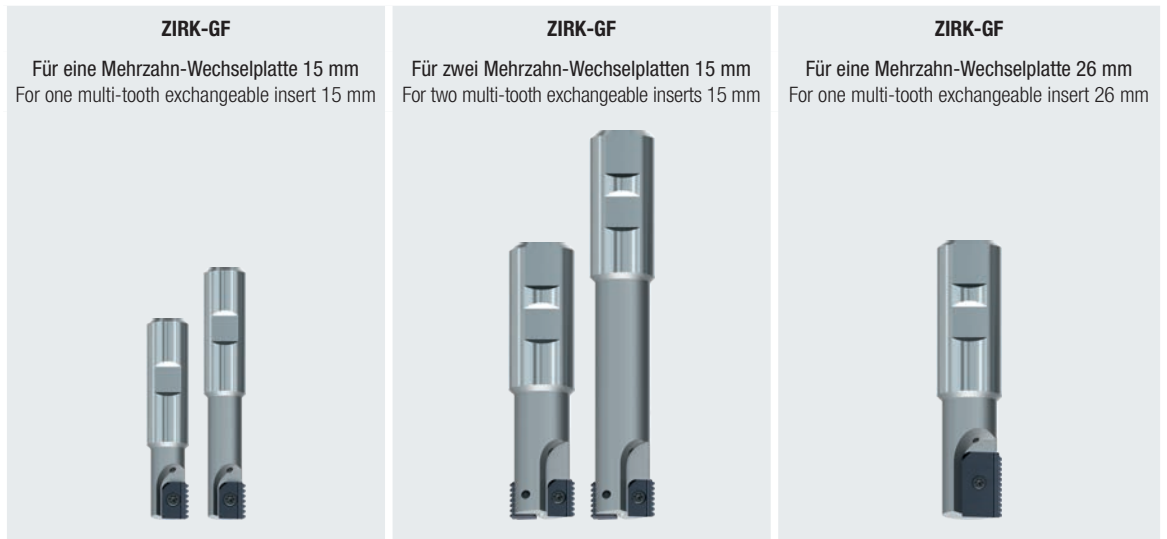
**ZIRK-GF**

Gigant

MoSys

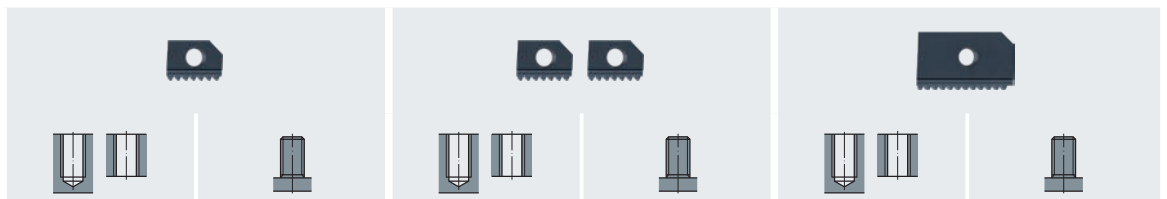


- Product Finder
- $V_c / f_z$
- M
- MF
- UNC  
UN, UNS
- UNF  
UNEF
- G, Rp
- NPT, NPTF  
Rc, W
- BSW, BSF
- Pg
- MJ  
UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr
- Zubehör  
Accessories



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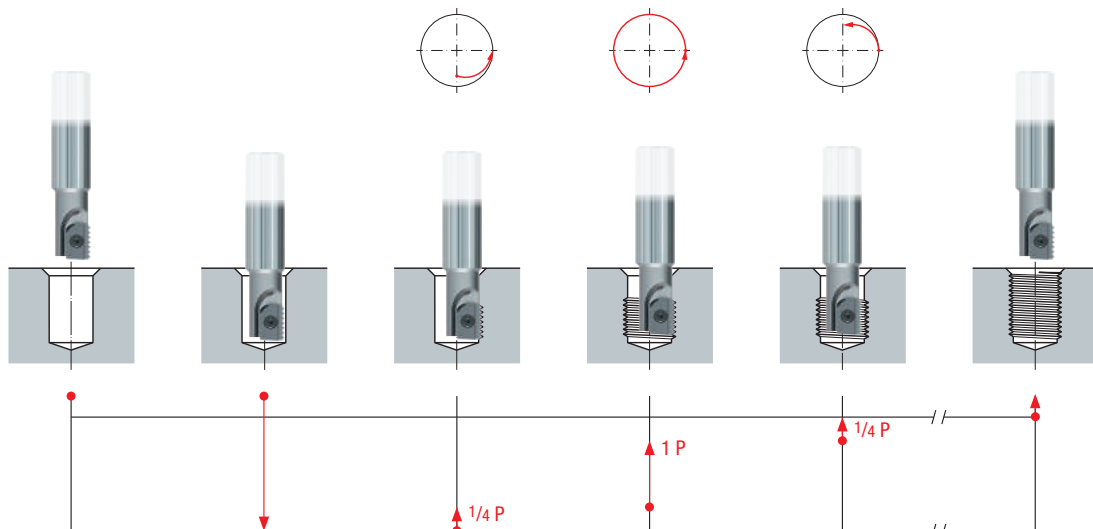
|     |     |     |
|-----|-----|-----|
| 482 | 482 | 484 |
|-----|-----|-----|



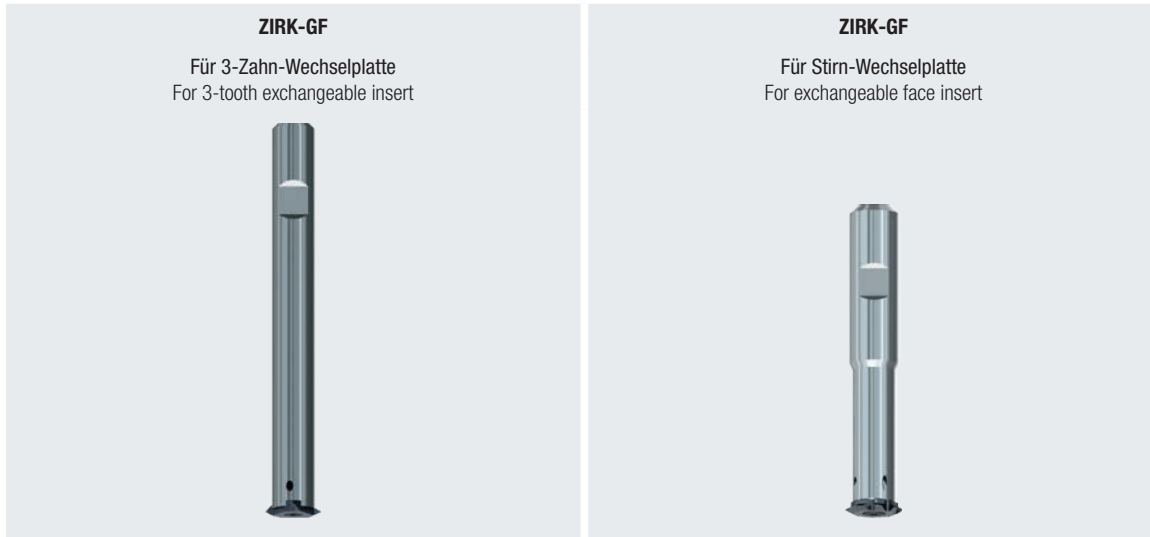
Seite · Page

|                             |     |     |     |     |     |     |
|-----------------------------|-----|-----|-----|-----|-----|-----|
| <b>M</b>                    | 483 |     | 483 |     | 485 |     |
| <b>MF</b>                   | 483 |     | 483 |     | 485 |     |
| <b>UN</b>                   | 483 |     | 483 |     |     |     |
| <b>G (BSP), BSW, BSF, W</b> | 483 | 483 | 483 | 483 | 485 | 485 |
| <b>NPT</b>                  |     |     |     |     |     |     |

### Gewindefräszyklus · Thread milling cycle







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**G (BSP), BSW, BSF, W**

**NPT**

**M**

**MF**

**UN**

Product Finder

$v_c / f_z$

M

MF

UNC  
UN, UNS

UNF  
UNEF

G, Rp

NPT, NPTF  
Rc, W

BSW, BSF

Pg

MJ  
UNJC, UNJF

EG (STI)

SELF-LOCK

Tr

Zubehör  
Accessories

BGF

ZBGF

GSF

GF

GF-VZ

GF-KEG

ZGF

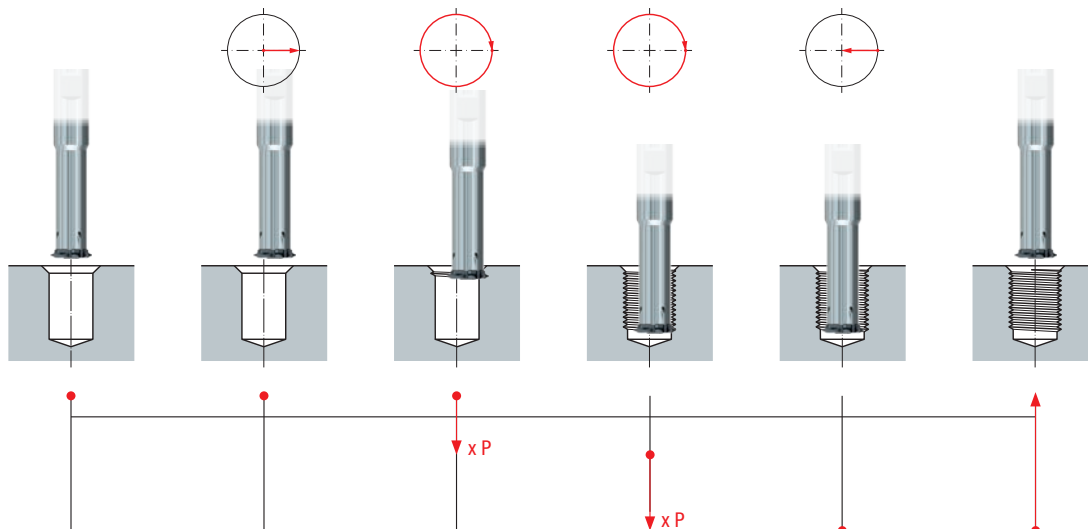
**ZIRK-GF**

Gigant

MoSys

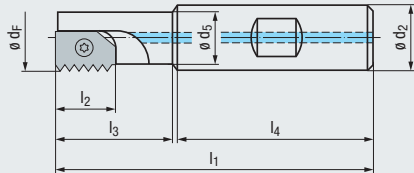


Gewindefräszyklus · Thread milling cycle



- Product Finder
- $v_c / f_z$
- M
- MF
- UNC  
UN, UNS
- UNF  
UNEF
- G, Rp
- NPT, NPTF  
Rc, W
- BSW, BSF
- Pg
- MJ  
UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr
- Zubehör  
Accessories
- BGF
- ZBGF
- GSF
- GF
- GF-VZ
- GF-KEG
- ZGF
- ZIRK-GF
- Gigant
- MoSys

Für eine Mehrzahn-Wechselplatte 15 mm  
For one multi-tooth exchangeable insert 15 mm



DIN 1835



ZIRK-GF



**Kurze Ausführung · Short design**

| P<br>mm   | P<br>Gg/1" (tpi) | $\varnothing d_1$<br>mm | $\varnothing d_f$<br>mm | $\varnothing d_2$ | $\varnothing d_5$ | $l_1$ | $l_2$ | $l_3$ | $l_4$ | Z<br>(Inserts) |
|-----------|------------------|-------------------------|-------------------------|-------------------|-------------------|-------|-------|-------|-------|----------------|
| 0,5 - 2,5 | 20 - 11          | $\geq 21,3$             | 16                      | 16                | 13                | 78    | 15    | 28,5  | 48    | 1              |

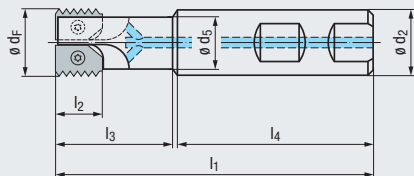
ZIRK-GF  
MZP-15mm-Z1  
IKZN  
**GZ301110**

**Lange Ausführung · Long design**

| P<br>mm               | P<br>Gg/1" (tpi) | $\varnothing d_1$<br>mm | $\varnothing d_f$<br>mm | $\varnothing d_2$ | $\varnothing d_5$ | $l_1$ | $l_2$ | $l_3$ | $l_4$ | Z<br>(Inserts) |
|-----------------------|------------------|-------------------------|-------------------------|-------------------|-------------------|-------|-------|-------|-------|----------------|
| 0,5 - 2,5             | 20 - 11          | $\geq 21,3$             | 16                      | 16                | 13                | 98    | 15    | 48,5  | 48    | 1              |
| 0,5 - 2,5             | 20 - 11          | $\geq 27$               | 20                      | 20                | 17                | 110   | 15    | 58,5  | 50    | 1              |
| 3 - 3,5 <sup>1)</sup> | -                | $\geq 29,3$             | 22                      | 20                | 17                | 110   | 15    | 58,5  | 50    | 1              |

ZIRK-GF  
MZP-15mm-Z1  
IKZN  
**GZ301310<sup>2)</sup>**  
**GZ301320**  
**GZ301340**

Für zwei Mehrzahn-Wechselplatten 15 mm  
For two multi-tooth exchangeable inserts 15 mm



DIN 1835



ZIRK-GF



**Kurze Ausführung · Short design**

| P<br>mm               | P<br>Gg/1" (tpi) | $\varnothing d_1$<br>mm | $\varnothing d_f$<br>mm | $\varnothing d_2$ | $\varnothing d_5$ | $l_1$ | $l_2$ | $l_3$ | $l_4$ | Z<br>(Inserts) |
|-----------------------|------------------|-------------------------|-------------------------|-------------------|-------------------|-------|-------|-------|-------|----------------|
| 0,5 - 2,5             | 20 - 11          | $\geq 33,3$             | 25                      | 25                | 21                | 106   | 15    | 48    | 56    | 2              |
| 3 - 3,5 <sup>1)</sup> | -                | $\geq 36$               | 27                      | 25                | 21                | 106   | 15    | 48    | 56    | 2              |

ZIRK-GF  
MZP-15mm-Z2  
IKZN  
**GZ301130**  
**GZ301140**

**Lange Ausführung · Long design**

| P<br>mm   | P<br>Gg/1" (tpi) | $\varnothing d_1$<br>mm | $\varnothing d_f$<br>mm | $\varnothing d_2$ | $\varnothing d_5$ | $l_1$ | $l_2$ | $l_3$ | $l_4$ | Z<br>(Inserts) |
|-----------|------------------|-------------------------|-------------------------|-------------------|-------------------|-------|-------|-------|-------|----------------|
| 0,5 - 2,5 | 20 - 11          | $\geq 33,3$             | 25                      | 25                | 21                | 150   | 15    | 92    | 56    | 2              |

ZIRK-GF  
MZP-15mm-Z2  
IKZN  
**GZ301330<sup>2)</sup>**

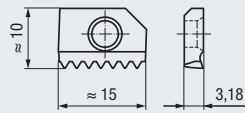
Lieferumfang: ohne Mehrzahn-Wechselplatten, mit Spannschrauben  
Delivery: without multi-tooth exchangeable inserts, with clamping screws

**Achtung:** Beim Anziehen der Spannschraube ist das **empfohlene Anzugsdrehmoment von 3,0 Nm** zu beachten  
**Note:** When tightening the clamping screw, the **recommended tightening torque 3.0 Nm** must be used

<sup>1)</sup> Verstärkte Ausführung  
Reinforced design

<sup>2)</sup> Aus Schwermetall, schwingungsgedämpft  
Of vibration-absorbing heavy metal

Mehrzahn-Wechselplatten 15 mm  
Multi-tooth exchangeable inserts 15 mm



HM  
Carbide

TIALN  
T4

RH + LH

ZIRK-GF



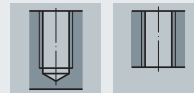
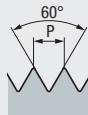
Einsatzgebiete – Material  
Applications – material

» 358

|   |         |
|---|---------|
| P | 1.1-5.1 |
| M | 1.1-4.1 |
| K | 1.1-4.2 |
| N | 1.1-5.3 |
| S | 1.1-2.6 |
| H | 1.1-1.2 |

**M, MF**

DIN 13



Für Innengewinde  
For internal threads

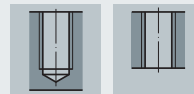
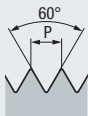


| P                 |
|-------------------|
| mm                |
| 0,5               |
| 0,75              |
| 1                 |
| 1,25              |
| 1,5               |
| 1,75              |
| 2                 |
| 2,5               |
| 3 <sup>1)</sup>   |
| 3,5 <sup>1)</sup> |

| MZP           |
|---------------|
| 15 mm         |
| TIALN-T4      |
| GF603117.9506 |
| GF603117.9509 |
| GF603117.9512 |
| GF603117.9513 |
| GF603117.9514 |
| GF603117.9515 |
| GF603117.9516 |
| GF603117.9517 |
| GF603117.9518 |
| GF603117.9519 |

**UN**

ASME B1.1



Für Innengewinde  
For internal threads

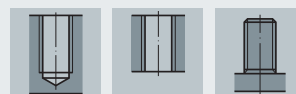
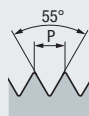


| P           |
|-------------|
| Gg/1" (tpi) |
| 20          |
| 16          |
| 14          |
| 12          |

| MZP           |
|---------------|
| 15 mm         |
| TIALN-T4      |
| GF603117.9580 |
| GF603117.9582 |
| GF603117.9583 |
| GF603117.9585 |

**G (BSP), BSW, BSF, W**

DIN EN ISO 228, BS 84



Für Innen- und Außengewinde  
For internal and external threads



| P           |
|-------------|
| Gg/1" (tpi) |
| 16          |
| 14          |
| 11          |

| MZP           |
|---------------|
| 15 mm         |
| TIALN-T4      |
| GF603117.9547 |
| GF603117.9548 |
| GF603117.9550 |

<sup>1)</sup> Verstärkte Ausführung  
Reinforced design

Ersatzschraube M4 x 7; Torx T15  
Spare screw M4 x 7; Torx T15 } **GZ309010**

Schraubendreher Torx T15  
Screw driver Torx T15 } **GZ309020**

Drehmoment-Schraubendreher Torx T15  
Torque screw driver Torx T15 } **GZ349043**

- Product Finder
- $v_c / f_z$
- M
- MF
- UNC  
UN, UNS
- UNF  
UNEF
- G, Rp
- NPT, NPTF  
Rc, W
- BSW, BSF
- Pg
- MJ  
UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr
- Zubehör  
Accessories
- BGF
- ZBGF
- GSF
- GF
- GF-VZ
- GF-KEG
- ZGF
- ZIRK-GF**
- Gigant
- MoSys

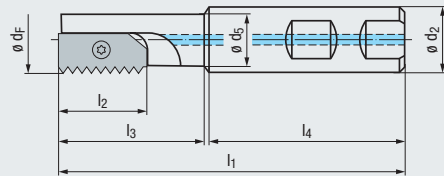
DIN 1835



ZIRK-GF



Für eine Mehrzahn-Wechselplatte 26 mm  
For one multi-tooth exchangeable insert 26 mm



Kurze Ausführung · Short design

| P<br>mm | P<br>Gg/1" (tpi) | $\varnothing d_1$<br>mm | $\varnothing d_F$<br>mm | $\varnothing d_2$ | $\varnothing d_5$ | $l_1$ | $l_2$ | $l_3$ | $l_4$ | Z<br>(Inserts) |
|---------|------------------|-------------------------|-------------------------|-------------------|-------------------|-------|-------|-------|-------|----------------|
| 1 - 4   | 14 - 11          | $\geq 33,3$             | 25                      | 25                | 20                | 107   | 26    | 45,5  | 56    | 1              |

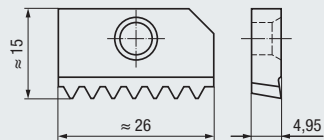
ZIRK-GF  
MZP-26mm-Z1  
IKZN  
**GZ303010**

Lieferumfang: ohne Mehrzahn-Wechselplatten, mit Spannschrauben  
Delivery: without multi-tooth exchangeable inserts, with clamping screws

**Achtung:** Beim Anziehen der Spannschraube ist das **empfohlene Anzugsdrehmoment von 3,0 Nm** zu beachten  
**Note:** When tightening the clamping screw, the **recommended tightening torque 3.0 Nm** must be used



Mehrzahn-Wechselplatten 26 mm  
Multi-tooth exchangeable inserts 26 mm



HM  
Carbide

TIALN  
T4

RH + LH

ZIRK-GF



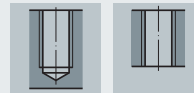
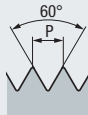
Einsatzgebiete – Material  
Applications – material

» 358

- P 1.1-5.1
- M 1.1-4.1
- K 1.1-4.2
- N 1.1-5.3
- S 1.1-2.6
- H 1.1-1.2

**M, MF**

DIN 13



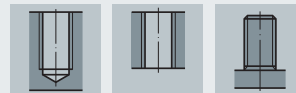
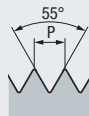
Für Innengewinde  
For internal threads



| P<br>mm | MZP<br>26 mm<br>TIALN-T4 |
|---------|--------------------------|
| 1       | GF603147.9512            |
| 1,5     | GF603147.9514            |
| 2       | GF603147.9516            |
| 2,5     | GF603147.9517            |
| 3       | GF603147.9518            |
| 3,5     | GF603147.9519            |
| 4       | GF603147.9520            |

**G (BSP), BSW, BSF, W**

DIN EN ISO 228, BS 84



Für Innen- und Außengewinde  
For internal and external threads



| P<br>Gg/1" (tpi) | MZP<br>26 mm<br>TIALN-T4 |
|------------------|--------------------------|
| 14               | GF603147.9548            |
| 11               | GF603147.9550            |

Ersatzschraube M4 x 13; Torx T15 } **GZ309210**  
Spare screw M4 x 13; Torx T15

Schraubendreher Torx T15 } **GZ309020**  
Screw driver Torx T15

Drehmoment-Schraubendreher Torx T15 } **GZ349043**  
Torque screw driver Torx T15

Product  
Finder

$v_c / f_z$

M

MF

UNC  
UN, UNS

UNF  
UNEF

G, Rp

NPT, NPTF  
Rc, W

BSW, BSF

Pg

MJ  
UNJC, UNJF

EG (STI)

SELF-LOCK

Tr

Zubehör  
Accessories

BGF

ZBGF

GSF

GF

GF-VZ

GF-KEG

ZGF

ZIRK-GF

Gigant

MoSys



- Product Finder
- $v_c / f_z$
- M
- MF
- UNC  
UN, UNS
- UNF  
UNEF
- G, Rp
- NPT, NPTF  
Rc, W
- BSW, BSF
- Pg
- MJ  
UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr
- Zubehör  
Accessories
- BGF
- ZBGF
- GSF
- GF
- GF-VZ
- GF-KEG
- ZGF
- ZIRK-GF**
- Gigant
- MoSys

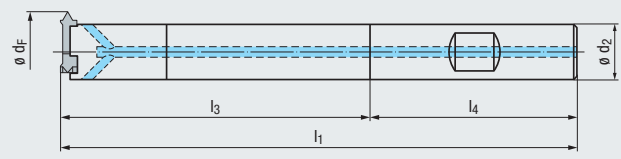
**HM**  
**Carbide**

**DIN 6535**  
HB

### ZIRK-GF



Für 3-Zahn-Wechselplatte  
For 3-tooth exchangeable insert



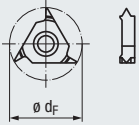
**Kurze Ausführung · Short design**

|     | P<br>mm | P<br>Gg/1" (tpi) | $\varnothing d_2$ | $l_1$ | $l_3$ | $l_4$ | Z<br>(teeth) | ZIRK-GF<br>3ZP<br>IKZN |
|-----|---------|------------------|-------------------|-------|-------|-------|--------------|------------------------|
| BGF | 1 - 3,5 | 24 - 7           | 12                | 112   | 67    | 45    | 3            | <b>GZ311330</b>        |

Lieferumfang: ohne 3-Zahn-Wechselplatte, mit Spannschraube  
Delivery: without 3-tooth exchangeable insert, with clamping screw

**Achtung:** Beim Anziehen der Spannschraube ist das **empfohlene Anzugsdrehmoment von 3,0 Nm** zu beachten  
**Note:** When tightening the clamping screw, the **recommended tightening torque 3.0 Nm** must be used

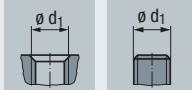
**3-Zahn-Wechselplatten**  
3-tooth exchangeable inserts




**HM Carbide**

**TIALN T4**

**RH + LH**



**ZIRK-GF**




Einsatzgebiete – Material Applications – material » 358


**P** 1.1-5.1  
**M** 1.1-4.1  
**K** 1.1-4.2  
**N** 1.1-5.3  
**S** 1.1-2.6  
**H** 1.1-1.2

|                     |
|---------------------|
| Product Finder      |
| $v_c / f_z$         |
| M                   |
| MF                  |
| UNC UN, UNS         |
| UNF UNEF            |
| G, Rp               |
| NPT, NPTF Rc, W     |
| BSW, BSF            |
| Pg                  |
| MJ UNJC, UNJF       |
| EG (STI)            |
| SELF-LOCK           |
| Tr                  |
| Zubehör Accessories |
| BGF                 |
| ZBGF                |
| GSF                 |
| GF                  |
| GF-VZ               |
| GF-KEG              |
| ZGF                 |
| ZIRK-GF             |
| Gigant              |
| MoSys               |


# M, MF, UN

DIN 13, ASME B1.1






Für Innengewinde  
For internal threads

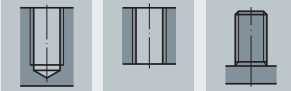


| P mm    | P Gg/1" (tpi) | $\varnothing d_1$ mm | $\varnothing d_F$ mm | Z (teeth) | 3ZP TIALN-T4         |
|---------|---------------|----------------------|----------------------|-----------|----------------------|
| 1 - 3,5 | 24 - 7        | $\geq 24$            | 17,5                 | 3         | <b>GF613127.9512</b> |
| 3       | –             | $\geq 24$            | 17,5                 | 3         | <b>GF613127.9518</b> |
| 2,5     | –             | M20                  | 16                   | 3         | <b>GF613127.0120</b> |


# G (BSP), BSW, BSF, W

DIN EN ISO 228, BS 84








Für Innen- und Außengewinde  
For internal and external threads



| P Gg/1" (tpi) | $\varnothing d_1$ mm | $\varnothing d_F$ mm | Z (teeth) | 3ZP TIALN-T4         |
|---------------|----------------------|----------------------|-----------|----------------------|
| 14            | $\geq 24$            | 17,5                 | 3         | <b>GF613127.9548</b> |
| 11            | $\geq 24$            | 17,5                 | 3         | <b>GF613127.9550</b> |

 Ersatzschraube M4 x 11; Torx T15 } **GZ319020**  
Spare screw M4 x 11; Torx T15

 Schraubendreher Torx T15 } **GZ319060**  
Screw driver Torx T15

 Drehmoment-Schraubendreher Torx T15 } **GZ349043**  
Torque screw driver Torx T15



- Product Finder
- $v_c / f_z$
- M
- MF
- UNC  
UN, UNS
- UNF  
UNEF
- G, Rp
- NPT NPTF  
Rc, W
- BSW, BSF
- Pg
- MJ  
UNJC, UNJF
- EG (STI)
- SELF-LOCK

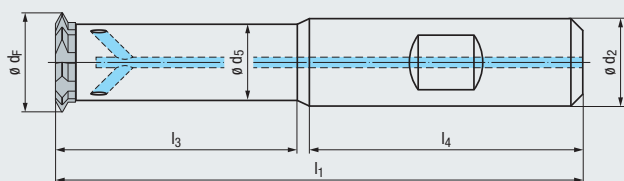
DIN 1835



ZIRK-GF



Für Stirn-Wechselplatte  
For exchangeable face insert



Max. nutzbare Gewindetiefe  $l_3$   
Max. usable thread depth  $l_3$

Empf. Anzugsdrehmoment  
Rec. tightening torque

**2 x  $d_1$**

ZIRK-GF  
SWP  
2x $d_1$   
IKZN

| Größe<br>Size | P<br>mm   | P<br>Gg/1" (tpi) | $\varnothing d_1$<br>mm | $\varnothing d_2$ | $\varnothing d_5$ | $l_1$ | $l_3$ | $l_4$ | Z<br>(teeth) | Empf. Anzugsdrehmoment<br>Rec. tightening torque<br>[Nm] | ZIRK-GF<br>SWP<br>2x $d_1$<br>IKZN |
|---------------|-----------|------------------|-------------------------|-------------------|-------------------|-------|-------|-------|--------------|--|------------------------------------|
| A             | 1 - 2     | 24 - 12          | $\geq 12$               | 10                | 7,2               | 68    | 24    | 40    | 6            | 0,9  | GZ38100A                           |
| B             | 1 - 2,5   | 24 - 10          | $\geq 14$               | 10                | 8,6               | 71,5  | 28    | 40    | 7            | 1,4  | GZ38100B                           |
| G             | 1 - 2,5   | 24 - 10          | $\geq 16$               | 12                | 10,5              | 80,5  | 32    | 45    | 8            | 1,4  | GZ38100G                           |
| C             | 1,5 - 3   | 16 - 8           | $\geq 20$               | 14                | 12,2              | 88    | 40    | 45    | 8            | 3,0  | GZ38100C                           |
| D             | 1,5 - 3,5 | 16 - 7           | $\geq 24$               | 16                | 15,2              | 99    | 48    | 48    | 8            | 5,0  | GZ38100D                           |
| E             | 2 - 4     | 12 - 6           | $\geq 30$               | 20                | 19,5              | 115   | 60    | 50    | 9            | 5,0  | GZ38100E                           |
| F             | 3 - 4     | 8 - 6            | $\geq 36$               | 25                | 23,7              | 133   | 72    | 56    | 10           | 5,0  | GZ38100F                           |

Max. nutzbare Gewindetiefe  $l_3$   
Max. usable thread depth  $l_3$

Empf. Anzugsdrehmoment  
Rec. tightening torque

**2,5 x  $d_1$**

ZIRK-GF  
SWP  
2,5x $d_1$   
IKZN

| Größe<br>Size | P<br>mm   | P<br>Gg/1" (tpi) | $\varnothing d_1$<br>mm | $\varnothing d_2$ | $\varnothing d_5$ | $l_1$ | $l_3$ | $l_4$ | Z<br>(teeth) | Empf. Anzugsdrehmoment<br>Rec. tightening torque<br>[Nm] | ZIRK-GF<br>SWP<br>2,5x $d_1$<br>IKZN |
|---------------|-----------|------------------|-------------------------|-------------------|-------------------|-------|-------|-------|--------------|--|--------------------------------------|
| A             | 1 - 2     | 24 - 12          | $\geq 12$               | 10                | 7,2               | 74    | 30    | 40    | 6            | 0,9  | GZ38110A                             |
| B             | 1 - 2,5   | 24 - 10          | $\geq 14$               | 10                | 8,6               | 78,5  | 35    | 40    | 7            | 1,4  | GZ38110B                             |
| G             | 1 - 2,5   | 24 - 10          | $\geq 16$               | 12                | 10,5              | 88,5  | 40    | 45    | 8            | 1,4  | GZ38110G                             |
| C             | 1,5 - 3   | 16 - 8           | $\geq 20$               | 14                | 12,2              | 98    | 50    | 45    | 8            | 3,0  | GZ38110C                             |
| D             | 1,5 - 3,5 | 16 - 7           | $\geq 24$               | 16                | 15,2              | 111   | 60    | 48    | 8            | 5,0  | GZ38110D                             |
| E             | 2 - 4     | 12 - 6           | $\geq 30$               | 20                | 19,5              | 130   | 75    | 50    | 9            | 5,0  | GZ38110E                             |
| F             | 3 - 4     | 8 - 6            | $\geq 36$               | 25                | 23,7              | 151   | 90    | 56    | 10           | 5,0  | GZ38110F                             |

Max. nutzbare Gewindetiefe  $l_3$   
Max. usable thread depth  $l_3$

Empf. Anzugsdrehmoment  
Rec. tightening torque

**3 x  $d_1$**

ZIRK-GF  
SWP  
3x $d_1$   
IKZN

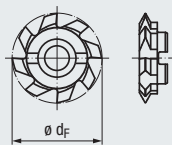
| Größe<br>Size | P<br>mm   | P<br>Gg/1" (tpi) | $\varnothing d_1$<br>mm | $\varnothing d_2$ | $\varnothing d_5$ | $l_1$ | $l_3$ | $l_4$ | Z<br>(teeth) | Empf. Anzugsdrehmoment<br>Rec. tightening torque<br>[Nm] | ZIRK-GF<br>SWP<br>3x $d_1$<br>IKZN |
|---------------|-----------|------------------|-------------------------|-------------------|-------------------|-------|-------|-------|--------------|--|------------------------------------|
| A             | 1 - 2     | 24 - 12          | $\geq 12$               | 10                | 7,2               | 80    | 36    | 40    | 6            | 0,9  | GZ38120A                           |
| B             | 1 - 2,5   | 24 - 10          | $\geq 14$               | 10                | 8,6               | 85,5  | 42    | 40    | 7            | 1,4  | GZ38120B                           |
| G             | 1 - 2,5   | 24 - 10          | $\geq 16$               | 12                | 10,5              | 96,5  | 48    | 45    | 8            | 1,4  | GZ38120G                           |
| C             | 1,5 - 3   | 16 - 8           | $\geq 20$               | 14                | 12,2              | 108   | 60    | 45    | 8            | 3,0  | GZ38120C                           |
| D             | 1,5 - 3,5 | 16 - 7           | $\geq 24$               | 16                | 15,2              | 123   | 72    | 48    | 8            | 5,0  | GZ38120D                           |
| E             | 2 - 4     | 12 - 6           | $\geq 30$               | 20                | 19,5              | 145   | 90    | 50    | 9            | 5,0  | GZ38120E                           |
| F             | 3 - 4     | 8 - 6            | $\geq 36$               | 25                | 23,7              | 169   | 108   | 56    | 10           | 5,0  | GZ38120F                           |

Lieferumfang: ohne Stirn-Wechselplatte, mit Spannschraube  
Delivery: without exchangeable face insert, with clamping screw

**Achtung:** Beim Anziehen der Spannschraube ist das **empfohlene Anzugsdrehmoment** zu beachten  
**Note:** When tightening the clamping screw, the **recommended tightening torque** must be used



Stirn-Wechselplatten  
Exchangeable face inserts



|                   |                 |
|-------------------|-----------------|
| <b>HM Carbide</b> | <b>ALCR T42</b> |
| <b>RH + LH</b>    |                 |
|                   |                 |

**ZIRK-GF**

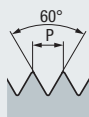


Einsatzgebiete – Material  
Applications – material 358

- P** 1.1-5.1
- M** 1.1-4.1
- K** 1.1-4.2
- N** 1.1-5.3
- S** 1.1-2.6

# M, MF, UN

DIN 13, ASME B1.1



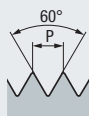
Für Innengewinde  
For internal threads



| Größe<br>Size | P<br>mm   | P<br>Gg/1" (tpi) | $\varnothing d_1$<br>mm | $\varnothing d_F$<br>mm | Z<br>(teeth) | SWP<br>ALCR-T42 |
|---------------|-----------|------------------|-------------------------|-------------------------|--------------|-----------------|
| A             | 1 - 1,75  | 24 - 13          | $\geq 12$               | 9,9                     | 6            | GF65310A.9512   |
|               | 1,75 - 2  | 14 - 12          | $\geq 14$               | 9,9                     | 6            | GF65310A.0114   |
| B             | 1 - 2     | 24 - 12          | $\geq 14$               | 11,6                    | 7            | GF65320A.9512   |
|               | 2 - 2,5   | 12 - 10          | $\geq 16$               | 11,9                    | 7            | GF65320A.0118   |
| G             | 1 - 2     | 24 - 12          | $\geq 16$               | 13,6                    | 8            | GF65370A.9512   |
|               | 2 - 2,5   | 12 - 10          | $\geq 18$               | 13,9                    | 8            | GF65370A.0118   |
| C             | 1,5 - 2,5 | 16 - 10          | $\geq 20$               | 15,9                    | 8            | GF65330A.9514   |
|               | 2,5 - 3   | 10 - 8           | $\geq 24$               | 15,9                    | 8            | GF65330A.0124   |
| D             | 1,5 - 3   | 16 - 8           | $\geq 24$               | 19,9                    | 8            | GF65340A.9514   |
|               | 3 - 3,5   | 8 - 7            | $\geq 30$               | 19,9                    | 8            | GF65340A.0130   |
| E             | 2 - 3,5   | 12 - 7           | $\geq 30$               | 24,9                    | 9            | GF65350A.9516   |
|               | 3,5 - 4   | 7 - 6            | $\geq 36$               | 24,9                    | 9            | GF65350A.0136   |
| F             | 3 - 4     | 8 - 6            | $\geq 36$               | 29,9                    | 10           | GF65360A.9518   |

# M, MF, UN

DIN 13, ASME B1.1



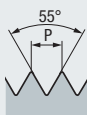
Für Außengewinde  
For external threads



| Größe<br>Size | P<br>mm | P<br>Gg/1" (tpi) | $\varnothing d_1$<br>mm | $\varnothing d_F$<br>mm | Z<br>(teeth) | SWP-Extern<br>ALCR-T42 |
|---------------|---------|------------------|-------------------------|-------------------------|--------------|------------------------|
| C             | 1       | 24               | $\geq 6$                | 15,9                    | 8            | GF65130A.9512          |
|               | 1,25    | 20               | $\geq 8$                | 15,9                    | 8            | GF65130A.9513          |
|               | 1,5     | 18 - 16          | $\geq 10$               | 15,9                    | 8            | GF65130A.9514          |
|               | 1,75    | 14               | $\geq 12$               | 15,9                    | 8            | GF65130A.9515          |
|               | 2       | 12               | $\geq 14$               | 15,9                    | 8            | GF65130A.9516          |
|               | 2,5     | 11 - 10          | $\geq 18$               | 15,9                    | 8            | GF65130A.9517          |

# G (BSP), BSW, BSF, W

DIN EN ISO 228, BS 84



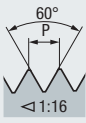
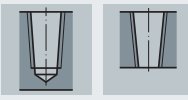

Für Innen- und Außengewinde  
For internal and external threads





| Größe<br>Size | P<br>Gg/1" (tpi) | Gewinde<br>Thread | $\varnothing d_1$<br>mm | $\varnothing d_F$<br>mm | Z<br>(teeth) | SWP<br>ALCR-T42 |
|---------------|------------------|-------------------|-------------------------|-------------------------|--------------|-----------------|
| A             | 19 - 32          | G 1/4             | $\geq 12$               | 9,9                     | 6            | GF65310A.9545   |
| B             | 16 - 26          | G 3/8             | $\geq 14$               | 11,9                    | 7            | GF65320A.9545   |
| G             | 16 - 26          | G 3/8             | $\geq 16$               | 13,9                    | 8            | GF65370A.9545   |
| C             | 14 - 20          | G 1/2, G 5/8      | $\geq 20$               | 15,9                    | 8            | GF65330A.9548   |
| D             | 10 - 14          | $\geq$ G 3/4      | $\geq 24$               | 19,9                    | 8            | GF65340A.9550   |
| E             | 8 - 14           | $\geq$ G 7/8      | $\geq 30$               | 24,9                    | 9            | GF65350A.9550   |
| F             | 7 - 11           | $\geq$ G 1 1/8    | $\geq 36$               | 29,9                    | 10           | GF65360A.9550   |







|                |   |            |   |  |
|----------------|---|------------|---|--|
| Product Finder |   | HM Carbide | ALCR T42  | ZIRK-GF  |
| $v_c / f_z$    |   |            |   |  |
| M              | Stirn-Wechselplatten<br>Exchangeable face inserts                                 |            | RH + LH   |               |
| MF             |  |            |  |  |
| UNC UN, UNS    |   |            |   |  |
| UNF UNEF       |   |            |   |  |
| G, Rp          |   |            |   |  |
| NPT NPTF Rc, W | Einsatzgebiete – Material<br>Applications – material                              | » 358      |   | <b>P</b> 1.1-5.1<br><b>M</b> 1.1-4.1<br><b>K</b> 1.1-4.2<br><b>N</b> 1.1-5.3<br><b>S</b> 1.1-2.6 |
| BSW, BSF       |   |            |   |  |

|                     |   |   |  |   |                      |           |               |
|---------------------|---|---|--|---|----------------------|-----------|---------------|
| Pg                  |  |  | Für kegeliges Innengewinde<br>For internal tapered threads |  |                      |           |               |
| MJ UNJC, UNJF       |   |   |  |   | <b>NPT</b>           |           |               |
| EG (STI)            |   |   |  |   | ANSI/ASME B1.20.1    |           |               |
| SELF-LOCK           |   |   |  |   |                      |           |               |
| Tr                  |   |   |  |   |                      |           |               |
| Zubehör Accessories | Größe Size  | P Gg/1" (tpi)   | Gewinde Thread   | $\varnothing d_1$ mm  | $\varnothing d_F$ mm | Z (teeth) | SWP ALCR-T42  |
| BGF                 | A   | 18  | 1/4, 3/8   | $\geq 12$   | 9,9                  | 5         | GF65310A.9677 |
| ZBGF                | C   | 14  | 1/2, 3/4   | $\geq 20$   | 15,9                 | 5         | GF65330A.9678 |
| GSF                 | E   | 11 1/2  | 1" - 2"  | $\geq 30$   | 24,9                 | 6         | GF65350A.9679 |
| GF                  | F   | 8   | 2 1/2 - 8"   | $\geq 36$   | 29,9                 | 9         | GF65360A.9680 |

|         |  |   |   |
|---------|--|---|---|
| ZBGF    | Ersatz-Spannschrauben<br>Spare clamping screws |  |  |
| GSF     |  |   |   |
| GF      |  |   |   |
| GF-VZ   |  |   |   |
| GF-KEG  |  |   |   |
| ZGF     |  |   |   |
| ZIRK-GF |  |   |   |
| Gigant  | Größe Size                                     | Empf. Anzugsdrehmoment<br>Rec. tightening torque [Nm]                               |   |
| MoSys   | A  | M2,5 x 8,5; Torx T7   | 0,9   |
|         | B  | M3 x 11; Torx T9  | 1,4   |
|         | G  | M3 x 11; Torx T9  | 1,4   |
|         | C  | M4 x 13; Torx T15   | 3,0   |
|         | D  | M5 x 15; Torx T20   | 5,0   |
|         | E  | M5 x 15; Torx T20   | 5,0   |
|         | F  | M5 x 15; Torx T20   | 5,0   |

**Achtung:** Beim Anziehen der Spannschraube ist das **empfohlene Anzugsdrehmoment** zu beachten  
**Note:** When tightening the clamping screw, the **recommended tightening torque** must be used

|                                 |   |   |   |   |   |
|---------------------------------|---|---|---|---|---|
| Schraubendreher<br>Screw driver |  |  | Drehmoment-Schraubendreher<br>Torque screw driver |  |  |
|                                 |   |   |   |   |   |
|                                 | Größe Size  |   | Größe Size  |   |   |
|                                 | A   | Torx T7   | A   | Torx T7   | GZ349041  |
|                                 | B   | Torx T9   | B   | Torx T9   | GZ349042  |
|                                 | G   | Torx T9   | G   | Torx T9   | GZ349042  |
|                                 | C   | Torx T15  | C   | Torx T15  | GZ349043  |
|                                 | D   | Torx T20  | D   | Torx T20  | GZ349044  |
|                                 | E   | Torx T20  | E   | Torx T20  | GZ349044  |
|                                 | F   | Torx T20  | F   | Torx T20  | GZ349044  |

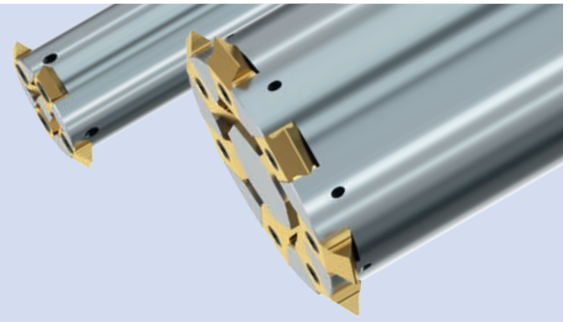
## Gigant-ic

**Vorteile:**

- Flexibilität

**Advantages:**

- Flexibility



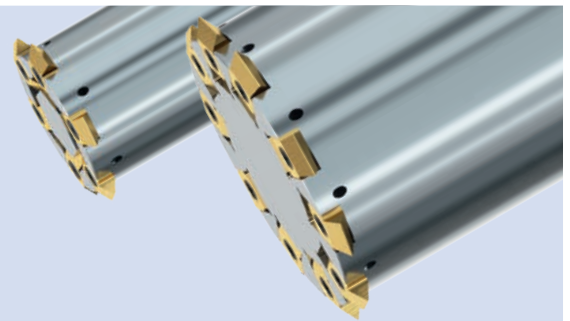
## Gigant sprinter

**Vorteile:**

- Schnelligkeit

**Advantages:**

- Fast operation



## Gigant soft run

Hartmetall-Träger

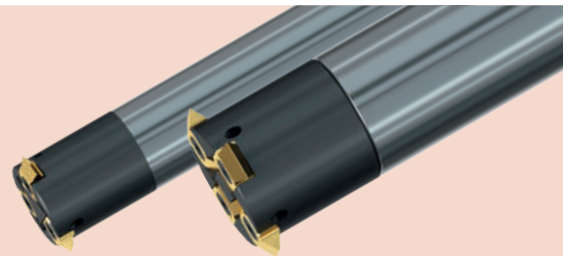
Carbide tool body

**Vorteile:**

- Laufruhe
- Stabilität

**Advantages:**

- Smooth operation
- Stability



## Gigant soft run sprinter

Hartmetall-Träger

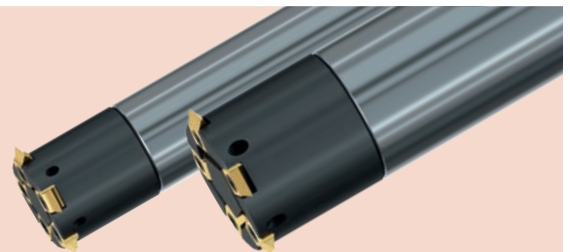
Carbide tool body

**Vorteile:**

- Schnelligkeit
- Laufruhe
- Stabilität

**Advantages:**

- Fast operation
- Smooth operation
- Stability



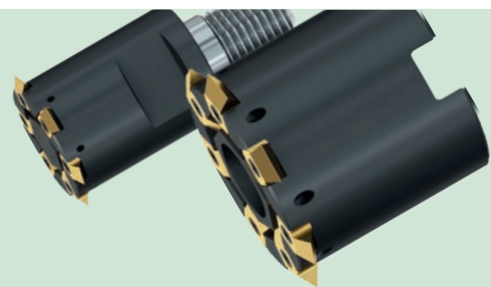
## Gigant modular

**Vorteile:**

- Modularer Aufbau

**Advantages:**

- Modular construction



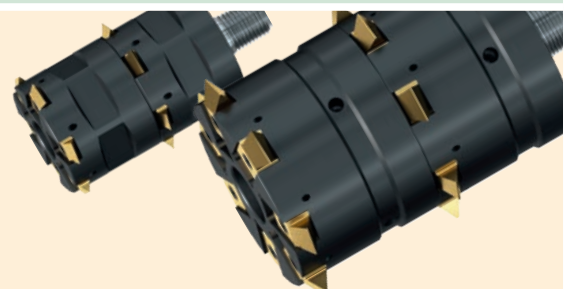
## Gigant modular sprinter

**Vorteile:**

- Flexible Längen
- Kürzere Bearbeitungszeit

**Advantages:**

- Flexible lengths
- Reduced machining times



Product Finder

$v_c / f_z$

M

MF

UNC  
UN, UNS

UNF  
UNEF

G, Rp

NPT, NPTF  
Rc, W

BSW, BSF

Pg

MJ  
UNJC, UNJF

EG (STI)

SELF-LOCK

Tr

Zubehör  
Accessories

BGF

ZBGF

GSF

GF

GF-VZ

GF-KEG

ZGF

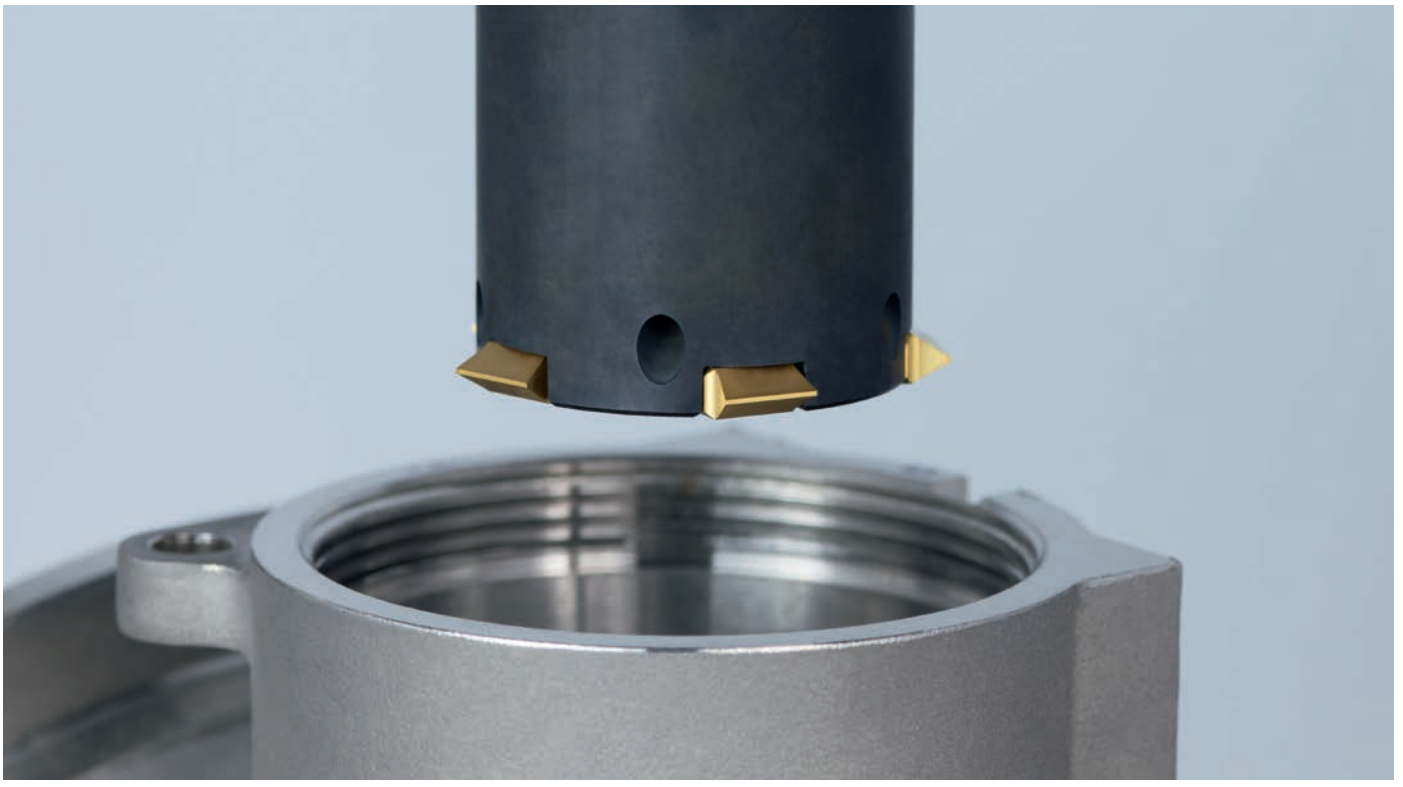
ZIRK-GF

**Gigant**

MoSys

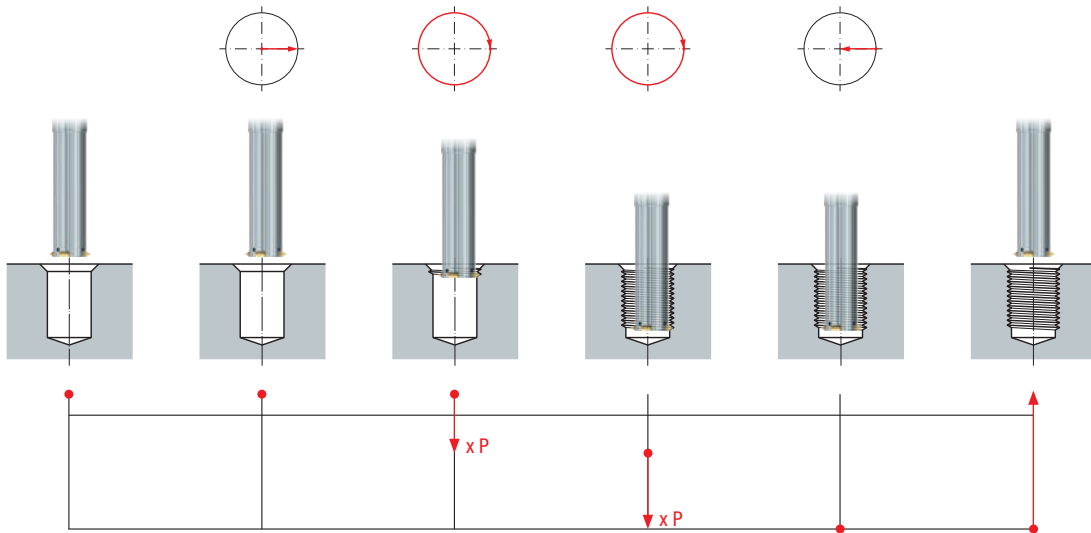


|                    |
|--------------------|
| Product Finder     |
| $v_c / f_z$        |
| M                  |
| MF                 |
| UNC<br>UN, UNS     |
| UNF<br>UNEF        |
| G, Rp              |
| NPT, NPTF<br>Rc, W |
| BSW, BSF           |
| Pg                 |
| MJ<br>UNJC, UNJF   |
| EG (STI)           |
| SELF-LOCK          |
| Tr                 |



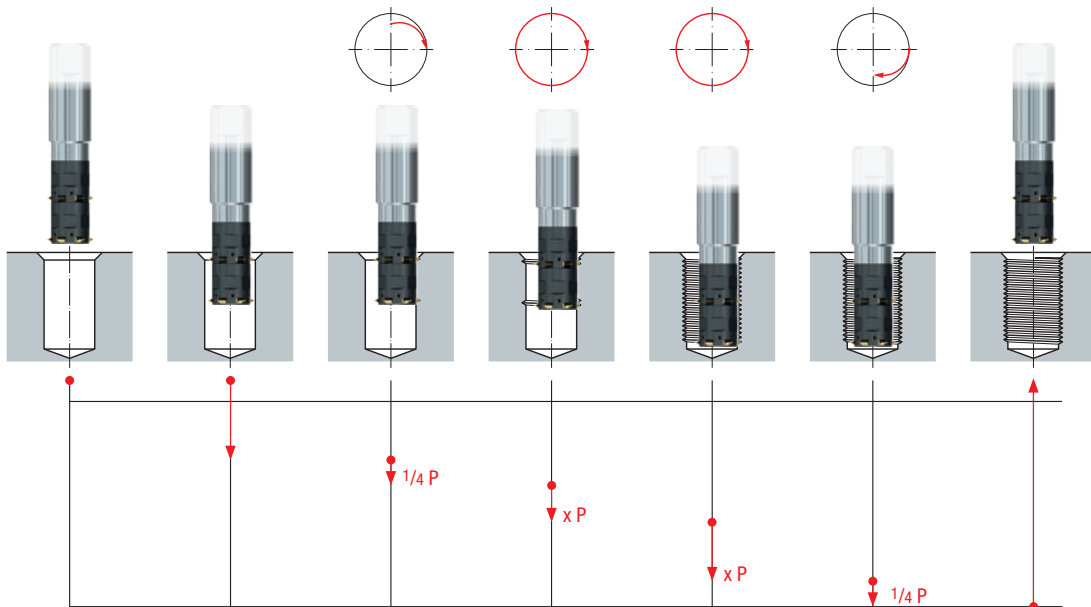
Zubehör  
Accessories

**Gewindefräszyklus · Thread milling cycle**



**Gewindefräszyklus · Thread milling cycle**

**Gigant modular sprinter**



**Gigant**

|                           |                           |                           |                           |                           |                           |
|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|
|                           |                           |                           |                           |                           |                           |
| Größe · Size<br><b>10</b> | Größe · Size<br><b>11</b> | Größe · Size<br><b>12</b> | Größe · Size<br><b>13</b> | Größe · Size<br><b>14</b> | Größe · Size<br><b>15</b> |
|                           |                           |                           |                           |                           |                           |
| Seite · Page              |                           |                           |                           |                           |                           |
| 494                       | 496                       | 498                       | 500                       | 502                       | 504                       |

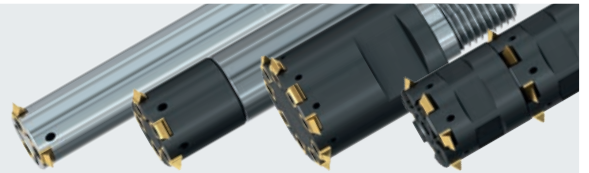
|                           |                           |                           |                           |                           |                           |     |     |     |     |     |     |                             |
|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|-----|-----|-----|-----|-----|-----|-----------------------------|
|                           |                           |                           |                           |                           |                           |     |     |     |     |     |     |                             |
| Größe · Size<br><b>10</b> | Größe · Size<br><b>11</b> | Größe · Size<br><b>12</b> | Größe · Size<br><b>13</b> | Größe · Size<br><b>14</b> | Größe · Size<br><b>15</b> |     |     |     |     |     |     |                             |
|                           |                           |                           |                           |                           |                           |     |     |     |     |     |     |                             |
| Seite · Page              |                           |                           |                           |                           |                           |     |     |     |     |     |     |                             |
| 495                       | 495                       | 497                       | 497                       | 499                       | 499                       | 501 | 501 | 503 | 503 | 505 |     | <b>M</b>                    |
| 495                       | 495                       | 497                       | 497                       | 499                       | 499                       | 501 | 501 | 503 | 503 | 505 |     | <b>MF</b>                   |
| 495                       |                           | 497                       |                           | 499                       |                           | 501 |     | 503 |     | 505 |     | <b>UN</b>                   |
| 495                       | 495                       | 497                       | 497                       | 499                       | 499                       | 501 | 501 | 503 | 503 |     |     | <b>G (BSP), BSW, BSF, W</b> |
|                           |                           | 497                       | 497                       | 499                       | 499                       |     |     |     |     |     |     | <b>NPT</b>                  |
| 495                       | 495                       | 497                       | 497                       | 499                       | 499                       | 501 | 501 | 503 | 503 | 505 | 505 | <b>Tr</b>                   |

|                        |
|------------------------|
| <b>Product Finder</b>  |
| $v_c / f_z$            |
| M                      |
| MF                     |
| UNC<br>UN, UNS         |
| UNF<br>UNEF            |
| G, Rp                  |
| NPT, NPTF<br>Rc, W     |
| BSW, BSF               |
| Pg                     |
| MJ<br>UNJC, UNJF       |
| EG (STI)               |
| SELF-LOCK              |
| Tr                     |
| Zubehör<br>Accessories |
| BGF                    |
| ZBGF                   |
| GSF                    |
| GF                     |
| GF-VZ                  |
| GF-KEG                 |
| ZGF                    |
| ZIRK-GF                |
| <b>Gigant</b>          |
| MoSys                  |

|  |  |                           |
|--|--|---------------------------|
|  | Fräsringe zum Entfernen des unvollständigen Ganges<br>Milling rings for removal of the incomplete thread   | Seite · Page<br>506       |
|  | Aufnahmen und Verlängerungen für Gigant modular und Gigant modular sprinter<br>Holders and extensions for Gigant modular and Gigant modular sprinter | Seite · Page<br>508 - 509 |

# 10

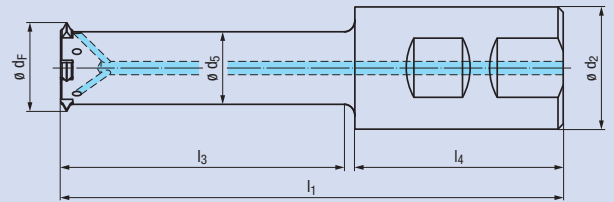
Für Abmessungen ab Gewindedurchmesser 20 mm  
For thread sizes from thread diameter 20 mm



### Gigant-ic

### Gigant sprinter

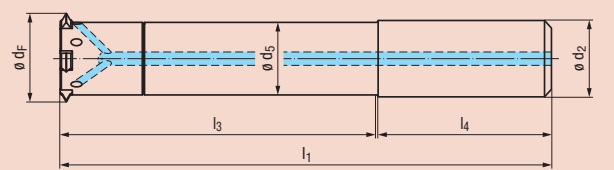
| DIN 1835          |                   |                   | QR Code           |       |       |       |             |                   |                        |
|-------------------|-------------------|-------------------|-------------------|-------|-------|-------|-------------|-------------------|------------------------|
| $\varnothing d_1$ | $\varnothing d_F$ | $\varnothing d_2$ | $\varnothing d_5$ | $l_1$ | $l_3$ | $l_4$ | Z (Inserts) | <b>Gigant-ic</b>  | <b>Gigant sprinter</b> |
| mm                | mm                | mm                | mm                | mm    | mm    | mm    |             | <b>Gr.10-IKZN</b> | <b>Gr.10-IKZN</b>      |
| ≥ 20              | 17                | 12                | 12                | 87    | 40    | 45    | 2           | <b>GZ341000</b>   |                        |
| ≥ 24              | 20,5              | 16                | 15,9              | 100   | 50    | 48    | 3           | <b>GZ341040</b>   |                        |
| ≥ 24              | 20,5              | 16                | 15,9              | 115   | 65    | 48    | 3           | <b>GZ341050</b>   |                        |
| ≥ 30              | 23,85             | 32                | 19                | 145   | 80    | 60    | 5           |                   | <b>GZ341200</b>        |



### Gigant soft run

### Gigant soft run sprinter

| DIN 6535          |                   |                   | QR Code           |       |       |       |             |                        |                                 |
|-------------------|-------------------|-------------------|-------------------|-------|-------|-------|-------------|------------------------|---------------------------------|
| $\varnothing d_1$ | $\varnothing d_F$ | $\varnothing d_2$ | $\varnothing d_5$ | $l_1$ | $l_3$ | $l_4$ | Z (Inserts) | <b>Gigant soft run</b> | <b>Gigant soft run sprinter</b> |
| mm                | mm                | mm                | mm                | mm    | mm    | mm    |             | <b>Gr.10-IKZN</b>      | <b>Gr.10-IKZN</b>               |
| ≥ 20              | 17                | 12                | 12                | 97    | 50    | 45    | 2           | <b>GZ34A010</b>        |                                 |
| ≥ 24              | 20,5              | 16                | 15,9              | 115   | 65    | 48    | 3           | <b>GZ34A000</b>        |                                 |
| ≥ 30              | 23,85             | 20                | 19                | 142   | 90    | 50    | 5           |                        | <b>GZ34C000</b>                 |
| ≥ 36              | 30                | 25                | 25                | 153   | 95    | 56    | 7           |                        | <b>GZ34C010</b>                 |
| ≥ 40              | 32,85             | 32                | 27,7              | 178   | 115   | 60    | 8           |                        | <b>GZ34C020</b>                 |

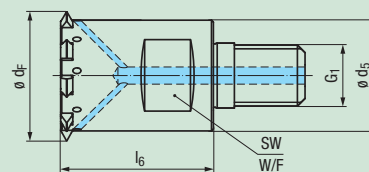


Mit variabler Länge auf Anfrage  
With variable length upon request

### Gigant modular

Nur einzeln einsetzbar  
Can only be used individually

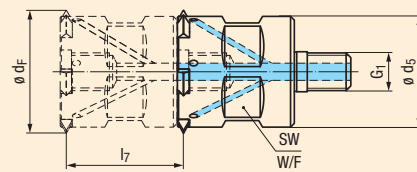
| M                 |                   |                   | QR Code |       |          |             |                       |
|-------------------|-------------------|-------------------|---------|-------|----------|-------------|-----------------------|
| $\varnothing d_1$ | $\varnothing d_F$ | $\varnothing d_5$ | $l_6$   | $G_1$ | SW (W/F) | Z (Inserts) | <b>Gigant modular</b> |
| mm                | mm                | mm                | mm      | mm    | mm       |             | <b>Gr.10-IKZN</b>     |
| ≥ 40              | 34,25             | 28,8              | 38      | M16   | 22       | 9           | <b>GZ351000</b>       |



### Gigant modular sprinter

Je nach Anwendung empfehlen wir, max. 3 Gigant modular sprinter miteinander zu kombinieren  
Depending on the application, we recommend to combine up to a maximum of 3 Gigant modular sprinter

| MF                |                   |                   | QR Code |        |          |             |                                |
|-------------------|-------------------|-------------------|---------|--------|----------|-------------|--------------------------------|
| $\varnothing d_1$ | $\varnothing d_F$ | $\varnothing d_5$ | $l_7$   | $G_1$  | SW (W/F) | Z (Inserts) | <b>Gigant modular sprinter</b> |
| mm                | mm                | mm                | mm      | mm     | mm       |             | <b>Gr.10-IKZN</b>              |
| ≥ 32              | 27                | 22,15             | 24      | M8 x 1 | 19       | 6           | <b>GZ353000</b>                |



Die Innensechskant-Schraube zum stirnseitigen Verschließen der Kühlmittel-Bohrung ist im Lieferumfang enthalten  
The hexagon socket screw to close the coolant hole on the face side is included with the delivery

Lieferumfang: ohne 2-Zahn-Wendeplatten, mit Spannschrauben  
Delivery: without 2-tooth indexable inserts, with clamping screws

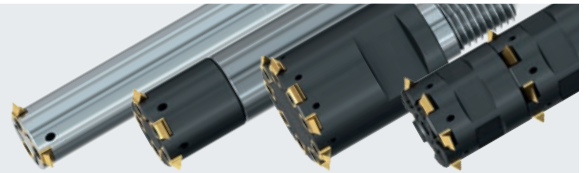
**Achtung:** Beim Anziehen der Spannschraube ist das **empfohlene Anzugsdrehmoment** von **0,9 Nm** zu beachten  
**Note:** When tightening the clamping screw, the **recommended tightening torque 0.9 Nm** must be used

Fräsringe zum Entfernen des unvollständigen Ganges siehe Seite 506  
Milling rings for removal of the incomplete thread, see page 506

Aufnahmen und Verlängerungen für Gigant modular und Gigant modular sprinter siehe Seite 508 - 509  
Holders and extensions for Gigant modular and Gigant modular sprinter, see pages 508 - 509

# 10

**2-Zahn-Wendeplatten für Steigungsbereich bis 3 mm (8 Gg/1")**  
 2-tooth indexable inserts for a pitch range up to 3 mm (8 tpi)



Product Finder

$v_c / f_z$

M

MF

UNC  
UN, UNS

UNF  
UNEF

G, Rp

NPT, NPTF  
Rc, W

BSW, BSF

Pg

MJ  
UNJC, UNJF

EG (STI)

SELF-LOCK

Tr

Zubehör  
Accessories

BGF

ZBGF

GSF

GF

GF-VZ

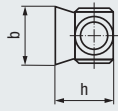
GF-KEG

ZGF

ZIRK-GF

Gigant

MoSys



HM  
Carbide

RH + LH



Beschichtung · Coating

TIN

TIALN-T4

Einsatzgebiete – Material  
 Applications – material 358

|                  |                  |                  |
|------------------|------------------|------------------|
| <b>P</b> 1.1-5.1 | <b>M</b> 1.1-4.1 | <b>K</b> 1.1-4.2 |
| <b>N</b> 1.1-5.3 | <b>S</b> 1.1-2.6 | <b>H</b> 1.1-1.2 |

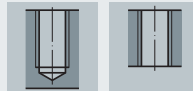
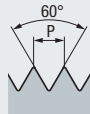
WP-Z2  
Gr.10  
TIN

WP-Z2  
Gr.10  
TIALN-T4

| P<br>mm | P<br>Gg/1" (tpi) | b | h |
|---------|------------------|---|---|
|---------|------------------|---|---|

## M, MF, UN

DIN 13, ASME B1.1



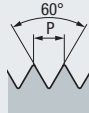
|         |         |   |   |
|---------|---------|---|---|
| 1 - 2,5 | 24 - 10 | 5 | 7 |
| 1,5 - 3 | 16 - 8  | 5 | 7 |

GF643005.9512  
GF643005.9514

GF643007.9512  
GF643007.9514

## M, MF

DIN 13

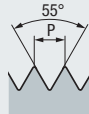


|     |   |   |
|-----|---|---|
| 1,5 | 5 | 7 |
| 2   | 5 | 7 |

GF641007.9514  
GF641007.9516

## G (BSP), BSW, BSF, W

DIN EN ISO 228, BS 84



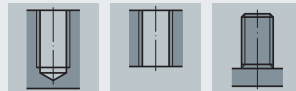
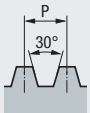
|         |             |   |   |
|---------|-------------|---|---|
| (1,814) | 14 (9 - 28) | 5 | 7 |
|---------|-------------|---|---|

GF643005.9548

GF643007.9548

## Tr

DIN 103



|     |   |   |   |
|-----|---|---|---|
| 1,5 | 5 | 7 | $\varnothing d_{1 \text{ min.}} = d_F + 11$ |
| 2   | 5 | 7 | $\varnothing d_{1 \text{ min.}} = d_F + 14$ |

GF643007.9597  
GF643007.9599

### Zubehör Accessories

Andere Ausführungen auf Anfrage, z.B.  
 Other designs upon request, e.g.



ACME-Gewinde  
ACME thread

Rundgewinde  
Round thread

Sägengewinde  
Buttress thread

Einstechplatten in verschiedenen Ausführungen  
 Infeed inserts in various designs

-  Ersatzschraube M2,5 x 8,5; Torx T7  
Spare screw M2.5 x 8.5; Torx T7 } **GZ349010**
-  Schraubendreher Torx T7  
Screw driver Torx T7 } **GZ349020**
-  Drehmoment-Schraubendreher Torx T7  
Torque screw driver Torx T7 } **GZ349040**
-  Verschluss-Schraube M8x1 x 10; SW4  
Screw plug M8x1 x 10; SW4 } **GZ359310**

Product Finder

$v_c / f_z$

M

MF

UNC  
UN, UNS

UNF  
UNEF

G, Rp

NPT NPTF  
Rc, W

BSW, BSF

Pg

MJ  
UNJC, UNJF

EG (STI)

SELF-LOCK

Tr

Zubehör  
Accessories

BGF

ZBGF

GSF

GF

GF-VZ

GF-KEG

ZGF

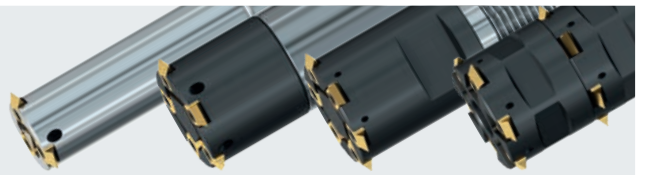
ZIRK-GF

Gigant

MoSys

# 11

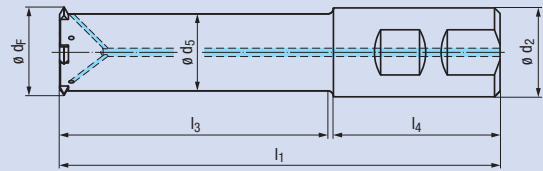
Für Abmessungen ab Gewindedurchmesser 30 mm  
For thread sizes from thread diameter 30 mm



### Gigant-ic

### Gigant sprinter

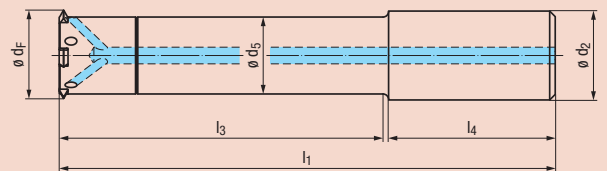
| DIN 1835                |                         |                   |                   |       |       |       |                |                                       |   |
|-------------------------|-------------------------|-------------------|-------------------|-------|-------|-------|----------------|---------------------------------------|---|
| $\varnothing d_1$<br>mm | $\varnothing d_F$<br>mm | $\varnothing d_2$ | $\varnothing d_5$ | $l_1$ | $l_3$ | $l_4$ | Z<br>(Inserts) | <b>Gigant-ic</b><br><b>Gr.11-1KZN</b> | <b>Gigant sprinter</b><br><b>Gr.11-1KZN</b> |
| $\geq 30$               | 23,85                   | 32                | 19                | 122   | 60    | 60    | 3              | <b>GZ341121</b>                       |   |
| $\geq 30$               | 23,85                   | 25                | 19                | 138   | 80    | 56    | 3              | <b>GZ341021</b>                       |   |
| $\geq 30$               | 23,85                   | 32                | 19                | 142   | 80    | 60    | 3              | <b>GZ341001</b>                       |   |
| $\geq 30$               | 23,85                   | 32                | 19                | 152   | 90    | 60    | 3              | <b>GZ341101</b>                       |   |
| $\geq 34$               | 28                      | 32                | 23                | 153   | 90    | 60    | 5              |                                       | <b>GZ341211</b>                             |
| $\geq 36$               | 29,5                    | 32                | 24,5              | 157   | 95    | 60    | 3              | <b>GZ341131</b>                       |   |
| $\geq 40$               | 32,85                   | 32                | 27,7              | 159   | 95    | 60    | 5              |                                       | <b>GZ341201</b>                             |
| $\geq 40$               | 34                      | 32                | 28,8              | 124   | 60    | 60    | 6              |                                       | <b>GZ341221</b>                             |
| $\geq 48$               | 40,25                   | 32                | 35                | 144   | 80    | 60    | 8              |                                       | <b>GZ341231</b>                             |



### Gigant soft run

### Gigant soft run sprinter

| DIN 6535                |                         |                   |                   |       |       |       |                |   |  |
|-------------------------|-------------------------|-------------------|-------------------|-------|-------|-------|----------------|---|--|
| $\varnothing d_1$<br>mm | $\varnothing d_F$<br>mm | $\varnothing d_2$ | $\varnothing d_5$ | $l_1$ | $l_3$ | $l_4$ | Z<br>(Inserts) | <b>Gigant soft run</b><br><b>Gr.11-1KZN</b> | <b>Gigant soft run sprinter</b><br><b>Gr.11-1KZN</b> |
| $\geq 30$               | 23,85                   | 20                | 19                | 142   | 90    | 50    | 3              | <b>GZ34A001</b>                             |  |
| $\geq 40$               | 32,85                   | 32                | 27,7              | 179   | 115   | 60    | 5              |   | <b>GZ34C001</b>                                      |

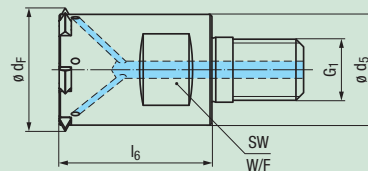


Mit variabler Länge auf Anfrage  
With variable length upon request

### Gigant modular

| M                       |                         |                   |       |       |             |                |  |  |
|-------------------------|-------------------------|-------------------|-------|-------|-------------|----------------|--|--|
| $\varnothing d_1$<br>mm | $\varnothing d_F$<br>mm | $\varnothing d_5$ | $l_6$ | $G_1$ | SW<br>(W/F) | Z<br>(Inserts) | <b>Gigant modular</b><br><b>Gr.11-1KZN</b> |  |
| $\geq 42$               | 34,25                   | 28,8              | 38    | M16   | 22          | 6              | <b>GZ351001</b>                            |  |

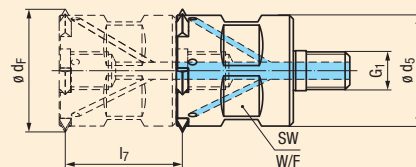
Nur einzeln einsetzbar  
Can only be used individually



### Gigant modular sprinter

| MF                      |                         |                   |       |         |             |                |   |  |
|-------------------------|-------------------------|-------------------|-------|---------|-------------|----------------|---|--|
| $\varnothing d_1$<br>mm | $\varnothing d_F$<br>mm | $\varnothing d_5$ | $l_7$ | $G_1$   | SW<br>(W/F) | Z<br>(Inserts) | <b>Gigant modular sprinter</b><br><b>Gr.11-1KZN</b> |  |
| $\geq 42$               | 34,25                   | 29,15             | 24    | M10 x 1 | 25          | 6              | <b>GZ353001</b>                                     |  |

Je nach Anwendung empfehlen wir, max. 3 Gigant modular sprinter  
miteinander zu kombinieren  
Depending on the application, we recommend to combine up to a maximum  
of 3 Gigant modular sprinter



Die Innensechskant-Schraube zum stirnseitigen Verschließen der Kühlmittel-Bohrung  
ist im Lieferumfang enthalten  
The hexagon socket screw to close the coolant hole on the face side is included with the delivery

Das Maß  $l_7$  muss ein Vielfaches der Steigung P des herzustellenden Gewindes sein  
The measurement  $l_7$  must be a multiple of the pitch P of the thread to be produced

Lieferumfang: ohne 4-Zahn-Wendeplatten, mit Spannschrauben  
Delivery: without 4-tooth indexable inserts, with clamping screws

**Achtung:** Beim Anziehen der Spannschraube ist das **empfohlene Anzugsdrehmoment von 0,9 Nm** zu beachten  
**Note:** When tightening the clamping screw, the **recommended tightening torque 0.9 Nm** must be used

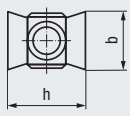
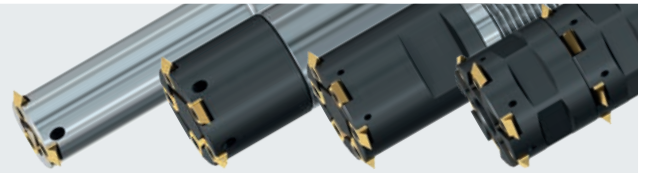
Fräsringe zum Entfernen des unvollständigen Ganges siehe Seite 506  
Milling rings for removal of the incomplete thread, see page 506

Aufnahmen und Verlängerungen für Gigant modular und Gigant modular sprinter siehe Seite 508 - 509  
Holders and extensions for Gigant modular and Gigant modular sprinter, see pages 508 - 509



# 11

**4-Zahn-Wendeplatten für Steigungsbereich bis 4 mm (6 Gg/1")**  
 4-tooth indexable inserts for a pitch range up to 4 mm (6 tpi)



**HM**  
Carbide

**RH + LH**



Beschichtung · Coating

TIN

TIALN-T4

Einsatzgebiete – Material  
 Applications – material 358

|                  |                  |                  |
|------------------|------------------|------------------|
| <b>P</b> 1.1-5.1 | <b>M</b> 1.1-4.1 | <b>K</b> 1.1-4.2 |
| <b>N</b> 1.1-5.3 | <b>S</b> 1.1-2.6 | <b>H</b> 1.1-1.2 |

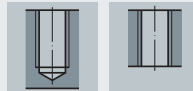
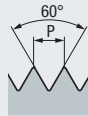
**WP-Z4**  
Gr.11  
TIN

**WP-Z4**  
Gr.11  
TIALN-T4

| P  | P           | b | h |
|----|-------------|---|---|
| mm | Gg/1" (tpi) |   |   |

## M, MF, UN

DIN 13, ASME B1.1



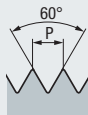
|           |         |      |      |
|-----------|---------|------|------|
| 1 - 2,5   | 24 - 10 | 6,35 | 9,52 |
| 1,5 - 2,5 | 16 - 10 | 6,35 | 9,52 |
| 2,5 - 4   | 10 - 6  | 6,35 | 9,52 |

GF643105.9512  
 GF643105.9514  
 GF643105.9517

GF643107.9512  
 GF643107.9514  
 GF643107.9517

## M, MF

DIN 13

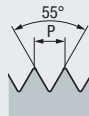


|     |      |      |
|-----|------|------|
| 2,5 | 6,35 | 9,52 |
| 3   | 6,35 | 9,52 |

GF641107.9517  
 GF641107.9518

## G (BSP), BSW, BSF, W

DIN EN ISO 228, BS 84



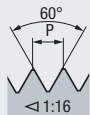
|         |             |      |      |
|---------|-------------|------|------|
| (2,309) | 11 (9 - 28) | 6,35 | 9,52 |
|---------|-------------|------|------|

GF643105.9550

GF643107.9550

## NPT

ANSI/ASME B1.20.1

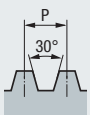


|         |        |      |      |
|---------|--------|------|------|
| (2,209) | 11 1/2 | 6,35 | 9,52 |
|---------|--------|------|------|

GF643107.9679

## Tr

DIN 103



|   |      |      |   |
|---|------|------|---|
| 3 | 6,35 | 9,52 | $\emptyset d_1 \text{ min.} = d_F + 23$ |
| 4 | 6,35 | 9,52 | $\emptyset d_1 \text{ min.} = d_F + 32$ |

GF643107.9601  
 GF643107.9603

### Zubehör Accessories

Andere Ausführungen auf Anfrage, z.B.  
 Other designs upon request, e.g.

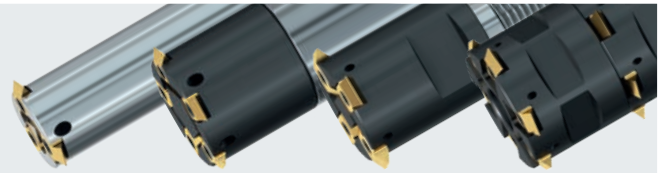


Einstechplatten in verschiedenen Ausführungen  
 Infed inserts in various designs

-  Ersatzschraube M2,5 x 8,5; Torx T7  
Spare screw M2.5 x 8.5; Torx T7 } **GZ349011**
-  Schraubendreher Torx T7  
Screw driver Torx T7 } **GZ349021**
-  Drehmoment-Schraubendreher Torx T7  
Torque screw driver Torx T7 } **GZ349041**
-  Verschluss-Schraube M10x1 x 12; SW5  
Screw plug M10x1 x 12; SW5 } **GZ359311**

# 12

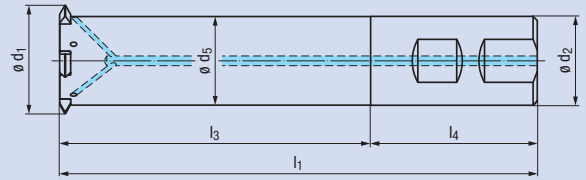
Für Abmessungen ab Gewindedurchmesser 40 mm  
For thread sizes from thread diameter 40 mm



### Gigant-ic

### Gigant sprinter

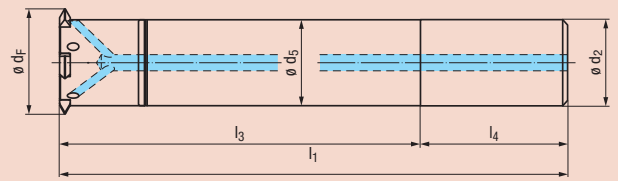
| DIN 1835        |                 |                 | Z3 - Z5         |       |       |       |             |                   |                        |
|-----------------|-----------------|-----------------|-----------------|-------|-------|-------|-------------|-------------------|------------------------|
| $\emptyset d_1$ | $\emptyset d_F$ | $\emptyset d_2$ | $\emptyset d_5$ | $l_1$ | $l_3$ | $l_4$ | Z (Inserts) | <b>Gigant-ic</b>  | <b>Gigant sprinter</b> |
| $\geq 40$       | 32,85           | 25              | 24,5            | 153   | 95    | 56    | 3           | <b>Gr.12-1KZN</b> | <b>Gr.12-1KZN</b>      |
| $\geq 40$       | 32,85           | 32              | 24,5            | 158   | 95    | 60    | 3           | <b>GZ341012</b>   |                        |
| $\geq 40$       | 32,85           | 32              | 24,5            | 178   | 115   | 60    | 3           | <b>GZ341112</b>   |                        |
| $\geq 45$       | 36              | 32              | 27,8            | 194   | 130   | 60    | 4           |                   | <b>GZ341212</b>        |
| $\geq 48$       | 40,25           | 32              | 31,9            | 172   | 110   | 60    | 5           |                   | <b>GZ341202</b>        |



### Gigant soft run

### Gigant soft run sprinter

| DIN 6535        |                 |                 | Z3 - Z5         |       |       |       |             |                        |                                 |
|-----------------|-----------------|-----------------|-----------------|-------|-------|-------|-------------|------------------------|---------------------------------|
| $\emptyset d_1$ | $\emptyset d_F$ | $\emptyset d_2$ | $\emptyset d_5$ | $l_1$ | $l_3$ | $l_4$ | Z (Inserts) | <b>Gigant soft run</b> | <b>Gigant soft run sprinter</b> |
| $\geq 40$       | 32,85           | 25              | 24,5            | 173   | 115   | 56    | 3           | <b>Gr.12-1KZN</b>      | <b>Gr.12-1KZN</b>               |
| $\geq 48$       | 40,25           | 32              | 31,9            | 207   | 145   | 60    | 5           | <b>GZ34A002</b>        | <b>GZ34C002</b>                 |

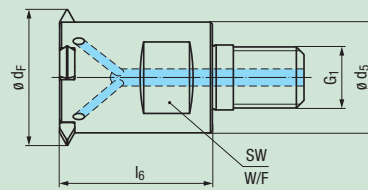


Mit variabler Länge auf Anfrage  
With variable length upon request

### Gigant modular

| M               |                 | Z4              |       |       |          |             |                       |
|-----------------|-----------------|-----------------|-------|-------|----------|-------------|-----------------------|
| $\emptyset d_1$ | $\emptyset d_F$ | $\emptyset d_5$ | $l_6$ | $G_1$ | SW (W/F) | Z (Inserts) | <b>Gigant modular</b> |
| $\geq 46$       | 37,5            | 28,8            | 38    | M16   | 22       | 4           | <b>Gr.12-1KZN</b>     |
|                 |                 |                 |       |       |          |             | <b>GZ351002</b>       |

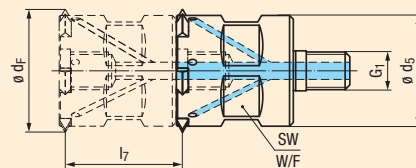
Nur einzeln einsetzbar  
Can only be used individually



### Gigant modular sprinter

| MF              |                 | Z6              |       |         |          |             |                                |
|-----------------|-----------------|-----------------|-------|---------|----------|-------------|--------------------------------|
| $\emptyset d_1$ | $\emptyset d_F$ | $\emptyset d_5$ | $l_7$ | $G_1$   | SW (W/F) | Z (Inserts) | <b>Gigant modular sprinter</b> |
| 58              | 46              | 37,65           | 36    | M12 x 1 | 32       | 6           | <b>Gr.12-1KZN</b>              |
|                 |                 |                 |       |         |          |             | <b>GZ353002</b>                |

Je nach Anwendung empfehlen wir, max. 3 Gigant modular sprinter miteinander zu kombinieren  
Depending on the application, we recommend to combine up to a maximum of 3 Gigant modular sprinter



Die Innensechskant-Schraube zum stirnseitigen Verschließen der Kühlmittel-Bohrung ist im Lieferumfang enthalten  
The hexagon socket screw to close the coolant hole on the face side is included with the delivery

Das Maß  $l_7$  muss ein Vielfaches der Steigung P des herzustellenden Gewindes sein  
The measurement  $l_7$  must be a multiple of the pitch P of the thread to be produced

Lieferumfang: ohne 4-Zahn-Wendeplatten, mit Spannschrauben  
Delivery: without 4-tooth indexable inserts, with clamping screws

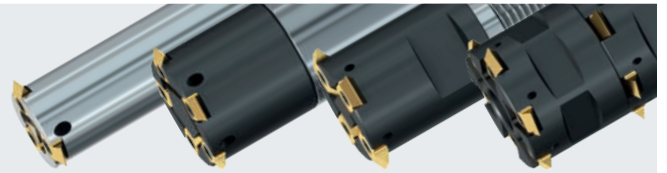
**Achtung:** Beim Anziehen der Spannschraube ist das **empfohlene Anzugsdrehmoment von 1,4 Nm** zu beachten  
**Note:** When tightening the clamping screw, the **recommended tightening torque 1.4 Nm** must be used

Fräsringe zum Entfernen des unvollständigen Ganges siehe Seite 506  
Milling rings for removal of the incomplete thread, see page 506

Aufnahmen und Verlängerungen für Gigant modular und Gigant modular sprinter siehe Seite 508 - 509  
Holders and extensions for Gigant modular and Gigant modular sprinter, see pages 508 - 509

# 12

**4-Zahn-Wendeplatten für Steigungsbereich bis 5,5 mm (4,5 Gg/1")**  
 4-tooth indexable inserts for a pitch range up to 5.5 mm (4.5 tpi)



Product Finder

$v_c / f_z$

M

MF

UNC  
UN, UNS

UNF  
UNEF

G, Rp

NPT NPTF  
Re, W

BSW, BSF

Pg

MJ  
UNJC, UNJF

EG (STI)

SELF-LOCK

Tr

Zubehör  
Accessories

BGF

ZBGF

GSF

GF

GF-VZ

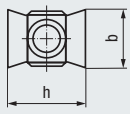
GF-KEG

ZGF

ZIRK-GF

Gigant

MoSys



HM  
Carbide

RH + LH



Beschichtung · Coating

TIN

TIALN-T4

Einsatzgebiete – Material  
Applications – material 358

|                  |                  |                  |
|------------------|------------------|------------------|
| <b>P</b> 1.1-5.1 | <b>M</b> 1.1-4.1 | <b>K</b> 1.1-4.2 |
| <b>N</b> 1.1-5.3 | <b>S</b> 1.1-2.6 | <b>H</b> 1.1-1.2 |

WP-Z4  
Gr.12  
TIN

WP-Z4  
Gr.12  
TIALN-T4

P  
mm

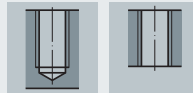
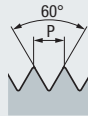
P  
Gg/1" (tpi)

b

h

## M, MF, UN

DIN 13, ASME B1.1



1,5 - 2,5  
2,5 - 5,5

16 - 10  
10 - 4,5

8,5  
8,5

13,5  
13,5

GF643205.9514  
GF643205.9517

GF643207.9514  
GF643207.9517

## M, MF

DIN 13



3,5  
4

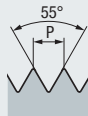
8,5  
8,5

13,5  
13,5

GF641207.9519  
GF641207.9520

## G (BSP), BSW, BSF, W

DIN EN ISO 228, BS 84



(2,309)

11 (5 - 28)

8,5

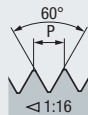
13,5

GF643205.9550

GF643207.9550

## NPT

ANSI/ASME B1.20.1



(3,175)

8

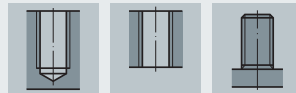
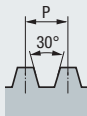
8,5

13,5

GF643207.9680

## Tr

DIN 103



4  
5

8,5  
8,5

13,5  
13,5

$\varnothing d_{1 \text{ min.}} = d_F + 32$   
 $\varnothing d_{1 \text{ min.}} = d_F + 41$

GF643207.9603  
GF643207.9604

### Zubehör Accessories

Andere Ausführungen auf Anfrage, z.B.  
Other designs upon request, e.g.

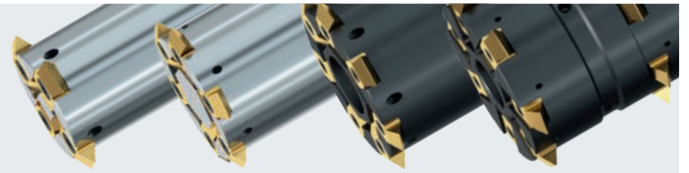


Einstechplatten in verschiedenen Ausführungen  
Infed inserts in various designs

-  Ersatzschraube M3 x 11; Torx T9  
Spare screw M3 x 11; Torx T9 } GZ349012
-  Schraubendreher Torx T9  
Screw driver Torx T9 } GZ349022
-  Drehmoment-Schraubendreher Torx T9  
Torque screw driver Torx T9 } GZ349042
-  Verschluss-Schraube M12x1 x 16; SW6  
Screw plug M12x1 x 16; SW6 } GZ359312

# 13

Für Abmessungen ab Gewindedurchmesser 48 mm  
For thread sizes, from thread diameter 48 mm

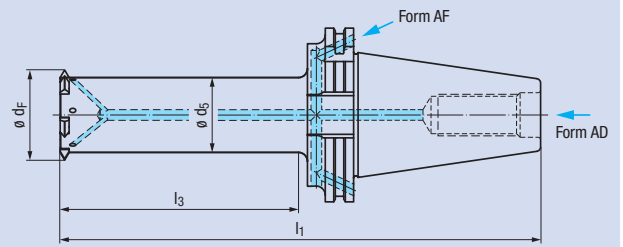
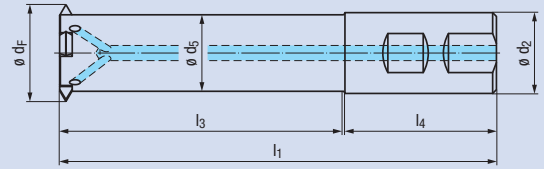


### Gigant-ic

### Gigant sprinter

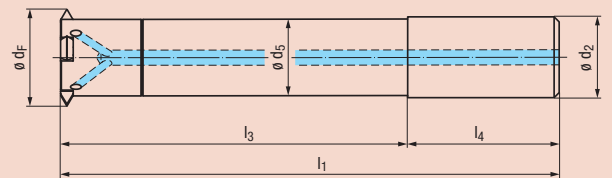
|                         |                         |                         |                         |             |             |             |                |                                       |   |
|-------------------------|-------------------------|-------------------------|-------------------------|-------------|-------------|-------------|----------------|---------------------------------------|---|
| <b>DIN 1835</b>         |                         |                         |                         |             |             |             |                |                                       |   |
| $\varnothing d_1$<br>mm | $\varnothing d_F$<br>mm | $\varnothing d_2$<br>mm | $\varnothing d_5$<br>mm | $l_1$<br>mm | $l_3$<br>mm | $l_4$<br>mm | Z<br>(Inserts) | <b>Gigant-ic</b><br><b>Gr.13-1KZN</b> | <b>Gigant sprinter</b><br><b>Gr.13-1KZN</b> |
| $\geq 48$               | 40,25                   | 32                      | 31                      | 173         | 110         | 60          | 4              | <b>GZ341153</b>                       |   |
| $\geq 48$               | 40,25                   | 32                      | 31                      | 208         | 145         | 60          | 4              | <b>GZ341143</b>                       |   |
| $\geq 60$               | 48                      | 40                      | 38                      | 245         | 170         | 70          | 5              |                                       | <b>GZ341203</b>                             |

|                         |                         |                         |             |             |          |                |                                       |   |
|-------------------------|-------------------------|-------------------------|-------------|-------------|----------|----------------|---------------------------------------|---|
| <b>DIN ISO 7388-1</b>   |                         |                         |             |             |          |                |                                       |   |
| $\varnothing d_1$<br>mm | $\varnothing d_F$<br>mm | $\varnothing d_5$<br>mm | $l_1$<br>mm | $l_3$<br>mm | SK<br>mm | Z<br>(Inserts) | <b>Gigant-ic</b><br><b>Gr.13-1KZN</b> | <b>Gigant sprinter</b><br><b>Gr.13-1KZN</b> |
| $\geq 48$               | 40,25                   | 31                      | 212         | 110         | SK 40    | 4              | <b>GZ343003</b>                       |   |
| $\geq 48$               | 40,25                   | 31                      | 245         | 110         | SK 50    | 4              | <b>GZ344003</b>                       |   |
| $\geq 48$               | 40,25                   | 31                      | 247         | 145         | SK 40    | 4              | <b>GZ343103</b>                       |   |
| $\geq 48$               | 40,25                   | 31                      | 280         | 145         | SK 50    | 4              | <b>GZ344103</b>                       |   |
| $\geq 64$               | 52,55                   | 43,75                   | 333         | 195         | SK 50    | 6              |                                       | <b>GZ344203</b>                             |



### Gigant soft run

|                         |                         |                         |                         |             |             |             |                |   |
|-------------------------|-------------------------|-------------------------|-------------------------|-------------|-------------|-------------|----------------|---|
| <b>DIN 6535</b>         |                         |                         |                         |             |             |             |                |   |
| $\varnothing d_1$<br>mm | $\varnothing d_F$<br>mm | $\varnothing d_2$<br>mm | $\varnothing d_5$<br>mm | $l_1$<br>mm | $l_3$<br>mm | $l_4$<br>mm | Z<br>(Inserts) | <b>Gigant soft run</b><br><b>Gr.13-1KZN</b> |
| $\geq 48$               | 40,25                   | 32                      | 31                      | 207         | 145         | 60          | 4              | <b>GZ34A003</b>                             |

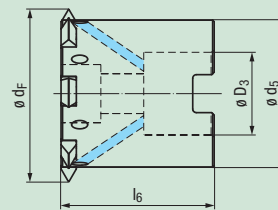


Mit variabler Länge auf Anfrage  
With variable length upon request

### Gigant modular

|                         |                         |                         |             |             |                |  |
|-------------------------|-------------------------|-------------------------|-------------|-------------|----------------|--|
| <b>DIN 138</b>          |                         |                         |             |             |                |  |
| $\varnothing d_1$<br>mm | $\varnothing d_F$<br>mm | $\varnothing d_5$<br>mm | $D_3$<br>mm | $l_6$<br>mm | Z<br>(Inserts) | <b>Gigant modular</b><br><b>Gr.13-1KZN</b> |
| $\geq 66$               | 57,5                    | 48                      | 27          | 47,5        | 7              | <b>GZ352003</b>                            |

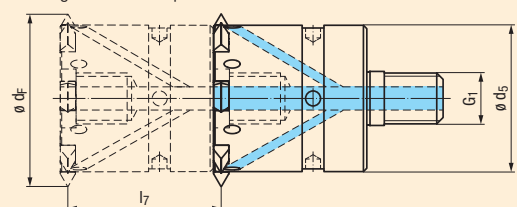
Nur einzeln einsetzbar  
Can only be used individually



### Gigant modular sprinter

|                         |                         |                         |             |             |                |   |
|-------------------------|-------------------------|-------------------------|-------------|-------------|----------------|---|
| <b>MF</b>               |                         |                         |             |             |                |   |
| $\varnothing d_1$<br>mm | $\varnothing d_F$<br>mm | $\varnothing d_5$<br>mm | $l_7$<br>mm | $G_1$<br>mm | Z<br>(Inserts) | <b>Gigant modular sprinter</b><br><b>Gr.13-1KZN</b> |
| $\geq 66$               | 57,5                    | 48                      | 48          | M18 x 1,5   | 7              | <b>GZ353003</b>                                     |

Je nach Anwendung empfehlen wir, max. 3 Gigant modular sprinter miteinander zu kombinieren  
Depending on the application, we recommend to combine up to a maximum of 3 Gigant modular sprinter



Die Innensechskant-Schraube zum stirnseitigen Verschließen der Kühlmittel-Bohrung ist im Lieferumfang enthalten  
The hexagon socket screw to close the coolant hole on the face side is included with the delivery

Das Maß  $l_7$  muss ein Vielfaches der Steigung P des herzustellenden Gewindes sein  
The measurement  $l_7$  must be a multiple of the pitch P of the thread to be produced

Lieferumfang: ohne 4-Zahn-Wendeplatten, mit Spannschrauben  
Delivery: without 4-tooth indexable inserts, with clamping screws

Fräsringe zum Entfernen des unvollständigen Ganges siehe Seite 506  
Milling rings for removal of the incomplete thread, see page 506

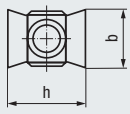
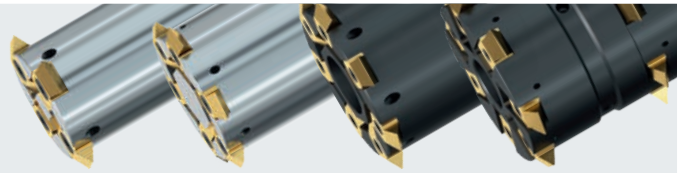
Aufnahmen und Verlängerungen für Gigant modular und Gigant modular sprinter siehe Seite 508 - 509  
Holders and extensions for Gigant modular and Gigant modular sprinter, see pages 508 - 509

**Achtung:** Beim Anziehen der Spannschraube ist das **empfohlene Anzugsdrehmoment von 3,0 Nm** zu beachten

**Note:** When tightening the clamping screw, the **recommended tightening torque 3.0 Nm** must be used

# 13

**4-Zahn-Wendeplatten für Steigungsbereich bis 6 mm (4 Gg/1")**  
 4-tooth indexable inserts for a pitch range up to 6 mm (4 tpi)



**HM Carbide** **RH + LH**



Beschichtung · Coating

TIN

TIALN-T4

Einsatzgebiete – Material Applications – material 358

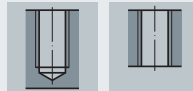
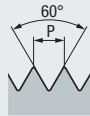
|                  |                  |                  |
|------------------|------------------|------------------|
| <b>P</b> 1.1-5.1 | <b>M</b> 1.1-4.1 | <b>K</b> 1.1-4.2 |
| <b>N</b> 1.1-5.3 | <b>S</b> 1.1-2.6 | <b>H</b> 1.1-1.2 |

|                        |                             |
|------------------------|-----------------------------|
| <b>WP-Z4 Gr.13 TIN</b> | <b>WP-Z4 Gr.13 TIALN-T4</b> |
|------------------------|-----------------------------|

|      |               |   |   |
|------|---------------|---|---|
| P mm | P Gg/1" (tpi) | b | h |
|------|---------------|---|---|

## M, MF, UN

DIN 13, ASME B1.1



|         |        |     |      |
|---------|--------|-----|------|
| 1,5 - 3 | 16 - 9 | 9,5 | 15,5 |
| 3 - 6   | 9 - 4  | 9,5 | 15,5 |

GF643305.9514  
GF643305.9518

GF643307.9514  
GF643307.9518

## M, MF

DIN 13

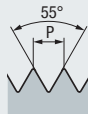


|     |  |     |      |
|-----|--|-----|------|
| 4,5 |  | 9,5 | 15,5 |
| 5   |  | 9,5 | 15,5 |

GF641307.9521  
GF641307.9522

## G (BSP), BSW, BSF, W

DIN EN ISO 228, BS 84



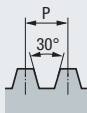
|         |               |     |      |
|---------|---------------|-----|------|
| (2,309) | 11 (4,5 - 12) | 9,5 | 15,5 |
|---------|---------------|-----|------|

GF643305.9550

GF643307.9550

## Tr

DIN 103



|   |  |     |      |   |
|---|--|-----|------|---|
| 5 |  | 9,5 | 15,5 | $\varnothing d_{1 \text{ min.}} = d_F + 43$ |
| 6 |  | 9,5 | 15,5 | $\varnothing d_{1 \text{ min.}} = d_F + 53$ |

GF643307.9604  
GF643307.9605

### Zubehör Accessories

-  Ersatzschraube M4 x 13; Torx T15 } **GZ349013**  
Spare screw M4 x 13; Torx T15
-  Schraubendreher Torx T15 } **GZ349023**  
Screw driver Torx T15
-  Drehmoment-Schraubendreher Torx T15 } **GZ349043**  
Torque screw driver Torx T15
-  Hakenschlüssel mit Zapfen nach DIN 1810-B 45-50 mm } **GZ349053**  
Hook wrench type B with pin acc. to DIN 1810-B 45-50 mm
-  Verschluss-Schraube M18x1,5 x 20; SW10 } **GZ359313**  
Screw plug M18x1.5 x 20; SW10

Andere Ausführungen auf Anfrage, z.B.  
Other designs upon request, e.g.



ACME-Gewinde  
ACME thread

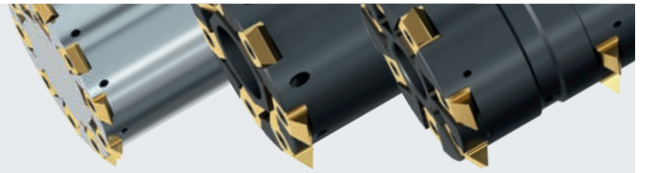
Rundgewinde  
Round thread

Sägewinde  
Buttress thread

 Einstechplatten in verschiedenen Ausführungen  
Infeed inserts in various designs

# 14

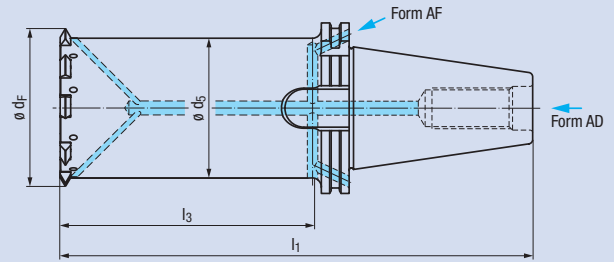
Für Abmessungen ab Gewindedurchmesser 64 mm  
For thread sizes, from thread diameter 64 mm



### Gigant-ic

### Gigant sprinter

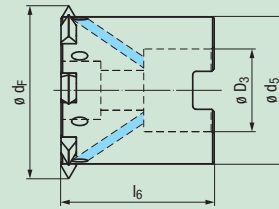
| DIN ISO 7388-1          |                         | Z4 - Z10          |       | Gr.14-1KZN |       | Gr.14-1KZN     |                 |
|-------------------------|-------------------------|-------------------|-------|------------|-------|----------------|-----------------|
|                         |                         |                   |       |            |       |                |                 |
| $\varnothing d_1$<br>mm | $\varnothing d_F$<br>mm | $\varnothing d_5$ | $l_1$ | $l_3$      | SK    | Z<br>(Inserts) |                 |
| ≥ 64                    | 52,55                   | 41                | 253   | 150        | SK 40 | 4              | <b>GZ343014</b> |
| ≥ 64                    | 52,55                   | 41                | 286   | 150        | SK 50 | 4              | <b>GZ344014</b> |
| ≥ 64                    | 52,55                   | 41                | 298   | 195        | SK 40 | 4              | <b>GZ343114</b> |
| ≥ 64                    | 52,55                   | 41                | 331   | 195        | SK 50 | 4              | <b>GZ344114</b> |
| ≥ 80                    | 66,55                   | 55                | 308   | 170        | SK 50 | 7              | <b>GZ344024</b> |
| ≥ 80                    | 66,55                   | 55                | 398   | 260        | SK 50 | 7              | <b>GZ344124</b> |
| ≥ 115                   | 92                      | 80                | 489   | 360        | SK 50 | 10             | <b>GZ344204</b> |



### Gigant modular

| DIN 138                 |                         | Z7                |       | Gr.14-1KZN |                |
|-------------------------|-------------------------|-------------------|-------|------------|----------------|
|                         |                         |                   |       |            |                |
| $\varnothing d_1$<br>mm | $\varnothing d_F$<br>mm | $\varnothing d_5$ | $D_3$ | $l_6$      | Z<br>(Inserts) |
| 80                      | 71,5                    | 60                | 27    | 47         | 7              |

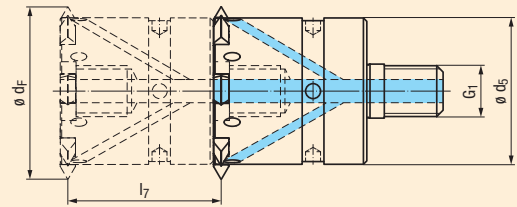
Nur einzeln einsetzbar  
Can only be used individually



### Gigant modular sprinter

| MF                      |                         | Z7                |       | Gr.14-1KZN |                |
|-------------------------|-------------------------|-------------------|-------|------------|----------------|
|                         |                         |                   |       |            |                |
| $\varnothing d_1$<br>mm | $\varnothing d_F$<br>mm | $\varnothing d_5$ | $l_7$ | $G_1$      | Z<br>(Inserts) |
| 80                      | 71,5                    | 60                | 60    | M24 x 1,5  | 7              |

Je nach Anwendung empfehlen wir, max. 3 Gigant modular sprinter  
miteinander zu kombinieren  
Depending on the application, we recommend to combine up to a maximum  
of 3 Gigant modular sprinter



Die Innensechskant-Schraube zum stirnseitigen Verschließen der Kühlmittel-Bohrung  
ist im Lieferumfang enthalten  
The hexagon socket screw to close the coolant hole on the face side is included with the delivery

Lieferumfang: ohne 4-Zahn-Wendeplatten, mit Spannschrauben  
Delivery: without 4-tooth indexable inserts, with clamping screws

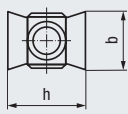
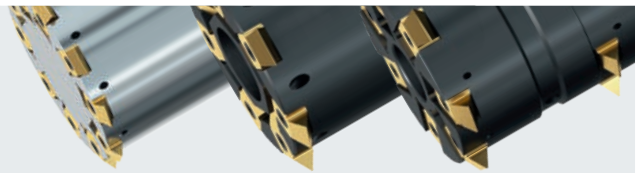
**Achtung:** Beim Anziehen der Spannschraube ist das **empfohlene Anzugsdrehmoment von 5,0 Nm** zu beachten  
**Note:** When tightening the clamping screw, the **recommended tightening torque 5.0 Nm** must be used

Fräsringe zum Entfernen des unvollständigen Ganges siehe Seite 506  
Milling rings for removal of the incomplete thread, see page 506

Aufnahmen und Verlängerungen für Gigant modular und Gigant modular sprinter siehe Seite 508 - 509  
Holders and extensions for Gigant modular and Gigant modular sprinter, see pages 508 - 509

# 14

**4-Zahn-Wendeplatten für Steigungsbereich bis 8 mm (3,5 Gg/1")**  
 4-tooth indexable inserts for a pitch range up to 8 mm (3.5 tpi)



HM  
Carbide

RH + LH



Beschichtung · Coating

TIN

TIALN-T4

Einsatzgebiete – Material  
 Applications – material 358

|                  |                  |                  |
|------------------|------------------|------------------|
| <b>P</b> 1.1-5.1 | <b>M</b> 1.1-4.1 | <b>K</b> 1.1-4.2 |
| <b>N</b> 1.1-5.3 | <b>S</b> 1.1-2.6 | <b>H</b> 1.1-1.2 |

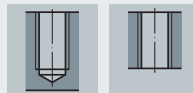
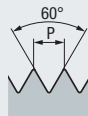
WP-Z4  
Gr.14  
TIN

WP-Z4  
Gr.14  
TIALN-T4

|         |                  |   |   |
|---------|------------------|---|---|
| P<br>mm | P<br>Gg/1" (tpi) | b | h |
|---------|------------------|---|---|

## M, MF, UN

DIN 13, ASME B1.1



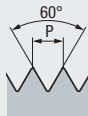
|         |        |      |    |
|---------|--------|------|----|
| 1,5 - 3 | 16 - 9 | 12,5 | 19 |
| 3 - 6   | 9 - 4  | 12,5 | 19 |

GF643405.9514  
GF643405.9518

GF643407.9514  
GF643407.9518

## M, MF

DIN 13

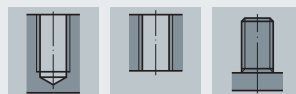
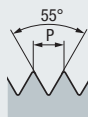


|     |  |      |    |
|-----|--|------|----|
| 5,5 |  | 12,5 | 19 |
| 6   |  | 12,5 | 19 |

GF641407.9709  
GF641407.9523

## G (BSP), BSW, BSF, W

DIN EN ISO 228, BS 84



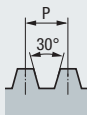
|         |               |      |    |
|---------|---------------|------|----|
| (2,309) | 11 (3,5 - 12) | 12,5 | 19 |
|---------|---------------|------|----|

GF643405.9550

GF643407.9550

## Tr

DIN 103



|   |  |      |    |   |
|---|--|------|----|---|
| 6 |  | 12,5 | 19 | $\varnothing d_{1 \text{ min.}} = d_F + 61$ |
| 8 |  | 12,5 | 19 | $\varnothing d_{1 \text{ min.}} = d_F + 84$ |

GF643407.9605  
GF643407.9736

### Zubehör Accessories

-  Ersatzschraube M5 x 15; Torx T20  
Spare screw M5 x 15; Torx T20 } **GZ349014**
-  Schraubendreher Torx T20  
Screw driver Torx T20 } **GZ349024**
-  Drehmoment-Schraubendreher Torx T20  
Torque screw driver Torx T20 } **GZ349044**
-  Hakenschlüssel mit Zapfen  
nach DIN 1810-B 58-62 mm  
Hook wrench type B with pin  
acc. to DIN 1810-B 58-62 mm } **GZ349054**
-  Verschluss-Schraube M24x1,5 x 25; SW12  
Screw plug M24x1.5 x 25; SW12 } **GZ359314**

Andere Ausführungen auf Anfrage, z.B.  
 Other designs upon request, e.g.



ACME-Gewinde  
ACME thread

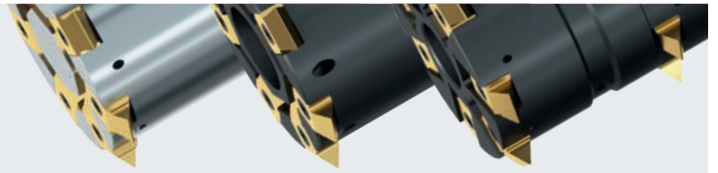
Rundgewinde  
Round thread

Sägewinde  
Buttress thread

 Einstechplatten in verschiedenen Ausführungen  
 Infeed inserts in various designs

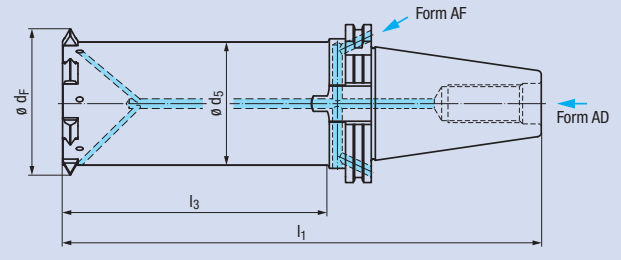
# 15

Für Abmessungen ab Gewindedurchmesser 115 mm  
For thread sizes, from thread diameter 115 mm



### Gigant-ic

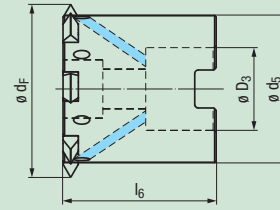
|                |  |  |  |  |  |  |                   |
|----------------|--|--|--|--|--|--|-------------------|
| DIN ISO 7388-1 |  |  |  |  |  |  |                   |
|                |  |  |  |  |  |  | <b>Gigant-ic</b>  |
|                |  |  |  |  |  |  | <b>Gr.15-IKZN</b> |
|                |  |  |  |  |  |  | <b>GZ344035</b>   |
|                |  |  |  |  |  |  | <b>GZ344045</b>   |



### Gigant modular

|         |  |  |  |  |  |  |                       |
|---------|--|--|--|--|--|--|-----------------------|
| DIN 138 |  |  |  |  |  |  |                       |
|         |  |  |  |  |  |  | <b>Gigant modular</b> |
|         |  |  |  |  |  |  | <b>Gr.15-IKZN</b>     |
|         |  |  |  |  |  |  | <b>GZ352005</b>       |

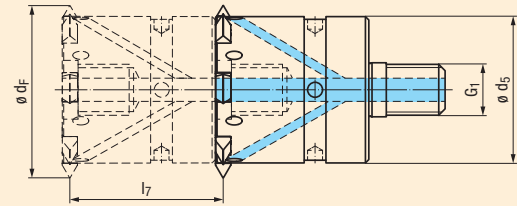
Nur einzeln einsetzbar  
Can only be used individually



### Gigant modular sprinter

|    |  |  |  |  |  |  |                                |
|----|--|--|--|--|--|--|--------------------------------|
| MF |  |  |  |  |  |  |                                |
|    |  |  |  |  |  |  | <b>Gigant modular sprinter</b> |
|    |  |  |  |  |  |  | <b>Gr.15-IKZN</b>              |
|    |  |  |  |  |  |  | <b>GZ353005</b>                |

Je nach Anwendung empfehlen wir, max. 3 Gigant modular sprinter miteinander zu kombinieren  
Depending on the application, we recommend to combine up to a maximum of 3 Gigant modular sprinter



Die Innensechskant-Schraube zum stirnseitigen Verschließen der Kühlmittel-Bohrung ist im Lieferumfang enthalten  
The hexagon socket screw to close the coolant hole on the face side is included with the delivery

Das Maß l<sub>7</sub> muss ein Vielfaches der Steigung P des herzustellenden Gewindes sein  
The measurement l<sub>7</sub> must be a multiple of the pitch P of the thread to be produced

Lieferumfang: ohne 4-Zahn-Wendeplatten, mit Spannschrauben  
Delivery: without 4-tooth indexable inserts, with clamping screws

**Achtung:** Beim Anziehen der Spannschraube ist das **empfohlene Anzugsdrehmoment von 5,0 Nm** zu beachten  
**Note:** When tightening the clamping screw, the **recommended tightening torque 5.0 Nm** must be used

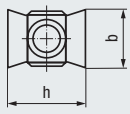
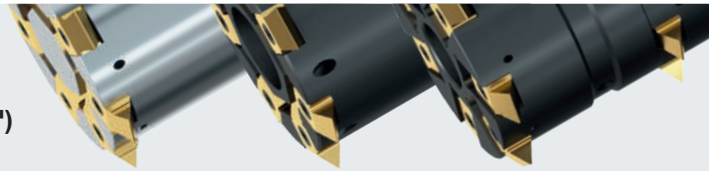
Aufnahmen und Verlängerungen für Gigant modular und Gigant modular sprinter siehe Seite 508 - 509  
Holders and extensions for Gigant modular and Gigant modular sprinter, see pages 508 - 509





# 15

**4-Zahn-Wendeplatten für Steigungsbereich bis 12 mm (4 Gg/1")**  
 4-tooth indexable inserts for a pitch range up to 12 mm (4 tpi)



**HM Carbide**  
**RH + LH**



Beschichtung · Coating

TIN

TIALN-T4

Einsatzgebiete – Material  
 Applications – material 358

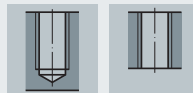
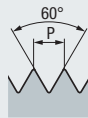
|                  |                  |                  |
|------------------|------------------|------------------|
| <b>P</b> 1.1-5.1 | <b>M</b> 1.1-4.1 | <b>K</b> 1.1-4.2 |
| <b>N</b> 1.1-5.3 | <b>S</b> 1.1-2.6 | <b>H</b> 1.1-1.2 |

|                              |                                   |
|------------------------------|-----------------------------------|
| <b>WP-Z4</b><br>Gr.15<br>TIN | <b>WP-Z4</b><br>Gr.15<br>TIALN-T4 |
|------------------------------|-----------------------------------|

|    |             |   |   |
|----|-------------|---|---|
| P  | P           | b | h |
| mm | Gg/1" (tpi) |   |   |

## M, MF, UN

DIN 13, ASME B1.1



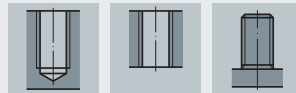
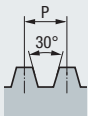
|         |        |      |       |
|---------|--------|------|-------|
| 1,5 - 6 | 16 - 4 | 14,3 | 28,58 |
| 6 - 8   | 4      | 14,3 | 28,58 |

**GF643505.9514**  
**GF643505.9523**

**GF643507.9514**  
**GF643507.9523**

## Tr

DIN 103



|    |      |       |  |
|----|------|-------|--|
| 10 | 14,3 | 28,58 | $\varnothing d_{1 \text{ min.}} = d_F + 101$ |
| 12 | 14,3 | 28,58 | $\varnothing d_{1 \text{ min.}} = d_F + 122$ |

**GF643507.9748**  
**GF643507.9749**

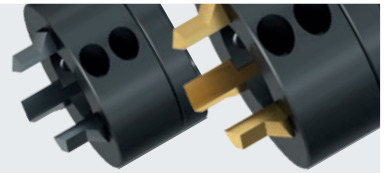
### Zubehör Accessories

-  Ersatzschraube M5 x 18; Torx T20  
Spare screw M5 x 18; Torx T20 } **GZ349015**
-  Schraubendreher Torx T20  
Screw driver Torx T20 } **GZ349025**
-  Drehmoment-Schraubendreher Torx T20  
Torque screw driver Torx T20 } **GZ349045**
-  Hakenschlüssel mit Zapfen  
nach DIN 1810-B 68-75 mm  
Hook wrench type B with pin  
acc. to DIN 1810-B 68-75 mm } **GZ349055**
-  Verschluss-Schraube M24x1,5 x 25; SW12  
Screw plug M24x1.5 x 25; SW12 } **GZ359315**

Andere Ausführungen auf Anfrage, z.B.  
 Other designs upon request, e.g.



 Einstechplatten in verschiedenen Ausführungen  
 Infeed inserts in various designs



# 10-14

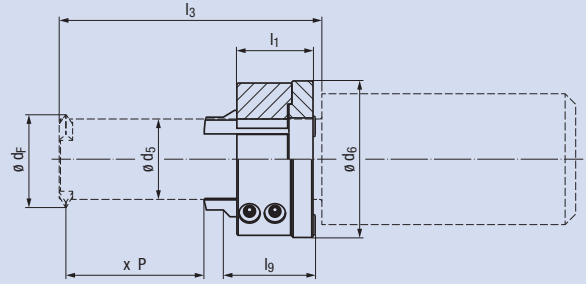
**Fräsringe zum Entfernen des unvollständigen Ganges**  
Milling rings for removal of the incomplete thread

### Gigant-ic

Z3 - Z4



| Größe<br>Size | $\varnothing d_F$<br>mm | $\varnothing d_5$ | $\varnothing d_6$ | $l_1$ | $l_9$ | Z<br>(Inserts) |                        |
|---------------|-------------------------|-------------------|-------------------|-------|-------|----------------|------------------------|
| 10            | 20,5                    | 15,9              | 33                | 18    | 23    | 3              | <b>GZ80F0C4.010040</b> |
| 11            | 23,85                   | 19                | 37                | 18    | 22    | 3              | <b>GZ80G0C4.011040</b> |
| 12            | 32,85                   | 24,5              | 47                | 22    | 24    | 3              | <b>GZ80H0C4.012060</b> |
| 13            | 40,25                   | 31                | 55                | 22    | 24    | 4              | <b>GZ80I0C4.013060</b> |
| 14            | 52,55                   | 41                | 65                | 22    | 23    | 4              | <b>GZ80J0C4.014060</b> |



Das Maß „x P“ muss ein Vielfaches der Steigung P des herzustellenden Gewindes sein  
The measurement "x P" must be a multiple of the pitch P of the thread to be produced

Die Nuttiefe  $l_3$  des Zirkular-Gewindefräskörpers verringert sich um das Maß  $l_9$   
The usable depth  $l_3$  of the circular thread milling body is reduced by dimension  $l_9$

Fräsplatten für Fräsringe  
Milling inserts for milling rings

HM Carbide RH + LH



Beschichtung · Coating

TIN

TIALN-T4

Einsatzgebiete – Material  
Applications – material [» 358](#)

|                  |                  |                  |
|------------------|------------------|------------------|
| <b>P</b> 1.1-5.1 | <b>M</b> 1.1-4.1 | <b>K</b> 1.1-4.2 |
| <b>N</b> 1.1-5.3 | <b>S</b> 1.1-2.6 | <b>H</b> 1.1-1.2 |

| Größe<br>Size | $l_1$ | t | FP       |          |
|---------------|-------|---|----------|----------|
|               |       |   | TIN      | TIALN-T4 |
| 10            | 20    | 4 | GF663005 | GF663007 |
| 11            | 20    | 4 | GF663105 | GF663107 |
| 12            | 25    | 6 | GF663205 | GF663207 |
| 13            | 25    | 6 | GF663305 | GF663307 |
| 14            | 25    | 6 | GF663405 | GF663407 |





Product  
Finder

$v_c / f_z$

M

MF

UNC  
UN, UNS

UNF  
UNEF

G, Rp

NPT, NPTF  
Rc, W

BSW, BSF

Pg

MJ  
UNJC, UNJF

EG (STI)

SELF-LOCK

Tr

Zubehör  
Accessories

BGF

ZBGF

GSF

GF

GF-VZ

GF-KEG

ZGF

ZIRK-GF

**Gigant**

MoSys



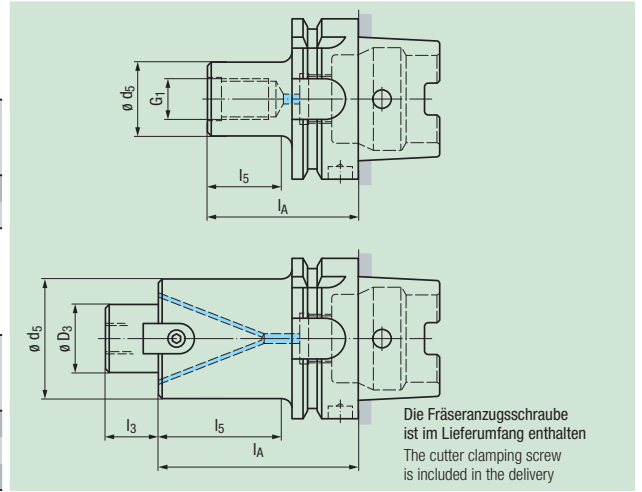


# 10-15

**Aufnahmen für Gigant modular**  
**Holder for Gigant modular**

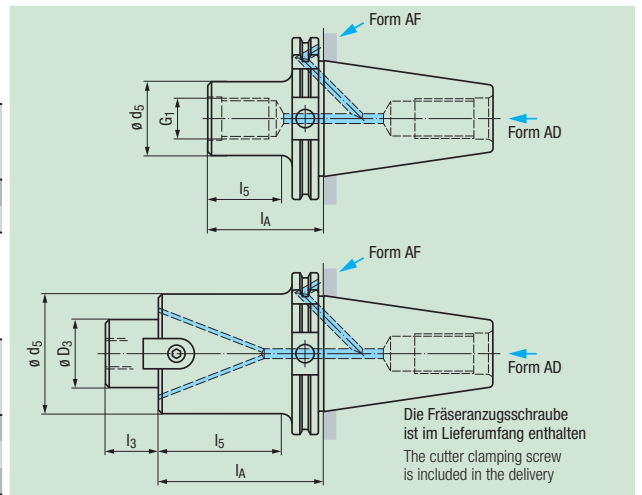
|               |                    |          |       |       |         |                        |
|---------------|--------------------|----------|-------|-------|---------|------------------------|
| <b>HSK-A</b>  | <b>DIN 69893-1</b> | <b>M</b> |       |       |         |                        |
| Größe<br>Size | $\varnothing d_5$  | $l_5$    | $l_A$ | $G_1$ | HSK     |                        |
| 10 - 12       | 29                 | 29       | 59    | M16   | HSK-A63 | <b>GZ5391A4.116059</b> |

|               |                   |                   |       |       |       |         |                        |
|---------------|-------------------|-------------------|-------|-------|-------|---------|------------------------|
|               | <b>DIN 138</b>    |                   |       |       |       |         |                        |
| Größe<br>Size | $\varnothing D_3$ | $\varnothing d_5$ | $l_3$ | $l_5$ | $l_A$ | HSK     |                        |
| 13            | 27                | 48                | 21    | 131   | 160   | HSK-A63 | <b>GZ5391B4.270160</b> |
| 14            | 27                | 60                | 21    | 131   | 160   | HSK-A63 | <b>GZ5391B5.270160</b> |
| 15            | 32                | 78                | 24    | 171   | 200   | HSK-A63 | <b>GZ5391B4.320200</b> |



|                 |                       |          |       |       |       |                        |
|-----------------|-----------------------|----------|-------|-------|-------|------------------------|
| <b>SK (ISO)</b> | <b>DIN ISO 7388-1</b> | <b>M</b> |       |       |       |                        |
| Größe<br>Size   | $\varnothing d_5$     | $l_5$    | $l_A$ | $G_1$ | SK    |                        |
| 10 - 12         | 29                    | 11       | 36    | M16   | SK 40 | <b>GZ5243A4.116036</b> |
| 10 - 12         | 29                    | 11       | 36    | M16   | SK 50 | <b>GZ5263A4.116036</b> |

|               |                   |                   |       |       |       |       |                        |
|---------------|-------------------|-------------------|-------|-------|-------|-------|------------------------|
|               | <b>DIN 138</b>    |                   |       |       |       |       |                        |
| Größe<br>Size | $\varnothing D_3$ | $\varnothing d_5$ | $l_3$ | $l_5$ | $l_A$ | SK    |                        |
| 13            | 27                | 48                | 21    | 132   | 160   | SK 50 | <b>GZ5263B4.270160</b> |
| 14            | 27                | 60                | 21    | 132   | 160   | SK 50 | <b>GZ5263B5.270160</b> |
| 15            | 32                | 78                | 24    | 174   | 200   | SK 50 | <b>GZ5263B4.320200</b> |



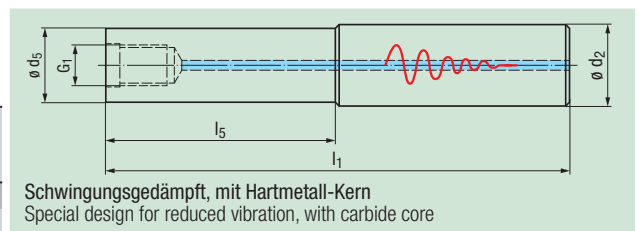
**ZIRK-GF** Kühlschmierstoffrohre und Schlüssel für HSK-Schäfte **742 - 743**  
 Coolant tubes and wrenches for HSK shanks

**Gigant** Anzugsbolzen für Steilkegel **70**  
 Pull studs for ISO tapers

### HSS-Verlängerungen für Gigant modular

HSS extensions for Gigant modular

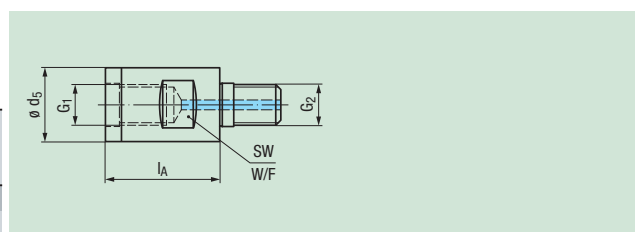
|                                    |                   |                   |       |       |       |                        |
|------------------------------------|-------------------|-------------------|-------|-------|-------|------------------------|
| <b><math>\varnothing 32</math></b> | <b>DIN 1835</b>   | <b>M</b>          |       |       |       |                        |
| Größe<br>Size                      | $\varnothing d_2$ | $\varnothing d_5$ | $l_1$ | $l_5$ | $G_1$ |                        |
| 10 - 12                            | 32                | 29,4              | 200   | 108   | M16   | <b>GZ5521A4.320108</b> |



### Zwischenadapter für Gigant modular

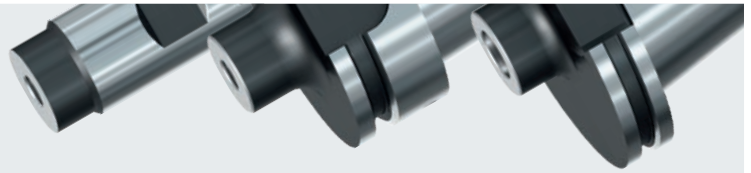
Intermediate adapters for Gigant modular

|               |                   |       |       |       |          |                        |
|---------------|-------------------|-------|-------|-------|----------|------------------------|
| <b>M16</b>    | <b>M</b>          |       |       |       |          |                        |
| Größe<br>Size | $\varnothing d_5$ | $l_A$ | $G_1$ | $G_2$ | SW (W/F) |                        |
| 10 - 12       | 29                | 40    | M16   | M16   | 22       | <b>GZ56E1A4.116040</b> |
| 10 - 12       | 29                | 90    | M16   | M16   | 22       | <b>GZ56E1A4.116090</b> |



# 10-15

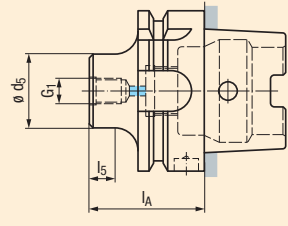
**Aufnahmen für Gigant modular sprinter**  
 Holders for Gigant modular sprinter



**HSK-A**



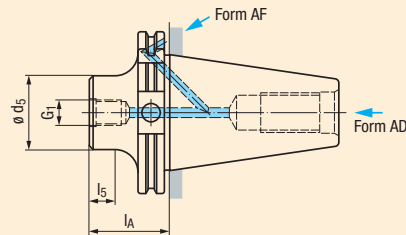
| Größe<br>Size | ∅ d <sub>5</sub> | l <sub>5</sub> | l <sub>A</sub> | G <sub>1</sub> | HSK      |                        |
|---------------|------------------|----------------|----------------|----------------|----------|------------------------|
| 10            | 22,15            | 10             | 45             | M 8 x 1        | HSK-A63  | <b>GZ7391AA.251010</b> |
| 11            | 29,15            | 10             | 45             | M10 x 1        | HSK-A63  | <b>GZ7391AB.276010</b> |
| 12            | 37,65            | 12             | 45             | M12 x 1        | HSK-A63  | <b>GZ7391AC.301012</b> |
| 13            | 48               | 32             | 60             | M18 x 1,5      | HSK-A63  | <b>GZ7391AD.390032</b> |
| 14            | 60               | 40             | 80             | M24 x 1,5      | HSK-A100 | <b>GZ73A1AE.452040</b> |
| 15            | 78               | 45             | 76             | M24 x 1,5      | HSK-A100 | <b>GZ73A1AF.452045</b> |



**SK (ISO)**



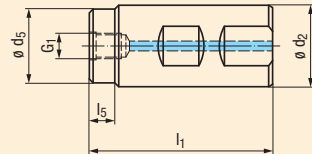
| Größe<br>Size | ∅ d <sub>5</sub> | l <sub>5</sub> | l <sub>A</sub> | G <sub>1</sub> | SK    |                        |
|---------------|------------------|----------------|----------------|----------------|-------|------------------------|
| 10            | 22,15            | 10             | 35             | M 8 x 1        | SK 40 | <b>GZ7243AA.251010</b> |
| 11            | 29,15            | 10             | 35             | M10 x 1        | SK 40 | <b>GZ7243AB.276010</b> |
| 12            | 37,65            | 12             | 35             | M12 x 1        | SK 40 | <b>GZ7243AC.301012</b> |
| 13            | 48               | 15             | 37             | M18 x 1,5      | SK 40 | <b>GZ7243AD.390015</b> |
| 14            | 60               | 15             | 40             | M24 x 1,5      | SK 50 | <b>GZ7263AE.452015</b> |
| 15            | 78               | 20             | 45             | M24 x 1,5      | SK 50 | <b>GZ7263AF.452020</b> |



**∅25-∅32**



| Größe<br>Size | ∅ d <sub>2</sub> | ∅ d <sub>5</sub> | l <sub>1</sub> | l <sub>5</sub> | G <sub>1</sub> |                        |
|---------------|------------------|------------------|----------------|----------------|----------------|------------------------|
| 10            | 25               | 22,15            | 68             | 10             | M 8 x 1        | <b>GZ75D1AA.251010</b> |
| 11            | 32               | 29,15            | 72             | 10             | M10 x 1        | <b>GZ7521AB.276010</b> |
| 12            | 32               | 37,65            | 77             | 12             | M12 x 1        | <b>GZ7521AC.301012</b> |



Kühlschmierstoffrohre und Schlüssel für HSK-Schäfte  
 Coolant tubes and wrenches for HSK shanks

» 742 - 743



Anzugsbolzen für Steilkegel  
 Pull studs for ISO tapers

» 70

Product  
Finder

v<sub>c</sub> / f<sub>z</sub>

M

MF

UNC  
UN, UNS

UNF  
UNEF

G, Rp

NPT, NPTF  
Rc, W

BSW, BSF

Pg

MJ  
UNJC, UNJF

EG (STI)

SELF-LOCK

Tr

Zubehör  
Accessories

BGF

ZBGF

GSF

GF

GF-VZ

GF-KEG

ZGF

ZIRK-GF

**Gigant**

MoSys



|                        |
|------------------------|
| Product Finder         |
| $v_c / f_z$            |
| M                      |
| MF                     |
| UNC<br>UN, UNS         |
| UNF<br>UNEF            |
| G, Rp                  |
| NPT, NPTF<br>Rc, W     |
| BSW, BSF               |
| Pg                     |
| MJ<br>UNJC, UNJF       |
| EG (STI)               |
| SELF-LOCK              |
| Tr                     |
| Zubehör<br>Accessories |
| BGF                    |
| ZBGF                   |
| GSF                    |
| GF                     |
| GF-VZ                  |
| GF-KEG                 |
| ZGF                    |
| ZIRK-GF                |
| Gigant                 |
| MoSys                  |

**„MoSys“ gestattet vielseitige Plan- und Stufensenkoperationen!**

**In einer Aufspannung erzielen Sie folgende Vorteile:**

- Geringe Anzahl an Werkzeugen
- Wenig Lagerplätze und Lagerkosten
- Kurze Bearbeitungszeiten

**„MoSys“ erfüllt folgende Voraussetzungen:**

- Einfache Montage
- Hohe Steifigkeit
- Hohe Maßgenauigkeit
- Modular aufgebaut und einsetzbar

**“MoSys” makes a large number of counterbore and stepped bore operations possible!**

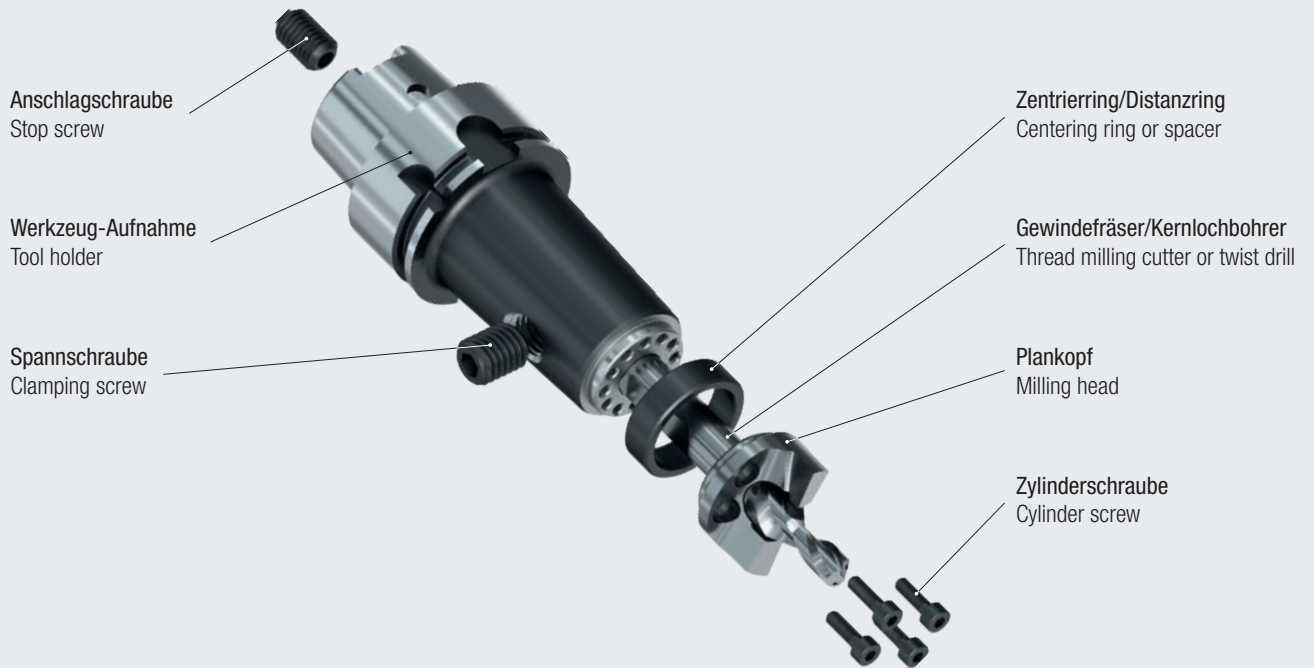
**With just one clamping operation, you enjoy a number of advantages:**

- Smaller tool quantities
- Fewer magazine places and reduced stocking costs
- Shorter machining times

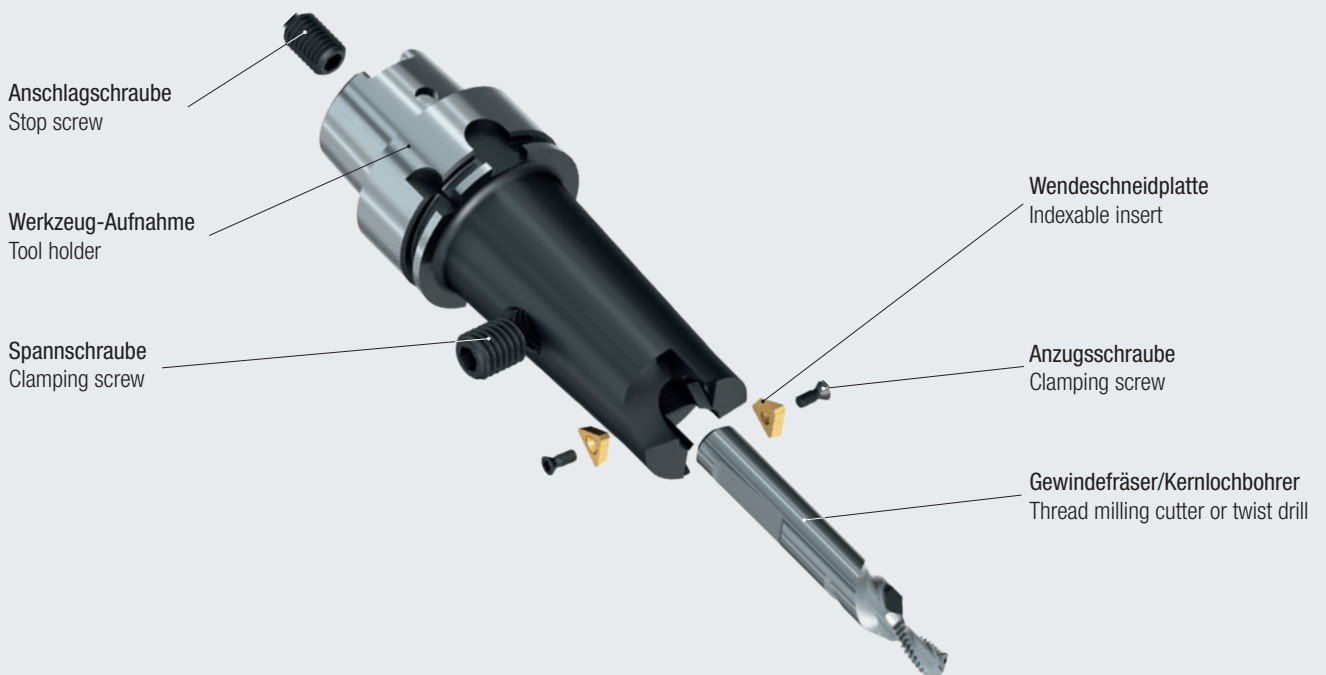
**“MoSys” answers to the following requirements:**

- Easy assembly
- High degree of rigidity
- High dimensional precision
- Modular construction for universal application

**MoSys mit Vollhartmetall-Kopf**  
MoSys with solid carbide head



**MoSys mit Wendeschneidplatten**  
MoSys with indexable inserts



Steilkegelschäfte  
ISO taper shanks



Kegel-Hohlschäfte  
Hollow taper shanks



Anschluss für Plankopf  
Connection for milling head



Anschluss für Wendeschneidplatten  
Connection for indexable inserts



Zentrierring  
Centering ring



Vollhartmetall-Planköpfe  
Solid carbide milling heads



Wendeschneidplatten zum Planen und Fasen  
Indexable inserts for plane milling and chamfering



Wendeschneidplatten zum Planen  
Indexable inserts for plane milling



Gewindefräser oder Spiralbohrer  
Thread milling cutters or twist drills



Product Finder

$v_c / f_z$

M

MF

UNC  
UN, UNS

UNF  
UNEF

G, Rp

NPT, NPTF  
Rc, W

BSW, BSF

Pg

MJ  
UNJC, UNJF

EG (STI)

SELF-LOCK

Tr

Zubehör  
Accessories

BGF

ZBGF

GSF

GF

GF-VZ

GF-KEG

ZGF

ZIRK-GF

Gigant

MoSys



- Product Finder
- $v_c / f_z$
- M
- MF
- UNC  
UN, UNS
- UNF  
UNEF
- G, Rp
- NPT, NPTF  
Rc, W
- BSW, BSF
- Pg
- MJ  
UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr
- Zubehör  
Accessories
- BGF
- ZBGF
- GSF
- GF
- GF-VZ
- GF-KEG
- ZGF
- ZIRK-GF
- Gigant
- MoSys

**Zur Angebotsausarbeitung werden folgende Daten benötigt:**

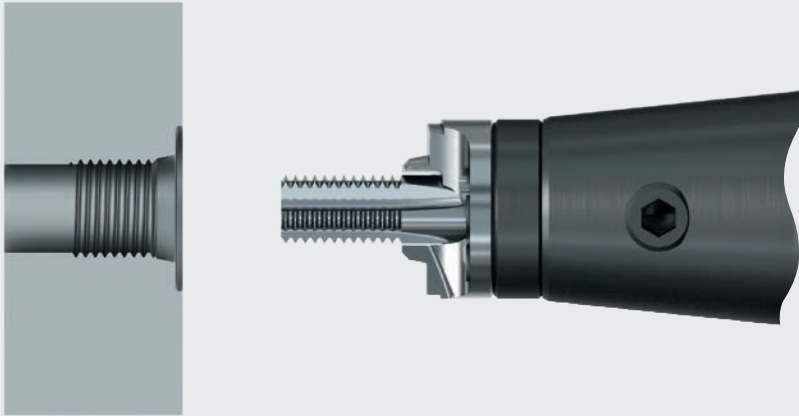
- Werkstückzeichnung mit evtl. Störkontur
- Maschinenseitige Aufnahme mit Kühlschmierstoff-Übergabe
- Detaillierte Senkkontur
- Herzustellende Gewindeabmessung einschließlich Gewindetiefe
- Bohrungsform (Durchgangsloch, Grundloch)
- Kernlochdurchmesser (falls vorhanden)
- Zu bearbeitender Werkstoff

For submitting an offer, we need the following information:

- Workpiece drawing with possible obstruction contours
- Shank connection on the machine side, with coolant supply
- Detailed countersink contour
- Size of the thread to be produced, including thread depth
- Type of hole (through hole or blind hole)
- Drilled hole diameter (if known)
- Workpiece material

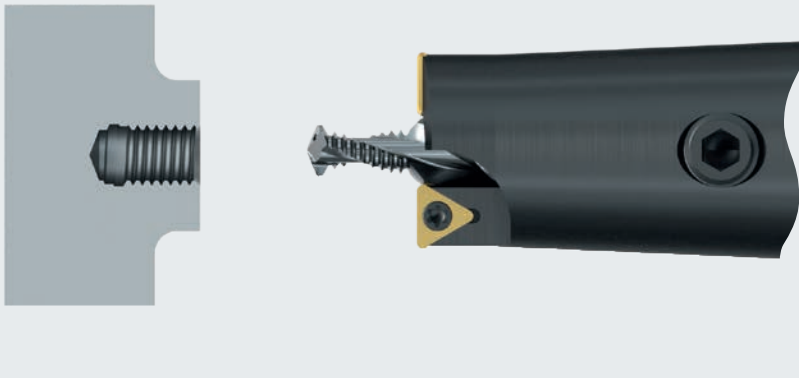
**Beispiel für Bearbeitung mit Vollhartmetall-Kopf**

Example for machining with solid carbide head

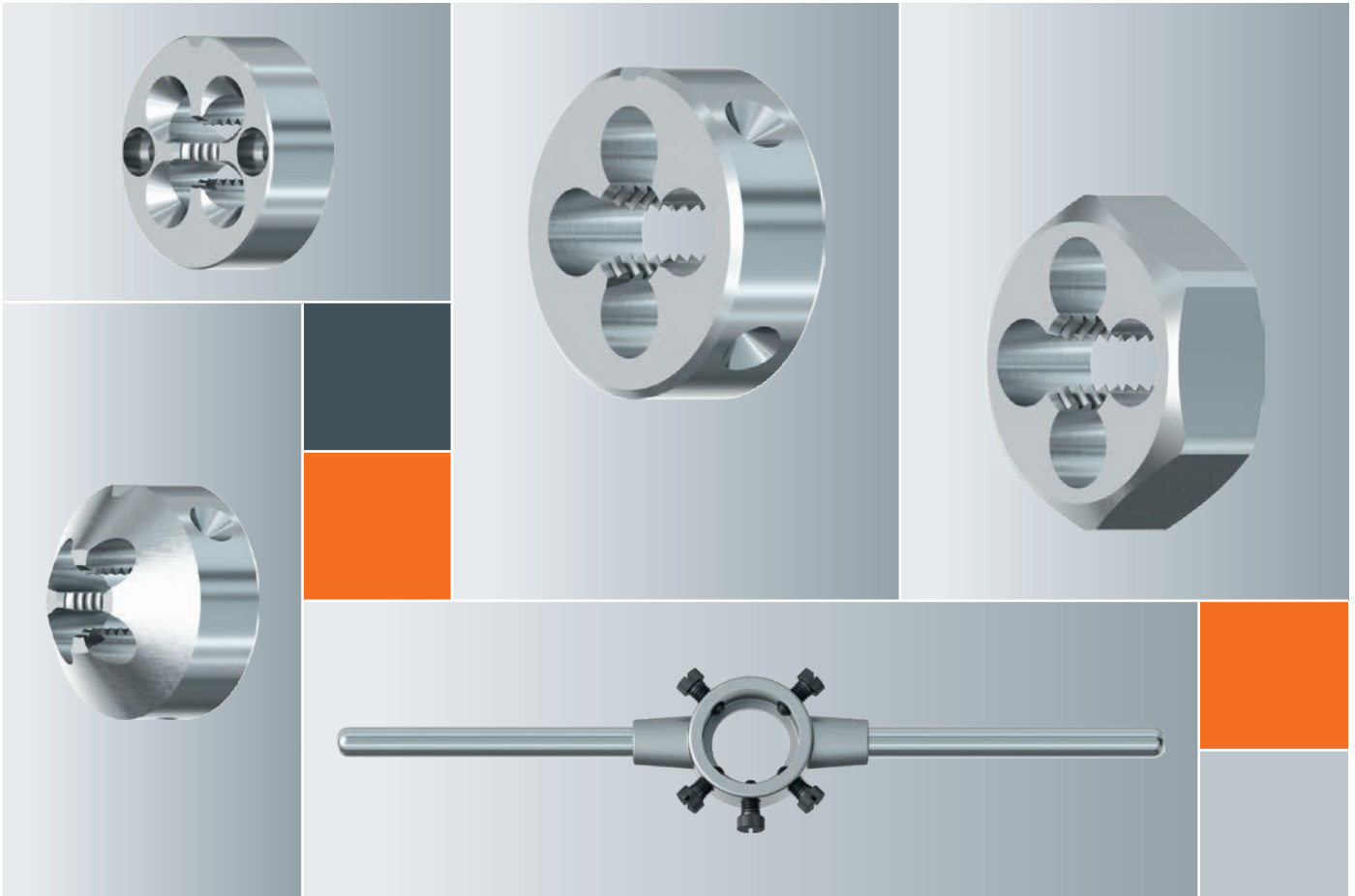


**Beispiel für Bearbeitung mit Wendeschneidplatten**

Example for machining with indexable inserts







## Schneideisen Dies

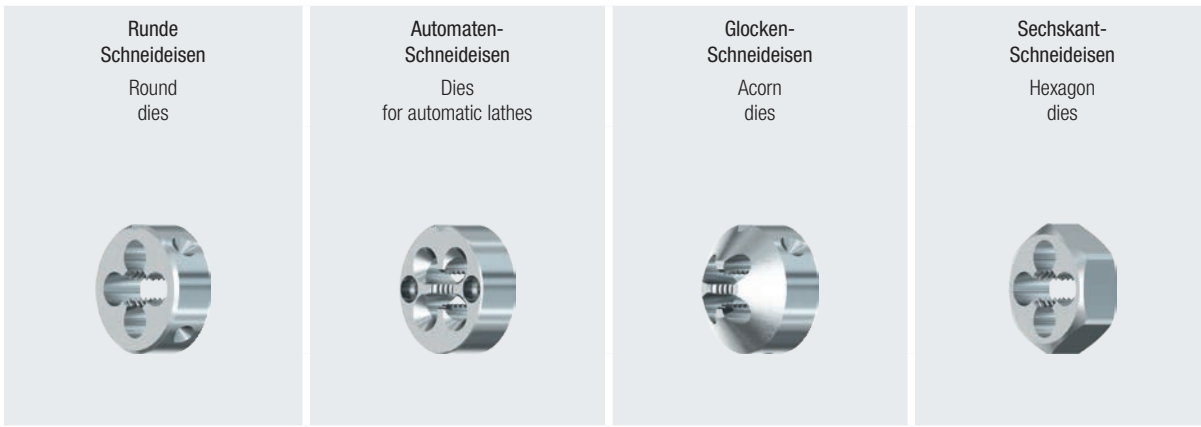
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|                                      |   |           |
|--------------------------------------|---|-----------|
| Übersicht                            | Contents                                    | 515       |
| Einsatzempfehlungen und Schnittwerte | Application recommendation and cutting data | 516 - 518 |
| Produktseiten                        | Product pages                               | 519 - 540 |



|                        |
|------------------------|
| Product Finder         |
| V <sub>c</sub>         |
| M                      |
| MF                     |
| UNC                    |
| UNF<br>UNEF            |
| G                      |
| NPT, NPTF<br>R         |
| BSW, BSF               |
| Tr, Tr-F               |
| Zubehör<br>Accessories |





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|           |     |     |     |                 |
|-----------|-----|-----|-----|-----------------|
| 520 - 522 | 523 | 524 | 525 | <b>M</b>        |
| 526 - 527 |     |     |     | <b>MF</b>       |
| 528       |     |     |     | <b>UNC</b>      |
| 529       |     |     |     | <b>UNF</b>      |
| 530       |     |     |     | <b>UNEF</b>     |
| 531       |     | 532 |     | <b>G (BSP)</b>  |
| 533       |     |     |     | <b>NPT</b>      |
| 534       |     |     |     | <b>NPTF</b>     |
| 535       |     |     |     | <b>R (BSPT)</b> |
| 536       |     |     |     | <b>BSW</b>      |
| 537       |     |     |     | <b>BSF</b>      |
| 538       |     |     |     | <b>Tr</b>       |
| 539       |     |     |     | <b>Tr-F</b>     |

Product  
Finder

V<sub>c</sub>

M

MF

UNC

UNF  
UNEF

G

NPT, NPTF  
R

BSW, BSF

Tr, Tr-F

Zubehör  
Accessories

Seite · Page

|   |   |           |
|---|---|-----------|
|  | Schneideisenhalter<br>Die stocks        | 540       |
|  | Kühlschmierstoffe<br>Coolant-lubricants | 300 - 301 |




- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC
- UNF  
UNEF
- G
- NPT, NPTF  
R
- BSW, BSF
- Tr, Tr-F
- Zubehör  
Accessories

# Einsatzempfehlungen und Schnittwerte

## Bitte beachten:

Die in den jeweiligen Spalten angegebenen Schnittgeschwindigkeiten (v<sub>c</sub> in m/min) sind Richtwerte, welche je nach Einsatzbedingungen (Material, Schmierung, Maschine, usw.) angepasst werden müssen.

Die empfohlenen Schnittgeschwindigkeiten sind bezogen auf einen Gewinde- Nenndurchmesser von 10 mm.


 = Anschnittlänge

# Application recommendation and cutting data

## Please note:

The cutting speeds (v<sub>c</sub> in m/min) listed in the respective columns are standard values which have to be adjusted to individual work conditions (material, lubrication, machine etc.).

The recommended cutting speeds are related to a nominal thread diameter of 10 mm.

 = Chamfer length

Internationaler Werkstoffvergleich siehe Seite 764 - 785

International comparison of materials, see page 764 - 785

| Einsatzgebiete – Material<br>Applications – material |  | Material-Beispiele<br>Material examples   | Material-Nummern<br>Material numbers  |
|--|--|---|---|
| <b>P</b>   | <b>Stahlwerkstoffe</b><br>Kaltfließpressstähle, Baustähle, Automatenstähle, u.a. | <b>Steel materials</b><br>Cold-extrusion steels, Construction steels, Free-cutting steels, etc. | Cq15 1.1132<br>S235JR (St37-2) 1.0037<br>10SPb20 1.0722                       |
|  | 2.1 Baustähle, Einsatzstähle, Stahlguss, u.a.                                    | Construction steels, Cementation steels, Steel castings, etc.                                   | E360 (St70-2) 1.0070<br>16MnCr5 1.7131<br>GS-25CrMo4 1.7218                   |
|  | 3.1 Einsatzstähle, Vergütungsstähle, Kaltarbeitsstähle, u.a.                     | Cementation steels, Heat-treatable steels, Cold work steels, etc.                               | 20MoCr3 1.7320<br>42CrMo4 1.7225<br>102Cr6 1.2067<br>50CrMo4 1.7228           |
|  | 4.1 Vergütungsstähle, Kaltarbeitsstähle, Nitrierstähle, u.a.                     | Heat-treatable steels, Cold work steels, Nitriding steels, etc.                                 | X45NiCrMo4 1.2767<br>31CrMo12 1.8515<br>X38CrMoV5-3 1.2367                    |
|  | 5.1 Hochlegierte Stähle, Kaltarbeitsstähle, Warmarbeitsstähle, u.a.              | High-alloyed steels, Cold work steels, Hot work steels, etc.                                    | X100CrMoV8-1-1 1.2990<br>X40CrMoV5-1 1.2344                                   |
| <b>M</b>   | <b>Nichtrostende Stahlwerkstoffe</b><br>1.1 Ferritisch, martensitisch            | <b>Stainless steel materials</b><br>Ferritic, martensitic                                       | X2CrTi12 1.4512   |
|  | 2.1 Austenitisch   | Austenitic  | X6CrNiMoTi17-12-2 1.4571  |
|  | 3.1 Austenitisch-ferritisch (Duplex)   | Austenitic-ferritic (Duplex)  | X2CrNiMoN22-5-3 1.4462  |
|  | 4.1 Austenitisch-ferritisch hitzebeständig (Super Duplex)                        | Austenitic-ferritic heat-resistant (Super Duplex)   | X2CrNiMoN25-7-4 1.4410  |
| <b>K</b>   | <b>Gusswerkstoffe</b><br>1.1 Gusseisen mit Lamellengrafit (GJL)                  | <b>Cast materials</b><br>Cast iron with lamellar graphite (GJL)                                 | EN-GJL-200 (GG20) EN-JL-1030  |
|  | 1.2 Gusseisen mit Kugelgraft (GJS)   | Cast iron with nodular graphite (GJS)   | 250-450 N/mm <sup>2</sup> EN-GJL-300 (GG30) EN-JL-1050                        |
|  | 2.1 Gusseisen mit Kugelgraft (GJS)   | Cast iron with nodular graphite (GJS)   | 350-500 N/mm <sup>2</sup> EN-GJS-400-15 (GGG40) EN-JS-1030                    |
|  | 2.2 Gusseisen mit Kugelgraft (GJS)   | Cast iron with nodular graphite (GJS)   | 500-900 N/mm <sup>2</sup> EN-GJS-700-2 (GGG70) EN-JS-1070                     |
|  | 3.1 Gusseisen mit Vermiculargrafit (GJV)   | Cast iron with vermicular graphite (GJV)  | 300-400 N/mm <sup>2</sup> GJV 300   |
|  | 3.2 Gusseisen mit Vermiculargrafit (GJV)   | Cast iron with vermicular graphite (GJV)  | 400-500 N/mm <sup>2</sup> GJV 450   |
| 4.1 Temperguss (GTMW, GTMB)                          | Malleable cast iron (GTMW, GTMB)   | 250-500 N/mm <sup>2</sup> EN-GJMW-350-4 (GTW-35) EN-JM-1010                                     |   |
| 4.2 Temperguss (GTMW, GTMB)                          | Malleable cast iron (GTMW, GTMB)   | 500-800 N/mm <sup>2</sup> EN-GJMB-450-6 (GTS-45) EN-JM-1140                                     |   |
| <b>N</b>   | <b>Nichteisenwerkstoffe</b><br>1.1 Aluminium-Legierungen                         | <b>Non ferrous materials</b><br>Aluminium alloys  |   |
|  | 1.2 Aluminium-Knetlegierungen  | Aluminium wrought alloys  | EN AW-AlMn1 EN AW-3103  |
|  | 1.3 Aluminium-Knetlegierungen  | Aluminium wrought alloys  | EN AW-AlMgSi EN AW-6060   |
|  | 1.4 Aluminium-Knetlegierungen  | Aluminium wrought alloys  | EN AW-AlZn5Mg3Cu EN AW-7022   |
|  | 1.5 Aluminium-Gusslegierungen  | Aluminium cast alloys   | Si ≤ 7% EN AC-AlMg5 EN AC-307 G   |
|  | 1.6 Aluminium-Gusslegierungen  | Aluminium cast alloys   | 7% < Si ≤ 12% EN AC-AISi9Cu3 EN AC-46500                                      |
|  | 2.1 Reinkupfer, niedriglegiertes Kupfer  | Pure copper, low-alloyed copper   | ≤ 200 N/mm <sup>2</sup> EN AW-AlMn1 EN AW-3103                                |
|  | 2.2 Kupfer-Zink-Legierungen (Messing, langspanend)                               | Copper-zinc alloys (brass, long-chipping)   | ≤ 350 N/mm <sup>2</sup> EN AW-AlMgSi EN AW-6060                               |
|  | 2.3 Kupfer-Zink-Legierungen (Messing, kurzspanend)                               | Copper-zinc alloys (brass, short-chipping)  | ≤ 550 N/mm <sup>2</sup> EN AW-AlZn5Mg3Cu EN AW-7022                           |
|  | 2.4 Kupfer-Aluminium-Legierungen (Alubronze, langspanend)                        | Copper-aluminium alloys (alu bronze, long-chipping)   | Si ≤ 7% EN AC-AlMg5 EN AC-307 G   |
|  | 2.5 Kupfer-Zinn-Legierungen (Zinnbronze, langspanend)                            | Copper-tin alloys (tin bronze, long-chipping)   | 7% < Si ≤ 12% EN AC-AISi9Cu3 EN AC-46500                                      |
|  | 2.6 Kupfer-Zinn-Legierungen (Zinnbronze, kurzspanend)                            | Copper-tin alloys (tin bronze, short-chipping)  | 12% < Si ≤ 17% GD-AISi17Cu4FeMg   |
|  | 2.7 Kupfer-Sonderlegierungen   | Special copper alloys   | ≤ 400 N/mm <sup>2</sup> E-Cu 57   |
|  | 2.8 Kupfer-Sonderlegierungen   | Special copper alloys   | ≤ 550 N/mm <sup>2</sup> CuZn37 (Ms63) EN CW 004 A                             |
|  | 3.1 Magnesium-Knetlegierungen  | Magnesium wrought alloys  | ≤ 800 N/mm <sup>2</sup> CuZn36Pb3 (Ms58) EN CW 508 L                          |
|  | 3.2 Magnesium-Gusslegierungen  | Magnesium cast alloys   | ≤ 1600 N/mm <sup>2</sup> CuAl10Ni5Fe4 EN CW 603 N                             |
| <b>S</b>   | <b>Spezialwerkstoffe</b><br>1.1 Titan-Legierungen                                | <b>Special materials</b><br>Titanium alloys   | CuSn8P EN CW 459 K  |
|  | 1.2 Reintitan  | Pure titanium   | ≤ 400 N/mm <sup>2</sup> CuSn7 ZnPb (Rg7) EN CW 004 A                          |
|  | 1.3 Titan-Legierungen  | Titanium alloys   | ≤ 600 N/mm <sup>2</sup> (AMPCO® 8) 2.1090                                     |
|  | 2.1 Reinnickel   | Pure nickel   | ≤ 1400 N/mm <sup>2</sup> (AMPCO® 45)  |
|  | 2.2 Nickel-Basis-Legierungen   | Nickel-base alloys  | MgAl6Zn 3.5612  |
|  | 2.3 Nickel-Basis-Legierungen   | Nickel-base alloys  | EN-MCMgAl9Zn1 EN-MC21120  |
|  | 2.4 Kobalt-Basis-Legierungen   | Cobalt-base alloys  |   |
|  | 2.5 Eisen-Basis-Legierungen  | Iron-base alloys  |   |
|  | 2.6 Eisen-Basis-Legierungen  | Iron-base alloys  |   |
|  | <b>H</b>   | <b>Harte Werkstoffe</b><br>1.1 Hochfeste Stähle, gehärtete Stähle, Hartguss                     | <b>Hard materials</b><br>High strength steels, hardened steels, hard castings |
| 1.2 Hochfeste Stähle, gehärtete Stähle, Hartguss     |  | High strength steels, hardened steels, hard castings  | 44 - 50 HRC Weldox 1100   |
| 1.3 Hochfeste Stähle, gehärtete Stähle, Hartguss     |  | High strength steels, hardened steels, hard castings  | 50 - 55 HRC Hardox 550  |
| 1.4 Hochfeste Stähle, gehärtete Stähle, Hartguss     |  | High strength steels, hardened steels, hard castings  | 55 - 60 HRC Armax 600T  |
| 1.5 Hochfeste Stähle, gehärtete Stähle, Hartguss     |  | High strength steels, hardened steels, hard castings  | 60 - 63 HRC Ferro-Titanit   |
| 1.5 Hochfeste Stähle, gehärtete Stähle, Hartguss     |  | High strength steels, hardened steels, hard castings  | 63 - 66 HRC HSSE  |

EMUGE  
-STEEL-

EMUGE  
-VA-

EMUGE  
-MS-

EMUGE  
-STEEL-



Product  
Finder

V<sub>c</sub>

M

MF

UNC

UNF

UNEF

NPT, NPTF

R

BSW, BSF

R

BSW

BSF

Tr, Tr-F

Zubehör  
Accessories

SE-B  
nor  
STEEL

SE-B  
gel  
STEEL

SE-B  
nor  
VA

SE-B  
gel  
VA

SE-B  
gel  
MS

SE-AUT-LD  
gel  
STEEL



M

MF

UNC

UNF

UNEF

G

NPT

NPTF

R

BSW

BSF

Tr

Tr-F

vc [m/min]

1,5  
520  
526  
528  
529  
530  
531  
  
536  
537

1,5  
520  
526  
528  
529  
530  
531

2  
521  
527

2  
521  
527

1  
  
531

1,5  
523

min. empf. max.

min. empf. max.

min. empf. max.

min. empf. max.

min. empf. max.

min. empf. max.

1 5 8

1 5 8

1 5 8

1 5 8

1 5 8

1.1

1 3 5

1 3 5

1 3 5

1 3 5

1 3 5

2.1

1 2 3

1 2 3

1 2 3

1 2 3

1 2 3

3.1

4.1

5.1

P

1 2 4

1 2 4

1 2 4

1.1

1 2 4

1 2 4

1 2 4

2.1

3.1

4.1

M

2 5 10

2 5 10

2 5 10

1.1

2 5 10

2 5 10

2 5 10

1.2

2 5 10

2 5 10

2 5 10

2.1

2 5 10

2 5 10

2 5 10

2.2

3.1

3.2

4.1

4.2

K

10 15 20

10 15 20

10 15 20

1.1

10 15 20

10 15 20

10 15 20

1.2

10 15 20

10 15 20

10 15 20

1.3

10 15 20

10 15 20

10 15 20

1.4

1.5

1.6

10 15 20

10 15 20

10 15 20

2.1

10 15 20

10 15 20

10 15 20

2.2

10 15 25

10 15 25

10 15 25

2.3

1 5 8

1 5 8

1 5 8

2.4

2.5

2.6

2.7

2.8

N

3.1

3.2

1 5 8

1 5 8

1 5 8

4.1

4.2

4.3

4.4

10 15 25

5.1

5.2

5.3

1.1

1.2

1.3

S

2.1

2.2

2.3

2.4

2.5

2.6

1.1


1.2

1.3

1.4

1.5

H

|                        |       | EMUGE<br>-STEEL-  | EMUGE<br>-MS-   | EMUGE<br>-STEEL-  |       | EMUGE<br>-STEEL-  | EMUGE<br>-STEEL-  |
|------------------------|-------|---|---|---|-------|---|---|
| Product Finder         |       |  |  |  | KEG   |  | TRAPEZ<br> |
| V <sub>c</sub>         |       | SE-GLOCK<br>gel<br>STEEL  | SE-GLOCK<br>gel<br>MS   | SE-6KT<br>nor<br>STEEL  |       | SE-KEG<br>nor<br>STEEL  | TRAPEZ<br>SE-B-nor<br>STEEL   |
| M                      |       | 1   | 1   | 1,5   |       | 1,5   | 1,5-2   |
| MF                     |       |   |   |   |       |   |   |
| UNC                    |       |   |   |   |       |   |   |
| UNF<br>UNEF            |       |  |   |   |       |   |   |
| G                      |       | 524   |   | 525   |       |   |   |
| NPT, NPTF<br>R         |       |   | 532   |   |       | 533<br>534<br>535   |   |
| BSW, BSF               |       |   |   |   |       |   |   |
| Tr, Tr-F               |       |   |   |   |       |   | 538<br>539  |
| Zubehör<br>Accessories |       | v <sub>c</sub> [m/min]  | min. empf. max.<br>rec.   | min. empf. max.<br>rec.   |       | min. empf. max.<br>rec.   | min. empf. max.<br>rec.   |
| P                      | 1.1   | 1 5 8   |   | 1 5 8   |       | 1 2 3   | 1 2 3 1)  |
|                        | 2.1   | 1 3 5   |   | 1 3 5   |       | 1 3 5   |   |
|                        | 3.1   | 1 2 3   |   | 1 2 3   |       | 1 2 3   |   |
|                        | 4.1   |   |   |   |       |   |   |
|                        | 5.1   |   |   |   |       |   |   |
| M                      | 1.1   |   |   |   |       |   |   |
|                        | 2.1   |   |   |   |       |   |   |
|                        | 3.1   |   |   |   |       |   |   |
|                        | 4.1   |   |   |   |       |   |   |
| K                      | 1.1   | 2 5 10  |   | 2 5 10  |       | 1 3 5   |   |
|                        | 1.2   | 2 5 10  |   | 2 5 10  |       | 1 3 5   |   |
|                        | 2.1   | 2 5 10  |   | 2 5 10  |       | 1 3 5   |   |
|                        | 2.2   | 2 5 10  |   | 2 5 10  |       | 1 3 5   |   |
|                        | 3.1   |   |   |   |       |   |   |
|                        | 3.2   |   |   |   |       |   |   |
|                        | 4.1   |   |   |   |       |   |   |
| N                      | 1.1   | 10 15 20  |   |   |       |   |   |
|                        | 1.2   | 10 15 20  |   |   |       |   |   |
|                        | 1.3   | 10 15 20  |   |   |       |   |   |
|                        | 1.4   | 10 15 20  |   |   |       |   |   |
|                        | 1.5   |   |   |   |       |   |   |
|                        | 1.6   |   |   |   |       |   |   |
|                        | 2.1   | 10 15 20  |   |   |       |   |   |
|                        | 2.2   | 10 15 20  |   |   |       |   |   |
|                        | 2.3   |   | 10 15 25  |   |       | 1 3 5   | 1 2 3 1)  |
|                        | 2.4   | 1 5 8   |   |   |       |   |   |
|                        | 2.5   |   |   |   |       |   |   |
|                        | 2.6   |   |   |   |       |   |   |
|                        | 2.7   |   |   |   |       |   |   |
|                        | 2.8   |   |   |   |       |   |   |
|                        | 3.1   |   |   |   |       |   |   |
|                        | 3.2   |   |   |   |       |   |   |
| 4.1                    |       | 10 15 25  |   |   | 1 3 5 |   |   |
| 4.2                    | 1 5 8 |   |   |   |       |   |   |
| 4.3                    |       |   |   |   |       |   |   |
| 4.4                    |       |   |   |   |       |   |   |
| 5.1                    |       |   |   |   |       |   |   |
| 5.2                    |       |   |   |   |       |   |   |
| 5.3                    |       |   |   |   |       |   |   |
| S                      | 1.1   |   |   |   |       |   |   |
|                        | 1.2   |   |   |   |       |   |   |
|                        | 1.3   |   |   |   |       |   |   |
|                        | 2.1   |   |   |   |       |   |   |
|                        | 2.2   |   |   |   |       |   |   |
|                        | 2.3   |   |   |   |       |   |   |
|                        | 2.4   |   |   |   |       |   |   |
| 2.5                    |       |   |   |   |       |   |   |
| 2.6                    |       |   |   |   |       |   |   |
| H                      | 1.1   |   |   |   |       |   |   |
|                        | 1.2   |   |   |   |       |   |   |
|                        | 1.3   |   |   |   |       |   |   |
|                        | 1.4   |   |   |   |       |   |   |
|                        | 1.5   |   |   |   |       |   |   |

Product  
FinderV<sub>c</sub>

M

MF

UNC

UNF  
UNEF

G

NPT, NPTF  
R

BSW, BSF

Tr, Tr-F

Zubehör  
Accessories

EMUGE bietet ein umfangreiches Programm an Gewindewalzrollen, Schneckenwalzrollen, Rändelrollen und Kerbverzahnungsrollen für praktisch alle Bearbeitungsfälle.

EMUGE offers you a comprehensive programme of thread rolls, worm rolls, knurling rolls and serration rolls for practically all application cases.

### Verfahrensmerkmale:

- Spanloses Verfahren
- Außenbearbeitung
- Erzeugung der Profilkonturen durch Materialverdrängung
- Walzen-Grundwerkstoff ist hochlegierter Werkzeugstahl

### Voraussetzungen:

- Werkstoffe mit einer Bruchdehnung  $\geq 8\%$
- Speziell abgestimmte Vorarbeitsdurchmesser der Rohlinge zum Walzen erforderlich

### Vorteile:

- Rollglatte Oberflächen durch Gefügeverdichtung
- Oberflächengüte  $R_a 0,2$  am gewalzten Profil
- Höhere Korrosionsbeständigkeit durch kleinere Reaktionsflächen
- Ununterbrochener Faserverlauf
- Erhöhte statische und dynamische Festigkeit des Profils
- Hohe Form- und Maßgenauigkeit
- Erhebliche Werkstoffersparnis, da nicht vom Außendurchmesser des Werkstücks, sondern vom Flanken- bzw. Vorarbeitsdurchmesser ausgegangen wird
- Kurze Bearbeitungsdauer

**Somit können gewalzte Gewinde größeren Belastungen ausgesetzt werden. Sie besitzen höhere Verschleißfestigkeit und sind korrosionsbeständiger. Eine Steigerung der Wirtschaftlichkeit bei der Gewindefertigung durch extrem kurze Fertigungszeiten ist ein weiterer Vorteil, der besondere Beachtung verdient.**

### Nachteile:

- Nicht vollständig ausgeformter Außendurchmesser
- Spezialmaschinen erforderlich

Für weitere Informationen kontaktieren Sie bitte den für Sie zuständigen Vertriebspartner.

### Process characteristics:

- Chipless process
- External machining
- Production of profile contours by material displacement
- Rolls made of high-alloyed tool steel

### Requirements:

- Workpiece materials with a breaking elongation  $\geq 8\%$
- Specially adjusted blank diameters are necessary for rolling

### Advantages:

- Smooth rolled surfaces achieved by densification of the material structure
- Surface quality grade  $R_a 0.2$  on the rolled profile
- Increased corrosion resistance due to reduced reaction surfaces
- Uninterrupted grain structure
- Increased static and dynamic strength of the profile
- High dimensional and form precision
- Considerable material savings, since work does not start from the major diameter of the workpiece but from its pitch, or preparatory diameter
- Short machining times

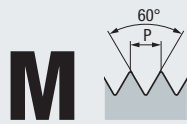
This means that rolled threads can better withstand stress: they show increased wear resistance, and are better protected against corrosion. Another advantage which deserves attention lies in the possibility of improving economic efficiency in thread production by the extremely short machining times which are common in thread rolling.

### Disadvantages:

- Incompletely formed major diameter
- Special machines are necessary

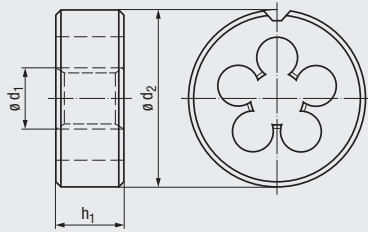
For further information please get in touch with your sales contact.

- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC
- UNF  
UNEF
- G
- NPT, NPTF  
R
- BSW, BSF
- Tr, Tr-F
- Zubehör  
Accessories



DIN EN  
22568

DIN 13



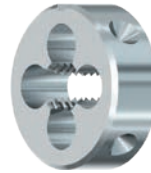
Vorarbeitsdurchmesser  $d \approx$   
Preparatory diameter  $d \approx$



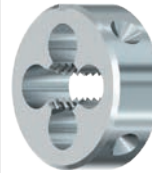
STEEL  
Steel  
materials



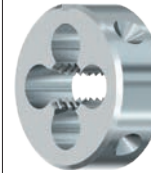
normal  
standard



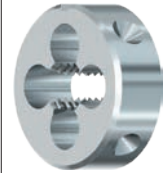
geläpft  
lapped



normal  
standard



normal  
standard



Toleranz · Tolerance  
Schneidstoff · Cutting material  
Technische Informationen  
Technical information



|                  |                  |       |       |
|------------------|------------------|-------|-------|
| 6g <sup>*)</sup> | 6g <sup>*)</sup> | 6e    | 6g    |
| HSS              | HSS              | HSS   | HSS   |
| 1,5              | 1,5              | 1,5   | 1,5   |
| E / O            | E / O            | E / O | E / O |

Einsatzgebiete – Material  
Applications – material

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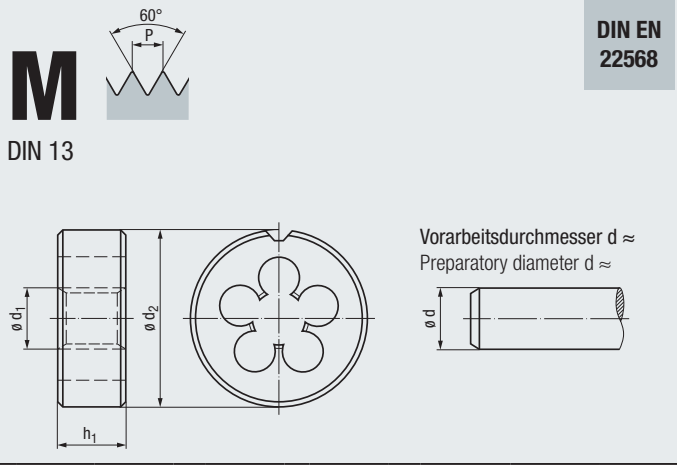
|                  |                       |                  |                  |
|------------------|-----------------------|------------------|------------------|
| <b>P</b> 1.1-3.1 | <b>P</b> 1.1-3.1      | <b>P</b> 1.1-3.1 | <b>P</b> 1.1-3.1 |
| <b>K</b> 1.1-2.2 | <b>M</b> 1.1-2.1      | <b>K</b> 1.1-2.2 | <b>K</b> 1.1-2.2 |
|                  | <b>N</b> 1.1-1.4      |                  |                  |
|                  | <b>N</b> 2.1-2.4, 4.2 |                  |                  |

| M | $\varnothing d_1$<br>mm | P<br>mm | $\varnothing d_2$ | x | h <sub>1</sub> | $\varnothing d \approx$ |       |       | SE-B<br>nor<br>STEEL | SE-B<br>gel<br>STEEL | SE-B<br>nor<br>STEEL | SE-B<br>nor<br>STEEL-LH |
|---|-------------------------|---------|-------------------|---|----------------|-------------------------|-------|-------|----------------------|----------------------|----------------------|-------------------------|
|   |                         |         |                   |   |                | 4h                      | 6g    | 6e    |                      |                      |                      |                         |
|   | 1                       | 0,25    | 16                | x | 5              | 0,98                    | 0,97  | 0,93  | D0101000.0010        | D0101500.0010        |                      |                         |
|   | 1,1                     | 0,25    | 16                | x | 5              | 1,08                    | 1,07  | 1,03  | D0101000.0011        | D0101500.0011        |                      |                         |
|   | 1,2                     | 0,25    | 16                | x | 5              | 1,18                    | 1,17  | 1,13  | D0101000.0012        | D0101500.0012        |                      |                         |
|   | 1,4                     | 0,3     | 16                | x | 5              | 1,38                    | 1,36  | 1,32  | D0101000.0014        | D0101500.0014        |                      |                         |
|   | 1,6                     | 0,35    | 16                | x | 5              | 1,57                    | 1,54  | 1,51  | D0101000.0016        | D0101500.0016        |                      |                         |
|   | 1,7                     | 0,35    | 16                | x | 5              | 1,67                    | 1,64  | 1,61  | D0101000.0017        | D0101500.0017        |                      |                         |
|   | 1,8                     | 0,35    | 16                | x | 5              | 1,77                    | 1,74  | 1,71  | D0101000.0018        | D0101500.0018        |                      |                         |
|   | 2                       | 0,4     | 16                | x | 5              | 1,97                    | 1,93  | 1,90  | D0101000.0020        | D0101500.0020        |                      |                         |
|   | 2,2                     | 0,45    | 16                | x | 5              | 2,16                    | 2,13  | 2,10  | D0101000.0022        | D0101500.0022        | D0101030.0022        | D0101050.0022           |
|   | 2,3                     | 0,4     | 16                | x | 5              | 2,26                    | 2,23  | 2,20  | D0101000.0023        | D0101500.0023        |                      | D0101050.0023           |
|   | 2,5                     | 0,45    | 16                | x | 5              | 2,46                    | 2,43  | 2,40  | D0101000.0025        | D0101500.0025        | D0101030.0025        | D0101050.0025           |
|   | 2,6                     | 0,45    | 16                | x | 5              | 2,56                    | 2,53  | 2,50  | D0101000.0026        | D0101500.0026        |                      | D0101050.0026           |
|   | 3                       | 0,5     | 20                | x | 5              | 2,96                    | 2,92  | 2,89  | D0101000.0030        | D0101500.0030        | D0101030.0030        | D0101050.0030           |
|   | 3,5                     | 0,6     | 20                | x | 5              | 3,46                    | 3,41  | 3,38  | D0101000.0035        | D0101500.0035        | D0101030.0035        | D0101050.0035           |
|   | 4                       | 0,7     | 20                | x | 5              | 3,95                    | 3,90  | 3,87  | D0101000.0040        | D0101500.0040        | D0101030.0040        | D0101050.0040           |
|   | 4,5                     | 0,75    | 20                | x | 7              | 4,45                    | 4,40  | 4,37  | D0101000.0045        | D0101500.0045        |                      |                         |
|   | 5                       | 0,8     | 20                | x | 7              | 4,95                    | 4,90  | 4,86  | D0101000.0050        | D0101500.0050        | D0101030.0050        | D0101050.0050           |
|   | 6                       | 1       | 20                | x | 7              | 5,94                    | 5,88  | 5,85  | D0101000.0060        | D0101500.0060        | D0101030.0060        | D0101050.0060           |
|   | 7                       | 1       | 25                | x | 9              | 6,94                    | 6,88  | 6,85  | D0101000.0070        | D0101500.0070        | D0101030.0070        | D0101050.0070           |
|   | 8                       | 1,25    | 25                | x | 9              | 7,93                    | 7,86  | 7,83  | D0101000.0080        | D0101500.0080        | D0101030.0080        | D0101050.0080           |
|   | 9                       | 1,25    | 25                | x | 9              | 8,93                    | 8,86  | 8,83  | D0101000.0090        | D0101500.0090        |                      |                         |
|   | 10                      | 1,5     | 30                | x | 11             | 9,92                    | 9,85  | 9,81  | D0101000.0100        | D0101500.0100        | D0101030.0100        | D0101050.0100           |
|   | 11                      | 1,5     | 30                | x | 11             | 10,92                   | 10,85 | 10,81 | D0101000.0111        | D0101500.0111        |                      |                         |
|   | 12                      | 1,75    | 38                | x | 14             | 11,91                   | 11,83 | 11,81 | D0101000.0112        | D0101500.0112        | D0101030.0112        | D0101050.0112           |
|   | 14                      | 2       | 38                | x | 14             | 13,91                   | 13,82 | 13,78 | D0101000.0114        | D0101500.0114        | D0101030.0114        | D0101050.0114           |
|   | 16                      | 2       | 45                | x | 18             | 15,91                   | 15,82 | 15,78 | D0101000.0116        | D0101500.0116        | D0101030.0116        | D0101050.0116           |
|   | 18                      | 2,5     | 45                | x | 18             | 17,89                   | 17,79 | 17,75 | D0101000.0118        | D0101500.0118        |                      | D0101050.0118           |
|   | 20                      | 2,5     | 45                | x | 18             | 19,89                   | 19,79 | 19,75 | D0101000.0120        | D0101500.0120        |                      | D0101050.0120           |
|   | 22                      | 2,5     | 55                | x | 22             | 21,89                   | 21,79 | 21,75 | D0101000.0122        | D0101500.0122        |                      | D0101050.0122           |
|   | 24                      | 3       | 55                | x | 22             | 23,88                   | 23,76 | 23,72 | D0101000.0124        | D0101500.0124        |                      | D0101050.0124           |
|   | 27                      | 3       | 65                | x | 25             | 26,88                   | 26,76 | 26,72 | D0101000.0127        | D0101500.0127        |                      |                         |
|   | 30                      | 3,5     | 65                | x | 25             | 29,87                   | 29,73 | 29,70 | D0101000.0130        | D0101500.0130        |                      |                         |
|   | 33                      | 3,5     | 65                | x | 25             | 32,87                   | 32,73 | 32,70 | D0101000.0133        | D0101500.0133        |                      |                         |
|   | 36                      | 4       | 65                | x | 25             | 35,85                   | 35,70 | 35,66 | D0101000.0136        | D0101500.0136        |                      |                         |
|   | 39                      | 4       | 75                | x | 30             | 38,85                   | 38,70 | 38,66 | D0101000.0139        | D0101500.0139        |                      |                         |
|   | 42                      | 4,5     | 75                | x | 30             | 41,84                   | 41,68 | 41,65 | D0101000.0142        | D0101500.0142        |                      |                         |
|   | 45                      | 4,5     | 90                | x | 36             | 44,84                   | 44,68 | 44,65 | D0101000.0145        | D0101500.0145        |                      |                         |
|   | 48                      | 5       | 90                | x | 36             | 47,83                   | 47,66 | 47,62 | D0101000.0148        | D0101500.0148        |                      |                         |
|   | 52                      | 5       | 90                | x | 36             | 51,83                   | 51,66 | 51,62 | D0101000.0152        | D0101500.0152        |                      |                         |

<sup>\*)</sup> ≤ M1,4 Tol. 6h

Toleranzklasse 4h auf Anfrage  
Tolerance class 4h upon request





| VA<br>Stainless steel materials |                |
|---------------------------------|----------------|
|                                 |                |
| normal standard                 | geläppt lapped |
|                                 |                |
| 6g<br>HSSE                      | 6g<br>HSSE     |
| 2<br>E/O/P                      | 2<br>E/O/P     |

|                        |
|------------------------|
| Product Finder         |
| V <sub>c</sub>         |
| M                      |
| MF                     |
| UNC                    |
| UNF<br>UNEF            |
| G                      |
| NPT, NPTF<br>R         |
| BSW, BSF               |
| Tr, Tr-F               |
| Zubehör<br>Accessories |

Technische Informationen  
Technical information

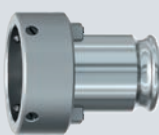
Toleranz · Tolerance  
Schneidstoff · Cutting material

Einsatzgebiete – Material  
Applications – material

» 516

|                  |                       |
|------------------|-----------------------|
| <b>P</b> 1.1-3.1 | <b>P</b> 1.1-3.1      |
| <b>M</b> 1.1-2.1 | <b>M</b> 1.1-2.1      |
|                  | <b>N</b> 1.1-1.4      |
|                  | <b>N</b> 2.1-2.2, 2.4 |
|                  | <b>N</b> 4.2          |

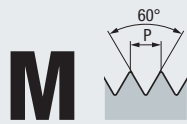
| M | ø d <sub>1</sub><br>mm | P<br>mm | ø d <sub>2</sub> | x | h <sub>1</sub> | ø d ≈ |       |       | SE-B<br>nor<br>VA | SE-B<br>gel<br>VA |
|---|------------------------|---------|------------------|---|----------------|-------|-------|-------|-------------------|-------------------|
|   |                        |         |                  |   |                | 4h    | 6g    | 6e    |                   |                   |
|   | 1                      | 0,25    | 16               | x | 5              | 0,98  | 0,97  | 0,93  |                   |                   |
|   | 1,1                    | 0,25    | 16               | x | 5              | 1,08  | 1,07  | 1,03  |                   |                   |
|   | 1,2                    | 0,25    | 16               | x | 5              | 1,18  | 1,17  | 1,13  |                   |                   |
|   | 1,4                    | 0,3     | 16               | x | 5              | 1,38  | 1,36  | 1,32  |                   |                   |
|   | 1,6                    | 0,35    | 16               | x | 5              | 1,57  | 1,54  | 1,51  |                   |                   |
|   | 1,7                    | 0,35    | 16               | x | 5              | 1,67  | 1,64  | 1,61  |                   |                   |
|   | 1,8                    | 0,35    | 16               | x | 5              | 1,77  | 1,74  | 1,71  |                   |                   |
|   | 2                      | 0,4     | 16               | x | 5              | 1,97  | 1,93  | 1,90  | D0103000.0020     | D0103500.0020     |
|   | 2,2                    | 0,45    | 16               | x | 5              | 2,16  | 2,13  | 2,10  |                   |                   |
|   | 2,3                    | 0,4     | 16               | x | 5              | 2,26  | 2,23  | 2,20  | D0103000.0023     | D0103500.0023     |
|   | 2,5                    | 0,45    | 16               | x | 5              | 2,46  | 2,43  | 2,40  | D0103000.0025     | D0103500.0025     |
|   | 2,6                    | 0,45    | 16               | x | 5              | 2,56  | 2,53  | 2,50  |                   |                   |
|   | 3                      | 0,5     | 20               | x | 5              | 2,96  | 2,92  | 2,89  | D0103000.0030     | D0103500.0030     |
|   | 3,5                    | 0,6     | 20               | x | 5              | 3,46  | 3,41  | 3,38  | D0103000.0035     | D0103500.0035     |
|   | 4                      | 0,7     | 20               | x | 5              | 3,95  | 3,90  | 3,87  | D0103000.0040     | D0103500.0040     |
|   | 4,5                    | 0,75    | 20               | x | 7              | 4,45  | 4,40  | 4,37  |                   |                   |
|   | 5                      | 0,8     | 20               | x | 7              | 4,95  | 4,90  | 4,86  | D0103000.0050     | D0103500.0050     |
|   | 6                      | 1       | 20               | x | 7              | 5,94  | 5,88  | 5,85  | D0103000.0060     | D0103500.0060     |
|   | 7                      | 1       | 25               | x | 9              | 6,94  | 6,88  | 6,85  | D0103000.0070     | D0103500.0070     |
|   | 8                      | 1,25    | 25               | x | 9              | 7,93  | 7,86  | 7,83  | D0103000.0080     | D0103500.0080     |
|   | 9                      | 1,25    | 25               | x | 9              | 8,93  | 8,86  | 8,83  |                   |                   |
|   | 10                     | 1,5     | 30               | x | 11             | 9,92  | 9,85  | 9,81  | D0103000.0100     | D0103500.0100     |
|   | 11                     | 1,5     | 30               | x | 11             | 10,92 | 10,85 | 10,81 |                   |                   |
|   | 12                     | 1,75    | 38               | x | 14             | 11,91 | 11,83 | 11,81 | D0103000.0112     | D0103500.0112     |
|   | 14                     | 2       | 38               | x | 14             | 13,91 | 13,82 | 13,78 | D0103000.0114     | D0103500.0114     |
|   | 16                     | 2       | 45               | x | 18             | 15,91 | 15,82 | 15,78 | D0103000.0116     | D0103500.0116     |
|   | 18                     | 2,5     | 45               | x | 18             | 17,89 | 17,79 | 17,75 | D0103000.0118     | D0103500.0118     |
|   | 20                     | 2,5     | 45               | x | 18             | 19,89 | 19,79 | 19,75 | D0103000.0120     | D0103500.0120     |
|   | 22                     | 2,5     | 55               | x | 22             | 21,89 | 21,79 | 21,75 | D0103000.0122     | D0103500.0122     |
|   | 24                     | 3       | 55               | x | 22             | 23,88 | 23,76 | 23,72 | D0103000.0124     | D0103500.0124     |
|   | 27                     | 3       | 65               | x | 25             | 26,88 | 26,76 | 26,72 | D0103000.0127     | D0103500.0127     |
|   | 30                     | 3,5     | 65               | x | 25             | 29,87 | 29,73 | 29,70 | D0103000.0130     | D0103500.0130     |
|   | 33                     | 3,5     | 65               | x | 25             | 32,87 | 32,73 | 32,70 |                   |                   |
|   | 36                     | 4       | 65               | x | 25             | 35,85 | 35,70 | 35,66 |                   |                   |
|   | 39                     | 4       | 75               | x | 30             | 38,85 | 38,70 | 38,66 |                   |                   |
|   | 42                     | 4,5     | 75               | x | 30             | 41,84 | 41,68 | 41,65 |                   |                   |
|   | 45                     | 4,5     | 90               | x | 36             | 44,84 | 44,68 | 44,65 |                   |                   |
|   | 48                     | 5       | 90               | x | 36             | 47,83 | 47,66 | 47,62 |                   |                   |
|   | 52                     | 5       | 90               | x | 36             | 51,83 | 51,66 | 51,62 |                   |                   |



Schnellwechsel-Einsätze für  
runde Schneideisen Typ EM-SE  
siehe Seite 737

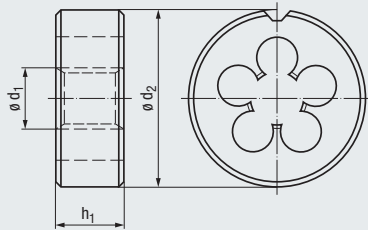
Quick-change adapters for  
round dies type EM-SE,  
see page 737

- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC
- UNF  
UNEF
- G
- NPT, NPTF  
R
- BSW, BSF
- Tr, Tr-F
- Zubehör  
Accessories



**M**  
DIN 13

**DIN EN  
22568**



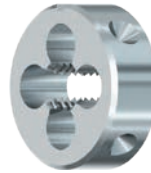
Vorarbeitsdurchmesser  $d \approx$   
Preparatory diameter  $d \approx$



**MS**  
Copper-zinc  
alloys



geläppt  
lapped



Toleranz · Tolerance  
Schneidstoff · Cutting material

6g

HSS

1

E / O

Technische Informationen  
Technical information



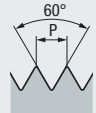
**N 2.3.4.1**

Einsatzgebiete – Material  
Applications – material

» 516

| M | $\varnothing d_1$<br>mm | P<br>mm | $\varnothing d_2$ | x | h <sub>1</sub> | $\varnothing d \approx$ |       |       | SE-B<br>gel<br>MS    |
|---|-------------------------|---------|-------------------|---|----------------|-------------------------|-------|-------|----------------------|
|   |                         |         |                   |   |                | 4h                      | 6g    | 6e    |                      |
|   | 1                       | 0,25    | 16                | x | 5              | 0,98                    | 0,97  | 0,93  |                      |
|   | 1,1                     | 0,25    | 16                | x | 5              | 1,08                    | 1,07  | 1,03  |                      |
|   | 1,2                     | 0,25    | 16                | x | 5              | 1,18                    | 1,17  | 1,13  |                      |
|   | 1,4                     | 0,3     | 16                | x | 5              | 1,38                    | 1,36  | 1,32  |                      |
|   | 1,6                     | 0,35    | 16                | x | 5              | 1,57                    | 1,54  | 1,51  |                      |
|   | 1,7                     | 0,35    | 16                | x | 5              | 1,67                    | 1,64  | 1,61  |                      |
|   | 1,8                     | 0,35    | 16                | x | 5              | 1,77                    | 1,74  | 1,71  |                      |
|   | 2                       | 0,4     | 16                | x | 5              | 1,97                    | 1,93  | 1,90  | <b>D0102500.0020</b> |
|   | 2,2                     | 0,45    | 16                | x | 5              | 2,16                    | 2,13  | 2,10  | D0102500.0022        |
|   | 2,3                     | 0,4     | 16                | x | 5              | 2,26                    | 2,23  | 2,20  | D0102500.0023        |
|   | 2,5                     | 0,45    | 16                | x | 5              | 2,46                    | 2,43  | 2,40  | <b>D0102500.0025</b> |
|   | 2,6                     | 0,45    | 16                | x | 5              | 2,56                    | 2,53  | 2,50  | D0102500.0026        |
|   | 3                       | 0,5     | 20                | x | 5              | 2,96                    | 2,92  | 2,89  | <b>D0102500.0030</b> |
|   | 3,5                     | 0,6     | 20                | x | 5              | 3,46                    | 3,41  | 3,38  | <b>D0102500.0035</b> |
|   | 4                       | 0,7     | 20                | x | 5              | 3,95                    | 3,90  | 3,87  | <b>D0102500.0040</b> |
|   | 4,5                     | 0,75    | 20                | x | 7              | 4,45                    | 4,40  | 4,37  |                      |
|   | 5                       | 0,8     | 20                | x | 7              | 4,95                    | 4,90  | 4,86  | <b>D0102500.0050</b> |
|   | 6                       | 1       | 20                | x | 7              | 5,94                    | 5,88  | 5,85  | <b>D0102500.0060</b> |
|   | 7                       | 1       | 25                | x | 9              | 6,94                    | 6,88  | 6,85  | <b>D0102500.0070</b> |
|   | 8                       | 1,25    | 25                | x | 9              | 7,93                    | 7,86  | 7,83  | <b>D0102500.0080</b> |
|   | 9                       | 1,25    | 25                | x | 9              | 8,93                    | 8,86  | 8,83  |                      |
|   | 10                      | 1,5     | 30                | x | 11             | 9,92                    | 9,85  | 9,81  | <b>D0102500.0100</b> |
|   | 11                      | 1,5     | 30                | x | 11             | 10,92                   | 10,85 | 10,81 |                      |
|   | 12                      | 1,75    | 38                | x | 14             | 11,91                   | 11,83 | 11,81 | <b>D0102500.0112</b> |
|   | 14                      | 2       | 38                | x | 14             | 13,91                   | 13,82 | 13,78 | D0102500.0114        |
|   | 16                      | 2       | 45                | x | 18             | 15,91                   | 15,82 | 15,78 | D0102500.0116        |
|   | 18                      | 2,5     | 45                | x | 18             | 17,89                   | 17,79 | 17,75 | D0102500.0118        |
|   | 20                      | 2,5     | 45                | x | 18             | 19,89                   | 19,79 | 19,75 | D0102500.0120        |
|   | 22                      | 2,5     | 55                | x | 22             | 21,89                   | 21,79 | 21,75 |                      |
|   | 24                      | 3       | 55                | x | 22             | 23,88                   | 23,76 | 23,72 |                      |
|   | 27                      | 3       | 65                | x | 25             | 26,88                   | 26,76 | 26,72 |                      |
|   | 30                      | 3,5     | 65                | x | 25             | 29,87                   | 29,73 | 29,70 |                      |
|   | 33                      | 3,5     | 65                | x | 25             | 32,87                   | 32,73 | 32,70 |                      |
|   | 36                      | 4       | 65                | x | 25             | 35,85                   | 35,70 | 35,66 |                      |
|   | 39                      | 4       | 75                | x | 30             | 38,85                   | 38,70 | 38,66 |                      |
|   | 42                      | 4,5     | 75                | x | 30             | 41,84                   | 41,68 | 41,65 |                      |
|   | 45                      | 4,5     | 90                | x | 36             | 44,84                   | 44,68 | 44,65 |                      |
|   | 48                      | 5       | 90                | x | 36             | 47,83                   | 47,66 | 47,62 |                      |
|   | 52                      | 5       | 90                | x | 36             | 51,83                   | 51,66 | 51,62 |                      |

**M**  
DIN 13




60°  
P  
ø d<sub>1</sub>  
ø d<sub>2</sub>  
h<sub>1</sub>

**beidseitig verwendbar**  
to be used from both sides

**Type LD**

Vorarbeitsdurchmesser d ≈  
Preparatory diameter d ≈



**STEEL**  
Steel materials



**geläppt**  
lapped



Technische Informationen  
Technical information

Toleranz · Tolerance  
Schneidstoff · Cutting material



|       |
|-------|
| 6g *) |
| HSS   |
| 1,5   |
| E / O |

Einsatzgebiete – Material  
Applications – material

» 516

|                       |
|-----------------------|
| <b>P</b> 1.1-3.1      |
| <b>K</b> 1.1-2.2      |
| <b>N</b> 1.1-1.4      |
| <b>N</b> 2.1-2.2, 2.4 |
| <b>N</b> 4.2          |

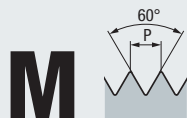
| M | ø d <sub>1</sub><br>mm | P<br>mm | ø d <sub>2</sub> | x | h <sub>1</sub> | ø d ≈ |       |       | SE-AUT-LD<br>gel<br>STEEL |
|---|------------------------|---------|------------------|---|----------------|-------|-------|-------|---------------------------|
|   |                        |         |                  |   |                | 4h    | 6g    | 6e    |                           |
|   | 1                      | 0,25    | 16               | x | 2              | 0,98  | 0,97  | 0,93  |                           |
|   | 1,1                    | 0,25    | 16               | x | 2              | 1,08  | 1,07  | 1,03  |                           |
|   | 1,2                    | 0,25    | 16               | x | 2              | 1,18  | 1,17  | 1,13  |                           |
|   | 1,4                    | 0,3     | 16               | x | 2,6            | 1,38  | 1,36  | 1,32  | D0361500.0012             |
|   | 1,6                    | 0,35    | 16               | x | 2,6            | 1,57  | 1,54  | 1,51  | <b>D0361500.0014</b>      |
|   | 1,7                    | 0,35    | 16               | x | 2,6            | 1,67  | 1,64  | 1,61  | <b>D0361500.0016</b>      |
|   | 1,8                    | 0,35    | 16               | x | 2,6            | 1,77  | 1,74  | 1,71  | <b>D0361500.0017</b>      |
|   | 2                      | 0,4     | 16               | x | 3,5            | 1,97  | 1,93  | 1,90  | D0361500.0018             |
|   | 2,2                    | 0,45    | 16               | x | 3,5            | 2,17  | 2,13  | 2,10  | <b>D0361500.0020</b>      |
|   | 2,3                    | 0,4     | 16               | x | 3,5            | 2,27  | 2,23  | 2,20  | D0361500.0022             |
|   | 2,5                    | 0,45    | 16               | x | 3,5            | 2,47  | 2,43  | 2,40  | <b>D0361500.0023</b>      |
|   | 3                      | 0,5     | 16               | x | 3,5            | 2,97  | 2,92  | 2,89  | <b>D0361500.0025</b>      |
|   | 3,5                    | 0,6     | 16               | x | 4              | 3,46  | 3,41  | 3,38  | <b>D0361500.0030</b>      |
|   | 4                      | 0,7     | 16               | x | 5              | 3,96  | 3,90  | 3,87  | <b>D0361500.0035</b>      |
|   | 4,5                    | 0,75    | 20               | x | 7              | 4,46  | 4,40  | 4,37  | <b>D0361500.0040</b>      |
|   | 5                      | 0,8     | 20               | x | 7              | 4,95  | 4,90  | 4,86  |                           |
|   | 6                      | 1       | 20               | x | 7              | 5,94  | 5,88  | 5,85  | <b>D0361500.0050</b>      |
|   | 7                      | 1       | 25               | x | 7              | 6,94  | 6,88  | 6,85  | <b>D0361500.0060</b>      |
|   | 8                      | 1,25    | 25               | x | 9              | 7,93  | 7,86  | 7,83  |                           |
|   | 10                     | 1,5     | 30               | x | 11             | 9,92  | 9,85  | 9,81  |                           |
|   | 12                     | 1,75    | 35               | x | 12             | 11,91 | 11,83 | 11,81 |                           |
|   | 14                     | 2       | 35               | x | 14             | 13,91 | 13,82 | 13,78 |                           |
|   | 16                     | 2       | 45               | x | 18             | 15,91 | 15,82 | 15,78 |                           |

\*) ≤ M1,4 Tol. 6h

- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC
- UNF  
UNEF
- G
- NPT, NPTF  
R
- BSW, BSF
- Tr, Tr-F
- Zubehör  
Accessories

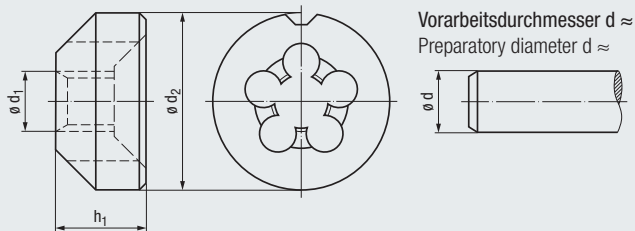


- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC
- UNF  
UNEF
- G
- NPT, NPTF  
R
- BSW, BSF
- Tr, Tr-F
- Zubehör  
Accessories



# M

DIN 13



**STEEL**  
Steel materials



geläppt  
lapped



Technische Informationen  
Technical information

Toleranz · Tolerance  
Schneidstoff · Cutting material



- 6g
- HSS
- 1
- E / O

Einsatzgebiete – Material  
Applications – material

» 516

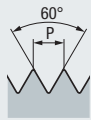
- P** 1.1-3.1
- K** 1.1-2.2
- N** 1.1-1.4
- N** 2.1-2.2, 2.4
- N** 4.2

|          | $\varnothing d_1$<br>mm | P<br>mm | $\varnothing d_2$ | x | $h_1$ | $\varnothing d \approx$ |      |      | SE-GLOCK<br>gel<br>STEEL |
|----------|-------------------------|---------|-------------------|---|-------|-------------------------|------|------|--------------------------|
|          |                         |         |                   |   |       | 4h                      | 6g   | 6e   |                          |
| <b>M</b> | 2                       | 0,4     | 16                | x | 8     | 1,97                    | 1,93 | 1,90 | <b>D0301500.0020</b>     |
|          | 2,5                     | 0,45    | 16                | x | 8     | 2,47                    | 2,43 | 2,40 | <b>D0301500.0025</b>     |
|          | 3                       | 0,5     | 16                | x | 8     | 2,97                    | 2,92 | 2,89 | <b>D0301500.0030</b>     |
|          | 3,5                     | 0,6     | 16                | x | 9,5   | 3,46                    | 3,41 | 3,38 | D0301500.0035            |
|          | 4                       | 0,7     | 16                | x | 9,5   | 3,96                    | 3,90 | 3,87 | <b>D0301500.0040</b>     |
|          | 5                       | 0,8     | 20                | x | 9,5   | 4,95                    | 4,90 | 4,86 | <b>D0301500.0050</b>     |
|          | 6                       | 1       | 20                | x | 9,5   | 5,94                    | 5,88 | 5,85 | <b>D0301500.0060</b>     |
|          | 8                       | 1,25    | 25                | x | 14    | 7,93                    | 7,86 | 7,83 | <b>D0301500.0080</b>     |

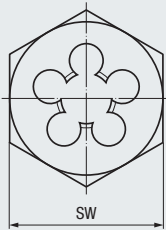
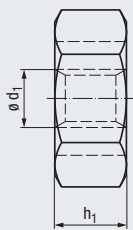


Kühlschmierstoffe siehe Seite 300 - 301    Coolant-lubricants, see page 300 - 301

**M**



DIN 13



Vorarbeitsdurchmesser  $d \approx$   
Preparatory diameter  $d \approx$



**STEEL**  
Steel materials



normal standard



Technische Informationen  
Technical information

Toleranz · Tolerance  
Schneidstoff · Cutting material



6g

HSS

1,5

E / O

**P** 1.1-3.1

**K** 1.1-2.2

Einsatzgebiete – Material  
Applications – material

» 516

|          | $\varnothing d_1$<br>mm | P<br>mm | SW | x  | $h_1$ | $\varnothing d \approx$ |       |                      | SE-6KT<br>nor<br>STEEL |
|----------|-------------------------|---------|----|----|-------|-------------------------|-------|----------------------|------------------------|
|          |                         |         |    |    |       | 4h                      | 6g    | 6e                   |                        |
| <b>M</b> | 3                       | 0,5     | 18 | x  | 5     | 2,97                    | 2,92  | 2,89                 | <b>D0401000.0030</b>   |
|          | 3,5                     | 0,6     | 18 | x  | 5     | 3,46                    | 3,41  | 3,38                 | D0401000.0035          |
|          | 4                       | 0,7     | 18 | x  | 5     | 3,96                    | 3,90  | 3,87                 | <b>D0401000.0040</b>   |
|          | 5                       | 0,8     | 18 | x  | 7     | 4,95                    | 4,90  | 4,86                 | <b>D0401000.0050</b>   |
|          | 6                       | 1       | 18 | x  | 7     | 5,94                    | 5,88  | 5,85                 | <b>D0401000.0060</b>   |
|          | 7                       | 1       | 21 | x  | 9     | 6,94                    | 6,88  | 6,85                 | D0401000.0070          |
|          | 8                       | 1,25    | 21 | x  | 9     | 7,93                    | 7,86  | 7,83                 | <b>D0401000.0080</b>   |
|          | 10                      | 1,5     | 27 | x  | 11    | 9,92                    | 9,85  | 9,81                 | <b>D0401000.0100</b>   |
|          | 12                      | 1,75    | 36 | x  | 14    | 11,91                   | 11,83 | 11,81                | <b>D0401000.0112</b>   |
|          | 14                      | 2       | 36 | x  | 14    | 13,91                   | 13,82 | 13,78                | <b>D0401000.0114</b>   |
|          | 16                      | 2       | 41 | x  | 18    | 15,91                   | 15,82 | 15,78                | <b>D0401000.0116</b>   |
|          | 18                      | 2,5     | 41 | x  | 18    | 17,89                   | 17,79 | 17,75                | <b>D0401000.0118</b>   |
|          | 20                      | 2,5     | 41 | x  | 18    | 19,89                   | 19,79 | 19,75                | <b>D0401000.0120</b>   |
|          | 22                      | 2,5     | 50 | x  | 22    | 21,89                   | 21,79 | 21,75                | <b>D0401000.0122</b>   |
|          | 24                      | 3       | 50 | x  | 22    | 23,88                   | 23,76 | 23,72                | <b>D0401000.0124</b>   |
|          | 27                      | 3       | 60 | x  | 25    | 26,88                   | 26,76 | 26,72                | <b>D0401000.0127</b>   |
| 30       | 3,5                     | 60      | x  | 25 | 29,87 | 29,73                   | 29,70 | <b>D0401000.0130</b> |                        |
| 33       | 3,5                     | 60      | x  | 25 | 32,87 | 32,73                   | 32,70 | <b>D0401000.0133</b> |                        |
| 36       | 4                       | 60      | x  | 25 | 35,85 | 35,70                   | 35,66 | <b>D0401000.0136</b> |                        |

Product Finder

V<sub>c</sub>

M

MF

UNC

UNF  
UNEF

G

NPT, NPTF  
R

BSW, BSF

Tr, Tr-F

Zubehör  
Accessories

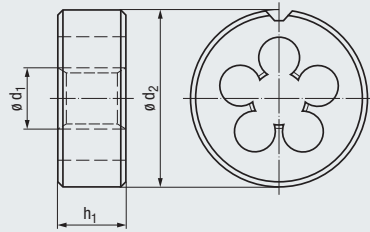


- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC
- UNF  
UNEF
- G
- NPT, NPTF  
R
- BSW, BSF
- Tr, Tr-F
- Zubehör  
Accessories

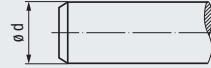


DIN 13

DIN EN  
22568



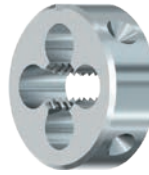
Vorarbeitsdurchmesser  $d \approx$   
Preparatory diameter  $d \approx$



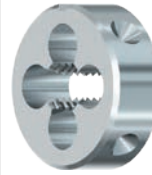
STEEL  
Steel  
materials



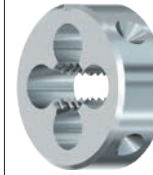
normal  
standard



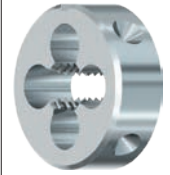
geläppt  
lapped



normal  
standard



normal  
standard



Toleranz · Tolerance  
Schneidstoff · Cutting material



Technische Informationen  
Technical information

Einsatzgebiete – Material  
Applications – material

» 516

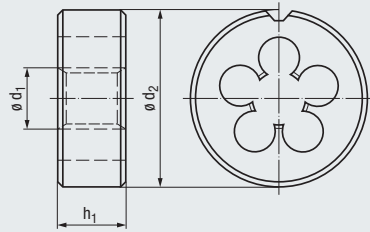
|           |                |           |           |
|-----------|----------------|-----------|-----------|
| P 1.1-3.1 | P 1.1-3.1      | P 1.1-3.1 | P 1.1-3.1 |
| K 1.1-2.2 | M 1.1-2.1      | K 1.1-2.2 | K 1.1-2.2 |
|           | N 1.1-1.4      |           |           |
|           | N 2.1-2.4, 4.2 |           |           |

| M | $\phi d_1$<br>mm | P<br>mm | $\phi d_2$ | x    | $h_1$ | $\phi d \approx$ |       |               | SE-B<br>nor<br>STEEL | SE-B<br>gel<br>STEEL | SE-B<br>nor<br>STEEL | SE-B<br>nor<br>STEEL-LH |
|---|------------------|---------|------------|------|-------|------------------|-------|---------------|----------------------|----------------------|----------------------|-------------------------|
|   |                  |         |            |      |       | 4h               | 6g    | 6e            |                      |                      |                      |                         |
|   | 2,5              | x 0,35  | 16         | x 5  | 2,47  | 2,44             | —     | D0101000.0196 | D0101500.0196        |                      |                      |                         |
|   | 2,6              | x 0,35  | 16         | x 5  | 2,57  | 2,54             | —     | D0101000.0199 | D0101500.0199        |                      |                      |                         |
|   | 3                | x 0,35  | 20         | x 5  | 2,97  | 2,94             | —     | D0101000.0202 | D0101500.0202        |                      |                      |                         |
|   | 3,5              | x 0,35  | 20         | x 5  | 3,47  | 3,44             | —     | D0101000.0205 | D0101500.0205        |                      |                      |                         |
|   | 4                | x 0,35  | 20         | x 5  | 3,97  | 3,94             | —     | D0101000.0209 | D0101500.0209        |                      |                      |                         |
|   | 4                | x 0,5   | 20         | x 5  | 3,96  | 3,92             | 3,89  | D0101000.0210 | D0101500.0210        |                      | D0101050.0210        |                         |
|   | 5                | x 0,5   | 20         | x 5  | 4,96  | 4,92             | 4,89  | D0101000.0218 | D0101500.0218        |                      | D0101050.0218        |                         |
|   | 6                | x 0,5   | 20         | x 5  | 5,96  | 5,92             | 5,89  | D0101000.0228 | D0101500.0228        |                      | D0101050.0228        |                         |
|   | 6                | x 0,75  | 20         | x 7  | 5,95  | 5,90             | 5,87  | D0101000.0229 | D0101500.0229        | D0101030.0229        | D0101050.0229        |                         |
|   | 7                | x 0,75  | 25         | x 9  | 6,95  | 6,90             | 6,87  | D0101000.0239 | D0101500.0239        |                      |                      |                         |
|   | 8                | x 0,5   | 25         | x 9  | 7,96  | 7,92             | 7,89  | D0101000.0249 | D0101500.0249        |                      |                      |                         |
|   | 8                | x 0,75  | 25         | x 9  | 7,95  | 7,90             | 7,87  | D0101000.0250 | D0101500.0250        |                      | D0101050.0250        |                         |
|   | 8                | x 1     | 25         | x 9  | 7,94  | 7,88             | 7,85  | D0101000.0251 | D0101500.0251        | D0101030.0251        | D0101050.0251        |                         |
|   | 9                | x 0,75  | 25         | x 9  | 8,95  | 8,90             | 8,87  | D0101000.0262 | D0101500.0262        |                      |                      |                         |
|   | 9                | x 1     | 25         | x 9  | 8,94  | 8,88             | 8,85  | D0101000.0263 | D0101500.0263        |                      |                      |                         |
|   | 10               | x 0,75  | 30         | x 11 | 9,95  | 9,90             | 9,87  | D0101000.0275 | D0101500.0275        |                      |                      |                         |
|   | 10               | x 1     | 30         | x 11 | 9,94  | 9,88             | 9,85  | D0101000.0276 | D0101500.0276        | D0101030.0276        | D0101050.0276        |                         |
|   | 10               | x 1,25  | 30         | x 11 | 9,93  | 9,86             | 9,83  | D0101000.0277 | D0101500.0277        |                      |                      |                         |
|   | 11               | x 1     | 30         | x 11 | 10,94 | 10,88            | 10,85 | D0101000.0288 | D0101500.0288        |                      |                      |                         |
|   | 12               | x 1     | 38         | x 10 | 11,94 | 11,88            | 11,85 | D0101000.0301 | D0101500.0301        | D0101030.0301        | D0101050.0301        |                         |
|   | 12               | x 1,25  | 38         | x 10 | 11,93 | 11,86            | 11,83 | D0101000.0302 | D0101500.0302        |                      |                      |                         |
|   | 12               | x 1,5   | 38         | x 10 | 11,92 | 11,85            | 11,81 | D0101000.0303 | D0101500.0303        | D0101030.0303        | D0101050.0303        |                         |
|   | 13               | x 1     | 38         | x 10 | 12,94 | 12,88            | 12,85 | D0101000.0315 | D0101500.0315        |                      |                      |                         |
|   | 14               | x 1     | 38         | x 10 | 13,94 | 13,88            | 13,85 | D0101000.0329 | D0101500.0329        |                      | D0101050.0329        |                         |
|   | 14               | x 1,25  | 38         | x 10 | 13,93 | 13,86            | 13,83 | D0101000.0330 | D0101500.0330        |                      |                      |                         |
|   | 14               | x 1,5   | 38         | x 10 | 13,92 | 13,85            | 13,81 | D0101000.0331 | D0101500.0331        | D0101030.0331        | D0101050.0331        |                         |
|   | 15               | x 1     | 38         | x 10 | 14,94 | 14,88            | 14,85 | D0101000.0343 | D0101500.0343        |                      |                      |                         |
|   | 15               | x 1,5   | 38         | x 10 | 14,92 | 14,85            | 14,81 | D0101000.0345 | D0101500.0345        |                      |                      |                         |
|   | 16               | x 1     | 45         | x 14 | 15,94 | 15,88            | 15,85 | D0101000.0357 | D0101500.0357        |                      |                      |                         |
|   | 16               | x 1,5   | 45         | x 14 | 15,92 | 15,85            | 15,81 | D0101000.0359 | D0101500.0359        | D0101030.0359        | D0101050.0359        |                         |
|   | 18               | x 1     | 45         | x 14 | 17,94 | 17,88            | 17,85 | D0101000.0388 | D0101500.0388        |                      |                      |                         |
|   | 18               | x 1,5   | 45         | x 14 | 17,92 | 17,85            | 17,81 | D0101000.0390 | D0101500.0390        |                      | D0101050.0390        |                         |
|   | 18               | x 2     | 45         | x 14 | 17,91 | 17,82            | 17,78 | D0101000.0391 | D0101500.0391        |                      |                      |                         |
|   | 20               | x 1     | 45         | x 14 | 19,94 | 19,88            | 19,85 | D0101000.0420 | D0101500.0420        |                      |                      |                         |
|   | 20               | x 1,5   | 45         | x 14 | 19,92 | 19,85            | 19,81 | D0101000.0422 | D0101500.0422        |                      | D0101050.0422        |                         |
|   | 20               | x 2     | 45         | x 14 | 19,91 | 19,82            | 19,78 | D0101000.0423 | D0101500.0423        |                      |                      |                         |
|   | 22               | x 1     | 55         | x 16 | 21,94 | 21,88            | 21,85 | D0101000.0436 | D0101500.0436        |                      |                      |                         |
|   | 22               | x 1,5   | 55         | x 16 | 21,92 | 21,85            | 21,81 | D0101000.0438 | D0101500.0438        |                      | D0101050.0438        |                         |
|   | 22               | x 2     | 55         | x 16 | 21,91 | 21,82            | 21,78 | D0101000.0439 | D0101500.0439        |                      |                      |                         |
|   | 24               | x 1     | 55         | x 16 | 23,94 | 23,88            | 23,85 | D0101000.0450 | D0101500.0450        |                      |                      |                         |
|   | 24               | x 1,5   | 55         | x 16 | 23,92 | 23,85            | 23,81 | D0101000.0452 | D0101500.0452        |                      | D0101050.0452        |                         |
|   | 24               | x 2     | 55         | x 16 | 23,91 | 23,82            | 23,78 | D0101000.0453 | D0101500.0453        |                      |                      |                         |
|   | 25               | x 1     | 55         | x 16 | 24,94 | 24,88            | 24,85 | D0101000.0456 | D0101500.0456        |                      |                      |                         |
|   | 25               | x 1,5   | 55         | x 16 | 24,92 | 24,85            | 24,81 | D0101000.0458 | D0101500.0458        |                      |                      |                         |
|   | 26               | x 1,5   | 55         | x 16 | 25,92 | 25,85            | 25,81 | D0101000.0464 | D0101500.0464        |                      |                      |                         |
|   | 27               | x 1     | 65         | x 18 | 26,94 | 26,88            | 26,85 | D0101000.0468 | D0101500.0468        |                      |                      |                         |
|   | 27               | x 1,5   | 65         | x 18 | 26,92 | 26,85            | 26,81 | D0101000.0470 | D0101500.0470        |                      |                      |                         |
|   | 27               | x 2     | 65         | x 18 | 26,91 | 26,82            | 26,78 | D0101000.0471 | D0101500.0471        |                      |                      |                         |
|   | 28               | x 1     | 65         | x 18 | 27,94 | 27,88            | 27,85 | D0101000.0474 | D0101500.0474        |                      |                      |                         |
|   | 28               | x 1,5   | 65         | x 18 | 27,92 | 27,85            | 27,81 | D0101000.0476 | D0101500.0476        |                      |                      |                         |
|   | 30               | x 1     | 65         | x 18 | 29,94 | 29,88            | 29,85 | D0101000.0488 | D0101500.0488        |                      |                      |                         |
|   | 30               | x 1,5   | 65         | x 18 | 29,92 | 29,85            | 29,81 | D0101000.0490 | D0101500.0490        |                      |                      |                         |
|   | 30               | x 2     | 65         | x 18 | 29,91 | 29,82            | 29,78 | D0101000.0491 | D0101500.0491        |                      |                      |                         |



DIN 13

DIN EN 22568



Vorarbeitsdurchmesser  $d \approx$   
Preparatory diameter  $d \approx$



**VA**  
Stainless steel materials



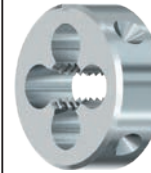
normal standard



**MS**  
Copper-zinc alloys



geläppt lapped



Technische Informationen  
Technical information

Toleranz · Tolerance  
Schneidstoff · Cutting material



Einsatzgebiete – Material  
Applications – material

» 516

|           |
|-----------|
| 6g        |
| HSSE      |
| 2         |
| E / O / P |

|       |
|-------|
| 6g    |
| HSS   |
| 1     |
| E / O |

|                  |
|------------------|
| <b>P</b> 1.1-3.1 |
| <b>M</b> 1.1-2.1 |

|                   |
|-------------------|
| <b>N</b> 2.3, 4.1 |
|-------------------|

|          | $\varnothing d_1$<br>mm | P<br>mm | $\varnothing d_2$ | x | $h_1$ | $\varnothing d \approx$ |       |       | SE-B<br>nor<br>VA | SE-B<br>gel<br>MS              |
|----------|-------------------------|---------|-------------------|---|-------|-------------------------|-------|-------|-------------------|--------------------------------|
|          |                         |         |                   |   |       | 4h                      | 6g    | 6e    |                   |                                |
| <b>M</b> | 2,5                     | x 0,35  | 16                | x | 5     | 2,47                    | 2,44  | —     |                   |                                |
|          | 2,6                     | x 0,35  | 16                | x | 5     | 2,57                    | 2,54  | —     |                   |                                |
|          | 3                       | x 0,35  | 20                | x | 5     | 2,97                    | 2,94  | —     |                   |                                |
|          | 3,5                     | x 0,35  | 20                | x | 5     | 3,47                    | 3,44  | —     |                   |                                |
|          | 4                       | x 0,35  | 20                | x | 5     | 3,97                    | 3,94  | —     |                   |                                |
|          | 4                       | x 0,5   | 20                | x | 5     | 3,96                    | 3,92  | 3,89  |                   |                                |
|          | 5                       | x 0,5   | 20                | x | 5     | 4,96                    | 4,92  | 4,89  |                   |                                |
|          | 6                       | x 0,5   | 20                | x | 5     | 5,96                    | 5,92  | 5,89  |                   |                                |
|          | 6                       | x 0,75  | 20                | x | 7     | 5,95                    | 5,90  | 5,87  | D0103000.0229     | D0102500.0228<br>D0102500.0229 |
|          | 7                       | x 0,75  | 25                | x | 9     | 6,95                    | 6,90  | 6,87  |                   | D0102500.0239                  |
|          | 8                       | x 0,5   | 25                | x | 9     | 7,96                    | 7,92  | 7,89  |                   | D0102500.0249                  |
|          | 8                       | x 0,75  | 25                | x | 9     | 7,95                    | 7,90  | 7,87  | D0103000.0250     | D0102500.0250                  |
|          | 8                       | x 1     | 25                | x | 9     | 7,94                    | 7,88  | 7,85  | D0103000.0251     | D0102500.0251                  |
|          | 9                       | x 0,75  | 25                | x | 9     | 8,95                    | 8,90  | 8,87  |                   |                                |
|          | 9                       | x 1     | 25                | x | 9     | 8,94                    | 8,88  | 8,85  |                   |                                |
|          | 10                      | x 0,75  | 30                | x | 11    | 9,95                    | 9,90  | 9,87  |                   | D0102500.0275                  |
|          | 10                      | x 1     | 30                | x | 11    | 9,94                    | 9,88  | 9,85  | D0103000.0276     | D0102500.0276                  |
|          | 10                      | x 1,25  | 30                | x | 11    | 9,93                    | 9,86  | 9,83  |                   |                                |
|          | 11                      | x 1     | 30                | x | 11    | 10,94                   | 10,88 | 10,85 |                   |                                |
|          | 12                      | x 1     | 38                | x | 10    | 11,94                   | 11,88 | 11,85 | D0103000.0301     | D0102500.0301                  |
|          | 12                      | x 1,25  | 38                | x | 10    | 11,93                   | 11,86 | 11,83 |                   |                                |
|          | 12                      | x 1,5   | 38                | x | 10    | 11,92                   | 11,85 | 11,81 | D0103000.0303     | D0102500.0303                  |
|          | 13                      | x 1     | 38                | x | 10    | 12,94                   | 12,88 | 12,85 |                   |                                |
|          | 14                      | x 1     | 38                | x | 10    | 13,94                   | 13,88 | 13,85 |                   | D0102500.0329                  |
|          | 14                      | x 1,25  | 38                | x | 10    | 13,93                   | 13,86 | 13,83 |                   |                                |
|          | 14                      | x 1,5   | 38                | x | 10    | 13,92                   | 13,85 | 13,81 | D0103000.0331     | D0102500.0331                  |
|          | 15                      | x 1     | 38                | x | 10    | 14,94                   | 14,88 | 14,85 |                   |                                |
|          | 15                      | x 1,5   | 38                | x | 10    | 14,92                   | 14,85 | 14,81 |                   |                                |
|          | 16                      | x 1     | 45                | x | 14    | 15,94                   | 15,88 | 15,85 |                   | D0102500.0357                  |
|          | 16                      | x 1,5   | 45                | x | 14    | 15,92                   | 15,85 | 15,81 | D0103000.0359     | D0102500.0359                  |
|          | 18                      | x 1     | 45                | x | 14    | 17,94                   | 17,88 | 17,85 |                   |                                |
|          | 18                      | x 1,5   | 45                | x | 14    | 17,92                   | 17,85 | 17,81 | D0103000.0390     | D0102500.0390                  |
|          | 18                      | x 2     | 45                | x | 14    | 17,91                   | 17,82 | 17,78 |                   |                                |
|          | 20                      | x 1     | 45                | x | 14    | 19,94                   | 19,88 | 19,85 |                   | D0102500.0420                  |
|          | 20                      | x 1,5   | 45                | x | 14    | 19,92                   | 19,85 | 19,81 | D0103000.0422     | D0102500.0422                  |
|          | 20                      | x 2     | 45                | x | 14    | 19,91                   | 19,82 | 19,78 |                   |                                |
|          | 22                      | x 1     | 55                | x | 16    | 21,94                   | 21,88 | 21,85 |                   | D0102500.0436                  |
|          | 22                      | x 1,5   | 55                | x | 16    | 21,92                   | 21,85 | 21,81 | D0103000.0438     | D0102500.0438                  |
|          | 22                      | x 2     | 55                | x | 16    | 21,91                   | 21,82 | 21,78 |                   |                                |
|          | 24                      | x 1     | 55                | x | 16    | 23,94                   | 23,88 | 23,85 |                   |                                |
|          | 24                      | x 1,5   | 55                | x | 16    | 23,92                   | 23,85 | 23,81 | D0103000.0452     | D0102500.0452                  |
|          | 24                      | x 2     | 55                | x | 16    | 23,91                   | 23,82 | 23,78 |                   |                                |
|          | 25                      | x 1     | 55                | x | 16    | 24,94                   | 24,88 | 24,85 |                   |                                |
|          | 25                      | x 1,5   | 55                | x | 16    | 24,92                   | 24,85 | 24,81 |                   |                                |
|          | 26                      | x 1,5   | 55                | x | 16    | 25,92                   | 25,85 | 25,81 |                   | D0102500.0464                  |
|          | 27                      | x 1     | 65                | x | 18    | 26,94                   | 26,88 | 26,85 |                   |                                |
|          | 27                      | x 1,5   | 65                | x | 18    | 26,92                   | 26,85 | 26,81 |                   |                                |
|          | 27                      | x 2     | 65                | x | 18    | 26,91                   | 26,82 | 26,78 |                   |                                |
|          | 28                      | x 1     | 65                | x | 18    | 27,94                   | 27,88 | 27,85 |                   |                                |
|          | 28                      | x 1,5   | 65                | x | 18    | 27,92                   | 27,85 | 27,81 |                   |                                |
|          | 30                      | x 1     | 65                | x | 18    | 29,94                   | 29,88 | 29,85 |                   |                                |
|          | 30                      | x 1,5   | 65                | x | 18    | 29,92                   | 29,85 | 29,81 |                   |                                |
|          | 30                      | x 2     | 65                | x | 18    | 29,91                   | 29,82 | 29,78 |                   |                                |

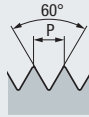
- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC
- UNC/UNEF
- G
- NPT, NPTF/R
- BSW, BSF
- Tr, Tr-F
- Zubehör Accessories



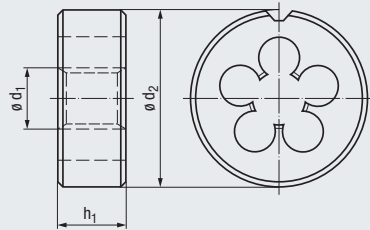
- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC**
- UNF  
UNEF
- G
- NPT, NPTF  
R
- BSW, BSF
- Tr, Tr-F
- Zubehör  
Accessories

# UNC

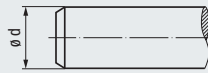
ASME B1.1



DIN EN  
22568



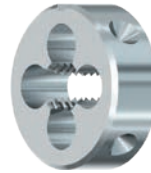
Vorarbeitsdurchmesser  $d \approx$   
Preparatory diameter  $d \approx$



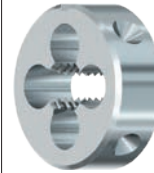
**STEEL**  
Steel  
materials



normal  
standard



geläppt  
lapped



Technische Informationen  
Technical information

Toleranz · Tolerance  
Schneidstoff · Cutting material



|       |
|-------|
| 2A    |
| HSS   |
| 1,5   |
| E / O |

|       |
|-------|
| 2A    |
| HSS   |
| 1,5   |
| E / O |

Einsatzgebiete – Material  
Applications – material

» 516

|                       |
|-----------------------|
| <b>P</b> 1.1-3.1      |
| <b>K</b> 1.1-2.2      |
| <b>M</b> 1.1-2.1      |
| <b>K</b> 1.1-2.2      |
| <b>N</b> 1.1-1.4      |
| <b>N</b> 2.1-2.4, 4.2 |

| Nr.    | $\varnothing d_1$ |      | P<br>Gg/1" (tpi) | $\varnothing d_2$ | x | $h_1$ | $\varnothing d \approx$ |       | SE-B<br>nor<br>STEEL | SE-B<br>gel<br>STEEL |
|--------|-------------------|------|------------------|-------------------|---|-------|-------------------------|-------|----------------------|----------------------|
|        | inch              | inch |                  |                   |   |       | 2A                      | 3A    |                      |                      |
| Nr. 1  | 0.0730            |      | 64               | 16                | x | 5     | 1,79                    | 1,81  | D0101000.5000        | D0101500.5000        |
| Nr. 2  | 0.0860            |      | 56               | 16                | x | 5     | 2,12                    | 2,14  | D0101000.5001        | D0101500.5001        |
| Nr. 3  | 0.0990            |      | 48               | 16                | x | 5     | 2,44                    | 2,46  | D0101000.5002        | D0101500.5002        |
| Nr. 4  | 0.1120            |      | 40               | 16                | x | 5     | 2,76                    | 2,78  | D0101000.5003        | D0101500.5003        |
| Nr. 5  | 0.1250            |      | 40               | 20                | x | 5     | 3,09                    | 3,11  | D0101000.5004        | D0101500.5004        |
| Nr. 6  | 0.1380            |      | 32               | 20                | x | 7     | 3,41                    | 3,43  | D0101000.5005        | D0101500.5005        |
| Nr. 8  | 0.1640            |      | 32               | 20                | x | 7     | 4,07                    | 4,09  | D0101000.5006        | D0101500.5006        |
| Nr. 10 | 0.1900            |      | 24               | 20                | x | 7     | 4,71                    | 4,73  | D0101000.5007        | D0101500.5007        |
| Nr. 12 | 0.2160            |      | 24               | 20                | x | 7     | 5,37                    | 5,39  | D0101000.5008        | D0101500.5008        |
| 1/4    | 0.2500            |      | 20               | 20                | x | 7     | 6,22                    | 6,25  | D0101000.5009        | D0101500.5009        |
| 5/16   | 0.3125            |      | 18               | 25                | x | 9     | 7,80                    | 7,83  | D0101000.5010        | D0101500.5010        |
| 3/8    | 0.3750            |      | 16               | 30                | x | 11    | 9,37                    | 9,41  | D0101000.5011        | D0101500.5011        |
| 7/16   | 0.4375            |      | 14               | 30                | x | 11    | 10,95                   | 10,98 | D0101000.5012        | D0101500.5012        |
| 1/2    | 0.5000            |      | 13               | 38                | x | 14    | 12,52                   | 12,56 | D0101000.5013        | D0101500.5013        |
| 9/16   | 0.5625            |      | 12               | 38                | x | 14    | 14,10                   | 14,14 | D0101000.5014        | D0101500.5014        |
| 5/8    | 0.6250            |      | 11               | 45                | x | 18    | 15,68                   | 15,72 | D0101000.5015        | D0101500.5015        |
| 3/4    | 0.7500            |      | 10               | 45                | x | 18    | 18,84                   | 18,89 | D0101000.5016        | D0101500.5016        |
| 7/8    | 0.8750            |      | 9                | 55                | x | 22    | 22,00                   | 22,05 | D0101000.5017        | D0101500.5017        |
| 1"     | 1.0000            |      | 8                | 55                | x | 22    | 25,16                   | 25,21 | D0101000.5018        | D0101500.5018        |
| 1 1/8  | 1.1250            |      | 7                | 65                | x | 25    | 28,31                   | 28,37 | D0101000.5019        | D0101500.5019        |
| 1 1/4  | 1.2500            |      | 7                | 65                | x | 25    | 31,49                   | 31,54 | D0101000.5020        | D0101500.5020        |
| 1 3/8  | 1.3750            |      | 6                | 65                | x | 25    | 34,63                   | 34,69 | D0101000.5021        | D0101500.5021        |
| 1 1/2  | 1.5000            |      | 6                | 75                | x | 30    | 37,80                   | 37,87 | D0101000.5022        | D0101500.5022        |
| 1 3/4  | 1.7500            |      | 5                | 90                | x | 36    | 44,12                   | 44,19 | D0101000.5023        | D0101500.5023        |
| 2"     | 2.0000            |      | 4 1/2            | 90                | x | 36    | 50,45                   | 50,52 | D0101000.5024        | D0101500.5024        |

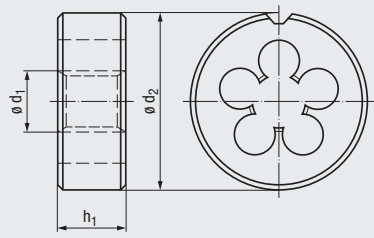
Toleranzklasse 3A und 1A auf Anfrage  
Tolerance classes 3A and 1A upon request







DIN EN 22568



Vorarbeitdurchmesser  $d \approx$   
Preparatory diameter  $d \approx$

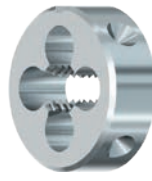
STEEL  
Steel materials



normal standard



geläppt lapped



Technische Informationen  
Technical information

Toleranz - Tolerance  
Schneidstoff - Cutting material



|       |       |
|-------|-------|
| 2A    | 2A    |
| HSS   | HSS   |
| 1,5   | 1,5   |
| E / O | E / O |

Einsatzgebiete - Material  
Applications - material

» 516

|                  |                       |
|------------------|-----------------------|
| <b>P</b> 1.1-3.1 | <b>P</b> 1.1-3.1      |
| <b>K</b> 1.1-2.2 | <b>M</b> 1.1-2.1      |
|                  | <b>K</b> 1.1-2.2      |
|                  | <b>N</b> 1.1-1.4      |
|                  | <b>N</b> 2.1-2.4, 4.2 |

| $\varnothing d_1$<br>inch | P<br>Gg/1" (tpi) | $\varnothing d_2$ | x  | $h_1$ | $\varnothing d \approx$ |       | SE-B<br>nor<br>STEEL | SE-B<br>gel<br>STEEL |               |
|---------------------------|------------------|-------------------|----|-------|-------------------------|-------|----------------------|----------------------|---------------|
|                           |                  |                   |    |       | 2A                      | 3A    |                      |                      |               |
| Nr. 0                     | 0.0600           | 80                | 16 | x     | 5                       | 1,47  | 1,49                 | D0101000.5033        | D0101500.5033 |
| Nr. 1                     | 0.0730           | 72                | 16 | x     | 5                       | 1,80  | 1,81                 | D0101000.5034        | D0101500.5034 |
| Nr. 2                     | 0.0860           | 64                | 16 | x     | 5                       | 2,12  | 2,14                 | D0101000.5035        | D0101500.5035 |
| Nr. 3                     | 0.0990           | 56                | 16 | x     | 5                       | 2,44  | 2,46                 | D0101000.5036        | D0101500.5036 |
| Nr. 4                     | 0.1120           | 48                | 16 | x     | 5                       | 2,77  | 2,79                 | D0101000.5037        | D0101500.5037 |
| Nr. 5                     | 0.1250           | 44                | 20 | x     | 5                       | 3,10  | 3,12                 | D0101000.5038        | D0101500.5038 |
| Nr. 6                     | 0.1380           | 40                | 20 | x     | 5                       | 3,42  | 3,44                 | D0101000.5039        | D0101500.5039 |
| Nr. 8                     | 0.1640           | 36                | 20 | x     | 7                       | 4,08  | 4,10                 | D0101000.5040        | D0101500.5040 |
| Nr. 10                    | 0.1900           | 32                | 20 | x     | 7                       | 4,73  | 4,75                 | D0101000.5041        | D0101500.5041 |
| Nr. 12                    | 0.2160           | 28                | 20 | x     | 7                       | 5,38  | 5,40                 | D0101000.5042        | D0101500.5042 |
| 1/4                       | 0.2500           | 28                | 20 | x     | 7                       | 6,24  | 6,27                 | D0101000.5043        | D0101500.5043 |
| 5/16                      | 0.3125           | 24                | 25 | x     | 9                       | 7,82  | 7,85                 | D0101000.5044        | D0101500.5044 |
| 3/8                       | 0.3750           | 24                | 30 | x     | 11                      | 9,41  | 9,43                 | D0101000.5045        | D0101500.5045 |
| 7/16                      | 0.4375           | 20                | 30 | x     | 11                      | 10,98 | 11,01                | D0101000.5046        | D0101500.5046 |
| 1/2                       | 0.5000           | 20                | 38 | x     | 10                      | 12,56 | 12,60                | D0101000.5047        | D0101500.5047 |
| 9/16                      | 0.5625           | 18                | 38 | x     | 10                      | 14,14 | 14,18                | D0101000.5048        | D0101500.5048 |
| 5/8                       | 0.6250           | 18                | 45 | x     | 14                      | 15,73 | 15,77                | D0101000.5049        | D0101500.5049 |
| 3/4                       | 0.7500           | 16                | 45 | x     | 14                      | 18,89 | 18,93                | D0101000.5050        | D0101500.5050 |
| 7/8                       | 0.8750           | 14                | 55 | x     | 16                      | 22,05 | 22,09                | D0101000.5051        | D0101500.5051 |
| 1"                        | 1.0000           | 12                | 55 | x     | 16                      | 25,21 | 25,26                | D0101000.5052        | D0101500.5052 |
| 1 1/8                     | 1.1250           | 12                | 65 | x     | 18                      | 28,38 | 28,43                | D0101000.5053        | D0101500.5053 |
| 1 1/4                     | 1.2500           | 12                | 65 | x     | 18                      | 31,55 | 31,60                | D0101000.5054        | D0101500.5054 |
| 1 3/8                     | 1.3750           | 12                | 65 | x     | 18                      | 34,73 | 34,78                | D0101000.5055        | D0101500.5055 |
| 1 1/2                     | 1.5000           | 12                | 75 | x     | 20                      | 37,90 | 37,95                | D0101000.5056        | D0101500.5056 |

Toleranzklasse 3A und 1A auf Anfrage  
Tolerance classes 3A and 1A upon request

- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC
- UNF
- UNEF
- G
- NPT, NPTF
- R
- BSW, BSF
- Tr, Tr-F
- Zubehör
- Accessories



Schneideisenhalter für runde  
Schneideisen siehe Seite 540

Die stocks for round dies,  
see page 540

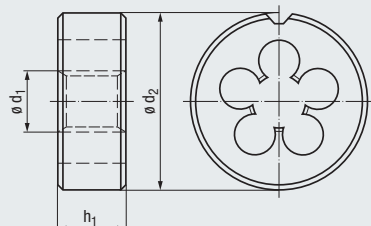
- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC
- UNF  
UNEF
- G
- NPT, NPTF  
R
- BSW, BSF
- Tr, Tr-F
- Zubehör  
Accessories



# UNEF

ASME B1.1

≈ DIN EN 22568



Vorarbeitendurchmesser  $d \approx$   
Preparatory diameter  $d \approx$



**STEEL**  
Steel materials



normal  
standard



geläppt  
lapped



Toleranz · Tolerance  
Schneidstoff · Cutting material

Technische Informationen  
Technical information

|       |       |
|-------|-------|
| 2A    | 2A    |
| HSS   | HSS   |
| 1,5   | 1,5   |
| E / O | E / O |

Einsatzgebiete – Material  
Applications – material

» 516

|                  |                       |
|------------------|-----------------------|
| <b>P</b> 1.1-3.1 | <b>P</b> 1.1-3.1      |
| <b>K</b> 1.1-2.2 | <b>M</b> 1.1-2.1      |
|                  | <b>K</b> 1.1-2.2      |
|                  | <b>N</b> 1.1-1.4      |
|                  | <b>N</b> 2.1-2.4, 4.2 |

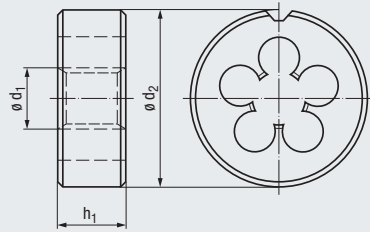
| Nr.  | $\varnothing d_1$ |        | P<br>Gg/1" (tpi) | $\varnothing d_2$ | x | $h_1$ | $\varnothing d \approx$ |       | SE-B<br>nor<br>STEEL | SE-B<br>gel<br>STEEL |
|------|-------------------|--------|------------------|-------------------|---|-------|-------------------------|-------|----------------------|----------------------|
|      | inch              | inch   |                  |                   |   |       | 2A                      | 3A    |                      |                      |
| 12   | 0.2160            | 0.2160 | 32               | 20                | x | 7     | 5,39                    | 5,41  | D0101000.5057        | D0101500.5057        |
| 1/4  | 0.2500            | 0.2500 | 32               | 20                | x | 7     | 6,25                    | 6,27  | D0101000.5058        | D0101500.5058        |
| 5/16 | 0.3125            | 0.3125 | 32               | 25                | x | 9     | 7,84                    | 7,86  | D0101000.5059        | D0101500.5059        |
| 3/8  | 0.3750            | 0.3750 | 32               | 30                | x | 11    | 9,42                    | 9,45  | D0101000.5060        | D0101500.5060        |
| 7/16 | 0.4375            | 0.4375 | 28               | 30                | x | 11    | 11,00                   | 11,03 | D0101000.5061        | D0101500.5061        |
| 1/2  | 0.5000            | 0.5000 | 28               | 38                | x | 10    | 12,59                   | 12,62 | D0101000.5062        | D0101500.5062        |
| 9/16 | 0.5625            | 0.5625 | 24               | 38                | x | 10    | 14,17                   | 14,20 | D0101000.5063        | D0101500.5063        |
| 5/8  | 0.6250            | 0.6250 | 24               | 45                | x | 14    | 15,75                   | 15,78 | D0101000.5064        | D0101500.5064        |
| 3/4  | 0.7500            | 0.7500 | 20               | 45                | x | 14    | 18,91                   | 18,95 | D0101000.5066        | D0101500.5066        |
| 7/8  | 0.8750            | 0.8750 | 20               | 55                | x | 16    | 22,09                   | 22,12 | D0101000.5068        | D0101500.5068        |
| 1"   | 1.0000            | 1.0000 | 20               | 55                | x | 16    | 25,26                   | 25,30 | D0101000.5070        | D0101500.5070        |

Toleranzklasse 3A und 1A auf Anfrage  
Tolerance classes 3A and 1A upon request



# G (BSP)

DIN EN ISO 228



Vorarbeitdurchmesser  $d \approx$   
Preparatory diameter  $d \approx$

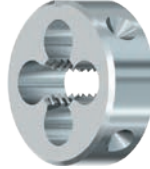


## STEEL

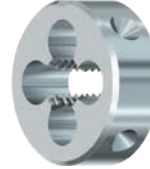
Steel materials



normal  
standard



geläpft  
lapped



## MS

Copper-zinc alloys



geläpft  
lapped



Technische Informationen  
Technical information

Toleranz - Tolerance  
Schneidstoff - Cutting material



Einsatzgebiete - Material  
Applications - material

» 516

|         |         |         |
|---------|---------|---------|
| Class A | Class A | Class A |
| HSS     | HSS     | HSS     |
| 1,5     | 1,5     | 1       |
| E / O   | E / O   | E / O   |

|                  |                       |                   |
|------------------|-----------------------|-------------------|
| <b>P</b> 1.1-3.1 | <b>P</b> 1.1-3.1      | <b>N</b> 2.3, 4.1 |
| <b>K</b> 1.1-2.2 | <b>M</b> 1.1-2.1      |                   |
|                  | <b>K</b> 1.1-2.2      |                   |
|                  | <b>N</b> 1.1-1.4      |                   |
|                  | <b>N</b> 2.1-2.4, 4.2 |                   |

| Nenngröße<br>Nom. size | $\varnothing d_1$<br>$\varnothing d_1$<br>mm | P<br>Gg/1" (tpi) | $\varnothing d_2$ | x | $h_1$ | $\varnothing d \approx$<br>Class A | SE-B<br>nor<br>STEEL | SE-B<br>gel<br>STEEL | SE-B<br>gel<br>MS 1) |
|------------------------|--|------------------|-------------------|---|-------|------------------------------------|----------------------|----------------------|----------------------|
| <b>G</b> 1/16          | 7,72   | 28               | 25                | x | 9     | 7,62                               |                      |                      |                      |
| 1/8                    | 9,73   | 28               | 30                | x | 11    | 9,62                               | D0101000.4035        | D0101500.4035        | D0102500.4035        |
| 1/4                    | 13,16  | 19               | 38                | x | 10    | 13,03                              | D0101000.4036        | D0101500.4036        | D0102500.4036        |
| 3/8                    | 16,66  | 19               | 45                | x | 14    | 16,54                              | D0101000.4037        | D0101500.4037        | D0102500.4037        |
| 1/2                    | 20,96  | 14               | 45                | x | 14    | 20,81                              | D0101000.4038        | D0101500.4038        | D0102500.4038        |
| 5/8                    | 22,91  | 14               | 55                | x | 16    | 22,77                              | D0101000.4039        | D0101500.4039        |                      |
| 3/4                    | 26,44  | 14               | 55                | x | 16    | 26,30                              | D0101000.4040        | D0101500.4040        | D0102500.4040        |
| 7/8                    | 30,20  | 14               | 65                | x | 18    | 30,06                              | D0101000.4041        | D0101500.4041        |                      |
| 1"                     | 33,25  | 11               | 65                | x | 18    | 33,07                              | D0101000.4042        | D0101500.4042        | D0102500.4042        |
| 1 1/8                  | 37,90  | 11               | 75                | x | 20    | 37,72                              | D0101000.4043        | D0101500.4043        |                      |
| 1 1/4                  | 41,91  | 11               | 75                | x | 20    | 41,73                              | D0101000.4044        | D0101500.4044        | D0102500.4044        |
| 1 3/8                  | 44,32  | 11               | 90                | x | 22    | 44,14                              | D0101000.4045        | D0101500.4045        |                      |
| 1 1/2                  | 47,80  | 11               | 90                | x | 22    | 47,62                              | D0101000.4046        | D0101500.4046        | D0102500.4046        |
| 1 3/4                  | 53,75  | 11               | 90                | x | 22    | 53,57                              | D0101000.4048        | D0101500.4048        |                      |
| 2"                     | 59,61  | 11               | 105               | x | 22    | 59,43                              | D0101000.4050        | D0101500.4050        |                      |

1) Bei Bearbeitung von dünnwandigen Messingrohren bitten wir um nähere Angaben (Werkstückskizze)  
If thin-walled brass tubes are to be cut we need more technical details or a sketch of the workpiece

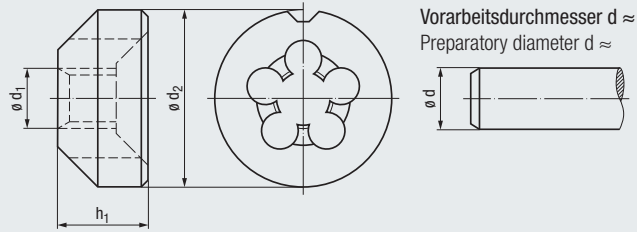
|                        |
|------------------------|
| Product Finder         |
| V <sub>c</sub>         |
| M                      |
| MF                     |
| UNC                    |
| UNF<br>UNEF            |
| <b>G</b>               |
| NPT, NPTF<br>R         |
| BSW, BSF               |
| Tr, Tr-F               |
| Zubehör<br>Accessories |



- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC
- UNF  
UNEF
- G**
- NPT, NPTF  
R
- BSW, BSF
- Tr, Tr-F
- Zubehör  
Accessories

## G (BSP)

DIN EN ISO 228

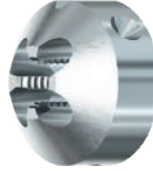


Vorarbeitdurchmesser  $d \approx$   
Preparatory diameter  $d \approx$

**MS**  
Copper-zinc alloys



**geläppt**  
lapped



Technische Informationen  
Technical information

Toleranz · Tolerance  
Schneidstoff · Cutting material



Class A

HSS

1  
E / O

Einsatzgebiete – Material  
Applications – material

» 516

**N 2.3.4.1**

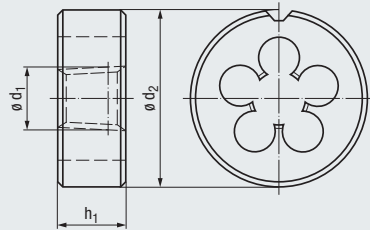
| Nenngröße<br>Nom. size |                         |                  |                   |   |       |       | $\varnothing d \approx$<br>Class A | SE-GLOCK<br>gel<br>MS |
|------------------------|-------------------------|------------------|-------------------|---|-------|-------|------------------------------------|-----------------------|
| $\varnothing d_1$      | $\varnothing d_1$<br>mm | P<br>Gg/1" (tpi) | $\varnothing d_2$ | x | $h_1$ |       |                                    |                       |
| <b>G</b> 1/8           | 9,73                    | 28               | 25                | x | 14    | 9,62  |                                    |                       |
| 1/4                    | 13,16                   | 19               | 30                | x | 18    | 13,03 | <b>D0302500.4036</b>               |                       |
| 3/8                    | 16,66                   | 19               | 38                | x | 20    | 16,54 | <b>D0302500.4037</b>               |                       |
| 1/2                    | 20,96                   | 14               | 45                | x | 24    | 20,81 | <b>D0302500.4038</b>               |                       |
| 3/4                    | 26,44                   | 14               | 55                | x | 28    | 26,30 | <b>D0302500.4040</b>               |                       |
| 1"                     | 33,25                   | 11               | 65                | x | 30    | 33,07 | <b>D0302500.4042</b>               |                       |



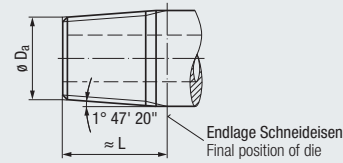
# NPT



ANSI/ASME B1.20.1



Bolzen-Vorarbeitsmaße im Kegel 1:16  
Preparatory bolt dimensions on taper 1:16



**STEEL**  
Steel materials



normal standard



Technische Informationen  
Technical information

Toleranz · Tolerance  
Schneidstoff · Cutting material



HSS

1,5

0 / P

Einsatzgebiete – Material  
Applications – material

» 516

- P** 1.1-3.1
- K** 1.1-2.2
- N** 2.3, 4.1

| Nenngröße<br>Nom. size | P<br>Gg/1" (tpi) | $\varnothing d_2$ | x | $h_1$ | $\varnothing D_a$<br>min. | $\varnothing D_a$<br>max. | $\approx L$ | SE-KEG<br>nor<br>STEEL |
|------------------------|------------------|-------------------|---|-------|---------------------------|---------------------------|-------------|------------------------|
| 1/16                   | 27               | 25                | x | 9     | 7,52                      | 7,64                      | 8,3         | <b>D0191000.5763</b>   |
| 1/8                    | 27               | 30                | x | 11    | 9,87                      | 9,99                      | 8,4         | <b>D0191000.5764</b>   |
| 1/4                    | 18               | 38                | x | 14    | 13,10                     | 13,26                     | 12,7        | <b>D0191000.5765</b>   |
| 3/8                    | 18               | 45                | x | 14    | 16,52                     | 16,67                     | 12,9        | <b>D0191000.5766</b>   |
| 1/2                    | 14               | 45                | x | 18    | 20,55                     | 20,71                     | 16,8        | <b>D0191000.5767</b>   |
| 3/4                    | 14               | 55                | x | 22    | 25,87                     | 26,03                     | 17,0        | <b>D0191000.5768</b>   |
| 1"                     | 11 1/2           | 65                | x | 25    | 32,42                     | 32,59                     | 21,2        | <b>D0191000.5769</b>   |
| 1 1/4                  | 11 1/2           | 75                | x | 26    | 41,14                     | 41,32                     | 21,9        | <b>D0191000.5770</b>   |
| 1 1/2                  | 11 1/2           | 90                | x | 27    | 47,21                     | 47,39                     | 22,3        | <b>D0191000.5771</b>   |
| 2"                     | 11 1/2           | 105               | x | 28    | 59,25                     | 59,42                     | 23,1        | <b>D0191000.5772</b>   |

- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC
- UNF  
UNEF
- G
- NPT NPTF**  
R
- BSW, BSF
- Tr, Tr-F
- Zubehör  
Accessories

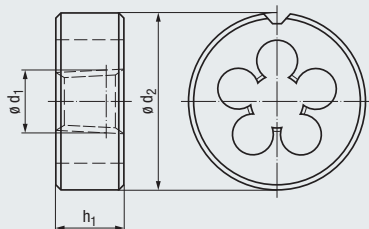


- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC
- UNF  
UNEF
- G
- NPT, NPTF  
R
- BSW, BSF
- Tr, Tr-F
- Zubehör  
Accessories

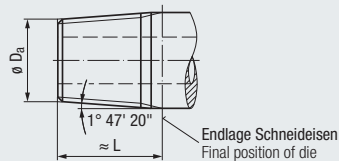
# NPTF



ANSI B1.20.3



Bolzen-Vorarbeitsmaße im Kegel 1:16  
Preparatory bolt dimensions on taper 1:16



**STEEL**  
Steel materials



normal standard



Toleranz · Tolerance  
Schneidstoff · Cutting material

HSS

1,5

O / P



Technische Informationen  
Technical information

Einsatzgebiete – Material  
Applications – material

» 516

**P** 1.1-3.1

**K** 1.1-2.2

**N** 2.3, 4.1

| Nenngröße<br>Nom. size |                  |                   |   |       |                           |                           |             |                      | SE-KEG<br>nor<br>STEEL |
|------------------------|------------------|-------------------|---|-------|---------------------------|---------------------------|-------------|----------------------|------------------------|
| $\varnothing d_1$      | P<br>Gg/1" (tpi) | $\varnothing d_2$ | x | $h_1$ | $\varnothing D_a$<br>min. | $\varnothing D_a$<br>max. | $\approx L$ |                      |                        |
| 1/16                   | 27               | 25                | x | 9     | 7,52                      | 7,62                      | 9,2         | <b>D0191000.5782</b> |                        |
| 1/8                    | 27               | 30                | x | 11    | 9,87                      | 9,96                      | 9,3         | <b>D0191000.5783</b> |                        |
| 1/4                    | 18               | 38                | x | 14    | 13,13                     | 13,21                     | 14,1        | <b>D0191000.5784</b> |                        |
| 3/8                    | 18               | 45                | x | 14    | 16,55                     | 16,63                     | 14,3        | <b>D0191000.5785</b> |                        |
| 1/2                    | 14               | 45                | x | 18    | 20,62                     | 20,70                     | 18,6        | <b>D0191000.5786</b> |                        |
| 3/4                    | 14               | 55                | x | 22    | 25,93                     | 26,02                     | 18,9        | <b>D0191000.5787</b> |                        |
| 1"                     | 11 1/2           | 65                | x | 25    | 32,47                     | 32,56                     | 23,5        | <b>D0191000.5788</b> |                        |
| 1 1/4                  | 11 1/2           | 75                | x | 26    | 41,20                     | 41,29                     | 24,1        |                      |                        |
| 1 1/2                  | 11 1/2           | 90                | x | 27    | 47,27                     | 47,36                     | 24,5        |                      |                        |
| 2"                     | 11 1/2           | 105               | x | 28    | 59,28                     | 59,37                     | 25,3        |                      |                        |



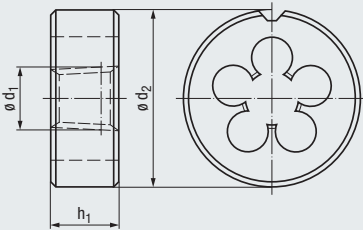


≈ DIN EN 24230

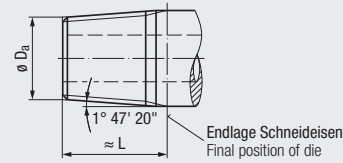
**STEEL**  
Steel materials



normal standard



Bolzen-Vorarbeitsmaße im Kegel 1:16  
Preparatory bolt dimensions on taper 1:16



Technische Informationen  
Technical information

Toleranz · Tolerance  
Schneidstoff · Cutting material



Einsatzgebiete – Material  
Applications – material

» 516



HSS  
1,5  
0 / P

**P** 1.1-3.1  
**K** 1.1-2.2  
**N** 2.3, 4.1

| Nenngröße<br>Nom. size |                  |                  |   |                |                  |        |      | SE-KEG<br>nor<br>STEEL |
|------------------------|------------------|------------------|---|----------------|------------------|--------|------|------------------------|
| Ø d <sub>1</sub>       | P<br>Gg/1" (tpi) | Ø d <sub>2</sub> | x | h <sub>1</sub> | Ø D <sub>a</sub> | Tol.   | ≈ L  |                        |
| <b>R</b> 1/8           | 28               | 30               | x | 11             | 9,48             | ± 0,05 | 8,1  | <b>D0191000.4069</b>   |
| 1/4                    | 19               | 38               | x | 14             | 12,78            | ± 0,08 | 12,0 | <b>D0191000.4070</b>   |
| 3/8                    | 19               | 45               | x | 14             | 16,26            | ± 0,08 | 12,4 | <b>D0191000.4071</b>   |
| 1/2                    | 14               | 45               | x | 18             | 20,44            | ± 0,11 | 16,4 | <b>D0191000.4072</b>   |
| 3/4                    | 14               | 55               | x | 22             | 25,85            | ± 0,11 | 17,7 | <b>D0191000.4073</b>   |
| 1"                     | 11               | 65               | x | 25             | 32,60            | ± 0,14 | 20,8 | <b>D0191000.4074</b>   |

Zugehöriges Innengewinde ist zylindrisch, siehe Gewindebohrer Seite 243 - 245  
The appropriate internal thread is cylindrical, see taps, page 243 - 245

- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC
- UNF  
UNEF
- G
- NPT, NPTF  
R
- BSW, BSF
- Tr, Tr-F
- Zubehör  
Accessories



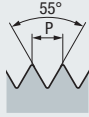
Gewindefräser für kegelige Gewinde  
Typ GF-KEG siehe Seite 449 - 462

Thread milling cutters for tapered threads  
type GF-KEG, see page 449 - 462

- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC
- UNF  
UNEF
- G
- NPT, NPTF  
R
- BSW, BSF
- Tr, Tr-F
- Zubehör  
Accessories

# BSW

BS 84

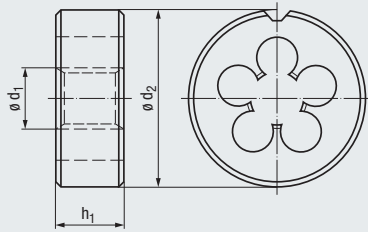
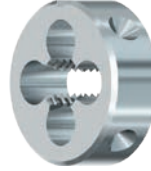


DIN EN  
22568

**STEEL**  
Steel  
materials



normal  
standard



Vorarbeitdurchmesser  $d \approx$   
Preparatory diameter  $d \approx$



Toleranz · Tolerance  
Schneidstoff · Cutting material



Technische Informationen  
Technical information

Einsatzgebiete – Material  
Applications – material

» 516

medium class

HSS

1,5

E / O

**P** 1.1-3.1

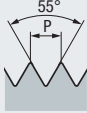
**K** 1.1-2.2

**SE-B**  
nor  
**STEEL**

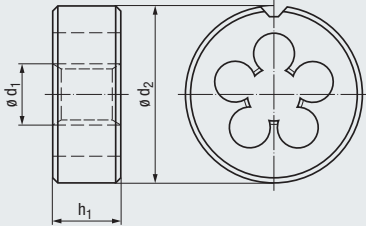
|            | $\varnothing d_1$<br>inch | inch  | P<br>Gg/1" (tpi) | $\varnothing d_2$ | x | $h_1$ | $\varnothing d \approx$<br>medium class |                      |  |  |
|------------|---------------------------|-------|------------------|-------------------|---|-------|---|----------------------|--|--|
| <b>BSW</b> | 1/16                      | 1,59  | 60               | 16                | x | 5     | 1,51                                    | <b>D0101000.3044</b> |  |  |
|            | 3/32                      | 2,38  | 48               | 16                | x | 5     | 2,30                                    | <b>D0101000.3045</b> |  |  |
|            | 1/8                       | 3,18  | 40               | 20                | x | 5     | 3,09                                    | <b>D0101000.3046</b> |  |  |
|            | 5/32                      | 3,97  | 32               | 20                | x | 7     | 3,88                                    | <b>D0101000.3047</b> |  |  |
|            | 3/16                      | 4,76  | 24               | 20                | x | 7     | 4,66                                    | <b>D0101000.3048</b> |  |  |
|            | 7/32                      | 5,56  | 24               | 20                | x | 7     | 5,46                                    | <b>D0101000.3049</b> |  |  |
|            | 1/4                       | 6,35  | 20               | 20                | x | 7     | 6,24                                    | <b>D0101000.3050</b> |  |  |
|            | 5/16                      | 7,94  | 18               | 25                | x | 9     | 7,82                                    | <b>D0101000.3051</b> |  |  |
|            | 3/8                       | 9,53  | 16               | 30                | x | 11    | 9,40                                    | <b>D0101000.3052</b> |  |  |
|            | 7/16                      | 11,11 | 14               | 30                | x | 11    | 10,98                                   | <b>D0101000.3053</b> |  |  |
|            | 1/2                       | 12,70 | 12               | 38                | x | 14    | 12,56                                   | <b>D0101000.3054</b> |  |  |
|            | 9/16                      | 14,29 | 12               | 38                | x | 14    | 14,14                                   | <b>D0101000.3055</b> |  |  |
|            | 5/8                       | 15,88 | 11               | 45                | x | 18    | 15,72                                   | <b>D0101000.3056</b> |  |  |
|            | 3/4                       | 19,05 | 10               | 45                | x | 18    | 18,89                                   | <b>D0101000.3058</b> |  |  |
|            | 7/8                       | 22,23 | 9                | 55                | x | 22    | 22,10                                   | <b>D0101000.3060</b> |  |  |
|            | 1"                        | 25,40 | 8                | 55                | x | 22    | 25,27                                   | <b>D0101000.3062</b> |  |  |
|            | 1 1/8                     | 28,58 | 7                | 65                | x | 25    | 28,44                                   | <b>D0101000.3063</b> |  |  |
|            | 1 1/4                     | 31,75 | 7                | 65                | x | 25    | 31,61                                   | <b>D0101000.3064</b> |  |  |
|            | 1 3/8                     | 34,93 | 6                | 65                | x | 25    | 34,77                                   | <b>D0101000.3065</b> |  |  |
|            | 1 1/2                     | 38,10 | 6                | 75                | x | 30    | 37,95                                   | <b>D0101000.3066</b> |  |  |
|            | 1 5/8                     | 41,28 | 5                | 75                | x | 30    | 41,11                                   | <b>D0101000.3067</b> |  |  |
|            | 1 3/4                     | 44,45 | 5                | 90                | x | 36    | 44,28                                   | <b>D0101000.3068</b> |  |  |
|            | 2"                        | 50,80 | 4 1/2            | 90                | x | 36    | 50,62                                   | <b>D0101000.3070</b> |  |  |






**BSF** 

BS 84



Vorarbeitdurchmesser  $d \approx$   
Preparatory diameter  $d \approx$



DIN EN 22568

**STEEL**  
Steel materials



normal standard



Technische Informationen  
Technical information

Toleranz · Tolerance  
Schneidstoff · Cutting material



- medium class
- HSS
- 1,5
- E / O

Einsatzgebiete – Material  
Applications – material

» 516

- P** 1.1-3.1
- K** 1.1-2.2

|            | $\varnothing d_1$ |       | P<br>Gg/1" (tpi) | $\varnothing d_2$ | x | $h_1$ | $\varnothing d \approx$<br>medium class | SE-B<br>nor<br>STEEL |
|------------|-------------------|-------|------------------|-------------------|---|-------|---|----------------------|
|            | inch              | inch  |                  |                   |   |       |   |                      |
| <b>BSF</b> | 3/16              | 4,76  | 32               | 20                | x | 7     | 4,67                                    | <b>D0101000.3088</b> |
|            | 1/4               | 6,35  | 26               | 20                | x | 7     | 6,25                                    | <b>D0101000.3090</b> |
|            | 5/16              | 7,94  | 22               | 25                | x | 9     | 7,83                                    | <b>D0101000.3092</b> |
|            | 3/8               | 9,53  | 20               | 30                | x | 11    | 9,41                                    | <b>D0101000.3093</b> |
|            | 7/16              | 11,11 | 18               | 30                | x | 11    | 10,99                                   | <b>D0101000.3094</b> |
|            | 1/2               | 12,70 | 16               | 38                | x | 10    | 12,57                                   | <b>D0101000.3095</b> |
|            | 5/8               | 15,88 | 14               | 45                | x | 14    | 15,73                                   | <b>D0101000.3097</b> |
|            | 3/4               | 19,05 | 12               | 45                | x | 14    | 18,89                                   | <b>D0101000.3099</b> |
|            | 7/8               | 22,23 | 11               | 55                | x | 16    | 22,11                                   | <b>D0101000.3101</b> |
|            | 1"                | 25,40 | 10               | 55                | x | 16    | 25,28                                   | <b>D0101000.3102</b> |

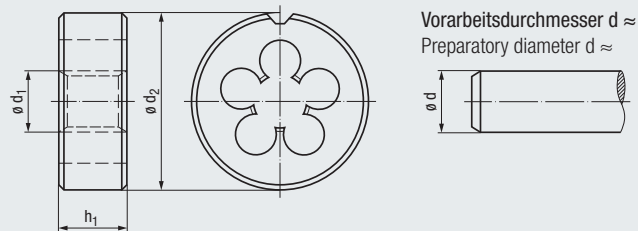
- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC
- UNF  
UNEF
- G
- NPT, NPTF  
R
- BSW, BSF**
- Tr, Tr-F
- Zubehör  
Accessories



- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC
- UNF  
UNEF
- G
- NPT, NPTF  
R
- BSW, BSF
- Tr, Tr-F
- Zubehör  
Accessories



**Tr**  
DIN 103



Vorarbeitsdurchmesser  $d \approx$   
Preparatory diameter  $d \approx$

**STEEL**  
Steel  
materials



normal  
standard



Technische Informationen  
Technical information

Toleranz · Tolerance  
Schneidstoff · Cutting material



7e

HSS

1,5-2

O / P

Einsatzgebiete – Material  
Applications – material

» 516

**P** 1.1<sup>1)</sup>  
**N** 2.3<sup>1)</sup>

| $\varnothing d_1$<br>mm | P<br>mm | $\varnothing d_2$ | x    | $h_1$ | $\varnothing d \approx$<br>7e | TRAPEZ-SE-B<br>nor<br>STEEL |
|-------------------------|---------|-------------------|------|-------|-------------------------------|-----------------------------|
| <b>Tr</b> 8             | x 1,5   | 25                | x 9  |       | 7,93                          |                             |
| 10                      | x 2     | 38                | x 14 |       | 9,91                          | <b>D0101000.7043</b>        |
| 10                      | x 3     | 38                | x 14 |       | 9,88                          | <b>D0101000.7044</b>        |
| 11                      | x 3     | 38                | x 14 |       | 10,88                         |                             |
| 12                      | x 3     | 38                | x 14 |       | 11,88                         | <b>D0101000.7046</b>        |
| 14                      | x 3     | 45                | x 18 |       | 13,88                         | <b>D0101000.7047</b>        |
| 14                      | x 4     | 45                | x 18 |       | 13,85                         | <b>D0101000.7048</b>        |
| 16                      | x 4     | 45                | x 18 |       | 15,85                         | <b>D0101000.7051</b>        |
| 18                      | x 4     | 45                | x 18 |       | 17,85                         | <b>D0101000.7052</b>        |
| 20                      | x 4     | 55                | x 22 |       | 19,85                         | <b>D0101000.7053</b>        |
| 22                      | x 5     | 55                | x 22 |       | 21,83                         | <b>D0101000.7054</b>        |
| 24                      | x 5     | 65                | x 25 |       | 23,83                         | <b>D0101000.7055</b>        |
| 26                      | x 5     | 65                | x 25 |       | 25,83                         | <b>D0101000.7057</b>        |
| 28                      | x 5     | 65                | x 25 |       | 27,83                         | <b>D0101000.7058</b>        |
| 30                      | x 6     | 65                | x 25 |       | 29,81                         | <b>D0101000.7059</b>        |
| 32                      | x 6     | 65                | x 25 |       | 31,81                         | <b>D0101000.7060</b>        |

<sup>1)</sup> Nur zum Nachschneiden geeignet  
Suitable only for reconditioning

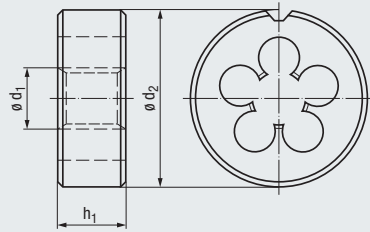


Gewindebohrer für Trapez-Gewinde  
siehe Seite 294 - 298

Taps for trapezoidal threads,  
see page 294 - 298



DIN 103



Vorarbeitdurchmesser  $d \approx$   
Preparatory diameter  $d \approx$



**STEEL**  
Steel materials



normal standard



Technische Informationen  
Technical information

Toleranz · Tolerance  
Schneidstoff · Cutting material



7e

HSS

1,5-2

0 / P

**P** 1.1 <sup>1)</sup>

**N** 2.3 <sup>1)</sup>

Einsatzgebiete – Material  
Applications – material

» 516

| $\varnothing d_1$<br>mm | P<br>mm | $\varnothing d_2$ | x  | $h_1$ | $\varnothing d \approx$<br>7e | TRAPEZ-SE-B<br>nor<br>STEEL |                      |
|-------------------------|---------|-------------------|----|-------|-------------------------------|-----------------------------|----------------------|
| <b>Tr</b> 12            | x       | 2                 | 38 | x     | 14                            | 11,91                       | <b>D0101000.7129</b> |
| 14                      | x       | 2                 | 38 | x     | 14                            | 13,91                       | <b>D0101000.7130</b> |
| 16                      | x       | 2                 | 45 | x     | 18                            | 15,91                       | <b>D0101000.7132</b> |
| 18                      | x       | 2                 | 45 | x     | 18                            | 17,91                       | <b>D0101000.7133</b> |
| 20                      | x       | 2                 | 45 | x     | 18                            | 19,91                       | <b>D0101000.7134</b> |
| 22                      | x       | 3                 | 55 | x     | 22                            | 21,88                       |                      |
| 24                      | x       | 3                 | 55 | x     | 22                            | 23,88                       |                      |
| 26                      | x       | 3                 | 55 | x     | 22                            | 25,88                       |                      |
| 28                      | x       | 3                 | 65 | x     | 25                            | 27,88                       |                      |
| 30                      | x       | 3                 | 65 | x     | 25                            | 29,88                       |                      |

<sup>1)</sup> Nur zum Nachschneiden geeignet  
Suitable only for reconditioning

- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC
- UNF  
UNEF
- G
- NPT, NPTF  
R
- BSW, BSF
- Tr, Tr-F**
- Zubehör  
Accessories



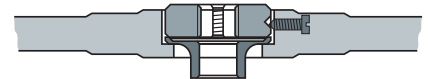
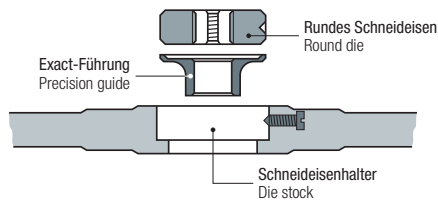
- Product Finder
- V<sub>c</sub>
- M
- MF
- UNC
- UNF  
UNEF
- G
- NPT, NPTF  
R
- BSW, BSF
- Tr, Tr-F
- Zubehör  
Accessories

**DIN EN  
22568**



| Schneideisenhalter Nr.<br>Die stock no. | Schneideisen-Aufnahme<br>Die adaptation |                  |             |
|---|---|------------------|-------------|
|   | ∅ d <sub>2</sub>                        | x h <sub>1</sub> |             |
| 1                                       | 16                                      | x 5              | FZ201000.01 |
| 2                                       | 20                                      | x 5              | FZ201000.02 |
| 3                                       | 20                                      | x 7              | FZ201000.03 |
| 4                                       | 25                                      | x 9              | FZ201000.04 |
| 5                                       | 30                                      | x 11             | FZ201000.05 |
| 6                                       | 38                                      | x 10             | FZ201000.06 |
| 7                                       | 38                                      | x 14             | FZ201000.07 |
| 8                                       | 45                                      | x 14             | FZ201000.08 |
| 9                                       | 45                                      | x 18             | FZ201000.09 |
| 10                                      | 55                                      | x 16             | FZ201000.10 |
| 11                                      | 55                                      | x 22             | FZ201000.11 |
| 12                                      | 65                                      | x 18             | FZ201000.12 |
| 13                                      | 65                                      | x 25             | FZ201000.13 |
| 14                                      | 75                                      | x 20             | FZ201000.14 |
| 15                                      | 75                                      | x 30             | FZ201000.15 |
| 16                                      | 90                                      | x 22             | FZ201000.16 |
| 17                                      | 90                                      | x 36             | FZ201000.17 |
| 18                                      | 105                                     | x 22             | FZ201000.18 |
| 19                                      | 105                                     | x 36             | FZ201000.19 |

### Exact-Führungen Precision guides



Exact-Führungen zum leichteren Anschneiden von Hand auf Anfrage  
Precision guides for better performance when cutting by hand upon request





## Gewindelehren Thread Gauges

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Übersichten

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Produktseiten

Product pages

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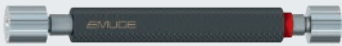

|                         |
|-------------------------|
| <b>Product Finder</b>   |
| M                       |
| MF                      |
| UNC                     |
| UNF                     |
| G                       |
| Rp, R, Rc               |
| NPT, NPTF               |
| BSW                     |
| Pg                      |
| MJ                      |
| UNJC, UNJF              |
| EG (STI)                |
| SELF-LOCK               |
| Tr, Tr-F                |
| Rd                      |
| Glatt Smooth            |
| GT, TD                  |
| Zubehör Accessories     |
| PoCoSys                 |
| Kalibrieren Calibration |






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| <b>MF</b>         | 550 - 551 | 552 - 559 | 553 - 559 |
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| <b>UNF</b>        | 570       | 570       | 570       |
| <b>G (BSP)</b>    | 572       | 572       | 572       |
| <b>Rp, R, Rc</b>  |           |           |           |
| <b>NPT</b>        |           |           |           |
| <b>NPTF</b>       |           |           |           |
| <b>BSW</b>        | 576       | 576       | 576       |
| <b>Pg</b>         | 577       | 577       | 577       |
| <b>MJ</b>         | 578       |           |           |
| <b>UNJC</b>       | 579       |           |           |
| <b>UNJF</b>       | 579       |           |           |
| <b>EG M (STI)</b> | 580       |           |           |
| <b>LK-M</b>       | 581       |           |           |
| <b>Tr</b>         | 582       | 582       | 582       |
| <b>Tr-F</b>       | 583       | 583       | 583       |
| <b>Rd</b>         | 584       | 584       | 584       |

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|   |  |     |
|---|--|-----|
|  | <p>Glatte Grenz-, Gut- und Ausschuss-Lehrdorne<br/>Smooth plug gauges go/no-go, go, and no-go</p>                                    | 585 |
|  | <p>Glatte Kernloch-Grenzlehndorne für Metrische Gewinde<br/>Smooth plug gauges go/no-go for thread holes, for Metric threads</p>     | 586 |
|  | <p>Kegeliger Gewinde-Rundlauf-Prüfdorn für Metrische Gewinde<br/>Tapered check plug gauge for radial run-out, for Metric threads</p> | 587 |

| <p>Gewinde-<br/>Gutlehringe<br/>Thread ring<br/>gauges go</p>  <p><b>G-GUT-LR</b></p> | <p>Gewinde-<br/>Ausschusslehringe<br/>Thread ring<br/>gauges no-go</p>  <p><b>G-AUS-LR</b></p> | <p>Gewindelehren<br/>für kegelige Gewinde<br/>Thread gauges<br/>for tapered threads</p>  <p><b>G-GR-LD<br/>G-GR-LR</b></p> | <p>Seite · Page</p> <table border="1"> <tr><td>548</td><td>549</td><td></td><td><b>M</b></td></tr> <tr><td>560 - 567</td><td>561 - 657</td><td></td><td><b>MF</b></td></tr> <tr><td>569</td><td>569</td><td></td><td><b>UNC</b></td></tr> <tr><td>571</td><td>571</td><td></td><td><b>UNF</b></td></tr> <tr><td>572</td><td>572</td><td></td><td><b>G (BSP)</b></td></tr> <tr><td></td><td></td><td>573</td><td><b>Rp, R, Rc</b></td></tr> <tr><td></td><td></td><td>574</td><td><b>NPT</b></td></tr> <tr><td></td><td></td><td>575</td><td><b>NPTF</b></td></tr> <tr><td>576</td><td>576</td><td></td><td><b>BSW</b></td></tr> <tr><td>577</td><td>577</td><td></td><td><b>Pg</b></td></tr> <tr><td>578</td><td>578</td><td></td><td><b>MJ</b></td></tr> <tr><td>579</td><td>579</td><td></td><td><b>UNJC</b></td></tr> <tr><td>579</td><td>579</td><td></td><td><b>UNJF</b></td></tr> <tr><td></td><td></td><td></td><td><b>EG M (STI)</b></td></tr> <tr><td></td><td></td><td></td><td><b>LK-M</b></td></tr> <tr><td>582</td><td>582</td><td></td><td><b>Tr</b></td></tr> <tr><td>583</td><td>583</td><td></td><td><b>Tr-F</b></td></tr> <tr><td>584</td><td>584</td><td></td><td><b>Rd</b></td></tr> </table> | 548 | 549 |  | <b>M</b> | 560 - 567 | 561 - 657 |  | <b>MF</b> | 569 | 569 |  | <b>UNC</b> | 571 | 571 |  | <b>UNF</b> | 572 | 572 |  | <b>G (BSP)</b> |  |  | 573 | <b>Rp, R, Rc</b> |  |  | 574 | <b>NPT</b> |  |  | 575 | <b>NPTF</b> | 576 | 576 |  | <b>BSW</b> | 577 | 577 |  | <b>Pg</b> | 578 | 578 |  | <b>MJ</b> | 579 | 579 |  | <b>UNJC</b> | 579 | 579 |  | <b>UNJF</b> |  |  |  | <b>EG M (STI)</b> |  |  |  | <b>LK-M</b> | 582 | 582 |  | <b>Tr</b> | 583 | 583 |  | <b>Tr-F</b> | 584 | 584 |  | <b>Rd</b> |
|--|---|--|---|-----|-----|--|----------|-----------|-----------|--|-----------|-----|-----|--|------------|-----|-----|--|------------|-----|-----|--|----------------|--|--|-----|------------------|--|--|-----|------------|--|--|-----|-------------|-----|-----|--|------------|-----|-----|--|-----------|-----|-----|--|-----------|-----|-----|--|-------------|-----|-----|--|-------------|--|--|--|-------------------|--|--|--|-------------|-----|-----|--|-----------|-----|-----|--|-------------|-----|-----|--|-----------|
| 548  | 549   |  | <b>M</b>  |     |     |  |          |           |           |  |           |     |     |  |            |     |     |  |            |     |     |  |                |  |  |     |                  |  |  |     |            |  |  |     |             |     |     |  |            |     |     |  |           |     |     |  |           |     |     |  |             |     |     |  |             |  |  |  |                   |  |  |  |             |     |     |  |           |     |     |  |             |     |     |  |           |
| 560 - 567  | 561 - 657   |  | <b>MF</b>   |     |     |  |          |           |           |  |           |     |     |  |            |     |     |  |            |     |     |  |                |  |  |     |                  |  |  |     |            |  |  |     |             |     |     |  |            |     |     |  |           |     |     |  |           |     |     |  |             |     |     |  |             |  |  |  |                   |  |  |  |             |     |     |  |           |     |     |  |             |     |     |  |           |
| 569  | 569   |  | <b>UNC</b>  |     |     |  |          |           |           |  |           |     |     |  |            |     |     |  |            |     |     |  |                |  |  |     |                  |  |  |     |            |  |  |     |             |     |     |  |            |     |     |  |           |     |     |  |           |     |     |  |             |     |     |  |             |  |  |  |                   |  |  |  |             |     |     |  |           |     |     |  |             |     |     |  |           |
| 571  | 571   |  | <b>UNF</b>  |     |     |  |          |           |           |  |           |     |     |  |            |     |     |  |            |     |     |  |                |  |  |     |                  |  |  |     |            |  |  |     |             |     |     |  |            |     |     |  |           |     |     |  |           |     |     |  |             |     |     |  |             |  |  |  |                   |  |  |  |             |     |     |  |           |     |     |  |             |     |     |  |           |
| 572  | 572   |  | <b>G (BSP)</b>  |     |     |  |          |           |           |  |           |     |     |  |            |     |     |  |            |     |     |  |                |  |  |     |                  |  |  |     |            |  |  |     |             |     |     |  |            |     |     |  |           |     |     |  |           |     |     |  |             |     |     |  |             |  |  |  |                   |  |  |  |             |     |     |  |           |     |     |  |             |     |     |  |           |
|  |   | 573  | <b>Rp, R, Rc</b>  |     |     |  |          |           |           |  |           |     |     |  |            |     |     |  |            |     |     |  |                |  |  |     |                  |  |  |     |            |  |  |     |             |     |     |  |            |     |     |  |           |     |     |  |           |     |     |  |             |     |     |  |             |  |  |  |                   |  |  |  |             |     |     |  |           |     |     |  |             |     |     |  |           |
|  |   | 574  | <b>NPT</b>  |     |     |  |          |           |           |  |           |     |     |  |            |     |     |  |            |     |     |  |                |  |  |     |                  |  |  |     |            |  |  |     |             |     |     |  |            |     |     |  |           |     |     |  |           |     |     |  |             |     |     |  |             |  |  |  |                   |  |  |  |             |     |     |  |           |     |     |  |             |     |     |  |           |
|  |   | 575  | <b>NPTF</b>   |     |     |  |          |           |           |  |           |     |     |  |            |     |     |  |            |     |     |  |                |  |  |     |                  |  |  |     |            |  |  |     |             |     |     |  |            |     |     |  |           |     |     |  |           |     |     |  |             |     |     |  |             |  |  |  |                   |  |  |  |             |     |     |  |           |     |     |  |             |     |     |  |           |
| 576  | 576   |  | <b>BSW</b>  |     |     |  |          |           |           |  |           |     |     |  |            |     |     |  |            |     |     |  |                |  |  |     |                  |  |  |     |            |  |  |     |             |     |     |  |            |     |     |  |           |     |     |  |           |     |     |  |             |     |     |  |             |  |  |  |                   |  |  |  |             |     |     |  |           |     |     |  |             |     |     |  |           |
| 577  | 577   |  | <b>Pg</b>   |     |     |  |          |           |           |  |           |     |     |  |            |     |     |  |            |     |     |  |                |  |  |     |                  |  |  |     |            |  |  |     |             |     |     |  |            |     |     |  |           |     |     |  |           |     |     |  |             |     |     |  |             |  |  |  |                   |  |  |  |             |     |     |  |           |     |     |  |             |     |     |  |           |
| 578  | 578   |  | <b>MJ</b>   |     |     |  |          |           |           |  |           |     |     |  |            |     |     |  |            |     |     |  |                |  |  |     |                  |  |  |     |            |  |  |     |             |     |     |  |            |     |     |  |           |     |     |  |           |     |     |  |             |     |     |  |             |  |  |  |                   |  |  |  |             |     |     |  |           |     |     |  |             |     |     |  |           |
| 579  | 579   |  | <b>UNJC</b>   |     |     |  |          |           |           |  |           |     |     |  |            |     |     |  |            |     |     |  |                |  |  |     |                  |  |  |     |            |  |  |     |             |     |     |  |            |     |     |  |           |     |     |  |           |     |     |  |             |     |     |  |             |  |  |  |                   |  |  |  |             |     |     |  |           |     |     |  |             |     |     |  |           |
| 579  | 579   |  | <b>UNJF</b>   |     |     |  |          |           |           |  |           |     |     |  |            |     |     |  |            |     |     |  |                |  |  |     |                  |  |  |     |            |  |  |     |             |     |     |  |            |     |     |  |           |     |     |  |           |     |     |  |             |     |     |  |             |  |  |  |                   |  |  |  |             |     |     |  |           |     |     |  |             |     |     |  |           |
|  |   |  | <b>EG M (STI)</b>   |     |     |  |          |           |           |  |           |     |     |  |            |     |     |  |            |     |     |  |                |  |  |     |                  |  |  |     |            |  |  |     |             |     |     |  |            |     |     |  |           |     |     |  |           |     |     |  |             |     |     |  |             |  |  |  |                   |  |  |  |             |     |     |  |           |     |     |  |             |     |     |  |           |
|  |   |  | <b>LK-M</b>   |     |     |  |          |           |           |  |           |     |     |  |            |     |     |  |            |     |     |  |                |  |  |     |                  |  |  |     |            |  |  |     |             |     |     |  |            |     |     |  |           |     |     |  |           |     |     |  |             |     |     |  |             |  |  |  |                   |  |  |  |             |     |     |  |           |     |     |  |             |     |     |  |           |
| 582  | 582   |  | <b>Tr</b>   |     |     |  |          |           |           |  |           |     |     |  |            |     |     |  |            |     |     |  |                |  |  |     |                  |  |  |     |            |  |  |     |             |     |     |  |            |     |     |  |           |     |     |  |           |     |     |  |             |     |     |  |             |  |  |  |                   |  |  |  |             |     |     |  |           |     |     |  |             |     |     |  |           |
| 583  | 583   |  | <b>Tr-F</b>   |     |     |  |          |           |           |  |           |     |     |  |            |     |     |  |            |     |     |  |                |  |  |     |                  |  |  |     |            |  |  |     |             |     |     |  |            |     |     |  |           |     |     |  |           |     |     |  |             |     |     |  |             |  |  |  |                   |  |  |  |             |     |     |  |           |     |     |  |             |     |     |  |           |
| 584  | 584   |  | <b>Rd</b>   |     |     |  |          |           |           |  |           |     |     |  |            |     |     |  |            |     |     |  |                |  |  |     |                  |  |  |     |            |  |  |     |             |     |     |  |            |     |     |  |           |     |     |  |           |     |     |  |             |     |     |  |             |  |  |  |                   |  |  |  |             |     |     |  |           |     |     |  |             |     |     |  |           |

**Product Finder**

|                            |
|----------------------------|
| M                          |
| MF                         |
| UNC                        |
| UNF                        |
| G                          |
| Rp, R, Rc                  |
| NPT, NPTF                  |
| BSW                        |
| Pg                         |
| MJ                         |
| UNJC, UNJF                 |
| EG (STI)                   |
| SELF-LOCK                  |
| Tr, Tr-F<br>Rd             |
| Glatt<br>Smooth            |
| GT, TD                     |
| Zubehör<br>Accessories     |
| PoCoSys                    |
| Kalibrieren<br>Calibration |

|  <p>Gewinde-Tiefenlehndorne<br/>Thread depth plug gauges</p>   | <p>Seite · Page</p> <p>588 - 591</p> |
|---|--------------------------------------|
|  <p>Sechskant-Bit-Adapter und Zubehör<br/>Hexagon bit adapters and accessories</p>                         | <p>592 - 593</p>                     |
| <p><b>PoCoSys – Position Control System</b></p> <p>Einstell- und Prüfsystem für stellungsgebundene Gewinde<br/>Setting and Inspection System for Threads with Specified Starting Position</p> | <p>595 - 604</p>                     |
|  <p>DECOM-Prüflabor im Hause EMUGE<br/>DECOM Calibration Laboratory at EMUGE</p>                           | <p>605 - 610</p>                     |



|                            |
|----------------------------|
| Product Finder             |
| M                          |
| MF                         |
| UNC                        |
| UNF                        |
| G                          |
| Rp, R, Rc                  |
| NPT, NPTF                  |
| BSW                        |
| Pg                         |
| MJ<br>UNJC, UNJF           |
| EG (STI)                   |
| SELF-LOCK                  |
| Tr, Tr-F<br>Rd             |
| Glatt<br>Smooth            |
| GT, TD                     |
| Zubehör<br>Accessories     |
| PoCoSys                    |
| Kalibrieren<br>Calibration |

## Allgemeines

Für das Metrische ISO-Gewinde ist in DIN ISO 1502 ein Lehrensystem festgelegt mit dem Zweck, eine uneingeschränkte Austauschbarkeit der Werkstückgewinde zu gewährleisten.

Es gelten folgende Grundsätze:

1. Der Hersteller darf kein Werkstückgewinde liefern, dessen Gewinde-Istmaß außerhalb der festgelegten Grenzen liegt (z.B. der Flankendurchmesser und der Paarungsflankendurchmesser).
2. Der Besteller darf kein Werkstückgewinde zurückweisen, dessen Gewinde-Istmaß innerhalb der festgelegten Grenzen liegt (z.B. der Flankendurchmesser und der Paarungsflankendurchmesser).

Natürlich werden heute in der modernen Gewindefertigung auch andere Prüfmethode angewandt, z.B. Messen mit anzeigenden Messgeräten. Bei Anwendung anderer Methoden ist darauf zu achten, dass diese zu gleichen Ergebnissen führen.

**In Zweifelsfällen sind für das Metrische ISO-Gewinde die in der Norm DIN ISO 1502 empfohlenen Lehren für die Prüfung entscheidend. Für andere Gewindesysteme (z.B. Amerikanische Gewinde) gelten andere Lehrennormen.**

Wird in der Fertigung hauptsächlich durch Messen geprüft, so ist es unumgänglich, dass eine stichprobenmäßige Prüfung mit den genormten Lehren durchgeführt wird. Die Bezugstemperatur für die Maße der Lehren und Werkstücke ist 20 °C. Wird bei anderen Temperaturen geprüft, sind die Ausdehnungskoeffizienten zu berücksichtigen.

### Vorteile der EMUGE-Gewindelehren

- Gealterter Lehrenstahl, dadurch sehr maßstabil
- Härte deutlich über dem genormten Mindestwert
- Hartstoffschichten zur höheren Verschleißfestigkeit der Gut-Seite möglich
- Großes Lagersortiment an Standard- und Sondertoleranzen
- Kurze Lieferzeit
- Sonderkonstruktionen auf Anfrage
- Auf Wunsch mit Werkskalibrierschein (durch neutrales Prüflabor Fa. DECOM im Hause)
- Kostenfreie Beschriftung von kundenspezifischen Angaben bei Neu-Fertigung und Sonder-Anfertigung

## General information

For the Metric ISO thread, a gauge system is specified in DIN ISO 1502 for the purpose of securing the unlimited exchangeability of workpiece threads.

The following basic principles apply:

1. The manufacturer must not supply a workpiece thread the actual thread size of which is outside of the specified limits (e.g. pitch diameter or mating pitch diameter).
2. The buyer must not reject a workpiece thread the actual thread size of which is inside of the specified limits (e.g. pitch diameter or mating pitch diameter).

In modern thread production, there are of course other inspection methods also, e.g. measuring with dial-type measuring instruments. Whenever other methods are applied it is important to make sure that the same results are achieved.

**In any case of doubt, the gauges recommended in the standard DIN ISO 1502 will decide the result of the inspection for the Metric ISO thread.**

**For other thread systems (e.g. American threads), other gauge standards apply.**

If the inspection work in production is done mainly by measuring, it is still absolutely necessary to perform random sample inspection with the standardised gauges. The reference temperature for the gauge and workpiece dimensions is 20 °C. If inspections are done at other temperatures, the corresponding expansion coefficients have to be taken into account.

### Advantages of our EMUGE thread gauges

- Aged gauge steel, hence extremely true-to-dimension
- Hardness noticeably over the standardised minimum requirements
- Hard surface coatings for extra high wear resistance available on the go side
- Large stock of standard and special tolerances
- Short delivery
- Special designs available upon request
- Inspection certificates available upon request (issued by independent in-house inspection lab DECOM)
- Free-of-charge laser marking to customer's specifications on gauges coming from new production and specially produced gauges





## EMUGE-Gewindelehren – Prüftechnik in Perfektion

## EMUGE Thread gauges – Gauging technology to perfection

Product

Finder

M

MF

UNC

UNF

Rp, R, Rc

NPT, NPTF

BSW

Pg

MJ  
UNJC, UNJF

EG (STI)

SELF-LOCK

Tr, Tr-F  
RdGlatt  
Smooth

GT, TD

Zubehör  
Accessories

PoCoSys

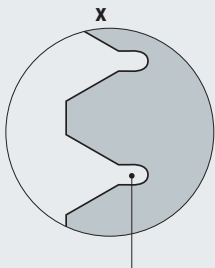
Kalibrieren  
Calibration

Ab  $\varnothing$  5,5 mm erhält jeder Gutlehndorn eine **Schmutznut**, dadurch sichere Lehrung auch unter schwierigen Einsatzbedingungen

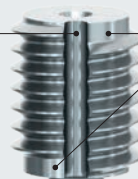
Starting from dia. 5.5 mm each go plug gauge is provided with a **dirt flute**, for safe gauging even under difficult conditions

**Eindeutige Ident-Nr. jeder Gewindelehre** stellt die notwendige EMUGE werksinterne Rückverfolgbarkeit sicher

Individual ident no. for each single gauge for safe tracing back to production at EMUGE



Funktionsgerechte **Kern-Freiarbeitung** der Ausschuss-Gewindelehren  
Recessed minor thread diameter of the no-go gauges for safe function



**Unvollständige Gewindegänge** werden bis zum Beginn des Vollprofils **entfernt**, dadurch stabiler Gewindeanfang

**Incomplete threads are removed** until the beginning of the full thread, in order to create a stable thread start

**Lehrgriff mit 2 Beschriftungsflächen**  
Ausreichend Platz für kundenspezifische Angaben (auf Wunsch auch von EMUGE durchführbar)

Gauge handles with **double surfaces for marking**, leaving sufficient space for customer's specific requirements (marking to be provided by EMUGE upon request)

**Gerändelter Griff**  
(leichte Handhabung auch mit öligen Fingern)

**Knurled handles**  
(safe handling even with greasy fingers)

**Rote Farbkenzeichnung der Ausschussseite**  
Red marking of the no-go side

**Einführansatz**  
zur verbesserten Einführung des Ausschusslehrenkörpers

**Reduced thread start**  
for easy insertion of the no-go gauge body

$\leq \varnothing$  40 mm

Form R nach DIN 2240-1 mit Einsteckkegel.  
Gut- und Ausschussseite auf einem Lehrgriff.

$> \varnothing$  40 mm und  $\leq \varnothing$  200 mm

Ähnlich DIN 2240-2 mit Kugelbefestigung.  
Gut- und Ausschussseite auf je einem Lehrgriff.  
Sicherer Halt bei Lehrung und Prüfung der Lehre im 3-Draht-Messverfahren.

$\leq \varnothing$  40 mm

Form R acc. DIN 2240-1 with fixing taper.  
Go and no-go side on one gauge handle.

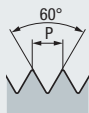
$> \varnothing$  40 mm und  $\leq \varnothing$  200 mm

Made acc. DIN 2240-2 with ball fixture.  
Go and no-go side are mounted each on a single handle.  
Safe grip for gauging and checking of the gauge in a 3-wire measuring process.



|                            |
|----------------------------|
| Product Finder             |
| M                          |
| MF                         |
| UNC                        |
| UNF                        |
| G                          |
| Rp, R, Rc                  |
| NPT, NPTF                  |
| BSW                        |
| Pg                         |
| MJ                         |
| UNJC, UNJF                 |
| EG (STI)                   |
| SELF-LOCK                  |
| Tr, Tr-F<br>Rd             |
| Glatt<br>Smooth            |
| GT, TD                     |
| Zubehör<br>Accessories     |
| PoCoSys                    |
| Kalibrieren<br>Calibration |

# M



DIN 13

Lehrenmaße nach DIN ISO 1502  
Gauge dimensions acc. DIN ISO 1502



Toleranz · Tolerance  
Beschichtung · Coating

|       |           |    |           |    |           |
|-------|-----------|----|-----------|----|-----------|
| 6H *) | 6H<br>TIN | 4H | 4H<br>TIN | 6G | 6G<br>TIN |
|-------|-----------|----|-----------|----|-----------|











| Tr, Tr-F<br>Rd | ø d <sub>1</sub><br>mm | P<br>mm | G-GR-LD       |               | G-GR-LD       |               | G-GR-LD       |               | G-GR-LD |               | G-GR-LD |  | G-GR-LD |  |
|----------------|------------------------|---------|---------------|---------------|---------------|---------------|---------------|---------------|---------|---------------|---------|--|---------|--|
|                |                        |         |               |               | TIN           |               |               | TIN           |         |               | TIN     |  |         |  |
| M              | 1                      | 0,25    | L0100100.0010 |               |               |               |               |               |         |               |         |  |         |  |
|                | 1,1                    | 0,25    | L0100100.0011 |               |               |               |               |               |         |               |         |  |         |  |
|                | 1,2                    | 0,25    | L0100100.0012 |               |               |               |               |               |         |               |         |  |         |  |
|                | 1,4                    | 0,3     | L0100100.0014 |               |               |               |               |               |         |               |         |  |         |  |
|                | 1,6                    | 0,35    | L0100100.0016 |               |               |               |               |               |         |               |         |  |         |  |
|                | 1,7                    | 0,35    | L0100100.0017 |               |               |               |               |               |         |               |         |  |         |  |
|                | 1,8                    | 0,35    | L0100100.0018 |               |               |               |               |               |         |               |         |  |         |  |
|                | 2                      | 0,4     | L0100100.0020 |               |               | L0100110.0020 |               |               |         | L0100120.0020 |         |  |         |  |
|                | 2,2                    | 0,45    | L0100100.0022 |               |               | L0100110.0022 |               |               |         | L0100120.0022 |         |  |         |  |
|                | 2,3                    | 0,4     | L0100100.0023 |               |               |               |               |               |         |               |         |  |         |  |
|                | 2,5                    | 0,45    | L0100100.0025 |               |               | L0100110.0025 |               |               |         | L0100120.0025 |         |  |         |  |
|                | 2,6                    | 0,45    | L0100100.0026 |               |               |               |               |               |         |               |         |  |         |  |
|                | 3                      | 0,5     | L0100100.0030 | L0105100.0030 | L0100110.0030 | L0105110.0030 | L0100120.0030 | L0105120.0030 |         |               |         |  |         |  |
|                | 3,5                    | 0,6     | L0100100.0035 |               | L0100110.0035 |               | L0100120.0035 |               |         |               |         |  |         |  |
|                | 4                      | 0,7     | L0100100.0040 | L0105100.0040 | L0100110.0040 | L0105110.0040 | L0100120.0040 | L0105120.0040 |         |               |         |  |         |  |
|                | 4,5                    | 0,75    | L0100100.0045 |               |               |               |               |               |         |               |         |  |         |  |
|                | 5                      | 0,8     | L0100100.0050 | L0105100.0050 | L0100110.0050 | L0105110.0050 | L0100120.0050 | L0105120.0050 |         |               |         |  |         |  |
|                | 6                      | 1       | L0100100.0060 | L0105100.0060 | L0100110.0060 | L0105110.0060 | L0100120.0060 | L0105120.0060 |         |               |         |  |         |  |
|                | 7                      | 1       | L0100100.0070 |               |               |               |               |               |         |               |         |  |         |  |
|                | 8                      | 1,25    | L0100100.0080 | L0105100.0080 | L0100110.0080 | L0105110.0080 | L0100120.0080 | L0105120.0080 |         |               |         |  |         |  |
|                | 9                      | 1,25    | L0100100.0090 |               |               |               |               |               |         |               |         |  |         |  |
|                | 10                     | 1,5     | L0100100.0100 | L0105100.0100 | L0100110.0100 | L0105110.0100 | L0100120.0100 | L0105120.0100 |         |               |         |  |         |  |
|                | 11                     | 1,5     | L0100100.0111 |               |               |               |               |               |         |               |         |  |         |  |
|                | 12                     | 1,75    | L0100100.0112 | L0105100.0112 | L0100110.0112 | L0105110.0112 | L0100120.0112 | L0105120.0112 |         |               |         |  |         |  |
|                | 14                     | 2       | L0100100.0114 | L0105100.0114 | L0100110.0114 | L0105110.0114 | L0100120.0114 | L0105120.0114 |         |               |         |  |         |  |
|                | 16                     | 2       | L0100100.0116 | L0105100.0116 | L0100110.0116 | L0105110.0116 | L0100120.0116 | L0105120.0116 |         |               |         |  |         |  |
|                | 18                     | 2,5     | L0100100.0118 |               | L0100110.0118 |               | L0100120.0118 |               |         |               |         |  |         |  |
|                | 20                     | 2,5     | L0100100.0120 | L0105100.0120 | L0100110.0120 | L0105110.0120 | L0100120.0120 | L0105120.0120 |         |               |         |  |         |  |
|                | 22                     | 2,5     | L0100100.0122 |               | L0100110.0122 |               | L0100120.0122 |               |         |               |         |  |         |  |
|                | 24                     | 3       | L0100100.0124 | L0105100.0124 | L0100110.0124 | L0105110.0124 | L0100120.0124 | L0105120.0124 |         |               |         |  |         |  |
|                | 27                     | 3       | L0100100.0127 |               |               |               |               |               |         |               |         |  |         |  |
|                | 30                     | 3,5     | L0100100.0130 |               |               |               |               |               |         |               |         |  |         |  |
|                | 33                     | 3,5     | L0100100.0133 |               |               |               |               |               |         |               |         |  |         |  |
|                | 36                     | 4       | L0100100.0136 |               |               |               |               |               |         |               |         |  |         |  |
|                | 39                     | 4       | L0100100.0139 |               |               |               |               |               |         |               |         |  |         |  |
|                | 42                     | 4,5     |               |               |               |               |               |               |         |               |         |  |         |  |
|                | 45                     | 4,5     |               |               |               |               |               |               |         |               |         |  |         |  |
|                | 48                     | 5       |               |               |               |               |               |               |         |               |         |  |         |  |
|                | 52                     | 5       |               |               |               |               |               |               |         |               |         |  |         |  |
|                | 56                     | 5,5     |               |               |               |               |               |               |         |               |         |  |         |  |
|                | 60                     | 5,5     |               |               |               |               |               |               |         |               |         |  |         |  |
|                | 64                     | 6       |               |               |               |               |               |               |         |               |         |  |         |  |
|                | 68                     | 6       |               |               |               |               |               |               |         |               |         |  |         |  |

\*) ≤ M1,4 Tol. 5H



Glatte Kernloch-Grenzlehndorne  
siehe Seite 586











Smooth plug gauges go/no-go for thread  
holes, see page 586

|      |   |   |   |   |  |  |  |  |          |     |
|---|---|---|---|---|--|--|--|--|----------|-----|
|    |  |  |  |  |  |  |  |  |          |     |
| <b>6E</b>   | <b>6H</b>   | <b>6H *)</b>  | <b>6H</b><br><b>TIN</b>   | <b>6H *)</b>  |  |  |  |  |          |     |
|   | <b>LH</b>   |   |   |   |  |  |  |  |          |     |
| <b>G-GR-LD</b>  | <b>G-GR-LD<br/>LH</b>   | <b>G-GUT-LD</b>   | <b>G-GUT-LD<br/>TIN</b>   | <b>G-AUS-LD</b>   |  |  |  |  |          |     |
|   |   | L0120100.0010   |   | L0140100.0010   |  |  |  |  | <b>M</b> | 1   |
|   |   | L0120100.0011   |   | L0140100.0011   |  |  |  |  |          | 1,1 |
|   |   | L0120100.0012   |   | L0140100.0012   |  |  |  |  |          | 1,2 |
|   |   | L0120100.0014   |   | L0140100.0014   |  |  |  |  |          | 1,4 |
|   |   | L0120100.0016   |   | L0140100.0016   |  |  |  |  |          | 1,6 |
|   |   | L0120100.0017   |   | L0140100.0017   |  |  |  |  |          | 1,7 |
|   |   | L0120100.0018   |   | L0140100.0018   |  |  |  |  |          | 1,8 |
|   | L0100150.0020   | L0120100.0020   |   | L0140100.0020   |  |  |  |  |          | 2   |
|   | L0100150.0022   | L0120100.0022   |   | L0140100.0022   |  |  |  |  |          | 2,2 |
|   | L0100150.0023   | L0120100.0023   |   | L0140100.0023   |  |  |  |  |          | 2,3 |
|   | L0100150.0025   | L0120100.0025   |   | L0140100.0025   |  |  |  |  |          | 2,5 |
|   | L0100150.0026   | L0120100.0026   |   | L0140100.0026   |  |  |  |  |          | 2,6 |
| L0100130.0030   | L0100150.0030   | L0120100.0030   | L0125100.0030   | L0140100.0030   |  |  |  |  |          | 3   |
|   | L0100150.0035   | L0120100.0035   |   | L0140100.0035   |  |  |  |  |          | 3,5 |
| L0100130.0040   | L0100150.0040   | L0120100.0040   | L0125100.0040   | L0140100.0040   |  |  |  |  |          | 4   |
|   |   | L0120100.0045   |   | L0140100.0045   |  |  |  |  |          | 4,5 |
| L0100130.0050   | L0100150.0050   | L0120100.0050   | L0125100.0050   | L0140100.0050   |  |  |  |  |          | 5   |
| L0100130.0060   | L0100150.0060   | L0120100.0060   | L0125100.0060   | L0140100.0060   |  |  |  |  |          | 6   |
|   | L0100150.0070   | L0120100.0070   |   | L0140100.0070   |  |  |  |  |          | 7   |
| L0100130.0080   | L0100150.0080   | L0120100.0080   | L0125100.0080   | L0140100.0080   |  |  |  |  |          | 8   |
|   |   | L0120100.0090   |   | L0140100.0090   |  |  |  |  |          | 9   |
| L0100130.0100   | L0100150.0100   | L0120100.0100   | L0125100.0100   | L0140100.0100   |  |  |  |  |          | 10  |
|   |   | L0120100.0111   |   | L0140100.0111   |  |  |  |  |          | 11  |
|   | L0100150.0112   | L0120100.0112   | L0125100.0112   | L0140100.0112   |  |  |  |  |          | 12  |
|   | L0100150.0114   | L0120100.0114   | L0125100.0114   | L0140100.0114   |  |  |  |  |          | 14  |
|   | L0100150.0116   | L0120100.0116   | L0125100.0116   | L0140100.0116   |  |  |  |  |          | 16  |
|   | L0100150.0118   | L0120100.0118   |   | L0140100.0118   |  |  |  |  |          | 18  |
|   | L0100150.0120   | L0120100.0120   | L0125100.0120   | L0140100.0120   |  |  |  |  |          | 20  |
|   | L0100150.0122   | L0120100.0122   |   | L0140100.0122   |  |  |  |  |          | 22  |
|   | L0100150.0124   | L0120100.0124   | L0125100.0124   | L0140100.0124   |  |  |  |  |          | 24  |
|   |   | L0120100.0127   |   | L0140100.0127   |  |  |  |  |          | 27  |
|   |   | L0120100.0130   |   | L0140100.0130   |  |  |  |  |          | 30  |
|   |   | L0120100.0133   |   | L0140100.0133   |  |  |  |  |          | 33  |
|   |   | L0120100.0136   |   | L0140100.0136   |  |  |  |  |          | 36  |
|   |   | L0120100.0139   |   | L0140100.0139   |  |  |  |  |          | 39  |
|   |   | L0120100.0142   |   | L0140100.0142   |  |  |  |  |          | 42  |
|   |   | L0120100.0145   |   | L0140100.0145   |  |  |  |  |          | 45  |
|   |   | L0120100.0148   |   | L0140100.0148   |  |  |  |  |          | 48  |
|   |   | L0120100.0152   |   | L0140100.0152   |  |  |  |  |          | 52  |
|   |   | L0120100.0156   |   | L0140100.0156   |  |  |  |  |          | 56  |
|   |   | L0120100.0160   |   | L0140100.0160   |  |  |  |  |          | 60  |
|   |   | L0120100.0164   |   | L0140100.0164   |  |  |  |  |          | 64  |
|   |   | L0120100.0168   |   | L0140100.0168   |  |  |  |  |          | 68  |

> ø 40 nur als Einzellehrdorne erhältlich (G-GUT-LD, G-AUS-LD)  
available only as separate plug gauges (G-GUT-LD, G-AUS-LD)

|                            |
|----------------------------|
| Product Finder             |
| M                          |
| MF                         |
| UNC                        |
| UNF                        |
| J                          |
| Rp, R, Rc                  |
| NPT, NPTF                  |
| BSW                        |
| Pg                         |
| MJ<br>UNJC, UNJF           |
| EG (STI)                   |
| SELF-LOCK                  |
| Tr, Tr-F<br>Rd             |
| Glatt<br>Smooth            |
| GT, TD                     |
| Zubehör<br>Accessories     |
| PoCoSys                    |
| Kalibrieren<br>Calibration |



| Product Finder             |   |  |   |   |    |   |  |  |  |  |  |  |  |
|----------------------------|---|--|---|---|--|---|--|--|--|--|--|--|--|
| M                          |   <p>DIN 13</p> | <p>Lehrenmaße nach DIN ISO 1502<br/>Gauge dimensions acc. DIN ISO 1502</p> |  |  |  |  |  |  |  |  |  |  |  |
| MF                         |   |  |   |   |  |   |  |  |  |  |  |  |  |
| UNC                        |   |  |   |   |  |   |  |  |  |  |  |  |  |
| UNF                        |   |  |   |   |  |   |  |  |  |  |  |  |  |
| G                          |   |  |   |   |  |   |  |  |  |  |  |  |  |
| Rp, R, Rc                  |   |  |   |   |  |   |  |  |  |  |  |  |  |
| NPT, NPTF                  |   |  |   |   |  |   |  |  |  |  |  |  |  |
| BSW                        |   |  |   |   |  |   |  |  |  |  |  |  |  |
| Pg                         |   |  |   |   |  |   |  |  |  |  |  |  |  |
| MJ<br>UNJC, UNJF           |   |  |   |   |  |   |  |  |  |  |  |  |  |
| EG (STI)                   |   | Toleranz · Tolerance<br>Beschichtung · Coating                             | 6g *)   | 4h  | 6e   | 6g  |  |  |  |  |  |  |  |
| SELF-LOCK                  |   |  |   |   |  | LH  |  |  |  |  |  |  |  |
| Tr, Tr-F<br>Rd             |   |  | G-GUT-LR  | G-GUT-LR  | G-GUT-LR   | G-GUT-LR<br>LH  |  |  |  |  |  |  |  |
| Glatt<br>Smooth            | $\varnothing d_1$<br>mm   | P<br>mm  |   |   |  |   |  |  |  |  |  |  |  |
| M                          | 1   | 0,25   | L0200500.0010   |   |  |   |  |  |  |  |  |  |  |
|                            | 1,1   | 0,25   | L0200500.0011   |   |  |   |  |  |  |  |  |  |  |
|                            | 1,2   | 0,25   | L0200500.0012   |   |  |   |  |  |  |  |  |  |  |
|                            | 1,4   | 0,3  | L0200500.0014   |   |  |   |  |  |  |  |  |  |  |
| GT, TD                     | 1,6   | 0,35   | L0200500.0016   |   |  |   |  |  |  |  |  |  |  |
|                            | 1,7   | 0,35   | L0200500.0017   |   |  |   |  |  |  |  |  |  |  |
| Zubehör<br>Accessories     | 1,8   | 0,35   | L0200500.0018   |   |  |   |  |  |  |  |  |  |  |
|                            | 2   | 0,4  | L0200500.0020   | L0200510.0020   | L0200530.0020  | L0200550.0020   |  |  |  |  |  |  |  |
|                            | 2,2   | 0,45   | L0200500.0022   | L0200510.0022   | L0200530.0022  | L0200550.0022   |  |  |  |  |  |  |  |
| PoCoSys                    | 2,3   | 0,4  | L0200500.0023   |   |  | L0200550.0023   |  |  |  |  |  |  |  |
|                            | 2,5   | 0,45   | L0200500.0025   | L0200510.0025   | L0200530.0025  | L0200550.0025   |  |  |  |  |  |  |  |
| Kalibrieren<br>Calibration | 2,6   | 0,45   | L0200500.0026   |   |  | L0200550.0026   |  |  |  |  |  |  |  |
|                            | 3   | 0,5  | L0200500.0030   | L0200510.0030   | L0200530.0030  | L0200550.0030   |  |  |  |  |  |  |  |
|                            | 3,5   | 0,6  | L0200500.0035   | L0200510.0035   | L0200530.0035  | L0200550.0035   |  |  |  |  |  |  |  |
|                            | 4   | 0,7  | L0200500.0040   | L0200510.0040   | L0200530.0040  | L0200550.0040   |  |  |  |  |  |  |  |
|                            | 4,5   | 0,75   | L0200500.0045   |   |  |   |  |  |  |  |  |  |  |
|                            | 5   | 0,8  | L0200500.0050   | L0200510.0050   | L0200530.0050  | L0200550.0050   |  |  |  |  |  |  |  |
|                            | 6   | 1  | L0200500.0060   | L0200510.0060   | L0200530.0060  | L0200550.0060   |  |  |  |  |  |  |  |
|                            | 7   | 1  | L0200500.0070   |   |  | L0200550.0070   |  |  |  |  |  |  |  |
|                            | 8   | 1,25   | L0200500.0080   | L0200510.0080   | L0200530.0080  | L0200550.0080   |  |  |  |  |  |  |  |
|                            | 9   | 1,25   | L0200500.0090   |   |  |   |  |  |  |  |  |  |  |
|                            | 10  | 1,5  | L0200500.0100   | L0200510.0100   | L0200530.0100  | L0200550.0100   |  |  |  |  |  |  |  |
|                            | 11  | 1,5  | L0200500.0111   |   |  |   |  |  |  |  |  |  |  |
|                            | 12  | 1,75   | L0200500.0112   | L0200510.0112   | L0200530.0112  | L0200550.0112   |  |  |  |  |  |  |  |
|                            | 14  | 2  | L0200500.0114   | L0200510.0114   | L0200530.0114  | L0200550.0114   |  |  |  |  |  |  |  |
|                            | 16  | 2  | L0200500.0116   | L0200510.0116   | L0200530.0116  | L0200550.0116   |  |  |  |  |  |  |  |
|                            | 18  | 2,5  | L0200500.0118   | L0200510.0118   | L0200530.0118  | L0200550.0118   |  |  |  |  |  |  |  |
|                            | 20  | 2,5  | L0200500.0120   | L0200510.0120   | L0200530.0120  | L0200550.0120   |  |  |  |  |  |  |  |
|                            | 22  | 2,5  | L0200500.0122   | L0200510.0122   | L0200530.0122  | L0200550.0122   |  |  |  |  |  |  |  |
|                            | 24  | 3  | L0200500.0124   | L0200510.0124   | L0200530.0124  | L0200550.0124   |  |  |  |  |  |  |  |
|                            | 27  | 3  | L0200500.0127   |   |  |   |  |  |  |  |  |  |  |
|                            | 30  | 3,5  | L0200500.0130   |   |  |   |  |  |  |  |  |  |  |
|                            | 33  | 3,5  | L0200500.0133   |   |  |   |  |  |  |  |  |  |  |
|                            | 36  | 4  | L0200500.0136   |   |  |   |  |  |  |  |  |  |  |
|                            | 39  | 4  | L0200500.0139   |   |  |   |  |  |  |  |  |  |  |
|                            | 42  | 4,5  | L0200500.0142   |   |  |   |  |  |  |  |  |  |  |
|                            | 45  | 4,5  | L0200500.0145   |   |  |   |  |  |  |  |  |  |  |
|                            | 48  | 5  | L0200500.0148   |   |  |   |  |  |  |  |  |  |  |
|                            | 52  | 5  | L0200500.0152   |   |  |   |  |  |  |  |  |  |  |
|                            | 56  | 5,5  | L0200500.0156   |   |  |   |  |  |  |  |  |  |  |
|                            | 60  | 5,5  | L0200500.0160   |   |  |   |  |  |  |  |  |  |  |
|                            | 64  | 6  | L0200500.0164   |   |  |   |  |  |  |  |  |  |  |
|                            | 68  | 6  | L0200500.0168   |   |  |   |  |  |  |  |  |  |  |

\*) ≤ M1,4 Tol. 6h



**M**



DIN 13

Lehrenmaße nach DIN ISO 1502  
Gauge dimensions acc. DIN ISO 1502



Toleranz · Tolerance  
Beschichtung · Coating

6g \*)

4h

6e

6g

LH

G-AUS-LR

G-AUS-LR

G-AUS-LR

G-AUS-LR  
LH

ø d<sub>1</sub>  
mm

P  
mm

|          |     |      |               |               |               |               |
|----------|-----|------|---------------|---------------|---------------|---------------|
| <b>M</b> | 1   | 0,25 | L0300500.0010 |               |               |               |
|          | 1,1 | 0,25 | L0300500.0011 |               |               |               |
|          | 1,2 | 0,25 | L0300500.0012 |               |               |               |
|          | 1,4 | 0,3  | L0300500.0014 |               |               |               |
|          | 1,6 | 0,35 | L0300500.0016 |               |               |               |
|          | 1,7 | 0,35 | L0300500.0017 |               |               |               |
|          | 1,8 | 0,35 | L0300500.0018 |               |               |               |
|          | 2   | 0,4  | L0300500.0020 | L0300510.0020 | L0300530.0020 | L0300550.0020 |
|          | 2,2 | 0,45 | L0300500.0022 | L0300510.0022 | L0300530.0022 | L0300550.0022 |
|          | 2,3 | 0,4  | L0300500.0023 |               |               | L0300550.0023 |
|          | 2,5 | 0,45 | L0300500.0025 | L0300510.0025 | L0300530.0025 | L0300550.0025 |
|          | 2,6 | 0,45 | L0300500.0026 |               |               | L0300550.0026 |
|          | 3   | 0,5  | L0300500.0030 | L0300510.0030 | L0300530.0030 | L0300550.0030 |
|          | 3,5 | 0,6  | L0300500.0035 | L0300510.0035 | L0300530.0035 | L0300550.0035 |
|          | 4   | 0,7  | L0300500.0040 | L0300510.0040 | L0300530.0040 | L0300550.0040 |
|          | 4,5 | 0,75 | L0300500.0045 |               |               |               |
|          | 5   | 0,8  | L0300500.0050 | L0300510.0050 | L0300530.0050 | L0300550.0050 |
|          | 6   | 1    | L0300500.0060 | L0300510.0060 | L0300530.0060 | L0300550.0060 |
|          | 7   | 1    | L0300500.0070 |               |               | L0300550.0070 |
|          | 8   | 1,25 | L0300500.0080 | L0300510.0080 | L0300530.0080 | L0300550.0080 |
|          | 9   | 1,25 | L0300500.0090 |               |               |               |
|          | 10  | 1,5  | L0300500.0100 | L0300510.0100 | L0300530.0100 | L0300550.0100 |
|          | 11  | 1,5  | L0300500.0111 |               |               |               |
|          | 12  | 1,75 | L0300500.0112 | L0300510.0112 | L0300530.0112 | L0300550.0112 |
|          | 14  | 2    | L0300500.0114 | L0300510.0114 | L0300530.0114 | L0300550.0114 |
|          | 16  | 2    | L0300500.0116 | L0300510.0116 | L0300530.0116 | L0300550.0116 |
|          | 18  | 2,5  | L0300500.0118 | L0300510.0118 | L0300530.0118 | L0300550.0118 |
|          | 20  | 2,5  | L0300500.0120 | L0300510.0120 | L0300530.0120 | L0300550.0120 |
|          | 22  | 2,5  | L0300500.0122 | L0300510.0122 | L0300530.0122 | L0300550.0122 |
|          | 24  | 3    | L0300500.0124 | L0300510.0124 | L0300530.0124 | L0300550.0124 |
|          | 27  | 3    | L0300500.0127 |               |               |               |
|          | 30  | 3,5  | L0300500.0130 |               |               |               |
|          | 33  | 3,5  | L0300500.0133 |               |               |               |
|          | 36  | 4    | L0300500.0136 |               |               |               |
|          | 39  | 4    | L0300500.0139 |               |               |               |
|          | 42  | 4,5  | L0300500.0142 |               |               |               |
|          | 45  | 4,5  | L0300500.0145 |               |               |               |
|          | 48  | 5    | L0300500.0148 |               |               |               |
|          | 52  | 5    | L0300500.0152 |               |               |               |
|          | 56  | 5,5  | L0300500.0156 |               |               |               |
|          | 60  | 5,5  | L0300500.0160 |               |               |               |
|          | 64  | 6    | L0300500.0164 |               |               |               |
|          | 68  | 6    | L0300500.0168 |               |               |               |

\*) ≤ M1,4 Tol. 6h

Product  
Finder

M

MF

UNC

UNF

Rp, R, Rc

NPT, NPTF

BSW

Pg

MJ

UNJC, UNJF

EG (STI)

SELF-LOCK

Tr, Tr-F  
Rd

Glatt  
Smooth

GT, TD

Zubehör  
Accessories

PoCoSys

Kalibrieren  
Calibration



|                         |
|-------------------------|
| Product Finder          |
| M                       |
| MF                      |
| UNC                     |
| UNF                     |
| G                       |
| Rp, R, Rc               |
| NPT, NPTF               |
| BSW                     |
| Pg                      |
| MJ UNJC, UNJF           |
| EG (STI)                |
| SELF-LOCK               |
| Tr, Tr-F Rd             |
| Glatt Smooth            |
| GT, TD                  |
| Zubehör Accessories     |
| PoCoSys                 |
| Kalibrieren Calibration |

# MF

DIN 13



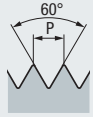
Lehrenmaße nach  
DIN ISO 1502  
Gauge dimensions  
acc. DIN ISO 1502

|                            |     | Toleranz · Tolerance   |                  | Beschichtung · Coating |               |               |               |               |               |               |  |
|----------------------------|-----|------------------------|------------------|------------------------|---------------|---------------|---------------|---------------|---------------|---------------|--|
|                            |     | 6H                     | 6H <sup>1)</sup> | 4H                     | 6G            | 6H            | 4H            | 6G            |               |               |  |
|                            |     |                        |                  | TIN                    |               |               |               |               |               | LH            |  |
|                            |     | G-GR-LD                |                  | G-GR-LD                |               | G-GR-LD       |               | G-GR-LD       |               | G-GR-LD LH    |  |
|                            |     | TIN                    |                  | LH                     |               | LH            |               | LH            |               | LH            |  |
|                            |     | ø d <sub>1</sub><br>mm | P<br>mm          |                        |               |               |               |               |               |               |  |
| M                          | 2   | x                      | 0,25             |                        |               |               |               |               |               |               |  |
|                            | 2,2 | x                      | 0,25             |                        |               | L0100110.0186 |               |               |               |               |  |
| Smooth                     | 2,3 | x                      | 0,25             |                        |               | L0100110.0189 |               |               |               |               |  |
|                            | 2,5 | x                      | 0,25             |                        |               | L0100110.0192 |               |               |               |               |  |
| GT, TD                     | 2,5 | x                      | 0,35             | L0100100.0196          |               |               |               |               |               |               |  |
|                            | 2,6 | x                      | 0,35             | L0100100.0199          |               |               |               |               |               |               |  |
| Zubehör<br>Accessories     | 3   | x                      | 0,35             | L0100100.0202          |               |               |               |               | L0100150.0202 |               |  |
|                            | 3,5 | x                      | 0,35             | L0100100.0205          |               |               |               |               | L0100150.0205 |               |  |
| PoCoSys                    | 4   | x                      | 0,35             | L0100100.0209          |               |               |               |               | L0100150.0209 |               |  |
|                            | 4   | x                      | 0,5              | L0100100.0210          |               | L0100110.0210 | L0100120.0210 | L0100150.0210 |               |               |  |
| Kalibrieren<br>Calibration | 4,5 | x                      | 0,5              | L0100100.0214          |               |               |               |               |               |               |  |
|                            | 5   | x                      | 0,5              | L0100100.0218          |               | L0100110.0218 | L0100120.0218 | L0100150.0218 |               |               |  |
|                            | 6   | x                      | 0,5              | L0100100.0228          |               | L0100110.0228 | L0100120.0228 | L0100150.0228 |               |               |  |
|                            | 6   | x                      | 0,75             | L0100100.0229          |               | L0100110.0229 | L0100120.0229 | L0100150.0229 |               |               |  |
|                            | 7   | x                      | 0,75             | L0100100.0239          |               |               |               |               |               |               |  |
|                            | 8   | x                      | 0,5              | L0100100.0249          |               |               |               |               |               |               |  |
|                            | 8   | x                      | 0,75             | L0100100.0250          |               | L0100110.0250 | L0100120.0250 | L0100150.0250 |               |               |  |
|                            | 8   | x                      | 1                | L0100100.0251          | L0105100.0251 | L0100110.0251 | L0100120.0251 | L0100150.0251 | L0100160.0251 | L0100170.0251 |  |
|                            | 9   | x                      | 1                | L0100100.0263          |               | L0100110.0263 | L0100120.0263 | L0100150.0263 | L0100160.0263 | L0100170.0263 |  |
|                            | 10  | x                      | 0,75             | L0100100.0275          |               |               |               |               |               |               |  |
|                            | 10  | x                      | 1                | L0100100.0276          | L0105100.0276 | L0100110.0276 | L0100120.0276 | L0100150.0276 | L0100160.0276 | L0100170.0276 |  |
|                            | 10  | x                      | 1,25             | L0100100.0277          |               | L0100110.0277 | L0100120.0277 |               |               |               |  |
|                            | 11  | x                      | 1                | L0100100.0288          |               | L0100110.0288 | L0100120.0288 | L0100150.0288 | L0100160.0288 | L0100170.0288 |  |
|                            | 12  | x                      | 1                | L0100100.0301          | L0105100.0301 | L0100110.0301 | L0100120.0301 | L0100150.0301 | L0100160.0301 | L0100170.0301 |  |
|                            | 12  | x                      | 1,25             | L0100100.0302          |               |               |               |               |               |               |  |
|                            | 12  | x                      | 1,5              | L0100100.0303          | L0105100.0303 | L0100110.0303 | L0100120.0303 | L0100150.0303 | L0100160.0303 | L0100170.0303 |  |
|                            | 13  | x                      | 1                | L0100100.0315          |               | L0100110.0315 | L0100120.0315 | L0100150.0315 | L0100160.0315 | L0100170.0315 |  |
|                            | 13  | x                      | 1,5              | L0100100.0317          |               | L0100110.0317 | L0100120.0317 | L0100150.0317 | L0100160.0317 | L0100170.0317 |  |
|                            | 14  | x                      | 1                | L0100100.0329          |               | L0100110.0329 | L0100120.0329 | L0100150.0329 | L0100160.0329 | L0100170.0329 |  |
|                            | 14  | x                      | 1,25             | L0100100.0330          |               |               |               |               |               |               |  |
|                            | 14  | x                      | 1,5              | L0100100.0331          | L0105100.0331 | L0100110.0331 | L0100120.0331 | L0100150.0331 | L0100160.0331 | L0100170.0331 |  |
|                            | 15  | x                      | 1                | L0100100.0343          |               | L0100110.0343 | L0100120.0343 | L0100150.0343 | L0100160.0343 | L0100170.0343 |  |
|                            | 15  | x                      | 1,5              | L0100100.0345          |               | L0100110.0345 | L0100120.0345 | L0100150.0345 | L0100160.0345 | L0100170.0345 |  |
|                            | 16  | x                      | 1                | L0100100.0357          |               | L0100110.0357 | L0100120.0357 | L0100150.0357 | L0100160.0357 | L0100170.0357 |  |
|                            | 16  | x                      | 1,5              | L0100100.0359          | L0105100.0359 | L0100110.0359 | L0100120.0359 | L0100150.0359 | L0100160.0359 | L0100170.0359 |  |
|                            | 17  | x                      | 1                | L0100100.0372          |               | L0100110.0372 | L0100120.0372 | L0100150.0372 | L0100160.0372 | L0100170.0372 |  |
|                            | 17  | x                      | 1,5              | L0100100.0374          |               | L0100110.0374 | L0100120.0374 | L0100150.0374 | L0100160.0374 | L0100170.0374 |  |
|                            | 18  | x                      | 1                | L0100100.0388          |               | L0100110.0388 | L0100120.0388 | L0100150.0388 | L0100160.0388 | L0100170.0388 |  |
|                            | 18  | x                      | 1,5              | L0100100.0390          | L0105100.0390 | L0100110.0390 | L0100120.0390 | L0100150.0390 | L0100160.0390 | L0100170.0390 |  |
|                            | 18  | x                      | 2                | L0100100.0391          |               |               |               |               |               |               |  |
|                            | 19  | x                      | 1                | L0100100.0404          |               | L0100110.0404 | L0100120.0404 | L0100150.0404 | L0100160.0404 | L0100170.0404 |  |
|                            | 20  | x                      | 1                | L0100100.0420          |               | L0100110.0420 | L0100120.0420 | L0100150.0420 | L0100160.0420 | L0100170.0420 |  |
|                            | 20  | x                      | 1,5              | L0100100.0422          | L0105100.0422 | L0100110.0422 | L0100120.0422 | L0100150.0422 | L0100160.0422 | L0100170.0422 |  |
|                            | 20  | x                      | 2                | L0100100.0423          |               | L0100110.0423 | L0100120.0423 | L0100150.0423 | L0100160.0423 | L0100170.0423 |  |
|                            | 21  | x                      | 1                | L0100100.0428          |               | L0100110.0428 | L0100120.0428 | L0100150.0428 | L0100160.0428 | L0100170.0428 |  |
|                            | 22  | x                      | 1                | L0100100.0436          |               | L0100110.0436 | L0100120.0436 | L0100150.0436 | L0100160.0436 | L0100170.0436 |  |
|                            | 22  | x                      | 1,5              | L0100100.0438          |               | L0100110.0438 | L0100120.0438 | L0100150.0438 | L0100160.0438 | L0100170.0438 |  |
|                            | 22  | x                      | 2                | L0100100.0439          |               | L0100110.0439 | L0100120.0439 | L0100150.0439 | L0100160.0439 | L0100170.0439 |  |
|                            | 23  | x                      | 1                | L0100100.0443          |               | L0100110.0443 | L0100120.0443 | L0100150.0443 | L0100160.0443 | L0100170.0443 |  |
|                            | 24  | x                      | 1                | L0100100.0450          |               | L0100110.0450 | L0100120.0450 | L0100150.0450 | L0100160.0450 | L0100170.0450 |  |
|                            | 24  | x                      | 1,5              | L0100100.0452          |               | L0100110.0452 | L0100120.0452 | L0100150.0452 | L0100160.0452 | L0100170.0452 |  |
|                            | 24  | x                      | 2                | L0100100.0453          |               | L0100110.0453 | L0100120.0453 | L0100150.0453 | L0100160.0453 | L0100170.0453 |  |
|                            | 25  | x                      | 1                | L0100100.0456          |               | L0100110.0456 | L0100120.0456 | L0100150.0456 | L0100160.0456 | L0100170.0456 |  |
|                            | 25  | x                      | 1,5              | L0100100.0458          |               | L0100110.0458 | L0100120.0458 | L0100150.0458 | L0100160.0458 | L0100170.0458 |  |
|                            | 25  | x                      | 2                | L0100100.0459          |               | L0100110.0459 | L0100120.0459 | L0100150.0459 | L0100160.0459 | L0100170.0459 |  |
|                            | 26  | x                      | 1                | L0100100.0462          |               | L0100110.0462 | L0100120.0462 | L0100150.0462 | L0100160.0462 | L0100170.0462 |  |
|                            | 26  | x                      | 1,5              | L0100100.0464          |               | L0100110.0464 | L0100120.0464 | L0100150.0464 | L0100160.0464 | L0100170.0464 |  |
|                            | 26  | x                      | 2                | L0100100.0465          |               | L0100110.0465 | L0100120.0465 | L0100150.0465 | L0100160.0465 | L0100170.0465 |  |

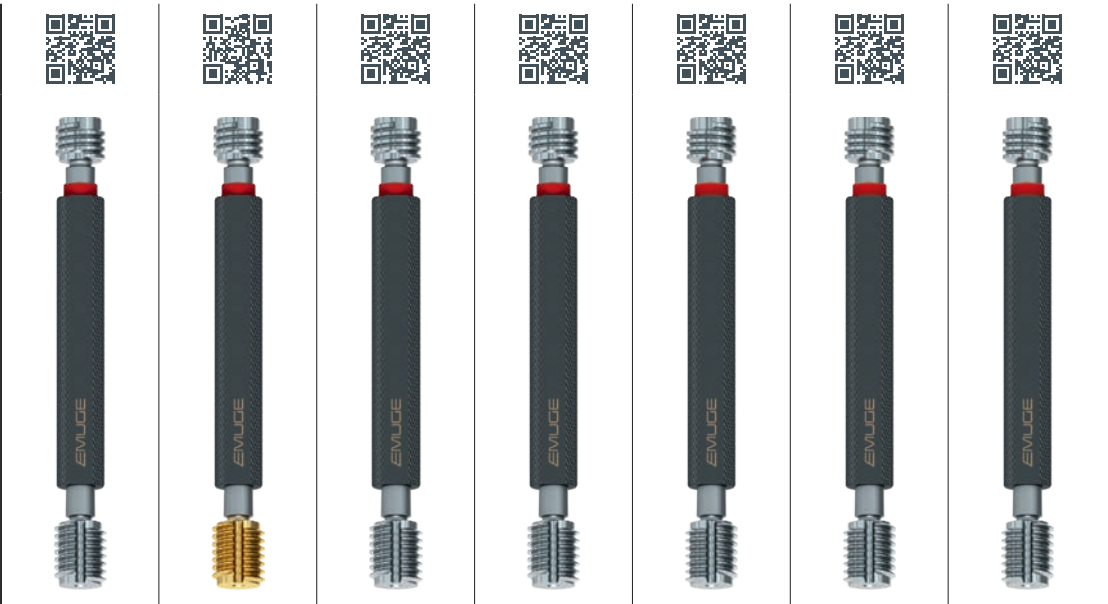


# MF

DIN 13



Lehrenmaße nach  
DIN ISO 1502  
Gauge dimensions  
acc. DIN ISO 1502



| Toleranz · Tolerance   |         |       | 6H            | 6H <sup>1)</sup> | 4H            | 6G            | 6H            | 4H            | 6G            |
|------------------------|---------|-------|---------------|------------------|---------------|---------------|---------------|---------------|---------------|
| Beschichtung · Coating |         |       |               | TIN              |               |               | LH            | LH            | LH            |
| ø d <sub>1</sub><br>mm | P<br>mm |       | G-GR-LD       | G-GR-LD<br>TIN   | G-GR-LD       | G-GR-LD       | G-GR-LD<br>LH | G-GR-LD<br>LH | G-GR-LD<br>LH |
| M                      | 27      | x 1   | L0100100.0468 |                  | L0100110.0468 | L0100120.0468 | L0100150.0468 | L0100160.0468 | L0100170.0468 |
|                        | 27      | x 1,5 | L0100100.0470 |                  | L0100110.0470 | L0100120.0470 | L0100150.0470 | L0100160.0470 | L0100170.0470 |
|                        | 27      | x 2   | L0100100.0471 |                  | L0100110.0471 | L0100120.0471 | L0100150.0471 | L0100160.0471 | L0100170.0471 |
|                        | 28      | x 1   | L0100100.0474 |                  | L0100110.0474 | L0100120.0474 | L0100150.0474 | L0100160.0474 | L0100170.0474 |
|                        | 28      | x 1,5 | L0100100.0476 |                  | L0100110.0476 | L0100120.0476 | L0100150.0476 | L0100160.0476 | L0100170.0476 |
|                        | 28      | x 2   | L0100100.0477 |                  | L0100110.0477 | L0100120.0477 | L0100150.0477 | L0100160.0477 | L0100170.0477 |
|                        | 30      | x 1   | L0100100.0488 |                  | L0100110.0488 | L0100120.0488 | L0100150.0488 | L0100160.0488 | L0100170.0488 |
|                        | 30      | x 1,5 | L0100100.0490 |                  | L0100110.0490 | L0100120.0490 | L0100150.0490 | L0100160.0490 | L0100170.0490 |
|                        | 30      | x 2   | L0100100.0491 |                  | L0100110.0491 | L0100120.0491 | L0100150.0491 | L0100160.0491 | L0100170.0491 |
|                        | 30      | x 3   | L0100100.0492 |                  | L0100110.0492 | L0100120.0492 | L0100150.0492 | L0100160.0492 | L0100170.0492 |
|                        | 32      | x 1   | L0100100.0502 |                  | L0100110.0502 | L0100120.0502 | L0100150.0502 | L0100160.0502 | L0100170.0502 |
|                        | 32      | x 1,5 | L0100100.0504 |                  | L0100110.0504 | L0100120.0504 | L0100150.0504 | L0100160.0504 | L0100170.0504 |
|                        | 32      | x 2   | L0100100.0505 |                  | L0100110.0505 | L0100120.0505 | L0100150.0505 | L0100160.0505 | L0100170.0505 |
|                        | 33      | x 1   | L0100100.0509 |                  | L0100110.0509 | L0100120.0509 | L0100150.0509 | L0100160.0509 | L0100170.0509 |
|                        | 33      | x 1,5 | L0100100.0511 |                  | L0100110.0511 | L0100120.0511 | L0100150.0511 | L0100160.0511 | L0100170.0511 |
|                        | 33      | x 2   | L0100100.0512 |                  | L0100110.0512 | L0100120.0512 | L0100150.0512 | L0100160.0512 | L0100170.0512 |
|                        | 33      | x 3   | L0100100.0513 |                  | L0100110.0513 | L0100120.0513 | L0100150.0513 | L0100160.0513 | L0100170.0513 |
|                        | 34      | x 1   | L0100100.0516 |                  | L0100110.0516 | L0100120.0516 | L0100150.0516 | L0100160.0516 | L0100170.0516 |
|                        | 34      | x 1,5 | L0100100.0518 |                  | L0100110.0518 | L0100120.0518 | L0100150.0518 | L0100160.0518 | L0100170.0518 |
|                        | 34      | x 2   | L0100100.0519 |                  | L0100110.0519 | L0100120.0519 | L0100150.0519 | L0100160.0519 | L0100170.0519 |
|                        | 35      | x 1   | L0100100.0523 |                  | L0100110.0523 | L0100120.0523 | L0100150.0523 | L0100160.0523 | L0100170.0523 |
|                        | 35      | x 1,5 | L0100100.0525 |                  | L0100110.0525 | L0100120.0525 | L0100150.0525 | L0100160.0525 | L0100170.0525 |
|                        | 35      | x 2   | L0100100.0526 |                  | L0100110.0526 | L0100120.0526 | L0100150.0526 | L0100160.0526 | L0100170.0526 |
|                        | 36      | x 1   | L0100100.0530 |                  | L0100110.0530 | L0100120.0530 | L0100150.0530 | L0100160.0530 | L0100170.0530 |
|                        | 36      | x 1,5 | L0100100.0532 |                  | L0100110.0532 | L0100120.0532 | L0100150.0532 | L0100160.0532 | L0100170.0532 |
|                        | 36      | x 2   | L0100100.0533 |                  | L0100110.0533 | L0100120.0533 | L0100150.0533 | L0100160.0533 | L0100170.0533 |
|                        | 36      | x 3   | L0100100.0534 |                  | L0100110.0534 | L0100120.0534 | L0100150.0534 | L0100160.0534 | L0100170.0534 |
|                        | 38      | x 1   | L0100100.0544 |                  | L0100110.0544 | L0100120.0544 | L0100150.0544 | L0100160.0544 | L0100170.0544 |
|                        | 38      | x 1,5 | L0100100.0546 |                  | L0100110.0546 | L0100120.0546 | L0100150.0546 | L0100160.0546 | L0100170.0546 |
|                        | 38      | x 2   | L0100100.0547 |                  | L0100110.0547 | L0100120.0547 | L0100150.0547 | L0100160.0547 | L0100170.0547 |
|                        | 39      | x 1   | L0100100.0551 |                  | L0100110.0551 | L0100120.0551 | L0100150.0551 | L0100160.0551 | L0100170.0551 |
|                        | 39      | x 1,5 | L0100100.0553 |                  | L0100110.0553 | L0100120.0553 | L0100150.0553 | L0100160.0553 | L0100170.0553 |
|                        | 39      | x 2   | L0100100.0554 |                  | L0100110.0554 | L0100120.0554 | L0100150.0554 | L0100160.0554 | L0100170.0554 |
|                        | 39      | x 3   | L0100100.0555 |                  | L0100110.0555 | L0100120.0555 | L0100150.0555 | L0100160.0555 | L0100170.0555 |
|                        | 40      | x 1   | L0100100.0558 |                  | L0100110.0558 | L0100120.0558 | L0100150.0558 | L0100160.0558 | L0100170.0558 |
|                        | 40      | x 1,5 | L0100100.0560 |                  | L0100110.0560 | L0100120.0560 | L0100150.0560 | L0100160.0560 | L0100170.0560 |
|                        | 40      | x 2   | L0100100.0561 |                  | L0100110.0561 | L0100120.0561 | L0100150.0561 | L0100160.0561 | L0100170.0561 |
|                        | 40      | x 3   | L0100100.0562 |                  | L0100110.0562 | L0100120.0562 | L0100150.0562 | L0100160.0562 | L0100170.0562 |

> ø 40 nur als Einzellehrdorne erhältlich (G-GUT-LD, G-AUS-LD) siehe Seite 552 - 559  
available only as separate plug gauges (G-GUT-LD, G-AUS-LD), see page 552 - 559

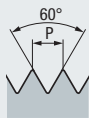
<sup>1)</sup> Toleranz „4H“ und „6G“ auf Anfrage  
Tolerance “4H” and “6G” upon request

- Product Finder
- M
- MF**
- UNC
- UNF
- Rp, R, Rc
- NPT, NPTF
- BSW
- Pg
- MJ
- UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F  
Rd
- Glatt  
Smooth
- GT, TD
- Zubehör  
Accessories
- PoCoSys
- Kalibrieren  
Calibration



- Product Finder
- M
- MF**
- UNC
- UNF
- G
- Rp, R, Rc
- NPT, NPTF
- BSW
- Pg
- MJ
- UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F
- Rd
- Glatt
- Smooth
- GT, TD
- Zubehör
- Accessories
- PoCoSys
- Kalibrieren
- Calibration

# MF



DIN 13

Lehrenmaße nach DIN ISO 1502  
Gauge dimensions acc. DIN ISO 1502



Toleranz · Tolerance  
Beschichtung · Coating

6H

6H

4H

6G

6H

4H

TIN

LH

LH

G-GUT-LD

G-GUT-LD

G-GUT-LD

G-GUT-LD

G-GUT-LD

G-GUT-LD

| Tr, Tr-F<br>Rd | M | ø d <sub>1</sub><br>mm | P<br>mm | G-GUT-LD |  | G-GUT-LD |  | G-GUT-LD |  | G-GUT-LD |  | G-GUT-LD |  | G-GUT-LD |  |
|----------------|---|------------------------|---------|----------|--|----------|--|----------|--|----------|--|----------|--|----------|--|
|                |   |                        |         |          |  |          |  |          |  |          |  |          |  |          |  |
|                |   | 2                      | x 0,25  |          |  |          |  |          |  |          |  |          |  |          |  |
|                |   | 2,2                    | x 0,25  |          |  |          |  |          |  |          |  |          |  |          |  |
|                |   | 2,3                    | x 0,25  |          |  |          |  |          |  |          |  |          |  |          |  |
|                |   | 2,5                    | x 0,35  |          |  |          |  |          |  |          |  |          |  |          |  |
|                |   | 2,6                    | x 0,35  |          |  |          |  |          |  |          |  |          |  |          |  |
|                |   | 3                      | x 0,35  |          |  |          |  |          |  |          |  |          |  |          |  |
|                |   | 3,5                    | x 0,35  |          |  |          |  |          |  |          |  |          |  |          |  |
|                |   | 4                      | x 0,35  |          |  |          |  |          |  |          |  |          |  |          |  |
|                |   | 4                      | x 0,5   |          |  |          |  |          |  |          |  |          |  |          |  |
|                |   | 4,5                    | x 0,5   |          |  |          |  |          |  |          |  |          |  |          |  |
|                |   | 5                      | x 0,5   |          |  |          |  |          |  |          |  |          |  |          |  |
|                |   | 6                      | x 0,5   |          |  |          |  |          |  |          |  |          |  |          |  |
|                |   | 6                      | x 0,75  |          |  |          |  |          |  |          |  |          |  |          |  |
|                |   | 7                      | x 0,75  |          |  |          |  |          |  |          |  |          |  |          |  |
|                |   | 8                      | x 0,5   |          |  |          |  |          |  |          |  |          |  |          |  |
|                |   | 8                      | x 0,75  |          |  |          |  |          |  |          |  |          |  |          |  |
|                |   | 8                      | x 1     |          |  |          |  |          |  |          |  |          |  |          |  |
|                |   | 9                      | x 1     |          |  |          |  |          |  |          |  |          |  |          |  |
|                |   | 10                     | x 0,75  |          |  |          |  |          |  |          |  |          |  |          |  |
|                |   | 10                     | x 1     |          |  |          |  |          |  |          |  |          |  |          |  |
|                |   | 10                     | x 1,25  |          |  |          |  |          |  |          |  |          |  |          |  |
|                |   | 11                     | x 1     |          |  |          |  |          |  |          |  |          |  |          |  |
|                |   | 12                     | x 1     |          |  |          |  |          |  |          |  |          |  |          |  |
|                |   | 12                     | x 1,25  |          |  |          |  |          |  |          |  |          |  |          |  |
|                |   | 12                     | x 1,5   |          |  |          |  |          |  |          |  |          |  |          |  |
|                |   | 13                     | x 1     |          |  |          |  |          |  |          |  |          |  |          |  |
|                |   | 13                     | x 1,5   |          |  |          |  |          |  |          |  |          |  |          |  |
|                |   | 14                     | x 1     |          |  |          |  |          |  |          |  |          |  |          |  |
|                |   | 14                     | x 1,25  |          |  |          |  |          |  |          |  |          |  |          |  |
|                |   | 14                     | x 1,5   |          |  |          |  |          |  |          |  |          |  |          |  |
|                |   | 15                     | x 1     |          |  |          |  |          |  |          |  |          |  |          |  |
|                |   | 15                     | x 1,5   |          |  |          |  |          |  |          |  |          |  |          |  |
|                |   | 16                     | x 1     |          |  |          |  |          |  |          |  |          |  |          |  |
|                |   | 16                     | x 1,5   |          |  |          |  |          |  |          |  |          |  |          |  |
|                |   | 17                     | x 1     |          |  |          |  |          |  |          |  |          |  |          |  |
|                |   | 17                     | x 1,5   |          |  |          |  |          |  |          |  |          |  |          |  |
|                |   | 18                     | x 1     |          |  |          |  |          |  |          |  |          |  |          |  |
|                |   | 18                     | x 1,5   |          |  |          |  |          |  |          |  |          |  |          |  |
|                |   | 18                     | x 2     |          |  |          |  |          |  |          |  |          |  |          |  |
|                |   | 19                     | x 1     |          |  |          |  |          |  |          |  |          |  |          |  |
|                |   | 20                     | x 1     |          |  |          |  |          |  |          |  |          |  |          |  |
|                |   | 20                     | x 1,5   |          |  |          |  |          |  |          |  |          |  |          |  |
|                |   | 20                     | x 2     |          |  |          |  |          |  |          |  |          |  |          |  |
|                |   | 21                     | x 1     |          |  |          |  |          |  |          |  |          |  |          |  |
|                |   | 22                     | x 1     |          |  |          |  |          |  |          |  |          |  |          |  |
|                |   | 22                     | x 1,5   |          |  |          |  |          |  |          |  |          |  |          |  |
|                |   | 22                     | x 2     |          |  |          |  |          |  |          |  |          |  |          |  |
|                |   | 23                     | x 1     |          |  |          |  |          |  |          |  |          |  |          |  |
|                |   | 24                     | x 1     |          |  |          |  |          |  |          |  |          |  |          |  |
|                |   | 24                     | x 1,5   |          |  |          |  |          |  |          |  |          |  |          |  |
|                |   | 24                     | x 2     |          |  |          |  |          |  |          |  |          |  |          |  |
|                |   | 25                     | x 1     |          |  |          |  |          |  |          |  |          |  |          |  |
|                |   | 25                     | x 1,5   |          |  |          |  |          |  |          |  |          |  |          |  |
|                |   | 25                     | x 2     |          |  |          |  |          |  |          |  |          |  |          |  |
|                |   | 26                     | x 1     |          |  |          |  |          |  |          |  |          |  |          |  |
|                |   | 26                     | x 1,5   |          |  |          |  |          |  |          |  |          |  |          |  |
|                |   | 26                     | x 2     |          |  |          |  |          |  |          |  |          |  |          |  |

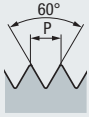


| Product Finder             |               |               |               |                |                |                |
|----------------------------|---------------|---------------|---------------|----------------|----------------|----------------|
| M                          |               |               |               |                |                |                |
| MF                         |               |               |               |                |                |                |
| UNC                        |               |               |               |                |                |                |
| UNF                        |               |               |               |                |                |                |
| Rp, R, Rc                  |               |               |               |                |                |                |
| NPT, NPTF                  |               |               |               |                |                |                |
| BSW                        |               |               |               |                |                |                |
| Pg                         |               |               |               |                |                |                |
| MJ<br>UNJC, UNJF           |               |               |               |                |                |                |
| EG (STI)                   |               |               |               |                |                |                |
| SELF-LOCK                  |               |               |               |                |                |                |
| Tr, Tr-F<br>Rd             |               |               |               |                |                |                |
| Glatt<br>Smooth            |               |               |               |                |                |                |
| GT, TD                     |               |               |               |                |                |                |
| Zubehör<br>Accessories     |               |               |               |                |                |                |
| PoCoSys                    |               |               |               |                |                |                |
| Kalibrieren<br>Calibration |               |               |               |                |                |                |
|                            |               |               |               |                |                |                |
|                            |               |               |               |                |                |                |
| 6G                         | 6H            | 4H            | 6G            | 6H             | 4H             | 6G             |
| LH                         |               |               |               | LH             | LH             | LH             |
| G-GUT-LD<br>LH             | G-AUS-LD      | G-AUS-LD      | G-AUS-LD      | G-AUS-LD<br>LH | G-AUS-LD<br>LH | G-AUS-LD<br>LH |
|                            |               |               |               |                |                | M 2 x 0,25     |
|                            |               |               |               |                |                | 2,2 x 0,25     |
|                            |               |               |               |                |                | 2,3 x 0,25     |
|                            | L0140100.0196 |               |               |                |                | 2,5 x 0,35     |
|                            | L0140100.0199 |               |               |                |                | 3 x 0,35       |
|                            | L0140100.0202 |               |               |                |                | 3,5 x 0,35     |
|                            | L0140100.0205 |               |               |                |                | 4 x 0,35       |
|                            | L0140100.0209 |               |               |                |                | 4 x 0,5        |
|                            | L0140100.0210 |               |               |                |                | 4,5 x 0,5      |
|                            | L0140100.0214 |               |               |                |                | 5 x 0,5        |
|                            | L0140100.0218 |               |               |                |                | 6 x 0,5        |
|                            | L0140100.0228 |               |               |                |                | 6 x 0,75       |
|                            | L0140100.0229 |               |               |                |                | 7 x 0,75       |
|                            | L0140100.0239 |               |               |                |                | 8 x 0,5        |
|                            | L0140100.0249 |               |               |                |                | 8 x 0,75       |
|                            | L0140100.0250 |               |               |                |                | 8 x 1          |
| L0120170.0251              | L0140100.0251 | L0140110.0251 | L0140120.0251 | L0140150.0251  | L0140160.0251  | L0140170.0251  |
| L0120170.0263              | L0140100.0263 | L0140110.0263 | L0140120.0263 | L0140150.0263  | L0140160.0263  | L0140170.0263  |
|                            | L0140100.0275 |               |               |                |                | 10 x 0,75      |
| L0120170.0276              | L0140100.0276 | L0140110.0276 | L0140120.0276 | L0140150.0276  | L0140160.0276  | L0140170.0276  |
|                            | L0140100.0277 |               |               |                |                | 10 x 1         |
|                            |               |               |               |                |                | 10 x 1,25      |
| L0120170.0288              | L0140100.0288 | L0140110.0288 | L0140120.0288 | L0140150.0288  | L0140160.0288  | L0140170.0288  |
| L0120170.0301              | L0140100.0301 | L0140110.0301 | L0140120.0301 | L0140150.0301  | L0140160.0301  | L0140170.0301  |
|                            | L0140100.0302 |               |               |                |                | 11 x 1         |
|                            |               |               |               |                |                | 12 x 1         |
|                            |               |               |               |                |                | 12 x 1,25      |
| L0120170.0303              | L0140100.0303 | L0140110.0303 | L0140120.0303 | L0140150.0303  | L0140160.0303  | L0140170.0303  |
| L0120170.0315              | L0140100.0315 | L0140110.0315 | L0140120.0315 | L0140150.0315  | L0140160.0315  | L0140170.0315  |
| L0120170.0317              | L0140100.0317 | L0140110.0317 | L0140120.0317 | L0140150.0317  | L0140160.0317  | L0140170.0317  |
| L0120170.0329              | L0140100.0329 | L0140110.0329 | L0140120.0329 | L0140150.0329  | L0140160.0329  | L0140170.0329  |
|                            | L0140100.0330 |               |               |                |                | 14 x 1         |
| L0120170.0331              | L0140100.0331 | L0140110.0331 | L0140120.0331 | L0140150.0331  | L0140160.0331  | L0140170.0331  |
| L0120170.0343              | L0140100.0343 | L0140110.0343 | L0140120.0343 | L0140150.0343  | L0140160.0343  | L0140170.0343  |
| L0120170.0345              | L0140100.0345 | L0140110.0345 | L0140120.0345 | L0140150.0345  | L0140160.0345  | L0140170.0345  |
| L0120170.0357              | L0140100.0357 | L0140110.0357 | L0140120.0357 | L0140150.0357  | L0140160.0357  | L0140170.0357  |
| L0120170.0359              | L0140100.0359 | L0140110.0359 | L0140120.0359 | L0140150.0359  | L0140160.0359  | L0140170.0359  |
| L0120170.0372              | L0140100.0372 | L0140110.0372 | L0140120.0372 | L0140150.0372  | L0140160.0372  | L0140170.0372  |
| L0120170.0374              | L0140100.0374 | L0140110.0374 | L0140120.0374 | L0140150.0374  | L0140160.0374  | L0140170.0374  |
| L0120170.0388              | L0140100.0388 | L0140110.0388 | L0140120.0388 | L0140150.0388  | L0140160.0388  | L0140170.0388  |
| L0120170.0390              | L0140100.0390 | L0140110.0390 | L0140120.0390 | L0140150.0390  | L0140160.0390  | L0140170.0390  |
|                            | L0140100.0391 |               |               |                |                | 18 x 1,5       |
|                            |               |               |               |                |                | 18 x 2         |
| L0120170.0404              | L0140100.0404 | L0140110.0404 | L0140120.0404 | L0140150.0404  | L0140160.0404  | L0140170.0404  |
| L0120170.0420              | L0140100.0420 | L0140110.0420 | L0140120.0420 | L0140150.0420  | L0140160.0420  | L0140170.0420  |
| L0120170.0422              | L0140100.0422 | L0140110.0422 | L0140120.0422 | L0140150.0422  | L0140160.0422  | L0140170.0422  |
| L0120170.0423              | L0140100.0423 | L0140110.0423 | L0140120.0423 | L0140150.0423  | L0140160.0423  | L0140170.0423  |
| L0120170.0428              | L0140100.0428 | L0140110.0428 | L0140120.0428 | L0140150.0428  | L0140160.0428  | L0140170.0428  |
| L0120170.0436              | L0140100.0436 | L0140110.0436 | L0140120.0436 | L0140150.0436  | L0140160.0436  | L0140170.0436  |
| L0120170.0438              | L0140100.0438 | L0140110.0438 | L0140120.0438 | L0140150.0438  | L0140160.0438  | L0140170.0438  |
| L0120170.0439              | L0140100.0439 | L0140110.0439 | L0140120.0439 | L0140150.0439  | L0140160.0439  | L0140170.0439  |
| L0120170.0443              | L0140100.0443 | L0140110.0443 | L0140120.0443 | L0140150.0443  | L0140160.0443  | L0140170.0443  |
| L0120170.0450              | L0140100.0450 | L0140110.0450 | L0140120.0450 | L0140150.0450  | L0140160.0450  | L0140170.0450  |
| L0120170.0452              | L0140100.0452 | L0140110.0452 | L0140120.0452 | L0140150.0452  | L0140160.0452  | L0140170.0452  |
| L0120170.0453              | L0140100.0453 | L0140110.0453 | L0140120.0453 | L0140150.0453  | L0140160.0453  | L0140170.0453  |
| L0120170.0456              | L0140100.0456 | L0140110.0456 | L0140120.0456 | L0140150.0456  | L0140160.0456  | L0140170.0456  |
| L0120170.0458              | L0140100.0458 | L0140110.0458 | L0140120.0458 | L0140150.0458  | L0140160.0458  | L0140170.0458  |
| L0120170.0459              | L0140100.0459 | L0140110.0459 | L0140120.0459 | L0140150.0459  | L0140160.0459  | L0140170.0459  |
| L0120170.0462              | L0140100.0462 | L0140110.0462 | L0140120.0462 | L0140150.0462  | L0140160.0462  | L0140170.0462  |
| L0120170.0464              | L0140100.0464 | L0140110.0464 | L0140120.0464 | L0140150.0464  | L0140160.0464  | L0140170.0464  |
| L0120170.0465              | L0140100.0465 | L0140110.0465 | L0140120.0465 | L0140150.0465  | L0140160.0465  | L0140170.0465  |

|                            |
|----------------------------|
| Product Finder             |
| M                          |
| MF                         |
| UNC                        |
| UNF                        |
| G                          |
| Rp, R, Rc                  |
| NPT, NPTF                  |
| BSW                        |
| Pg                         |
| MJ<br>UNJC, UNJF           |
| EG (STI)                   |
| SELF-LOCK                  |
| Tr, Tr-F<br>Rd             |
| Glatt<br>Smooth            |
| GT, TD                     |
| Zubehör<br>Accessories     |
| PoCoSys                    |
| Kalibrieren<br>Calibration |

# MF

DIN 13



Lehrenmaße nach DIN ISO 1502  
Gauge dimensions acc. DIN ISO 1502

Toleranz · Tolerance  
Beschichtung · Coating

6H

6H

TIN

4H

6G

6H

LH

4H

LH

G-GUT-LD

G-GUT-LD

TIN

G-GUT-LD

G-GUT-LD

G-GUT-LD  
LH

G-GUT-LD  
LH

ø d<sub>1</sub>  
mm

P  
mm

| M | ø d <sub>1</sub><br>mm | P<br>mm | G-GUT-LD      | G-GUT-LD<br>TIN | G-GUT-LD      | G-GUT-LD      | G-GUT-LD<br>LH | G-GUT-LD<br>LH |
|---|------------------------|---------|---------------|-----------------|---------------|---------------|----------------|----------------|
|   | 27                     | x 1     | L0120100.0468 |                 | L0120110.0468 | L0120120.0468 | L0120150.0468  | L0120160.0468  |
|   | 27                     | x 1,5   | L0120100.0470 |                 | L0120110.0470 | L0120120.0470 | L0120150.0470  | L0120160.0470  |
|   | 27                     | x 2     | L0120100.0471 |                 | L0120110.0471 | L0120120.0471 | L0120150.0471  | L0120160.0471  |
|   | 28                     | x 1     | L0120100.0474 |                 | L0120110.0474 | L0120120.0474 | L0120150.0474  | L0120160.0474  |
|   | 28                     | x 1,5   | L0120100.0476 |                 | L0120110.0476 | L0120120.0476 | L0120150.0476  | L0120160.0476  |
|   | 28                     | x 2     | L0120100.0477 |                 | L0120110.0477 | L0120120.0477 | L0120150.0477  | L0120160.0477  |
|   | 30                     | x 1     | L0120100.0488 |                 | L0120110.0488 | L0120120.0488 | L0120150.0488  | L0120160.0488  |
|   | 30                     | x 1,5   | L0120100.0490 |                 | L0120110.0490 | L0120120.0490 | L0120150.0490  | L0120160.0490  |
|   | 30                     | x 2     | L0120100.0491 |                 | L0120110.0491 | L0120120.0491 | L0120150.0491  | L0120160.0491  |
|   | 30                     | x 3     | L0120100.0492 |                 | L0120110.0492 | L0120120.0492 | L0120150.0492  | L0120160.0492  |
|   | 32                     | x 1     | L0120100.0502 |                 | L0120110.0502 | L0120120.0502 | L0120150.0502  | L0120160.0502  |
|   | 32                     | x 1,5   | L0120100.0504 |                 | L0120110.0504 | L0120120.0504 | L0120150.0504  | L0120160.0504  |
|   | 32                     | x 2     | L0120100.0505 |                 | L0120110.0505 | L0120120.0505 | L0120150.0505  | L0120160.0505  |
|   | 33                     | x 1     | L0120100.0509 |                 | L0120110.0509 | L0120120.0509 | L0120150.0509  | L0120160.0509  |
|   | 33                     | x 1,5   | L0120100.0511 |                 | L0120110.0511 | L0120120.0511 | L0120150.0511  | L0120160.0511  |
|   | 33                     | x 2     | L0120100.0512 |                 | L0120110.0512 | L0120120.0512 | L0120150.0512  | L0120160.0512  |
|   | 33                     | x 3     | L0120100.0513 |                 | L0120110.0513 | L0120120.0513 | L0120150.0513  | L0120160.0513  |
|   | 34                     | x 1     | L0120100.0516 |                 | L0120110.0516 | L0120120.0516 | L0120150.0516  | L0120160.0516  |
|   | 34                     | x 1,5   | L0120100.0518 |                 | L0120110.0518 | L0120120.0518 | L0120150.0518  | L0120160.0518  |
|   | 34                     | x 2     | L0120100.0519 |                 | L0120110.0519 | L0120120.0519 | L0120150.0519  | L0120160.0519  |
|   | 35                     | x 1     | L0120100.0523 |                 | L0120110.0523 | L0120120.0523 | L0120150.0523  | L0120160.0523  |
|   | 35                     | x 1,5   | L0120100.0525 |                 | L0120110.0525 | L0120120.0525 | L0120150.0525  | L0120160.0525  |
|   | 35                     | x 2     | L0120100.0526 |                 | L0120110.0526 | L0120120.0526 | L0120150.0526  | L0120160.0526  |
|   | 36                     | x 1     | L0120100.0530 |                 | L0120110.0530 | L0120120.0530 | L0120150.0530  | L0120160.0530  |
|   | 36                     | x 1,5   | L0120100.0532 |                 | L0120110.0532 | L0120120.0532 | L0120150.0532  | L0120160.0532  |
|   | 36                     | x 2     | L0120100.0533 |                 | L0120110.0533 | L0120120.0533 | L0120150.0533  | L0120160.0533  |
|   | 36                     | x 3     | L0120100.0534 |                 | L0120110.0534 | L0120120.0534 | L0120150.0534  | L0120160.0534  |
|   | 38                     | x 1     | L0120100.0544 |                 | L0120110.0544 | L0120120.0544 | L0120150.0544  | L0120160.0544  |
|   | 38                     | x 1,5   | L0120100.0546 |                 | L0120110.0546 | L0120120.0546 | L0120150.0546  | L0120160.0546  |
|   | 38                     | x 2     | L0120100.0547 |                 | L0120110.0547 | L0120120.0547 | L0120150.0547  | L0120160.0547  |
|   | 39                     | x 1     | L0120100.0551 |                 | L0120110.0551 | L0120120.0551 | L0120150.0551  | L0120160.0551  |
|   | 39                     | x 1,5   | L0120100.0553 |                 | L0120110.0553 | L0120120.0553 | L0120150.0553  | L0120160.0553  |
|   | 39                     | x 2     | L0120100.0554 |                 | L0120110.0554 | L0120120.0554 | L0120150.0554  | L0120160.0554  |
|   | 39                     | x 3     | L0120100.0555 |                 | L0120110.0555 | L0120120.0555 | L0120150.0555  | L0120160.0555  |
|   | 40                     | x 1     | L0120100.0558 |                 | L0120110.0558 | L0120120.0558 | L0120150.0558  | L0120160.0558  |
|   | 40                     | x 1,5   | L0120100.0560 |                 | L0120110.0560 | L0120120.0560 | L0120150.0560  | L0120160.0560  |
|   | 40                     | x 2     | L0120100.0561 |                 | L0120110.0561 | L0120120.0561 | L0120150.0561  | L0120160.0561  |
|   | 40                     | x 3     | L0120100.0562 |                 | L0120110.0562 | L0120120.0562 | L0120150.0562  | L0120160.0562  |
|   | 42                     | x 1     | L0120100.0572 |                 | L0120110.0572 | L0120120.0572 | L0120150.0572  | L0120160.0572  |
|   | 42                     | x 1,5   | L0120100.0574 |                 | L0120110.0574 | L0120120.0574 | L0120150.0574  | L0120160.0574  |
|   | 42                     | x 2     | L0120100.0575 |                 | L0120110.0575 | L0120120.0575 | L0120150.0575  | L0120160.0575  |
|   | 42                     | x 3     | L0120100.0576 |                 | L0120110.0576 | L0120120.0576 | L0120150.0576  | L0120160.0576  |
|   | 45                     | x 1     | L0120100.0593 |                 | L0120110.0593 | L0120120.0593 | L0120150.0593  | L0120160.0593  |
|   | 45                     | x 1,5   | L0120100.0595 |                 | L0120110.0595 | L0120120.0595 | L0120150.0595  | L0120160.0595  |
|   | 45                     | x 2     | L0120100.0596 |                 | L0120110.0596 | L0120120.0596 | L0120150.0596  | L0120160.0596  |
|   | 45                     | x 3     | L0120100.0597 |                 | L0120110.0597 | L0120120.0597 | L0120150.0597  | L0120160.0597  |
|   | 48                     | x 1     | L0120100.0614 |                 | L0120110.0614 | L0120120.0614 | L0120150.0614  | L0120160.0614  |
|   | 48                     | x 1,5   | L0120100.0616 |                 | L0120110.0616 | L0120120.0616 | L0120150.0616  | L0120160.0616  |
|   | 48                     | x 2     | L0120100.0617 |                 | L0120110.0617 | L0120120.0617 | L0120150.0617  | L0120160.0617  |
|   | 48                     | x 3     | L0120100.0618 |                 | L0120110.0618 | L0120120.0618 | L0120150.0618  | L0120160.0618  |
|   | 50                     | x 1     | L0120100.0628 |                 | L0120110.0628 | L0120120.0628 | L0120150.0628  | L0120160.0628  |
|   | 50                     | x 1,5   | L0120100.0630 |                 | L0120110.0630 | L0120120.0630 | L0120150.0630  | L0120160.0630  |
|   | 50                     | x 2     | L0120100.0631 |                 | L0120110.0631 | L0120120.0631 | L0120150.0631  | L0120160.0631  |
|   | 50                     | x 3     | L0120100.0632 |                 | L0120110.0632 | L0120120.0632 | L0120150.0632  | L0120160.0632  |
|   | 52                     | x 1     | L0120100.0642 |                 | L0120110.0642 | L0120120.0642 | L0120150.0642  | L0120160.0642  |
|   | 52                     | x 1,5   | L0120100.0644 |                 | L0120110.0644 | L0120120.0644 | L0120150.0644  | L0120160.0644  |
|   | 52                     | x 2     | L0120100.0645 |                 | L0120110.0645 | L0120120.0645 | L0120150.0645  | L0120160.0645  |



|                |               |               |               |                |                |                | Product Finder             |
|----------------|---------------|---------------|---------------|----------------|----------------|----------------|----------------------------|
|                |               |               |               |                |                |                | M                          |
|                |               |               |               |                |                |                | MF                         |
|                |               |               |               |                |                |                | UNC                        |
|                |               |               |               |                |                |                | UNF                        |
|                |               |               |               |                |                |                | Rp, R, Rc                  |
|                |               |               |               |                |                |                | NPT, NPTF                  |
|                |               |               |               |                |                |                | BSW                        |
|                |               |               |               |                |                |                | Pg                         |
|                |               |               |               |                |                |                | MJ<br>UNJC, UNJF           |
|                |               |               |               |                |                |                | EG (STI)                   |
|                |               |               |               |                |                |                | SELF-LOCK                  |
|                |               |               |               |                |                |                | Tr, Tr-F<br>Rd             |
|                |               |               |               |                |                |                | Glatt<br>Smooth            |
|                |               |               |               |                |                |                | GT, TD                     |
|                |               |               |               |                |                |                | Zubehör<br>Accessories     |
|                |               |               |               |                |                |                | PoCoSys                    |
|                |               |               |               |                |                |                | Kalibrieren<br>Calibration |
| 6G             | 6H            | 4H            | 6G            | 6H             | 4H             | 6G             |                            |
| LH             |               |               |               | LH             | LH             | LH             |                            |
| G-GUT-LD<br>LH | G-AUS-LD      | G-AUS-LD      | G-AUS-LD      | G-AUS-LD<br>LH | G-AUS-LD<br>LH | G-AUS-LD<br>LH |                            |
| L0120170.0468  | L0140100.0468 | L0140110.0468 | L0140120.0468 | L0140150.0468  | L0140160.0468  | L0140170.0468  | M 27 x 1                   |
| L0120170.0470  | L0140100.0470 | L0140110.0470 | L0140120.0470 | L0140150.0470  | L0140160.0470  | L0140170.0470  | 27 x 1,5                   |
| L0120170.0471  | L0140100.0471 | L0140110.0471 | L0140120.0471 | L0140150.0471  | L0140160.0471  | L0140170.0471  | 27 x 2                     |
| L0120170.0474  | L0140100.0474 | L0140110.0474 | L0140120.0474 | L0140150.0474  | L0140160.0474  | L0140170.0474  | 28 x 1                     |
| L0120170.0476  | L0140100.0476 | L0140110.0476 | L0140120.0476 | L0140150.0476  | L0140160.0476  | L0140170.0476  | 28 x 1,5                   |
| L0120170.0477  | L0140100.0477 | L0140110.0477 | L0140120.0477 | L0140150.0477  | L0140160.0477  | L0140170.0477  | 28 x 2                     |
| L0120170.0488  | L0140100.0488 | L0140110.0488 | L0140120.0488 | L0140150.0488  | L0140160.0488  | L0140170.0488  | 30 x 1                     |
| L0120170.0490  | L0140100.0490 | L0140110.0490 | L0140120.0490 | L0140150.0490  | L0140160.0490  | L0140170.0490  | 30 x 1,5                   |
| L0120170.0491  | L0140100.0491 | L0140110.0491 | L0140120.0491 | L0140150.0491  | L0140160.0491  | L0140170.0491  | 30 x 2                     |
| L0120170.0492  | L0140100.0492 | L0140110.0492 | L0140120.0492 | L0140150.0492  | L0140160.0492  | L0140170.0492  | 30 x 3                     |
| L0120170.0502  | L0140100.0502 | L0140110.0502 | L0140120.0502 | L0140150.0502  | L0140160.0502  | L0140170.0502  | 32 x 1                     |
| L0120170.0504  | L0140100.0504 | L0140110.0504 | L0140120.0504 | L0140150.0504  | L0140160.0504  | L0140170.0504  | 32 x 1,5                   |
| L0120170.0505  | L0140100.0505 | L0140110.0505 | L0140120.0505 | L0140150.0505  | L0140160.0505  | L0140170.0505  | 32 x 2                     |
| L0120170.0509  | L0140100.0509 | L0140110.0509 | L0140120.0509 | L0140150.0509  | L0140160.0509  | L0140170.0509  | 33 x 1                     |
| L0120170.0511  | L0140100.0511 | L0140110.0511 | L0140120.0511 | L0140150.0511  | L0140160.0511  | L0140170.0511  | 33 x 1,5                   |
| L0120170.0512  | L0140100.0512 | L0140110.0512 | L0140120.0512 | L0140150.0512  | L0140160.0512  | L0140170.0512  | 33 x 2                     |
| L0120170.0513  | L0140100.0513 | L0140110.0513 | L0140120.0513 | L0140150.0513  | L0140160.0513  | L0140170.0513  | 33 x 3                     |
| L0120170.0516  | L0140100.0516 | L0140110.0516 | L0140120.0516 | L0140150.0516  | L0140160.0516  | L0140170.0516  | 34 x 1                     |
| L0120170.0518  | L0140100.0518 | L0140110.0518 | L0140120.0518 | L0140150.0518  | L0140160.0518  | L0140170.0518  | 34 x 1,5                   |
| L0120170.0519  | L0140100.0519 | L0140110.0519 | L0140120.0519 | L0140150.0519  | L0140160.0519  | L0140170.0519  | 34 x 2                     |
| L0120170.0523  | L0140100.0523 | L0140110.0523 | L0140120.0523 | L0140150.0523  | L0140160.0523  | L0140170.0523  | 35 x 1                     |
| L0120170.0525  | L0140100.0525 | L0140110.0525 | L0140120.0525 | L0140150.0525  | L0140160.0525  | L0140170.0525  | 35 x 1,5                   |
| L0120170.0526  | L0140100.0526 | L0140110.0526 | L0140120.0526 | L0140150.0526  | L0140160.0526  | L0140170.0526  | 35 x 2                     |
| L0120170.0530  | L0140100.0530 | L0140110.0530 | L0140120.0530 | L0140150.0530  | L0140160.0530  | L0140170.0530  | 36 x 1                     |
| L0120170.0532  | L0140100.0532 | L0140110.0532 | L0140120.0532 | L0140150.0532  | L0140160.0532  | L0140170.0532  | 36 x 1,5                   |
| L0120170.0533  | L0140100.0533 | L0140110.0533 | L0140120.0533 | L0140150.0533  | L0140160.0533  | L0140170.0533  | 36 x 2                     |
| L0120170.0534  | L0140100.0534 | L0140110.0534 | L0140120.0534 | L0140150.0534  | L0140160.0534  | L0140170.0534  | 36 x 3                     |
| L0120170.0544  | L0140100.0544 | L0140110.0544 | L0140120.0544 | L0140150.0544  | L0140160.0544  | L0140170.0544  | 38 x 1                     |
| L0120170.0546  | L0140100.0546 | L0140110.0546 | L0140120.0546 | L0140150.0546  | L0140160.0546  | L0140170.0546  | 38 x 1,5                   |
| L0120170.0547  | L0140100.0547 | L0140110.0547 | L0140120.0547 | L0140150.0547  | L0140160.0547  | L0140170.0547  | 38 x 2                     |
| L0120170.0551  | L0140100.0551 | L0140110.0551 | L0140120.0551 | L0140150.0551  | L0140160.0551  | L0140170.0551  | 39 x 1                     |
| L0120170.0553  | L0140100.0553 | L0140110.0553 | L0140120.0553 | L0140150.0553  | L0140160.0553  | L0140170.0553  | 39 x 1,5                   |
| L0120170.0554  | L0140100.0554 | L0140110.0554 | L0140120.0554 | L0140150.0554  | L0140160.0554  | L0140170.0554  | 39 x 2                     |
| L0120170.0555  | L0140100.0555 | L0140110.0555 | L0140120.0555 | L0140150.0555  | L0140160.0555  | L0140170.0555  | 39 x 3                     |
| L0120170.0558  | L0140100.0558 | L0140110.0558 | L0140120.0558 | L0140150.0558  | L0140160.0558  | L0140170.0558  | 40 x 1                     |
| L0120170.0560  | L0140100.0560 | L0140110.0560 | L0140120.0560 | L0140150.0560  | L0140160.0560  | L0140170.0560  | 40 x 1,5                   |
| L0120170.0561  | L0140100.0561 | L0140110.0561 | L0140120.0561 | L0140150.0561  | L0140160.0561  | L0140170.0561  | 40 x 2                     |
| L0120170.0562  | L0140100.0562 | L0140110.0562 | L0140120.0562 | L0140150.0562  | L0140160.0562  | L0140170.0562  | 40 x 3                     |
| L0120170.0572  | L0140100.0572 | L0140110.0572 | L0140120.0572 | L0140150.0572  | L0140160.0572  | L0140170.0572  | 42 x 1                     |
| L0120170.0574  | L0140100.0574 | L0140110.0574 | L0140120.0574 | L0140150.0574  | L0140160.0574  | L0140170.0574  | 42 x 1,5                   |
| L0120170.0575  | L0140100.0575 | L0140110.0575 | L0140120.0575 | L0140150.0575  | L0140160.0575  | L0140170.0575  | 42 x 2                     |
| L0120170.0576  | L0140100.0576 | L0140110.0576 | L0140120.0576 | L0140150.0576  | L0140160.0576  | L0140170.0576  | 42 x 3                     |
| L0120170.0593  | L0140100.0593 | L0140110.0593 | L0140120.0593 | L0140150.0593  | L0140160.0593  | L0140170.0593  | 45 x 1                     |
| L0120170.0595  | L0140100.0595 | L0140110.0595 | L0140120.0595 | L0140150.0595  | L0140160.0595  | L0140170.0595  | 45 x 1,5                   |
| L0120170.0596  | L0140100.0596 | L0140110.0596 | L0140120.0596 | L0140150.0596  | L0140160.0596  | L0140170.0596  | 45 x 2                     |
| L0120170.0597  | L0140100.0597 | L0140110.0597 | L0140120.0597 | L0140150.0597  | L0140160.0597  | L0140170.0597  | 45 x 3                     |
| L0120170.0614  | L0140100.0614 | L0140110.0614 | L0140120.0614 | L0140150.0614  | L0140160.0614  | L0140170.0614  | 48 x 1                     |
| L0120170.0616  | L0140100.0616 | L0140110.0616 | L0140120.0616 | L0140150.0616  | L0140160.0616  | L0140170.0616  | 48 x 1,5                   |
| L0120170.0617  | L0140100.0617 | L0140110.0617 | L0140120.0617 | L0140150.0617  | L0140160.0617  | L0140170.0617  | 48 x 2                     |
| L0120170.0618  | L0140100.0618 | L0140110.0618 | L0140120.0618 | L0140150.0618  | L0140160.0618  | L0140170.0618  | 48 x 3                     |
| L0120170.0628  | L0140100.0628 | L0140110.0628 | L0140120.0628 | L0140150.0628  | L0140160.0628  | L0140170.0628  | 50 x 1                     |
| L0120170.0630  | L0140100.0630 | L0140110.0630 | L0140120.0630 | L0140150.0630  | L0140160.0630  | L0140170.0630  | 50 x 1,5                   |
| L0120170.0631  | L0140100.0631 | L0140110.0631 | L0140120.0631 | L0140150.0631  | L0140160.0631  | L0140170.0631  | 50 x 2                     |
| L0120170.0632  | L0140100.0632 | L0140110.0632 | L0140120.0632 | L0140150.0632  | L0140160.0632  | L0140170.0632  | 50 x 3                     |
| L0120170.0642  | L0140100.0642 | L0140110.0642 | L0140120.0642 | L0140150.0642  | L0140160.0642  | L0140170.0642  | 52 x 1                     |
| L0120170.0644  | L0140100.0644 | L0140110.0644 | L0140120.0644 | L0140150.0644  | L0140160.0644  | L0140170.0644  | 52 x 1,5                   |
| L0120170.0645  | L0140100.0645 | L0140110.0645 | L0140120.0645 | L0140150.0645  | L0140160.0645  | L0140170.0645  | 52 x 2                     |

|                            |
|----------------------------|
| Product Finder             |
| M                          |
| MF                         |
| UNC                        |
| UNF                        |
| G                          |
| Rp, R, Rc                  |
| NPT, NPTF                  |
| BSW                        |
| Pg                         |
| MJ<br>UNJC, UNJF           |
| EG (STI)                   |
| SELF-LOCK                  |
| Tr, Tr-F<br>Rd             |
| Glatt<br>Smooth            |
| GT, TD                     |
| Zubehör<br>Accessories     |
| PoCoSys                    |
| Kalibrieren<br>Calibration |

# MF

DIN 13



Lehrenmaße nach DIN ISO 1502  
Gauge dimensions acc. DIN ISO 1502

Toleranz · Tolerance  
Beschichtung · Coating

6H

6H

TIN

4H

6G

6H

LH

4H

LH

G-GUT-LD

G-GUT-LD

TIN

G-GUT-LD

G-GUT-LD

G-GUT-LD  
LH

G-GUT-LD  
LH

ø d<sub>1</sub>  
mm

P  
mm

|                            | ø d <sub>1</sub><br>mm | P<br>mm | G-GUT-LD      | G-GUT-LD<br>TIN | G-GUT-LD      | G-GUT-LD      | G-GUT-LD<br>LH | G-GUT-LD<br>LH |
|----------------------------|------------------------|---------|---------------|-----------------|---------------|---------------|----------------|----------------|
| M                          | 52                     | x 3     | L0120100.0646 |                 | L0120110.0646 | L0120120.0646 | L0120150.0646  | L0120160.0646  |
|                            | 55                     | x 1     | L0120100.0653 |                 | L0120110.0653 | L0120120.0653 | L0120150.0653  | L0120160.0653  |
|                            | 55                     | x 1,5   | L0120100.0654 |                 | L0120110.0654 | L0120120.0654 | L0120150.0654  | L0120160.0654  |
|                            | 55                     | x 2     | L0120100.0655 |                 | L0120110.0655 | L0120120.0655 | L0120150.0655  | L0120160.0655  |
| GT, TD                     | 55                     | x 3     | L0120100.0656 |                 | L0120110.0656 | L0120120.0656 | L0120150.0656  | L0120160.0656  |
|                            | 56                     | x 1     | L0120100.0658 |                 | L0120110.0658 | L0120120.0658 | L0120150.0658  | L0120160.0658  |
| Zubehör<br>Accessories     | 56                     | x 1,5   | L0120100.0659 |                 | L0120110.0659 | L0120120.0659 | L0120150.0659  | L0120160.0659  |
|                            | 56                     | x 2     | L0120100.0660 |                 | L0120110.0660 | L0120120.0660 | L0120150.0660  | L0120160.0660  |
|                            | 56                     | x 3     | L0120100.0661 |                 | L0120110.0661 | L0120120.0661 | L0120150.0661  | L0120160.0661  |
| PoCoSys                    | 58                     | x 1     | L0120100.0663 |                 | L0120110.0663 | L0120120.0663 | L0120150.0663  | L0120160.0663  |
|                            | 58                     | x 1,5   | L0120100.0664 |                 | L0120110.0664 | L0120120.0664 | L0120150.0664  | L0120160.0664  |
| Kalibrieren<br>Calibration | 58                     | x 2     | L0120100.0665 |                 | L0120110.0665 | L0120120.0665 | L0120150.0665  | L0120160.0665  |
|                            | 58                     | x 3     | L0120100.0666 |                 | L0120110.0666 | L0120120.0666 | L0120150.0666  | L0120160.0666  |
|                            | 60                     | x 1     | L0120100.0668 |                 | L0120110.0668 | L0120120.0668 | L0120150.0668  | L0120160.0668  |
|                            | 60                     | x 1,5   | L0120100.0669 |                 | L0120110.0669 | L0120120.0669 | L0120150.0669  | L0120160.0669  |
|                            | 60                     | x 2     | L0120100.0670 |                 | L0120110.0670 | L0120120.0670 | L0120150.0670  | L0120160.0670  |
|                            | 60                     | x 3     | L0120100.0671 |                 | L0120110.0671 | L0120120.0671 | L0120150.0671  | L0120160.0671  |
|                            | 62                     | x 1     | L0120100.0673 |                 | L0120110.0673 | L0120120.0673 | L0120150.0673  | L0120160.0673  |
|                            | 62                     | x 1,5   | L0120100.0674 |                 | L0120110.0674 | L0120120.0674 | L0120150.0674  | L0120160.0674  |
|                            | 62                     | x 2     | L0120100.0675 |                 | L0120110.0675 | L0120120.0675 | L0120150.0675  | L0120160.0675  |
|                            | 62                     | x 3     | L0120100.0676 |                 | L0120110.0676 | L0120120.0676 | L0120150.0676  | L0120160.0676  |
|                            | 64                     | x 1     | L0120100.0678 |                 | L0120110.0678 | L0120120.0678 | L0120150.0678  | L0120160.0678  |
|                            | 64                     | x 1,5   | L0120100.0679 |                 | L0120110.0679 | L0120120.0679 | L0120150.0679  | L0120160.0679  |
|                            | 64                     | x 2     | L0120100.0680 |                 | L0120110.0680 | L0120120.0680 | L0120150.0680  | L0120160.0680  |
|                            | 64                     | x 3     | L0120100.0681 |                 | L0120110.0681 | L0120120.0681 | L0120150.0681  | L0120160.0681  |
|                            | 65                     | x 1     | L0120100.0683 |                 | L0120110.0683 | L0120120.0683 | L0120150.0683  | L0120160.0683  |
|                            | 65                     | x 1,5   | L0120100.0684 |                 | L0120110.0684 | L0120120.0684 | L0120150.0684  | L0120160.0684  |
|                            | 65                     | x 2     | L0120100.0685 |                 | L0120110.0685 | L0120120.0685 | L0120150.0685  | L0120160.0685  |
|                            | 65                     | x 3     | L0120100.0686 |                 | L0120110.0686 | L0120120.0686 | L0120150.0686  | L0120160.0686  |
|                            | 68                     | x 1     | L0120100.0688 |                 | L0120110.0688 | L0120120.0688 | L0120150.0688  | L0120160.0688  |
|                            | 68                     | x 1,5   | L0120100.0689 |                 | L0120110.0689 | L0120120.0689 | L0120150.0689  | L0120160.0689  |
|                            | 68                     | x 2     | L0120100.0690 |                 | L0120110.0690 | L0120120.0690 | L0120150.0690  | L0120160.0690  |
|                            | 68                     | x 3     | L0120100.0691 |                 | L0120110.0691 | L0120120.0691 | L0120150.0691  | L0120160.0691  |
|                            | 70                     | x 1     | L0120100.0693 |                 | L0120110.0693 | L0120120.0693 | L0120150.0693  | L0120160.0693  |
|                            | 70                     | x 1,5   | L0120100.0694 |                 | L0120110.0694 | L0120120.0694 | L0120150.0694  | L0120160.0694  |
|                            | 70                     | x 2     | L0120100.0695 |                 | L0120110.0695 | L0120120.0695 | L0120150.0695  | L0120160.0695  |
|                            | 70                     | x 3     | L0120100.0696 |                 | L0120110.0696 | L0120120.0696 | L0120150.0696  | L0120160.0696  |
|                            | 72                     | x 1     | L0120100.0699 |                 | L0120110.0699 | L0120120.0699 | L0120150.0699  | L0120160.0699  |
|                            | 72                     | x 1,5   | L0120100.0700 |                 | L0120110.0700 | L0120120.0700 | L0120150.0700  | L0120160.0700  |
|                            | 72                     | x 2     | L0120100.0701 |                 | L0120110.0701 | L0120120.0701 | L0120150.0701  | L0120160.0701  |
|                            | 72                     | x 3     | L0120100.0702 |                 | L0120110.0702 | L0120120.0702 | L0120150.0702  | L0120160.0702  |
|                            | 75                     | x 1     | L0120100.0705 |                 | L0120110.0705 | L0120120.0705 | L0120150.0705  | L0120160.0705  |
|                            | 75                     | x 1,5   | L0120100.0706 |                 | L0120110.0706 | L0120120.0706 | L0120150.0706  | L0120160.0706  |
|                            | 75                     | x 2     | L0120100.0707 |                 | L0120110.0707 | L0120120.0707 | L0120150.0707  | L0120160.0707  |
|                            | 75                     | x 3     | L0120100.0708 |                 | L0120110.0708 | L0120120.0708 | L0120150.0708  | L0120160.0708  |
|                            | 76                     | x 1     | L0120100.0711 |                 | L0120110.0711 | L0120120.0711 | L0120150.0711  | L0120160.0711  |
|                            | 76                     | x 1,5   | L0120100.0712 |                 | L0120110.0712 | L0120120.0712 | L0120150.0712  | L0120160.0712  |
|                            | 76                     | x 2     | L0120100.0713 |                 | L0120110.0713 | L0120120.0713 | L0120150.0713  | L0120160.0713  |
|                            | 76                     | x 3     | L0120100.0714 |                 | L0120110.0714 | L0120120.0714 | L0120150.0714  | L0120160.0714  |
|                            | 78                     | x 1     | L0120100.0717 |                 | L0120110.0717 | L0120120.0717 | L0120150.0717  | L0120160.0717  |
|                            | 78                     | x 1,5   | L0120100.0718 |                 | L0120110.0718 | L0120120.0718 | L0120150.0718  | L0120160.0718  |
|                            | 78                     | x 2     | L0120100.0719 |                 | L0120110.0719 | L0120120.0719 | L0120150.0719  | L0120160.0719  |
|                            | 80                     | x 1     | L0120100.0723 |                 | L0120110.0723 | L0120120.0723 | L0120150.0723  | L0120160.0723  |
|                            | 80                     | x 1,5   | L0120100.0724 |                 | L0120110.0724 | L0120120.0724 | L0120150.0724  | L0120160.0724  |
|                            | 80                     | x 2     | L0120100.0725 |                 | L0120110.0725 | L0120120.0725 | L0120150.0725  | L0120160.0725  |
|                            | 80                     | x 3     | L0120100.0726 |                 | L0120110.0726 | L0120120.0726 | L0120150.0726  | L0120160.0726  |
|                            | 82                     | x 1,5   | L0120100.0729 |                 | L0120110.0729 | L0120120.0729 | L0120150.0729  | L0120160.0729  |

| QR                     | QR              | QR              | QR              | QR                     | QR                     | QR                     |          |
|------------------------|-----------------|-----------------|-----------------|------------------------|------------------------|------------------------|----------|
|                        |                 |                 |                 |                        |                        |                        |          |
| <b>6G</b>              | <b>6H</b>       | <b>4H</b>       | <b>6G</b>       | <b>6H</b>              | <b>4H</b>              | <b>6G</b>              |          |
| <b>LH</b>              |                 |                 |                 | <b>LH</b>              | <b>LH</b>              | <b>LH</b>              |          |
| <b>G-GUT-LD<br/>LH</b> | <b>G-AUS-LD</b> | <b>G-AUS-LD</b> | <b>G-AUS-LD</b> | <b>G-AUS-LD<br/>LH</b> | <b>G-AUS-LD<br/>LH</b> | <b>G-AUS-LD<br/>LH</b> |          |
| L0120170.0646          | L0140100.0646   | L0140110.0646   | L0140120.0646   | L0140150.0646          | L0140160.0646          | L0140170.0646          | M 52 x 3 |
| L0120170.0653          | L0140100.0653   | L0140110.0653   | L0140120.0653   | L0140150.0653          | L0140160.0653          | L0140170.0653          | 55 x 1   |
| L0120170.0654          | L0140100.0654   | L0140110.0654   | L0140120.0654   | L0140150.0654          | L0140160.0654          | L0140170.0654          | 55 x 1,5 |
| L0120170.0655          | L0140100.0655   | L0140110.0655   | L0140120.0655   | L0140150.0655          | L0140160.0655          | L0140170.0655          | 55 x 2   |
| L0120170.0656          | L0140100.0656   | L0140110.0656   | L0140120.0656   | L0140150.0656          | L0140160.0656          | L0140170.0656          | 55 x 3   |
| L0120170.0658          | L0140100.0658   | L0140110.0658   | L0140120.0658   | L0140150.0658          | L0140160.0658          | L0140170.0658          | 56 x 1   |
| L0120170.0659          | L0140100.0659   | L0140110.0659   | L0140120.0659   | L0140150.0659          | L0140160.0659          | L0140170.0659          | 56 x 1,5 |
| L0120170.0660          | L0140100.0660   | L0140110.0660   | L0140120.0660   | L0140150.0660          | L0140160.0660          | L0140170.0660          | 56 x 2   |
| L0120170.0661          | L0140100.0661   | L0140110.0661   | L0140120.0661   | L0140150.0661          | L0140160.0661          | L0140170.0661          | 56 x 3   |
| L0120170.0663          | L0140100.0663   | L0140110.0663   | L0140120.0663   | L0140150.0663          | L0140160.0663          | L0140170.0663          | 58 x 1   |
| L0120170.0664          | L0140100.0664   | L0140110.0664   | L0140120.0664   | L0140150.0664          | L0140160.0664          | L0140170.0664          | 58 x 1,5 |
| L0120170.0665          | L0140100.0665   | L0140110.0665   | L0140120.0665   | L0140150.0665          | L0140160.0665          | L0140170.0665          | 58 x 2   |
| L0120170.0666          | L0140100.0666   | L0140110.0666   | L0140120.0666   | L0140150.0666          | L0140160.0666          | L0140170.0666          | 58 x 3   |
| L0120170.0668          | L0140100.0668   | L0140110.0668   | L0140120.0668   | L0140150.0668          | L0140160.0668          | L0140170.0668          | 60 x 1   |
| L0120170.0669          | L0140100.0669   | L0140110.0669   | L0140120.0669   | L0140150.0669          | L0140160.0669          | L0140170.0669          | 60 x 1,5 |
| L0120170.0670          | L0140100.0670   | L0140110.0670   | L0140120.0670   | L0140150.0670          | L0140160.0670          | L0140170.0670          | 60 x 2   |
| L0120170.0671          | L0140100.0671   | L0140110.0671   | L0140120.0671   | L0140150.0671          | L0140160.0671          | L0140170.0671          | 60 x 3   |
| L0120170.0673          | L0140100.0673   | L0140110.0673   | L0140120.0673   | L0140150.0673          | L0140160.0673          | L0140170.0673          | 62 x 1   |
| L0120170.0674          | L0140100.0674   | L0140110.0674   | L0140120.0674   | L0140150.0674          | L0140160.0674          | L0140170.0674          | 62 x 1,5 |
| L0120170.0675          | L0140100.0675   | L0140110.0675   | L0140120.0675   | L0140150.0675          | L0140160.0675          | L0140170.0675          | 62 x 2   |
| L0120170.0676          | L0140100.0676   | L0140110.0676   | L0140120.0676   | L0140150.0676          | L0140160.0676          | L0140170.0676          | 62 x 3   |
| L0120170.0678          | L0140100.0678   | L0140110.0678   | L0140120.0678   | L0140150.0678          | L0140160.0678          | L0140170.0678          | 64 x 1   |
| L0120170.0679          | L0140100.0679   | L0140110.0679   | L0140120.0679   | L0140150.0679          | L0140160.0679          | L0140170.0679          | 64 x 1,5 |
| L0120170.0680          | L0140100.0680   | L0140110.0680   | L0140120.0680   | L0140150.0680          | L0140160.0680          | L0140170.0680          | 64 x 2   |
| L0120170.0681          | L0140100.0681   | L0140110.0681   | L0140120.0681   | L0140150.0681          | L0140160.0681          | L0140170.0681          | 64 x 3   |
| L0120170.0683          | L0140100.0683   | L0140110.0683   | L0140120.0683   | L0140150.0683          | L0140160.0683          | L0140170.0683          | 65 x 1   |
| L0120170.0684          | L0140100.0684   | L0140110.0684   | L0140120.0684   | L0140150.0684          | L0140160.0684          | L0140170.0684          | 65 x 1,5 |
| L0120170.0685          | L0140100.0685   | L0140110.0685   | L0140120.0685   | L0140150.0685          | L0140160.0685          | L0140170.0685          | 65 x 2   |
| L0120170.0686          | L0140100.0686   | L0140110.0686   | L0140120.0686   | L0140150.0686          | L0140160.0686          | L0140170.0686          | 65 x 3   |
| L0120170.0688          | L0140100.0688   | L0140110.0688   | L0140120.0688   | L0140150.0688          | L0140160.0688          | L0140170.0688          | 68 x 1   |
| L0120170.0689          | L0140100.0689   | L0140110.0689   | L0140120.0689   | L0140150.0689          | L0140160.0689          | L0140170.0689          | 68 x 1,5 |
| L0120170.0690          | L0140100.0690   | L0140110.0690   | L0140120.0690   | L0140150.0690          | L0140160.0690          | L0140170.0690          | 68 x 2   |
| L0120170.0691          | L0140100.0691   | L0140110.0691   | L0140120.0691   | L0140150.0691          | L0140160.0691          | L0140170.0691          | 68 x 3   |
| L0120170.0693          | L0140100.0693   | L0140110.0693   | L0140120.0693   | L0140150.0693          | L0140160.0693          | L0140170.0693          | 70 x 1   |
| L0120170.0694          | L0140100.0694   | L0140110.0694   | L0140120.0694   | L0140150.0694          | L0140160.0694          | L0140170.0694          | 70 x 1,5 |
| L0120170.0695          | L0140100.0695   | L0140110.0695   | L0140120.0695   | L0140150.0695          | L0140160.0695          | L0140170.0695          | 70 x 2   |
| L0120170.0696          | L0140100.0696   | L0140110.0696   | L0140120.0696   | L0140150.0696          | L0140160.0696          | L0140170.0696          | 70 x 3   |
| L0120170.0699          | L0140100.0699   | L0140110.0699   | L0140120.0699   | L0140150.0699          | L0140160.0699          | L0140170.0699          | 72 x 1   |
| L0120170.0700          | L0140100.0700   | L0140110.0700   | L0140120.0700   | L0140150.0700          | L0140160.0700          | L0140170.0700          | 72 x 1,5 |
| L0120170.0701          | L0140100.0701   | L0140110.0701   | L0140120.0701   | L0140150.0701          | L0140160.0701          | L0140170.0701          | 72 x 2   |
| L0120170.0702          | L0140100.0702   | L0140110.0702   | L0140120.0702   | L0140150.0702          | L0140160.0702          | L0140170.0702          | 72 x 3   |
| L0120170.0705          | L0140100.0705   | L0140110.0705   | L0140120.0705   | L0140150.0705          | L0140160.0705          | L0140170.0705          | 75 x 1   |
| L0120170.0706          | L0140100.0706   | L0140110.0706   | L0140120.0706   | L0140150.0706          | L0140160.0706          | L0140170.0706          | 75 x 1,5 |
| L0120170.0707          | L0140100.0707   | L0140110.0707   | L0140120.0707   | L0140150.0707          | L0140160.0707          | L0140170.0707          | 75 x 2   |
| L0120170.0708          | L0140100.0708   | L0140110.0708   | L0140120.0708   | L0140150.0708          | L0140160.0708          | L0140170.0708          | 75 x 3   |
| L0120170.0711          | L0140100.0711   | L0140110.0711   | L0140120.0711   | L0140150.0711          | L0140160.0711          | L0140170.0711          | 76 x 1   |
| L0120170.0712          | L0140100.0712   | L0140110.0712   | L0140120.0712   | L0140150.0712          | L0140160.0712          | L0140170.0712          | 76 x 1,5 |
| L0120170.0713          | L0140100.0713   | L0140110.0713   | L0140120.0713   | L0140150.0713          | L0140160.0713          | L0140170.0713          | 76 x 2   |
| L0120170.0714          | L0140100.0714   | L0140110.0714   | L0140120.0714   | L0140150.0714          | L0140160.0714          | L0140170.0714          | 76 x 3   |
| L0120170.0717          | L0140100.0717   | L0140110.0717   | L0140120.0717   | L0140150.0717          | L0140160.0717          | L0140170.0717          | 78 x 1   |
| L0120170.0718          | L0140100.0718   | L0140110.0718   | L0140120.0718   | L0140150.0718          | L0140160.0718          | L0140170.0718          | 78 x 1,5 |
| L0120170.0719          | L0140100.0719   | L0140110.0719   | L0140120.0719   | L0140150.0719          | L0140160.0719          | L0140170.0719          | 78 x 2   |
| L0120170.0723          | L0140100.0723   | L0140110.0723   | L0140120.0723   | L0140150.0723          | L0140160.0723          | L0140170.0723          | 80 x 1   |
| L0120170.0724          | L0140100.0724   | L0140110.0724   | L0140120.0724   | L0140150.0724          | L0140160.0724          | L0140170.0724          | 80 x 1,5 |
| L0120170.0725          | L0140100.0725   | L0140110.0725   | L0140120.0725   | L0140150.0725          | L0140160.0725          | L0140170.0725          | 80 x 2   |
| L0120170.0726          | L0140100.0726   | L0140110.0726   | L0140120.0726   | L0140150.0726          | L0140160.0726          | L0140170.0726          | 80 x 3   |
| L0120170.0729          | L0140100.0729   | L0140110.0729   | L0140120.0729   | L0140150.0729          | L0140160.0729          | L0140170.0729          | 82 x 1,5 |

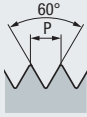
|                            |
|----------------------------|
| Product Finder             |
| M                          |
| MF                         |
| UNC                        |
| UNF                        |
| Rp, R, Rc                  |
| NPT, NPTF                  |
| BSW                        |
| Pg                         |
| MJ                         |
| UNJC, UNJF                 |
| EG (STI)                   |
| SELF-LOCK                  |
| Tr, Tr-F<br>Rd             |
| Glatt<br>Smooth            |
| GT, TD                     |
| Zubehör<br>Accessories     |
| PoCoSys                    |
| Kalibrieren<br>Calibration |



|                         |
|-------------------------|
| Product Finder          |
| M                       |
| MF                      |
| UNC                     |
| UNF                     |
| G                       |
| Rp, R, Rc               |
| NPT, NPTF               |
| BSW                     |
| Pg                      |
| MJ                      |
| UNJC, UNJF              |
| EG (STI)                |
| SELF-LOCK               |
| Tr, Tr-F Rd             |
| Glatt Smooth            |
| GT, TD                  |
| Zubehör Accessories     |
| PoCoSys                 |
| Kalibrieren Calibration |

# MF

DIN 13



Lehrenmaße nach DIN ISO 1502  
Gauge dimensions acc. DIN ISO 1502

Toleranz · Tolerance  
Beschichtung · Coating

6H

6H

4H

6G

6H

4H

TIN

LH

LH

G-GUT-LD

G-GUT-LD

G-GUT-LD

G-GUT-LD

G-GUT-LD

G-GUT-LD















LH

LH

|                            | ø d <sub>1</sub><br>mm | P<br>mm       | G-GUT-LD      |               | G-GUT-LD      |               | G-GUT-LD      |               | G-GUT-LD |  | G-GUT-LD |  | G-GUT-LD |  |
|----------------------------|------------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|----------|--|----------|--|----------|--|
|                            |                        |               |               | TIN           |               |               |               |               |          |  |          |  |          |  |
| <b>M</b>                   | 82 x 2                 |               | L0120100.0730 |               | L0120110.0730 | L0120120.0730 | L0120150.0730 | L0120160.0730 |          |  |          |  |          |  |
|                            | 85 x 1,5               |               | L0120100.0734 |               | L0120110.0734 | L0120120.0734 | L0120150.0734 | L0120160.0734 |          |  |          |  |          |  |
| Glatt<br>Smooth            | 85 x 2                 |               | L0120100.0735 |               | L0120110.0735 | L0120120.0735 | L0120150.0735 | L0120160.0735 |          |  |          |  |          |  |
|                            | 85 x 3                 |               | L0120100.0736 |               | L0120110.0736 | L0120120.0736 | L0120150.0736 | L0120160.0736 |          |  |          |  |          |  |
| GT, TD                     | 88 x 1,5               |               | L0120100.0739 |               | L0120110.0739 | L0120120.0739 | L0120150.0739 | L0120160.0739 |          |  |          |  |          |  |
|                            | 88 x 2                 |               | L0120100.0740 |               | L0120110.0740 | L0120120.0740 | L0120150.0740 | L0120160.0740 |          |  |          |  |          |  |
| Zubehör<br>Accessories     | 90 x 1,5               |               | L0120100.0744 |               | L0120110.0744 | L0120120.0744 | L0120150.0744 | L0120160.0744 |          |  |          |  |          |  |
|                            | 90 x 2                 |               | L0120100.0745 |               | L0120110.0745 | L0120120.0745 | L0120150.0745 | L0120160.0745 |          |  |          |  |          |  |
| PoCoSys                    | 90 x 3                 |               | L0120100.0746 |               | L0120110.0746 | L0120120.0746 | L0120150.0746 | L0120160.0746 |          |  |          |  |          |  |
|                            | 92 x 1,5               |               | L0120100.0749 |               | L0120110.0749 | L0120120.0749 | L0120150.0749 | L0120160.0749 |          |  |          |  |          |  |
| Kalibrieren<br>Calibration | 92 x 2                 |               | L0120100.0750 |               | L0120110.0750 | L0120120.0750 | L0120150.0750 | L0120160.0750 |          |  |          |  |          |  |
|                            | 95 x 1,5               |               | L0120100.0754 |               | L0120110.0754 | L0120120.0754 | L0120150.0754 | L0120160.0754 |          |  |          |  |          |  |
|                            | 95 x 2                 |               | L0120100.0755 |               | L0120110.0755 | L0120120.0755 | L0120150.0755 | L0120160.0755 |          |  |          |  |          |  |
|                            | 95 x 3                 |               | L0120100.0756 |               | L0120110.0756 | L0120120.0756 | L0120150.0756 | L0120160.0756 |          |  |          |  |          |  |
|                            | 98 x 1,5               |               | L0120100.0759 |               | L0120110.0759 | L0120120.0759 | L0120150.0759 | L0120160.0759 |          |  |          |  |          |  |
|                            | 98 x 2                 |               | L0120100.0760 |               | L0120110.0760 | L0120120.0760 | L0120150.0760 | L0120160.0760 |          |  |          |  |          |  |
|                            | 100 x 1,5              |               | L0120100.0764 |               | L0120110.0764 | L0120120.0764 | L0120150.0764 | L0120160.0764 |          |  |          |  |          |  |
|                            | 100 x 2                |               | L0120100.0765 |               | L0120110.0765 | L0120120.0765 | L0120150.0765 | L0120160.0765 |          |  |          |  |          |  |
| 100 x 3                    |                        | L0120100.0766 |               | L0120110.0766 | L0120120.0766 | L0120150.0766 | L0120160.0766 |               |          |  |          |  |          |  |

← M2 x 0,25 - M82 x 1,5

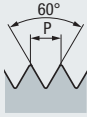


|        |   |   |   |   |   |   | Product Finder |                            |
|---|---|---|---|---|---|---|----------------|----------------------------|
|    |  |  |  |  |  |  |                | M                          |
| <b>6G</b>   | <b>6H</b>   | <b>4H</b>   | <b>6G</b>   | <b>6H</b>   | <b>4H</b>   | <b>6G</b>   |                | MF                         |
| <b>LH</b>   |   |   |   | <b>LH</b>   | <b>LH</b>   | <b>LH</b>   |                | UNC                        |
| <b>G-GUT-LD<br/>LH</b>  | <b>G-AUS-LD</b>   | <b>G-AUS-LD</b>   | <b>G-AUS-LD</b>   | <b>G-AUS-LD<br/>LH</b>  | <b>G-AUS-LD<br/>LH</b>  | <b>G-AUS-LD<br/>LH</b>  |                | UNF                        |
| L0120170.0730   | L0140100.0730   | L0140110.0730   | L0140120.0730   | L0140150.0730   | L0140160.0730   | L0140170.0730   | M 82 x 2       | Tr, Tr-F<br>Rd             |
| L0120170.0734   | L0140100.0734   | L0140110.0734   | L0140120.0734   | L0140150.0734   | L0140160.0734   | L0140170.0734   | 85 x 1,5       | Glatt<br>Smooth            |
| L0120170.0735   | L0140100.0735   | L0140110.0735   | L0140120.0735   | L0140150.0735   | L0140160.0735   | L0140170.0735   | 85 x 2         | GT, TD                     |
| L0120170.0736   | L0140100.0736   | L0140110.0736   | L0140120.0736   | L0140150.0736   | L0140160.0736   | L0140170.0736   | 85 x 3         | Zubehör<br>Accessories     |
| L0120170.0739   | L0140100.0739   | L0140110.0739   | L0140120.0739   | L0140150.0739   | L0140160.0739   | L0140170.0739   | 88 x 1,5       | PoCoSys                    |
| L0120170.0740   | L0140100.0740   | L0140110.0740   | L0140120.0740   | L0140150.0740   | L0140160.0740   | L0140170.0740   | 88 x 2         | Kalibrieren<br>Calibration |
| L0120170.0744   | L0140100.0744   | L0140110.0744   | L0140120.0744   | L0140150.0744   | L0140160.0744   | L0140170.0744   | 90 x 1,5       |                            |
| L0120170.0745   | L0140100.0745   | L0140110.0745   | L0140120.0745   | L0140150.0745   | L0140160.0745   | L0140170.0745   | 90 x 2         |                            |
| L0120170.0746   | L0140100.0746   | L0140110.0746   | L0140120.0746   | L0140150.0746   | L0140160.0746   | L0140170.0746   | 90 x 3         |                            |
| L0120170.0749   | L0140100.0749   | L0140110.0749   | L0140120.0749   | L0140150.0749   | L0140160.0749   | L0140170.0749   | 92 x 1,5       |                            |
| L0120170.0750   | L0140100.0750   | L0140110.0750   | L0140120.0750   | L0140150.0750   | L0140160.0750   | L0140170.0750   | 92 x 2         |                            |
| L0120170.0754   | L0140100.0754   | L0140110.0754   | L0140120.0754   | L0140150.0754   | L0140160.0754   | L0140170.0754   | 95 x 1,5       |                            |
| L0120170.0755   | L0140100.0755   | L0140110.0755   | L0140120.0755   | L0140150.0755   | L0140160.0755   | L0140170.0755   | 95 x 2         |                            |
| L0120170.0756   | L0140100.0756   | L0140110.0756   | L0140120.0756   | L0140150.0756   | L0140160.0756   | L0140170.0756   | 95 x 3         |                            |
| L0120170.0759   | L0140100.0759   | L0140110.0759   | L0140120.0759   | L0140150.0759   | L0140160.0759   | L0140170.0759   | 98 x 1,5       |                            |
| L0120170.0760   | L0140100.0760   | L0140110.0760   | L0140120.0760   | L0140150.0760   | L0140160.0760   | L0140170.0760   | 98 x 2         |                            |
| L0120170.0764   | L0140100.0764   | L0140110.0764   | L0140120.0764   | L0140150.0764   | L0140160.0764   | L0140170.0764   | 100 x 1,5      |                            |
| L0120170.0765   | L0140100.0765   | L0140110.0765   | L0140120.0765   | L0140150.0765   | L0140160.0765   | L0140170.0765   | 100 x 2        |                            |
| L0120170.0766   | L0140100.0766   | L0140110.0766   | L0140120.0766   | L0140150.0766   | L0140160.0766   | L0140170.0766   | 100 x 3        |                            |



|                            |
|----------------------------|
| Product Finder             |
| M                          |
| MF                         |
| UNC                        |
| UNF                        |
| G                          |
| Rp, R, Rc                  |
| NPT, NPTF                  |
| BSW                        |
| Pg                         |
| MJ<br>UNJC, UNJF           |
| EG (STI)                   |
| SELF-LOCK                  |
| Tr, Tr-F<br>Rd             |
| Glatt<br>Smooth            |
| GT, TD                     |
| Zubehör<br>Accessories     |
| PoCoSys                    |
| Kalibrieren<br>Calibration |

# MF



DIN 13

Lehrenmaße nach DIN ISO 1502  
Gauge dimensions acc. DIN ISO 1502



|                |                        | Toleranz · Tolerance<br>Beschichtung · Coating |      | 6g            | 4h            | 6h            | 6e            | 6g <sup>1)</sup> | 4h             |
|----------------|------------------------|--|------|---------------|---------------|---------------|---------------|------------------|----------------|
|                |                        |  |      | G-GUT-LR      | G-GUT-LR      | G-GUT-LR      | G-GUT-LR      | LH               | LH             |
|                |                        |  |      | G-GUT-LR      | G-GUT-LR      | G-GUT-LR      | G-GUT-LR      | G-GUT-LR<br>LH   | G-GUT-LR<br>LH |
| Tr, Tr-F<br>Rd | ∅ d <sub>1</sub><br>mm | P<br>mm  |      |               |               |               |               |                  |                |
| M              | 2                      | x  | 0,25 |               | L0200510.0186 |               |               |                  |                |
|                | 2,2                    | x  | 0,25 |               | L0200510.0189 |               |               |                  |                |
|                | 2,3                    | x  | 0,25 |               | L0200510.0192 |               |               |                  |                |
|                | 2,5                    | x  | 0,35 | L0200500.0196 |               |               |               |                  |                |
|                | 2,6                    | x  | 0,35 | L0200500.0199 |               |               |               |                  |                |
|                | 3                      | x  | 0,35 | L0200500.0202 |               |               |               | L0200550.0202    |                |
|                | 3,5                    | x  | 0,35 | L0200500.0205 |               |               |               | L0200550.0205    |                |
|                | 4                      | x  | 0,35 | L0200500.0209 |               |               |               | L0200550.0209    |                |
|                | 4                      | x  | 0,5  | L0200500.0210 | L0200510.0210 |               | L0200530.0210 | L0200550.0210    |                |
|                | 4,5                    | x  | 0,5  | L0200500.0214 |               |               |               |                  |                |
|                | 5                      | x  | 0,5  | L0200500.0218 | L0200510.0218 |               | L0200530.0218 | L0200550.0218    |                |
|                | 6                      | x  | 0,5  | L0200500.0228 | L0200510.0228 |               | L0200530.0228 | L0200550.0228    |                |
|                | 6                      | x  | 0,75 | L0200500.0229 | L0200510.0229 |               | L0200530.0229 | L0200550.0229    |                |
|                | 7                      | x  | 0,75 | L0200500.0239 |               |               |               |                  |                |
|                | 8                      | x  | 0,5  | L0200500.0249 |               |               |               |                  |                |
|                | 8                      | x  | 0,75 | L0200500.0250 | L0200510.0250 |               | L0200530.0250 | L0200550.0250    |                |
|                | 8                      | x  | 1    | L0200500.0251 | L0200510.0251 | L0200501.0251 | L0200530.0251 | L0200550.0251    | L0200560.0251  |
|                | 9                      | x  | 1    | L0200500.0263 | L0200510.0263 | L0200501.0263 | L0200530.0263 | L0200550.0263    | L0200560.0263  |
|                | 10                     | x  | 0,75 | L0200500.0275 |               |               |               |                  |                |
|                | 10                     | x  | 1    | L0200500.0276 | L0200510.0276 | L0200501.0276 | L0200530.0276 | L0200550.0276    | L0200560.0276  |
|                | 10                     | x  | 1,25 | L0200500.0277 |               |               |               |                  |                |
|                | 11                     | x  | 1    | L0200500.0288 | L0200510.0288 | L0200501.0288 | L0200530.0288 | L0200550.0288    | L0200560.0288  |
|                | 12                     | x  | 1    | L0200500.0301 | L0200510.0301 | L0200501.0301 | L0200530.0301 | L0200550.0301    | L0200560.0301  |
|                | 12                     | x  | 1,25 | L0200500.0302 |               |               |               |                  |                |
|                | 12                     | x  | 1,5  | L0200500.0303 | L0200510.0303 | L0200501.0303 | L0200530.0303 | L0200550.0303    | L0200560.0303  |
|                | 13                     | x  | 1    | L0200500.0315 | L0200510.0315 | L0200501.0315 | L0200530.0315 | L0200550.0315    | L0200560.0315  |
|                | 13                     | x  | 1,5  | L0200500.0317 | L0200510.0317 | L0200501.0317 | L0200530.0317 | L0200550.0317    | L0200560.0317  |
|                | 14                     | x  | 1    | L0200500.0329 | L0200510.0329 | L0200501.0329 | L0200530.0329 | L0200550.0329    | L0200560.0329  |
|                | 14                     | x  | 1,25 | L0200500.0330 |               |               |               |                  |                |
|                | 14                     | x  | 1,5  | L0200500.0331 | L0200510.0331 | L0200501.0331 | L0200530.0331 | L0200550.0331    | L0200560.0331  |
|                | 15                     | x  | 1    | L0200500.0343 | L0200510.0343 | L0200501.0343 | L0200530.0343 | L0200550.0343    | L0200560.0343  |
|                | 15                     | x  | 1,5  | L0200500.0345 | L0200510.0345 | L0200501.0345 | L0200530.0345 | L0200550.0345    | L0200560.0345  |
|                | 16                     | x  | 1    | L0200500.0357 | L0200510.0357 | L0200501.0357 | L0200530.0357 | L0200550.0357    | L0200560.0357  |
|                | 16                     | x  | 1,5  | L0200500.0359 | L0200510.0359 | L0200501.0359 | L0200530.0359 | L0200550.0359    | L0200560.0359  |
|                | 17                     | x  | 1    | L0200500.0372 | L0200510.0372 | L0200501.0372 | L0200530.0372 | L0200550.0372    | L0200560.0372  |
|                | 17                     | x  | 1,5  | L0200500.0374 | L0200510.0374 | L0200501.0374 | L0200530.0374 | L0200550.0374    | L0200560.0374  |
|                | 18                     | x  | 1    | L0200500.0388 | L0200510.0388 | L0200501.0388 | L0200530.0388 | L0200550.0388    | L0200560.0388  |
|                | 18                     | x  | 1,5  | L0200500.0390 | L0200510.0390 | L0200501.0390 | L0200530.0390 | L0200550.0390    | L0200560.0390  |
|                | 18                     | x  | 2    | L0200500.0391 | L0200510.0391 | L0200501.0391 | L0200530.0391 | L0200550.0391    | L0200560.0391  |
|                | 19                     | x  | 1    | L0200500.0404 | L0200510.0404 | L0200501.0404 | L0200530.0404 | L0200550.0404    | L0200560.0404  |
|                | 20                     | x  | 1    | L0200500.0420 | L0200510.0420 | L0200501.0420 | L0200530.0420 | L0200550.0420    | L0200560.0420  |
|                | 20                     | x  | 1,5  | L0200500.0422 | L0200510.0422 | L0200501.0422 | L0200530.0422 | L0200550.0422    | L0200560.0422  |
|                | 20                     | x  | 2    | L0200500.0423 | L0200510.0423 | L0200501.0423 | L0200530.0423 | L0200550.0423    | L0200560.0423  |
|                | 21                     | x  | 1    | L0200500.0428 | L0200510.0428 | L0200501.0428 | L0200530.0428 | L0200550.0428    | L0200560.0428  |
|                | 22                     | x  | 1    | L0200500.0436 | L0200510.0436 | L0200501.0436 | L0200530.0436 | L0200550.0436    | L0200560.0436  |
|                | 22                     | x  | 1,5  | L0200500.0438 | L0200510.0438 | L0200501.0438 | L0200530.0438 | L0200550.0438    | L0200560.0438  |
|                | 22                     | x  | 2    | L0200500.0439 | L0200510.0439 | L0200501.0439 | L0200530.0439 | L0200550.0439    | L0200560.0439  |
|                | 23                     | x  | 1    | L0200500.0443 | L0200510.0443 | L0200501.0443 | L0200530.0443 | L0200550.0443    | L0200560.0443  |
|                | 24                     | x  | 1    | L0200500.0450 | L0200510.0450 | L0200501.0450 | L0200530.0450 | L0200550.0450    | L0200560.0450  |
|                | 24                     | x  | 1,5  | L0200500.0452 | L0200510.0452 | L0200501.0452 | L0200530.0452 | L0200550.0452    | L0200560.0452  |
|                | 24                     | x  | 2    | L0200500.0453 | L0200510.0453 | L0200501.0453 | L0200530.0453 | L0200550.0453    | L0200560.0453  |
|                | 25                     | x  | 1    | L0200500.0456 | L0200510.0456 | L0200501.0456 | L0200530.0456 | L0200550.0456    | L0200560.0456  |
|                | 25                     | x  | 1,5  | L0200500.0458 | L0200510.0458 | L0200501.0458 | L0200530.0458 | L0200550.0458    | L0200560.0458  |
|                | 25                     | x  | 2    | L0200500.0459 | L0200510.0459 | L0200501.0459 | L0200530.0459 | L0200550.0459    | L0200560.0459  |
|                | 26                     | x  | 1    | L0200500.0462 | L0200510.0462 | L0200501.0462 | L0200530.0462 | L0200550.0462    | L0200560.0462  |
|                | 26                     | x  | 1,5  | L0200500.0464 | L0200510.0464 | L0200501.0464 | L0200530.0464 | L0200550.0464    | L0200560.0464  |
|                | 26                     | x  | 2    | L0200500.0465 | L0200510.0465 | L0200501.0465 | L0200530.0465 | L0200550.0465    | L0200560.0465  |

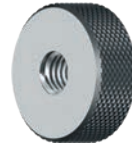
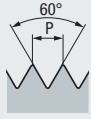


|  |  |  |  |  |  |  |  | Product Finder  |
|--|--|--|--|--|--|--|--|---|
|  |  |  |  |  |  |  |  | M   |
|  |  |  |  |  |  |  |  | MF  |
|  |  |  |  |  |  |  |  | UNC   |
|  |  |  |  |  |  |  |  | UNF   |
|  |  |  |  |  |  |  |  | Rp, R, Rc   |
|  |  |  |  |  |  |  |  | NPT, NPTF   |
|  |  |  |  |  |  |  |  | BSW   |
|  |  |  |  |  |  |  |  | Pg  |
|  |  |  |  |  |  |  |  | MJ<br>UNJC, UNJF  |
|  |  |  |  |  |  |  |  | EG (STI)  |
|  |  |  |  |  |  |  |  | SELF-LOCK   |
|  |  |  |  |  |  |  |  | Tr, Tr-F<br>Rd  |
|  |  |  |  |  |  |  |  | Glatt<br>Smooth   |
|  |  |  |  |  |  |  |  | GT, TD  |
|  |  |  |  |  |  |  |  | Zubehör<br>Accessories  |
|  |  |  |  |  |  |  |  | PoCoSys   |
|  |  |  |  |  |  |  |  | Kalibrieren<br>Calibration  |
|  |  |  |  |  |  |  |  |   |
|  |  |  |  |  |  |  |  |   |
| 6e   | 6g   | 4h   | 6h   | 6e   | 6g 1)  | 4h   | 6e   |   |
| LH   |  |  |  |  | LH   | LH   | LH   |   |
| G-GUT-LR<br>LH   | G-AUS-LR   | G-AUS-LR   | G-AUS-LR   | G-AUS-LR   | G-AUS-LR<br>LH   | G-AUS-LR<br>LH   | G-AUS-LR<br>LH   |   |
|  |  | L0300510.0186<br>L0300510.0189<br>L0300510.0192  |  |  |  |  |  | M 2 x 0,25<br>2,2 x 0,25<br>2,3 x 0,25<br>2,5 x 0,35<br>2,6 x 0,35<br>3 x 0,35<br>3,5 x 0,35<br>4 x 0,35<br>4 x 0,5<br>4,5 x 0,5<br>5 x 0,5<br>6 x 0,5<br>6 x 0,75<br>7 x 0,75<br>8 x 0,5<br>8 x 0,75<br>8 x 1<br>9 x 1<br>10 x 0,75<br>10 x 1<br>10 x 1,25<br>11 x 1<br>12 x 1<br>12 x 1,25<br>12 x 1,5<br>13 x 1<br>13 x 1,5<br>14 x 1<br>14 x 1,25<br>14 x 1,5<br>15 x 1<br>15 x 1,5<br>16 x 1<br>16 x 1,5<br>17 x 1<br>17 x 1,5<br>18 x 1<br>18 x 1,5<br>18 x 2<br>19 x 1<br>20 x 1<br>20 x 1,5<br>20 x 2<br>21 x 1<br>22 x 1<br>22 x 1,5<br>22 x 2<br>23 x 1<br>24 x 1<br>24 x 1,5<br>24 x 2<br>25 x 1<br>25 x 1,5<br>25 x 2<br>26 x 1<br>26 x 1,5<br>26 x 2 |
|  | L0300500.0196<br>L0300500.0199<br>L0300500.0202<br>L0300500.0205<br>L0300500.0209<br>L0300500.0210<br>L0300500.0214<br>L0300500.0218<br>L0300500.0228<br>L0300500.0229<br>L0300500.0239<br>L0300500.0249<br>L0300500.0250  | L0300510.0210  |  | L0300530.0210  | L0300550.0202<br>L0300550.0205<br>L0300550.0209<br>L0300550.0210   |  |  |   |
| L0200580.0251<br>L0200580.0263   | L0300500.0251<br>L0300500.0263<br>L0300500.0275  | L0300510.0251<br>L0300510.0263   | L0300501.0251<br>L0300501.0263   | L0300530.0251<br>L0300530.0263   | L0300550.0251<br>L0300550.0263   | L0300560.0251<br>L0300560.0263   | L0300580.0251<br>L0300580.0263   |   |
| L0200580.0276  | L0300500.0276<br>L0300500.0277   | L0300510.0276  | L0300501.0276  | L0300530.0276  | L0300550.0276  | L0300560.0276  | L0300580.0276  |   |
| L0200580.0288<br>L0200580.0301   | L0300500.0288<br>L0300500.0301<br>L0300500.0302  | L0300510.0288<br>L0300510.0301   | L0300501.0288<br>L0300501.0301   | L0300530.0288<br>L0300530.0301   | L0300550.0288<br>L0300550.0301   | L0300560.0288<br>L0300560.0301   | L0300580.0288<br>L0300580.0301   |   |
| L0200580.0303<br>L0200580.0315<br>L0200580.0317<br>L0200580.0329   | L0300500.0303<br>L0300500.0315<br>L0300500.0317<br>L0300500.0329<br>L0300500.0330  | L0300510.0303<br>L0300510.0315<br>L0300510.0317<br>L0300510.0329   | L0300501.0303<br>L0300501.0315<br>L0300501.0317<br>L0300501.0329   | L0300530.0303<br>L0300530.0315<br>L0300530.0317<br>L0300530.0329   | L0300550.0303<br>L0300550.0315<br>L0300550.0317<br>L0300550.0329   | L0300560.0303<br>L0300560.0315<br>L0300560.0317<br>L0300560.0329   | L0300580.0303<br>L0300580.0315<br>L0300580.0317<br>L0300580.0329   |   |
| L0200580.0331<br>L0200580.0343<br>L0200580.0345<br>L0200580.0357<br>L0200580.0359<br>L0200580.0372<br>L0200580.0374<br>L0200580.0388<br>L0200580.0390<br>L0200580.0391<br>L0200580.0404<br>L0200580.0420<br>L0200580.0422<br>L0200580.0423<br>L0200580.0428<br>L0200580.0436<br>L0200580.0438<br>L0200580.0439<br>L0200580.0443<br>L0200580.0450<br>L0200580.0452<br>L0200580.0453<br>L0200580.0456<br>L0200580.0458<br>L0200580.0459<br>L0200580.0462<br>L0200580.0464<br>L0200580.0465 | L0300500.0331<br>L0300500.0343<br>L0300500.0345<br>L0300500.0357<br>L0300500.0359<br>L0300500.0372<br>L0300500.0374<br>L0300500.0388<br>L0300500.0390<br>L0300500.0391<br>L0300500.0404<br>L0300500.0420<br>L0300500.0422<br>L0300500.0423<br>L0300500.0428<br>L0300500.0436<br>L0300500.0438<br>L0300500.0439<br>L0300500.0443<br>L0300500.0450<br>L0300500.0452<br>L0300500.0453<br>L0300500.0456<br>L0300500.0458<br>L0300500.0459<br>L0300500.0462<br>L0300500.0464<br>L0300500.0465 | L0300510.0331<br>L0300510.0343<br>L0300510.0345<br>L0300510.0357<br>L0300510.0359<br>L0300510.0372<br>L0300510.0374<br>L0300510.0388<br>L0300510.0390<br>L0300510.0391<br>L0300510.0404<br>L0300510.0420<br>L0300510.0422<br>L0300510.0423<br>L0300510.0428<br>L0300510.0436<br>L0300510.0438<br>L0300510.0439<br>L0300510.0443<br>L0300510.0450<br>L0300510.0452<br>L0300510.0453<br>L0300510.0456<br>L0300510.0458<br>L0300510.0459<br>L0300510.0462<br>L0300510.0464<br>L0300510.0465 | L0300501.0331<br>L0300501.0343<br>L0300501.0345<br>L0300501.0357<br>L0300501.0359<br>L0300501.0372<br>L0300501.0374<br>L0300501.0388<br>L0300501.0390<br>L0300501.0391<br>L0300501.0404<br>L0300501.0420<br>L0300501.0422<br>L0300501.0423<br>L0300501.0428<br>L0300501.0436<br>L0300501.0438<br>L0300501.0439<br>L0300501.0443<br>L0300501.0450<br>L0300501.0452<br>L0300501.0453<br>L0300501.0456<br>L0300501.0458<br>L0300501.0459<br>L0300501.0462<br>L0300501.0464<br>L0300501.0465 | L0300530.0331<br>L0300530.0343<br>L0300530.0345<br>L0300530.0357<br>L0300530.0359<br>L0300530.0372<br>L0300530.0374<br>L0300530.0388<br>L0300530.0390<br>L0300530.0391<br>L0300530.0404<br>L0300530.0420<br>L0300530.0422<br>L0300530.0423<br>L0300530.0428<br>L0300530.0436<br>L0300530.0438<br>L0300530.0439<br>L0300530.0443<br>L0300530.0450<br>L0300530.0452<br>L0300530.0453<br>L0300530.0456<br>L0300530.0458<br>L0300530.0459<br>L0300530.0462<br>L0300530.0464<br>L0300530.0465 | L0300550.0331<br>L0300550.0343<br>L0300550.0345<br>L0300550.0357<br>L0300550.0359<br>L0300550.0372<br>L0300550.0374<br>L0300550.0388<br>L0300550.0390<br>L0300550.0391<br>L0300550.0404<br>L0300550.0420<br>L0300550.0422<br>L0300550.0423<br>L0300550.0428<br>L0300550.0436<br>L0300550.0438<br>L0300550.0439<br>L0300550.0443<br>L0300550.0450<br>L0300550.0452<br>L0300550.0453<br>L0300550.0456<br>L0300550.0458<br>L0300550.0459<br>L0300550.0462<br>L0300550.0464<br>L0300550.0465 | L0300560.0331<br>L0300560.0343<br>L0300560.0345<br>L0300560.0357<br>L0300560.0359<br>L0300560.0372<br>L0300560.0374<br>L0300560.0388<br>L0300560.0390<br>L0300560.0391<br>L0300560.0404<br>L0300560.0420<br>L0300560.0422<br>L0300560.0423<br>L0300560.0428<br>L0300560.0436<br>L0300560.0438<br>L0300560.0439<br>L0300560.0443<br>L0300560.0450<br>L0300560.0452<br>L0300560.0453<br>L0300560.0456<br>L0300560.0458<br>L0300560.0459<br>L0300560.0462<br>L0300560.0464<br>L0300560.0465 | L0300580.0331<br>L0300580.0343<br>L0300580.0345<br>L0300580.0357<br>L0300580.0359<br>L0300580.0372<br>L0300580.0374<br>L0300580.0388<br>L0300580.0390<br>L0300580.0391<br>L0300580.0404<br>L0300580.0420<br>L0300580.0422<br>L0300580.0423<br>L0300580.0428<br>L0300580.0436<br>L0300580.0438<br>L0300580.0439<br>L0300580.0443<br>L0300580.0450<br>L0300580.0452<br>L0300580.0453<br>L0300580.0456<br>L0300580.0458<br>L0300580.0459<br>L0300580.0462<br>L0300580.0464<br>L0300580.0465 |   |

- Product Finder
- M
- MF
- UNC
- UNF
- G
- Rp, R, Rc
- NPT, NPTF
- BSW
- Pg
- MJ
- UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F
- Rd
- Glatt
- Smooth
- GT, TD
- Zubehör
- Accessories
- PoCoSys
- Kalibrieren
- Calibration

# MF

DIN 13



Lehrenmaße nach DIN ISO 1502  
Gauge dimensions acc. DIN ISO 1502

Toleranz · Tolerance  
Beschichtung · Coating

6g

4h

6h

6e

6g 1)

4h

LH

LH

G-GUT-LR

G-GUT-LR

G-GUT-LR

G-GUT-LR

G-GUT-LR  
LH

G-GUT-LR  
LH

| M | ø d <sub>1</sub><br>mm | P<br>mm | 6g            |               | 4h            |               | 6h            |                | 6e             |  | 6g 1) |  | 4h |  |
|---|------------------------|---------|---------------|---------------|---------------|---------------|---------------|----------------|----------------|--|-------|--|----|--|
|   |                        |         | G-GUT-LR      | G-GUT-LR      | G-GUT-LR      | G-GUT-LR      | G-GUT-LR      | G-GUT-LR<br>LH | G-GUT-LR<br>LH |  |       |  |    |  |
|   | 27                     | x 1     | L0200500.0468 | L0200510.0468 | L0200501.0468 | L0200530.0468 | L0200550.0468 | L0200560.0468  |                |  |       |  |    |  |
|   | 27                     | x 1,5   | L0200500.0470 | L0200510.0470 | L0200501.0470 | L0200530.0470 | L0200550.0470 | L0200560.0470  |                |  |       |  |    |  |
|   | 27                     | x 2     | L0200500.0471 | L0200510.0471 | L0200501.0471 | L0200530.0471 | L0200550.0471 | L0200560.0471  |                |  |       |  |    |  |
|   | 28                     | x 1     | L0200500.0474 | L0200510.0474 | L0200501.0474 | L0200530.0474 | L0200550.0474 | L0200560.0474  |                |  |       |  |    |  |
|   | 28                     | x 1,5   | L0200500.0476 | L0200510.0476 | L0200501.0476 | L0200530.0476 | L0200550.0476 | L0200560.0476  |                |  |       |  |    |  |
|   | 28                     | x 2     | L0200500.0477 | L0200510.0477 | L0200501.0477 | L0200530.0477 | L0200550.0477 | L0200560.0477  |                |  |       |  |    |  |
|   | 30                     | x 1     | L0200500.0488 | L0200510.0488 | L0200501.0488 | L0200530.0488 | L0200550.0488 | L0200560.0488  |                |  |       |  |    |  |
|   | 30                     | x 1,5   | L0200500.0490 | L0200510.0490 | L0200501.0490 | L0200530.0490 | L0200550.0490 | L0200560.0490  |                |  |       |  |    |  |
|   | 30                     | x 2     | L0200500.0491 | L0200510.0491 | L0200501.0491 | L0200530.0491 | L0200550.0491 | L0200560.0491  |                |  |       |  |    |  |
|   | 30                     | x 3     | L0200500.0492 | L0200510.0492 | L0200501.0492 | L0200530.0492 | L0200550.0492 | L0200560.0492  |                |  |       |  |    |  |
|   | 32                     | x 1     | L0200500.0502 | L0200510.0502 | L0200501.0502 | L0200530.0502 | L0200550.0502 | L0200560.0502  |                |  |       |  |    |  |
|   | 32                     | x 1,5   | L0200500.0504 | L0200510.0504 | L0200501.0504 | L0200530.0504 | L0200550.0504 | L0200560.0504  |                |  |       |  |    |  |
|   | 32                     | x 2     | L0200500.0505 | L0200510.0505 | L0200501.0505 | L0200530.0505 | L0200550.0505 | L0200560.0505  |                |  |       |  |    |  |
|   | 33                     | x 1     | L0200500.0509 | L0200510.0509 | L0200501.0509 | L0200530.0509 | L0200550.0509 | L0200560.0509  |                |  |       |  |    |  |
|   | 33                     | x 1,5   | L0200500.0511 | L0200510.0511 | L0200501.0511 | L0200530.0511 | L0200550.0511 | L0200560.0511  |                |  |       |  |    |  |
|   | 33                     | x 2     | L0200500.0512 | L0200510.0512 | L0200501.0512 | L0200530.0512 | L0200550.0512 | L0200560.0512  |                |  |       |  |    |  |
|   | 33                     | x 3     | L0200500.0513 | L0200510.0513 | L0200501.0513 | L0200530.0513 | L0200550.0513 | L0200560.0513  |                |  |       |  |    |  |
|   | 34                     | x 1     | L0200500.0516 | L0200510.0516 | L0200501.0516 | L0200530.0516 | L0200550.0516 | L0200560.0516  |                |  |       |  |    |  |
|   | 34                     | x 1,5   | L0200500.0518 | L0200510.0518 | L0200501.0518 | L0200530.0518 | L0200550.0518 | L0200560.0518  |                |  |       |  |    |  |
|   | 34                     | x 2     | L0200500.0519 | L0200510.0519 | L0200501.0519 | L0200530.0519 | L0200550.0519 | L0200560.0519  |                |  |       |  |    |  |
|   | 35                     | x 1     | L0200500.0523 | L0200510.0523 | L0200501.0523 | L0200530.0523 | L0200550.0523 | L0200560.0523  |                |  |       |  |    |  |
|   | 35                     | x 1,5   | L0200500.0525 | L0200510.0525 | L0200501.0525 | L0200530.0525 | L0200550.0525 | L0200560.0525  |                |  |       |  |    |  |
|   | 35                     | x 2     | L0200500.0526 | L0200510.0526 | L0200501.0526 | L0200530.0526 | L0200550.0526 | L0200560.0526  |                |  |       |  |    |  |
|   | 36                     | x 1     | L0200500.0530 | L0200510.0530 | L0200501.0530 | L0200530.0530 | L0200550.0530 | L0200560.0530  |                |  |       |  |    |  |
|   | 36                     | x 1,5   | L0200500.0532 | L0200510.0532 | L0200501.0532 | L0200530.0532 | L0200550.0532 | L0200560.0532  |                |  |       |  |    |  |
|   | 36                     | x 2     | L0200500.0533 | L0200510.0533 | L0200501.0533 | L0200530.0533 | L0200550.0533 | L0200560.0533  |                |  |       |  |    |  |
|   | 36                     | x 3     | L0200500.0534 | L0200510.0534 | L0200501.0534 | L0200530.0534 | L0200550.0534 | L0200560.0534  |                |  |       |  |    |  |
|   | 38                     | x 1     | L0200500.0544 | L0200510.0544 | L0200501.0544 | L0200530.0544 | L0200550.0544 | L0200560.0544  |                |  |       |  |    |  |
|   | 38                     | x 1,5   | L0200500.0546 | L0200510.0546 | L0200501.0546 | L0200530.0546 | L0200550.0546 | L0200560.0546  |                |  |       |  |    |  |
|   | 38                     | x 2     | L0200500.0547 | L0200510.0547 | L0200501.0547 | L0200530.0547 | L0200550.0547 | L0200560.0547  |                |  |       |  |    |  |
|   | 39                     | x 1     | L0200500.0551 | L0200510.0551 | L0200501.0551 | L0200530.0551 | L0200550.0551 | L0200560.0551  |                |  |       |  |    |  |
|   | 39                     | x 1,5   | L0200500.0553 | L0200510.0553 | L0200501.0553 | L0200530.0553 | L0200550.0553 | L0200560.0553  |                |  |       |  |    |  |
|   | 39                     | x 2     | L0200500.0554 | L0200510.0554 | L0200501.0554 | L0200530.0554 | L0200550.0554 | L0200560.0554  |                |  |       |  |    |  |
|   | 39                     | x 3     | L0200500.0555 | L0200510.0555 | L0200501.0555 | L0200530.0555 | L0200550.0555 | L0200560.0555  |                |  |       |  |    |  |
|   | 40                     | x 1     | L0200500.0558 | L0200510.0558 | L0200501.0558 | L0200530.0558 | L0200550.0558 | L0200560.0558  |                |  |       |  |    |  |
|   | 40                     | x 1,5   | L0200500.0560 | L0200510.0560 | L0200501.0560 | L0200530.0560 | L0200550.0560 | L0200560.0560  |                |  |       |  |    |  |
|   | 40                     | x 2     | L0200500.0561 | L0200510.0561 | L0200501.0561 | L0200530.0561 | L0200550.0561 | L0200560.0561  |                |  |       |  |    |  |
|   | 40                     | x 3     | L0200500.0562 | L0200510.0562 | L0200501.0562 | L0200530.0562 | L0200550.0562 | L0200560.0562  |                |  |       |  |    |  |
|   | 42                     | x 1     | L0200500.0572 | L0200510.0572 | L0200501.0572 | L0200530.0572 | L0200550.0572 | L0200560.0572  |                |  |       |  |    |  |
|   | 42                     | x 1,5   | L0200500.0574 | L0200510.0574 | L0200501.0574 | L0200530.0574 | L0200550.0574 | L0200560.0574  |                |  |       |  |    |  |
|   | 42                     | x 2     | L0200500.0575 | L0200510.0575 | L0200501.0575 | L0200530.0575 | L0200550.0575 | L0200560.0575  |                |  |       |  |    |  |
|   | 42                     | x 3     | L0200500.0576 | L0200510.0576 | L0200501.0576 | L0200530.0576 | L0200550.0576 | L0200560.0576  |                |  |       |  |    |  |
|   | 45                     | x 1     | L0200500.0593 | L0200510.0593 | L0200501.0593 | L0200530.0593 | L0200550.0593 | L0200560.0593  |                |  |       |  |    |  |
|   | 45                     | x 1,5   | L0200500.0595 | L0200510.0595 | L0200501.0595 | L0200530.0595 | L0200550.0595 | L0200560.0595  |                |  |       |  |    |  |
|   | 45                     | x 2     | L0200500.0596 | L0200510.0596 | L0200501.0596 | L0200530.0596 | L0200550.0596 | L0200560.0596  |                |  |       |  |    |  |
|   | 45                     | x 3     | L0200500.0597 | L0200510.0597 | L0200501.0597 | L0200530.0597 | L0200550.0597 | L0200560.0597  |                |  |       |  |    |  |
|   | 48                     | x 1     | L0200500.0614 | L0200510.0614 | L0200501.0614 | L0200530.0614 | L0200550.0614 | L0200560.0614  |                |  |       |  |    |  |
|   | 48                     | x 1,5   | L0200500.0616 | L0200510.0616 | L0200501.0616 | L0200530.0616 | L0200550.0616 | L0200560.0616  |                |  |       |  |    |  |
|   | 48                     | x 2     | L0200500.0617 | L0200510.0617 | L0200501.0617 | L0200530.0617 | L0200550.0617 | L0200560.0617  |                |  |       |  |    |  |
|   | 48                     | x 3     | L0200500.0618 | L0200510.0618 | L0200501.0618 | L0200530.0618 | L0200550.0618 | L0200560.0618  |                |  |       |  |    |  |
|   | 50                     | x 1     | L0200500.0628 | L0200510.0628 | L0200501.0628 | L0200530.0628 | L0200550.0628 | L0200560.0628  |                |  |       |  |    |  |
|   | 50                     | x 1,5   | L0200500.0630 | L0200510.0630 | L0200501.0630 | L0200530.0630 | L0200550.0630 | L0200560.0630  |                |  |       |  |    |  |
|   | 50                     | x 2     | L0200500.0631 | L0200510.0631 | L0200501.0631 | L0200530.0631 | L0200550.0631 | L0200560.0631  |                |  |       |  |    |  |
|   | 50                     | x 3     | L0200500.0632 | L0200510.0632 | L0200501.0632 | L0200530.0632 | L0200550.0632 | L0200560.0632  |                |  |       |  |    |  |
|   | 52                     | x 1     | L0200500.0642 | L0200510.0642 | L0200501.0642 | L0200530.0642 | L0200550.0642 | L0200560.0642  |                |  |       |  |    |  |
|   | 52                     | x 1,5   | L0200500.0644 | L0200510.0644 | L0200501.0644 | L0200530.0644 | L0200550.0644 | L0200560.0644  |                |  |       |  |    |  |
|   | 52                     | x 2     | L0200500.0645 | L0200510.0645 | L0200501.0645 | L0200530.0645 | L0200550.0645 | L0200560.0645  |                |  |       |  |    |  |

|                |               |               |               |               |                  |                |                | Product Finder             |
|----------------|---------------|---------------|---------------|---------------|------------------|----------------|----------------|----------------------------|
|                |               |               |               |               |                  |                |                | M                          |
|                |               |               |               |               |                  |                |                | MF                         |
|                |               |               |               |               |                  |                |                | UNC                        |
|                |               |               |               |               |                  |                |                | UNF                        |
|                |               |               |               |               |                  |                |                | Rp, R, Rc                  |
|                |               |               |               |               |                  |                |                | NPT, NPTF                  |
|                |               |               |               |               |                  |                |                | BSW                        |
|                |               |               |               |               |                  |                |                | Pg                         |
|                |               |               |               |               |                  |                |                | MJ<br>UNJC, UNJF           |
|                |               |               |               |               |                  |                |                | EG (STI)                   |
|                |               |               |               |               |                  |                |                | SELF-LOCK                  |
|                |               |               |               |               |                  |                |                | Tr, Tr-F<br>Rd             |
|                |               |               |               |               |                  |                |                | Glatt<br>Smooth            |
|                |               |               |               |               |                  |                |                | GT, TD                     |
|                |               |               |               |               |                  |                |                | Zubehör<br>Accessories     |
|                |               |               |               |               |                  |                |                | PoCoSys                    |
|                |               |               |               |               |                  |                |                | Kalibrieren<br>Calibration |
|                |               |               |               |               |                  |                |                |                            |
|                |               |               |               |               |                  |                |                |                            |
| 6e             | 6g            | 4h            | 6h            | 6e            | 6g <sup>1)</sup> | 4h             | 6e             |                            |
| LH             |               |               |               |               | LH               | LH             | LH             |                            |
| G-GUT-LR<br>LH | G-AUS-LR      | G-AUS-LR      | G-AUS-LR      | G-AUS-LR      | G-AUS-LR<br>LH   | G-AUS-LR<br>LH | G-AUS-LR<br>LH |                            |
| L0200580.0468  | L0300500.0468 | L0300510.0468 | L0300501.0468 | L0300530.0468 | L0300550.0468    | L0300560.0468  | L0300580.0468  | M 27 x 1                   |
| L0200580.0470  | L0300500.0470 | L0300510.0470 | L0300501.0470 | L0300530.0470 | L0300550.0470    | L0300560.0470  | L0300580.0470  | 27 x 1,5                   |
| L0200580.0471  | L0300500.0471 | L0300510.0471 | L0300501.0471 | L0300530.0471 | L0300550.0471    | L0300560.0471  | L0300580.0471  | 27 x 2                     |
| L0200580.0474  | L0300500.0474 | L0300510.0474 | L0300501.0474 | L0300530.0474 | L0300550.0474    | L0300560.0474  | L0300580.0474  | 28 x 1                     |
| L0200580.0476  | L0300500.0476 | L0300510.0476 | L0300501.0476 | L0300530.0476 | L0300550.0476    | L0300560.0476  | L0300580.0476  | 28 x 1,5                   |
| L0200580.0477  | L0300500.0477 | L0300510.0477 | L0300501.0477 | L0300530.0477 | L0300550.0477    | L0300560.0477  | L0300580.0477  | 28 x 2                     |
| L0200580.0488  | L0300500.0488 | L0300510.0488 | L0300501.0488 | L0300530.0488 | L0300550.0488    | L0300560.0488  | L0300580.0488  | 30 x 1                     |
| L0200580.0490  | L0300500.0490 | L0300510.0490 | L0300501.0490 | L0300530.0490 | L0300550.0490    | L0300560.0490  | L0300580.0490  | 30 x 1,5                   |
| L0200580.0491  | L0300500.0491 | L0300510.0491 | L0300501.0491 | L0300530.0491 | L0300550.0491    | L0300560.0491  | L0300580.0491  | 30 x 2                     |
| L0200580.0492  | L0300500.0492 | L0300510.0492 | L0300501.0492 | L0300530.0492 | L0300550.0492    | L0300560.0492  | L0300580.0492  | 30 x 3                     |
| L0200580.0502  | L0300500.0502 | L0300510.0502 | L0300501.0502 | L0300530.0502 | L0300550.0502    | L0300560.0502  | L0300580.0502  | 32 x 1                     |
| L0200580.0504  | L0300500.0504 | L0300510.0504 | L0300501.0504 | L0300530.0504 | L0300550.0504    | L0300560.0504  | L0300580.0504  | 32 x 1,5                   |
| L0200580.0505  | L0300500.0505 | L0300510.0505 | L0300501.0505 | L0300530.0505 | L0300550.0505    | L0300560.0505  | L0300580.0505  | 32 x 2                     |
| L0200580.0509  | L0300500.0509 | L0300510.0509 | L0300501.0509 | L0300530.0509 | L0300550.0509    | L0300560.0509  | L0300580.0509  | 33 x 1                     |
| L0200580.0511  | L0300500.0511 | L0300510.0511 | L0300501.0511 | L0300530.0511 | L0300550.0511    | L0300560.0511  | L0300580.0511  | 33 x 1,5                   |
| L0200580.0512  | L0300500.0512 | L0300510.0512 | L0300501.0512 | L0300530.0512 | L0300550.0512    | L0300560.0512  | L0300580.0512  | 33 x 2                     |
| L0200580.0513  | L0300500.0513 | L0300510.0513 | L0300501.0513 | L0300530.0513 | L0300550.0513    | L0300560.0513  | L0300580.0513  | 33 x 3                     |
| L0200580.0516  | L0300500.0516 | L0300510.0516 | L0300501.0516 | L0300530.0516 | L0300550.0516    | L0300560.0516  | L0300580.0516  | 34 x 1                     |
| L0200580.0518  | L0300500.0518 | L0300510.0518 | L0300501.0518 | L0300530.0518 | L0300550.0518    | L0300560.0518  | L0300580.0518  | 34 x 1,5                   |
| L0200580.0519  | L0300500.0519 | L0300510.0519 | L0300501.0519 | L0300530.0519 | L0300550.0519    | L0300560.0519  | L0300580.0519  | 34 x 2                     |
| L0200580.0523  | L0300500.0523 | L0300510.0523 | L0300501.0523 | L0300530.0523 | L0300550.0523    | L0300560.0523  | L0300580.0523  | 35 x 1                     |
| L0200580.0525  | L0300500.0525 | L0300510.0525 | L0300501.0525 | L0300530.0525 | L0300550.0525    | L0300560.0525  | L0300580.0525  | 35 x 1,5                   |
| L0200580.0526  | L0300500.0526 | L0300510.0526 | L0300501.0526 | L0300530.0526 | L0300550.0526    | L0300560.0526  | L0300580.0526  | 35 x 2                     |
| L0200580.0530  | L0300500.0530 | L0300510.0530 | L0300501.0530 | L0300530.0530 | L0300550.0530    | L0300560.0530  | L0300580.0530  | 36 x 1                     |
| L0200580.0532  | L0300500.0532 | L0300510.0532 | L0300501.0532 | L0300530.0532 | L0300550.0532    | L0300560.0532  | L0300580.0532  | 36 x 1,5                   |
| L0200580.0533  | L0300500.0533 | L0300510.0533 | L0300501.0533 | L0300530.0533 | L0300550.0533    | L0300560.0533  | L0300580.0533  | 36 x 2                     |
| L0200580.0534  | L0300500.0534 | L0300510.0534 | L0300501.0534 | L0300530.0534 | L0300550.0534    | L0300560.0534  | L0300580.0534  | 36 x 3                     |
| L0200580.0544  | L0300500.0544 | L0300510.0544 | L0300501.0544 | L0300530.0544 | L0300550.0544    | L0300560.0544  | L0300580.0544  | 38 x 1                     |
| L0200580.0546  | L0300500.0546 | L0300510.0546 | L0300501.0546 | L0300530.0546 | L0300550.0546    | L0300560.0546  | L0300580.0546  | 38 x 1,5                   |
| L0200580.0547  | L0300500.0547 | L0300510.0547 | L0300501.0547 | L0300530.0547 | L0300550.0547    | L0300560.0547  | L0300580.0547  | 38 x 2                     |
| L0200580.0551  | L0300500.0551 | L0300510.0551 | L0300501.0551 | L0300530.0551 | L0300550.0551    | L0300560.0551  | L0300580.0551  | 39 x 1                     |
| L0200580.0553  | L0300500.0553 | L0300510.0553 | L0300501.0553 | L0300530.0553 | L0300550.0553    | L0300560.0553  | L0300580.0553  | 39 x 1,5                   |
| L0200580.0554  | L0300500.0554 | L0300510.0554 | L0300501.0554 | L0300530.0554 | L0300550.0554    | L0300560.0554  | L0300580.0554  | 39 x 2                     |
| L0200580.0555  | L0300500.0555 | L0300510.0555 | L0300501.0555 | L0300530.0555 | L0300550.0555    | L0300560.0555  | L0300580.0555  | 39 x 3                     |
| L0200580.0558  | L0300500.0558 | L0300510.0558 | L0300501.0558 | L0300530.0558 | L0300550.0558    | L0300560.0558  | L0300580.0558  | 40 x 1                     |
| L0200580.0560  | L0300500.0560 | L0300510.0560 | L0300501.0560 | L0300530.0560 | L0300550.0560    | L0300560.0560  | L0300580.0560  | 40 x 1,5                   |
| L0200580.0561  | L0300500.0561 | L0300510.0561 | L0300501.0561 | L0300530.0561 | L0300550.0561    | L0300560.0561  | L0300580.0561  | 40 x 2                     |
| L0200580.0562  | L0300500.0562 | L0300510.0562 | L0300501.0562 | L0300530.0562 | L0300550.0562    | L0300560.0562  | L0300580.0562  | 40 x 3                     |
| L0200580.0572  | L0300500.0572 | L0300510.0572 | L0300501.0572 | L0300530.0572 | L0300550.0572    | L0300560.0572  | L0300580.0572  | 42 x 1                     |
| L0200580.0574  | L0300500.0574 | L0300510.0574 | L0300501.0574 | L0300530.0574 | L0300550.0574    | L0300560.0574  | L0300580.0574  | 42 x 1,5                   |
| L0200580.0575  | L0300500.0575 | L0300510.0575 | L0300501.0575 | L0300530.0575 | L0300550.0575    | L0300560.0575  | L0300580.0575  | 42 x 2                     |
| L0200580.0576  | L0300500.0576 | L0300510.0576 | L0300501.0576 | L0300530.0576 | L0300550.0576    | L0300560.0576  | L0300580.0576  | 42 x 3                     |
| L0200580.0593  | L0300500.0593 | L0300510.0593 | L0300501.0593 | L0300530.0593 | L0300550.0593    | L0300560.0593  | L0300580.0593  | 45 x 1                     |
| L0200580.0595  | L0300500.0595 | L0300510.0595 | L0300501.0595 | L0300530.0595 | L0300550.0595    | L0300560.0595  | L0300580.0595  | 45 x 1,5                   |
| L0200580.0596  | L0300500.0596 | L0300510.0596 | L0300501.0596 | L0300530.0596 | L0300550.0596    | L0300560.0596  | L0300580.0596  | 45 x 2                     |
| L0200580.0597  | L0300500.0597 | L0300510.0597 | L0300501.0597 | L0300530.0597 | L0300550.0597    | L0300560.0597  | L0300580.0597  | 45 x 3                     |
| L0200580.0614  | L0300500.0614 | L0300510.0614 | L0300501.0614 | L0300530.0614 | L0300550.0614    | L0300560.0614  | L0300580.0614  | 48 x 1                     |
| L0200580.0616  | L0300500.0616 | L0300510.0616 | L0300501.0616 | L0300530.0616 | L0300550.0616    | L0300560.0616  | L0300580.0616  | 48 x 1,5                   |
| L0200580.0617  | L0300500.0617 | L0300510.0617 | L0300501.0617 | L0300530.0617 | L0300550.0617    | L0300560.0617  | L0300580.0617  | 48 x 2                     |
| L0200580.0618  | L0300500.0618 | L0300510.0618 | L0300501.0618 | L0300530.0618 | L0300550.0618    | L0300560.0618  | L0300580.0618  | 48 x 3                     |
| L0200580.0628  | L0300500.0628 | L0300510.0628 | L0300501.0628 | L0300530.0628 | L0300550.0628    | L0300560.0628  | L0300580.0628  | 50 x 1                     |
| L0200580.0630  | L0300500.0630 | L0300510.0630 | L0300501.0630 | L0300530.0630 | L0300550.0630    | L0300560.0630  | L0300580.0630  | 50 x 1,5                   |
| L0200580.0631  | L0300500.0631 | L0300510.0631 | L0300501.0631 | L0300530.0631 | L0300550.0631    | L0300560.0631  | L0300580.0631  | 50 x 2                     |
| L0200580.0632  | L0300500.0632 | L0300510.0632 | L0300501.0632 | L0300530.0632 | L0300550.0632    | L0300560.0632  | L0300580.0632  | 50 x 3                     |
| L0200580.0642  | L0300500.0642 | L0300510.0642 | L0300501.0642 | L0300530.0642 | L0300550.0642    | L0300560.0642  | L0300580.0642  | 52 x 1                     |
| L0200580.0644  | L0300500.0644 | L0300510.0644 | L0300501.0644 | L0300530.0644 | L0300550.0644    | L0300560.0644  | L0300580.0644  | 52 x 1,5                   |
| L0200580.0645  | L0300500.0645 | L0300510.0645 | L0300501.0645 | L0300530.0645 | L0300550.0645    | L0300560.0645  | L0300580.0645  | 52 x 2                     |



Product Finder

M

MF

UNC

UNF

G

Rp, R, Rc

NPT, NPTF

BSW

Pg

MJ

UNJC, UNJF

EG (STI)

SELF-LOCK

Tr, Tr-F

Rd

Glatt

Smooth

GT, TD

Zubehör

Accessories

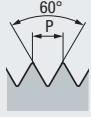
PoCoSys

Kalibrieren

Calibration



# MF



DIN 13

Lehrenmaße nach DIN ISO 1502  
Gauge dimensions acc. DIN ISO 1502



Toleranz · Tolerance  
Beschichtung · Coating

6g

4h

6h

6e

6g 1)

4h

LH

LH

G-GUT-LR

G-GUT-LR

G-GUT-LR

G-GUT-LR

















G-GUT-LR  
LH

G-GUT-LR  
LH

Ø d<sub>1</sub>  
mm

P  
mm

|                            | Ø d <sub>1</sub><br>mm | P<br>mm | G-GUT-LR      | G-GUT-LR      | G-GUT-LR      | G-GUT-LR      | G-GUT-LR<br>LH | G-GUT-LR<br>LH |
|----------------------------|------------------------|---------|---------------|---------------|---------------|---------------|----------------|----------------|
| <b>M</b>                   | 52 x 3                 |         | L0200500.0646 | L0200510.0646 | L0200501.0646 | L0200530.0646 | L0200550.0646  | L0200560.0646  |
|                            | 55 x 1                 |         | L0200500.0653 | L0200510.0653 | L0200501.0653 | L0200530.0653 | L0200550.0653  | L0200560.0653  |
| Glatt<br>Smooth            | 55 x 1,5               |         | L0200500.0654 | L0200510.0654 | L0200501.0654 | L0200530.0654 | L0200550.0654  | L0200560.0654  |
|                            | 55 x 2                 |         | L0200500.0655 | L0200510.0655 | L0200501.0655 | L0200530.0655 | L0200550.0655  | L0200560.0655  |
| GT, TD                     | 55 x 3                 |         | L0200500.0656 | L0200510.0656 | L0200501.0656 | L0200530.0656 | L0200550.0656  | L0200560.0656  |
|                            | 56 x 1                 |         | L0200500.0658 | L0200510.0658 | L0200501.0658 | L0200530.0658 | L0200550.0658  | L0200560.0658  |
| Zubehör<br>Accessories     | 56 x 1,5               |         | L0200500.0659 | L0200510.0659 | L0200501.0659 | L0200530.0659 | L0200550.0659  | L0200560.0659  |
|                            | 56 x 2                 |         | L0200500.0660 | L0200510.0660 | L0200501.0660 | L0200530.0660 | L0200550.0660  | L0200560.0660  |
| PoCoSys                    | 56 x 3                 |         | L0200500.0661 | L0200510.0661 | L0200501.0661 | L0200530.0661 | L0200550.0661  | L0200560.0661  |
|                            | 58 x 1                 |         | L0200500.0663 | L0200510.0663 | L0200501.0663 | L0200530.0663 | L0200550.0663  | L0200560.0663  |
| Kalibrieren<br>Calibration | 58 x 1,5               |         | L0200500.0664 | L0200510.0664 | L0200501.0664 | L0200530.0664 | L0200550.0664  | L0200560.0664  |
|                            | 58 x 2                 |         | L0200500.0665 | L0200510.0665 | L0200501.0665 | L0200530.0665 | L0200550.0665  | L0200560.0665  |
|                            | 58 x 3                 |         | L0200500.0666 | L0200510.0666 | L0200501.0666 | L0200530.0666 | L0200550.0666  | L0200560.0666  |
|                            | 60 x 1                 |         | L0200500.0668 | L0200510.0668 | L0200501.0668 | L0200530.0668 | L0200550.0668  | L0200560.0668  |
|                            | 60 x 1,5               |         | L0200500.0669 | L0200510.0669 | L0200501.0669 | L0200530.0669 | L0200550.0669  | L0200560.0669  |
|                            | 60 x 2                 |         | L0200500.0670 | L0200510.0670 | L0200501.0670 | L0200530.0670 | L0200550.0670  | L0200560.0670  |
|                            | 60 x 3                 |         | L0200500.0671 | L0200510.0671 | L0200501.0671 | L0200530.0671 | L0200550.0671  | L0200560.0671  |
|                            | 62 x 1                 |         | L0200500.0673 | L0200510.0673 | L0200501.0673 | L0200530.0673 | L0200550.0673  | L0200560.0673  |
|                            | 62 x 1,5               |         | L0200500.0674 | L0200510.0674 | L0200501.0674 | L0200530.0674 | L0200550.0674  | L0200560.0674  |
|                            | 62 x 2                 |         | L0200500.0675 | L0200510.0675 | L0200501.0675 | L0200530.0675 | L0200550.0675  | L0200560.0675  |
|                            | 62 x 3                 |         | L0200500.0676 | L0200510.0676 | L0200501.0676 | L0200530.0676 | L0200550.0676  | L0200560.0676  |
|                            | 64 x 1                 |         | L0200500.0678 | L0200510.0678 | L0200501.0678 | L0200530.0678 | L0200550.0678  | L0200560.0678  |
|                            | 64 x 1,5               |         | L0200500.0679 | L0200510.0679 | L0200501.0679 | L0200530.0679 | L0200550.0679  | L0200560.0679  |
|                            | 64 x 2                 |         | L0200500.0680 | L0200510.0680 | L0200501.0680 | L0200530.0680 | L0200550.0680  | L0200560.0680  |
|                            | 64 x 3                 |         | L0200500.0681 | L0200510.0681 | L0200501.0681 | L0200530.0681 | L0200550.0681  | L0200560.0681  |
|                            | 65 x 1                 |         | L0200500.0683 | L0200510.0683 | L0200501.0683 | L0200530.0683 | L0200550.0683  | L0200560.0683  |
|                            | 65 x 1,5               |         | L0200500.0684 | L0200510.0684 | L0200501.0684 | L0200530.0684 | L0200550.0684  | L0200560.0684  |
|                            | 65 x 2                 |         | L0200500.0685 | L0200510.0685 | L0200501.0685 | L0200530.0685 | L0200550.0685  | L0200560.0685  |
|                            | 65 x 3                 |         | L0200500.0686 | L0200510.0686 | L0200501.0686 | L0200530.0686 | L0200550.0686  | L0200560.0686  |
|                            | 68 x 1                 |         | L0200500.0688 | L0200510.0688 | L0200501.0688 | L0200530.0688 | L0200550.0688  | L0200560.0688  |
|                            | 68 x 1,5               |         | L0200500.0689 | L0200510.0689 | L0200501.0689 | L0200530.0689 | L0200550.0689  | L0200560.0689  |
|                            | 68 x 2                 |         | L0200500.0690 | L0200510.0690 | L0200501.0690 | L0200530.0690 | L0200550.0690  | L0200560.0690  |
|                            | 68 x 3                 |         | L0200500.0691 | L0200510.0691 | L0200501.0691 | L0200530.0691 | L0200550.0691  | L0200560.0691  |
|                            | 70 x 1                 |         | L0200500.0693 | L0200510.0693 | L0200501.0693 | L0200530.0693 | L0200550.0693  | L0200560.0693  |
|                            | 70 x 1,5               |         | L0200500.0694 | L0200510.0694 | L0200501.0694 | L0200530.0694 | L0200550.0694  | L0200560.0694  |
|                            | 70 x 2                 |         | L0200500.0695 | L0200510.0695 | L0200501.0695 | L0200530.0695 | L0200550.0695  | L0200560.0695  |
|                            | 70 x 3                 |         | L0200500.0696 | L0200510.0696 | L0200501.0696 | L0200530.0696 | L0200550.0696  | L0200560.0696  |
|                            | 72 x 1                 |         | L0200500.0699 | L0200510.0699 | L0200501.0699 | L0200530.0699 | L0200550.0699  | L0200560.0699  |
|                            | 72 x 1,5               |         | L0200500.0700 | L0200510.0700 | L0200501.0700 | L0200530.0700 | L0200550.0700  | L0200560.0700  |
|                            | 72 x 2                 |         | L0200500.0701 | L0200510.0701 | L0200501.0701 | L0200530.0701 | L0200550.0701  | L0200560.0701  |
|                            | 72 x 3                 |         | L0200500.0702 | L0200510.0702 | L0200501.0702 | L0200530.0702 | L0200550.0702  | L0200560.0702  |
|                            | 75 x 1                 |         | L0200500.0705 | L0200510.0705 | L0200501.0705 | L0200530.0705 | L0200550.0705  | L0200560.0705  |
|                            | 75 x 1,5               |         | L0200500.0706 | L0200510.0706 | L0200501.0706 | L0200530.0706 | L0200550.0706  | L0200560.0706  |
|                            | 75 x 2                 |         | L0200500.0707 | L0200510.0707 | L0200501.0707 | L0200530.0707 | L0200550.0707  | L0200560.0707  |
|                            | 75 x 3                 |         | L0200500.0708 | L0200510.0708 | L0200501.0708 | L0200530.0708 | L0200550.0708  | L0200560.0708  |
|                            | 76 x 1                 |         | L0200500.0711 | L0200510.0711 | L0200501.0711 | L0200530.0711 | L0200550.0711  | L0200560.0711  |
|                            | 76 x 1,5               |         | L0200500.0712 | L0200510.0712 | L0200501.0712 | L0200530.0712 | L0200550.0712  | L0200560.0712  |
|                            | 76 x 2                 |         | L0200500.0713 | L0200510.0713 | L0200501.0713 | L0200530.0713 | L0200550.0713  | L0200560.0713  |
|                            | 76 x 3                 |         | L0200500.0714 | L0200510.0714 | L0200501.0714 | L0200530.0714 | L0200550.0714  | L0200560.0714  |
|                            | 78 x 1                 |         | L0200500.0717 | L0200510.0717 | L0200501.0717 | L0200530.0717 | L0200550.0717  | L0200560.0717  |
|                            | 78 x 1,5               |         | L0200500.0718 | L0200510.0718 | L0200501.0718 | L0200530.0718 | L0200550.0718  | L0200560.0718  |
|                            | 78 x 2                 |         | L0200500.0719 | L0200510.0719 | L0200501.0719 | L0200530.0719 | L0200550.0719  | L0200560.0719  |
|                            | 80 x 1                 |         | L0200500.0723 | L0200510.0723 | L0200501.0723 | L0200530.0723 | L0200550.0723  | L0200560.0723  |
|                            | 80 x 1,5               |         | L0200500.0724 | L0200510.0724 | L0200501.0724 | L0200530.0724 | L0200550.0724  | L0200560.0724  |
|                            | 80 x 2                 |         | L0200500.0725 | L0200510.0725 | L0200501.0725 | L0200530.0725 | L0200550.0725  | L0200560.0725  |
|                            | 80 x 3                 |         | L0200500.0726 | L0200510.0726 | L0200501.0726 | L0200530.0726 | L0200550.0726  | L0200560.0726  |
|                            | 82 x 1,5               |         | L0200500.0729 | L0200510.0729 | L0200501.0729 | L0200530.0729 | L0200550.0729  | L0200560.0729  |

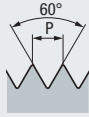
|  |   |   |   |   |    |   |   |          | Product Finder             |
|--|---|---|---|---|--|---|---|----------|----------------------------|
|  |  |  |  |  |  |  |  |          | M                          |
| 6e   | 6g  | 4h  | 6h  | 6e  | 6g <sup>1)</sup>   | 4h  | 6e  |          | MF                         |
| LH   |   |   |   |   | LH   | LH  | LH  |          | UNC                        |
| G-GUT-LR LH  | G-AUS-LR  | G-AUS-LR  | G-AUS-LR  | G-AUS-LR  | G-AUS-LR LH  | G-AUS-LR LH   | G-AUS-LR LH   |          | UNF                        |
| L0200580.0646  | L0300500.0646   | L0300510.0646   | L0300501.0646   | L0300530.0646   | L0300550.0646  | L0300560.0646   | L0300580.0646   | M 52 x 3 | Rp, R, Rc                  |
| L0200580.0653  | L0300500.0653   | L0300510.0653   | L0300501.0653   | L0300530.0653   | L0300550.0653  | L0300560.0653   | L0300580.0653   | 55 x 3   | NPT, NPTF                  |
| L0200580.0654  | L0300500.0654   | L0300510.0654   | L0300501.0654   | L0300530.0654   | L0300550.0654  | L0300560.0654   | L0300580.0654   | 55 x 1,5 | BSW                        |
| L0200580.0655  | L0300500.0655   | L0300510.0655   | L0300501.0655   | L0300530.0655   | L0300550.0655  | L0300560.0655   | L0300580.0655   | 55 x 2   | Pg                         |
| L0200580.0656  | L0300500.0656   | L0300510.0656   | L0300501.0656   | L0300530.0656   | L0300550.0656  | L0300560.0656   | L0300580.0656   | 55 x 3   | MJ                         |
| L0200580.0658  | L0300500.0658   | L0300510.0658   | L0300501.0658   | L0300530.0658   | L0300550.0658  | L0300560.0658   | L0300580.0658   | 56 x 1   | UNJC, UNJF                 |
| L0200580.0659  | L0300500.0659   | L0300510.0659   | L0300501.0659   | L0300530.0659   | L0300550.0659  | L0300560.0659   | L0300580.0659   | 56 x 1,5 | EG (STI)                   |
| L0200580.0660  | L0300500.0660   | L0300510.0660   | L0300501.0660   | L0300530.0660   | L0300550.0660  | L0300560.0660   | L0300580.0660   | 56 x 2   | SELF-LOCK                  |
| L0200580.0661  | L0300500.0661   | L0300510.0661   | L0300501.0661   | L0300530.0661   | L0300550.0661  | L0300560.0661   | L0300580.0661   | 56 x 3   | Tr, Tr-F<br>Rd             |
| L0200580.0663  | L0300500.0663   | L0300510.0663   | L0300501.0663   | L0300530.0663   | L0300550.0663  | L0300560.0663   | L0300580.0663   | 58 x 1   | Glatt<br>Smooth            |
| L0200580.0664  | L0300500.0664   | L0300510.0664   | L0300501.0664   | L0300530.0664   | L0300550.0664  | L0300560.0664   | L0300580.0664   | 58 x 1,5 | GT, TD                     |
| L0200580.0665  | L0300500.0665   | L0300510.0665   | L0300501.0665   | L0300530.0665   | L0300550.0665  | L0300560.0665   | L0300580.0665   | 58 x 2   | Zubehör<br>Accessories     |
| L0200580.0666  | L0300500.0666   | L0300510.0666   | L0300501.0666   | L0300530.0666   | L0300550.0666  | L0300560.0666   | L0300580.0666   | 58 x 3   | PoCoSys                    |
| L0200580.0668  | L0300500.0668   | L0300510.0668   | L0300501.0668   | L0300530.0668   | L0300550.0668  | L0300560.0668   | L0300580.0668   | 60 x 1   | Kalibrieren<br>Calibration |
| L0200580.0669  | L0300500.0669   | L0300510.0669   | L0300501.0669   | L0300530.0669   | L0300550.0669  | L0300560.0669   | L0300580.0669   | 60 x 1,5 |                            |
| L0200580.0670  | L0300500.0670   | L0300510.0670   | L0300501.0670   | L0300530.0670   | L0300550.0670  | L0300560.0670   | L0300580.0670   | 60 x 2   |                            |
| L0200580.0671  | L0300500.0671   | L0300510.0671   | L0300501.0671   | L0300530.0671   | L0300550.0671  | L0300560.0671   | L0300580.0671   | 60 x 3   |                            |
| L0200580.0673  | L0300500.0673   | L0300510.0673   | L0300501.0673   | L0300530.0673   | L0300550.0673  | L0300560.0673   | L0300580.0673   | 62 x 1   |                            |
| L0200580.0674  | L0300500.0674   | L0300510.0674   | L0300501.0674   | L0300530.0674   | L0300550.0674  | L0300560.0674   | L0300580.0674   | 62 x 1,5 |                            |
| L0200580.0675  | L0300500.0675   | L0300510.0675   | L0300501.0675   | L0300530.0675   | L0300550.0675  | L0300560.0675   | L0300580.0675   | 62 x 2   |                            |
| L0200580.0676  | L0300500.0676   | L0300510.0676   | L0300501.0676   | L0300530.0676   | L0300550.0676  | L0300560.0676   | L0300580.0676   | 62 x 3   |                            |
| L0200580.0678  | L0300500.0678   | L0300510.0678   | L0300501.0678   | L0300530.0678   | L0300550.0678  | L0300560.0678   | L0300580.0678   | 64 x 1   |                            |
| L0200580.0679  | L0300500.0679   | L0300510.0679   | L0300501.0679   | L0300530.0679   | L0300550.0679  | L0300560.0679   | L0300580.0679   | 64 x 1,5 |                            |
| L0200580.0680  | L0300500.0680   | L0300510.0680   | L0300501.0680   | L0300530.0680   | L0300550.0680  | L0300560.0680   | L0300580.0680   | 64 x 2   |                            |
| L0200580.0681  | L0300500.0681   | L0300510.0681   | L0300501.0681   | L0300530.0681   | L0300550.0681  | L0300560.0681   | L0300580.0681   | 64 x 3   |                            |
| L0200580.0683  | L0300500.0683   | L0300510.0683   | L0300501.0683   | L0300530.0683   | L0300550.0683  | L0300560.0683   | L0300580.0683   | 65 x 1   |                            |
| L0200580.0684  | L0300500.0684   | L0300510.0684   | L0300501.0684   | L0300530.0684   | L0300550.0684  | L0300560.0684   | L0300580.0684   | 65 x 1,5 |                            |
| L0200580.0685  | L0300500.0685   | L0300510.0685   | L0300501.0685   | L0300530.0685   | L0300550.0685  | L0300560.0685   | L0300580.0685   | 65 x 2   |                            |
| L0200580.0686  | L0300500.0686   | L0300510.0686   | L0300501.0686   | L0300530.0686   | L0300550.0686  | L0300560.0686   | L0300580.0686   | 65 x 3   |                            |
| L0200580.0688  | L0300500.0688   | L0300510.0688   | L0300501.0688   | L0300530.0688   | L0300550.0688  | L0300560.0688   | L0300580.0688   | 68 x 1   |                            |
| L0200580.0689  | L0300500.0689   | L0300510.0689   | L0300501.0689   | L0300530.0689   | L0300550.0689  | L0300560.0689   | L0300580.0689   | 68 x 1,5 |                            |
| L0200580.0690  | L0300500.0690   | L0300510.0690   | L0300501.0690   | L0300530.0690   | L0300550.0690  | L0300560.0690   | L0300580.0690   | 68 x 2   |                            |
| L0200580.0691  | L0300500.0691   | L0300510.0691   | L0300501.0691   | L0300530.0691   | L0300550.0691  | L0300560.0691   | L0300580.0691   | 68 x 3   |                            |
| L0200580.0693  | L0300500.0693   | L0300510.0693   | L0300501.0693   | L0300530.0693   | L0300550.0693  | L0300560.0693   | L0300580.0693   | 70 x 1   |                            |
| L0200580.0694  | L0300500.0694   | L0300510.0694   | L0300501.0694   | L0300530.0694   | L0300550.0694  | L0300560.0694   | L0300580.0694   | 70 x 1,5 |                            |
| L0200580.0695  | L0300500.0695   | L0300510.0695   | L0300501.0695   | L0300530.0695   | L0300550.0695  | L0300560.0695   | L0300580.0695   | 70 x 2   |                            |
| L0200580.0696  | L0300500.0696   | L0300510.0696   | L0300501.0696   | L0300530.0696   | L0300550.0696  | L0300560.0696   | L0300580.0696   | 70 x 3   |                            |
| L0200580.0699  | L0300500.0699   | L0300510.0699   | L0300501.0699   | L0300530.0699   | L0300550.0699  | L0300560.0699   | L0300580.0699   | 72 x 1   |                            |
| L0200580.0700  | L0300500.0700   | L0300510.0700   | L0300501.0700   | L0300530.0700   | L0300550.0700  | L0300560.0700   | L0300580.0700   | 72 x 1,5 |                            |
| L0200580.0701  | L0300500.0701   | L0300510.0701   | L0300501.0701   | L0300530.0701   | L0300550.0701  | L0300560.0701   | L0300580.0701   | 72 x 2   |                            |
| L0200580.0702  | L0300500.0702   | L0300510.0702   | L0300501.0702   | L0300530.0702   | L0300550.0702  | L0300560.0702   | L0300580.0702   | 72 x 3   |                            |
| L0200580.0705  | L0300500.0705   | L0300510.0705   | L0300501.0705   | L0300530.0705   | L0300550.0705  | L0300560.0705   | L0300580.0705   | 75 x 1   |                            |
| L0200580.0706  | L0300500.0706   | L0300510.0706   | L0300501.0706   | L0300530.0706   | L0300550.0706  | L0300560.0706   | L0300580.0706   | 75 x 1,5 |                            |
| L0200580.0707  | L0300500.0707   | L0300510.0707   | L0300501.0707   | L0300530.0707   | L0300550.0707  | L0300560.0707   | L0300580.0707   | 75 x 2   |                            |
| L0200580.0708  | L0300500.0708   | L0300510.0708   | L0300501.0708   | L0300530.0708   | L0300550.0708  | L0300560.0708   | L0300580.0708   | 75 x 3   |                            |
| L0200580.0711  | L0300500.0711   | L0300510.0711   | L0300501.0711   | L0300530.0711   | L0300550.0711  | L0300560.0711   | L0300580.0711   | 76 x 1   |                            |
| L0200580.0712  | L0300500.0712   | L0300510.0712   | L0300501.0712   | L0300530.0712   | L0300550.0712  | L0300560.0712   | L0300580.0712   | 76 x 1,5 |                            |
| L0200580.0713  | L0300500.0713   | L0300510.0713   | L0300501.0713   | L0300530.0713   | L0300550.0713  | L0300560.0713   | L0300580.0713   | 76 x 2   |                            |
| L0200580.0714  | L0300500.0714   | L0300510.0714   | L0300501.0714   | L0300530.0714   | L0300550.0714  | L0300560.0714   | L0300580.0714   | 76 x 3   |                            |
| L0200580.0717  | L0300500.0717   | L0300510.0717   | L0300501.0717   | L0300530.0717   | L0300550.0717  | L0300560.0717   | L0300580.0717   | 78 x 1   |                            |
| L0200580.0718  | L0300500.0718   | L0300510.0718   | L0300501.0718   | L0300530.0718   | L0300550.0718  | L0300560.0718   | L0300580.0718   | 78 x 1,5 |                            |
| L0200580.0719  | L0300500.0719   | L0300510.0719   | L0300501.0719   | L0300530.0719   | L0300550.0719  | L0300560.0719   | L0300580.0719   | 78 x 2   |                            |
| L0200580.0723  | L0300500.0723   | L0300510.0723   | L0300501.0723   | L0300530.0723   | L0300550.0723  | L0300560.0723   | L0300580.0723   | 80 x 1   |                            |
| L0200580.0724  | L0300500.0724   | L0300510.0724   | L0300501.0724   | L0300530.0724   | L0300550.0724  | L0300560.0724   | L0300580.0724   | 80 x 1,5 |                            |
| L0200580.0725  | L0300500.0725   | L0300510.0725   | L0300501.0725   | L0300530.0725   | L0300550.0725  | L0300560.0725   | L0300580.0725   | 80 x 2   |                            |
| L0200580.0726  | L0300500.0726   | L0300510.0726   | L0300501.0726   | L0300530.0726   | L0300550.0726  | L0300560.0726   | L0300580.0726   | 80 x 3   |                            |
| L0200580.0729  | L0300500.0729   | L0300510.0729   | L0300501.0729   | L0300530.0729   | L0300550.0729  | L0300560.0729   | L0300580.0729   | 82 x 1,5 |                            |



|                            |
|----------------------------|
| Product Finder             |
| M                          |
| <b>MF</b>                  |
| UNC                        |
| UNF                        |
| G                          |
| Rp, R, Rc                  |
| NPT, NPTF                  |
| BSW                        |
| Pg                         |
| MJ<br>UNJC, UNJF           |
| EG (STI)                   |
| SELF-LOCK                  |
| Tr, Tr-F<br>Rd             |
| Glatt<br>Smooth            |
| GT, TD                     |
| Zubehör<br>Accessories     |
| PoCoSys                    |
| Kalibrieren<br>Calibration |

# MF

DIN 13



Lehrenmaße nach DIN ISO 1502  
Gauge dimensions acc. DIN ISO 1502

Toleranz · Tolerance  
Beschichtung · Coating

6g

4h

6h

6e

6g <sup>1)</sup>

4h

LH

LH

G-GUT-LR

G-GUT-LR

G-GUT-LR

G-GUT-LR

G-GUT-LR  
LH


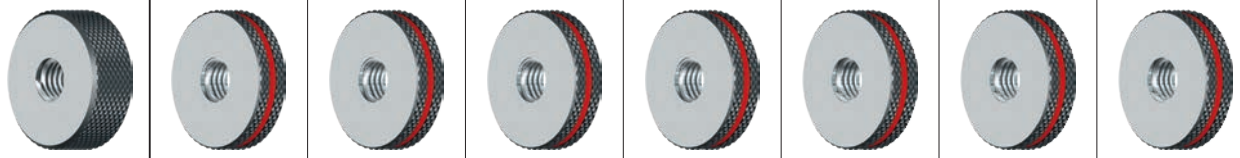
G-GUT-LR  
LH

|          | ∅ d <sub>1</sub><br>mm | P<br>mm |               |               |               |               |               |               |  |
|----------|------------------------|---------|---------------|---------------|---------------|---------------|---------------|---------------|--|
| <b>M</b> | 82 x 2                 |         | L0200500.0730 | L0200510.0730 | L0200501.0730 | L0200530.0730 | L0200550.0730 | L0200560.0730 |  |
|          | 85 x 1,5               |         | L0200500.0734 | L0200510.0734 | L0200501.0734 | L0200530.0734 | L0200550.0734 | L0200560.0734 |  |
|          | 85 x 2                 |         | L0200500.0735 | L0200510.0735 | L0200501.0735 | L0200530.0735 | L0200550.0735 | L0200560.0735 |  |
|          | 85 x 3                 |         | L0200500.0736 | L0200510.0736 | L0200501.0736 | L0200530.0736 | L0200550.0736 | L0200560.0736 |  |
|          | 88 x 1,5               |         | L0200500.0739 | L0200510.0739 | L0200501.0739 | L0200530.0739 | L0200550.0739 | L0200560.0739 |  |
|          | 88 x 2                 |         | L0200500.0740 | L0200510.0740 | L0200501.0740 | L0200530.0740 | L0200550.0740 | L0200560.0740 |  |
|          | 90 x 1,5               |         | L0200500.0744 | L0200510.0744 | L0200501.0744 | L0200530.0744 | L0200550.0744 | L0200560.0744 |  |
|          | 90 x 2                 |         | L0200500.0745 | L0200510.0745 | L0200501.0745 | L0200530.0745 | L0200550.0745 | L0200560.0745 |  |
|          | 90 x 3                 |         | L0200500.0746 | L0200510.0746 | L0200501.0746 | L0200530.0746 | L0200550.0746 | L0200560.0746 |  |
|          | 92 x 1,5               |         | L0200500.0749 | L0200510.0749 | L0200501.0749 | L0200530.0749 | L0200550.0749 | L0200560.0749 |  |
|          | 92 x 2                 |         | L0200500.0750 | L0200510.0750 | L0200501.0750 | L0200530.0750 | L0200550.0750 | L0200560.0750 |  |
|          | 95 x 1,5               |         | L0200500.0754 | L0200510.0754 | L0200501.0754 | L0200530.0754 | L0200550.0754 | L0200560.0754 |  |
|          | 95 x 2                 |         | L0200500.0755 | L0200510.0755 | L0200501.0755 | L0200530.0755 | L0200550.0755 | L0200560.0755 |  |
|          | 95 x 3                 |         | L0200500.0756 | L0200510.0756 | L0200501.0756 | L0200530.0756 | L0200550.0756 | L0200560.0756 |  |
|          | 98 x 1,5               |         | L0200500.0759 | L0200510.0759 | L0200501.0759 | L0200530.0759 | L0200550.0759 | L0200560.0759 |  |
|          | 98 x 2                 |         | L0200500.0760 | L0200510.0760 | L0200501.0760 | L0200530.0760 | L0200550.0760 | L0200560.0760 |  |
|          | 100 x 1,5              |         | L0200500.0764 | L0200510.0764 | L0200501.0764 | L0200530.0764 | L0200550.0764 | L0200560.0764 |  |
|          | 100 x 2                |         | L0200500.0765 | L0200510.0765 | L0200501.0765 | L0200530.0765 | L0200550.0765 | L0200560.0765 |  |
|          | 100 x 3                |         | L0200500.0766 | L0200510.0766 | L0200501.0766 | L0200530.0766 | L0200550.0766 | L0200560.0766 |  |

← M2 x 0,25 - M82 x 1,5

<sup>1)</sup> Toleranz „6h“ auf Anfrage  
Tolerance „6h“ upon request



|  |               |               |               |               |                  |                |                | Product Finder             |
|--|---------------|---------------|---------------|---------------|------------------|----------------|----------------|----------------------------|
|   |               |               |               |               |                  |                |                | M                          |
|  |               |               |               |               |                  |                |                | MF                         |
|  |               |               |               |               |                  |                |                | UNC                        |
|  |               |               |               |               |                  |                |                | UNF                        |
|  |               |               |               |               |                  |                |                | Rp, R, Rc                  |
|  |               |               |               |               |                  |                |                | NPT, NPTF                  |
|  |               |               |               |               |                  |                |                | BSW                        |
|  |               |               |               |               |                  |                |                | Pg                         |
|  |               |               |               |               |                  |                |                | MJ<br>UNJC, UNJF           |
|  |               |               |               |               |                  |                |                | EG (STI)                   |
|  |               |               |               |               |                  |                |                | SELF-LOCK                  |
|  |               |               |               |               |                  |                |                | Tr, Tr-F<br>Rd             |
|  |               |               |               |               |                  |                |                | Glatt<br>Smooth            |
|  |               |               |               |               |                  |                |                | GT, TD                     |
|  |               |               |               |               |                  |                |                | Zubehör<br>Accessories     |
|  |               |               |               |               |                  |                |                | PoCoSys                    |
|  |               |               |               |               |                  |                |                | Kalibrieren<br>Calibration |
| 6e   | 6g            | 4h            | 6h            | 6e            | 6g <sup>1)</sup> | 4h             | 6e             |                            |
| LH   |               |               |               |               | LH               | LH             | LH             |                            |
| G-GUT-LR<br>LH   | G-AUS-LR      | G-AUS-LR      | G-AUS-LR      | G-AUS-LR      | G-AUS-LR<br>LH   | G-AUS-LR<br>LH | G-AUS-LR<br>LH |                            |
| L0200580.0730  | L0300500.0730 | L0300510.0730 | L0300501.0730 | L0300530.0730 | L0300550.0730    | L0300560.0730  | L0300580.0730  | M 82 x 2                   |
| L0200580.0734  | L0300500.0734 | L0300510.0734 | L0300501.0734 | L0300530.0734 | L0300550.0734    | L0300560.0734  | L0300580.0734  | 85 x 1,5                   |
| L0200580.0735  | L0300500.0735 | L0300510.0735 | L0300501.0735 | L0300530.0735 | L0300550.0735    | L0300560.0735  | L0300580.0735  | 85 x 2                     |
| L0200580.0736  | L0300500.0736 | L0300510.0736 | L0300501.0736 | L0300530.0736 | L0300550.0736    | L0300560.0736  | L0300580.0736  | 85 x 3                     |
| L0200580.0739  | L0300500.0739 | L0300510.0739 | L0300501.0739 | L0300530.0739 | L0300550.0739    | L0300560.0739  | L0300580.0739  | 88 x 1,5                   |
| L0200580.0740  | L0300500.0740 | L0300510.0740 | L0300501.0740 | L0300530.0740 | L0300550.0740    | L0300560.0740  | L0300580.0740  | 88 x 2                     |
| L0200580.0744  | L0300500.0744 | L0300510.0744 | L0300501.0744 | L0300530.0744 | L0300550.0744    | L0300560.0744  | L0300580.0744  | 90 x 1,5                   |
| L0200580.0745  | L0300500.0745 | L0300510.0745 | L0300501.0745 | L0300530.0745 | L0300550.0745    | L0300560.0745  | L0300580.0745  | 90 x 2                     |
| L0200580.0746  | L0300500.0746 | L0300510.0746 | L0300501.0746 | L0300530.0746 | L0300550.0746    | L0300560.0746  | L0300580.0746  | 90 x 3                     |
| L0200580.0749  | L0300500.0749 | L0300510.0749 | L0300501.0749 | L0300530.0749 | L0300550.0749    | L0300560.0749  | L0300580.0749  | 92 x 1,5                   |
| L0200580.0750  | L0300500.0750 | L0300510.0750 | L0300501.0750 | L0300530.0750 | L0300550.0750    | L0300560.0750  | L0300580.0750  | 92 x 2                     |
| L0200580.0754  | L0300500.0754 | L0300510.0754 | L0300501.0754 | L0300530.0754 | L0300550.0754    | L0300560.0754  | L0300580.0754  | 95 x 1,5                   |
| L0200580.0755  | L0300500.0755 | L0300510.0755 | L0300501.0755 | L0300530.0755 | L0300550.0755    | L0300560.0755  | L0300580.0755  | 95 x 2                     |
| L0200580.0756  | L0300500.0756 | L0300510.0756 | L0300501.0756 | L0300530.0756 | L0300550.0756    | L0300560.0756  | L0300580.0756  | 95 x 3                     |
| L0200580.0759  | L0300500.0759 | L0300510.0759 | L0300501.0759 | L0300530.0759 | L0300550.0759    | L0300560.0759  | L0300580.0759  | 98 x 1,5                   |
| L0200580.0760  | L0300500.0760 | L0300510.0760 | L0300501.0760 | L0300530.0760 | L0300550.0760    | L0300560.0760  | L0300580.0760  | 98 x 2                     |
| L0200580.0764  | L0300500.0764 | L0300510.0764 | L0300501.0764 | L0300530.0764 | L0300550.0764    | L0300560.0764  | L0300580.0764  | 100 x 1,5                  |
| L0200580.0765  | L0300500.0765 | L0300510.0765 | L0300501.0765 | L0300530.0765 | L0300550.0765    | L0300560.0765  | L0300580.0765  | 100 x 2                    |
| L0200580.0766  | L0300500.0766 | L0300510.0766 | L0300501.0766 | L0300530.0766 | L0300550.0766    | L0300560.0766  | L0300580.0766  | 100 x 3                    |

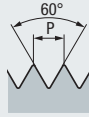
|                            |
|----------------------------|
| Product Finder             |
| M                          |
| MF                         |
| UNC                        |
| UNF                        |
| Rp, R, Rc                  |
| NPT, NPTF                  |
| BSW                        |
| Pg                         |
| MJ<br>UNJC, UNJF           |
| EG (STI)                   |
| SELF-LOCK                  |
| Tr, Tr-F<br>Rd             |
| Glatt<br>Smooth            |
| GT, TD                     |
| Zubehör<br>Accessories     |
| PoCoSys                    |
| Kalibrieren<br>Calibration |



- Product Finder
- M
- MF
- UNC**
- UNF
- G
- Rp, R, Rc
- NPT, NPTF
- BSW
- Pg
- MJ
- UNJC, UNJF

# UNC

ASME B1.1



Lehrenmaße nach ANSI/ASME B1.2  
Gauge dimensions acc. ANSI/ASME B1.2

Toleranz · Tolerance  
Beschichtung · Coating

2B

**3B**

2B

2B

G-GR-LD

G-GR-LD

G-GUT-LD

G-AUS-LD

∅ d<sub>1</sub>  
inch      inch      P  
Gg/1" (tpi)

|        |        |       |               |               |               |               |
|--------|--------|-------|---------------|---------------|---------------|---------------|
| Nr. 1  | 0.0730 | 64    | L0100100.5000 |               | L0120100.5000 | L0140100.5000 |
| Nr. 2  | 0.0860 | 56    | L0100100.5001 |               | L0120100.5001 | L0140100.5001 |
| Nr. 3  | 0.0990 | 48    | L0100100.5002 |               | L0120100.5002 | L0140100.5002 |
| Nr. 4  | 0.1120 | 40    | L0100100.5003 |               | L0120100.5003 | L0140100.5003 |
| Nr. 5  | 0.1250 | 40    | L0100100.5004 |               | L0120100.5004 | L0140100.5004 |
| Nr. 6  | 0.1380 | 32    | L0100100.5005 |               | L0120100.5005 | L0140100.5005 |
| Nr. 8  | 0.1640 | 32    | L0100100.5006 |               | L0120100.5006 | L0140100.5006 |
| Nr. 10 | 0.1900 | 24    | L0100100.5007 |               | L0120100.5007 | L0140100.5007 |
| Nr. 12 | 0.2160 | 24    | L0100100.5008 |               | L0120100.5008 | L0140100.5008 |
| 1/4    | 0.2500 | 20    | L0100100.5009 |               | L0120100.5009 | L0140100.5009 |
| 5/16   | 0.3125 | 18    | L0100100.5010 |               | L0120100.5010 | L0140100.5010 |
| 3/8    | 0.3750 | 16    | L0100100.5011 | L0100110.5011 | L0120100.5011 | L0140100.5011 |
| 7/16   | 0.4375 | 14    | L0100100.5012 | L0100110.5012 | L0120100.5012 | L0140100.5012 |
| 1/2    | 0.5000 | 13    | L0100100.5013 | L0100110.5013 | L0120100.5013 | L0140100.5013 |
| 9/16   | 0.5625 | 12    | L0100100.5014 | L0100110.5014 | L0120100.5014 | L0140100.5014 |
| 5/8    | 0.6250 | 11    | L0100100.5015 | L0100110.5015 | L0120100.5015 | L0140100.5015 |
| 3/4    | 0.7500 | 10    | L0100100.5016 | L0100110.5016 | L0120100.5016 | L0140100.5016 |
| 7/8    | 0.8750 | 9     | L0100100.5017 |               | L0120100.5017 | L0140100.5017 |
| 1"     | 1.0000 | 8     | L0100100.5018 |               | L0120100.5018 | L0140100.5018 |
| 1 1/8  | 1.1250 | 7     | L0100100.5019 |               | L0120100.5019 | L0140100.5019 |
| 1 1/4  | 1.2500 | 7     | L0100100.5020 |               | L0120100.5020 | L0140100.5020 |
| 1 3/8  | 1.3750 | 6     | L0100100.5021 |               | L0120100.5021 | L0140100.5021 |
| 1 1/2  | 1.5000 | 6     | L0100100.5022 |               | L0120100.5022 | L0140100.5022 |
| 1 3/4  | 1.7500 | 5     |               |               | L0120100.5023 | L0140100.5023 |
| 2"     | 2.0000 | 4 1/2 |               |               | L0120100.5024 | L0140100.5024 |

> ∅ 1 1/2 nur als Einzellehrdorne erhältlich (G-GUT-LD, G-AUS-LD)  
available only as separate plug gauges (G-GUT-LD, G-AUS-LD)

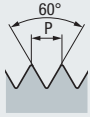
Gewindelehren für UNEF, UN und UNS auf Anfrage  
Thread gauges for UNEF, UN and UNS upon request





**UNC**

ASME B1.1



Lehrenmaße nach ANSI/ASME B1.2  
Gauge dimensions acc. ANSI/ASME B1.2

Toleranz · Tolerance  
Beschichtung · Coating

2A

3A

2A

3A

G-GUT-LR

G-GUT-LR

G-AUS-LR

G-AUS-LR

ø d<sub>1</sub>  
inch inch P  
Gg/1" (tpi)

|        |        |       |               |               |               |               |
|--------|--------|-------|---------------|---------------|---------------|---------------|
| Nr. 1  | 0.0730 | 64    | L0200500.5000 |               | L0300500.5000 |               |
| Nr. 2  | 0.0860 | 56    | L0200500.5001 |               | L0300500.5001 |               |
| Nr. 3  | 0.0990 | 48    | L0200500.5002 |               | L0300500.5002 |               |
| Nr. 4  | 0.1120 | 40    | L0200500.5003 |               | L0300500.5003 |               |
| Nr. 5  | 0.1250 | 40    | L0200500.5004 |               | L0300500.5004 |               |
| Nr. 6  | 0.1380 | 32    | L0200500.5005 |               | L0300500.5005 |               |
| Nr. 8  | 0.1640 | 32    | L0200500.5006 |               | L0300500.5006 |               |
| Nr. 10 | 0.1900 | 24    | L0200500.5007 |               | L0300500.5007 |               |
| Nr. 12 | 0.2160 | 24    | L0200500.5008 |               | L0300500.5008 |               |
| 1/4    | 0.2500 | 20    | L0200500.5009 |               | L0300500.5009 |               |
| 5/16   | 0.3125 | 18    | L0200500.5010 |               | L0300500.5010 |               |
| 3/8    | 0.3750 | 16    | L0200500.5011 | L0200510.5011 | L0300500.5011 | L0300510.5011 |
| 7/16   | 0.4375 | 14    | L0200500.5012 | L0200510.5012 | L0300500.5012 | L0300510.5012 |
| 1/2    | 0.5000 | 13    | L0200500.5013 | L0200510.5013 | L0300500.5013 | L0300510.5013 |
| 9/16   | 0.5625 | 12    | L0200500.5014 | L0200510.5014 | L0300500.5014 | L0300510.5014 |
| 5/8    | 0.6250 | 11    | L0200500.5015 | L0200510.5015 | L0300500.5015 | L0300510.5015 |
| 3/4    | 0.7500 | 10    | L0200500.5016 | L0200510.5016 | L0300500.5016 | L0300510.5016 |
| 7/8    | 0.8750 | 9     | L0200500.5017 |               | L0300500.5017 |               |
| 1"     | 1.0000 | 8     | L0200500.5018 |               | L0300500.5018 |               |
| 1 1/8  | 1.1250 | 7     | L0200500.5019 |               | L0300500.5019 |               |
| 1 1/4  | 1.2500 | 7     | L0200500.5020 |               | L0300500.5020 |               |
| 1 3/8  | 1.3750 | 6     | L0200500.5021 |               | L0300500.5021 |               |
| 1 1/2  | 1.5000 | 6     | L0200500.5022 |               | L0300500.5022 |               |
| 1 3/4  | 1.7500 | 5     | L0200500.5023 |               | L0300500.5023 |               |
| 2"     | 2.0000 | 4 1/2 | L0200500.5024 |               | L0300500.5024 |               |

Gewindelehren für UNEF, UN und UNS auf Anfrage  
Thread gauges for UNEF, UN and UNS upon request

Product  
Finder

M

MF

UNC

UNF

Rp, R, Rc

NPT, NPTF

BSW

Pg

MJ  
UNJC, UNJF

EG (STI)

SELF-LOCK

Tr, Tr-F  
Rd

Glatt  
Smooth

GT, TD

Zubehör  
Accessories

PoCoSys

Kalibrieren  
Calibration



- Product Finder
- M
- MF
- UNC
- UNF**
- G
- Rp, R, Rc
- NPT, NPTF
- BSW
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Glatt Smooth
- GT, TD
- Zubehör Accessories
- PoCoSys
- Kalibrieren Calibration

# UNF

ASME B1.1



Lehrenmaße nach ANSI/ASME B1.2  
Gauge dimensions acc. ANSI/ASME B1.2

Toleranz · Tolerance  
Beschichtung · Coating

2B

3B

2B

2B

G-GR-LD

G-GR-LD

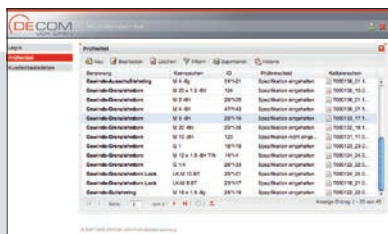
G-GUT-LD

G-AUS-LD

Ø d<sub>1</sub>  
inch inch P  
Gg/1" (tpi)

|        |        |    |               |               |               |               |
|--------|--------|----|---------------|---------------|---------------|---------------|
| Nr. 0  | 0.0600 | 80 | L0100100.5033 |               | L0120100.5033 | L0140100.5033 |
| Nr. 1  | 0.0730 | 72 | L0100100.5034 |               | L0120100.5034 | L0140100.5034 |
| Nr. 2  | 0.0860 | 64 | L0100100.5035 |               | L0120100.5035 | L0140100.5035 |
| Nr. 3  | 0.0990 | 56 | L0100100.5036 |               | L0120100.5036 | L0140100.5036 |
| Nr. 4  | 0.1120 | 48 | L0100100.5037 |               | L0120100.5037 | L0140100.5037 |
| Nr. 5  | 0.1250 | 44 | L0100100.5038 |               | L0120100.5038 | L0140100.5038 |
| Nr. 6  | 0.1380 | 40 | L0100100.5039 |               | L0120100.5039 | L0140100.5039 |
| Nr. 8  | 0.1640 | 36 | L0100100.5040 |               | L0120100.5040 | L0140100.5040 |
| Nr. 10 | 0.1900 | 32 | L0100100.5041 |               | L0120100.5041 | L0140100.5041 |
| Nr. 12 | 0.2160 | 28 | L0100100.5042 |               | L0120100.5042 | L0140100.5042 |
| 1/4    | 0.2500 | 28 | L0100100.5043 |               | L0120100.5043 | L0140100.5043 |
| 5/16   | 0.3125 | 24 | L0100100.5044 |               | L0120100.5044 | L0140100.5044 |
| 3/8    | 0.3750 | 24 | L0100100.5045 | L0100110.5045 | L0120100.5045 | L0140100.5045 |
| 7/16   | 0.4375 | 20 | L0100100.5046 | L0100110.5046 | L0120100.5046 | L0140100.5046 |
| 1/2    | 0.5000 | 20 | L0100100.5047 | L0100110.5047 | L0120100.5047 | L0140100.5047 |
| 9/16   | 0.5625 | 18 | L0100100.5048 | L0100110.5048 | L0120100.5048 | L0140100.5048 |
| 5/8    | 0.6250 | 18 | L0100100.5049 | L0100110.5049 | L0120100.5049 | L0140100.5049 |
| 3/4    | 0.7500 | 16 | L0100100.5050 | L0100110.5050 | L0120100.5050 | L0140100.5050 |
| 7/8    | 0.8750 | 14 | L0100100.5051 |               | L0120100.5051 | L0140100.5051 |
| 1"     | 1.0000 | 12 | L0100100.5052 |               | L0120100.5052 | L0140100.5052 |
| 1 1/8  | 1.1250 | 12 | L0100100.5053 |               | L0120100.5053 | L0140100.5053 |
| 1 1/4  | 1.2500 | 12 | L0100100.5054 |               | L0120100.5054 | L0140100.5054 |
| 1 3/8  | 1.3750 | 12 | L0100100.5055 |               | L0120100.5055 | L0140100.5055 |
| 1 1/2  | 1.5000 | 12 | L0100100.5056 |               | L0120100.5056 | L0140100.5056 |

Gewindelehren für UNEF, UN und UNS auf Anfrage  
Thread gauges for UNEF, UN and UNS upon request



Prüfmittelverwaltungs-Software  
KalimeroNet siehe Seite 610

Inspection tool administration software  
KalimeroNet, see page 610

**UNF**

ASME B1.1



Lehrenmaße nach ANSI/ASME B1.2  
Gauge dimensions acc. ANSI/ASME B1.2



Toleranz · Tolerance  
Beschichtung · Coating

2A

3A

2A

3A

G-GUT-LR

G-GUT-LR

G-AUS-LR

G-AUS-LR

ø d<sub>1</sub>  
inch inch P  
Gg/1" (tpi)

|        |        |    |               |               |               |               |  |
|--------|--------|----|---------------|---------------|---------------|---------------|--|
| Nr. 0  | 0.0600 | 80 | L0200500.5033 |               | L0300500.5033 |               |  |
| Nr. 1  | 0.0730 | 72 | L0200500.5034 |               | L0300500.5034 |               |  |
| Nr. 2  | 0.0860 | 64 | L0200500.5035 |               | L0300500.5035 |               |  |
| Nr. 3  | 0.0990 | 56 | L0200500.5036 |               | L0300500.5036 |               |  |
| Nr. 4  | 0.1120 | 48 | L0200500.5037 |               | L0300500.5037 |               |  |
| Nr. 5  | 0.1250 | 44 | L0200500.5038 |               | L0300500.5038 |               |  |
| Nr. 6  | 0.1380 | 40 | L0200500.5039 |               | L0300500.5039 |               |  |
| Nr. 8  | 0.1640 | 36 | L0200500.5040 |               | L0300500.5040 |               |  |
| Nr. 10 | 0.1900 | 32 | L0200500.5041 |               | L0300500.5041 |               |  |
| Nr. 12 | 0.2160 | 28 | L0200500.5042 |               | L0300500.5042 |               |  |
| 1/4    | 0.2500 | 28 | L0200500.5043 |               | L0300500.5043 |               |  |
| 5/16   | 0.3125 | 24 | L0200500.5044 |               | L0300500.5044 |               |  |
| 3/8    | 0.3750 | 24 | L0200500.5045 | L0200510.5045 | L0300500.5045 | L0300510.5045 |  |
| 7/16   | 0.4375 | 20 | L0200500.5046 | L0200510.5046 | L0300500.5046 | L0300510.5046 |  |
| 1/2    | 0.5000 | 20 | L0200500.5047 | L0200510.5047 | L0300500.5047 | L0300510.5047 |  |
| 9/16   | 0.5625 | 18 | L0200500.5048 | L0200510.5048 | L0300500.5048 | L0300510.5048 |  |
| 5/8    | 0.6250 | 18 | L0200500.5049 | L0200510.5049 | L0300500.5049 | L0300510.5049 |  |
| 3/4    | 0.7500 | 16 | L0200500.5050 | L0200510.5050 | L0300500.5050 | L0300510.5050 |  |
| 7/8    | 0.8750 | 14 | L0200500.5051 |               | L0300500.5051 |               |  |
| 1"     | 1.0000 | 12 | L0200500.5052 |               | L0300500.5052 |               |  |
| 1 1/8  | 1.1250 | 12 | L0200500.5053 |               | L0300500.5053 |               |  |
| 1 1/4  | 1.2500 | 12 | L0200500.5054 |               | L0300500.5054 |               |  |
| 1 3/8  | 1.3750 | 12 | L0200500.5055 |               | L0300500.5055 |               |  |
| 1 1/2  | 1.5000 | 12 | L0200500.5056 |               | L0300500.5056 |               |  |

Gewindelehren für UNEF, UN und UNS auf Anfrage  
Thread gauges for UNEF, UN and UNS upon request

Product  
Finder

M

MF

UNC

UNF

Rp, R, Rc

NPT, NPTF

BSW

Pg

MJ  
UNJC, UNJF

EG (STI)

SELF-LOCK

Tr, Tr-F  
Rd

Glatt  
Smooth

GT, TD

Zubehör  
Accessories

PoCoSys

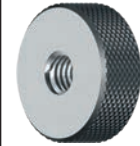
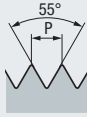
Kalibrieren  
Calibration



|                            |
|----------------------------|
| Product Finder             |
| M                          |
| MF                         |
| UNC                        |
| UNF                        |
| <b>G</b>                   |
| Rp, R, Rc                  |
| NPT, NPTF                  |
| BSW                        |
| Pg                         |
| MJ<br>UNJC, UNJF           |
| EG (STI)                   |
| SELF-LOCK                  |
| Tr, Tr-F<br>Rd             |
| Glatt<br>Smooth            |
| GT, TD                     |
| Zubehör<br>Accessories     |
| PoCoSys                    |
| Kalibrieren<br>Calibration |

# G (BSP)

DIN EN ISO 228



Lehrenmaße nach DIN EN ISO 228-2  
Gauge dimensions acc. DIN EN ISO 228-2

Toleranz · Tolerance  
Beschichtung · Coating

A

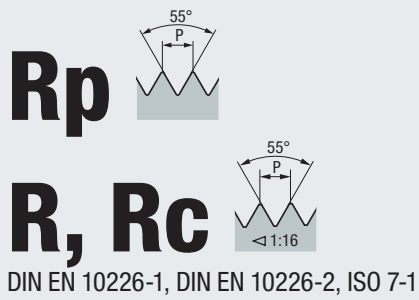
A

| Nenngröße<br>Nom. size<br>Ø d <sub>1</sub> | Ø d <sub>1</sub><br>mm | P<br>Gg/1" (tpi) | G-GR-LD  | G-GUT-LD      | G-AUS-LD      | G-GUT-LR      | G-AUS-LR      |               |
|--|------------------------|------------------|----------|---------------|---------------|---------------|---------------|---------------|
|  |                        |                  | <b>G</b> | 1/16          | 7,72          | 28            | L0100100.4034 | L0120100.4034 |
|  | 1/8                    | 9,73             | 28       | L0100100.4035 | L0120100.4035 | L0140100.4035 | L0200500.4035 | L0300500.4035 |
|  | 1/4                    | 13,16            | 19       | L0100100.4036 | L0120100.4036 | L0140100.4036 | L0200500.4036 | L0300500.4036 |
|  | 3/8                    | 16,66            | 19       | L0100100.4037 | L0120100.4037 | L0140100.4037 | L0200500.4037 | L0300500.4037 |
|  | 1/2                    | 20,96            | 14       | L0100100.4038 | L0120100.4038 | L0140100.4038 | L0200500.4038 | L0300500.4038 |
|  | 5/8                    | 22,91            | 14       | L0100100.4039 | L0120100.4039 | L0140100.4039 | L0200500.4039 | L0300500.4039 |
|  | 3/4                    | 26,44            | 14       | L0100100.4040 | L0120100.4040 | L0140100.4040 | L0200500.4040 | L0300500.4040 |
|  | 7/8                    | 30,20            | 14       | L0100100.4041 | L0120100.4041 | L0140100.4041 | L0200500.4041 | L0300500.4041 |
|  | 1"                     | 33,25            | 11       | L0100100.4042 | L0120100.4042 | L0140100.4042 | L0200500.4042 | L0300500.4042 |
|  | 1 1/8                  | 37,90            | 11       | L0100100.4043 | L0120100.4043 | L0140100.4043 | L0200500.4043 | L0300500.4043 |
|  | 1 1/4                  | 41,91            | 11       |               | L0120100.4044 | L0140100.4044 | L0200500.4044 | L0300500.4044 |
|  | 1 3/8                  | 44,32            | 11       |               | L0120100.4045 | L0140100.4045 | L0200500.4045 | L0300500.4045 |
|  | 1 1/2                  | 47,80            | 11       |               | L0120100.4046 | L0140100.4046 | L0200500.4046 | L0300500.4046 |
|  | 1 3/4                  | 53,75            | 11       |               | L0120100.4048 | L0140100.4048 | L0200500.4048 | L0300500.4048 |
|  | 2"                     | 59,61            | 11       |               | L0120100.4050 | L0140100.4050 | L0200500.4050 | L0300500.4050 |

> G 1 1/8 nur als Einzellehrdorne erhältlich (G-GUT-LD, G-AUS-LD)  
available only as separate plug gauges (G-GUT-LD, G-AUS-LD)

Gewinde-Lehrringe für Toleranz B auf Anfrage  
Thread ring gauges for Tolerance B upon request





Lehrens-system nach  
DIN EN 10226-3, ISO 7-2  
Gauge system acc.  
DIN EN 10226-3, ISO 7-2



Arbeitslehren  
Work gauges

Gewinde-Prüflehren  
Inspection thread gauges



Lehre Nr. · Gauge no.

| Nenngröße<br>Nom. size<br>$\varnothing d_1$ | $\varnothing d_1$<br>mm | P<br>Gg/1" (tpi) | 1               |                               | 2 <sup>1)</sup> |                            | 3                  |                    | 4 |  | 5 |  | 6 |  |
|---|-------------------------|------------------|-----------------|-------------------------------|-----------------|----------------------------|--------------------|--------------------|---|--|---|--|---|--|
|   |                         |                  | Keg.<br>G-GR-LD | Keg.<br>G-GR-LD-Aussp.<br>TIN | Zyl.<br>G-GR-LR | Keg.<br>G-GR-LR<br>(glatt) | Keg.<br>G-Prüfdorn | Zyl.<br>G-Prüfring |   |  |   |  |   |  |
| <b>R</b> 1/16                               | 7,72                    | 28               | L1800101.4068   | L1815101.4068                 | L1850501.4068   | L1860501.4068              | L1830501.4068      | L1870101.4068      |   |  |   |  |   |  |
| 1/8   | 9,73                    | 28               | L1800101.4069   | L1815101.4069                 | L1850501.4069   | L1860501.4069              | L1830501.4069      | L1870101.4069      |   |  |   |  |   |  |
| 1/4   | 13,16                   | 19               | L1800101.4070   | L1815101.4070                 | L1850501.4070   | L1860501.4070              | L1830501.4070      | L1870101.4070      |   |  |   |  |   |  |
| 3/8   | 16,66                   | 19               | L1800101.4071   | L1815101.4071                 | L1850501.4071   | L1860501.4071              | L1830501.4071      | L1870101.4071      |   |  |   |  |   |  |
| 1/2   | 20,96                   | 14               | L1800101.4072   | L1815101.4072                 | L1850501.4072   | L1860501.4072              | L1830501.4072      | L1870101.4072      |   |  |   |  |   |  |
| 3/4   | 26,44                   | 14               | L1800101.4073   | L1815101.4073                 | L1850501.4073   | L1860501.4073              | L1830501.4073      | L1870101.4073      |   |  |   |  |   |  |
| 1"  | 33,25                   | 11               | L1800101.4074   | L1815101.4074                 | L1850501.4074   | L1860501.4074              | L1830501.4074      | L1870101.4074      |   |  |   |  |   |  |
| 1 1/4                                       | 41,91                   | 11               | L1800101.4075   | L1815101.4075                 | L1850501.4075   | L1860501.4075              | L1830501.4075      | L1870101.4075      |   |  |   |  |   |  |
| 1 1/2                                       | 47,80                   | 11               | L1800101.4076   | L1815101.4076                 | L1850501.4076   | L1860501.4076              | L1830501.4076      | L1870101.4076      |   |  |   |  |   |  |
| 2"  | 59,61                   | 11               | L1800101.4077   | L1815101.4077                 | L1850501.4077   | L1860501.4077              | L1830501.4077      | L1870101.4077      |   |  |   |  |   |  |
| 2 1/2                                       | 75,18                   | 11               | L1800101.4078   | L1815101.4078                 | L1850501.4078   | L1860501.4078              | L1830501.4078      | L1870101.4078      |   |  |   |  |   |  |
| 3"  | 87,88                   | 11               | L1800101.4079   | L1815101.4079                 | L1850501.4079   | L1860501.4079              | L1830501.4079      | L1870101.4079      |   |  |   |  |   |  |
| 4"  | 113,03                  | 11               | L1800101.4080   | L1815101.4080                 | L1850501.4080   | L1860501.4080              | L1830501.4080      | L1870101.4080      |   |  |   |  |   |  |

<sup>1)</sup> Der Lehdorn Nr. 2 ist auf Grund der Aussparung starker Beanspruchung ausgesetzt und deshalb TIN-beschichtet  
The thread plug gauge no. 2 is exposed to strong wear due to its recess, and is therefore TIN-coated

**Das neue Lehrens-system nach DIN EN 10226-3, ISO 7-2**

Ziel der Normung war, ein weltweit akzeptiertes Lehrens-system für das **kegelige Außengewinde R**, das **zylindrisches Innengewinde Rp** und das **kegelige Innengewinde Rc** nach ISO 7 zu schaffen.

Bisherige Normen, z.B. die deutschen Normen DIN 2999-2 bis -6, die britische Norm BS 21, die französische Norm NF-E 03-165 und die italienische Norm UNI ISO 7-2:1984 sind ungültig.

**The new gauge system acc. DIN EN 10226-3, ISO 7-2**

The standardisation has been undertaken with the aim of providing a worldwide accepted gauge system for the **tapered external thread R**, the **cylindrical internal thread Rp** and the **tapered internal thread Rc** acc. ISO 7.

Previous standards, e.g. the German standards DIN 2999-2 to -6, the British standard BS 21, the French standard NF-E 03-165 and the Italian standard UNI ISO 7-2:1984 do not apply anymore.

|                            |
|----------------------------|
| Product Finder             |
| M                          |
| MF                         |
| UNC                        |
| UNF                        |
| Rp, R, Rc                  |
| NPT, NPTF                  |
| BSW                        |
| Pg                         |
| MJ<br>UNJC, UNJF           |
| EG (STI)                   |
| SELF-LOCK                  |
| Tr, Tr-F<br>Rd             |
| Glatt<br>Smooth            |
| GT, TD                     |
| Zubehör<br>Accessories     |
| PoCoSys                    |
| Kalibrieren<br>Calibration |



- Product Finder
- M
- MF
- UNC
- UNF
- G
- Rp, R, Rc
- NPT, NPTF
- BSW
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Glatt Smooth
- GT, TD
- Zubehör Accessories
- PoCoSys
- Kalibrieren Calibration

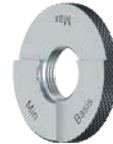
# NPT



ANSI/ASME B1.20.1

**Ausführung 3-Step  
3-Step Design**

Lehrsystem ähnlich ANSI/ASME B1.20.1  
Gauge system sim. ANSI/ASME B1.20.1



| Nenngröße<br>Nom. size<br>$\varnothing d_1$ | P<br>Gg/1" (tpi) | G-GR-LD<br>(L <sub>1</sub> )<br>NPT | G-GR-LR<br>(L <sub>1</sub> )<br>NPT |
|---|------------------|-------------------------------------|-------------------------------------|
|   |                  | 1/16                                | 27                                  |
| 1/8   | 27               | L0500100.5764                       | L0600500.5764                       |
| 1/4   | 18               | L0500100.5765                       | L0600500.5765                       |
| 3/8   | 18               | L0500100.5766                       | L0600500.5766                       |
| 1/2   | 14               | L0500100.5767                       | L0600500.5767                       |
| 3/4   | 14               | L0500100.5768                       | L0600500.5768                       |
| 1"  | 11 1/2           | L0500100.5769                       | L0600500.5769                       |
| 1 1/4                                       | 11 1/2           | L0500100.5770                       | L0600500.5770                       |
| 1 1/2                                       | 11 1/2           | L0500100.5771                       | L0600500.5771                       |
| 2"  | 11 1/2           | L0500100.5772                       | L0600500.5772                       |



# NPTF

ANSI B1.20.3

**Ausführung 3-Step  
3-Step Design**



Lehrensysteem NPTF-1 nach ASME B1.20.5  
Gauge system NPTF-1 acc. ASME B1.20.5

| Nenngröße<br>Nom. size<br>$\varnothing d_1$ | P<br>Gg/1" (tpi) | G-GR-LD<br>(L <sub>1</sub> + L <sub>3</sub> )<br>NPTF | G-GR-LD<br>(L <sub>1</sub> )<br>NPTF | G-GR-LD<br>(L <sub>3</sub> )<br>NPTF | G-GR-LR<br>(L <sub>1</sub> )<br>NPTF |
|---|------------------|---|--------------------------------------|--------------------------------------|--------------------------------------|
| 1/16  | 27               | L0520100.5782   |                                      |                                      | L0600500.5782                        |
| 1/8   | 27               | L0520100.5783   |                                      |                                      | L0600500.5783                        |
| 1/4   | 18               | L0520100.5784   |                                      |                                      | L0600500.5784                        |
| 3/8   | 18               | L0520100.5785   |                                      |                                      | L0600500.5785                        |
| 1/2   | 14               | L0520100.5786   |                                      |                                      | L0600500.5786                        |
| 3/4   | 14               | L0520100.5787   |                                      |                                      | L0600500.5787                        |
| 1"  | 11 1/2           | L0520100.5788   |                                      |                                      | L0600500.5788                        |
| 1 1/4                                       | 11 1/2           |   | L0500100.5789                        | L0510100.5789                        | L0600500.5789                        |
| 1 1/2                                       | 11 1/2           |   | L0500100.5790                        | L0510100.5790                        | L0600500.5790                        |
| 2"  | 11 1/2           |   | L0500100.5791                        | L0510100.5791                        | L0600500.5791                        |

>  $\varnothing 1''$  nur als Einzellehrdorne erhältlich (G-GR-LD (L<sub>1</sub>), G-GR-LD (L<sub>3</sub>))  
available only as separate plug gauges (G-GR-LD (L<sub>1</sub>), G-GR-LD (L<sub>3</sub>))

Gewinde-Grenzlehrringe G-GR-LR (L<sub>2</sub>) NPTF auf Anfrage  
Thread ring gauges go/no-go G-GR-LR (L<sub>2</sub>) NPTF upon request

## Lehrensysteem NPTF-2 nach ASME B1.20.5

### für NPTF-Innengewinde

- L<sub>1</sub>-Gewinde-Lehrdorn (Ausführung 4-Step)
- L<sub>3</sub>-Gewinde-Lehrdorn (Ausführung 4-Step)
- Lehrdorn Crest Check (6-Step),  
zur Prüfung der Gewindespitzen am Kerndurchmesser
- Lehrdorn Root Check (6-Step),  
zur Prüfung des Gewindegrundes am Außendurchmesser

### für NPTF-Außengewinde

- L<sub>1</sub>-Gewinde-Lehrring (Ausführung 4-Step)
- L<sub>2</sub>-Gewinde-Lehrring (Ausführung 4-Step)
- Lehrring Crest Check (6-Step),  
zur Prüfung der Gewindespitzen am Außendurchmesser
- Lehrring Root Check (6-Step),  
zur Prüfung des Gewindegrundes am Kerndurchmesser

Gewindegrenzlehren für Lehrensysteem NPTF-2 auf Anfrage

## Gauge system NPTF-2 acc. ASME B1.20.5

### for NPTF internal thread

- L<sub>1</sub> thread plug gauge (4-step design)
- L<sub>3</sub> thread plug gauge (4-step design)
- Plug gauge Crest Check (6-step),  
for checking the thread crest on the minor diameter
- Plug gauge Root Check (6-step),  
for checking the thread root on the major diameter

### for NPTF external thread

- L<sub>1</sub> thread ring gauge (4-step design)
- L<sub>2</sub> thread ring gauge (4-step design)
- Ring gauge Crest Check (6-step),  
for checking the thread crest on the major diameter
- Ring gauge Root Check (6-step),  
for checking the thread root on the minor diameter

Thread gauges go/no-go for gauge system NPTF-2 upon request

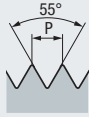
|                            |
|----------------------------|
| Product Finder             |
| M                          |
| MF                         |
| UNC                        |
| UNF                        |
| ...                        |
| Rp, R, Rc                  |
| <b>NPT, NPTF</b>           |
| BSW                        |
| Pg                         |
| MJ                         |
| UNJC, UNJF                 |
| EG (STI)                   |
| SELF-LOCK                  |
| Tr, Tr-F<br>Rd             |
| Glatt<br>Smooth            |
| GT, TD                     |
| Zubehör<br>Accessories     |
| PoCoSys                    |
| Kalibrieren<br>Calibration |



|                            |
|----------------------------|
| Product Finder             |
| M                          |
| MF                         |
| UNC                        |
| UNF                        |
| G                          |
| Rp, R, Rc                  |
| NPT, NPTF                  |
| <b>BSW</b>                 |
| Pg                         |
| MJ<br>UNJC, UNJF           |
| EG (STI)                   |
| SELF-LOCK                  |
| Tr, Tr-F<br>Rd             |
| Glatt<br>Smooth            |
| GT, TD                     |
| Zubehör<br>Accessories     |
| PoCoSys                    |
| Kalibrieren<br>Calibration |

# BSW

BS 84



Lehrenmaße nach BS 919-2  
Gauge dimensions acc. BS 919-2

Toleranz · Tolerance  
Beschichtung · Coating

med.

med.

med.

med. \*)

med.

**G-GR-LD**

**G-GUT-LD**

**G-AUS-LD**

**G-GUT-LR**

**G-AUS-LR**

|            | $\varnothing d_1$<br>inch | $\varnothing d_1$<br>mm | P<br>Gg/1" (tpi) |               |               |               |  |               |               |
|------------|---------------------------|-------------------------|------------------|---------------|---------------|---------------|--|---------------|---------------|
| <b>BSW</b> | 1/8                       | 3,175                   | 40               | L0100100.3046 | L0120100.3046 | L0140100.3046 |  | L0200500.3046 | L0300500.3046 |
|            | 3/16                      | 4,763                   | 24               | L0100100.3048 | L0120100.3048 | L0140100.3048 |  | L0200500.3048 | L0300500.3048 |
|            | 1/4                       | 6,350                   | 20               | L0100100.3050 | L0120100.3050 | L0140100.3050 |  | L0200500.3050 | L0300500.3050 |
|            | 5/16                      | 7,938                   | 18               | L0100100.3051 | L0120100.3051 | L0140100.3051 |  | L0200500.3051 | L0300500.3051 |
|            | 3/8                       | 9,525                   | 16               | L0100100.3052 | L0120100.3052 | L0140100.3052 |  | L0200500.3052 | L0300500.3052 |
|            | 7/16                      | 11,113                  | 14               | L0100100.3053 | L0120100.3053 | L0140100.3053 |  | L0200500.3053 | L0300500.3053 |
|            | 1/2                       | 12,700                  | 12               | L0100100.3054 | L0120100.3054 | L0140100.3054 |  | L0200500.3054 | L0300500.3054 |
|            | 9/16                      | 14,288                  | 12               | L0100100.3055 | L0120100.3055 | L0140100.3055 |  | L0200500.3055 | L0300500.3055 |
|            | 5/8                       | 15,875                  | 11               | L0100100.3056 | L0120100.3056 | L0140100.3056 |  | L0200500.3056 | L0300500.3056 |
|            | 3/4                       | 19,050                  | 10               | L0100100.3058 | L0120100.3058 | L0140100.3058 |  | L0200500.3058 | L0300500.3058 |
|            | 7/8                       | 22,225                  | 9                | L0100100.3060 | L0120100.3060 | L0140100.3060 |  | L0200500.3060 | L0300500.3060 |
|            | 1"                        | 25,400                  | 8                | L0100100.3062 | L0120100.3062 | L0140100.3062 |  | L0200500.3062 | L0300500.3062 |
|            | 1 1/8                     | 28,575                  | 7                | L0100100.3063 | L0120100.3063 | L0140100.3063 |  | L0200500.3063 | L0300500.3063 |
|            | 1 1/4                     | 31,750                  | 7                | L0100100.3064 | L0120100.3064 | L0140100.3064 |  | L0200500.3064 | L0300500.3064 |
|            | 1 3/8                     | 34,925                  | 6                |               |               |               |  |               |               |
|            | 1 1/2                     | 38,100                  | 6                | L0100100.3066 | L0120100.3066 | L0140100.3066 |  | L0200500.3066 | L0300500.3066 |
|            | 1 3/4                     | 44,450                  | 5                |               | L0120100.3068 | L0140100.3068 |  | L0200500.3068 | L0300500.3068 |
|            | 2"                        | 50,800                  | 4 1/2            |               | L0120100.3070 | L0140100.3070 |  | L0200500.3070 | L0300500.3070 |

\*)  $\leq 3/4$  Tol. „medium class, before plating“

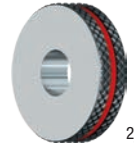
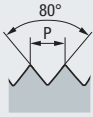
Gewindelehren für BSF und andere Whitworth-Gewinde auf Anfrage  
Thread gauges for BSF and other Whitworth threads upon request

>  $\varnothing 1 1/2$  nur als Einzellehrdorne erhältlich (G-GUT-LD, G-AUS-LD)  
available only as separate plug gauges (G-GUT-LD, G-AUS-LD)





**Pg**  
DIN 40430



Lehrenmaße nach DIN 40431  
Gauge dimensions acc. DIN 40431

Toleranz · Tolerance  
Beschichtung · Coating

| Nenngröße<br>Nom. size<br>Ø d <sub>1</sub> | Ø d <sub>1</sub><br>mm | P<br>Gg/1" (tpi) | G-GR-LD | G-GUT-LD      | Glatt-AUS-LD  |               | G-GUT-LR | Glatt-AUS-LR  |               |
|--|------------------------|------------------|---------|---------------|---------------|---------------|----------|---------------|---------------|
|  |                        |                  |         |               |               |               |          |               | <b>Pg</b>     |
|  | 9                      | 15,2             | 18      | L0180100.4154 |               |               |          | L0200500.4154 | L0320500.4154 |
|  | 11                     | 18,6             | 18      | L0180100.4155 |               |               |          | L0200500.4155 | L0320500.4155 |
|  | 13,5                   | 20,4             | 18      | L0180100.4156 |               |               |          | L0200500.4156 | L0320500.4156 |
|  | 16                     | 22,5             | 18      | L0180100.4157 |               |               |          | L0200500.4157 | L0320500.4157 |
|  | 21                     | 28,3             | 16      | L0180100.4158 |               |               |          | L0200500.4158 | L0320500.4158 |
|  | 29                     | 37               | 16      | L0180100.4159 |               |               |          | L0200500.4159 | L0320500.4159 |
|  | 36                     | 47               | 16      |               | L0120100.4160 | L0190100.4160 |          | L0200500.4160 | L0320500.4160 |
|  | 42                     | 54               | 16      |               | L0120100.4161 | L0190100.4161 |          | L0200500.4161 | L0320500.4161 |
|  | 48                     | 59,3             | 16      |               | L0120100.4162 | L0190100.4162 |          | L0200500.4162 | L0320500.4162 |

> Pg 36 nur als Einzellehrdorne erhältlich (G-GUT-LD, G-AUS-LD)  
available only as separate plug gauges (G-GUT-LD, G-AUS-LD)

- 1) Der Ausschussslehdorn prüft nur den Innengewinde-Kerndurchmesser und ist deshalb ein glatter Lehdorn  
The no-go plug gauge checks only the minor diameter of the internal thread, and is therefore a smooth plug gauge
- 2) Der Ausschussslehring prüft nur den Außengewinde-Außendurchmesser und ist deshalb ein glatter Lehring  
The no-go ring gauge checks only the major diameter of the external thread, and is therefore a smooth ring gauge

Product Finder

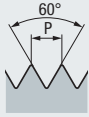
|                            |
|----------------------------|
| M                          |
| MF                         |
| UNC                        |
| UNF                        |
| UN                         |
| Rp, R, Rc                  |
| NPT, NPTF                  |
| BSW                        |
| <b>Pg</b>                  |
| MJ                         |
| UNJC, UNJF                 |
| EG (STI)                   |
| SELF-LOCK                  |
| Tr, Tr-F<br>Rd             |
| Glatt<br>Smooth            |
| GT, TD                     |
| Zubehör<br>Accessories     |
| PoCoSys                    |
| Kalibrieren<br>Calibration |



|                            |
|----------------------------|
| Product Finder             |
| M                          |
| MF                         |
| UNC                        |
| UNF                        |
| G                          |
| Rp, R, Rc                  |
| NPT, NPTF                  |
| BSW                        |
| Pg                         |
| <b>MJ</b>                  |
| UNJC, UNJF                 |
| EG (STI)                   |
| SELF-LOCK                  |
| Tr, Tr-F<br>Rd             |
| Glatt<br>Smooth            |
| GT, TD                     |
| Zubehör<br>Accessories     |
| PoCoSys                    |
| Kalibrieren<br>Calibration |

# MJ

DIN ISO 5855



Lehrenmaße nach DIN ISO 1502  
Gauge dimensions acc. DIN ISO 1502

Toleranz · Tolerance  
Beschichtung · Coating

4H

4h

4h

**G-GR-LD**

**G-GUT-LR**

**G-AUS-LR**

|          | ∅ d <sub>1</sub><br>mm |   | P<br>mm |                      |  |                      |                      |
|----------|------------------------|---|---------|----------------------|--|----------------------|----------------------|
| <b>M</b> | 3                      | x | 0,5     | <b>L0100110.1229</b> |  | <b>L0200510.1229</b> | <b>L0300510.1229</b> |
|          | 4                      | x | 0,7     | <b>L0100110.1231</b> |  | <b>L0200510.1231</b> | <b>L0300510.1231</b> |
|          | 5                      | x | 0,8     | <b>L0100110.1232</b> |  | <b>L0200510.1232</b> | <b>L0300510.1232</b> |
|          | 6                      | x | 1       | <b>L0100110.1233</b> |  | <b>L0200510.1233</b> | <b>L0300510.1233</b> |
|          | 8                      | x | 1       | <b>L0100110.1235</b> |  | <b>L0200510.1235</b> | <b>L0300510.1235</b> |
|          | 10                     | x | 1,25    | <b>L0100110.1236</b> |  | <b>L0200510.1236</b> | <b>L0300510.1236</b> |

### Toleranzangaben nach DIN ISO 5855

Bei der Toleranzangabe des Innengewindes von 4H5H (bis MJ 5x0,8 von 4H6H) und des Außengewindes von 4h6h steht als erstes die Toleranzklasse des Flankendurchmessers, gefolgt von der Toleranzklasse des Kerndurchmessers (Innengewinde) oder des Außendurchmessers (Außengewinde).

Am **Innengewinde** beträgt die Flankendurchmesser-Toleranz 4H und die Kerndurchmesser-Toleranz 5H (bzw. 6H). Die Kerndurchmesser-Toleranz wird durch den Gewindelehrdorn nicht erfasst und deshalb nicht angegeben.

Am **Außengewinde** beträgt die Flankendurchmesser-Toleranz 4h und die Außendurchmesser-Toleranz 6h. Die Außendurchmesser-Toleranz wird durch den Gewindelehrring nicht erfasst und deshalb nicht angegeben.

### Tolerance specifications according to DIN ISO 5855

The tolerance specification of 4H5H (up to MJ 5x0.8 of 4H6H) for the internal thread and 4h6h for the external thread indicates in the first digits the tolerance class of the pitch diameter, followed by the tolerance class of the minor diameter (internal thread) or the major diameter (external thread).

The tolerance of the pitch diameter of the **internal thread** is 4H and the tolerance of the minor diameter is 5H (respectively 6H).

The tolerance of the minor diameter is not checked by the thread plug gauge and therefore not indicated.

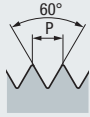
The tolerance of the pitch diameter of the **external thread** is 4h and the tolerance of the major diameter is 6h.

The tolerance of the major diameter is not checked by the thread ring gauge and therefore not indicated.



# UNJC

ASME B1.1 - 2019



Lehrenmaße nach ANSI/ASME B1.2  
Gauge dimensions acc. ANSI/ASME B1.2

Toleranz · Tolerance  
Beschichtung · Coating

3B

3A

3A

**G-GR-LD**

**G-GUT-LR**

**G-AUS-LR**

ø d<sub>1</sub>  
inch    inch    P  
Gg/1" (tpi)

|        |        |    |                      |                      |                      |
|--------|--------|----|----------------------|----------------------|----------------------|
| Nr. 4  | 0.1120 | 40 | <b>L0100110.5479</b> | <b>L0200510.5479</b> | <b>L0300510.5479</b> |
| Nr. 6  | 0.1380 | 32 | <b>L0100110.5481</b> | <b>L0200510.5481</b> | <b>L0300510.5481</b> |
| Nr. 8  | 0.1640 | 32 | <b>L0100110.5482</b> | <b>L0200510.5482</b> | <b>L0300510.5482</b> |
| Nr. 10 | 0.1900 | 24 | <b>L0100110.5483</b> | <b>L0200510.5483</b> | <b>L0300510.5483</b> |
| 1/4    | 0.2500 | 20 | <b>L0100110.5485</b> | <b>L0200510.5485</b> | <b>L0300510.5485</b> |
| 5/16   | 0.3125 | 18 | <b>L0100110.5486</b> | <b>L0200510.5486</b> | <b>L0300510.5486</b> |
| 3/8    | 0.3750 | 16 | <b>L0100110.5487</b> | <b>L0200510.5487</b> | <b>L0300510.5487</b> |

# UNJF

ASME B1.1 - 2019



Lehrenmaße nach ANSI/ASME B1.2  
Gauge dimensions acc. ANSI/ASME B1.2

Toleranz · Tolerance  
Beschichtung · Coating

3B

3A

3A

**G-GR-LD**

**G-GUT-LR**

**G-AUS-LR**

ø d<sub>1</sub>  
inch    inch    P  
Gg/1" (tpi)

|        |        |    |                      |                      |                      |
|--------|--------|----|----------------------|----------------------|----------------------|
| Nr. 4  | 0.1120 | 48 | <b>L0100110.5505</b> | <b>L0200510.5505</b> | <b>L0300510.5505</b> |
| Nr. 6  | 0.1380 | 40 | <b>L0100110.5507</b> | <b>L0200510.5507</b> | <b>L0300510.5507</b> |
| Nr. 8  | 0.1640 | 36 | <b>L0100110.5508</b> | <b>L0200510.5508</b> | <b>L0300510.5508</b> |
| Nr. 10 | 0.1900 | 32 | <b>L0100110.5509</b> | <b>L0200510.5509</b> | <b>L0300510.5509</b> |
| 1/4    | 0.2500 | 28 | <b>L0100110.5511</b> | <b>L0200510.5511</b> | <b>L0300510.5511</b> |
| 5/16   | 0.3125 | 24 | <b>L0100110.5512</b> | <b>L0200510.5512</b> | <b>L0300510.5512</b> |
| 3/8    | 0.3750 | 24 | <b>L0100110.5513</b> | <b>L0200510.5513</b> | <b>L0300510.5513</b> |

Product  
Finder

M

MF

UNC

UNF

J

Rp, R, Rc

NPT, NPTF

BSW

Pg

MJ  
UNJC, UNJF

EG (STI)

SELF-LOCK

Tr, Tr-F  
Rd

Glatt  
Smooth

GT, TD

Zubehör  
Accessories

PoCoSys

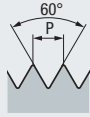
Kalibrieren  
Calibration



|                            |
|----------------------------|
| Product Finder             |
| M                          |
| MF                         |
| UNC                        |
| UNF                        |
| G                          |
| Rp, R, Rc                  |
| NPT, NPTF                  |
| BSW                        |
| Pg                         |
| MJ<br>UNJC, UNJF           |
| <b>EG (STI)</b>            |
| SELF-LOCK                  |
| Tr, Tr-F<br>Rd             |
| Glatt<br>Smooth            |
| GT, TD                     |
| Zubehör<br>Accessories     |
| PoCoSys                    |
| Kalibrieren<br>Calibration |

# EG M (STI)

DIN 8140-2



Lehrenmaße nach DIN ISO 1502  
Gauge dimensions acc. DIN ISO 1502

Toleranz · Tolerance  
Beschichtung · Coating

6H mod.

|             | Nenngröße<br>Nom. size |         | G-GR-LD              |
|-------------|------------------------|---------|----------------------|
|             | Ø d <sub>1</sub>       | P<br>mm |                      |
| <b>EG M</b> | 2,5                    | 0,45    | <b>L0100100.0965</b> |
|             | 3                      | 0,5     | <b>L0100100.0966</b> |
|             | 3,5                    | 0,6     | <b>L0100100.0967</b> |
|             | 4                      | 0,7     | <b>L0100100.0968</b> |
|             | 5                      | 0,8     | <b>L0100100.0970</b> |
|             | 6                      | 1       | <b>L0100100.0971</b> |
|             | 8                      | 1,25    | <b>L0100100.0973</b> |
|             | 10                     | 1,5     | <b>L0100100.0975</b> |
|             | 12                     | 1,75    | <b>L0100100.0977</b> |
|             | 14                     | 2       | <b>L0100100.0978</b> |
|             | 16                     | 2       | <b>L0100100.0979</b> |
|             | 18                     | 2,5     | <b>L0100100.0980</b> |
|             | 20                     | 2,5     | <b>L0100100.0981</b> |

EG-Gewindelehren für Metrisches ISO-Feingewinde, UNC und UNF auf Anfrage  
STI (EG) thread gauges for ISO Metric fine thread, UNC and UNF thread upon request

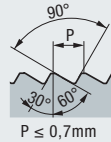
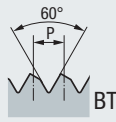


Gewindebohrer für Metrisches  
EG-Gewinde siehe Seite 280 - 283

Taps for Metric STI thread,  
see page 280 - 283

# LK-M

EMUGE-Norm · EMUGE Standard



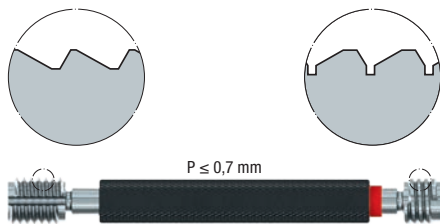
Lehrenmaße nach EMUGE-Norm  
Gauge dimensions acc. EMUGE standard

|             |                        | G-GR-LD |                      |  |  |
|-------------|------------------------|---------|----------------------|--|--|
|             | Ø d <sub>1</sub><br>mm | P<br>mm |                      |  |  |
| <b>LK-M</b> | 3                      | 0,5     | <b>L0100100.1046</b> |  |  |
|             | 4                      | 0,7     | <b>L0100100.1048</b> |  |  |
|             | 5                      | 0,8     | <b>L0100100.1050</b> |  |  |
|             | 6                      | 1       | <b>L0100100.1052</b> |  |  |
|             | 8                      | 1,25    | <b>L0100100.1054</b> |  |  |
|             | 10                     | 1,5     | <b>L0100100.1056</b> |  |  |
|             | 12                     | 1,75    | <b>L0100100.1058</b> |  |  |
|             | 14                     | 2       | <b>L0100100.1059</b> |  |  |
|             | 16                     | 2       | <b>L0100100.1060</b> |  |  |
|             | 20                     | 2,5     | <b>L0100100.1062</b> |  |  |
|             | 24                     | 3       | <b>L0100100.1064</b> |  |  |

|                            |
|----------------------------|
| Product Finder             |
| M                          |
| MF                         |
| UNC                        |
| UNF                        |
| U                          |
| Rp, R, Rc                  |
| NPT, NPTF                  |
| BSW                        |
| Pg                         |
| MJ<br>UNJC, UNJF           |
| EG (STI)                   |
| <b>SELF-LOCK</b>           |
| Tr, Tr-F<br>Rd             |
| Glatt<br>Smooth            |
| GT, TD                     |
| Zubehör<br>Accessories     |
| PoCoSys                    |
| Kalibrieren<br>Calibration |

## Die Lehrung des EMUGE SELF-LOCK-Gewindes

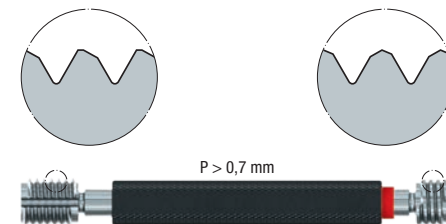
Wir empfehlen unser zweiteiliges Lehrensystem, das der gängigen Praxis der Gut- und Ausschusslehre entspricht und vollkommen für die Gewindeprüfung ausreicht, wenn sichergestellt ist, dass das LK-Gewinde mit unseren profilgetreuen Gewindebohrern hergestellt wird. Es gibt keine allgemein gültige Norm (z.B. DIN-Norm) über das EMUGE SELF-LOCK-Gewinde. Andere Werkzeughersteller könnten daher mit anderen Gewinde-Grenzmaßen arbeiten. Daher empfehlen wir, EMUGE SELF-LOCK-Gewinde ausschließlich mit EMUGE SELF-LOCK-Gewindelehren zu prüfen.



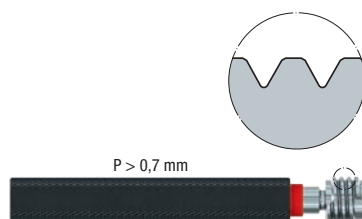
Die Lehrung des Sägezahn-Profiles beruht auf dem gleichen Prinzip, jedoch ist bei Gut- und Ausschusslehren auf die richtige Einschraubseite zu achten.

## The gauging of the EMUGE SELF-LOCK thread

We recommend using our two-piece gauge system which corresponds to the usual combination of go and no-go gauge and is perfectly sufficient for the gauging of the thread, provided that the LK threads were produced with our true-to-profile EMUGE taps. There is no generally applicable standard (e.g. DIN standard) for the EMUGE SELF-LOCK thread, so other manufacturers may use different limit sizes for their threads. For this reason, we recommend gauging EMUGE SELF-LOCK threads exclusively with EMUGE SELF-LOCK gauges.



The gauging of the saw-tooth profile works on the same principle, with the only difference that both the go and the no-go plug gauge have to be used in the correct direction.

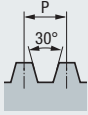


Werden Strehler oder Gewindefräser eingesetzt, empfehlen wir die zusätzliche Verwendung der EMUGE HRPG-Lehre. Diese prüft den unteren Rampenpunkt bzw. eventuelle Rampenwinkelfehler.

If chasers or thread milling cutters are used, we recommend using an additional EMUGE HRPG gauge. This gauge serves to check the lower ramp point or possible ramp angle errors.

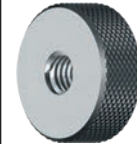
|                            |
|----------------------------|
| Product Finder             |
| M                          |
| MF                         |
| UNC                        |
| UNF                        |
| G                          |
| Rp, R, Rc                  |
| NPT, NPTF                  |
| BSW                        |
| Pg                         |
| MJ<br>UNJC, UNJF           |
| EG (STI)                   |
| SELF-LOCK                  |
| Tr, Tr-F<br>Rd             |
| Glatt<br>Smooth            |
| GT, TD                     |
| Zubehör<br>Accessories     |
| PoCoSys                    |
| Kalibrieren<br>Calibration |

# Tr



DIN 103

Lehrenmaße nach DIN 103-9  
Gauge dimensions acc. DIN 103-9



Toleranz · Tolerance  
Beschichtung · Coating

7H

7H

7H

7e

7e

**G-GR-LD**

**G-GUT-LD**

**G-AUS-LD**

**G-GUT-LR**

**G-AUS-LR**

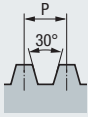
| $\varnothing d_1$<br>mm | P<br>mm | G-GR-LD       | G-GUT-LD      | G-AUS-LD      | G-GUT-LR      | G-AUS-LR      |
|-------------------------|---------|---------------|---------------|---------------|---------------|---------------|
| Tr 8 x 1,5              |         | L0100100.7040 | L0120100.7040 | L0140100.7040 | L0200500.7040 | L0300500.7040 |
| 9 x 2                   |         | L0100100.7042 | L0120100.7042 | L0140100.7042 | L0200500.7042 | L0300500.7042 |
| 10 x 2                  |         | L0100100.7043 | L0120100.7043 | L0140100.7043 | L0200500.7043 | L0300500.7043 |
| 10 x 3                  |         | L0100100.7044 | L0120100.7044 | L0140100.7044 | L0200500.7044 | L0300500.7044 |
| 11 x 3                  |         | L0100100.7045 | L0120100.7045 | L0140100.7045 | L0200500.7045 | L0300500.7045 |
| 12 x 3                  |         | L0100100.7046 | L0120100.7046 | L0140100.7046 | L0200500.7046 | L0300500.7046 |
| 14 x 3                  |         | L0100100.7047 | L0120100.7047 | L0140100.7047 | L0200500.7047 | L0300500.7047 |
| 14 x 4                  |         | L0100100.7048 | L0120100.7048 | L0140100.7048 | L0200500.7048 | L0300500.7048 |
| 16 x 4                  |         | L0100100.7051 | L0120100.7051 | L0140100.7051 | L0200500.7051 | L0300500.7051 |
| 18 x 4                  |         | L0100100.7052 | L0120100.7052 | L0140100.7052 | L0200500.7052 | L0300500.7052 |
| 20 x 4                  |         | L0100100.7053 | L0120100.7053 | L0140100.7053 | L0200500.7053 | L0300500.7053 |
| 22 x 5                  |         | L0100100.7054 | L0120100.7054 | L0140100.7054 | L0200500.7054 | L0300500.7054 |
| 24 x 5                  |         | L0100100.7055 | L0120100.7055 | L0140100.7055 | L0200500.7055 | L0300500.7055 |
| 26 x 5                  |         | L0100100.7057 | L0120100.7057 | L0140100.7057 | L0200500.7057 | L0300500.7057 |
| 28 x 5                  |         | L0100100.7058 | L0120100.7058 | L0140100.7058 | L0200500.7058 | L0300500.7058 |
| 30 x 6                  |         | L0100100.7059 | L0120100.7059 | L0140100.7059 | L0200500.7059 | L0300500.7059 |
| 32 x 6                  |         | L0100100.7060 | L0120100.7060 | L0140100.7060 | L0200500.7060 | L0300500.7060 |
| 34 x 6                  |         | L0100100.7061 | L0120100.7061 | L0140100.7061 | L0200500.7061 | L0300500.7061 |
| 36 x 6                  |         | L0100100.7062 | L0120100.7062 | L0140100.7062 | L0200500.7062 | L0300500.7062 |
| 38 x 7                  |         | L0100100.7063 | L0120100.7063 | L0140100.7063 | L0200500.7063 | L0300500.7063 |
| 40 x 7                  |         | L0100100.7064 | L0120100.7064 | L0140100.7064 | L0200500.7064 | L0300500.7064 |
| 42 x 7                  |         |               | L0120100.7065 | L0140100.7065 | L0200500.7065 | L0300500.7065 |
| 44 x 7                  |         |               | L0120100.7066 | L0140100.7066 | L0200500.7066 | L0300500.7066 |
| 46 x 8                  |         |               | L0120100.7067 | L0140100.7067 | L0200500.7067 | L0300500.7067 |
| 48 x 8                  |         |               | L0120100.7068 | L0140100.7068 | L0200500.7068 | L0300500.7068 |
| 50 x 8                  |         |               | L0120100.7069 | L0140100.7069 | L0200500.7069 | L0300500.7069 |
| 52 x 8                  |         |               | L0120100.7070 | L0140100.7070 | L0200500.7070 | L0300500.7070 |

>  $\varnothing 40$  nur als Einzellehrdorne erhältlich (G-GUT-LD, G-AUS-LD)  
available only as separate plug gauges (G-GUT-LD, G-AUS-LD)



**Tr-F**

DIN 103



Lehrenmaße nach DIN 103-9  
Gauge dimensions acc. DIN 103-9

Toleranz · Tolerance  
Beschichtung · Coating

7H

7H

7H

7e

7e

**G-GR-LD**

**G-GUT-LD**

**G-AUS-LD**

**G-GUT-LR**

**G-AUS-LR**

ø d<sub>1</sub>  
mm

P  
mm

| Tr | ø d <sub>1</sub><br>mm | x | P<br>mm | G-GR-LD       | G-GUT-LD      | G-AUS-LD      | G-GUT-LR      | G-AUS-LR      |
|----|------------------------|---|---------|---------------|---------------|---------------|---------------|---------------|
|    | 9                      | x | 1,5     | L0100100.7111 | L0120100.7111 | L0140100.7111 | L0200500.7111 | L0300500.7111 |
|    | 10                     | x | 1,5     | L0100100.7112 | L0120100.7112 | L0140100.7112 | L0200500.7112 | L0300500.7112 |
|    | 11                     | x | 2       | L0100100.7128 | L0120100.7128 | L0140100.7128 | L0200500.7128 | L0300500.7128 |
|    | 12                     | x | 2       | L0100100.7129 | L0120100.7129 | L0140100.7129 | L0200500.7129 | L0300500.7129 |
|    | 14                     | x | 2       | L0100100.7130 | L0120100.7130 | L0140100.7130 | L0200500.7130 | L0300500.7130 |
|    | 16                     | x | 2       | L0100100.7132 | L0120100.7132 | L0140100.7132 | L0200500.7132 | L0300500.7132 |
|    | 18                     | x | 2       | L0100100.7133 | L0120100.7133 | L0140100.7133 | L0200500.7133 | L0300500.7133 |
|    | 20                     | x | 2       | L0100100.7134 | L0120100.7134 | L0140100.7134 | L0200500.7134 | L0300500.7134 |
|    | 22                     | x | 3       | L0100100.7156 | L0120100.7156 | L0140100.7156 | L0200500.7156 | L0300500.7156 |
|    | 24                     | x | 3       | L0100100.7157 | L0120100.7157 | L0140100.7157 | L0200500.7157 | L0300500.7157 |
|    | 26                     | x | 3       | L0100100.7159 | L0120100.7159 | L0140100.7159 | L0200500.7159 | L0300500.7159 |
|    | 28                     | x | 3       | L0100100.7160 | L0120100.7160 | L0140100.7160 | L0200500.7160 | L0300500.7160 |
|    | 30                     | x | 3       | L0100100.7161 | L0120100.7161 | L0140100.7161 | L0200500.7161 | L0300500.7161 |

Product  
Finder

M

MF

UNC

UNF

U

Rp, R, Rc

NPT, NPTF

BSW

Pg

MJ

UNJC, UNJF

EG (STI)

SELF-LOCK

Tr, Tr-F

Rd

Glatt

Smooth

GT, TD

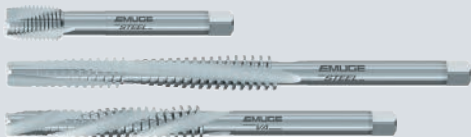
Zubehör

Accessories

PoCoSys

Kalibrieren

Calibration



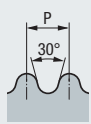
Gewindebohrer für Trapez-Gewinde  
siehe Seite 294 - 298

Taps for trapezoidal threads,  
see page 294 - 298



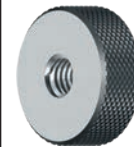
|                            |
|----------------------------|
| Product Finder             |
| M                          |
| MF                         |
| UNC                        |
| UNF                        |
| G                          |
| Rp, R, Rc                  |
| NPT, NPTF                  |
| BSW                        |
| Pg                         |
| MJ<br>UNJC, UNJF           |
| EG (STI)                   |
| SELF-LOCK                  |
| Tr, Tr-F<br>Rd             |
| GT, TD                     |
| Zubehör<br>Accessories     |
| PoCoSys                    |
| Kalibrieren<br>Calibration |

# Rd



DIN 405

Lehrenmaße nach DIN 405-3  
Gauge dimensions acc. DIN 405-3



Toleranz · Tolerance  
Beschichtung · Coating

7H

7H

7H

7h <sup>1)</sup>

7h <sup>1)</sup>

**G-GR-LD**

**G-GUT-LD**

**G-AUS-LD**

**G-GUT-LR**

**G-AUS-LR**

Ø d<sub>1</sub>  
mm




P  
Gg/1" (tpi)

| Ø d <sub>1</sub><br>mm |    | P<br>Gg/1" (tpi) | <b>G-GR-LD</b> | <b>G-GUT-LD</b> | <b>G-AUS-LD</b> |  | <b>G-GUT-LR</b> | <b>G-AUS-LR</b> |
|------------------------|----|------------------|----------------|-----------------|-----------------|--|-----------------|-----------------|
| <b>Rd</b>              | 8  | x 10             | L0100200.7287  | L0120200.7287   | L0140200.7287   |  | L0200600.7287   | L0300600.7287   |
|                        | 9  | x 10             | L0100200.7288  | L0120200.7288   | L0140200.7288   |  | L0200600.7288   | L0300600.7288   |
| Glatt<br>Smooth        | 10 | x 10             | L0100200.7289  | L0120200.7289   | L0140200.7289   |  | L0200600.7289   | L0300600.7289   |
|                        | 11 | x 10             | L0100200.7290  | L0120200.7290   | L0140200.7290   |  | L0200600.7290   | L0300600.7290   |
| GT, TD                 | 12 | x 10             | L0100200.7291  | L0120200.7291   | L0140200.7291   |  | L0200600.7291   | L0300600.7291   |
|                        | 14 | x 8              | L0100200.7293  | L0120200.7293   | L0140200.7293   |  | L0200600.7293   | L0300600.7293   |
| Zubehör<br>Accessories | 16 | x 8              | L0100200.7294  | L0120200.7294   | L0140200.7294   |  | L0200600.7294   | L0300600.7294   |
|                        | 18 | x 8              | L0100200.7295  | L0120200.7295   | L0140200.7295   |  | L0200600.7295   | L0300600.7295   |
|                        | 20 | x 8              | L0100200.7296  | L0120200.7296   | L0140200.7296   |  | L0200600.7296   | L0300600.7296   |

<sup>1)</sup> Toleranz 7e auf Anfrage  
Tolerance 7e upon request





| Lehrenmaße nach DIN EN ISO 1938-1<br>Gauge dimensions acc. DIN EN ISO 1938-1 |                                   |    |                                     |  |  |  |
|--|-----------------------------------|--|-------------------------------------|--|--|--|
|  |                                   | Toleranz · Tolerance   |                                     |  |  |  |
| Nenn Durchmesser<br>Nominal diameter   | Glatt-GR-LD<br>DIN 2245<br>Form Z | Glatt-GUT-LD<br>DIN 2246<br>Form ZG  | Glatt-AUS-LD<br>DIN 2247<br>Form ZA |  |  |  |
| 3  | L14000H7.0030                     |  |                                     |  |  |  |
| 3,5  | L14000H7.0035                     |  |                                     |  |  |  |
| 4  | L14000H7.0040                     |  |                                     |  |  |  |
| 4,5  | L14000H7.0045                     |  |                                     |  |  |  |
| 5  | L14000H7.0050                     |  |                                     |  |  |  |
| 5,5  | L14000H7.0055                     |  |                                     |  |  |  |
| 6  | L14000H7.0060                     |  |                                     |  |  |  |
| 7  | L14000H7.0070                     |  |                                     |  |  |  |
| 8  | L14000H7.0080                     |  |                                     |  |  |  |
| 9  | L14000H7.0090                     |  |                                     |  |  |  |
| 10   | L14000H7.0100                     |  |                                     |  |  |  |
| 11   | L14000H7.0110                     |  |                                     |  |  |  |
| 12   | L14000H7.0120                     |  |                                     |  |  |  |
| 13   | L14000H7.0130                     |  |                                     |  |  |  |
| 14   | L14000H7.0140                     |  |                                     |  |  |  |
| 15   | L14000H7.0150                     |  |                                     |  |  |  |
| 16   | L14000H7.0160                     |  |                                     |  |  |  |
| 17   | L14000H7.0170                     |  |                                     |  |  |  |
| 18   | L14000H7.0180                     |  |                                     |  |  |  |
| 19   | L14000H7.0190                     |  |                                     |  |  |  |
| 20   | L14000H7.0200                     |  |                                     |  |  |  |
| 21   | L14000H7.0210                     |  |                                     |  |  |  |
| 22   | L14000H7.0220                     |  |                                     |  |  |  |
| 23   | L14000H7.0230                     |  |                                     |  |  |  |
| 24   | L14000H7.0240                     |  |                                     |  |  |  |
| 25   | L14000H7.0250                     |  |                                     |  |  |  |
| 26   | L14000H7.0260                     |  |                                     |  |  |  |
| 27   | L14000H7.0270                     |  |                                     |  |  |  |
| 28   | L14000H7.0280                     |  |                                     |  |  |  |
| 30   | L14000H7.0300                     |  |                                     |  |  |  |
| 32   | L14000H7.0320                     |  |                                     |  |  |  |
| 33   | L14000H7.0330                     |  |                                     |  |  |  |
| 34   | L14000H7.0340                     |  |                                     |  |  |  |
| 35   | L14000H7.0350                     |  |                                     |  |  |  |
| 36   | L14000H7.0360                     |  |                                     |  |  |  |
| 37   | L14000H7.0370                     |  |                                     |  |  |  |
| 40   | L14000H7.0400                     |  |                                     |  |  |  |
| 44   | L14000H7.0440                     |  |                                     |  |  |  |
| 45   | L14000H7.0450                     |  |                                     |  |  |  |
| 46   | L14000H7.0460                     |  |                                     |  |  |  |
| 47   | L14000H7.0470                     |  |                                     |  |  |  |
| 48   | L14000H7.0480                     |  |                                     |  |  |  |
| 50   | L14000H7.0500                     |  |                                     |  |  |  |
| 52   | L14000H7.0520                     |  |                                     |  |  |  |
| 55   | L14000H7.0550                     |  |                                     |  |  |  |
| 58   | L14000H7.0580                     |  |                                     |  |  |  |
| 60   | L14000H7.0600                     |  |                                     |  |  |  |
| 62   | L14000H7.0620                     |  |                                     |  |  |  |
| 65   | L14000H7.0650                     |  |                                     |  |  |  |
| 68   |                                   | L14200H7.0680  | L14400H7.0680                       |  |  |  |
| 70   |                                   | L14200H7.0700  | L14400H7.0700                       |  |  |  |
| 72   |                                   | L14200H7.0720  | L14400H7.0720                       |  |  |  |
| 75   |                                   | L14200H7.0750  | L14400H7.0750                       |  |  |  |
| 78   |                                   | L14200H7.0780  | L14400H7.0780                       |  |  |  |
| 80   |                                   | L14200H7.0800  | L14400H7.0800                       |  |  |  |

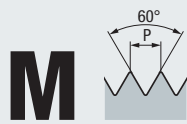
- Product Finder
- M
- MF
- UNC
- UNF
- U
- Rp, R, Rc
- NPT, NPTF
- BSW
- Pg
- MJ
- UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F  
Rd
- Glatt  
Smooth
- GT, TD
- Zubehör  
Accessories
- PoCoSys
- Kalibrieren  
Calibration



> ø 65 nur als Einzellehrdorne erhältlich (GUT-LD, AUS-LD)  
available only as separate plug gauges (GUT-LD, AUS-LD)

Weitere Toleranzen nach DIN EN ISO 286-2 auf Anfrage herstellbar.  
Further tolerances according to DIN ISO 286-2 can be produced upon request.

- Product Finder
- M
- MF
- UNC
- UNF
- G
- Rp, R, Rc
- NPT, NPTF
- BSW
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Glatt Smooth
- GT, TD
- Zubehör Accessories
- PoCoSys
- Kalibrieren Calibration



DIN 13

**Für geschnittene Gewinde**  
For cut threads

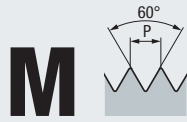
Lehrenmaße nach DIN ISO 1502  
Gauge dimensions acc. DIN ISO 1502



Toleranz · Tolerance

6H

| Metrische Gewinde<br>Metric threads | Innengewinde-Kerndurchmesser<br>Minor dia. of the internal thread |        | Glatt-GR-LD          |
|-------------------------------------|---|--------|----------------------|
|                                     | min.  | max.   |                      |
| <b>M</b> 3                          | 2,459   | 2,599  | <b>L0160100.0030</b> |
| 4                                   | 3,242   | 3,422  | <b>L0160100.0040</b> |
| 5                                   | 4,134   | 4,334  | <b>L0160100.0050</b> |
| 6                                   | 4,917   | 5,153  | <b>L0160100.0060</b> |
| 7                                   | 5,917   | 6,153  | <b>L0160100.0070</b> |
| 8                                   | 6,647   | 6,912  | <b>L0160100.0080</b> |
| 10                                  | 8,376   | 8,676  | <b>L0160100.0100</b> |
| 12                                  | 10,106  | 10,441 | <b>L0160100.0112</b> |
| 16                                  | 13,835  | 14,210 | <b>L0160100.0116</b> |



DIN 13

**Für geformte Gewinde**  
For cold-formed threads

Lehrenmaße nach DIN ISO 1502  
Gauge dimensions acc. DIN ISO 1502



Toleranz · Tolerance

7H

Gemäß DIN 13-50 beträgt beim geformten Innengewinde die **Toleranz** für den Flankendurchmesser 6H, für den **Innengewinde-Kerndurchmesser 7H**.

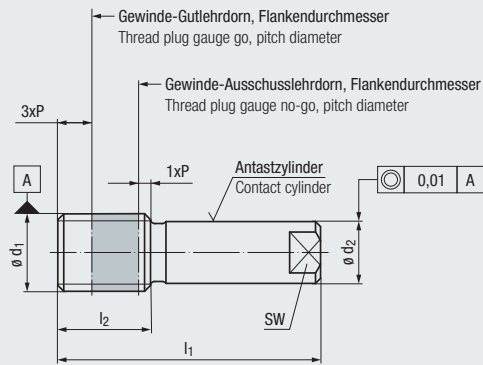
According to DIN 13-50, in a cold-formed thread the **tolerance** for the pitch diameter is 6H, for the **minor diameter of the internal thread** it is **7H**.

| Metrische Gewinde<br>Metric threads | Innengewinde-Kerndurchmesser<br>Minor dia. of the internal thread |        | Glatt-GR-LD          |
|-------------------------------------|---|--------|----------------------|
|                                     | min.  | max.   |                      |
| <b>M</b> 3                          | 2,459   | 2,639  | <b>L0160105.0030</b> |
| 4                                   | 3,242   | 3,466  | <b>L0160105.0040</b> |
| 5                                   | 4,134   | 4,384  | <b>L0160105.0050</b> |
| 6                                   | 4,917   | 5,217  | <b>L0160105.0060</b> |
| 7                                   | 5,917   | 6,217  | <b>L0160105.0070</b> |
| 8                                   | 6,647   | 6,982  | <b>L0160105.0080</b> |
| 10                                  | 8,376   | 8,751  | <b>L0160105.0100</b> |
| 12                                  | 10,106  | 10,531 | <b>L0160105.0112</b> |
| 16                                  | 13,835  | 14,310 | <b>L0160105.0116</b> |

Weitere Ausführungen auf Anfrage  
Further designs upon request



DIN 13



Zur Prüfung der Gewindelage auf 3D-Messmaschinen und zur Rundlaufprüfung  
For checking the thread position on 3D measuring machines and radial run-out



|          | $\varnothing d_1$<br>mm | $\varnothing d_2$ | $l_1$ | $l_2$ | SW  |
|----------|-------------------------|-------------------|-------|-------|-----|
| <b>M</b> | 3                       | 2,2               | 25,5  | 4,5   | 2   |
|          | 4                       | 3                 | 30    | 6     | 2,5 |
|          | 5                       | 3,5               | 30    | 6     | 3   |
|          | 6                       | 4,5               | 32    | 8     | 4   |
|          | 8                       | 6                 | 34    | 10    | 5   |
|          | 10                      | 8                 | 36    | 12    | 6   |
|          | 12                      | 9                 | 40    | 16    | 8   |
|          | 16                      | 12                | 42    | 18    | 10  |
|          | 20                      | 12                | 42    | 18    | 10  |

Weitere Ausführungen auf Anfrage  
Further designs upon request

|                            |
|----------------------------|
| Product Finder             |
| M                          |
| MF                         |
| UNC                        |
| UNF                        |
| U                          |
| Rp, R, Rc                  |
| NPT, NPTF                  |
| BSW                        |
| Pg                         |
| MJ<br>UNJC, UNJF           |
| EG (STI)                   |
| SELF-LOCK                  |
| Tr, Tr-F<br>Rd             |
| Glatt<br>Smooth            |
| GT, TD                     |
| Zubehör<br>Accessories     |
| PoCoSys                    |
| Kalibrieren<br>Calibration |

**Eigenschaften des kegeligen Gewinde-Rundlauf-Prüfdorns:**

- Rundlaufgenauigkeit des Antastzylinders ( $\varnothing d_2$ ) zum Gewinde-Außendurchmesser ( $\varnothing d_1$ ) kleiner 0,01 mm
- Flankendurchmesser des Gewinde-Gutlehrdorns am 3. Gewindegang ( $3xP$ ) → ausreichende Führung im Gewinde
- Flankendurchmesser des Gewinde-Ausschusslehrdorns am vorletzten Gewindegang ( $l_2 - 1xP$ ) → Klemmung des Prüfdorns
- Der Gewinde-Außendurchmesser ist zylindrisch auf das Maß des Gewinde-Gut-Lehrdorns gefertigt um zu gewährleisten, dass der Prüfdorn im Flanken- und nicht im Außendurchmesser klemmt

**Handhabung des kegeligen Gewinde-Rundlauf-Prüfdorns:**

- Der Prüfdorn wird von Hand bis zum Festsitz in das Innengewinde eingeschraubt
- Durch den leichten Formkegel im Flankendurchmesser auf die gesamte Gewindelänge ( $l_2$ ) zentriert sich die Achse des Prüfdorns mit der Achse des Innengewindes
- Die Koaxialität des Innengewindes kann über einen Messtaster am Antastzylinder ( $\varnothing d_2$ ) geprüft werden
- Die Prüfung des Innengewindes auf Lehrenhaltigkeit erfolgt mit herkömmlichen Gewinde-Lehrdornen (siehe Seite 546 - 547)

**Characteristics of the tapered plug gauge for checking radial run-out:**

- Run-out accuracy of the contact cylinder ( $\varnothing d_2$ ) towards major diameter of thread ( $\varnothing d_1$ ) less than 0.01 mm
- Pitch diameter of the thread plug gauge go at third thread ( $3xP$ ) → sufficient lead in the thread
- Pitch diameter of the thread plug gauge go/no-go at the second to the last thread ( $l_2 - 1xP$ ) → clamping of the check plug gauge
- The major diameter of the thread is cylindrically made to fit the thread plug gauge go to guarantee that the check plug gauge jams in the pitch diameter and not in the major diameter

**Handling of the tapered thread plug gauge for checking radial run-out:**

- The check plug gauge is manually screwed into the internal screw until properly tightened
- Thanks to the light taper shape in the pitch diameter along the entire length of the thread ( $l_2$ ), the axis of the check plug gauge is centred with the axis of the internal thread
- The coaxiality of the internal thread can be checked with a measuring probe at the contact cylinder ( $\varnothing d_2$ )
- The internal thread can be checked for true-to gauge accuracy with conventional thread plug gauges (see pages 546 - 547)



|                  |
|------------------|
| Product Finder   |
| M                |
| MF               |
| UNC              |
| UNF              |
| G                |
| Rp, R, Rc        |
| NPT, NPTF        |
| BSW              |
| Pg               |
| MJ<br>UNJC, UNJF |
| EG (STI)         |
| SELF-LOCK        |

# M



DIN 13

Lehrenmaße nach DIN ISO 1502  
Gauge dimensions acc. DIN ISO 1502



analog  
analogue



analog  
analogue



digital  
digital



Toleranz · Tolerance

6H

6H

6H

Max. Gewindetiefe  
Max. thread depth

**4 x d<sub>1</sub>**

**2,5 x d<sub>1</sub>**

**2,5 x d<sub>1</sub>**

∅ d<sub>1</sub>  
mm

P  
mm

GT-GR-LD  
analog

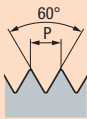
TD-Bit-GUT  
analog

GT-GR-LD  
digital IW

|          | ∅ d <sub>1</sub><br>mm | P<br>mm | GT-GR-LD<br>analog | TD-Bit-GUT<br>analog | GT-GR-LD<br>digital IW |
|----------|------------------------|---------|--------------------|----------------------|------------------------|
| <b>M</b> | 2                      | 0,4     | L1010100.0020      |                      |                        |
|          | 3                      | 0,5     | L1010100.0030      |                      |                        |
|          | 4                      | 0,7     | L1010100.0040      | L1040100.0040        | L1020300.0040          |
|          | 5                      | 0,8     | L1010100.0050      | L1040100.0050        | L1020300.0050          |
|          | 6                      | 1       | L1010100.0060      | L1040100.0060        | L1020300.0060          |
|          | 8                      | 1,25    | L1010100.0080      | L1040100.0080        | L1020300.0080          |
|          | 10                     | 1,5     | L1010100.0100      | L1040100.0100        | L1020300.0100          |
|          | 12                     | 1,75    | L1010100.0112      | L1040100.0112        | L1020300.0112          |
|          | 14                     | 2       | L1010100.0114      | L1040100.0114        | L1020300.0114          |
|          | 16                     | 2       | L1010100.0116      |                      | L1020300.0116          |
|          | 18                     | 2,5     | L1010100.0118      |                      | L1020300.0118          |
|          | 20                     | 2,5     | L1010100.0120      |                      |                        |
|          | 22                     | 2,5     | L1010100.0122      |                      |                        |
|          | 24                     | 3       | L1010100.0124      |                      |                        |

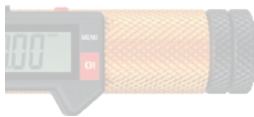
1) EG-Konformitätserklärung siehe Seite 593  
EC Declaration of Conformity, see page 593

# MF



Metrisches ISO-Feingewinde DIN 13  
im gleichen Gewindeabmessungs-Bereich auf Anfrage erhältlich

ISO Metric fine threads DIN 13  
with identical thread dimensions are available on request



Sechskant-Bit-Adapter für Ausführung „digital IW“ optional erhältlich  
Hexagon bit adapter for version "digital IW" optionally available

### Zubehör Accessories



Abziehhülsen zum Austausch des Gut-Lehrenkörpers  
Pulling sleeves for exchange of the go gauge body

» 592



Hakenschlüssel zum Anziehen der Kontermutter bei GT-GR-LD  
Hook spanner for tightening the counter nut of GT-GR-LD

» 593

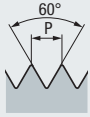


USB-Funkempfänger i-Stick für Ausführungen digital IW  
USB Wireless receiver i-Stick for versions digital IW

» 593

**UNC**

ASME B1.1



Lehrenmaße nach ANSI/ASME B1.2  
Gauge dimensions acc. ANSI/ASME B1.2



analog  
analogue



analog  
analogue



digital  
digital



Toleranz · Tolerance

2B

2B

2B

Max. Gewindetiefe  
Max. thread depth

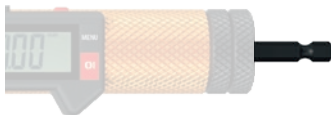
**4 x d<sub>1</sub>**

**2,5 x d<sub>1</sub>**

**2,5 x d<sub>1</sub>**

|                  |        |             | GT-GR-LD<br>analog | TD-Bit-GUT<br>analog | GT-GR-LD<br>digital IW |
|------------------|--------|-------------|--------------------|----------------------|------------------------|
| ø d <sub>1</sub> |        | P           |                    |                      |                        |
| inch             | inch   | Gg/1" (tpi) |                    |                      |                        |
| Nr. 1            | 0.0730 | 64          | L1010100.5000      |                      |                        |
| Nr. 2            | 0.0860 | 56          | L1010100.5001      |                      |                        |
| Nr. 3            | 0.0990 | 48          | L1010100.5002      |                      |                        |
| Nr. 4            | 0.1120 | 40          | L1010100.5003      |                      |                        |
| Nr. 5            | 0.1250 | 40          | L1010100.5004      | L1040100.5004        | L1020300.5004          |
| Nr. 6            | 0.1380 | 32          | L1010100.5005      | L1040100.5005        | L1020300.5005          |
| Nr. 8            | 0.1640 | 32          | L1010100.5006      | L1040100.5006        | L1020300.5006          |
| Nr. 10           | 0.1900 | 24          | L1010100.5007      | L1040100.5007        | L1020300.5007          |
| Nr. 12           | 0.2160 | 24          | L1010100.5008      | L1040100.5008        | L1020300.5008          |
| 1/4              | 0.2500 | 20          | L1010100.5009      | L1040100.5009        | L1020300.5009          |
| 5/16             | 0.3125 | 18          | L1010100.5010      | L1040100.5010        | L1020300.5010          |
| 3/8              | 0.3750 | 16          | L1010100.5011      | L1040100.5011        | L1020300.5011          |
| 7/16             | 0.4375 | 14          | L1010100.5012      | L1040100.5012        | L1020300.5012          |
| 1/2              | 0.5000 | 13          | L1010100.5013      | L1040100.5013        | L1020300.5013          |
| 9/16             | 0.5625 | 12          | L1010100.5014      |                      | L1020300.5014          |
| 5/8              | 0.6250 | 11          | L1010100.5015      |                      | L1020300.5015          |
| 3/4              | 0.7500 | 10          | L1010100.5016      |                      |                        |
| 7/8              | 0.8750 | 9           | L1010100.5017      |                      |                        |

1) EG-Konformitätserklärung siehe Seite 593  
EC Declaration of Conformity, see page 593



Sechskant-Bit-Adapter für Ausführung „digital IW“ optional erhältlich  
Hexagon bit adapter for version "digital IW" optionally available

**Zubehör**  
Accessories



Abziehhülsen zum Austausch des Gut-Lehrenkörpers  
Pulling sleeves for exchange of the go gauge body

» 592



Hakenschlüssel zum Anziehen der Kontermutter bei GT-GR-LD  
Hook spanner for tightening the counter nut of GT-GR-LD

» 593



USB-Funkempfänger i-Stick für Ausführungen digital IW  
USB Wireless receiver i-Stick for versions digital IW

» 593

Product Finder

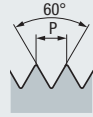
|                            |
|----------------------------|
| M                          |
| MF                         |
| <b>UNC</b>                 |
| UNF                        |
| UN                         |
| Rp, R, Rc                  |
| NPT, NPTF                  |
| BSW                        |
| Pg                         |
| MJ<br>UNJC, UNJF           |
| EG (STI)                   |
| SELF-LOCK                  |
| Tr, Tr-F<br>Rd             |
| Glatt<br>Smooth            |
| <b>GT, TD</b>              |
| Zubehör<br>Accessories     |
| PoCoSys                    |
| Kalibrieren<br>Calibration |



|                  |
|------------------|
| Product Finder   |
| M                |
| MF               |
| UNC              |
| <b>UNF</b>       |
| G                |
| Rp, R, Rc        |
| NPT, NPTF        |
| BSW              |
| Pg               |
| MJ<br>UNJC, UNJF |
| EG (STI)         |
| SELF-LOCK        |

# UNF

ASME B1.1



Lehrenmaße nach ANSI/ASME B1.2  
Gauge dimensions acc. ANSI/ASME B1.2



analog  
analogue



analog  
analogue



digital  
digital



Toleranz · Tolerance

2B

2B

2B

Max. Gewindetiefe  
Max. thread depth

**4 x d<sub>1</sub>**

**2,5 x d<sub>1</sub>**

**2,5 x d<sub>1</sub>**

| ∅ d <sub>1</sub><br>inch | inch   | P<br>Gg/1" (tpi) |
|--------------------------|--------|------------------|
| Nr. 1                    | 0.0730 | 72               |
| Nr. 2                    | 0.0860 | 64               |
| Nr. 3                    | 0.0990 | 56               |
| Nr. 4                    | 0.1120 | 48               |
| Nr. 5                    | 0.1250 | 44               |
| Nr. 6                    | 0.1380 | 40               |
| Nr. 8                    | 0.1640 | 36               |
| Nr. 10                   | 0.1900 | 32               |
| Nr. 12                   | 0.2160 | 28               |
| 1/4                      | 0.2500 | 28               |
| 5/16                     | 0.3125 | 24               |
| 3/8                      | 0.3750 | 24               |
| 7/16                     | 0.4375 | 20               |
| 1/2                      | 0.5000 | 20               |
| 9/16                     | 0.5625 | 18               |
| 5/8                      | 0.6250 | 18               |
| 3/4                      | 0.7500 | 16               |
| 7/8                      | 0.8750 | 14               |

GT-GR-LD  
analog

TD-Bit-GUT  
analog

GT-GR-LD  
digital IW

|        |        |    |               |               |               |
|--------|--------|----|---------------|---------------|---------------|
| Nr. 1  | 0.0730 | 72 | L1010100.5034 |               |               |
| Nr. 2  | 0.0860 | 64 | L1010100.5035 |               |               |
| Nr. 3  | 0.0990 | 56 | L1010100.5036 |               |               |
| Nr. 4  | 0.1120 | 48 | L1010100.5037 |               |               |
| Nr. 5  | 0.1250 | 44 | L1010100.5038 | L1040100.5038 | L1020300.5038 |
| Nr. 6  | 0.1380 | 40 | L1010100.5039 | L1040100.5039 | L1020300.5039 |
| Nr. 8  | 0.1640 | 36 | L1010100.5040 | L1040100.5040 | L1020300.5040 |
| Nr. 10 | 0.1900 | 32 | L1010100.5041 | L1040100.5041 | L1020300.5041 |
| Nr. 12 | 0.2160 | 28 | L1010100.5042 | L1040100.5042 | L1020300.5042 |
| 1/4    | 0.2500 | 28 | L1010100.5043 | L1040100.5043 | L1020300.5043 |
| 5/16   | 0.3125 | 24 | L1010100.5044 | L1040100.5044 | L1020300.5044 |
| 3/8    | 0.3750 | 24 | L1010100.5045 | L1040100.5045 | L1020300.5045 |
| 7/16   | 0.4375 | 20 | L1010100.5046 | L1040100.5046 | L1020300.5046 |
| 1/2    | 0.5000 | 20 | L1010100.5047 | L1040100.5047 | L1020300.5047 |
| 9/16   | 0.5625 | 18 | L1010100.5048 |               | L1020300.5048 |
| 5/8    | 0.6250 | 18 | L1010100.5049 |               | L1020300.5049 |
| 3/4    | 0.7500 | 16 | L1010100.5050 |               |               |
| 7/8    | 0.8750 | 14 | L1010100.5051 |               |               |

1) EG-Konformitätserklärung siehe Seite 593  
EC Declaration of Conformity, see page 593



Sechskant-Bit-Adapter für Ausführung „digital IW“ optional erhältlich  
Hexagon bit adapter for version "digital IW" optionally available

### Zubehör Accessories



Abziehhülsen zum Austausch des Gut-Lehrenkörpers  
Pulling sleeves for exchange of the go gauge body

» 592



Hakenschlüssel zum Anziehen der Kontermutter bei GT-GR-LD  
Hook spanner for tightening the counter nut of GT-GR-LD

» 593



USB-Funkempfänger i-Stick für Ausführungen digital IW  
USB Wireless receiver i-Stick for versions digital IW

» 593

**G (BSP)**  
DIN EN ISO 228



Lehrenmaße nach DIN EN ISO 228-2  
Gauge dimensions acc. DIN EN ISO 228-2



analog  
analogue



analog  
analogue



digital  
digital



Toleranz · Tolerance

Max. Gewindetiefe  
Max. thread depth

**4 x d<sub>1</sub>**

**2,5 x d<sub>1</sub>**

**2,5 x d<sub>1</sub>**

Nenngröße

Nom. size

Ø d<sub>1</sub>

Ø d<sub>1</sub>

mm

P

Gg/1" (tpi)

**GT-GR-LD  
analog**

**TD-Bit-GUT  
analog**

**GT-GR-LD  
digital IW**

| Nenngröße     | Nom. size        | Ø d <sub>1</sub> | P           |
|---------------|------------------|------------------|-------------|
|               | Ø d <sub>1</sub> | mm               | Gg/1" (tpi) |
| <b>G</b> 1/16 | 7,72             | 28               |             |
| 1/8           | 9,73             | 28               |             |
| 1/4           | 13,16            | 19               |             |
| 3/8           | 16,66            | 19               |             |
| 1/2           | 20,96            | 14               |             |
| 5/8           | 22,91            | 14               |             |

|                      |
|----------------------|
| <b>L1010100.4034</b> |
| <b>L1010100.4035</b> |
| <b>L1010100.4036</b> |
| <b>L1010100.4037</b> |
| <b>L1010100.4038</b> |
| <b>L1010100.4039</b> |

|                      |
|----------------------|
| <b>L1040100.4034</b> |
| <b>L1040100.4035</b> |
| <b>L1040100.4036</b> |
| <b>L1040100.4037</b> |

|                      |
|----------------------|
| <b>L1020300.4034</b> |
| <b>L1020300.4035</b> |
| <b>L1020300.4036</b> |
| <b>L1020300.4037</b> |

1) EG-Konformitätserklärung siehe Seite 593  
EC Declaration of Conformity, see page 593



Sechskant-Bit-Adapter für Ausführung „digital IW“ optional erhältlich  
Hexagon bit adapter for version "digital IW" optionally available

**Zubehör**  
Accessories



Abziehhülsen zum Austausch des Gut-Lehrenkörpers  
Pulling sleeves for exchange of the go gauge body

» 592



Hakenschlüssel zum Anziehen der Kontermutter bei GT-GR-LD  
Hook spanner for tightening the counter nut of GT-GR-LD

» 593



USB-Funkempfänger i-Stick für Ausführungen digital IW  
USB Wireless receiver i-Stick for versions digital IW

» 593

| Product Finder             |
|----------------------------|
| M                          |
| MF                         |
| UNC                        |
| UNF                        |
| <b>G</b>                   |
| Rp, R, Rc                  |
| NPT, NPTF                  |
| BSW                        |
| Pg                         |
| MJ                         |
| UNJC, UNJF                 |
| EG (STI)                   |
| SELF-LOCK                  |
| Tr, Tr-F<br>Rd             |
| Glatt<br>Smooth            |
| <b>GT, TD</b>              |
| Zubehör<br>Accessories     |
| PoCoSys                    |
| Kalibrieren<br>Calibration |



- Product Finder
- M
- MF
- UNC
- UNF
- G
- Rp, R, Rc
- NPT, NPTF
- BSW
- Pg
- MJ  
UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F  
Rd
- Glatt  
Smooth
- GT, TD
- Zubehör  
Accessories
- PoCoSys
- Kalibrieren  
Calibration

### Sechskant-Bit-Adapter 1/4" für GUT-Lehrenkörper

Der Sechskant-Bit-Adapter dient als Aufnahme eines Gut-Lehrenkörpers in eine antreibende Einheit. Sein Einsatzgebiet findet er beim immer wiederkehrenden Lehren von Gewindelöchern mit einer Tiefe von bis zu 4 x D. Durch die Ausführung der Drehbewegung mittels einer Antriebseinheit (z.B. Akkuschauber, Druckluftschrauber oder Bohrmaschine) wird ein ermüdungsfreies Arbeiten im Dauerbetrieb ermöglicht.

### Hexagon bit adapters 1/4" for gauging bodies GO

The hexagon bit adapter serves as holder for the gauge body GO in a power driven unit. It is used for repeatedly gauging thread holes with a maximum depth of 4 x D. As a power driven unit such as cordless or pressurised air screwdrivers or drill machines provide the rotation, an effortless and long-term working is possible.



**4 x d<sub>1</sub>**

Max. Gewindetiefe  
Max. thread depth

| Metrische Gewinde<br>Metric threads | Unified-Gewinde<br>Unified threads | Whitworth-Rohrgewinde<br>Whitworth pipe threads | Aufnahme-Durchmesser<br>Seat diameter | empf. Drehmoment<br>recommended torque |
|-------------------------------------|------------------------------------|---|---------------------------------------|--|
| M 2 - M 3                           | Nr. 1 - Nr. 4                      | —   | 2,5                                   | 6 Ncm                                  |
| M 4 - M 6                           | Nr. 5 - Nr. 12                     | —   | 4                                     | 8 Ncm                                  |
| M 8 - M10                           | 1/4 - 3/8                          | G 1/16 - G 1/8                                  | 5,5                                   | 14 Ncm                                 |
| M12 - M14                           | 7/16 - 1/2                         | G 1/4   | 7                                     | 20 Ncm                                 |
| M16 - M18                           | 9/16 - 5/8                         | G 3/8   | 9                                     | 30 Ncm                                 |
| M20 - M24                           | 3/4 - 15/16                        | G 1/2 - G 5/8                                   | 12                                    | 40 Ncm                                 |

L0091070.02.5  
L0091070.04  
L0091070.05.5  
L0091070.07  
L0091070.09  
L0091070.12

Gut-Lehrenkörper auf Anfrage (nicht im Lieferumfang enthalten)  
Gauging bodies GO upon request (not included)

### Abziehhülsen

Zum Austausch der Lehrenkörper bei analogen Gewindetiefen-Lehrdornen

### Pulling sleeves

For the exchange of gauging bodies in analogue thread depth plug gauges



Abziehhülse  
Pulling sleeve

Sechskantmutter  
Hexagon nut

| Metrische Gewinde<br>Metric threads | Unified-Gewinde<br>Unified threads | Whitworth-Rohrgewinde<br>Whitworth pipe threads | Aufnahme-Durchmesser<br>Seat diameter |
|-------------------------------------|------------------------------------|---|---------------------------------------|
| M 2 - M 3                           | Nr. 1 - Nr. 4                      | —   | 2,5                                   |
| M 4 - M 6                           | Nr. 5 - Nr. 12                     | —   | 4                                     |
| M 8 - M10                           | 1/4 - 3/8                          | G 1/16 - G 1/8                                  | 5,5                                   |
| M12 - M14                           | 7/16 - 1/2                         | G 1/4   | 7                                     |
| M16 - M18                           | 9/16 - 5/8                         | G 3/8   | 9                                     |
| M20 - M24                           | 3/4 - 15/16                        | G 1/2 - G 5/8                                   | 12                                    |

L0091040.02.5  
L0091040.04  
L0091040.05.5  
L0091040.07  
L0091040.09  
L0091040.12

Sechskantmutter nicht im Lieferumfang enthalten  
Hexagon nut not included

Abziehhülse für Ausführung digital IW auf Anfrage  
Pulling sleeve for version digital IW upon request



**Hakenschlüssel**

Zum Festziehen der Kontermutter

**Hook spanner**

For tightening the counter nut



| Neendurchmesser<br>Nominal diameter | Metrische Gewinde<br>Metric threads | Unified-Gewinde<br>Unified threads | Whitworth-Rohrgewinde<br>Whitworth pipe threads |                      |
|-------------------------------------|-------------------------------------|------------------------------------|---|----------------------|
| ≤ 3 mm                              | M 2 - M 3                           | Nr. 1 - Nr. 4                      | –   | <b>L0091410.02.5</b> |
| > 3 - 6 mm                          | M 4 - M 6                           | Nr. 5 - Nr. 12                     | –   | <b>L0091410.04</b>   |
| > 6 - 10 mm                         | M 8 - M10                           | 1/4 - 3/8                          | G 1/16 - G 1/8                                  | <b>L0091410.05.5</b> |
| > 10 - 14 mm                        | M12 - M14                           | 7/16 - 1/2                         | G 1/4   | <b>L0091410.07</b>   |
| > 14 - 18 mm                        | M16 - M18                           | 9/16 - 5/8                         | G 3/8   | <b>L0091410.09</b>   |
| > 18 - 24 mm                        | M20 - M24                           | 3/4 - 15/16                        | G 1/2 - G 5/8                                   | <b>L0091410.12</b>   |

**Funkempfänger i-Stick für Ausführungen „digital IW“**

- Frequenzband 2.400 MHz
- Max. Funkdistanz 6 m
- Datenschnittstelle USB
- Systemanforderung:  
PC mit Microsoft® Excel® (ab 97),  
Microsoft® Windows® (ab XP) und  
USB-Schnittstelle (ab 1.1), sowie  
min. 10 MB freier Festplattenspeicher

**Wireless receiver i-Stick for versions “digital IW”**

- Frequency band 2.400 Mhz
- Max. communication range 6 m
- Data interface USB
- System requirement:  
PC with Microsoft® Excel® (97 or later version),  
Microsoft® Windows® (XP or later version) and  
USB port (from 1.1), and  
min. 10 MB available hard disk space



i-Stick

**L0091500.01**

Die kostenlose Schnittstellensoftware MarCom Professional sorgt für die sichere, professionelle Übertragung Ihrer Messdaten an Ihre Windows-Anwendungen oder CAQ-Software.

The MarCom Professional, our free interface software, reliably and professionally transfers your measurements to your Windows applications or CAQ software.

**Download:**

<https://mahr.canto.global/b/RR4S5>

**EG-Konformitätserklärung**

**CE-Kennzeichnung für Ausführungen digital IW**

EMUGE erklärt, dass die bezeichneten Produkte in ihrer Konzipierung und Bauart sowie in den in Verkehr gebrachten Ausführungen den grundlegenden Sicherheits- und Gesundheitsanforderungen der EG-Richtlinie 2004/108/EG über elektromagnetische Verträglichkeit (EMV) sowie der EG-Richtlinie 2006/95/EG über Niederspannung entspricht. Bei einer mit EMUGE nicht abgestimmten Änderung der Produkte verliert diese Erklärung ihre Gültigkeit.

**Hinweis:**

Eine gleichlautende Erklärung für Märkte außerhalb der Europäischen Union (bzw. dem EWR) liegt EMUGE nicht vor. Der Inverkehrbringer der Produkte außerhalb der EU übernimmt die Verantwortung für den Einsatz gemäß der im Drittland geltenden Gesetzesvorgaben selbst.

**EC Declaration of Conformity**

**CE marking for designs digital IW**

EMUGE declares, that the described products, based on their conceptual design and version placed on the market complies with the essential Safety and Health Regulations according to Directive 2004/108/EC concerning Electromagnetic Compatibility (EMC) and with the Low Voltage Directive 2006/95/EC. If any alteration is made on this products without the prior consent of EMUGE, this declaration shall cease to apply.

**Remark:**

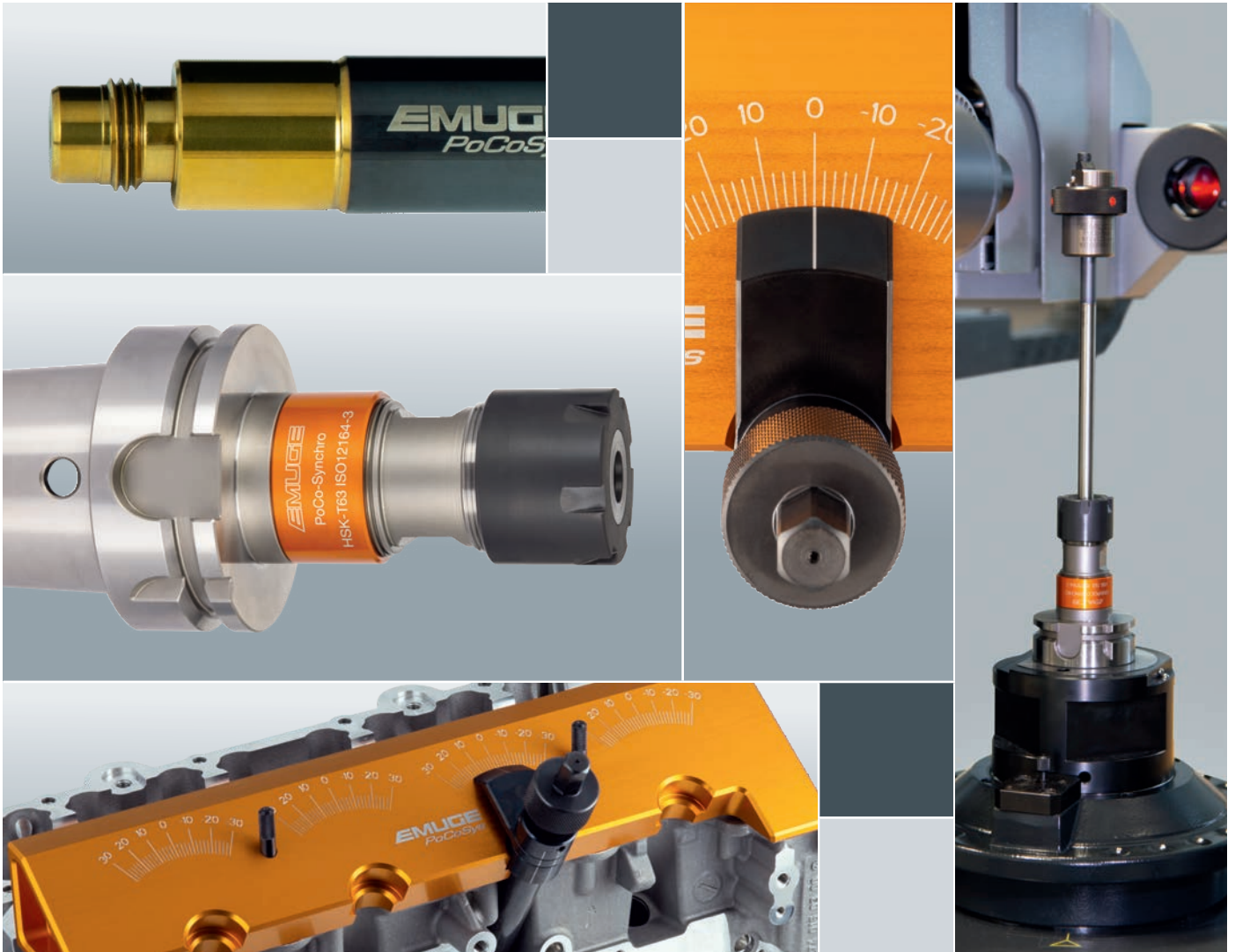
An identical declaration for markets outside the European Union (resp. the European Economic Area) is not available to EMUGE. The distributor of the product outside the EU assumes sole responsibility for the use in accordance with the specific legal regulations in the third country.

- Product Finder
- M
- MF
- UNC
- UNF
- Rp, R, Rc
- NPT, NPTF
- BSW
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Glatt Smooth
- GT, TD
- Zubehör Accessories**
- PoCoSys
- Kalibrieren Calibration



|                            |
|----------------------------|
| Product Finder             |
| M                          |
| MF                         |
| UNC                        |
| UNF                        |
| G                          |
| Rp, R, Rc                  |
| NPT, NPTF                  |
| BSW                        |
| Pg                         |
| MJ<br>UNJC, UNJF           |
| EG (STI)                   |
| SELF-LOCK                  |
| Tr, Tr-F<br>Rd             |
| Glatt<br>Smooth            |
| GT, TD                     |
| Zubehör<br>Accessories     |
| PoCoSys                    |
| Kalibrieren<br>Calibration |





|                            |
|----------------------------|
| Product Finder             |
| M                          |
| MF                         |
| UNC                        |
| UNF                        |
| U                          |
| Rp, R, Rc                  |
| NPT, NPTF                  |
| BSW                        |
| Pg                         |
| MJ<br>UNJC, UNJF           |
| EG (STI)                   |
| SELF-LOCK                  |
| Tr, Tr-F<br>Rd             |
| Glatt<br>Smooth            |
| GT, TD                     |
| Zubehör<br>Accessories     |
| <b>PoCoSys</b>             |
| Kalibrieren<br>Calibration |

## Einstell- und Prüfsystem für stellungsbundene Gewinde Setting and Inspection System for Threads with Specified Starting Position



|                            |
|----------------------------|
| Product Finder             |
| M                          |
| MF                         |
| UNC                        |
| UNF                        |
| G                          |
| Rp, R, Rc                  |
| NPT, NPTF                  |
| BSW                        |
| Pg                         |
| MJ<br>UNJC, UNJF           |
| EG (STI)                   |
| SELF-LOCK                  |
| Tr, Tr-F<br>Rd             |
| Glatt<br>Smooth            |
| GT, TD                     |
| Zubehör<br>Accessories     |
| PoCoSys                    |
| Kalibrieren<br>Calibration |

Bei der Innengewindeherstellung gibt es zunehmend Anforderungen, die eine genaue Position des Gewindeanfangs vorschreiben. Dies ist beispielsweise bei automatischer Verschraubung von Schaltern, Sensoren oder elektronischen Steckern der Fall, bei denen die radiale Ausrichtung eine direkte Auswirkung auf die Funktionsfähigkeit hat.

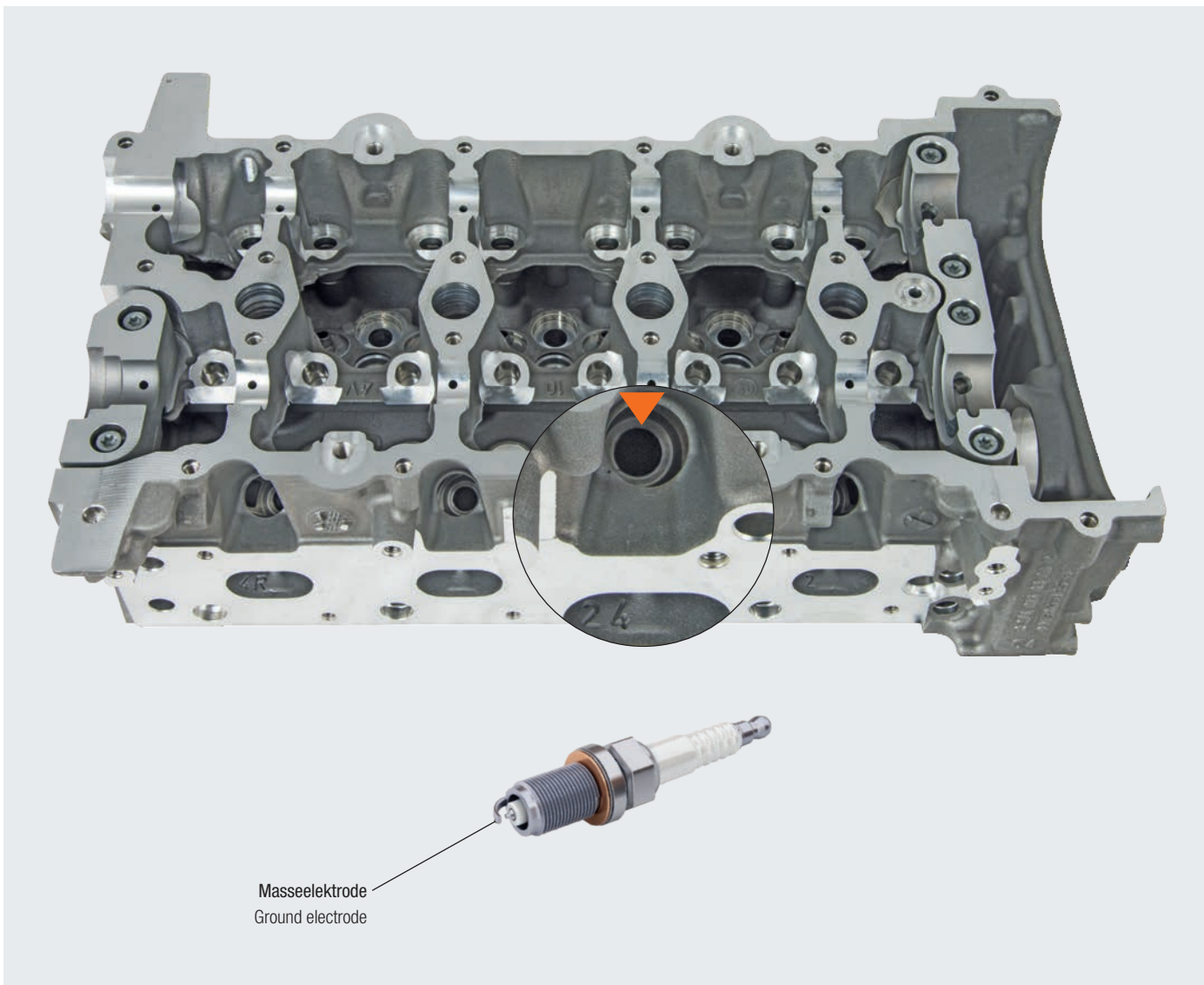
Auch im Motorenbau gibt es Erfordernisse für stellungsgebundene Gewinde. So ist zum Beispiel bei der Montage von Zündkerzen die Lage der Masseelektrode zum Gewinde vorgeschrieben, was zu einer besseren Verbrennung und damit zur Reduzierung der Emissionsgrenzwerte führt. Speziell für die stellungsgebundene Herstellung und Prüfung von Zündkerzengewinden wurde das PoCoSys-Programm entwickelt. Es ermöglicht die manuelle Gewindeprüfung direkt an der Fertigungsmaschine oder die maschinelle Gewindeprüfung auf 3D-Messmaschinen.

Alle Komponenten wurden perfekt aufeinander abgestimmt – von der Werkzeugaufnahme über die Gewindewerkzeuge bis hin zu den Einstelllehren und Prüfmitteln.

There is an increasing number of demands in the production of internal threads with specified starting position. For example, this applies to automatic screwing processes of switches, sensors or electronic plugs where the radial orientation has a direct impact on function.

There are also requirements for threads with specified starting position in engine constructions. For example, in the assembly of spark plugs, the position of the ground electrode relative to the thread is specified, which results in better combustion thus reducing the emission limit values. The PoCoSys programme was developed especially for the production and inspection of spark plug threads with specified thread start. It enables the manual inspection of threads directly on the production machine or a machine conducted test of threads on 3D measuring machines.

All components are perfectly matched to each other – from the tool holder via the threading tools to the setting gauges and test equipment.



Am Zylinderkopf sieht man in der Vergrößerung die Planfläche, die den Bezugspunkt für das Zündkerzengewinde darstellt. Der Gewindeanfang liegt hier z.B. an der Oberseite (orangene Markierung). Dieser ist auch mit dem Zündkerzenhersteller abgestimmt, der wiederum die Zündkerze mit eingeschränkter Toleranz anbietet.

A magnified image of the cylinder head shows the plane surface, which serves as reference point for the spark plug thread. The start of the thread in this case is at the top (orange marking). This is also coordinated with the spark plug manufacturer, who in turn offers the spark plug with a tighter tolerance.

## PoCoSys

Seite · Page

### PoCo-Gauge Box



**Koffer mit Gewindelehrenset**

**Box with thread gauge set**

598 - 600

zur **manuellen** Gewindeprüfung

for **manual** thread inspection

Seite · Page

### PoCo-Gauge 3D



**Spezial-Gewinde-Gut-Lehrdorn**

**Special thread plug gauge GO**

601

zur **maschinellen** Gewindeprüfung

for **machine** thread inspection

Seite · Page

### PoCo-Bush



**Positions-Einstell-Hülse**

**Position-setting bush**

602 - 603

zur **Bestimmung der Winkellage** des Werkzeuges

for **determining the angular position** of the tool

Seite · Page

### PoCo-Synchro



**Spannzangen-Aufnahme für Gewindewerkzeuge**

**Collet holder for threading tools**

604

mit eingengerter Mitnehmernut für **höhere Winkelgenauigkeit**

with tighter tolerance of drive slot for **increased angular accuracy**

Product Finder

M

MF

UNC

UNF

G

Rp, R, Rc

NPT, NPTF

BSW

Pg

MJ  
UNJC, UNJF

EG (STI)

SELF-LOCK

Tr, Tr-F  
Rd

Glatt  
Smooth

GT, TD

Zubehör  
Accessories

**PoCoSys**

Kalibrieren  
Calibration



## PoCo-Gauge Box

Product Finder

M

MF

UNC

UNF

G

Rp, R, Rc

NPT, NPTF

BSW

Pg

 MJ  
UNJC, UNJF

EG (STI)

SELF-LOCK

 Tr, Tr-F  
Rd

 Glatt  
Smooth

GT, TD

 Zubehör  
Accessories

**PoCoSys**

 Kalibrieren  
Calibration

**Koffer mit Gewindelehrenset zur manuellen Gewindeprüfung**
**Box with set of thread gauges for manual position inspection**


Die Komponenten der **PoCo-Gauge Box** ermöglichen eine manuelle Prüfungsstellungsgewinde direkt am Bauteil an der Fertigungsmaschine. Hierfür werden keine weiteren Geräte oder Messmaschinen benötigt.

Durch die einfache Handhabung ist ein kontinuierliches Prüfen an der Maschine möglich, wodurch Abweichungen frühzeitig erkannt werden. Dies führt zu Zeit- und Ressourceneinsparungen gegenüber der Prüfung auf 3D-Messmaschinen.

The components of the **PoCo-Gauge Box** enable the manual position inspection of threads with specified start position directly on the workpiece at the production machine. No additional devices or measuring machines are required.

The easy handling facilitates the continuous inspection at the machine and thereby helps to recognise deviations at an early stage. This results in time and resource savings compared to inspections with 3D measuring machines.

### Kundennutzen

- Bis zu 90% Ersparnis gegenüber einer Messung mit Messmaschine
- Gewindeprüfung mittels Gewinde-Gut-Lehrdorn
- Flankendurchmesserunabhängiges Prüfen
- Praxisnahe Prüfung der Gewindestellung zur Planfläche
- Kein Umspannen des Bauteils notwendig
- Einfache Bedienung, keine aufwändige Einweisung erforderlich
- Sofortiges Ablesen der Zündkerzenstellung
- Einbindung in den Zertifizierungszyklus möglich
- Kundenspezifische Anpassung des Prüfsystems an das Werkstück

### Customer benefits

- Savings up to 90% compared to measuring with a measuring machine
- Thread inspection with a thread plug gauge GO
- Gauging independent of pitch diameter
- Practical inspection of thread position relative to flat face
- No reclamping of workpiece necessary
- Easy handling, no time-consuming instruction required
- Immediate reading of spark plug position
- Integration into certification cycle possible
- Customer specific adaptation of inspection system to workpiece

## Systemkomponenten

## System components

Anschlagplatte mit Skalierung und angefederten Fixierschrauben

Limit plate with scale and spring-loaded fixing screws



PoCo-Plate

Gewinde-Gut-Lehrdorn (Arbeitslehre) mit Positionsbüchse

Thread plug gauge GO (working gauge) with position sleeve



PoCo-Gauge

Masterlehre (Prüflehre) für PoCo-Gauge

Master gauge (check and adjustment gauge) for PoCo-Gauge



PoCo-Gauge Master



Optional ist als Zubehör ein Standfuß mit Schutzkappe für die PoCo-Gauge Master erhältlich.  
A stand with protective cap for the PoCo-Gauge Master is optionally available as accessory.



## PoCo-Gauge Box

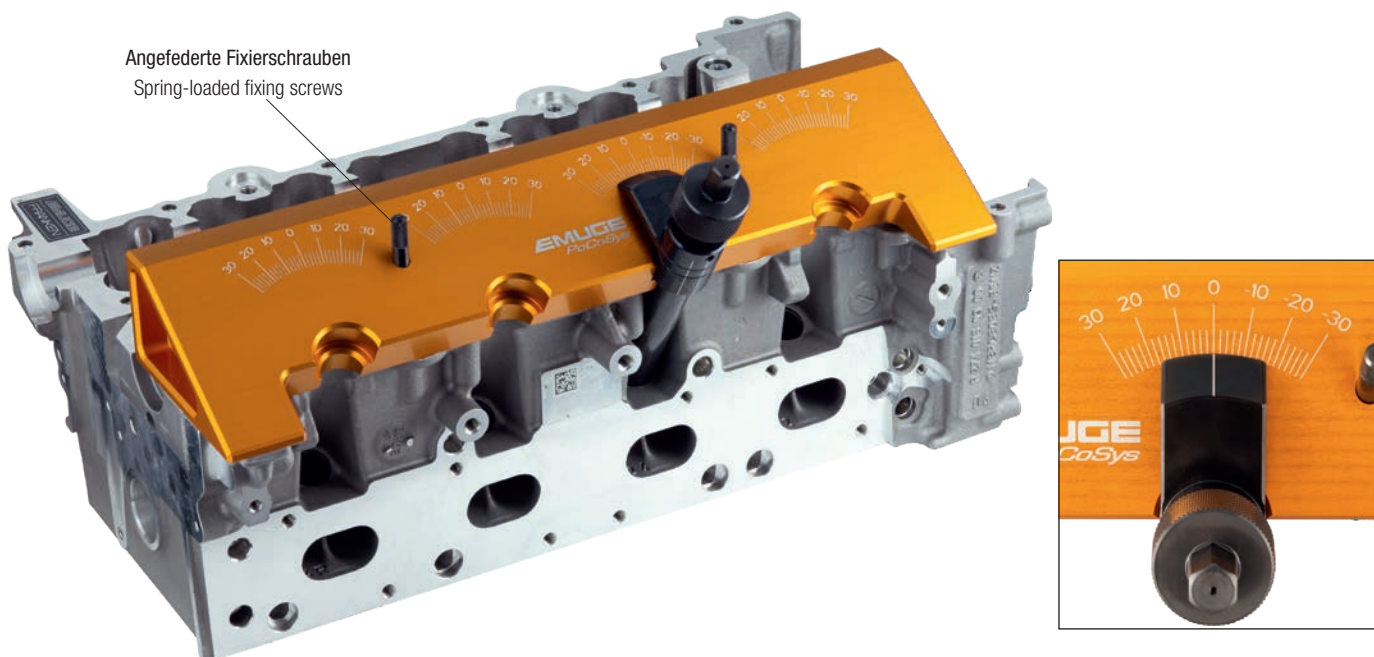
|                            |
|----------------------------|
| Product Finder             |
| M                          |
| MF                         |
| UNC                        |
| UNF                        |
| G                          |
| Rp, R, Rc                  |
| NPT, NPTF                  |
| BSW                        |
| Pg                         |
| MJ<br>UNJC, UNJF           |
| EG (STI)                   |
| SELF-LOCK                  |
| Tr, Tr-F<br>Rd             |
| Glatt<br>Smooth            |
| GT, TD                     |
| Zubehör<br>Accessories     |
| <b>PoCoSys</b>             |
| Kalibrieren<br>Calibration |

### Prüfvorgang

1. Auflegen der **PoCo-Plate** am Zylinderkopf mit Einfügen der Positionsstifte in die Passbohrungen.
2. Fixierschraube zum Befestigen der **PoCo-Plate** eindrehen.
3. Einschrauben der **PoCo-Gauge** in das Zündkerzengewinde und Anziehen mit einem Drehmomentschlüssel.
4. Ablesen der Zündkerzenstellung (Gewindeanfang) an der Skalierung.

### Test procedure

1. Place the **PoCo-Plate** on the cylinder head by inserting positioning pins into the fitting bores.
2. Tighten fixing screw to fasten the **PoCo-Plate**.
3. Screw in the **PoCo-Gauge** into the thread for the spark plug and tighten with a torque wrench.
4. Read the position of the spark plug on the scale.



### Überprüfung der PoCo-Gauge auf Positionsgenauigkeit

Der **PoCo-Gauge** und die **PoCo-Gauge Master** sind werksseitig voreingestellt. Für eine Selbstkontrolle des **PoCo-Gauge** wird die **PoCo-Gauge Master** benötigt.

Der **PoCo-Gauge** wird in die **PoCo-Gauge Master** eingeschraubt und mit einem festgelegten Drehmoment angezogen. Die Markierungslinien zeigen den Ist-Zustand der **PoCo-Gauge Arbeitslehre** an und müssen zwischen Neuzustand (Go) und Verschleißgrenze (No-Go) liegen.

Bei einer Abweichung sind **PoCo-Gauge** und **PoCo-Gauge Master** zum Prüfen im Set an EMUGE zu senden.

### Inspection of positional accuracy of the PoCo-Gauge

The **PoCo-Gauge** and the **PoCo-Gauge Master** are preset by EMUGE. For a self-check of the **PoCo-Gauge** the **PoCo-Gauge Master** is required.

The **PoCo-Gauge** is screwed into the **PoCo-Gauge Master** and tightened with a specified torque. The marking lines indicate the actual state of the **PoCo-Gauge working gauge** and they must be between new condition (Go) and wear limit (No-Go).

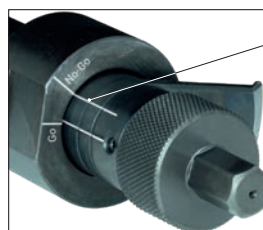
In case of deviations, the **PoCo-Gauge** and **PoCo-Gauge Master** must be returned to EMUGE for inspection.



Markierungslinie im Neuzustand (Go)  
Marking line in new condition (Go)



Markierungslinie für die Verschleißgrenze (No-Go)  
Marking line for wear limit (No-Go)





## PoCo-Gauge 3D

Spezial-Gewinde-Gut-Lehrdorn  
zur maschinellen GewindeprüfungSpecial thread plug gauge GO  
for inspection of thread position on measuring machine

Zur Dokumentation und Qualitätsprüfung stellungsgebundener Gewinde erfolgt die Überprüfung auf 3D-Messmaschinen zusätzlich zur manuellen Methode.

For documentation and quality inspection purposes of threads with specified starting point, the tests are conducted on 3D measuring machines in addition to manual inspection.

## Kundennutzen

- Gewindeprüfung mittels Spezial-Gewinde-Gut-Lehrdorn PoCo-Gauge 3D
- Flankendurchmesserunabhängiges Prüfen in der Messmaschine durch Abtasten der stellungsgebundenen Fläche
- Praxisnahe Prüfung der Gewindestellung zur Planfläche
- Auslieferung mit Prüfzertifikat, dadurch Einbindung in den kundenseitigen Zertifizierungszyklus möglich
- Fertigung nach kundenspezifischen Vorgaben

## Customer benefits

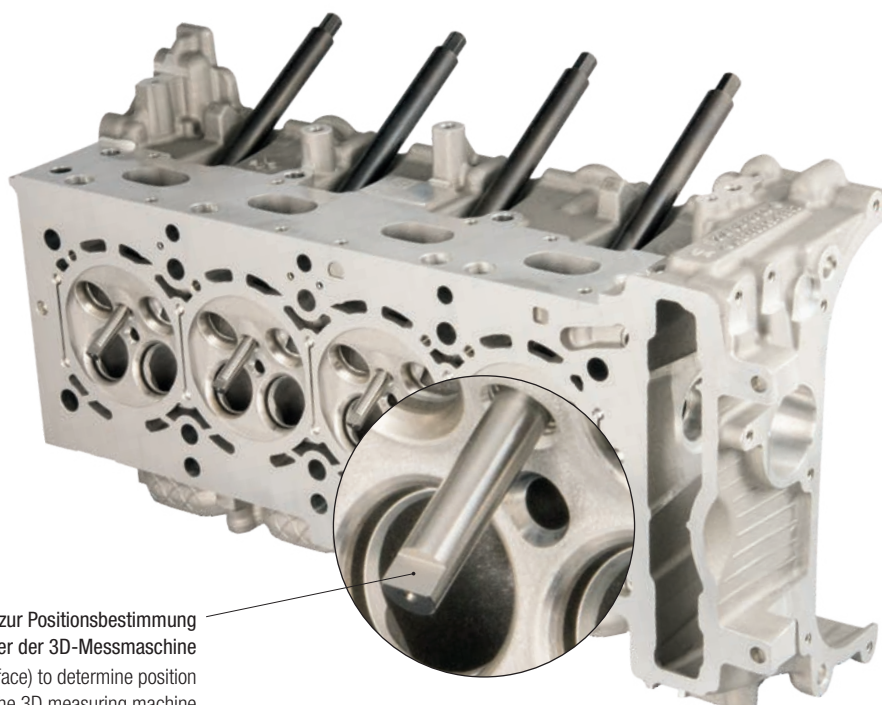
- Thread position inspection with special thread plug gauge GO PoCo-Gauge 3D
- Inspection in measuring machine independent of pitch diameter thanks to scanning the surface with specified position
- Practical inspection of thread position relative to flat surface
- Delivered with inspection certificate, therefore integration into customer's certification cycle is possible
- Production according to customer-specific requirement

## Prüfvorgang

Beim Prüfen in einer 3D-Messmaschine wird in jedes Zündkerzengewinde ein PoCo-Gauge 3D eingeschraubt und mit einem festgelegten Drehmoment (Empfehlung 5 Nm) angezogen. Die Messung der Winkellage findet im Brennereich statt. Hierzu wird durch Abtasten der Orientierungsfläche der Stellungswinkel ermittelt.

## Inspection procedure

During testing in a 3D measuring machine a PoCo-Gauge 3D is screwed into each spark plug thread and tightened with a specified torque (recommended 5 Nm). The angular position is measured in the combustion area. The positional angle is determined by scanning the orientation surface.



Orientierungsfläche (Tastfläche) zur Positionsbestimmung für Messtaster der 3D-Messmaschine  
Orientation surface (touch surface) to determine position for measuring probes of the 3D measuring machine

Product

Finder

M

MF

UNC

UNF

Rp, R, Rc

NPT, NPTF

BSW

Pg

MJ

UNJC, UNJF

EG (STI)

SELF-LOCK

Tr, Tr-F

Rd

Glatt

Smooth

GT, TD

Zubehör

Accessories

PoCoSys

Kalibrieren

Calibration



## PoCo-Bush

**Positions-Einstell-Hülse**  
zur Bestimmung der Winkellage des Werkzeugs

Position-setting bush  
to determine the angular position of the tool



Beim Gewindeschneiden und Gewindeformen ist das stellungsgebundene Ausrichten des Werkzeuges sehr aufwändig.

Einfacher und genauer geht es mit der Positions-Einstell-Hülse **PoCo-Bush**. Mit der **PoCo-Bush** ist die Winkellage der Werkzeuge zur Index-Kerbe „Deutsches Eck“ bei HSK-Schäften in wenigen Schritten in einem Voreinstellgerät bestimmbar. Die Werte aus dem Voreinstellgerät können anschließend direkt in die Maschinensteuerung eingegeben werden.

In Verbindung mit der speziellen Spannzangen-Aufnahme für Gewindewerkzeuge **PoCo-Synchro** (siehe Seite 604) ist eine Winkelgenauigkeit von kleiner 5° und damit eine stellungsgebundene Gewindefertigung möglich.

The correct positioning of tools is very time-consuming when cutting or cold-forming threads with specified start position.

The position-setting bush **PoCo-Bush** makes this an easy and accurate procedure. Thanks to the **PoCo-Bush** the angular position of tools relative to the index notch of HSK shanks can be determined in few steps with a presetting device. Afterwards the values of the presetting device can be entered directly into the machine control unit.

Together with the special collet holder for threading tools **PoCo-Synchro** (see page 604) the angle can be determined with an accuracy of smaller 5° and as a result the production of threads with specified start position is possible.

### Kundennutzen

- Praxisnahe Ermittlung des Gewindestartpunktes
- Einfache Handhabung
- Kein aufwändiges Ausmessen der Gewindebohrer/-former
- Kein zusätzliches Markieren der Werkzeuge und Aufnahmen
- Bestimmung der Winkellage (C-Achse) ohne Eingreifen in das CNC-Programm nur über Werkzeug-Längenkorrektur möglich
- Werkzeugschonende Ausführung durch innenliegende Kunststoffhülse
- Mit integrierter Ratsche, dadurch kein zusätzlicher Drehmomentschlüssel notwendig
- Stellungsgebundene Ausrichtung ab dem ersten Gewinde

### Customer benefits

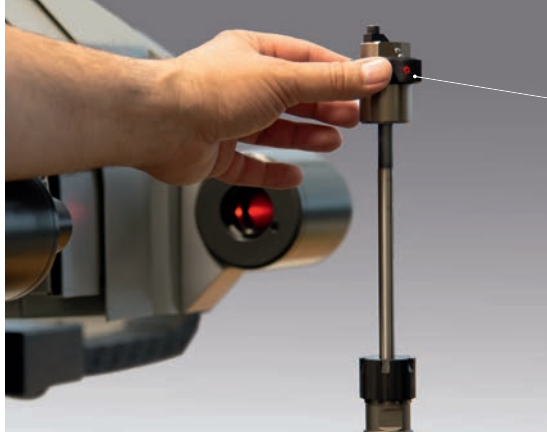
- Practical determination of start position of thread
- Easy handling
- Eliminates time-consuming measuring of taps/cold-forming taps
- No additional marking of tools and holders necessary
- Angular position (C-axis) can be determined without modifying the CNC programme, only with length adjustment of tool
- Design with internal plastic sleeve avoids damage to the tool
- With integrated ratchet, therefore no additional torque wrench required
- Correct start position from the first thread

- Product Finder
- M
- MF
- UNC
- UNF
- G
- Rp, R, Rc
- NPT, NPTF
- BSW
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Glatt Smooth
- GT, TD
- Zubehör Accessories
- PoCoSys**
- Kalibrieren Calibration



## Funktionsweise

Die **PoCo-Bush** wird mittels der angebrachten Ratsche auf einen bereits eingespannten Gewindebohrer bzw. Gewindeformer gegen den Anschlag verschraubt. Dadurch ist ein werkzeugschonendes Aufschrauben gewährleistet.



Aufschrauben mittels Ratsche  
Screw mounting with ratchet

## Functionality

The **PoCo-Bush** is screwed onto a clamped tap or cold-forming tap using the attached ratchet until it reaches the end stop. This procedure ensures a screwing operation which reduces stress on the tools.

Im Anschluss wird der Messzyklus des Voreinstellgerätes gestartet. Über die Axial- und Radialkugel wird die Winkellage (C-Achse) und das Längenmaß (Z-Achse) ermittelt. Die beschrifteten Korrekturwerte werden zur Winkellage bzw. zum Längenmaß addiert (beide im Zyklus enthalten) und ergeben die exakten Einstellwerte.

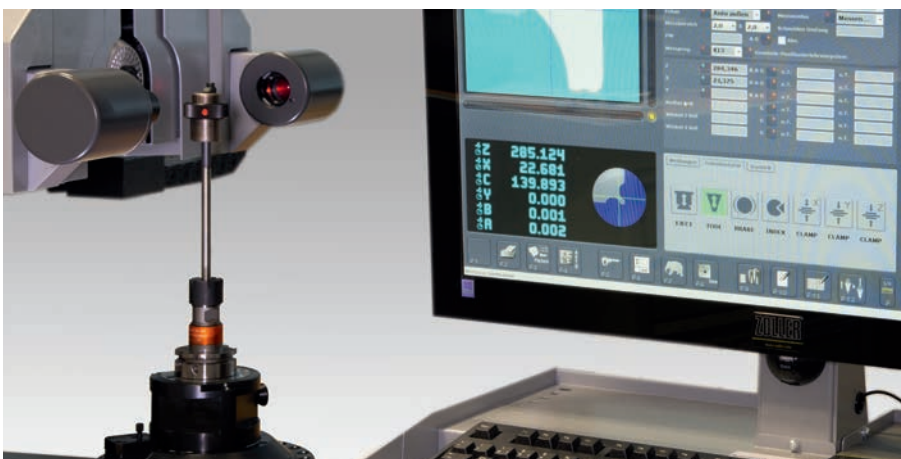
Diese beiden Werte (C-Achse und Z-Achse) werden anschließend in den Gewindeforschneidzyklus in der Maschinensteuerung eingegeben. Alternativ ist die Eingabe der Winkellage (C-Achse) auch über das Längenkorrekturmaß möglich. Voraussetzung hierfür ist ein synchroner Gewindeforschneidzyklus, welcher über die Winkellage startet.

Die Winkellage kann im Anschluss mit den PoCoSys-Prüfsystemen an der Fertigungsmaschine oder in der 3D-Messmaschine überprüft werden.

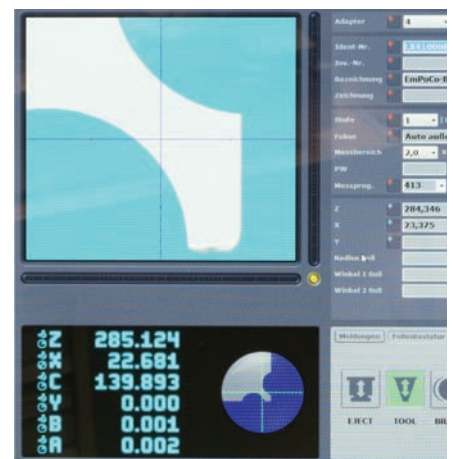
Afterwards the measuring cycle of the presetting device can be started. The angular position (C-axis) and length dimension (Z-axis) are determined by means of the axial and radial position balls. The marked corrected values are added to the angular position respectively to the length dimension (both included in the cycle) and result in the accurate setting values.

Then, both data (C-axis and Z-axis) must be entered in the tapping cycle of the machine control unit. Alternatively, it is possible to enter the angular position (C-axis) via the length correction value. A precondition for that is a synchronous tapping cycle which is started via the angular position.

And finally the angular position can be rechecked with the PoCoSys test systems on the production machine or on the 3D measuring machine.



Voreinstellgerät zur vollautomatischen Messung, inklusive automatischer Rotation  
Presetting device with automatic measuring, including rotation.



## Die Genauigkeit ist von folgenden Punkten abhängig:

- Genaue Synchronisierung von Maschine und Steuerung
- Exakte Planseitenbearbeitung (z.B. Plananlage der Zündkerze)
- Spannzangen-Aufnahme für Gewindewerkzeuge **PoCo-Synchro** (siehe Seite 604)
- Gewindebohrer bzw. Gewindeformer
- Positions-Einstell-Hülse **PoCo-Bush**
- Voreinstellgerät mit automatischer Rotation (empfohlen)

## The accuracy depends on the following conditions:

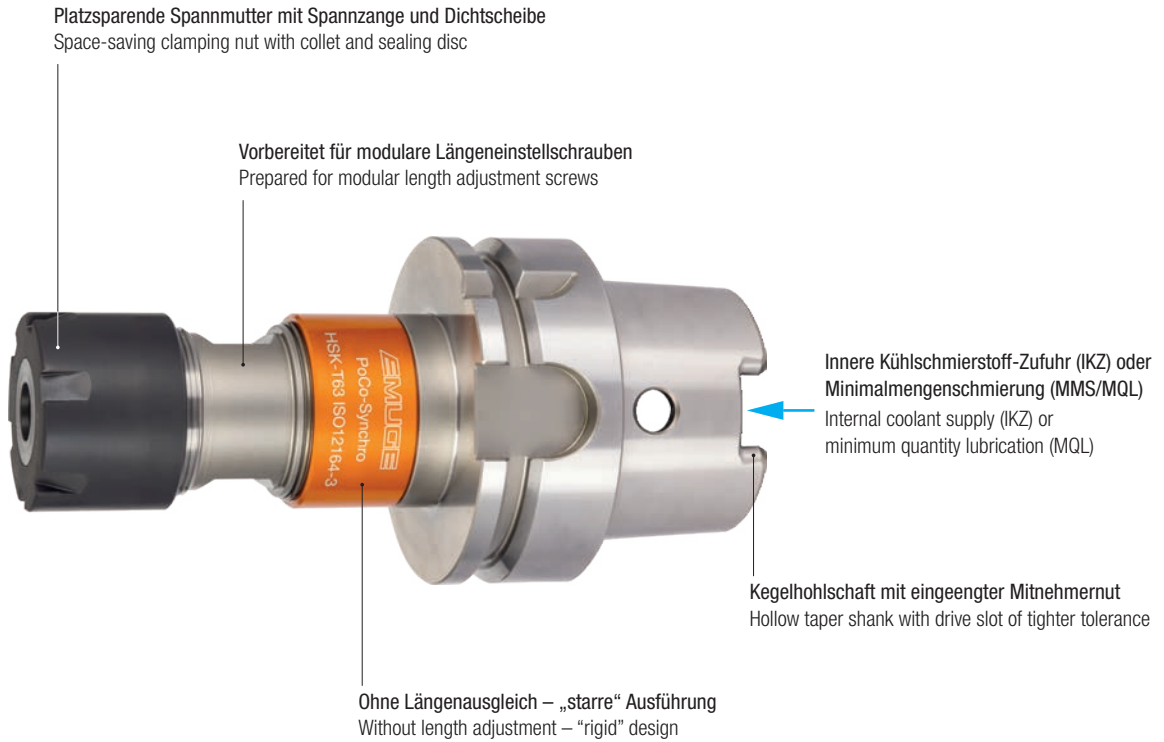
- Correct synchronisation of machine and control unit
- Accurate machining of face side (e.g. contact face of spark plug)
- Collet holder for threading tools **PoCo-Synchro** (see page 603)
- Tap respectively cold-forming tap
- Position-setting bush **PoCo-Bush**
- Presetting device with automatic rotation (recommended)



## PoCo-Synchro

**Spannzangen-Aufnahme für Gewindewerkzeuge mit eingegengter Mitnehmernut für höhere Winkelgenauigkeit**

**Collet holder for threading tools with a drive slot of tighter tolerance for improved angular accuracy**



Für eine exakte Werkzeugführung empfiehlt sich die Spannzangen-Aufnahme für Gewindewerkzeuge **PoCo-Synchro** mit Kegel-Hohlschaft HSK-T nach DIN 69893-7 bzw. ISO 12164-3.

Eine in der Toleranz eingegengte Mitnehmernut garantiert höchste Genauigkeiten bei der stellungsgebundenen Gewindeherstellung und reduziert die Positionsabweichung auf ein Minimum. Dadurch sind Winkelgenauigkeiten kleiner 5° möglich.

In order to optimise tool guidance it is recommended to use the collet holder for threading tools **PoCo-Synchro** with hollow taper shank HSK-T according to DIN 69893-7 respectively ISO 12164-3.

A drive slot with tighter tolerance guarantees the highest possible accuracy in the production of threads with specified start position and at the same time reduces any positional deviation to a minimum.

As a result, an angular accuracy smaller 5° is possible.

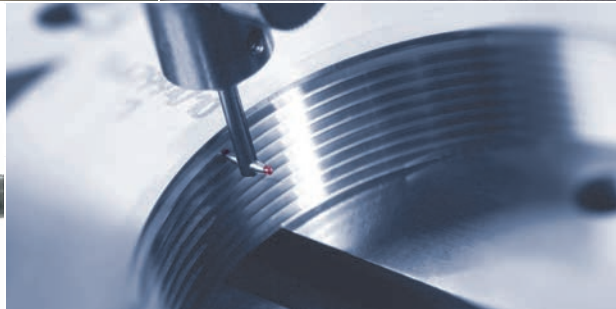
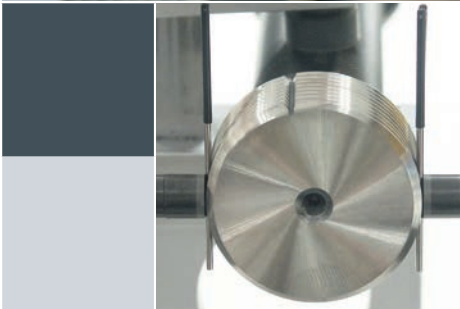
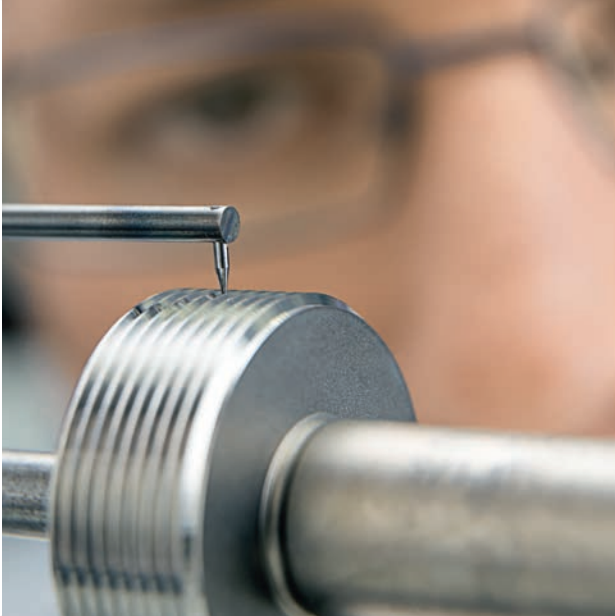
### Kundennutzen

- Gleichbleibende Positionierung und Wiederholbarkeit durch eingegengte Mitnehmernut
- Platzsparende Spannmutter Hi-Q/ERMC mit ER-Spannzange und Dichtscheibe
- Modulare Bauweise, vorbereitet für IKZ- oder MMS-Längeneinstellschraube
- Mit innerer Kühlschmierstoff-Zufuhr (IKZ) bis 50 bar oder Minimalmengenschmierung (MMS/MQL) verwendbar

### Customer benefits

- Consistent positioning and repeatability thanks to tighter tolerance of drive slot
- Space-saving collet Hi-Q/ERMC with ER collet and sealing disk
- Modular design, prepared for IKZ or MQL length adjustment screw
- For use with internal coolant supply (IKZ) up to 50 bar or minimum quantity lubrication (MQL)





**DECOM-Prüflabor im Hause EMUGE**  
**DECOM Calibration Laboratory at EMUGE**





- Product Finder
- M
- MF
- UNC
- UNF
- G
- Rp, R, Rc
- NPT, NPTF
- BSW
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Glatt Smooth
- GT, TD
- Zubehör Accessories
- PoCoSys
- Kalibrieren Calibration

EMUGE bietet Ihnen umfangreiche Leistungen zur Kalibrierung Ihrer Lehren und Messmittel durch unseren Kooperationspartner DECOM UGK GmbH, ein unabhängiges Kalibrierlabor, ansässig im Hause EMUGE. Die DECOM UGK GmbH ist ein seit 1998 DAkkS-akkreditiertes Prüflabor für Länge und weitere geometrische Größen (z.B. Gewindelehren, Messuhren, Feinzeiger, Fühlhebelmessgeräte, Bügelmessschrauben, Messschieber, usw.) gemäß EN/ISO/IEC 17025. Die messtechnische Ausstattung, das Personal und die Umgebungsbedingungen unterliegen der Überwachung durch die DAkkS (Deutsche Akkreditierungsstelle GmbH).

EMUGE offers you comprehensive services for the calibration of your gauges and measuring tools by our cooperation partner DECOM UGK GmbH, an independent calibration laboratory on the premises of EMUGE-Werk at Lauf. DECOM UGK GmbH has been a DAkkS-accredited calibration laboratory for length and other geometric quantities (e.g. thread gauges, dial gauges, dial gauge instruments, dial test indicators, micrometer gauges, caliper gauges etc.) acc. EN/ISO/IEC 17025 since 1998. The technical measuring equipment, the personnel and the environmental conditions are subject to surveillance by the DAkkS (German Accreditation Body).



[www.decom-ugk.de](http://www.decom-ugk.de)

## Gerätetechnische Ausstattung

### Bezugsnormale und Normalmesseinrichtungen:

Für sämtliche im Kundenauftrag durchgeführten Messungen wird der Anschluss an nationale und internationale Normale sichergestellt. Dazu werden Normale und Normalmesseinrichtungen bereitgehalten, die in regelmäßigen Abständen durch innerhalb der WECC anerkannte Kalibrierstellen rekaliert werden.

### Rückführbarkeit der Messgeräte auf nationale Normale

Für die Durchführung der Prüfmittelüberwachung von Betriebsmitteln steht ein umfangreicher Gerätepark zu Verfügung. Die Messgeräte und Messeinrichtungen werden durch regelmäßige externe sowie interne Kalibrierung unter Verwendung der Bezugsnormale und Normalmesseinrichtungen an nationale Normale angeschlossen.

## Technical Equipment

### Reference Standards and Standard Measuring Devices:

The compliance with national and international standards of all measurements commissioned by customers is guaranteed. All necessary standards and standard measuring devices are at our disposal and are regularly recalibrated by calibration laboratories authorised by the WECC.

### Traceability of measuring devices to national standards.

An extensive range of equipment is available to conduct inspection monitoring of operating equipment. The measuring devices and measuring equipment are certified to be in compliance with national standards by means of regular external calibrations as well as in-house calibrations using reference standards and standard measuring devices.

Als Ansprechpartner dient Ihnen die gesamte Vertriebsorganisation des Firmenverbundes EMUGE-FRANKEN ([www.emuge-franken.com/vertrieb](http://www.emuge-franken.com/vertrieb)).

For more information please contact the sales organisation of the company association EMUGE-FRANKEN ([www.emuge-franken.com/sales](http://www.emuge-franken.com/sales)).



# Akkreditierung



Die Deutsche Akkreditierungsstelle bestätigt mit dieser **Akkreditierungsurkunde**, dass das Kalibrierlaboratorium

**DECOM-UGK Werkzeugtechnik GmbH**  
**Nürnberger Straße 96 – 100, 91207 Lauf a. d. Pegnitz**

die Mindestanforderungen gemäß DIN EN ISO/IEC 17025:2018 für die in der Anlage zu dieser Urkunde aufgeführten Konformitätsbewertungstätigkeiten erfüllt. Dies schließt zusätzliche bestehende gesetzliche und normative Anforderungen ein, einschließlich solcher in relevanten sektoralen Programmen.

Die Anforderungen an das Managementsystem in der DIN EN ISO/IEC 17025 sind in einer für Kalibrierlaboratorien relevanten Sprache verfasst und stehen insgesamt in Übereinstimmung mit den Prinzipien der DIN EN ISO 9001.

Diese Akkreditierung wurde gemäß Art. 5 Abs. 1 Satz 2 VO (EG) 765/2008, nach Durchführung eines Akkreditierungsverfahrens unter Beachtung der Mindestanforderungen der DIN EN ISO/IEC 17011 und auf Grundlage einer Bewertung und Entscheidung durch den eingesetzten Akkreditierungsausschuss ausgestellt.

Diese Akkreditierungsurkunde gilt nur in Verbindung mit dem Bescheid vom 30.12.2022 mit der Akkreditierungsnummer D-K-17567-01. Sie besteht aus diesem Deckblatt, der Rückseite des Deckblatts und der folgenden Anlage mit insgesamt 3 Seiten.

Registrierungsnummer der Akkreditierungsurkunde: D-K-17567-01-00

*In Vertretung Dr. Marek Jolly*

Berlin, 30.12.2022 Im Auftrag Dr. Florian Witt  
 Fachbereichsleitung

Diese Urkunde gilt den Stand zum Zeitpunkt des Ausstellungsdatums wieder. Der jeweils aktuelle Stand der gültigen und überwachten Akkreditierung ist der Datenbank akkreditierter Stellen der Deutschen Akkreditierungsstelle zu entnehmen (www.dakks.de).

Siehe Hinweise auf der Rückseite



## Deutsche Akkreditierungsstelle

Anlage zur Akkreditierungsurkunde nach DIN EN ISO/IEC 17025:2018 **D-K-17567-01-00**

Gültig ab: **30.12.2022**  
 Ausstellungsdatum: 30.12.2022

Inhaber der Akkreditierungsurkunde:  
**DECOM-UGK Werkzeugtechnik GmbH**  
**Nürnberger Straße 96 – 100, 91207 Lauf a. d. Pegnitz**

Das Kalibrierlaboratorium erfüllt die Mindestanforderungen gemäß DIN EN ISO/IEC 17025:2018 und gegebenenfalls zusätzliche gesetzliche und normative Anforderungen, einschließlich solcher in relevanten sektoralen Programmen, um die nachfolgend aufgeführten Konformitätsbewertungstätigkeiten durchzuführen.

Die Anforderungen an das Managementsystem in der DIN EN ISO/IEC 17025 sind in einer für Kalibrierlaboratorien relevanten Sprache verfasst und stehen insgesamt in Übereinstimmung mit den Prinzipien der DIN EN ISO 9001.

Kalibrierungen in den Bereichen:

- Dimensionelle Messgrößen**
- Länge
  - Gewinde
  - Längenmessmittel
  - Durchmesser
  - Formabweichung

Diese Urkundenanlage gilt nur zusammen mit der schriftlich erteilten Urkunde und gibt den Stand zum Zeitpunkt des Ausstellungsdatums wieder. Der jeweils aktuelle Stand der gültigen und überwachten Akkreditierung ist der Datenbank akkreditierter Stellen der Deutschen Akkreditierungsstelle zu entnehmen (www.dakks.de)

Verwendete Abkürzungen: siehe letzte Seite

Seite 1 von 3



## Anlage zur Akkreditierungsurkunde D-K-17567-01-00

### Permanentes Laboratorium

| Messgröße / Kalibriergegenstand  | Kalibrier- und Messmöglichkeiten (CMC)  |   |  | Bemerkungen                        |
|--|---|---|--|------------------------------------|
|  | Messbereich / Messspanne                | Messbedingungen / Verfahren   | Erweiterte Messunsicherheit  |                                    |
| <b>Länge</b>   |   |   |  |                                    |
| Gewindelehren (ein- und mehrgängige zylindrische Außen- und Innengewinde mit geradlinigen Flanken, symmetrischem und unsymmetrischem Profil) |   |   |  |                                    |
| Außengewinde   | Nenndurchmesser<br>1 mm bis 300 mm      | EURAMET/cg-10/v 2.1, VDI/VDE/DGQ 2618 Blatt 4.8:2006<br>Dreidrahtmethode (senkrecht zur Gewindeachse) und Zweidrahtmethode (geneigt zur Gewindeachse) | 2,5 µm   |                                    |
| Flankendurchmesser   |   |   |  |                                    |
| Außendurchmesser   |   |   | 2 µm   |                                    |
| Kerndurchmesser bzw. Einstichdurchmesser   |   |   | 5 µm   |                                    |
| Steigung bzw. Teilung  | 0,2 mm bis 12 mm                        |   | 1 µm   |                                    |
| Flankenwinkel  | ≥ 3°                                    |   | (1,2 + 1 mm / l', jedoch nicht kleiner als 3')                           | l' = Flankenlänge                  |
| <b>Innengewinde</b>  |   |   |  |                                    |
| Flankendurchmesser   | Nenndurchmesser<br>3 mm bis 300 mm      | EURAMET/cg-10/v 2.1, VDI/VDE/DGQ 2618 Blatt 4.9:2006<br>Zweikugelmethode (senkrecht und geneigt zur Gewindeachse)                                     | 2,5 µm   |                                    |
| Außendurchmesser bzw. Einstichdurchmesser  |   |   | 7 µm   |                                    |
| Kerndurchmesser  |   |   | 3,5 µm   |                                    |
| Steigung bzw. Teilung  | 0,5 mm bis 12 mm                        |   | 1 µm   |                                    |
| Flankenwinkel  | ≥ 3°                                    |   | (1,2 + 3 mm / l', jedoch nicht kleiner als 5')                           |                                    |
| <b>Messuhren mit Skalenanzeige</b>   | bis 30 mm                               | VDI/VDE/DGQ/DKD 2618 Blatt 11.1:2021  | 3 µm + 10 · 10 <sup>-4</sup> · l'  | l' = gemessene Länge               |
| <b>Feinzeiger</b>  | bis 3 mm                                | VDI/VDE/DGQ 2618 Blatt 11.2:2002  | 0,9 µm   |                                    |
| <b>Fühlhebelmessgeräte</b>   | bis 1,6 mm                              | VDI/VDE/DGQ 2618 Blatt 11.3:2002  | 1,2 µm   |                                    |
| <b>Bügelmessschrauben (Messschrauben für Außenmessung)</b>   | 0 mm bis 100 mm                         | VDI/VDE/DGQ 2618 Blatt 10.1:2001  | 3 µm + 10 · 10 <sup>-4</sup> · l'  | 100 mm = Endwert des Messbereiches |
| <b>Messschieber für Außen-, Innen- und Tiefenmaße</b>  | 0 mm bis 300 mm<br>> 300 mm bis 1000 mm | VDI/VDE/DGQ 2618 Blatt 9.1:2006   | 30 µm + 30 · 10 <sup>-4</sup> · l'<br>50 µm + 30 · 10 <sup>-4</sup> · l' | l' = gemessene Länge               |

Gültig ab: 30.12.2022  
 Ausstellungsdatum: 30.12.2022

Seite 2 von 3



## Anlage zur Akkreditierungsurkunde D-K-17567-01-00

### Permanentes Laboratorium

| Messgröße / Kalibriergegenstand     | Kalibrier- und Messmöglichkeiten (CMC)  |  |  | Bemerkungen |
|-------------------------------------|---|--|--|-------------|
|                                     | Messbereich / Messspanne                | Messbedingungen / Verfahren              | Erweiterte Messunsicherheit  |             |
| <b>Tiefenmessschieber</b>           | 0 mm bis 300 mm<br>> 300 mm bis 1000 mm | VDI/VDE/DGQ 2618 Blatt 9.2:2006          | 30 µm + 30 · 10 <sup>-4</sup> · l'<br>50 µm + 30 · 10 <sup>-4</sup> · l' |             |
| <b>Zylindrische Einstellnormale</b> |   |  |  |             |
| Lehrringe                           | 5 mm bis 100 mm                         | VDI/VDE/DGQ 2618 Blatt 4.1:2006 Option 2 | 0,6 µm   |             |
| Rundheitsabweichung                 | bis 40 µm                               |  | 0,2 µm   |             |
| Lehrdorne                           | 3 mm bis 100 mm                         |  | 0,6 µm   |             |
| Rundheitsabweichung                 | bis 40 µm                               |  | 0,2 µm   |             |
| <b>Prüfstifte</b>                   |   |  |  |             |
| Durchmesser                         | 3 mm bis 20 mm                          | VDI/VDE/DGQ 2618 Blatt 4.2:2007 Option 2 | 0,6 µm   |             |
| Rundheitsabweichung                 | bis 40 µm                               |  | 0,2 µm   |             |

### Verwendete Abkürzungen:

- |         |   |
|---------|---|
| CMC     | Calibration and measurement capabilities (Kalibrier- und Messmöglichkeiten) |
| DIN     | Deutsches Institut für Normung e.V.   |
| DGQ     | Deutsche Gesellschaft für Qualität e.V.                                     |
| DKD     | Deutscher Kalibrierdienst   |
| EURAMET | European Association of National Metrology Institutes                       |
| VDE     | Verband der Elektrotechnik, Elektronik und Informationstechnik e.V.         |
| VDI     | Verein Deutscher Ingenieure e.V.  |

Gültig ab: 30.12.2022  
 Ausstellungsdatum: 30.12.2022

Seite 3 von 3

- Product Finder
- M
- MF
- UNC
- UNF
- G
- Rp, R, Rc
- NPT, NPTF
- BSW
- Pg
- MJ UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Glatt Smooth
- GT, TD
- Zubehör Accessories
- PoCoSys
- Kalibrieren Calibration

### Überwachungsprüfung nach VDI/VDE/DGQ-Richtlinie 2618, Blatt 4.8 „Ü“

- Reinigen
- Entmagnetisieren
- Sichtprüfung auf Beschädigung
- Nacharbeit leichter Beschädigungen mit Ölstein oder Läppleinen
- Kennzeichnung feststellen, evtl. Ident-Nummer festlegen und aufbringen
- Temperieren (min. 5 Stunden)
- Sichtprüfung der korrekten Kennzeichnung, ggf. Farbkennzeichnung
- Kennwertermittlung: Flankendurchmesser am Gewindeanfang an 2 Messstellen um 90° versetzt
- Auswertung der Messergebnisse und Erstellung des Kalibrierscheines
- Konservierung und Stückverpackung

Alle erforderlichen Daten und Messergebnisse werden in einem Kalibrierschein (siehe Muster) dokumentiert.

### Inspection monitoring according to VDI/VDE/DGQ-directive 2618, sheet 4.8 "Ü"

- Cleaning
- Demagnetizing
- Visual inspection for damage
- Rework of minor damages with oil stone and lapping cloth
- Determine marking, if applicable, establish ID number and apply marking
- Tempering (min. 5 hours)
- Visual inspection for correct marking, if applicable colour marking.
- Determination of specific values: pitch diameter at the start of the thread on 2 measuring locations off-set by 90°.
- Evaluation of measuring results and creation of calibration certificate
- Preservation and single packaging

All necessary data and measuring results will be documented in a calibration certificate (see sample).

**DECOM UGK GmbH**

Decom UGK GmbH  
Nürnberger Str. 96-100  
D-91207 Lauf a.d. Pegnitz

**Werks-Kalibrierschein**  
**Proprietary Calibration-Certificate**

Gegenstand: Gewinde-Grenzlehrdorn  
Objekt:

Hersteller: EMUGE  
Type: M 18x2.5-6H  
Fabrikate/Serien-Nr.: 0916  
Serial Number:  
Auftraggeber: Musterkunde  
Customer: Musterstraße 10, 9999 Musterstadt  
Auftragsnummer: 123456789  
Work order No.

Anzahl der Seiten des Kalibrierscheines: 2  
Number of pages of the certificate

Datum der Kalibrierung: 31.01.2018  
Date of calibration

Prüfer: S. Göbel  
Inspector

Die Kalibrierung erfolgt durch Vergleich mit Bezugsnormalen bzw. Bezugsnormalmessgeräten, die in einer innerhalb der International Laboratory Accreditation Cooperation (ILAC) akkreditierten Kalibrierstelle kalibriert wurden und damit rückgeführt sind auf die nationalen Normale, in Übereinstimmung mit dem Internationalen Einheitensystem (SI) darstellt.

Für die Einhaltung einer angemessenen Frist zur Wiederholung der Kalibrierung ist der Benutzer verantwortlich.

The calibration is performed by comparison with reference standards or standard measuring equipment which are calibrated by a calibration laboratory accredited within the Laboratory Accreditation Cooperation (LAC) and thus traceable to the national measurement standards maintained according to the International system of Units (SI).

All users are responsible for the observation of an appropriate period for recalibration.

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info@decom-ugk.de  
www.decom-ugk.de

Geschäftsführer:  
Ulrike Glimpel-Krieselner  
Peter Ludwig  
AG Nürnberg HRB 9730

Sparkasse Nürnberg  
SWIFT/BIC: 53010377XXX  
IBAN: DE53700501010012736081

USt-Ident.Nr.: DE 133 641 499

Prüfmitteltyp: Gewinde-Grenzlehrdorn

**Sollmaße und Toleranzen**

|                                      |                        |
|--------------------------------------|------------------------|
| Flankendurchmesser, Gutseite, neu    | 16,3920 mm ± 0,0070 mm |
| Flankendurchmesser, Gutseite, abgn.  | 16,3710 mm             |
| Flankendurchmesser, Ausschuss, neu   | 16,6070 mm ± 0,0070 mm |
| Flankendurchmesser, Ausschuss, abgn. | 16,5920 mm             |

**Ergebnisse**

| Pos. | Messwerte      | Abweichung  | außerhalb der Toleranz |
|------|----------------|-------------|------------------------|
| A1   | Gutseite       |             |                        |
|      | 16,3901 mm     | - 0,0019 mm |                        |
| B1   |                |             |                        |
|      | 16,3912 mm     | - 0,0008 mm |                        |
| A1   | Ausschussseite |             |                        |
|      | 16,6078 mm     | + 0,0008 mm |                        |
| B1   |                |             |                        |
|      | 16,6072 mm     | + 0,0002 mm |                        |

Messdraht: 1,4665 mm

**7 Bemerkung**

**8 Prüferentscheid**  
Prüfmittel hält die Spezifikationen ein.

**9 Prüfergerät**  
ULM 450 Nr.5382, Dreidrahtmethode

**10 Anschließ ans nationales Normal**  
Lehrdom:metas.111-12802

**11 Messunsicherheit (P=95%)**  
U = (2,00 ± L x 1,25) µm, L in m

**12 Prüfanweisung**  
VDI/VDE/DGQ2618 Bl.4.8 "Ü" bzw. PA von DECOM-UGK

Für die Einhaltung einer angemessenen Frist zur Rekalibrierung ist der Benutzer verantwortlich. Messergebnisse außerhalb der zulässigen, jedoch innerhalb der um die Messunsicherheit erweiterten Grenzwerte werden nicht zurückgewiesen und als in Ordnung beurteilt (DIN EN ISO 14253-1).

- 1** Kalibrierschein-Nr. zur eindeutigen Zuordnung der Kalibrierung  
Number of calibration certificate to clearly assign the calibration
- 2** Messmittelhersteller  
Manufacturer of measuring device
- 3** Eindeutige Ident-Nr. des Messmittels zur Zuordnung des Kalibrierscheines  
Unique ID number of measuring device for clear assignment to calibration certificate
- 4** Name und Anschrift des Kunden  
Name and address of customer
- 5** Auftragsnummer  
Order number
- 6** Verantwortlicher Prüfer für den Prüferentscheid  
Inspecting person responsible for the inspection decision

- 7** Besondere Hinweise und Bemerkungen zum Messmittel  
Specific notes and remarks concerning the measuring device
- 8** Besondere Hinweise und Bemerkungen zum Prüferentscheid  
Specific notes and remarks concerning the inspection decision
- 9** Für die Kalibrierung verwendetes Prüfergerät  
Measuring device used for the calibration
- 10** Angabe des Bezugsnormales zur Rückführung des Messwertes  
Information on reference standard for traceability of measuring values
- 11** Messunsicherheitsangabe  
Information on measurement uncertainty
- 12** Angabe der Prüfanweisung  
Information on inspection directives

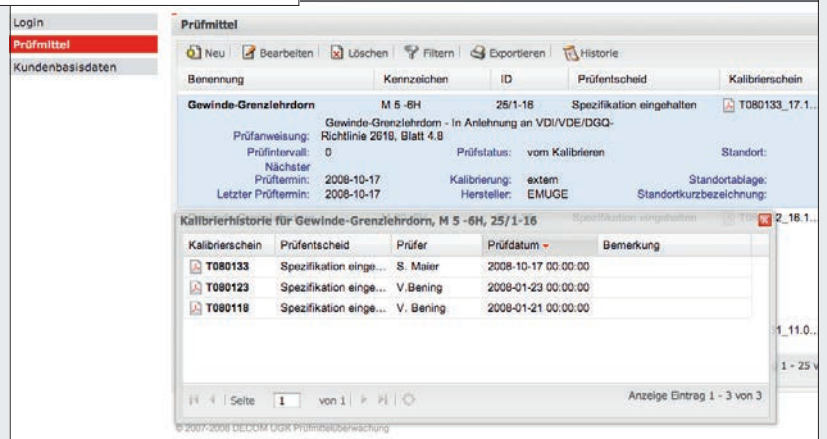
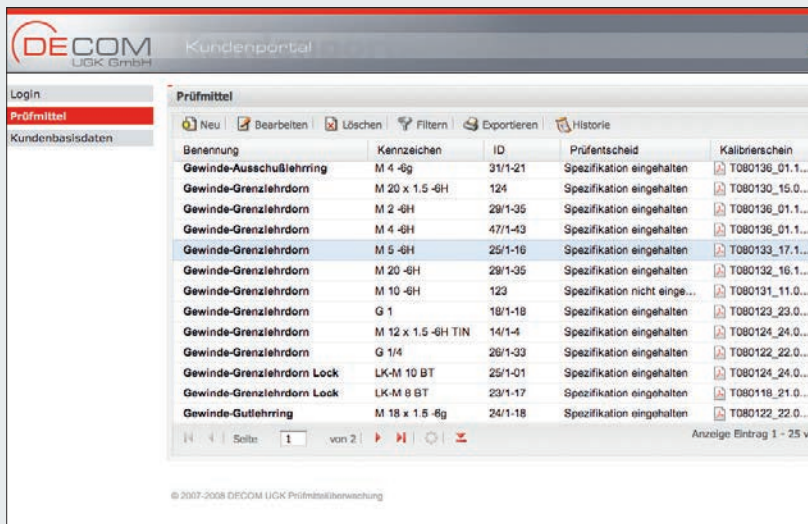


|  |   |   |
|--|---|---|
|  | <b>Kunde</b><br>Customer  |   |
| <b>Aluminiumboxen mit Noppenschaum auf Wunsch</b>  | <b>Transport</b><br>Transport   | <b>Aluminium boxes with napped foam upon request</b>  |
| <p>Bei entsprechenden Stückzahlen stellen wir Ihnen ausgepolsterte Leihbehältnisse in Form von verschließbaren Aluminiumboxen in unterschiedlichen Größen zur Verfügung.</p>   |    | <p>For appropriate quantities, we can provide padded loan containers, that is to say, lockable aluminum boxes in different sizes.</p>   |
| <b>Reinigung, Sichtprüfung, Entmagnetisierung, Temperierung</b>  | <b>Wareneingang</b><br>Goods receipt  | <b>Cleaning, visual inspection, demagnetisation, tempering</b>  |
| <p>Die Messmittel werden nach Anlieferung sichtkontrolliert, gereinigt, falls erforderlich entmagnetisiert und entsprechend der VDI/DKD-Richtlinien bei 20 °C ± 1 °C mindestens 5 Stunden temperiert. Alle Messmittel müssen mit einer eindeutigen Ident-Nr. gekennzeichnet sein, um die Kalibrierscheinzuordnung zu gewährleisten. Ist keine entsprechende Kennzeichnung auf dem Messmittel, wird bei der Kalibrierung die Ident-Nr. mittels eines Aufklebers angebracht. Gegen einen Aufpreis nehmen wir auch eine feste Kennzeichnung Ihrer Prüfmittel vor.</p> |    | <p>The measuring devices are visually checked after receipt, cleaned, if necessary demagnetised and tempered acc. to the VDI/DKD guidelines at 20 °C ± 1 °C for at least 5 hours. All measurement devices must be marked with a unique identification number in order to guarantee the clear allocation to its calibration certificate. If there is no corresponding marking on the measuring instrument, the identification number will be attached by means of a sticker during calibration. For a surcharge, we can also provide a permanent identification marking on your testing devices.</p> |
| <b>Kennwertermittlung, Funktionsprüfung, Auswertung, Anbringung von Prüfplaketten, Datenarchivierung online</b>  | <b>Kalibrierung</b><br>Calibration  | <b>Determination of key values, functional testing, evaluation, marking with inspection labels, data archiving online</b>   |
| <p>Die Kalibrierung der Messmittel erfolgt nach VDI/VDE/DGQ-Richtlinie 2618 ff. „Ü“ (Überwachungsprüfung). Messmittel, welche nicht den Spezifikationen entsprechen, werden mit einem „gesperrt“-Aufkleber versehen. Prüfplaketten werden auf Wunsch angebracht. Messmittelstammdaten und Kalibrierscheine werden auch in unserer Online-Datenbank abgelegt (Kalibrierscheinmuster siehe auch Seite 608).</p>  |  | <p>The calibration of the measuring equipment is carried out according to VDI/VDE/DGQ guideline 2618 et seq. “Ü” (monitoring inspection). Measuring equipment that does not meet the specifications will be marked with a “blocked” sticker. Inspection stickers can be attached free of charge on request. Master data of measuring devices and calibration certificates are also stored in our online database (sample of calibration certificate see page 608).</p>  |
| <b>Kalibrierscheine, Konservierung, Schmelztauchen, Verpacken</b>  | <b>Warenausgang</b><br>Outgoing goods   | <b>Calibration certificates, preservation, hot dipping, packaging</b>   |
| <p>Die kalibrierten Messmittel werden durch Einölen oder mittels Vaseline konserviert und sachgemäß verpackt bzw. in Schmelzmasse getaucht. Die stoßgeschützte Verpackung erfolgt direkt im Versandraum des Kalibrierlabors. Kalibrierscheine können in Papierform, als PDF per E-Mail oder direkt online über KalimeroNet zur Verfügung gestellt werden.</p>  |  | <p>The calibrated measuring devices are preserved with oil or petroleum jelly and properly packaged respectively treated in a hot-dip procedure. The measuring devices are packaged shock-proof directly in the shipment preparation room of the calibration laboratory. Calibration certificates can be provided on paper, as PDF file by e-mail or directly online via KalimeroNet.</p>   |
| <b>Direkter Versand über die Firma EMUGE</b>   | <b>Versand</b><br>Shipping  | <b>Direct shipping by company EMUGE</b>   |
|  |  |   |
|  | <b>Kunde</b><br>Customer  |   |

|                         |
|-------------------------|
| Product Finder          |
| M                       |
| MF                      |
| UNC                     |
| UNF                     |
| Rp, R, Rc               |
| NPT, NPTF               |
| BSW                     |
| Pg                      |
| MJ                      |
| UNJC, UNJF              |
| EG (STI)                |
| SELF-LOCK               |
| Tr, Tr-F Rd             |
| Glatt Smooth            |
| GT, TD                  |
| Zubehör Accessories     |
| PoCoSys                 |
| Kalibrieren Calibration |



- Product Finder
- M
- MF
- UNC
- UNF
- G
- Rp, R, Rc
- NPT, NPTF
- BSW
- Pg
- MJ
- UNJC, UNJF
- EG (STI)
- SELF-LOCK
- Tr, Tr-F Rd
- Glatt Smooth
- GT, TD
- Zubehör Accessories
- PoCoSys
- Kalibrieren Calibration



## KalimeroNet – einfachste Bedienung – Kalibrierscheine weltweit online verfügbar – keine Software-Installation

Welche Funktionen beinhaltet KalimeroNet?

- Kalibrierscheine sind direkt abrufbar und als PDF hinterlegt
- Erfassung eigener Kundenbasisdaten wie Standorte und Lagerorte
- Prüf- und Kalibrieranweisungen können als Dateianhang verwaltet werden und lassen sich dem Prüfmittel zuordnen
- Zugriff auf alle bisherigen Kalibrierungen in der Historienübersicht
- Datenexport in Microsoft® Excel® für eigene Ausdrücke
- Umfangreiche Sortier- und Filterfunktionen verschaffen den gewünschten Überblick wie z.B. Prüffälligkeiten
- Verwaltung eigenkalibrierter Messmittel mit Kalibrierschein als Dateianhang möglich
- Vergabe von Nutzerprofilen durch DECOM UGK ist möglich

## Wie kann ich die Leistungen von KalimeroNet nutzen?

Sie benötigen einen Internetzugang. Die Nutzung von KalimeroNet über unser Kundenportal steht ausschließlich DECOM UGK Kunden zur Verfügung. Die Nutzung ist unentgeltlich.

## Wie bekomme ich meine persönlichen Daten für die Kundenportal-Registrierung?

Sie müssen sich einmalig über das Online-Formular mit Ihren Anmeldedaten registrieren. Das Passwort kann nachträglich von Ihnen geändert werden.

Unter [www.decom-ugk.de/user/login](http://www.decom-ugk.de/user/login) können Sie sich über unseren Gastzugang von der einfachen Bedienung überzeugen. Alternativ können Sie eine Kurzbeschreibung zu KalimeroNet von unserer Internetseite unter [www.decom-ugk.de/hp/download](http://www.decom-ugk.de/hp/download) herunterladen.

## KalimeroNet – easiest handling – calibration sheets available online worldwide – no software installation necessary

Which functions does KalimeroNet offer you?

- Calibration sheets can be called off directly, and are filed in PDF format
- Registration of proper customer data, like location and storage location is possible
- Inspection and calibration instructions can be administrated as file attachments, and allocated to individual inspection tools
- Access to all past calibrations in the history file
- Data export in Microsoft® Excel® for your own printout
- Comprehensive sorting and filter functions provide full control, e.g. of due inspection dates
- Administration of self-calibrated measuring tools with calibration sheet as file attachment is possible
- User profiles can be provided by DECOM UGK

## How can I use the advantages of KalimeroNet?

All you need is an Internet access. The use of KalimeroNet through our customer portal is available only to DECOM UGK customers. The use of KalimeroNet is free of charge.

## How do I get my personal data for registration in the customer portal?

You have to register one time only through our online form with your customer data. You can change your password subsequently. Under our guest log-in, [www.decom-ugk.de/user/login](http://www.decom-ugk.de/user/login) you can convince yourself of the easy handling of KalimeroNet.

As an alternative, you can download a brief description of KalimeroNet from our Internet website under [www.decom-ugk.de/hp/download](http://www.decom-ugk.de/hp/download).



## Aufnahmen und Gewindeschneidapparate Tap Holders and Tapping Attachments

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Übersichten

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Produktseiten

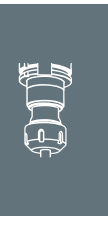
Product pages

616 - 762



|                       |
|-----------------------|
| <b>Product Finder</b> |
| Softsynchro           |
| Speedsynchro          |
| KSN                   |
| MQL MMS               |
| SFM                   |
| SWITCH-MASTER         |
| HF                    |
| EM                    |
| Zubehör Accessories   |

|                               | Kühlung und Schmierung<br>Cooling and lubrication                     |         |   |       |       |                                      |                                       |  | Funktionen<br>Functions            |                                      |   |   |  |  |  |   |
|-------------------------------|---|---------|---|-------|-------|--------------------------------------|---------------------------------------|--|------------------------------------|--------------------------------------|---|---|--|--|--|---|
|                               | Innere Kühlschmierstoff-Zufuhr (IKZ)<br>Internal coolant supply (IKZ) | MMS MQL | Minimalmengenschmierung (MMS)<br>Minimum-quantity lubrication (MQL) | MQL 1 | MQL 2 | D <sub>max</sub> 50 bar<br>(700 psi) | D <sub>max</sub> 70 bar<br>(1000 psi) | D <sub>max</sub> 100 bar<br>(1400 psi) | D <sub>max</sub> 6 bar<br>(85 psi) | D <sub>max</sub> 10 bar<br>(140 psi) | Längenausgleich in Druck- und Zugrichtung<br>Length compensation on compression and tension | Minimallängenausgleich<br>Cooling and lubrication | Längenausgleich in Zugrichtung<br>Length compensation on tension | Längeneinstellung 2 mm<br>Length readjustment 2 mm | Längeneinstellung<br>Length readjustment | Druckpunktmechanismus<br>Pressure-point mechanism |
| Softsynchro® Micro            |   |         |   |       |       |                                      |                                       |  |                                    |                                      | ■   |   |  |  |  |   |
| Softsynchro® 0-5              | ■   |         |   |       |       | ■                                    |                                       |  |                                    |                                      | ■   |   |  |  |  |   |
| Softsynchro® 6                | ■   |         |   |       |       | ■                                    |                                       |  |                                    |                                      | ■   |   |  |  |  |   |
| Softsynchro® Modular/IKZ      | ■   |         |   |       |       | ■                                    |                                       |  |                                    |                                      | ■   |   | ■  |  |  |   |
| Softsynchro® Slim/IKZ         | ■   |         |   |       |       | ■                                    |                                       |  |                                    |                                      | ■   |   |  |  |  |   |
| Softsynchro® Xtension         | ■   |         |   |       |       | ■                                    |                                       |  |                                    |                                      | ■   |   |  | ■  |  |   |
| Softsynchro® QuickLock        | ■   |         |   |       |       | ■                                    |                                       |  |                                    |                                      | ■   |   |  |  |  |   |
| Softsynchro® SnapLock         | ■   |         |   |       |       | ■                                    |                                       |  |                                    |                                      | ■   |   |  |  |  |   |
| Softsynchro® SnapLock L       | ■   |         |   |       |       | ■                                    |                                       |  |                                    |                                      | ■   |   |  | ■  |  |   |
| Softsynchro®/PGR              | ■   |         |   |       |       | ■                                    |                                       |  |                                    |                                      | ■   |   |  |  |  |   |
| Softsynchro® Modular/MQL      |   | ■       | ■   | ■     |       |                                      |                                       |  | ■                                  |                                      | ■   |   |  | ■  |  |   |
| Softsynchro® Slim/MQL         |   | ■       | ■   | ■     |       |                                      |                                       |  | ■                                  |                                      | ■   |   |  | ■  |  |   |
| Softsynchro® Xtension/MQL     |   | ■       | ■   |       |       |                                      |                                       | ■                                      |                                    |                                      | ■   |   |  | ■  | ■  |   |
| Softsynchro®/MMS              |   | ■       | ■   | ■     |       |                                      |                                       |  | ■                                  |                                      | ■   |   |  |  |  |   |
| Speedsynchro® Modular NFC/IKZ | ■   |         |   |       |       | ■                                    |                                       |  |                                    |                                      | ■   |   |  |  |  |   |
| Speedsynchro® Modular NFC/MQL |   | ■       | ■   | ■     |       |                                      |                                       |  | ■                                  |                                      | ■   |   |  | ■  |  |   |
| Speedsynchro® Mini            | ■   |         |   |       |       |                                      | ■                                     |  |                                    |                                      | ■   |   |  |  |  |   |
| KSN                           |   |         |   |       |       |                                      |                                       |  |                                    |                                      | ■   |   |  |  |  | ■   |
| KSN/HD                        | ■   |         |   |       |       | ■                                    |                                       |  |                                    |                                      | ■   |   |  |  |  | ■   |
| KSN/HD/ER                     | ■   |         |   |       |       | ■                                    |                                       |  |                                    |                                      | ■   |   |  |  |  | ■   |
| KSN/HD/PGR                    | ■   |         |   |       |       | ■                                    |                                       |  |                                    |                                      | ■   |   |  |  |  | ■   |
| KSN/Synchro                   | ■   |         |   |       |       |                                      |                                       | ■                                      |                                    |                                      |   |   |  |  |  |   |
| KSN/MQL                       |   | ■       | ■   |       |       |                                      |                                       |  | ■                                  |                                      | ■   |   |  |  |  | ■   |
| SFM                           |   |         |   |       |       |                                      |                                       |  |                                    |                                      |   |   |  |  |  |   |
| SFM-NP                        |   |         |   |       |       |                                      |                                       |  |                                    |                                      |   |   |  |  |  |   |
| SFM-L-DZ                      |   |         |   |       |       |                                      |                                       |  |                                    |                                      | ■   |   |  |  |  | ■   |
| SWITCH-MASTER                 | ■   |         |   |       |       | ■                                    |                                       |  |                                    |                                      |   |   | ■  |  |  |   |
| HF                            |   |         |   |       |       |                                      |                                       |  |                                    |                                      | ■   |   |  |  |  |   |
| HF/HD/Spezial                 | ■   |         |   |       |       | ■                                    |                                       |  |                                    |                                      | ■   |   |  |  |  |   |

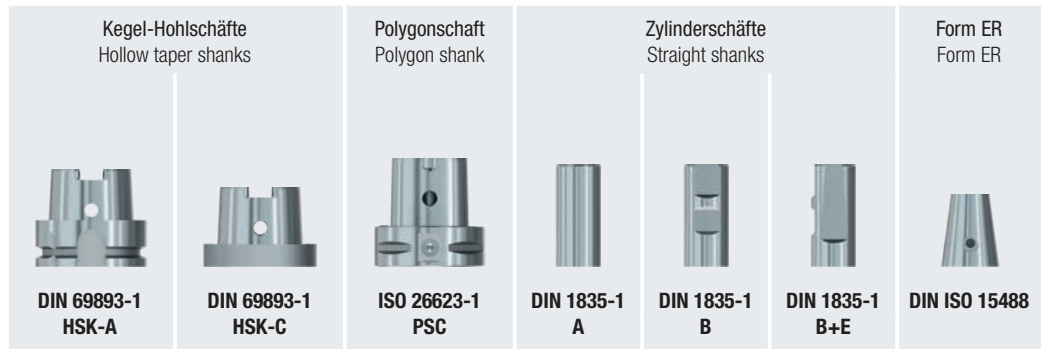


| Funktionen<br>Functions        |  |  |  | Werkzeug-Adaptierung<br>Tool adaptation |                                     |  |   | Empfohlene Einsatzgebiete<br>Recommended range of application   |  |   |  | Product<br>Finder   |   |  |  |                               |
|--------------------------------|--|--|--|---|-------------------------------------|--|---|---|--|---|--|---|---|--|--|-------------------------------|
| Zugausrautung<br>Front release | Achsparallele Pendelung<br>Axial-parallel floating | Nahfeldkommunikation<br>Near field communication | Übersetzung ins Schmale<br>Transmission gearing rapid traverse | Wendegeräte<br>Reverse gear             | Überlastkupplung<br>Overload clutch | Bohren und Senken<br>Drilling and countersinking | Werkzeugadaptierung über Schnellwechsel-Einsätze, Typenreihe EM<br>Tool adaptation by means of quick-change adapters, EM series | Werkzeugadaptierung über Schnellwechsel-Einsätze, Typenreihe HE<br>Tool adaptation by means of quick-change adapters, HE series | Werkzeugadaptierung über Spannzangen, Typ ER (GB)<br>Tool adaptation by means of collets, type ER (GB) | Werkzeugadaptierung über SnapLock-Nut<br>Tool adaptation by SnapLock groove | Werkzeugadaptierung über Spannzangen, Typ PGR-GB<br>Tool adaptation by means of collets, type PGR-GB | Einsatz auf Maschinen mit Synchronspindel<br>For use on machines with synchronous spindle | Einsatz auf CNC-Bearbeitungszentren und sonstigen Werkzeugmaschinen<br>For use on CNC machining centres and other machine tools | Einsatz auf Mehrspindelmaschinen und Transferstraßen<br>For use on multi-spindle machines and transfer lines | Einsatz auf Säulenbohrmaschinen<br>For use on pillar drilling machines |                               |
|                                |  |  |  |   |                                     |  |   |   | ■  |   |  | ■   |   |  |  | Softsynchro® Micro            |
|                                |  |  |  |   |                                     |  |   |   | ■  |   |  | ■   |   |  |  | Softsynchro® 0-5              |
|                                |  |  |  |   |                                     |  |   | ■   |  |   |  | ■   |   |  |  | Softsynchro® 6                |
|                                |  |  |  |   |                                     |  |   |   | ■  |   |  | ■   |   |  |  | Softsynchro® Modular/IKZ      |
|                                |  |  |  |   |                                     |  |   |   | ■  |   |  | ■   |   |  |  | Softsynchro® Slim/IKZ         |
|                                |  |  |  |   |                                     |  |   |   | ■  |   |  | ■   |   |  |  | Softsynchro® Xtension         |
|                                |  |  |  |   |                                     |  | ■   |   |  |   |  | ■   |   |  |  | Softsynchro® QuickLock        |
|                                |  |  |  |   |                                     |  |   |   | ■  |   |  | ■   |   |  |  | Softsynchro® SnapLock         |
|                                |  |  |  |   |                                     |  |   |   | ■  |   |  | ■   |   |  |  | Softsynchro® SnapLock L       |
|                                |  |  |  |   |                                     |  |   |   |  | ■   |  | ■   |   |  |  | Softsynchro®/PGR              |
|                                |  |  |  |   |                                     |  |   |   | ■  |   |  | ■   |   |  |  | Softsynchro® Modular/MQL      |
|                                |  |  |  |   |                                     |  |   |   | ■  |   |  | ■   |   |  |  | Softsynchro® Slim/MQL         |
|                                |  |  |  |   |                                     |  |   |   | ■  |   |  | ■   |   |  |  | Softsynchro® Xtension/MQL     |
|                                |  |  |  |   |                                     |  |   |   | ■  |   |  | ■   |   |  |  | Softsynchro®/MMS              |
|                                |  | ■  | ■  |   |                                     |  |   |   | ■  |   |  | ■   |   |  |  | Speedsynchro® Modular NFC/IKZ |
|                                |  | ■  | ■  |   |                                     |  |   |   | ■  |   |  | ■   |   |  |  | Speedsynchro® Modular NFC/MQL |
|                                |  | ■  | ■  |   |                                     |  |   |   | ■  |   |  | ■   |   |  |  | Speedsynchro® Mini            |
| ■                              |  |  |  |   |                                     |  | ■   |   |  |   |  | ■   |   |  | ■  | KSN                           |
| ■                              |  |  |  |   |                                     |  | ■   |   |  |   |  | ■   |   |  |  | KSN/HD                        |
|                                |  |  |  |   |                                     |  |   |   | ■  |   |  | ■   |   |  |  | KSN/HD/ER                     |
|                                |  |  |  |   |                                     |  |   |   |  | ■   |  | ■   |   |  |  | KSN/HD/PGR                    |
|                                |  |  |  |   |                                     |  |   |   | ■  |   |  | ■   |   |  |  | KSN/Synchro                   |
| ■                              |  |  |  |   |                                     |  | ■   |   |  |   |  | ■   |   |  |  | KSN/MQL                       |
|                                | ■  |  |  |   |                                     |  | ■   |   |  |   |  |   |   | ■  |  | SFM                           |
|                                |  |  |  |   |                                     |  | ■   |   |  |   |  |   |   | ■  |  | SFM-NP                        |
|                                |  |  |  |   |                                     |  |   |   | ■  |   |  | ■   |   |  |  | SFM-L-DZ                      |
|                                |  |  |  | ■                                       |                                     |  |   |   | ■  |   |  | ■   |   |  |  | SWITCH-MASTER                 |
|                                |  |  |  |   | ■                                   | ■  |   |   | ■  |   |  | ■   |   |  |  | HF                            |
|                                |  |  |  |   |                                     |  | ■   |   |  |   |  | ■   |   |  |  | HF/HD/Spezial                 |

- Softsynchro
- Speedsynchro
- KSN
- MQL MMS
- SFM
- SWITCH-MASTER
- HF
- EM
- Zubehör  
Accessories



- Product Finder
- Softsynchro
- Speedsynchro
- KSN
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- EM
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| Softsynchro® Micro            | 618       |           |     | 626 |           | 624 | 627 |
| Softsynchro® 0-5              | 619 - 620 | 622       | 623 |     |           | 625 |     |
| Softsynchro® 6                | 621       |           |     |     |           |     |     |
| Softsynchro® Modular/IKZ      | 632       |           |     |     |           |     |     |
| Softsynchro® Slim/IKZ         | 634       |           |     |     |           |     |     |
| Softsynchro® Xtension         | 635       |           |     |     |           |     |     |
| Softsynchro® QuickLock        | 636       |           |     |     |           | 637 |     |
| Softsynchro® SnapLock         | 639       |           |     |     |           | 640 |     |
| Softsynchro® SnapLock L       | 641       |           |     |     |           | 642 |     |
| Softsynchro®/PGR              | 643       |           |     |     |           | 644 |     |
| Softsynchro® Modular/MQL      | 678 - 681 | 682 - 683 |     |     |           |     |     |
| Softsynchro® Slim/MQL         | 684 - 687 |           |     |     |           |     |     |
| Softsynchro® Xtension/MQL     | 688       |           |     |     |           |     |     |
| Softsynchro®/MMS              | 689 - 690 | 691       |     |     |           |     |     |
| Speedsynchro® Modular NFC/IKZ |           |           |     |     | 647       |     |     |
| Speedsynchro® Modular NFC/MQL |           |           |     |     |           |     |     |
| Speedsynchro® Mini            |           |           |     |     |           |     |     |
| KSN                           | 652       | 653       |     |     |           | 654 |     |
| KSN/HD                        | 662       | 663       | 664 |     |           | 665 |     |
| KSN/HD/ER                     | 670       | 671       |     |     |           | 672 |     |
| KSN/HD/PGR                    | 673       |           |     |     |           | 674 |     |
| KSN/Synchro                   | 675       |           |     |     |           | 676 |     |
| KSN/MQL                       | 694       | 695       |     |     |           |     |     |
| SFM                           |           |           |     |     |           |     |     |
| SFM-NP                        |           |           |     |     |           |     |     |
| SFM-L-DZ                      |           |           |     |     |           |     |     |
| SWITCH-MASTER                 |           |           |     |     | 706 - 707 |     |     |
| HF                            |           |           |     |     |           |     |     |
| HF/HD/Spezial                 |           |           |     |     |           |     |     |



|                                       |                  |                      |                                       |  |                         |                              |
|---------------------------------------|------------------|----------------------|---------------------------------------|--|-------------------------|------------------------------|
| Steilkegelschäfte<br>ISO taper shanks |                  |                      | Morsekegelschaft<br>Morse taper shank | StellhülSENSchaft<br>Cylindrical shank | VDI-Schaft<br>VDI shank | ABS®-Kupplung<br>ABS®-clutch |
|                                       |                  |                      |                                       |  |                         |                              |
| DIN ISO 7388-1<br>SK                  | DIN 2080-1<br>SK | DIN ISO 7388-2<br>BT | DIN 228-1<br>Form B                   | DIN 6327-3<br>Tr                       | DIN ISO 10889-1<br>VDI  | ABS®<br>(System KOMET)       |

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|-----------|-----------|-----------|-----------|-----|-----|----------|--------------------------------------|
|           |           |           |           |     |     |          | <b>Softsynchro® Micro</b>            |
| 628 - 629 |           | 631       |           |     |     |          | <b>Softsynchro® 0-5</b>              |
| 630       |           |           |           |     |     |          | <b>Softsynchro® 6</b>                |
|           |           | 633       |           |     |     |          | <b>Softsynchro® Modular/IKZ</b>      |
|           |           |           |           |     |     |          | <b>Softsynchro® Slim/IKZ</b>         |
|           |           | 638       |           |     |     |          | <b>Softsynchro® Xtension</b>         |
|           |           |           |           |     |     |          | <b>Softsynchro® QuickLock</b>        |
|           |           |           |           |     |     |          | <b>Softsynchro® SnapLock</b>         |
|           |           |           |           |     |     |          | <b>Softsynchro® SnapLock L</b>       |
|           |           |           |           |     |     |          | <b>Softsynchro®/PGR</b>              |
|           |           |           |           |     |     |          | <b>Softsynchro® Modular/MQL</b>      |
|           |           |           |           |     |     |          | <b>Softsynchro® Slim/MQL</b>         |
|           |           |           |           |     |     |          | <b>Softsynchro® Xtension/MQL</b>     |
|           |           |           |           |     |     |          | <b>Softsynchro®/MMS</b>              |
|           |           |           |           |     |     | 646      | <b>Speedsynchro® Modular NFC/IKZ</b> |
|           |           |           |           |     |     | 648, 693 | <b>Speedsynchro® Modular NFC/MQL</b> |
|           |           | 649       |           |     |     |          | <b>Speedsynchro® Mini</b>            |
| 655       | 656       | 657       | 658       | 659 | 660 | 661      | <b>KSN</b>                           |
| 666       |           |           |           | 667 | 668 | 669      | <b>KSN/HD</b>                        |
|           |           |           |           |     |     |          | <b>KSN/HD/ER</b>                     |
|           |           |           |           |     |     |          | <b>KSN/HD/PGR</b>                    |
|           |           |           |           |     |     |          | <b>KSN/Synchro</b>                   |
|           |           |           |           |     |     |          | <b>KSN/MQL</b>                       |
|           |           |           | 700       | 701 |     |          | <b>SFM</b>                           |
|           |           |           |           | 702 |     |          | <b>SFM-NP</b>                        |
|           |           |           | 703       | 704 |     |          | <b>SFM-L-DZ</b>                      |
|           |           |           |           |     |     |          | <b>SWITCH-MASTER</b>                 |
| 710 - 711 | 710 - 711 | 710 - 711 | 710 - 711 |     |     |          | <b>HF</b>                            |
| 712       |           | 713       |           |     |     |          | <b>HF/HD/Spezial</b>                 |

|                       |
|-----------------------|
| <b>Product Finder</b> |
| Softsynchro           |
| Speedsynchro          |
| KSN                   |
| MQL MMS               |
| SFM                   |
| SWITCH-MASTER         |
| HF                    |
| EM                    |
| Zubehör Accessories   |

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|                        |
|------------------------|
| Product Finder         |
| Soft-synchro           |
| Speed-synchro          |
| KSN                    |
| MQL MMS                |
| SFM                    |
| SWITCH-MASTER          |
| HF                     |
| EM                     |
| Zubehör<br>Accessories |







## Typenreihe Softsynchro® Softsynchro® Series

### Einsatz auf Maschinen mit Synchronspindel

Das Gewindewerkzeug wird durch die Synchronspindel steigungsgeführt, eventuell auftretende Axialkräfte durch Synchronisationsfehler werden durch einen Minimallängenausgleich auf Zug und Druck minimiert.

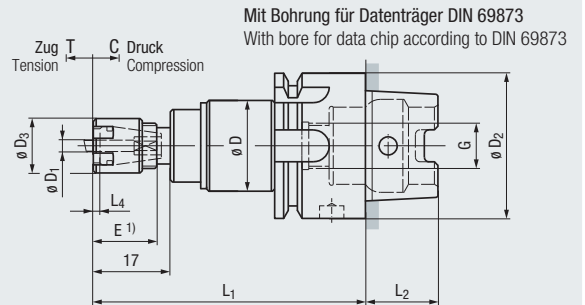
### Application on machines with synchronous spindle

The threading tool is pitch-controlled by the synchronous spindle; eventually arising axial forces caused by synchronisation faults are minimised by a minimum length compensation on tension and on compression.







# Softsynchro®

**HSK-A**  
DIN 69893-1



**Einsatz auf Maschinen mit Synchronspindel** For use on machines with synchronous spindle

| Typ<br>Type                   |  | ø D <sub>1</sub> |  |  | ø D <sub>2</sub> | ø D | ø D <sub>3</sub> | L <sub>1</sub> | L <sub>2</sub> | L <sub>4</sub> | G       | T   | C   |  |
|-------------------------------|---|------------------|---|---|------------------|-----|------------------|----------------|----------------|----------------|---------|-----|-----|---|
| <b>Softsynchro®<br/>Micro</b> | M0,5 - M4<br>(Nr.0 - Nr.8)  | 2 - 4,5          | ER 8  | Hi-Q/ERM<br>8   | HSK-A32          | 20  | 12               | 60             | 16             | 1,5            | M10 x 1 | 0,2 | 0,2 | <b>F3150C01</b>   |

1) Einstecktiefen E siehe Seite 754  
Clamping depths E, see page 754

Weitere Ausführungen auf Anfrage  
Further designs upon request

Spannmutter ohne integrierte Abdichtung ist im Lieferumfang enthalten  
Clamping nut without integrated seal is included in the delivery

## Zubehör Accessories



Spannzangen Typ ER  
Collets type ER

» 747



Kühlschmierstoffrohre und Schlüssel  
Coolant tubes and wrenches

» 742 - 743



Spannschlüsselsatz  
Set of clamping wrenches

» 758



Montagevorrichtung  
Assembly device

» 756



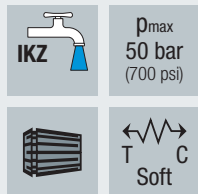
Drehmomentschlüssel  
Torque wrenches

» 759



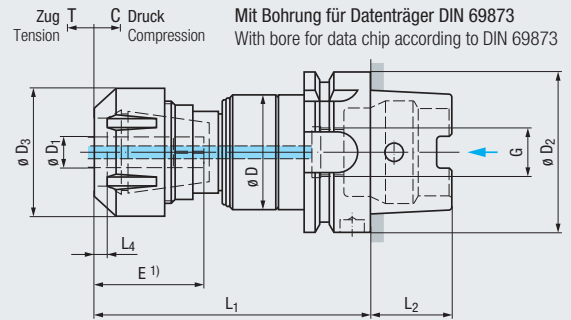
# Softsynchro®

**HSK-A**  
DIN 69893-1



**Einsatz auf Maschinen mit Synchronspindel**

For use on machines with synchronous spindle



| Typ<br>Type           |                             | $\varnothing D_1$ |            |             | $\varnothing D_2$ | $\varnothing D$ | $\varnothing D_3$ | $L_1$<br>ER | $L_1$<br>ER-GB | $L_2$ | $L_4$ | G         | T   | C   |                   |
|-----------------------|-----------------------------|-------------------|------------|-------------|-------------------|-----------------|-------------------|-------------|----------------|-------|-------|-----------|-----|-----|-------------------|
| <b>Softsynchro® 0</b> | M2 - M8<br>(Nr.2 - 5/16)    | 2,5 - 7           | ER 11 (GB) | Hi-Q/ERM 11 | HSK-A40           | 34              | 16                | 89,2        | 87,5           | 20    | 0,9   | M12 x 1   | 0,5 | 0,5 | <b>F3150C02.1</b> |
|                       |                             |                   |            |             | HSK-A50           | 34              | 16                | 93,2        | 91,5           | 25    | 0,9   | M16 x 1   | 0,5 | 0,5 | F3150C03.1        |
|                       |                             |                   |            |             | HSK-A63           | 34              | 16                | 95,2        | 93,5           | 32    | 0,9   | M18 x 1   | 0,5 | 0,5 | <b>F3150C04.1</b> |
|                       |                             |                   |            |             | HSK-A80           | 34              | 16                | 99,7        | 98             | 40    | 0,9   | M20 x 1,5 | 0,5 | 0,5 | F3150C05.1        |
|                       |                             |                   |            |             | HSK-A100          | 34              | 16                | 101,7       | 100            | 50    | 0,9   | M24 x 1,5 | 0,5 | 0,5 | F3150C06.1        |
| <b>Softsynchro® 1</b> | M4 - M12<br>(Nr.8 - 7/16)   | 4,5 - 10          | ER 20 (GB) | Hi-Q/ERC 20 | HSK-A40           | 34              | 34                | -           | 89,5           | 20    | 5     | M12 x 1   | 0,5 | 0,5 | <b>F3151C02.1</b> |
|                       |                             |                   |            |             | HSK-A50           | 34              | 34                | -           | 93,5           | 25    | 5     | M16 x 1   | 0,5 | 0,5 | <b>F3151C03.1</b> |
|                       |                             |                   |            |             | HSK-A63           | 34              | 34                | -           | 95,5           | 32    | 5     | M18 x 1   | 0,5 | 0,5 | <b>F3151C04.1</b> |
|                       |                             |                   |            |             | HSK-A63           | 34              | 34                | -           | 125            | 32    | 5     | M18 x 1   | 0,5 | 0,5 | <b>F3151037.1</b> |
|                       |                             |                   |            |             | HSK-A63           | 34              | 34                | -           | 150            | 32    | 5     | M18 x 1   | 0,5 | 0,5 | <b>F3151918.1</b> |
|                       |                             |                   |            |             | HSK-A63           | 34              | 34                | -           | 175            | 32    | 5     | M18 x 1   | 0,5 | 0,5 | <b>F3151038.1</b> |
|                       |                             |                   |            |             | HSK-A80           | 34              | 34                | -           | 100            | 40    | 5     | M20 x 1,5 | 0,5 | 0,5 | <b>F3151C05.1</b> |
|                       |                             |                   |            |             | HSK-A100          | 34              | 34                | -           | 102            | 50    | 5     | M24 x 1,5 | 0,5 | 0,5 | <b>F3151C06.1</b> |
| <b>Softsynchro® 3</b> | M4 - M20<br>(Nr.8 - 3/4)    | 4,5 - 16          | ER 32 (GB) | Hi-Q/ERC 32 | HSK-A50           | 45              | 50                | -           | 116,3          | 25    | 5     | M16 x 1   | 0,5 | 0,5 | <b>F3153C03.1</b> |
|                       |                             |                   |            |             | HSK-A63           | 45              | 50                | -           | 108,8          | 32    | 5     | M18 x 1   | 0,5 | 0,5 | <b>F3153C04.1</b> |
|                       |                             |                   |            |             | HSK-A80           | 45              | 50                | -           | 113,3          | 40    | 5     | M20 x 1,5 | 0,5 | 0,5 | <b>F3153C05.1</b> |
|                       |                             |                   |            |             | HSK-A100          | 45              | 50                | -           | 115,3          | 50    | 5     | M24 x 1,5 | 0,5 | 0,5 | <b>F3153C06.1</b> |
| <b>Softsynchro® 4</b> | M12 - M30<br>(7/16 - 1 1/8) | 9 - 22            | ER 40 (GB) | Hi-Q/ERC 40 | HSK-A63           | 63              | 63                | -           | 146,5          | 32    | 5     | M18 x 1   | 0,7 | 0,7 | <b>F3154C04.1</b> |
|                       |                             |                   |            |             | HSK-A80           | 63              | 63                | -           | 136            | 40    | 5     | M20 x 1,5 | 0,7 | 0,7 | <b>F3154C05.1</b> |
|                       |                             |                   |            |             | HSK-A100          | 63              | 63                | -           | 138            | 50    | 5     | M24 x 1,5 | 0,7 | 0,7 | <b>F3154C06.1</b> |

1) Einsteektiefen E siehe Seite 754  
Clamping depths E, see page 754

Weitere Ausführungen auf Anfrage  
Further designs upon request

**Softsynchro® 0**

Spannmutter ohne integrierte Abdichtung ist im Lieferumfang enthalten  
Clamping nut without integrated seal is included in the delivery

**Softsynchro® 1-4**

Spannmutter für Dichtscheiben ist im Lieferumfang enthalten  
Clamping nut for sealing disks is included in the delivery

**Zubehör**

Accessories

- Spannzangen Typ ER (GB)  
Collets type ER (GB) ▶▶ 746 - 747
- Dichtscheiben Typ DS/ER und  
Kühlscheiben Typ KS/ER  
Sealing disks type DS/ER and  
coolant flush disks type KS/ER ▶▶ 750
- Spannmutter mit integrierter  
Abdichtung Typ Hi-Q/ERM 11  
Clamping nut with integrated seal,  
type Hi-Q/ERM 11 ▶▶ 752
- Kühlschmierstoffrohre und Schlüssel  
Coolant tubes and wrenches ▶▶ 742 - 743

- Spannschlüsselsatz  
Set of clamping wrenches ▶▶ 758
- Montagevorrichtung  
Assembly device ▶▶ 756
- Drehmomentschlüssel  
Torque wrenches ▶▶ 759



# Softsynchro®

## HSK-A

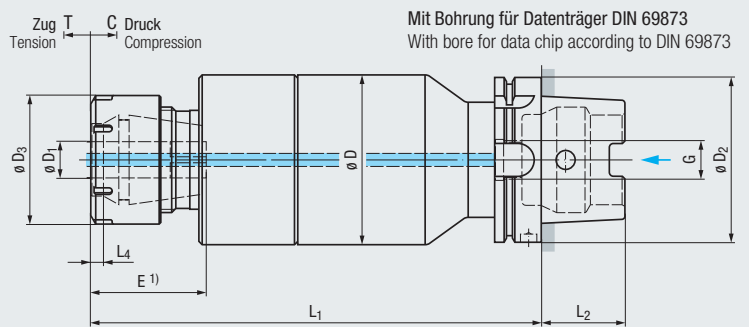
DIN 69893-1



- Product Finder
- Soft-synchro
- Speed-synchro
- KSN
- MLL MMS
- SFM
- SWITCH-MASTER
- HF
- EM
- Zubehör Accessories

**p<sub>max</sub>**  
50 bar  
(700 psi)

**Soft**



**Einsatz auf Maschinen mit Synchronspindel** For use on machines with synchronous spindle

| Typ Type              |                              | ø D <sub>1</sub> |            |              | ø D <sub>2</sub> | ø D | ø D <sub>3</sub> | L <sub>1</sub> ER | L <sub>1</sub> ER-GB | L <sub>2</sub> | L <sub>4</sub> | G         | T | C |                   |
|-----------------------|------------------------------|------------------|------------|--------------|------------------|-----|------------------|-------------------|----------------------|----------------|----------------|-----------|---|---|-------------------|
| <b>Softsynchro® 5</b> | M30 - M48<br>(1 1/8 - 1 3/4) | 22 - 36          | ER 50 (GB) | Hi-Q/ERBC 50 | HSK-A100         | 103 | 78               | 269               | 265,6                | 50             | 8              | M24 x 1,5 | 2 | 2 | <b>F3155C06.1</b> |

1) Einstecktiefen E siehe Seite 754  
Clamping depths E, see page 754

Weitere Ausführungen auf Anfrage  
Further designs upon request

Spannmutter für Dichtscheiben ist im Lieferumfang enthalten  
Clamping nut for sealing disks is included in the delivery

Vierkantaufnahme für Werkzeuge mit Schaftdurchmesser 36 mm im Futterkörper integriert  
Square seat for tools with shank diameter 36 mm is integrated in the tap holder body

### Zubehör Accessories

Spannzangen Typ ER (GB)  
Collets type ER (GB)      » 746 - 747

Dichtscheiben Typ DS/ER  
Sealing disks type DS/ER      » 750

Kühlschmierstoffrohre und Schlüssel  
Coolant tubes and wrenches      » 742 - 743

Spanschlüssel  
Clamping wrenches      » 758

Drehmomentschlüssel  
Torque wrenches      » 759

# Softsynchro®

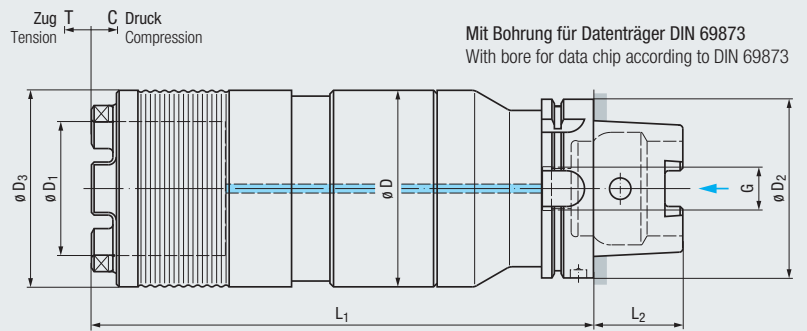
## HSK-A

DIN 69893-1



d<sub>max</sub>  
**50 bar**  
 (700 psi)

T C  
**Soft**



**Einsatz auf Maschinen mit Synchronspindel** For use on machines with synchronous spindle

| Typ<br>Type           |                              |          | ø D <sub>2</sub> | ø D | ø D <sub>1</sub> | ø D <sub>3</sub> | L <sub>1</sub> | L <sub>2</sub> | G         | T | C |                   |
|-----------------------|------------------------------|----------|------------------|-----|------------------|------------------|----------------|----------------|-----------|---|---|-------------------|
| <b>Softsynchro® 6</b> | M45 - M76<br>(1 3/8 - 2 3/8) | HE2/IKZZ | HSK-A100         | 110 | 75               | 110              | 281            | 50             | M24 x 1,5 | 2 | 2 | <b>F3156C06.1</b> |

Weitere Ausführungen auf Anfrage  
Further designs upon request

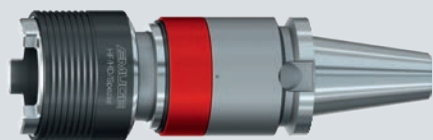
### Zubehör Accessories



Schnellwechsel-Einsätze Typ HE2/IKZZ  
Quick-change adapters, type HE2/INZZ **» 714**



Kühlschmierstoffrohre und Schlüssel  
Coolant tubes and wrenches **» 742 - 743**



Weitere Schnellwechsel-Aufnahmen (Typenreihe HF) zur Herstellung von großen Gewinden siehe Seite 709 - 715

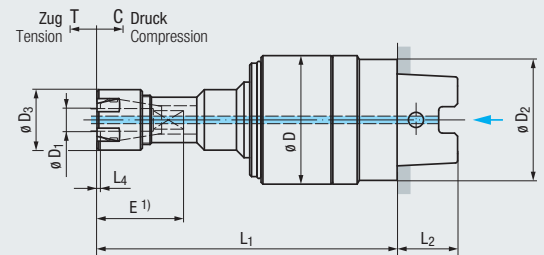
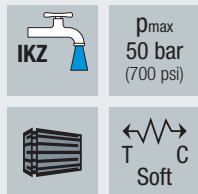
Further quick-change tap holders (HF series) for the production of large threads, see pages 709 - 715



# Softsynchro®

## HSK-C

DIN 69893-1



**Einsatz auf Maschinen mit Synchronspindel** For use on machines with synchronous spindle

| Typ<br>Type           |                           | $\varnothing D_1$ |            |             | $\varnothing D_2$  | $\varnothing D$ | $\varnothing D_3$ | $L_1$<br>ER  | $L_1$<br>ER-GB | $L_2$    | $L_4$      | T          | C          |                                 |
|-----------------------|---------------------------|-------------------|------------|-------------|--------------------|-----------------|-------------------|--------------|----------------|----------|------------|------------|------------|---------------------------------|
| <b>Softsynchro® 0</b> | M2 - M8<br>(Nr.2 - 5/16)  | 2,5 - 7           | ER 11 (GB) | Hi-Q/ERM 11 | HSK-C32<br>HSK-C40 | 34<br>34        | 16<br>16          | 81,2<br>81,2 | 79,5<br>79,5   | 16<br>20 | 0,9<br>0,9 | 0,5<br>0,5 | 0,5<br>0,5 | <b>F3150K01.1</b><br>F3150K02.1 |
| <b>Softsynchro® 1</b> | M4 - M12<br>(Nr.8 - 7/16) | 4,5 - 10          | ER 20 (GB) | Hi-Q/ERC 20 | HSK-C32<br>HSK-C40 | 34<br>34        | 34<br>34          | —<br>—       | 81,5<br>81,5   | 16<br>20 | 5<br>5     | 0,5<br>0,5 | 0,5<br>0,5 | <b>F3151K01.1</b><br>F3151K02.1 |

1) Einstecktiefen E siehe Seite 754  
Clamping depths E, see page 754

Weitere Ausführungen auf Anfrage  
Further designs upon request

### Softsynchro® 0

Spannmutter ohne integrierte Abdichtung ist im Lieferumfang enthalten  
Clamping nut without integrated seal is included in the delivery

### Softsynchro® 1

Spannmutter für Dichtscheiben ist im Lieferumfang enthalten  
Clamping nut for sealing disks is included in the delivery

## Zubehör Accessories



Spannzangen Typ ER (GB)  
Collets type ER (GB)

» 746 - 747



Dichtscheiben Typ DS/ER und Kühlschleiben Typ KS/ER  
Sealing disks type DS/ER and coolant flush disks type KS/ER

» 750



Spannmutter mit integrierter Abdichtung Typ Hi-Q/ERM 11  
Clamping nut with integrated seal, type Hi-Q/ERM 11

» 752



Spannschlüsselsatz  
Set of clamping wrenches

» 758



Montagevorrichtung  
Assembly device

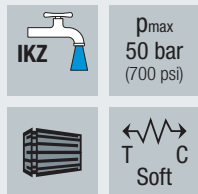
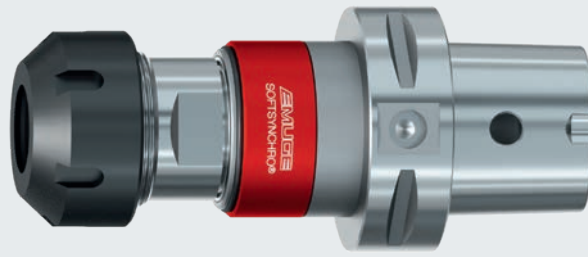
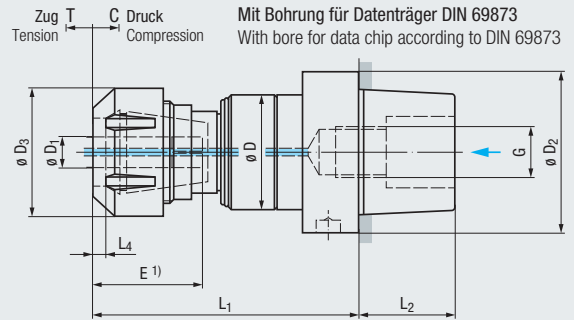
» 756



Drehmomentschlüssel  
Torque wrenches

» 759

## Softsynchro®

PSC  
ISO 26623-1Einsatz auf Maschinen  
mit SynchronspindelFor use on machines  
with synchronous spindle

| Typ<br>Type               |                             | $\varnothing D_1$ |            |                | $\varnothing D_2$ | $\varnothing D$ | $\varnothing D_3$ | $L_1$<br>ER | $L_1$<br>ER-GB | $L_2$ | $L_4$ | G         | T   | C   |                   |
|---------------------------|-----------------------------|-------------------|------------|----------------|-------------------|-----------------|-------------------|-------------|----------------|-------|-------|-----------|-----|-----|-------------------|
| <b>Softsynchro®<br/>0</b> | M2 - M8<br>(Nr.2 - 5/16)    | 2,5 - 7           | ER 11 (GB) | Hi-Q/ERM<br>11 | PSC 63            | 34              | 16                | 95          | 93,2           | 38    | 0,9   | M20 x 2   | 0,5 | 0,5 | <b>F3150T06.1</b> |
| <b>Softsynchro®<br/>1</b> | M4 - M12<br>(Nr.8 - 7/16)   | 4,5 - 10          | ER 20 (GB) | Hi-Q/ERC<br>20 | PSC 40            | 34              | 34                | —           | 89,5           | 24    | 5     | M14 x 1,5 | 0,5 | 0,5 | <b>F3151T04.1</b> |
|                           |                             |                   |            |                | PSC 50            | 34              | 34                | —           | 89,5           | 30    | 5     | M16 x 1,5 | 0,5 | 0,5 | <b>F3151T05.1</b> |
|                           |                             |                   |            |                | PSC 63            | 34              | 34                | —           | 93,5           | 38    | 5     | M20 x 2   | 0,5 | 0,5 | <b>F3151T06.1</b> |
| <b>Softsynchro®<br/>3</b> | M4 - M20<br>(Nr.8 - 3/4)    | 4,5 - 16          | ER 32 (GB) | Hi-Q/ERC<br>32 | PSC 40            | 45              | 50                | —           | 104            | 24    | 5     | M14 x 1,5 | 0,5 | 0,5 | <b>F3153T04.1</b> |
|                           |                             |                   |            |                | PSC 50            | 45              | 50                | —           | 103            | 30    | 5     | M16 x 1,5 | 0,5 | 0,5 | <b>F3153T05.1</b> |
|                           |                             |                   |            |                | PSC 63            | 45              | 50                | —           | 107            | 38    | 5     | M20 x 2   | 0,5 | 0,5 | <b>F3153T06.1</b> |
| <b>Softsynchro®<br/>4</b> | M12 - M30<br>(7/16 - 1 1/8) | 9 - 22            | ER 40 (GB) | Hi-Q/ERC<br>40 | PSC 50            | 63              | 63                | —           | 128            | 30    | 5     | M14 x 1,5 | 0,7 | 0,7 | F3154T05.1        |
|                           |                             |                   |            |                | PSC 63            | 63              | 63                | —           | 129,5          | 38    | 5     | M20 x 2   | 0,7 | 0,7 | <b>F3154T06.1</b> |
|                           |                             |                   |            |                | PSC 80            | 63              | 63                | —           | 134            | 48    | 5     | M20 x 2   | 0,7 | 0,7 | F3154T08.1        |

1) Einstecktiefen E siehe Seite 754  
Clamping depths E, see page 754Weitere Ausführungen auf Anfrage  
Further designs upon request**Softsynchro® 0**Spannmutter ohne integrierte Abdichtung ist im Lieferumfang enthalten  
Clamping nut without integrated seal is included in the delivery**Softsynchro® 1-4**Spannmutter für Dichtscheiben ist im Lieferumfang enthalten  
Clamping nut for sealing disks is included in the delivery**Zubehör**

## Accessories

Spannzangen Typ ER (GB)  
Collets type ER (GB)

» 746 - 747

Dichtscheiben Typ DS/ER und  
Kühlscheiben Typ KS/ER  
Sealing disks type DS/ER and  
coolant flush disks type KS/ER

» 750

Spannmutter mit integrierter  
Abdichtung Typ Hi-Q/ERM 11  
Clamping nut with integrated seal,  
type Hi-Q/ERM 11

» 752

Spannschlüsselsatz  
Set of clamping wrenches

» 758

Montagevorrichtung  
Assembly device

» 756

Drehmomentschlüssel  
Torque wrenches

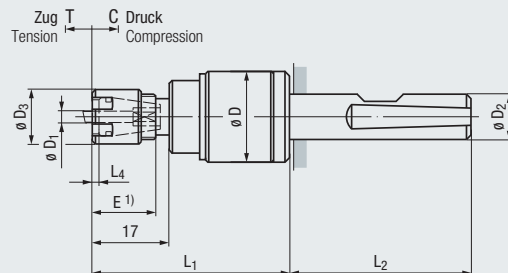
» 759



- Product Finder
- Soft-synchro
- Speed-synchro
- KSN
- MQL MMS
- SFM
- SWITCH-MASTER
- HF
- EM

# Softsynchro®

**Zylinderschaft**  
Cylindrical shank  
DIN 1835-1  
Form B+E



**Einsatz auf Maschinen mit Synchronspindel** For use on machines with synchronous spindle

| Typ<br>Type                   |                            | $\varnothing D_1$ |      |               | $\varnothing D_2$ | $\varnothing D$ | $\varnothing D_3$ | $L_1$ | $L_2$ | $L_4$ | T   | C   |                 |
|-------------------------------|----------------------------|-------------------|------|---------------|-------------------|-----------------|-------------------|-------|-------|-------|-----|-----|-----------------|
| <b>Softsynchro®<br/>Micro</b> | M0,5 - M4<br>(Nr.0 - Nr.8) | 2 - 4,5           | ER 8 | Hi-Q/ERM<br>8 | 10                | 20              | 12                | 43,5  | 40    | 1,5   | 0,2 | 0,2 | <b>F3150G22</b> |

1) Einstecktiefen E siehe Seite 754  
Clamping depths E, see page 754

Weitere Ausführungen auf Anfrage  
Further designs upon request

Spannmutter ohne integrierte Abdichtung ist im Lieferumfang enthalten  
Clamping nut without integrated seal is included in the delivery

## Zubehör Accessories



Spannzangen Typ ER  
Collets type ER [» 747](#)



Spannschlüsselsatz  
Set of clamping wrenches [» 758](#)



Montagevorrichtung  
Assembly device [» 756](#)



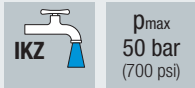
Drehmomentschlüssel  
Torque wrenches [» 759](#)





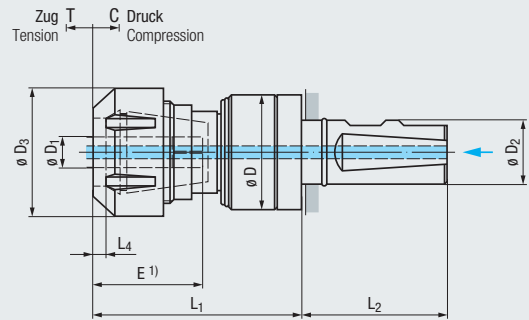
## Softsynchro®

**Zylinderschaft**  
Cylindrical shank  
DIN 1835-1  
Form B+E



**Einsatz auf Maschinen mit Synchronspindel**

For use on machines with synchronous spindle



| Typ<br>Type           |                             | $\varnothing D_1$ |            |             | $\varnothing D_2$ | $\varnothing D$ | $\varnothing D_3$ | $L_1$<br>ER | $L_1$<br>ER-GB | $L_2$ | $L_4$ | T   | C   |                      |
|-----------------------|-----------------------------|-------------------|------------|-------------|-------------------|-----------------|-------------------|-------------|----------------|-------|-------|-----|-----|----------------------|
| <b>Softsynchro® 0</b> | M2 - M8<br>(Nr.2 - 5/16)    | 2,5 - 7           | ER 11 (GB) | Hi-Q/ERM 11 | 16                | 34              | 16                | 72,7        | 71             | 49    | 0,9   | 0,5 | 0,5 | <b>F3150G24.1.44</b> |
|                       |                             |                   |            |             | 20                | 34              | 16                | 72,7        | 71             | 51    | 0,9   | 0,5 | 0,5 | <b>F3150G25.1.44</b> |
|                       |                             |                   |            |             | 25                | 34              | 16                | 72,7        | 71             | 57    | 0,9   | 0,5 | 0,5 | <b>F3150G26.1.44</b> |
| <b>Softsynchro® 1</b> | M4 - M12<br>(Nr.8 - 7/16)   | 4,5 - 10          | ER 20 (GB) | Hi-Q/ERC 20 | 20                | 34              | 34                | -           | 73             | 51    | 5     | 0,5 | 0,5 | <b>F3151G25.1.44</b> |
|                       |                             |                   |            |             | 25                | 34              | 34                | -           | 73             | 57    | 5     | 0,5 | 0,5 | <b>F3151G26.1.44</b> |
| <b>Softsynchro® 3</b> | M4 - M20<br>(Nr.8 - 3/4)    | 4,5 - 16          | ER 32 (GB) | Hi-Q/ERC 32 | 25                | 45              | 50                | -           | 87,3           | 57    | 5     | 0,5 | 0,5 | <b>F3153G26.1.44</b> |
| <b>Softsynchro® 4</b> | M12 - M30<br>(7/16 - 1 1/8) | 9 - 22            | ER 40 (GB) | Hi-Q/ERC 40 | 32                | 63              | 63                | -           | 113,5          | 61    | 5     | 0,7 | 0,7 | <b>F3154G27.1</b>    |

1) Einstecktiefen E siehe Seite 754  
Clamping depths E, see page 754

Weitere Ausführungen auf Anfrage  
Further designs upon request

**Softsynchro® 0**

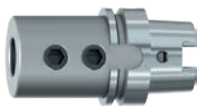
Spannmutter ohne integrierte Abdichtung ist im Lieferumfang enthalten  
Clamping nut without integrated seal is included in the delivery

**Softsynchro® 1-4**

Spannmutter für Dichtscheiben ist im Lieferumfang enthalten  
Clamping nut for sealing disks is included in the delivery

**Zubehör**

Accessories



Adaptionsschäfte  
Adapter shanks

» 740



Spannzangen Typ ER (GB)  
Collets type ER (GB)

» 746 - 747



Dichtscheiben Typ DS/ER und  
Kühlscheiben Typ KS/ER  
Sealing disks type DS/ER and  
coolant flush disks type KS/ER

» 750



Spannmutter mit integrierter  
Abdichtung Typ Hi-Q/ERMC 11  
Clamping nut with integrated seal,  
type Hi-Q/ERMC 11

» 752



Spannschlüsselsatz  
Set of clamping wrenches

» 758



Montagevorrichtung  
Assembly device

» 756



Drehmomentschlüssel  
Torque wrenches

» 759



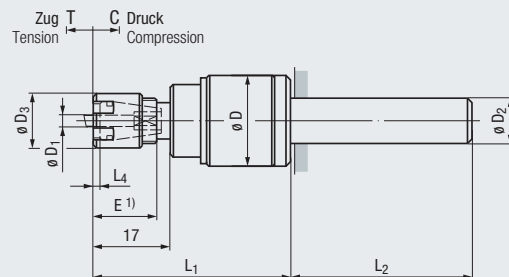
# Softsynchro®

**Zylinderschaft**  
Cylindrical shank  
DIN 1835-1  
Form A







- Product Finder
- Soft-synchro
- Speed-synchro
- KSN
- MQL MMS
- SFM
- SWITCH-MASTER
- HF
- EM

Zubehör  
Accessories



**Einsatz auf Maschinen mit Synchronspindel** For use on machines with synchronous spindle

| Typ<br>Type                   |  | $\varnothing D_1$ |  |  | $\varnothing D_2$<br>h6 | $\varnothing D$ | $\varnothing D_3$ | $L_1$        | $L_2$    | $L_4$      | T          | C          |  |
|-------------------------------|---|-------------------|---|---|-------------------------|-----------------|-------------------|--------------|----------|------------|------------|------------|---|
| <b>Softsynchro®<br/>Micro</b> | M0,5 - M4<br>(Nr.0 - Nr.8)  | 2 - 4,5           | ER 8  | Hi-Q/ERM<br>8   | 10<br>10                | 20<br>20        | 12<br>12          | 43,5<br>43,5 | 40<br>66 | 1,5<br>1,5 | 0,2<br>0,2 | 0,2<br>0,2 | <b>F3150900</b><br><b>F3150901</b>  |

1) Einstecktiefen E siehe Seite 754  
Clamping depths E, see page 754

Weitere Ausführungen auf Anfrage  
Further designs upon request

Spannmutter ohne integrierte Abdichtung ist im Lieferumfang enthalten  
Clamping nut without integrated seal is included in the delivery

## Zubehör Accessories



Spannzangen Typ ER  
Collets type ER [» 747](#)



Spannschlüsselsatz  
Set of clamping wrenches [» 758](#)



Montagevorrichtung  
Assembly device [» 756](#)



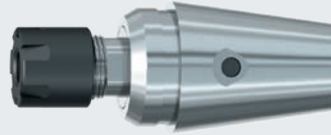
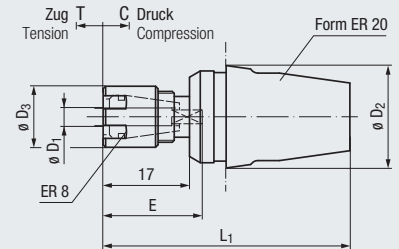
Drehmomentschlüssel  
Torque wrenches [» 759](#)







## Softsynchro®

## Form ER

DIN ISO 15488

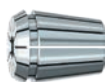
Einsatz auf Maschinen  
mit SynchronspindelFor use on machines  
with synchronous spindle

| Typ<br>Type                   |  | ∅ D <sub>1</sub> |  |  | Schaft/Adaption<br>Shank/Adaptation | ∅ D <sub>2</sub> | ∅ D <sub>3</sub> | L <sub>1</sub> | T   | C   |  |
|-------------------------------|---|------------------|---|---|-------------------------------------|------------------|------------------|----------------|-----|-----|---|
| <b>Softsynchro®<br/>Micro</b> | M0,5 - M4<br>(Nr.0 - Nr.8)  | 2 - 4,5          | ER 8  | Hi-Q/ERM<br>8   | ER 20                               | 20               | 12               | 48,5           | 0,2 | 0,2 | <b>F0090113</b>   |

1) Einstecktiefen E siehe Seite 754  
Clamping depths E, see page 754

Weitere Ausführungen auf Anfrage  
Further designs upon request

Spannmutter ohne integrierte Abdichtung ist im Lieferumfang enthalten  
Clamping nut without integrated seal is included in the delivery

Zubehör  
Accessories

Spannzangen Typ ER  
Collets type ER

» 747



Spannschlüsselsatz  
Set of clamping wrenches

» 758



Montagevorrichtung  
Assembly device

» 756



Drehmomentschlüssel  
Torque wrenches

» 759

Product  
FinderSoft-  
synchroSpeed-  
synchro

KSN

MQL  
MMS

SFM

SWITCH-  
MASTER

HF

EM

Zubehör  
Accessories

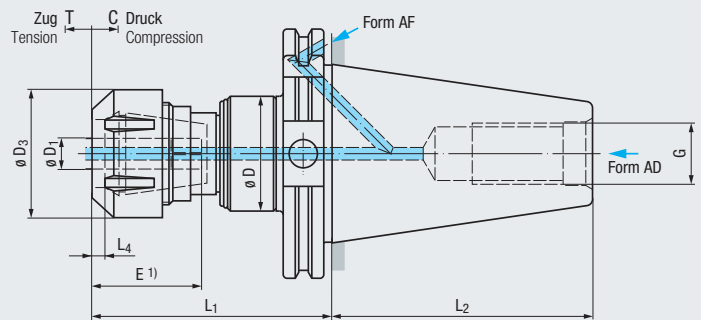
# Softsynchro®

**SK**

DIN ISO 7388-1  
Form AD/AF



Mit Bohrung für Datenträger DIN 69873  
With bore for data chip according to DIN 69873



**IKZ**  $p_{max}$  50 bar (700 psi)

**Soft** T C

**Einsatz auf Maschinen mit Synchronspindel** For use on machines with synchronous spindle

| Typ Type              |                          | $\varnothing D_1$ |            |             | SK       | $\varnothing D$ | $\varnothing D_3$ | $L_1$ | $L_2$  | $L_4$ | G   | T   | C   |                   |
|-----------------------|--------------------------|-------------------|------------|-------------|----------|-----------------|-------------------|-------|--------|-------|-----|-----|-----|-------------------|
| <b>Softsynchro® 1</b> | M4 - M12 (Nr.8 - 7/16)   | 4,5 - 10          | ER 20 (GB) | Hi-Q/ERC 20 | SK 40 AD | 34              | 34                | 85    | 68,4   | 5     | M16 | 0,5 | 0,5 | <b>F3151I51.1</b> |
|                       |                          |                   |            |             | SK 40 AF | 34              | 34                | 85    | 68,4   | 5     | M16 | 0,5 | 0,5 | F3151I51.2        |
|                       |                          |                   |            |             | SK 50 AD | 34              | 34                | 85    | 101,75 | 5     | M24 | 0,5 | 0,5 | <b>F3151I53.1</b> |
|                       |                          |                   |            |             | SK 50 AF | 34              | 34                | 85    | 101,75 | 5     | M24 | 0,5 | 0,5 | F3151I53.2        |
| <b>Softsynchro® 3</b> | M4 - M20 (Nr.8 - 3/4)    | 4,5 - 16          | ER 32 (GB) | Hi-Q/ERC 32 | SK 40 AD | 45              | 50                | 93,5  | 68,4   | 5     | M16 | 0,5 | 0,5 | <b>F3153I51.1</b> |
|                       |                          |                   |            |             | SK 40 AF | 45              | 50                | 93,5  | 68,4   | 5     | M16 | 0,5 | 0,5 | F3153I51.2        |
|                       |                          |                   |            |             | SK 50 AD | 45              | 50                | 93,5  | 101,75 | 5     | M24 | 0,5 | 0,5 | <b>F3153I53.1</b> |
|                       |                          |                   |            |             | SK 50 AF | 45              | 50                | 93,5  | 101,75 | 5     | M24 | 0,5 | 0,5 | F3153I53.2        |
| <b>Softsynchro® 4</b> | M12 - M30 (7/16 - 1 1/8) | 9 - 22            | ER 40 (GB) | Hi-Q/ERC 40 | SK 50 AD | 63              | 63                | 125,3 | 101,75 | 5     | M24 | 0,7 | 0,7 | <b>F3154I53.1</b> |

1) Einstecktiefen E siehe Seite 754  
Clamping depths E, see page 754

Weitere Ausführungen auf Anfrage  
Further designs upon request

Spannmutter für Dichtscheiben ist im Lieferumfang enthalten  
Clamping nut for sealing disks is included in the delivery

## Zubehör Accessories

Spannzangen Typ ER (GB) Collets type ER (GB) **746 - 747**

Dichtscheiben Typ DS/ER und Kühlschleiben Typ KS/ER Sealing disks type DS/ER and coolant flush disks type KS/ER **750**

Spannschlüsselsatz Set of clamping wrenches **758**

Montagevorrichtung Assembly device **756**

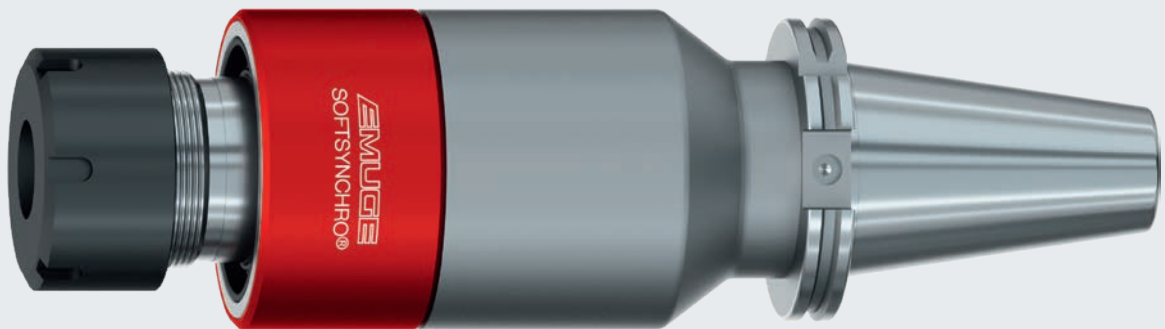
Drehmomentschlüssel Torque wrenches **759**

## Softsynchro®

SK

DIN ISO 7388-1

Form AD/AF

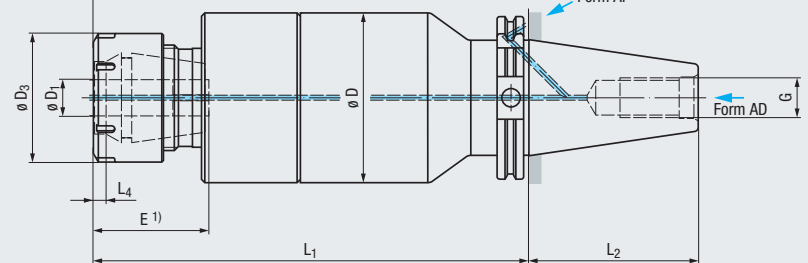


$p_{max}$   
50 bar  
(700 psi)



T C  
Soft

Zug T  
Tension  
C Druck  
Compression







Mit Bohrung für Datenträger DIN 69873  
With bore for data chip according to DIN 69873

Form AF

Form AD

Einsatz auf Maschinen  
mit Synchronspindel

For use on machines  
with synchronous spindle

| Typ<br>Type       |  | $\varnothing D_1$ |  |  | SK       | $\varnothing D$ | $\varnothing D_3$ | $L_1$<br>ER | $L_1$<br>ER-GB | $L_2$  | $L_4$ | G   | T | C |  |
|-------------------|---|-------------------|---|---|----------|-----------------|-------------------|-------------|----------------|--------|-------|-----|---|---|---|
| Softsynchro®<br>5 | M30 - M48<br>(1 1/8 - 1 3/4)  | 22 - 36           | ER 50 (GB)  | Hi-Q/ERBC<br>50   | SK 50 AD | 103             | 78                | 267,5       | 264            | 101,75 | 8     | M24 | 2 | 2 | F3155153.1  |
|                   |   |                   |   |   | SK 50 AF | 103             | 78                | 267,5       | 264            | 101,75 | 8     | M24 | 2 | 2 | F3155153.2  |

1) Einstecktiefen E siehe Seite 754  
Clamping depths E, see page 754

Weitere Ausführungen auf Anfrage  
Further designs upon request

Spannmutter für Dichtscheiben ist im Lieferumfang enthalten  
Clamping nut for sealing disks is included in the delivery

Vierkantaufnahme für Werkzeuge mit Schaftdurchmesser 36 mm im Futterkörper integriert  
Square seat for tools with shank diameter 36 mm is integrated in the tap holder body

## Zubehör

Accessories



Spannzangen Typ ER (GB)  
Collets type ER (GB) ▶▶ 746 - 747



Dichtscheiben Typ DS/ER  
Sealing disks type DS/ER ▶▶ 750



Spannschlüssel  
Clamping wrenches ▶▶ 758



Drehmomentschlüssel  
Torque wrenches ▶▶ 759



- Product Finder
- Soft-synchro
- Speed-synchro
- KSN
- MQL MMS
- SFM
- SWITCH-MASTER
- HF
- EM
- Zubehör Accessories

# Softsynchro®

## SK

DIN ISO 7388-1  
Form AD



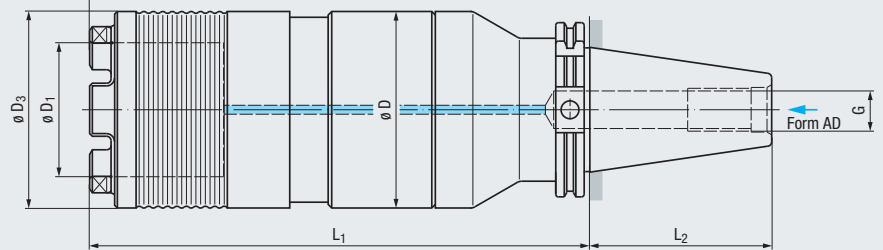
$p_{max}$   
50 bar  
(700 psi)






T C  
Soft

Zug T  
Druck C  
Tension  
Compression

Mit Bohrung für Datenträger DIN 69873  
With bore for data chip according to DIN 69873



Einsatz auf Maschinen mit Synchronspindel For use on machines with synchronous spindle

| Typ<br>Type           |  |  | SK    | $\varnothing D$ | $\varnothing D_1$ | $\varnothing D_3$ | $L_1$ | $L_2$  | G   | T | C |  |
|-----------------------|---|---|-------|-----------------|-------------------|-------------------|-------|--------|-----|---|---|---|
| <b>Softsynchro® 6</b> | M45 - M76<br>(1 3/8 - 2 3/8)  | HE2/IKZZ  | SK 50 | 110             | 75                | 110               | 280   | 101,75 | M24 | 2 | 2 | <b>F3156153.1</b>   |

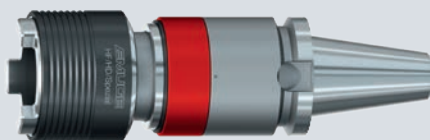
Weitere Ausführungen auf Anfrage  
Further designs upon request

### Zubehör Accessories



Schnellwechsel-Einsätze Typ HE2/IKZZ  
Quick-change adapters, type HE2/INZZ

» 714

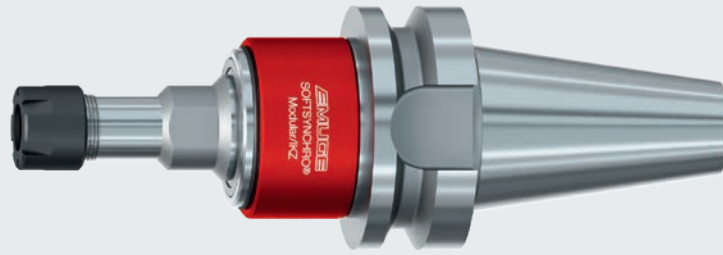


Weitere Schnellwechsel-Aufnahmen (Typenreihe HF) zur Herstellung von großen Gewinden siehe Seite 709 - 715

Further quick-change tap holders (HF series) for the production of large threads, see pages 709 - 715

## Softsynchro®

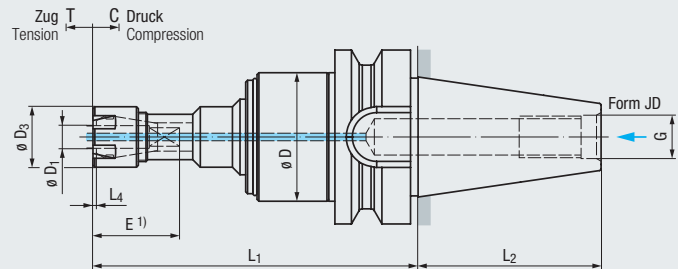
BT





DIN ISO 7388-2  
Form JD

$p_{max}$   
50 bar  
(700 psi)



T C  
Soft

Einsatz auf Maschinen  
mit SynchronspindelFor use on machines  
with synchronous spindle

| Typ<br>Type           |  | $\varnothing D_1$ |  |  | BT    | $\varnothing D$ | $\varnothing D_3$ | $L_1$<br>ER | $L_1$<br>ER-GB | $L_2$ | $L_4$ | G   | T   | C   |  |
|-----------------------|---|-------------------|---|---|-------|-----------------|-------------------|-------------|----------------|-------|-------|-----|-----|-----|---|
| <b>Softsynchro® 0</b> | M2 - M8<br>(Nr.2 - 5/16)  | 2,5 - 7           | ER 11 (GB)  | Hi-Q/ERM<br>11  | BT 30 | 34              | 16                | 88,1        | 86,3           | 48,4  | 0,9   | M12 | 0,5 | 0,5 | <b>F3150190.1</b>   |
| <b>Softsynchro® 1</b> | M4 - M12<br>(Nr.8 - 7/16)   | 4,5 - 10          | ER 20 (GB)  | Hi-Q/ERC<br>20  | BT 30 | 34              | 34                | —           | 88             | 48,4  | 5     | M12 | 0,5 | 0,5 | <b>F3151190.1</b>   |

1) Einstecktiefen E siehe Seite 754  
Clamping depths E, see page 754

Weitere Ausführungen auf Anfrage  
Further designs upon request

**Softsynchro® 0**

Spannmutter ohne integrierte Abdichtung ist im Lieferumfang enthalten  
Clamping nut without integrated seal is included in the delivery

**Softsynchro® 1**

Spannmutter für Dichtscheiben ist im Lieferumfang enthalten  
Clamping nut for sealing disks is included in the delivery

**Zubehör**

Accessories



Spannzangen Typ ER (GB)  
Collets type ER (GB)

» 746 - 747



Dichtscheiben Typ DS/ER und Kühlschleiben Typ KS/ER  
Sealing disks type DS/ER and coolant flush disks type KS/ER

» 750



Spannmutter mit integrierter Abdichtung Typ Hi-Q/ERM 11  
Clamping nut with integrated seal, type Hi-Q/ERM 11

» 752



Spannschlüsselsatz  
Set of clamping wrenches

» 758



Montagevorrichtung  
Assembly device

» 756



Drehmomentschlüssel  
Torque wrenches

» 759



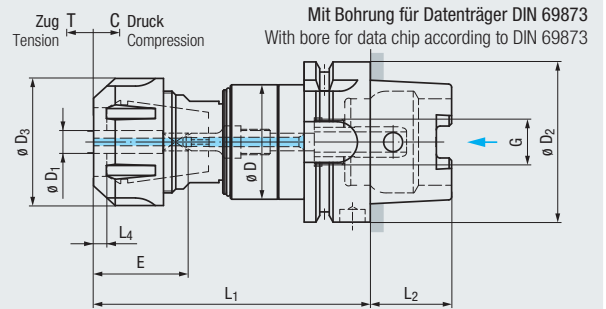
# Softsynchro® Modular/IKZ

**HSK-A**  
DIN 69893-1



**IKZ**  $p_{max}$  50 bar (700 psi)

**Soft** L+ 2 mm



**Einsatz auf Maschinen mit Synchronspindel** For use on machines with synchronous spindle

| Typ Type                          |                  | $\theta D_1$ |            |             | $\theta D_2$ | $\theta D$ | $\theta D_3$ | $L_1$     | $L_2$ | $L_4$ | G                    | T   | C   |                      |
|-----------------------------------|------------------|--------------|------------|-------------|--------------|------------|--------------|-----------|-------|-------|----------------------|-----|-----|----------------------|
| <b>Softsynchro® 1/Modular/IKZ</b> | M4,5 - M10       | 6 / 7        | ER 20 (GB) | Hi-Q/ERC 20 | HSK-A40      | 34         | 34           | 89,5      | 20    | 5     | M12 x 1              | 0,5 | 0,5 | <b>F3541C02.1.01</b> |
|                                   |                  |              |            |             | HSK-A63      | 34         | 34           | 95,5      | 32    | 5     | M18 x 1              | 0,5 | 0,5 | <b>F3541C04.1.01</b> |
|                                   |                  |              |            |             | HSK-A100     | 34         | 34           | 102       | 50    | 5     | M24 x 1,5            | 0,5 | 0,5 | <b>F3541C06.1.01</b> |
|                                   | M8, M9, M11, M12 | 8 / 9        |            |             | HSK-A40      | 34         | 34           | 89,5      | 20    | 5     | M12 x 1              | 0,5 | 0,5 | <b>F3541C02.1.02</b> |
|                                   |                  |              |            |             | HSK-A63      | 34         | 34           | 95,5      | 32    | 5     | M18 x 1              | 0,5 | 0,5 | <b>F3541C04.1.02</b> |
|                                   |                  |              |            |             | HSK-A100     | 34         | 34           | 102       | 50    | 5     | M24 x 1,5            | 0,5 | 0,5 | <b>F3541C06.1.02</b> |
| <b>Softsynchro® 3/Modular/IKZ</b> | M10              | 10           | ER 32 (GB) | Hi-Q/ERC 32 | HSK-A40      | 34         | 34           | 89,5      | 20    | 5     | M12 x 1              | 0,5 | 0,5 | <b>F3541C02.1.03</b> |
|                                   |                  |              |            |             | HSK-A63      | 34         | 34           | 95,5      | 32    | 5     | M18 x 1              | 0,5 | 0,5 | <b>F3541C04.1.03</b> |
|                                   |                  |              |            |             | HSK-A100     | 34         | 34           | 102       | 50    | 5     | M24 x 1,5            | 0,5 | 0,5 | <b>F3541C06.1.03</b> |
|                                   | M12              | 9            |            |             | HSK-A63      | 45         | 50           | 108,8     | 32    | 5     | M18 x 1              | 0,5 | 0,5 | <b>F3543C04.1.01</b> |
|                                   |                  |              |            |             | HSK-A100     | 50         | 50           | 115,3     | 50    | 5     | M24 x 1,5            | 0,5 | 0,5 | <b>F3543C06.1.01</b> |
|                                   | M10 - M16        | 10 - 12      |            |             | HSK-A63      | 45         | 50           | 108,8     | 32    | 5     | M18 x 1              | 0,5 | 0,5 | <b>F3543C04.1.02</b> |
|                                   |                  | HSK-A100     | 50         | 50          | 115,3        | 50         | 5            | M24 x 1,5 | 0,5   | 0,5   | <b>F3543C06.1.02</b> |     |     |                      |
|                                   |                  | HSK-A63      | 45         | 50          | 108,8        | 32         | 5            | M18 x 1   | 0,5   | 0,5   | <b>F3543C04.1.03</b> |     |     |                      |
|                                   |                  | HSK-A100     | 50         | 50          | 115,3        | 50         | 5            | M24 x 1,5 | 0,5   | 0,5   | <b>F3543C06.1.03</b> |     |     |                      |

1) Einstecktiefen E siehe Seite 754  
Clamping depths E, see page 754

Weitere Ausführungen auf Anfrage  
Further designs upon request

Spannmutter für Dichtscheiben, Kühlschmierstoffrohr und Längeneinstellschraube sind im Lieferumfang enthalten  
Clamping nut for sealing disks, coolant tube and length adjustment screw are included in the delivery

## Zubehör Accessories

- Spannzangen Typ ER (GB) Collets type ER (GB) ▶ 746 - 747
- Dichtscheiben Typ DS/ER und Kühlschmierstoffrohr Typ KS/ER Sealing disks type DS/ER and coolant flush disks type KS/ER ▶ 750
- Längeneinstellschrauben Length adjustment screws ▶ 744
- Kühlschmierstoffrohre und Schlüssel Coolant tubes and wrenches ▶ 742 - 743

- Spanschlüsselsatz Set of clamping wrenches ▶ 758
- Montagevorrichtung Assembly device ▶ 756
- Drehmomentschlüssel Torque wrenches ▶ 759



## Softsynchro® Modular/IKZ

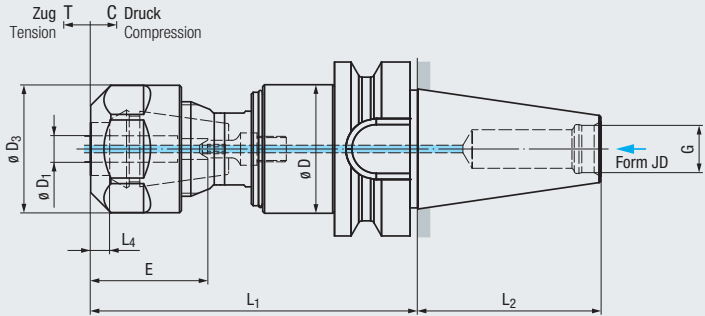
**BT**  
DIN ISO 7388-2  
Form JD



$p_{max}$   
50 bar  
(700 psi)







L+ 2 mm



Einsatz auf Maschinen  
mit Synchronspindel

For use on machines  
with synchronous spindle

| Typ<br>Type                   |  | $\varnothing D_1$ |  |  | $\varnothing D_2$ | $\varnothing D$ | $\varnothing D_3$ | L <sub>1</sub> | L <sub>2</sub> | L <sub>4</sub> | G   | T   | C   | <b>new</b><br> |
|-------------------------------|---|-------------------|---|---|-------------------|-----------------|-------------------|----------------|----------------|----------------|-----|-----|-----|---|
| Softsynchro®<br>1/Modular/IKZ | M4,5 - M10  | 6 / 7             | ER 20 (GB)  | Hi-Q/ERC<br>20  | BT 30             | 34              | 34                | 86,5           | 48,4           | 5              | M12 | 0,5 | 0,5 | <b>F3541190.01</b>  |
|                               | M8, M9,<br>M11, M12   | 8 / 9             |   |   | BT 30             | 34              | 34                | 86,5           | 48,4           | 5              | M12 | 0,5 | 0,5 | <b>F3541190.02</b>  |
|                               | M10   | 10                |   |   | BT 30             | 34              | 34                | 86,5           | 48,4           | 5              | M12 | 0,5 | 0,5 | <b>F3541190.03</b>  |

1) Einstecktiefen E siehe Seite 754  
Clamping depths E, see page 754

Weitere Ausführungen auf Anfrage  
Further designs upon request

Spannmutter für Dichtscheiben und Längeneinstellschraube sind im Lieferumfang enthalten  
Clamping nut for sealing disks and length adjustment screw are included in the delivery

## Zubehör Accessories



Spannzangen Typ ER (GB)  
Collets type ER (GB)

» 746 - 747



Dichtscheiben Typ DS/ER und Kühlschleiben Typ KS/ER  
Sealing disks type DS/ER and coolant flush disks type KS/ER

» 750



Längeneinstellschrauben  
Length adjustment screws

» 744



Spannschlüsselsatz  
Set of clamping wrenches

» 758



Montagevorrichtung  
Assembly device

» 756



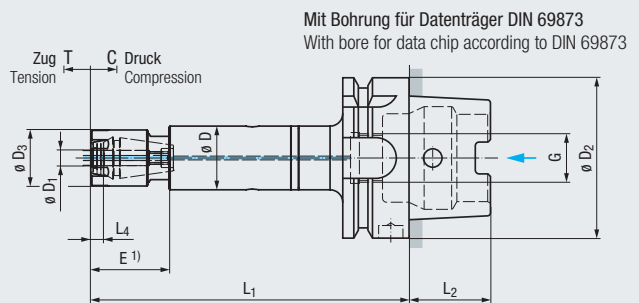
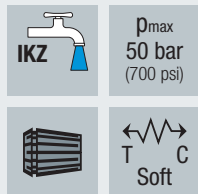
Drehmomentschlüssel  
Torque wrenches

» 759



# Softsynchro® Slim/IKZ

**HSK-A**  
DIN 69893-1



**Einsatz auf Maschinen mit Synchronspindel** For use on machines with synchronous spindle

| Typ<br>Type                    |                           | $\varnothing D_1$ |            |              | $\varnothing D_2$ | $\varnothing D$ | $\varnothing D_3$ | $L_1$ | $L_2$             | $L_4$ | G         | T   | C   | new                |
|--------------------------------|---------------------------|-------------------|------------|--------------|-------------------|-----------------|-------------------|-------|-------------------|-------|-----------|-----|-----|--------------------|
| <b>Softsynchro® 0/Slim/IKZ</b> | M2 - M8<br>(Nr.2 - 5/16)  | 2,5 - 6           | ER 11 (GB) | Hi-Q/ERM 11  | HSK-A63           | 25              | 16                | 122,4 | 32                | 0,9   | M18 x 1   | 0,5 | 0,5 | <b>F3660C04.XS</b> |
|                                |                           |                   |            |              | HSK-A63           | 25              | 16                | 147,4 | 32                | 0,9   | M18 x 1   | 0,5 | 0,5 | <b>F3660C04.S</b>  |
|                                |                           |                   |            |              | HSK-A63           | 25              | 16                | 172,4 | 32                | 0,9   | M18 x 1   | 0,5 | 0,5 | <b>F3660C04.M</b>  |
|                                |                           |                   |            |              | HSK-A63           | 25              | 16                | 197,4 | 32                | 0,9   | M18 x 1   | 0,5 | 0,5 | <b>F3660C04.L</b>  |
|                                |                           |                   |            |              | HSK-A100          | 25              | 16                | 122,4 | 50                | 0,9   | M24 x 1,5 | 0,5 | 0,5 | <b>F3660C06.XS</b> |
|                                |                           |                   |            |              | HSK-A100          | 25              | 16                | 147,4 | 50                | 0,9   | M24 x 1,5 | 0,5 | 0,5 | <b>F3660C06.S</b>  |
|                                |                           |                   |            |              | HSK-A100          | 25              | 16                | 172,4 | 50                | 0,9   | M24 x 1,5 | 0,5 | 0,5 | <b>F3660C06.M</b>  |
| <b>Softsynchro® 1/Slim/IKZ</b> | M4 - M12<br>(Nr.8 - 7/16) | 4,5 - 9           | ER 16 (GB) | Hi-Q/ERMC 16 | HSK-A63           | 25              | 22                | 125   | 32                | 5     | M18 x 1   | 0,5 | 0,5 | <b>F3661C04.XS</b> |
|                                |                           |                   |            |              | HSK-A63           | 25              | 22                | 150   | 32                | 5     | M18 x 1   | 0,5 | 0,5 | <b>F3661C04.S</b>  |
|                                |                           |                   |            |              | HSK-A63           | 25              | 22                | 175   | 32                | 5     | M18 x 1   | 0,5 | 0,5 | <b>F3661C04.M</b>  |
|                                |                           |                   |            |              | HSK-A63           | 25              | 22                | 200   | 32                | 5     | M18 x 1   | 0,5 | 0,5 | <b>F3661C04.L</b>  |
|                                |                           |                   |            |              | HSK-A100          | 25              | 22                | 125   | 50                | 5     | M24 x 1,5 | 0,5 | 0,5 | <b>F3661C06.XS</b> |
|                                |                           |                   |            |              | HSK-A100          | 25              | 22                | 150   | 50                | 5     | M24 x 1,5 | 0,5 | 0,5 | <b>F3661C06.S</b>  |
|                                |                           |                   |            |              | HSK-A100          | 25              | 22                | 175   | 50                | 5     | M24 x 1,5 | 0,5 | 0,5 | <b>F3661C06.M</b>  |
| HSK-A100                       | 25                        | 22                | 200        | 50           | 5                 | M24 x 1,5       | 0,5               | 0,5   | <b>F3661C06.L</b> |       |           |     |     |                    |

1) Einstecktiefen E siehe Seite 754  
Clamping depths E, see page 754

Weitere Ausführungen auf Anfrage  
Further designs upon request

**Softsynchro® 0**  
Spannmutter ohne integrierte Abdichtung ist im Lieferumfang enthalten  
Clamping nut without integrated seal is included in the delivery

**Softsynchro® 1**  
Spannmutter für Dichtscheiben ist im Lieferumfang enthalten  
Clamping nut for sealing disks is included in the delivery

## Zubehör Accessories

- Spannzangen Typ ER (GB)  
Collets type ER (GB) ▶▶ 746 - 747
- Dichtscheiben Typ DS/ER und  
Kühlscheiben Typ KS/ER  
Sealing disks type DS/ER and  
coolant flush disks type KS/ER ▶▶ 750
- Spannmutter mit integrierter  
Abdichtung Typ Hi-Q/ERMC 11  
Clamping nut with integrated seal,  
type Hi-Q/ERMC 11 ▶▶ 752
- Kühlschmierstoffrohre und Schlüssel  
Coolant tubes and wrenches ▶▶ 742 - 743

- Spannschlüsselsatz  
Set of clamping wrenches ▶▶ 758

- Montagevorrichtung  
Assembly device ▶▶ 756

- Drehmomentschlüssel  
Torque wrenches ▶▶ 759

## Softsynchro® Xtension

HSK-A  
DIN 69893-1

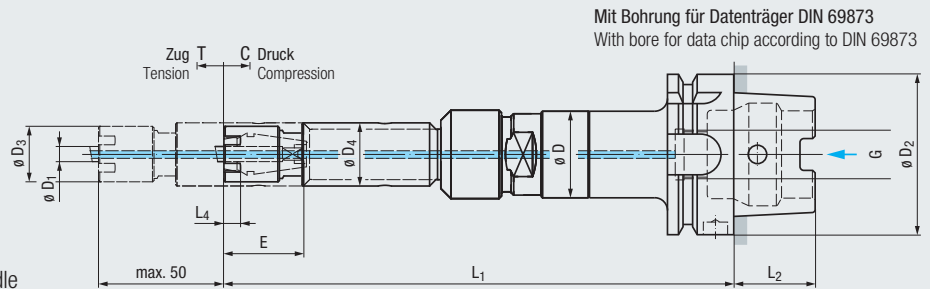






$p_{max}$   
50 bar  
(700 psi)



Einsatz auf Maschinen  
mit Synchronspindel

For use on machines  
with synchronous spindle



| Typ<br>Type                |  | $\varnothing D_1$ |  |  | $\varnothing D_2$ | $\varnothing D$ | $\varnothing D_3$ | $\varnothing D_4$ | $L_1$ | $L_2$ | $L_3$ | $L_4$ | G         | T   | C   |  |
|----------------------------|---|-------------------|---|---|-------------------|-----------------|-------------------|-------------------|-------|-------|-------|-------|-----------|-----|-----|---|
| Softsynchro®<br>1/Xtension | M4 - M12<br>(Nr.8 - 7/16)   | 4,5 - 9           | ER 16 (GB)  | Hi-Q/ERMC<br>16   | HSK-A63           | 35              | 22                | 25                | 210   | 32    | 124,3 | 5     | M18 x 1   | 0,5 | 0,5 | F3801C04.1  |
|                            |   |                   |   |   | HSK-A63           | 35              | 22                | 25                | 260   | 32    | 124,3 | 5     | M18 x 1   | 0,5 | 0,5 | F3801C04.1.260  |
|                            |   |                   |   |   | HSK-A100          | 35              | 22                | 25                | 216,5 | 50    | 130,8 | 5     | M24 x 1,5 | 0,5 | 0,5 | F3801C06.1  |

1) Einstecktiefen E siehe Seite 754  
Clamping depths E, see page 754

Weitere Ausführungen auf Anfrage  
Further designs upon request

Spannmutter für Dichtscheiben ist im Lieferumfang enthalten  
Clamping nut for sealing disks is included in the delivery

## Zubehör Accessories



Spannzangen Typ ER (GB)  
Collets type ER (GB)

» 746 - 747



Dichtscheiben Typ DS/ER und Kühlschleiben Typ KS/ER  
Sealing disks type DS/ER and coolant flush disks type KS/ER

» 750



Kühlschmierstoffrohre und Schlüssel  
Coolant tubes and wrenches

» 742 - 743



Spannschlüsselsatz  
Set of clamping wrenches

» 758



Montagevorrichtung  
Assembly device

» 756



Drehmomentschlüssel  
Torque wrenches

» 759



Drehmomentschlüssel mit Rollenschlüsselaufsatz  
Torque roller wrench

F0900006



# Softsynchro® QuickLock

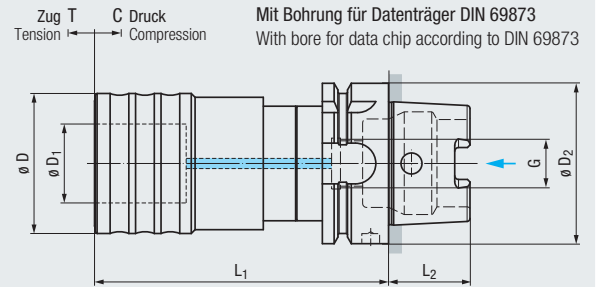
**HSK-A**  
DIN 69893-1



$p_{max}$   
50 bar  
(700 psi)



T C  
Soft



Einsatz auf Maschinen mit Synchronspindel For use on machines with synchronous spindle

| Typ<br>Type                     |          |                     | $\varnothing D_2$ | $\varnothing D$ | $\varnothing D_1$ | $L_1$ | $L_2$ | G         | T   | C   |                   |
|---------------------------------|----------|---------------------|-------------------|-----------------|-------------------|-------|-------|-----------|-----|-----|-------------------|
| <b>Softsynchro® 1 QuickLock</b> | M4 - M12 | EM 01(-Z) QuickLock | HSK-A63           | 39              | 19                | 90    | 32    | M18 x 1   | 0,5 | 0,5 | <b>F3601C04.1</b> |
|                                 |          |                     | HSK-A100          | 39              | 19                | 96    | 50    | M24 x 1,5 | 0,5 | 0,5 | <b>F3601C06.1</b> |
| <b>Softsynchro® 3 QuickLock</b> | M8 - M20 | EM 03(-Z) QuickLock | HSK-A63           | 55              | 31                | 115   | 32    | M18 x 1   | 0,5 | 0,5 | <b>F3603C04.1</b> |
|                                 |          |                     | HSK-A100          | 55              | 31                | 122   | 50    | M24 x 1,5 | 0,5 | 0,5 | <b>F3603C06.1</b> |



Weitere Ausführungen auf Anfrage  
Further designs upon request

## Zubehör Accessories



Schnellwechsel-Einsätze Typ EM/QuickLock  
Quick-change adapters type EM/QuickLock [» 724](#)



Schnellwechsel-Einsätze Typ EM-Z/QuickLock  
Quick-change adapters type EM-Z/QuickLock [» 734](#)



Kühlschmierstoffrohre und Schlüssel  
Coolant tubes and wrenches [» 742 - 743](#)



# Softsynchro® QuickLock

**Zylinderschaft**  
Cylindrical shank  
DIN 1835-1  
Form B+E



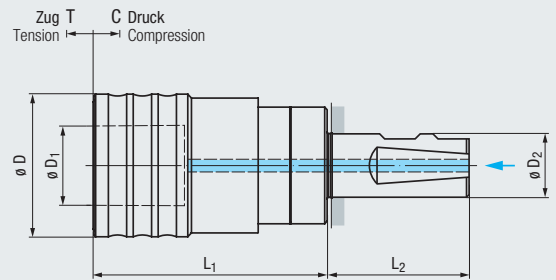
$p_{max}$   
50 bar  
(700 psi)






T C  
Soft

**Einsatz auf Maschinen mit Synchronspindel**

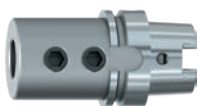
For use on machines with synchronous spindle



| Typ<br>Type                     |  |  | $\varnothing D_2$ | $\varnothing D$ | $\varnothing D_1$ | $L_1$ | $L_2$ | T   | C   |  |
|---------------------------------|---|---|-------------------|-----------------|-------------------|-------|-------|-----|-----|---|
| <b>Softsynchro® 1 QuickLock</b> | M4 - M12  | EM 01(-Z) QuickLock   | 20                | 39              | 19                | 67    | 51    | 0,5 | 0,5 | <b>F3601G25.1.44</b>  |
| <b>Softsynchro® 3 QuickLock</b> | M8 - M20  | EM 03(-Z) QuickLock   | 25                | 55              | 31                | 94    | 57    | 0,5 | 0,5 | <b>F3603G26.1.44</b>  |

Weitere Ausführungen auf Anfrage  
Further designs upon request

## Zubehör Accessories



Adaptionsschäfte  
Adapter shanks

» 740



Schnellwechsel-Einsätze Typ EM/QuickLock  
Quick-change adapters type EM/QuickLock

» 724



Schnellwechsel-Einsätze Typ EM-Z/QuickLock  
Quick-change adapters type EM-Z/QuickLock

» 734

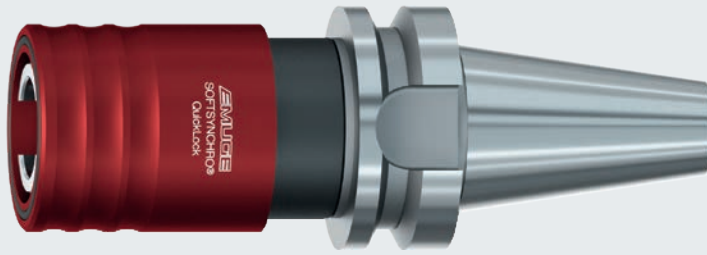
- Product Finder
- Softsynchro
- Speedsynchro
- KSN
- MQL MMS
- SFM
- SWITCH-MASTER
- HF
- EM
- Zubehör Accessories




- Product Finder
- Soft-synchro
- Speed-synchro
- KSN
- MQL MMS
- SFM
- SWITCH-MASTER
- HF
- EM
- Zubehör Accessories

# Softsynchro® QuickLock


**BT**  
DIN ISO 7388-2  
Form JD



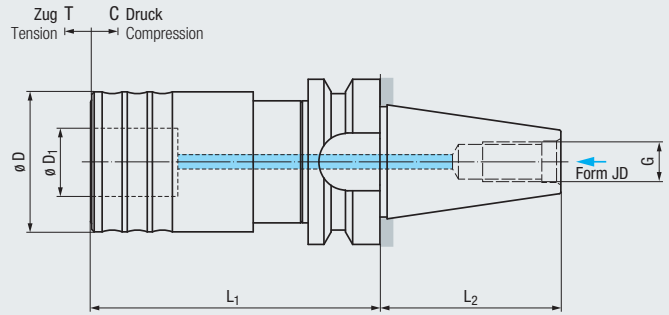


**IKZ**




$p_{max}$   
50 bar  
(700 psi)



**Soft**



Einsatz auf Maschinen mit Synchronspindel For use on machines with synchronous spindle

| Typ<br>Type                     |  |  | BT    | $\varnothing D$ | $\varnothing D_1$ | $L_1$ | $L_2$ | G   | T   | C   | <div style="display: flex; align-items: center;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg); font-weight: bold; font-size: 8px;">new</div>  </div> |
|---------------------------------|---|---|-------|-----------------|-------------------|-------|-------|-----|-----|-----|---|
| <b>Softsynchro® 1 QuickLock</b> | M4 - M12  | EM 01(-Z) QuickLock   | BT 30 | 39              | 19                | 82    | 48,4  | M12 | 0,5 | 0,5 |   |


Weitere Ausführungen auf Anfrage  
Further designs upon request

## Zubehör Accessories



Schnellwechsel-Einsätze Typ EM/QuickLock  
Quick-change adapters type EM/QuickLock

» 724



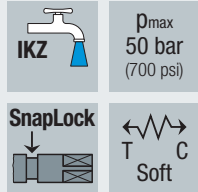
Schnellwechsel-Einsätze Typ EM-Z/QuickLock  
Quick-change adapters type EM-Z/QuickLock

» 734



# Softsynchro® SnapLock

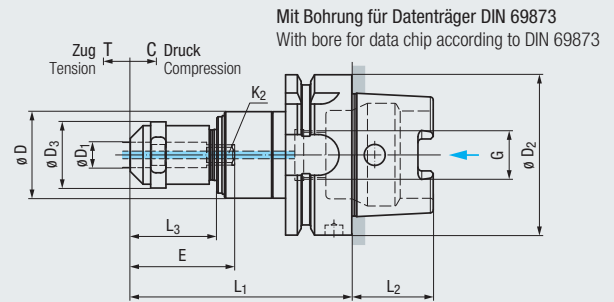
**HSK-A**  
DIN 69893-1



$p_{max}$   
50 bar  
(700 psi)

Soft

**Einsatz auf Maschinen mit Synchronspindel** For use on machines with synchronous spindle



| Typ<br>Type                | DIN               |                   |       |           |          | $\varnothing D$ | $\varnothing D_3$ | $L_1$ | $L_2$ | $L_3$ | $E$ | $G$       | $T$ | $C$ | QR Code        |
|----------------------------|-------------------|-------------------|-------|-----------|----------|-----------------|-------------------|-------|-------|-------|-----|-----------|-----|-----|----------------|
|                            | $\varnothing D_2$ | $\varnothing D_1$ | $K_2$ |           |          |                 |                   |       |       |       |     |           |     |     |                |
| Softsynchro®<br>1 SnapLock | HSK-A63           | 6                 | 4,9   | M4,5 - M6 | M8       | 34              | 26                | 87    | 32    | 34    | 31  | M18 x 1   | 0,5 | 0,5 | F3701C04.1.D6  |
|                            | HSK-A63           | 7                 | 5,5   | M7        | M9 - M10 | 34              | 26                | 87    | 32    | 34    | 31  | M18 x 1   | 0,5 | 0,5 | F3701C04.1.D7  |
|                            | HSK-A63           | 8                 | 6,2   | M8        | M11      | 34              | 26                | 87    | 32    | 34    | 36  | M18 x 1   | 0,5 | 0,5 | F3701C04.1.D8  |
|                            | HSK-A63           | 9                 | 7     | M9        | M12      | 34              | 26                | 87    | 32    | 34    | 37  | M18 x 1   | 0,5 | 0,5 | F3701C04.1.D9  |
|                            | HSK-A63           | 10                | 8     | M10       | —        | 34              | 26                | 87    | 32    | 34    | 41  | M18 x 1   | 0,5 | 0,5 | F3701C04.1.D10 |
|                            | HSK-A100          | 6                 | 4,9   | M4,5 - M6 | M8       | 34              | 26                | 93,5  | 50    | 34    | 31  | M24 x 1,5 | 0,5 | 0,5 | F3701C06.1.D6  |
|                            | HSK-A100          | 7                 | 5,5   | M7        | M9 - M10 | 34              | 26                | 93,5  | 50    | 34    | 31  | M24 x 1,5 | 0,5 | 0,5 | F3701C06.1.D7  |
|                            | HSK-A100          | 8                 | 6,2   | M8        | M11      | 34              | 26                | 93,5  | 50    | 34    | 36  | M24 x 1,5 | 0,5 | 0,5 | F3701C06.1.D8  |
|                            | HSK-A100          | 9                 | 7     | M9        | M12      | 34              | 26                | 93,5  | 50    | 34    | 37  | M24 x 1,5 | 0,5 | 0,5 | F3701C06.1.D9  |
|                            | HSK-A100          | 10                | 8     | M10       | —        | 34              | 26                | 93,5  | 50    | 34    | 41  | M24 x 1,5 | 0,5 | 0,5 | F3701C06.1.D10 |

Bearbeitungsmaße für Rillenform am Gewindebohrer- / Gewindeformer-Schaft siehe Seite 642  
Machining specifications for the slot shape on the shank of taps / cold-forming taps, see page 642

Weitere Ausführungen auf Anfrage  
Further designs upon request

## Zubehör Accessories



Kühlschmierstoffrohre und Schlüssel  
Coolant tubes and wrenches

» 742 - 743



**SnapLock-Nut**  
im Werkzeugschaft erforderlich

**SnapLock groove**  
required in tool shank



# Softsynchro® SnapLock

**Zylinderschaft**  
Cylindrical shank  
DIN 1835-1  
Form B+E



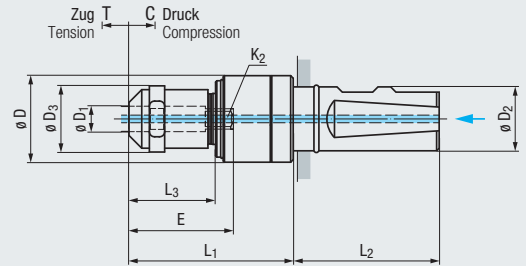
- Product Finder
- Soft-synchro
- Speed-synchro
- KSN
- MQL MMS
- SFM
- SWITCH-MASTER
- HF
- EM
- Zubehör Accessories



$p_{max}$   
50 bar  
(700 psi)



Soft  
T C



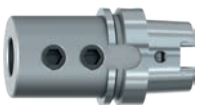
Einsatz auf Maschinen mit Synchronspindel For use on machines with synchronous spindle

| Typ<br>Type                | DIN               |                   |       |           |          | $\varnothing D$ | $\varnothing D_3$ | $L_1$ | $L_2$ | $L_3$ | $E$ | $T$ | $C$ | QR Code        |
|----------------------------|-------------------|-------------------|-------|-----------|----------|-----------------|-------------------|-------|-------|-------|-----|-----|-----|----------------|
|                            | $\varnothing D_2$ | $\varnothing D_1$ | $K_2$ |           |          |                 |                   |       |       |       |     |     |     |                |
| Softsynchro®<br>1 SnapLock | 25                | 6                 | 4,9   | M4,5 - M6 | M8       | 34              | 26                | 64,5  | 57    | 34    | 31  | 0,5 | 0,5 | F3701G26.1.D6  |
|                            | 25                | 7                 | 5,5   | M7        | M9 - M10 | 34              | 26                | 64,5  | 57    | 34    | 31  | 0,5 | 0,5 | F3701G26.1.D7  |
|                            | 25                | 8                 | 6,2   | M8        | M11      | 34              | 26                | 64,5  | 57    | 34    | 36  | 0,5 | 0,5 | F3701G26.1.D8  |
|                            | 25                | 9                 | 7     | M9        | M12      | 34              | 26                | 64,5  | 57    | 34    | 37  | 0,5 | 0,5 | F3701G26.1.D9  |
|                            | 25                | 10                | 8     | M10       | —        | 34              | 26                | 64,5  | 57    | 34    | 41  | 0,5 | 0,5 | F3701G26.1.D10 |

Bearbeitungsmaße für Rillenform am Gewindebohrer- / Gewindeformer-Schaft siehe Seite 642  
Machining specifications for the slot shape on the shank of taps / cold-forming taps, see page 642

Weitere Ausführungen auf Anfrage  
Further designs upon request

## Zubehör Accessories



Adaptionsschäfte  
Adapter shanks

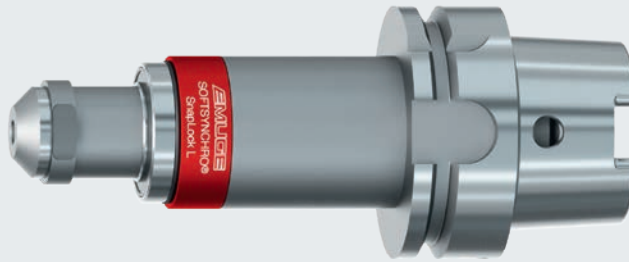
» 740





## Softsynchro® SnapLock L

HSK-A  
DIN 69893-1

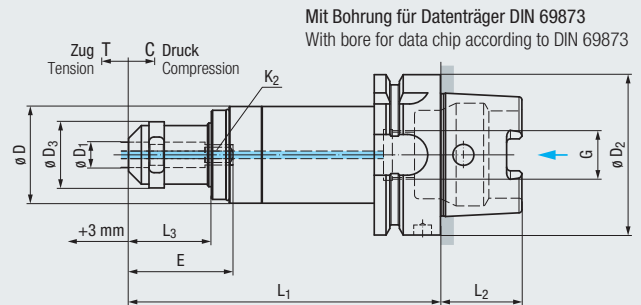


$p_{max}$   
50 bar  
(700 psi)



Einsatz auf Maschinen  
mit Synchronspindel

For use on machines  
with synchronous spindle



| Typ<br>Type                  | DIN               |                   |       |           |          | $\varnothing D$ | $\varnothing D_3$ | $L_1$ | $L_2$ | $L_3$ | $E$ | $G$       | $T$ | $C$ | QR Code        |
|------------------------------|-------------------|-------------------|-------|-----------|----------|-----------------|-------------------|-------|-------|-------|-----|-----------|-----|-----|----------------|
|                              | $\varnothing D_2$ | $\varnothing D_1$ | $K_2$ |           |          |                 |                   |       |       |       |     |           |     |     |                |
| Softsynchro®<br>1 SnapLock L | HSK-A63           | 6                 | 4,9   | M4,5 - M6 | M8       | 38              | 26                | 122,5 | 32    | 32,5  | 31  | M18 x 1   | 0,5 | 0,5 | F3711C04.1.D6  |
|                              | HSK-A63           | 7                 | 5,5   | M7        | M9 - M10 | 38              | 26                | 122,5 | 32    | 32,5  | 31  | M18 x 1   | 0,5 | 0,5 | F3711C04.1.D7  |
|                              | HSK-A63           | 8                 | 6,2   | M8        | M11      | 38              | 26                | 122,5 | 32    | 32,5  | 36  | M18 x 1   | 0,5 | 0,5 | F3711C04.1.D8  |
|                              | HSK-A63           | 9                 | 7     | M9        | M12      | 38              | 26                | 122,5 | 32    | 32,5  | 37  | M18 x 1   | 0,5 | 0,5 | F3711C04.1.D9  |
|                              | HSK-A63           | 10                | 8     | M10       | —        | 38              | 26                | 122,5 | 32    | 32,5  | 41  | M18 x 1   | 0,5 | 0,5 | F3711C04.1.D10 |
|                              | HSK-A100          | 6                 | 4,9   | M4,5 - M6 | M8       | 38              | 26                | 129   | 50    | 32,5  | 31  | M24 x 1,5 | 0,5 | 0,5 | F3711C06.1.D6  |
|                              | HSK-A100          | 7                 | 5,5   | M7        | M9 - M10 | 38              | 26                | 129   | 50    | 32,5  | 31  | M24 x 1,5 | 0,5 | 0,5 | F3711C06.1.D7  |
|                              | HSK-A100          | 8                 | 6,2   | M8        | M11      | 38              | 26                | 129   | 50    | 32,5  | 36  | M24 x 1,5 | 0,5 | 0,5 | F3711C06.1.D8  |
|                              | HSK-A100          | 9                 | 7     | M9        | M12      | 38              | 26                | 129   | 50    | 32,5  | 37  | M24 x 1,5 | 0,5 | 0,5 | F3711C06.1.D9  |
|                              | HSK-A100          | 10                | 8     | M10       | —        | 38              | 26                | 129   | 50    | 32,5  | 41  | M24 x 1,5 | 0,5 | 0,5 | F3711C06.1.D10 |

Bearbeitungsmaße für Rillenform am Gewindebohrer- / Gewindeformer-Schaft siehe Seite 642  
Machining specifications for the slot shape on the shank of taps / cold-forming taps, see page 642

Weitere Ausführungen auf Anfrage  
Further designs upon request

### Zubehör Accessories



Kühlschmierstoffrohre und Schlüssel  
Coolant tubes and wrenches

» 742 - 743



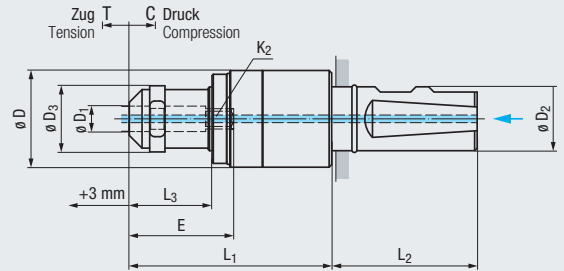
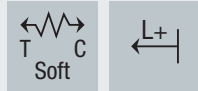
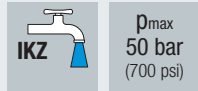
SnapLock-Nut  
im Werkzeugschaft erforderlich

SnapLock groove  
required in tool shank



# Softsynchro® SnapLock L

**Zylinderschaft**  
Cylindrical shank  
**DIN 1835-1**  
Form B+E



**Einsatz auf Maschinen mit Synchronspindel** For use on machines with synchronous spindle

| Typ<br>Type                | DIN               |                   |       |           |          | $\varnothing D$ | $\varnothing D_3$ | $L_1$ | $L_2$ | $L_3$ | $E$ | $T$ | $C$ | QR Code        |
|----------------------------|-------------------|-------------------|-------|-----------|----------|-----------------|-------------------|-------|-------|-------|-----|-----|-----|----------------|
|                            | $\varnothing D_2$ | $\varnothing D_1$ | $K_2$ |           |          |                 |                   |       |       |       |     |     |     |                |
| Softsynchro®<br>1 SnapLock | 25                | 6                 | 4,9   | M4,5 - M6 | M8       | 38              | 26                | 79,5  | 57    | 32,5  | 31  | 0,5 | 0,5 | F3711G26.1.D6  |
|                            | 25                | 7                 | 5,5   | M7        | M9 - M10 | 38              | 26                | 79,5  | 57    | 32,5  | 31  | 0,5 | 0,5 | F3711G26.1.D7  |
|                            | 25                | 8                 | 6,2   | M8        | M11      | 38              | 26                | 79,5  | 57    | 32,5  | 36  | 0,5 | 0,5 | F3711G26.1.D8  |
|                            | 25                | 9                 | 7     | M9        | M12      | 38              | 26                | 79,5  | 57    | 32,5  | 37  | 0,5 | 0,5 | F3711G26.1.D9  |
|                            | 25                | 10                | 8     | M10       | —        | 38              | 26                | 79,5  | 57    | 32,5  | 41  | 0,5 | 0,5 | F3711G26.1.D10 |

Weitere Ausführungen auf Anfrage  
Further designs upon request

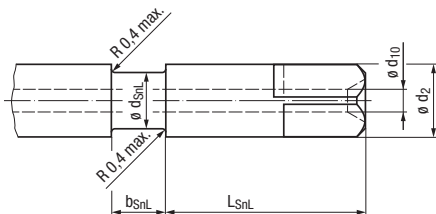
## Zubehör Accessories



Adaptionsschäfte  
Adapter shanks

» 740

## Bearbeitungsmaße für Rillenform am Gewindebohrer- / Gewindeformer-Schaft Machining specifications for the slot shape on the shank of taps / cold-forming taps



| $\varnothing d_2$ | $\varnothing d_{10}$ | $L_{Snl}$    | $b_{Snl}$   | $\varnothing d_{Snl}$ |
|-------------------|----------------------|--------------|-------------|-----------------------|
| 6                 | 2                    | $17 \pm 0,1$ | $6^{+0,05}$ | $4,2 \pm 0,1$         |
| 7                 | 2,5                  | $17 \pm 0,1$ |             | $5,2 \pm 0,1$         |
| 8                 | 2,5                  | $22 \pm 0,1$ |             | $6,2 \pm 0,1$         |
| 9                 | 3                    | $23 \pm 0,1$ |             | $7,2 \pm 0,1$         |
| 10                | 3                    | $27 \pm 0,1$ |             | $8,2 \pm 0,1$         |



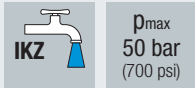
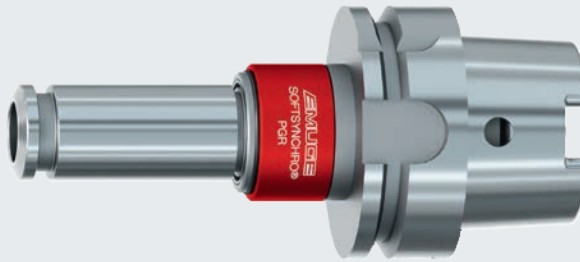
**SnapLock-Nut**  
im Werkzeugschaft erforderlich

**SnapLock groove**  
required in tool shank

## Softsynchro®/PGR

powRgrip®

**HSK-A**  
DIN 69893-1



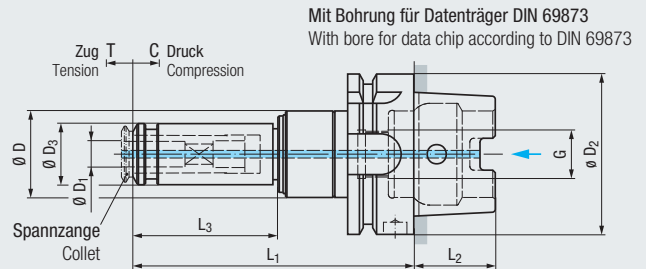
$p_{max}$   
50 bar  
(700 psi)






T C  
Soft

**Einsatz auf Maschinen  
mit Synchronspindel**

For use on machines  
with synchronous spindle



| Typ<br>Type                   |  | $\varnothing D_1$ |  | $\varnothing D_2$ | $\varnothing D$ | $\varnothing D_3$ | $L_1$ | $L_2$ | $L_3$ | G         | T   | C   |  |
|-------------------------------|---|-------------------|---|-------------------|-----------------|-------------------|-------|-------|-------|-----------|-----|-----|---|
| <b>Softsynchro®<br/>1/PGR</b> | M4 - M12<br>(Nr.8 - 7/16)   | 4,5 - 10          | PGR 15 GB   | HSK-A50           | 34              | 24                | 108   | 25    | 57    | M16 x 1   | 0,5 | 0,5 | F3221C03.1  |
|                               |   |                   |   | HSK-A63           | 34              | 24                | 110   | 32    | 57    | M18 x 1   | 0,5 | 0,5 | <b>F3221C04.1</b>   |
|                               |   |                   |   | HSK-A80           | 34              | 24                | 114,5 | 40    | 57    | M20 x 1,5 | 0,5 | 0,5 | F3221C05.1  |
|                               |   |                   |   | HSK-A100          | 34              | 24                | 116,5 | 50    | 57    | M24 x 1,5 | 0,5 | 0,5 | <b>F3221C06.1</b>   |
| <b>Softsynchro®<br/>3/PGR</b> | M8 - M20<br>(5/16 - 3/4)  | 8 - 16            | PGR 25 GB   | HSK-A50           | 45              | 40                | 132,5 | 25    | 67    | M16 x 1   | 0,5 | 0,5 | F3223C03.1  |
|                               |   |                   |   | HSK-A63           | 45              | 40                | 125   | 32    | 67    | M18 x 1   | 0,5 | 0,5 | <b>F3223C04.1</b>   |
|                               |   |                   |   | HSK-A80           | 45              | 40                | 129,5 | 40    | 67    | M20 x 1,5 | 0,5 | 0,5 | <b>F3223C05.1</b>   |
|                               |   |                   |   | HSK-A100          | 45              | 40                | 131,5 | 50    | 67    | M24 x 1,5 | 0,5 | 0,5 | <b>F3223C06.1</b>   |

Weitere Ausführungen auf Anfrage  
Further designs upon request

**Zubehör**  
Accessories



Spannzangen Typ PGR-GB  
Collets type PGR-GB

» 749



Kühlschmierstoffrohre und Schlüssel  
Coolant tubes and wrenches

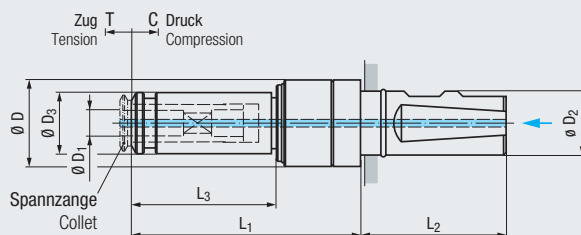
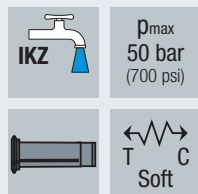
» 742 - 743



# Softsynchro®/PGR

**Zylinderschaft**  
Cylindrical shank

DIN 1835-1  
Form B+E



Einsatz auf Maschinen mit Synchronspindel For use on machines with synchronous spindle

| Typ<br>Type                   |                           | $\varnothing D_1$ |           | $\varnothing D_2$ | $\varnothing D$ | $\varnothing D_3$ | $L_1$ | $L_2$ | $L_3$ | T   | C   |                      |
|-------------------------------|---------------------------|-------------------|-----------|-------------------|-----------------|-------------------|-------|-------|-------|-----|-----|----------------------|
| <b>Softsynchro®<br/>1/PGR</b> | M4 - M12<br>(Nr.8 - 7/16) | 4,5 - 10          | PGR 15 GB | 25                | 34              | 24                | 87,5  | 57    | 57    | 0,5 | 0,5 | <b>F3221G26.1.44</b> |
| <b>Softsynchro®<br/>3/PGR</b> | M8 - M20<br>(5/16 - 3/4)  | 8 - 16            | PGR 25 GB | 25                | 45              | 40                | 103,5 | 57    | 67    | 0,5 | 0,5 | <b>F3223G26.1.44</b> |

Weitere Ausführungen auf Anfrage  
Further designs upon request

## Zubehör Accessories



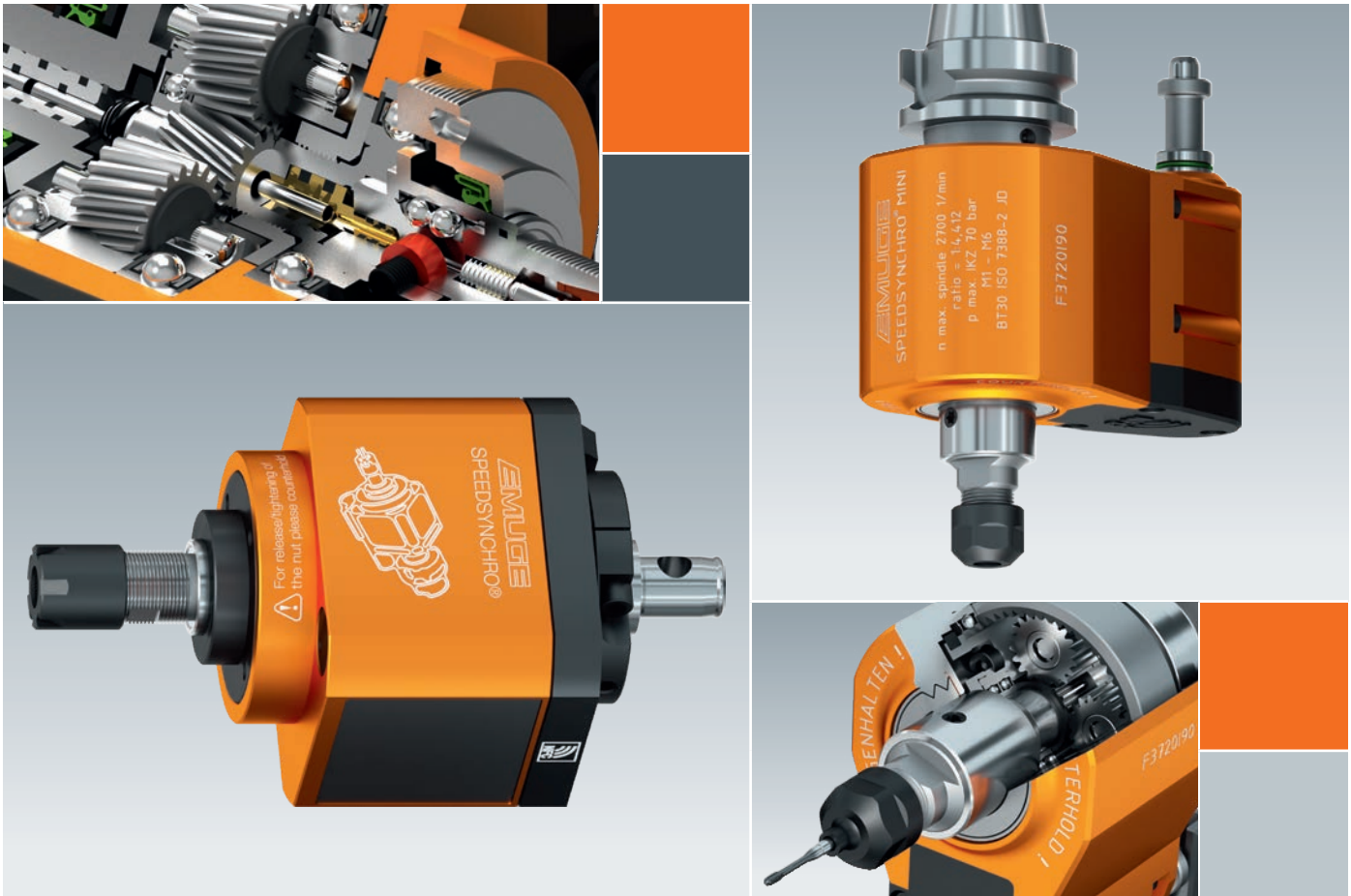
Adaptionsschäfte  
Adapter shanks

» 740



Spannzangen Typ PGR-GB  
Collets type PGR-GB

» 749



## Typenreihe Speedsynchro® Speedsynchro® Series

### Softsynchro®-Technologie mit Übersetzungsgetriebe

Die Typenreihe Speedsynchro® verfügt über ein integriertes Übersetzungsgetriebe mit einem Übersetzungsverhältnis von 1:4,412 und ist mit der Softsynchro®-Minimallängenausgleichsfunktion kombiniert.

Für eine hohe Werkzeugdrehzahl bei niedriger Spindeldrehzahl zur Taktzeiteinsparung, Energieeinsparung, Axialkraftreduzierung und Erhöhung der Wirtschaftlichkeit.

### Softsynchro® technology with transmission gearing

The Speedsynchro® series uses an integrated transmission gearing with a transmission ratio of 1:4.412 and combines it with the Softsynchro® minimal length compensation function.

For achieving a high tool speed at a low spindle speed in order to reduce cycle time, save energy, reduce axial force and increase efficiency.




# Speedsynchro® Modular NFC/IKZ

**ABS®**  
(System KOMET)




- Product Finder
- Soft-synchro
- Speed-synchro**
- KSN
- ML MMS
- SFM
- SWITCH-MASTER
- HF
- EM
- Zubehör Accessories



**IKZ**

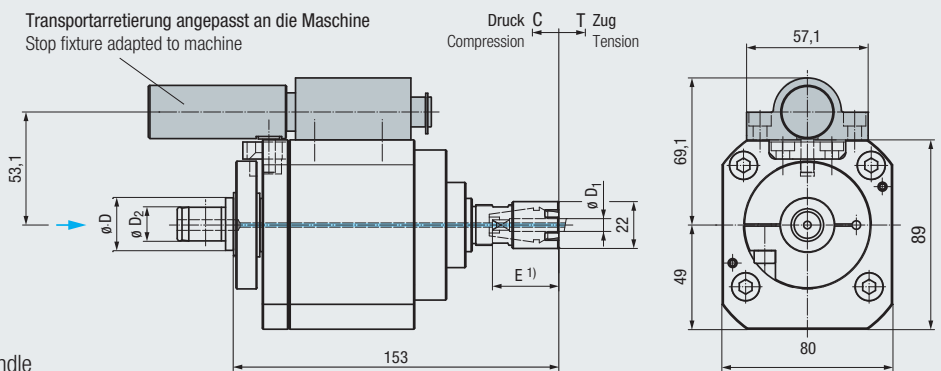
$p_{max}$   
50 bar  
(700 psi)







**NFC**

C T  
Soft





**Einsatz auf Maschinen mit Synchronspindel** For use on machines with synchronous spindle

| Typ<br>Type                              |  |  |  | $\varnothing D$ | $\varnothing D_2$ | $\varnothing D_1$ | Max. Spindeldrehzahl<br>[min <sup>-1</sup> ]<br>Max. spindle speed<br>[rpm] | Übersetzungs-<br>verhältnis<br>Transmission<br>ratio | C   | T   |  |
|--|---|---|---|-----------------|-------------------|-------------------|---|--|-----|-----|---|
| <b>Speedsynchro®<br/>Modular NFC/IKZ</b> | M1 - M8<br>(Nr.0 - 5/16)  | ER 16 (GB)  | Hi-Q/ERMC<br>16   | ABS 32          | 16                | 2,5 - 8           | 2000  | 1 : 4,412  | 0,5 | 0,5 | <b>F3761L01</b>   |

1) Einstecktiefen E siehe Seite 754  
Clamping depths E, see page 754

Spannmutter für Dichtscheiben ist im Lieferumfang enthalten  
Clamping nut for sealing disks is included in the delivery

Die Spannzangen-Aufnahme Speedsynchro® Modular NFC/IKZ kann nur mit Adaptionsschäfte und Transportarretierung eingesetzt werden.

The collet holder Speedsynchro® Modular NFC/IKZ can only be used with adapter shank and stop fixture.

Die Anpassung der Transportarretierung an die maschinenseitigen Vorgaben erfolgt durch EMUGE. Bitte wenden Sie sich hierfür an den für Sie zuständigen Vertriebspartner.

The adaptation of the stop fixture to the specifications of the machine is carried out by EMUGE. Please contact your responsible distribution partner for more information.

## Zubehör Accessories



Adaptionsschäfte  
Adapter shanks

» 741



Montagevorrichtung  
Assembly device

» 757



Spannzangen Typ ER (GB)  
Collets type ER (GB)

» 746 - 747



Längeneinstellschrauben  
Length adjustment screws

» 745



Dichtscheiben Typ DS/ER und  
Kühlscheiben Typ KS/ER  
Sealing disks type DS/ER and  
coolant flush disks type KS/ER

» 750

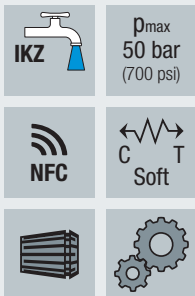


Drehmomentschlüssel  
Torque wrenches

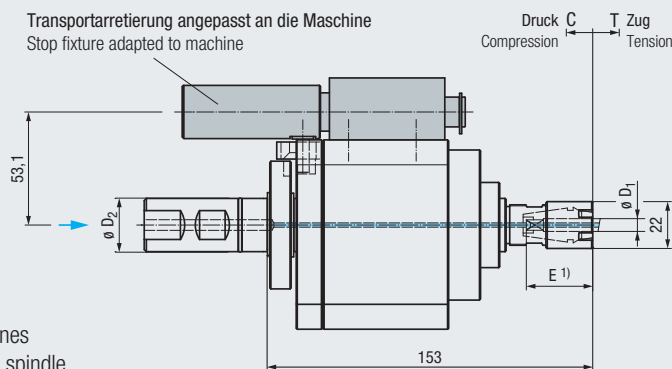
» 759

# Speedsynchro® Modular NFC/IKZ





**Zylinderschaft**  
Cylindrical shank  
DIN 1835-1  
Form B



Transportarretierung angepasst an die Maschine  
Stop fixture adapted to machine



**Einsatz auf Maschinen mit Synchronspindel** For use on machines with synchronous spindle

| Typ<br>Type                              |  |  |  | $\varnothing D_2$ | $\varnothing D_1$ | Max. Spindeldrehzahl<br>[min <sup>-1</sup> ]<br>Max. spindle speed<br>[rpm] | Übersetzungs-<br>verhältnis<br>Transmission<br>ratio | C   | T   |  |
|--|---|---|---|-------------------|-------------------|---|--|-----|-----|---|
| <b>Speedsynchro®<br/>Modular NFC/IKZ</b> | M1 - M8<br>(Nr.0 - 5/16)  | ER 16 (GB)  | HI-Q/ERM<br>16  | 25                | 2,5 - 8           | 2000  | 1 : 4,412  | 0,5 | 0,5 | <b>F3761G26</b>   |

1) Einstecktiefen E siehe Seite 754  
Clamping depths E, see page 754

Spannmutter für Dichtscheiben ist im Lieferumfang enthalten  
Clamping nut for sealing disks is included in the delivery

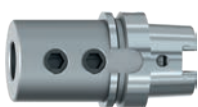
Die Spannzangen-Aufnahme Speedsynchro® Modular NFC/IKZ kann nur mit Adaptionsschäfte und Transportarretierung eingesetzt werden.

Die Anpassung der Transportarretierung an die maschinenseitigen Vorgaben erfolgt durch EMUGE. Bitte wenden Sie sich hierfür an den für Sie zuständigen Vertriebspartner.

The collet holder Speedsynchro® Modular NFC/IKZ can only be used with adapter shank and stop fixture.

The adaptation of the stop fixture to the specifications of the machine is carried out by EMUGE. Please contact your responsible distribution partner for more information.

## Zubehör Accessories



Adaptionsschäfte  
Adapter shanks

» 740



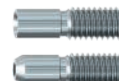
Montagevorrichtung  
Assembly device

» 757



Spannzangen Typ ER (GB)  
Collets type ER (GB)

» 746 - 747



Längeneinstellschrauben  
Length adjustment screws

» 745



Dichtscheiben Typ DS/ER und  
Kühlscheiben Typ KS/ER  
Sealing disks type DS/ER and  
coolant flush disks type KS/ER

» 750



Drehmomentschlüssel  
Torque wrenches

» 759



# Speedsynchro® Modular NFC/MQL

**ABS®**  
(System KOMET)



- Product Finder
- Soft-synchro
- Speed-synchro**
- KSN
- MQL MMS
- SFM
- SWITCH-MASTER
- HF
- EM

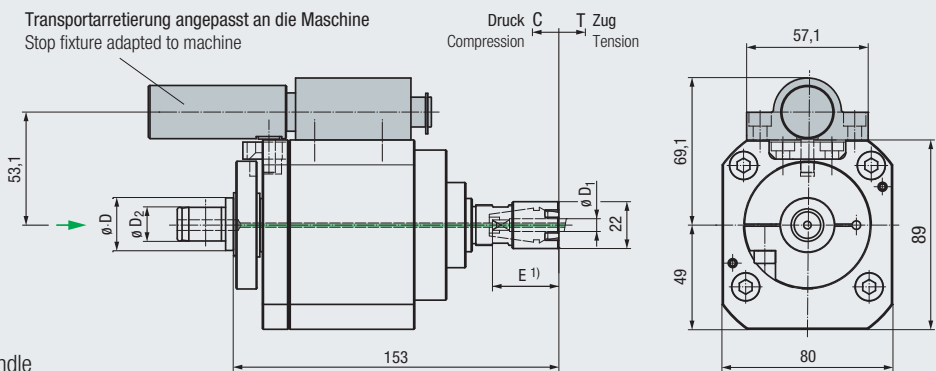
Zubehör  
Accessories

**p<sub>max</sub>**  
**10 bar**  
(140 psi)

**L+ 2 mm**

**C T**  
**Soft**

**NFC**



**Einsatz auf Maschinen mit Synchronspindel** For use on machines with synchronous spindle

| Typ<br>Type                              |           |            |              | $\varnothing D$ | $\varnothing D_2$ | $\varnothing D_1$ | Max. Spindeldrehzahl<br>[min <sup>-1</sup> ]<br>Max. spindle speed<br>[rpm] | Übersetzungs-<br>verhältnis<br>Transmission<br>ratio | C   | T   |                 |
|--|-----------|------------|--------------|-----------------|-------------------|-------------------|---|--|-----|-----|-----------------|
| <b>Speedsynchro®<br/>Modular NFC/MQL</b> | M4,5 - M8 | ER 16 (GB) | Hi-Q/ERMC 16 | ABS 32          | 16                | 4 - 8             | 2000  | 1 : 4,412  | 0,5 | 0,5 | <b>F3771L01</b> |

1) Einstecktiefen E siehe Seite 754  
Clamping depths E, see page 754

Spannmutter für Dichtscheiben ist im Lieferumfang enthalten  
Clamping nut for sealing disks is included in the delivery

Die Spannzangen-Aufnahme Speedsynchro® Modular NFC/MQL kann nur mit Adaptionsschäfte, MMS-Kühlschmierstoffrohr, Transportarretierung und Längeneinstellschraube eingesetzt werden.

Die Anpassung der Transportarretierung an die maschinenseitigen Vorgaben erfolgt durch EMUGE. Bitte wenden Sie sich hierfür an den für Sie zuständigen Vertriebspartner.

The collet holder Speedsynchro® Modular NFC/MQL can only be used with adapter shank, MQL coolant tube, stop fixture and length adjustment screw.

The adaptation of the stop fixture to the specifications of the machine is carried out by EMUGE. Please contact your responsible distribution partner for more information.

## Zubehör Accessories

Adaptionsschäfte  
Adapter shanks

» 741

Montagevorrichtung  
Assembly device

» 757

Spannzangen Typ ER (GB)  
Collets type ER (GB)

» 746 - 747

Längeneinstellschrauben  
Length adjustment screws

» 745

Dichtscheiben Typ DS/ER  
Sealing disks type DS/ER

» 750

Kühlschmierstoffrohre und Schlüssel  
Coolant tubes and wrenches

» 742 - 743

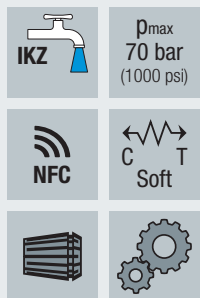
Drehmomentschlüssel  
Torque wrenches

» 759



# Speedsynchro® Mini

**BT**  
DIN ISO 7388-2  
Form JD

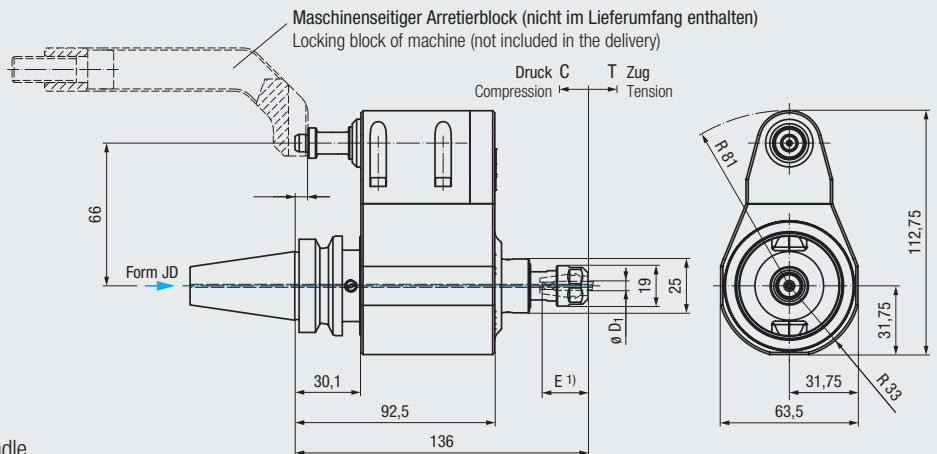


$p_{max}$   
70 bar  
(1000 psi)



C T  
Soft

**Einsatz auf Maschinen mit Synchronspindel** For use on machines with synchronous spindle



| Typ<br>Type                   |         |            |             | BT    | Max. Spindeldrehzahl<br>[min <sup>-1</sup> ]<br>Max. spindle speed<br>[rpm] | Übersetzungs-<br>verhältnis<br>Transmission<br>ratio | C   | T   |                 |
|-------------------------------|---------|------------|-------------|-------|---|--|-----|-----|-----------------|
| <b>Speedsynchro®<br/>Mini</b> | M1 - M6 | ER 11 (GB) | Hi-Q/ERC 11 | BT 30 | 2700  | 1:4,412  | 0,5 | 0,5 | <b>F3720190</b> |

1) Einstecktiefen E siehe Seite 754  
Clamping depths E, see page 754

Spannmutter für Dichtscheiben ist im Lieferumfang enthalten  
Clamping nut for sealing disks is included in the delivery



Maschinenseitiger Arretierblock für die meisten **Brother Speedio**-Maschinen mit Schaftanschluss BT 30  
Locking block of machine for most **Brother Speedio** machines with shank connection BT 30

**F10716446**



Maschinenseitiger Arretierblock für **FANUC Robodrill**-Maschinen mit Schaftanschluss BT 30  
Locking block of machine for **FANUC Robodrill** machines with shank connection BT 30

**F10716451**

## Zubehör Accessories



Spannzangen Typ ER (GB)  
Collets type ER (GB)

» 746 - 747



Dichtscheiben Typ DS/ER und  
Kühlscheiben Typ KS/ER  
Sealing disks type DS/ER and  
coolant flush disks type KS/ER

» 750



Montagevorrichtung  
Assembly device

» 757



Drehmomentschlüssel  
Torque wrenches

» 759



|                        |
|------------------------|
| Product Finder         |
| Soft-synchro           |
| Speed-synchro          |
| KSN                    |
| MQL MMS                |
| SFM                    |
| SWITCH-MASTER          |
| HF                     |
| EM                     |
| Zubehör<br>Accessories |





## Typenreihe KSN KSN Series

### Einsatz auf CNC-Bearbeitungszentren und konventionellen Werkzeugmaschinen

Die Genauigkeit der programmierten Gewindetiefe wird durch einen Druckpunktmechanismus garantiert. Auftretende Differenzen zwischen dem Maschinenvorschub und der Gewindesteigung werden durch einen Längenausgleich kompensiert.

### Application on CNC machining centres and conventional machine tools

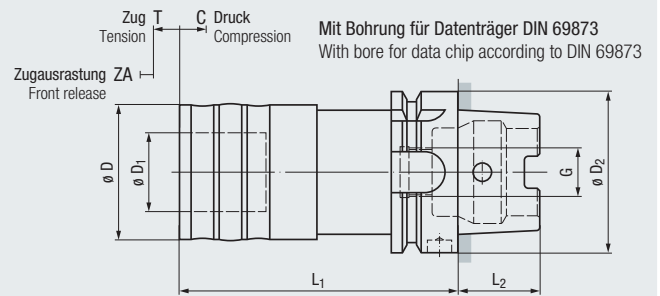
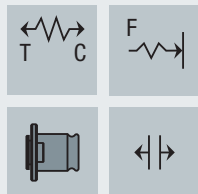
The accuracy of the programmed thread depth is guaranteed by a pressure point mechanism. Arising differences between spindle feed and thread pitch are compensated by a length compensation.



# KSN




## HSK-A

DIN 69893-1



Einsatz auf CNC-Bearbeitungszentren, sonstigen Werkzeugmaschinen und Säulenbohrmaschinen

For use on CNC machining centres, other machine tools and pillar drilling machines

| Typ<br>Type  |  |  | $\varnothing D_2$ | $\varnothing D$ | $\varnothing D_1$ | L <sub>1</sub> | L <sub>2</sub> | G         | T    | C    | ZA  |  |
|--------------|---|---|-------------------|-----------------|-------------------|----------------|----------------|-----------|------|------|-----|---|
| <b>KSN 1</b> | M3 - M14<br>(Nr.4 - 9/16)   | EM 01   | HSK-A32           | 36              | 19                | 71             | 16             | M10 x 1   | 8    | 5    | 2,1 | <b>F3301C01.30</b>  |
|              |   |   | HSK-A40           | 36              | 19                | 73             | 20             | M12 x 1   | 8    | 5    | 2,1 | <b>F3301C02.30</b>  |
|              |   |   | HSK-A50           | 36              | 19                | 77             | 25             | M16 x 1   | 8    | 5    | 2,1 | <b>F3301C03.30</b>  |
|              |   |   | HSK-A63           | 36              | 19                | 79             | 32             | M18 x 1   | 8    | 5    | 2,1 | <b>F3301C04.30</b>  |
|              |   |   | HSK-A80           | 36              | 19                | 83,5           | 40             | M20 x 1,5 | 8    | 5    | 2,1 | <b>F3301C05.30</b>  |
| <b>KSN 3</b> | M4,5 - M24<br>(Nr.10 - 1")  | EM 03   | HSK-A40           | 53              | 31                | 107            | 20             | M12 x 1   | 15   | 8,5  | 2,8 | F3303C02.30   |
|              |   |   | HSK-A50           | 53              | 31                | 111            | 25             | M16 x 1   | 15   | 8,5  | 2,8 | <b>F3303C03.30</b>  |
|              |   |   | HSK-A63           | 53              | 31                | 113            | 32             | M18 x 1   | 15   | 8,5  | 2,8 | <b>F3303C04.30</b>  |
|              |   |   | HSK-A80           | 53              | 31                | 117,5          | 40             | M20 x 1,5 | 15   | 8,5  | 2,8 | F3303C05.30   |
|              |   |   | HSK-A100          | 53              | 31                | 119,5          | 50             | M24 x 1,5 | 15   | 8,5  | 2,8 | <b>F3303C06.30</b>  |
| <b>KSN 4</b> | M14 - M36<br>(9/16 - 1 3/8)   | EM 04   | HSK-A63           | 78              | 48                | 164            | 32             | M18 x 1   | 23,5 | 15   | 4,1 | <b>F3304C04.30</b>  |
|              |   |   | HSK-A80           | 78              | 48                | 168,5          | 40             | M20 x 1,5 | 23,5 | 15   | 4,1 | F3304C05.30   |
|              |   |   | HSK-A100          | 78              | 48                | 170,5          | 50             | M24 x 1,5 | 23,5 | 15   | 4,1 | <b>F3304C06.30</b>  |
| <b>KSN 5</b> | M22 - M48<br>(7/8 - 1 3/4)  | EM 05   | HSK-A80           | 96              | 60                | 203            | 40             | M20 x 1,5 | 25   | 16,5 | 5,7 | F3305C05.30   |
|              |   |   | HSK-A100          | 96              | 60                | 205            | 50             | M24 x 1,5 | 25   | 16,5 | 5,7 | <b>F3305C06.30</b>  |

Weitere Ausführungen auf Anfrage  
Further designs upon request

### Zubehör Accessories



Schnellwechsel-Einsätze Typenreihe EM  
Quick-change adapters EM series

► 717 - 738



Kühlschmierstoffrohre und Schlüssel  
Coolant tubes and wrenches

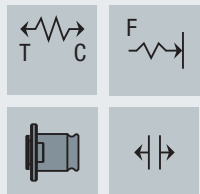
► 742 - 743



# KSN

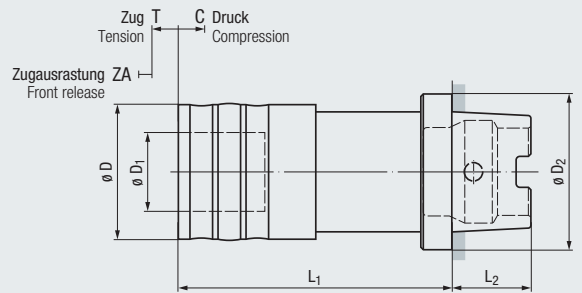
## HSK-C




DIN 69893-1



Einsatz auf CNC-Bearbeitungszentren, sonstigen Werkzeugmaschinen und Säulenbohrmaschinen

For use on CNC machining centres, other machine tools and pillar drilling machines



| Typ<br>Type  |  |  | ø D <sub>2</sub> | ø D | ø D <sub>1</sub> | L <sub>1</sub> | L <sub>2</sub> | T    | C   | ZA  |  |
|--------------|---|---|------------------|-----|------------------|----------------|----------------|------|-----|-----|---|
| <b>KSN 1</b> | M3 - M14<br>(Nr.4 - 9/16)   | EM 01   | HSK-C32          | 36  | 19               | 65             | 16             | 8    | 5   | 2,1 | <b>F3301K01.30</b>  |
|              |   |   | HSK-C40          | 36  | 19               | 65             | 20             | 8    | 5   | 2,1 | <b>F3301K02.30</b>  |
|              |   |   | HSK-C50          | 36  | 19               | 67             | 25             | 8    | 5   | 2,1 | <b>F3301K03.30</b>  |
|              |   |   | HSK-C63          | 36  | 19               | 67             | 32             | 8    | 5   | 2,1 | <b>F3301K04.30</b>  |
| <b>KSN 3</b> | M4,5 - M24<br>(Nr.10 - 1")  | EM 03   | HSK-C40          | 53  | 31               | 99             | 20             | 15   | 8,5 | 2,8 | <b>F3303K02.30</b>  |
|              |   |   | HSK-C50          | 53  | 31               | 101            | 25             | 15   | 8,5 | 2,8 | <b>F3303K03.30</b>  |
|              |   |   | HSK-C63          | 53  | 31               | 101            | 32             | 15   | 8,5 | 2,8 | <b>F3303K04.30</b>  |
| <b>KSN 4</b> | M14 - M36<br>(9/16 - 1 3/8)   | EM 04   | HSK-C63          | 78  | 48               | 152            | 32             | 23,5 | 15  | 4,1 | <b>F3304K04.30</b>  |

Weitere Ausführungen auf Anfrage  
Further designs upon request

### Zubehör Accessories



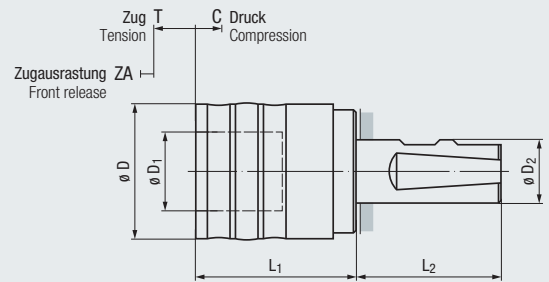
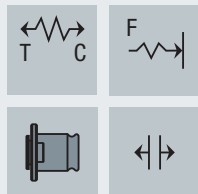
Schnellwechsel-Einsätze Typenreihe EM  
Quick-change adapters EM series

» 717 - 738






# KSN

**Zylinderschaft**  
Cylindrical shank  
**DIN 1835-1**  
Form B+E



Einsatz auf CNC-Bearbeitungszentren,  
sonstigen Werkzeugmaschinen und  
Säulenbohrmaschinen

For use on CNC machining centres,  
other machine tools and pillar  
drilling machines

| Typ<br>Type  |  |  | $\varnothing D_2$ | $\varnothing D$ | $\varnothing D_1$ | $L_1$ | $L_2$ | T    | C    | ZA  |  |
|--------------|---|---|-------------------|-----------------|-------------------|-------|-------|------|------|-----|---|
| <b>KSN 0</b> | M1 - M10<br>(Nr.0 - 3/8)  | EM 00   | 16                | 26              | 13                | 38    | 49    | 7,5  | 5    | 1,7 | <b>F3300G24</b>   |
|              |   |   | 20                | 26              | 13                | 38    | 51    | 7,5  | 5    | 1,7 | <b>F3300G25</b>   |
| <b>KSN 1</b> | M3 - M14<br>(Nr.4 - 9/16)   | EM 01   | 16                | 36              | 19                | 39    | 49    | 8    | 5    | 2,1 | <b>F3301G24</b>   |
|              |   |   | 20                | 36              | 19                | 39    | 51    | 8    | 5    | 2,1 | <b>F3301G25</b>   |
|              |   |   | 25                | 36              | 19                | 39    | 57    | 8    | 5    | 2,1 | <b>F3301G26</b>   |
| <b>KSN 3</b> | M4,5 - M24<br>(Nr.10 - 1")  | EM 03   | 25                | 53              | 31                | 63    | 57    | 15   | 8,5  | 2,8 | <b>F3303G26</b>   |
|              |   |   | 32                | 53              | 31                | 63    | 61    | 15   | 8,5  | 2,8 | <b>F3303G27</b>   |
| <b>KSN 4</b> | M14 - M36<br>(9/16 - 1 3/8)   | EM 04   | 32                | 78              | 48                | 124   | 61    | 23,5 | 15   | 4,1 | <b>F3304G27</b>   |
| <b>KSN 5</b> | M22 - M48<br>(7/8 - 1 3/4)  | EM 05   | 40                | 96              | 60                | 135,5 | 71    | 25   | 16,5 | 5,7 | <b>F3305G28</b>   |

Weitere Ausführungen auf Anfrage  
Further designs upon request

### Zubehör Accessories



Schnellwechsel-Einsätze Typenreihe EM  
Quick-change adapters EM series

» 717 - 738



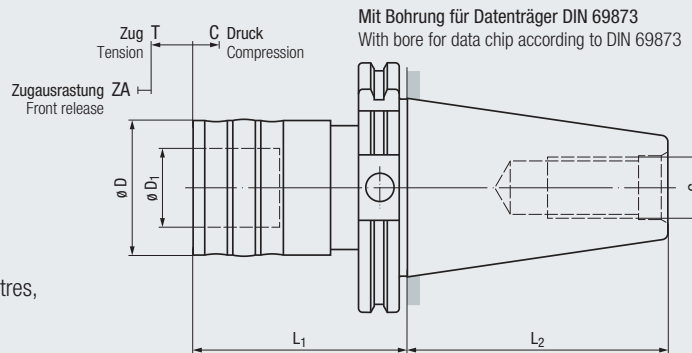
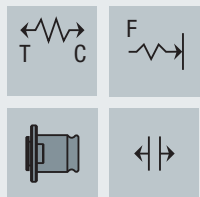
Adaptionsschäfte  
Adapter shanks

» 740






# KSN

## SK DIN ISO 7388-1 Form A



Einsatz auf CNC-Bearbeitungszentren,  
sonstigen Werkzeugmaschinen und  
Säulenbohrmaschinen

For use on CNC machining centres,  
other machine tools and pillar  
drilling machines

| Typ<br>Type  |  |  | SK    | ø D | ø D <sub>1</sub> | L <sub>1</sub> | L <sub>2</sub> | G   | T    | C    | ZA  |  |
|--------------|--|--|-------|-----|------------------|----------------|----------------|-----|------|------|-----|--|
| <b>KSN 1</b> | M3 - M14<br>(Nr.4 - 9/16)  | EM 01  | SK 40 | 36  | 19               | 60             | 68,4           | M16 | 8    | 5    | 2,1 | <b>F3301I51</b>  |
|              |  |  | SK 50 | 36  | 19               | 60             | 101,75         | M24 | 8    | 5    | 2,1 | <b>F3301I53</b>  |
| <b>KSN 3</b> | M4,5 - M24<br>(Nr.10 - 1")   | EM 03  | SK 40 | 53  | 31               | 98             | 68,4           | M16 | 15   | 8,5  | 2,8 | <b>F3303I51</b>  |
|              |  |  | SK 50 | 53  | 31               | 84             | 101,75         | M24 | 15   | 8,5  | 2,8 | <b>F3303I53</b>  |
| <b>KSN 4</b> | M14 - M36<br>(9/16 - 1 3/8)  | EM 04  | SK 40 | 78  | 48               | 150            | 68,4           | M16 | 23,5 | 15   | 4,1 | <b>F3304I51</b>  |
|              |  |  | SK 50 | 78  | 48               | 139            | 101,75         | M24 | 23,5 | 15   | 4,1 | <b>F3304I53</b>  |
| <b>KSN 5</b> | M22 - M48<br>(7/8 - 1 3/4)   | EM 05  | SK 50 | 96  | 60               | 153            | 101,75         | M24 | 25   | 16,5 | 5,7 | <b>F3305I53</b>  |

Weitere Ausführungen auf Anfrage  
Further designs upon request

### Zubehör Accessories



Schnellwechsel-Einsätze Typenreihe EM  
Quick-change adapters EM series

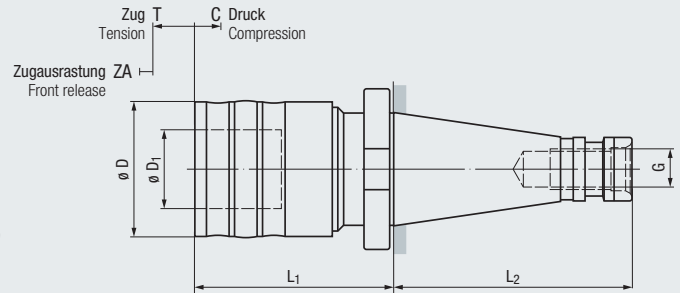
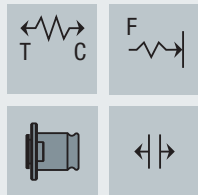
» 717 - 738



# KSN




# SK

DIN 2080-1  
Form A



Einsatz auf CNC-Bearbeitungszentren,  
sonstigen Werkzeugmaschinen und  
Säulenbohrmaschinen

For use on CNC machining centres,  
other machine tools and pillar  
drilling machines

| Typ<br>Type  |  |  | SK                  | ø D | ø D <sub>1</sub> | L <sub>1</sub> | L <sub>2</sub> | G   | T    | C    | ZA  |  |
|--------------|--|--|---------------------|-----|------------------|----------------|----------------|-----|------|------|-----|--|
| <b>KSN 1</b> | M3 - M14<br>(Nr.4 - 9/16)  | EM 01  | SK 30 <sup>1)</sup> | 36  | 19               | 74             | 68,4           | M12 | 8    | 5    | 2,1 | F3301540   |
|              |  |  | SK 40 <sup>1)</sup> | 36  | 19               | 61,6           | 93,4           | M16 | 8    | 5    | 2,1 | F3301541   |
|              |  |  | SK 50 <sup>1)</sup> | 36  | 19               | 56             | 126,8          | M24 | 8    | 5    | 2,1 | F3301543   |
| <b>KSN 3</b> | M4,5 - M24<br>(Nr.10 - 1")   | EM 03  | SK 30               | 53  | 31               | 97             | 68,4           | M12 | 15   | 8,5  | 2,8 | F3303540   |
|              |  |  | SK 40 <sup>1)</sup> | 53  | 31               | 85,6           | 93,4           | M16 | 15   | 8,5  | 2,8 | F3303541   |
|              |  |  | SK 50 <sup>1)</sup> | 53  | 31               | 80             | 126,8          | M24 | 15   | 8,5  | 2,8 | F3303543   |
| <b>KSN 4</b> | M14 - M36<br>(9/16 - 1 3/8)  | EM 04  | SK 40               | 78  | 48               | 143            | 93,4           | M16 | 23,5 | 15   | 4,1 | F3304541   |
|              |  |  | SK 50 <sup>1)</sup> | 78  | 48               | 140            | 126,8          | M24 | 23,5 | 15   | 4,1 | F3304543   |
| <b>KSN 5</b> | M22 - M48<br>(7/8 - 1 3/4)   | EM 05  | SK 40               | 96  | 60               | 157            | 93,4           | M16 | 25   | 16,5 | 5,7 | F3305541   |
|              |  |  | SK 50               | 96  | 60               | 141            | 126,8          | M24 | 25   | 16,5 | 5,7 | F3305543   |

<sup>1)</sup> Adaptierung über DIN 1835 B  
Adaptation by DIN 1835 B

Weitere Ausführungen auf Anfrage  
Further designs upon request

### Zubehör Accessories



Schnellwechsel-Einsätze Typenreihe EM  
Quick-change adapters EM series

» 717 - 738

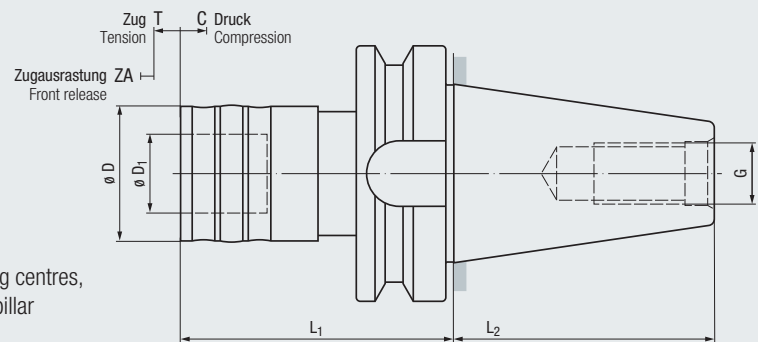
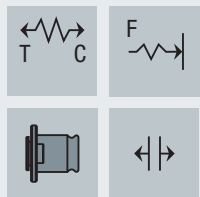
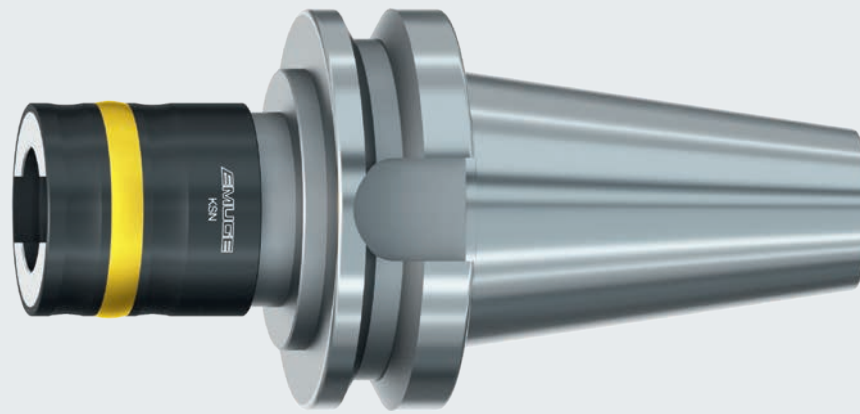
Informationen zur neuen **EG-Maschinenrichtlinie 2006/42/EG**,  
siehe Seite 614

Information regarding the new **EC Machinery Directive 2006/42/EC**,  
see page 614



# KSN

**BT**  
DIN ISO 7388-2  
Form J



Einsatz auf CNC-Bearbeitungszentren,  
sonstigen Werkzeugmaschinen und  
Säulenbohrmaschinen

For use on CNC machining centres,  
other machine tools and pillar  
drilling machines

| Typ<br>Type  |                             |       | BT                  | ø D | ø D <sub>1</sub> | L <sub>1</sub> | L <sub>2</sub> | G   | T    | C    | ZA  |                 |
|--------------|-----------------------------|-------|---------------------|-----|------------------|----------------|----------------|-----|------|------|-----|-----------------|
| <b>KSN 1</b> | M3 - M14<br>(Nr.4 - 9/16)   | EM 01 | BT 40 <sup>1)</sup> | 36  | 19               | 75             | 65,4           | M16 | 8    | 5    | 2,1 | <b>F3301I91</b> |
|              |                             |       | BT 50 <sup>1)</sup> | 36  | 19               | 84             | 101,8          | M24 | 8    | 5    | 2,1 | <b>F3301I93</b> |
| <b>KSN 3</b> | M4,5 - M24<br>(Nr.10 - 1")  | EM 03 | BT 40 <sup>1)</sup> | 53  | 31               | 99             | 65,4           | M16 | 15   | 8,5  | 2,8 | <b>F3303I91</b> |
|              |                             |       | BT 50 <sup>1)</sup> | 53  | 31               | 108            | 101,8          | M24 | 15   | 8,5  | 2,8 | <b>F3303I93</b> |
| <b>KSN 4</b> | M14 - M36<br>(9/16 - 1 3/8) | EM 04 | BT 40               | 78  | 48               | 164            | 65,4           | M16 | 23,5 | 15   | 4,1 | <b>F3304I91</b> |
|              |                             |       | BT 50 <sup>1)</sup> | 78  | 48               | 169            | 101,8          | M24 | 23,5 | 15   | 4,1 | <b>F3304I93</b> |
| <b>KSN 5</b> | M22 - M48<br>(7/8 - 1 3/4)  | EM 05 | BT 50               | 96  | 60               | 165,5          | 101,8          | M24 | 25   | 16,5 | 5,7 | <b>F3305I93</b> |

<sup>1)</sup> Adaptierung über DIN 1835 B  
Adaptation by DIN 1835 B

Weitere Ausführungen auf Anfrage  
Further designs upon request

## Zubehör Accessories



Schnellwechsel-Einsätze Typenreihe EM  
Quick-change adapters EM series

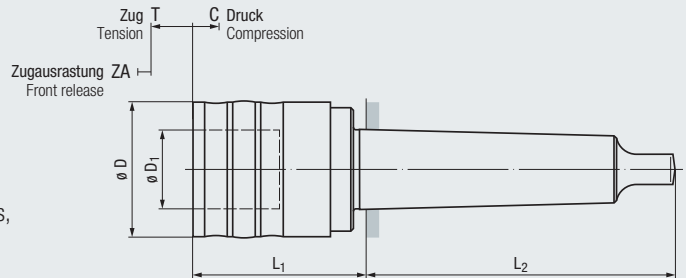
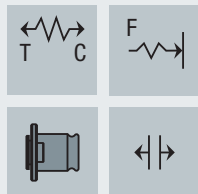
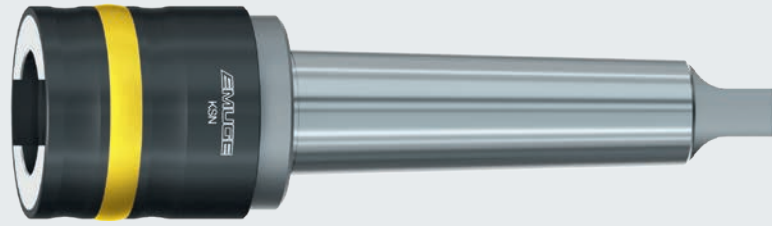
» 717 - 738



# KSN




## MK

DIN 228-1  
Form B



Einsatz auf CNC-Bearbeitungszentren,  
sonstigen Werkzeugmaschinen und  
Säulenbohrmaschinen

For use on CNC machining centres,  
other machine tools and pillar  
drilling machines

| Typ<br>Type  |  |  | MK   | ø D | ø D <sub>1</sub> | L <sub>1</sub> | L <sub>2</sub> | T    | C    | ZA  |  |
|--------------|---|---|------|-----|------------------|----------------|----------------|------|------|-----|---|
| <b>KSN 0</b> | M1 - M10<br>(Nr.0 - 3/8)  | EM 00   | MK 1 | 26  | 13               | 43,5           | 62             | 7,5  | 5    | 1,7 | <b>F3300101</b>   |
|              |   |   | MK 2 | 26  | 13               | 45             | 75             | 7,5  | 5    | 1,7 | <b>F3300102</b>   |
| <b>KSN 1</b> | M3 - M14<br>(Nr.4 - 9/16)   | EM 01   | MK 2 | 36  | 19               | 47             | 75             | 8    | 5    | 2,1 | <b>F3301102</b>   |
|              |   |   | MK 3 | 36  | 19               | 47             | 94             | 8    | 5    | 2,1 | <b>F3301103</b>   |
| <b>KSN 3</b> | M4,5 - M24<br>(Nr.10 - 1")  | EM 03   | MK 3 | 53  | 31               | 71             | 94             | 15   | 8,5  | 2,8 | <b>F3303103</b>   |
|              |   |   | MK 4 | 53  | 31               | 72             | 117,5          | 15   | 8,5  | 2,8 | <b>F3303104</b>   |
|              |   |   | MK 5 | 53  | 31               | 72,5           | 149,5          | 15   | 8,5  | 2,8 | <b>F3303105</b>   |
| <b>KSN 4</b> | M14 - M36<br>(9/16 - 1 3/8)   | EM 04   | MK 4 | 78  | 48               | 105            | 117,5          | 23,5 | 15   | 4,1 | <b>F3304104</b>   |
|              |   |   | MK 5 | 78  | 48               | 105,5          | 149,5          | 23,5 | 15   | 4,1 | <b>F3304105</b>   |
| <b>KSN 5</b> | M22 - M48<br>(7/8 - 1 3/4)  | EM 05   | MK 5 | 96  | 60               | 116,5          | 149,5          | 25   | 16,5 | 5,7 | <b>F3305105</b>   |
|              |   |   | MK 6 | 96  | 60               | 118,5          | 210            | 25   | 16,5 | 5,7 | <b>F3305106</b>   |

Morsekegelschaft mit Anzugsgewinde nach DIN 228-1 Form A auf Anfrage  
Morse taper shank with clamping thread acc. DIN 228-1 form A upon request

Weitere Ausführungen auf Anfrage  
Further designs upon request

### Zubehör Accessories



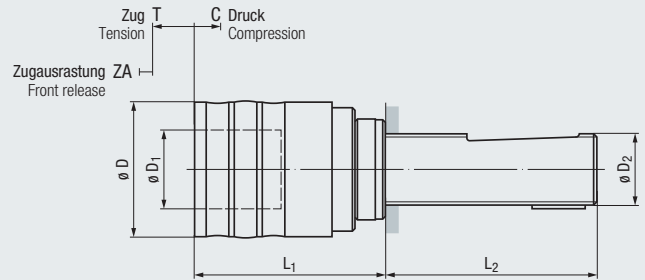
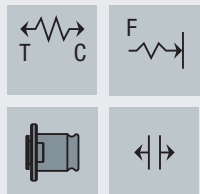
Schnellwechsel-Einsätze Typenreihe EM  
Quick-change adapters EM series

» 717 - 738



# KSN

Tr  
DIN 6327-3



Einsatz auf CNC-Bearbeitungszentren, sonstigen Werkzeugmaschinen und Säulenbohrmaschinen  
For use on CNC machining centres, other machine tools and pillar drilling machines

| Typ<br>Type  |                             |       | ø D <sub>2</sub> | ø D | ø D <sub>1</sub> | L <sub>1</sub> | L <sub>2</sub> | T    | C    | ZA  |                 |
|--------------|-----------------------------|-------|------------------|-----|------------------|----------------|----------------|------|------|-----|-----------------|
| <b>KSN 0</b> | M1 - M10<br>(Nr.0 - 3/8)    | EM 00 | Tr 16 x 1,5      | 26  | 13               | 50             | 73             | 7,5  | 5    | 1,7 | <b>F3300213</b> |
|              |                             |       | Tr 20 x 2        | 26  | 13               | 50             | 76             | 7,5  | 5    | 1,7 | <b>F3300214</b> |
| <b>KSN 1</b> | M3 - M14<br>(Nr.4 - 9/16)   | EM 01 | Tr 16 x 1,5      | 36  | 19               | 52             | 73             | 8    | 5    | 2,1 | <b>F3301213</b> |
|              |                             |       | Tr 20 x 2        | 36  | 19               | 52             | 76             | 8    | 5    | 2,1 | <b>F3301214</b> |
|              |                             |       | Tr 28 x 2        | 36  | 19               | 52             | 83             | 8    | 5    | 2,1 | <b>F3301216</b> |
|              |                             |       | Tr 36 x 2        | 36  | 19               | 54             | 104            | 8    | 5    | 2,1 | <b>F3301218</b> |
| <b>KSN 3</b> | M4,5 - M24<br>(Nr.10 - 1")  | EM 03 | Tr 20 x 2        | 53  | 31               | 76             | 76             | 15   | 8,5  | 2,8 | <b>F3303214</b> |
|              |                             |       | Tr 28 x 2        | 53  | 31               | 76             | 83             | 15   | 8,5  | 2,8 | <b>F3303216</b> |
|              |                             |       | Tr 36 x 2        | 53  | 31               | 78             | 104            | 15   | 8,5  | 2,8 | <b>F3303218</b> |
| <b>KSN 4</b> | M14 - M36<br>(9/16 - 1 3/8) | EM 04 | Tr 28 x 2        | 78  | 48               | 109            | 83             | 23,5 | 15   | 4,1 | <b>F3304216</b> |
|              |                             |       | Tr 36 x 2        | 78  | 48               | 111            | 104            | 23,5 | 15   | 4,1 | <b>F3304218</b> |
|              |                             |       | Tr 48 x 2        | 78  | 48               | 115            | 126            | 23,5 | 15   | 4,1 | <b>F3304219</b> |
| <b>KSN 5</b> | M22 - M48<br>(7/8 - 1 3/4)  | EM 05 | Tr 36 x 2        | 96  | 60               | 122            | 104            | 25   | 16,5 | 5,7 | <b>F3305218</b> |
|              |                             |       | Tr 48 x 2        | 96  | 60               | 126            | 126            | 25   | 16,5 | 5,7 | <b>F3305219</b> |

Weitere Ausführungen auf Anfrage  
Further designs upon request

## Zubehör Accessories



Schnellwechsel-Einsätze Typenreihe EM  
Quick-change adapters EM series

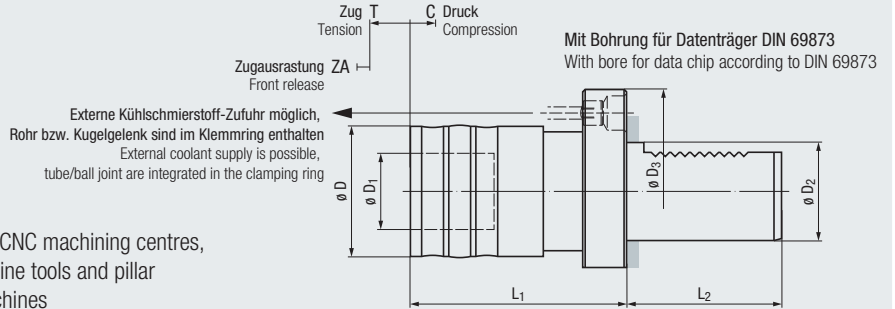
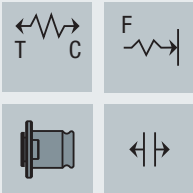
» 717 - 738



# KSN




## VDI

### DIN ISO 10889-1



Einsatz auf CNC-Bearbeitungszentren,  
sonstigen Werkzeugmaschinen und  
Säulenbohrmaschinen

For use on CNC machining centres,  
other machine tools and pillar  
drilling machines

| Typ<br>Type  |  |  | $\varnothing D_2$ | $\varnothing D_3$ | $\varnothing D$ | $\varnothing D_1$ | $L_1$ | $L_2$ | T    | C    | ZA  |  |
|--------------|---|---|-------------------|-------------------|-----------------|-------------------|-------|-------|------|------|-----|---|
| <b>KSN 1</b> | M3 - M14<br>(Nr.4 - 9/16)   | EM 01   | 20                | 50                | 36              | 19                | 57    | 40    | 8    | 5    | 2,1 | <b>F3301430</b>   |
|              |   |   | 30                | 68                | 36              | 19                | 57    | 55    | 8    | 5    | 2,1 | <b>F3301431</b>   |
|              |   |   | 40                | 83                | 36              | 19                | 57    | 63    | 8    | 5    | 2,1 | <b>F3301432</b>   |
|              |   |   | 50                | 98                | 36              | 19                | 57    | 78    | 8    | 5    | 2,1 | <b>F3301433</b>   |
| <b>KSN 3</b> | M4,5 - M24<br>(Nr.10 - 1")  | EM 03   | 30                | 68                | 53              | 31                | 88    | 55    | 15   | 8,5  | 2,8 | <b>F3303431</b>   |
|              |   |   | 40                | 83                | 53              | 31                | 88    | 63    | 15   | 8,5  | 2,8 | <b>F3303432</b>   |
|              |   |   | 50                | 98                | 53              | 31                | 88    | 78    | 15   | 8,5  | 2,8 | <b>F3303433</b>   |
| <b>KSN 4</b> | M14 - M36<br>(9/16 - 1 3/8)   | EM 04   | 40                | 83                | 78              | 48                | 123   | 63    | 23,5 | 15   | 4,1 | <b>F3304432</b>   |
|              |   |   | 50                | 98                | 78              | 48                | 123   | 78    | 23,5 | 15   | 4,1 | <b>F3304433</b>   |
|              |   |   | 60                | 123               | 78              | 48                | 123   | 94    | 23,5 | 15   | 4,1 | <b>F3304434</b>   |
| <b>KSN 5</b> | M22 - M48<br>(7/8 - 1 3/4)  | EM 05   | 50                | 98                | 96              | 60                | 140   | 78    | 25   | 16,5 | 5,7 | <b>F3305433</b>   |
|              |   |   | 60                | 123               | 96              | 60                | 140   | 94    | 25   | 16,5 | 5,7 | <b>F3305434</b>   |

Weitere Ausführungen auf Anfrage  
Further designs upon request

### Zubehör Accessories



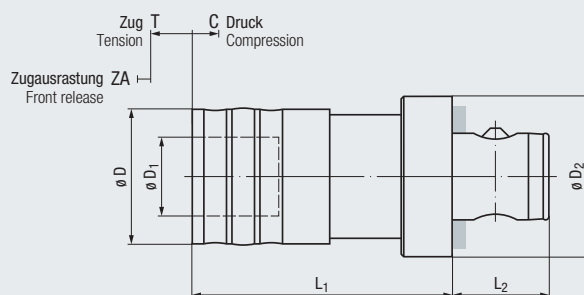
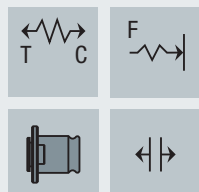
Schnellwechsel-Einsätze Typenreihe EM  
Quick-change adapters EM series

» 717 - 738






# KSN

## ABS® (System KOMET)



Einsatz auf CNC-Bearbeitungszentren,  
sonstigen Werkzeugmaschinen und  
Säulenbohrmaschinen

For use on CNC machining centres,  
other machine tools and pillar  
drilling machines

| Typ<br>Type  |  |  | ø D <sub>2</sub> | ø D | ø D <sub>1</sub> | L <sub>1</sub> | L <sub>2</sub> | T    | C   | ZA  |  |
|--------------|---|---|------------------|-----|------------------|----------------|----------------|------|-----|-----|---|
| <b>KSN 1</b> | M3 - M14<br>(Nr.4 - 9/16)   | EM 01   | ABS 32           | 36  | 19               | 72             | 23             | 8    | 5   | 2,1 | <b>F3301L01</b>   |
|              |   |   | ABS 40           | 36  | 19               | 72             | 26             | 8    | 5   | 2,1 | <b>F3301L02</b>   |
|              |   |   | ABS 50           | 36  | 19               | 72             | 31             | 8    | 5   | 2,1 | <b>F3301L03</b>   |
|              |   |   | ABS 63           | 36  | 19               | 72             | 38             | 8    | 5   | 2,1 | <b>F3301L04</b>   |
| <b>KSN 3</b> | M4,5 - M24<br>(Nr.10 - 1")  | EM 03   | ABS 50           | 53  | 31               | 102            | 31             | 15   | 8,5 | 2,8 | <b>F3303L03</b>   |
|              |   |   | ABS 63           | 53  | 31               | 102            | 38             | 15   | 8,5 | 2,8 | <b>F3303L04</b>   |
| <b>KSN 4</b> | M14 - M36<br>(9/16 - 1 3/8)   | EM 04   | ABS 63           | 78  | 48               | 155            | 38             | 23,5 | 15  | 4,1 | <b>F3304L04</b>   |

Weitere Ausführungen auf Anfrage  
Further designs upon request

### Zubehör Accessories



Schnellwechsel-Einsätze Typenreihe EM  
Quick-change adapters EM series [» 717 - 738](#)

- Product Finder
- Soft-synchro
- Speed-synchro
- KSN**
- MQL MMS
- SFM
- SWITCH-MASTER
- HF
- EM
- Zubehör Accessories



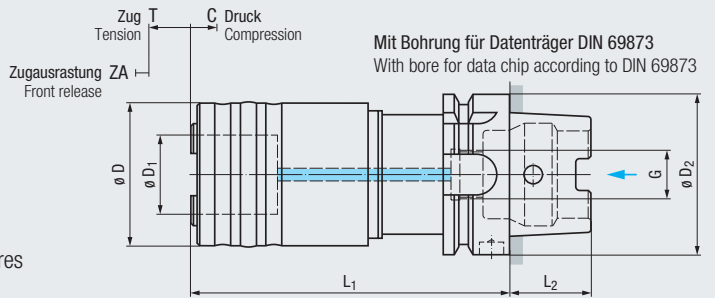
# KSN/HD

## HSK-A

DIN 69893-1



|  |                                  |
|--|----------------------------------|
|  | $p_{max}$<br>50 bar<br>(700 psi) |
|  | $F$                              |
|  | $\leftarrow \rightarrow$         |



Einsatz auf CNC-Bearbeitungszentren und sonstigen Werkzeugmaschinen  
For use on CNC machining centres and other machine tools

| Typ<br>Type     |                             |       | $\varnothing D_2$ | $\varnothing D$ | $\varnothing D_1$ | $L_1$ | $L_2$ | G         | T   | C  | ZA  |                      |
|-----------------|-----------------------------|-------|-------------------|-----------------|-------------------|-------|-------|-----------|-----|----|-----|----------------------|
| <b>KSN 1/HD</b> | M3 - M14<br>(Nr.4 - 9/16)   | EM 01 | HSK-A50           | 40              | 19                | 91    | 25    | M16 x 1   | 7,5 | 5  | 2,5 | <b>F3101C03.1.30</b> |
|                 |                             |       | HSK-A63           | 40              | 19                | 93    | 32    | M18 x 1   | 7,5 | 5  | 2,5 | <b>F3101C04.1.30</b> |
|                 |                             |       | HSK-A80           | 40              | 19                | 97    | 40    | M20 x 1,5 | 7,5 | 5  | 2,5 | <b>F3101C05.1.30</b> |
|                 |                             |       | HSK-A100          | 40              | 19                | 98    | 50    | M24 x 1,5 | 7,5 | 5  | 2,5 | <b>F3101C06.1.30</b> |
| <b>KSN 3/HD</b> | M4,5 - M24<br>(Nr.10 - 1")  | EM 03 | HSK-A50           | 56              | 31                | 140   | 25    | M16 x 1   | 10  | 7  | 3   | F3103C03.1.30        |
|                 |                             |       | HSK-A63           | 56              | 31                | 130   | 32    | M18 x 1   | 10  | 7  | 3   | <b>F3103C04.1.30</b> |
|                 |                             |       | HSK-A80           | 56              | 31                | 133   | 40    | M20 x 1,5 | 10  | 7  | 3   | F3103C05.1.30        |
|                 |                             |       | HSK-A100          | 56              | 31                | 135   | 50    | M24 x 1,5 | 10  | 7  | 3   | <b>F3103C06.1.30</b> |
| <b>KSN 4/HD</b> | M14 - M36<br>(9/16 - 1 3/8) | EM 04 | HSK-A63           | 80              | 48                | 196   | 32    | M18 x 1   | 20  | 15 | 5   | F3104C04.1.30        |
|                 |                             |       | HSK-A100          | 80              | 48                | 198   | 50    | M24 x 1,5 | 20  | 15 | 5   | <b>F3104C06.1.30</b> |
| <b>KSN 5/HD</b> | M22 - M48<br>(7/8 - 1 3/4)  | EM 05 | HSK-A100          | 95              | 60                | 270   | 50    | M24 x 1,5 | 23  | 18 | 10  | <b>F3105C06.1.30</b> |



Weitere Ausführungen auf Anfrage  
Further designs upon request

### Zubehör Accessories



Schnellwechsel-Einsätze Typenreihe EM  
Quick-change adapters EM series  $\rightarrow$  717 - 738



Kühlschmierstoffrohre und Schlüssel  
Coolant tubes and wrenches  $\rightarrow$  742 - 743



# KSN/HD

## HSK-C DIN 69893-1

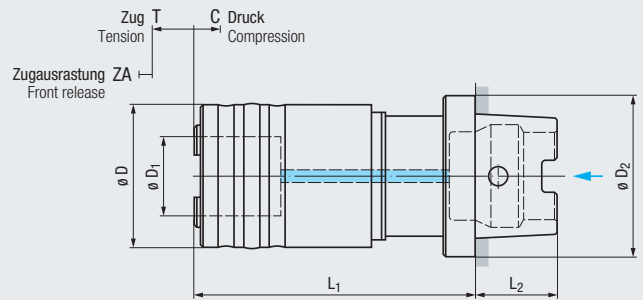


**IKZ**

$p_{max}$   
50 bar  
(700 psi)

T C

F



Einsatz auf CNC-Bearbeitungszentren  
und sonstigen Werkzeugmaschinen

For use on CNC machining centres  
and other machine tools

| Typ<br>Type     |                            |       | $\varnothing D_2$ | $\varnothing D$ | $\varnothing D_1$ | $L_1$ | $L_2$ | T   | C | ZA  |                      |
|-----------------|----------------------------|-------|-------------------|-----------------|-------------------|-------|-------|-----|---|-----|----------------------|
| <b>KSN 1/HD</b> | M3 - M14<br>(Nr.4 - 9/16)  | EM 01 | HSK-C40           | 40              | 19                | 75    | 20    | 7,5 | 5 | 2,5 | <b>F3101K02.1.30</b> |
|                 |                            |       | HSK-C50           | 40              | 19                | 78    | 25    | 7,5 | 5 | 2,5 | <b>F3101K03.1.30</b> |
|                 |                            |       | HSK-C63           | 40              | 19                | 78    | 32    | 7,5 | 5 | 2,5 | <b>F3101K04.1.30</b> |
|                 |                            |       | HSK-C80           | 40              | 19                | 81    | 40    | 7,5 | 5 | 2,5 | F3101K05.1.30        |
|                 |                            |       | HSK-C100          | 40              | 19                | 81    | 50    | 7,5 | 5 | 2,5 | F3101K06.1.30        |
| <b>KSN 3/HD</b> | M4,5 - M24<br>(Nr.10 - 1") | EM 03 | HSK-C50           | 56              | 31                | 118   | 25    | 10  | 7 | 3   | <b>F3103K03.1.30</b> |
|                 |                            |       | HSK-C63           | 56              | 31                | 110   | 32    | 10  | 7 | 3   | <b>F3103K04.1.30</b> |
|                 |                            |       | HSK-C80           | 56              | 31                | 113   | 40    | 10  | 7 | 3   | F3103K05.1.30        |
|                 |                            |       | HSK-C100          | 56              | 31                | 115   | 50    | 10  | 7 | 3   | F3103K06.1.30        |

Weitere Ausführungen auf Anfrage  
Further designs upon request

### Zubehör Accessories



Schnellwechsel-Einsätze Typenreihe EM  
Quick-change adapters EM series

» 717 - 738



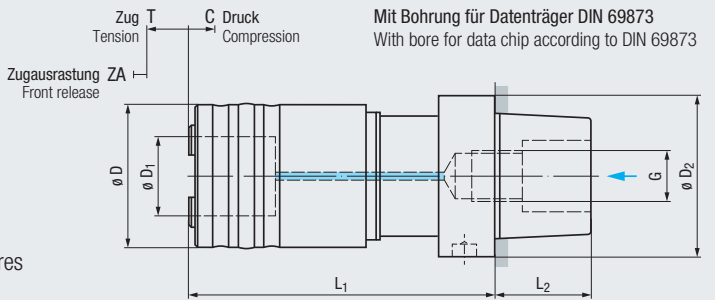
# KSN/HD

## PSC

ISO 26623-1



|  |                                  |
|--|----------------------------------|
|  | $p_{max}$<br>50 bar<br>(700 psi) |
|  | $F$                              |
|  | $\leftarrow   \rightarrow$       |



Einsatz auf CNC-Bearbeitungszentren und sonstigen Werkzeugmaschinen  
For use on CNC machining centres and other machine tools

| Typ<br>Type     |                             |       | $\emptyset D_2$ | $\emptyset D$ | $\emptyset D_1$ | $L_1$ | $L_2$ | G       | T   | C  | ZA  |                     |
|-----------------|-----------------------------|-------|-----------------|---------------|-----------------|-------|-------|---------|-----|----|-----|---------------------|
| <b>KSN 1/HD</b> | M3 - M14<br>(Nr.4 - 9/16)   | EM 01 | PSC 63          | 40            | 19              | 86,5  | 38    | M20 x 2 | 7,5 | 5  | 2,5 | <b>F3101T06.1</b>   |
| <b>KSN 3/HD</b> | M4,5 - M24<br>(Nr.10 - 1")  | EM 03 | PSC 63          | 56            | 31              | 120   | 38    | M20 x 2 | 10  | 7  | 3   | <b>F3103T06.1</b>   |
| <b>KSN 4/HD</b> | M14 - M36<br>(9/16 - 1 3/8) | EM 04 | PSC 63          | 80            | 48              | 181   | 38    | M20 x 2 | 20  | 15 | 5   | <b>F3104T06.1</b>   |
|                 |                             |       | PSC 80          | 80            | 48              | 177   | 48    | M20 x 2 | 20  | 15 | 5   | <b>F3104T08.1</b>   |
| <b>KSN 5/HD</b> | M22 - M48<br>(7/8 - 1 3/4)  | EM 05 | PSC 80          | 95            | 60              | 267   | 48    | M20 x 2 | 23  | 18 | 10  | <b>F3105T08.1.3</b> |

Weitere Ausführungen auf Anfrage  
Further designs upon request

### Zubehör Accessories



Schnellwechsel-Einsätze Typenreihe EM  
Quick-change adapters EM series  $\rightarrow$  717 - 738





# KSN/HD

**Zylinderschaft**  
Cylindrical shank  
DIN 1835-1  
Form B+E



**IKZ**  
p<sub>max</sub>  
50 bar  
(700 psi)

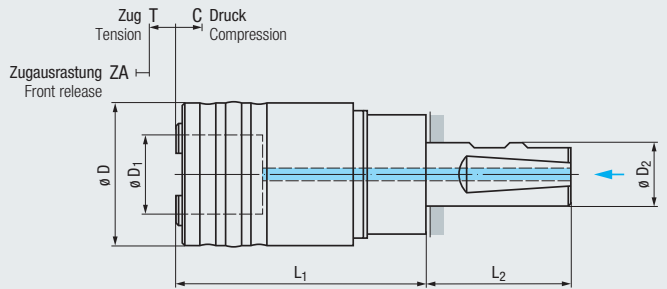
**T C**

**F**

**↔**

Einsatz auf CNC-Bearbeitungszentren  
und sonstigen Werkzeugmaschinen

For use on CNC machining centres  
and other machine tools



| Typ<br>Type     |                             |       | ø D <sub>2</sub> | ø D | ø D <sub>1</sub> | L <sub>1</sub> | L <sub>2</sub> | T   | C  | ZA  |                   |
|-----------------|-----------------------------|-------|------------------|-----|------------------|----------------|----------------|-----|----|-----|-------------------|
| <b>KSN 1/HD</b> | M3 - M14<br>(Nr.4 - 9/16)   | EM 01 | 25               | 40  | 19               | 62             | 57             | 7,5 | 5  | 2,5 | <b>F3101G26.1</b> |
| <b>KSN 3/HD</b> | M4,5 - M24<br>(Nr.10 - 1")  | EM 03 | 25               | 56  | 31               | 98             | 57             | 10  | 7  | 3   | <b>F3103G26.1</b> |
| <b>KSN 4/HD</b> | M14 - M36<br>(9/16 - 1 3/8) | EM 04 | 32               | 80  | 48               | 147            | 61             | 20  | 15 | 5   | <b>F3104G27.1</b> |
| <b>KSN 5/HD</b> | M22 - M48<br>(7/8 - 1 3/4)  | EM 05 | 40               | 95  | 60               | 236            | 71             | 23  | 18 | 10  | F3105G28.1.3      |

Weitere Ausführungen auf Anfrage  
Further designs upon request

## Zubehör Accessories



Schnellwechsel-Einsätze Typenreihe EM  
Quick-change adapters EM series   ▶▶ 717 - 738



Adaptionsschäfte  
Adapter shanks   ▶▶ 740

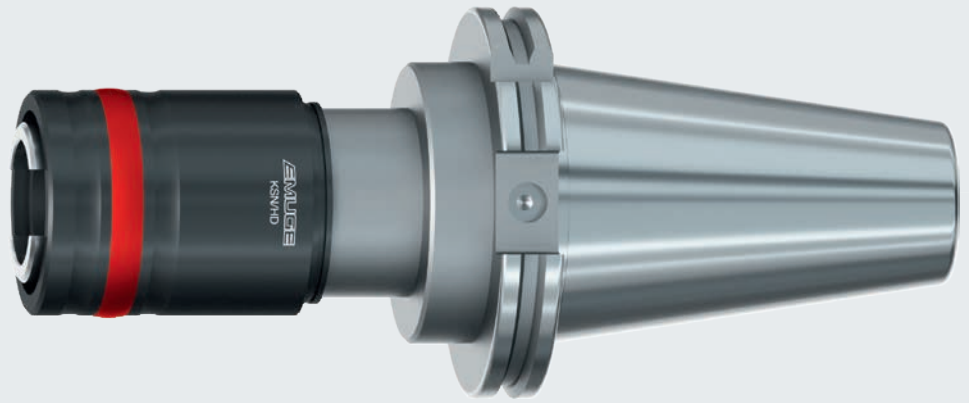
- Product Finder
- Soft-synchro
- Speed-synchro
- KSN**
- MQL MMS
- SFM
- SWITCH-MASTER
- HF
- EM
- Zubehör  
Accessories



# KSN/HD

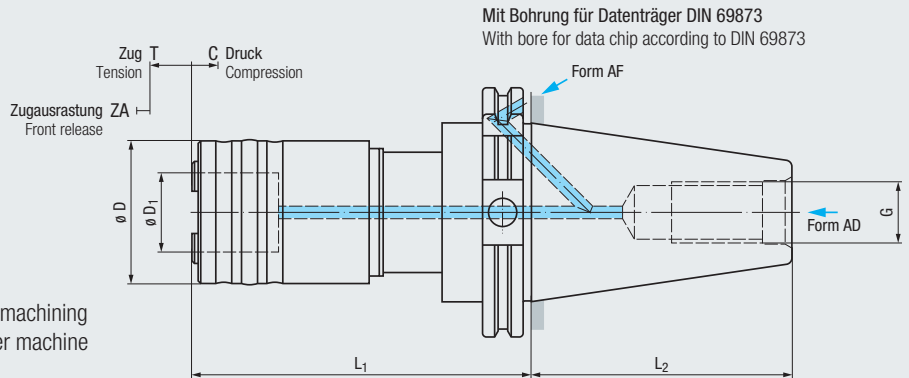
## SK

DIN ISO 7388-1  
Form AD/AF



**IKZ**  $p_{max}$  50 bar (700 psi)

$T \rightarrow C$   $F \rightarrow$



Einsatz auf CNC-Bearbeitungs-  
zentren und sonstigen  
Werkzeugmaschinen

For use on CNC machining  
centres and other machine  
tools

| Typ<br>Type     |                             |       | SK                     | $\varnothing D$ | $\varnothing D_1$ | L <sub>1</sub> | L <sub>2</sub> | G   | T   | C  | ZA  |                   |
|-----------------|-----------------------------|-------|------------------------|-----------------|-------------------|----------------|----------------|-----|-----|----|-----|-------------------|
| <b>KSN 1/HD</b> | M3 - M14<br>(Nr.4 - 9/16)   | EM 01 | SK 40 AD <sup>1)</sup> | 40              | 19                | 98             | 68,4           | M16 | 7,5 | 5  | 2,5 | <b>F3101I51.1</b> |
|                 |                             |       | SK 40 AF <sup>1)</sup> | 40              | 19                | 98             | 68,4           | M16 | 7,5 | 5  | 2,5 | F3101I51.2        |
|                 |                             |       | SK 50 AD <sup>1)</sup> | 40              | 19                | 98             | 101,75         | M24 | 7,5 | 5  | 2,5 | <b>F3101I53.1</b> |
|                 |                             |       | SK 50 AF <sup>1)</sup> | 40              | 19                | 98             | 101,75         | M24 | 7,5 | 5  | 2,5 | F3101I53.2        |
| <b>KSN 3/HD</b> | M4,5 - M24<br>(Nr.10 - 1")  | EM 03 | SK 40 AD <sup>1)</sup> | 56              | 31                | 134            | 68,4           | M16 | 10  | 7  | 3   | <b>F3103I51.1</b> |
|                 |                             |       | SK 40 AF <sup>1)</sup> | 56              | 31                | 134            | 68,4           | M16 | 10  | 7  | 3   | F3103I51.2        |
|                 |                             |       | SK 50 AD <sup>1)</sup> | 56              | 31                | 134            | 101,75         | M24 | 10  | 7  | 3   | <b>F3103I53.1</b> |
|                 |                             |       | SK 50 AF <sup>1)</sup> | 56              | 31                | 134            | 101,75         | M24 | 10  | 7  | 3   | F3103I53.2        |
| <b>KSN 4/HD</b> | M14 - M36<br>(9/16 - 1 3/8) | EM 04 | SK 50 AD <sup>1)</sup> | 80              | 48                | 183            | 101,75         | M24 | 20  | 15 | 5   | <b>F3104I53.1</b> |
| <b>KSN 5/HD</b> | M22 - M48<br>(7/8 - 1 3/4)  | EM 05 | SK 50 AD               | 95              | 60                | 220            | 101,75         | M24 | 23  | 18 | 10  | F3105I53.1        |

<sup>1)</sup> Adaptierung über DIN 1835 B  
Adaptation by DIN 1835 B

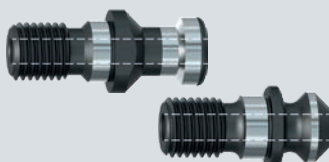
Weitere Ausführungen auf Anfrage  
Further designs upon request

### Zubehör Accessories



Schnellwechsel-Einsätze Typenreihe EM  
Quick-change adapters EM series

» 717 - 738



Anzugsbolzen für Steilkegelschäfte  
siehe Seite 70

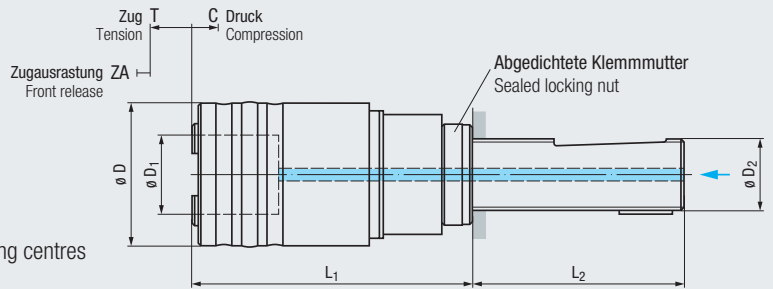
Pull studs for ISO taper shanks,  
see page 70

# KSN/HD

Tr  
DIN 6327-3



$p_{max}$   
50 bar  
(700 psi)



Einsatz auf CNC-Bearbeitungszentren und sonstigen Werkzeugmaschinen

For use on CNC machining centres and other machine tools

| Typ<br>Type |                            |       | $\varnothing D_2$ | $\varnothing D$ | $\varnothing D_1$ | $L_1$ | $L_2$ | T   | C | ZA  |                   |
|-------------|----------------------------|-------|-------------------|-----------------|-------------------|-------|-------|-----|---|-----|-------------------|
| KSN 1/HD    | M3 - M14<br>(Nr.4 - 9/16)  | EM 01 | Tr 20 x 2         | 40              | 19                | 79    | 71    | 7,5 | 5 | 2,5 | <b>F3101214.1</b> |
|             |                            |       | Tr 28 x 2         | 40              | 19                | 80    | 77    | 7,5 | 5 | 2,5 | <b>F3101216.1</b> |
| KSN 3/HD    | M4,5 - M24<br>(Nr.10 - 1") | EM 03 | Tr 28 x 2         | 56              | 31                | 116   | 77    | 10  | 7 | 3   | <b>F3103216.1</b> |
|             |                            |       | Tr 36 x 2         | 56              | 31                | 118   | 98    | 10  | 7 | 3   | <b>F3103218.1</b> |

Weitere Ausführungen auf Anfrage  
Further designs upon request

## Zubehör Accessories



Schnellwechsel-Einsätze Typenreihe EM  
Quick-change adapters EM series

» 717 - 738

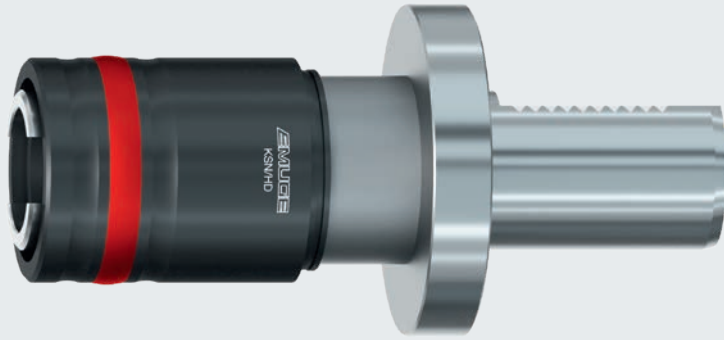


- Product Finder
- Soft-synchro
- Speed-synchro
- KSN**
- MQL MMS
- SFM
- SWITCH-MASTER
- HF
- EM
- Zubehör  
Accessories

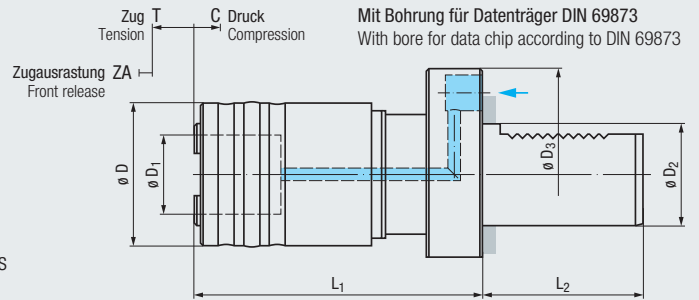
# KSN/HD

### VDI

### DIN ISO 10889-1






$p_{max}$   
50 bar  
(700 psi)



Einsatz auf CNC-Bearbeitungszentren  
und sonstigen Werkzeugmaschinen

For use on CNC machining centres  
and other machine tools

| Typ<br>Type     |  |  | $\varnothing D_2$ | $\varnothing D_3$ | $\varnothing D$ | $\varnothing D_1$ | $L_1$ | $L_2$ | T   | C | ZA  |  |
|-----------------|---|---|-------------------|-------------------|-----------------|-------------------|-------|-------|-----|---|-----|---|
| <b>KSN 1/HD</b> | M3 - M14<br>(Nr.4 - 9/16)   | EM 01   | 30                | 68                | 40              | 19                | 77    | 55    | 7,5 | 5 | 2,5 | <b>F3101431.1</b>   |
|                 |   |   | 40                | 83                | 40              | 19                | 77    | 63    | 7,5 | 5 | 2,5 | <b>F3101432.1</b>   |
|                 |   |   | 50                | 98                | 40              | 19                | 77    | 78    | 7,5 | 5 | 2,5 | <b>F3101433.1</b>   |
| <b>KSN 3/HD</b> | M4,5 - M24<br>(Nr.10 - 1")  | EM 03   | 30                | 68                | 56              | 31                | 113   | 55    | 10  | 7 | 3   | <b>F3103431.1</b>   |
|                 |   |   | 40                | 83                | 56              | 31                | 113   | 63    | 10  | 7 | 3   | <b>F3103432.1</b>   |
|                 |   |   | 50                | 98                | 56              | 31                | 113   | 78    | 10  | 7 | 3   | <b>F3103433.1</b>   |

Weitere Ausführungen auf Anfrage  
Further designs upon request

### Zubehör Accessories



Schnellwechsel-Einsätze Typenreihe EM  
Quick-change adapters EM series

► 717 - 738



# KSN/HD

**ABS®**  
(System KOMET)

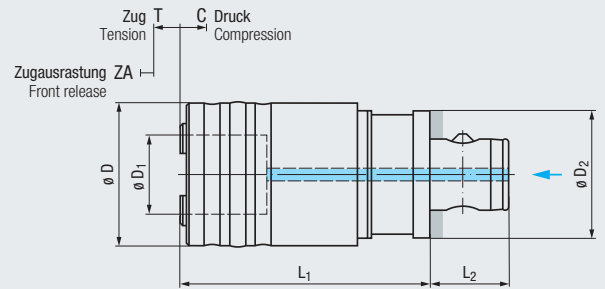





$p_{max}$   
50 bar  
(700 psi)



Einsatz auf CNC-Bearbeitungszentren  
und sonstigen Werkzeugmaschinen

For use on CNC machining centres  
and other machine tools



| Typ<br>Type     |  |  | $\varnothing D_2$ | $\varnothing D$ | $\varnothing D_1$ | $L_1$ | $L_2$ | T   | C | ZA  |  |
|-----------------|---|---|-------------------|-----------------|-------------------|-------|-------|-----|---|-----|---|
| <b>KSN 1/HD</b> | M3 - M14<br>(Nr.4 - 9/16)   | EM 01   | ABS 32            | 40              | 19                | 69    | 23    | 7,5 | 5 | 2,5 | <b>F3101L01.1</b>   |
| <b>KSN 3/HD</b> | M4,5 - M24<br>(Nr.10 - 1")  | EM 03   | ABS 50            | 56              | 31                | 98    | 31    | 10  | 7 | 3   | <b>F3103L03.1</b>   |

Weitere Ausführungen auf Anfrage  
Further designs upon request

## Zubehör Accessories



Schnellwechsel-Einsätze Typenreihe EM  
Quick-change adapters EM series

» 717 - 738

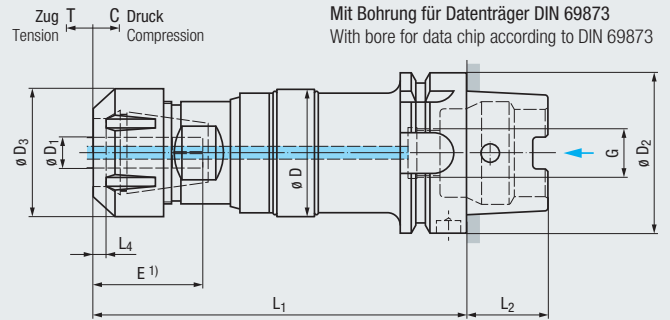
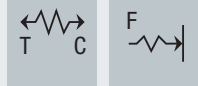
- Product Finder
- Soft-synchro
- Speed-synchro
- KSN**
- MQL MMS
- SFM
- SWITCH-MASTER
- HF
- EM
- Zubehör Accessories



# KSN/HD/ER

## HSK-A

DIN 69893-1



Einsatz auf CNC-Bearbeitungszentren und sonstigen Werkzeugmaschinen For use on CNC machining centres and other machine tools

| Typ<br>Type        |                           | $\varnothing D_1$ |            |                 | $\varnothing D_2$ | $\varnothing D$ | $\varnothing D_3$ | $L_1$ | $L_2$ | $L_4$ | G         | T   | C |                   |
|--------------------|---------------------------|-------------------|------------|-----------------|-------------------|-----------------|-------------------|-------|-------|-------|-----------|-----|---|-------------------|
| <b>KSN 1/HD/ER</b> | M4 - M12<br>(Nr.8 - 7/16) | 4,5 - 10          | ER 20 (GB) | Hi-Q/ERMC<br>20 | HSK-A50           | 38              | 28                | 114   | 25    | 5     | M16 x 1   | 7,5 | 5 | <b>F3231C03.1</b> |
|                    |                           |                   |            |                 | HSK-A63           | 38              | 28                | 116   | 32    | 5     | M18 x 1   | 7,5 | 5 | <b>F3231C04.1</b> |
|                    |                           |                   |            |                 | HSK-A80           | 38              | 28                | 120   | 40    | 5     | M20 x 1,5 | 7,5 | 5 | F3231C05.1        |
|                    |                           |                   |            |                 | HSK-A100          | 38              | 28                | 121   | 50    | 5     | M24 x 1,5 | 7,5 | 5 | <b>F3231C06.1</b> |
| <b>KSN 3/HD/ER</b> | M4 - M20<br>(Nr.8 - 3/4)  | 4,5 - 16          | ER 32 (GB) | Hi-Q/ERC<br>32  | HSK-A50           | 52              | 50                | 157   | 25    | 5     | M16 x 1   | 10  | 7 | F3233C03.1        |
|                    |                           |                   |            |                 | HSK-A63           | 52              | 50                | 147   | 32    | 5     | M18 x 1   | 10  | 7 | <b>F3233C04.1</b> |
|                    |                           |                   |            |                 | HSK-A80           | 52              | 50                | 150   | 40    | 5     | M20 x 1,5 | 10  | 7 | F3233C05.1        |
|                    |                           |                   |            |                 | HSK-A100          | 52              | 50                | 152   | 50    | 5     | M24 x 1,5 | 10  | 7 | <b>F3233C06.1</b> |

1) Einstecktiefen E siehe Seite 754  
Clamping depths E, see page 754

Weitere Ausführungen auf Anfrage  
Further designs upon request

Spannmutter für Dichtscheiben ist im Lieferumfang enthalten  
Clamping nut for sealing disks is included in the delivery

### Zubehör Accessories

Spannzangen Typ ER (GB)  
Collets type ER (GB) » 746 - 747

Dichtscheiben Typ DS/ER und Kühlschleiben Typ KS/ER  
Sealing disks type DS/ER and coolant flush disks type KS/ER » 750

Kühlschmierstoffrohre und Schlüssel  
Coolant tubes and wrenches » 742 - 743

Spannschlüsselsatz  
Set of clamping wrenches » 758

## KSN/HD/ER

## HSK-C

DIN 69893-1

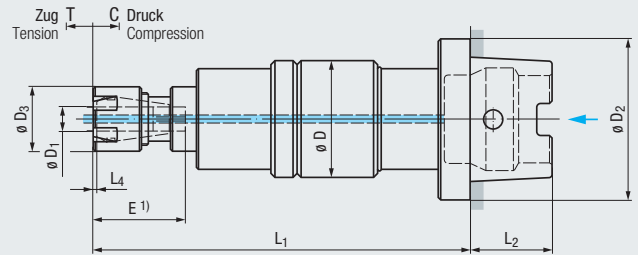






$p_{max}$   
50 bar  
(700 psi)



Einsatz auf CNC-Bearbeitungszentren  
und sonstigen Werkzeugmaschinen

For use on CNC machining centres  
and other machine tools



| Typ<br>Type        |  | $\varnothing D_1$ |  |  | $\varnothing D_2$  | $\varnothing D$ | $\varnothing D_3$ | $L_1$<br>ER  | $L_1$<br>ER-GB | $L_2$    | $L_4$      | $T$    | $C$    |  |
|--------------------|---|-------------------|---|---|--------------------|-----------------|-------------------|--------------|----------------|----------|------------|--------|--------|---|
| <b>KSN 0/HD/ER</b> | M2 - M8<br>(Nr.0 - Nr.6)  | 2,5 - 6           | ER 11 (GB)  | Hi-Q/ERM<br>11  | HSK-C32<br>HSK-C40 | 29<br>29        | 16<br>16          | 97,3<br>97,3 | 95,5<br>95,5   | 16<br>20 | 0,9<br>0,9 | 6<br>6 | 6<br>6 | F3230K01.1<br>F3230K02.1  |

<sup>1)</sup> Einstecktiefen E siehe Seite 754  
Clamping depths E, see page 754

Weitere Ausführungen auf Anfrage  
Further designs upon request

Spannmutter ohne integrierte Abdichtung ist im Lieferumfang enthalten  
Clamping nut without integrated seal is included in the delivery

## Zubehör

## Accessories



Spannzangen Typ ER (GB)  
Collets type ER (GB)

» 746 - 747



Spannmutter mit integrierter Abdichtung Typ Hi-Q/ERM 11  
Clamping nut with integrated seal, type Hi-Q/ERM 11

» 752



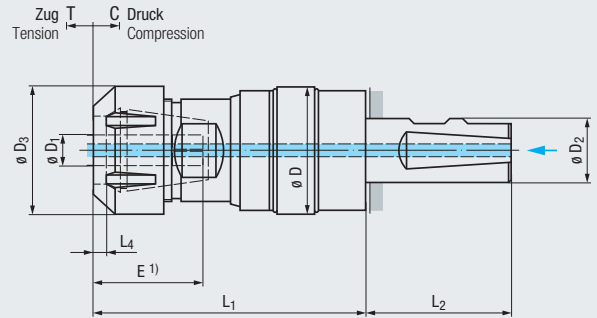
Spannschlüsselsatz  
Set of clamping wrenches

» 758



## KSN/HD/ER

**Zylinderschaft**  
Cylindrical shank  
DIN 1835-1  
Form B+E



**Einsatz auf CNC-Bearbeitungszentren und sonstigen Werkzeugmaschinen** For use on CNC machining centres and other machine tools

| Typ<br>Type        |                           | ø D <sub>1</sub> |            |              | ø D <sub>2</sub> | ø D | ø D <sub>3</sub> | L <sub>1</sub> | L <sub>2</sub> | L <sub>4</sub> | T   | C |                   |
|--------------------|---------------------------|------------------|------------|--------------|------------------|-----|------------------|----------------|----------------|----------------|-----|---|-------------------|
| <b>KSN 1/HD/ER</b> | M4 - M12<br>(Nr.8 - 7/16) | 4,5 - 10         | ER 20 (GB) | Hi-Q/ERMC 20 | 25               | 38  | 28               | 85             | 57             | 5              | 7,5 | 5 | <b>F3231G26.1</b> |
| <b>KSN 3/HD/ER</b> | M4 - M20<br>(Nr.8 - 3/4)  | 4,5 - 16         | ER 32 (GB) | Hi-Q/ERC 32  | 25               | 52  | 50               | 115            | 57             | 5              | 10  | 7 | <b>F3233G26.1</b> |

1) Einstecktiefen E siehe Seite 754  
Clamping depths E, see page 754

Weitere Ausführungen auf Anfrage  
Further designs upon request

Spannmutter für Dichtscheiben ist im Lieferumfang enthalten  
Clamping nut for sealing disks is included in the delivery

### Zubehör Accessories

Spannzangen Typ ER (GB)  
Collets type ER (GB) ▶▶ 746 - 747

Dichtscheiben Typ DS/ER und Kühlschleiben Typ KS/ER  
Sealing disks type DS/ER and coolant flush disks type KS/ER ▶▶ 750

Spannschlüsselsatz  
Set of clamping wrenches ▶▶ 758

Adaptionsschäfte  
Adapter shanks ▶▶ 740



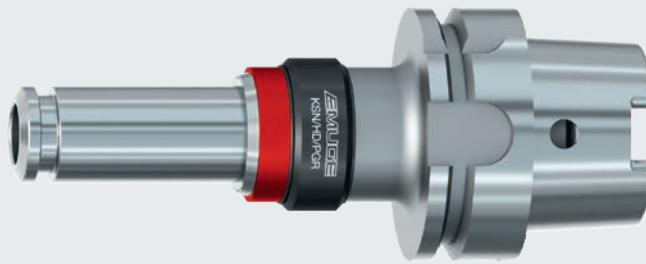


## KSN/HD/PGR

powRgrip®

## HSK-A

DIN 69893-1



$p_{max}$   
50 bar  
(700 psi)

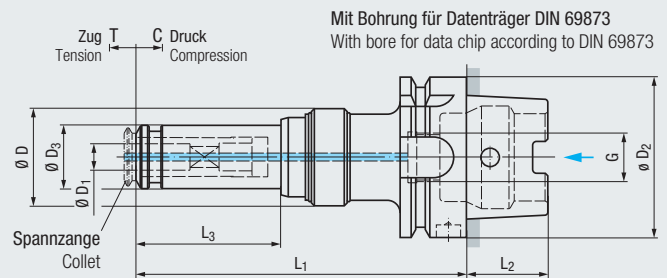





F



Einsatz auf CNC-Bearbeitungszentren  
und sonstigen Werkzeugmaschinen

For use on CNC machining centres  
and other machine tools



| Typ<br>Type  |  | $\varnothing D_1$ |  | $\varnothing D_2$ | $\varnothing D$ | $\varnothing D_3$ | $L_1$ | $L_2$ | $L_3$ | G         | T   | C |  |
|--------------|---|-------------------|---|-------------------|-----------------|-------------------|-------|-------|-------|-----------|-----|---|---|
| KSN 1/HD/PGR | M4 - M12<br>(Nr.8 - 7/16)   | 4,5 - 10          | PGR 15 GB   | HSK-A50           | 38              | 24                | 124   | 25    | 55    | M16 x 1   | 7,5 | 5 | F3241C03.1  |
|              |   |                   |   | HSK-A63           | 38              | 24                | 126   | 32    | 55    | M18 x 1   | 7,5 | 5 | <b>F3241C04.1</b>   |
|              |   |                   |   | HSK-A80           | 38              | 24                | 130   | 40    | 55    | M20 x 1,5 | 7,5 | 5 | F3241C05.1  |
|              |   |                   |   | HSK-A100          | 38              | 24                | 131   | 50    | 55    | M24 x 1,5 | 7,5 | 5 | F3241C06.1  |
| KSN 3/HD/PGR | M8 - M20<br>(5/16 - 3/4)  | 8 - 16            | PGR 25 GB   | HSK-A50           | 52              | 40                | 170   | 25    | 66,5  | M16 x 1   | 10  | 7 | F3243C03.1  |
|              |   |                   |   | HSK-A63           | 52              | 40                | 160   | 32    | 66,5  | M18 x 1   | 10  | 7 | <b>F3243C04.1</b>   |
|              |   |                   |   | HSK-A80           | 52              | 40                | 163   | 40    | 66,5  | M20 x 1,5 | 10  | 7 | F3243C05.1  |
|              |   |                   |   | HSK-A100          | 52              | 40                | 165   | 50    | 66,5  | M24 x 1,5 | 10  | 7 | F3243C06.1  |

Weitere Ausführungen auf Anfrage  
Further designs upon request

### Zubehör Accessories



Spannzangen Typ PGR-GB  
Collets type PGR-GB

» 749



Kühlschmierstoffrohre und Schlüssel  
Coolant tubes and wrenches

» 742 - 743



# KSN/HD/PGR

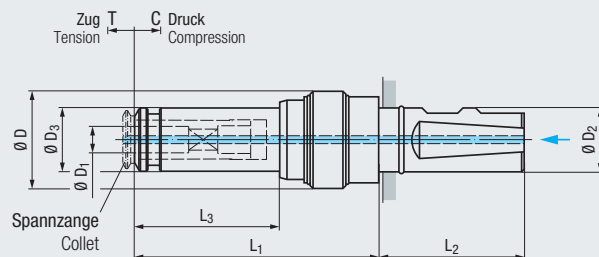
**Zylinderschaft**  
Cylindrical shank

**DIN 1835-1**




**Form B+E**



$p_{max}$   
50 bar  
(700 psi)



**Einsatz auf CNC-Bearbeitungszentren und sonstigen Werkzeugmaschinen** For use on CNC machining centres and other machine tools

| Typ<br>Type         |  | $\varnothing D_1$ |  | $\varnothing D_2$ | $\varnothing D$ | $\varnothing D_3$ | $L_1$ | $L_2$ | $L_3$ | T   | C |  |
|---------------------|---|-------------------|---|-------------------|-----------------|-------------------|-------|-------|-------|-----|---|---|
| <b>KSN 1/HD/PGR</b> | M4 - M12<br>(Nr.8 - 7/16)   | 4,5 - 10          | PGR 15 GB   | 25                | 38              | 24                | 95    | 57    | 55    | 7,5 | 5 | F3241G26.1  |
| <b>KSN 3/HD/PGR</b> | M8 - M20<br>(5/16 - 3/4)  | 8 - 16            | PGR 25 GB   | 25                | 52              | 40                | 127,5 | 57    | 66,5  | 10  | 7 | F3243G26.1  |

Weitere Ausführungen auf Anfrage  
Further designs upon request

## Zubehör Accessories



Adaptionsschäfte  
Adapter shanks

» 740



Spannzangen Typ PGR-GB  
Collets type PGR-GB

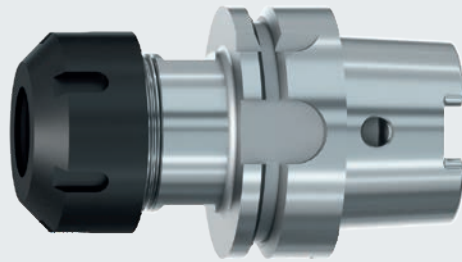
» 749



## KSN/Synchro

## HSK-A

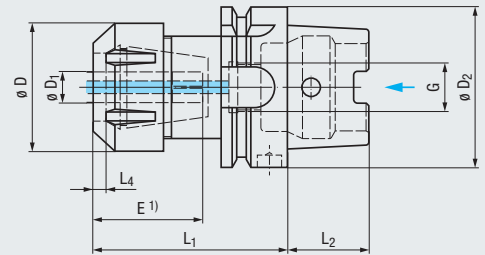
DIN 69893-1







$p_{max}$   
100 bar  
(1400 psi)



Mit Bohrung für Datenträger DIN 69873  
With bore for data chip according to DIN 69873



| Typ<br>Type               |  | $\varnothing D_1$ |  |  | $\varnothing D_2$ | $\varnothing D$ | $L_1$ | $L_2$ | $L_4$ | G         |  |
|---------------------------|---|-------------------|---|---|-------------------|-----------------|-------|-------|-------|-----------|---|
| <b>KSN 1/<br/>Synchro</b> | M4 - M12<br>(Nr.8 - 1/2)  | 4,5 - 10          | ER 20 (GB)  | Hi-Q/ERC<br>20  | HSK-A50           | 34              | 68    | 25    | 5     | M16 x 1   | F3131C03.1.30   |
|                           |   |                   |   |   | HSK-A63           | 34              | 68    | 32    | 5     | M18 x 1   | F3131C04.1.30   |
|                           |   |                   |   |   | HSK-A100          | 34              | 74    | 50    | 5     | M24 x 1,5 | F3131C06.1.30   |
| <b>KSN 3/<br/>Synchro</b> | M4 - M20<br>(Nr.8 - 3/4)  | 4,5 - 16          | ER 32 (GB)  | Hi-Q/ERC<br>32  | HSK-A50           | 50              | 76    | 25    | 5     | M16 x 1   | F3133C03.1.30   |
|                           |   |                   |   |   | HSK-A63           | 50              | 77    | 32    | 5     | M18 x 1   | F3133C04.1.30   |
|                           |   |                   |   |   | HSK-A100          | 50              | 84,5  | 50    | 5     | M24 x 1,5 | F3133C06.1.30   |
| <b>KSN 4/<br/>Synchro</b> | M10 - M30<br>(3/8 - 1 1/4)  | 7 - 22            | ER 40 (GB)  | Hi-Q/ERC<br>40  | HSK-A63           | 63              | 80    | 32    | 5     | M18 x 1   | F3134C04.1.30   |
|                           |   |                   |   |   | HSK-A100          | 63              | 91    | 50    | 5     | M24 x 1,5 | F3134C06.1.30   |

1) Einstecktiefen E siehe Seite 754  
Clamping depths E, see page 754

Weitere Ausführungen auf Anfrage  
Further designs upon request

Spannmutter für Dichtscheiben ist im Lieferumfang enthalten  
Clamping nut for sealing disks is included in the delivery

## Zubehör

## Accessories



Spannzangen Typ ER (GB)  
Collets type ER (GB)

» 746 - 747



Dichtscheiben Typ DS/ER und Kühlschleiben Typ KS/ER  
Sealing disks type DS/ER and coolant flush disks type KS/ER

» 750



Kühlschmierstoffrohre und Schlüssel  
Coolant tubes and wrenches

» 742 - 743



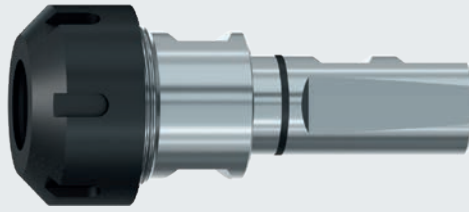
Spannschlüssel  
Clamping wrench

» 758

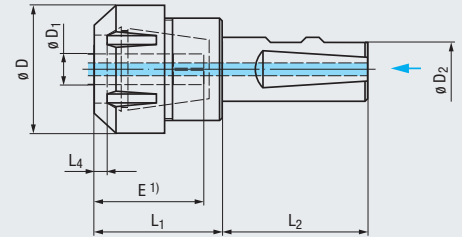


# KSN/Synchro

**Zylinderschaft**  
Cylindrical shank  
DIN 1835-1  
Form B+E



**IKZ**  $p_{max}$   
100 bar  
(1400 psi)



| Typ<br>Type               |                            | $\varnothing D_1$ |            |                | $\varnothing D_2$ | $\varnothing D$ | $L_1$ | $L_2$ | $L_4$ |                      |
|---------------------------|----------------------------|-------------------|------------|----------------|-------------------|-----------------|-------|-------|-------|----------------------|
| <b>KSN 1/<br/>Synchro</b> | M4 - M12<br>(Nr. 8 - 1/2)  | 4,5 - 10          | ER 20 (GB) | Hi-Q/ERC<br>20 | 25                | 34              | 42    | 57    | 5     | <b>F3131G26.1.24</b> |
| <b>KSN 3/<br/>Synchro</b> | M4 - M20<br>(Nr. 8 - 3/4)  | 4,5 - 16          | ER 32 (GB) | Hi-Q/ERC<br>32 | 25                | 50              | 56    | 57    | 5     | <b>F3133G26.1.24</b> |
| <b>KSN 4/<br/>Synchro</b> | M10 - M30<br>(3/8 - 1 1/4) | 7 - 22            | ER 40 (GB) | Hi-Q/ERC<br>40 | 25                | 63              | 65    | 57    | 5     | <b>F3134G26.1.24</b> |

1) Einstecktiefen E siehe Seite 754  
Clamping depths E, see page 754

Weitere Ausführungen auf Anfrage  
Further designs upon request

Spannmutter für Dichtscheiben ist im Lieferumfang enthalten  
Clamping nut for sealing disks is included in the delivery

## Zubehör Accessories



Spannzangen Typ ER (GB)  
Collets type ER (GB)

» 746 - 747



Dichtscheiben Typ DS/ER und Kühlschleiben Typ KS/ER  
Sealing disks type DS/ER and coolant flush disks type KS/ER

» 750



Spannschlüssel  
Clamping wrench

» 758



Adaptionsschäfte  
Adapter shanks

» 740





## Typenreihen für Minimalmengenschmierung Minimum Quantity Lubrication Series

### Einsatz auf Maschinen mit Minimalmengenschmierung (MMS)

Strömungsoptimierte Übergabe des MMS-Mediums von der Maschinenspindel zum Gewindewerkzeug.

### Application on machines with minimum-quantity lubrication (MQL)

Flow-optimised transfer of the MQL medium from machine spindle to threading tool.



# Softsynchro® Modular/MQL

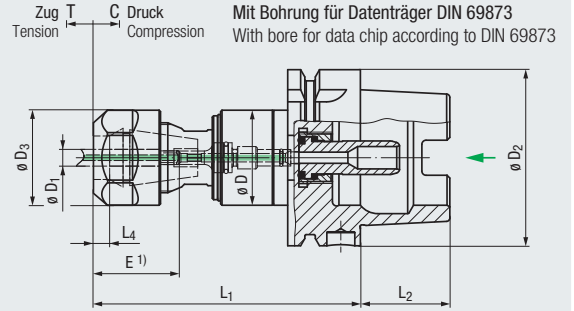
**HSK-A**  
DIN 69893-1



**MMS MQL** **MQ1**

$p_{max}$  10 bar (140 psi) **T C** Soft

**L+ 2 mm**



**Einsatz auf Maschinen mit Synchronspindel** For use on machines with synchronous spindle

| Typ Type                          |            | $\varnothing D_1$ | Werkzeugkegel Tool taper                       |  |             | $\varnothing D_2$ | $\varnothing D$ | $\varnothing D_3$ | $L_1$ | $L_2$ | $L_4$ | T   | C                      |                        |                        |                        |                        |
|-----------------------------------|------------|-------------------|--|--|-------------|-------------------|-----------------|-------------------|-------|-------|-------|-----|------------------------|------------------------|------------------------|------------------------|------------------------|
| <b>Softsynchro® 1 Modular/MQL</b> | M4,5 - M10 | 6 / 7             | <b>Innenkegel</b><br>Internal taper<br>60°<br> | ER 20 (GB)                                     | Hi-Q/ERC 20 | HSK-A40           | 34              | 34                | 89,5  | 20    | 5     | 0,5 | 0,5                    | <b>F3551C02.53.I01</b> |                        |                        |                        |
|                                   |            |                   |  |  |             |                   |                 |                   |       |       |       |     |                        |                        |                        | <b>F3551C04.53.I01</b> |                        |
|                                   |            |                   |  |  |             |                   |                 |                   |       |       |       |     |                        |                        |                        |                        | <b>F3551C06.53.I01</b> |
|                                   |            |                   |  |  |             |                   |                 |                   |       |       |       |     |                        |                        |                        |                        | <b>F3551C02.53.I02</b> |
|                                   |            |                   |  |  |             |                   |                 |                   |       |       |       |     |                        |                        |                        |                        | <b>F3551C04.53.I02</b> |
|                                   |            |                   |  |  |             |                   |                 |                   |       |       |       |     |                        |                        |                        |                        | <b>F3551C06.53.I02</b> |
|                                   |            |                   |  |  |             |                   |                 |                   |       |       |       |     |                        | <b>F3551C02.53.I03</b> |                        |                        |                        |
|                                   |            |                   |  |  |             |                   |                 |                   |       |       |       |     |                        | <b>F3551C04.53.I03</b> |                        |                        |                        |
|                                   |            |                   |  |  |             |                   |                 |                   |       |       |       |     |                        | <b>F3551C06.53.I03</b> |                        |                        |                        |
|                                   |            |                   |  |  |             |                   |                 |                   |       |       |       |     |                        | <b>F3551C02.53.A04</b> |                        |                        |                        |
|                                   |            |                   |  |  |             |                   |                 |                   |       |       |       |     |                        | <b>F3551C04.53.A04</b> |                        |                        |                        |
|                                   |            |                   |  |  |             |                   |                 |                   |       |       |       |     |                        | <b>F3551C06.53.A04</b> |                        |                        |                        |
|                                   |            |                   |  | <b>Außenkegel</b><br>External taper<br>90°<br> | ER 20 (GB)  | Hi-Q/ERC 20       | HSK-A40         | 34                | 34    | 89,5  | 20    | 5   | 0,5                    | 0,5                    | <b>F3551C02.53.A05</b> |                        |                        |
|                                   |            |                   |  |  |             |                   |                 |                   |       |       |       |     |                        |                        |                        |                        | <b>F3551C04.53.A05</b> |
|                                   |            |                   |  |  |             |                   |                 |                   |       |       |       |     |                        |                        |                        |                        | <b>F3551C06.53.A05</b> |
|                                   |            |                   |  |  |             |                   |                 |                   |       |       |       |     |                        |                        |                        |                        | <b>F3551C02.53.A06</b> |
|                                   |            |                   |  |  |             |                   |                 |                   |       |       |       |     |                        |                        |                        |                        | <b>F3551C04.53.A06</b> |
|                                   |            |                   |  |  |             |                   |                 |                   |       |       |       |     |                        |                        |                        |                        | <b>F3551C06.53.A06</b> |
|                                   |            |                   |  |  |             |                   |                 |                   |       |       |       |     | <b>F3551C02.53.A07</b> |                        |                        |                        |                        |
|                                   |            |                   |  |  |             |                   |                 |                   |       |       |       |     | <b>F3551C04.53.A07</b> |                        |                        |                        |                        |
|                                   |            |                   |  |  |             |                   |                 |                   |       |       |       |     | <b>F3551C06.53.A07</b> |                        |                        |                        |                        |
|                                   |            |                   |  |  |             |                   |                 |                   |       |       |       |     | <b>F3551C02.53.A08</b> |                        |                        |                        |                        |
|                                   |            |                   |  |  |             |                   |                 |                   |       |       |       |     | <b>F3551C04.53.A08</b> |                        |                        |                        |                        |
|                                   |            |                   |  |  |             |                   |                 |                   |       |       |       |     | <b>F3551C06.53.A08</b> |                        |                        |                        |                        |

1) Einstecktiefen E siehe Seite 754  
Clamping depths E, see page 754

Kühlschmierstoffrohr und Längeneinstellschraube sind Bestandteile der Spannzangen-Aufnahme und für eine optimale MMS-Übergabe notwendig  
Coolant-lubricant tube and length adjustment screw are included in collet holder and required for optimum MQL transfer

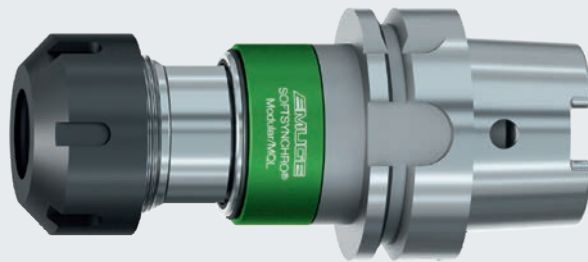
Spannmutter für Dichtscheiben ist im Lieferumfang enthalten  
Clamping nut for sealing disks is included in the delivery

MMS-Übergabe passend zu DIN 69090-4 und vielen Werknormen  
MQL supply according to DIN 69090-4 and many internal standards



# Softsynchro® Modular/MQL

**HSK-A**  
DIN 69893-1



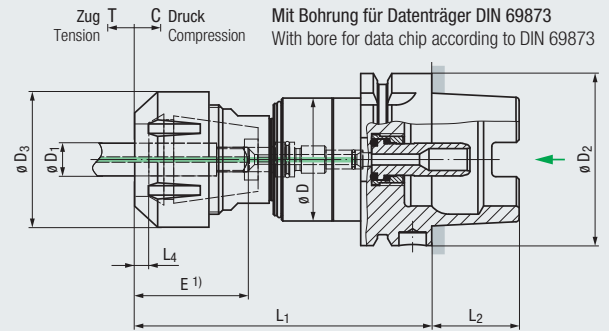
**MMS**  
**MQL**

**MQL**  
**1**

$p_{max}$   
10 bar  
(140 psi)

**T** **C**  
**Soft**

**L+ 2 mm**



**Einsatz auf Maschinen mit Synchronspindel** For use on machines with synchronous spindle

| Typ<br>Type                               |           | $\varnothing D_1$ | Werkzeugkegel<br>Tool taper                    |            |             | $\varnothing D_2$ | $\varnothing D$ | $\varnothing D_3$ | $L_1$ | $L_2$                  | $L_4$ | T   | C   |                        |  |                        |
|---|-----------|-------------------|--|------------|-------------|-------------------|-----------------|-------------------|-------|------------------------|-------|-----|-----|------------------------|--|------------------------|
| <b>Softsynchro®<br/>3<br/>Modular/MQL</b> | M12       | 9                 | <b>Innenkegel</b><br>Internal taper<br>60°<br> | ER 32 (GB) | Hi-Q/ERC 32 | HSK-A63           | 45              | 50                | 108,8 | 32                     | 5     | 0,5 | 0,5 | <b>F3553C04.53.I01</b> |  |                        |
|   |           |                   |  |            |             |                   |                 |                   |       |                        |       |     |     |                        |  | <b>F3553C06.53.I01</b> |
|   | M10 - M16 | 10 - 12           |  |            |             | HSK-A63           | 45              | 50                | 108,8 | 32                     | 5     | 0,5 | 0,5 | <b>F3553C04.53.I02</b> |  |                        |
|   |           |                   |  |            |             | HSK-A100          | 45              | 50                | 115,3 | 50                     | 5     | 0,5 | 0,5 | <b>F3553C06.53.I02</b> |  |                        |
|   | M18 - M20 | 14 - 16           |  |            |             | HSK-A63           | 45              | 50                | 108,8 | 32                     | 5     | 0,5 | 0,5 | <b>F3553C04.53.I03</b> |  |                        |
|   |           |                   |  |            |             | HSK-A100          | 45              | 50                | 115,3 | 50                     | 5     | 0,5 | 0,5 | <b>F3553C06.53.I03</b> |  |                        |
|   | M12       | 9                 | <b>Außenkegel</b><br>External taper<br>90°<br> | ER 32 (GB) | Hi-Q/ERC 32 | HSK-A63           | 45              | 50                | 108,8 | 32                     | 5     | 0,5 | 0,5 | <b>F3553C04.53.A04</b> |  |                        |
|   |           |                   |  |            |             | HSK-A100          | 45              | 50                | 115,3 | 50                     | 5     | 0,5 | 0,5 | <b>F3553C06.53.A04</b> |  |                        |
|   | M10       | 10                |  |            |             | HSK-A63           | 45              | 50                | 108,8 | 32                     | 5     | 0,5 | 0,5 | <b>F3553C04.53.A05</b> |  |                        |
|   |           |                   |  |            |             | HSK-A100          | 45              | 50                | 115,3 | 50                     | 5     | 0,5 | 0,5 | <b>F3553C06.53.A05</b> |  |                        |
|   | M14 - M16 | 11 - 12           |  |            |             | HSK-A63           | 45              | 50                | 108,8 | 32                     | 5     | 0,5 | 0,5 | <b>F3553C04.53.A06</b> |  |                        |
|   |           |                   |  |            |             | HSK-A100          | 45              | 50                | 115,3 | 50                     | 5     | 0,5 | 0,5 | <b>F3553C06.53.A06</b> |  |                        |
|   | M18       | 14                |  |            |             | HSK-A63           | 45              | 50                | 108,8 | 32                     | 5     | 0,5 | 0,5 | <b>F3553C04.53.A07</b> |  |                        |
|   |           |                   |  |            |             | HSK-A100          | 45              | 50                | 115,3 | 50                     | 5     | 0,5 | 0,5 | <b>F3553C06.53.A07</b> |  |                        |
| M20                                       | 16        | HSK-A63           | 45   | 50         | 108,8       | 32                | 5               | 0,5               | 0,5   | <b>F3553C04.53.A08</b> |       |     |     |                        |  |                        |
|   |           | HSK-A100          | 45   | 50         | 115,3       | 50                | 5               | 0,5               | 0,5   | <b>F3553C06.53.A08</b> |       |     |     |                        |  |                        |

**Zubehör**  
Accessories

- Spannzangen Typ ER (GB)  
Collets type ER (GB) ▶ ▶ 746 - 747
- Dichtscheiben Typ DS/ER  
Sealing disks type DS/ER ▶ ▶ 750
- Längeneinstellschrauben  
Length adjustment screws ▶ ▶ 744
- Kühlschmierstoffrohre und Schlüssel  
Coolant tubes and wrenches ▶ ▶ 742 - 743

- Spannschlüsselsatz  
Set of clamping wrenches ▶ ▶ 758
- Montagevorrichtung  
Assembly device ▶ ▶ 756
- Drehmomentschlüssel  
Torque wrenches ▶ ▶ 759

Product Finder

- Softsynchro
- Speedsynchro
- KSN
- MQL MMS
- SFM
- SWITCH-MASTER
- HF
- EM
- Zubehör Accessories



# Softsynchro® Modular/MQL

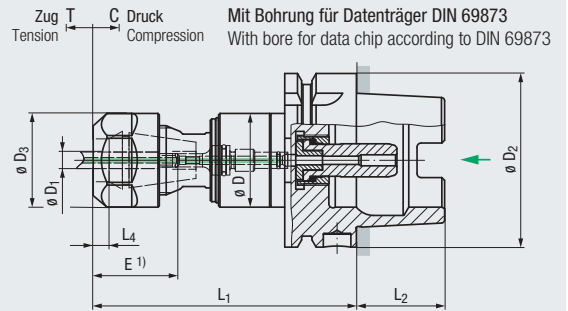
**HSK-A**  
DIN 69893-1



**MMS MQL** **MLQ 2**

$p_{max}$  10 bar (140 psi) **Soft**

**L+ 2 mm**



**Einsatz auf Maschinen mit Synchronspindel** For use on machines with synchronous spindle

| Typ Type                          |              | $\varnothing D_1$ | Werkzeugkegel Tool taper                       |            |             | $\varnothing D_2$ | $\varnothing D$ | $\varnothing D_3$ | $L_1$ | $L_2$                  | $L_4$                  | T                      | C   |                        |
|-----------------------------------|--------------|-------------------|--|------------|-------------|-------------------|-----------------|-------------------|-------|------------------------|------------------------|------------------------|-----|------------------------|
| <b>Softsynchro® 1 Modular/MQL</b> | M4,5 - M10   | 6 / 7             | <b>Innenkegel</b><br>Internal taper<br>60°<br> | ER 20 (GB) | Hi-Q/ERC 20 | HSK-A40           | 34              | 34                | 89,5  | 20                     | 5                      | 0,5                    | 0,5 | <b>F3551C02.54.I01</b> |
|                                   | HSK-A63      | 34                |  |            |             | 34                | 95,5            | 32                | 5     | 0,5                    | 0,5                    | <b>F3551C04.54.I01</b> |     |                        |
|                                   | HSK-A100     | 34                |  |            |             | 34                | 102             | 50                | 5     | 0,5                    | 0,5                    | <b>F3551C06.54.I01</b> |     |                        |
|                                   | HSK-A40      | 34                |  |            |             | 34                | 89,5            | 20                | 5     | 0,5                    | 0,5                    | <b>F3551C02.54.I02</b> |     |                        |
|                                   | HSK-A63      | 34                |  |            |             | 34                | 95,5            | 32                | 5     | 0,5                    | 0,5                    | <b>F3551C04.54.I02</b> |     |                        |
|                                   | HSK-A100     | 34                |  |            |             | 34                | 102             | 50                | 5     | 0,5                    | 0,5                    | <b>F3551C06.54.I02</b> |     |                        |
|                                   | M10          | 10                | <b>Außenkegel</b><br>External taper<br>90°<br> | ER 20 (GB) | Hi-Q/ERC 20 | HSK-A40           | 34              | 34                | 89,5  | 20                     | 5                      | 0,5                    | 0,5 | <b>F3551C02.54.I03</b> |
|                                   | HSK-A63      | 34                |  |            |             | 34                | 95,5            | 32                | 5     | 0,5                    | 0,5                    | <b>F3551C04.54.I03</b> |     |                        |
|                                   | HSK-A100     | 34                |  |            |             | 34                | 102             | 50                | 5     | 0,5                    | 0,5                    | <b>F3551C06.54.I03</b> |     |                        |
|                                   | M4,5 - M6 M8 | 6                 |  |            |             | HSK-A40           | 34              | 34                | 89,5  | 20                     | 5                      | 0,5                    | 0,5 | <b>F3551C02.54.A04</b> |
|                                   | M7, M10      | 7                 |  |            |             | HSK-A63           | 34              | 34                | 95,5  | 32                     | 5                      | 0,5                    | 0,5 | <b>F3551C04.54.A04</b> |
|                                   |              |                   |  |            |             | HSK-A100          | 34              | 34                | 102   | 50                     | 5                      | 0,5                    | 0,5 | <b>F3551C06.54.A04</b> |
|                                   |              |                   | HSK-A40  | 34         | 34          | 89,5              | 20              | 5                 | 0,5   | 0,5                    | <b>F3551C02.54.A05</b> |                        |     |                        |
|                                   | M8           | 8                 | HSK-A63  | 34         | 34          | 95,5              | 32              | 5                 | 0,5   | 0,5                    | <b>F3551C04.54.A05</b> |                        |     |                        |
|                                   |              |                   | HSK-A100                                       | 34         | 34          | 102               | 50              | 5                 | 0,5   | 0,5                    | <b>F3551C06.54.A05</b> |                        |     |                        |
|                                   |              |                   | HSK-A40  | 34         | 34          | 89,5              | 20              | 5                 | 0,5   | 0,5                    | <b>F3551C02.54.A06</b> |                        |     |                        |
|                                   | M12          | 9                 | HSK-A63  | 34         | 34          | 95,5              | 32              | 5                 | 0,5   | 0,5                    | <b>F3551C04.54.A06</b> |                        |     |                        |
|                                   |              |                   | HSK-A100                                       | 34         | 34          | 102               | 50              | 5                 | 0,5   | 0,5                    | <b>F3551C06.54.A06</b> |                        |     |                        |
| HSK-A40                           |              |                   | 34   | 34         | 89,5        | 20                | 5               | 0,5               | 0,5   | <b>F3551C02.54.A07</b> |                        |                        |     |                        |
| M10                               | 10           | HSK-A63           | 34   | 34         | 95,5        | 32                | 5               | 0,5               | 0,5   | <b>F3551C04.54.A07</b> |                        |                        |     |                        |
|                                   |              | HSK-A100          | 34   | 34         | 102         | 50                | 5               | 0,5               | 0,5   | <b>F3551C06.54.A07</b> |                        |                        |     |                        |
|                                   |              | HSK-A40           | 34   | 34         | 89,5        | 20                | 5               | 0,5               | 0,5   | <b>F3551C02.54.A08</b> |                        |                        |     |                        |
|                                   |              |                   |  |            |             |                   |                 |                   |       |                        |                        |                        |     | <b>F3551C04.54.A08</b> |
|                                   |              |                   |  |            |             |                   |                 |                   |       |                        |                        |                        |     | <b>F3551C06.54.A08</b> |

1) Einstecktiefen E siehe Seite 754  
Clamping depths E, see page 754

Kühlschmierstoffrohr und Längeneinstellschraube sind Bestandteile der Spannzangen-Aufnahme und für eine optimale MMS-Übergabe notwendig  
Coolant-lubricant tube and length adjustment screw are included in collet holder and required for optimum MQL transfer

Spannmutter für Dichtscheiben ist im Lieferumfang enthalten  
Clamping nut for sealing disks is included in the delivery

MMS-Übergabe passend zu DIN 69090-4 und vielen Werknormen  
MQL supply according to DIN 69090-4 and many internal standards





# Softsynchro® Modular/MQL

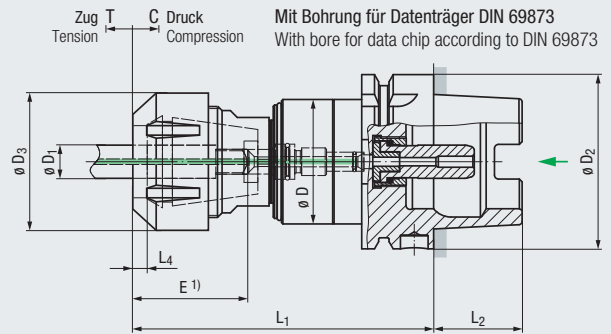
**HSK-A**  
DIN 69893-1







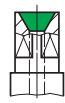

**MMS MQL** **MQL 2**

$p_{max}$  10 bar (140 psi) **Soft**

**L+ 2 mm**



Einsatz auf Maschinen mit Synchronspindel For use on machines with synchronous spindle

| Typ<br>Type                      |  | $\theta D_1$ | Werkzeugkegel<br>Tool taper  |  |  | $\theta D_2$ | $\theta D$ | $\theta D_3$    | $L_1$           | $L_2$           | $L_4$           | T               | C   |  |
|----------------------------------|---|--------------|--|---|---|--------------|------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----|---|
| Softsynchro®<br>3<br>Modular/MQL | M12   | 9            | Innenkegel<br>Internal taper<br>60°<br> | ER 32 (GB)  | Hi-Q/ERC<br>32  | HSK-A63      | 45         | 50              | 108,8           | 32              | 5               | 0,5             | 0,5 | F3553C04.54.I01   |
|                                  | HSK-A100  | 45           |  |   |   | 50           | 115,3      | 50              | 5               | 0,5             | 0,5             | F3553C06.54.I01 |     |   |
|                                  | M10 - M16   | 10 - 12      |  |   |   | HSK-A63      | 45         | 50              | 108,8           | 32              | 5               | 0,5             | 0,5 | F3553C04.54.I02   |
|                                  | HSK-A100  | 45           |  |   |   | 50           | 115,3      | 50              | 5               | 0,5             | 0,5             | F3553C06.54.I02 |     |   |
|                                  | M18 - M20   | 14 - 16      | Außenkegel<br>External taper<br>90°<br> | ER 32 (GB)  | Hi-Q/ERC<br>32  | HSK-A63      | 45         | 50              | 108,8           | 32              | 5               | 0,5             | 0,5 | F3553C04.54.A04   |
|                                  | HSK-A100  | 45           |  |   |   | 50           | 115,3      | 50              | 5               | 0,5             | 0,5             | F3553C06.54.A04 |     |   |
|                                  | M12   | 9            |  |   |   | HSK-A63      | 45         | 50              | 108,8           | 32              | 5               | 0,5             | 0,5 | F3553C04.54.A05   |
|                                  | HSK-A100  | 45           |  |   |   | 50           | 115,3      | 50              | 5               | 0,5             | 0,5             | F3553C06.54.A05 |     |   |
|                                  | M10   | 10           |  |   |   | HSK-A63      | 45         | 50              | 108,8           | 32              | 5               | 0,5             | 0,5 | F3553C04.54.A06   |
|                                  | HSK-A100  | 45           |  |   |   | 50           | 115,3      | 50              | 5               | 0,5             | 0,5             | F3553C06.54.A06 |     |   |
|                                  | M14 - M16   | 11 - 12      | HSK-A63  | 45  | 50  | 108,8        | 32         | 5               | 0,5             | 0,5             | F3553C04.54.A07 |                 |     |   |
|                                  | HSK-A100  | 45           | 50   | 115,3   | 50  | 5            | 0,5        | 0,5             | F3553C06.54.A07 |                 |                 |                 |     |   |
|                                  | M18   | 14           | HSK-A63  | 45  | 50  | 108,8        | 32         | 5               | 0,5             | 0,5             | F3553C04.54.A08 |                 |     |   |
|                                  | HSK-A100  | 45           | 50   | 115,3   | 50  | 5            | 0,5        | 0,5             | F3553C06.54.A08 |                 |                 |                 |     |   |
| M20                              | 16  | HSK-A63      | 45   | 50  | 108,8   | 32           | 5          | 0,5             | 0,5             | F3553C04.54.A08 |                 |                 |     |   |
| HSK-A100                         | 45  | 50           | 115,3  | 50  | 5   | 0,5          | 0,5        | F3553C06.54.A08 |                 |                 |                 |                 |     |   |

## Zubehör Accessories

-  Spannzangen Typ ER (GB)  
Collets type ER (GB) **» 746 - 747**
-  Dichtscheiben Typ DS/ER  
Sealing disks type DS/ER **» 750**
-  Längeneinstellschrauben  
Length adjustment screws **» 744**
-  Kühlschmierstoffrohre und Schlüssel  
Coolant tubes and wrenches **» 742 - 743**

-  Spanschlüsselsatz  
Set of clamping wrenches **» 758**
-  Montagevorrichtung  
Assembly device **» 756**
-  Drehmomentschlüssel  
Torque wrenches **» 759**

- Product Finder
- Soft-synchro
- Speed-synchro
- KSN
- MQL MMS
- SFM
- SWITCH-MASTER
- HF
- EM
- Zubehör Accessories



# Softsynchro® Modular/MQL

**HSK-C 2)**  
DIN 69893-1



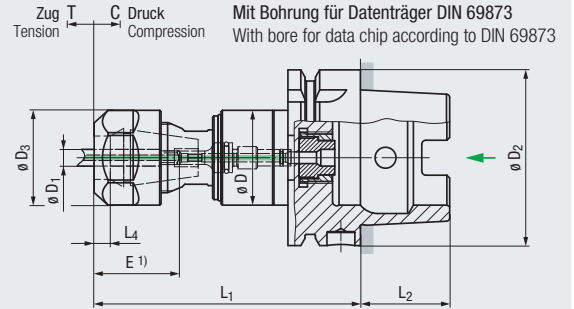
**MMS MQL**

**MQL 1**

$p_{max}$   
**10 bar**  
(140 psi)

**Soft**

**L+ 2 mm**



**Einsatz auf Maschinen mit Synchronspindel** For use on machines with synchronous spindle

| Typ<br>Type                               |                     | $\varnothing D_1$ | Werkzeugkegel<br>Tool taper             |            |                | $\varnothing D_2$ | $\varnothing D$ | $\varnothing D_3$ | $L_1$ | $L_2$                  | $L_4$                  | T   | C   |                        |                        |
|---|---------------------|-------------------|---|------------|----------------|-------------------|-----------------|-------------------|-------|------------------------|------------------------|-----|-----|------------------------|------------------------|
| <b>Softsynchro®<br/>1<br/>Modular/MQL</b> | M4,5 - M10          | 6 / 7             | Innenkegel<br>Internal taper<br>60°<br> | ER 20 (GB) | Hi-Q/ERC<br>20 | HSK-A40           | 34              | 34                | 89,5  | 20                     | 5                      | 0,5 | 0,5 | <b>F3551C02.52.I01</b> |                        |
|   | M8, M9,<br>M11, M12 | 8 / 9             |   |            |                | HSK-A63           | 34              | 34                | 95,5  | 32                     | 5                      | 0,5 | 0,5 | <b>F3551C04.52.I01</b> |                        |
|   |                     |                   |   |            |                | HSK-A100          | 34              | 34                | 102   | 50                     | 5                      | 0,5 | 0,5 | <b>F3551C06.52.I01</b> |                        |
|   |                     |                   |   |            |                | HSK-A40           | 34              | 34                | 89,5  | 20                     | 5                      | 0,5 | 0,5 | <b>F3551C02.52.I02</b> |                        |
|   | M10                 | 10                |   |            |                | HSK-A63           | 34              | 34                | 95,5  | 32                     | 5                      | 0,5 | 0,5 | <b>F3551C04.52.I02</b> |                        |
|   |                     |                   |   |            |                | HSK-A100          | 34              | 34                | 102   | 50                     | 5                      | 0,5 | 0,5 | <b>F3551C06.52.I02</b> |                        |
|   |                     |                   | HSK-A40                                 | 34         | 34             | 89,5              | 20              | 5                 | 0,5   | 0,5                    | <b>F3551C02.52.I03</b> |     |     |                        |                        |
|   | M4,5 - M6<br>M8     | 6                 | Außenkegel<br>External taper<br>90°<br> | ER 20 (GB) | Hi-Q/ERC<br>20 | HSK-A40           | 34              | 34                | 89,5  | 20                     | 5                      | 0,5 | 0,5 | <b>F3551C02.52.A04</b> |                        |
|   |                     |                   |   |            |                | HSK-A63           | 34              | 34                | 95,5  | 32                     | 5                      | 0,5 | 0,5 | <b>F3551C04.52.A04</b> |                        |
|   |                     |                   |   |            |                | HSK-A100          | 34              | 34                | 102   | 50                     | 5                      | 0,5 | 0,5 | <b>F3551C06.52.A04</b> |                        |
|   |                     | M7, M10           |   |            |                | 7                 | HSK-A40         | 34                | 34    | 89,5                   | 20                     | 5   | 0,5 | 0,5                    | <b>F3551C02.52.A05</b> |
|   |                     |                   |   |            |                |                   | HSK-A63         | 34                | 34    | 95,5                   | 32                     | 5   | 0,5 | 0,5                    | <b>F3551C04.52.A05</b> |
|   |                     |                   |   |            |                |                   | HSK-A100        | 34                | 34    | 102                    | 50                     | 5   | 0,5 | 0,5                    | <b>F3551C06.52.A05</b> |
|   |                     | M8                |   |            |                | 8                 | HSK-A40         | 34                | 34    | 89,5                   | 20                     | 5   | 0,5 | 0,5                    | <b>F3551C02.52.A06</b> |
|   |                     |                   |   |            |                |                   | HSK-A63         | 34                | 34    | 95,5                   | 32                     | 5   | 0,5 | 0,5                    | <b>F3551C04.52.A06</b> |
|   |                     |                   |   |            |                |                   | HSK-A100        | 34                | 34    | 102                    | 50                     | 5   | 0,5 | 0,5                    | <b>F3551C06.52.A06</b> |
|   | M12                 | 9                 | HSK-A40                                 | 34         | 34             | 89,5              | 20              | 5                 | 0,5   | 0,5                    | <b>F3551C02.52.A07</b> |     |     |                        |                        |
|   |                     |                   | HSK-A63                                 | 34         | 34             | 95,5              | 32              | 5                 | 0,5   | 0,5                    | <b>F3551C04.52.A07</b> |     |     |                        |                        |
| HSK-A100                                  |                     |                   | 34                                      | 34         | 102            | 50                | 5               | 0,5               | 0,5   | <b>F3551C06.52.A07</b> |                        |     |     |                        |                        |
| M10                                       | 10                  | HSK-A40           | 34                                      | 34         | 89,5           | 20                | 5               | 0,5               | 0,5   | <b>F3551C02.52.A08</b> |                        |     |     |                        |                        |
|   |                     | HSK-A63           | 34                                      | 34         | 95,5           | 32                | 5               | 0,5               | 0,5   | <b>F3551C04.52.A08</b> |                        |     |     |                        |                        |
|   |                     | HSK-A100          | 34                                      | 34         | 102            | 50                | 5               | 0,5               | 0,5   | <b>F3551C06.52.A08</b> |                        |     |     |                        |                        |

- 1) Einstecktiefen E siehe Seite 754  
Clamping depths E, see page 754
- 2) Außenkontur entspricht DIN 69893 A, Innenkontur nach DIN 69893 C  
Outside contour acc. DIN 69893 A, inside contour acc. DIN 69893 C

Füllstück und Längeneinstellschraube sind Bestandteile der Spannzangen-Aufnahme und für eine optimale MMS-Übergabe notwendig  
Filler piece and length adjustment screw are included in collet holder and required for optimum MQL transfer

Spannmutter für Dichtscheiben ist im Lieferumfang enthalten  
Clamping nut for sealing disks is included in the delivery

MMS-Übergabe passend zu DIN 69090-4 und vielen Werknormen  
MQL supply according to DIN 69090-4 and many internal standards

# Softsynchro® Modular/MQL

**HSK-C 2)**  
DIN 69893-1



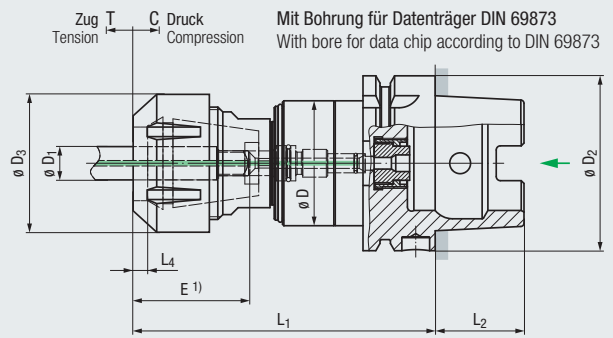
MMS  
MQL

MQL  
1

$p_{max}$   
10 bar  
(140 psi)

T C  
Soft

L+ 2 mm



**Einsatz auf Maschinen mit Synchronspindel** For use on machines with synchronous spindle

| Typ<br>Type                      |   | $\theta D_1$ | Werkzeugkegel<br>Tool taper |            |                | $\theta D_2$ | $\theta D$ | $\theta D_3$ | $L_1$ | $L_2$           | $L_4$ | T   | C   |                 |
|----------------------------------|---|--------------|-----------------------------|------------|----------------|--------------|------------|--------------|-------|-----------------|-------|-----|-----|-----------------|
| Softsynchro®<br>3<br>Modular/MQL | Innenkegel<br>Internal taper<br>60°<br> | M12          | 9                           | ER 32 (GB) | Hi-Q/ERC<br>32 | HSK-A63      | 45         | 50           | 108,8 | 32              | 5     | 0,5 | 0,5 | F3553C04.52.I01 |
|                                  |   |              |                             |            |                | HSK-A100     | 45         | 50           | 115,3 | 50              | 5     | 0,5 | 0,5 | F3553C06.52.I01 |
|                                  |   | M10 - M16    | 10 - 12                     |            |                | HSK-A63      | 45         | 50           | 108,8 | 32              | 5     | 0,5 | 0,5 | F3553C04.52.I02 |
|                                  |   |              |                             |            |                | HSK-A100     | 45         | 50           | 115,3 | 50              | 5     | 0,5 | 0,5 | F3553C06.52.I02 |
|                                  |   | M18 - M20    | 14 - 16                     |            |                | HSK-A63      | 45         | 50           | 108,8 | 32              | 5     | 0,5 | 0,5 | F3553C04.52.I03 |
|                                  |   |              |                             |            |                | HSK-A100     | 45         | 50           | 115,3 | 50              | 5     | 0,5 | 0,5 | F3553C06.52.I03 |
|                                  | Außenkegel<br>External taper<br>90°<br> | M12          | 9                           | ER 32 (GB) | Hi-Q/ERC<br>32 | HSK-A63      | 45         | 50           | 108,8 | 32              | 5     | 0,5 | 0,5 | F3553C04.52.A04 |
|                                  |   |              |                             |            |                | HSK-A100     | 45         | 50           | 115,3 | 50              | 5     | 0,5 | 0,5 | F3553C06.52.A04 |
|                                  |   | M10          | 10                          |            |                | HSK-A63      | 45         | 50           | 108,8 | 32              | 5     | 0,5 | 0,5 | F3553C04.52.A05 |
|                                  |   |              |                             |            |                | HSK-A100     | 45         | 50           | 115,3 | 50              | 5     | 0,5 | 0,5 | F3553C06.52.A05 |
|                                  |   | M14 - M16    | 11 - 12                     |            |                | HSK-A63      | 45         | 50           | 108,8 | 32              | 5     | 0,5 | 0,5 | F3553C04.52.A06 |
|                                  |   |              |                             |            |                | HSK-A100     | 45         | 50           | 115,3 | 50              | 5     | 0,5 | 0,5 | F3553C06.52.A06 |
| M18                              | 14                                      | HSK-A63      | 45                          | 50         | 108,8          | 32           | 5          | 0,5          | 0,5   | F3553C04.52.A07 |       |     |     |                 |
|                                  |   | HSK-A100     | 45                          | 50         | 115,3          | 50           | 5          | 0,5          | 0,5   | F3553C06.52.A07 |       |     |     |                 |
| M20                              | 16                                      | HSK-A63      | 45                          | 50         | 108,8          | 32           | 5          | 0,5          | 0,5   | F3553C04.52.A08 |       |     |     |                 |
|                                  |   | HSK-A100     | 45                          | 50         | 115,3          | 50           | 5          | 0,5          | 0,5   | F3553C06.52.A08 |       |     |     |                 |

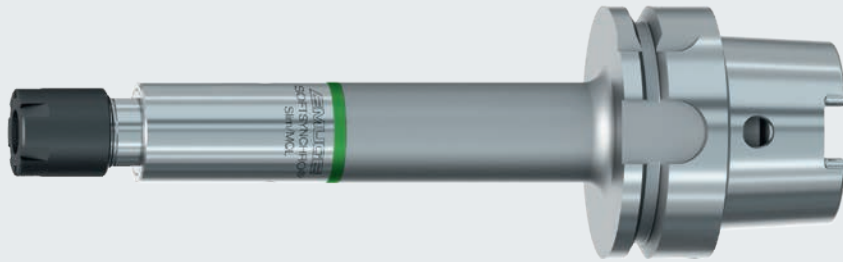
## Zubehör Accessories

- Spannzangen Typ ER (GB)  
Collets type ER (GB)   »» 746 - 747
- Dichtscheiben Typ DS/ER  
Sealing disks type DS/ER   »» 750
- Längeneinstellschrauben  
Length adjustment screws   »» 744
- Füllstück  
Adapter   »» 743

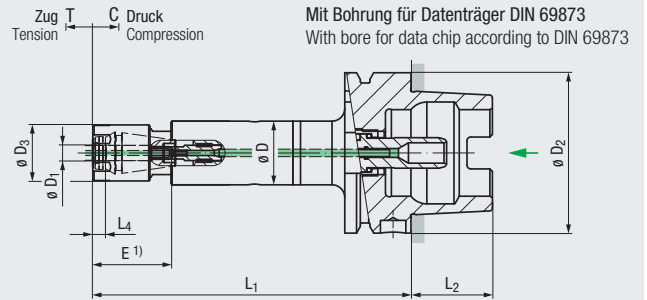
- Spannschlüsselsatz  
Set of clamping wrenches   »» 758
- Montagevorrichtung  
Assembly device   »» 756
- Drehmomentschlüssel  
Torque wrenches   »» 759

# Softsynchro® Slim/MQL

**HSK-A**  
DIN 69893-1



|                                  |              |
|----------------------------------|--------------|
|                                  | <b>MQL 1</b> |
| $p_{max}$<br>10 bar<br>(140 psi) | <br>Soft     |
|                                  | L+ 2 mm      |



**Einsatz auf Maschinen mit Synchronspindel** For use on machines with synchronous spindle

| Typ<br>Type                            |                     | $\varnothing D_1$ | Werkzeugkegel<br>Tool taper             |            |                 | $\varnothing D_2$ | $\varnothing D$ | $\varnothing D_3$ | $L_1$ | $L_2$ | $L_4$ | T   | C   | new                       |  |                           |
|--|---------------------|-------------------|---|------------|-----------------|-------------------|-----------------|-------------------|-------|-------|-------|-----|-----|---------------------------|--|---------------------------|
| <b>Softsynchro®<br/>1<br/>Slim/MQL</b> | M4,5 - M10          | 6 / 7             | Innenkegel<br>Internal taper<br>60°<br> | ER 16 (GB) | Hi-Q/ERMC<br>16 | HSK-A63           | 25              | 22                | 125   | 32    | 5     | 0,5 | 0,5 | <b>F3671C04.XS.53.I01</b> |  |                           |
|  |                     |                   |   |            |                 | HSK-A63           | 25              | 22                | 150   | 32    | 5     | 0,5 | 0,5 | <b>F3671C04.S.53.I01</b>  |  |                           |
|  |                     |                   |   |            |                 | HSK-A63           | 25              | 22                | 175   | 32    | 5     | 0,5 | 0,5 | <b>F3671C04.M.53.I01</b>  |  |                           |
|  |                     |                   |   |            |                 | HSK-A63           | 25              | 22                | 200   | 32    | 5     | 0,5 | 0,5 | <b>F3671C04.L.53.I01</b>  |  |                           |
|  |                     |                   |   |            |                 | HSK-A100          | 25              | 22                | 125   | 50    | 5     | 0,5 | 0,5 | <b>F3671C06.XS.53.I01</b> |  |                           |
|  |                     |                   |   |            |                 | HSK-A100          | 25              | 22                | 150   | 50    | 5     | 0,5 | 0,5 | <b>F3671C06.S.53.I01</b>  |  |                           |
|  | M8, M9,<br>M11, M12 | 8 / 9             |   |            |                 |                   | HSK-A100        | 25                | 22    | 175   | 50    | 5   | 0,5 | 0,5                       |  | <b>F3671C06.M.53.I01</b>  |
|  |                     |                   |   |            |                 |                   | HSK-A100        | 25                | 22    | 200   | 50    | 5   | 0,5 | 0,5                       |  | <b>F3671C06.L.53.I01</b>  |
|  |                     |                   |   |            |                 |                   | HSK-A63         | 25                | 22    | 125   | 32    | 5   | 0,5 | 0,5                       |  | <b>F3671C04.XS.53.I02</b> |
|  |                     |                   |   |            |                 |                   | HSK-A63         | 25                | 22    | 150   | 32    | 5   | 0,5 | 0,5                       |  | <b>F3671C04.S.53.I02</b>  |
|  |                     |                   |   |            |                 |                   | HSK-A63         | 25                | 22    | 175   | 32    | 5   | 0,5 | 0,5                       |  | <b>F3671C04.M.53.I02</b>  |
|  |                     |                   |   |            |                 |                   | HSK-A63         | 25                | 22    | 200   | 32    | 5   | 0,5 | 0,5                       |  | <b>F3671C04.L.53.I02</b>  |
|  |                     |                   |   |            |                 |                   | HSK-A100        | 25                | 22    | 125   | 50    | 5   | 0,5 | 0,5                       |  | <b>F3671C06.XS.53.I02</b> |
|  |                     |                   |   |            |                 |                   | HSK-A100        | 25                | 22    | 150   | 50    | 5   | 0,5 | 0,5                       |  | <b>F3671C06.S.53.I02</b>  |
|  |                     |                   |   |            |                 |                   | HSK-A100        | 25                | 22    | 175   | 50    | 5   | 0,5 | 0,5                       |  | <b>F3671C06.M.53.I02</b>  |
|  |                     |                   |   |            |                 |                   | HSK-A100        | 25                | 22    | 200   | 50    | 5   | 0,5 | 0,5                       |  | <b>F3671C06.L.53.I02</b>  |

## Zubehör Accessories

Spannzangen Typ ER (GB)  
Collets type ER (GB) ▶▶ 746 - 747

Dichtscheiben Typ DS/ER  
Sealing disks type DS/ER ▶▶ 750

Längeneinstellschrauben  
Length adjustment screws ▶▶ 745

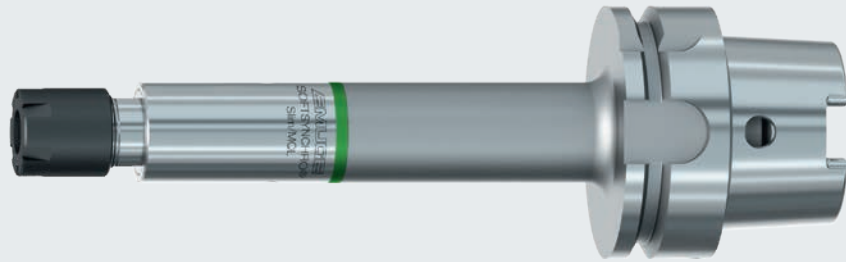
Spannschlüsselsatz  
Set of clamping wrenches ▶▶ 758

Montagevorrichtung  
Assembly device ▶▶ 756

Drehmomentschlüssel  
Torque wrenches ▶▶ 759

# Softsynchro® Slim/MQL

**HSK-A**  
DIN 69893-1

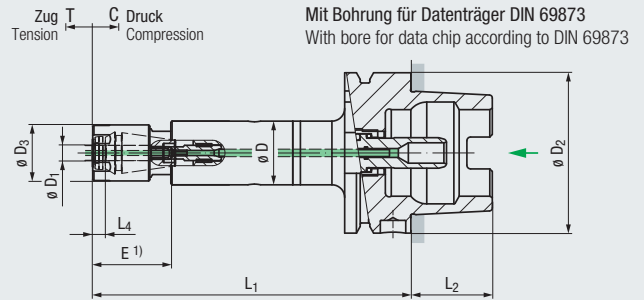


**MMS MQL** **MQL 1**

$p_{max}$  10 bar (140 psi) **Soft**

**L+ 2 mm**

**Einsatz auf Maschinen mit Synchronspindel** For use on machines with synchronous spindle



- Product Finder
- Softsynchro
- Speedsynchro
- KSN
- MQL MMS
- SFB
- SWITCH-MASTER
- HF
- EM
- Zubehör Accessories

| Typ<br>Type                   |                 | $\varnothing D_1$ | Werkzeugkegel<br>Tool taper             |            |                 | $\varnothing D_2$ | $\varnothing D$ | $\varnothing D_3$ | $L_1$ | $L_2$ | $L_4$ | T   | C   | new                |  |
|-------------------------------|-----------------|-------------------|---|------------|-----------------|-------------------|-----------------|-------------------|-------|-------|-------|-----|-----|--------------------|--|
| Softsynchro®<br>1<br>Slim/MQL | M4,5 - M6<br>M8 | 6                 | Außenkegel<br>External taper<br>90°<br> | ER 16 (GB) | Hi-Q/ERMC<br>16 | HSK-A63           | 25              | 22                | 125   | 32    | 5     | 0,5 | 0,5 | F3671C04.XS.53.A03 |  |
|                               |                 |                   |   |            |                 | HSK-A63           | 25              | 22                | 150   | 32    | 5     | 0,5 | 0,5 | F3671C04.S.53.A03  |  |
|                               |                 |                   |   |            |                 | HSK-A63           | 25              | 22                | 175   | 32    | 5     | 0,5 | 0,5 | F3671C04.M.53.A03  |  |
|                               |                 |                   |   |            |                 | HSK-A63           | 25              | 22                | 200   | 32    | 5     | 0,5 | 0,5 | F3671C04.L.53.A03  |  |
|                               |                 |                   |   |            |                 | HSK-A100          | 25              | 22                | 125   | 50    | 5     | 0,5 | 0,5 | F3671C06.XS.53.A03 |  |
|                               |                 |                   |   |            |                 | HSK-A100          | 25              | 22                | 150   | 50    | 5     | 0,5 | 0,5 | F3671C06.S.53.A03  |  |
|                               | M7, M10         | 7                 | Außenkegel<br>External taper<br>90°<br> | ER 16 (GB) | Hi-Q/ERMC<br>16 | HSK-A63           | 25              | 22                | 125   | 32    | 5     | 0,5 | 0,5 | F3671C04.XS.53.A04 |  |
|                               |                 |                   |   |            |                 | HSK-A63           | 25              | 22                | 150   | 32    | 5     | 0,5 | 0,5 | F3671C04.S.53.A04  |  |
|                               |                 |                   |   |            |                 | HSK-A63           | 25              | 22                | 175   | 32    | 5     | 0,5 | 0,5 | F3671C04.M.53.A04  |  |
|                               |                 |                   |   |            |                 | HSK-A63           | 25              | 22                | 200   | 32    | 5     | 0,5 | 0,5 | F3671C04.L.53.A04  |  |
|                               |                 |                   |   |            |                 | HSK-A100          | 25              | 22                | 125   | 50    | 5     | 0,5 | 0,5 | F3671C06.XS.53.A04 |  |
|                               |                 |                   |   |            |                 | HSK-A100          | 25              | 22                | 150   | 50    | 5     | 0,5 | 0,5 | F3671C06.S.53.A04  |  |
|                               | M8              | 8                 | Außenkegel<br>External taper<br>90°<br> | ER 16 (GB) | Hi-Q/ERMC<br>16 | HSK-A63           | 25              | 22                | 125   | 32    | 5     | 0,5 | 0,5 | F3671C04.XS.53.A05 |  |
|                               |                 |                   |   |            |                 | HSK-A63           | 25              | 22                | 150   | 32    | 5     | 0,5 | 0,5 | F3671C04.S.53.A05  |  |
|                               |                 |                   |   |            |                 | HSK-A63           | 25              | 22                | 175   | 32    | 5     | 0,5 | 0,5 | F3671C04.M.53.A05  |  |
|                               |                 |                   |   |            |                 | HSK-A63           | 25              | 22                | 200   | 32    | 5     | 0,5 | 0,5 | F3671C04.L.53.A05  |  |
|                               |                 |                   |   |            |                 | HSK-A100          | 25              | 22                | 125   | 50    | 5     | 0,5 | 0,5 | F3671C06.XS.53.A05 |  |
|                               |                 |                   |   |            |                 | HSK-A100          | 25              | 22                | 150   | 50    | 5     | 0,5 | 0,5 | F3671C06.S.53.A05  |  |
|                               | M12             | 9                 | Außenkegel<br>External taper<br>90°<br> | ER 16 (GB) | Hi-Q/ERMC<br>16 | HSK-A63           | 25              | 22                | 125   | 32    | 5     | 0,5 | 0,5 | F3671C04.XS.53.A06 |  |
|                               |                 |                   |   |            |                 | HSK-A63           | 25              | 22                | 150   | 32    | 5     | 0,5 | 0,5 | F3671C04.S.53.A06  |  |
|                               |                 |                   |   |            |                 | HSK-A63           | 25              | 22                | 175   | 32    | 5     | 0,5 | 0,5 | F3671C04.M.53.A06  |  |
|                               |                 |                   |   |            |                 | HSK-A63           | 25              | 22                | 200   | 32    | 5     | 0,5 | 0,5 | F3671C04.L.53.A06  |  |
|                               |                 |                   |   |            |                 | HSK-A100          | 25              | 22                | 125   | 50    | 5     | 0,5 | 0,5 | F3671C06.XS.53.A06 |  |
|                               |                 |                   |   |            |                 | HSK-A100          | 25              | 22                | 150   | 50    | 5     | 0,5 | 0,5 | F3671C06.S.53.A06  |  |
| HSK-A100                      | 25              | 22                | 175                                     | 50         | 5               | 0,5               | 0,5             | F3671C06.M.53.A06 |       |       |       |     |     |                    |  |
| HSK-A100                      | 25              | 22                | 200                                     | 50         | 5               | 0,5               | 0,5             | F3671C06.L.53.A06 |       |       |       |     |     |                    |  |

1) Einstecktiefen E siehe Seite 754  
Clamping depths E, see page 754

Kühlschmierstoffrohr und Längeneinstellschraube sind Bestandteile der Spannzangen-Aufnahme und für eine optimale MMS-Übergabe notwendig  
Coolant-lubricant tube and length adjustment screw are included in collet holder and required for optimum MQL transfer

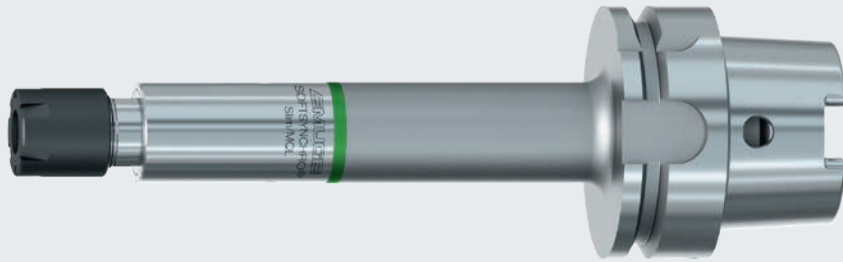
Spannmutter für Dichtscheiben ist im Lieferumfang enthalten  
Clamping nut for sealing disks is included in the delivery

MMS-Übergabe passend zu DIN 69090-4 und vielen Werknormen  
MQL supply according to DIN 69090-4 and many internal standards

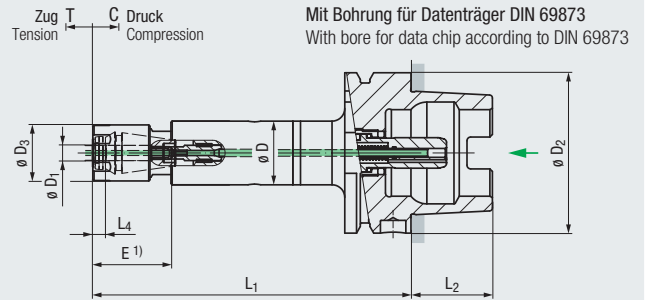


# Softsynchro® Slim/MQL

**HSK-A**  
DIN 69893-1



|                                  |             |
|----------------------------------|-------------|
| MMS MQL                          | MQL 2       |
| $p_{max}$<br>10 bar<br>(140 psi) | T C<br>Soft |
|                                  | L+ 2 mm     |



**Einsatz auf Maschinen mit Synchronspindel** For use on machines with synchronous spindle

| Typ<br>Type                    |                  | $\varnothing D_1$ | Werkzeugkegel<br>Tool taper             |            |                 | $\varnothing D_2$ | $\varnothing D$ | $\varnothing D_3$ | L <sub>1</sub> | L <sub>2</sub> | L <sub>4</sub> | T   | C   | <b>new</b><br>            |                           |
|--------------------------------|------------------|-------------------|---|------------|-----------------|-------------------|-----------------|-------------------|----------------|----------------|----------------|-----|-----|---------------------------|---------------------------|
| <b>Softsynchro® 1 Slim/MQL</b> | M4,5 - M10       | 6 / 7             | Innenkegel<br>Internal taper<br>60°<br> | ER 16 (GB) | Hi-Q/ERMC<br>16 | HSK-A63           | 25              | 22                | 125            | 32             | 5              | 0,5 | 0,5 | <b>F3671C04.XS.54.I01</b> |                           |
|                                |                  |                   |   |            |                 | HSK-A63           | 25              | 22                | 150            | 32             | 5              | 0,5 | 0,5 | <b>F3671C04.S.54.I01</b>  |                           |
|                                |                  |                   |   |            |                 | HSK-A63           | 25              | 22                | 175            | 32             | 5              | 0,5 | 0,5 | <b>F3671C04.M.54.I01</b>  |                           |
|                                |                  |                   |   |            |                 | HSK-A63           | 25              | 22                | 200            | 32             | 5              | 0,5 | 0,5 | <b>F3671C04.L.54.I01</b>  |                           |
|                                |                  |                   |   |            |                 | HSK-A100          | 25              | 22                | 125            | 50             | 5              | 0,5 | 0,5 | <b>F3671C06.XS.54.I01</b> |                           |
|                                |                  |                   |   |            |                 | HSK-A100          | 25              | 22                | 150            | 50             | 5              | 0,5 | 0,5 | <b>F3671C06.S.54.I01</b>  |                           |
|                                | M8, M9, M11, M12 | 8 / 9             | 60°                                     | ER 16 (GB) | Hi-Q/ERMC<br>16 | HSK-A100          | 25              | 22                | 175            | 50             | 5              | 0,5 | 0,5 | <b>F3671C06.M.54.I01</b>  |                           |
|                                |                  |                   |   |            |                 | HSK-A100          | 25              | 22                | 200            | 50             | 5              | 0,5 | 0,5 | <b>F3671C06.L.54.I01</b>  |                           |
|                                |                  |                   |   |            |                 | HSK-A63           | 25              | 22                | 125            | 32             | 5              | 0,5 | 0,5 | <b>F3671C04.XS.54.I02</b> |                           |
|                                |                  |                   |   |            |                 | HSK-A63           | 25              | 22                | 150            | 32             | 5              | 0,5 | 0,5 | <b>F3671C04.S.54.I02</b>  |                           |
|                                |                  |                   |   |            |                 | HSK-A63           | 25              | 22                | 175            | 32             | 5              | 0,5 | 0,5 | <b>F3671C04.M.54.I02</b>  |                           |
|                                |                  |                   |   |            |                 | HSK-A63           | 25              | 22                | 200            | 32             | 5              | 0,5 | 0,5 | <b>F3671C04.L.54.I02</b>  |                           |
|                                |                  |                   |   |            |                 |                   | HSK-A100        | 25                | 22             | 125            | 50             | 5   | 0,5 | 0,5                       | <b>F3671C06.XS.54.I02</b> |
|                                |                  |                   |   |            |                 |                   | HSK-A100        | 25                | 22             | 150            | 50             | 5   | 0,5 | 0,5                       | <b>F3671C06.S.54.I02</b>  |
|                                |                  |                   |   |            |                 |                   | HSK-A100        | 25                | 22             | 175            | 50             | 5   | 0,5 | 0,5                       | <b>F3671C06.M.54.I02</b>  |
|                                |                  |                   |   |            |                 |                   | HSK-A100        | 25                | 22             | 200            | 50             | 5   | 0,5 | 0,5                       | <b>F3671C06.L.54.I02</b>  |

## Zubehör Accessories

Spannzangen Typ ER (GB)  
Collets type ER (GB) ▶▶ 746 - 747

Dichtscheiben Typ DS/ER  
Sealing disks type DS/ER ▶▶ 750

Längeneinstellschrauben  
Length adjustment screws ▶▶ 745

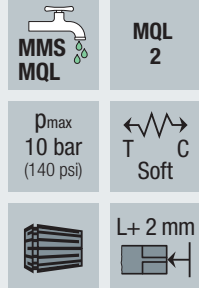
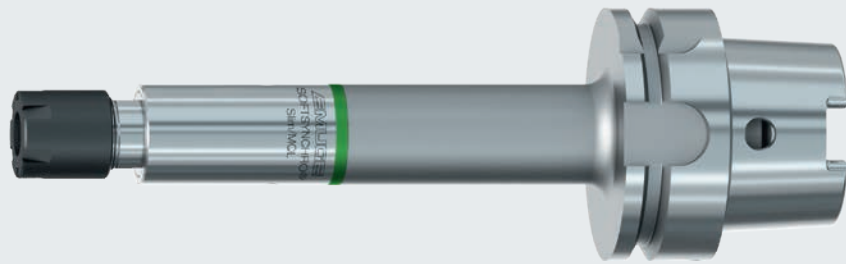
Spannschlüsselsatz  
Set of clamping wrenches ▶▶ 758

Montagevorrichtung  
Assembly device ▶▶ 756

Drehmomentschlüssel  
Torque wrenches ▶▶ 759

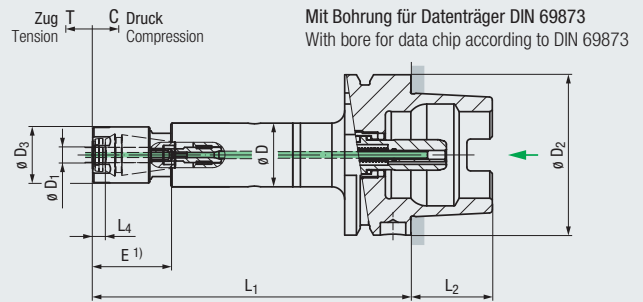
## Softsynchro® Slim/MQL

**HSK-A**  
DIN 69893-1



Einsatz auf Maschinen  
mit Synchronspindel

For use on machines  
with synchronous spindle



| Typ<br>Type                   |                 | $\varnothing D_1$ | Werkzeugkegel<br>Tool taper             |            |                 | $\varnothing D_2$ | $\varnothing D$ | $\varnothing D_3$ | $L_1$ | $L_2$ | $L_4$ | T   | C   | <b>new</b><br>     |
|-------------------------------|-----------------|-------------------|---|------------|-----------------|-------------------|-----------------|-------------------|-------|-------|-------|-----|-----|--------------------|
| Softsynchro®<br>1<br>Slim/MQL | M4,5 - M6<br>M8 | 6                 | Außenkegel<br>External taper<br>90°<br> | ER 16 (GB) | Hi-Q/ERMC<br>16 | HSK-A63           | 25              | 22                | 125   | 32    | 5     | 0,5 | 0,5 | F3671C04.XS.54.A03 |
|                               |                 |                   |   |            |                 | HSK-A63           | 25              | 22                | 150   | 32    | 5     | 0,5 | 0,5 | F3671C04.S.54.A03  |
|                               |                 |                   |   |            |                 | HSK-A63           | 25              | 22                | 175   | 32    | 5     | 0,5 | 0,5 | F3671C04.M.54.A03  |
|                               |                 |                   |   |            |                 | HSK-A63           | 25              | 22                | 200   | 32    | 5     | 0,5 | 0,5 | F3671C04.L.54.A03  |
|                               |                 |                   |   |            |                 | HSK-A100          | 25              | 22                | 125   | 50    | 5     | 0,5 | 0,5 | F3671C06.XS.54.A03 |
|                               |                 |                   |   |            |                 | HSK-A100          | 25              | 22                | 150   | 50    | 5     | 0,5 | 0,5 | F3671C06.S.54.A03  |
|                               | M7, M10         | 7                 | Außenkegel<br>External taper<br>90°<br> | ER 16 (GB) | Hi-Q/ERMC<br>16 | HSK-A63           | 25              | 22                | 125   | 32    | 5     | 0,5 | 0,5 | F3671C04.XS.54.A04 |
|                               |                 |                   |   |            |                 | HSK-A63           | 25              | 22                | 150   | 32    | 5     | 0,5 | 0,5 | F3671C04.S.54.A04  |
|                               |                 |                   |   |            |                 | HSK-A63           | 25              | 22                | 175   | 32    | 5     | 0,5 | 0,5 | F3671C04.M.54.A04  |
|                               |                 |                   |   |            |                 | HSK-A63           | 25              | 22                | 200   | 32    | 5     | 0,5 | 0,5 | F3671C04.L.54.A04  |
|                               |                 |                   |   |            |                 | HSK-A100          | 25              | 22                | 125   | 50    | 5     | 0,5 | 0,5 | F3671C06.XS.54.A04 |
|                               |                 |                   |   |            |                 | HSK-A100          | 25              | 22                | 150   | 50    | 5     | 0,5 | 0,5 | F3671C06.S.54.A04  |
|                               | M8              | 8                 | Außenkegel<br>External taper<br>90°<br> | ER 16 (GB) | Hi-Q/ERMC<br>16 | HSK-A63           | 25              | 22                | 125   | 32    | 5     | 0,5 | 0,5 | F3671C04.XS.54.A05 |
|                               |                 |                   |   |            |                 | HSK-A63           | 25              | 22                | 150   | 32    | 5     | 0,5 | 0,5 | F3671C04.S.54.A05  |
|                               |                 |                   |   |            |                 | HSK-A63           | 25              | 22                | 175   | 32    | 5     | 0,5 | 0,5 | F3671C04.M.54.A05  |
|                               |                 |                   |   |            |                 | HSK-A63           | 25              | 22                | 200   | 32    | 5     | 0,5 | 0,5 | F3671C04.L.54.A05  |
|                               |                 |                   |   |            |                 | HSK-A100          | 25              | 22                | 125   | 50    | 5     | 0,5 | 0,5 | F3671C06.XS.54.A05 |
|                               |                 |                   |   |            |                 | HSK-A100          | 25              | 22                | 150   | 50    | 5     | 0,5 | 0,5 | F3671C06.S.54.A05  |
|                               | M12             | 9                 | Außenkegel<br>External taper<br>90°<br> | ER 16 (GB) | Hi-Q/ERMC<br>16 | HSK-A63           | 25              | 22                | 125   | 32    | 5     | 0,5 | 0,5 | F3671C04.XS.54.A06 |
|                               |                 |                   |   |            |                 | HSK-A63           | 25              | 22                | 150   | 32    | 5     | 0,5 | 0,5 | F3671C04.S.54.A06  |
|                               |                 |                   |   |            |                 | HSK-A63           | 25              | 22                | 175   | 32    | 5     | 0,5 | 0,5 | F3671C04.M.54.A06  |
|                               |                 |                   |   |            |                 | HSK-A63           | 25              | 22                | 200   | 32    | 5     | 0,5 | 0,5 | F3671C04.L.54.A06  |
|                               |                 |                   |   |            |                 | HSK-A100          | 25              | 22                | 125   | 50    | 5     | 0,5 | 0,5 | F3671C06.XS.54.A06 |
|                               |                 |                   |   |            |                 | HSK-A100          | 25              | 22                | 150   | 50    | 5     | 0,5 | 0,5 | F3671C06.S.54.A06  |

1) Einstecktiefen E siehe Seite 754  
Clamping depths E, see page 754

Kühlschmierstoffrohr und Längeneinstellschraube sind Bestandteile der Spannzangen-Aufnahme und für eine optimale MMS-Übergabe notwendig  
Coolant-lubricant tube and length adjustment screw are included in collet holder and required for optimum MQL transfer

Spannmutter für Dichtscheiben ist im Lieferumfang enthalten  
Clamping nut for sealing disks is included in the delivery

MMS-Übergabe passend zu DIN 69090-4 und vielen Werknormen  
MQL supply according to DIN 69090-4 and many internal standards

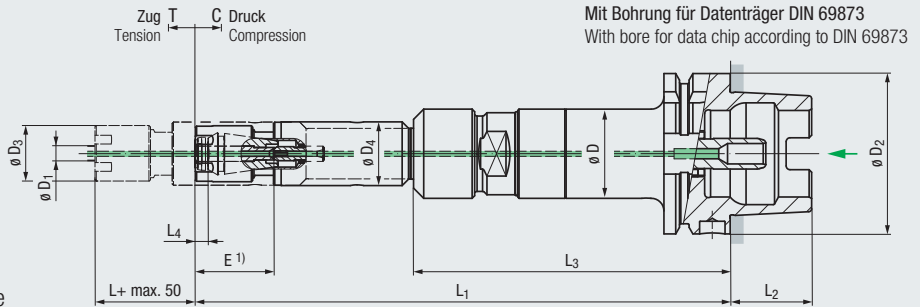


# Softsynchro® Xtension/MQL

**HSK-A**  
DIN 69893-1



|                                |              |
|--------------------------------|--------------|
|                                | <b>MQL 1</b> |
| $p_{max}$<br>6 bar<br>(85 psi) | <br>Soft     |
| L+ 2 mm                        |              |
|                                |              |



**Einsatz auf Maschinen mit Synchronspindel** For use on machines with synchronous spindle

| Typ<br>Type                        |              | $\phi D_1$       | Werkzeugkegel<br>Tool taper         |            |                 | $\phi D_2$ | $\phi D$ | $\phi D_3$ | $\phi D_4$ | $L_1$ | $L_2$ | $L_3$ | $L_4$                  | T   | C   | new                    |                        |
|------------------------------------|--------------|------------------|-------------------------------------|------------|-----------------|------------|----------|------------|------------|-------|-------|-------|------------------------|-----|-----|------------------------|------------------------|
| <b>Softsynchro® 1 Xtension/MQL</b> | M4,5 - M10   | 6 / 7            | Innenkegel<br>Internal taper<br>60° | ER 16 (GB) | Hi-Q/ERMC<br>16 | HSK-A63    | 35       | 22         | 25         | 210   | 32    | 124,3 | 5                      | 0,5 | 0,5 | <b>F3811C04.53.I01</b> |                        |
|                                    |              |                  |                                     |            |                 | HSK-A100   | 35       | 22         | 25         | 216,5 | 32    | 130,8 | 5                      | 0,5 | 0,5 | <b>F3811C06.53.I01</b> |                        |
|                                    |              | M8, M9, M11, M12 | 8 / 9                               |            |                 |            | HSK-A63  | 35         | 22         | 25    | 210   | 32    | 124,3                  | 5   | 0,5 | 0,5                    | <b>F3811C04.53.I02</b> |
|                                    |              |                  |                                     |            |                 |            | HSK-A100 | 35         | 22         | 25    | 216,5 | 32    | 130,8                  | 5   | 0,5 | 0,5                    | <b>F3811C06.53.I02</b> |
|                                    | M4,5 - M6 M8 | 6                | Außenkegel<br>External taper<br>90° | ER 16 (GB) | Hi-Q/ERMC<br>16 | HSK-A63    | 35       | 22         | 25         | 210   | 32    | 124,3 | 5                      | 0,5 | 0,5 | <b>F3811C04.53.A03</b> |                        |
|                                    |              |                  |                                     |            |                 | HSK-A100   | 35       | 22         | 25         | 216,5 | 32    | 130,8 | 5                      | 0,5 | 0,5 | <b>F3811C06.53.A03</b> |                        |
|                                    |              | M7, M10          |                                     |            |                 | 7          | HSK-A63  | 35         | 22         | 25    | 210   | 32    | 124,3                  | 5   | 0,5 | 0,5                    | <b>F3811C04.53.A04</b> |
|                                    |              |                  |                                     |            |                 |            | HSK-A100 | 35         | 22         | 25    | 216,5 | 32    | 130,8                  | 5   | 0,5 | 0,5                    | <b>F3811C06.53.A04</b> |
|                                    |              | M8               |                                     |            |                 | 8          | HSK-A63  | 35         | 22         | 25    | 210   | 32    | 124,3                  | 5   | 0,5 | 0,5                    | <b>F3811C04.53.A05</b> |
|                                    |              |                  |                                     |            |                 |            | HSK-A100 | 35         | 22         | 25    | 216,5 | 32    | 130,8                  | 5   | 0,5 | 0,5                    | <b>F3811C06.53.A05</b> |
|                                    | M12          | 9                | HSK-A63                             | 35         | 22              | 25         | 210      | 32         | 124,3      | 5     | 0,5   | 0,5   | <b>F3811C04.53.A06</b> |     |     |                        |                        |
|                                    |              |                  | HSK-A100                            | 35         | 22              | 25         | 216,5    | 32         | 130,8      | 5     | 0,5   | 0,5   | <b>F3811C06.53.A06</b> |     |     |                        |                        |

1) Einstecktiefen E siehe Seite 754  
Clamping depths E, see page 754

Kühlschmierstoffrohr und Längeneinstellschraube sind Bestandteile der Spannzangen-Aufnahme und für eine optimale MMS-Übergabe notwendig  
Coolant-lubricant tube and length adjustment screw are included in collet holder and required for optimum MQL transfer

Spannmutter für Dichtscheiben ist im Lieferumfang enthalten  
Clamping nut for sealing disks is included in the delivery

MMS-Übergabe passend zu DIN 69090-4 und vielen Werknormen  
MQL supply according to DIN 69090-4 and many internal standards

## Zubehör Accessories

|  |   |             |  |  |                 |
|--|---|-------------|--|--|-----------------|
|  | Spannzangen Typ ER (GB)<br>Collets type ER (GB)                   | » 746 - 747 |  | Spannschlüsselsatz<br>Set of clamping wrenches                         | » 758           |
|  | Dichtscheiben Typ DS/ER<br>Sealing disks type DS/ER               | » 750       |  | Montagevorrichtung<br>Assembly device                                  | » 756           |
|  | Längeneinstellschrauben<br>Length adjustment screws               | » 745       |  | Drehmomentschlüssel<br>Torque wrenches                                 | » 759           |
|  | Kühlschmierstoffrohre und Schlüssel<br>Coolant tubes and wrenches | » 742 - 743 |  | Drehmomentschlüssel mit Rollenschlüsselaufsatz<br>Torque roller wrench | <b>F0900006</b> |

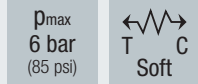


## Softsynchro®/MMS

**HSK-A**  
DIN 69893-1



**MQL**  
1



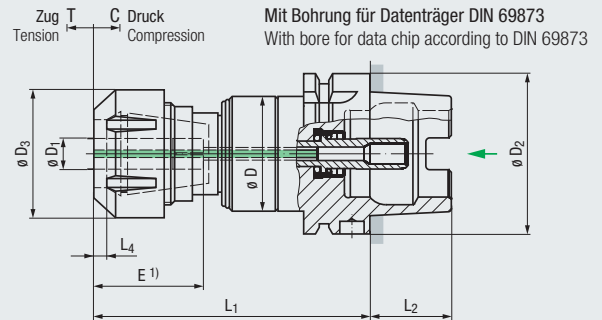
$p_{max}$   
6 bar  
(85 psi)

T C  
Soft



**Einsatz auf Maschinen  
mit Synchronspindel**

For use on machines  
with synchronous spindle



| Typ<br>Type                   |            | $\theta D_1$ |            |                | $\theta D_2$ | $\theta D$ | $\theta D_3$ | $L_1$ | $L_2$ | $L_4$ | T   | C   |                      |
|-------------------------------|------------|--------------|------------|----------------|--------------|------------|--------------|-------|-------|-------|-----|-----|----------------------|
| <b>Softsynchro®<br/>1/MMS</b> | M4,5 - M10 | 6 - 8        | ER 20 (GB) | Hi-Q/ERC<br>20 | HSK-A50      | 34         | 34           | 93,5  | 25    | 5     | 0,5 | 0,5 | <b>F3491C03.1.68</b> |
|                               |            |              |            |                | HSK-A63      | 34         | 34           | 95,5  | 32    | 5     | 0,5 | 0,5 | <b>F3491C04.1.68</b> |
|                               | M10 - M12  | 9 - 10       |            |                | HSK-A100     | 34         | 34           | 102   | 50    | 5     | 0,5 | 0,5 | <b>F3491C06.1.68</b> |
|                               |            |              |            |                | HSK-A50      | 34         | 34           | 93,5  | 25    | 5     | 0,5 | 0,5 | <b>F3491C03.1</b>    |
|                               |            |              |            |                | HSK-A63      | 34         | 34           | 95,5  | 32    | 5     | 0,5 | 0,5 | <b>F3491C04.1</b>    |
| <b>Softsynchro®<br/>3/MMS</b> | M10 - M20  | 9 - 16       | ER 32 (GB) | Hi-Q/ERC<br>32 | HSK-A50      | 45         | 50           | 116,3 | 25    | 5     | 0,5 | 0,5 | <b>F3493C03.1</b>    |
|                               |            |              |            |                | HSK-A63      | 45         | 50           | 108,8 | 32    | 5     | 0,5 | 0,5 | <b>F3493C04.1</b>    |
|                               |            |              |            |                | HSK-A100     | 45         | 50           | 115,3 | 50    | 5     | 0,5 | 0,5 | <b>F3493C06.1</b>    |

1) Einstecktiefen E siehe Seite 754  
Clamping depths E, see page 754

Weitere Ausführungen auf Anfrage  
Further designs upon request

Kühlschmierstoffrohr ist im Schaft enthalten und darf nicht demontiert werden, da sonst die Funktion der MMS-Übergabe nicht mehr gewährleistet ist!  
Coolant tube is integrated into the shank and must not be disassembled, otherwise the function of the MMS transfer is no longer warranted!

Spannmutter für Dichtscheiben ist im Lieferumfang enthalten  
Clamping nut for sealing disks is included in the delivery

MMS-Übergabe passend zu DIN 69090-4 und vielen Werknormen  
MQL supply according to DIN 69090-4 and many internal standards

## Zubehör

Accessories



Spannzangen Typ ER (GB)  
Collets type ER (GB)

» 746 - 747



Dichtscheiben Typ DS/ER  
Sealing disks type DS/ER

» 750



Spann Schlüsselset  
Set of clamping wrenches

» 758



Montagevorrichtung  
Assembly device

» 756



Drehmomentschlüssel  
Torque wrenches

» 759



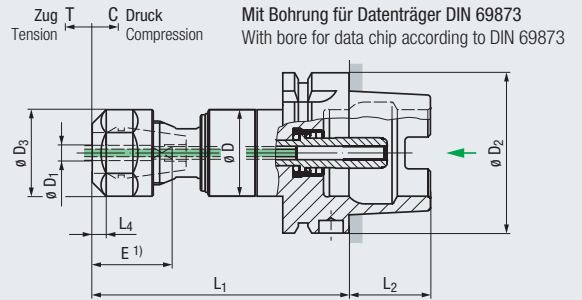
# Softsynchro®/MMS

**HSK-A**  
DIN 69893-1



**MMS MQL** **MLQ 2**

$p_{max}$  6 bar (85 psi) **Soft**



**Einsatz auf Maschinen mit Synchronspindel** For use on machines with synchronous spindle

| Typ Type                  |            | $\theta D_1$ |            |             | $\theta D_2$ | $\theta D$ | $\theta D_3$ | $L_1$ | $L_2$ | $L_4$ | T   | C   |                   |
|---------------------------|------------|--------------|------------|-------------|--------------|------------|--------------|-------|-------|-------|-----|-----|-------------------|
| <b>Softsynchro® 1/MMS</b> | M4,5 - M12 | 6 - 10       | ER 20 (GB) | Hi-Q/ERC 20 | HSK-A50      | 34         | 34           | 93,5  | 25    | 5     | 0,5 | 0,5 | <b>F3511C03.1</b> |
|                           |            |              |            |             | HSK-A63      | 34         | 34           | 95,5  | 32    | 5     | 0,5 | 0,5 | <b>F3511C04.1</b> |
|                           |            |              |            |             | HSK-A100     | 34         | 34           | 102   | 50    | 5     | 0,5 | 0,5 | <b>F3511C06.1</b> |

1) Einstecktiefen E siehe Seite 754  
Clamping depths E, see page 754

Weitere Ausführungen auf Anfrage  
Further designs upon request

Kühlschmierstoffrohr ist im Schaft enthalten und darf nicht demontiert werden, da sonst die Funktion der MMS-Übergabe nicht mehr gewährleistet ist!  
Coolant tube is integrated into the shank and must not be disassembled, otherwise the function of the MQL transfer is no longer warranted!

Spannmutter für Dichtscheiben ist im Lieferumfang enthalten  
Clamping nut for sealing disks is included in the delivery

MMS-Übergabe passend zu DIN 69090-4 und vielen Werknormen  
MQL supply according to DIN 69090-4 and many internal standards

## Zubehör Accessories

Spannzangen Typ ER (GB)  
Collets type ER (GB) 746 - 747

Dichtscheiben Typ DS/ER  
Sealing disks type DS/ER 750

Spannschlüsselsatz  
Set of clamping wrenches 758

Montagevorrichtung  
Assembly device 756

Drehmomentschlüssel  
Torque wrenches 759

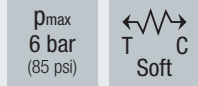


## Softsynchro®/MMS

HSK-C 2)  
DIN 69893-1

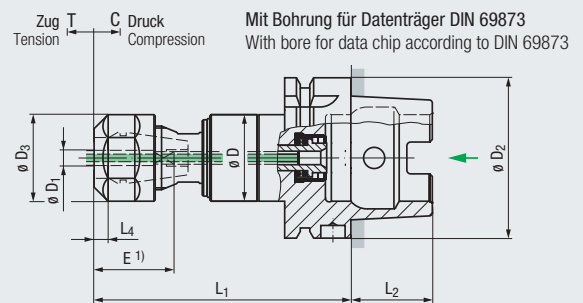






MQL  
1



Einsatz auf Maschinen  
mit Synchronspindel

For use on machines  
with synchronous spindle



| Typ<br>Type           |  | ø D <sub>1</sub> |  |  | ø D <sub>2</sub> | ø D | ø D <sub>3</sub> | L <sub>1</sub> | L <sub>2</sub> | L <sub>4</sub> | T   | C   |  |
|-----------------------|---|------------------|---|---|------------------|-----|------------------|----------------|----------------|----------------|-----|-----|---|
| Softsynchro®<br>1/MMS | M4,5 - M10  | 6 - 8            | ER 20 (GB)  | Hi-Q/ERC<br>20  | HSK-A63          | 34  | 34               | 95,5           | 32             | 5              | 0,5 | 0,5 | F3491C04.1.5268   |
|                       | M10 - M12   | 9 - 10           |   |   | HSK-A63          | 34  | 34               | 95,5           | 32             | 5              | 0,5 | 0,5 | F3491C04.1.52   |

1) Einstecktiefen E siehe Seite 754  
Clamping depths E, see page 754

2) Außenkontur entspricht DIN 69893 A, Innenkontur nach DIN 69893 C  
Outside contour acc. DIN 69893 A, inside contour acc. DIN 69893 C

Weitere Ausführungen auf Anfrage  
Further designs upon request

Kühlschmierstoffrohr ist im Schaft enthalten und darf nicht demontiert werden, da sonst die Funktion der MMS-Übergabe nicht mehr gewährleistet ist!  
Coolant tube is integrated into the shank and must not be disassembled, otherwise the function of the MQL transfer is no longer warranted!

Spannmutter für Dichtscheiben ist im Lieferumfang enthalten  
Clamping nut for sealing disks is included in the delivery

MMS-Übergabe passend zu DIN 69090-4 und vielen Werknormen  
MQL supply according to DIN 69090-4 and many internal standards

## Zubehör

## Accessories



Spannzangen Typ ER (GB)  
Collets type ER (GB)

» 746 - 747



Dichtscheiben Typ DS/ER  
Sealing disks type DS/ER

» 750



Spannschlüsselsatz  
Set of clamping wrenches

» 758



Montagevorrichtung  
Assembly device

» 756



Drehmomentschlüssel  
Torque wrenches

» 759



- Product Finder
- Soft-synchro
- Speed-synchro
- KSN
- MQL MMS**
- SFM
- SWITCH-MASTER
- HF
- EM
- Zubehör Accessories



**EMUGE**  
SPEEDSYNCHRO®



For release  
the nut press



| Gewindeanzahl | Letzter Service | Servicestatus   |
|---------------|-----------------|-----------------|
| 700374        | 25.04.2019      | OK              |
| Einsatzdauer  | Temperatur      | Batterie        |
| 12:23:43      | 34°C            | Voll            |
| Datum         | Uhrzeit         | Equipmentnummer |
| 23.05.2019    | 12:19:43        | 00001051        |



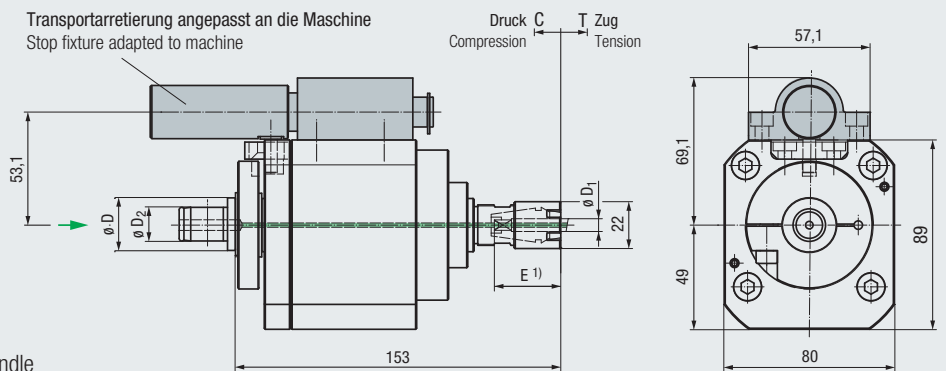
# Speedsynchro® Modular NFC/MQL

**ABS®**  
(System KOMET)



- MMS MQL**
- $p_{max}$  10 bar (140 psi)
- L+ 2 mm
- C T Soft
- NFC**
- 
- 

Transportarretierung angepasst an die Maschine  
Stop fixture adapted to machine



**Einsatz auf Maschinen mit Synchronspindel** For use on machines with synchronous spindle

| Typ<br>Type                              |           |            |              | $\phi D$ | $\phi D_2$ | $\phi D_1$ | Max. Spindeldrehzahl<br>[min <sup>-1</sup> ]<br>Max. spindle speed<br>[rpm] | Übersetzungs-<br>verhältnis<br>Transmission<br>ratio | C   | T   |                 |
|--|-----------|------------|--------------|----------|------------|------------|---|--|-----|-----|-----------------|
| <b>Speedsynchro®<br/>Modular NFC/MQL</b> | M4,5 - M8 | ER 16 (GB) | HI-Q/ERMC 16 | ABS 32   | 16         | 4 - 8      | 2000  | 1 : 4,412  | 0,5 | 0,5 | <b>F3771L01</b> |

1) Einstecktiefen E siehe Seite 754  
Clamping depths E, see page 754

Spannmutter für Dichtscheiben ist im Lieferumfang enthalten  
Clamping nut for sealing disks is included in the delivery

Die Spannzangen-Aufnahme Speedsynchro® Modular NFC/MQL kann nur mit Adaptionsschäfte, MMS-Kühlschmierstoffrohr, Transportarretierung und Längeneinstellschraube eingesetzt werden.  
Die Anpassung der Transportarretierung an die maschinenseitigen Vorgaben erfolgt durch EMUGE. Bitte wenden Sie sich hierfür an den für Sie zuständigen Vertriebspartner.

The collet holder Speedsynchro® Modular NFC/MQL can only be used with adapter shank, MQL coolant tube, stop fixture and length adjustment screw.  
The adaptation of the stop fixture to the specifications of the machine is carried out by EMUGE. Please contact your responsible distribution partner for more information.

## Zubehör Accessories

- Adaptionsschäfte**  
Adapter shanks      741
- Spannzangen Typ ER (GB)**  
Collets type ER (GB)      746 - 747
- Dichtscheiben Typ DS/ER**  
Sealing disks type DS/ER      750
- Montagevorrichtung**  
Assembly device      757
- Längeneinstellschrauben**  
Length adjustment screws      745
- Kühlschmierstoffrohre und Schlüssel**  
Coolant tubes and wrenches      742 - 743
- Drehmomentschlüssel**  
Torque wrenches      759

Product Finder

- Soft-synchro
- Speed-synchro
- KSN
- MQL MMS**
- SF
- SWITCH-MASTER
- HF
- EM
- Zubehör Accessories



# KSN/MQL

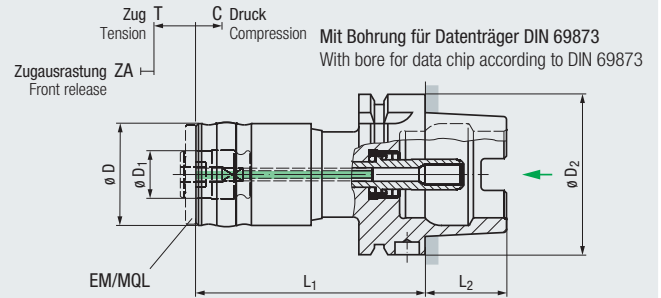
## HSK-A

DIN 69893-1






MQL  
1

$p_{max}$   
6 bar  
(85 psi)



Einsatz auf CNC-Bearbeitungszentren und sonstigen Werkzeugmaschinen

For use on CNC machining centres and other machine tools

| Typ<br>Type      |  |  | $\varnothing D_2$ | $\varnothing D$ | $\varnothing D_1$ | $L_1$ | $L_2$ | T | C | ZA  |  |
|------------------|---|---|-------------------|-----------------|-------------------|-------|-------|---|---|-----|---|
| <b>KSN 1/MQL</b> | M6 - M12<br>(Nr.10 - 1/2)   | EM 01/MQL   | HSK-A40           | 40              | 19                | 88    | 20    | 5 | 5 | 2,5 | <b>F3471C02.1</b>   |
|                  |   |   | HSK-A50           | 40              | 19                | 90    | 25    | 5 | 5 | 2,5 | F3471C03.1  |
|                  |   |   | HSK-A63           | 40              | 19                | 90    | 32    | 5 | 5 | 2,5 | <b>F3471C04.1</b>   |
|                  |   |   | HSK-A80           | 40              | 19                | 93    | 40    | 5 | 5 | 2,5 | F3471C05.1  |
|                  |   |   | HSK-A100          | 40              | 19                | 93    | 50    | 5 | 5 | 2,5 | <b>F3471C06.1</b>   |
| <b>KSN 3/MQL</b> | M10 - M24<br>(9/16 - 1")  | EM 03/MQL   | HSK-A63           | 56              | 31                | 120   | 32    | 7 | 7 | 3   | <b>F3473C04.1</b>   |
|                  |   |   | HSK-A80           | 56              | 31                | 125   | 40    | 7 | 7 | 3   | <b>F3473C05.1</b>   |
|                  |   |   | HSK-A100          | 56              | 31                | 128   | 50    | 7 | 7 | 3   | F3473C06.1  |

Ausführung für 2-Kanal-MMS-System auf Anfrage  
Design with 2-channel MQL system upon request

Weitere Ausführungen auf Anfrage  
Further designs upon request

Kühlschmierstoffrohr ist im Schaft enthalten und darf nicht demontiert werden, da sonst die Funktion der MMS-Übergabe nicht mehr gewährleistet ist!  
Coolant tube is integrated into the shank and must not be disassembled, otherwise the function of the MQL transfer is no longer warranted!

MMS-Übergabe passend zu DIN 69090-4 und vielen Werknormen  
MQL supply according to DIN 69090-4 and many internal standards

### Zubehör Accessories



Schnellwechsel-Einsätze Typ EM/MQL  
Quick-change adapters type EM/MQL [» 696](#)



Schnellwechsel-Einsätze Typ EM-Z/MQL  
Quick-change adapters type EM-Z/MQL [» 697 - 698](#)

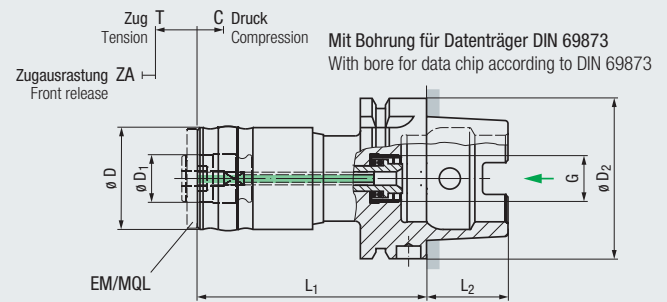


# KSN/MQL

**HSK-C** 2)  
DIN 69893-1



|                                |       |
|--------------------------------|-------|
|                                | MQL 1 |
| $p_{max}$<br>6 bar<br>(85 psi) |       |
|                                |       |
|                                |       |



Einsatz auf CNC-Bearbeitungszentren und sonstigen Werkzeugmaschinen  
For use on CNC machining centres and other machine tools

| Typ<br>Type      |                           |           | $\varnothing D_2$ | $\varnothing D$ | $\varnothing D_1$ | $L_1$ | $L_2$ | T | C | ZA  |                      |
|------------------|---------------------------|-----------|-------------------|-----------------|-------------------|-------|-------|---|---|-----|----------------------|
| <b>KSN 1/MQL</b> | M6 - M12<br>(Nr.10 - 1/2) | EM 01/MQL | HSK-A40           | 40              | 19                | 88    | 20    | 5 | 5 | 2,5 | <b>F3471C02.1.52</b> |
|                  |                           |           | HSK-A50           | 40              | 19                | 90    | 25    | 5 | 5 | 2,5 | F3471C03.1.52        |
|                  |                           |           | HSK-A63           | 40              | 19                | 90    | 32    | 5 | 5 | 2,5 | <b>F3471C04.1.52</b> |
| <b>KSN 3/MQL</b> | M10 - M24<br>(9/16 - 1")  | EM 03/MQL | HSK-A63           | 56              | 31                | 120   | 32    | 7 | 7 | 3   | <b>F3473C04.1.52</b> |
|                  |                           |           | HSK-A80           | 56              | 31                | 125   | 40    | 7 | 7 | 3   | F3473C05.1.52        |
|                  |                           |           | HSK-A100          | 56              | 31                | 128   | 50    | 7 | 7 | 3   | F3473C06.1.52        |

2) Außenkontur entspricht DIN 69893 A, Innenkontur nach DIN 69893 C  
Outside contour acc. DIN 69893 A, inside contour acc. DIN 69893 C

Weitere Ausführungen auf Anfrage  
Further designs upon request

Kühlschmierstoffrohr ist im Schaft enthalten und darf nicht demontiert werden, da sonst die Funktion der MMS-Übergabe nicht mehr gewährleistet ist!  
Coolant tube is integrated into the shank and must not be disassembled, otherwise the function of the MQL transfer is no longer warranted!

MMS-Übergabe passend zu DIN 69090-4 und vielen Werknormen  
MQL supply according to DIN 69090-4 and many internal standards

## Zubehör Accessories

Schnellwechsel-Einsätze Typ EM/MQL  
Quick-change adapters type EM/MQL 696

Schnellwechsel-Einsätze Typ EM-Z/MQL  
Quick-change adapters type EM-Z/MQL 697 - 698

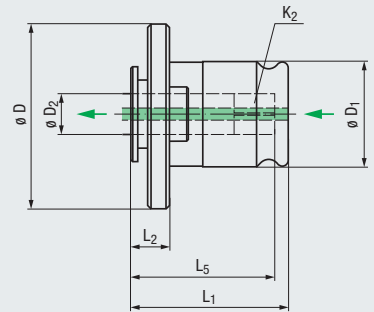
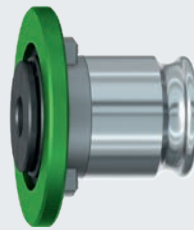
- Product Finder
- Soft-synchro
- Speed-synchro
- KSN
- MQL MMS**
- SFM
- SWITCH-MASTER
- HF
- EM
- Zubehör  
Accessories



- Product Finder
- Soft-synchro
- Speed-synchro
- KSN
- ML MMS**
- SFM
- SWITCH-MASTER
- HF
- EM
- Zubehör Accessories

# EM/MQL

## DIN



$p_{max}$   
**6 bar**  
(85 psi)



| Typ · Type        | EM 01/MQL | EM 03/MQL |  |  |  |
|-------------------|-----------|-----------|--|--|--|
|                   | M6 - M12  | M10 - M24 |  |  |  |
| $\varnothing D$   | 39        | 55        |  |  |  |
| $\varnothing D_1$ | 19        | 31        |  |  |  |
| $L_1$             | 29        | 45        |  |  |  |
| $L_2$             | 7,5       | 10        |  |  |  |

## DIN

| $\varnothing D_2$ | $K_2$ |     |           | $L_5$             | $L_5$ |                   |    |  |  |  |  |
|-------------------|-------|-----|-----------|-------------------|-------|-------------------|----|--|--|--|--|
|                   |       |     |           |                   |       |                   |    |  |  |  |  |
| 6                 | 4,9   | M6  | M8        | <b>F4491106.6</b> | 25    |                   |    |  |  |  |  |
| 7                 | 5,5   | M7  | M9 - M10  | <b>F4491107.6</b> | 25    |                   |    |  |  |  |  |
| 8                 | 6,2   | M8  | M11       | <b>F4491108.6</b> | 26    |                   |    |  |  |  |  |
| 9                 | 7     | M9  | M12       | <b>F4491109.6</b> | 27    |                   |    |  |  |  |  |
| 10                | 8     | M10 |           | <b>F4491110.6</b> | 27    | <b>F4493110.6</b> | 40 |  |  |  |  |
| 11                | 9     |     | M14       |                   |       | <b>F4493111.6</b> | 41 |  |  |  |  |
| 12                | 9     |     | M16       |                   |       | <b>F4493112.6</b> | 41 |  |  |  |  |
| 14                | 11    |     | M18       |                   |       | <b>F4493113.6</b> | 43 |  |  |  |  |
| 16                | 12    |     | M20       |                   |       | <b>F4493114.6</b> | 44 |  |  |  |  |
| 18                | 14,5  |     | M22 - M24 |                   |       | <b>F4493115.6</b> | 44 |  |  |  |  |

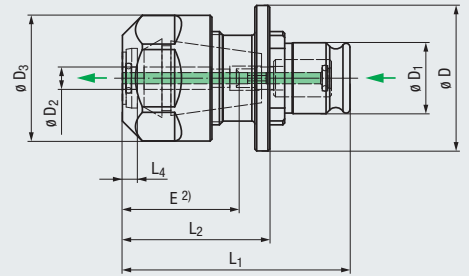
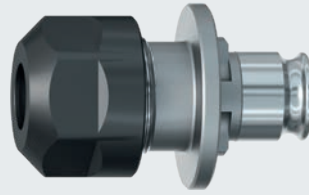
1) Bei Verwendung von Gewindebohrern / Gewindefornern mit innerer Kühlschmierstoff-Zufuhr  
If used with taps / cold-forming taps with internal coolant supply

Großer Griffing – in Kombination mit Schnellwechsel-Aufnahmen der Typenreihe KSN/MQL – ermöglicht stirnseitige Abdichtung  
Large ring handle – combined with quick-change tap holders KSN/MQL – enables face sealing





# EM-Z/MQL



$p_{max}$   
6 bar  
(85 psi)



L+ 2 mm

Product Finder

Soft-synchro

Speed-synchro

KSN

MQL MMS

SFM

SWITCH-MASTER

HF

EM

Zubehör Accessories

| Typ<br>Type |                  | $\varnothing D_1$ | Werkzeugkegel<br>Tool taper             |            |             | $\varnothing D$ | $\varnothing D_1$ | $\varnothing D_3$ | $L_1$ | $L_2$ |                |
|-------------|------------------|-------------------|---|------------|-------------|-----------------|-------------------|-------------------|-------|-------|----------------|
| EM 01-Z/MQL | M4,5 - M10       | 6 / 7             | Innenkegel<br>Internal taper<br>60°<br> | ER 20 (GB) | Hi-Q/ERC 20 | 39              | 19                | 34                | 61    | 39,5  | F4501001.13D6  |
|             | M8, M9, M11, M12 | 8 / 9             |   |            |             | 39              | 19                | 34                | 61    | 39,5  | F4501001.13D8  |
|             | M10              | 10                |   |            |             | 39              | 19                | 34                | 61    | 39,5  | F4501001.13D10 |
|             | M4,5 - M6 M8     | 6                 | Außenkegel<br>External taper<br>90°<br> | ER 20 (GB) | Hi-Q/ERC 20 | 39              | 19                | 34                | 61    | 39,5  | F4501001.23D6  |
|             | M7, M10          | 7                 |   |            |             | 39              | 19                | 34                | 61    | 39,5  | F4501001.23D7  |
|             | M8               | 8                 |   |            |             | 39              | 19                | 34                | 61    | 39,5  | F4501001.23D8  |
|             | M12              | 9                 |   |            |             | 39              | 19                | 34                | 61    | 39,5  | F4501001.23D9  |
|             | M10              | 10                |   |            |             | 39              | 19                | 34                | 61    | 39,5  | F4501001.23D10 |
|             |                  |                   |   |            |             | 39              | 19                | 34                | 61    | 39,5  | F4501001.23D10 |

1) Bei Verwendung von Gewindebohrern / Gewindeformern mit innerer Kühlschmierstoff-Zufuhr  
If used with taps / cold-forming taps with internal coolant supply

2) Einstecktiefen E siehe Seite 754  
Clamping depths E, see page 754

Großer Griffing – in Kombination mit Schnellwechsel-Aufnahmen der Typenreihe KSN/MQL – ermöglicht stirnseitige Abdichtung  
Large ring handle – combined with quick-change tap holders KSN/MQL – enables face sealing

Längeneinstellschraube ist Bestandteil des Schnellwechsel-Einsatzes und für eine optimale MMS-Übergabe notwendig  
Length adjustment screw is included in quick-change adapter and required for optimum MQL transfer

Spannmutter für Dichtscheiben ist im Lieferumfang enthalten  
Clamping nut for sealing disks is included in the delivery

## Zubehör Accessories



Spannzangen Typ ER (GB) 746 - 747  
Collets type ER (GB)



Spannschlüssel 758  
Clamping wrench



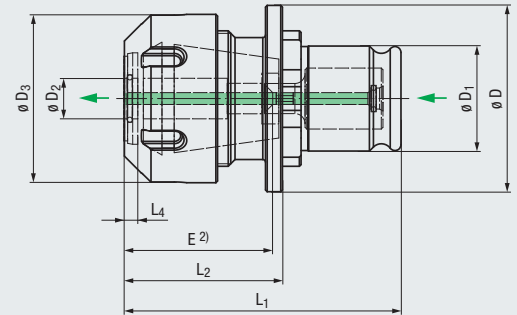
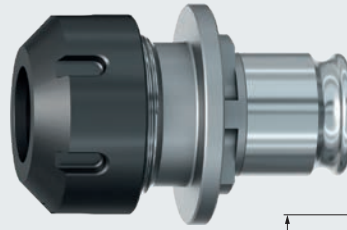
Dichtscheiben Typ DS/ER 750  
Sealing disks type DS/ER



Aufnahmekopf AEU 760  
Adapter head AEU



# EM-Z/MQL







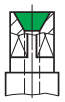

- Product Finder
- Soft-synchro
- Speed-synchro
- KSN
- MQL MMS**
- SFM
- SWITCH-MASTER
- HF
- EM
- Zubehör Accessories



$p_{max}$   
**6 bar**  
(85 psi)



**L+ 2 mm**

| Typ Type           |  | $\varnothing D_1$ | Werkzeugkegel Tool taper   |  |  | $\varnothing D$ | $\varnothing D_1$ | $\varnothing D_3$ | $L_1$ | $L_2$ |  |
|--------------------|---|-------------------|--|---|---|-----------------|-------------------|-------------------|-------|-------|---|
| <b>EM 03-Z/MQL</b> | M10 - M16   | 10 - 12           | Innenkegel<br>Internal taper<br>60°<br>  | ER 32 (GB)  | Hi-Q/ERC 32   | 55              | 31                | 50                | 81,5  | 46,5  | <b>F4503001.13D10</b>   |
|                    | M18 - M20   | 14 - 16           |  |   |   | 55              | 31                | 50                | 81,5  | 46,5  | <b>F4503001.13D14</b>   |
|                    | M10   | 10                | Außenkegel<br>External taper<br>90°<br> | ER 32 (GB)  | Hi-Q/ERC 32   | 55              | 31                | 50                | 81,5  | 46,5  | <b>F4503001.23D10</b>   |
|                    | M14 - M16   | 11 - 12           |  |   |   | 55              | 31                | 50                | 81,5  | 46,5  | <b>F4503001.23D12</b>   |
|                    | M18   | 14                |  |   |   | 55              | 31                | 50                | 81,5  | 46,5  | <b>F4503001.23D14</b>   |
|                    | M20   | 16                |  |   |   | 55              | 31                | 50                | 81,5  | 46,5  | <b>F4503001.23D16</b>   |

1) Bei Verwendung von Gewindebohrern / Gewindefornern mit innerer Kühlschmierstoff-Zufuhr  
If used with taps / cold-forming taps with internal coolant supply

2) Einstecktiefen E siehe Seite 754  
Clamping depths E, see page 754

Großer Griffing – in Kombination mit Schnellwechsel-Aufnahmen der Typenreihe KSN/MQL – ermöglicht stirnseitige Abdichtung  
Large ring handle – combined with quick-change tap holders KSN/MQL – enables face sealing

Längeneinstellschraube ist Bestandteil des Schnellwechsel-Einsatzes und für eine optimale MMS-Übergabe notwendig  
Length adjustment screw is included in quick-change adapter and required for optimum MQL transfer

Spannmutter für Dichtscheiben ist im Lieferumfang enthalten  
Clamping nut for sealing disks is included in the delivery

### Zubehör Accessories



Spannzangen Typ ER (GB)  
Collets type ER (GB) ▶▶ 746 - 747



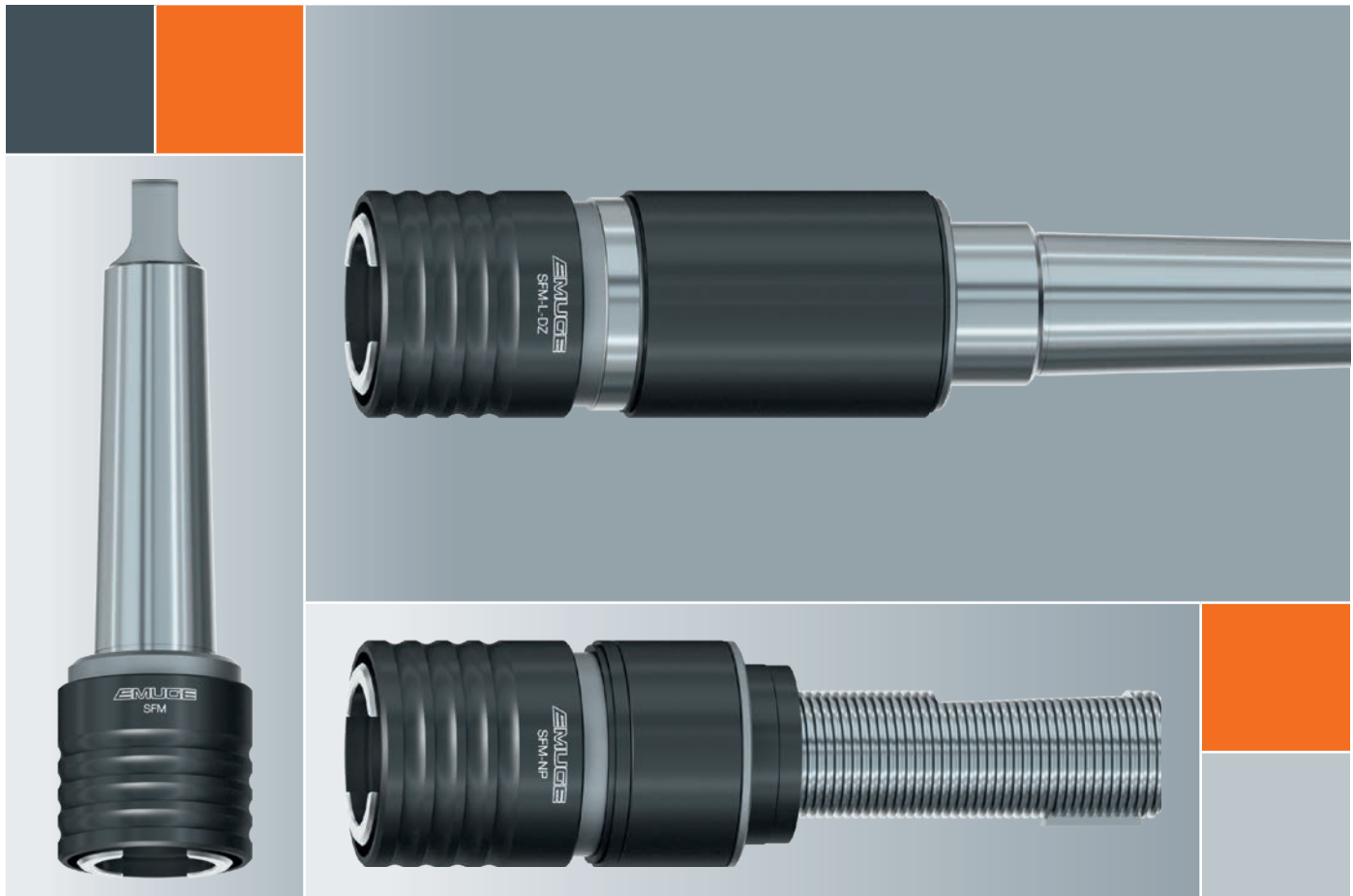
Dichtscheiben Typ DS/ER  
Sealing disks type DS/ER ▶▶ 750



Spannschlüssel  
Clamping wrench ▶▶ 758



Aufnahmekopf AEU  
Adapter head AEU ▶▶ 760



## Typenreihe SFM SFM Series

### Einsatz auf Mehrspindelmaschinen und Transferstraßen

Auf Grund ihrer schlanken Bauform besonders geeignet auch für Mehrspindelköpfe.

### Application on multi-spindle machines and transfer lines

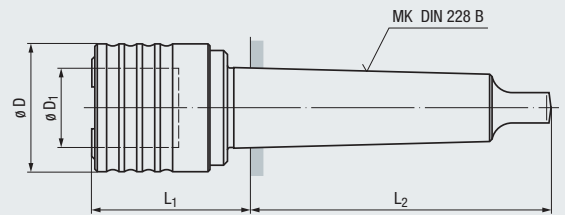
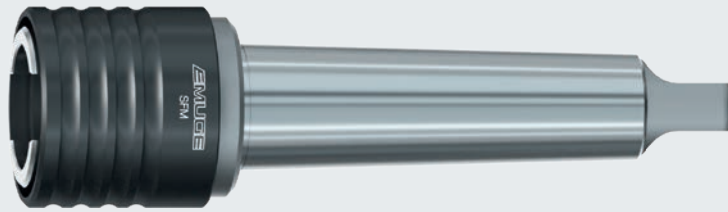
Especially suitable, too, for multi-spindle heads due to their slim design.






- Product Finder
- Soft-synchro
- Speed-synchro
- KSN
- MQL MMS
- SFM
- SWITCH-MASTER
- HF
- EM
- Zubehör Accessories

# SFM

## MK DIN 228-1 Form B



**Einsatz auf Mehrspindelmaschinen und Transferstraßen** For use on multi-spindle machines and transfer lines

| Typ Type      |  |  | MK   | ø D | ø D <sub>1</sub> | L <sub>1</sub> | L <sub>2</sub> |  |
|---------------|---|---|------|-----|------------------|----------------|----------------|---|
| <b>SFM 00</b> | M1 - M10<br>(Nr.0 - 3/8)  | EM 00   | MK 1 | 23  | 13               | 39             | 62             | F0100101  |
|               |   |   | MK 2 | 23  | 13               | 40             | 75             | F0100102  |
| <b>SFM 01</b> | M3 - M14<br>(Nr.4 - 9/16)   | EM 01   | MK 1 | 32  | 19               | 43             | 62             | F0101101  |
|               |   |   | MK 2 | 32  | 19               | 44             | 75             | F0101102  |
|               |   |   | MK 3 | 32  | 19               | 44             | 94             | F0101103  |
| <b>SFM 03</b> | M4,5 - M24<br>(Nr.10 - 1")  | EM 03   | MK 2 | 50  | 31               | 61             | 75             | F0103102  |
|               |   |   | MK 3 | 50  | 31               | 61             | 94             | F0103103  |
|               |   |   | MK 4 | 50  | 31               | 62             | 117,5          | F0103104  |
| <b>SFM 04</b> | M14 - M36<br>(9/16 - 1 3/8)   | EM 04   | MK 3 | 72  | 48               | 90             | 94             | F0104103  |
|               |   |   | MK 4 | 72  | 48               | 91             | 117,5          | F0104104  |
|               |   |   | MK 5 | 72  | 48               | 91             | 149,5          | F0104105  |

Morsekegelschaft mit Anzugsgewinde nach DIN 228 A auf Anfrage  
Morse taper shank with clamping thread acc. DIN 228 A upon request

Weitere Ausführungen auf Anfrage  
Further designs upon request

### Zubehör Accessories



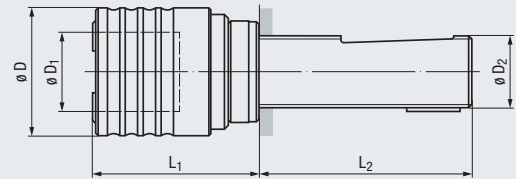
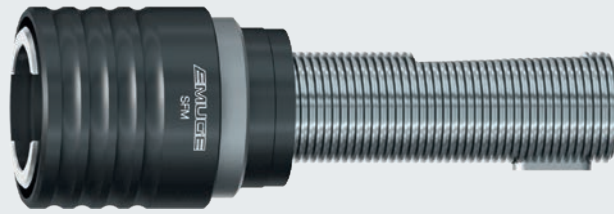
Schnellwechsel-Einsätze Typenreihe EM  
Quick-change adapters EM series

» 717 - 738






# SFM

Tr  
DIN 6327-3



Einsatz auf Mehrspindelmaschinen und Transferstraßen For use on multi-spindle machines and transfer lines

- Product Finder
- Soft-synchro
- Speed-synchro
- KSN
- MQL MMS
- SFM**
- SWITCH-MASTER
- HF
- EM
- Zubehör Accessories

| Typ<br>Type   |  |  | $\varnothing D_2$ | $\varnothing D$ | $\varnothing D_1$ | $L_1$ | $L_2$ |  |
|---------------|---|---|-------------------|-----------------|-------------------|-------|-------|---|
| <b>SFM 00</b> | M1 - M10<br>(Nr.0 - 3/8)  | EM 00   | Tr 16 x 1,5       | 23              | 13                | 45    | 73    | <b>F0100213</b>   |
|               |   |   | Tr 20 x 2         | 23              | 13                | 45    | 76    | F0100214  |
| <b>SFM 01</b> | M3 - M14<br>(Nr.4 - 9/16)   | EM 01   | Tr 16 x 1,5       | 32              | 19                | 49    | 73    | <b>F0101213</b>   |
|               |   |   | Tr 20 x 2         | 32              | 19                | 49    | 76    | <b>F0101214</b>   |
|               |   |   | Tr 28 x 2         | 32              | 19                | 49    | 83    | <b>F0101216</b>   |
| <b>SFM 03</b> | M4,5 - M24<br>(Nr.10 - 1")  | EM 03   | Tr 20 x 2         | 50              | 31                | 66    | 76    | <b>F0103214</b>   |
|               |   |   | Tr 28 x 2         | 50              | 31                | 66    | 83    | <b>F0103216</b>   |
|               |   |   | Tr 36 x 2         | 50              | 31                | 68    | 104   | F0103218  |
| <b>SFM 04</b> | M14 - M36<br>(9/16 - 1 3/8)   | EM 04   | Tr 28 x 2         | 72              | 48                | 95    | 83    | F0104216  |
|               |   |   | Tr 36 x 2         | 72              | 48                | 97    | 104   | F0104218  |
|               |   |   | Tr 48 x 2         | 72              | 48                | 101   | 126   | F0104219  |

Weitere Ausführungen auf Anfrage  
Further designs upon request

## Zubehör Accessories



Schnellwechsel-Einsätze Typenreihe EM  
Quick-change adapters EM series

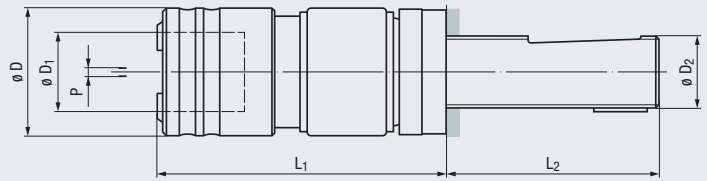
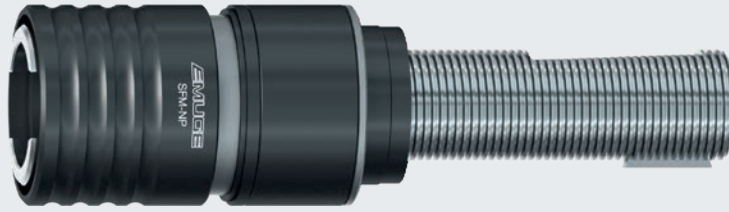
» 717 - 738






- Product Finder
- Soft-synchro
- Speed-synchro
- KSN
- ML MMS
- SFM
- SWITCH-MASTER
- HF
- EM
- Zubehör Accessories

# SFM-NP

Tr  
DIN 6327-3



Einsatz auf Mehrspindelmaschinen und Transferstraßen For use on multi-spindle machines and transfer lines

| Typ<br>Type      |  |  | $\varnothing D_2$ | $\varnothing D$ | $\varnothing D_1$ | $L_1$ | $L_2$ | P   |  |
|------------------|---|---|-------------------|-----------------|-------------------|-------|-------|-----|---|
| <b>SFM 00-NP</b> | M1 - M10<br>(Nr.0 - 3/8)  | EM 00   | Tr 16 x 1,5       | 23              | 13                | 65    | 73    | 0,8 | F2110213  |
|                  |   |   | Tr 20 x 2         | 23              | 13                | 65    | 76    | 0,8 | F2110214  |
| <b>SFM 01-NP</b> | M3 - M14<br>(Nr.4 - 9/16)   | EM 01   | Tr 16 x 1,5       | 32              | 19                | 70    | 73    | 1,4 | F2111213  |
|                  |   |   | Tr 20 x 2         | 32              | 19                | 70    | 76    | 1,4 | F2111214  |
|                  |   |   | Tr 28 x 2         | 32              | 19                | 70    | 83    | 1,4 | F2111216  |
| <b>SFM 03-NP</b> | M4,5 - M24<br>(Nr.10 - 1")  | EM 03   | Tr 20 x 2         | 50              | 31                | 96    | 76    | 2,5 | F2113214  |
|                  |   |   | Tr 28 x 2         | 50              | 31                | 96    | 83    | 2,5 | F2113216  |
|                  |   |   | Tr 36 x 2         | 50              | 31                | 98    | 104   | 2,5 | F2113218  |

Weitere Ausführungen auf Anfrage  
Further designs upon request

### Zubehör Accessories



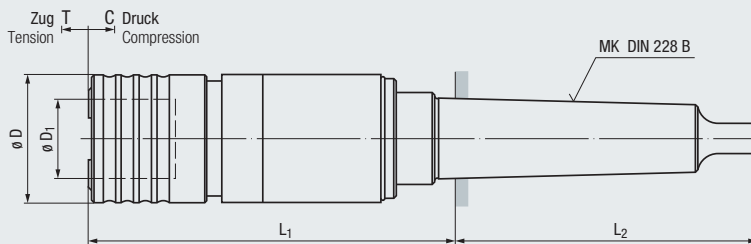
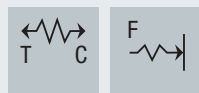
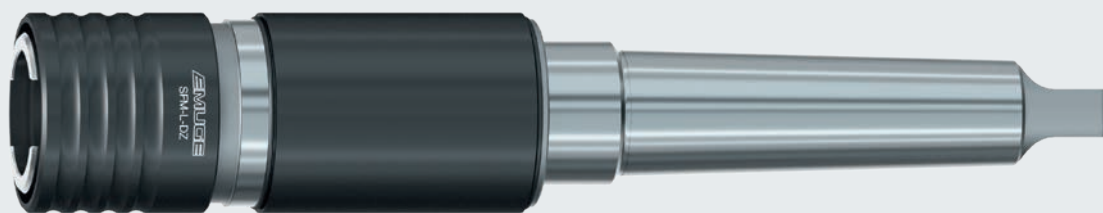
Schnellwechsel-Einsätze Typenreihe EM  
Quick-change adapters EM series

» 717 - 738



# SFM-L-DZ

**MK**  
DIN 228-1  
Form B



Einsatz auf Mehrspindelmaschinen und Transferstraßen  
For use on multi-spindle machines and transfer lines

Product Finder

Soft-synchro

Speed-synchro

KSN

MQL MMS

SFM

SWITCH-MASTER

HF

EM

Zubehör Accessories

| Typ<br>Type          |                             |       | ø D <sub>2</sub>           | ø D   | ø D <sub>1</sub> | L <sub>1</sub> | L <sub>2</sub> | C   | T                 |                   |    |                   |
|----------------------|-----------------------------|-------|----------------------------|-------|------------------|----------------|----------------|-----|-------------------|-------------------|----|-------------------|
| <b>SFM 00-L20-DZ</b> | M1 - M10<br>(Nr.0 - 3/8)    | EM 00 | MK 1                       | 23    | 13               | 90             | 62             | 10  | 10                | <b>F0180101.7</b> |    |                   |
|                      |                             |       | MK 2                       | 23    | 13               | 91             | 75             | 10  | 10                | <b>F0180102.7</b> |    |                   |
| MK 1                 |                             |       | 23                         | 13    | 105              | 62             | 15             | 15  | <b>F0190101.7</b> |                   |    |                   |
| MK 2                 |                             |       | 23                         | 13    | 106              | 75             | 15             | 15  | <b>F0190102.7</b> |                   |    |                   |
| <b>SFM 01-L20-DZ</b> | M3 - M14<br>(Nr.4 - 9/16)   | EM 01 | MK 2                       | 32    | 19               | 103            | 75             | 10  | 10                | <b>F0181102.7</b> |    |                   |
|                      |                             |       | MK 3                       | 32    | 19               | 103            | 94             | 10  | 10                | F0181103.7        |    |                   |
| MK 1                 |                             |       | 32                         | 19    | 117              | 62             | 15             | 15  | F0191101.7        |                   |    |                   |
| MK 2                 |                             |       | 32                         | 19    | 118              | 75             | 15             | 15  | <b>F0191102.7</b> |                   |    |                   |
| MK 3                 |                             |       | 32                         | 19    | 118              | 94             | 15             | 15  | <b>F0191103.7</b> |                   |    |                   |
| <b>SFM 01-L40-DZ</b> |                             |       | MK 2                       | 32    | 19               | 133            | 75             | 20  | 20                | <b>F0201102.7</b> |    |                   |
|                      |                             |       |                            |       |                  | 133            | 94             | 20  | 20                | <b>F0201103.7</b> |    |                   |
| <b>SFM 03-L30-DZ</b> |                             |       | M4,5 - M24<br>(Nr.10 - 1") | EM 03 | MK 2             | 50             | 31             | 142 | 75                | 15                | 15 | F0183102.7        |
|                      | MK 3                        | 50    |                            |       | 31               | 142            | 94             | 15  | 15                | <b>F0183103.7</b> |    |                   |
| MK 4                 | 50                          | 31    |                            |       | 143              | 117,5          | 15             | 15  | <b>F0183104.7</b> |                   |    |                   |
| MK 2                 | 50                          | 31    |                            |       | 157              | 75             | 20             | 20  | F0193102.7        |                   |    |                   |
| <b>SFM 03-L40-DZ</b> | MK 3                        | 50    |                            |       | 31               | 157            | 94             | 20  | 20                | <b>F0193103.7</b> |    |                   |
|                      |                             |       |                            |       |                  | 158            | 117,5          | 20  | 20                | <b>F0193104.7</b> |    |                   |
| <b>SFM 04-L30-DZ</b> | M14 - M36<br>(9/16 - 1 3/8) | EM 04 |                            |       | MK 4             | 72             | 48             | 189 | 117,5             | 15                | 15 | <b>F0184104.7</b> |
|                      |                             |       |                            |       | MK 5             | 72             | 48             | 190 | 149,5             | 15                | 15 | F0184105.7        |
| MK 3                 |                             |       | 72                         | 48    | 203              | 94             | 20             | 20  | F0194103.7        |                   |    |                   |
| <b>SFM 04-L40-DZ</b> |                             |       | MK 4                       | 72    | 48               | 204            | 117,5          | 20  | 20                | <b>F0194104.7</b> |    |                   |
|                      |                             |       |                            |       |                  | 205            | 149,5          | 20  | 20                | F0194105.7        |    |                   |

Morsekegelschaft mit Anzugsgewinde nach DIN 228 A auf Anfrage  
Morse taper shank with clamping thread acc. DIN 228 A upon request

Weitere Ausführungen auf Anfrage  
Further designs upon request

## Zubehör Accessories



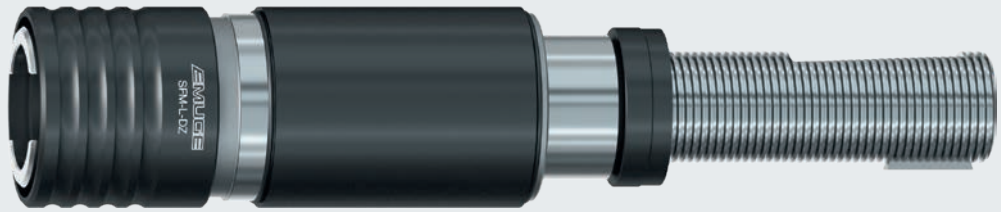
Schnellwechsel-Einsätze Typenreihe EM  
Quick-change adapters EM series

▶▶ 717 - 738

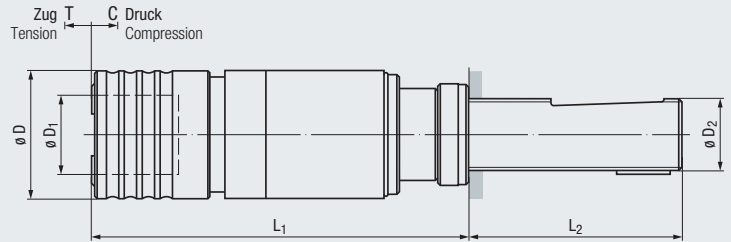
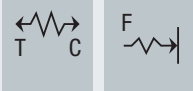


# SFM-L-DZ




Tr  
DIN 6327-3



- Product Finder
- Soft-synchro
- Speed-synchro
- KSN
- ML MMS
- SFM
- SWITCH-MASTER
- HF
- EM
- Zubehör Accessories



Einsatz auf Mehrspindelmaschinen und Transferstraßen For use on multi-spindle machines and transfer lines

| Typ<br>Type   |  |  | $\varnothing D_2$ | $\varnothing D$ | $\varnothing D_1$ | $L_1$ | $L_2$ | C  | T                 |  |                   |
|---------------|---|---|-------------------|-----------------|-------------------|-------|-------|----|-------------------|---|-------------------|
| SFM 01-L20-DZ | M3 - M14<br>(Nr.4 - 9/16)   | EM 01   | Tr 16 x 1,5       | 32              | 19                | 108   | 73    | 10 | 10                | <b>F0181213.7</b>   |                   |
|               |   |   | Tr 20 x 2         | 32              | 19                | 108   | 76    | 10 | 10                | <b>F0181214.7</b>   |                   |
| Tr 16 x 1,5   |   |   | 32                | 19              | 123               | 73    | 15    | 15 | F0191213.7        |   |                   |
| Tr 20 x 2     |   |   | 32                | 19              | 123               | 76    | 15    | 15 | <b>F0191214.7</b> |   |                   |
| Tr 28 x 2     |   |   | 32                | 19              | 123               | 83    | 15    | 15 | F0191216.7        |   |                   |
| Tr 16 x 1,5   |   |   | 32                | 19              | 138               | 73    | 20    | 20 | F0201213.7        |   |                   |
| SFM 01-L30-DZ |   | Tr 20 x 2   | EM 01             | 32              | 19                | 138   | 76    | 20 | 20                | <b>F0201214.7</b>   |                   |
|               |   |   |                   | Tr 28 x 2       | 32                | 19    | 138   | 83 | 20                | 20  | <b>F0201216.7</b> |
| SFM 03-L30-DZ |   | M4,5 - M24<br>(Nr.10 - 1")  | EM 03             | Tr 20 x 2       | 50                | 31    | 147   | 76 | 15                | 15  | <b>F0183214.7</b> |
|               |   |   |                   | Tr 28 x 2       | 50                | 31    | 147   | 83 | 15                | 15  | <b>F0183216.7</b> |
|               | Tr 36 x 2   |   |                   | 50              | 31                | 149   | 104   | 15 | 15                | <b>F0183218.7</b>   |                   |
| Tr 20 x 2     | 50  |   |                   | 31              | 162               | 76    | 20    | 20 | F0193214.7        |   |                   |
| Tr 28 x 2     | 50  |   |                   | 31              | 162               | 83    | 20    | 20 | F0193216.7        |   |                   |
| Tr 36 x 2     | 50  |   |                   | 31              | 164               | 104   | 20    | 20 | F0193218.7        |   |                   |

Weitere Ausführungen auf Anfrage  
Further designs upon request

### Zubehör Accessories



Schnellwechsel-Einsätze Typenreihe EM  
Quick-change adapters EM series

» 717 - 738







## Typenreihe SWITCH-MASTER® SWITCH-MASTER® Series

### Einsatz auf CNC-Bearbeitungszentren und Sondermaschinen mit und ohne Synchronspindel

Durch das integrierte Wendegetriebe entfällt der Drehrichtungswechsel der Maschinenspindel beim Rücklauf. Speziell beim Typ SWITCH-MASTER® ergibt sich eine erhebliche Zeiteinsparung durch den patentierten Schaltmechanismus mittels Druckluft.

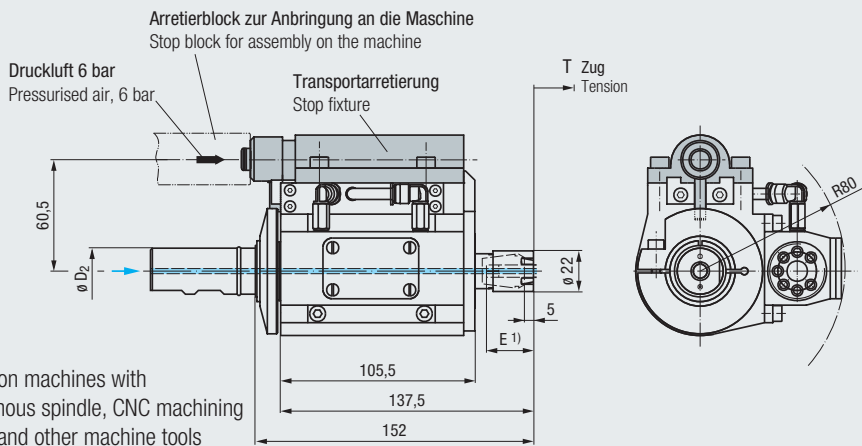
### Application on CNC machining centres and special machines with and without synchronous spindle

No change of rotating direction of machine spindle at reverse stroke required due to integrated reverse gear. Especially for the SWITCH-MASTER® considerable saving of time due to patent-protected switch mechanism by compressed air.






# SWITCH-MASTER®

**Zylinderschaft**  
Cylindrical shank  
DIN 1835-1  
Form B



**Einsatz auf Maschinen mit Synchronspindel, CNC-Bearbeitungszentren und sonstigen Werkzeugmaschinen**  
For use on machines with synchronous spindle, CNC machining centres and other machine tools

| Typ<br>Type                    |  |  |  | $\varnothing D_2$ | Drehzahl [min <sup>-1</sup> ]<br>Speed [rpm] | T | Gewicht<br>Weight |          |
|--------------------------------|---|---|---|-------------------|--|---|-------------------|----------|
| <b>SWITCH-MASTER 16 MV 90°</b> | M4 - M12 (Nr.8 - 3/8)   | ER 16 (GB)  | Hi-Q/ERMC 16  | 25                | max. 3000                                    | 9 | (kg) 3,7          | F3381392 |

1) Einstecktiefen E siehe Seite 754  
Clamping depths E, see page 754

Der Gewindeschneidapparat benötigt zum Reversieren Hilfsenergie in Form von Druckluft (6  $\pm_{0,5}^+1$  bar)  
The tapping attachment requires auxiliary energy = pressurised air (6  $\pm_{0,5}^+1$  bar) for reversing

Die Übergabe der Druckluft erfolgt über einen speziellen Arretierblock, der maschinenseitig angebracht sein muss und in den gleichzeitig die Transportarretierung einrastet  
The transfer of pressurised air is effected by means of a special stop block mounted on the machine, and into which the stop fixture engages

Der Gewindeschneidapparat SWITCH-MASTER® kann nur mit Adaptionsschäfte und Transportarretierung eingesetzt werden.  
Die Anpassung der Transportarretierung an die maschinenseitigen Vorgaben erfolgt durch EMUGE. Bitte wenden Sie sich hierfür an den für Sie zuständigen Vertriebspartner.

The tapping attachment SWITCH-MASTER® can only be used with adapter shank and stop fixture.

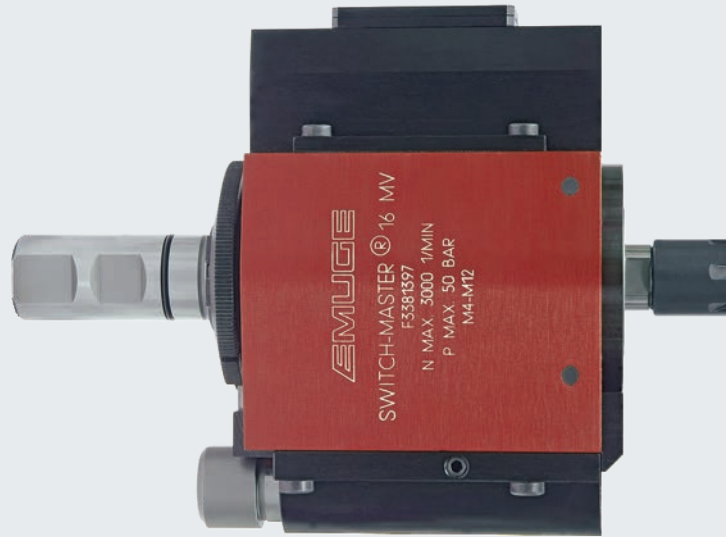
The adaptation of the stop fixture to the specifications of the machine is carried out by EMUGE. Please contact your responsible distribution partner for more information.

## Zubehör Accessories

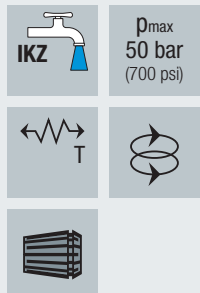


# SWITCH-MASTER®

**Zylinderschaft**  
Cylindrical shank  
DIN 1835-1  
Form B

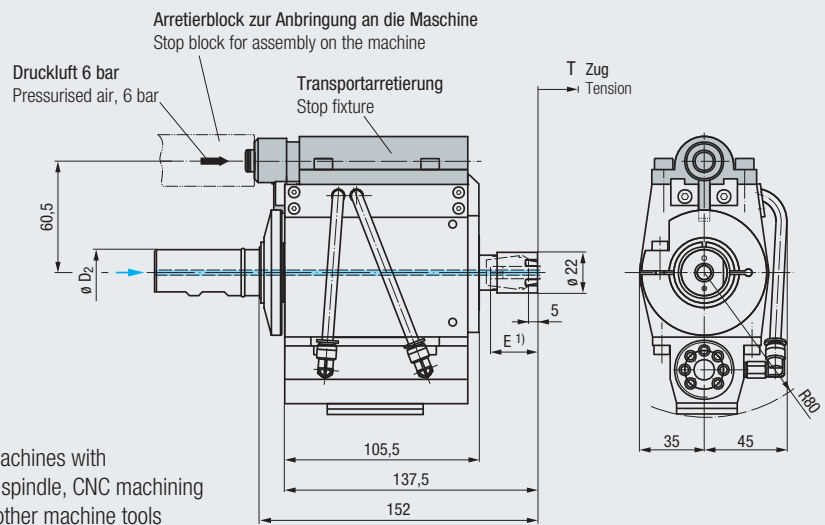





- Product Finder
- Soft-synchro
- Speed-synchro
- KSN
- MQL MMS
- SFM
- SWITCH-MASTER**
- HF
- EM
- Zubehör Accessories



**Einsatz auf Maschinen mit Synchronspindel, CNC-Bearbeitungszentren und sonstigen Werkzeugmaschinen**

For use on machines with synchronous spindle, CNC machining centres and other machine tools



| Typ<br>Type                     |  |  |  | $\varnothing D_2$ | Drehzahl [min <sup>-1</sup> ]<br>Speed [rpm] | T | Gewicht<br>Weight |          |
|---------------------------------|---|---|---|-------------------|--|---|-------------------|----------|
| <b>SWITCH-MASTER 16 MV 180°</b> | M4 - M12 (Nr.8 - 3/8)   | ER 16 (GB)  | Hi-Q/ERMC 16  | 25                | max. 3000                                    | 9 | (kg) 3,7          | F3381397 |

1) Einstecktiefen E siehe Seite 754  
Clamping depths E, see page 754

Der Gewindeschneidapparat benötigt zum Reversieren Hilfsenergie in Form von Druckluft (6 ±<sub>0,5</sub><sup>+1</sup> bar)  
The tapping attachment requires auxiliary energy = pressurised air (6 ±<sub>0,5</sub><sup>+1</sup> bar) for reversing

Die Übergabe der Druckluft erfolgt über einen speziellen Arretierblock, der maschinenseitig angebracht sein muss und in den gleichzeitig die Transportarretierung einrastet  
The transfer of pressurised air is effected by means of a special stop block mounted on the machine, and into which the stop fixture engages

Der Gewindeschneidapparat SWITCH-MASTER® kann nur mit Adaptionsschäfte und Transportarretierung eingesetzt werden.

The tapping attachment SWITCH-MASTER® can only be used with adapter shank and stop fixture.

Die Anpassung der Transportarretierung an die maschinenseitigen Vorgaben erfolgt durch EMUGE. Bitte wenden Sie sich hierfür an den für Sie zuständigen Vertriebspartner.

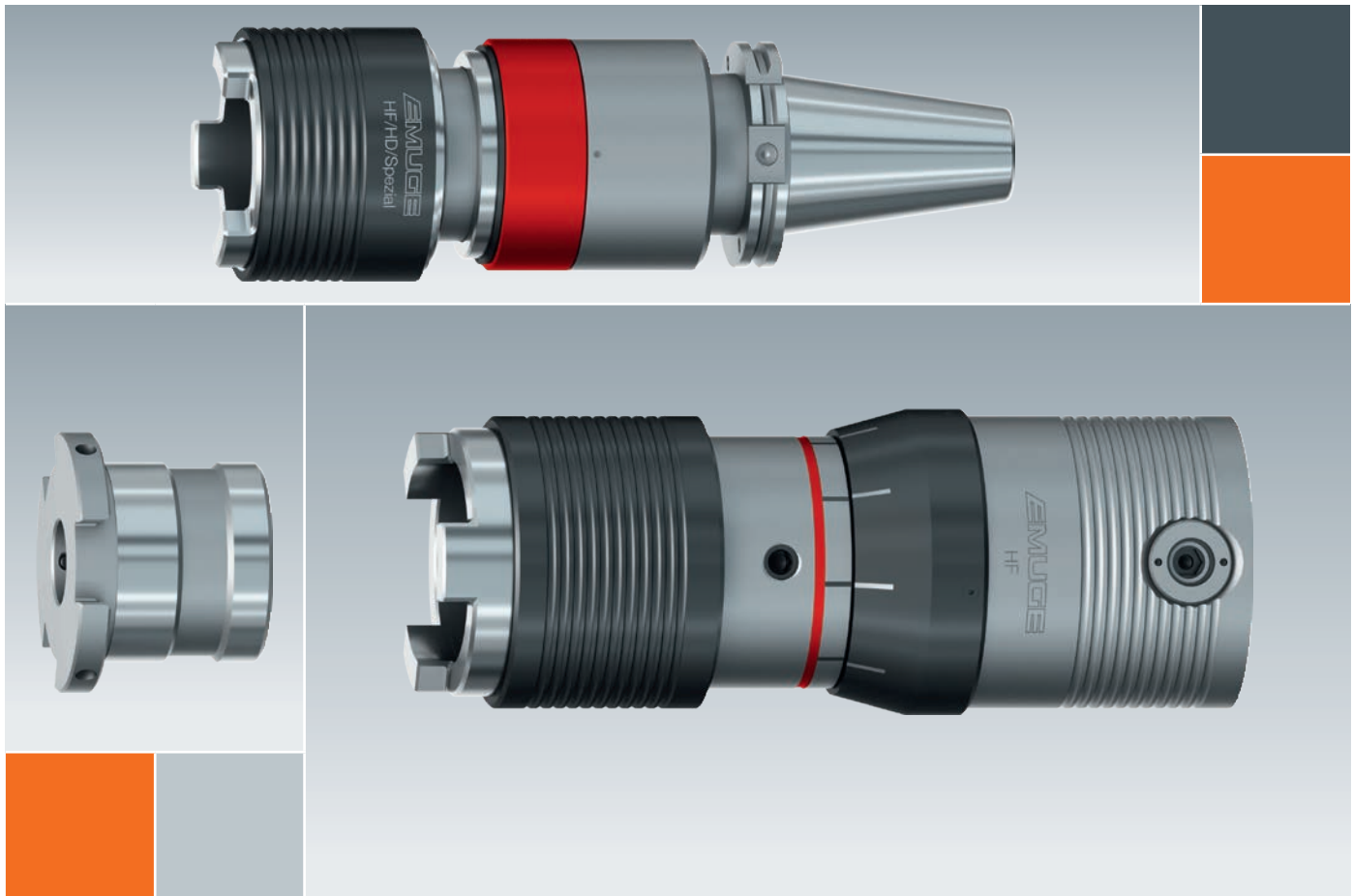
The adaptation of the stop fixture to the specifications of the machine is carried out by EMUGE. Please contact your responsible distribution partner for more information.

## Zubehör Accessories



|                     |
|---------------------|
| Product Finder      |
| Soft-synchro        |
| Speed-synchro       |
| KSN                 |
| MQL MMS             |
| SFM                 |
| SWITCH-MASTER       |
| HF                  |
| EM                  |
| Zubehör Accessories |





## Typenreihe HF HF Series

### Einsatz auf CNC-Bearbeitungszentren und Bohrwerken

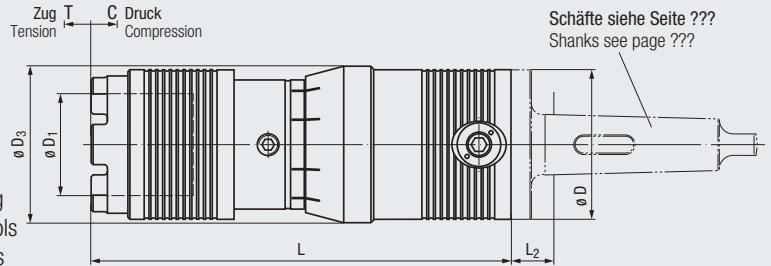
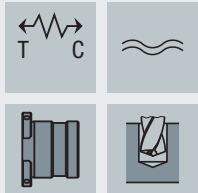
Zur Herstellung von großen Gewinden bis M160. Je nach Typ mit Sicherheitsfunktionen wie einstellbarer Überlastkupplung und großem Längenausgleich ausgestattet.

### Application on CNC machining centres and boring mills




For the production of big threads up to M160. Depending on the type: equipped with safety functions just like adjustable overload clutch and large length compensation.



### HF



Einsatz auf CNC-Bearbeitungszentren, sonstigen Werkzeugmaschinen und Säulenbohrmaschinen  
 For use on CNC machining centres, other machine tools and pillar drilling machines

| Typ<br>Type  |  |  | Max. Drehmoment<br>Max. torque<br>Nm <sup>1)</sup> |                 |                   |                   |     |    |    | Gewicht<br>Weight<br>(kg) |  |
|--------------|---|---|--|-----------------|-------------------|-------------------|-----|----|----|---------------------------|---|
|              |   |   |  | $\varnothing D$ | $\varnothing D_1$ | $\varnothing D_3$ | L   | T  | C  |                           |   |
| <b>HF 20</b> | M24 - M76<br>(1" - 2 1/2")  | HE 2  | 1300   | 110             | 75                | 115               | 308 | 15 | 15 | 14,8                      | <b>F0332999</b>   |
| <b>HF 30</b> | M36 - M160<br>(1 3/8" - 3 1/2")   | HE 3  | 3000   | 160             | 90                | 160               | 372 | 20 | 20 | 36,5                      | <b>F0333999</b>   |

<sup>1)</sup> Maximal zulässiger Drehmoment-Wert  
 Maximum permissible torque

Ausführung mit innerer Kühlschmierstoff-Zufuhr bis 10 bar auf Anfrage erhältlich  
 Available with internal coolant supply up to 10 bar upon request

### Zubehör Accessories



Schnellwechsel-Einsätze Typ HE  
 Quick-change adapters, type HE

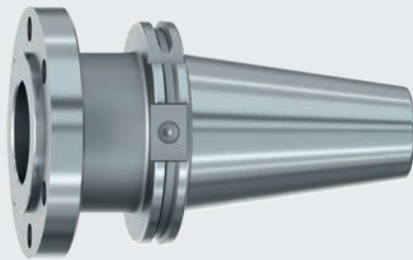
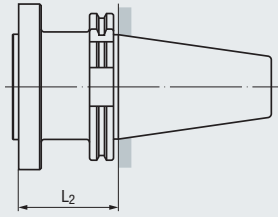
» 714 - 715




Schäfte Typ HF  
 Shanks type HF

» 711



**HF****SK**DIN ISO 7388-1  
Form AD

| Für Typ<br>For type | SK    | L <sub>2</sub> | Gewicht<br>Weight<br>(kg) |  |
|---------------------|-------|----------------|---------------------------|---|
| <b>HF 20</b>        | SK 50 | 66,25          | 3,8                       | <b>F10719112</b>  |
| <b>HF 30</b>        | SK 50 | 51,25          | 5,8                       | <b>F10719389</b>  |

Ausführung mit innerer Kühlschmierstoff-Zufuhr  
bis 10 bar auf Anfrage erhältlich  
Available with internal coolant supply  
up to 10 bar upon request

Product  
FinderSoft-  
synchroSpeed-  
synchro

KSN

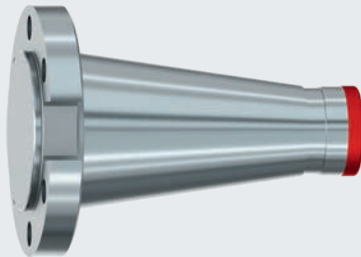
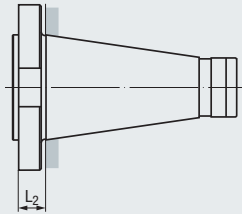
MQL  
MMS


SFB

SWITCH-  
MASTER

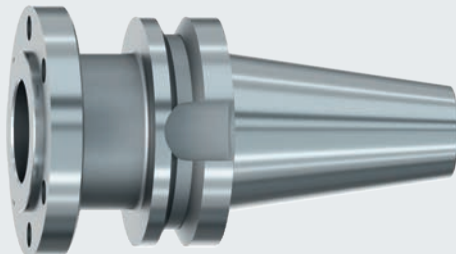
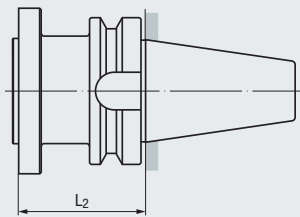
HF


EM

Zubehör  
Accessories**HF****SK**DIN 2080-1  
Form A

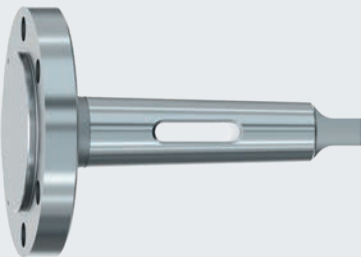
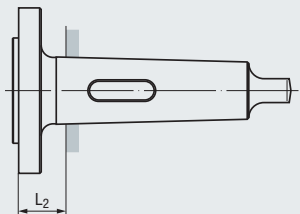
| Für Typ<br>For type | SK    | L <sub>2</sub> | Gewicht<br>Weight<br>(kg) |  |
|---------------------|-------|----------------|---------------------------|---|
| <b>HF 20</b>        | SK 40 | 22             | 1,7                       | F033205.05  |
|                     | SK 50 | 18             | 3,0                       | <b>F033205.01</b>   |
| <b>HF 30</b>        | SK 50 | 19             | 4,3                       | <b>F033305.01</b>   |


Ausführung mit innerer Kühlschmierstoff-Zufuhr  
bis 10 bar auf Anfrage erhältlich  
Available with internal coolant supply  
up to 10 bar upon request

**HF****BT**DIN ISO 7388-2  
Form J

| Für Typ<br>For type | BT    | L <sub>2</sub> | Gewicht<br>Weight<br>(kg) |  |
|---------------------|-------|----------------|---------------------------|---|
| <b>HF 20</b>        | BT 50 | 85,15          | 4,7                       | <b>F10725080</b>  |
| <b>HF 30</b>        | BT 50 | 64,2           | 6,7                       | F10725120   |

Ausführung mit innerer Kühlschmierstoff-Zufuhr  
bis 10 bar auf Anfrage erhältlich  
Available with internal coolant supply  
up to 10 bar upon request

**HF****MK**DIN 228-1  
Form B

| Für Typ<br>For type | MK   | L <sub>2</sub> | Gewicht<br>Weight<br>(kg) |  |
|---------------------|------|----------------|---------------------------|---|
| <b>HF 20</b>        | MK 4 | 34             | 1,7                       | F033201.04  |
|                     | MK 5 | 32             | 2,8                       | <b>F033201.05</b>   |
|                     | MK 6 | 31             | 4,8                       | <b>F033201.06</b>   |
| <b>HF 30</b>        | MK 5 | 30             | 3,9                       | <b>F033301.01</b>   |
|                     | MK 6 | 32             | 6,2                       | <b>F033301.02</b>   |

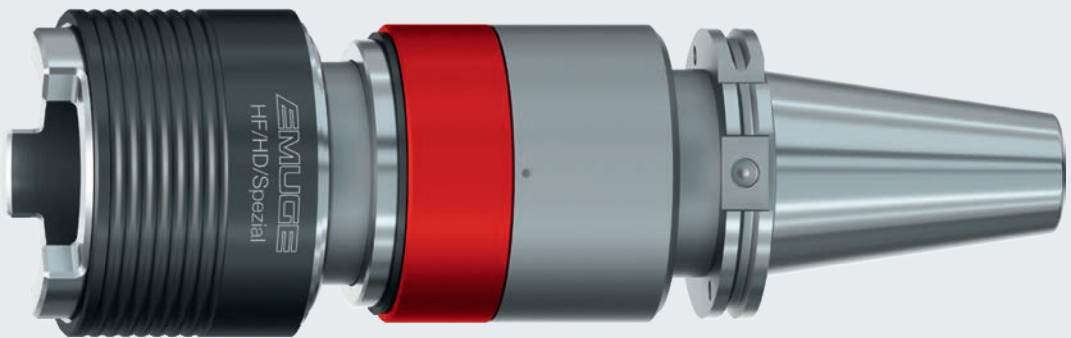


- Product Finder
- Soft-synchro
- Speed-synchro
- KSN
- MQL MMS
- SFM
- SWITCH-MASTER
- HF**
- EM
- Zubehör Accessories

# HF/HD/Spezial

## SK

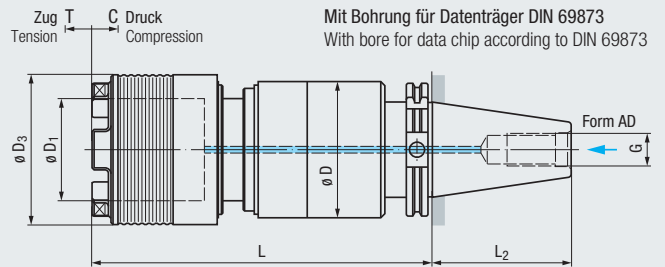
DIN ISO 7388-1  
Form AD



$p_{max}$   
50 bar  
(700 psi)






T C



Einsatz auf CNC-Bearbeitungszentren und sonstigen Werkzeugmaschinen

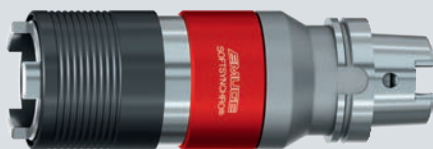
For use on CNC machining centres and other machine tools

| Typ<br>Type             |  |  | SK    | $\theta D$ | $\theta D_1$ | $\theta D_3$ | L   | $L_2$  | G   | T  | C  | Gewicht<br>Weight<br>(kg) |  |
|-------------------------|---|---|-------|------------|--------------|--------------|-----|--------|-----|----|----|---------------------------|---|
| <b>HF 20/HD/Spezial</b> | M24 - M76<br>(1" - 2 1/2)   | HE 2/IKZZ   | SK 50 | 100        | 75           | 110          | 250 | 101,75 | M24 | 15 | 15 | 12                        | <b>F0332153.1.49</b>  |

### Zubehör Accessories



Schnellwechsel-Einsätze Typ HE/IKZZ  
Quick-change adapters, type HE/IKZZ [» 714](#)



Schnellwechsel-Aufnahmen der Typenreihe Softsynchro® zur synchronen Herstellung von großen Gewinden siehe Seite 621 und 630

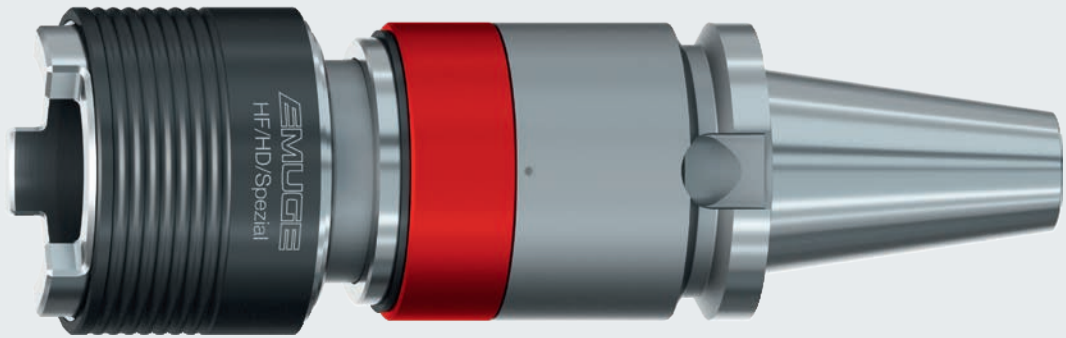
Quick-change tap holders of our Softsynchro® series for the synchronous production of large threads, see pages 621 and 630



# HF/HD/Spezial

## BT

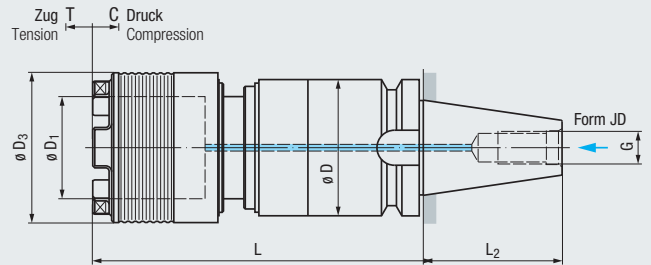
DIN ISO 7388-2  
Form JD



$p_{max}$   
50 bar  
(700 psi)






T C



Einsatz auf CNC-Bearbeitungszentren  
und sonstigen Werkzeugmaschinen

For use on CNC machining centres  
and other machine tools

| Typ<br>Type             |  |  | BT    | $\varnothing D$ | $\varnothing D_1$ | $\varnothing D_3$ | L   | L <sub>2</sub> | G   | T  | C  | Gewicht<br>Weight<br>(kg) |  |
|-------------------------|---|---|-------|-----------------|-------------------|-------------------|-----|----------------|-----|----|----|---------------------------|---|
| <b>HF 20/HD/Spezial</b> | M24 - M76<br>(1" - 2 1/2)   | HE 2/IKZZ   | BT 50 | 100             | 75                | 110               | 248 | 101,8          | M24 | 15 | 15 | 12                        | <b>F0332I93.1.49</b>  |

### Zubehör

Accessories



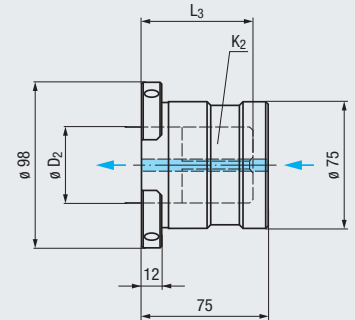
Schnellwechsel-Einsätze Typ HE/IKZZ  
Quick-change adapters, type HE/IKZZ

» 714





### HE 2/IKZZ

Für Gewindebohrer/Gewindeformer  
For taps/cold-forming taps





$p_{max}$   
50 bar  
(700 psi)

#### DIN

| $\varnothing D_2$ | $K_2$ |  | $L_3$ | Gewicht<br>Weight<br>(kg) |  |
|-------------------|-------|---|-------|---------------------------|---|
| 18                | 14,5  | M24   | 53    | 2,2                       | <b>F0632115.6</b>   |
| 20                | 16    | M27   | 53    | 2,2                       | <b>F0632116.6</b>   |
| 22                | 18    | M30   | 53    | 2,1                       | <b>F0632117.6</b>   |
| 25                | 20    | M33   | 53    | 2,1                       | <b>F0632118.6</b>   |
| 28                | 22    | M36   | 53    | 2,1                       | <b>F0632119.6</b>   |
| 32                | 24    | M39 - M42   | 53    | 2,0                       | <b>F0632120.6</b>   |
| 36                | 29    | M45 - M48   | 66    | 1,9                       | <b>F0632121.6</b>   |
| 40                | 32    | M52 - M56   | 66    | 1,8                       | <b>F0632122.6</b>   |
| 45                | 35    | M60   | 66    | 1,7                       | <b>F0632123.6</b>   |
| 50                | 39    | M64 - M76 / M80 <sup>1)</sup> - M90 <sup>1)</sup>                                 | 66    | 1,6                       | <b>F0632124.6</b>   |
| 56                | 44    | M92 <sup>1)</sup> - M120 <sup>1)</sup>  | 66    | 1,4                       | <b>F0632125.6</b>   |

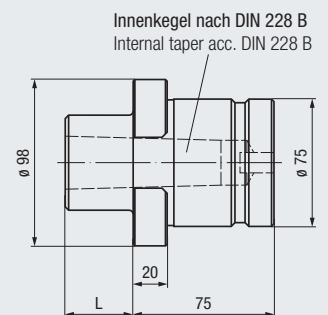
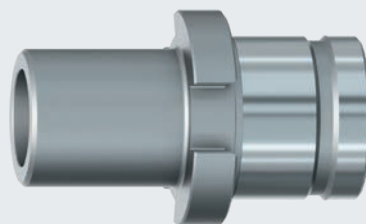
#### ISO


| $\varnothing D_2$ | $K_2$ |  | $L_3$ | Gewicht<br>Weight<br>(kg) |  |
|-------------------|-------|---|-------|---------------------------|---|
| 18                | 14    | M24   | 53    | 2,2                       | F0632218.6  |
| 20                | 16    | M27 - M30   | 53    | 2,2                       | <b>F0632116.6</b>   |
| 22,4              | 18    | M33   | 53    | 2,1                       | F0632220.6  |
| 25                | 20    | M36   | 53    | 2,1                       | <b>F0632118.6</b>   |
| 28                | 22,4  | M39 - M42   | 53    | 2,1                       | F0632222.6  |
| 31,5              | 25    | M45 - M48   | 53    | 2,0                       | F0632223.6  |
| 35,5              | 28    | M52 - M56   | 66    | 1,9                       | F0632224.6  |
| 40                | 31,5  | M60 - M64   | 66    | 1,8                       | F0632225.6  |
| 45                | 35,5  | M68 - M75   | 66    | 1,7                       | F0632226.6  |
| 50                | 40    | M76 / M80 <sup>1)</sup> - M90 <sup>1)</sup>   | 66    | 1,6                       | F0632227.6  |
| 56                | 45    | M92 <sup>1)</sup> - M100 <sup>1)</sup>  | 66    | 1,4                       | F0632228.6  |

<sup>1)</sup> Feingewinde  
Fine threads

### HE 2

Zum Bohren und Senken  
For drilling and countersinking

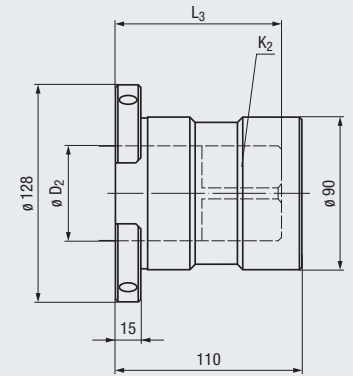
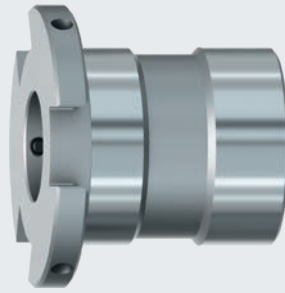


| Innenkegel<br>Internal taper | $L$ | Gewicht<br>Weight<br>(kg) |  |
|------------------------------|-----|---------------------------|---|
| MK                           | $L$ | (kg)                      |   |
| MK 3                         | 25  | 3,2                       | F0642803  |
| MK 4                         | 48  | 3,3                       | F0642804  |
| MK 5                         | 80  | 3,4                       | F0642805  |





# HE 3

Für Gewindebohrer/Gewindeformer  
For taps/cold-forming taps



- Product Finder
- Soft-synchro
- Speed-synchro
- KSN
- MQL MMS
- SFM
- SWITCH-MASTER
- HF**
- EM
- Zubehör Accessories

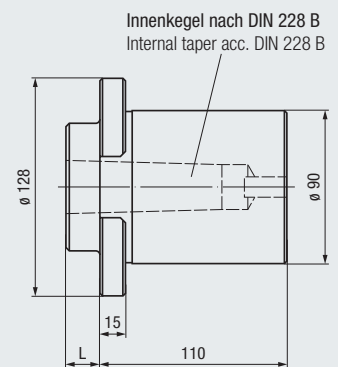
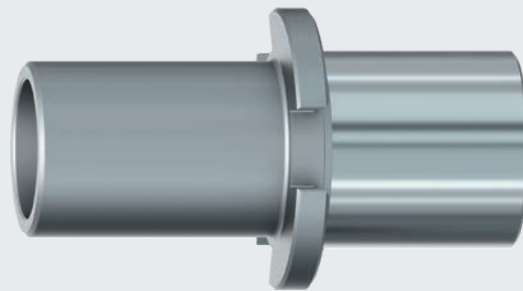
| DIN               |       |  | $L_3$ | Gewicht<br>Weight<br>(kg) |  |
|-------------------|-------|---|-------|---------------------------|---|
| $\varnothing D_2$ | $K_2$ |   |       |                           |   |
| 28                | 22    | M36   | 76    | 4,4                       | <b>F0633119</b>   |
| 32                | 24    | M39 - M42   | 76    | 4,3                       | <b>F0633120</b>   |
| 36                | 29    | M45 - M48   | 76    | 4,2                       | <b>F0633121</b>   |
| 40                | 32    | M52 - M56   | 76    | 4,0                       | <b>F0633122</b>   |
| 45                | 35    | M60   | 76    | 3,9                       | <b>F0633123</b>   |
| 50                | 39    | M64 - M90   | 76    | 3,7                       | <b>F0633124</b>   |
| 56                | 44    | M92 - M120  | 98    | 3,4                       | <b>F0633125</b>   |
| 63                | 49    | M122 - M150   | 98    | 3,0                       | <b>F0633126</b>   |
| 70                | 55    | M155 - M160   | 98    | 2,7                       | <b>F0633127</b>   |


ISO-Ausführungen auf Anfrage erhältlich  
ISO designs available upon request

DIN- oder ISO-Ausführungen mit innerer Kühlschmierstoff-Zufuhr bis 10 bar auf Anfrage erhältlich  
DIN or ISO designs available with internal coolant supply up to 10 bar upon request

# HE 3

Zum Bohren und Senken  
For drilling and countersinking

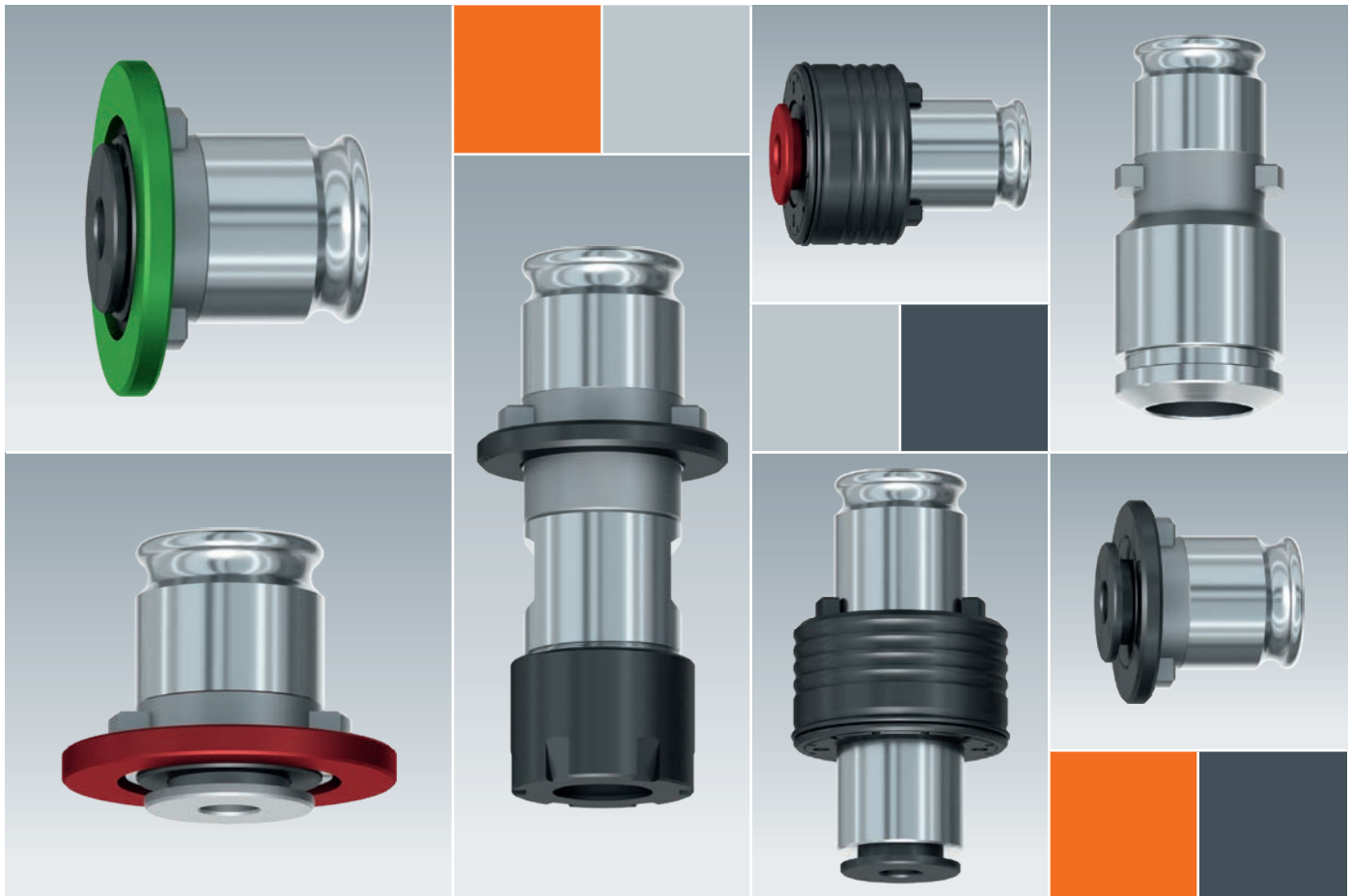


| Innenkegel<br>Internal taper | $L$ | Gewicht<br>Weight<br>(kg) |  |
|------------------------------|-----|---------------------------|---|
| MK                           |     |                           |   |
| MK 4                         | 20  | 5,9                       | F0643804  |
| MK 5                         | 50  | 6,0                       | F0643805  |
| MK 6                         | 115 | 5,8                       | F0643806  |



|                        |
|------------------------|
| Product Finder         |
| Soft-synchro           |
| Speed-synchro          |
| KSN                    |
| MQL MMS                |
| SFM                    |
| SWITCH-MASTER          |
| HF                     |
| EM                     |
| Zubehör<br>Accessories |





## Typenreihe EM EM Series

### Passend zu all unseren Schnellwechsel-Aufnahmen der Typenreihen KSN und SFM

Je nach Typ mit Kühlschmierstoff-Zufuhr durch das Zentrum des Werkzeugs oder am Schaft entlang, Überlastkupplung und Längennachstellung.

Die Spannung des Werkzeugs erfolgt je nach Typ durch ein Kugelspannsystem, Spannzangen Typ ER (GB), Spannzangen Typ PGR (GB) oder durch unser E-Lock-System.

### Suitable for all our quick-change tap holders of KSN and SFM series

Depending on the type: with coolant supply through the tool centre or along the shank, overload clutch and length adjustment.

Clamping of the tool is achieved – depending on the type – by a ball clamping system, collets type ER (GB), collets type PGR (GB) or by our E-Lock system.



- Product Finder
- Soft-synchro
- Speed-synchro
- KSN
- MQL MMS
- SFM
- SWITCH-MASTER
- HF
- EM
- Zubehör Accessories

|     |     | Werkzeug-Adaptierung<br>Tool adaptation  |   |   | Funktionen<br>Functions             |   |   |  | Kühlung und Schmierung<br>Cooling and lubrication |  |   |
|-----|-----|--|---|---|-------------------------------------|---|---|--|---|--|---|
|     |     | Schnellwechsel-Kugelspannsystem oder Klemmung am Vierkant<br>Quick-change ball clamping system or clamping on the square | Spannzangen, Typ ER (GB)<br>Collets, type ER (GB) | Spannzangen, Typ PGR-GB<br>Collets, type PGR-GB | Überlastkupplung<br>Overload clutch | Längennachstellung 2 mm<br>Length readjustment 2 mm | Längennachstellung<br>Length readjustment | Arretierung über formschlüssige Rille am Vierkant<br>Locking with form-positive slot on the square | Großer Griffing<br>Large ring handle              | Durch das Zentrum des Werkzeugs<br>Through the tool axis | Entlang des Werkzeugschafts<br>Along the tool shank |
| DIN | ISO |  |   |   |                                     |   |   |  |   |  |   |

Seite · Page

|                |         |     |   |   |   |   |   |   |   |   |   |
|----------------|---------|-----|---|---|---|---|---|---|---|---|---|
| EM             | 720     | 721 | ■ |   |   |   |   |   |   | ■ |   |
| EM-E           | 722     | 722 | ■ |   |   |   |   |   |   | ■ |   |
| EM/IKZ         | 723     |     | ■ |   |   |   |   |   |   |   | ■ |
| EM-QuickLock   | 724     |     | ■ |   |   |   |   |   | ■ | ■ |   |
| EM-E-Lock      | 725     |     | ■ |   |   |   |   | ■ |   | ■ |   |
| EM-U           | 726     | 727 | ■ |   | ■ |   |   |   |   | ■ |   |
| EM-U-E         | 728     | 728 | ■ |   | ■ |   |   |   |   | ■ |   |
| EM-U/IKZ       | 729     |     | ■ |   | ■ |   |   |   |   |   | ■ |
| EM-L           | 730     | 731 | ■ |   |   |   | ■ |   |   | ■ |   |
| EM-UL          | 732     |     | ■ |   | ■ |   | ■ |   |   | ■ |   |
| EM-Z/ER/IKZ    | 733     |     |   | ■ |   |   |   |   |   | ■ | ■ |
| EM-Z/QuickLock | 734     |     |   | ■ |   | ■ |   |   | ■ | ■ | ■ |
| EM-L/ER/IKZ    | 735     |     |   | ■ |   |   | ■ |   |   | ■ | ■ |
| EM/PGR/IKZ     | 736     |     |   |   | ■ |   |   |   |   | ■ |   |
| EM-SE          | 737     |     |   |   |   |   |   |   |   |   |   |
| EM-R           | 738     |     |   |   |   |   |   |   |   |   |   |
| EM/MQL         | 696     |     | ■ |   |   |   |   |   | ■ | ■ |   |
| EM-Z/MQL       | 697-698 |     |   | ■ |   |   |   |   | ■ | ■ |   |



| Kühlung und Schmierung<br>Cooling and lubrication                            |  |  |   | Empfohlene Einsatzgebiete<br>Recommended range of application |  |  |  |   |  |  |   |  |  |
|--|--|--|---|---|--|--|--|---|--|--|---|--|--|
| <b>Innere Kühlschmierstoff-Zufuhr (IKZ)</b><br>Internal coolant supply (IKZ) | <b>Minimale Mengenschmierung (MMS)</b><br>Minimum-quantity lubrication (MQL) | <b>Kühlschmierstoff-Druck am Futtereintritt</b><br>Coolant-lubricant pressure at the entry to the holder | <b>Luftdruck am Futtereintritt</b><br>Air pressure at the entry to the holder | <b>Grundlochgewinde</b><br>Blind hole threads                 | <b>Durchgangslochgewinde</b><br>Through hole threads | <b>Für Regelgewinde und Feingewinde</b><br>For coarse thread and fine thread | <b>Speziell für Feingewinde</b><br>Especially for fine threads | <b>Zum Spannen von Vollhartmetall-Werkzeugen</b><br>For clamping of solid carbide tools | <b>Für die Hochgeschwindigkeitsbearbeitung</b><br>For high-speed machining | <b>Hoher Kühlschmierstoff-Druck</b><br>High coolant-lubricant pressure | <b>Einsatz auf Mehrspindelmaschinen und Transferstraßen</b><br>For use on multi-spindle machines and transfer lines | <b>Zur Herstellung von Außengewinden</b><br>For the production of external threads |  |
| $p_{max}$<br>50 bar<br>(700 psi)   | $p_{max}$<br>6 bar<br>(85 psi)   |  |   |   |  |  |  |   |  |  |   |  |  |

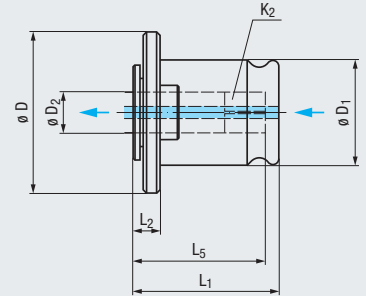
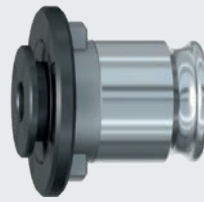
|                        |
|------------------------|
| <b>Product Finder</b>  |
| Soft-synchro           |
| Speed-synchro          |
| KSN                    |
| MQL MMS                |
| SFM                    |
| SWITCH-MASTER          |
| HF                     |
| <b>EM</b>              |
| Zubehör<br>Accessories |

|   |   |   |   |   |   |   |   |   |   |   |   |   |   |  |                       |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|--|-----------------------|
| ■ |   | ■ |   |   | ■ | ■ |   |   |   |   |   |   |   |  | <b>EM</b>             |
| ■ |   | ■ |   |   | ■ | ■ | ■ |   |   |   |   |   |   |  | <b>EM-E</b>           |
| ■ |   | ■ |   |   | ■ | ■ |   |   |   |   |   |   |   |  | <b>EM/IKZ</b>         |
| ■ |   | ■ |   |   | ■ | ■ |   |   |   |   |   |   |   |  | <b>EM-QuickLock</b>   |
| ■ |   | ■ |   |   | ■ | ■ |   | ■ | ■ | ■ |   |   |   |  | <b>EM-E-Lock</b>      |
| ■ |   | ■ |   | ■ | ■ | ■ |   |   |   |   |   |   |   |  | <b>EM-U</b>           |
| ■ |   | ■ |   | ■ | ■ | ■ | ■ |   |   |   |   |   |   |  | <b>EM-U-E</b>         |
| ■ |   | ■ |   | ■ | ■ | ■ |   |   |   |   |   |   |   |  | <b>EM-U/IKZ</b>       |
| ■ |   | ■ |   | ■ | ■ | ■ |   |   |   |   |   | ■ |   |  | <b>EM-L</b>           |
| ■ |   | ■ |   | ■ | ■ | ■ |   |   |   |   |   | ■ |   |  | <b>EM-UL</b>          |
| ■ |   | ■ |   | ■ | ■ | ■ |   | ■ | ■ | ■ |   |   |   |  | <b>EM-Z/ER/IKZ</b>    |
| ■ |   | ■ |   | ■ | ■ | ■ |   | ■ | ■ | ■ |   |   |   |  | <b>EM-Z/QuickLock</b> |
| ■ |   | ■ |   | ■ | ■ | ■ |   | ■ | ■ | ■ | ■ |   |   |  | <b>EM-L/ER/IKZ</b>    |
| ■ |   | ■ |   | ■ | ■ | ■ |   | ■ | ■ | ■ |   |   |   |  | <b>EM/PGR/IKZ</b>     |
|   |   |   |   |   |   |   |   |   |   |   |   |   | ■ |  | <b>EM-SE</b>          |
|   |   |   |   | ■ | ■ | ■ |   |   |   |   |   |   |   |  | <b>EM-R</b>           |
|   | ■ |   | ■ |   | ■ | ■ |   |   |   |   |   |   |   |  | <b>EM/MQL</b>         |
|   | ■ |   | ■ |   | ■ | ■ |   | ■ | ■ |   |   |   |   |  | <b>EM-Z/MQL</b>       |



- Product Finder
- Soft-synchro
- Speed-synchro
- KSN
- ML MMS
- SFM
- SWITCH-MASTER
- HF
- EM**
- Zubehör Accessories

## EM DIN



IKZ 1)  $p_{max}$   
50 bar  
(700 psi)



| Typ · Type        | EM 00    | EM 01    | EM 03      | EM 04     | EM 05     |
|-------------------|----------|----------|------------|-----------|-----------|
|                   | M1 - M10 | M3 - M14 | M4,5 - M24 | M14 - M36 | M22 - M48 |
| $\varnothing D$   | 23       | 30       | 48         | 70        | 92        |
| $\varnothing D_1$ | 13       | 19       | 31         | 48        | 60        |
| $L_1$             | 27       | 29       | 45         | 67        | 111       |
| $L_2$             | 7        | 7        | 10         | 11        | 48        |

## DIN

| $\varnothing D_2$ | $K_2$ |           |           | $L_5$           | $L_5$ | $L_5$           | $L_5$ | $L_5$           | $L_5$ |                 |    |                 |     |
|-------------------|-------|-----------|-----------|-----------------|-------|-----------------|-------|-----------------|-------|-----------------|----|-----------------|-----|
|                   |       |           |           |                 |       |                 |       |                 |       |                 |    |                 |     |
| 2,5               | 2,1   | M1 - M1,8 | M3,5      | <b>F0560100</b> | 20    |                 |       |                 |       |                 |    |                 |     |
| 2,8               | 2,1   | M2 - M2,6 | M4        | <b>F0560101</b> | 20    |                 |       |                 |       |                 |    |                 |     |
| 3,5               | 2,7   | M3        | M4,5 - M5 | <b>F0560102</b> | 21    | <b>F0561102</b> | 23    |                 |       |                 |    |                 |     |
| 4                 | 3     | M3,5      | M5,5      | <b>F0560103</b> | 21    | <b>F0561103</b> | 23    |                 |       |                 |    |                 |     |
| 4,5               | 3,4   | M4        | M6        | <b>F0560104</b> | 21    | <b>F0561104</b> | 23    |                 |       |                 |    |                 |     |
| 6                 | 4,9   | M4,5 - M6 | M8        | <b>F0560106</b> | 23    | <b>F0561106</b> | 25    | <b>F0563106</b> | 37    |                 |    |                 |     |
| 7                 | 5,5   | M7        | M9 - M10  | <b>F0560107</b> | 23    | <b>F0561107</b> | 25    | <b>F0563107</b> | 37    |                 |    |                 |     |
| 8                 | 6,2   | M8        | M11       | 2)              |       | <b>F0561108</b> | 26    | <b>F0563108</b> | 38    |                 |    |                 |     |
| 9                 | 7     | M9        | M12       |                 |       | <b>F0561109</b> | 27    | <b>F0563109</b> | 39    |                 |    |                 |     |
| 10                | 8     | M10       |           |                 |       | <b>F0561110</b> | 27    | <b>F0563110</b> | 40    |                 |    |                 |     |
| 11                | 9     |           | M14       |                 |       | <b>F0561111</b> | 27    | <b>F0563111</b> | 41    | <b>F0564111</b> | 53 |                 |     |
| 12                | 9     |           | M16       |                 |       | 2)              |       | <b>F0563112</b> | 41    | <b>F0564112</b> | 53 |                 |     |
| 14                | 11    |           | M18       |                 |       |                 |       | <b>F0563113</b> | 43    | <b>F0564113</b> | 55 |                 |     |
| 16                | 12    |           | M20       |                 |       |                 |       | <b>F0563114</b> | 44    | <b>F0564114</b> | 56 |                 |     |
| 18                | 14,5  |           | M22 - M24 |                 |       |                 |       | <b>F0563115</b> | 44    | <b>F0564115</b> | 58 | <b>F0565115</b> | 94  |
| 20                | 16    |           | M27       |                 |       |                 |       | 2)              |       | <b>F0564116</b> | 60 | <b>F0565116</b> | 96  |
| 22                | 18    |           | M30       |                 |       |                 |       | 2)              |       | <b>F0564117</b> | 62 | <b>F0565117</b> | 98  |
| 25                | 20    |           | M33       |                 |       |                 |       |                 |       | <b>F0564118</b> | 64 | <b>F0565118</b> | 100 |
| 28                | 22    |           | M36       |                 |       |                 |       |                 |       | <b>F0564119</b> | 66 | <b>F0565119</b> | 102 |
| 32                | 24    |           | M39 - M42 |                 |       |                 |       |                 |       | 2)              |    | <b>F0565120</b> | 104 |
| 36                | 29    |           | M45 - M48 |                 |       |                 |       |                 |       | 2)              |    | <b>F0565121</b> | 109 |
| 40                | 32    |           | M52 - M56 |                 |       |                 |       |                 |       |                 |    | 2)              |     |
| 45                | 35    |           | M68       |                 |       |                 |       |                 |       |                 |    | 2)              |     |

1) Bei Verwendung von Gewindebohrern / Gewindeformern mit innerer Kühlschmierstoff-Zufuhr  
If used with taps / cold-forming taps with internal coolant supply

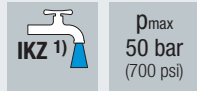
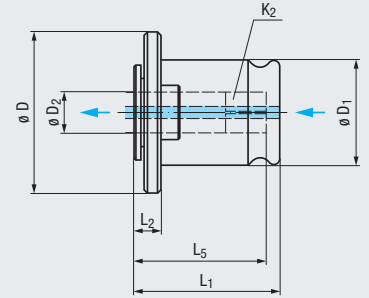
2) Schnellwechsel-Einsätze mit erweitertem Spannereich Typ EM-E zum Schneiden von Feingewinden MF siehe Seite 722  
Quick-change adapters with extended clamping range type EM-E for the cutting of fine threads MF, see page 722





**EM**

**ISO**



- Product Finder
- Soft-synchro
- Speed-synchro
- KSN
- MQL MMS
- SFM
- SWITCH-MASTER
- HF
- EM**
- Zubehör Accessories



| Typ · Type        | EM 00   | EM 01      | EM 03    | EM 04     | EM 05     |
|-------------------|---------|------------|----------|-----------|-----------|
|                   | M1 - M9 | M3,5 - M14 | M6 - M24 | M14 - M42 | M24 - M48 |
| $\varnothing D$   | 23      | 30         | 48       | 70        | 92        |
| $\varnothing D_1$ | 13      | 19         | 31       | 48        | 60        |
| $L_1$             | 27      | 29         | 45       | 67        | 111       |
| $L_2$             | 7       | 7          | 10       | 11        | 48        |

| ISO               |       |             |           |                 |       |                 |       |                 |       |                 |       |                 |       |
|-------------------|-------|-------------|-----------|-----------------|-------|-----------------|-------|-----------------|-------|-----------------|-------|-----------------|-------|
| $\varnothing D_2$ | $K_2$ |             |           |                 | $L_5$ |                 | $L_5$ |                 | $L_5$ |                 | $L_5$ |                 | $L_5$ |
| 2,24              | 1,8   |             | M3        | <b>F0560200</b> | 19    |                 |       |                 |       |                 |       |                 |       |
| 2,5               | 2     | M1 - M2     | M3,5      | <b>F0560201</b> | 19    |                 |       |                 |       |                 |       |                 |       |
| 2,8               | 2,24  | M2,2 - M2,5 |           | <b>F0560202</b> | 20    |                 |       |                 |       |                 |       |                 |       |
| 3,15              | 2,5   | M3          | M4        | <b>F0560203</b> | 20    |                 |       |                 |       |                 |       |                 |       |
| 3,55              | 2,8   | M3,5        | M4,5      | <b>F0560204</b> | 20    | <b>F0561204</b> | 22    |                 |       |                 |       |                 |       |
| 4                 | 3,15  | M4          | M5        | <b>F0560205</b> | 21    | <b>F0561205</b> | 23    |                 |       |                 |       |                 |       |
| 4,5               | 3,55  | M4,5        | M6        | <b>F0560206</b> | 21    | <b>F0561206</b> | 23    |                 |       |                 |       |                 |       |
| 5                 | 4     | M5          |           | <b>F0560207</b> | 22    | <b>F0561207</b> | 24    |                 |       |                 |       |                 |       |
| 5,6               | 4,5   |             | M7        | <b>F0560208</b> | 22    | <b>F0561208</b> | 24    |                 |       |                 |       |                 |       |
| 6,3               | 5     | M6          | M8        | <b>F0560209</b> | 23    | <b>F0561209</b> | 25    | <b>F0563209</b> | 37    |                 |       |                 |       |
| 7,1               | 5,6   | M7          | M9        | <b>F0560210</b> | 23    | <b>F0561210</b> | 25    | <b>F0563210</b> | 37    |                 |       |                 |       |
| 8                 | 6,3   | M8          | M10 - M11 | 2)              |       | <b>F0561211</b> | 26    | <b>F0563211</b> | 38    |                 |       |                 |       |
| 9                 | 7,1   | M9          | M12       |                 |       | <b>F0561212</b> | 27    | <b>F0563212</b> | 39    |                 |       |                 |       |
| 10                | 8     | M10         |           |                 |       | <b>F0561110</b> | 27    | <b>F0563110</b> | 40    |                 |       |                 |       |
| 11,2              | 9     |             | M14       |                 |       | <b>F0561214</b> | 27    | <b>F0563214</b> | 41    | <b>F0564214</b> | 53    |                 |       |
| 12,5              | 10    |             | M16       |                 |       | 2)              |       | <b>F0563215</b> | 42    | <b>F0564215</b> | 54    |                 |       |
| 14                | 11,2  |             | M18 - M20 |                 |       |                 |       | <b>F0563216</b> | 43    | <b>F0564216</b> | 55    |                 |       |
| 16                | 12,5  |             | M22       |                 |       |                 |       | <b>F0563217</b> | 43    | <b>F0564217</b> | 57    |                 |       |
| 18                | 14    |             | M24       |                 |       |                 |       | <b>F0563218</b> | 43    | <b>F0564218</b> | 59    | <b>F0565218</b> | 95    |
| 20                | 16    |             | M27 - M30 |                 |       |                 |       | 2)              |       | <b>F0564116</b> | 61    | <b>F0565116</b> | 97    |
| 22,4              | 18    |             | M33       |                 |       |                 |       | 2)              |       | <b>F0564220</b> | 63    | <b>F0565220</b> | 99    |
| 25                | 20    |             | M36       |                 |       |                 |       |                 |       | <b>F0564118</b> | 65    | <b>F0565118</b> | 101   |
| 28                | 22,4  |             | M39 - M42 |                 |       |                 |       |                 |       | <b>F0564222</b> | 66    | <b>F0565222</b> | 103   |
| 31,5              | 25    |             | M45 - M48 |                 |       |                 |       |                 |       | 2)              |       | <b>F0565223</b> | 105   |
| 35,5              | 28    |             | M52 - M56 |                 |       |                 |       |                 |       | 2)              |       | 2)              |       |
| 40                | 31,5  |             | M60 - M64 |                 |       |                 |       |                 |       |                 |       | 2)              |       |
| 45                | 35,5  |             | M68       |                 |       |                 |       |                 |       |                 |       | 2)              |       |

1) Bei Verwendung von Gewindebohrern / Gewindefornern mit innerer Kühlschmierstoff-Zufuhr  
If used with taps / cold-forming taps with internal coolant supply

2) Schnellwechsel-Einsätze mit erweitertem Spannungsbereich Typ EM-E zum Schneiden von Feingewinden MF siehe Seite 722  
Quick-change adapters with extended clamping range type EM-E for the cutting of fine threads MF, see page 722

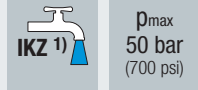
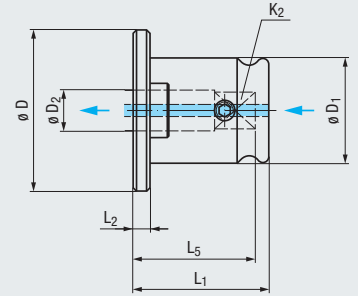


**Zum Schneiden von Feingewinden**  
For the cutting of fine threads

**MF**

# EM-E

## DIN ISO



| Typ · Type        | EM 00-E | EM 01-E | EM 03-E | EM 04-E | EM 05-E |
|-------------------|---------|---------|---------|---------|---------|
| $\varnothing D$   | 23      | 30      | 48      | 70      | 92      |
| $\varnothing D_1$ | 13      | 19      | 31      | 48      | 60      |
| $L_1$             | 23,5    | 25,5    | 40      | 61,5    | 84      |
| $L_2$             | 7       | 4       | 5       | 6       | 21      |

| Feingewinde<br>Fine thread |       | <b>MF</b> |           | M8 - M11        |       | M16 |                 | M27 - M30 |       | M39 - M48       |       | M52 - M60       |       |
|----------------------------|-------|-----------|-----------|-----------------|-------|-----|-----------------|-----------|-------|-----------------|-------|-----------------|-------|
| <b>DIN</b>                 |       |           |           |                 |       |     |                 |           |       |                 |       |                 |       |
| $\varnothing D_2$          | $K_2$ |           |           |                 | $L_5$ |     | $L_5$           |           | $L_5$ |                 | $L_5$ |                 | $L_5$ |
| 8                          | 6,2   | M8        | M11       | <b>F0800108</b> | 21    |     | <b>F0801112</b> | 25        |       |                 |       |                 |       |
| 12                         | 9     |           | M16       |                 |       |     |                 |           |       |                 |       |                 |       |
| 20                         | 16    |           | M27       |                 |       |     | <b>F0803116</b> | 39        |       |                 |       |                 |       |
| 22                         | 18    |           | M30       |                 |       |     | <b>F0803117</b> | 39        |       |                 |       |                 |       |
| 32                         | 24    |           | M39 - M42 |                 |       |     |                 |           |       | <b>F0804120</b> | 61    |                 |       |
| 36                         | 29    |           | M45 - M48 |                 |       |     |                 |           |       | <b>F0804121</b> | 60    |                 |       |
| 40                         | 32    |           | M52 - M56 |                 |       |     |                 |           |       |                 |       | <b>F0805122</b> | 83    |
| 45                         | 35    |           | M60       |                 |       |     |                 |           |       |                 |       | <b>F0805123</b> | 83    |

| Feingewinde<br>Fine thread |       | <b>MF</b> |           | M8 - M11        |       | M16 |                 | M27 - M33 |       | M45 - M56       |       | M52 - M68       |       |
|----------------------------|-------|-----------|-----------|-----------------|-------|-----|-----------------|-----------|-------|-----------------|-------|-----------------|-------|
| <b>ISO</b>                 |       |           |           |                 |       |     |                 |           |       |                 |       |                 |       |
| $\varnothing D_2$          | $K_2$ |           |           |                 | $L_5$ |     | $L_5$           |           | $L_5$ |                 | $L_5$ |                 | $L_5$ |
| 8                          | 6,3   | M8        | M10 - M11 | <b>F0800211</b> | 21    |     | <b>F0801215</b> | 25        |       |                 |       |                 |       |
| 12,5                       | 10    |           | M16       |                 |       |     |                 |           |       |                 |       |                 |       |
| 20                         | 16    |           | M27 - M30 |                 |       |     | <b>F0803116</b> | 40        |       |                 |       |                 |       |
| 22,4                       | 18    |           | M33       |                 |       |     | <b>F0803220</b> | 39        |       |                 |       |                 |       |
| 31,5                       | 25    |           | M45 - M48 |                 |       |     |                 |           |       | <b>F0804223</b> | 61    |                 |       |
| 35,5                       | 28    |           | M52 - M56 |                 |       |     |                 |           |       | <b>F0804224</b> | 61    | <b>F0805224</b> | 81    |
| 40                         | 31,5  |           | M60 - M64 |                 |       |     |                 |           |       |                 |       | <b>F0805225</b> | 82    |
| 45                         | 35,5  |           | M68       |                 |       |     |                 |           |       |                 |       | <b>F0805226</b> | 83    |

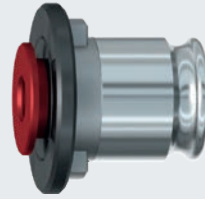
1) Bei Verwendung von Gewindebohrern / Gewindeformern mit innerer Kühlschmierstoff-Zufuhr  
If used with taps / cold-forming taps with internal coolant supply



# EM/IKZ

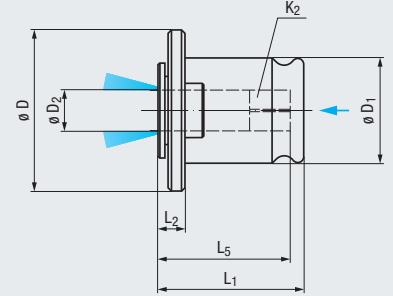
Für Gewindebohrer / Gewindeformer ohne innere Kühlschmierstoff-Zufuhr  
For taps / cold-forming taps without internal coolant supply

## DIN



Entlang des Werkzeugschafts  
Along the tool shank

$p_{max}$   
50 bar  
(700 psi)



- Product Finder
- Soft-synchro
- Speed-synchro
- KSN
- MQL MMS
- SFM
- SWITCH-MASTER
- HF
- EM**
- Zubehör  
Accessories



| Typ · Type        | EM 01/IKZ | EM 03/IKZ  | EM 04/IKZ | EM 05/IKZ |
|-------------------|-----------|------------|-----------|-----------|
| M3 - M14          | M3 - M14  | M4,5 - M24 | M14 - M36 | M22 - M48 |
| $\varnothing D$   | 30        | 48         | 70        | 92        |
| $\varnothing D_1$ | 19        | 31         | 48        | 60        |
| $L_1$             | 29        | 45         | 67        | 111       |
| $L_2$             | 7         | 10         | 11        | 48        |

## DIN

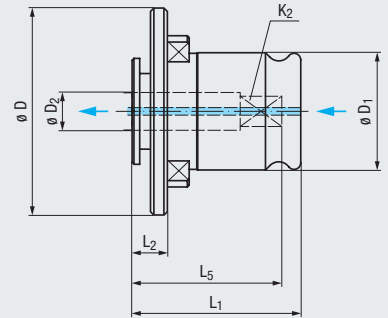
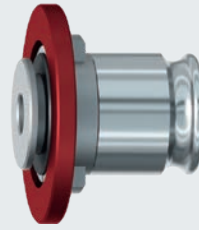
| $\varnothing D_2$ | $K_2$ |           |           |                   | $L_5$ |                   | $L_5$ |                   | $L_5$ |                   | $L_5$ |
|-------------------|-------|-----------|-----------|-------------------|-------|-------------------|-------|-------------------|-------|-------------------|-------|
| 2,5               | 2,1   | M1 - M1,8 | M3,5      |                   |       |                   |       |                   |       |                   |       |
| 2,8               | 2,1   | M2 - M2,6 | M4        |                   |       |                   |       |                   |       |                   |       |
| 3,5               | 2,7   | M3        | M4,5 - M5 | <b>F0561102.5</b> | 23    |                   |       |                   |       |                   |       |
| 4                 | 3     | M3,5      | M5,5      | <b>F0561103.5</b> | 23    |                   |       |                   |       |                   |       |
| 4,5               | 3,4   | M4        | M6        | <b>F0561104.5</b> | 23    |                   |       |                   |       |                   |       |
| 6                 | 4,9   | M4,5 - M6 | M8        | <b>F0561106.5</b> | 25    | <b>F0563106.5</b> | 37    |                   |       |                   |       |
| 7                 | 5,5   | M7        | M9 - M10  | <b>F0561107.5</b> | 25    | <b>F0563107.5</b> | 37    |                   |       |                   |       |
| 8                 | 6,2   | M8        | M11       | <b>F0561108.5</b> | 26    | <b>F0563108.5</b> | 38    |                   |       |                   |       |
| 9                 | 7     | M9        | M12       | <b>F0561109.5</b> | 27    | <b>F0563109.5</b> | 39    |                   |       |                   |       |
| 10                | 8     | M10       |           | <b>F0561110.5</b> | 27    | <b>F0563110.5</b> | 40    |                   |       |                   |       |
| 11                | 9     |           | M14       | <b>F0561111.5</b> | 27    | <b>F0563111.5</b> | 41    | <b>F0564111.5</b> | 53    |                   |       |
| 12                | 9     |           | M16       |                   |       | <b>F0563112.5</b> | 41    | <b>F0564112.5</b> | 53    |                   |       |
| 14                | 11    |           | M18       |                   |       | <b>F0563113.5</b> | 43    | <b>F0564113.5</b> | 55    |                   |       |
| 16                | 12    |           | M20       |                   |       | <b>F0563114.5</b> | 44    | <b>F0564114.5</b> | 56    |                   |       |
| 18                | 14,5  |           | M22 - M24 |                   |       | <b>F0563115.5</b> | 44    | <b>F0564115.5</b> | 58    | <b>F0565115.5</b> | 94    |
| 20                | 16    |           | M27       |                   |       |                   |       | <b>F0564116.5</b> | 60    | <b>F0565116.5</b> | 96    |
| 22                | 18    |           | M30       |                   |       |                   |       | <b>F0564117.5</b> | 62    | <b>F0565117.5</b> | 98    |
| 25                | 20    |           | M33       |                   |       |                   |       | <b>F0564118.5</b> | 64    | <b>F0565118.5</b> | 100   |
| 28                | 22    |           | M36       |                   |       |                   |       | <b>F0564119.5</b> | 66    | <b>F0565119.5</b> | 102   |
| 32                | 24    |           | M39 - M42 |                   |       |                   |       |                   |       | <b>F0565120.5</b> | 104   |
| 36                | 29    |           | M45 - M48 |                   |       |                   |       |                   |       | <b>F0565121.5</b> | 109   |



- Product Finder
- Soft-synchro
- Speed-synchro
- KSN
- MQL MMS
- SFM
- SWITCH-MASTER
- HF
- EM**
- Zubehör Accessories


# EM-QuickLock

**DIN**

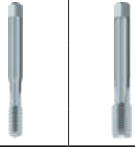


**IKZ 1)**  $p_{max}$  50 bar (700 psi)



| Typ · Type   | EM 01-QuickLock | EM 03-QuickLock |  |  |  |
|--|-----------------|-----------------|--|--|--|
|  M4 - M12 |                 | M8 - M20        |  |  |  |
| $\varnothing D$  | 39              | 55              |  |  |  |
| $\varnothing D_1$  | 19              | 31              |  |  |  |
| $L_1$  | 29              | 45              |  |  |  |
| $L_2$  | 7               | 10              |  |  |  |

## DIN

| $\varnothing D_2$ | $K_2$ |  |          | $L_5$      | $L_5$ |            |    |  |  |  |  |
|-------------------|-------|--|----------|------------|-------|------------|----|--|--|--|--|
|                   |       |  |          |            |       |            |    |  |  |  |  |
| 4,5               | 3,4   | M4   | M6       | F4521104.6 | 23    |            |    |  |  |  |  |
| 6                 | 4,9   | M4,5 - M6  | M8       | F4521106.6 | 25    |            |    |  |  |  |  |
| 7                 | 5,5   | M7   | M9 - M10 | F4521107.6 | 25    |            |    |  |  |  |  |
| 8                 | 6,2   | M8   | M11      | F4521108.6 | 26    | F4523108.6 | 38 |  |  |  |  |
| 9                 | 7     | M9   | M12      | F4521109.6 | 27    | F4523109.6 | 39 |  |  |  |  |
| 10                | 8     | M10  |          | F4521110.6 | 27    | F4523110.6 | 40 |  |  |  |  |
| 11                | 9     |  | M14      |            |       | F4523111.6 | 41 |  |  |  |  |
| 12                | 9     |  | M16      |            |       | F4523112.6 | 41 |  |  |  |  |
| 14                | 11    |  | M18      |            |       | F4523113.6 | 43 |  |  |  |  |
| 16                | 12    |  | M20      |            |       | F4523114.6 | 44 |  |  |  |  |

1) Bei Verwendung von Gewindebohrern / Gewindeformern mit innerer Kühlschmierstoff-Zufuhr / If used with taps / cold-forming taps with internal coolant supply

Weitere Größen auf Anfrage / Further sizes upon request

Großer Griffing – in Kombination mit Softsynchro® QuickLock – ermöglicht stirnseitige Abdichtung / Large ring handle – combined with Softsynchro® Quicklock – enables face sealing

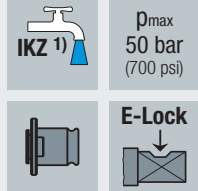
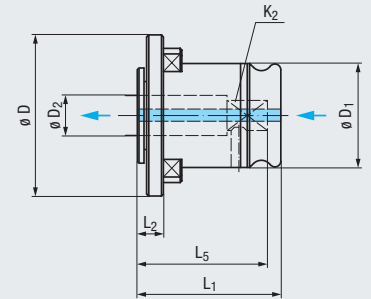
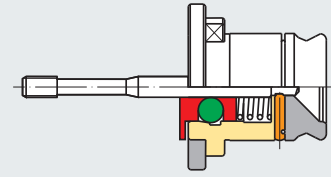
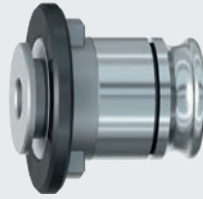
Ausführung mit innerer Kühlschmierstoff-Zufuhr entlang des Werkzeugschafts für Gewindebohrer / Gewindeformer ohne innere Kühlschmierstoff-Zufuhr auf Anfrage / Design with internal coolant-lubricant supply along the tool shank for taps / cold-forming taps without internal coolant-lubricant supply on request

Bei Verwendung von Vollhartmetall-Gewindebohrern / -Gewindeformern empfehlen wir Schnellwechsel-Einsätze Typ EM-Z/QuickLock, siehe Seite 734 / When using solid carbide taps / cold-forming taps we recommend quick-change adapters type EM-Z/QuickLock, see page 734



# EM-E-Lock

DIN



$p_{max}$   
50 bar  
(700 psi)

E-Lock

Product Finder

Soft-synchro

Speed-synchro

KSN

MQL MMS

SFM

SWITCH-MASTER

HF

EM

Zubehör  
Accessories



| Typ · Type | EM 01-E-Lock | EM 03-E-Lock |
|------------|--------------|--------------|
|            | M3 - M14     | M4,5 - M24   |
| $\phi D$   | 30           | 48           |
| $\phi D_1$ | 19           | 31           |
| $L_1$      | 29           | 45           |
| $L_2$      | 7            | 10           |

| DIN        |       |           |           |                 |       |                          |                 |       |                          |
|------------|-------|-----------|-----------|-----------------|-------|--------------------------|-----------------|-------|--------------------------|
| $\phi D_2$ | $K_2$ |           |           |                 | $L_5$ | Rillenform<br>Slot shape |                 | $L_5$ | Rillenform<br>Slot shape |
| 3,5        | 2,7   | M3        | M4,5 - M5 | <b>F2561102</b> | 23    | A                        |                 |       |                          |
| 4          | 3     | M3,5      | M5,5      | <b>F2561103</b> | 23    | A                        |                 |       |                          |
| 4,5        | 3,4   | M4        | M6        | <b>F2561104</b> | 23    | A                        |                 |       |                          |
| 6          | 4,9   | M4,5 - M6 | M8        | <b>F2561106</b> | 25    | A                        | <b>F2563106</b> | 37    | A                        |
| 7          | 5,5   | M7        | M9 - M10  | <b>F2561107</b> | 25    | A                        | <b>F2563107</b> | 37    | A                        |
| 8          | 6,2   | M8        | M11       | <b>F2561108</b> | 26    | A                        | <b>F2563108</b> | 38    | A                        |
| 9          | 7     | M9        | M12       | <b>F2561109</b> | 27    | A                        | <b>F2563109</b> | 39    | A                        |
| 10         | 8     | M10       |           | <b>F2561110</b> | 27    | A                        | <b>F2563110</b> | 40    | A                        |
| 11         | 9     |           | M14       | <b>F2561111</b> | 27    | A                        | <b>F2563111</b> | 41    | A                        |
| 12         | 9     |           | M16       |                 |       |                          | <b>F2563112</b> | 41    | B                        |
| 14         | 11    |           | M18       |                 |       |                          | <b>F2563113</b> | 43    | B                        |
| 16         | 12    |           | M20       |                 |       |                          | <b>F2563114</b> | 44    | B                        |
| 18         | 14,5  |           | M22 - M24 |                 |       |                          | <b>F2563115</b> | 44    | B                        |

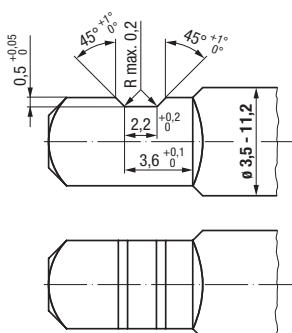
1) Bei Verwendung von Gewindebohrern / Gewindeformern mit innerer Kühlschmierstoff-Zufuhr  
If used with taps / cold-forming taps with internal coolant supply

Weitere Größen auf Anfrage  
Further sizes upon request

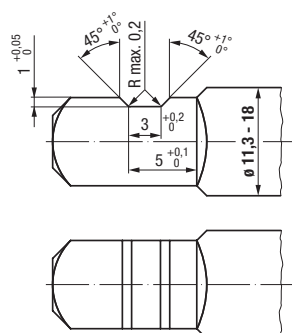
Ausführungen für Gewindebohrer / Gewindeformer mit ISO-Baumaßen auf Anfrage erhältlich  
Versions for taps / cold-forming taps with ISO dimensions are available on request

## Bearbeitungsmaße für Rillenform am Gewindebohrer- / Gewindeformer-Vierkant Machining specifications for the slot shape on the driving square of taps / cold-forming taps

Form A



Form B



EM-E-Lock Lehren  
EM-E-Lock gauges



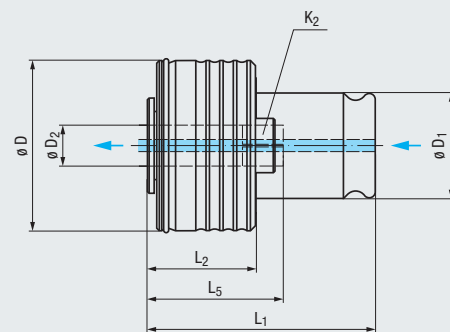
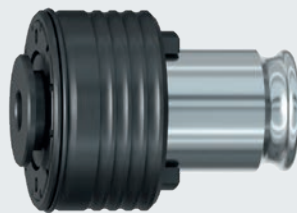
| Typ<br>Type | Rillenform<br>Slot shape |                   |
|-------------|--------------------------|-------------------|
| EM-E-Lock/A | A                        | <b>F256199.02</b> |
| EM-E-Lock/B | B                        | <b>F256399.02</b> |



Mit Überlastkupplung  
With overload clutch

# EM-U

## DIN



- Product Finder
- Soft-synchro
- Speed-synchro
- KSN
- ML MMS
- SFM
- SWITCH-MASTER
- HF
- EM
- Zubehör Accessories

IKZ 1)

$p_{max}$   
50 bar  
(700 psi)



| Typ · Type        | EM 00-U  | EM 01-U  | EM 03-U    | EM 04-U   | EM 05-U   |
|-------------------|----------|----------|------------|-----------|-----------|
|                   | M1 - M10 | M3 - M14 | M4,5 - M24 | M14 - M36 | M22 - M48 |
| $\varnothing D$   | 24       | 33       | 50         | 72        | 95        |
| $\varnothing D_1$ | 13       | 19       | 31         | 48        | 60        |
| $L_1$             | 41,5     | 47       | 69         | 101       | 138       |
| $L_2$             | 22       | 25       | 34         | 45        | 75        |

## DIN

| $\varnothing D_2$ | $K_2$ |           |           | $L_5$ | $L_5$ | $L_5$ | $L_5$ | $L_5$ | $L_5$ |
|-------------------|-------|-----------|-----------|-------|-------|-------|-------|-------|-------|
|                   |       |           |           |       |       |       |       |       |       |
| 2,5               | 2,1   | M1 - M1,8 |           |       |       |       |       |       |       |
| 2,5               | 2,1   |           | M3,5      |       |       |       |       |       |       |
| 2,8               | 2,1   | M2        |           |       |       |       |       |       |       |
| 2,8               | 2,1   | M2,5      |           |       |       |       |       |       |       |
| 2,8               | 2,1   |           | M4        |       |       |       |       |       |       |
| 3,5               | 2,7   | M3        |           |       |       |       |       |       |       |
| 3,5               | 2,7   |           | M4,5 - M5 |       |       |       |       |       |       |
| 4                 | 3     | M3,5      |           |       |       |       |       |       |       |
| 4,5               | 3,4   | M4        |           |       |       |       |       |       |       |
| 4,5               | 3,4   |           | M6        |       |       |       |       |       |       |
| 6                 | 4,9   | M4,5 - M5 |           |       |       |       |       |       |       |
| 6                 | 4,9   | M6        |           |       |       |       |       |       |       |
| 6                 | 4,9   |           | M8        |       |       |       |       |       |       |
| 7                 | 5,5   |           | M10       |       |       |       |       |       |       |
| 8                 | 6,2   | M8        |           |       |       |       |       |       |       |
| 9                 | 7     |           | M12       |       |       |       |       |       |       |
| 10                | 8     | M10       |           |       |       |       |       |       |       |
| 11                | 9     |           | M14       |       |       |       |       |       |       |
| 12                | 9     |           | M16       |       |       |       |       |       |       |
| 14                | 11    |           | M18       |       |       |       |       |       |       |
| 16                | 12    |           | M20       |       |       |       |       |       |       |
| 18                | 14,5  |           | M22 - M24 |       |       |       |       |       |       |
| 20                | 16    |           | M27       |       |       |       |       |       |       |
| 22                | 18    |           | M30       |       |       |       |       |       |       |
| 25                | 20    |           | M33       |       |       |       |       |       |       |
| 28                | 22    |           | M36       |       |       |       |       |       |       |
| 32                | 24    |           | M39 - M42 |       |       |       |       |       |       |
| 36                | 29    |           | M45 - M48 |       |       |       |       |       |       |
| 40                | 32    |           | M52 - M56 |       |       |       |       |       |       |
| 45                | 35    |           | M60       |       |       |       |       |       |       |

1) Bei Verwendung von Gewindebohrern / Gewindeformern mit innerer Kühlschmierstoff-Zufuhr  
If used with taps / cold-forming taps with internal coolant supply

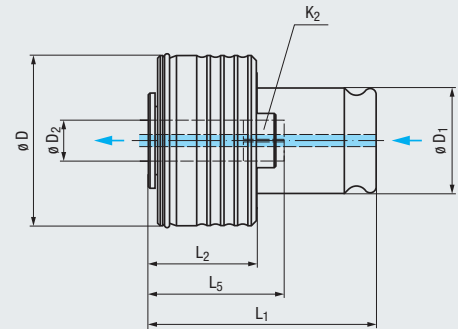
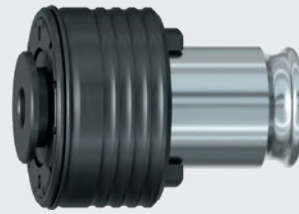
2) Schnellwechsel-Einsätze mit erweitertem Spannereich Typ EM-U-E zum Schneiden von Feingewinden MF siehe Seite 728  
Quick-change adapters with extended clamping range type EM-U-E for the cutting of fine threads MF, see page 728



# EM-U

Mit Überlastkupplung  
With overload clutch

## ISO



**IKZ 1)**  $p_{max}$   
50 bar  
(700 psi)

- Product Finder
- Soft-synchro
- Speed-synchro
- KSN
- MQL MMS
- SFM
- SWITCH-MASTER
- HF
- EM**
- Zubehör Accessories



| Typ · Type        | EM 00-U   | EM 01-U    | EM 03-U  | EM 04-U   | EM 05-U   |
|-------------------|-----------|------------|----------|-----------|-----------|
|                   | M2,2 - M9 | M3,5 - M14 | M6 - M24 | M14 - M42 | M24 - M48 |
| $\varnothing D$   | 24        | 33         | 50       | 72        | 95        |
| $\varnothing D_1$ | 13        | 19         | 31       | 48        | 60        |
| $L_1$             | 41,5      | 47         | 69       | 101       | 138       |
| $L_2$             | 22        | 25         | 34       | 45        | 75        |

| ISO               |       |             |           |                   | $L_5$ |                   | $L_5$ |                   | $L_5$ |                 | $L_5$ |                 | $L_5$ |
|-------------------|-------|-------------|-----------|-------------------|-------|-------------------|-------|-------------------|-------|-----------------|-------|-----------------|-------|
| $\varnothing D_2$ | $K_2$ |             |           |                   |       |                   |       |                   |       |                 |       |                 |       |
| 2,8               | 2,24  | M2,2 - M2,5 |           | <b>F0570202</b>   | 21    |                   |       |                   |       |                 |       |                 |       |
| 3,15              | 2,5   | M3          |           | <b>F0570203.1</b> | 21    |                   |       |                   |       |                 |       |                 |       |
| 3,15              | 2,5   |             | M4        | <b>F0570203.2</b> | 21    |                   |       |                   |       |                 |       |                 |       |
| 3,55              | 2,8   | M3,5        |           | <b>F0570204.1</b> | 21    | <b>F0571204.1</b> | 22    |                   |       |                 |       |                 |       |
| 3,55              | 2,8   |             | M4,5      | <b>F0570204.2</b> | 21    | <b>F0571204.2</b> | 22    |                   |       |                 |       |                 |       |
| 4                 | 3,15  | M4          |           | <b>F0570205.1</b> | 22    | <b>F0571205.1</b> | 23    |                   |       |                 |       |                 |       |
| 4                 | 3,15  |             | M5        | <b>F0570205.2</b> | 22    | <b>F0571205.2</b> | 23    |                   |       |                 |       |                 |       |
| 4,5               | 3,55  | M4,5        |           | <b>F0570206.1</b> | 22    | <b>F0571206.1</b> | 23    |                   |       |                 |       |                 |       |
| 4,5               | 3,55  |             | M6        | <b>F0570206.2</b> | 22    | <b>F0571206.2</b> | 23    |                   |       |                 |       |                 |       |
| 5                 | 4     | M5          |           | <b>F0570207</b>   | 23    | <b>F0571207</b>   | 24    |                   |       |                 |       |                 |       |
| 5,6               | 4,5   |             | M7        | <b>F0570208</b>   | 23    | <b>F0571208</b>   | 24    |                   |       |                 |       |                 |       |
| 6,3               | 5     | M6          |           | <b>F0570209.1</b> | 24    | <b>F0571209.1</b> | 25    | <b>F0573209.1</b> | 38    |                 |       |                 |       |
| 6,3               | 5     |             | M8        | <b>F0570209.2</b> | 24    | <b>F0571209.2</b> | 25    | <b>F0573209.2</b> | 38    |                 |       |                 |       |
| 7,1               | 5,6   | M7          |           | <b>F0570210</b>   | 24    | <b>F0571210</b>   | 25    | <b>F0573210</b>   | 38    |                 |       |                 |       |
| 8                 | 6,3   | M8          | M10 - M11 | 2)                |       | <b>F0571211</b>   | 26    | <b>F0573211</b>   | 39    |                 |       |                 |       |
| 9                 | 7,1   | M9          | M12       |                   |       | <b>F0571212</b>   | 27    | <b>F0573212</b>   | 40    |                 |       |                 |       |
| 10                | 8     | M10         |           |                   |       | <b>F0571110</b>   | 28    | <b>F0573110</b>   | 41    |                 |       |                 |       |
| 11,2              | 9     |             | M14       |                   |       | <b>F0571214</b>   | 29    | <b>F0573214</b>   | 42    | <b>F0574214</b> | 56    |                 |       |
| 12,5              | 10    |             | M16       |                   |       | 2)                |       | <b>F0573215</b>   | 43    | <b>F0574215</b> | 57    |                 |       |
| 14                | 11,2  |             | M18 - M20 |                   |       |                   |       | <b>F0573216</b>   | 44    | <b>F0574216</b> | 58    |                 |       |
| 16                | 12,5  |             | M22       |                   |       |                   |       | <b>F0573217</b>   | 46    | <b>F0574217</b> | 60    |                 |       |
| 18                | 14    |             | M24       |                   |       |                   |       | <b>F0573218</b>   | 48    | <b>F0574218</b> | 62    | <b>F0575218</b> | 95    |
| 20                | 16    |             | M27 - M30 |                   |       |                   |       | 2)                |       | <b>F0574116</b> | 64    | <b>F0575116</b> | 97    |
| 22,4              | 18    |             | M33       |                   |       |                   |       | 2)                |       | <b>F0574220</b> | 66    | <b>F0575220</b> | 99    |
| 25                | 20    |             | M36       |                   |       |                   |       |                   |       | <b>F0574118</b> | 67    | <b>F0575118</b> | 100   |
| 28                | 22,4  |             | M39 - M42 |                   |       |                   |       |                   |       | <b>F0574222</b> | 70    | <b>F0575222</b> | 103   |
| 31,5              | 25    |             | M45 - M48 |                   |       |                   |       |                   |       | 2)              |       | <b>F0575223</b> | 105   |
| 35,5              | 28    |             | M52 - M56 |                   |       |                   |       |                   |       | 2)              |       | 2)              |       |
| 40                | 31,5  |             | M60 - M64 |                   |       |                   |       |                   |       |                 |       | 2)              |       |
| 45                | 35,5  |             | M68       |                   |       |                   |       |                   |       |                 |       | 2)              |       |

1) Bei Verwendung von Gewindebohrern / Gewindeformern mit innerer Kühlschmierstoff-Zufuhr  
If used with taps / cold-forming taps with internal coolant supply

2) Schnellwechsel-Einsätze mit erweitertem Spannungsbereich Typ EM-U-E zum Schneiden von Feingewinden MF siehe Seite 728  
Quick-change adapters with extended clamping range type EM-U-E for the cutting of fine threads MF, see page 728



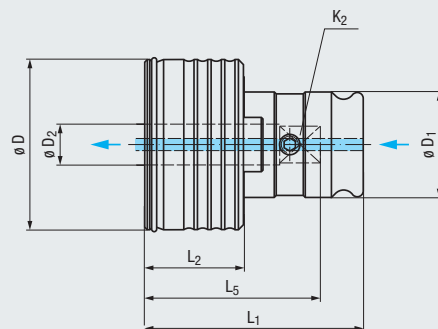
Zum Schneiden von Feingewinden  
For the cutting of fine threads

**MF**

Mit Überlastkupplung  
With overload clutch

## EM-U-E

**DIN ISO**



**IKZ 1)**  $p_{max}$  50 bar (700 psi)



| Typ · Type       | EM 00-U-E | EM 01-U-E | EM 03-U-E | EM 04-U-E | EM 05-U-E |
|------------------|-----------|-----------|-----------|-----------|-----------|
| ø D              | 24        | 33        | 50        | 72        | 95        |
| ø D <sub>1</sub> | 13        | 19        | 31        | 48        | 60        |
| L <sub>1</sub>   | 38,5      | 44        | 64,5      | 96        | 125       |
| L <sub>2</sub>   | 19        | 22,5      | 29,5      | 40,5      | 62        |

| Feingewinde<br>Fine thread |                | <b>MF</b> |           | M8 - M11        | M16             | M27 - M30       | M39 - M48       | M52 - M60       |    |
|----------------------------|----------------|-----------|-----------|-----------------|-----------------|-----------------|-----------------|-----------------|----|
| <b>DIN</b>                 |                |           |           |                 |                 |                 |                 |                 |    |
| ø D <sub>2</sub>           | K <sub>2</sub> |           |           | L <sub>5</sub>  | L <sub>5</sub>  | L <sub>5</sub>  | L <sub>5</sub>  | L <sub>5</sub>  |    |
| 8                          | 6,2            | M8        | M11       | <b>F0810108</b> | 28              |                 |                 |                 |    |
| 12                         | 9              |           | M16       |                 | <b>F0811112</b> | 37              |                 |                 |    |
| 20                         | 16             |           | M27       |                 |                 | <b>F0813116</b> | 50              |                 |    |
| 22                         | 18             |           | M30       |                 |                 | <b>F0813117</b> | 52              |                 |    |
| 32                         | 24             |           | M39 - M42 |                 |                 |                 | <b>F0814120</b> | 66              |    |
| 36                         | 29             |           | M45 - M48 |                 |                 |                 | <b>F0814121</b> | 71              |    |
| 40                         | 32             |           | M52 - M56 |                 |                 |                 |                 | <b>F0815122</b> | 91 |
| 45                         | 35             |           | M60       |                 |                 |                 |                 | <b>F0815123</b> | 94 |

| Feingewinde<br>Fine thread |                | <b>MF</b> |           | M8 - M11        | M16             | M27 - M33       | M45 - M56       | M52 - M68       |     |
|----------------------------|----------------|-----------|-----------|-----------------|-----------------|-----------------|-----------------|-----------------|-----|
| <b>ISO</b>                 |                |           |           |                 |                 |                 |                 |                 |     |
| ø D <sub>2</sub>           | K <sub>2</sub> |           |           | L <sub>5</sub>  | L <sub>5</sub>  | L <sub>5</sub>  | L <sub>5</sub>  | L <sub>5</sub>  |     |
| 8                          | 6,3            | M8        | M10 - M11 | <b>F0810211</b> | 28              |                 |                 |                 |     |
| 12,5                       | 10             |           | M16       |                 | <b>F0811215</b> | 38              |                 |                 |     |
| 20                         | 16             |           | M27 - M30 |                 |                 | <b>F0813116</b> | 50              |                 |     |
| 22,4                       | 18             |           | M33       |                 |                 | <b>F0813220</b> | 53              |                 |     |
| 31,5                       | 25             |           | M45 - M48 |                 |                 |                 | <b>F0814223</b> | 69              |     |
| 35,5                       | 28             |           | M52 - M56 |                 |                 |                 | <b>F0814224</b> | 72              |     |
| 40                         | 31,5           |           | M60 - M64 |                 |                 |                 |                 | <b>F0815224</b> | 96  |
| 45                         | 35,5           |           | M68       |                 |                 |                 |                 | <b>F0815225</b> | 103 |
|                            |                |           |           |                 |                 |                 |                 | <b>F0815226</b> | 107 |

1) Bei Verwendung von Gewindebohrern / Gewindeformern mit innerer Kühlschmierstoff-Zufuhr  
If used with taps / cold-forming taps with internal coolant supply

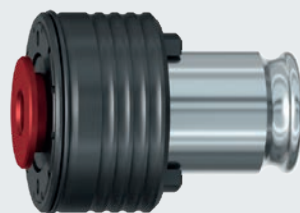




# EM-U/IKZ

Für Gewindebohrer / Gewindeformer ohne innere Kühlschmierstoff-Zufuhr  
For taps / cold-forming taps without internal coolant supply

**DIN**

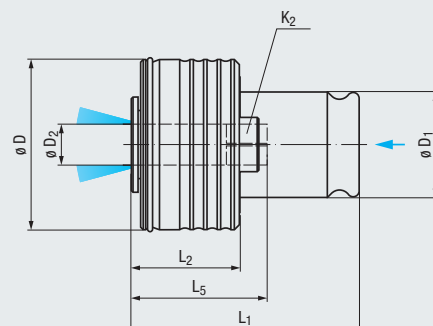



**Mit Überlastkupplung**  
With overload clutch





Entlang des Werkzeugschafts  
Along the tool shank

$p_{max}$   
**50 bar**  
(700 psi)



| Typ · Type   | EM 01-U/IKZ | EM 03-U/IKZ | EM 04-U/IKZ | EM 05-U/IKZ |
|--|-------------|-------------|-------------|-------------|
|  M3 - M14 | M3 - M14    | M4,5 - M24  | M14 - M36   | M22 - M48   |
| $\varnothing D$  | 33          | 50          | 72          | 95          |
| $\varnothing D_1$  | 19          | 31          | 48          | 60          |
| $L_1$  | 47          | 69          | 101         | 138         |
| $L_2$  | 25          | 34          | 45          | 75          |

**DIN**

| $\varnothing D_2$ | $K_2$ |  |  |                     |    |                     |    |                   |    |                   |     |
|-------------------|-------|--|--|---------------------|----|---------------------|----|-------------------|----|-------------------|-----|
|                   |       |  |  | $L_5$               |    | $L_5$               |    | $L_5$             |    | $L_5$             |     |
| 2,5               | 2,1   | M1 - M1,8  | M3,5   |                     |    |                     |    |                   |    |                   |     |
| 2,8               | 2,1   | M2 - M2,5  | M4   |                     |    |                     |    |                   |    |                   |     |
| 3,5               | 2,7   | M3   |  | <b>F0571102.1.5</b> | 22 |                     |    |                   |    |                   |     |
| 3,5               | 2,7   |  | M4,5 - M5  | <b>F0571102.2.5</b> | 22 |                     |    |                   |    |                   |     |
| 4                 | 3     | M3,5   |  | <b>F0571103.5</b>   | 22 |                     |    |                   |    |                   |     |
| 4,5               | 3,4   | M4   |  | <b>F0571104.1.5</b> | 23 |                     |    |                   |    |                   |     |
| 4,5               | 3,4   |  | M6   | <b>F0571104.2.5</b> | 23 |                     |    |                   |    |                   |     |
| 6                 | 4,9   | M4,5 - M5  |  | <b>F0571106.1.5</b> | 25 | <b>F0573106.1.5</b> | 38 |                   |    |                   |     |
| 6                 | 4,9   | M6   |  | <b>F0571106.2.5</b> | 25 | <b>F0573106.2.5</b> | 38 |                   |    |                   |     |
| 6                 | 4,9   |  | M8   | <b>F0571106.3.5</b> | 25 | <b>F0573106.3.5</b> | 38 |                   |    |                   |     |
| 7                 | 5,5   |  | M10  | <b>F0571107.5</b>   | 25 | <b>F0573107.5</b>   | 38 |                   |    |                   |     |
| 8                 | 6,2   | M8   |  | <b>F0571108.5</b>   | 26 | <b>F0573108.5</b>   | 39 |                   |    |                   |     |
| 9                 | 7     |  | M12  | <b>F0571109.5</b>   | 27 | <b>F0573109.5</b>   | 40 |                   |    |                   |     |
| 10                | 8     | M10  |  | <b>F0571110.5</b>   | 28 | <b>F0573110.5</b>   | 41 |                   |    |                   |     |
| 11                | 9     |  | M14  | <b>F0571111.5</b>   | 29 | <b>F0573111.5</b>   | 42 | <b>F0574111.5</b> | 56 |                   |     |
| 12                | 9     |  | M16  |                     |    | <b>F0573112.5</b>   | 42 | <b>F0574112.5</b> | 56 |                   |     |
| 14                | 11    |  | M18  |                     |    | <b>F0573113.5</b>   | 44 | <b>F0574113.5</b> | 58 |                   |     |
| 16                | 12    |  | M20  |                     |    | <b>F0573114.5</b>   | 45 | <b>F0574114.5</b> | 59 |                   |     |
| 18                | 14,5  |  | M22 - M24  |                     |    | <b>F0573115.5</b>   | 47 | <b>F0574115.5</b> | 61 | <b>F0575115.5</b> | 94  |
| 20                | 16    |  | M27  |                     |    |                     |    | <b>F0574116.5</b> | 63 | <b>F0575116.5</b> | 96  |
| 22                | 18    |  | M30  |                     |    |                     |    | <b>F0574117.5</b> | 65 | <b>F0575117.5</b> | 98  |
| 25                | 20    |  | M33  |                     |    |                     |    | <b>F0574118.5</b> | 67 | <b>F0575118.5</b> | 100 |
| 28                | 22    |  | M36  |                     |    |                     |    | <b>F0574119.5</b> | 69 | <b>F0575119.5</b> | 102 |
| 32                | 24    |  | M39 - M42  |                     |    |                     |    |                   |    | <b>F0575120.5</b> | 104 |
| 36                | 29    |  | M45 - M48  |                     |    |                     |    |                   |    | <b>F0575121.5</b> | 109 |

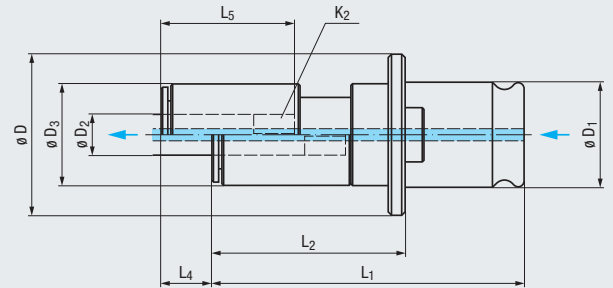
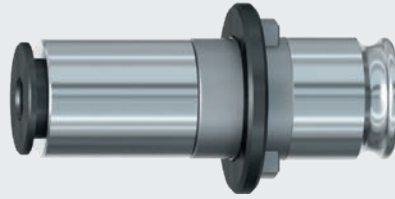
- Product Finder
- Soft-synchro
- Speed-synchro
- KSN
- MQL MMS
- SFM
- SWITCH-MASTER
- HF
- EM**
- Zubehör Accessories



Mit Längennachstellung  
With length adjustment

# EM-L

## DIN



- Product Finder
- Soft-synchro
- Speed-synchro
- KSN
- ML MMS
- SFM
- SWITCH-MASTER
- HF
- EM
- Zubehör Accessories



| Typ · Type       | EM 00-L  | EM 01-L  | EM 03-L    | EM 04-L   | EM 05-L   |
|------------------|----------|----------|------------|-----------|-----------|
|                  | M1 - M10 | M3 - M14 | M4,5 - M24 | M14 - M36 | M22 - M48 |
| ø D              | 23       | 30       | 48         | 70        | 92        |
| ø D <sub>1</sub> | 13       | 19       | 31         | 48        | 60        |
| ø D <sub>3</sub> | 13       | 18       | 30         | 47        | 58        |
| L <sub>1</sub>   | 48       | 55       | 94         | 137       | 205       |
| L <sub>2</sub>   | 29       | 33       | 59         | 81        | 142       |
| L <sub>4</sub>   | 8        | 10       | 15         | 25        | 40        |

## DIN

| ø D <sub>2</sub> | K <sub>2</sub> |           |           |                   | L <sub>5</sub> |                   | L <sub>5</sub> |                   | L <sub>5</sub> |                   | L <sub>5</sub> |
|------------------|----------------|-----------|-----------|-------------------|----------------|-------------------|----------------|-------------------|----------------|-------------------|----------------|
| 2,5              | 2,1            | M1 - M1,8 | M3,5      | <b>F0580100.6</b> | 21             |                   |                |                   |                |                   |                |
| 2,8              | 2,1            | M2 - M2,6 | M4        | <b>F0580101.6</b> | 21             |                   |                |                   |                |                   |                |
| 3,5              | 2,7            | M3        | M4,5 - M5 | <b>F0580102.6</b> | 22             | <b>F0581102.6</b> | 23             |                   |                |                   |                |
| 4                | 3              | M3,5      | M5,5      | <b>F0580103.6</b> | 22             | <b>F0581103.6</b> | 22             |                   |                |                   |                |
| 4,5              | 3,4            | M4        | M6        | <b>F0580104.6</b> | 22             | <b>F0581104.6</b> | 23             |                   |                |                   |                |
| 6                | 4,9            | M4,5 - M6 | M8        | <b>F0580106.6</b> | 24             | <b>F0581106.6</b> | 25             | <b>F0583106.6</b> | 38             |                   |                |
| 7                | 5,5            | M7        | M9 - M10  | <b>F0580107.6</b> | 24             | <b>F0581107.6</b> | 25             | <b>F0583107.6</b> | 38             |                   |                |
| 8                | 6,2            | M8        | M11       | 2)                |                | <b>F0581108.6</b> | 26             | <b>F0583108.6</b> | 39             |                   |                |
| 9                | 7              | M9        | M12       |                   |                | <b>F0581109.6</b> | 27             | <b>F0583109.6</b> | 40             |                   |                |
| 10               | 8              | M10       |           |                   |                | <b>F0581110.6</b> | 28             | <b>F0583110.6</b> | 41             |                   |                |
| 11               | 9              |           | M14       |                   |                | <b>F0581111.6</b> | 29             | <b>F0583111.6</b> | 42             | <b>F0584111.6</b> | 55             |
| 12               | 9              |           | M16       |                   |                | 2)                |                | <b>F0583112.6</b> | 42             | <b>F0584112.6</b> | 55             |
| 14               | 11             |           | M18       |                   |                |                   |                | <b>F0583113.6</b> | 44             | <b>F0584113.6</b> | 57             |
| 16               | 12             |           | M20       |                   |                |                   |                | <b>F0583114.6</b> | 45             | <b>F0584114.6</b> | 58             |
| 18               | 14,5           |           | M22 - M24 |                   |                |                   |                | <b>F0583115.6</b> | 47             | <b>F0584115.6</b> | 60             |
| 20               | 16             |           | M27       |                   |                |                   |                | 2)                |                | <b>F0584116.6</b> | 62             |
| 22               | 18             |           | M30       |                   |                |                   |                | 2)                |                | <b>F0584117.6</b> | 64             |
| 25               | 20             |           | M33       |                   |                |                   |                |                   |                | <b>F0584118.6</b> | 66             |
| 28               | 22             |           | M36       |                   |                |                   |                |                   |                | <b>F0584119.6</b> | 68             |
| 32               | 24             |           | M39 - M42 |                   |                |                   |                | 2)                |                | <b>F0585120.6</b> | 104            |
| 36               | 29             |           | M45 - M48 |                   |                |                   |                | 2)                |                | <b>F0585121.6</b> | 109            |
| 40               | 32             |           | M52 - M56 |                   |                |                   |                |                   |                | 2)                |                |
| 45               | 35             |           | M60       |                   |                |                   |                |                   |                | 2)                |                |

1) Bei Verwendung von Gewindebohrern / Gewindeformern mit innerer Kühlschmierstoff-Zufuhr  
If used with taps / cold-forming taps with internal coolant supply

Weitere Auskräglängen L<sub>2</sub> auf Anfrage  
Further projecting lengths L<sub>2</sub> upon request

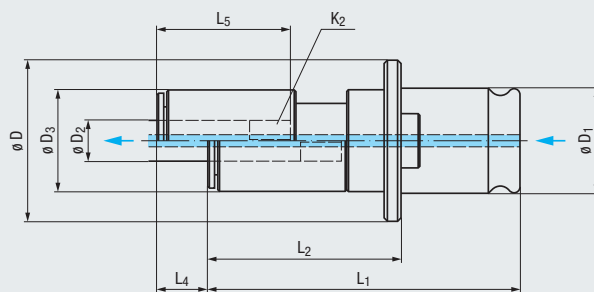
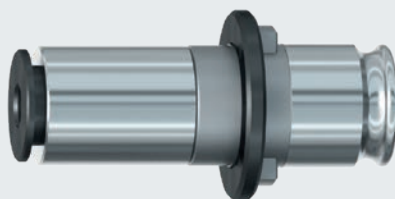
2) Schnellwechsel-Einsätze mit erweitertem Spannbereich Typ EM-L-E zum Schneiden von Feingewinden MF auf Anfrage  
Quick-change adapters with extended clamping range type EM-L-E for the cutting of fine threads MF upon request



# EM-L

Mit Längennachstellung  
With length adjustment

## ISO



**IKZ 1)**  $p_{max}$   
50 bar  
(700 psi)

$L_+$



| Typ · Type        | EM 00-L | EM 01-L    | EM 03-L  | EM 04-L   | EM 05-L   |
|-------------------|---------|------------|----------|-----------|-----------|
|                   | M1 - M9 | M3,5 - M14 | M6 - M24 | M14 - M42 | M24 - M48 |
| $\varnothing D$   | 23      | 30         | 48       | 70        | 92        |
| $\varnothing D_1$ | 13      | 19         | 31       | 48        | 60        |
| $\varnothing D_3$ | 13      | 18         | 30       | 47        | 58        |
| $L_1$             | 48      | 55         | 94       | 137       | 205       |
| $L_2$             | 29      | 33         | 59       | 81        | 142       |
| $L_4$             | 8       | 10         | 15       | 25        | 40        |

## ISO

| $\varnothing D_2$ | $K_2$ |             |           |                   | $L_5$ |                   | $L_5$ |                   | $L_5$ |                   | $L_5$ |                   | $L_5$ |
|-------------------|-------|-------------|-----------|-------------------|-------|-------------------|-------|-------------------|-------|-------------------|-------|-------------------|-------|
| 2,24              | 1,8   |             | M3        | F0580200.6        | 20    |                   |       |                   |       |                   |       |                   |       |
| 2,5               | 2     | M1 - M2     | M3,5      | F0580201.6        | 20    |                   |       |                   |       |                   |       |                   |       |
| 2,8               | 2,24  | M2,2 - M2,6 |           | F0580202.6        | 21    |                   |       |                   |       |                   |       |                   |       |
| 3,15              | 2,5   | M3          | M4        | F0580203.6        | 21    |                   |       |                   |       |                   |       |                   |       |
| 3,55              | 2,8   | M3,5        | M4,5      | F0580204.6        | 21    | <b>F0581204.6</b> | 22    |                   |       |                   |       |                   |       |
| 4                 | 3,15  | M4          | M5        | F0580205.6        | 22    | <b>F0581205.6</b> | 23    |                   |       |                   |       |                   |       |
| 4,5               | 3,55  | M4,5        | M6        | F0580206.6        | 22    | <b>F0581206.6</b> | 23    |                   |       |                   |       |                   |       |
| 5                 | 4     | M5          |           | F0580207.6        | 23    | <b>F0581207.6</b> | 24    |                   |       |                   |       |                   |       |
| 5,6               | 4,5   |             | M7        | F0580208.6        | 23    | <b>F0581208.6</b> | 24    |                   |       |                   |       |                   |       |
| 6,3               | 5     | M6          | M8        | <b>F0580209.6</b> | 24    | <b>F0581209.6</b> | 25    | F0583209.6        | 38    |                   |       |                   |       |
| 7,1               | 5,6   | M7          | M9        | <b>F0580210.6</b> | 24    | <b>F0581210.6</b> | 25    | F0583210.6        | 38    |                   |       |                   |       |
| 8                 | 6,3   | M8          | M10 - M11 | 2)                |       | <b>F0581211.6</b> | 26    | F0583211.6        | 39    |                   |       |                   |       |
| 9                 | 7,1   | M9          | M12       |                   |       | <b>F0581212.6</b> | 27    | F0583212.6        | 40    |                   |       |                   |       |
| 10                | 8     | M10         |           |                   |       | <b>F0581110.6</b> | 28    | <b>F0583110.6</b> | 41    |                   |       |                   |       |
| 11,2              | 9     |             | M14       |                   |       | <b>F0581214.6</b> | 29    | <b>F0583214.6</b> | 42    | F0584214.6        | 55    |                   |       |
| 12,5              | 10    |             | M16       |                   |       | 2)                |       | <b>F0583215.6</b> | 43    | F0584215.6        | 56    |                   |       |
| 14                | 11,2  |             | M18 - M20 |                   |       |                   |       | <b>F0583216.6</b> | 44    | F0584216.6        | 57    |                   |       |
| 16                | 12,5  |             | M22       |                   |       |                   |       | F0583217.6        | 46    | F0584217.6        | 59    |                   |       |
| 18                | 14    |             | M24       |                   |       |                   |       | F0583218.6        | 48    | F0584218.6        | 61    | F0585218.6        | 95    |
| 20                | 16    |             | M27 - M30 |                   |       |                   |       | 2)                |       | <b>F0584116.6</b> | 63    | <b>F0585116.6</b> | 97    |
| 22,4              | 18    |             | M33       |                   |       |                   |       | 2)                |       | F0584220.6        | 65    | F0585220.6        | 99    |
| 25                | 20    |             | M36       |                   |       |                   |       |                   |       | <b>F0584118.6</b> | 67    | <b>F0585118.6</b> | 101   |
| 28                | 22,4  |             | M39 - M42 |                   |       |                   |       |                   |       | <b>F0584222.6</b> | 69    | F0585222.6        | 103   |
| 31,5              | 25    |             | M45 - M48 |                   |       |                   |       |                   |       | 2)                |       | F0585223.6        | 105   |
| 35,5              | 28    |             | M52 - M56 |                   |       |                   |       |                   |       | 2)                |       | 2)                |       |
| 40                | 31,5  |             | M60 - M64 |                   |       |                   |       |                   |       | 2)                |       | 2)                |       |
| 45                | 35,5  |             | M68       |                   |       |                   |       |                   |       | 2)                |       | 2)                |       |

1) Bei Verwendung von Gewindebohrern / Gewindeformern mit innerer Kühlschmierstoff-Zufuhr  
If used with taps / cold-forming taps with internal coolant supply

Weitere Auskrärlängen  $L_2$  auf Anfrage  
Further projecting lengths  $L_2$  upon request

2) Schnellwechsel-Einsätze mit erweitertem Spannungsbereich Typ EM-L-E zum Schneiden von Feingewinden MF auf Anfrage  
Quick-change adapters with extended clamping range type EM-L-E for the cutting of fine threads MF upon request

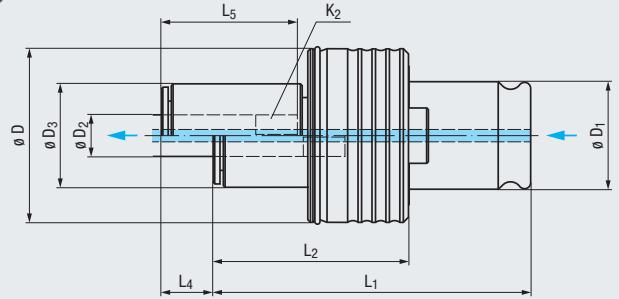
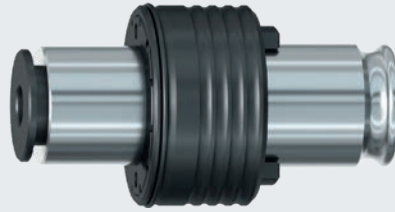
- Product Finder
- Soft-synchro
- Speed-synchro
- KSN
- MQL MMS
- SFM
- SWITCH-MASTER
- HF
- EM**
- Zubehör Accessories



# EM-UL

Mit Längennachstellung, mit Überlastkupplung  
With length adjustment, with overload clutch

## DIN



IKZ 1)  $p_{max}$  50 bar (700 psi)

L+

- Product Finder
- Soft-synchro
- Speed-synchro
- KSN
- MQL MMS
- SFM
- SWITCH-MASTER
- HF
- EM
- Zubehör Accessories



| Typ · Type       | EM 00-UL | EM 01-UL | EM 03-UL   | EM 04-UL  | EM 05-UL  |
|------------------|----------|----------|------------|-----------|-----------|
|                  | M1 - M10 | M3 - M14 | M4,5 - M24 | M14 - M36 | M22 - M48 |
| ø D              | 24       | 33       | 50         | 72        | 95        |
| ø D <sub>1</sub> | 13       | 19       | 31         | 48        | 60        |
| ø D <sub>3</sub> | 13       | 18       | 30         | 47        | 58        |
| L <sub>1</sub>   | 49       | 55       | 94         | 137       | 205       |
| L <sub>2</sub>   | 29       | 33       | 59         | 81        | 142       |
| L <sub>4</sub>   | 8        | 10       | 15         | 25        | 40        |

## DIN

| ø D <sub>2</sub> | K <sub>2</sub> |           |           |                     | L <sub>5</sub> |                     | L <sub>5</sub> |                     | L <sub>5</sub> |                   | L <sub>5</sub>    |
|------------------|----------------|-----------|-----------|---------------------|----------------|---------------------|----------------|---------------------|----------------|-------------------|-------------------|
| 2,5              | 2,1            | M1 - M1,8 |           | <b>F0590100.1.6</b> | 21             |                     |                |                     |                |                   |                   |
| 2,5              | 2,1            |           | M3,5      | <b>F0590100.2.6</b> | 21             |                     |                |                     |                |                   |                   |
| 2,8              | 2,1            | M2        |           | <b>F0590101.1.6</b> | 21             |                     |                |                     |                |                   |                   |
| 2,8              | 2,1            | M2,5      |           | <b>F0590101.2.6</b> | 21             |                     |                |                     |                |                   |                   |
| 2,8              | 2,1            |           | M4        | <b>F0590101.3.6</b> | 21             |                     |                |                     |                |                   |                   |
| 3,5              | 2,7            | M3        |           | <b>F0590102.1.6</b> | 22             | <b>F0591102.1.6</b> | 23             |                     |                |                   |                   |
| 3,5              | 2,7            |           | M4,5 - M5 | <b>F0590102.2.6</b> | 22             | <b>F0591102.2.6</b> | 23             |                     |                |                   |                   |
| 4                | 3              | M3,5      |           | <b>F0590103.6</b>   | 22             | <b>F0591103.6</b>   | 22             |                     |                |                   |                   |
| 4,5              | 3,4            | M4        |           | <b>F0590104.1.6</b> | 22             | <b>F0591104.1.6</b> | 23             |                     |                |                   |                   |
| 4,5              | 3,4            |           | M6        | <b>F0590104.2.6</b> | 22             | <b>F0591104.2.6</b> | 23             |                     |                |                   |                   |
| 6                | 4,9            | M4,5 - M5 |           | <b>F0590106.1.6</b> | 24             | <b>F0591106.1.6</b> | 25             | <b>F0593106.1.6</b> | 38             |                   |                   |
| 6                | 4,9            | M6        |           | <b>F0590106.2.6</b> | 24             | <b>F0591106.2.6</b> | 25             | <b>F0593106.2.6</b> | 38             |                   |                   |
| 6                | 4,9            |           | M8        | <b>F0590106.3.6</b> | 24             | <b>F0591106.3.6</b> | 25             | <b>F0593106.3.6</b> | 38             |                   |                   |
| 7                | 5,5            |           | M10       | <b>F0590107.6</b>   | 24             | <b>F0591107.6</b>   | 25             | <b>F0593107.6</b>   | 38             |                   |                   |
| 8                | 6,2            | M8        |           | 2)                  |                | <b>F0591108.6</b>   | 26             | <b>F0593108.6</b>   | 39             |                   |                   |
| 9                | 7              |           | M12       |                     |                | <b>F0591109.6</b>   | 27             | <b>F0593109.6</b>   | 40             |                   |                   |
| 10               | 8              | M10       |           |                     |                | <b>F0591110.6</b>   | 28             | <b>F0593110.6</b>   | 41             |                   |                   |
| 11               | 9              |           | M14       |                     |                | <b>F0591111.6</b>   | 29             | <b>F0593111.6</b>   | 42             | <b>F0594111.6</b> | 55                |
| 12               | 9              |           | M16       |                     |                | 2)                  |                | <b>F0593112.6</b>   | 42             | <b>F0594112.6</b> | 55                |
| 14               | 11             |           | M18       |                     |                |                     |                | <b>F0593113.6</b>   | 44             | <b>F0594113.6</b> | 57                |
| 16               | 12             |           | M20       |                     |                |                     |                | <b>F0593114.6</b>   | 45             | <b>F0594114.6</b> | 58                |
| 18               | 14,5           |           | M22 - M24 |                     |                |                     |                | <b>F0593115.6</b>   | 47             | <b>F0594115.6</b> | 60                |
| 20               | 16             |           | M27       |                     |                |                     |                | 2)                  |                | <b>F0594116.6</b> | 62                |
| 22               | 18             |           | M30       |                     |                |                     |                | 2)                  |                | <b>F0594117.6</b> | 64                |
| 25               | 20             |           | M33       |                     |                |                     |                |                     |                | <b>F0594118.6</b> | 66                |
| 28               | 22             |           | M36       |                     |                |                     |                |                     |                | <b>F0594119.6</b> | 68                |
| 32               | 24             |           | M39 - M42 |                     |                |                     |                |                     |                | 2)                | <b>F0595120.6</b> |
| 36               | 29             |           | M45 - M48 |                     |                |                     |                |                     |                | 2)                | <b>F0595121.6</b> |
| 40               | 32             |           | M60 - M64 |                     |                |                     |                |                     |                |                   | 2)                |
| 45               | 35             |           | M68       |                     |                |                     |                |                     |                |                   | 2)                |

1) Bei Verwendung von Gewindebohrern / Gewindeformern mit innerer Kühlschmierstoff-Zufuhr  
If used with taps / cold-forming taps with internal coolant supply

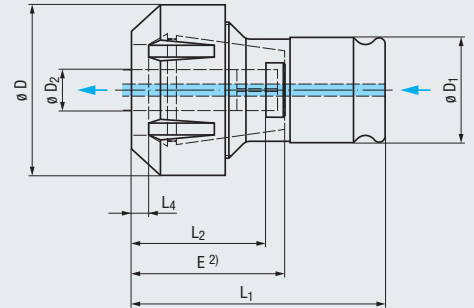
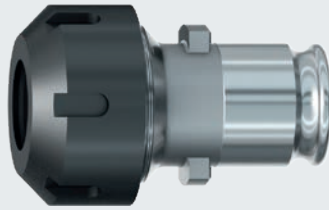
2) Schnellwechsel-Einsätze mit erweitertem Spannereich Typ EM-UL-E zum Schneiden von Feingewinden MF auf Anfrage  
Quick-change adapters with extended clamping range type EM-UL-E for the cutting of fine threads MF upon request

Weitere Auskraglängen L<sub>2</sub> auf Anfrage  
Further projecting lengths L<sub>2</sub> upon request

Ausführungen für Gewindebohrer / Gewindeformer mit ISO-Baumaßen auf Anfrage erhältlich  
Versions for taps / cold-forming taps with ISO dimensions are available on request







# EM-Z/ER/IKZ



$p_{max}$   
50 bar  
(700 psi)



- Product Finder
- Soft-synchro
- Speed-synchro
- KSN
- MQL MMS
- SFM
- SWITCH-MASTER
- HF
- EM**
- Zubehör Accessories

| Typ<br>Type           |  | $\varnothing D_2$ |  |  | $\varnothing D$ | $\varnothing D_1$ | $L_1$ | $L_2$ | $L_4$ |  |
|-----------------------|---|-------------------|---|---|-----------------|-------------------|-------|-------|-------|---|
| <b>EM 00-Z/ER/IKZ</b> | M2 - M8<br>(Nr.2 - 5/16)  | 2,5 - 7           | ER 11 (GB)  | Hi-Q/ER 11  | 19              | 13                | 40,5  | 21    | 0,9   | <b>F0860001</b>   |
| <b>EM 01-Z/ER/IKZ</b> | M4 - M12<br>(Nr.8 - 7/16)   | 4,5 - 10          | ER 20 (GB)  | Hi-Q/ERC 20   | 34              | 19                | 56    | 34,5  | 5     | <b>F0861001.13</b>  |
| <b>EM 03-Z/ER/IKZ</b> | M4 - M20<br>(Nr.8 - 3/4)  | 4,5 - 16          | ER 32 (GB)  | Hi-Q/ERC 32   | 50              | 31                | 76,3  | 41,5  | 5     | <b>F0863001.13</b>  |

1) Bei Verwendung von Gewindebohrern / Gewindeformern mit innerer Kühlschmierstoff-Zufuhr  
If used with taps / cold-forming taps with internal coolant supply

2) Einstecktiefen E siehe Seite 754  
Clamping depths E, see page 754

**EM00-Z/ER/IKZ:**

Spannmutter ohne integrierte Abdichtung ist im Lieferumfang enthalten  
Clamping nut without integrated seal is included in the delivery

**EM01-Z/ER/IKZ, EM03-Z/ER/IKZ:**

Spannmutter für Dichtscheiben ist im Lieferumfang enthalten  
Clamping nut for sealing disks is included in the delivery

**Zubehör**  
Accessories



Spannzangen Typ ER (GB)  
Collets type ER (GB)

» 746 - 747



Dichtscheiben Typ DS/ER und Kühlschleiben Typ KS/ER  
Sealing disks type DS/ER and coolant flush disks type KS/ER

» 750



Aufnahmekopf AEU  
Adapter head AEU

» 760



Spannmutter mit integrierter Abdichtung Typ Hi-Q/ERC 11  
Clamping nut with integrated seal, type Hi-Q/ERC 11

» 751

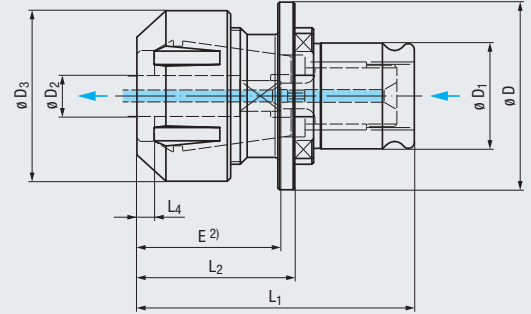
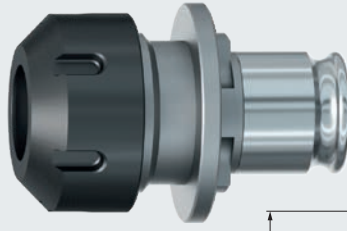


Spannschlüssel  
Clamping wrench

» 758







# EM-Z/QuickLock



$p_{max}$   
50 bar  
(700 psi)



| Typ<br>Type                   |  | $\varnothing D_2$ |  |  | $\varnothing D$ | $\varnothing D_1$ | $\varnothing D_3$ | $L_1$ | $L_2$ | $L_4$ |  |
|-------------------------------|---|-------------------|---|---|-----------------|-------------------|-------------------|-------|-------|-------|---|
| <b>EM 01-Z/<br/>QuickLock</b> | M4,5 - M10  | 6 / 7             | ER 20 (GB)  | Hi-Q/ERC 20   | 39              | 19                | 34                | 61    | 39,5  | 5     | <b>F4511001.6D6</b>   |
|                               | M8 - M12  | 8 / 9             |   |   | 39              | 19                | 34                | 61    | 39,5  | 5     | <b>F4511001.6D8</b>   |
|                               | M10   | 10                |   |   | 39              | 19                | 34                | 61    | 39,5  | 5     | <b>F4511001.6D10</b>  |
| <b>EM 03-Z/<br/>QuickLock</b> | M8 - M12  | 8 / 9             | ER 32 (GB)  | Hi-Q/ERC 32   | 55              | 31                | 50                | 81,5  | 46,5  | 5     | <b>F4513001.6D8</b>   |
|                               | M10 - M16   | 10 - 12           |   |   | 55              | 31                | 50                | 81,5  | 46,5  | 5     | <b>F4513001.6D10</b>  |
|                               | M18 - M20   | 14 - 16           |   |   | 55              | 31                | 50                | 81,5  | 46,5  | 5     | <b>F4513001.6D14</b>  |

- 1) Bei Verwendung von Gewindebohrern / Gewindeformern mit innerer Kühlschmierstoff-Zufuhr  
If used with taps / cold-forming taps with internal coolant supply
- 2) Einstecktiefen E siehe Seite 754  
Clamping depths E, see page 754

Weitere Ausführungen auf Anfrage  
Further designs upon request

Längeneinstellschraube sowie Spannmutter für Dichtscheiben sind im Lieferumfang enthalten  
Length adjustment screw as well as clamping nut for sealing disks are included in the delivery

Großer Griffing – in Kombination mit Softsynchro® QuickLock – ermöglicht stirnseitige Abdichtung  
Large ring handle – combined with Softsynchro® Quicklock – enables face sealing

## Zubehör Accessories



Spannzangen Typ ER (GB)  
Collets type ER (GB)

» 746 - 747



Dichtscheiben Typ DS/ER und Kühlschleiben Typ KS/ER  
Sealing disks type DS/ER and coolant flush disks type KS/ER

» 750



Aufnahmekopf AEU  
Adapter head AEU

» 760



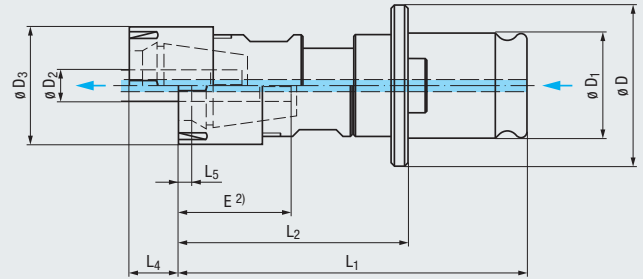
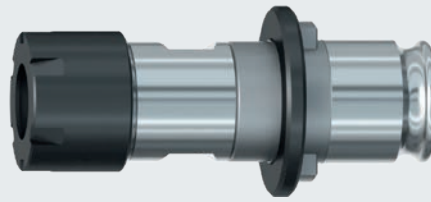
Spannschlüssel  
Clamping wrench

» 758







# EM-L/ER/IKZ

Mit Längennachstellung  
With length adjustment



- Product Finder
- Soft-synchro
- Speed-synchro
- KSN
- MQL MMS
- SFM
- SWITCH-MASTER
- HF
- EM**
- Zubehör Accessories

| Typ<br>Type           |  | $\varnothing D_2$ |  |  | $\varnothing D$ | $\varnothing D_1$ | $\varnothing D_3$ | $L_1$ | $L_2$ | $L_4$ | $L_5$ |  |
|-----------------------|---|-------------------|---|---|-----------------|-------------------|-------------------|-------|-------|-------|-------|---|
| <b>EM 00-L/ER/IKZ</b> | M2 - M8<br>(Nr.2 - 5/16)  | 2,5 - 7           | ER 11 (GB)  | Hi-Q/ERM 11   | 23              | 13                | 16                | 57,5  | 38    | 8     | 0,9   | <b>F3500011</b>   |
| <b>EM 01-L/ER/IKZ</b> | M4 - M12<br>(Nr.8 - 7/16)   | 4,5 - 10          | ER 20 (GB)  | Hi-Q/ERMC 16  | 30              | 19                | 22                | 72    | 50,5  | 10    | 5     | <b>F3501016</b>   |
| <b>EM 03-L/ER/IKZ</b> | M4 - M20<br>(Nr.8 - 3/4)  | 4,5 - 16          | ER 25 (GB)  | Hi-Q/ERMC 25  | 48              | 31                | 35                | 103   | 68    | 15    | 5     | <b>F3503025</b>   |

1) Bei Verwendung von Gewindebohrern / Gewindeformern mit innerer Kühlschmierstoff-Zufuhr  
If used with taps / cold-forming taps with internal coolant supply

2) Einstecktiefen E siehe Seite 754  
Clamping depths E, see page 754

**EM00-L/ER/IKZ:**

Spannmutter ohne integrierte Abdichtung ist im Lieferumfang enthalten  
Clamping nut without integrated seal is included in the delivery

**EM01-L/ER/IKZ, EM03-L/ER/IKZ:**

Spannmutter für Dichtscheiben ist im Lieferumfang enthalten  
Clamping nut for sealing disks is included in the delivery

**Zubehör**  
Accessories



Spannzangen Typ ER (GB)  
Collets type ER (GB)

» 746 - 747



Dichtscheiben Typ DS/ER und Kühlschleiben Typ KS/ER  
Sealing disks type DS/ER and coolant flush disks type KS/ER

» 750



Aufnahmekopf AEU  
Adapter head AEU

» 760



Spannmutter mit integrierter Abdichtung Typ Hi-Q/ERMC 11  
Clamping nut with integrated seal, type Hi-Q/ERMC 11

» 752

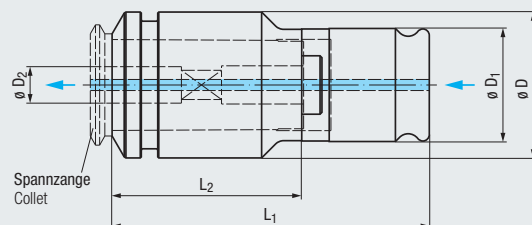
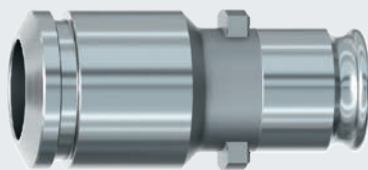





Spannschlüsselsatz  
Set of clamping wrenches

» 758



# EM/PGR/IKZ



| Typ Type             |  | ø D <sub>2</sub> |  | ø D | ø D <sub>1</sub> | L <sub>1</sub> | L <sub>2</sub> |  |
|----------------------|---|------------------|---|-----|------------------|----------------|----------------|---|
| <b>EM 01/PGR/IKZ</b> | M4 - M12<br>(Nr.8 - 7/16)   | 4,5 - 10         | PGR 15 (GB)   | 24  | 19               | 64             | 42             | <b>F3561015</b>   |
| <b>EM 03/PGR/IKZ</b> | M8 - M20<br>(5/16 - 3/4)  | 8 - 16           | PGR 25 (GB)   | 40  | 31               | 87             | 52             | <b>F3563025</b>   |

1) Bei Verwendung von Gewindebohrern / Gewindeformern mit innerer Kühlschmierstoff-Zufuhr  
If used with taps / cold-forming taps with internal coolant supply

## Zubehör Accessories



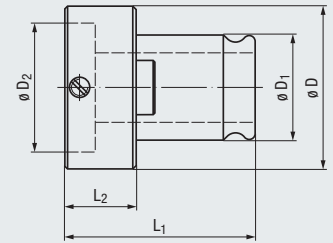
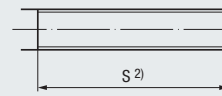
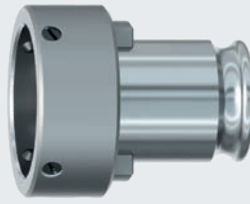
Spannzangen Typ PGR-GB  
Collets type PGR-GB

» 749





# EM-SE



Product Finder

Soft-synchro

Speed-synchro

KSN

MQL MMS



SFM

SWITCH-MASTER

HF

**EM**

Zubehör  
Accessories

| Typ<br>Type     |  |                 |                 |                   |                        |                   |                |                 |  |
|-----------------|---|-----------------|-----------------|-------------------|------------------------|-------------------|----------------|-----------------|---|
|                 | $\varnothing d_2 \times h_1$  |                 | $\varnothing D$ | $\varnothing D_1$ | S <sup>2)</sup>        | $\varnothing D_2$ | L <sub>1</sub> | L <sub>2</sub>  |   |
| <b>EM 01-SE</b> | 16 x 5  | M1 - M4         | 30              | 19                | 36                     | 16                | 36,5           | 15              | <b>F0621600</b>   |
|                 | 20 x 5  | M3 - M4         | 30              | 19                | 36                     | 20                | 36,5           | 15              | <b>F0621601</b>   |
|                 | 20 x 7  | M4,5 - M6       | 30              | 19                | 38                     | 20                | 38,5           | 17              | <b>F0621602</b>   |
|                 | 25 x 9  | M7 - M9         | 35              | 19                | 40                     | 25                | 40,5           | 19              | <b>F0621603</b>   |
|                 | 30 x 11   | M10 - M11       | 40              | 19                | 42                     | 30                | 42             | 20,5            | <b>F0621604</b>   |
|                 | 38 x 10   | M12x1 - M15x1,5 | 48              | 19                | 41 (M12); 10 (M14-M15) | 38                | 41             | 19,5            | <b>F0621605</b>   |
|                 | 38 x 14   | M12 - M14       | 48              | 19                | 45 (M12); 14 (M14)     | 38                | 45             | 23,5            | <b>F0621606</b>   |
| <b>EM 03-SE</b> | 20 x 5  | M3 - M4         | 40              | 31                | 55                     | 20                | 55             | 20              | <b>F0623601</b>   |
|                 | 20 x 7  | M4,5 - M6       | 40              | 31                | 56                     | 20                | 56,5           | 21,5            | <b>F0623602</b>   |
|                 | 25 x 9  | M7 - M9         | 40              | 31                | 58                     | 25                | 58,5           | 23,5            | <b>F0623603</b>   |
|                 | 30 x 11   | M10 - M11       | 40              | 31                | 60                     | 30                | 60             | 25              | <b>F0623604</b>   |
|                 | 38 x 10   | M12x1 - M15x1,5 | 48              | 31                | 56                     | 38                | 56             | 21              | <b>F0623605</b>   |
|                 | 38 x 14   | M12 - M14       | 48              | 31                | 60                     | 38                | 60             | 25              | <b>F0623606</b>   |
|                 | 45 x 14   | M16x1 - M20x2   | 57              | 31                | 60                     | 45                | 60             | 25              | <b>F0623607</b>   |
| 45 x 18         | M16 - M20   | 57              | 31              | 64                | 45                     | 64                | 29             | <b>F0623608</b> |   |
| <b>EM 04-SE</b> | 30 x 11   | M10 - M11       | 60              | 48                | 84                     | 30                | 85             | 29              | <b>F0624604</b>   |
|                 | 38 x 10   | M12x1 - M15x1,5 | 60              | 48                | 83                     | 38                | 84             | 28              | <b>F0624605</b>   |
|                 | 38 x 14   | M12 - M14       | 60              | 48                | 87                     | 38                | 88             | 32              | <b>F0624606</b>   |
|                 | 45 x 14   | M16x1 - M20x2   | 60              | 48                | 87                     | 45                | 88             | 32              | <b>F0624607</b>   |
|                 | 45 x 18   | M16 - M20       | 60              | 48                | 91                     | 45                | 92             | 36              | <b>F0624608</b>   |
|                 | 55 x 16   | M22x1 - M26x1,5 | 72              | 48                | 85                     | 55                | 86             | 30              | <b>F0624609</b>   |
|                 | 55 x 22   | M22 - M24       | 72              | 48                | 90                     | 55                | 91             | 35              | <b>F0624610</b>   |
|                 | 65 x 18   | M27x1 - M36x2   | 82              | 48                | 87                     | 65                | 88             | 32              | <b>F0624611</b>   |
| 65 x 25         | M27 - M36   | 82              | 48              | 93                | 65                     | 94                | 38             | <b>F0624612</b> |   |

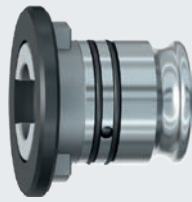
<sup>2)</sup> Max. zu schneidende Gewindelänge  
Max. thread length to be cut

Weitere Größen auf Anfrage  
Further sizes upon request

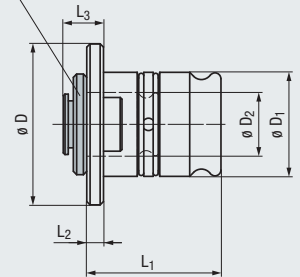




- Product Finder
- Soft-synchro
- Speed-synchro
- KSN
- MQL MMS
- SFM
- SWITCH-MASTER
- HF
- EM**
- Zubehör Accessories

# EM-R



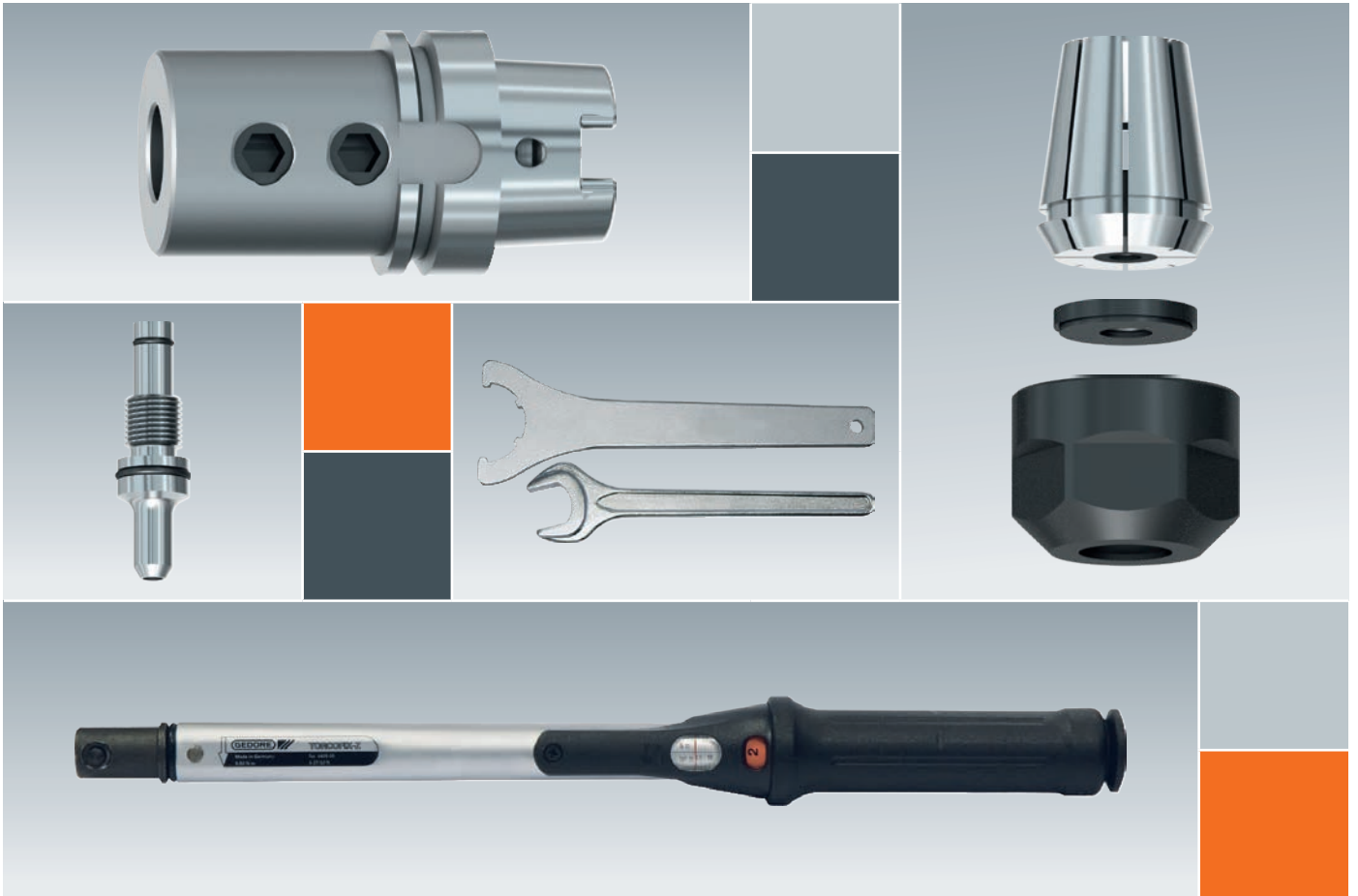
Eingesetzter Schnellwechsel-Einsatz Typ EM  
Quick-change adapter in assembled condition type EM



| Typ<br>Type       |  | ø D | ø D <sub>1</sub> | ø D <sub>2</sub> | L <sub>1</sub> | L <sub>2</sub> | L <sub>3</sub> <sup>1)</sup> |  |
|-------------------|---|-----|------------------|------------------|----------------|----------------|------------------------------|---|
| <b>EM 01/00-R</b> | EM 00   | 30  | 19               | 13               | 25,5           | 4              | 11                           | <b>F0891000</b>   |
| <b>EM 03/00-R</b> | EM 00   | 48  | 31               | 13               | 40             | 5              | 12                           | <b>F0893000</b>   |
| <b>EM 03/01-R</b> | EM 01   | 48  | 31               | 19               | 40             | 5              | 12                           | <b>F0893001</b>   |
| <b>EM 04/01-R</b> | EM 01   | 70  | 48               | 19               | 61,5           | 6              | 13                           | <b>F0894001</b>   |
| <b>EM 04/03-R</b> | EM 03   | 70  | 48               | 31               | 61,5           | 6              | 16                           | <b>F0894003</b>   |
| <b>EM 05/03-R</b> | EM 03   | 92  | 60               | 31               | 76             | 13             | 23                           | <b>F0895003</b>   |
| <b>EM 05/04-R</b> | EM 04   | 92  | 60               | 48               | 76             | 13             | 24                           | <b>F0895004</b>   |

1) Bei Verwendung von Schnellwechsel-Einsätzen Typ EM  
If used with quick-change adapters type EM



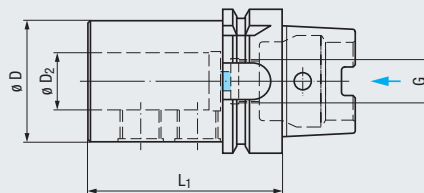
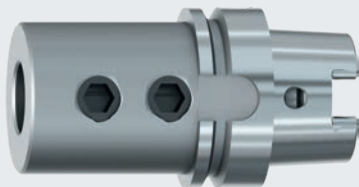


## Zubehör für Aufnahmen und Gewindeschneidapparate Accessories for Tap Holders and Tapping Attachments

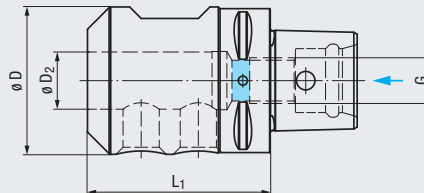
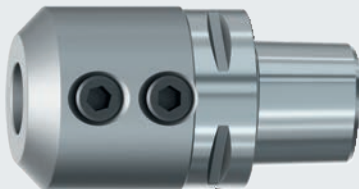


- Product Finder
- Soft-synchro
- Speed-synchro
- KSN
- MQL MMS
- SFM
- SWITCH-MASTER
- HF
- EM

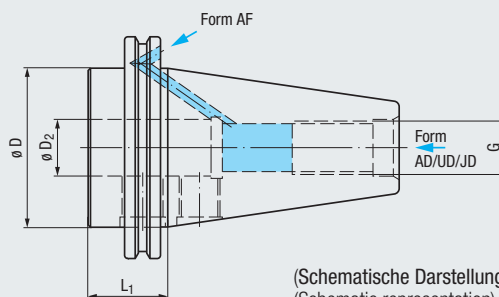
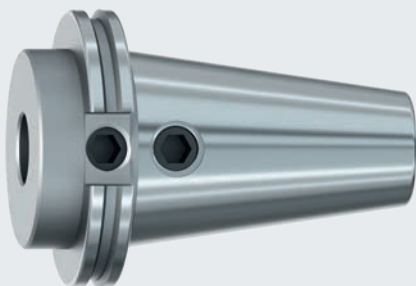
### HSK-A



### PSC



### SK/BT



(Schematische Darstellung)  
(Schematic representation)



| Typ<br>Type    | Form<br>Form | Schaftgröße<br>Shank size | $\varnothing D_2$ | $\varnothing D$ | G         | $L_1$ |            |
|----------------|--------------|---------------------------|-------------------|-----------------|-----------|-------|------------|
| DIN 69893-1    | A 1)         | HSK-A40                   | 20                | 52              | M12 x 1   | 75    | F33000C.02 |
|                |              | HSK-A40                   | 25                | 65              | M12 x 1   | 105   | F33000C.03 |
|                |              | HSK-A50                   | 20                | 52              | M16 x 1   | 80    | F33000C.04 |
|                |              | HSK-A50                   | 25                | 65              | M16 x 1   | 107   | F33000C.05 |
|                |              | HSK-A50                   | 32                | 77              | M16 x 1   | 114   | F33000C.06 |
|                |              | HSK-A63                   | 25                | 53              | M18 x 1   | 85    | F33000C.07 |
|                |              | HSK-A63                   | 32                | 72              | M18 x 1   | 110   | F33000C.08 |
|                |              | HSK-A80                   | 25                | 65              | M20 x 1,5 | 90    | F33000C.09 |
|                |              | HSK-A80                   | 32                | 72              | M20 x 1,5 | 110   | F33000C.10 |
| ISO 26623-1    |              | PSC 50                    | 25                | 64,5            | M16 x 1,5 | 80    | F10757410  |
|                |              | PSC 63                    | 25                | 64,5            | M20 x 2   | 80    | F10757411  |
|                |              | PSC 80                    | 25                | 64,5            | M20 x 2   | 80    | F10757412  |
|                |              | PSC 80                    | 32                | 71,5            | M20 x 2   | 80    | F10757413  |
| DIN ISO 7388-1 | AD 1)        | SK 40                     | 25                | 45              | M16       | 35    | F10712542  |
|                |              | SK 50                     | 25                | 70              | M24       | 35    | F10713208  |
|                |              | SK 50                     | 32                | 70              | M24       | 35    | F10711304  |
|                | AF 1)        | SK 40                     | 25                | 45              | M16       | 35    | F10715344  |
|                |              | SK 50                     | 25                | 70              | M24       | 35    | F10715299  |
|                |              | SK 50                     | 32                | 70              | M24       | 35    | F10715090  |
|                | UD           | SK 40                     | 25                | 45              | M16       | 35    | F10706396  |
|                |              | SK 50                     | 25                | 70              | M24       | 35    | F10717228  |
|                |              | SK 50                     | 32                | 70              | M24       | 35    | F10717279  |
| DIN 2080-1     | AD           | SK 30                     | 20                | 36              | M12       | 34    | F330005.03 |
|                |              | SK 40                     | 25                | 44              | M16       | 22    | F330005.01 |
|                |              | SK 50                     | 25                | 70              | M24       | 16    | F330005.02 |
|                |              | SK 50                     | 32                | 70              | M24       | 16    | F330005.04 |
| ASME B5.50 UNC | AD           | SK 40                     | 25                | 44,5            | 5/8 - 11  | 35    | F330007.03 |
|                |              | SK 50                     | 25                | 70              | 1" - 8    | 35    | F330007.04 |
|                |              | SK 50                     | 32                | 70              | 1" - 8    | 35    | F330007.05 |
| DIN ISO 7388-2 | JD           | BT 30                     | 20                | 36              | M12       | 35    | F10708223  |
|                |              | BT 40                     | 25                | 45              | M16       | 35    | F10717190  |
|                |              | BT 50                     | 25                | 70              | M24       | 44    | F10719213  |
|                |              | BT 50                     | 32                | 70              | M24       | 44    | F10729844  |

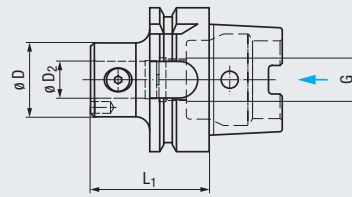
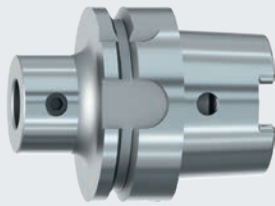
1) Mit Bohrung für Datenträger DIN 69873  
With bore for data chip according to DIN 69873

Weitere Ausführungen auf Anfrage  
Further designs upon request

Spannschrauben sind im Lieferumfang enthalten  
The locking screws are included in the delivery



# HSK-A



Product Finder

Soft-synchro

Speed-synchro

KSN

MQL MMS

SFM

SWITCH-MASTER

HF

EM

Zubehör Accessories



| Typ<br>Type                      | Schaftgröße<br>Shank size | $\varnothing D_2$ | $\varnothing D$ | G         | $L_1$ |                   |
|----------------------------------|---------------------------|-------------------|-----------------|-----------|-------|-------------------|
| <b>DIN 69893-1</b> <sup>1)</sup> | HSK-A63                   | 16                | ABS 32          | M18 x 1   | 50    | <b>F33000C.48</b> |
|                                  | HSK-A100                  | 16                | ABS 32          | M24 x 1,5 | 60    | <b>F33000C.50</b> |

<sup>1)</sup> Mit Bohrung für Datenträger DIN 69873  
With bore for data chip according to DIN 69873

Weitere Ausführungen auf Anfrage  
Further designs upon request

Spannschraube ist im Lieferumfang enthalten  
The locking screw is included in the delivery

## Zubehör Accessories



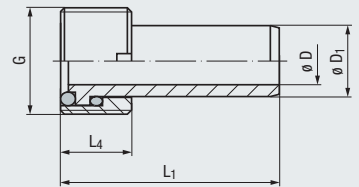
Kühlschmierstoffrohre, Füllstücke und Schlüssel  
Coolant tubes, adapters and wrenches

» 742 - 743



- Product Finder
- Softsynchro
- Speedsynchro
- KSN
- MQL MMS
- SFM
- SWITCH-MASTER
- HF
- EM
- Zubehör Accessories

## Kühlschmierstoffrohre Coolant tubes



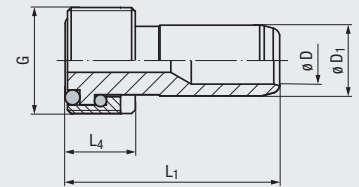
**DIN 69895**

| Für Schaftgröße<br>For shank size | ø D | ø D <sub>1</sub> | L <sub>4</sub> | L <sub>1</sub> | G         |                   |
|-----------------------------------|-----|------------------|----------------|----------------|-----------|-------------------|
| HSK-A40                           | 5   | 8                | 8              | 29,5           | M12 x 1   | <b>F330049.02</b> |
| HSK-A50                           | 6,4 | 10               | 10             | 33             | M16 x 1   | <b>F330049.03</b> |
| HSK-A63                           | 8   | 12               | 12             | 36,5           | M18 x 1   | <b>F330049.04</b> |
| HSK-A80                           | 10  | 14               | 14             | 40             | M20 x 1,5 | <b>F330049.05</b> |
| HSK-A100                          | 12  | 16               | 16             | 44             | M24 x 1,5 | <b>F330049.06</b> |

## Kühlschmierstoffrohre Coolant tubes



**MQL 1**



**DIN 69090-4**

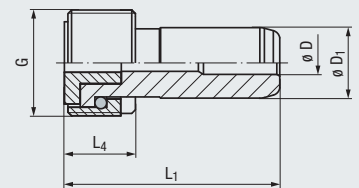
Geeignet für Softsynchro® Modular/MQL, Softsynchro® Xtension/MQL und Speedsynchro® Modular/MQL  
Suitable for Softsynchro® Modular/MQL, Softsynchro® Xtension/MQL and Speedsynchro® Modular/MQL

| Für Schaftgröße<br>For shank size | ø D | ø D <sub>1</sub> | L <sub>4</sub> | L <sub>1</sub> | G         |                   |
|-----------------------------------|-----|------------------|----------------|----------------|-----------|-------------------|
| HSK-A40                           | 5   | 8                | 8              | 29,5           | M12 x 1   | <b>F355149.13</b> |
| HSK-A63                           | 8   | 12               | 12             | 36,5           | M18 x 1   | <b>F355149.03</b> |
| HSK-A100                          | 12  | 16               | 16             | 44             | M24 x 1,5 | <b>F355149.06</b> |

## Kühlschmierstoffrohre Coolant tubes



**MQL 2**



**DIN 69090-4**

Geeignet für Softsynchro® Modular/MQL und Speedsynchro® Modular/MQL  
Suitable for Softsynchro® Modular/MQL and Speedsynchro® Modular/MQL

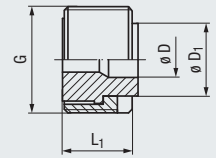
| Typ<br>Type   | Für Schaftgröße<br>For shank size | ø D | ø D <sub>1</sub> | L <sub>4</sub> | L <sub>1</sub> | G         |                   |
|---|-----------------------------------|-----|------------------|----------------|----------------|-----------|-------------------|
| <b>Softsynchro® 1 Modular/MQL</b><br><b>Speedsynchro® Modular/MQL</b> | HSK-A40                           | 4   | 8                | 8              | 29,5           | M12 x 1   | <b>F355149.11</b> |
|   | HSK-A63                           | 4   | 12               | 12             | 36,5           | M18 x 1   | <b>F355149.04</b> |
|   | HSK-A100                          | 4   | 16               | 16             | 44             | M24 x 1,5 | <b>F355149.08</b> |
| <b>Softsynchro® 3 Modular/MQL</b>                                     | HSK-A63                           | 4   | 12               | 12             | 36,5           | M18 x 1   | <b>F355349.02</b> |
|   | HSK-A100                          | 4   | 16               | 16             | 44             | M24 x 1,5 | <b>F355349.04</b> |



**Füllstücke 1)**  
Adapters



MQL  
1



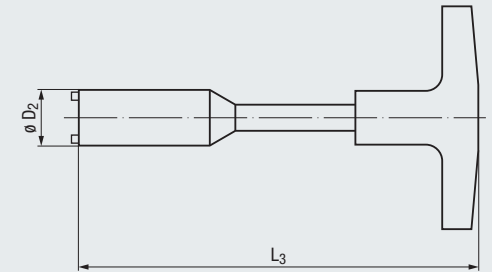
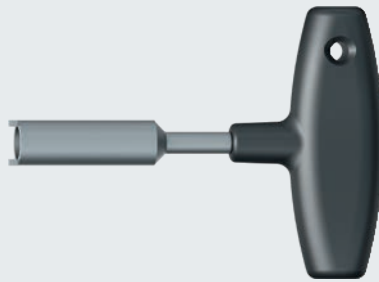
Geeignet für Softsynchro® Modular/MQL Suitable for Softsynchro® Modular/MQL

**DIN 69090-4**

| Für Schaftgröße<br>For shank size | ø D | ø D <sub>1</sub> | L <sub>1</sub> | G         |                   |
|-----------------------------------|-----|------------------|----------------|-----------|-------------------|
| HSK-A40                           | 4   | 8,4              | 8,3            | M12 x 1   | <b>F355335.01</b> |
| HSK-A63                           | 6   | 12,4             | 12,3           | M18 x 1   | <b>F355135.01</b> |
| HSK-A100                          | 10  | 16,4             | 16,4           | M24 x 1,5 | <b>F355135.02</b> |

1) Füllstücke werden für HSK-A-Schäfte verwendet, d.h. Außenkontur entspricht DIN 69893-1 Form A, Innenkontur nach DIN 69893-1 Form C  
Adapters are used for HSK-A shanks, that means outside contour acc. DIN 69893-1 form A, inside contour acc. DIN 69893-1 form C

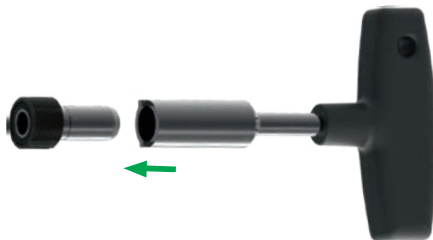
**Montageschlüssel**  
Assembly wrenches



| Für Schaftgröße<br>For shank size | ø D <sub>2</sub> | L <sub>3</sub> |                   |
|-----------------------------------|------------------|----------------|-------------------|
| HSK-A40                           | 11               | 111            | <b>F330099.02</b> |
| HSK-A50                           | 15               | 120            | <b>F330099.03</b> |
| HSK-A63                           | 17               | 122            | <b>F330099.04</b> |
| HSK-A80                           | 18,5             | 126            | <b>F330099.05</b> |
| HSK-A100                          | 22               | 141            | <b>F330099.06</b> |

**Montage des Kühlschmierstoffrohrs im HSK-Schaft**

1. Montageschlüssel auf das Kühlschmierstoffrohr stecken.  
**Wichtig:** Auf die Stellung der Zapfen zu den Nuten achten!



2. Kühlschmierstoffrohr in den Schaft einschrauben.



**Assembly of the coolant tube in the hollow taper (HSK) shank**

1. Put assembly wrench on the coolant tube.  
**Important:** Watch the position of the pins against the grooves



2. Screw coolant tube into the shank.

Product  
Finder

Soft-  
synchro

Speed-  
synchro

KSN

MQL  
MMS

SFM

SWITCH-  
MASTER

HF

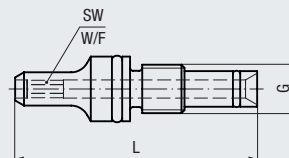
EM




Zubehör  
Accessories



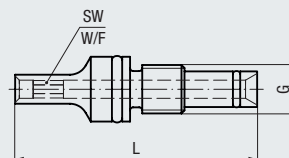
- Product Finder
- Softsynchro
- Speedsynchro
- KSN
- MQL MMS
- SFM
- SWITCH-MASTER
- HF
- EM
- Zubehör Accessories




**Von beiden Seiten justierbar, für Werkzeugschäfte mit Innenzentrierung 60°**  
Adjustable from both sides, for tool shanks with female centre 60°



| Für Ausführung<br>For design   | Werkzeugkegel<br>Tool taper  |  | $\varnothing D_1$ | L    | G       | SW<br>(W/F) |                   |
|--|--|---|-------------------|------|---------|-------------|-------------------|
| <b>Softsynchro® 1 Modular/IKZ</b><br><b>Softsynchro® 1 Modular/MQL</b> | Innenkegel<br>Internal taper<br>60°<br> | M4,5 - M10  | 6 / 7             | 40   | M8 x 1  | 2,5         | <b>F355188.01</b> |
|  |  | M8, M9, M11, M12  | 8 / 9             | 35   | M8 x 1  | 2,5         | <b>F355188.02</b> |
|  |  | M10   | 10                | 31,5 | M8 x 1  | 2,5         | <b>F355188.03</b> |
| <b>Softsynchro® 3 Modular/IKZ</b><br><b>Softsynchro® 3 Modular/MQL</b> |   | M12   | 9                 | 46,5 | M10 x 1 | 3           | <b>F355388.01</b> |
|  |  | M10 - M16   | 10 - 12           | 42   | M10 x 1 | 3           | <b>F355388.02</b> |
|  |  | M18 - M20   | 14 - 16           | 39   | M10 x 1 | 3           | <b>F355388.03</b> |

**Von beiden Seiten justierbar, für Werkzeugschäfte mit Außenzentrierung 90°**  
Adjustable from both sides, for tool shanks with male centre 90°



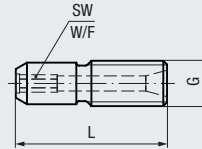
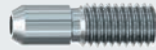
| Für Ausführung<br>For design      | Werkzeugkegel<br>Tool taper  |  | $\varnothing D_1$ | L    | G       | SW<br>(W/F) |                   |
|-----------------------------------|--|---|-------------------|------|---------|-------------|-------------------|
| <b>Softsynchro® 1 Modular/MQL</b> | Außenkegel<br>External taper<br>90°<br> | M4,5 - M6, M8   | 6                 | 40   | M8 x 1  | 2,5         | <b>F355188.04</b> |
|                                   |  | M7, M10   | 7                 | 40   | M8 x 1  | 2,5         | <b>F355188.05</b> |
|                                   |  | M8  | 8                 | 35   | M8 x 1  | 2,5         | <b>F355188.06</b> |
|                                   |  | M12   | 9                 | 34   | M8 x 1  | 2,5         | <b>F355188.07</b> |
|                                   |  | M10   | 10                | 30   | M8 x 1  | 2,5         | <b>F355188.08</b> |
| <b>Softsynchro® 3 Modular/MQL</b> |   | M12   | 9                 | 46,5 | M10 x 1 | 3           | <b>F355388.04</b> |
|                                   |  | M10   | 10                | 42,5 | M10 x 1 | 3           | <b>F355388.05</b> |
|                                   |  | M14 - M16   | 11 - 12           | 42   | M10 x 1 | 3           | <b>F355388.06</b> |
|                                   |  | M18   | 14                | 40,5 | M10 x 1 | 3           | <b>F355388.07</b> |
|                                   |  | M20   | 16                | 40   | M10 x 1 | 3           | <b>F355388.08</b> |







**Für Werkzeugschäfte mit Innenzentrierung 60°**

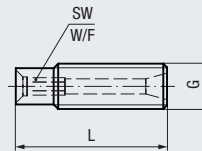
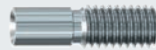
For tool shanks with female centre 60°





| Für Ausführung<br>For design   | Werkzeugkegel<br>Tool taper  |  | $\varnothing D_1$ | L  | G  | SW<br>(W/F) |                   |  |
|--|--|---|-------------------|----|----|-------------|-------------------|--|
| <b>Speedsynchro® Modular/IKZ</b><br><b>Speedsynchro® Modular/MQL</b><br><b>Softsynchro® Slim/IKZ</b><br><b>Softsynchro® Slim/MQL</b> | Innenkegel<br>Internal taper<br>60°<br> | M4,5 - M10  | 6 / 7             | 20 | M6 | 2           | <b>F375188.01</b> |  |
|  |  | M8, M9, M11, M12  | 8 / 9             | 15 | M6 | 2           | <b>F375188.02</b> |  |
|  |  |   |                   |    |    |             |                   |  |
|  |  |   |                   |    |    |             |                   |  |

**Für Werkzeugschäfte mit Außenzentrierung 90°**

For tool shanks with male centre 90°



| Für Ausführung<br>For design                                     | Werkzeugkegel<br>Tool taper  |  | $\varnothing D_1$ | L    | G  | SW<br>(W/F) |                   |
|--|--|---|-------------------|------|----|-------------|-------------------|
| <b>Speedsynchro® Modular/MQL</b><br><b>Softsynchro® Slim/MQL</b> | Außenkegel<br>External taper<br>90°<br> | M4,5 - M6, M8   | 6                 | 20   | M6 | 2           | <b>F375188.03</b> |
|  |  | M7  | 7                 | 20   | M6 | 2           | <b>F375188.04</b> |
|  |  | M8  | 8                 | 15   | M6 | 2           | <b>F375188.05</b> |
|  |  | M12   | 9                 | 14,3 | M6 | 2           | <b>F375188.06</b> |
|  |  |   |                   |      |    |             |                   |

Product Finder

Softsynchro

Speedsynchro

KSN

MQL MMS

SFM

SWITCH-MASTER

HF

EM

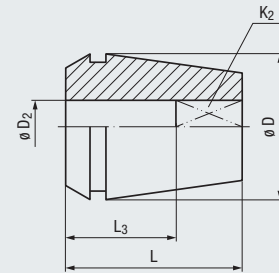
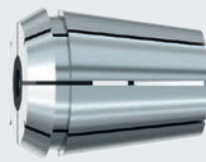
Zubehör Accessories



Mit Vierkantmitnahme  
With square drive

# ER-GB

DIN ISO 15488



- Product Finder
- Soft-synchro
- Speed-synchro
- KSN
- MQL MMS
- SFM
- SWITCH-MASTER
- HF
- EM
- Zubehör Accessories



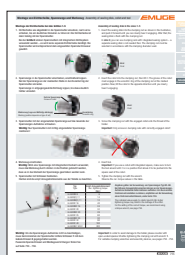
| Typ · Type    | ER 11 GB | ER 16 GB | ER 20 GB | ER 25 GB | ER 32 GB | ER 40 GB  | ER 50 GB  |
|---------------|----------|----------|----------|----------|----------|-----------|-----------|
| Typ           | M2 - M8  | M4 - M12 | M4 - M12 | M4 - M20 | M4 - M20 | M10 - M30 | M30 - M42 |
| $\emptyset D$ | 11       | 16       | 20       | 25       | 32       | 40        | 51        |
| L             | 18       | 27,5     | 31,5     | 34       | 40       | 46        | 60        |

## DIN

| $\emptyset D_2$ | $K_2$ |           |           |                     | $L_3$ |                     | $L_3$ |                     | $L_3$ |                     | $L_3$ |                     | $L_3$ |                    | $L_3$ |                    | $L_3$ |  |
|-----------------|-------|-----------|-----------|---------------------|-------|---------------------|-------|---------------------|-------|---------------------|-------|---------------------|-------|--------------------|-------|--------------------|-------|--|
| 2,5             | 2,1   | M1 - M1,8 | M3,5      | <b>F0942011.2.5</b> | 12    |                     |       |                     |       |                     |       |                     |       |                    |       |                    |       |  |
| 2,8             | 2,1   | M2 - M2,6 | M4        | <b>F0942011.2.8</b> | 12    |                     |       |                     |       |                     |       |                     |       |                    |       |                    |       |  |
| 3,5             | 2,7   | M3        | M4,5 - M5 | <b>F0942011.3.5</b> | 14    |                     |       |                     |       |                     |       |                     |       |                    |       |                    |       |  |
| 4               | 3     | M3,5      | M5,5      | <b>F0942011.4</b>   | 14    |                     |       |                     |       |                     |       |                     |       |                    |       |                    |       |  |
| 4,5             | 3,4   | M4        | M6        | <b>F0942011.4.5</b> | 14    | <b>F0942016.4.5</b> | 15    | <b>F0942020.4.5</b> | 15    | <b>F0942025.4.5</b> | 15    | <b>F0942032.4.5</b> | 15    |                    |       |                    |       |  |
| 6               | 4,9   | M4,5 - M6 | M8        | <b>F0942011.6</b>   | 14    | <b>F0942016.6</b>   | 18    | <b>F0942020.6</b>   | 18    | <b>F0942025.6</b>   | 18    | <b>F0942032.6</b>   | 18    |                    |       |                    |       |  |
| 7               | 5,5   | M7        | M9 - M10  |                     |       | <b>F0942016.7</b>   | 18    | <b>F0942020.7</b>   | 18    | <b>F0942025.7</b>   | 18    | <b>F0942032.7</b>   | 18    |                    |       |                    |       |  |
| 8               | 6,2   | M8        | M11       |                     |       | <b>F0942016.8</b>   | 22    | <b>F0942020.8</b>   | 22    | <b>F0942025.8</b>   | 22    | <b>F0942032.8</b>   | 22    |                    |       |                    |       |  |
| 9               | 7     | M9        | M12       |                     |       | <b>F0942016.9</b>   | 22    | <b>F0942020.9</b>   | 22    | <b>F0942025.9</b>   | 22    | <b>F0942032.9</b>   | 22    | <b>F0942040.9</b>  | 22    |                    |       |  |
| 10              | 8     | M10       |           |                     |       |                     |       | <b>F0942020.10</b>  | 25    | <b>F0942025.10</b>  | 25    | <b>F0942032.10</b>  | 25    | <b>F0942040.10</b> | 25    |                    |       |  |
| 11              | 9     |           | M14       |                     |       |                     |       |                     |       | <b>F0942025.11</b>  | 25    | <b>F0942032.11</b>  | 25    | <b>F0942040.11</b> | 25    |                    |       |  |
| 12              | 9     |           | M16       |                     |       |                     |       |                     |       | <b>F0942025.12</b>  | 25    | <b>F0942032.12</b>  | 25    | <b>F0942040.12</b> | 25    |                    |       |  |
| 14              | 11    |           | M18       |                     |       |                     |       |                     |       | <b>F0942025.14</b>  | 25    | <b>F0942032.14</b>  | 25    | <b>F0942040.14</b> | 25    |                    |       |  |
| 16              | 12    |           | M20       |                     |       |                     |       |                     |       | <b>F0942025.16</b>  | 25    | <b>F0942032.16</b>  | 25    | <b>F0942040.16</b> | 25    |                    |       |  |
| 18              | 14,5  |           | M22 - M24 |                     |       |                     |       |                     |       |                     |       |                     |       | <b>F0942040.18</b> | 25    |                    |       |  |
| 20              | 16    |           | M27       |                     |       |                     |       |                     |       |                     |       |                     |       | <b>F0942040.20</b> | 28    |                    |       |  |
| 22              | 18    |           | M30       |                     |       |                     |       |                     |       |                     |       |                     |       | <b>F0942040.22</b> | 28    | <b>F0942050.22</b> | 41    |  |
| 25              | 20    |           | M33       |                     |       |                     |       |                     |       |                     |       |                     |       |                    |       | <b>F0942050.25</b> | 41    |  |
| 28              | 22    |           | M36       |                     |       |                     |       |                     |       |                     |       |                     |       |                    |       | <b>F0942050.28</b> | 41    |  |
| 32              | 24    |           | M39 - M42 |                     |       |                     |       |                     |       |                     |       |                     |       |                    |       | <b>F0942050.32</b> | 41    |  |

Ausführungen für Gewindebohrer / Gewindeformer mit ISO-Baumaßen auf Anfrage erhältlich  
Versions for taps / cold-forming taps with ISO dimensions are available on request

Weitere Ausführungen auf Anfrage  
Further designs upon request

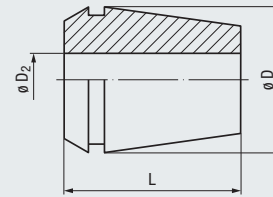
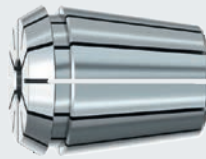


Montage von Dichtscheibe,  
Spannzange und Werkzeug  
siehe Seite 755

Assembly of sealing disk,  
collet and tool,  
see page 755

**ER**

DIN ISO 15488

Ohne Vierkantmitnahme  
Without square driveProduct  
FinderSoft-  
synchroSpeed-  
synchro

KSN

MQL  
MMS

SFM

SWITCH-  
MASTER

HF

EM

Zubehör  
Accessories

| Typ · Type        | ER 08     | ER 11   | ER 16  | ER 20  | ER 32  | ER 40   | ER 50   |
|-------------------|-----------|---------|--------|--------|--------|---------|---------|
| $\varnothing D_2$ | 1,5 - 4,5 | 1,5 - 7 | 2 - 10 | 3 - 11 | 3 - 18 | 11 - 22 | 34 - 36 |
| $\varnothing D$   | 8         | 11      | 16     | 20     | 32     | 40      | 50      |
| L                 | 13,6      | 18      | 27,5   | 31,5   | 40     | 46      | 60      |

 $\varnothing D_2$ 

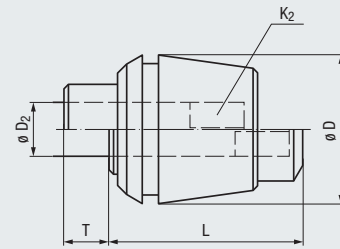
|         |              |              |             |             |             |             |             |
|---------|--------------|--------------|-------------|-------------|-------------|-------------|-------------|
| 2 - 1,5 | F0943008.2   | F0943011.2   |             |             |             |             |             |
| 2,5 - 2 | F0943008.2.5 | F0943011.2.5 |             |             |             |             |             |
| 3 - 2,5 | F0943008.3   | F0943011.3   |             |             |             |             |             |
| 3 - 2   |              |              | F0943016.3  |             |             |             |             |
| 3,5 - 3 | F0943008.3.5 | F0943011.3.5 |             |             |             |             |             |
| 4 - 3,5 | F0943008.4   | F0943011.4   |             |             |             |             |             |
| 4 - 3   |              |              | F0943016.4  | F0943020.4  | F0943032.4  |             |             |
| 4,5 - 4 | F0943008.4.5 | F0943011.4.5 |             |             |             |             |             |
| 5 - 4,5 |              | F0943011.5   |             |             |             |             |             |
| 5 - 4   |              |              | F0943016.5  | F0943020.5  | F0943032.5  |             |             |
| 6 - 5,5 |              | F0943011.6   |             |             |             |             |             |
| 6 - 5   |              |              | F0943016.6  | F0943020.6  | F0943032.6  |             |             |
| 7 - 6,5 |              | F0943011.7   |             |             |             |             |             |
| 7 - 6   |              |              | F0943016.7  | F0943020.7  | F0943032.7  |             |             |
| 9 - 8   |              |              | F0943016.9  | F0943020.9  | F0943032.9  |             |             |
| 10 - 9  |              |              | F0943016.10 |             |             |             |             |
| 11 - 10 |              |              |             | F0943020.11 | F0943032.11 |             |             |
| 12 - 11 |              |              |             |             | F0943032.12 | F0943040.12 |             |
| 14 - 13 |              |              |             |             | F0943032.14 | F0943040.14 |             |
| 16 - 15 |              |              |             |             | F0943032.16 | F0943040.16 |             |
| 18 - 17 |              |              |             |             | F0943032.18 | F0943040.18 |             |
| 20 - 19 |              |              |             |             |             | F0943040.20 |             |
| 22 - 21 |              |              |             |             |             | F0943040.22 |             |
| 36 - 34 |              |              |             |             |             |             | F0943050.36 |

Weitere Ausführungen auf Anfrage  
Further designs upon request

- Product Finder
- Soft-synchro
- Speed-synchro
- KSN
- MQL MMS
- SFM
- SWITCH-MASTER
- HF
- EM
- Zubehör Accessories

# PCM ET1

Mit Vierkantmitnahme und Längenausgleich auf Zug  
With square drive and length compensation on tension



| Typ · Type | PCM ET1-12 | PCM ET1-20 | PCM ET1-32 | PCM ET1-40 |
|------------|------------|------------|------------|------------|
| M2 - M4    | M2 - M4    | M2 - M10   | M4 - M16   | M4,5 - M20 |
| T          | 5,5        | 7          | 10         | 13         |
| ø D        | 11,5       | 21         | 33         | 41         |
| L          | 21,5       | 31         | 43         | 54         |

## DIN

| ø D <sub>2</sub> | K <sub>2</sub> |           |           |                     |                     |                     |                    |
|------------------|----------------|-----------|-----------|---------------------|---------------------|---------------------|--------------------|
|                  |                |           |           |                     |                     |                     |                    |
| 2,8              | 2,1            | M2 - M2,6 | M4        | <b>F0945011.2.8</b> | <b>F0945020.2.8</b> |                     |                    |
| 3,5              | 2,7            | M3        | M4,5 - M5 |                     | <b>F0945020.3.5</b> |                     |                    |
| 4                | 3              | M3,5      | M5,5      |                     | <b>F0945020.4</b>   |                     |                    |
| 4,5              | 3,4            | M4        | M6        |                     | <b>F0945020.4.5</b> | <b>F0945032.4.5</b> |                    |
| 6                | 4,9            | M4,5 - M6 | M8        |                     | <b>F0945020.6</b>   | <b>F0945032.6</b>   | <b>F0945040.6</b>  |
| 7                | 5,5            | M7        | M9 - M10  |                     | <b>F0945020.7</b>   | <b>F0945032.7</b>   | <b>F0945040.7</b>  |
| 8                | 6,2            | M8        | M11       |                     |                     | <b>F0945032.8</b>   | <b>F0945040.8</b>  |
| 9                | 7              | M9        | M12       |                     |                     | <b>F0945032.9</b>   | <b>F0945040.9</b>  |
| 10               | 8              | M10       |           |                     |                     | <b>F0945032.10</b>  | <b>F0945040.10</b> |
| 11               | 9              |           | M14       |                     |                     | <b>F0945032.11</b>  | <b>F0945040.11</b> |
| 12               | 9              |           | M16       |                     |                     | <b>F0945032.12</b>  | <b>F0945040.12</b> |
| 14               | 11             |           | M18       |                     |                     |                     | <b>F0945040.14</b> |
| 16               | 12             |           | M20       |                     |                     |                     | <b>F0945040.16</b> |

Die Klemmung des Gewindewerkzeugs erfolgt über 4 Gewindestifte am Vierkant  
The threading tool is clamped by means of 4 worm screws on the square

Weitere Ausführungen auf Anfrage  
Further designs upon request

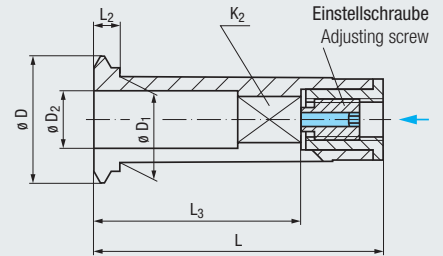
Auf Grund des Längenausgleichs können keine Dichtscheiben in die Spannmutter gesetzt werden  
Due to the length compensation, sealing disks cannot be used in the clamping nut



# PGR-GB

Mit Vierkantmitnahme und Längennachstellung  
With square drive and length adjustment

powRgrip®



**p<sub>max</sub>**  
50 bar  
(700 psi)

- Product Finder
- Soft-synchro
- Speed-synchro
- KSN
- MQL MMS
- SFM
- SWITCH-MASTER
- HF
- EM
- Zubehör Accessories

| Typ · Type | PGR 15 GB         | PGR 25 GB |
|------------|-------------------|-----------|
|            | M4 - M12          | M8 - M20  |
|            | $\varnothing D$   | 22        |
|            | $\varnothing D_1$ | 15        |
|            | L                 | 50,5      |
|            | L <sub>1</sub>    | 4,5       |
|            |                   | 6         |

| DIN               |                |           |           | L <sub>3</sub> |      | L <sub>3</sub>     |         |
|-------------------|----------------|-----------|-----------|----------------|------|--------------------|---------|
| $\varnothing D_2$ | K <sub>2</sub> |           |           | min.           | max. | min.               | max.    |
| 3,5               | 2,7            | M3        | M4,5 - M5 |                |      |                    |         |
| 4,5               | 3,4            | M4        | M6        |                |      |                    |         |
| 6                 | 4,9            | M4,5 - M6 | M8        |                |      | <b>F0942625.6</b>  | 29 31   |
| 7                 | 5,5            | M7        | M9 - M10  |                |      |                    |         |
| 8                 | 6,2            | M8        | M11       |                |      | <b>F0942625.8</b>  | 33,5 36 |
| 9                 | 7              | M9        | M12       |                |      | <b>F0942625.9</b>  | 34,5 37 |
| 10                | 8              | M10       |           |                |      | <b>F0942625.10</b> | 38,5 41 |
| 11                | 9              |           | M14       |                |      | <b>F0942625.11</b> | 39,5 42 |
| 12                | 9              |           | M16       |                |      | <b>F0942625.12</b> | 39,5 42 |
| 14                | 11             |           | M18       |                |      | <b>F0942625.14</b> | 41,5 44 |
| 16                | 12             |           | M20       |                |      | <b>F0942625.16</b> | 42,5 45 |

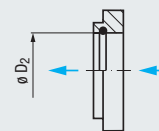
PGR-Spannzangen ohne Vierkantmitnahme auf Anfrage

PGR collets without square drive upon request



### DS/ER

Dichtscheiben  
Sealing disks



$p_{max}$   
100 bar  
(1400 psi)



Typ · Type

DS/ER 11

DS/ER 16

DS/ER 20

DS/ER 25

DS/ER 32

DS/ER 40

DS/ER 50



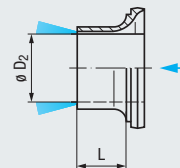
### DIN

$\varnothing D_2$  K<sub>2</sub>

| $\varnothing D_2$ | K <sub>2</sub> | Typ       | Type      | DS/ER 11   | DS/ER 16     | DS/ER 20     | DS/ER 25     | DS/ER 32     | DS/ER 40    | DS/ER 50    |
|-------------------|----------------|-----------|-----------|------------|--------------|--------------|--------------|--------------|-------------|-------------|
| 2,8               | 2,1            | M2 - M2,6 | M4        | F0941511.3 |              |              |              |              |             |             |
| 4                 | 3              | M3,5      | M5,5      | F0941511.4 | F0941516.4   |              |              |              |             |             |
| 4,5               | 3,4            | M4        | M6        | F0941511.5 | F0941516.4.5 | F0941520.4.5 | F0941525.4.5 | F0941532.4.5 |             |             |
| 6                 | 4,9            | M4,5 - M6 | M8        | F0941511.6 | F0941516.6   | F0941520.6   | F0941525.6   | F0941532.6   |             |             |
| 7                 | 5,5            | M7        | M9 - M10  |            | F0941516.7   | F0941520.7   | F0941525.7   | F0941532.7   |             |             |
| 8                 | 6,2            | M8        | M11       |            | F0941516.8   | F0941520.8   | F0941525.8   | F0941532.8   |             |             |
| 9                 | 7              | M9        | M12       |            | F0941516.9   | F0941520.9   | F0941525.9   | F0941532.9   | F0941540.9  |             |
| 10                | 8              | M10       |           |            | F0941516.10  | F0941520.10  | F0941525.10  | F0941532.10  | F0941540.10 |             |
| 11                | 9              |           | M14       |            |              |              | F0941525.11  | F0941532.11  | F0941540.11 |             |
| 12                | 9              |           | M16       |            |              |              | F0941525.12  | F0941532.12  | F0941540.12 |             |
| 14                | 11             |           | M18       |            |              |              | F0941525.14  | F0941532.14  | F0941540.14 |             |
| 16                | 12             |           | M20       |            |              |              | F0941525.16  | F0941532.16  | F0941540.16 |             |
| 18                | 14,5           |           | M22 - M24 |            |              |              |              |              | F0941540.18 |             |
| 20                | 16             |           | M27       |            |              |              |              |              | F0941540.20 |             |
| 22                | 18             |           | M30       |            |              |              |              |              | F0941540.22 | F0941550.22 |
| 25                | 20             |           | M33       |            |              |              |              |              |             | F0941550.25 |
| 28                | 22             |           | M36       |            |              |              |              |              |             | F0941550.28 |
| 32                | 24             |           | M39 - M42 |            |              |              |              |              |             | F0941550.32 |
| 36                | 29             |           | M45 - M48 |            |              |              |              |              |             | F0941550.36 |

### KS/ER

Kùhlscheiben  
Coolant flush disks



$p_{max}$   
100 bar  
(1400 psi)



Typ · Type

KS/ER 11

KS/ER 16

KS/ER 20

KS/ER 32



### DIN

$\varnothing D_2$  K<sub>2</sub>

| $\varnothing D_2$ | K <sub>2</sub> | Typ       | Type     | KS/ER 11   | L   | KS/ER 16    | L  | KS/ER 20    | L  | KS/ER 32    | L  |
|-------------------|----------------|-----------|----------|------------|-----|-------------|----|-------------|----|-------------|----|
| 2,8               | 2,1            | M2 - M2,6 | M4       | F0941711.3 | 5,5 |             |    |             |    |             |    |
| 4                 | 3              | M3,5      | M5,5     | F0941711.4 | 5,5 | F0941716.4  | 11 |             |    |             |    |
| 4,5               | 3,4            | M4        | M6       | F0941711.5 | 5,5 |             |    |             |    |             |    |
| 6                 | 4,9            | M4,5 - M6 | M8       | F0941711.6 | 5,5 | F0941716.6  | 11 | F0941720.6  | 11 | F0941732.6  | 11 |
| 7                 | 5,5            | M7        | M9 - M10 |            |     | F0941716.7  | 11 | F0941720.7  | 11 | F0941732.7  | 11 |
| 8                 | 6,2            | M8        | M11      |            |     | F0941716.8  | 11 | F0941720.8  | 11 | F0941732.8  | 11 |
| 9                 | 7              | M9        | M12      |            |     | F0941716.9  | 11 | F0941720.9  | 11 | F0941732.9  | 11 |
| 10                | 8              | M10       |          |            |     | F0941716.10 | 2  | F0941720.10 | 11 | F0941732.10 | 11 |
| 11                | 9              |           | M14      |            |     |             |    |             |    | F0941732.11 | 11 |
| 12                | 9              |           | M16      |            |     |             |    |             |    | F0941732.12 | 11 |
| 14                | 11             |           | M18      |            |     |             |    |             |    | F0941732.14 | 11 |
| 16                | 12             |           | M20      |            |     |             |    |             |    | F0941732.16 | 11 |

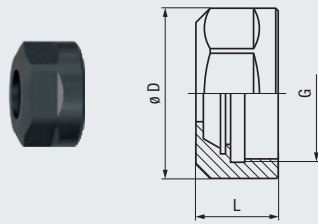


# Hi-Q/ER

Ohne Abdichtung  
Without sealing



$p_{max}$   
100 bar  
(1400 psi)



|                 |                   |
|-----------------|-------------------|
| Typ · Type      | <b>Hi-Q/ER 11</b> |
| $\varnothing D$ | 19                |
| L               | 11,3              |
| G               | M14 x 0,75        |

Für Spannzange  
For collet

ER 11 (GB)

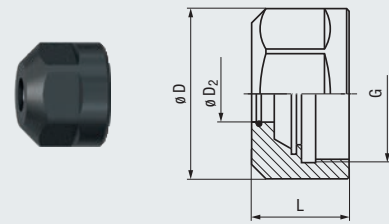
**F0940911**

# Hi-Q/ERC

Mit integrierter Abdichtung  
With integrated sealing



$p_{max}$   
100 bar  
(1400 psi)



|                 |                    |
|-----------------|--------------------|
| Typ · Type      | <b>Hi-Q/ERC 11</b> |
| $\varnothing D$ | 19                 |
| L               | 14,6               |
| G               | M14 x 0,75         |

## DIN

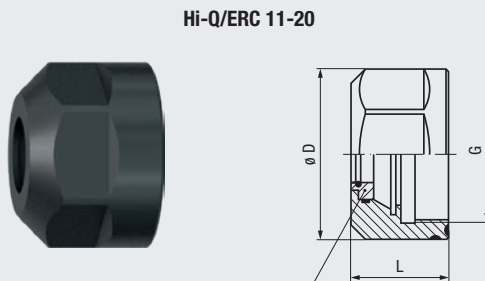
| $\varnothing D_2$ | K <sub>2</sub> |           |          | Für Spannzange<br>For collet |                   |
|-------------------|----------------|-----------|----------|------------------------------|-------------------|
| 6                 | 4,9            | M4,5 - M6 | M8       | ER 11 (GB)                   | <b>F0940711.6</b> |
| 7                 | 5,5            | M7        | M9 - M10 | ER 11 (GB)                   | <b>F0940711.7</b> |

# Hi-Q/ERC

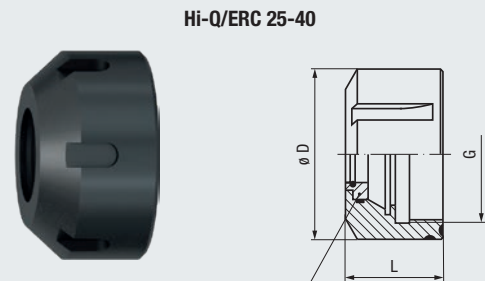
Für Dichtscheiben und Kühlschleiben  
For sealing disks and coolant flush disks



$p_{max}$   
100 bar  
(1400 psi)



Dichtscheibe / Kühlschleibe  
Sealing disk / Coolant flush disk



Dichtscheibe / Kühlschleibe  
Sealing disk / Coolant flush disk



| Typ · Type      | <b>Hi-Q/ERC 11</b> | <b>Hi-Q/ERC 16</b> | <b>Hi-Q/ERC 20</b> | <b>Hi-Q/ERC 25</b> | <b>Hi-Q/ERC 32</b> | <b>Hi-Q/ERC 40</b> |
|-----------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| $\varnothing D$ | 19                 | 28                 | 34                 | 42                 | 50                 | 63                 |
| L               | 14,6               | 22,5               | 24                 | 25                 | 27,5               | 30,5               |
| G               | M14 x 0,75         | M22 x 1,5          | M25 x 1,5          | M32 x 1,5          | M40 x 1,5          | M50 x 1,5          |

| Für Spannzange<br>For collet | Dichtscheibe<br>Sealing disk | Kühlscheibe<br>Coolant flush disk |                 |                 |                 |                 |                 |
|------------------------------|------------------------------|-----------------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| ER 11 (GB)                   | DS/ER 11                     | KS/ER 11                          | <b>F0940711</b> |                 |                 |                 |                 |
| ER 16 (GB)                   | DS/ER 16                     | KS/ER 16                          |                 | <b>F0940716</b> |                 |                 |                 |
| ER 20 (GB)                   | DS/ER 20                     | KS/ER 20                          |                 |                 | <b>F0940720</b> |                 |                 |
| ER 25 (GB)                   | DS/ER 25                     |                                   |                 |                 | <b>F0940725</b> |                 |                 |
| ER 32 (GB)                   | DS/ER 32                     | KS/ER 32                          |                 |                 |                 | <b>F0940732</b> |                 |
| ER 40 (GB)                   | DS/ER 40                     |                                   |                 |                 |                 |                 | <b>F0940740</b> |

Dichtscheiben und Kühlschleiben sind nicht im Lieferumfang enthalten, bitte extra bestellen (siehe Seite 750)  
Sealing disks and coolant flush disks are not included in the delivery, please order separately (see page 750)

- Product Finder
- Soft-synchro
- Speed-synchro
- KSN
- MQL MMS
- SFM
- SWITCH-MASTER
- HF
- EM

**Zubehör**  
Accessories



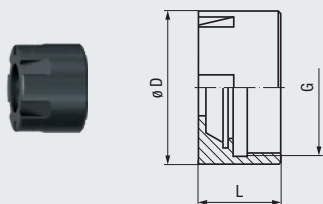
- Product Finder
- Soft-synchro
- Speed-synchro
- KSN
- MQL MMS
- SFM
- SWITCH-MASTER
- HF
- EM
- Zubehör Accessories

# Hi-Q/ERM

Ohne Abdichtung  
Without sealing



$p_{max}$   
100 bar  
(1400 psi)



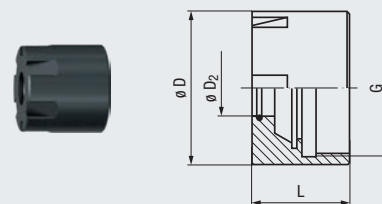
|                              |            |                   |                    |
|------------------------------|------------|-------------------|--------------------|
|                              | Typ · Type | <b>Hi-Q/ERM 8</b> | <b>Hi-Q/ERM 11</b> |
|                              | ø D        | 12                | 16                 |
|                              | L          | 10,8              | 12                 |
|                              | G          | M10 x 0,75        | M13 x 0,75         |
| Für Spannzange<br>For collet |            |                   |                    |
| ER 08                        |            | <b>F0940308</b>   | <b>F0940311</b>    |
| ER 11 (GB)                   |            |                   | <b>F0940311</b>    |

# Hi-Q/ERMC

Mit integrierter Abdichtung  
With integrated sealing



$p_{max}$   
100 bar  
(1400 psi)



|                              |            |                     |                     |                     |                   |
|------------------------------|------------|---------------------|---------------------|---------------------|-------------------|
|                              | Typ · Type |                     |                     | <b>Hi-Q/ERMC 11</b> |                   |
|                              | ø D        |                     |                     | 16                  |                   |
|                              | L          |                     |                     | 14,6                |                   |
|                              | G          |                     |                     | M13 x 0,75          |                   |
| Für Spannzange<br>For collet |            |                     |                     |                     |                   |
| ER 11 (GB)                   |            | <b>F0943511.3.5</b> | <b>F0943511.4.5</b> | <b>F0943511.6</b>   | <b>F0943511.7</b> |

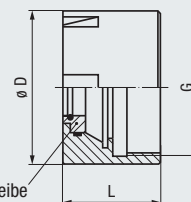
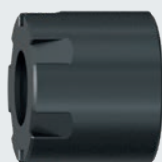
| DIN              |                | K <sub>2</sub> |           | Für Spannzange<br>For collet |                     |  |
|------------------|----------------|----------------|-----------|------------------------------|---------------------|--|
| ø D <sub>2</sub> | K <sub>2</sub> |                |           |                              |                     |  |
| 3,5              | 2,7            | M3             | M4,5 - M5 | ER 11 (GB)                   | <b>F0943511.3.5</b> |  |
| 4,5              | 3,4            | M4             | M6        | ER 11 (GB)                   | <b>F0943511.4.5</b> |  |
| 6                | 4,9            | M4,5 - M6      | M8        | ER 11 (GB)                   | <b>F0943511.6</b>   |  |
| 7                | 5,5            | M7             | M9 - M10  | ER 11 (GB)                   | <b>F0943511.7</b>   |  |

# Hi-Q/ERMC

Für Dichtscheiben und Kühlschleiben  
For sealing disks and coolant flush disks



$p_{max}$   
100 bar  
(1400 psi)



Dichtscheibe / Kühlschleibe  
Sealing disk / Coolant flush disk

|                              |                              |                                   |                     |                     |  |
|------------------------------|------------------------------|-----------------------------------|---------------------|---------------------|--|
|                              | Typ · Type                   | <b>Hi-Q/ERMC 16</b>               | <b>Hi-Q/ERMC 20</b> | <b>Hi-Q/ERMC 25</b> |  |
|                              | ø D                          | 22                                | 28                  | 35                  |  |
|                              | L                            | 22                                | 24                  | 25                  |  |
|                              | G                            | M19 x 1                           | M24 x 1             | M30 x 1             |  |
| Für Spannzange<br>For collet |                              |                                   |                     |                     |  |
|                              | Dichtscheibe<br>Sealing disk | Kühlscheibe<br>Coolant flush disk |                     |                     |  |
| ER 16 (GB)                   | DS/ER 16                     | KS/ER 16                          | <b>F0943516</b>     |                     |  |
| ER 20 (GB)                   | DS/ER 20                     | KS/ER 20                          |                     | <b>F0943520</b>     |  |
| ER 25 (GB)                   | DS/ER 25                     |                                   |                     | <b>F0943525</b>     |  |

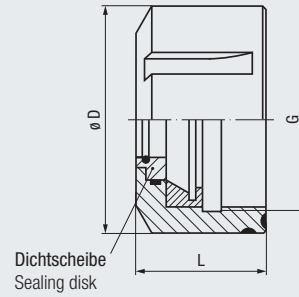
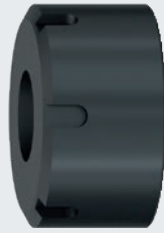
Dichtscheiben und Kühlschleiben sind nicht im Lieferumfang enthalten, bitte extra bestellen (siehe Seite 750)  
Sealing disks and coolant flush disks are not included in the delivery, please order separately (see page 750)



## Hi-Q/ERBC

Für Dichtscheiben  
For sealing disks

$p_{max}$   
100 bar  
(1400 psi)



Typ · Type

Hi-Q/ERBC 50 EF

ø D

78

L

42,5

G

M64 x 2

Für Spannzange  
For colletDichtscheibe  
Sealing disk

ER 50 (GB)

DS/ER 50

F0941850

Dichtscheiben sind nicht im Lieferumfang enthalten, bitte extra bestellen (siehe Seite 750)  
Sealing disks are not included in the delivery, please order separately (see page 750)

Product  
FinderSoft-  
synchroSpeed-  
synchro

KSN

MQL  
MMS

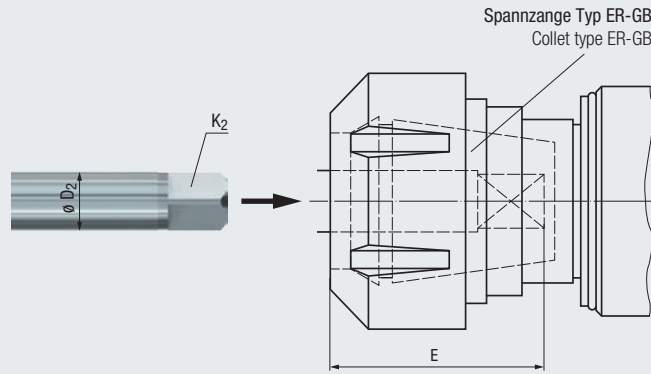
SFM

SWITCH-  
MASTER

HF

EM

Zubehör  
Accessories



| Spannzangen<br>Collets        |                   | ER 8       |                                       | ER 11 GB                              |            |                             | ER 16 GB                    |
|-------------------------------|-------------------|------------|---------------------------------------|---------------------------------------|------------|-----------------------------|-----------------------------|
| Spannmuttern<br>Clamping nuts |                   | Hi-Q/ERM 8 |                                       | Hi-Q/ERM 11                           | Hi-Q/ER 11 | Hi-Q/ERC 11<br>Hi-Q/ERMC 11 | Hi-Q/ERC 16<br>Hi-Q/ERMC 16 |
| DIN                           | $\varnothing D_2$ | $K_2$      | Einstecktiefen E<br>Clamping depths E | Einstecktiefen E<br>Clamping depths E |            |                             |                             |
|                               |                   |            |                                       | min.                                  | max.       |                             |                             |
|                               | 2                 | –          | M0,5 - M0,9                           | 9                                     | 20         |                             |                             |
|                               | 2,2               | –          | M3                                    | 9                                     | 20         |                             |                             |
|                               | 2,5               | 2,1        | M1 - M1,8                             | 14                                    | 20         | 18                          | 17                          |
|                               | 2,8               | 2,1        | M2 - M2,6                             | 15                                    | 20         | 18                          | 17                          |
|                               | 3,5               | 2,7        | M3                                    | 15                                    | 19,5       | 21                          | 20                          |
|                               | 4                 | 3          | M3,5                                  | 15                                    | 19         | 21                          | 20                          |
|                               | 4,5               | 3,4        | M4                                    | 15                                    | 19         | 21                          | 20                          |
|                               | 6                 | 4,9        | M4,5 - M6                             |                                       |            | 23                          | 22                          |
|                               | 7                 | 5,5        | M7                                    |                                       |            |                             | 26                          |
|                               | 8                 | 6,2        | M8                                    |                                       |            |                             | 26                          |
|                               | 9                 | 7          | M9                                    |                                       |            |                             | 26                          |
|                               |                   |            | M3,5                                  |                                       |            |                             | 24                          |
|                               |                   |            | M4,5 - M5                             |                                       |            |                             | 24                          |
|                               |                   |            | M5,5                                  |                                       |            |                             | 24                          |
|                               |                   |            | M6                                    |                                       |            |                             | 24                          |
|                               |                   |            | M8                                    |                                       |            |                             | 26                          |
|                               |                   |            | M9 - M10                              |                                       |            |                             | 26                          |
|                               |                   |            | M11                                   |                                       |            |                             | 26                          |
|                               |                   |            | M12                                   |                                       |            |                             | 26                          |

| Spannzangen<br>Collets        |                   | ER 20 GB                    |                                       | ER 25 GB                              | ER 32 GB    | ER 40 GB    | ER 50 GB        |
|-------------------------------|-------------------|-----------------------------|---------------------------------------|---------------------------------------|-------------|-------------|-----------------|
| Spannmuttern<br>Clamping nuts |                   | Hi-Q/ERC 20<br>Hi-Q/ERMC 20 |                                       | Hi-Q/ERC 25<br>Hi-Q/ERMC 25           | Hi-Q/ERC 32 | Hi-Q/ERC 40 | Hi-Q/ERBC 50 EF |
| DIN                           | $\varnothing D_2$ | $K_2$                       | Einstecktiefen E<br>Clamping depths E | Einstecktiefen E<br>Clamping depths E |             |             |                 |
|                               |                   |                             |                                       |                                       |             |             |                 |
|                               | 4,5               | 3,4                         | M4                                    | 26                                    | 26          | 26          |                 |
|                               | 6                 | 4,9                         | M4,5 - M6                             | 31                                    | 31          | 31          |                 |
|                               | 7                 | 5,5                         | M7                                    | 31                                    | 31          | 31          |                 |
|                               | 8                 | 6,2                         | M8                                    | 36                                    | 36          | 36          |                 |
|                               | 9                 | 7                           | M9                                    | 37                                    | 37          | 37          | 37              |
|                               | 10                | 8                           | M10                                   | 41                                    | 41          | 41          | 41              |
|                               | 11                | 9                           | M14                                   |                                       | 42          | 42          | 42              |
|                               | 12                | 9                           | M16                                   |                                       | 42          | 42          | 42              |
|                               | 14                | 11                          | M18                                   |                                       | 44          | 44          | 44              |
|                               | 16                | 12                          | M20                                   |                                       | 45          | 45          | 45              |
|                               | 18                | 14,5                        | M22 - M24                             |                                       |             |             | 47              |
|                               | 20                | 16                          | M27                                   |                                       |             |             | 52              |
|                               | 22                | 18                          | M30                                   |                                       |             |             | 54              |
|                               | 25                | 20                          | M33                                   |                                       |             |             | 70              |
|                               | 28                | 22                          | M36                                   |                                       |             |             | 72              |
|                               | 32                | 24                          | M39 - M42                             |                                       |             |             | 74              |
|                               | 36                | 29                          | M45 - M48                             |                                       |             |             | 76              |
|                               |                   |                             |                                       |                                       |             |             | 111 1)          |

1) In Kombination mit Spannzangen Typ ER 50 und Softsynchro® 5  
In combination with collets type ER 50 and Softsynchro® 5



**Montage der Dichtscheibe bei den Größen 1-5**

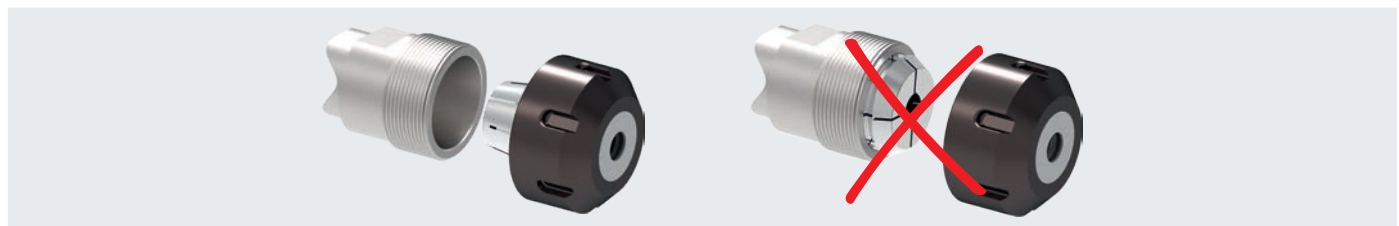
1. Dichtscheibe wie abgebildet in die Spannmutter einsetzen, nach vorne schieben, bis ein deutliches Einrasten zu hören ist. Die Dichtscheibe ist dann bündig mit der Spannmutter.  
Bei der **Größe 0** können Spannmutter mit integriertem Dichtsystem verwendet werden – es wird keine separate Dichtscheibe benötigt. Die Spannmutter wird entsprechend dem eingesetzten Spanndurchmesser gewählt.



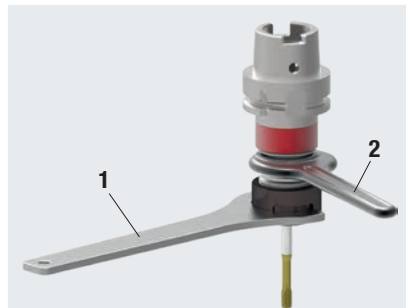
2. Spannzange in die Spannmutter einschieben, anschließend kippen. Nut der Spannzange an der markierten Stelle in den Exzenterring der Spannmutter einrasten. Spannzange in entgegengesetzte Richtung kippen, bis diese deutlich hörbar einrastet.



3. Spannmutter mit der eingerasteten Spannzange auf das Gewinde der Spannzangen-Aufnahme schrauben.  
**Wichtig:** Nur Spannmutter mit richtig eingerasteter Spannzange montieren!



4. Werkzeug einschieben.  
**Wichtig:** Wird eine Spannzange mit integriertem Vierkant verwendet, muss das Werkzeug durch drehen in die Position gebracht werden, dass es in das Vierkant der Spannzange geschoben werden kann.
5. Spannmutter mit Schlüssel festziehen.  
Hierbei sind die empf. Anzugsdrehmomente aus der Tabelle zu beachten.



| Typ<br>Type     | Empf. Anzugsdrehmoment<br>Rec. tightening torque<br>[Nm] |
|-----------------|--|
| Hi-Q/ERM 8      | 6  |
| Hi-Q/ER(C) 11   | 14   |
| Hi-Q/ERM(C) 11  | 12   |
| Hi-Q/ERC 16     | 40   |
| Hi-Q/ERMC 16    | 24   |
| Hi-Q/ERC 20     | 32   |
| Hi-Q/ERMC 20    | 28   |
| Hi-Q/ERC 25     | 80   |
| Hi-Q/ERMC 25    | 32   |
| Hi-Q/ERC 32     | 90   |
| Hi-Q/ERC 40     | 180  |
| Hi-Q/ERBC 50 EF | 300  |

**Wichtig:** Um die Spannzangen-Aufnahme nicht zu beschädigen, muss beim Anziehen der Spannmutter mittels Schlüssel 1 mit dem Gabelschlüssel 2 gegengehalten werden. Passende Spannschlüssel und Montagevorrichtungen finden Sie auf Seite 756 - 758.

**Assembly of sealing disk in the sizes 1-5**

1. Insert the sealing disk into the clamping nut as shown in the illustration, and push it forward until you can clearly hear it engaging. After that, the sealing disk is flush with the clamping nut.  
In **size 0**, you can use clamping nuts with integrated sealing system – a separate sealing disk is not needed then. The clamping nut must be selected in accordance with the clamping diameter used.

2. Insert the collet into the clamping nut, then tilt it. The groove of the collet must engage in the eccentric ring of the clamping nut at the marked position. Now, tilt the collet in the opposite direction until you clearly hear it engaging.

3. Screw the clamping nut with the engaged collet onto the thread of the holder.  
**Important:** Only screw on clamping nuts with correctly engaged collet!

4. Insert tool.  
**Important:** If you use a collet with integrated square, make sure to turn the tool around until it is in a position that allows it to be pushed into the square seat of the collet.
5. Tighten the clamping nut with the wrench.  
Observe the rec. torque values in the table.

Angaben gelten bei Verwendung von Spannzangen Typ ER-GB. Bei höheren Anzugsdrehmomenten können an der Spannzangen-Aufnahme bleibende Deformationen auftreten. Um das korrekte Drehmoment einstellen zu können, empfehlen wir die Verwendung eines Drehmomentschlüssels, siehe Seite 759.

The indicated values apply to collets type ER-GB. Higher tightening torque may result in the damage of the collet. For the setting of the correct torque, we recommend using a torque wrench, see page 759.

**Important:** In order to avoid damage to the holder, please counter with open-ended spanner 2 while tightening the clamping nut with wrench 1. For suitable clamping wrenches and assembly devices, see pages 756 - 758.

- Product Finder
- Soft-synchro
- Speed-synchro
- KSN
- MQL MMS
- SFB
- SWITCH-MASTER
- HF
- EM
- Zubehör Accessories



- Product Finder
- Softsynchro
- Speedsynchro
- KSN
- MQL MMS
- SFM
- SWITCH-MASTER
- HF
- EM
- Zubehör Accessories

# Softsynchro®

**Basis-Montagevorrichtung**  
Basis assembly device



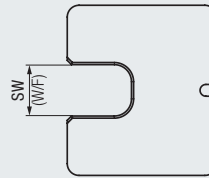
Für Spannzangen-Aufnahmen  
For collet holders

Softsynchro® Micro, Softsynchro® 0-4, Softsynchro® Slim, Softsynchro® Xtension

**F3151186**

# Softsynchro®

**Adapterplatten**  
Adapter plates



Für Spannzangen-Aufnahmen  
For collet holders

Schlüsselweite  
Width across flats

SW  
(W/F)

| Für Spannzangen-Aufnahmen<br>For collet holders | SW<br>(W/F) |                   |
|---|-------------|-------------------|
| Softsynchro® Micro                              | 8           | <b>F315050.02</b> |
| Softsynchro® 0                                  | 14          | <b>F315050.03</b> |
| Softsynchro® 0/Slim                             | 14          | <b>F366050.01</b> |
| Softsynchro® 1                                  | 19          | <b>F315150.01</b> |
| Softsynchro® 1/Slim, Softsynchro® 1/Xtension    | 17          | <b>F366150.01</b> |
| Softsynchro® 3                                  | 32          | <b>F315350.01</b> |
| Softsynchro® 4                                  | 41          | <b>F315450.01</b> |



# Speedsynchro® Modular

Montagevorrichtung  
Assembly device



Für Spannzangen-Aufnahmen mit integrierter Übersetzung  
For collet holders with integrated transmission

Speedsynchro® Modular

F3741909

# Speedsynchro® Mini

Montagevorrichtung  
Assembly device



Für Spannzangen-Aufnahmen mit integrierter Übersetzung  
For collet holders with integrated transmission

Speedsynchro® Mini

F3720900

Product  
Finder

Soft-  
synchro

Speed-  
synchro

KSN

MQL  
MMS

SFM

SWITCH-  
MASTER

HF

EM

Zubehör  
Accessories

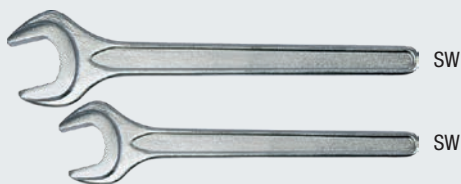


- Product Finder
- Softsynchro
- Speedsynchro
- KSN
- MQL MMS
- SFM
- SWITCH-MASTER
- HF
- EM
- Zubehör Accessories

**Softsynchro® Micro, Softsynchro® 0**  
**Softsynchro® 0/Slim, Softsynchro® 1/Slim**  
**KSN 1/HD/ER**  
**EM 00-L/ER/IKZ - EM 03-L/ER/IKZ**



**Softsynchro® 1**



**Softsynchro® 3, Softsynchro® 4**  
**KSN 3/HD/ER**



**Softsynchro® 5**



**Hi-Q/ER 11, Hi-Q/ERC 20**



**Hi-Q/ERC 32, Hi-Q/ERC 40**



| Spannschlüsselsätze für Spannzangen-Aufnahmen<br>Sets of clamping wrenches for collet holders |                                     | Bestandteile<br>Components |                   |
|---|-------------------------------------|----------------------------|-------------------|
| <b>Softsynchro®</b>   | Softsynchro® Micro                  | E8M / SW8                  | <b>F315098.03</b> |
|   | Softsynchro® 0, Softsynchro® 0/Slim | E11M / SW14                | <b>F315098.02</b> |
|   | Softsynchro® 1                      | SW30 / SW19                | <b>F315198.02</b> |
|   | Softsynchro® 1/Slim                 | E16M / SW17                | <b>F350198.01</b> |
|   | Softsynchro® 3                      | E32 / SW32                 | <b>F315398.01</b> |
| <b>KSN/HD/ER</b>  | Softsynchro® 4                      | E40 / SW41                 | <b>F315498.01</b> |
|   | KSN 1/HD/ER                         | E20M / SW24                | <b>F323198.01</b> |
| <b>EM-L/ER</b>  | KSN 3/HD/ER                         | E32 / SW34                 | <b>F323398.01</b> |
|   | EM 00-L/ER/IKZ                      | E11M / SW11                | <b>F350098.01</b> |
|   | EM 01-L/ER/IKZ                      | E16M / SW17                | <b>F350198.01</b> |
|   | EM 03-L/ER/IKZ                      | E25M / SW26                | <b>F350398.01</b> |

| Spannschlüssel für Spannmuttern<br>Clamping wrenches for clamping nuts |                 | Bestandteile<br>Components |                       |
|--|-----------------|----------------------------|-----------------------|
| <b>Hi-Q/ER</b>   | Hi-Q/ERM 8      | E8M                        | <b>QB002005.0080</b>  |
|  | Hi-Q/ERC 11     | SW17                       | <b>QB002002.00170</b> |
|  | Hi-Q/ERM 11     | E11M                       | <b>QB002005.0110</b>  |
|  | Hi-Q/ERM 16     | E16M                       | <b>QB002005.0160</b>  |
|  | Hi-Q/ERC 20     | SW30                       | <b>QB002002.00300</b> |
|  | Hi-Q/ERC 32     | E32                        | <b>QB002003.0320</b>  |
|  | Hi-Q/ERC 40     | E40                        | <b>QB002003.0400</b>  |
|  | Hi-Q/ERBC 50 EF | E50                        | <b>F315598.02</b>     |

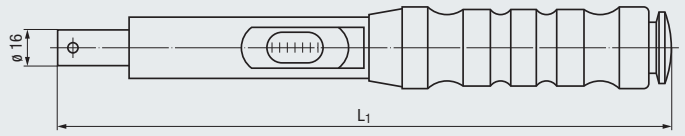


# HAZET TORCO-FIX

Drehmomentschlüssel  
Torque wrenches



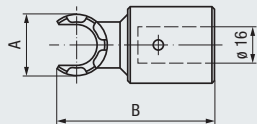
Abb. ähnlich  
Similar to



| Typ<br>Type   | Drehmoment<br>Torque<br>[Nm] | $L_1$ | QR Code         |
|---------------|------------------------------|-------|-----------------|
| HAZET 6280    | 2 - 10                       | 183   |                 |
| TORCO-FIX 0   | 5 - 25                       | 290   | <b>F0908002</b> |
| TORCO-FIX I   | 10 - 50                      | 335   | <b>F0908005</b> |
| TORCO-FIX II  | 40 - 200                     | 465   | <b>F0908020</b> |
| TORCO-FIX III | 60 - 300                     | 565   | <b>F0908060</b> |

## A-EM

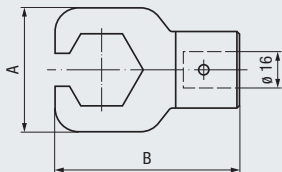
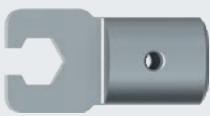
Aufsteckschlüssel  
Shell-type wrenches



| Typ<br>Type     | Für Spannmutter<br>For clamping nut | TORCO-FIX | A    | B  | QR Code               |
|-----------------|-------------------------------------|-----------|------|----|-----------------------|
| <b>A-E 8 M</b>  | Hi-Q/ERM 8                          | 0         | 12,4 | 53 |                       |
| <b>A-E 11 M</b> | Hi-Q/ERMC 11, Hi-Q/ERM 11           | 0         | 16,8 | 54 | <b>F0908500.AE11M</b> |
| <b>A-E 16 M</b> | Hi-Q/ERMC 16                        | I         | 22,5 | 56 | <b>F0908500.AE16M</b> |
| <b>A-E 20 M</b> | Hi-Q/ERMC 20                        | I         | 29   | 68 | <b>F0908500.AE20M</b> |
| <b>A-E 25 M</b> | Hi-Q/ERMC 25                        | I         | 36   | 70 | <b>F0908500.AE25M</b> |

## A-EP

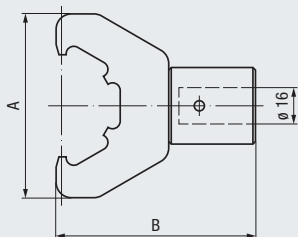
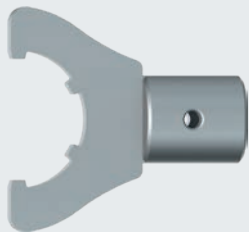
Aufsteckschlüssel  
Shell-type wrenches



| Typ<br>Type     | Für Spannmutter<br>For clamping nut | TORCO-FIX | A  | B  | QR Code               |
|-----------------|-------------------------------------|-----------|----|----|-----------------------|
| <b>A-E 11 P</b> | Hi-Q/ERC 11, Hi-Q/ER 11             | 0         | 32 | 61 |                       |
| <b>A-E 16 P</b> | Hi-Q/ERC 16                         | I         | 44 | 71 | <b>F0908500.AE16P</b> |
| <b>A-E 20 P</b> | Hi-Q/ERC 20                         | I         | 52 | 81 | <b>F0908500.AE20P</b> |

## A-E

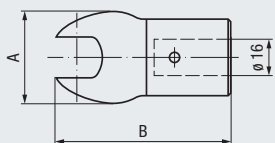
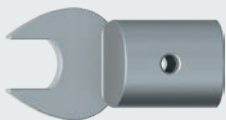
Aufsteckschlüssel  
Shell-type wrenches



| Typ<br>Type   | Für Spannmutter<br>For clamping nut | TORCO-FIX | A   | B  | QR Code              |
|---------------|-------------------------------------|-----------|-----|----|----------------------|
| <b>A-E 25</b> | Hi-Q/ERC 25                         | II, III   | 70  | 72 |                      |
| <b>A-E 32</b> | Hi-Q/ERC 32                         | II, III   | 80  | 72 | <b>F0908500.AE32</b> |
| <b>A-E 40</b> | Hi-Q/ERC 40                         | III       | 96  | 82 | <b>F0908500.AE40</b> |
| <b>A-E 50</b> | Hi-Q/ERBC 50                        | III       | 111 | 94 | <b>F0908500.AE50</b> |

## A-SW

Aufsteckschlüssel  
Shell-type wrenches



| Typ<br>Type    | Größe für<br>Spezial-Schaftverlängerung<br>Size for<br>special shank extension | HAZET /<br>TORCO-FIX | A    | B  | QR Code            |
|----------------|--|----------------------|------|----|--------------------|
| <b>A-SW 6</b>  | 01   | HAZET                | 16,5 | 53 |                    |
| <b>A-SW 8</b>  | 02   | HAZET                | 20,5 | 55 | <b>F0908500.08</b> |
| <b>A-SW 9</b>  | 03, 04   | HAZET                | 20,5 | 55 | <b>F0908500.09</b> |
| <b>A-SW 12</b> | 05, 06   | HAZET                | 29   | 57 | <b>F0908500.12</b> |
| <b>A-SW 13</b> | 07   | HAZET                | 34,5 | 59 | <b>F0908500.13</b> |
| <b>A-SW 15</b> | 08, 09   | HAZET, 0             | 34,5 | 59 | <b>F0908500.15</b> |
| <b>A-SW 18</b> | 10, 11   | I                    | 41,5 | 59 | <b>F0908500.18</b> |
| <b>A-SW 22</b> | 12, 13   | I                    | 56   | 64 | <b>F0908500.22</b> |
| <b>A-SW 26</b> | 14   | II                   | 56   | 64 | <b>F0908500.26</b> |
| <b>A-SW 28</b> | 15   | II                   | 68   | 65 | <b>F0908500.28</b> |
| <b>A-SW 30</b> | 16   | II                   | 68   | 65 | <b>F0908500.30</b> |
| <b>A-SW 36</b> | 17   | II                   | 68   | 65 | <b>F0908500.36</b> |

Product  
Finder

Soft-  
synchro

Speed-  
synchro

KSN

MQL  
MMS

SF

SWITCH-  
MASTER

HF

EM

Zubehör  
Accessories



### DEU

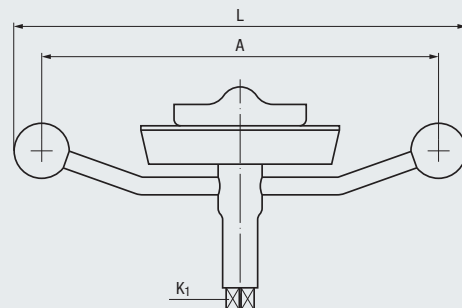
**Einarmiger Drehmomentschlüssel**  
Single-armed torque wrench



| Typ<br>Type | Für Einsatzgröße<br>For adapter size | Drehmoment<br>Torque<br>[Nm] | Messbereich<br>Measuring range | A    | L    | K <sub>1</sub> |          |
|-------------|--------------------------------------|------------------------------|--------------------------------|------|------|----------------|----------|
| DEU-00/1    | 00                                   | 0 - 6                        | M2 - M6 (Nr.2 - Nr.12)         | 220  | 260  | 1/4"           | F0900001 |
| DEU-00/1    | 00/01 (03)                           | 3 - 25                       | M6 - M12 (Nr.10 - 7/16)        | 200  | 245  | 3/8"           | F0900004 |
| DEU-10/1    | 03/04                                | 20 - 200                     | M12 - M27 (7/16 - 1")          | 410  | 500  | 1/2"           | F0901002 |
| DEU-20/1    | 04/05                                | 70 - 700                     | M24 - M52 (7/8 - 1 3/4)        | 1150 | 1260 | 3/4"           | F0902002 |

### DEU

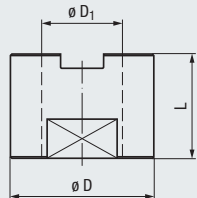
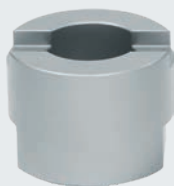
**Zweiarmiger Drehmomentschlüssel**  
Double-armed torque wrench



| Typ<br>Type | Für Einsatzgröße<br>For adapter size | Drehmoment<br>Torque<br>[Nm] | Messbereich<br>Measuring range | A    | L    | K <sub>1</sub> |          |
|-------------|--------------------------------------|------------------------------|--------------------------------|------|------|----------------|----------|
| DEU-00      | 00/01 (03)                           | 3 - 23                       | M6 - M12 (Nr.10 - 7/16)        | 180  | 205  | 3/8"           | F0900000 |
| DEU-10      | 03/04                                | 20 - 180                     | M12 - M27 (7/16 - 1")          | 620  | 656  | 1/2"           | F0901000 |
| DEU-20      | 04/05                                | 70 - 700                     | M24 - M52 (7/8 - 1 3/4)        | 1150 | 1300 | 3/4"           | F0902000 |

### AEU

**Aufnahmekopf**  
Adapter head

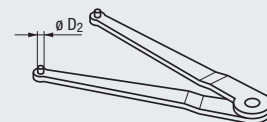


| Typ<br>Type | Für Einsatzgröße<br>For adapter size | ø D | ø D <sub>1</sub> | L  |          |
|-------------|--------------------------------------|-----|------------------|----|----------|
| AEU-00      | 00                                   | 25  | 13               | 25 | F0920000 |
| AEU-01      | 01                                   | 35  | 19               | 28 | F0921000 |
| AEU-03      | 03                                   | 55  | 31               | 40 | F0923000 |
| AEU-04      | 04                                   | 75  | 48               | 60 | F0924000 |
| AEU-05      | 05                                   | 100 | 60               | 70 | F0925000 |



### VS

**Stirnlochschlüssel**  
Spanner with pins



| Typ<br>Type | Für Einsatzgröße<br>For adapter size | ø D <sub>2</sub> |          |
|-------------|--------------------------------------|------------------|----------|
| VS-00       | 00                                   | 2                | F0930000 |
| VS-01       | 01                                   | 2,5              | F0931000 |
| VS-03       | 03                                   | 4                | F0933000 |
| VS-04       | 04                                   | 5                | F0934000 |
| VS-05       | 05                                   | 6                | F0935000 |



Der Aufnahmekopf dient zur Aufnahme der Schnellwechsel-Einsätze und wird mit seiner Schlüssel­fläche in einen Schraubstock gespannt  
The adapter head serves for holding the quick-change adapters and features clamping flats for holding in a vise






## VEU

Vierkantbolzen  
Square pin



| Typ<br>Type | Für Drehmomentschlüssel<br>For torque wrench | K <sub>1</sub><br>inch | ∅ D <sub>2</sub><br>mm | K <sub>2</sub><br>mm |  |
|-------------|--|------------------------|------------------------|----------------------|---|
| VEU-00      | DEU-00                                       | 3/8"                   | 2,5                    | 2,1                  | F0910100  |
|             |  |                        | 2,8                    | 2,1                  | F0910101  |
|             |  |                        | 3,5                    | 2,7                  | F0910102  |
|             |  |                        | 4                      | 3                    | F0910103  |
|             |  |                        | 4,5                    | 3,4                  | F0910104  |
|             |  |                        | 6                      | 4,9                  | F0910106  |
|             |  |                        | 7                      | 5,5                  | F0910107  |
|             |  |                        | 8                      | 6,2                  | F0910108  |
|             |  |                        | 9                      | 7                    | F0910109  |
|             |  |                        | 10                     | 8                    | F0910110  |
|             |  |                        | 11                     | 9                    | F0910111  |
|             |  |                        | 12                     | 9                    | F0910112  |
|             |  |                        | 14                     | 11                   | F0910113  |
|             |  |                        | 16                     | 12                   | F0910114  |
|             |  |                        | 18                     | 14,5                 | F0910115  |
| VEU-10      | DEU-10                                       | 1/2"                   | 4,5                    | 3,4                  | F0911104  |
|             |  |                        | 6                      | 4,9                  | F0911106  |
|             |  |                        | 7                      | 5,5                  | F0911107  |
|             |  |                        | 8                      | 6,2                  | F0911108  |
|             |  |                        | 9                      | 7                    | F0911109  |
|             |  |                        | 10                     | 8                    | F0911110  |
|             |  |                        | 11                     | 9                    | F0911111  |
|             |  |                        | 12                     | 9                    | F0911112  |
|             |  |                        | 14                     | 11                   | F0911113  |
|             |  |                        | 16                     | 12                   | F0911114  |
|             |  |                        | 18                     | 14,5                 | F0911115  |
|             |  |                        | 20                     | 16                   | F0911116  |
|             |  |                        | 22                     | 18                   | F0911117  |
|             |  |                        | 25                     | 20                   | F0911118  |
|             |  |                        | 28                     | 22                   | F0911119  |
| 32          | 24   | F0911120               |                        |                      |   |
| 36          | 29   | F0911121               |                        |                      |   |
| VEU-20      | DEU-20                                       | 3/4"                   | 18                     | 14,5                 | F0912115  |
|             |  |                        | 20                     | 16                   | F0912116  |
|             |  |                        | 22                     | 18                   | F0912117  |
|             |  |                        | 25                     | 20                   | F0912118  |
|             |  |                        | 28                     | 22                   | F0912119  |
|             |  |                        | 32                     | 24                   | F0912120  |
|             |  |                        | 36                     | 29                   | F0912121  |
|             |  |                        | 40                     | 32                   | F0912122  |
| 45          | 35   | F0912123               |                        |                      |   |

Diese Vierkantbolzen stellen die Verbindung zwischen Drehmomentschlüssel und Schnellwechsel-Einsatz her, wobei das Vierkant K<sub>1</sub> in das Vierkant des Drehmomentschlüssels eingesteckt und der Schaft D<sub>2</sub> mit Vierkant K<sub>2</sub> in den Einsatz eingespannt wird.  
These square pins establish the connection between torque wrench and adapter: the square K<sub>1</sub> is inserted into the square seat of the torque wrench, and the shank end D<sub>2</sub> with square K<sub>2</sub> is clamped in the adapter.

Product  
FinderSoft-  
synchroSpeed-  
synchro

KSN

MQL  
MMS

SFM

SWITCH-  
MASTER

HF

EM

Zubehör  
Accessories

### Einstellen und Prüfen der Überlastkupplung von Schnellwechsel-Einsätzen der Typen EM-U, EM-UL und HF:

Grundsätzlich richtet sich das einzustellende Drehmoment nach

- Abmessung
- Geometrie und Beschichtung des Werkzeuges
- Zu bearbeitender Werkstoff
- Art und Qualität des Kühlschmierstoffes
- Kernlochdurchmesser

Die Tabelle zeigt Richtwerte zum Gewindebohren in Stahl mit einer Zugfestigkeit von 600-800 N/mm<sup>2</sup>.

Eventuell müssen die Einstellwerte dem jeweiligen Bearbeitungsfall angepasst werden (z.B. beim Gewindeformen).

| Drehmoment<br>Torque | Gewindesystem<br>Thread system |        |        |      |       |         |             |             |              |    |
|----------------------|--------------------------------|--------|--------|------|-------|---------|-------------|-------------|--------------|----|
|                      | Nm                             | M      | UNC    | UNF  | BSW   | BSF     | G<br>(Whw.) | NPT<br>NPTF | Rc<br>(BSPT) | Pg |
| 0,3                  | M2                             | Nr. 2  | Nr. 2  |      |       |         |             |             |              |    |
| 0,4                  | M2,5                           |        | Nr. 3  |      |       |         |             |             |              |    |
| 0,5                  |                                | Nr. 3  | Nr. 4  |      |       |         |             |             |              |    |
| 0,6                  | M3                             |        |        |      |       |         |             |             |              |    |
| 0,8                  |                                | Nr. 4  | Nr. 5  |      |       |         |             |             |              |    |
| 1                    | M3,5                           | Nr. 5  | Nr. 6  | 1/8  |       |         |             |             |              |    |
| 1,2                  |                                | Nr. 6  | Nr. 8  |      |       |         |             |             |              |    |
| 1,6                  | M4                             | Nr. 8  |        | 5/32 |       |         |             |             |              |    |
| 2                    |                                |        | Nr. 10 |      |       |         |             |             |              |    |
| 2,5                  | M5                             |        | Nr. 12 |      | 3/16  |         |             |             |              |    |
| 3                    |                                | Nr. 10 | 1/4    |      |       |         |             |             |              |    |
| 4                    |                                | Nr. 12 |        | 3/16 | 7/32  |         |             |             |              |    |
| 5                    | M6                             |        | 5/16   | 7/32 | 1/4   |         |             |             |              |    |
| 6                    |                                | 1/4    | 3/8    | 1/4  | 9/32  | G 1/8   |             |             |              |    |
| 8                    |                                |        |        | 5/16 |       |         |             |             |              |    |
| 10                   | M8                             | 5/16   | 7/16   | 5/16 |       |         |             |             |              |    |
| 12                   |                                |        | 1/2    |      | 3/8   |         |             |             |              |    |
| 16                   |                                | 3/8    |        | 3/8  |       |         | 1/16        | Rc 1/16     | Pg 7         |    |
| 18                   | M10                            |        | 9/16   |      | 7/16  | G 1/4   |             |             |              |    |
| 20                   |                                |        | 5/8    |      |       |         |             |             |              |    |
| 22                   |                                | 7/16   |        | 7/16 |       | G 3/8   |             |             | Pg 9         |    |
| 25                   | M12                            |        |        |      | 1/2   |         | 1/8         | Rc 1/8      | Pg 11        |    |
| 28                   |                                |        |        |      |       |         |             |             | Pg 13,5      |    |
| 32                   |                                | 1/2    | 3/4    | 1/2  | 9/16  |         |             |             | Pg 16        |    |
| 40                   |                                | 9/16   |        | 9/16 | 5/8   |         |             |             |              |    |
| 45                   | M14                            |        | 7/8    |      | 11/16 |         |             |             | Pg 21        |    |
| 50                   | M16                            | 5/8    |        | 5/8  |       | G 1/2   |             |             |              |    |
| 56                   |                                |        |        |      |       | G 5/8   |             | Rc 1/4      |              |    |
| 63                   |                                |        |        |      |       |         | 1/4         |             | Pg 29        |    |
| 70                   |                                | 3/4    | 1"     | 3/4  | 3/4   | G 3/4   |             |             |              |    |
| 80                   | M18                            |        | 1 1/8  |      | 13/16 | G 7/8   |             |             | Pg 36        |    |
| 90                   | M20                            |        | 1 1/4  |      | 7/8   |         | 3/8         | Rc 3/8      | Pg 42        |    |
| 100                  | M22                            | 7/8    | 1 3/8  | 7/8  |       |         |             |             | Pg 48        |    |
| 110                  |                                |        | 1 1/2  |      |       |         |             |             |              |    |
| 125                  |                                |        |        |      | 1"    |         |             |             |              |    |
| 140                  | M24                            | 1"     |        | 1"   |       | G 1"    |             |             |              |    |
| 160                  | M27                            |        |        |      |       | G 1 1/8 | 1/2         | Rc 1/2      |              |    |
| 180                  |                                |        |        |      |       | G 1 1/4 |             |             |              |    |
| 200                  |                                |        |        |      |       | G 1 3/8 | 3/4         | Rc 3/4      |              |    |

### Setting and checking of the overload clutch on quick-change adapters of types EM-U, EM-UL and HF:

Generally speaking, the torque to be set depends on

- Size
- Geometry and coating of the tool
- Workpiece material
- Type and quality of the coolant-lubricant
- Drilled hole diameter

The table contains standard values for thread cutting in steel with a tensile strength of 600-800 N/mm<sup>2</sup>.

These values generally need to be adjusted to the individual work case (e.g. for cold-forming of threads).

| Drehmoment<br>Torque | Gewindesystem<br>Thread system |       |     |     |       |       |             |             |              |    |
|----------------------|--------------------------------|-------|-----|-----|-------|-------|-------------|-------------|--------------|----|
|                      | Nm                             | M     | UNC | UNF | BSW   | BSF   | G<br>(Whw.) | NPT<br>NPTF | Rc<br>(BSPT) | Pg |
| 220                  | M30                            | 1 1/8 |     |     | 1 1/8 |       | G 1 1/2     |             |              |    |
| 240                  | M33                            | 1 1/4 |     |     | 1 1/4 |       | G 1 3/4     |             |              |    |
| 260                  |                                |       |     |     |       | 1 3/8 | G 2"        |             |              |    |
| 280                  | M36                            |       |     |     |       |       |             |             |              |    |
| 300                  |                                |       |     |     |       | 1 1/2 | G 2 1/4     |             |              |    |
| 320                  | M39                            |       |     |     |       | 1 5/8 |             |             |              |    |
| 340                  |                                | 1 3/8 |     |     | 1 3/8 |       | G 2 1/2     | 1"          | Rc 1"        |    |
| 360                  |                                | 1 1/2 |     |     | 1 1/2 |       | G 2 3/4     |             |              |    |
| 400                  | M42                            |       |     |     |       |       | G 3"        |             |              |    |
| 420                  | M45                            |       |     |     |       |       | G 3 1/4     |             |              |    |
| 450                  |                                |       |     |     |       | 1 3/4 | G 3 1/2     | 1 1/4       | Rc 1 1/4     |    |
| 480                  |                                |       |     |     |       |       | G 3 3/4     |             |              |    |
| 500                  |                                |       |     |     |       | 2"    | G 4"        |             |              |    |
| 560                  | M48                            |       |     |     | 1 5/8 |       |             | 1 1/2       | Rc 1 1/2     |    |
| 630                  | M52                            | 1 3/4 |     |     | 1 3/4 |       |             |             |              |    |
| 710                  | M56                            |       |     |     |       | 2 1/4 |             | 2"          | Rc 2"        |    |
| 800                  | M60                            |       |     |     | 1 7/8 | 2 1/2 |             |             |              |    |
| 900                  | M64                            |       |     |     |       | 2 3/4 |             |             |              |    |
| 1000                 | M68                            | 2"    |     |     | 2"    |       |             |             |              |    |
| 1100                 |                                | 2 1/4 |     |     | 2 1/4 | 3"    |             |             |              |    |
| 1170                 | M72                            |       |     |     |       |       |             |             |              |    |
| 1230                 | M76                            |       |     |     |       |       |             |             |              |    |
| 1300                 | M80                            |       |     |     |       |       |             |             |              |    |
| 1380                 | M85                            |       |     |     |       |       |             |             |              |    |
| 1400                 |                                | 2 1/2 |     |     | 2 1/2 |       |             | 2 1/2       | Rc 2 1/2     |    |
| 1460                 | M90                            |       |     |     |       |       |             |             |              |    |
| 1540                 | M95                            |       |     |     |       |       |             |             |              |    |
| 1620                 | M100                           |       |     |     |       |       |             |             |              |    |
| 1700                 | M105                           |       |     |     |       |       |             |             |              |    |
| 1780                 | M110                           |       |     |     |       |       |             |             |              |    |
| 1860                 | M115                           |       |     |     |       |       |             |             |              |    |
| 1940                 | M120                           |       |     |     |       |       |             |             |              |    |
| 2000                 |                                | 2 3/4 |     |     | 2 3/4 |       |             | 3"          | Rc 3"        |    |
| 2020                 | M125                           |       |     |     |       |       |             |             |              |    |
| 2110                 | M130                           |       |     |     |       |       |             |             |              |    |
| 2200                 |                                |       |     |     | 3"    |       |             |             |              |    |
| 2270                 | M140                           |       |     |     |       |       |             |             |              |    |
| 2430                 | M150                           |       |     |     |       |       |             |             |              |    |
| 2680                 | M160                           |       |     |     |       |       |             |             |              |    |





|  | R <sub>m</sub><br>[N/mm <sup>2</sup> ] | Rockwell<br>[HRC] | Mat.-Nr. | DIN               | AFNOR                          | BS                  | EN  |
|--|--|-------------------|----------|-------------------|--------------------------------|---------------------|-----|
| <b>P Automatenstähle · Free-cutting steels</b>               |  |                   |          |                   |                                |                     |     |
| 1.1  | > 500                                  |                   | 1.0711   | 9S20              | -                              | 220 M 07            | -   |
| 1.1  | 380 - 570                              |                   | 1.0715   | 9SMn28            | S 250                          | 230 M 07            | -   |
| 1.1  | 380 - 570                              |                   | 1.0718   | 9SMnPb28          | S 250 Pb                       | -                   | -   |
| 1.1  | 360 - 530                              |                   | 1.0721   | 10S20             | 10 F 1                         | 210 M 15            | -   |
| 1.1  | 360 - 530                              |                   | 1.0722   | 10SPb20           | 10 PbF 2                       | -                   | -   |
| 1.1  | 380 - 570                              |                   | 1.0723   | 15S20             | -                              | 210 A 15            | -   |
| 1.1  | 390 - 590                              |                   | 1.0736   | 9SMn36            | S 300                          | 240 M 07            | 1B  |
| 1.1  | 390 - 580                              |                   | 1.0737   | 9SMnPb36          | S 300 Pb                       | -                   | -   |
| 2.1  | 580 - 730                              |                   | 1.0726   | 35S20             | 35 MF 4                        | 212 M 36            | 8M  |
| 2.1  | 660 - 800                              |                   | 1.0727   | 45S20             | 45 MF 4                        | 212 M 44            | -   |
| 2.1  | 740 - 880                              |                   | 1.0728   | 60S20             | 60 MF 4                        | -                   | -   |
| 2.1  | 560 - 760                              |                   | 1.0757   | 46SPb20           | -                              | -                   | -   |
| <b>P Baustähle legiert · Alloyed construction steels</b>     |  |                   |          |                   |                                |                     |     |
| 1.1  | 440 - 590                              |                   | 1.5415   | 15Mo3             | 15 D 3                         | 1501-240            | -   |
| 1.1  | 450 - 590                              |                   | 1.5423   | 16Mo5             | -                              | 1503-245-420        | -   |
| 2.1  | 490 - 640                              |                   | 1.5622   | 14Ni6             | 16 N 6                         | -                   | -   |
| 2.1  | 530 - 710                              |                   | 1.5680   | 12Ni19            | Z 18 N 5                       | -                   | -   |
| 2.1  | 450 - 660                              |                   | 1.7335   | 13CrMo4-4         | 15 CD 3.5                      | 1501-620 Gr. 27     | -   |
| 2.1  | 540 - 690                              |                   | 1.7337   | 16CrMo4-4         | 15 CD 4.5                      | 1501-620 Gr. 27     | -   |
| 2.1  | 480 - 630                              |                   | 1.7380   | 10CrMo9-10        | 10 CD 9.10                     | 1501-622 Gr. 31; 45 | -   |
| 2.1  | 490 - 640                              |                   | 1.7715   | 14MoV6-3          | 14 Mo 6                        | 1503-660-440        | -   |
| 3.1  | 700 - 850                              |                   | 1.7709   | 21CrMoV5-7        | -                              | -                   | -   |
| <b>P Baustähle unlegiert / Unalloyed construction steels</b> |  |                   |          |                   |                                |                     |     |
| 1.1  | > 500                                  |                   | 1.0037   | S235JR (St37-2)   | -                              | -                   | -   |
| 1.1  | 410 - 560                              |                   | 1.0044   | S275JR (St44-2)   | E 28-2                         | 4360-43 B           | -   |
| 1.1  | 340 - 470                              |                   | 1.0116   | S235J2G3 (St37-3) | E 24-3; E 24-4                 | 4360-40 C           | -   |
| 1.1  | 410 - 560                              |                   | 1.0144   | S275J2G3 (St44-3) | E 28-3; E 28-4                 | 4360-43 C           | -   |
| 1.1  | 340 - 470                              |                   | 1.0038   | S235JR (RSt37-2)  | E24-2 Ne                       | 4360 40C            | 1A  |
| 1.1  | 450 - 630                              |                   | 1.0577   | S235J2            | A 52 FP                        | -                   | -   |
| 1.1  | 430 - 580                              |                   | 1.0481   | 17Mn4             | -                              | -                   | -   |
| 1.1  | <540                                   |                   | 1.0460   | C22G2             | -                              | P250GH              | -   |
| 1.1  | 450 - 630                              |                   | 1.0566   | P355NL1           | A510FP                         | 225-490A            | -   |
| 1.1  | 470 - 630                              |                   | 1.0571   | P355QH1           | P355QH1                        | P355QH1             | -   |
| 2.1  | 470 - 610                              |                   | 1.0050   | E295 (St50-2)     | A 50-2                         | 4360-50 B           | -   |
| 2.1  | 490 - 630                              |                   | 1.0570   | S355 (St52-3)     | E 36-3; E 36-4                 | 4360-50 B           | -   |
| 2.1  | 570 - 710                              |                   | 1.0060   | E335 (St60-2)     | A 60-2                         | 4360-SSE; SS        | -   |
| <b>P Feinkornbaustahl · fine-grain structural steel</b>      |  |                   |          |                   |                                |                     |     |
| 3.1  | 770 - 940                              |                   | 1.8988   | S690QL            | K21650, K21640, K11856, K11646 | -                   | -   |
| <b>P Stahlguss · Steel castings</b>                          |  |                   |          |                   |                                |                     |     |
| 1.1  | 586                                    |                   | 1.1155   | GS-Ck25           | -                              | -                   | -   |
| 1.1  | 450 - 560                              |                   | 1.0446   | GS-45             | -                              | -                   | -   |
| 1.1  | 520 - 650                              |                   | 1.0552   | GS-52             | -                              | -                   | -   |
| 1.1  | 420 - 600                              |                   | 1.0619   | GS-C25            | -                              | -                   | -   |
| 1.1  | 450 - 600                              |                   | 1.1131   | GS-16Mn5          | -                              | -                   | -   |
| 2.1  | > 380                                  |                   | 1.0420   | GS-38             | -                              | AM 1                | -   |
| 2.1  | 700 - 800                              |                   | 1.1118   | GS-24Mn6          | -                              | -                   | -   |
| 2.1  | 480 - 620                              |                   | 1.1120   | GS-20Mn5          | -                              | -                   | -   |
| 2.1  | > 500                                  |                   | 1.5419   | GS-22Mo4          | -                              | 245                 | -   |
| 2.1  | > 500                                  |                   | 1.5633   | GS-24Ni8          | -                              | -                   | -   |
| 2.1  | > 500                                  |                   | 1.5681   | GS-10Ni19         | -                              | -                   | -   |
| 2.1  | > 500                                  |                   | 1.6309   | GS-20MnMoNi5-5    | -                              | -                   | -   |
| 2.1  | 490 - 640                              |                   | 1.7357   | GS-17CrMo5-5      | -                              | 621                 | -   |
| 2.1  | > 500                                  |                   | 1.7379   | GS-18CrMo9-10     | -                              | 622                 | -   |
| 2.1  | 600 - 730                              |                   | 1.0558   | GS-60             | -                              | -                   | -   |
| 2.1  | 650 - 880                              |                   | 1.1138   | GS-21Mn5          | -                              | -                   | -   |
| 3.1  | 840                                    |                   | 1.1142   | GS-Ck16           | -                              | -                   | -   |
| 3.1  | < 850                                  |                   | 1.6582   | GS-34CrNiMo6      | -                              | -                   | 24  |
| 3.1  | > 800                                  |                   | 1.6748   | GS-40NiCrMo6-5-6  | -                              | -                   | -   |
| 3.1  | > 800                                  |                   | 1.6750   | GS-20NiCrMo3-7    | -                              | -                   | -   |
| 3.1  | > 800                                  |                   | 1.6760   | GS-22NiMoCr5-6    | -                              | -                   | -   |
| <b>P Einsatzstähle / Case-hardening steels</b>               |  |                   |          |                   |                                |                     |     |
| 1.1  | < 500                                  |                   | 1.0301   | C10               | AF 34 C 10; XC 10              | 045 M 10            | -   |
| 1.1  | < 500                                  |                   | 1.0401   | C15               | AF 34 C 12; XC 18              | 080 M 15            | -   |
| 1.1  | < 500                                  |                   | 1.0402   | C22               | CC20                           | 050 A 20            | 2C  |
| 1.1  | < 500                                  |                   | 1.1121   | CK10              | XC 10                          | 045 M 10            | -   |
| 1.1  | < 500                                  |                   | 1.1141   | CK15              | XC 15; XC 18                   | 080 M 15            | 32C |
| 1.1  | < 500                                  |                   | 1.7012   | 13Cr2             | -                              | -                   | -   |
| 2.1  | 500 - 700                              |                   | 1.7015   | 15Cr3             | 12 C 3                         | 523 M 15            | -   |
| 2.1  | 500 - 700                              |                   | 1.5732   | 14NiCr10          | 14 NC 11                       | -                   | -   |
| 2.1  | 500 - 700                              | < 24              | 1.7311   | 20CrMo2           | -                              | -                   | -   |
| 3.1  | 700 - 850                              | < 24              | 1.5752   | 14NiCr14          | 12 NC 15                       | 655 M 13            | 36A |
| 3.1  | 700 - 850                              | < 24              | 1.5860   | 14NiCr18          | -                              | -                   | -   |
| 3.1  | 700 - 850                              | < 24              | 1.5919   | 15CrNi6           | 16 NC 6                        | S 107               | -   |
| 3.1  | 700 - 850                              | < 24              | 1.5920   | 18NiCr8           | 20 NC 6                        | -                   | -   |
| 3.1  | 700 - 850                              | < 24              | 1.6523   | 21NiCrMo2         | 20 NCD 2                       | 805 M 20            | 362 |



|  | UNI            | UNE       | JIS             | SIS        | AISI/SAE/ASTM   |          |
|--|----------------|-----------|-----------------|------------|-----------------|----------|
|  |                |           |                 |            |                 | <b>P</b> |
|  | CF 9 S 22      | -         | SUM 21          | -          | 1212            | 1.1      |
|  | CF 9 SMn 28    | 11SMn28   | SUM 22          | 1912       | 1213            | 1.1      |
|  | CF 9 SMnPb 2   | 11SMnPb28 | SUM 22 L        | 1914       | 12 L 13         | 1.1      |
|  | CF 10 S 20     | 10S20     | -               | -          | 1108            | 1.1      |
|  | CF 10 SPb 20   | 10SPb20   | -               | -          | 11 L 08         | 1.1      |
|  | -              | F.210.F   | SUM 32          | 1922       | -               | 1.1      |
|  | CF 9 SMn 36    | 12SMn36   | -               | -          | 1215            | 1.1      |
|  | CF 9 SMnPb 36  | 12SMnPb36 | -               | 1926       | 12 L 14         | 1.1      |
|  | -              | F210G     | -               | 1957       | 1140            | 2.1      |
|  | -              | -         | -               | 1973       | 1146            | 2.1      |
|  | -              | -         | -               | -          | -               | 2.1      |
|  | -              | -         | -               | -          | -               | 2.1      |
|  |                |           |                 |            |                 | <b>P</b> |
|  | 16 Mo 3        | 16Mo3     | -               | 2912       | A 204; Gr. A    | 1.1      |
|  | 16 Mo 5        | 16Mo5     | -               | -          | 4520            | 1.1      |
|  | 14 Ni 6        | 15Ni6     | -               | -          | A 350-LF 5      | 2.1      |
|  | -              | -         | -               | -          | 2515            | 2.1      |
|  | 14 CrMo 4 5    | 14CrMo45  | -               | 2216       | A 182-F11; F12  | 2.1      |
|  | 15 CrMo 4 5    | -         | -               | 2216       | A 387; Gr. 12 C | 2.1      |
|  | 12 CrMo 9 10   | -         | -               | 2218       | A 182-F22       | 2.1      |
|  | -              | 13MoCrV6  | -               | -          | -               | 2.1      |
|  | -              | -         | -               | -          | -               | 3.1      |
|  |                |           |                 |            |                 | <b>P</b> |
|  | -              | -         | STKM 12 C       | -          | -               | 1.1      |
|  | Fe 430 B FN    | -         | SM 41 B         | 1412       | A 570; Gr. 40   | 1.1      |
|  | Fe 360 D FF    | -         | -               | 1312; 1313 | A 573; Gr. 58   | 1.1      |
|  | Fe 430 D FF    | -         | SM 41 C         | 1412; 1414 | A 573; Gr. 70   | 1.1      |
|  | -              | -         | STKM 12A;C      | 1311       | A570.36         | 1.1      |
|  | -              | A52RBII   | G3135           | -          | A738            | 1.1      |
|  | -              | -         | -               | -          | -               | 1.1      |
|  | -              | -         | STK500          | -          | -               | 1.1      |
|  | Fe 490         | -         | SS 50           | 2172       | A 570; Gr. 50   | 2.1      |
|  | Fe 510 B; C; D | -         | SM 50 YA        | 2132       | -               | 2.1      |
|  | Fe 590; Fe 600 | -         | SM 58           | -          | -               | 2.1      |
|  |                |           |                 |            |                 | <b>P</b> |
|  |                |           |                 |            |                 | 3.1      |
|  |                |           |                 |            |                 | <b>P</b> |
|  |                |           |                 |            |                 | 1.1      |
|  |                |           |                 |            |                 | 1.1      |
|  |                |           |                 |            |                 | 1.1      |
|  |                |           |                 |            |                 | 1.1      |
|  | -              | -         | -               | -          | A 27            | 2.1      |
|  | -              | -         | -               | -          | -               | 2.1      |
|  | -              | F.8310    | -               | -          | -               | 2.1      |
|  | -              | -         | SCPH 11         | -          | -               | 2.1      |
|  | -              | -         | -               | -          | -               | 2.1      |
|  | -              | -         | -               | -          | A 757           | 2.1      |
|  | -              | -         | -               | -          | -               | 2.1      |
|  | -              | F-8383    | SCPH 21         | -          | A 217           | 2.1      |
|  | -              | -         | SCPH 32         | -          | -               | 2.1      |
|  |                |           |                 |            |                 | 2.1      |
|  |                |           |                 |            |                 | 3.1      |
|  | -              | -         | SNCM 9          | 2541       | -               | 3.1      |
|  | -              | -         | -               | -          | -               | 3.1      |
|  | -              | -         | -               | -          | -               | 3.1      |
|  | -              | -         | -               | -          | -               | 3.1      |
|  |                |           |                 |            |                 | <b>P</b> |
|  | C 10           | -         | S 10 C          | -          | 1010            | 1.1      |
|  | C 15; C 16     | F.111     | -               | 1350       | 1015            | 1.1      |
|  | C20;C21        | F.112     | -               | 1450       | 1020            | 1.1      |
|  | C 10           | -         | S 10 C; S 9 CK  | 1265       | 1010            | 1.1      |
|  | C 15; C 16     | C15K      | S 15 C; S 15 CK | 1370       | 1015            | 1.1      |
|  | -              | -         | -               | -          | -               | 1.1      |
|  | -              | -         | SCR 415 (H)     | -          | 5015            | 2.1      |
|  | 16 NiCr 11     | 15NiCr11  | SNC 415 (H)     | -          | 3415            | 2.1      |
|  | -              | -         | -               | -          | -               | 2.1      |
|  | -              | -         | SNC 815 (H)     | -          | 3310; 9314      | 3.1      |
|  | -              | -         | -               | -          | -               | 3.1      |
|  | 16 CrNi 4      | -         | -               | -          | -               | 3.1      |
|  | -              | -         | -               | -          | -               | 3.1      |
|  | 20 NiCrMo 2    | 20NiCrMo2 | SNCM 220 (H)    | 2506       | 8620            | 3.1      |



|          | R <sub>m</sub>  | Rockwell  | Mat.-Nr.    | DIN         | AFNOR      | BS           | EN   |
|----------|---|-----------|-------------|-------------|------------|--------------|------|
|          | [N/mm <sup>2</sup> ]  | [HRC]     |             |             |            |              |      |
| 3.1      | 700 - 850   | < 24      | 1.6587      | 17CrNiMo6   | 18 NCD 6   | 820 A 16     | -    |
| 3.1      | 700 - 850   | < 24      | 1.7131      | 16MnCr5     | 16 MC 5    | 527 M 17     | -    |
| 3.1      | 700 - 850   | < 24      | 1.7139      | 16MnCrS5    | -          | -            | -    |
| 3.1      | 700 - 850   | < 24      | 1.7147      | 20MnCr5     | 20 MC 5    | -            | -    |
| 3.1      | 700 - 850   | < 24      | 1.7149      | 20MnCrS5    | -          | -            | -    |
| 3.1      | 700 - 850   | < 24      | 1.7262      | 15CrMo5     | 12 CD 4    | -            | -    |
| 3.1      | 700 - 850   | < 24      | 1.7264      | 20CrMo5     | 18 CD 4    | -            | -    |
| 3.1      | 700 - 850   | < 24      | 1.7271      | 23CrMoB3-3  | -          | -            | -    |
| 3.1      | 700 - 850   | < 24      | 1.7321      | 20MoCr4     | -          | -            | -    |
| 3.1      | 700 - 850   | < 24      | 1.7323      | 20MoCrS4    | -          | -            | -    |
| 3.1      | 700 - 850   | < 24      | 1.7325      | 25MoCr4     | -          | -            | -    |
| 3.1      | 836   |           | Böhler E108 |             | 16NCD17    | S82; S156    | 2767 |
| <b>P</b> | <b>Federstähle · Spring steels</b>                              |           |             |             |            |              |      |
| 3.1      | < 850   | < 24      | 1.0904      | 55Si7       | 55 S 7     | 250 A 53     | 45   |
| 3.1      | < 850   | < 24      | 1.0961      | 60SiCr7     | 60 SC 7    | -            | -    |
| 3.1      | < 850   | < 24      | 1.1231      | CK67        | XC 68      | 060 A 67     | -    |
| 3.1      | < 850   | < 24      | 1.1248      | CK75        | XC 75      | 060 A 78     | -    |
| 3.1      | < 850   | < 24      | 1.1274      | CK101       | XC 100     | 060 A 96     | -    |
| 3.1      | < 850   | < 24      | 1.7103      | 67SiCr5     | -          | -            | -    |
| 3.1      | < 850   | < 24      | 1.7176      | 55Cr3       | 55 C 3     | 527 A 60     | 48   |
| 3.1      | < 850   | < 24      | 1.8159      | 50CrV4      | 50 CV 4    | 735 A 50     | 47   |
| 3.1      | < 850   | < 24      | 1.5026      | 55 Si 7     | 55 S 7     | 250 A 53     | -    |
| <b>P</b> | <b>Vergütungsstähle legiert · Alloyed heat-treatable steels</b> |           |             |             |            |              |      |
| 2.1      | < 800   | < 21      | 1.1133      | 20Mn5       | 20 M 5     | 120 M 19     | -    |
| 2.1      | < 800   | < 21      | 1.7735      | 14CrMoV6-9  | 15 CDV 6   | -            | -    |
| 2.1      | < 800   | < 21      | 1.3505      | 100Cr6      | 100 C 6    | 534 A 99     | 31   |
| 2.1      | < 800   | < 21      | 1.5120      | 38MnSi4     | -          | -            | -    |
| 2.1      | < 800   | < 21      | 1.5121      | 46MnSi4     | -          | -            | -    |
| 2.1      | < 800   | < 21      | 1.5141      | 53MnSi4     | -          | -            | -    |
| 2.1      | < 800   | < 21      | 1.5710      | 36NiCr6     | 35 NC 6    | 640 A 35     | 111A |
| 2.1      | < 800   | < 21      | 1.6546      | 40NiCrMo2-2 | 40 NCD 2   | 311-Type7    | -    |
| 2.1      | < 800   | < 21      | 1.6565      | 40NiCrMo6   | -          | 311-Type6    | -    |
| 2.1      | < 800   | < 21      | 1.7003      | 38Cr2       | 38 C 2     | -            | -    |
| 2.1      | < 800   | < 21      | 1.7006      | 46Cr2       | 42 C 2     | -            | -    |
| 2.1      | < 800   | < 21      | 1.7020      | 32Cr2       | -          | -            | -    |
| 2.1      | < 800   | < 21      | 1.7030      | 28Cr4       | -          | 530 A 30     | -    |
| 2.1      | < 800   | < 21      | 1.7033      | 34Cr4       | 32 C 4     | 530 A 32     | 18B  |
| 2.1      | < 800   | < 21      | 1.7218      | 25CrMo4     | 25 CD 4 S  | 1717 CDS 110 | -    |
| 2.1      | < 800   | < 21      | 1.7220      | 34CrMo4     | 35 CD 4    | 708 A 37     | 19B  |
| 2.1      | < 800   | < 21      | 1.7223      | 41CrMo4     | 42 CD 4 TS | 708 M 40     | 19A  |
| 2.1      | < 800   | < 21      | 1.7225      | 42CrMo4     | 42 CD 4 TS | 708 M 40     | 19A  |
| 2.1      | < 800   | < 21      | 1.7228      | 50CrMo4     | -          | 708 A 47     | -    |
| 3.1      | > 800 - 1000  | > 21 - 30 | 1.7182      | 27MnCrB5-2  | -          | -            | -    |
| 3.1      | > 800 - 1000  | > 21 - 30 | 1.5532      | 38MnB5      | -          | -            | -    |
| 3.1      | > 800 - 1000  | > 21 - 30 | 1.1157      | 40Mn4       | 35 M 5     | 150 M 36     | 15   |
| 3.1      | > 800 - 1000  | > 21 - 30 | 1.1165      | 30Mn5       | 35 M 5     | 120 M 36     | -    |
| 3.1      | > 800 - 1000  | > 21 - 30 | 1.1167      | 36Mn5       | 40 M 5     | 150 M 36     | -    |
| 3.1      | > 800 - 1000  | > 21 - 30 | 1.1170      | 28Mn5       | 20 M 5     | 150 M 28     | 14A  |
| 3.1      | > 800 - 1000  | > 21 - 30 | 1.3561      | 44Cr2       | -          | -            | -    |
| 3.1      | > 800 - 1000  | > 21 - 30 | 1.3563      | 43CrMo4     | -          | -            | -    |
| 3.1      | > 800 - 1000  | > 21 - 30 | 1.3565      | 48CrMo4     | -          | 817 M 40     | -    |
| 3.1      | > 800 - 1000  | > 21 - 30 | 1.5120      | 38MnSi4     | -          | -            | -    |
| 3.1      | > 800 - 1000  | > 21 - 30 | 1.5121      | 46MnSi4     | -          | -            | -    |
| 3.1      | > 800 - 1000  | > 21 - 30 | 1.5122      | 37MnSi4     | -          | -            | -    |
| 3.1      | > 800 - 1000  | > 21 - 30 | 1.5131      | 50MnSi4     | -          | -            | -    |
| 3.1      | > 800 - 1000  | > 21 - 30 | 1.5141      | 53MnSi4     | -          | -            | -    |
| 3.1      | > 800 - 1000  | > 21 - 30 | 1.5223      | 42MnV7      | -          | -            | -    |
| 3.1      | > 800 - 1000  | > 21 - 30 | 1.5710      | 36NiCr6     | 35 NC 6    | 640 A 35     | 111A |
| 3.1      | > 800 - 1000  | > 21 - 30 | 1.5736      | 36NiCr10    | 30 NC 11   | -            | -    |
| 3.1      | > 800 - 1000  | > 21 - 30 | 1.5755      | 31NiCr14    | 18 NC 13   | 653 M 31     | -    |
| 3.1      | > 800 - 1000  | > 21 - 30 | 1.6511      | 36CrNiMo4   | 40 NCD 3   | 816 M 40     | 110  |
| 3.1      | > 800 - 1000  | > 21 - 30 | 1.6513      | 28NiCrMo4   | -          | -            | -    |
| 3.1      | > 800 - 1000  | > 21 - 30 | 1.7003      | 38Cr2       | 38 C 2     | -            | -    |
| 3.1      | > 800 - 1000  | > 21 - 30 | 1.7006      | 46Cr2       | 42 C 2     | -            | -    |
| 3.1      | > 800 - 1000  | > 21 - 30 | 1.7030      | 28Cr4       | -          | 530 A 30     | -    |
| 3.1      | > 800 - 1000  | > 21 - 30 | 1.7033      | 34Cr4       | 32 C 4     | 530 A 32     | 18B  |
| 3.1      | > 800 - 1000  | > 21 - 30 | 1.7034      | 37Cr4       | 38 C 4     | 530 A 36     | -    |
| 3.1      | > 800 - 1000  | > 21 - 30 | 1.7035      | 41Cr4       | 42 C 4     | 530 M 40     | 18   |
| 3.1      | > 800 - 1000  | > 21 - 30 | 1.7218      | 25CrMo4     | 25 CD 4 S  | 1717 CDS 110 | -    |
| 3.1      | > 800 - 1000  | > 21 - 30 | 1.7220      | 34CrMo4     | 35 CD 4    | 708 A 37     | 19B  |
| 3.1      | > 800 - 1000  | > 21 - 30 | 1.7223      | 41CrMo4     | 42 CD 4 TS | 708 M 40     | 19A  |
| 3.1      | > 800 - 1000  | > 21 - 30 | 1.7225      | 42CrMo4     | 42 CD 4 TS | 708 M 40     | 19A  |
| 3.1      | > 800 - 1000  | > 21 - 30 | 1.7228      | 50CrMo4     | -          | 708 A 47     | -    |
| 3.1      | > 800 - 1000  | > 21 - 30 | 1.7561      | 42CrV6      | -          | -            | -    |
| 3.1      | > 800 - 1000  | > 21 - 30 | 1.7735      | 14CrMoV6-9  | 15 CDV 6   | -            | -    |
| 3.1      | > 800 - 1000  | > 24 - 30 | 1.8159      | 50CrV4      | 50 CV 4    | 735 A 50     | 47   |





|          | R <sub>m</sub>  | Rockwell  |                            |              |                 |                        | EN          |
|----------|---|-----------|----------------------------|--------------|-----------------|------------------------|-------------|
|          | [N/mm <sup>2</sup> ]  | [HRC]     | Mat.-Nr.                   | DIN          | AFNOR           | BS                     |             |
| 3.1      | 800 - 1000  |           | 1.3401                     | X120Mn12     |                 |                        |             |
| 4.1      | 800 - 1300  |           | 1.7227                     | 42CrMoS4     | 42C04; 42CD4U   | 708A42; 708H37; 708M40 | EN19; EN19A |
| 5.1      | > 1000 - 1300   | > 30 - 40 | 1.3563                     | 43CrMo4      | -               | -                      | -           |
| 5.1      | > 1000 - 1300   | > 30 - 40 | 1.3565                     | 48CrMo4      | -               | 817 M 40               | -           |
| 5.1      | > 1000 - 1300   | > 30 - 40 | 1.5120                     | 38MnSi4      | -               | -                      | -           |
| 5.1      | > 1000 - 1300   | > 30 - 40 | 1.5121                     | 46MnSi4      | -               | -                      | -           |
| 5.1      | > 1000 - 1300   | > 30 - 40 | 1.5122                     | 37MnSi4      | -               | -                      | -           |
| 5.1      | > 1000 - 1300   | > 30 - 40 | 1.5223                     | 42MnV7       | -               | -                      | -           |
| 5.1      | > 1000 - 1300   | > 30 - 40 | 1.5710                     | 36NiCr6      | 35 NC 6         | 640 A 35               | 111A        |
| 5.1      | > 1000 - 1300   | > 30 - 40 | 1.5736                     | 36NiCr10     | 30 NC 11        | -                      | -           |
| 5.1      | > 1000 - 1300   | > 30 - 40 | 1.5864                     | 35NiCr18     | -               | -                      | -           |
| 5.1      | > 1000 - 1300   | > 30 - 40 | 1.6511                     | 36CrNiMo4    | 40 NCD 3        | 816 M 40               | 110         |
| 5.1      | > 1000 - 1300   | > 30 - 40 | 1.6580                     | 30CrNiMo8    | 30 CND 8        | 823 M 30               | -           |
| 5.1      | > 1000 - 1300   | > 30 - 40 | 1.6582                     | 34CrNiMo6    | 35 CND 6        | 817 M 40               | 24          |
| 5.1      | > 1000 - 1300   | > 30 - 40 | 1.7033                     | 34Cr4        | 32 C 4          | 530 A 32               | 18B         |
| 5.1      | > 1000 - 1300   | > 30 - 40 | 1.7034                     | 37Cr4        | 38 C 4          | 530 A 36               | -           |
| 5.1      | > 1000 - 1300   | > 30 - 40 | 1.7035                     | 41Cr4        | 42 C 4          | 530 M 40               | 18          |
| 5.1      | > 1000 - 1300   | > 30 - 40 | 1.7045                     | 42Cr4        | 42 C 4 TS       | 530 A 40               | -           |
| 5.1      | > 1000 - 1300   | > 30 - 40 | 1.7218                     | 25CrMo4      | 25 CD 4 S       | 1717 CDS 110           | -           |
| 5.1      | > 1000 - 1300   | > 30 - 40 | 1.7220                     | 34CrMo4      | 35 CD 4         | 708 A 37               | 19B         |
| 5.1      | > 1000 - 1300   | > 30 - 40 | 1.7223                     | 41CrMo4      | 42 CD 4 TS      | 708 M 40               | 19A         |
| 5.1      | > 1000 - 1300   | > 30 - 40 | 1.7225                     | 42CrMo4      | 42 CD 4 TS      | 708 M 40               | 19A         |
| 5.1      | > 1000 - 1300   | > 30 - 40 | 1.7228                     | 50CrMo4      | -               | 708 A 47               | -           |
| 5.1      | > 1000 - 1300   | > 30 - 40 | 1.7361                     | 32CrMo12     | 30 CD 12        | 722 M 24               | 40B         |
| 5.1      | > 1000 - 1300   | > 30 - 40 | 1.7561                     | 42CrV6       | -               | -                      | -           |
| 5.1      | > 1000 - 1300   | > 30 - 40 | 1.7707                     | 30CrMoV9     | -               | -                      | -           |
| 5.1      | > 1000 - 1300   | > 30 - 40 | 1.7735                     | 14CrMoV6-9   | 15 CDV 6        | -                      | -           |
| 5.1      | > 1000 - 1300   | > 30 - 40 | 1.8159                     | 50CrV4       | 50 CV 4         | 735 A 50               | 47          |
| 5.1      | > 1000 - 1300   | > 30 - 40 | 1.8161                     | 58CrV4       | -               | -                      | -           |
| <b>P</b> | <b>Vergütungsstähle unlegiert · Unalloyed heat-treatable steels</b> |           |                            |              |                 |                        |             |
| 2.1      | < 800   | < 21      | 1.0402                     | C22          | AF 42 C 20      | 050 A 20               | 2D          |
| 2.1      | < 800   | < 21      | 1.0406                     | C25          | AF 50 C 30      | 070 M 26               | -           |
| 2.1      | < 800   | < 21      | 1.0501                     | C35          | AF 55 C 35      | 060 A 35               | -           |
| 2.1      | < 800   | < 21      | 1.0503                     | C45          | AF 65 C 45      | 080 M 46               | -           |
| 2.1      | < 800   | < 21      | 1.0511                     | C40          | AF 60 C 40      | -                      | -           |
| 2.1      | < 800   | < 21      | 1.0528                     | C30          | -               | -                      | -           |
| 2.1      | < 800   | < 21      | 1.1151                     | Ck22         | XC 25; XC 18    | 050 A 20               | -           |
| 2.1      | < 800   | < 21      | 1.1158                     | Ck25         | XC 25           | 070 M 26               | -           |
| 2.1      | < 800   | < 21      | 1.1178                     | Ck30         | -               | -                      | -           |
| 2.1      | < 800   | < 21      | 1.1181                     | Ck35         | XC 38 H1; XC 32 | 080 M 36               | -           |
| 2.1      | < 800   | < 21      | 1.1186                     | Ck40         | XC 42 H1        | 080 M 40               | -           |
| 2.1      | < 800   | < 21      | 1.1191                     | Ck45         | XC 42           | 080 M 46               | -           |
| 2.1      | < 800   | < 21      | 1.1201                     | C45R         | XC42H1          | 080M46                 | -           |
| 3.1      | > 800 - 1000  | > 21 - 30 | 1.0535                     | C55          | -               | 070 M 55               | -           |
| 3.1      | > 800 - 1000  | > 21 - 30 | 1.0540                     | C50          | -               | -                      | -           |
| 3.1      | > 800 - 1000  | > 21 - 30 | 1.0601                     | C60          | CC 55           | 080 A 62               | 43D         |
| 3.1      | > 800 - 1000  | > 21 - 30 | 1.1203                     | Ck55         | XC 55           | 070 M 55               | -           |
| 3.1      | > 800 - 1000  | > 21 - 30 | 1.1206                     | Ck50         | XC 48 H1        | 080 M 50               | -           |
| 3.1      | > 800 - 1000  | > 21 - 30 | 1.1221                     | Ck60         | XC 60           | 080 A 62               | 43D         |
| <b>P</b> | <b>Kaltarbeitsstähle · Cold work steels</b>                         |           |                            |              |                 |                        |             |
| 2.1      | 770   |           | CP2M                       |              |                 |                        |             |
| 2.1      | 785   |           | Vanadis 4 Extra SuperClean |              |                 |                        |             |
| 2.1      | 740   |           | 1.2369                     | 81MoCrV4216  |                 |                        |             |
| 2.1      | 800   |           | CP72 Plus                  |              |                 |                        |             |
| 3.1      | 760   | 19        | 1.2067                     | 100Cr6       | Y 100 C 6       | BL 3                   | -           |
| 3.1      | 760   | 19        | 1.2103                     | 58SiCr8      | -               | -                      | -           |
| 3.1      | 760   | 19        | 1.2108                     | 90CrSi5      | -               | -                      | -           |
| 3.1      | 720   |           | 1.2162                     | 21MnCr5      | 20 NC 5         | -                      | -           |
| 3.1      | 730   |           | 1.2210                     | 115CrV3      | 100 C 3         | -                      | -           |
| 3.1      | 730   |           | 1.2330                     | 35CrMo4      | 34 CD 4         | 708 A 37               | -           |
| 3.1      | 750   |           | 1.2332                     | 47CrMo4      | 42 CD 4         | 709 M 40               | -           |
| 3.1      | 760   | 19        | 1.2419                     | 105WCr6      | 105 WC 13       | -                      | -           |
| 3.1      | 720   |           | 1.2510                     | 100MnCrW4    | 90 MWCV 5       | BO 1                   | -           |
| 3.1      | 730   |           | 1.2516                     | 120W4        | 110 WC 20       | BF 1                   | -           |
| 3.1      | 750   |           | 1.2542                     | 45WCrV7      | -               | BS 1                   | -           |
| 3.1      | 750   |           | 1.2550                     | 60WCrV7      | 55 WC 20        | -                      | -           |
| 3.1      | 830   | 23        | 1.2721                     | 50NiCr13     | -               | -                      | -           |
| 3.1      | 670   |           | 1.2735                     | 15NiCr14     | 10 NC 12        | -                      | -           |
| 3.1      | 710   |           | 1.2762                     | 75CrMoNiW6-7 | -               | -                      | -           |
| 3.1      | 750   |           | 1.2826                     | 60MnSiCr4    | -               | -                      | -           |
| 3.1      | 760   | 19        | 1.2833                     | 100V1        | Y1 105 V        | BW 2                   | -           |
| 3.1      | 730   |           | 1.2842                     | 90MnCrV8     | 90 MV 8         | BO 2                   | -           |
| 3.1      | 830   | 23        | 1.2080                     | X210Cr12     | Z 200 C 12      | BD 3                   | -           |
| 3.1      | 380   |           | 1.2341                     | X6CrMo4      | -               | -                      | -           |
| 3.1      | 760   | 19        | 1.2363                     | X100CrMoV5-1 | Z 100 CDV 5     | BA 2                   | -           |
| 3.1      | 640 - 840   |           | 1.5662                     | X8Ni9        | 9 Ni            | 1501.509               | -           |





|                   | UNI           | UNE | JIS              | SIS        | AISI/SAE/ASTM          |          |
|-------------------|---------------|-----|------------------|------------|------------------------|----------|
|                   |               |     |                  |            | A128                   | 3.1      |
|                   |               |     |                  |            | A331; A505; A519; A646 | 4.1      |
| -                 | -             | -   | -                | -          | -                      | 5.1      |
| -                 | -             | -   | SNC 836          | -          | -                      | 5.1      |
| -                 | -             | -   | -                | -          | -                      | 5.1      |
| -                 | -             | -   | -                | -          | -                      | 5.1      |
| -                 | -             | -   | -                | -          | -                      | 5.1      |
| -                 | -             | -   | -                | -          | -                      | 5.1      |
| -                 | -             | -   | SNC 236          | -          | 3135                   | 5.1      |
| 35 NiCr 9         | -             | -   | SNC 631 (H)      | -          | 3435                   | 5.1      |
| -                 | -             | -   | -                | -          | -                      | 5.1      |
| 38 NiCrMo 4 (KB)  | 33NiCrMo4     | -   | SNC 836          | -          | 9840                   | 5.1      |
| 30 NiCrMo 8       | -             | -   | SNCM 431         | -          | -                      | 5.1      |
| 35 NiCrMo 6 (KW)  | -             | -   | SNCM 447         | 2541       | 4340                   | 5.1      |
| 34 Cr 4 (KB)      | 35Cr4         | -   | SCr 430 (H)      | -          | 5132                   | 5.1      |
| 38 Cr 4           | -             | -   | SCr 435 (H)      | -          | 5135                   | 5.1      |
| 41 Cr 4           | 42Cr4         | -   | SCr 440 (H)      | -          | 5140                   | 5.1      |
| 41 Cr 4           | 42Cr4         | -   | SCr 440          | 2245       | 5140                   | 5.1      |
| 25 CrMo 4 (KB)    | 55Cr3         | -   | SCM 420; SCM 430 | 2225       | 4130                   | 5.1      |
| 35 CrMo4          | 34CrMo4       | -   | SCM 432; SCCrM 3 | 2234       | 4135; 4137             | 5.1      |
| 41 CrMo 4         | 42CrMo4       | -   | SCM 440          | 2244       | 4142; 4140             | 5.1      |
| 41 CrMo 4         | F-1252        | -   | SCM 440          | 2244       | 4142; 4140             | 5.1      |
| -                 | -             | -   | SCM 445 (H)      | -          | 4150                   | 5.1      |
| 31 CrMo 12        | F.124.A       | -   | -                | 2240       | -                      | 5.1      |
| -                 | -             | -   | -                | -          | -                      | 5.1      |
| -                 | -             | -   | -                | -          | -                      | 5.1      |
| -                 | -             | -   | -                | -          | -                      | 5.1      |
| 51 CrV 4          | 51CrV4        | -   | SUP 10           | 2230       | 6150                   | 5.1      |
| -                 | -             | -   | -                | -          | -                      | 5.1      |
|                   |               |     |                  |            |                        | <b>P</b> |
| C 20; C 21        | F.112         | -   | -                | 1450       | 1020                   | 2.1      |
| C 25              | -             | -   | -                | -          | 1025                   | 2.1      |
| C 35              | F.113         | -   | -                | 1550       | 1035                   | 2.1      |
| C 45              | F.114         | -   | -                | 1650       | 1045                   | 2.1      |
| C 40              | -             | -   | -                | -          | 1040                   | 2.1      |
| -                 | -             | -   | -                | -          | -                      | 2.1      |
| C 20              | -             | -   | S 20 C; S 20 CK  | -          | 1023                   | 2.1      |
| C 25              | -             | -   | S 25 C           | -          | 1025                   | 2.1      |
| -                 | -             | -   | -                | -          | -                      | 2.1      |
| C 35              | -             | -   | S 35 C           | 1572       | 1035                   | 2.1      |
| C 40              | -             | -   | S 40 C           | -          | 1040                   | 2.1      |
| C 45              | C45K          | -   | S 45 C           | 1672       | 1045                   | 2.1      |
| -                 | F1140 / F1145 | -   | -                | 1672       | A194 Gr.2              | 2.1      |
| C 55              | -             | -   | -                | 1655       | 1055                   | 3.1      |
| -                 | -             | -   | -                | -          | -                      | 3.1      |
| C 60              | -             | -   | -                | -          | 1060                   | 3.1      |
| C 50              | C55K          | -   | S 55 C           | -          | 1055                   | 3.1      |
| -                 | -             | -   | -                | -          | 1050                   | 3.1      |
| C 60              | -             | -   | S 58 C           | 1665; 1678 | 1060                   | 3.1      |
|                   |               |     |                  |            |                        | <b>P</b> |
|                   |               |     |                  |            |                        | 2.1      |
|                   |               |     |                  |            |                        | 2.1      |
|                   |               |     |                  |            |                        | 2.1      |
|                   |               |     |                  |            |                        | 2.1      |
| -                 | 100Cr6        | -   | -                | -          | L 3                    | 3.1      |
| -                 | -             | -   | -                | -          | -                      | 3.1      |
| -                 | -             | -   | -                | -          | -                      | 3.1      |
| -                 | -             | -   | SCR 420 H        | -          | -                      | 3.1      |
| 107 CrV 3 KU      | -             | -   | -                | -          | L 2                    | 3.1      |
| 35 CrMo4          | -             | -   | -                | 2234       | 4135                   | 3.1      |
| 40 CrMo 4         | -             | -   | -                | 2244       | 4142                   | 3.1      |
| 107 Wv 5 KU       | 105WCr5       | -   | SKS 31           | -          | -                      | 3.1      |
| 95 MnWCr 5 KU     | -             | -   | SKS 3            | 2140       | 0 1                    | 3.1      |
| 110 W 4 KU        | -             | -   | -                | -          | -                      | 3.1      |
| 45 WCrV 8 KU      | 45WCrSi8      | -   | -                | 2710       | S 1                    | 3.1      |
| 55 WCrV 8 KU      | -             | -   | -                | -          | -                      | 3.1      |
| -                 | -             | -   | -                | -          | -                      | 3.1      |
| -                 | -             | -   | SNC 22           | -          | -                      | 3.1      |
| -                 | -             | -   | -                | -          | -                      | 3.1      |
| -                 | -             | -   | -                | -          | -                      | 3.1      |
| 102 V 2 KU        | -             | -   | SKS 43           | -          | W 210                  | 3.1      |
| 90 MnVCr 8 KU     | -             | -   | -                | -          | 0 2                    | 3.1      |
| X 210 Cr 13 KU    | X210Cr12      | -   | SKD 1            | -          | D 3                    | 3.1      |
| -                 | -             | -   | -                | -          | -                      | 3.1      |
| X 100 CrMoV 5 1KU | -             | -   | SKD 12           | 2260       | A 2                    | 3.1      |
| X 10Ni9           | XBNi09        | -   | STBL 690         | -          | A353                   | 3.1      |



|          | R <sub>m</sub>  | Rockwell |                           |                  |              |         |    |         |
|----------|---|----------|---------------------------|------------------|--------------|---------|----|---------|
|          | [N/mm <sup>2</sup> ]                                    | [HRC]    | Mat.-Nr.                  | DIN              | AFNOR        | BS      | EN |         |
| 3.1      | 760   | 19       | 1.2379                    | X155CrVMo12-1    | Z 160 CDV 12 | BD 2    | -  |         |
| 3.1      | 760   | 19       | 1.2436                    | X210CrW12        | -            | -       | -  |         |
| 3.1      | 760   | 19       | 1.2601                    | X165CrMoV12      | -            | -       | -  |         |
| 3.1      | 850   |          | CPOH Plus                 |                  |              |         |    |         |
| 3.1      | 950   |          | PMD V10                   |                  |              |         |    |         |
| 3.1      | 950   |          | PMD 9                     |                  |              |         |    |         |
| 3.1      | 950   |          | PMD 10                    |                  |              |         |    |         |
| 3.1      | 820   |          | 1.2379 Plus               |                  |              |         |    |         |
| 3.1      | 850   |          | CP72                      |                  |              |         |    |         |
| 3.1      | 850   |          | CPOH                      |                  |              |         |    |         |
| 3.1      | 850   |          | WP7V                      |                  |              |         |    |         |
| 3.1      | 900   |          | CPR                       |                  |              |         |    |         |
| 3.1      | 850 - 1125  |          | CP4M                      |                  |              |         |    |         |
| 3.1      | 820   |          | CP8E                      |                  |              |         |    |         |
| 3.1      | 915   |          | Vanadis 8 SuperClean      |                  |              |         |    |         |
| 3.1      | 950   |          | ASP2011                   |                  |              |         |    |         |
| 3.1      | <850  |          | 1.2990                    | X100CrMoV8-1-1   |              |         |    |         |
| 3.1      | <900  |          | 1.2361                    | X91CrMoV18       |              |         |    |         |
| 3.1      | <850  |          | 1.2360                    | X50CrMoV8-1      |              |         |    |         |
| 4.1      | 950 - 1100  |          | 1.2709                    | X3NiCoMoTi18-9-5 |              |         |    |         |
| 4.1      | 1125  |          | PMD 550                   |                  |              |         |    |         |
| 4.1      | 950 - 1100  |          | 1.2358                    | 60CrMoV18-5      |              |         |    |         |
| 4.1      | <1015   |          | 1.2746                    | 45NiCrMoV166     |              |         |    |         |
| <b>P</b> | <b>Werkzeugstähle unlegiert · Unalloyed tool steels</b> |          |                           |                  |              |         |    |         |
| 2.1      | 640   |          | 1.1520                    | C70W1            | -            | -       | -  |         |
| 2.1      | 640   |          | 1.1525                    | C80W1            | Y1 90; Y1 80 | -       | -  |         |
| 2.1      | 640   |          | 1.1545                    | C105W1           | Y1 105       | -       | -  |         |
| 2.1      | 640   |          | 1.1620                    | C70W2            | -            | -       | -  |         |
| 2.1      | 640   |          | 1.1625                    | C80W2            | Y1 80        | BW 1B   | -  |         |
| 2.1      | 640   |          | 1.1645                    | C105W2           | Y1 105       | -       | -  |         |
| 2.1      | 660   |          | 1.1654                    | C110W            | -            | -       | -  |         |
| 2.1      | 710   |          | 1.1663                    | C125W            | Y2 120       | -       | -  |         |
| 2.1      | 760   | 19       | 1.1673                    | C135W            | Y2 140       | -       | -  |         |
| 2.1      | 640   |          | 1.1730                    | C45W             | Y3 42        | -       | -  |         |
| 2.1      | 760   | 19       | 1.1740                    | C60W             | Y3 55        | -       | -  |         |
| 2.1      | 730   |          | 1.1744                    | C67W             | -            | -       | -  |         |
| 2.1      | 730   |          | 1.1750                    | C75W             | -            | BW 1A   | -  |         |
| 2.1      | 570   |          | 1.1820                    | C55W             | -            | -       | -  |         |
| 2.1      | 750   |          | 1.1830                    | C85W             | Y3 90        | -       | -  |         |
| <b>P</b> | <b>Warmarbeitsstähle · Hot work steels</b>              |          |                           |                  |              |         |    |         |
| 2.1      | < 770   |          | 1.2311                    | 40CrMnMo7        | -            | -       | -  |         |
| 2.1      | < 770   |          | 1.2312                    | 40CrMnMoS8-6     | -            | -       | -  |         |
| 2.1      | < 770   |          | 1.2711                    | 54NiCrMoV6       | 55 NCDV 6    | -       | -  |         |
| 2.1      | < 800   |          | 1.2713                    | 55NiCrMoV6       | 55 NCDV 7    | Bh 224  | -  |         |
| 2.1      | > 800   |          | 1.2738                    | 40CrMnNiMo8      | -            | -       | -  |         |
| 2.1      | < 770   |          | 1.2083                    | X42Cr13          | Z 40 C 14    | -       | -  |         |
| 2.1      | < 800   |          | 1.2343                    | X38CrMoV5-1      | Z 38 CDV 5   | BH 11   | -  |         |
| 2.1      | < 800   |          | 1.2344                    | X40CrMoV5-1      | Z 40 CDV 5   | BH 13   | -  |         |
| 2.1      | < 800   |          | 1.2365                    | X32CrMoV3-3      | Z 32 CDV 28  | BH 10   | -  |         |
| 2.1      | < 800   |          | 1.2567                    | X30WCrV5-3       | Z 32 WCV 5   | -       | -  |         |
| 2.1      | < 800   |          | 1.2581                    | X30WCrV9-3       | Z 30 WCV 9   | BH 21   | -  |         |
| 2.1      | < 770   |          | 1.2885                    | X32CrMoV3-3-3    | -            | BH 10 A | -  |         |
| 2.1      | < 800   |          | 1.2083 ESU                | X40CR14          | Z40 C14      | -       | -  |         |
| 2.1      | <780  |          | 1.2343 ESU                | X37CrMoV5-1      | Z38 CDV 5    | -       | -  |         |
| 2.1      | <780  |          | 1.2344 ESU                | X40CrMoV5-1      | Z40 CDV 5    | -       | -  |         |
| 2.1      | 750   |          | 1.2999                    | X45MoCrV5-3-1    |              |         |    |         |
| 2.1      | 690   |          | Thermodur E38K Superclean |                  |              |         |    |         |
| 2.1      | 785   |          | Thermodur E40K Superclean |                  |              |         |    |         |
| 2.1      | 755   |          | Thermodur 2383 Supercool  |                  |              |         |    |         |
| 2.1      | 785   |          | 1.2329                    | 46CrSiMoV7       |              |         |    |         |
| 2.1      | 785   |          | 1.2342                    | X35CrMoV5-1-1    |              |         |    |         |
| 2.1      | 785   |          | 1.2367                    | X38CrMoV5-3      | Z38CDV5-3    |         |    |         |
| 2.1      | 755   |          | 1.2323                    | 48CrMoV6         |              |         |    |         |
| 3.1      | < 840   |          | 1.2744                    | 57NiCrMoV7-7     | -            | -       | -  |         |
| 3.1      | > 860   |          | 1.2764                    | X19NiCrMo4       | -            | -       | -  |         |
| 3.1      | < 870   |          | 1.2767                    | X45NiCrMo4       | Y 35 NCD 16  | -       | -  |         |
| 3.1      | < 840   |          | 1.2316                    | X36CrMo17        | -            | -       | -  |         |
| 3.1      | 850   |          | 1.2714                    | 55NiCrMoV7       | 55NCDV7      |         |    |         |
| 3.1      | 820   |          | 1.2740                    | 28NiCrMoV10      |              |         |    |         |
| 3.1      | <900  |          | 1.2397                    |                  |              |         |    | ASP2011 |
| 4.1      | 1080  | > 29     | Toolox 33                 | -                | -            | -       | -  |         |
| 4.1      | 1250  | 43       | Hardox 400                | -                | -            | -       | -  |         |
| 4.1      | 950 - 1100  |          | 1.2085                    | X33CrS16         | Z35 CD 17.S  |         |    |         |
| 4.1      | <1125   |          | 1.2294                    | X5CrS12          |              |         |    |         |
| 4.1      | <1125   |          | 1.2099                    | X5CrS12          |              |         |    |         |
| 5.1      | 1450  | 45       | Toolox 44                 | -                | -            | -       | -  |         |








|          | R <sub>m</sub>  | Rockwell |                |                          |                         |          |             |
|----------|---|----------|----------------|--------------------------|-------------------------|----------|-------------|
|          | [N/mm <sup>2</sup> ]  | [HRC]    | Mat.-Nr.       | DIN                      | AFNOR                   | BS       | EN          |
| 5.1      | 1300 - 1450   |          | 1.2714 HH      | 55NiCrMoV7               | 55 NCDV 7               |          |             |
| <b>P</b> | <b>Nitrierstähle · Nitriding steels</b>   |          |                |                          |                         |          |             |
| 3.1      | < 1000  | < 30     | 1.8504         | 34CrAl6                  | -                       | -        | -           |
| 3.1      | < 1000  | < 30     | 1.8506         | 34CrAlS5                 | -                       | -        | -           |
| 3.1      | < 1000  | < 30     | 1.8507         | 34CrAlMo5                | 30 CAD 6.12             | 905 M 31 | -           |
| 3.1      | < 1000  | < 30     | 1.8509         | 41CrAlMo7                | 40 CAD 6.12             | 905 M 39 | 41B         |
| 3.1      | > 1000  | > 30     | 1.8515         | 31CrMo12                 | 30 CD 12                | 722 M 24 | -           |
| 3.1      | > 1000  | > 30     | 1.8519         | 31CrMoV9                 | -                       | -        | -           |
| 3.1      | > 1000  | > 30     | 1.8521         | 15CrMoV5-9               | -                       | -        | -           |
| 3.1      | > 1000  | > 30     | 1.8523         | 39CrMoV13-9              | -                       | 897 M 39 | 40C         |
| 3.1      | > 1000  | > 30     | 1.8550         | 34CrAlNi7                | -                       | -        | -           |
| 4.1      | <1080   |          | 1.7765         | 32CrMoV12-10             |                         |          |             |
| <b>P</b> | <b>HSS Schnellarbeitsstahl · HSS High speed steel</b>   |          |                |                          |                         |          |             |
| 3.1      | <915  |          | 1.3343         | HS 6-5-2 C               | Z85 WDCV06-05-04-02     |          |             |
| 3.1      | <905  |          | 1.3344 PM      | PM 6-5-3                 | X130WMoCrV 6-5-4-3      |          |             |
| 3.1      | 880   |          | PMD M4         |                          |                         |          |             |
| 3.1      | 880   |          | PMD 23         |                          |                         |          |             |
| 3.1      | 880   |          | 1.3343 Plus    |                          |                         |          | HS 6-5-2C   |
| 3.1      | 850 - 950   |          | Z-T15 PM Speed |                          |                         |          |             |
| 3.1      | 880 - 1095  |          | 1.3394         | PMHS 6-5-3               |                         |          | ASP2023     |
| 3.1      | 950   |          | 1.3202         | HS 12-0-5-5              |                         |          | ASP2015     |
| 3.1      | 915   |          | 1.3243         | HS 6-5-2-5               | Z85WDCV06-05-05-04-02   |          |             |
| 3.1      | <950  |          | 1.3247         | HS 2-10-1-8              | Z110DKCWV               |          |             |
| 4.1      | <960  |          | M V10 PM       |                          |                         |          |             |
| 4.1      | <970  |          | M W10 PM       |                          |                         |          | HS 10-2-5-8 |
| 4.1      | 1030  |          | PMD 30         |                          |                         |          |             |
| 4.1      | 1030  |          | PMD 52         |                          |                         |          |             |
| 4.1      | 1155  |          | PMD 60         |                          |                         |          |             |
| 4.1      | 965 - 1060  |          | CPM Rex 76     |                          |                         |          |             |
| 4.1      | 1060  |          | Z-M48 PM Speed |                          |                         |          |             |
| 4.1      | 1030 - 1095   |          | 1.3294         | PMHS 6-5-3-8             |                         |          | ASP2030     |
| 4.1      | 1155  |          | 1.3292         | PMHS 7-7-7-11            |                         |          | ASP2060     |
| 4.1      | 1030  |          | 1.3253         | PMHS 11-2-5-8            |                         |          | ASP2052     |
| 4.1      | 1030  |          | 1.3352         | PMHS 4-3-8               |                         |          | ASP2053     |
| 4.1      | <1030   |          | 1.3252         |                          |                         |          | ASP2052     |
| 4.1      | 1080  |          | 1.3207         | HS 10-4-3-10             | Z130WKCDV10-10-04-04-03 |          |             |
| 4.1      | 1030 - 1190   |          | 1.3208         | HS 9-4-3-11              | Z140KWCDV10-09-04-04-03 |          |             |
| 4.1      | 1030  |          | 1.3211         | S 12-1-2-3               |                         |          |             |
| <b>P</b> | <b>Pulvermetallurgischer Stahl · Powder metallurgical steel</b>                                       |          |                |                          |                         |          |             |
| 2.1      | 785   |          | Z-Wear PM cold |                          |                         |          |             |
| 3.1      | 785 - 1030  |          | CPM Rex M4     |                          |                         |          |             |
| 3.1      | 785 - 1030  |          | Z-M4 PM Speed  |                          |                         |          |             |
| 3.1      | 770 - 850   |          | Z-Tuff PM      |                          |                         |          |             |
| 3.1      | 950   |          | ASP 420H       |                          |                         |          |             |
| 4.1      | 1030  |          | ASP APZ10      |                          |                         |          |             |
| 5.1      | 1220 - 1420   |          | CPM Rex 121    |                          |                         |          |             |
| <b>P</b> | <b>Wälzlagerstahl · Rolling bearing steel</b>   |          |                |                          |                         |          |             |
| 2.1      | 720   |          | 1.3551         | 80MoCrV42-16             |                         |          |             |
| <b>P</b> | <b>Sonderstähle · Specialsteels</b>   |          |                |                          |                         |          |             |
| 5.1      | 1960  |          | 1.6354         | X2NiCoMo18-9-5           | K93120                  |          |             |
| 5.1      | 1600  |          | 1.6359         | X2NiCoMo18-8-5           | K92890                  | S162     |             |
| <b>M</b> | <b>Rost- und säurebeständige Stähle – ferritisch · Corrosion and acid proof steels – ferritic</b>     |          |                |                          |                         |          |             |
| 1.1      | 400 - 600   |          | 1.4002         | X6CrAl13                 | Z 6 CA 13               | 405 S 17 | -           |
| 1.1      | 380 - 560   |          | 1.4512         | X5CrTi12                 | Z 6 CT 12               | 409 S 19 | -           |
| 1.1      | 400 - 600   |          | 1.4000         | X6Cr13                   | Z 6 C 13                | 403 S 17 | -           |
| 1.1      | 450 - 600   |          | 1.4016         | X6Cr17                   | Z 8 C 17                | 430 S 15 | 960         |
| 1.1      | 500 - 700   |          | 1.4742         | X10CrAlSi18              | Z 10 CAS 18             | 430 S 15 | 60          |
| 1.1      | 450 - 630   |          | 1.4113         | X6CrMo17                 | Z 8 CD 17.01            | 434 S 17 | -           |
| 1.1      | 420 - 600   |          | 1.4510         | X3CrTi17                 | Z 8 CT 17               | -        | -           |
| 1.1      | 400 - 600   |          | 1.4521         | X2CrMoTi18-2             | Z 3 CDT 18-02           | -        | -           |
| 1.1      | 450 - 650   |          | 1.4724         | X10CrAlSi13              | Z 13 C 13               | -        | -           |
| 1.1      | 520 - 720   |          | 1.4762         | X10CrAl24                | Z 10 CAS 24             | -        | -           |
| 1.1      | 420 - 620   |          | 1.4713         | X10CrAlSi7               |                         |          |             |
| <b>M</b> | <b>Rost- und säurebeständige Stähle – austenitisch · Corrosion and acid proof steels – austenitic</b> |          |                |                          |                         |          |             |
| 2.1      | 750 - 950   |          | 1.4372         | X12CrMnNiN17-7-5         | Z 12 CMN 17-07 Az       | -        | -           |
| 2.1      | 680 - 880   |          | 1.4373         | X12CrMnNiN18-9-5         | -                       | 284 S 16 | -           |
| 2.1      | 600 - 950   |          | 1.4310         | X10CrNi18-8, X12CrNi17-7 | Z 11 CN 17-08           | 301 S 21 | -           |
| 2.1      | 630 - 850   |          | 1.4318         | X2CrNi18-7               | Z 3 CN 18-07 Az         | -        | -           |
| 2.1      | 500 - 700   |          | 1.4305         | X10CrNiS18-9             | Z 10 CNF 18.09          | 303 S 21 | 58M         |
| 2.1      | 600 - 951   |          | 1.4350         | X5CrNi18-9               | Z 6 CN 18.09            | 304 S 31 | 58E         |
| 2.1      | 520 - 720   |          | 1.4301         | X5CrNi18-9               | Z 6 CN 18.09            | 304 S 15 | 58E         |
| 2.1      | 460 - 680   |          | 1.4306         | X2CrNi19-11              | Z 2 CN 18.10            | 304 S 12 | -           |
| 2.1      | 550 - 750   |          | 1.4311         | X2CrNi18-10              | Z 2 CN 18.10            | 304 S 62 | -           |
| 2.1      | 510 - 710   |          | 1.4948         | X6CrNi18-11              | -                       | 304 S 50 | -           |
| 2.1      | 520 - 700   |          | 1.4307         | X2CrNi18-9               | Z 2 CN 19-09            | -        | -           |
| 2.1      | 500 - 750   |          | 1.4315         | X5CrNiN19-9              | -                       | -        | -           |





|          | R <sub>m</sub>  | Rockwell |  |                     |  |  |          |
|----------|---|----------|---|---------------------|---|---|----------|
|          | [N/mm <sup>2</sup> ]  | [HRC]    | Mat.-Nr.  | DIN                 | AFNOR   | BS  | EN       |
| 2.1      | 500 - 650   |          | 1.4303  | X5CrNi18-12         | Z 8 CN 18.12  | 305 S 19  | -        |
| 2.1      | 500 - 700   |          | 1.4833  | X12CrNi23-13        | Z 15 CN 23-13   | 309 S 24  | -        |
| 2.1      | 500 - 700   |          | 1.4845  | X8CrNi25-21         | Z 8 CN 25-20  | 310 S 24  | -        |
| 2.1      | 550 - 750   |          | 1.4841  | X15CrNiSi25-21      | Z 15 CNS 25-20  | 314 S 25  | -        |
| 2.1      | 520 - 680   |          | 1.4401  | X5CrNiMo18-10       | Z 6 CND 17.11   | 316 S 16  | 58J      |
| 2.1      | 530 - 730   |          | 1.4436  | X5CrNiMo17-13-3     | Z 6 CND 17.12   | 316 S 16  | -        |
| 2.1      | 520 - 680   |          | 1.4404  | X2CrNiMo17-13-2     | Z 2 CND 17.12   | 316 S 11  | -        |
| 2.1      | 520 - 700   |          | 1.4435  | X2CrNiMo18-14-3     | Z 2 CND 17.13   | 317 S 12  | -        |
| 2.1      | 520 - 700   |          | 1.4432  | X2CrNiMo17-12-3     | Z 3 CND 17-02-03  | 316 S 13  | -        |
| 2.1      | 580 - 780   |          | 1.4406  | X2CrNiMoN17-12-2    | Z 2 CND 17.12 AZ  | 316 S 61  | 58C      |
| 2.1      | 580 - 780   |          | 1.4429  | X2CrNiMoN17-13-3    | Z 2 CND 17.13 AZ  | 316 S 62  | -        |
| 2.1      | 490 - 740   |          | 1.4573  | X10CrNiMoTi-18-12   | -   | 320 S 33  | -        |
| 2.1      | 520 - 690   |          | 1.4571  | X6CrNiMoTi17-12-2   | Z 6 CNT 17.12   | 320 S 31  | 58J      |
| 2.1      | 520 - 720   |          | 1.4580  | X6CrNiMoNb17-12-2   | Z 6 CNDNb 17.12   | 318 S 17  | -        |
| 2.1      | 550 - 700   |          | 1.4438  | X2CrNiMo18-16-4     | Z 2 CND 19.15   | 317 S 12  | -        |
| 2.1      | 580 - 780   |          | 1.4439  | X2CrNiMoN17-13-5    | Z 3 CND 18-14-05 Az   | -   | -        |
| 2.1      | 490 - 740   |          | 1.4583  | X10CrNiMoNb18-12    | -   | -   | -        |
| 2.1      | 500 - 720   |          | 1.4541  | X6CrNiTi18-10       | Z 6 CNT 18.10   | 321 S 12  | 58B      |
| 2.1      | 500 - 720   |          | 1.4878  | X8CrNiTi18-10       | Z 6 CNT 18-10   | 321 S 31  | -        |
| 2.1      | 500 - 720   |          | 1.4550  | X6CrNiNb18-10       | Z 6 CNNb 18.10  | 347 S 17  | 58F      |
| 2.1      | 500 - 700   |          | 1.4563  | X1NiCrMoCu31-27-4   | Z 2 NCDU 31-27  | -   | -        |
| 2.1      | 520 - 730   |          | 1.4539  | X1NiCrMoCu25-20-5   | Z 2 NCDU 25-20  | 904 S 13  | -        |
| 2.1      | 550 - 750   |          | 1.4864  | X12NiCrSi35-16      | Z 20 NCS 33-16  | NA 17   | -        |
| 2.1      | 620 - 880   |          | 1.4460  | X8CrNiMo27-5        | Z 5 CND 27-05   | -   | -        |
| 2.1      | 500 - 740   |          | 1.4546  | X5CrNiNb18-10       | Z 6 CNNb 18.10  | 347 S 18  | 58F      |
| 2.1      | 500 - 720   |          | 1.4886  | X10NiCrSi35-19      |   |   |          |
| 2.1      | 900   |          | 1.4528  | X105CrCoMo18-2      |   |   |          |
| 2.1      | 850   |          | 1.4529  | X1NiCrMoCuN25-20-7  |   |   |          |
| 2.1      | >495  |          | 1.4547  | X1CrNiMoCuN20-18-7  |   |   |          |
| 2.1      | <740  |          | 1.4988  | X8CrNiMoVNb16-13    |   |   |          |
| 2.1      | 650 - 850   |          | 1.4835  | X9CrNiSiN21-11-2    |   |   |          |
| 4.1      | 1180  |          | 1.4980  | X6NiCrTiMoVB25-15-2 |   | 1506  |          |
| <b>M</b> | <b>Rost- und säurebeständige Stähle – Duplex · Corrosion and acid proof steels – Duplex</b>                               |          |   |                     |   |   |          |
| 3.1      | 340 - 950   |          | 1.4462  | X2CrNiMoN22-5-3     | Z 3 CND 22-05 Az  | 318 S 13  | -        |
| 3.1      | 630 - 850   |          | 1.4362  | X2CrNiN23-4         | Z 3 CN 23-04 Az   | -   | -        |
| 3.1      | 730 - 1000  |          | 1.4507  | X2CrNiMoCuN25-6-3   | Z 3 CNDU 25-06  | -   | -        |
| 3.1      | 730 - 1000  |          | 1.4507  | X2CrNiMoCuN25-6-3   | Z 3 CNDU 25-06  | -   | -        |
| 4.1      | 730 - 1250  |          | 1.4410  | X2CrNiMoN25-7-4     | Z 3 CND 25-06   | -   | -        |
| <b>M</b> | <b>Rost- und säurebeständige Stähle – martensitisch · Corrosion and acid proof steels – martensitic</b>                   |          |   |                     |   |   |          |
| 1.1      | > 600   |          | 1.4006  | X10Cr13             | Z 12 C 13   | 410 S 21  | 56A      |
| 1.1      | 650 - 850   |          | 1.4005  | X12CrS13            | Z 12 CF 13  | 416 S 21  | -        |
| 1.1      | > 700   |          | 1.4021  | X20Cr13             | Z 20 C 13   | 420 S 37  | -        |
| 1.1      | > 740   |          | 1.4028  | X30Cr13             | Z 30 C 13   | 420 S 45  | -        |
| 1.1      | > 760   |          | 1.4031  | X38Cr13             | Z 40 C 14   | -   | -        |
| 1.1      | > 780   |          | 1.4034  | X46Cr13             | Z 40 CM   | 420 S 45  | 56D      |
| 1.1      | > 850   |          | 1.4116  | X50CrMoV15          | Z 50 CD 15  | -   | -        |
| 1.1      | > 900   |          | 1.4122  | X39CrMo17-1         | Z 38 CD 16-01   | -   | -        |
| 1.1      | > 650   |          | 1.4024  | X15Cr13             | Z 12 C 13 M   | 420 S 29  | 56B      |
| 1.1      | 640 - 840   |          | 1.4104  | X14CrMoS17          | Z 13 CF 17  | -   | -        |
| 1.1      | 750 - 950   |          | 1.4057  | X17CrNi162          | Z 15 CN 16.02   | 431 S 29  | 57       |
| 1.1      |   |          | 1.4747  | X80CrNiSi20         | Z 80 CSN 20.02  | 443 S 65  | 59       |
| 1.1      | < 900   |          | 1.4125  | X105CrMo17          | Z 100 CD 17   | -   | -        |
| 1.1      | <900  |          | 1.4111  | X110CrMoV15         |   |   |          |
| 1.1      | <900  |          | 1.4112  | X90CrMoV18          |   |   |          |
| 1.1      | 800 - 950   |          | 1.4044  | X28CrNi16-2         | Z15CN16-02  |   |          |
| 1.1      | 785   |          | 1.4108  | X30CrMoN15-1        |   |   |          |
| 1.1      | 900   |          | 1.4112  | X90CrMoV18          |   |   |          |
| 1.1      |   |          | 1.4320  | X2CrNiMo13-4        |   |   |          |
| 1.1      | >620  |          | 1.4901  | X11CrWMoVNb9-2      |   |   |          |
| 1.1      | 630 - 730   |          | 1.4903  | X10CrMoVNb9-1       |   |   |          |
| 1.1      | 800 - 950   |          | 1.4922  | X20CrMoV11-1        |   |   |          |
| 1.1      | 800 - 950   |          | 1.4923  | X20CrMoWV12-1       |   |   |          |
| 3.1      | 780 - 980   |          | 1.4313  | X5CrNi134           | Z 5 CN 13.4   | 425 C 11  | -        |
| 3.1      | 840 - 1000  |          | 1.4418  | X4CrNiMo6-5-1       | Z 6 CND 16-05-01  | -   | -        |
| 3.1      | 930 - 1130  |          | 1.4938  | X12CrNiMoV12-3      |   | S151; S159  |          |
| 3.1      | 995   |          | 1.4939  | X12CrNiMo12         | Jethete   |   |          |
| 3.1      | 1030  |          | 1.4210  | X20CrMo13           |   |   | ASP AZ10 |
| 3.1      | 900 - 1050  |          | 1.4913  | X19CrMoNbVN10 1     |   |   |          |
| <b>M</b> | <b>Rost- und säurebeständige Stähle – ausscheidungshärtend · Corrosion and acid proof steels – precipitation-hardened</b> |          |   |                     |   |   |          |
| 3.1      | > 1030  |          | 1.4568  | X7CrNiAl17-7        | Z 9 CNA 17-07   | 301 S 81  | -        |
| 3.1      | 960 - 1310  |          | 1.4545  | X5CrNiCuNb15-5-4    | 15-5PH  |   |          |
| 3.1      | 860 - 1310  |          | 1.4548  | X5CrNiCuNb17-4-4    | 17-4PH  |   |          |
| 3.1      | 1000 - 1200   |          | 1.4594  | X5CrNiMoCuNb14-5    |   |   |          |
| 3.1      | 800 - 1000  |          | 1.4501  | X2CrNiMoCuWN25-7-4  | Alloy 100 Super Duplex  |   |          |
| 4.1      | > 1275  |          | 1.4542  | X5CrNiCuNb16-4      | Z 7 CNU 15-05   | -   | -        |
| 4.1      | 1250  |          | 1.4534  | X3CrNiMoAl13-8-2    | 13-8PH  |   |          |



|                    | UNI            | UNE | JIS               | SIS  | AISI/SAE/ASTM                |          |
|--------------------|----------------|-----|-------------------|------|------------------------------|----------|
| X 8 CrNi 19 10     |                | -   | SUS 305           | -    | 308; 305                     | 2.1      |
| X 6 CrNi 23 14     |                | -   | SUS 309S          | -    | 309 S                        | 2.1      |
| X 6 CrNi 25 20     | F.331          |     | SUS 310S          | 2361 | 310 S                        | 2.1      |
| -                  | F.3310         |     | SUH 310           | -    | 314                          | 2.1      |
| X 5 CrNiMo 17 12   | F.3543         |     | SUS 316           | 2347 | 316                          | 2.1      |
| X 5 CrNiMo 17 13   | F.3538         |     | SUS 316           | 2343 | 316                          | 2.1      |
| X 2 CrNiMo 17 12   | F.3533         |     | SUS 316 L         | 2348 | 316 L                        | 2.1      |
| X 2 CrNiMo 17 13   | -              |     | SCS 16; SUS 316 L | 2353 | 316 L                        | 2.1      |
| X 2 CrNiMo 17-12-3 | F-3537         |     | -                 | -    | 316 L                        | 2.1      |
| X 2 CrNiMoN 17 12  | F-3542         |     | SUS 316 LN        | -    | 316 LN                       | 2.1      |
| X 2 CrNiMoN 17 13  | F-3543         |     | SUS 316 LN        | 2375 | 316 LN                       | 2.1      |
| X 6 CrNiMoTi 17 13 | -              |     | SUS 316 Ti        | -    | 316 Ti                       | 2.1      |
| X 6 CrNiMoTi 17 12 | F.3535         |     | SUS 316 Ti        | 2350 | 316 Ti                       | 2.1      |
| X 6 CrNiMoNb 17 12 | F.3536         |     | -                 | -    | 316 Cb                       | 2.1      |
| X 2 CrNiMo 18 15   | F-3539         |     | SUS 317 L         | 2367 | 317 L                        | 2.1      |
| -                  | F-3544         |     | -                 | -    | 317 LMN                      | 2.1      |
| X 6 CrNiMoNb 17 13 | -              |     | -                 | -    | 318                          | 2.1      |
| X 6 CrNiTi 18 11   | F.3553; F.3523 |     | SUS 321           | 2337 | 321                          | 2.1      |
| -                  | -              |     | SUS 321           | -    | 321 H                        | 2.1      |
| X 6 CrNiNb 18 11   | F.3552; F.3524 |     | SUS 347           | 2338 | 347                          | 2.1      |
| -                  | -              |     | -                 | 2584 | B 668                        | 2.1      |
| -                  | -              |     | -                 | 2562 | 904 L                        | 2.1      |
| -                  | F.3313         |     | SUH 330           | -    | 330                          | 2.1      |
| -                  | F-35552        |     | SUS 329 J 1       | 2324 | 329                          | 2.1      |
| X 6 CrNiNb 18 11   | F-3524         |     | SUS 347           | 2338 | 348                          | 2.1      |
|                    |                |     |                   |      | B511; B512; B535; B536; B546 | 2.1      |
|                    |                |     |                   |      |                              | 2.1      |
|                    |                |     |                   |      | A479; A479M; B649; B691      | 2.1      |
|                    |                |     |                   |      | S31254; A182F44; A276F44     | 2.1      |
|                    |                |     |                   |      |                              | 2.1      |
|                    |                |     |                   |      | 253 MA                       | 2.1      |
|                    |                |     |                   |      | 660, Alloy A-286             | 4.1      |
|                    |                |     |                   |      |                              | <b>M</b> |
| -                  | -              |     | SUS 329J3L        | 2377 | 2205                         | 3.1      |
| -                  | -              |     | -                 | 2327 | 2304                         | 3.1      |
| -                  | -              |     | -                 | -    | 255                          | 3.1      |
| -                  | -              |     | -                 | -    | 255                          | 3.1      |
| -                  | -              |     | SCS 14A           | 2328 | 2507                         | 4.1      |
|                    |                |     |                   |      |                              | <b>M</b> |
| X 12 Cr 13         | F.3401         |     | SUS 410           | 2302 | 410; CA-15                   | 1.1      |
| X 12 CrS 13        | -              |     | SUS 416           | 2380 | 416                          | 1.1      |
| X 20 Cr 13         | -              |     | SUS 420 J 1       | 2303 | 420                          | 1.1      |
| X 30 Cr 13         | -              |     | SUS 420 J 2       | 2304 | 420                          | 1.1      |
| X 40 Cr 14         | -              |     | SUS 420 J 2       | 2304 | 420                          | 1.1      |
| X 40 Cr 14         | F.3405         |     | SUS 420 J 2       | 2304 | 420                          | 1.1      |
| -                  | F-3422         |     | -                 | -    | -                            | 1.1      |
| -                  | -              |     | -                 | -    | -                            | 1.1      |
| -                  | -              |     | SUS 410J1         | -    | 420                          | 1.1      |
| X 14 CrS 17        | F-3431         |     | SUS 430 F         | 2383 | 430 F                        | 1.1      |
| X 16 CrNi 16       | F-3427         |     | SUS 431           | 2321 | 431                          | 1.1      |
| X 80 CrSiNi 20     | F.320.B        |     | SUH 4             | -    | HNV 6                        | 1.1      |
| X 105 CrMo 17      | -              |     | SUS 440 C         | -    | 440 C                        | 1.1      |
|                    |                |     |                   |      |                              | 1.1      |
|                    |                |     |                   |      | 440B                         | 1.1      |
|                    |                |     | SUS431            |      | 431                          | 1.1      |
|                    |                |     |                   |      | F899                         | 1.1      |
|                    |                |     |                   |      |                              | 1.1      |
|                    |                |     |                   |      | S42400                       | 1.1      |
|                    |                |     |                   |      | K92460                       | 1.1      |
|                    |                |     |                   |      | F91; K90901                  | 1.1      |
|                    |                |     |                   |      |                              | 1.1      |
| X 6 CrNi 13 04     | -              |     | SCS 5             | 2385 | CA 6-NM                      | 3.1      |
| -                  | -              |     | -                 | 2387 | -                            | 3.1      |
|                    |                |     |                   |      | Jethete M-152                | 3.1      |
|                    |                |     |                   |      | XM-32                        | 3.1      |
|                    |                |     |                   |      |                              | 3.1      |
|                    |                |     |                   |      |                              | <b>M</b> |
| -                  | -              |     | SUS 631           | 2388 | 631                          | 3.1      |
|                    |                |     |                   |      |                              | 3.1      |
|                    |                |     |                   |      | A564, A564-M, A705 F899      | 3.1      |
|                    |                |     |                   |      |                              | 3.1      |
|                    |                |     |                   |      |                              | 3.1      |
| -                  | -              |     | SCS 630           | -    | 630                          | 4.1      |
|                    |                |     |                   |      | A564; F899                   | 4.1      |



|          | R <sub>m</sub>   | Rockwell |          |                       |                |                 |         |
|----------|--|----------|----------|-----------------------|----------------|-----------------|---------|
|          | [N/mm <sup>2</sup> ]   | [HRC]    | Mat.-Nr. | DIN                   | AFNOR          | BS              | EN      |
| 4.1      | 930 - 1180   |          | 1.4944   | X6NiCrTiMoV26-15      |                |                 |         |
| <b>K</b> | <b>Gusseisen mit Lamellengrafit (GJL) · Cast iron with lamellar graphite (GJL)</b>           |          |          |                       |                |                 |         |
| 1.1      | 100 - 200  |          | 0.6010   | EN-GJL100 (GG10)      | Ft 10 D        | -               | -       |
| 1.1      | 150 - 250  |          | 0.6015   | EN-GJL150 (GG15)      | Ft 15 D        | Grade 150       | -       |
| 1.1      | > 170  |          | 0.6655   | GGL-NiCuCr15-6-2      | L-NUC 15 6 2   | L-NUC 15 6 2    | -       |
| 1.1      | > 170  |          | 0.6660   | GGL-NiCr20-2          | L-NC 20 2      | L-NC 20 2       | -       |
| 1.1      | > 190  |          | 0.6676   | GGL-NiCr30-3          | L-NC 30 3      | L-NC 30 3       | -       |
| 1.1      | > 170  |          | 0.6680   | GGL-NiSiCr30-5-5      | L-NSC 30 5 5   | L-NSC 30 5 5    | -       |
| 1.2      | 200 - 300  |          | 0.6020   | EN-GJL200 (GG20)      | Ft 20 D        | Grade 220       | -       |
| 1.2      | 250 - 350  |          | 0.6025   | EN-GJL250 (GG25)      | Ft 25 D        | Grade 260       | -       |
| 1.2      | 300 - 400  |          | 0.6030   | EN-GJL300 (GG30)      | Ft 30 D        | Grade 300       | -       |
| 1.2      | 350 - 450  |          | 0.6035   | EN-GJL350 (GG35)      | Ft 35 D        | Grade 350       | -       |
| 1.2      | 400 - 500  |          | 0.6040   | EN-GJLZ (GG40)        | Ft 40 D        | Grade 400       | -       |
| <b>K</b> | <b>Gusseisen mit Kugelgrafit (GJS) · Cast iron with nodular graphite (GJS)</b>               |          |          |                       |                |                 |         |
| 2.1      | 370 - 400  |          | 0.7040   | EN-GJS-400-15 (GGG40) | FGS 400-12     | SNG 420/12      | -       |
| 2.1      | 420 - 500  |          | 0.7050   | EN-GJS-500-7 (GGG50)  | FGS 500-7      | SNG 500/7       | -       |
| 2.1      | 370 - 480  |          | 0.7660   | GGG-NiCr20-2          | S-NC 20 2      | S-NiCr 20 2     | -       |
| 2.1      | > 390  |          | 0.7661   | GGG-NiCr20-3          | S-NC 20 3      | S-NiCr 20 3     | -       |
| 2.1      | 370 - 450  |          | 0.7670   | EN-GJSA-XNi22         | S-N 22         | S-Ni 22         | -       |
| 2.1      | 440 - 480  |          | 0.7673   | EN-GJSA-XNiMn23-4     | S-NM 23 4      | S-NiMn 23 4     | -       |
| 2.1      | 370 - 480  |          | 0.7676   | EN-GJSA-XNiCr30-3     | S-NC 30 3      | S-NiCr 30 3     | -       |
| 2.1      | > 370  |          | 0.7677   | GGG-NiCr301           | S-NC 30 1      | S-NiCr 30 1     | -       |
| 2.1      | 390 - 500  |          | 0.7680   | EN-GJSA-XNiSiCr30-5-5 | S-NSC 30 5 5   | S-NiSiCr 30 5 5 | -       |
| 2.1      | 370 - 420  |          | 0.7683   | EN-GJSA-XNi35         | S-N 35         | S-Ni 35         | -       |
| 2.1      | 370 - 450  |          | 0.7685   | EN-GJSA-XNiCr35-3     | S-NC 35 3      | S-NiCr 35 3     | -       |
| 2.2      | 550 - 600  |          | 0.7060   | EN-GJS-600-3 (GGG60)  | FGS 600-3      | SNG 600/3       | -       |
| 2.2      | 660 - 700  |          | 0.7070   | EN-GJS-700-2 (GGG70)  | FGS 700-2      | SNG 700/2       | -       |
| 2.2      | 800  |          | 0.7080   | EN-GJS-800-2 (GGG80)  | FGS 800-2      | SNG 800/2       | -       |
| <b>K</b> | <b>Gusseisen mit Vermiculargrafit (GJV) · Cast iron with vermicular graphite (GJV)</b>       |          |          |                       |                |                 |         |
| 3.1      | 300-375  |          |          | EN-GJV300             | -              | -               | -       |
| 3.2      | 350-425  |          |          | EN-GJV350             | -              | -               | -       |
| 3.2      | 400-475  |          |          | EN-GJV400             | -              | -               | -       |
| 3.2      | 450-525  |          |          | EN-GJV450             | -              | -               | -       |
| 3.2      | 500-575  |          |          | EN-GJV500             | -              | -               | -       |
| <b>K</b> | <b>Temperguss (GTMW, GTMB) · Malleable cast iron (GTMW, GTMB)</b>                            |          |          |                       |                |                 |         |
| 4.1      | > 350  |          | 0.8135   | EN-GJMB-350-10        | MN35-10        | B340/12         | -       |
| 4.1      | > 450  |          | 0.8145   | EN-GJMB-450-6         | -              | P440/7          | -       |
| 4.1      | 270 - 360  |          | 0.8035   | EN-GJMW-350-4         | MB35-7         | W340/3          | -       |
| 4.1      | 300 - 420  |          | 0.8040   | EN-GJMW-400-5         | MB40-10        | W410/4          | -       |
| 4.1      | 330 - 480  |          | 0.8045   | EN-GJMW-450-7         | -              | -               | -       |
| 4.2      | > 550  |          | 0.8155   | EN-GJMB-550-4         | MP50-5         | P510/4          | -       |
| 4.2      | > 650  |          | 0.8165   | EN-GJMB-650-2         | MP60-3         | P570/3          | -       |
| 4.2      | > 700  |          | 0.8170   | EN-GJMB-700-2         | M870-2         | P690/2          | -       |
| 4.2      | 490 - 570  |          | 0.8055   | EN-GJMW-550-4         | -              | -               | -       |
| <b>N</b> | <b>Aluminium unlegiert · Unalloyed aluminium</b>   |          |          |                       |                |                 |         |
| 1.1      | 65 - 150   |          | 3.0225   | Al99.5                | A5             | 1B              | -       |
| 1.1      | 40 - 100   |          | 3.0305   | Al99.9                | A9             | -               | -       |
| <b>N</b> | <b>Aluminium-Knetlegierungen, nicht ausgehärtet · Wrought aluminium alloys, not hardened</b> |          |          |                       |                |                 |         |
| 1.1      | 100 - 125  |          | 3.0505   | AlMn0.5Mg0.5          | -              | N31             | -       |
| 1.1      | 100 - 205  |          | 3.3315   | AlMg1                 | A-G0,6         | N41             | -       |
| 1.2      | 80 - 230   |          | 3.0515   | AlMn1                 | -              | N3              | -       |
| 1.2      | 115 - 290  |          | 3.0525   | AlMn1Mg0.5            | A-M1G0,5       | -               | -       |
| 1.2      | 180 - 310  |          | 3.3535   | AlMg3                 | A-G3M          | N5              | -       |
| 1.2      | 230 - 260  |          | 3.3547   | AlMg4,5Mn0,7          |                | NB              | AW-5083 |
| 1.2      | 150 - 290  |          | 3.3214   | AlMg1SiCu             |                |                 | AW-6061 |
| 1.3      | 220 - 455  |          | 3.4354   | AlZn5,5MgCuAg         |                |                 | AW-7009 |
| 1.3      | 330 - 370  |          | 3.1645   | AlCu4PbMgMn           |                |                 | AW-2007 |
| 1.3      | 340 - 370  |          | 3.1364   | AlCu4PbMgMn           |                |                 | AW-2007 |
| 1.3      | 470 - 510  |          | 3.3144   | AlZn6CuMgZr           |                |                 | AW-7050 |
| 1.3      | 420 - 480  |          | 3.4364   | AlZn5,5MgCu           |                |                 | AW-7075 |
| 1.3      | 220 - 450  |          | 3.1354   | AlCu4Mg1              |                |                 | AW-2024 |
| <b>N</b> | <b>Aluminium Knetlegierungen, ausgehärtet · Wrought aluminium alloys, hardened</b>           |          |          |                       |                |                 |         |
| 1.2      | 130 - 270  |          | 3.3206   | AlMgSi0.5             | -              | H9              | -       |
| 1.2      | 120 - 300  |          | 3.3211   | AlMg1SiCu             | -              | H20             | -       |
| 1.3      | 150 - 400  |          | 3.1325   | AlCuMg1               | A-U4G          | H14             | -       |
| 1.3      | 180 - 460  |          | 3.1355   | AlCuMg2               | A-U4G1         | 2L97            | -       |
| 1.3      | 130 - 360  |          | 3.2315   | AlMgSi1               | A-SGM0,7       | H30             | -       |
| 1.3      | 410 - 490  |          | 3.4345   | AlZnMgCu0.5           | AZ 4 GU/9051   | L86             | -       |
| 1.3      | 180 - 560  |          | 3.4365   | AlZnMgCu1.5           | AZ 4 GU/9050 C | L87             | -       |
| <b>N</b> | <b>Aluminium-Gusslegierungen Si ≤ 7% · Aluminium cast alloys Si ≤ 7%</b>                     |          |          |                       |                |                 |         |
| 1.4      | 280 - 300  |          | 3.2134   | G-AlSi5Cu1Mg          | -              | -               | -       |
| 1.4      | 140 - 300  |          | 3.3241   | G-AlMg3Si             | -              | -               | -       |
| 1.4      | 200  |          | 3.3292   | GD-AlMg9              | A-G10S         | -               | -       |
| 1.4      | 140 - 210  |          | 3.3541   | GD-AlMg3              | A-G3T          | -               | -       |
| <b>N</b> | <b>Aluminium-Gusslegierungen 7% &lt; Si ≤ 12% · Aluminium cast alloys 7% &lt; Si ≤ 12%</b>   |          |          |                       |                |                 |         |
| 1.5      | 160 - 200  |          | 3.2161   | G-AlSi8Cu3            | -              | -               | -       |








|  | UNI       | UNE     | JIS       | SIS        | AISI/SAE/ASTM    |          |
|--|-----------|---------|-----------|------------|------------------|----------|
|  |           |         |           |            | 660; Alloy A-286 | 4.1      |
|  |           |         |           |            |                  | <b>K</b> |
|  | G 10      | -       | FC 10     | 01 10-00   | A48-20 B         | 1.1      |
|  | G 15      | FG 15   | FC 15     | 01 15-00   | A48-25 B         | 1.1      |
|  | -         | -       | -         | -          | A-436 Type 1     | 1.1      |
|  | -         | -       | -         | -          | A-436 Type 2     | 1.1      |
|  | -         | -       | -         | -          | A-436 Type 3     | 1.1      |
|  | -         | -       | -         | -          | A-436 Type 4     | 1.1      |
|  | G 20      | FG 20   | FC 20     | 01 200     | A48-30 B         | 1.2      |
|  | G 25      | FG 25   | FC 25     | 01 250     | A48-40 B         | 1.2      |
|  | G 30      | FG 30   | FC 30     | 1 300      | A48-45 B         | 1.2      |
|  | G 35      | FG 35   | FC 35     | 1 350      | A48-50 B         | 1.2      |
|  | -         | -       | -         | 1 400      | A48-60 B         | 1.2      |
|  |           |         |           |            |                  | <b>K</b> |
|  | GS 400-12 | GGG 40  | FCD 40    | 0717-02    | 60-40-18         | 2.1      |
|  | GS 500/7  | GGG 50  | FCD 50    | 0727-02    | 65-45-12         | 2.1      |
|  | -         | F 43000 | -         | -          | A 439 Type D-2   | 2.1      |
|  | -         | F 43001 | -         | -          | A 439 Type D-2B  | 2.1      |
|  | -         | F 43002 | -         | -          | A 439 Type D-2C  | 2.1      |
|  | -         | F 43003 | -         | -          | A 439 Type D-2M  | 2.1      |
|  | -         | -       | -         | -          | A 439 Type D-3   | 2.1      |
|  | -         | F 43004 | -         | -          | A 439 Type D-3A  | 2.1      |
|  | -         | F 43005 | -         | -          | A 439 Type D-4   | 2.1      |
|  | -         | F 43006 | -         | -          | A 439 Type D-5   | 2.1      |
|  | -         | -       | -         | -          | A 439 Type D-5B  | 2.1      |
|  | GS 600/3  | -       | FCD 60    | 0732-03    | 80-55-06         | 2.2      |
|  | GS 700/2  | GGG 70  | FCD 70    | 0737-01    | 100-70-03        | 2.2      |
|  | GS 800/2  | -       | -         | -          | 120-90-02        | 2.2      |
|  |           |         |           |            |                  | <b>K</b> |
|  | -         | -       | -         | -          | -                | 3.1      |
|  | -         | -       | -         | -          | -                | 3.2      |
|  | -         | -       | -         | -          | -                | 3.2      |
|  | -         | -       | -         | -          | -                | 3.2      |
|  | -         | -       | -         | -          | -                | 3.2      |
|  |           |         |           |            |                  | <b>K</b> |
|  | -         | GTS 35  | -         | 0810       | 32510            | 4.1      |
|  | -         | GTS 45  | -         | 0852       | 40010            | 4.1      |
|  | -         | GTW 35  | FCMW 330  | -          | MB 350-4         | 4.1      |
|  | GMB 40    | GTW 40  | FCMW 370  | -          | MB 400-5         | 4.1      |
|  | GMB 45    | GTW 45  | FCMWP 440 | -          | MB 450-7         | 4.1      |
|  | -         | GTS 55  | -         | 0854       | 50005            | 4.2      |
|  | -         | GTS 65  | -         | 0856       | 70003            | 4.2      |
|  | -         | GTS 70  | -         | 0862; 0864 | 90001            | 4.2      |
|  | -         | GTW 55  | -         | -          | -                | 4.2      |
|  |           |         |           |            |                  | <b>N</b> |
|  | 4507      | L-3051  | A1x1      | -          | -                | 1.1      |
|  | -         | -       | -         | -          | -                | 1.1      |
|  |           |         |           |            |                  | <b>N</b> |
|  | -         | -       | -         | -          | 3105             | 1.1      |
|  | 5764      | L-3350  | A2x8      | 144106     | -                | 1.1      |
|  | 3568      | L-3810  | 144054    | -          | -                | 1.2      |
|  | -         | -       | -         | -          | -                | 1.2      |
|  | 3575      | L-3390  | -         | -          | -                | 1.2      |
|  |           | L-3321  | A5083     | -          | A95083           | 1.2      |
|  |           |         |           |            |                  | 1.2      |
|  |           |         |           |            |                  | 1.3      |
|  |           |         |           |            |                  | 1.3      |
|  |           |         |           |            |                  | 1.3      |
|  |           |         |           |            |                  | 1.3      |
|  |           |         |           |            | B-209; B211      | 1.3      |
|  |           |         |           |            |                  | 1.3      |
|  |           |         |           |            |                  | <b>N</b> |
|  | 3569      | L-3441  | A2x5      | 144103     | -                | 1.2      |
|  | -         | -       | -         | -          | -                | 1.2      |
|  | 3579      | L-3120  | -         | -          | -                | 1.3      |
|  | 3579      | L-3140  | A3x4      | -          | -                | 1.3      |
|  | 3571      | L-3451  | -         | 144212     | -                | 1.3      |
|  | 811-04    | -       | -         | -          | 7050             | 1.3      |
|  | 811-05    | -       | -         | -          | 7175             | 1.3      |
|  |           |         |           |            |                  | <b>N</b> |
|  | -         | -       | -         | -          | -                | 1.4      |
|  | -         | -       | -         | -          | -                | 1.4      |
|  | 5080      | -       | -         | -          | -                | 1.4      |
|  | 3059      | -       | ADC6      | -          | -                | 1.4      |
|  |           |         |           |            |                  | <b>N</b> |
|  | -         | -       | -         | -          | -                | 1.5      |



|          | R <sub>m</sub>  | Rockwell |              |                |          |        |    |
|----------|---|----------|--------------|----------------|----------|--------|----|
|          | [N/mm <sup>2</sup> ]  | [HRC]    | Mat.-Nr.     | DIN            | AFNOR    | BS     | EN |
| 1.5      | 230 - 360   |          | 3.2373       | G-AlSi9Mg      | A-S9G    | -      | -  |
| 1.5      | 240 - 350   |          | 3.2163       | G-AlSi9Cu3     | A-S9U3   | LM24   | -  |
| 1.5      | 150 - 340   |          | 3.2381       | G-AlSi10Mg     | A-S10G   | LM9    | -  |
| 1.5      | 160   |          | 3.2383       | G-AlSi10Mg(Cu) | A-S10GU  | LM 9   | -  |
| 1.5      | 150 - 170   |          | 3.2581       | G-AlSi12       | A-S13    | LM 6   | -  |
| 1.5      | 150 - 290   |          | 3.2583       | G-AlSi12(Cu)   | A-S12U   | LM 20  | -  |
| <b>N</b> | <b>Aluminium-Gusslegierungen Si &gt; 12%</b> · Aluminium cast alloys Si > 12%                             |          |              |                |          |        |    |
| 1.6      | 165 - 370   |          |              | G-AlSi17Cu4Mg  | -        | -      | -  |
| 1.6      | 180 - 220   |          |              | G-AlSi18CuNiMg | -        | -      | -  |
| 1.6      | 200 - 240   |          |              | G-AlSi21CuNiMg | -        | -      | -  |
| 1.6      | 230 - 300   |          |              | G-AlSi25CuNiMg | -        | -      | -  |
| <b>N</b> | <b>Reinkupfer, niedriglegiertes Kupfer</b> · Pure copper, low-alloyed copper                              |          |              |                |          |        |    |
| 2.2      | < 600   |          | 2.0240       | CuZn15         | CuZn15   | CZ 102 | -  |
| 2.2      | < 800   |          | 2.0265       | CuZn30         | CuZn30   | CZ 106 | -  |
| <b>N</b> | <b>Kupfer-Zink-Legierungen (Messing, langspanend)</b> · Copper-zinc alloys (brass, long-chipping)         |          |              |                |          |        |    |
| 2.2      | < 800   |          | 2.0321       | CuZn37         | CuZn37   | CZ 108 | -  |
| 2.2      | < 800   |          | 2.0335       | CuZn36         | Ms63     | CZ 108 | -  |
| 2.2      | 340 - 480   |          | 2.0360       | CuZn40         | Ms60     | DCB1   | -  |
| <b>N</b> | <b>Kupfer-Zink-Legierungen (Messing, kurzspanend)</b> · Copper-zinc alloys (brass, short-chipping)        |          |              |                |          |        |    |
| 2.3      | 340 - 570   |          | 2.0401       | CuZn39Pb3      | Ms58     | -      | -  |
| <b>N</b> | <b>Kupfer-Zinn-Legierungen (Zinnbronze, langspanend)</b> · Copper-tin alloys (tin bronze, long-chipping)  |          |              |                |          |        |    |
| 2.5      | < 900   |          | 2.1016       | CuSn4          | -        | -      | -  |
| 2.5      | 390 - 620   |          | 2.1030       | CuSn8P         | -        | -      | -  |
| <b>N</b> | <b>Kupfer-Zinn-Legierungen (Zinnbronze, kurzspanend)</b> · Copper-tin alloys (tin bronze, short-chipping) |          |              |                |          |        |    |
| 2.6      | 200 - 250   |          | 2.1097       | G-CuSn5ZnPb    | Rg5      | -      | -  |
| 2.6      | 230 - 320   |          | 2.1090.01    | G-CuSn7ZnPb    | Rg7      | -      | -  |
| 2.6      | 280   |          | 2.1086.01    | G-CuSn10Zn     | Rg10     | -      | -  |
| 2.6      | 600 - 650   |          | 2.0975       | G-CuAl10Ni     | CuNiAl11 | -      | -  |
| <b>N</b> | <b>Kupfer-Aluminium-Legierungen (Alubronze)</b> · Copper-aluminium alloys (alu bronze)                    |          |              |                |          |        |    |
| 2.7      | > 550   |          | Ampco 8      | -              | -        | -      | -  |
| 2.7      | > 500   |          | Ampco 25     | -              | -        | -      | -  |
| 2.7      | 440   |          | Ampco 26     | -              | -        | -      | -  |
| 2.7      | 517   |          | Ampco 673    | -              | -        | -      | -  |
| 2.8      | > 750   |          | Ampco 21     | -              | -        | -      | -  |
| 2.8      | > 810   |          | Ampco 45     | -              | -        | -      | -  |
| 2.8      | > 1000  |          | Ampco M-4    | -              | -        | -      | -  |
| 2.8      | 890   |          | Ampco 15     | -              | -        | -      | -  |
| 2.8      | 650 - 750   |          | Ampco 18     | -              | -        | -      | -  |
| 2.8      | 690   |          | Ampco 18.136 | -              | -        | -      | -  |
| 2.8      | 793   |          | Ampco 18.22  | -              | -        | -      | -  |
| 2.8      | 741   |          | Ampco 18.23  | -              | -        | -      | -  |
| 2.8      | 724   |          | Ampco 22     | -              | -        | -      | -  |
| 2.8      | 605   |          | Ampco 483    | -              | -        | -      | -  |
| 2.8      | 620   |          | Ampco 642    | -              | -        | -      | -  |
| 2.8      | 620   |          | Ampco 674    | -              | -        | -      | -  |
| 2.8      | 724   |          | Ampco 863    | -              | -        | -      | -  |
| <b>N</b> | <b>Hochleitfähige Kupferlegierung</b> · Highly conductive copper alloy                                    |          |              |                |          |        |    |
| 2.7      | 200   |          | Ampcoloy 30  | -              | -        | -      | -  |
| 2.7      | 210   |          | Ampcoloy 32  | -              | -        | -      | -  |
| 2.7      | 250   |          | Ampcoloy 35  | -              | -        | -      | -  |
| 2.7      | 300   |          | Ampcoloy 712 | -              | -        | -      | -  |
| 2.7      | 465 - 520   |          | Ampcoloy 972 | -              | -        | -      | -  |
| 2.8      | 1310  |          | Ampcoloy 83  | -              | -        | -      | -  |
| 2.8      | 890   |          | Ampcoloy 88  | -              | -        | -      | -  |
| 2.8      | 740   |          | Ampcoloy 89  | -              | -        | -      | -  |
| 2.8      | 720 - 900   |          | Ampcoloy 91  | -              | -        | -      | -  |
| 2.8      | 720 - 850   |          | Ampcoloy 95  | -              | -        | -      | -  |
| 2.8      | 660 - 690   |          | Ampcoloy 940 | -              | -        | -      | -  |
| 2.8      | 938   |          | Ampcoloy 944 | -              | -        | -      | -  |
| <b>N</b> | <b>Magnesium-Knetlegierungen</b> · Magnesium wrought alloys   |          |              |                |          |        |    |
| 3.1      | > 270   |          | 3.5612       | MgAl6Zn        | -        | -      | -  |
| 3.2      | > 240   |          | 3.5912       | G-MgAl9Zn1     | -        | -      | -  |
| <b>N</b> | <b>Kunststoffe</b> · Synthetics   |          |              |                |          |        |    |
| 4.1      |   |          | Bakelit      | -              | -        | -      | -  |
| 4.1      |   |          | Pertinax     | -              | -        | -      | -  |
| 4.2      |   |          | PMMA         | -              | -        | -      | -  |
| 4.2      |   |          | POM          | -              | -        | -      | -  |
| 4.2      |   |          | PVC          | -              | -        | -      | -  |
| <b>N</b> | <b>Faserverstärkte Kunststoffe</b> · Fibre-reinforced synthetics  |          |              |                |          |        |    |
| 4.3      | 155 - 365   |          | GFK          | -              | -        | -      | -  |
| 4.3      | 190 - 210   |          | CFK uni.     | -              | -        | -      | -  |
| 4.3      | 190 - 210   |          | CFK multi.   | -              | -        | -      | -  |
| 4.3      |   |          | AFK          | -              | -        | -      | -  |
| <b>N</b> | <b>Wolfram Kupfer Legierung</b> · Tungsten copper alloy   |          |              |                |          |        |    |
| 5.2      | 344 - 413   |          | WCu 50/50    | -              | -        | -      | -  |
| 5.2      | 379 - 448   |          | WCu 60/40    | -              | -        | -      | -  |





|          | R <sub>m</sub><br>[N/mm <sup>2</sup> ]   | Rockwell<br>[HRC] |  |                        |  |               |  |  |
|----------|--|-------------------|---|------------------------|---|---------------|---|--|
|          |  |                   | Mat.-Nr.  | DIN                    | AFNOR   | BS            | EN  |  |
| 5.2      | 516 - 585  |                   | WCu 70/30   |                        |   |               |   |  |
| 5.2      | 585 - 654  |                   | WCu 75/25   |                        |   |               |   |  |
| 5.2      | 620 - 689  |                   | WCu 80/20   |                        |   |               |   |  |
| 5.2      | 700  |                   | WCu 90/10   |                        |   |               |   |  |
| <b>N</b> | <b>Grafit · Graphite</b>   |                   |   |                        |   |               |   |  |
| 5.1      |  |                   | ISEM-8  | VDI 23 - 28            |   |               |   |  |
| 5.1      |  |                   | ISO-63  | VDI 21 - 26            |   |               |   |  |
| 5.1      |  |                   | TTK-4   | VDI 19 - 23            |   |               |   |  |
| 5.1      |  |                   | TTK-5   | VDI 18 - 22            |   |               |   |  |
| 5.1      |  |                   | TTK-50  | VDI 22 - 27            |   |               |   |  |
| 5.1      |  |                   | TTK-8   | VDI 15 - 21            |   |               |   |  |
| 5.1      |  |                   | TTK-9   | VDI 15 - 21            |   |               |   |  |
| <b>S</b> | <b>Nickel-, Kobalt- und Eisen-Legierungen · Nickel alloys, cobalt alloys and iron alloys</b> |                   |   |                        |   |               |   |  |
| 2.2      | 500 - 700  |                   | 2.4360  | NiCu30Fe               | Nu 30   | NA 13         | -   |  |
| 2.2      | 620 - 850  |                   | 2.4375  | NiCu30Al               | Nu 30 AT  | NA 18         | -   |  |
| 2.2      | > 690  |                   | 2.4685  | G-NiMo28               | -   | -             | -   |  |
| 2.2      | > 740  |                   | 2.4610  | NiMo16Cr16Ti           | -   | -             | -   |  |
| 2.2      | > 760  |                   | 2.4617  | G-NiMo30               | -   | -             | -   |  |
| 2.2      | 700 - 800  |                   | 2.4630, 2.4951  | NiCr20Ti               | NC 20 T   | HR 5          | -   |  |
| 2.2      | 800 - 1000   |                   | 2.4631  | NiCr20TiAl             | -   | HR 401; 601   | -   |  |
| 2.2      | < 770  |                   | 2.4662  | NiCr13Mo6Ti3           | -   | HR 53         | -   |  |
| 2.2      | 890  |                   | 2.4856  | NiCr22Mo9Nb            | NC 22 FeDNb   | NA 21         | -   |  |
| 2.2      | 840  |                   | 2.4733  | NiCr22W14Mo            | Haynes 230 alloy  |               |   |  |
| 2.2      | 740  |                   | Haynes HR-224 alloy   |                        |   |               |   |  |
| 2.2      | 700 - 1000   |                   | 2.4600  | NiMo29Cr               | Hastelloy B3 alloy  |               |   |  |
| 2.2      | 690 - 950  |                   | 2.4675  | NiCr23Mo16Cu           | Hastelloy C-2000  |               |   |  |
| 2.2      | 690 - 950  |                   | 2.4602  | NiCr21Mo14W            | Hastelloy C-22  |               |   |  |
| 2.2      | 750 - 1000   |                   | 2.4819  | NiMo16Cr15W            | Hastelloy C-276 alloy   |               |   |  |
| 2.2      | 700 - 900  |                   | 2.4610  | NiMo16Cr16Ti           | Hastelloy C-4 alloy   |               |   |  |
| 2.2      | 725  |                   | 2.4708  | NiMo22Cr15             | Hastelloy Hybrid-BC-1 alloy   |               |   |  |
| 2.2      | 500 - 750  |                   | 2.4816  | NiCr15Fe               | Inconel 600   | NA14          |   |  |
| 2.2      | 231  |                   | 2.4676  | G-NiCo10W10CrAlNb      | MAR-M246 Alloy  |               |   |  |
| 2.2      | 900 - 1150   |                   | 1.4980  | X5NiCrTi2615           |   |               |   |  |
| 2.2      | <900   |                   | 2.4812  | NiCr17Mo17FeW          | Hastelloy C   |               |   |  |
| 2.2      | 550 - 750  |                   | 2.4851  | NiCr23Fe               | Inconel 601   |               |   |  |
| 2.2      | 550  |                   | 2.4858  | NiCr21Mo               |   | NA16          |   |  |
| 2.2      | 650 - 880  |                   | 2.4983  | NiCr18Co18MoAlTi       | Udimet 500  |               |   |  |
| 2.2      | >550   |                   | 2.4608  | NiCr26MoW              | Alloy 333   |               |   |  |
| 2.2      | >670   |                   | 2.4633  | NiCr25FeAlY            | Alloy 602 CA  |               |   |  |
| 2.2      | >490   |                   | 1.3912  | Ni36                   | NF A54-301  |               |   |  |
| 2.2      | 700 - 965  |                   | 1.3964  | X2CrNiMnMoNNb21-16-5-3 |   |               |   |  |
| 2.2      | >690   |                   | 2.4665  | NiCr19Fe19Nb5Mo3       | NC22FeD   | HR204         |   |  |
| 2.2      | >970   |                   | 2.4650  | NiCo20Cr20MoT          |   |               |   |  |
| 2.2      | >690   |                   | 2.4605  | NiCr23Mo16Al           |   |               |   |  |
| 2.2      | 650 - 850  |                   | 2.4692  | NiFeCr27Mo6CuN         |   |               |   |  |
| 2.3      | 1200   |                   | 2.4632  | NiCr20Co18Ti           | -   | -             | -   |  |
| 2.3      | 1180   |                   | 2.4634  | NiCo20Cr15MoAlTi       | -   | -             | -   |  |
| 2.3      | 900 - 1200   |                   | 2.4670  | -                      | -   | -             | -   |  |
| 2.3      | 900 - 1200   |                   | 2.4674  | -                      | -   | -             | -   |  |
| 2.3      | 1270   |                   | 2.6554  | -                      | -   | -             | -   |  |
| 2.3      | < 1400   |                   | 2.4668  | NiCr19FeNbMo           | NC 19Fe Nb  |               |   |  |
| 2.3      | 1132   |                   | Haynes 282 alloy  |                        |   |               |   |  |
| 2.3      | 1175   |                   | 2.4654  | NiCr20Co13Mo4Ti3Al     | Waspaloy  |               |   |  |
| 2.3      | >930   |                   | 2.4952  | NiCr20TiAl             | Nimonic 80 A  |               |   |  |
| 2.3      | >1172  |                   | 2.4973  | NiCr18Co11MoTi         | Rene 41   |               |   |  |
| 2.3      | >980   |                   | 2.4669  | NiCr15Fe7TiAl          |   |               |   |  |
| 2.4      | <755   |                   | 2.4989  | CoCr20NiW              |   |               |   |  |
| 2.4      | >433   |                   | 2.4679  | CoCr28MoNi             |   |               |   |  |
| 2.5      | 830 - 1130   |                   | 2.4964  | CoCr20W15Ni            |   |               |   |  |
| 2.6      | 900 - 1100   |                   | 1.4718  | X45CrSi9-3             | Z 45 CS 9   | 401 S 45      | 52  |  |
| 2.6      | 500 - 750  |                   | 1.4828  | X15CrNiSi20-12         | Z 15 CNS 20.12  | 309 S 24      | -   |  |
| 2.6      | 550 - 800  |                   | 1.4841  | X15CrNiSi25-20         | Z 15 CNS 25.20  | -             | -   |  |
| 2.6      | 500 - 750  |                   | 1.4845  | X12CrNi25-21           | Z 12 CN 25.20   | 310 S 24      | -   |  |
| 2.6      | 550 - 800  |                   | 1.4864  | X12NiCrSi36-16         | Z 12 NCS 37.18  | NA 17         | -   |  |
| 2.6      | 950 - 1200   |                   | 1.4871  | X53CrMnNiN21-9         | Z 52 CMN 21.09  | 349 S 54      | -   |  |
| 2.6      | 500 - 750  |                   | 1.4876  | X10NiCrAlTi33-20       | Z 8 NC 32.21  | NA 15 (H)     | -   |  |
| 2.6      | 500 - 750  |                   | 1.4878  | X12CrNiTi18-9          | Z 6 CNT 18.12 (B)   | 321 S 20      | -   |  |
| <b>S</b> | <b>Reintitan, Titanlegierungen · Pure titanium, titanium alloys</b>                          |                   |   |                        |   |               |   |  |
| 1.1      | 290 - 410  |                   | 3.7025  | Ti99.5 / Ti Gr.1       | -   | -             | -   |  |
| 1.1      | 380 - 540  |                   | 3.7035  | Ti99.4 / Ti Gr.2       | -   | TA 1          | -   |  |
| 1.1      | 390 - 540  |                   | 3.7235  | Ti2Pd / Ti Gr.2Pd      | -   | -             | -   |  |
| 1.1      | 345  |                   | 3.7024  | Ti99.5                 | T-35  | TA 1          |   |  |
| 1.1      | 485  |                   | 3.7034  | Ti99.7                 | T-40  | TA 2, 3, 4, 5 |   |  |
| 1.1      | 450  |                   | 3.7054  | Ti99.6                 |   |               |   |  |
| 1.2      | 460 - 590  |                   | 3.7055  | Ti99.3 / Ti Gr.3       | -   | TA 2          | -   |  |
| 1.2      | 540 - 740  |                   | 3.7065  | Ti99.2 / Ti Gr.4       | -   | TA 3          | -   |  |





|  | R <sub>m</sub><br>[N/mm <sup>2</sup> ] | Rockwell<br>[HRC] |                            |                    |             |               |           |  |
|--|--|-------------------|----------------------------|--------------------|-------------|---------------|-----------|--|
|  |  |                   | Mat.-Nr.                   | DIN                | AFNOR       | BS            | EN        |  |
| 1.2  | > 890                                  |                   | 3.7165                     | TiAl6V4 / Ti Gr. 5 | T-A6V       | TA 28         | -         |  |
| 1.2  | 620 - 760                              |                   | 3.7124                     | TiCu2              | T-U2        | TA 21, 22, 23 |           |  |
| 1.2  | 790                                    |                   | 3.7114                     | TiAl5Sn2           |             |               |           |  |
| 1.2  | 900                                    |                   | 3.7144                     | TiAl6Sn2Zr4Mo2     |             |               |           |  |
| 1.2  | >438                                   |                   | TITAN KS 1,2 ASN           |                    |             |               |           |  |
| 1.2  | 540 - 680                              |                   | 3.7064                     | Ti99,2             | T-60        | TA 6, 7, 8, 9 |           |  |
| 1.3  | > 1000                                 |                   | 3.7185                     | TiAl4Mo4Sn2        | -           | -             | -         |  |
| 1.3  | 1100                                   |                   | Ti6246                     | Ti6Al2Sn4Zr6Mo     |             |               |           |  |
| 1.3  | 670 - 1030                             |                   | 3.7154                     | TiAl6Zr5           | T-A6ZD      | TA 43, 44     |           |  |
| 1.3  | 930 - 1070                             |                   | 3.7184                     | TiAl4Mo4Sn2        | T-A4DE      | TA 45-51, 57  |           |  |
| 1.3  | >920                                   |                   | 3.7164                     | Ti-6Al4V           |             |               |           |  |
| 1.3  | >895                                   |                   | Ti-6Al4V-ELI               | Ti-6Al4V-ELI       |             |               |           |  |
| 1.3  | >900                                   |                   | Ti-6Al7Nb                  | Ti-6Al7Nb          |             |               |           |  |
| 1.3  | 1400                                   |                   | Ti555.3                    | Ti6Al5V5Mo3Cr      |             |               |           |  |
| <b>S Reinnickel · Pure nickel</b>                                    |  |                   |                            |                    |             |               |           |  |
| 2.1  | 340 - 540                              |                   | 2.4068                     | LC-Ni99            |             |               |           |  |
| 2.1  | >340                                   |                   | 2.4050                     | Ni99,8             |             |               |           |  |
| 2.1  | 450                                    |                   | 2.4060                     | Ni99,6             | N02200      |               |           |  |
| 2.2  | >450                                   |                   | 2.4360                     |                    | Monel 400   |               |           |  |
| <b>H Gehärtete Stähle, Hartguss · Hardened steels, hard castings</b> |  |                   |                            |                    |             |               |           |  |
| 1.1  | 1250 - 1550                            | < 50              | Weldox 1100                | -                  | -           | -             | -         |  |
| 1.1  |  | <48               | 1.2085                     | X33CrS16           | Z35 CD 17.S |               |           |  |
| 1.1  |  | 41 - 45           | 1.2714 HH                  | 55NiCrMoV7         | 55 NCDV 7   |               |           |  |
| 1.1  |  | 44 - 50           | 1.2358                     | 60CrMoV18-5        |             |               |           |  |
| 1.2  |  | 51 - 55           | 1.2397                     | ASP2011            |             |               |           |  |
| 1.2  |  | 53 - 55           | 1.2361                     | X91CrMoV18         |             |               |           |  |
| 1.2  |  | 50 - 55           | 1.2360                     | X50CrMoV8-1        |             |               |           |  |
| 1.2  |  | 50 - 55           | 1.2358                     | 60CrMoV18-5        |             |               |           |  |
| 1.2  | 1600 - 1800                            | < 55              | Hardox 500                 | -                  | -           | -             | -         |  |
| 1.2  | 1820 - 1900                            | < 55              | Hardox 550                 | -                  | -           | -             | -         |  |
| 1.2  | ~ 1860                                 | < 55              | 1.2713                     | 55NiCrMoV6         | 55 NCDV 7   | -             | -         |  |
| 1.2  |  | 53 - 56           | 1.2083 ESU                 | X40CR14            | Z40C14      |               |           |  |
| 1.2  |  | 54 - 55           | WP7V                       |                    |             |               |           |  |
| 1.2  |  | 52 - 55           | CP4M                       |                    |             |               |           |  |
| 1.2  |  | 55                | 1.2709                     | X3NiCoMoTi18-9-5   |             |               |           |  |
| 1.2  |  | 51 - 55           | ASP2011                    |                    |             |               |           |  |
| 1.2  |  | 53                | Thermodur E38K Superclean  |                    |             |               |           |  |
| 1.2  |  | 55                | Thermodur E40K Superclean  |                    |             |               |           |  |
| 1.2  |  | 52                | Thermodur 2383 Supercool   |                    |             |               |           |  |
| 1.2  |  | 53 - 55           | 1.2329                     | 46CrSiMoV7         |             |               |           |  |
| 1.2  |  | 53                | 1.2342                     | X35CrMoV5-1-1      |             |               |           |  |
| 1.2  |  | 52                | 1.2323                     | 48CrMoV67          |             |               |           |  |
| 1.3  |  | 60                | 1.2369                     | 81MoCrV4216        |             |               |           |  |
| 1.3  |  | 57                | 1.2367                     | X38CrMoV5-3        | Z38CDV5-3   |               |           |  |
| 1.3  |  | 56 - 58           | 1.2714                     | 55NiCrMoV7         | 55NCDV7     |               |           |  |
| 1.3  |  | 56 - 58           | 1.2740                     | 28NiCrMoV10        |             |               |           |  |
| 1.3  |  | 55 - 60           | ASP2011                    |                    |             |               |           |  |
| 1.3  |  | 58 - 60           | 1.3394                     | PMHS 6-5-3         |             |               | ASP2023   |  |
| 1.3  |  | 55 - 60           | CP4M                       |                    |             |               |           |  |
| 1.3  |  | 55 - 58           | WP7V                       |                    |             |               |           |  |
| 1.3  |  | 58 - 60           | CPR                        |                    |             |               |           |  |
| 1.3  | 1995 - 2300                            | < 60              | Armox 600T                 | -                  | -           | -             | -         |  |
| 1.3  | ~ 2100                                 | < 60              | 1.2542                     | 45WCrV7            | -           | BS 1          | -         |  |
| 1.3  |  | 56 - 60           | 1.3343 Plus                |                    |             |               | HS 6-5-2C |  |
| 1.3  |  | 58                | PMD 9                      |                    |             |               |           |  |
| 1.3  |  | 58 - 60           | 1.2379 Plus                |                    |             |               |           |  |
| 1.3  |  | 58 - 60           | CP72                       |                    |             |               |           |  |
| 1.3  |  | 57 - 60           | CP2M                       |                    |             |               |           |  |
| 1.3  |  | 59 - 60           | CPM Rex M4                 |                    |             |               |           |  |
| 1.3  |  | 55 - 60           | CPM Rex 121                |                    |             |               |           |  |
| 1.3  |  | 59 - 60           | Z-M4 PM Speed              |                    |             |               |           |  |
| 1.3  |  | 58 - 60           | Z-Tuff PM                  |                    |             |               |           |  |
| 1.3  |  | 58 - 60           | Z-Wear PM cold             |                    |             |               |           |  |
| 1.3  |  | 58 - 60           | Vanadis 4 Extra SuperClean |                    |             |               |           |  |
| 1.3  |  | 59 - 60           | 1.3352                     | PMHS 4-3-8         |             |               | ASP2053   |  |
| 1.3  |  | 56 - 59           | ASP 420H                   |                    |             |               |           |  |
| 1.3  |  | 57                | 1.2999                     | X45MoCrV5-3-1      |             |               |           |  |
| 1.3  |  | 55 - 60           | 1.2358                     | 60CrMoV18-5        |             |               |           |  |
| 1.3  |  | 55 - 60           | 1.2360                     | X50CrMoV8-1        |             |               |           |  |
| 1.3  |  | 55 - 58           | 1.2361                     | X91CrMoV18         |             |               |           |  |
| 1.3  |  | 55 - 60           | 1.2397                     | ASP2011            |             |               |           |  |
| 1.4  |  | 60 - 61           | 1.2397                     | ASP2011            |             |               |           |  |
| 1.4  |  | 60 - 63           | 1.3252                     | ASP2052            |             |               |           |  |
| 1.4  |  | 62 - 63           | 1.2990                     | X100CrMoV8-1-1     |             |               |           |  |
| 1.4  |  | 60 - 63           | 1.3352                     | PMHS 4-3-8         |             |               | ASP2053   |  |
| 1.4  |  | 60 - 63           | Vanadis 4 Extra SuperClean |                    |             |               |           |  |





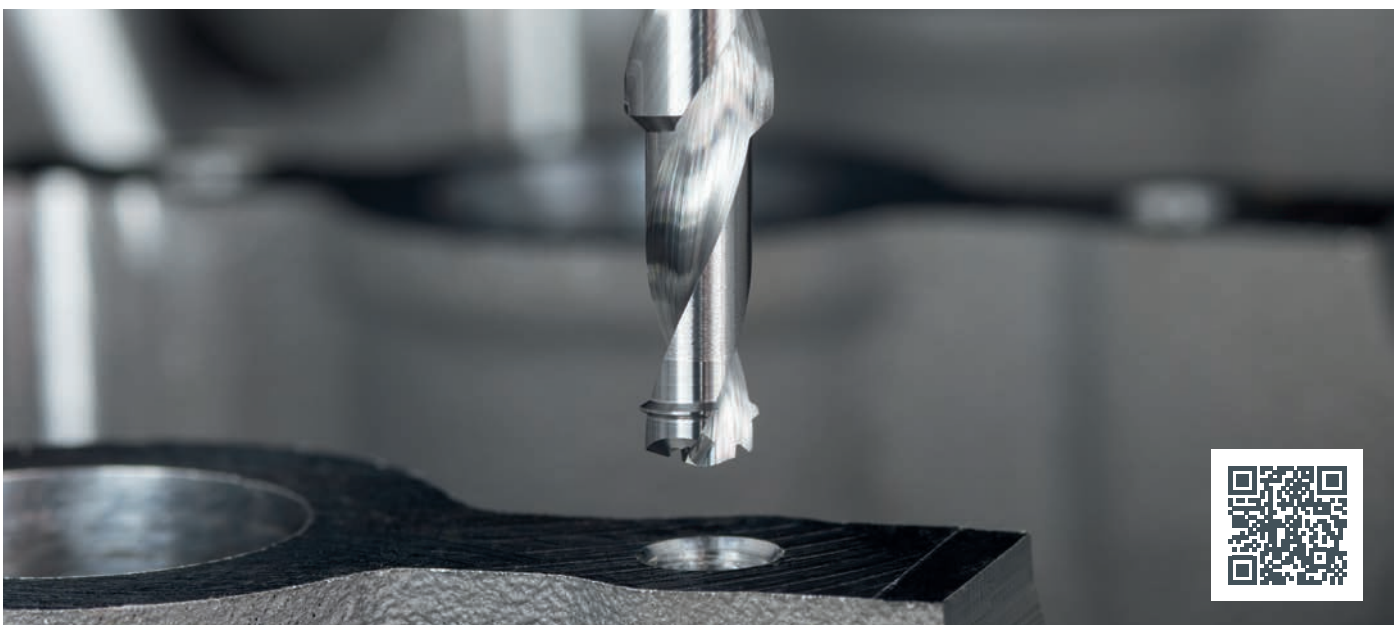
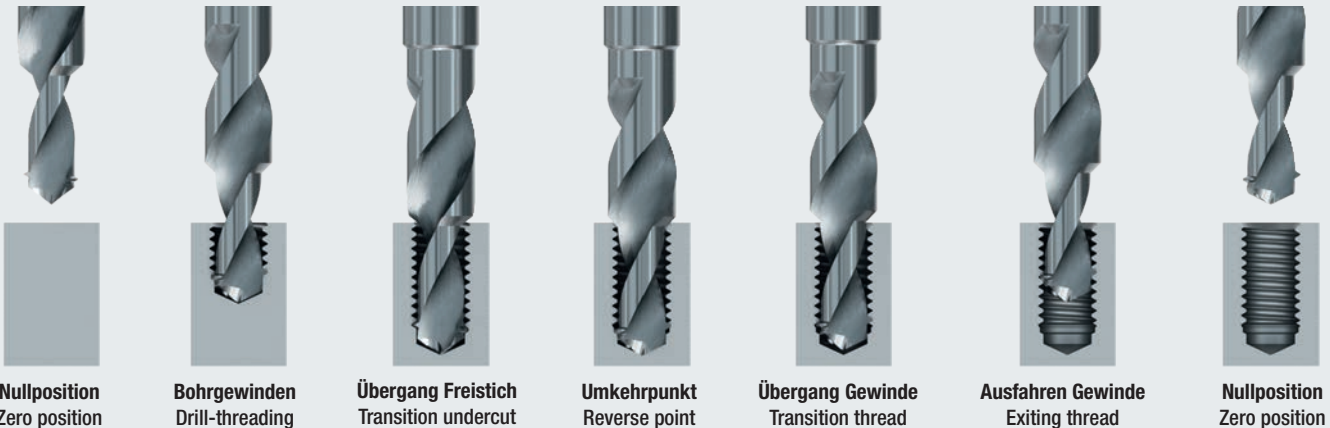
|     | R <sub>m</sub><br>[N/mm <sup>2</sup> ] | Rockwell<br>[HRC] |                            |                |                         |      |             |
|-----|--|-------------------|----------------------------|----------------|-------------------------|------|-------------|
|     |  |                   | Mat.-Nr.                   | DIN            | AFNOR                   | BS   | EN          |
| 1.4 |  | 60 - 63           | Z-Wear PM cold             |                |                         |      |             |
| 1.4 |  | 60 - 62           | Z-Tuff PM                  |                |                         |      |             |
| 1.4 |  | 60 - 63           | Z-M4 PM Speed              |                |                         |      |             |
| 1.4 |  | 60 - 63           | CPM Rex 121                |                |                         |      |             |
| 1.4 |  | 60 - 63           | CPM Rex M4                 |                |                         |      |             |
| 1.4 |  | 50 - 63           | CP2M                       |                |                         |      |             |
| 1.4 |  | 60 - 62           | CP72                       |                |                         |      |             |
| 1.4 |  | 60 - 63           | 1.2379 Plus                |                |                         |      |             |
| 1.4 |  | < 63              | Ferro-Titanit              | -              | -                       | -    | -           |
| 1.4 |  | < 63              | 1.2379                     | X155CrVMo12-1  | Z 160 CDV 12            | BD 2 | -           |
| 1.4 |  | 60 - 63           | 1.3343 Plus                |                |                         |      | HS 6-5-2C   |
| 1.4 |  | 60 - 63           | M V10 PM                   |                |                         |      |             |
| 1.4 |  | 62 - 63           | PMD M4                     |                |                         |      |             |
| 1.4 |  | 60 - 63           | PMD 23                     |                |                         |      |             |
| 1.4 |  | 62 - 63           | PMD 30                     |                |                         |      |             |
| 1.4 |  | 62 - 63           | PMD 52                     |                |                         |      |             |
| 1.4 |  | 62 - 63           | PMD 10                     |                |                         |      |             |
| 1.4 |  | 60 - 63           | CPR                        |                |                         |      |             |
| 1.4 |  | 58 - 60           | CP8E                       |                |                         |      |             |
| 1.4 |  | 60 - 62           | CP8E                       |                |                         |      |             |
| 1.4 |  | 62 - 63           | Z-T15 PM Speed             |                |                         |      |             |
| 1.4 |  | 60 - 63           | 1.3394                     | PMHS 6-5-3     |                         |      | ASP2023     |
| 1.4 |  | 60 - 63           | 1.3294                     | PMHS 6-5-3-8   |                         |      | ASP2030     |
| 1.4 |  | 60 - 61           | ASP2011                    |                |                         |      |             |
| 1.4 |  | 60 - 63           | 1.3253                     | PMHS 11-2-5-8  |                         |      | ASP2052     |
| 1.4 |  | 62 - 63           | 1.3202                     | HS 12-0-5-5    |                         |      | ASP2015     |
| 1.4 |  | 60 - 62           | ASP APZ10                  |                |                         |      |             |
| 1.5 |  | 63 - 66           | 1.3394                     | PMHS 6-5-3     |                         |      | ASP2023     |
| 1.5 |  | < 66              | HSSE                       | -              | -                       | -    | -           |
| 1.5 |  | < 66              | 1.2436                     | X210CrW12      | -                       | -    | -           |
| 1.5 |  | 66                | 1.3343                     | HS 6-5-2 C     | Z85WDCV06-05-04-02      |      |             |
| 1.5 |  | 63 - 66           | 1.3343 Plus                |                |                         |      | HS 6-5-2C   |
| 1.5 |  | 64 - 66           | 1.3344 PM                  | PM 6-5-3       | X130WMoCrV 6-5-4-3      |      |             |
| 1.5 |  | 66                | M W10 PM                   |                |                         |      | HS 10-2-5-8 |
| 1.5 |  | 63 - 64           | PMD M4                     |                |                         |      |             |
| 1.5 |  | 66                | PMD V10                    |                |                         |      |             |
| 1.5 |  | 63 - 64           | PMD 23                     |                |                         |      |             |
| 1.5 |  | 63 - 66           | PMD 30                     |                |                         |      |             |
| 1.5 |  | 63 - 66           | PMD 52                     |                |                         |      |             |
| 1.5 |  | 64 - 66           | PMD 60                     |                |                         |      |             |
| 1.5 |  | 66                | PMD 550                    |                |                         |      |             |
| 1.5 |  | 63 - 64           | PMD 10                     |                |                         |      |             |
| 1.5 |  | 65                | CPOH Plus                  |                |                         |      |             |
| 1.5 |  | 63 - 64           | 1.2379 Plus                |                |                         |      |             |
| 1.5 |  | 65                | CP72 Plus                  |                |                         |      |             |
| 1.5 |  | 63 - 64           | CPR                        |                |                         |      |             |
| 1.5 |  | 63 - 65           | CP2M                       |                |                         |      |             |
| 1.5 |  | 63 - 65           | CPM Rex M4                 |                |                         |      |             |
| 1.5 |  | 63 - 66           | CPM Rex 121                |                |                         |      |             |
| 1.5 |  | 66                | CPM Rex 76                 |                |                         |      |             |
| 1.5 |  | 63 - 65           | Z-M4 PM Speed              |                |                         |      |             |
| 1.5 |  | 63 - 66           | Z-M48 PM Speed             |                |                         |      |             |
| 1.5 |  | 63 - 66           | Z-T15 PM Speed             |                |                         |      |             |
| 1.5 |  | 63 - 64           | Z-Wear PM cold             |                |                         |      |             |
| 1.5 |  | 63 - 66           | 1.3294                     | PMHS 6-5-3-8   |                         |      | ASP2030     |
| 1.5 |  | 64                | Vanadis 8 Super Clean      |                |                         |      |             |
| 1.5 |  | 63 - 66           | Vanadis 4 Extra SuperClean |                |                         |      |             |
| 1.5 |  | 63 - 66           | 1.3253                     | PMHS 11-2-5-8  |                         |      | ASP2052     |
| 1.5 |  | 63 - 65           | 1.3352                     | PMHS 4-3-8     |                         |      | ASP2053     |
| 1.5 |  | 63 - 66           | 1.3202                     | HS 12-0-5-5    |                         |      | ASP2015     |
| 1.5 |  | 63 - 66           | 1.3252                     | ASP2052        |                         |      |             |
| 1.5 |  | 64 - 66           | 1.3243                     | HS6-5-2-5      | Z85WDKCV06-05-05-04-02  |      |             |
| 1.5 |  | 65 - 66           | 1.3207                     | HS10-4-3-10    | Z130WKCDV10-10-04-04-03 |      |             |
| 1.5 |  | 65 - 66           | 1.3208                     | HS9-4-3-11     | Z140KWCDV10-09-04-04-03 |      |             |
| 1.5 |  | 63 - 65           | 1.3211                     | S 12-1-2-3     |                         |      |             |
| 1.5 |  | 63 - 64           | 1.2990                     | X100CrMoV8-1-1 |                         |      |             |
| 1.5 |  | 66                | 1.3247                     | HS 2-10-1-8    | Z110DKCWW               |      |             |







| Ziel  | Goal   |
|---|--|
| <p><b>Zeiteinsparung bei der Innengewindefertigung</b></p> <p>Um Maschinenkapazität einzusparen, sollen Haupt- und Nebenzeiten bei der Innengewindefertigung in Guss-Aluminium-Bauteilen reduziert werden.</p>  | <p><b>Time saving in internal thread production</b></p> <p>In order to save machine capacity, main and non-productive times in internal thread production in cast aluminium components are to be reduced.</p>  |
| Idee  | Idea   |
| <p><b>Einsparung von Arbeitsschritten</b></p> <p>Bei der konventionellen Innengewindefertigung wird in 2 Schritten gearbeitet. Schritt 1 ist das Vorborenen. Schritt 2 das Einbringen der Gewinde wahlweise mit Gewindebohrern, Gewindeformern oder Gewindefräsern. Durch den notwendigen Werkzeugwechsel entstehen hohe Prozesszeiten. Zur Verkürzung dieser Prozesszeiten können Arbeitsschritte eingespart werden.</p> | <p><b>Saving of working steps</b></p> <p>In conventional internal thread production, the machining is carried out in 2 steps. Step 1 is pre-drilling. Step 2 is machining the threads using either taps, cold-forming taps or thread milling cutters. The necessary tool change results in long process times. To shorten these process times some working steps can be saved.</p> |
| Lösung  | Solution   |
| <p><b>Innovative Fertigungstechnologie</b></p> <p>Das innovative Verfahren EMUGE Taptor® kombiniert das Vorborenen und die Gewindefertigung in einem Arbeitsschritt. Dadurch entfällt der sonst notwendige Werkzeugwechsel.</p>   | <p><b>Innovative manufacturing technology</b></p> <p>The innovative EMUGE Taptor® process combines pre-drilling and thread production in one single working step. This eliminates the need to change tools.</p>  |



**Ergebnis**

**EMUGE Taptor® – Zeitvorteil**

Der Zeitvorteil ergibt sich aus mehreren Faktoren:

1. Entfall des Vorbohrens inklusive Verfahrenswege und Werkzeugwechsel
2. Reduzierung der Hauptzeit durch Verwendung des Speedsynchro Taptor®.

In einer Beispielanwendung (Bearbeitung einer Zylinderkopfhaubenseite in der Abmessung M6, 12 mm tief) ergibt sich eine Zeiteinsparung je Gewinde von etwa 2 Sekunden.

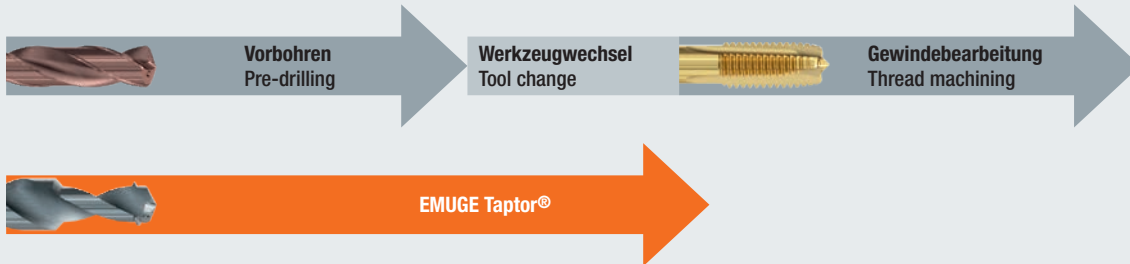
**Result**

**EMUGE Taptor® – Time Advantage**

The time advantage results from several factors:

1. Elimination of pre-drilling including traverse paths and tool change
2. Reduction of the main time by using the Speedsynchro Taptor®.

In a sample application (machining of a cylinder head cover side in the dimension M6, 12 mm deep), the time saving is about 2 seconds per thread.



Das erzeugte Gewinde entspricht den Vorgaben der DIN ISO 965 (Metrische ISO-Gewinde). Im Gewindegrund entsteht ein Freistich, dessen Länge dem des Anschnittes konventioneller Gewindewerkzeuge entspricht. Die Schraube kann in diesen Freistich eingedreht werden.

The thread produced corresponds to the specifications of DIN ISO 965 (Metric ISO thread). An undercut is created at the bottom of the thread, the length of which corresponds to the lead-in chamfer of a conventional threading tool. The screw can be screwed into this undercut.

**Verfahrenseigenschaften**

Das Verfahren verwendet eine patentrechtlich geschützte Technologie der Audi AG.

**Gewindefestigkeit:**

Erste Untersuchungen zeigen eine mindestens gleichwertige Festigkeit zu konventionellen Gewinden.

**Gewindeprüfung:**

Die Prüfung erfolgt mit handelsüblichen GewindeGrenzlehrdornen nach DIN ISO 1502.

**Lochformen:**

Geeignet sowohl für die Grundloch- als auch für die Durchgangslochbearbeitung.

**Werkzeugaufnahme:**

Der Taptor® wird im Speedsynchro Taptor® aufgenommen.

**Maschinenvoraussetzungen:**

Die Maschine muss für die synchrone Gewindebearbeitung geeignet sein.

**Process Properties**

The process uses a patent-protected technology of Audi AG.

**Thread strength:**

First tests show a strength at least equivalent to that of conventional threads.

**Thread testing:**

The test is carried out with standard thread plug gauges according to DIN ISO 1502.

**Hole shapes:**

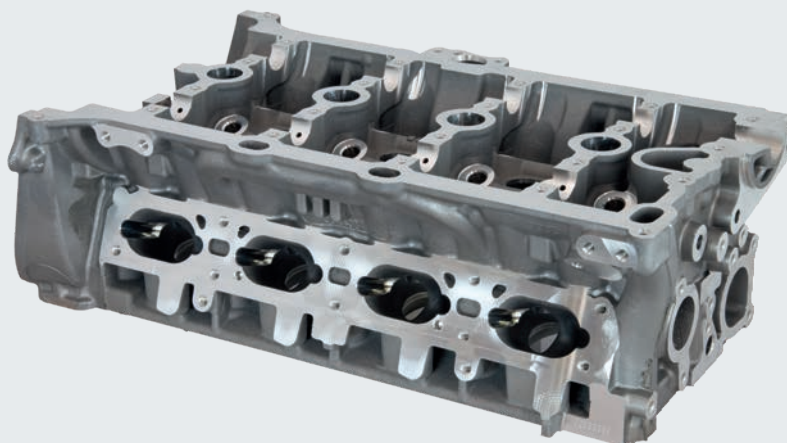
Suitable for both blind and through hole machining.

**Tool holder:**

Der Taptor® is mounted in the Speedsynchro Taptor®.

**Machine requirements:**

The machine must be suitable for synchronous thread machining.



| Aufgabe  | Task  |
|--|---|
| <p><b>Zeiteinsparung bei gleichzeitig geringen Kräften</b></p> <p>Durch die Erhöhung des Vorschubs bei gleicher Drehzahl werden die Hauptzeiten erheblich gesenkt. Dadurch entstehen aber höhere Bearbeitungskräfte, welche zu Problemen hinsichtlich der Lebensdauer des Werkzeugs, der Spannung der Bauteile sowie der Werkzeugspannung führen. Zudem können Toleranzen am Bauteil ggf. nicht eingehalten werden.</p>  | <p><b>Time saving while drilling with low cutting forces, is it possible?</b></p> <p>Main machining times can considerably be reduced by increasing the feed rate while keeping a constant rotational speed. This increase will lead to much higher machining forces. Forces that will have a negative effect on the tool life of the drill, the clamping of the component and the clamping of the drill. In addition, tolerances on the component may not be kept anymore.</p>   |
| Idee   | Idea  |
| <p><b>Reduktion der Bearbeitungskräfte und verbesserter Spanbruch</b></p> <p>Um gängige Bohrtiefen zu erreichen ist es notwendig, trotz des erhöhten Vorschubs einen kurzen Span zu erzeugen. Gleichzeitig muss die Bohrspitze große Freiwinkel besitzen, um die Kräfte unter Kontrolle zu bringen. Speziell behandelte Oberflächen helfen, die Prozesssicherheit zu erhöhen.</p>  | <p><b>Reducing machining forces and optimising chip-breaking!</b></p> <p>To achieve common drilling depths with an increased feed, it becomes absolutely necessary to produce short chips only. At the same time, in order to control the cutting forces, the drill tip must have a large relief angle. And for increasing the process reliability, a specially treated surface must be considered.</p>   |
| Lösung   | Solution  |
| <p><b>Spanteiler und Oberflächenbehandlung</b></p> <p>Der Spanteiler hilft den Span kurz zu halten und die Bearbeitungskräfte zu kontrollieren. Neu entwickelte Oberflächenbehandlungen und eine speziell für diese Anwendungen ausgelegte Hartstoffschicht ermöglichen eine sichere Spanabfuhr.</p>   | <p><b>A chip breaker and a special surface treatment will bring the solution!</b></p> <p>The chip breaker helps to keep the chip short and to control the machining forces. Newly EMUGE developed surface treatments and an especially designed hard coating enable a reliable chip evacuation for these applications.</p>  |
| Ergebnis   | Result  |
| <p><b>Zeitvorteil von 50% und mehr bei der Zerspanung</b></p> <p>Die Hauptzeiten werden erheblich reduziert, was zu Reduktion von Taktzeiten und Einsparung von Maschinenkapazitäten führt. Die Produktivität wird erhöht und Ressourcen geschont.</p> <p><b>Axialkraft wird um ca. 50% reduziert</b></p> <p>Im Vergleich zu Serienwerkzeugen kann mit einem verdoppelten Vorschub gebohrt werden, wobei die Axialkraft nicht ansteigt. Wenn der PunchDrill mit dem Vorschub des Serienwerkzeugs eingesetzt wird, halbiert sich die Axialkraft. Das ist sehr nachhaltig, da die Leistungsaufnahme der Maschine sinkt. Zudem können labile Teile sowie Werkstücke in labilen Spannungen prozesssicherer gefertigt werden.</p> | <p><b>Time advantage of 50% and more in the machining process</b></p> <p>The main machining times are considerably reduced, resulting in reduced cycle times and savings in machine capacity. Productivity is increased and resources are saved.</p> <p><b>Axial force reduced by approx. 50%</b></p> <p>Drilling can be carried out at twice the feed rate compared to standard tools without increasing the axial force. The axial force is cut in half when the PunchDrill is used with the feed of the series tool. Very sustainable, as power consumption of the machine tool is reduced as well. In addition, unstable parts as well as workpieces with unstable clamping can be manufactured with greater process reliability.</p> |



**Verfahrenseigenschaften**

- Bearbeitung von Aluminium-Gusslegierungen mit mindestens 7% Si-Anteil und Magnesium-Legierungen
- Bohrtiefe bis ca. 8 x D
- Nenndurchmesser-Bereich von 3,3 mm bis 12 mm
- Standzeit vergleichbar mit konventionellen Bohrwerkzeugen
- Stufenwerkzeuge möglich
- Gute Zentrierfähigkeit führt zu hoher Positionsgenauigkeit der Bohrungen
- Bearbeitung mit normalen Bohrzyklus auf CNC-Maschinen
- Zum Patent angemeldete Bohrergeometrie
- Minimalmengenschmierung möglich
- Schnittgeschwindigkeiten und Kühlmitteldrücke sind analog dem konventionellen Bohren anzuwenden
- Die Werkzeuge sind von EMUGE nachschleifbar

**Process characteristics**

- Machining of aluminium cast alloys with at least 7% Si content and magnesium alloys
- Drilling depth up to approx. 8 x D
- Nominal diameter range from 3.3 mm to 12 mm
- Tool life comparable with conventional drilling tools
- Step tools possible
- Excellent centring capability leads to high positioning accuracy of the drill holes
- Machining with normal drilling cycle on CNC machines
- Patent-pending drill geometry
- Minimum quantity lubrication possible
- Cutting speeds and coolant pressures are to be applied analogous to conventional drilling
- The tools can be resharpened by EMUGE

**Schnittdaten**

**Cutting data**

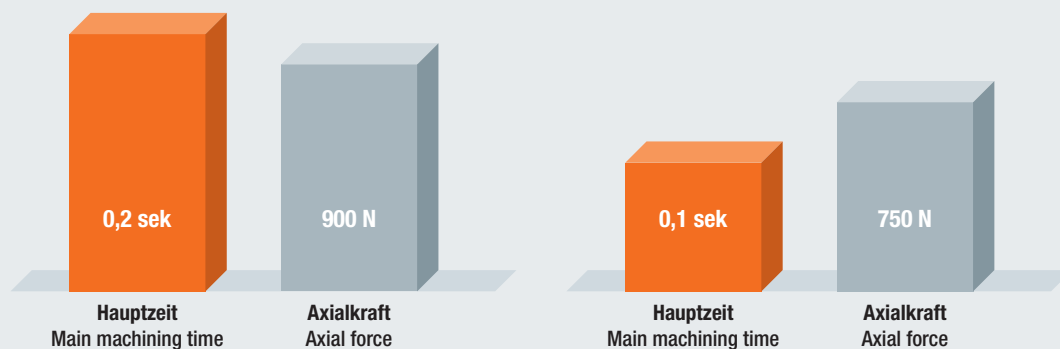
|   |   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|---|---|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Durchmesser D <sub>1</sub> [mm]<br>Diameter D <sub>1</sub> [mm]                       | 3,3   | 4    | 4,2  | 4,6  | 5    | 5,6  | 6    | 6,8  | 7    | 7,4  | 8    | 8,5  | 9,3  | 11,2 | 12   |
| Vorschub pro Umdrehung f [mm/U]<br>Feed per revolution f [mm/rev.]                    | 0,45  | 0,50 | 0,55 | 0,60 | 0,70 | 0,80 | 0,85 | 0,90 | 0,95 | 1,00 | 1,10 | 1,20 | 1,25 | 1,3  | 1,35 |
| Schnittgeschwindigkeit v <sub>c</sub> [m/min]<br>Cutting speed v <sub>c</sub> [m/min] | 200 - 300 in den Materialgruppen in the material groups <b>N 1.5-1.6, 3.1-3.2</b> |      |      |      |      |      |      |      |      |      |      |      |      |      |      |

Die Werte verstehen sich als Empfehlung und können ggf. je nach Einsatzfall noch erhöht werden.  
The values are to be understood as recommendations and can be increased if necessary depending on the application.

**Anwendungsbeispiel in Aluminium-Gusslegierungen**

**Application example in aluminium cast alloys**

| Serienwerkzeug · Series tool                                       |        | PunchDrill   |        |
|--|--------|--|--------|
| Durchmesser D <sub>1</sub> [mm]<br>Diameter D <sub>1</sub> [mm]    | 5,55   | Durchmesser D <sub>1</sub> [mm]<br>Diameter D <sub>1</sub> [mm]    | 5,55   |
| Vorschub pro Umdrehung f [mm/U]<br>Feed per revolution f [mm/rev.] | 0,4    | Vorschub pro Umdrehung f [mm/U]<br>Feed per revolution f [mm/rev.] | 0,8    |
| Drehzahl n [min <sup>-1</sup> ]<br>Speed n [rpm]                   | 15 000 | Drehzahl n [min <sup>-1</sup> ]<br>Speed n [rpm]                   | 15 000 |



**Verfügbarkeit**

**Availability**

- Da es sich bei der Bearbeitung von GAL- und Magnesiumbauteilen zumeist um anwendungsspezifische Sonderwerkzeuge handelt, gibt es kein lagerhaltiges Standardprogramm
- Lieferzeit der Sonderwerkzeuge beträgt max. 7 Wochen
- Es ist möglich, Grundsatzversuche mit bauteilunabhängigen Musterwerkzeugen durchzuführen, welche kurzfristig von unseren Außendienstmitarbeitern zur Verfügung gestellt werden können
- **Geplante Produkterweiterung:**  
3-nutige Ausführung für vorgegossene Löcher

- There is no standard programme available from stock as the machining of cast aluminium and magnesium components mostly involves application-specific special tools.
- Delivery time of the special tools is max. 7 weeks
- It is possible to carry out basic tests with component-independent sample tools, which can be made available at short notice by our sales representatives
- **Planned product expansion:**  
3-fluted version for pre-cast holes

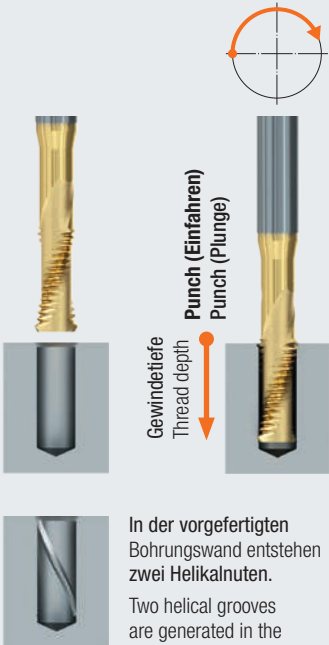




Die EMUGE Punch Tap-Technologie stellt neben Gewindebohren, Gewindeformen und Gewindefräsen eine weitere Technologie zur Gewindefertigung dar. Mit ihrem innovativen, sehr kurzen Bewegungsablauf eröffnet sie eine völlig neue Dimension der Produktivität.

Die Grundidee der Kinematik gliedert sich in drei Arbeitsschritte. Voraussetzung ist eine Vorbohrung im Werkstück mit dem entsprechenden Vorbohrdurchmesser.

The EMUGE Punch Tap technology constitutes besides tapping, cold-forming of threads and thread milling another technology for thread production. Thanks to its innovative, very short motion process, it establishes an entirely new dimension of productivity.

The basic idea of the kinematics is divided into three working steps. A drilled pilot hole in the workpiece with the suitable preparatory diameter is required.

| Schritt 1 · Step 1   | Schritt 2 · Step 2   | Schritt 3 · Step 3   |
|--|--|--|
|  <p>In der vorgefertigten Bohrungswand entstehen zwei Helikalnuten.<br/>Two helical grooves are generated in the pre-machined wall of the hole.</p>  |   |   |
| <p><b>Schritt 1: Punch (Einfahren)</b><br/>Der Punch Tap besitzt kein durchgehendes Gewindeprofil am Umfang, sondern nur zwei Zahnreihen, die um 180° versetzt angeordnet sind. Dabei übernimmt der erste Zahn jeder Zahnreihe die Nutenzeugung und ermöglicht somit den ersten Schritt des Verfahrens, das <b>helikale Einfahren in die Vorbohrung</b>.</p>   | <p><b>Schritt 2: Gewindeformen</b><br/>Ist der Punch Tap auf Gewindetiefe angekommen, erfolgt das <b>Gewindeformen</b>, welches durch das synchrone Verfahren der Vorschubachse um die halbe Gewindesteigung bei gleichzeitiger Rotation des Werkzeuges um etwa 180° stattfindet.</p>    | <p><b>Schritt 3: Herausfahren</b><br/>Nach der Ausführung des Gewindeformvorgangs wird der Punch Tap durch die erzeugten Nuten <b>aus der Bohrung herausgefahren</b>.<br/><br/>Entstanden ist ein Gewinde mit zwei Helikalnuten.</p> |
| <p><b>Step 1: Punch (Plunge)</b><br/>The Punch Tap does not have a continuous thread profile on the circumference but two rows of teeth which are offset by 180°. The first tooth of each row of teeth is responsible for producing the groove and thereby enables the first step of the process, the <b>helical plunge into the pre-drilled tap hole</b>.</p> | <p><b>Step 2: Thread-forming</b><br/>Once the Punch Tap has reached the depth of the thread, the <b>forming of the thread</b> starts which is executed by a synchronous movement of the feed axis by half of the pitch while simultaneously rotating the tool by approximately 180°.</p> | <p><b>Step 3: Retraction</b><br/>Once the thread-forming process is finished, the Punch Tap is <b>retracted from the hole</b> through the generated grooves.<br/><br/>The result is a thread with two helical grooves.</p>           |

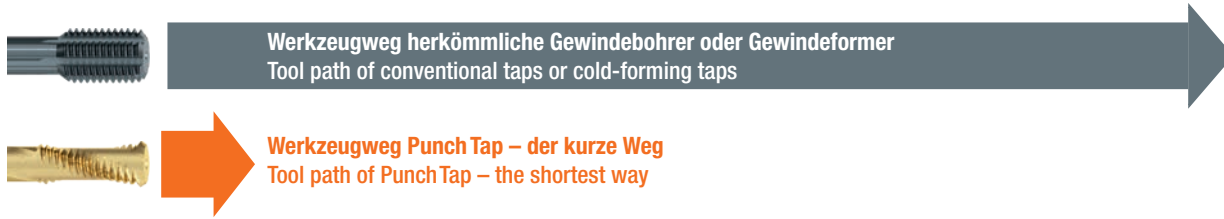


**EMUGE Punch Tap – der kurze Weg**

Vergleicht man den Werkzeugweg des EMUGE Punch Tap mit dem Werkzeugweg herkömmlicher Gewindebohrer oder Gewindeformer, so fällt dieser bei einem Gewinde M6 mit 15 mm nutzbarer Gewindetiefe ca. 15 mal kürzer aus. Ergebnis ist eine deutliche Zeiteinsparung im Gewindezyklus von bis zu 75%.

**EMUGE Punch Tap – the shortest way**

When comparing the tool path of the EMUGE Punch Tap with the tool path of conventional taps or cold-forming taps, it shows that the path is approximately 15 times shorter for a thread M6 with a depth of thread of 15 mm. The result is a significant time savings up to 75% in a threading cycle.

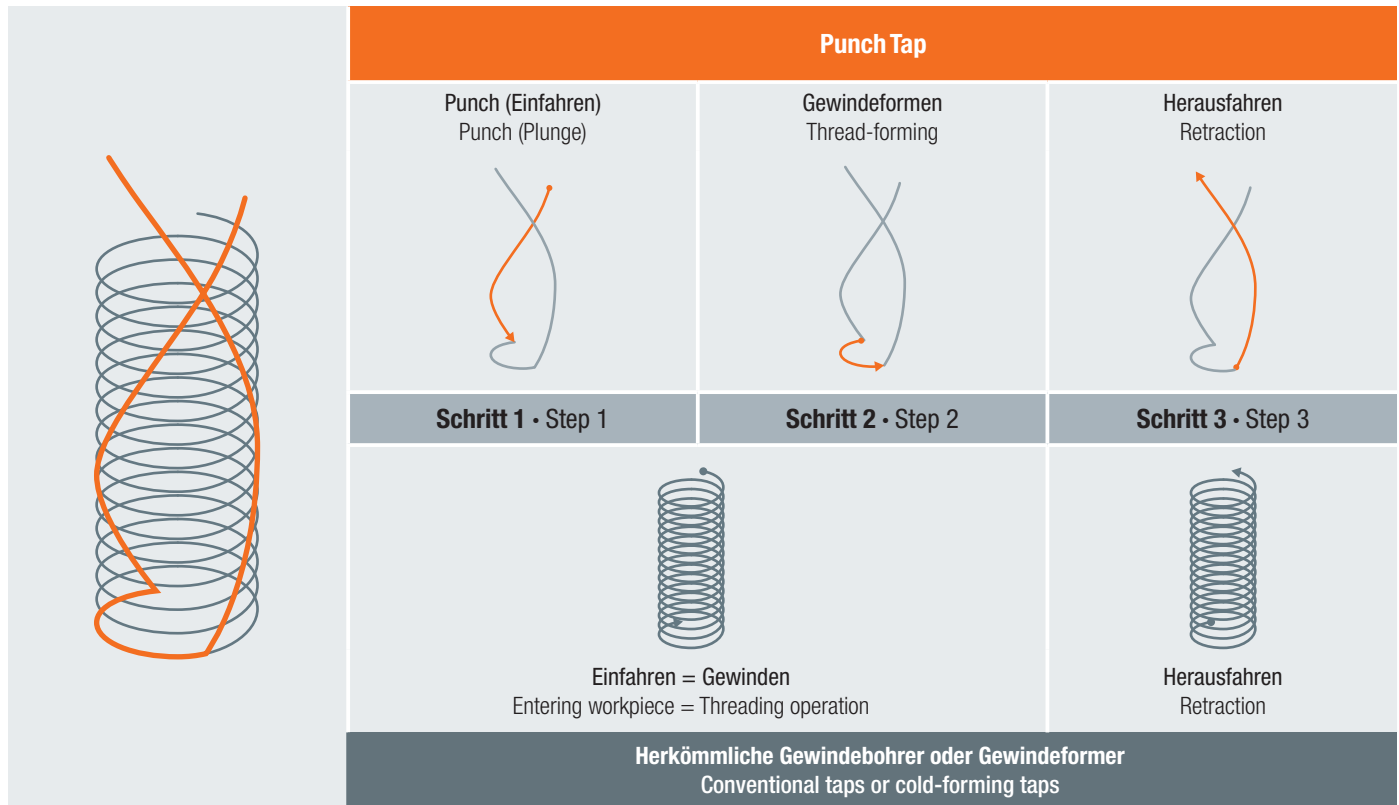


Untersuchungen am ISF der Universität Dortmund ergaben, dass das Punch Tap-Gewinde mit einem herkömmlich produzierten Gewinde in Eigenschaften und Ausreißfestigkeit vergleichbar ist.

Studies at the ISF at the University of Dortmund show that the thread produced by the Punch Tap is comparable with a conventionally produced thread in terms of properties and pull-out resistance.

**Werkzeugwegvergleich**

**Comparison of tool paths**



Die Möglichkeit eines Einsatzes der Punch Tap-Technologie hängt von den Prozessbedingungen ab und wird individuell ermittelt. Bei Interesse kontaktieren Sie uns bitte.

Weitere Informationen finden Sie unter [www.punchtap.com](http://www.punchtap.com)

The possibility of using the Punch Tap technology depends on the process conditions and is determined in each individual case. If interested, please contact us.

For more information, see [www.punchtap.com](http://www.punchtap.com)

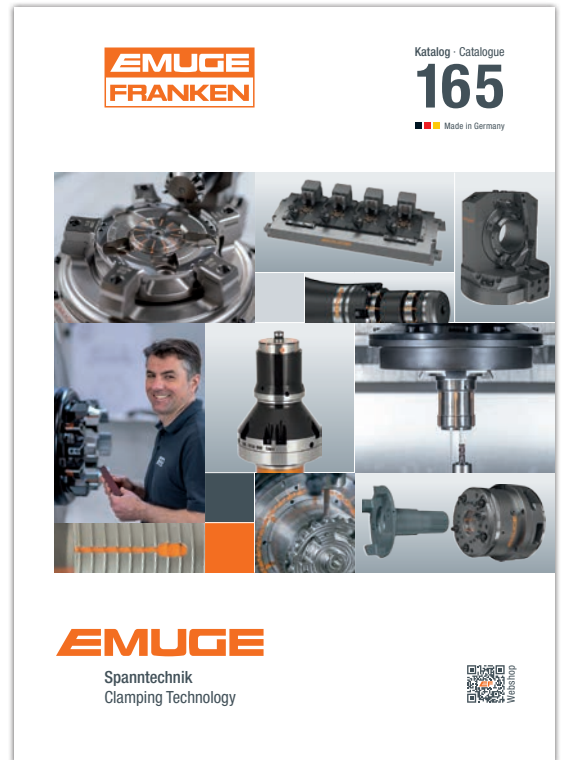


Nutzen Sie unseren **Spanntechnik-Katalog 165** und erweitern Sie Ihre Möglichkeiten, sich über unsere Kompetenzen im Bereich Sonderspannmittel zu informieren.

Fordern Sie diesen unter der Artikelnummer **ZK10007.DEGB** an.

Benefit from our **Clamping Technology Catalogue 165** and enhance your possibilities to inform yourself about our competence in the field of special clamping devices.

Just request it under article number **ZK10007.DEGB**.



Weitere Informationen zu unseren vielfältigen Spannsystemen erhalten Sie im Web

Further information about our diverse clamping systems is also available on the web

### Spannsystem SG

Besser bekannt unter dem Begriff „Sägengewinde-Spannsystem“. Dieses wurde von EMUGE-FRANKEN erfunden und patentiert.



#### Funktionsbeschreibung

Eine mehrfach geschlitzte **Spannbüchse** mit einem speziellen Sägengewinde wird durch das Einleiten der Axialkraft über die flache Flanke des Gewindes axial verschoben. Dabei entsteht eine radiale Expansion (Innenspannung) oder Einschnürung (Außenspannung). Das Werkstück wird gespannt.

#### Vorteile

- Hohe Steifigkeit bei langen Spannflächen oder engen Platzverhältnissen
- Optimierte Störkonturen durch sehr schlanke Bauweise möglich
- Gleichmäßige Kraftverteilung auf der gesamten Spannfläche

#### Merkmale

- Innen- und Außenspannung: von Spann- $\varnothing$  5 bis 600 mm
- Rundläufe ab 4  $\mu\text{m}$ , z. B. Spann- $\varnothing$  80 mm, ab 6  $\mu\text{m}$  wiederholbar
- 0,6 mm Standardhub im Durchmesser bei Spann- $\varnothing$  100 mm
- Spannung mit und ohne Axialkomponente möglich
- Sehr lange Spannflächen möglich
- Verschmutzungsunempfindlich durch Labyrinth-Effekt des Gewindes

### Clamping System SG

This clamping system, also known as “butter thread clamping”, was invented and patented by EMUGE-FRANKEN.



#### Functional description

A multi-slotted **clamping bush** with a special buttress thread is axially displaced by the introduction of axial force via the flat flank of the thread. This creates a radial expansion (internal clamping) or constriction (external clamping). The workpiece is clamped.

#### Advantages

- High rigidity with long clamping surfaces or restricted space conditions
- Optimised interference contours possible due to very slim design
- Uniform force distribution over the entire clamping surface

#### Features

- Internal and external clamping: from clamping dia. 5 to 600 mm
- Run-out from 4  $\mu\text{m}$ , e.g. clamping dia. 80 mm, from 6  $\mu\text{m}$  repeatable
- 0.6 mm standard stroke in diameter with clamping dia. 100 mm
- Clamping with and without axial component possible
- Very long clamping surfaces possible
- Highly resistant to soiling due to labyrinth effect of the thread





## Spannsystem SL

Unsere Spannsysteme werden stetig optimiert. Hinter dem patentierten Spannsystem „SL“ steckt eine Weiterentwicklung der Spannsysteme SG und SP.



## Funktionsbeschreibung

Eine durch **additive Fertigung** hergestellte Spannbüchse, ausgestattet mit einer Vielzahl von längsgerichteten und **mäanderförmigen Spannsegmenten**, überbrückt eine radiale Expansion (Innenspannung) oder radiale Einschnürung (Außenspannung) von mehreren Millimetern. Die Spannsegmente sind dabei metallisch verbunden und benötigen keine Gummielemente zur Verformung. Die Betätigung erfolgt beispielsweise über ein Sägewinde.

## Vorteile

- Gleichmäßige Kraftverteilung auf der gesamten Spannlänge
- Verformungsarme Spannung von dünnwandigen Bauteilen
- Ausgleich von leichten Rundheitsfehlern

## Merkmale

- Innen- und Außenspannung: von Spann- $\varnothing$  15 bis 230 mm
- Rundläufe ab 4  $\mu\text{m}$ , z. B. Spann- $\varnothing$  100 mm, ab 6  $\mu\text{m}$  wiederholbar
- 2,5 mm Standardhub im Durchmesser bei Spann- $\varnothing$  100 mm
- Die patentierte Geometrie verhindert das Verschränken der einzelnen Spannsegmente

## Clamping System SL

Our clamping systems are constantly being optimised. The patented “SL” clamping system represents an advanced development of the SG and SP clamping systems.

## Functional description

A clamping sleeve produced by **additive manufacturing** equipped with a large number of longitudinally oriented **meander-shaped clamping segments**, bridges a radial expansion (internal clamping) or radial contraction (external clamping) of several millimetres. The clamping segments are metallically connected and do not require rubber elements for forming. For example, the actuation takes place via a buttress thread.

## Advantages

- Uniform force distribution over the entire clamping length
- Low-deformation clamping of thin-walled components
- Compensation of slight roundness errors

## Features

- Internal and external clamping: from clamping dia. 15 to 230 mm
- Runouts from 4  $\mu\text{m}$ , e.g. clamping dia. 100 mm, from 6  $\mu\text{m}$  repeatable
- 2.5 mm standard stroke in diameter with clamping dia. 100 mm
- The patented geometry prevents the interlocking of the individual clamping segments

## Spannsystem SZ

## Clamping System SZ



## Funktionsbeschreibung

Eine mehrfach geschlitzte **Spannzange** wird durch das Einleiten der Axialkraft über einen Kegel axial verschoben. Durch den Kegelwinkel entsteht eine radiale Expansion (Innenspannung) oder Einschnürung (Außenspannung). Das Werkstück wird gespannt.

## Vorteile

- Geeignet bei kurzer Spannbasis am Werkstück
- Spannungsmöglichkeit auch bei ausgefallenen Werkstückformen
- Fixierung von Durchmessern mit großen Toleranzen

## Merkmale

- Innen- und Außenspannung, von Spann- $\varnothing$  5 bis 600 mm
- Rundläufe ab 4  $\mu\text{m}$ , z. B. Spann- $\varnothing$  85 mm, ab 8  $\mu\text{m}$  wiederholbar
- 0,6 mm Standardhub im Durchmesser bei Spann- $\varnothing$  100 mm
- Spannung mit und ohne Axialkomponente möglich
- Doppelkegelausführung möglich

## Functional description

A multiple-slotted **collet** is axially displaced by the introduction of the axial force via a taper. The taper angle causes radial expansion (internal clamping) or contraction (external clamping). The workpiece is clamped.

## Advantages

- Suitable with short clamping base on the workpiece
- Clamping possibility even for unusual workpiece shapes
- Clamping of diameters with large tolerances

## Features

- Internal and external clamping, from clamping dia. 5 to 600 mm
- Run-out from 4  $\mu\text{m}$ , e.g. clamping dia. 85 mm, from 8  $\mu\text{m}$  repeatable
- 0.6 mm standard stroke in diameter with clamping dia. 100 mm
- Clamping with and without axial component possible
- Twin taper design possible

### Spannsystem ST

Dieses Spannsystem ist die patentierte Weiterentwicklung des Spannsystems SZ.



#### Funktionsbeschreibung

Eine mehrfach geschlitzte, einteilige **Spannzange** wird durch das Einleiten einer Axialkraft über zwei gleichgerichtete Kegel axial verschoben. Durch die Kegelwinkel entsteht eine radiale Expansion (Innenspannung) oder Einschnürung (Außenspannung). Durch die geometrische Auslegung kommt der von der Kräfteinleitung weiter entfernte Spanndurchmesser als erstes zur Anlage. Der weitere Axialweg wird dann von einer Dehnzone aufgenommen, bis auch der zweite Spanndurchmesser zur Anlage kommt. Die erste Spannkraft erzeugt somit die Dehnzone, die zweite Spannkraft kommt von der Kräfteinleitung.

#### Vorteile

- Ausgleich von geringen Toleranzunterschieden, Ungenauigkeiten und Formfehlern
- Variabel auslegbare Spannkraft an zwei Spannstellen
- Spannung mit Axialkomponente

#### Merkmale

- Innen- und Außenspannung: von Spann- $\varnothing$  15 bis 300 mm
- Rundläufe ab 4  $\mu\text{m}$ , z. B. Spann- $\varnothing$  75 mm, ab 7  $\mu\text{m}$  wiederholbar
- 0,6 mm Standardhub im Durchmesser bei Spann- $\varnothing$  100 mm

### Clamping System ST

This clamping system is the patented advanced development of the clamping system SZ.



#### Functional description

A multi-slotted, one-piece **collet** is axially displaced by the introduction of an axial force via two cones in the same direction. Due to the taper angles, a radial expansion (internal clamping) or constriction (external clamping) occurs. Due to the special geometric design, the clamping diameter further away from the force application comes into contact first. The further axial travel is then absorbed by an expansion zone until the second clamping diameter also comes into contact. The first clamping force thus generates the expansion zone, the second clamping force originates from the introduction of force.

#### Advantages

- Compensation for minor tolerance differences, inaccuracies and form errors
- Two clamping points are controlled with only one force application
- Clamping with axial component

#### Features

- Internal and external clamping: from clamping dia. 15 to 300 mm
- Run-out from 4  $\mu\text{m}$ , e.g. clamping dia. 75 mm, from 7  $\mu\text{m}$  repeatable
- 0.6 mm standard stroke in diameter with clamping dia. 100 mm

### Spannsystem SB



#### Funktionsbeschreibung

Im Prinzip erklärt hier der Name „Schrägbolzenfutter“ schon am besten die Funktionsweise. Durch das Einleiten einer Axialkraft werden meist **3 bis 8 schräg angeordnete längliche Bolzen** betätigt. Durch den Anstellwinkel dieser ergibt sich eine radiale Einschnürung der Spannbacken bei einem gleichzeitigen axialen Niederzug.

#### Vorteile

- Großer Spannhub ermöglicht Hinterschneidung
- Verschmutzungsunempfindlich dank guter Späneabfuhr
- Nur geringe Fliehkraftverluste

#### Merkmale

- Außenspannung: von Spann- $\varnothing$  15 bis 600 mm
- Rundläufe ab 20  $\mu\text{m}$ , z. B. Spann- $\varnothing$  55 mm, ab 25  $\mu\text{m}$  wiederholbar
- 10 mm Standardhub im Durchmesser bei Spann- $\varnothing$  100 mm
- Axialkomponente der Spannbacken

### Clamping System SB



#### Functional description

In principle, the description “bolt clamping chuck” already explains how this system works. The application of an axial force actuates **3 to 8 obliquely arranged oblong bolts**. The angle of attack of these bolts results in a radial constriction of the clamping jaws with a simultaneous axial pull-down.

#### Advantages

- Large clamping stroke enables undercuts
- Resistant to soiling thanks to excellent chip evacuation
- Only minor loss of centrifugal force

#### Features

- External clamping: from clamping dia. 15 to 600 mm
- Run-out from 20  $\mu\text{m}$ , e.g. clamping dia. 55 mm, from 25  $\mu\text{m}$  repeatable
- 10 mm standard stroke in diameter with clamping dia. 100 mm
- Axial component of the clamping jaws



## Spannsystem SM

## Clamping System SM



## Funktionsbeschreibung

Drei bis zwölf werkstückberührende **Spannbacken** sind auf einer **Membran** montiert. Diese erzeugt die zentrale Betätigungskraft: Wird in axialer Richtung Kraft auf die Membran ausgeübt, biegt sich diese durch. Dabei bewegen sich die Spannbacken axial und öffnen oder schließen je nach Krafrichtung radial. Das Werkstück wird gespannt oder entspannt. Die Eigenfederkraft der Membran kann zur Vorzentrierung oder zur Erhöhung der Spannkraft genutzt werden.

## Vorteile

- Hohe Halte- bzw. Drehmomente, auch bei dünnwandigen Werkstücken
- Unempfindlich gegenüber Verschmutzung
- Überdurchschnittliche Lebensdauer der Spannmembran

## Merkmale

- Außenspannung: Spann- $\varnothing$  6 bis 650 mm
- Rundläufe ab 2  $\mu\text{m}$ , z. B. Spann- $\varnothing$  380 mm, ab 7  $\mu\text{m}$  wiederholbar
- 0,6 mm Standardhub im Durchmesser bei Spann- $\varnothing$  100 mm
- Spannbacken mit Axialkomponente
- Fliehkraftausgleich der Spannkraft
- Sicherheitsspannung bei Energieausfall möglich

## Functional description

Three to twelve **clamping jaws** in contact with the workpieces are mounted on a **diaphragm** which generates the central actuating force: If force is exerted on the diaphragm in the axial direction, it bends. The clamping jaws move axially and open or close radially depending on the direction of the force. The workpiece is clamped or released. The inherent spring force of the diaphragm can be used for pre-centring or for increasing the clamping force.

## Advantages

- High holding torques respectively torques even with thin-walled components
- Resistant to soiling
- Above-average service life of the clamping diaphragm

## Features

- External clamping: clamping dia. 6 to 650 mm
- Run-out from 2  $\mu\text{m}$ , e.g. clamping dia 380 mm, from 7  $\mu\text{m}$  repeatable
- 0.6 mm standard stroke in diameter with clamping dia. 100 mm
- Clamping jaws with axial component
- Centrifugal force compensation of the clamping force
- Safety clamping possible in case of power failure

## Spannsystem SP

## Clamping System SP



## Funktionsbeschreibung

Durch die axiale Kraftbeaufschlagung bewegen sich die **Spannhülsen** in Krafrichtung und dehnen sich dabei radial aus. Hierdurch wird einerseits das Spiel zwischen Spannhülsen und Grundkörper, andererseits zwischen Spannhülsen und Werkstück beseitigt. Das Werkstück wird gespannt.

## Vorteile

- Fundiertes Know-how durch Lizenzfertigung seit 1950
- Keine Spannabdrücke durch geschlossene Spanndecke
- Fixierung verschiedener Durchmesser in unterschiedlichen Spannebenen

## Merkmale

- Innenspannung: von Spann- $\varnothing$  12 bis 400 mm
- Außenspannung: von Spann- $\varnothing$  6 bis 400 mm
- Rundläufe ab 2  $\mu\text{m}$ , z. B. Spann- $\varnothing$  34 mm, ab 4  $\mu\text{m}$  wiederholbar
- 0,1 mm Standardhub im Durchmesser bei Spann- $\varnothing$  100 mm
- Axialkomponente der Spannhülsen
- Einfacher Aufbau
- Spannsystem auch für Werkzeugaufnahmen geeignet

## Functional description

Due to the axial application of force, the **clamping sleeves** move in the direction of the force and expand radially. This eliminates the play between the clamping sleeves and the base body on the one hand, and between the clamping sleeves and the workpiece on the other. The workpiece is clamped.

## Advantages

- Thorough know-how due to licensed production since 1950
- No clamping marks thanks to closed clamping cover
- Clamping of various diameters in different clamping levels

## Features

- Internal clamping: from clamping dia. 12 to 400 mm
- External clamping: from clamping dia. 6 to 400 mm
- Run-out from 2  $\mu\text{m}$ , e.g. clamping dia. 34 mm, from 4  $\mu\text{m}$  repeatable
- 0.1 mm standard stroke in diameter with clamping dia. 100 mm
- Axial component of the clamping sleeves
- Simple design
- Clamping system also suitable for tool holders

### Spannsystem SK

### Clamping System SK



#### Funktionsbeschreibung

Das Spannelement besteht aus im Grundkörper hochgenau geführten **keilförmigen Backen**. Durch eine axiale Kraftbeaufschlagung werden diese über einen ebenfalls keilförmigen Betätigungsring radial verschoben. Das Werkstück wird gespannt. Die Anzahl der Spannbacken kann hier je nach Anwendung durchaus von 2 bis 20 Stück variieren.

#### Vorteile

- Großer Spannhub ermöglicht Hinterschneidung
- Konturanpassung durch variable Spannbackenanzahl

#### Merkmale

- Innenspannung: von Spann- $\varnothing$  20 bis 100 mm
- Außenspannung: von Spann- $\varnothing$  15 bis 100 mm
- Rundläufe ab 12  $\mu\text{m}$ , z. B. Spann- $\varnothing$  28 mm, ab 12  $\mu\text{m}$  wiederholbar
- 5 mm Standardhub im Durchmesser bei Spann- $\varnothing$  100 mm
- Keine Axialkomponente der Spannbacken

#### Functional description

The clamping element consists of **wedge-shaped jaws** guided with high precision in the base body. By applying an axial force, these jaws are radially displaced via a likewise wedge-shaped actuating ring. The workpiece is clamped. The number of clamping jaws can vary from 2 to 20 depending on the application.

#### Advantages

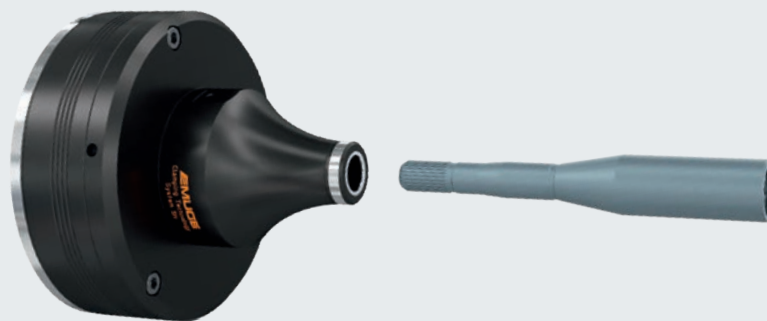
- Large clamping stroke enables undercuts
- Adaptation to contour due to variable number of clamping jaws

#### Features

- Internal clamping: from clamping dia. 20 to 100 mm
- External clamping: from clamping dia. 15 to 100 mm
- Run-out from 12  $\mu\text{m}$ , e.g. clamping dia. 28 mm, from 12  $\mu\text{m}$  repeatable
- 5 mm standard stroke in diameter with clamping dia. 100 mm
- No axial component of the clamping jaws

### Spannsystem SH

### Clamping System SH



#### Funktionsbeschreibung

Meist handelt es sich hierbei um ein **geschlossenes Hydrauliksystem**, das im Vakuum mit Öl befüllt wird. Durch die Betätigung eines Kolbens wird das Kammer-system mit hohem Druck beaufschlagt. Dieser weitet die dünnwandige Dehnbuchse radial auf und spannt somit das Werkstück im vorgegebenen Spannbereich.

#### Vorteile

- Wenige mechanische Verschleißteile
- Kostengünstige Spannelemente bei höchster Genauigkeit
- Hohe und oberflächenschonende Spannkraft

#### Merkmale

- Innenspannung: von Spann- $\varnothing$  6 bis 250 mm
- Außenspannung: von Spann- $\varnothing$  5 bis 200 mm
- Rundläufe ab 2  $\mu\text{m}$ , z. B. Spann- $\varnothing$  20 mm, ab 3  $\mu\text{m}$  wiederholbar
- 0,050 mm Standardhub im Durchmesser bei Spann- $\varnothing$  100 mm
- Verschmutzungsunempfindlich
- Einfacher Aufbau
- Extrem dünnwandige Spannlösungen realisierbar

#### Functional description

This is usually a **closed hydraulic system** that is filled with oil in a vacuum. By actuating a piston, high pressure is applied to the chamber system. This expands the thin-walled expansion bush radially and thus clamps the workpiece in the specified clamping range.

#### Advantages

- Few mechanical wear parts
- Cost-effective clamping elements with highest accuracy
- High and surface-friendly clamping forces

#### Features

- Internal clamping: from clamping dia. 6 to 250 mm
- External clamping: from clamping dia. 5 to 200 mm
- Run-out from 2  $\mu\text{m}$ , e.g. clamping dia. 20 mm, from 3  $\mu\text{m}$  repeatable
- 0.050 mm standard stroke in diameter with clamping dia. 100 mm
- Highly resistant to soiling
- Simple design
- Extremely thin-walled clamping solutions can be realised



## A

|          |                     |         |          |              |     |          |                |     |          |                |     |
|----------|---------------------|---------|----------|--------------|-----|----------|----------------|-----|----------|----------------|-----|
| A0101001 | G (BSP)             | 238     | B016K101 | G (BSP)      | 231 | B020C300 | MF             | 163 | B0503G10 | MJ             | 274 |
| A0101001 | M                   | 150     | B016K101 | M            | 106 | B020C300 | UNC            | 205 | B0503G10 | UNJC           | 276 |
| A0101001 | MF                  | 194-195 | B016K101 | MF           | 165 | B020C300 | UNF            | 217 | B0503G10 | UNJF           | 278 |
| A0101001 | UNF                 | 224     | B0181000 | NPT          | 249 | B020C310 | M „4H“         | 96  | B0504500 | M              | 100 |
| A0101051 | M-LH                | 150     | B0181000 | NPTF         | 255 | B020C320 | M „6G“         | 97  | B050C400 | BSW            | 266 |
| A0101051 | MF-LH               | 194-195 | B0183000 | NPT          | 249 | B020C330 | M „7G“         | 97  | B050C400 | EG M (STI)     | 281 |
| A0102501 | M                   | 151     | B0183000 | NPTF         | 255 | B020C350 | M-LH           | 97  | B050C400 | M              | 112 |
| A0102501 | W zyl               | 264     | B0183000 | Rc (BSPT)    | 260 | B020K500 | M              | 92  | B050C400 | MF             | 166 |
| A0102521 | M „6GX“             | 151     | B0193000 | NPT          | 249 | B0306001 | M              | 103 | B050C400 | UNC            | 206 |
| A0181000 | NPT                 | 253     | B0203000 | M            | 95  | B0309601 | M              | 103 | B050C400 | UNF            | 218 |
| A0181000 | NPTF                | 258     | B0203000 | UNC          | 205 | B0309611 | MJ             | 274 | B050C410 | M „4H“         | 113 |
| A0181000 | Rc (BSPT)           | 262     | B0203000 | UNF          | 217 | B0309611 | UNJC           | 276 | B050C410 | MF „4H“        | 167 |
| A0181000 | W keg               | 263     | B0203010 | M „4H“       | 95  | B0309611 | UNJF           | 278 | B050C410 | UNC „3B“       | 207 |
| A0191000 | NPT                 | 253     | B0203020 | M „6G“       | 96  | B030J401 | M              | 104 | B050C410 | UNF „3B“       | 219 |
| A0203000 | M                   | 151     | B0203030 | M „7G“       | 97  | B030J411 | MJ             | 275 | B050C410 | UNJC           | 277 |
| A0208900 | M                   | 150     | B0203050 | M-LH         | 97  | B030J411 | UNJC           | 277 | B050C410 | UNJF           | 279 |
| A0451000 | M                   | 150     | B0203100 | M            | 95  | B030J411 | UNJF           | 279 | B050C420 | M „6G“         | 114 |
| A0513500 | M                   | 151     | B0203100 | MF           | 163 | B0401400 | M              | 95  | B050C430 | M „7G“         | 115 |
| A6622501 | G (BSP)             | 242     | B0203100 | UNC          | 205 | B040V401 | M              | 103 | B050C430 | UNC „2B“ +0,05 | 207 |
| A6622501 | MF                  | 202     | B0203100 | UNF          | 217 | B0451000 | M              | 94  | B050C440 | M „6H“ +0,1    | 115 |
| A6622501 | Rp (BSPP)           | 245     | B0203110 | M „4H“       | 96  | B0453701 | M              | 109 | B050C450 | M-LH           | 115 |
| A6622521 | MF „6GX“            | 202     | B0203120 | M „6G“       | 96  | B0456001 | M              | 103 | B050J300 | M              | 98  |
| A6622531 | G (BSP) „X“ +0,05   | 242     | B0203130 | M „7G“       | 97  | B0459601 | M              | 103 | B050J300 | UNC            | 205 |
| A6622531 | Rp (BSPP) „X“ +0,05 | 245     | B0203150 | M-LH         | 97  | B0459611 | MJ             | 274 | B050J300 | UNF            | 217 |
| A662254A | G (BSP) „X“ +0,1    | 242     | B0203G00 | EG M (STI)   | 280 | B0459611 | UNJC           | 276 | B0513500 | EG M (STI)     | 281 |
| A662254A | MF „6HX“ +0,1       | 202     | B0203G00 | M            | 100 | B0459611 | UNJF           | 278 | B0513500 | EG UNC (STI)   | 285 |
|          |                     |         | B0204500 | EG M (STI)   | 280 | B0461000 | M              | 94  | B0513500 | EG UNF (STI)   | 288 |
|          |                     |         | B0204500 | M            | 100 | B046L801 | M              | 102 | B0513500 | LK-M           | 291 |
|          |                     |         | B0208400 | M            | 92  | B0501000 | M              | 95  | B0513500 | M              | 113 |
|          |                     |         | B0208400 | MF           | 162 | B0501000 | UNC            | 204 | B0513500 | MF             | 167 |
|          |                     |         | B0208410 | M „4H“       | 93  | B0501000 | UNF            | 216 | B0513500 | UNC            | 206 |
|          |                     |         | B0208420 | M „6G“       | 93  | B0501400 | M              | 95  | B0513500 | UNF            | 218 |
|          |                     |         | B0208430 | M „7G“       | 93  | B0501400 | UNC            | 204 | B0513520 | M „6G“         | 114 |
|          |                     |         | B0208450 | M-LH         | 93  | B0501400 | UNF            | 216 | B0513520 | MF „6G“        | 167 |
|          |                     |         | B0208900 | M            | 92  | B0503000 | M              | 97  | B0513530 | UNF „2B“ +0,05 | 219 |
|          |                     |         | B0208900 | MF           | 162 | B0503000 | UNC            | 205 | B0513700 | M              | 113 |
|          |                     |         | B0208900 | UNC          | 204 | B0503000 | UNF            | 217 | B0513700 | UNC            | 207 |
|          |                     |         | B0208900 | UNF          | 216 | B0503500 | BSW            | 266 | B0513700 | UNF            | 219 |
|          |                     |         | B0208910 | M „4H“       | 93  | B0503500 | EG M (STI)     | 281 | B0513720 | M „6G“         | 114 |
|          |                     |         | B0208910 | UNC „3B“     | 204 | B0503500 | M              | 112 | B0513G00 | M              | 101 |
|          |                     |         | B0208910 | UNF „3B“     | 216 | B0503500 | MF             | 166 | B051C400 | EG M (STI)     | 281 |
|          |                     |         | B0208920 | M „6G“       | 93  | B0503500 | UNC            | 206 | B051C400 | EG UNC (STI)   | 285 |
|          |                     |         | B0208930 | M „7G“       | 93  | B0503500 | UNF            | 218 | B051C400 | EG UNF (STI)   | 288 |
|          |                     |         | B0208950 | M-LH         | 93  | B0503510 | M „4H“         | 113 | B051C400 | LK-M           | 291 |
|          |                     |         | B0208F01 | M            | 108 | B0503510 | MF „4H“        | 167 | B051C400 | M              | 113 |
|          |                     |         | B0208F01 | MF           | 166 | B0503510 | UNC „3B“       | 207 | B051C400 | MF             | 167 |
|          |                     |         | B0208F21 | M „6GX“      | 109 | B0503510 | UNF „3B“       | 219 | B051C400 | UNC            | 207 |
|          |                     |         | B0208J01 | M            | 94  | B0503510 | UNJC           | 277 | B051C400 | UNF            | 219 |
|          |                     |         | B0208J01 | MF           | 163 | B0503510 | UNJF           | 279 | B051C420 | M „6G“         | 115 |
|          |                     |         | B0209J01 | M            | 94  | B0503520 | M „6G“         | 114 | B051C420 | MF „6G“        | 167 |
|          |                     |         | B0209J01 | MF           | 163 | B0503530 | M „7G“         | 115 | B051C430 | UNF „2B“ +0,05 | 219 |
|          |                     |         | B020A601 | M            | 108 | B0503530 | UNC „2B“ +0,05 | 207 | B0653501 | M              | 116 |
|          |                     |         | B020A601 | MF           | 166 | B0503540 | M „6H“ +0,1    | 115 | B065C401 | M              | 116 |
|          |                     |         | B020A621 | M „6GX“      | 109 | B0503550 | M-LH           | 115 | B0911000 | M              | 318 |
|          |                     |         | B020C300 | BSW          | 266 | B0503700 | M              | 112 | B0911400 | LK-M           | 350 |
|          |                     |         | B020C300 | EG M (STI)   | 280 | B0503G00 | EG M (STI)     | 281 | B0911400 | M              | 318 |
|          |                     |         | B020C300 | EG UNC (STI) | 284 | B0503G00 | EG UNC (STI)   | 284 | B0911400 | MF             | 334 |
|          |                     |         | B020C300 | EG UNF (STI) | 287 | B0503G00 | EG UNF (STI)   | 287 | B0911400 | UNC            | 340 |
|          |                     |         | B020C300 | LK-M         | 290 | B0503G00 | LK-M           | 291 | B0911400 | UNF            | 344 |
|          |                     |         | B020C300 | M            | 95  | B0503G00 | M              | 100 | B0911420 | M „6GX“        | 319 |

## B

|          |         |     |
|----------|---------|-----|
| B0100501 | M       | 104 |
| B0100501 | MF      | 163 |
| B0100501 | UNC     | 205 |
| B0100501 | UNF     | 217 |
| B0101001 | BSF     | 270 |
| B0101001 | M       | 92  |
| B0101001 | MF      | 162 |
| B0101051 | MF-LH   | 162 |
| B0102000 | LK-M    | 290 |
| B0102001 | M       | 98  |
| B0102501 | M       | 103 |
| B0109101 | M       | 105 |
| B0109201 | M       | 98  |
| B0109401 | M       | 107 |
| B010J601 | M       | 101 |
| B010J901 | G (BSP) | 230 |
| B010J901 | M       | 105 |
| B010J901 | MF      | 164 |
| B010K101 | G (BSP) | 231 |
| B010K101 | M       | 106 |
| B010K101 | MF      | 165 |
| B010R501 | M       | 99  |
| B010T001 | M       | 102 |
| B0119401 | M       | 107 |
| B011R501 | M       | 99  |



|          |           |         |          |         |     |          |              |          |         |
|----------|-----------|---------|----------|---------|-----|----------|--------------|----------|---------|
| B0915G00 | M         | 323     | B5059500 | M       | 323 | <b>C</b> | C0203110     | M „4H“   | 124     |
| B0921000 | M         | 318     | B5059500 | MF      | 335 |          | C0203110     | MF „4H“  | 175     |
| B0921400 | LK-M      | 350     | B505Q800 | M       | 323 |          | C0203120     | M „6G“   | 124     |
| B0921400 | M         | 318     | B505Q800 | MF      | 335 |          | C0203120     | MF „6G“  | 175     |
| B0921400 | MF        | 334     | B5211Q00 | M       | 321 |          | C0203130     | M „7G“   | 125     |
| B0921400 | UNC       | 340     | B5217F00 | M       | 319 |          | C0203150     | M-LH     | 125     |
| B0921400 | UNF       | 344     | B5217F00 | MF      | 334 |          | C0203G00     | M        | 128     |
| B0921420 | M „6GX“   | 319     | B521Q200 | M       | 321 |          | C0204500     | M        | 128     |
| B0925G00 | M         | 323     | B521W700 | M       | 323 |          | C0208400     | M        | 120     |
| B0963701 | M         | 109     | B521Z700 | M       | 324 |          | C0208400     | MF       | 168-169 |
| B0973500 | M         | 113     | B521Z700 | MF      | 335 |          | C0208401     | G (BSP)  | 232     |
| B0973700 | M         | 113     | B521Z700 | UNC     | 341 |          | C0208410     | M „4H“   | 121     |
| B097C400 | M         | 113     | B521Z700 | UNF     | 345 |          | C0208410     | MF „4H“  | 170     |
| B0983701 | M         | 110     | B521Z720 | M „6GX“ | 325 |          | C0208420     | M „6G“   | 121     |
| B0989501 | M         | 101     | B5231Q00 | M       | 321 |          | C0208420     | MF „6G“  | 170     |
| B098Q801 | M         | 101     | B5237F00 | M       | 319 |          | C0208430     | M „7G“   | 121     |
| B099C400 | M         | 112     | B523Q200 | M       | 321 |          | C0208450     | M-LH     | 121     |
| B1069101 | M         | 105     | B523W700 | M       | 323 |          | C0208450     | MF-LH    | 171     |
| B1069401 | M         | 107     | B523Z700 | M       | 324 |          | C0208900     | M        | 120     |
| B106R501 | M         | 99      | B523Z700 | MF      | 335 |          | C0208900     | MF       | 168-169 |
| B1088F01 | M         | 109     | B523Z700 | UNC     | 341 |          | C0208900     | UNC      | 208     |
| B1088F21 | M „6GX“   | 109     | B523Z700 | UNF     | 345 |          | C0208900     | UNF      | 220     |
| B108A601 | M         | 109     | B523Z800 | M       | 325 |          | C0208901     | G (BSP)  | 232     |
| B108A621 | M „6GX“   | 109     | B5267F00 | M       | 319 |          | C0208910     | M „4H“   | 120     |
| B1099401 | M         | 108     | B5267F00 | MF      | 334 |          | C0208910     | MF „4H“  | 168-169 |
| B1099501 | M         | 101     | B526Q200 | M       | 321 |          | C0208910     | UNC „3B“ | 208     |
| B109R501 | M         | 99      | B526Z700 | M       | 324 |          | C0208910     | UNF „3B“ | 220     |
| B1583000 | NPT       | 250     | B5291Q00 | M       | 321 |          | C0208920     | M „6G“   | 121     |
| B1583000 | NPTF      | 255     | B5296A00 | M       | 320 |          | C0208920     | MF „6G“  | 170     |
| B1593000 | NPT       | 250     | B529Q200 | M       | 322 |          | C0208930     | M „7G“   | 121     |
| B1950501 | M         | 105     | B529Z700 | M       | 324 |          | C0208950     | M-LH     | 121     |
| B1950901 | M         | 105     | B5311Q00 | M       | 321 |          | C0208950     | MF-LH    | 170     |
| B1950901 | MF        | 163     | B5316A00 | M       | 320 | C0208F01 | M            | 134      |         |
| B1951P01 | M         | 99      | B5317F00 | M       | 319 | C0208F01 | MF           | 181      |         |
| B1959101 | M         | 105     | B531Q200 | M       | 322 | C0208F21 | M „6GX“      | 135      |         |
| B1959401 | M         | 107     | B531Z700 | M       | 325 | C0208J01 | M            | 122      |         |
| B195R501 | M         | 99      | B531Z800 | M       | 325 | C0208J01 | MF           | 171      |         |
| B1961P01 | M         | 99      | B5337F00 | M       | 320 | C0209J01 | M            | 122      |         |
| B1969401 | M         | 108     | B5337F00 | MF      | 335 | C0209J01 | MF           | 171      |         |
| B1969501 | M         | 101     | B533Q200 | M       | 322 | C020A601 | M            | 134      |         |
| B196R501 | M         | 99      | B535P300 | M       | 319 | C020A601 | MF           | 181      |         |
| B1970100 | M         | 319     | B544Z700 | M       | 326 | C020A621 | M „6GX“      | 135      |         |
| B2100501 | M         | 119     | B555Z700 | M       | 326 | C020C300 | BSW          | 267      |         |
| B2203000 | M         | 118     | B590A601 | M       | 111 | C020C300 | EG M (STI)   | 282      |         |
| B2208900 | M         | 117     | B590A621 | M „6GX“ | 111 | C020C300 | EG UNC (STI) | 286      |         |
| B220C300 | M         | 118     | B591A601 | M       | 111 | C020C300 | EG UNF (STI) | 289      |         |
| B2401400 | M         | 117     | B591A621 | M „6GX“ | 111 | C020C300 | LK-M         | 292      |         |
| B2461000 | M         | 117     | B616A601 | M       | 111 | C020C300 | M            | 123      |         |
| B2503000 | M         | 118     | B616A601 | UNC     | 206 | C020C300 | MF           | 174      |         |
| B2503500 | M         | 119     | B616A601 | UNF     | 218 | C020C300 | UNC          | 209      |         |
| B250C400 | M         | 119     | B616A621 | M „6GX“ | 111 | C020C300 | UNEF         | 229      |         |
| B4093701 | M         | 119     | B670J400 | NPT     | 250 | C020C300 | UNF          | 221      |         |
| B4253701 | M         | 110     | B670J400 | NPTF    | 256 | C020C301 | G (BSP)      | 233      |         |
| B438J401 | M         | 104     | B8170901 | M       | 102 | C020C310 | M „4H“       | 124      |         |
| B438J411 | MJ        | 275     |          |         |     | C020C310 | MF „4H“      | 175      |         |
| B438J411 | UNJC      | 277     |          |         |     | C020C320 | M „6G“       | 125      |         |
| B438J411 | UNJF      | 279     |          |         |     | C020C320 | MF „6G“      | 175      |         |
| B4503701 | M         | 110     |          |         |     | C020C330 | M „7G“       | 125      |         |
| B498A601 | M         | 111     |          |         |     | C020C350 | M-LH         | 125      |         |
| B498A621 | M „6GX“   | 111     |          |         |     | C0306001 | M            | 129      |         |
| C0100501 | G (BSP)   | 235     |          |         |     |          |              |          |         |
| C0100501 | M         | 130     |          |         |     |          |              |          |         |
| C0100501 | MF        | 178     |          |         |     |          |              |          |         |
| C0100501 | Pg        | 273     |          |         |     |          |              |          |         |
| C0100501 | UNC       | 209     |          |         |     |          |              |          |         |
| C0100501 | UNF       | 221     |          |         |     |          |              |          |         |
| C0101001 | BSF       | 271     |          |         |     |          |              |          |         |
| C0101001 | G (BSP)   | 232     |          |         |     |          |              |          |         |
| C0101001 | M         | 120     |          |         |     |          |              |          |         |
| C0101001 | MF        | 168-169 |          |         |     |          |              |          |         |
| C0101001 | NPSF      | 247     |          |         |     |          |              |          |         |
| C0101001 | NPSM      | 246     |          |         |     |          |              |          |         |
| C0101001 | Pg        | 273     |          |         |     |          |              |          |         |
| C0101001 | Rp (BSPP) | 243     |          |         |     |          |              |          |         |
| C0101001 | UNEF      | 228     |          |         |     |          |              |          |         |
| C0102000 | LK-M      | 292     |          |         |     |          |              |          |         |
| C0102001 | M         | 126     |          |         |     |          |              |          |         |
| C0102001 | MF        | 176     |          |         |     |          |              |          |         |
| C0109101 | G (BSP)   | 235     |          |         |     |          |              |          |         |
| C0109101 | M         | 130     |          |         |     |          |              |          |         |
| C0109101 | MF        | 178     |          |         |     |          |              |          |         |
| C0109201 | M         | 126     |          |         |     |          |              |          |         |
| C0109201 | MF        | 176     |          |         |     |          |              |          |         |
| C0109401 | M         | 133     |          |         |     |          |              |          |         |
| C0109401 | MF        | 180     |          |         |     |          |              |          |         |
| C010J901 | G (BSP)   | 235     |          |         |     |          |              |          |         |
| C010J901 | M         | 131     |          |         |     |          |              |          |         |
| C010J901 | MF        | 179     |          |         |     |          |              |          |         |
| C010R501 | M         | 127     |          |         |     |          |              |          |         |
| C010R501 | MF        | 176     |          |         |     |          |              |          |         |
| C0119401 | M         | 133     |          |         |     |          |              |          |         |
| C0119401 | MF        | 180     |          |         |     |          |              |          |         |
| C011R501 | M         | 127     |          |         |     |          |              |          |         |
| C011R501 | MF        | 177     |          |         |     |          |              |          |         |
| C0181000 | NPT       | 251     |          |         |     |          |              |          |         |
| C0181000 | NPTF      | 257     |          |         |     |          |              |          |         |
| C0183000 | NPT       | 251     |          |         |     |          |              |          |         |
| C0183000 | NPTF      | 257     |          |         |     |          |              |          |         |
| C0183000 | Rc (BSPT) | 261     |          |         |     |          |              |          |         |
| C0193000 | NPT       | 251     |          |         |     |          |              |          |         |
| C0203000 | M         | 123     |          |         |     |          |              |          |         |
| C0203000 | MF        | 174     |          |         |     |          |              |          |         |
| C0203000 | UNC       | 209     |          |         |     |          |              |          |         |
| C0203000 | UNF       | 221     |          |         |     |          |              |          |         |
| C0203001 | G (BSP)   | 233     |          |         |     |          |              |          |         |
| C0203010 | M „4H“    | 123     |          |         |     |          |              |          |         |
| C0203010 | MF „4H“   | 174     |          |         |     |          |              |          |         |
| C0203020 | M „6G“    | 124     |          |         |     |          |              |          |         |
| C0203020 | MF „6G“   | 175     |          |         |     |          |              |          |         |
| C0203030 | M „7G“    | 125     |          |         |     |          |              |          |         |
| C0203050 | M-LH      | 125     |          |         |     |          |              |          |         |
| C0203100 | M         | 123     |          |         |     |          |              |          |         |
| C0203100 | MF        | 174     |          |         |     |          |              |          |         |
| C0203100 | UNC       | 209     |          |         |     |          |              |          |         |
| C0203100 | UNEF      | 228     |          |         |     |          |              |          |         |
| C0203100 | UNF       | 221     |          |         |     |          |              |          |         |
| C0203101 | G (BSP)   | 233     |          |         |     |          |              |          |         |



|          |                |         |          |                   |     |          |         |         |          |         |         |
|----------|----------------|---------|----------|-------------------|-----|----------|---------|---------|----------|---------|---------|
| C0309601 | M              | 129     | C050C400 | UNC               | 210 | C0579401 | MF      | 188     | C195R501 | MF      | 177     |
| C030J401 | M              | 129     | C050C400 | UNEF              | 229 | C0653501 | M       | 142     | C1960901 | G (BSP) | 235     |
| C0401400 | M              | 123     | C050C400 | UNF               | 222 | C065C401 | M       | 142     | C1961P01 | M       | 127     |
| C0401401 | G (BSP)        | 233     | C050C401 | G (BSP)           | 236 | C0803001 | M       | 148     | C1961P01 | MF      | 177     |
| C0451000 | M              | 122     | C050C410 | M „4H“            | 139 | C0803001 | MF      | 190-191 | C1969401 | M       | 134     |
| C0451000 | MF             | 172-173 | C050C410 | UNC „3B“          | 211 | C0803101 | M       | 148     | C1969401 | MF      | 181     |
| C0451001 | G (BSP)        | 232     | C050C410 | UNF „3B“          | 223 | C0803101 | MF      | 190-191 | C196R501 | M       | 127     |
| C0453701 | M              | 135     | C050C420 | M „6G“            | 140 | C0911400 | G (BSP) | 348     | C196R501 | MF      | 177     |
| C0453701 | MF             | 181     | C050C430 | M „7G“            | 141 | C0911400 | M       | 327     | C2023001 | M       | 149     |
| C0456001 | M              | 129     | C050C430 | UNC „2B“ +0,05    | 211 | C0911400 | MF      | 336     | C2023001 | MF      | 192-193 |
| C0459601 | M              | 129     | C050C440 | M „6H“ +0,1       | 141 | C0911400 | UNC     | 342     | C2023101 | M       | 149     |
| C0461000 | M              | 122     | C050C450 | M-LH              | 141 | C0911400 | UNF     | 346     | C2023101 | MF      | 192-193 |
| C0461000 | MF             | 172-173 | C050C450 | MF-LH             | 187 | C0921400 | G (BSP) | 348     | C2100501 | M       | 145     |
| C0461000 | UNEF           | 228     | C050J300 | M                 | 126 | C0921400 | M       | 327     | C2203000 | M       | 144     |
| C0461001 | G (BSP)        | 233     | C050J300 | MF                | 175 | C0921400 | MF      | 336     | C2208900 | M       | 143     |
| C0501000 | BSW            | 267     | C050J300 | UNC               | 209 | C0921400 | UNC     | 342     | C220C300 | M       | 144     |
| C0501000 | M              | 123     | C050J300 | UNF               | 221 | C0921400 | UNF     | 346     | C2401400 | M       | 143     |
| C0501000 | MF             | 172-173 | C050J301 | G (BSP)           | 234 | C0963701 | M       | 135     | C2461000 | M       | 143     |
| C0501000 | UNC            | 208     | C0513500 | EG M (STI)        | 283 | C0963701 | MF      | 181     | C2503000 | M       | 144     |
| C0501000 | UNF            | 220     | C0513500 | EG UNC (STI)      | 286 | C0973500 | MF      | 186     | C2503500 | M       | 145     |
| C0501001 | G (BSP)        | 233     | C0513500 | EG UNF (STI)      | 289 | C0973700 | M       | 139     | C250C400 | M       | 145     |
| C0501400 | M              | 123     | C0513500 | LK-M              | 293 | C0973700 | MF      | 186     | C4053701 | M       | 136     |
| C0501400 | MF             | 172-173 | C0513500 | M                 | 139 | C097C400 | M       | 139     | C4053701 | MF      | 182     |
| C0501400 | UN-8           | 212     | C0513500 | MF                | 185 | C097C400 | MF      | 186     | C4063701 | M       | 147     |
| C0501400 | UNC            | 208     | C0513500 | NPSF              | 247 | C0983701 | M       | 136     | C4063701 | MF      | 189     |
| C0501400 | UNF            | 220     | C0513500 | NPSM              | 246 | C0983701 | MF      | 182     | C4093701 | M       | 145     |
| C0501401 | G (BSP)        | 233     | C0513500 | Rp (BSPP)         | 244 | C0993500 | M       | 138     | C4253701 | M       | 136     |
| C0503000 | M              | 125     | C0513500 | UNC               | 210 | C099C400 | M       | 139     | C4253701 | MF      | 182     |
| C0503000 | MF             | 175     | C0513500 | UNF               | 222 | C1069101 | M       | 131     | C4283701 | M       | 147     |
| C0503000 | UNC            | 209     | C0513501 | G (BSP)           | 236 | C1069101 | MF      | 179     | C4283701 | MF      | 189     |
| C0503000 | UNF            | 221     | C0513520 | M „6G“            | 140 | C1069401 | M       | 133     | C438J401 | M       | 129     |
| C0503001 | G (BSP)        | 234     | C0513520 | MF „6G“           | 187 | C1069401 | MF      | 180     | C4963701 | M       | 146     |
| C0503500 | BSW            | 268     | C0513530 | UNF „2B“ +0,05    | 223 | C106R501 | M       | 127     | C4963701 | MF      | 188     |
| C0503500 | EG M (STI)     | 283     | C0513531 | G (BSP) „X“ +0,05 | 237 | C106R501 | MF      | 177     | C4973701 | M       | 146     |
| C0503500 | M              | 138     | C0513700 | M                 | 139 | C1088F01 | M       | 135     | C4973701 | MF      | 188     |
| C0503500 | MF             | 183-184 | C0513700 | MF                | 185 | C1088F01 | MF      | 181     | C498A601 | G (BSP) | 235     |
| C0503500 | UN-8           | 212     | C0513700 | UNC               | 211 | C1088F21 | M „6GX“ | 135     | C498A601 | M       | 137     |
| C0503500 | UNC            | 210     | C0513700 | UNF               | 222 | C108A601 | M       | 135     | C498A601 | MF      | 183-184 |
| C0503500 | UNEF           | 229     | C0513701 | G (BSP)           | 237 | C108A601 | MF      | 181     | C498A621 | M „6GX“ | 137     |
| C0503500 | UNF            | 222     | C0513720 | M „6G“            | 140 | C108A621 | M „6GX“ | 135     | C500W700 | M       | 332     |
| C0503501 | G (BSP)        | 236     | C0513720 | MF „6G“           | 187 | C1099401 | M       | 134     | C5059500 | M       | 329     |
| C0503510 | M „4H“         | 139     | C051C400 | EG M (STI)        | 283 | C1099401 | MF      | 181     | C5059500 | MF      | 337     |
| C0503510 | MF „4H“        | 186     | C051C400 | EG UNC (STI)      | 286 | C109R501 | M       | 127     | C505Q800 | M       | 329     |
| C0503510 | UNC „3B“       | 211     | C051C400 | EG UNF (STI)      | 289 | C109R501 | MF      | 177     | C505Q800 | MF      | 337     |
| C0503510 | UNF „3B“       | 223     | C051C400 | LK-M              | 293 | C130K101 | M       | 132     | C5217F00 | M       | 327     |
| C0503520 | M „6G“         | 140     | C051C400 | M                 | 139 | C1583000 | NPT     | 252     | C5217F00 | MF      | 336     |
| C0503530 | M „7G“         | 141     | C051C400 | MF                | 185 | C1583000 | NPTF    | 257     | C521W700 | M       | 329     |
| C0503530 | UNC „2B“ +0,05 | 211     | C051C400 | NPSF              | 247 | C1593000 | NPT     | 252     | C521W700 | MF      | 338     |
| C0503540 | M „6H“ +0,1    | 141     | C051C400 | NPSM              | 246 | C1950501 | M       | 130     | C521Z700 | G (BSP) | 349     |
| C0503550 | M-LH           | 141     | C051C400 | Rp (BSPP)         | 244 | C1950501 | MF      | 179     | C521Z700 | M       | 329     |
| C0503550 | MF-LH          | 187     | C051C400 | UNC               | 211 | C1950901 | M       | 131     | C521Z700 | MF      | 339     |
| C0503700 | M              | 138     | C051C400 | UNF               | 223 | C1950901 | MF      | 179     | C521Z700 | UNC     | 343     |
| C0503G00 | EG M (STI)     | 282     | C051C401 | G (BSP)           | 237 | C1951P01 | M       | 127     | C521Z700 | UNF     | 347     |
| C0503G00 | M              | 128     | C051C420 | M „6G“            | 141 | C1951P01 | MF      | 177     | C5237F00 | M       | 327     |
| C0504500 | M              | 128     | C051C420 | MF „6G“           | 187 | C1959101 | M       | 130     | C5237F00 | MF      | 336     |
| C0504500 | MF             | 178     | C051C430 | UNF „2B“ +0,05    | 223 | C1959101 | MF      | 179     | C523W700 | M       | 329     |
| C050C400 | BSW            | 268     | C051C431 | G (BSP) „X“ +0,05 | 237 | C1959401 | M       | 133     | C523W700 | MF      | 338     |
| C050C400 | EG M (STI)     | 283     | C0539401 | M                 | 147 | C1959401 | MF      | 180     | C523Z700 | G (BSP) | 349     |
| C050C400 | M              | 138     | C0539401 | MF                | 189 | C195K101 | M       | 132     | C523Z700 | M       | 329     |
| C050C400 | MF             | 185     | C0579401 | M                 | 146 | C195R501 | M       | 127     | C523Z700 | MF      | 339     |



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| C523Z700 | UNC     | 343     |
| C523Z700 | UNF     | 347     |
| C5267F00 | M       | 328     |
| C5267F00 | MF      | 337     |
| C526Z700 | M       | 330     |
| C529Z700 | M       | 330     |
| C5317F00 | M       | 328     |
| C5317F00 | MF      | 337     |
| C531Z700 | M       | 330     |
| C5337F00 | M       | 328     |
| C5337F00 | MF      | 337     |
| C544Z700 | M       | 331     |
| C555Z700 | M       | 331     |
| C590A601 | G (BSP) | 236     |
| C590A601 | M       | 137     |
| C590A621 | M „6GX“ | 137     |
| C591A601 | M       | 137     |
| C591A601 | MF      | 183-184 |
| C591A621 | M „6GX“ | 137     |
| C594W700 | M       | 333     |
| C595W700 | M       | 333     |
| C599W700 | M       | 332     |
| C616A601 | G (BSP) | 235     |
| C616A601 | M       | 137     |
| C616A601 | MF      | 183-184 |
| C616A601 | UNC     | 210     |
| C616A621 | M „6GX“ | 137     |

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| D0101000 | BSF     | 537 |
| D0101000 | BSW     | 536 |
| D0101000 | G (BSP) | 531 |
| D0101000 | M       | 520 |
| D0101000 | MF      | 526 |
| D0101000 | Tr      | 538 |
| D0101000 | Tr-F    | 539 |
| D0101000 | UNC     | 528 |
| D0101000 | UNEF    | 530 |
| D0101000 | UNF     | 529 |
| D0101030 | M „6e“  | 520 |
| D0101030 | MF „6e“ | 526 |
| D0101050 | M-LH    | 520 |
| D0101050 | MF-LH   | 526 |
| D0101500 | G (BSP) | 531 |
| D0101500 | M       | 520 |
| D0101500 | MF      | 526 |
| D0101500 | UNC     | 528 |
| D0101500 | UNEF    | 530 |
| D0101500 | UNF     | 529 |
| D0102500 | G (BSP) | 531 |
| D0102500 | M       | 522 |
| D0102500 | MF      | 527 |
| D0103000 | M       | 521 |
| D0103000 | MF      | 527 |
| D0103500 | M       | 521 |
| D0191000 | NPT     | 533 |

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| D0191000 | NPTF     | 534 |
| D0191000 | R (BSPT) | 535 |
| D0301500 | M        | 524 |
| D0302500 | G (BSP)  | 532 |
| D0361500 | M        | 523 |
| D0401000 | M        | 525 |

### F

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| F009... | Softsynchro®          | 627      |
| F010... | SFM                   | 700-701  |
| F018... | SFM-L-DZ              | 703-704  |
| F019... | SFM-L-DZ              | 703-704  |
| F020... | SFM-L-DZ              | 703-704  |
| F033... | HF                    | 710-711  |
| F033... | HF/HD/Spezial         | 712-713  |
| F056... | EM                    | 720-721  |
| F056... | EM/IKZ                | 723      |
| F057... | EM-U                  | 726-727  |
| F057... | EM-U/IKZ              | 729      |
| F058... | EM-L                  | 730-731  |
| F059... | EM-UL                 | 732      |
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| F081... | EM-U-E                | 728      |
| F086... | EM-Z/ER/IKZ           | 733      |
| F089... | EM-R                  | 738      |
| F090... | A-E                   | 759      |
| F090... | A-EM                  | 759      |
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| F090... | A-SW                  | 759      |
| F090... | DEU                   | 760      |
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| F092... | AEU                   | 760      |
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| F107... | HF                    | 711      |
| F107... | Speedsynchro® Mini    | 649      |
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| F211...  | SFM-NP                 | 702      |
| F256...  | EM-E-Lock              | 725      |
| F310...  | KSN/HD                 | 662-669  |
| F313...  | KSN/Synchro            | 675-676  |
| F315...  | Softsynchro®           | 618-631  |
| F315...  | Zubehör · Accessories  | 756, 758 |
| F322...  | Softsynchro®/PGR       | 643-644  |
| F323...  | KSN/HD/ER              | 670-672  |
| F323...  | Zubehör · Accessories  | 758      |
| F324...  | KSN/HD/PGR             | 673-674  |
| F330...  | KSN                    | 652-661  |
| F330...  | Zubehör · Accessories  | 740-743  |
| F338...  | SWITCH-MASTER®         | 706-707  |
| F347...  | KSN/MQL                | 694-695  |
| F349...  | Softsynchro®/MMS       | 689, 691 |
| F350...  | EM-L/ER/IKZ            | 735      |
| F350...  | Zubehör · Accessories  | 758      |
| F351...  | Softsynchro®/MMS       | 690      |
| F354...  | Softsyn.® Mod./IKZ     | 632-633  |
| F355...  | Softsyn.® Mod./MQL     | 678-683  |
| F355...  | Zubehör · Accessories  | 742-744  |
| F356...  | EM/PGR/IKZ             | 736      |
| F360...  | Softsyn.® QuickLock    | 636-638  |
| F366...  | Softsyn.® Slim/IKZ     | 634      |
| F366...  | Zubehör · Accessories  | 756      |
| F367...  | Softsyn.® Slim/MQL     | 684-687  |
| F370...  | Softsyn.® SnapLock     | 639-640  |
| F371...  | Softsyn.® SnapLock L   | 641-642  |
| F372...  | Speedsynchro® Mini     | 649      |
| F372...  | Zubehör · Accessories  | 757      |
| F374...  | Zubehör · Accessories  | 757      |
| F375...  | Zubehör · Accessories  | 745      |
| F376...  | Spsy.® Mod. NFC/IKZ    | 646-647  |
| F377...  | Spsy.® Mod. NFC/MQL    | 648, 693 |
| F380...  | Softsyn.® Xtension     | 635      |
| F381...  | Softsyn.® Xtension/MQL | 688      |
| F449...  | EM/MQL                 | 696      |
| F450...  | EM-Z/MQL               | 697-698  |
| F451...  | EM-Z/QuickLock         | 734      |
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| FZ111000 |                        | 305      |
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| FZ111310 |                        | 302      |
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| FZ112610 |                        | 303      |
| FZ115480 |                        | 304      |
| FZ115490 |                        | 304      |
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| FZ115510 |                        | 304      |
| FZ115520 |                        | 304      |
| FZ115530 |                        | 304      |
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| FZ191115 |                        | 301      |
| FZ191215 |                        | 301      |
| FZ191315 |                        | 301      |
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| FZ191515 |                        | 301      |
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| G0037165 | 1:16                  | 265 |
| G0037175 | 1:16                  | 265 |
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| G0303050 | Tr-LH                 | 295 |
| G0321000 | Tr-F                  | 297 |
| G0321050 | Tr-F-LH               | 297 |
| G0323000 | Tr-F                  | 297 |
| G0351000 | Tr                    | 294 |
| G0351050 | Tr-LH                 | 294 |
| G0401000 | Rd                    | 299 |
| G0442500 | Tr                    | 296 |
| G0442500 | Tr-F                  | 298 |
| GF162101 | M, MF                 | 429 |
| GF162106 | M, MF                 | 429 |
| GF162121 | G (BSP), Rp (BSPP), W | 437 |
| GF162121 | M, MF                 | 429 |
| GF162121 | Pg                    | 441 |
| GF162126 | G (BSP), Rp (BSPP), W | 437 |
| GF162126 | M, MF                 | 429 |
| GF162126 | Pg                    | 441 |
| GF162131 | G (BSP), Rp (BSPP), W | 437 |
| GF162131 | M, MF                 | 429 |
| GF162136 | G (BSP), Rp (BSPP), W | 437 |
| GF162136 | M, MF                 | 429 |
| GF162151 | G (BSP), Rp (BSPP), W | 437 |
| GF162151 | M, MF                 | 429 |
| GF162156 | G (BSP), Rp (BSPP), W | 437 |
| GF162156 | M, MF                 | 429 |
| GF162211 | G (BSP), Rp (BSPP), W | 437 |
| GF162211 | M, MF                 | 429 |
| GF162211 | Pg                    | 441 |
| GF162216 | G (BSP), Rp (BSPP), W | 437 |
| GF162216 | M, MF                 | 429 |
| GF162216 | Pg                    | 441 |
| GF162311 | M, MF                 | 430 |
| GF162311 | UN                    | 434 |
| GF162316 | M, MF                 | 430 |
| GF162316 | UN                    | 434 |
| GF162321 | M, MF                 | 430 |
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| GF162326 | M, MF                 | 430 |
| GF162326 | UN                    | 434 |
| GF162331 | M, MF                 | 430 |
| GF162331 | UN                    | 434 |
| GF162336 | M, MF                 | 430 |
| GF162336 | UN                    | 434 |
| GF162351 | M, MF                 | 430 |
| GF162351 | UN                    | 434 |
| GF162356 | M, MF                 | 430 |
| GF162356 | UN                    | 434 |
| GF162701 | M, MF                 | 429 |
| GF162706 | M, MF                 | 429 |
| GF162721 | G (BSP), Rp (BSPP), W | 437 |
| GF162721 | M, MF                 | 429 |
| GF162721 | Pg                    | 441 |
| GF162726 | G (BSP), Rp (BSPP), W | 437 |
| GF162726 | M, MF                 | 429 |





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| GF162726 | Pg                    | 441 | GF163211 | Pg                    | 440 | GF1649BC | UN                    | 435 | GF173701 | NPTF         | 456 |
| GF162731 | G (BSP), Rp (BSPP), W | 437 | GF163211 | UN                    | 433 | GF1649CC | M, MF                 | 432 | GF173701 | Rc (BSPT)    | 461 |
| GF162731 | M, MF                 | 429 | GF163216 | G (BSP), Rp (BSPP), W | 436 | GF1649CC | UN                    | 435 | GF173706 | NPT          | 451 |
| GF162736 | G (BSP), Rp (BSPP), W | 437 | GF163216 | LK-M, LK-MF           | 439 | GF165361 | G (BSP), Rp (BSPP), W | 438 | GF173706 | NPTF         | 456 |
| GF162736 | M, MF                 | 429 | GF163216 | M, MF                 | 428 | GF165361 | M, MF                 | 431 | GF173706 | Rc (BSPT)    | 461 |
| GF162751 | G (BSP), Rp (BSPP), W | 437 | GF163216 | Pg                    | 440 | GF165366 | G (BSP), Rp (BSPP), W | 438 | GF173711 | NPT          | 451 |
| GF162751 | M, MF                 | 429 | GF163216 | UN                    | 433 | GF165366 | M, MF                 | 431 | GF173711 | NPTF         | 456 |
| GF162756 | G (BSP), Rp (BSPP), W | 437 | GF163701 | M, MF                 | 428 | GF165371 | G (BSP), Rp (BSPP), W | 438 | GF173711 | Rc (BSPT)    | 461 |
| GF162756 | M, MF                 | 429 | GF163706 | M, MF                 | 428 | GF165371 | M, MF                 | 431 | GF173716 | NPT          | 451 |
| GF162811 | G (BSP), Rp (BSPP), W | 437 | GF163721 | LK-M, LK-MF           | 439 | GF165376 | G (BSP), Rp (BSPP), W | 438 | GF173716 | NPTF         | 456 |
| GF162811 | M, MF                 | 429 | GF163721 | M, MF                 | 428 | GF165376 | M, MF                 | 431 | GF173716 | Rc (BSPT)    | 461 |
| GF162811 | Pg                    | 441 | GF163721 | Pg                    | 440 | GF165381 | G (BSP), Rp (BSPP), W | 438 | GF173731 | NPT          | 451 |
| GF162816 | G (BSP), Rp (BSPP), W | 437 | GF163721 | UN                    | 433 | GF165381 | M, MF                 | 431 | GF173731 | NPTF         | 456 |
| GF162816 | M, MF                 | 429 | GF163726 | LK-M, LK-MF           | 439 | GF165386 | G (BSP), Rp (BSPP), W | 438 | GF173731 | Rc (BSPT)    | 461 |
| GF162816 | Pg                    | 441 | GF163726 | M, MF                 | 428 | GF165386 | M, MF                 | 431 | GF173736 | NPT          | 451 |
| GF162911 | M, MF                 | 430 | GF163726 | Pg                    | 440 | GF165391 | G (BSP), Rp (BSPP), W | 438 | GF173736 | NPTF         | 456 |
| GF162911 | UN                    | 434 | GF163726 | UN                    | 433 | GF165391 | M, MF                 | 431 | GF173736 | Rc (BSPT)    | 461 |
| GF162916 | M, MF                 | 430 | GF163731 | G (BSP), Rp (BSPP), W | 436 | GF165396 | G (BSP), Rp (BSPP), W | 438 | GF173751 | NPT          | 451 |
| GF162916 | UN                    | 434 | GF163731 | LK-M, LK-MF           | 439 | GF165396 | M, MF                 | 431 | GF173751 | NPTF         | 456 |
| GF162921 | M, MF                 | 430 | GF163731 | M, MF                 | 428 | GF165961 | G (BSP), Rp (BSPP), W | 438 | GF173751 | Rc (BSPT)    | 461 |
| GF162921 | UN                    | 434 | GF163731 | UN                    | 433 | GF165961 | M, MF                 | 431 | GF173756 | NPT          | 451 |
| GF162926 | M, MF                 | 430 | GF163736 | G (BSP), Rp (BSPP), W | 436 | GF165966 | G (BSP), Rp (BSPP), W | 438 | GF173756 | NPTF         | 456 |
| GF162926 | UN                    | 434 | GF163736 | LK-M, LK-MF           | 439 | GF165966 | M, MF                 | 431 | GF173756 | Rc (BSPT)    | 461 |
| GF162931 | M, MF                 | 430 | GF163736 | M, MF                 | 428 | GF165971 | G (BSP), Rp (BSPP), W | 438 | GF175301 | NPT (API-LP) | 453 |
| GF162931 | UN                    | 434 | GF163736 | UN                    | 433 | GF165971 | M, MF                 | 431 | GF175301 | NPTF         | 458 |
| GF162936 | M, MF                 | 430 | GF163751 | G (BSP), Rp (BSPP), W | 436 | GF165976 | G (BSP), Rp (BSPP), W | 438 | GF175306 | NPT (API-LP) | 453 |
| GF162936 | UN                    | 434 | GF163751 | LK-M, LK-MF           | 439 | GF165976 | M, MF                 | 431 | GF175306 | NPTF         | 458 |
| GF162951 | M, MF                 | 430 | GF163751 | M, MF                 | 428 | GF165981 | G (BSP), Rp (BSPP), W | 438 | GF175311 | NPT (API-LP) | 453 |
| GF162951 | UN                    | 434 | GF163751 | UN                    | 433 | GF165981 | M, MF                 | 431 | GF175311 | NPTF         | 458 |
| GF162956 | M, MF                 | 430 | GF163756 | G (BSP), Rp (BSPP), W | 436 | GF165986 | G (BSP), Rp (BSPP), W | 438 | GF175316 | NPT (API-LP) | 453 |
| GF162956 | UN                    | 434 | GF163756 | LK-M, LK-MF           | 439 | GF165986 | M, MF                 | 431 | GF175316 | NPTF         | 458 |
| GF163101 | M, MF                 | 428 | GF163756 | M, MF                 | 428 | GF165991 | G (BSP), Rp (BSPP), W | 438 | GF175331 | NPT (API-LP) | 453 |
| GF163106 | M, MF                 | 428 | GF163756 | UN                    | 433 | GF165991 | M, MF                 | 431 | GF175331 | NPTF         | 458 |
| GF163121 | LK-M, LK-MF           | 439 | GF163811 | G (BSP), Rp (BSPP), W | 436 | GF165996 | G (BSP), Rp (BSPP), W | 438 | GF175336 | NPT (API-LP) | 453 |
| GF163121 | M, MF                 | 428 | GF163811 | LK-M, LK-MF           | 439 | GF165996 | M, MF                 | 431 | GF175336 | NPTF         | 458 |
| GF163121 | Pg                    | 440 | GF163811 | M, MF                 | 428 | GF173101 | NPT                   | 451 | GF175351 | NPT (API-LP) | 453 |
| GF163121 | UN                    | 433 | GF163811 | Pg                    | 440 | GF173101 | NPTF                  | 456 | GF175351 | NPTF         | 458 |
| GF163126 | LK-M, LK-MF           | 439 | GF163811 | UN                    | 433 | GF173101 | Rc (BSPT)             | 461 | GF175356 | NPT (API-LP) | 453 |
| GF163126 | M, MF                 | 428 | GF163816 | G (BSP), Rp (BSPP), W | 436 | GF173106 | NPT                   | 451 | GF175356 | NPTF         | 458 |
| GF163126 | Pg                    | 440 | GF163816 | LK-M, LK-MF           | 439 | GF173106 | NPTF                  | 456 | GF175901 | NPT (API-LP) | 453 |
| GF163126 | UN                    | 433 | GF163816 | M, MF                 | 428 | GF173106 | Rc (BSPT)             | 461 | GF175901 | NPTF         | 458 |
| GF163131 | G (BSP), Rp (BSPP), W | 436 | GF163816 | Pg                    | 440 | GF173111 | NPT                   | 451 | GF175906 | NPT (API-LP) | 453 |
| GF163131 | LK-M, LK-MF           | 439 | GF163816 | UN                    | 433 | GF173111 | NPTF                  | 456 | GF175906 | NPTF         | 458 |
| GF163131 | M, MF                 | 428 | GF16436C | M, MF                 | 432 | GF173111 | Rc (BSPT)             | 461 | GF175911 | NPT (API-LP) | 453 |
| GF163131 | UN                    | 433 | GF16436C | UN                    | 435 | GF173116 | NPT                   | 451 | GF175911 | NPTF         | 458 |
| GF163136 | G (BSP), Rp (BSPP), W | 436 | GF16437C | M, MF                 | 432 | GF173116 | NPTF                  | 456 | GF175916 | NPT (API-LP) | 453 |
| GF163136 | LK-M, LK-MF           | 439 | GF16437C | UN                    | 435 | GF173116 | Rc (BSPT)             | 461 | GF175916 | NPTF         | 458 |
| GF163136 | M, MF                 | 428 | GF16438C | M, MF                 | 432 | GF173131 | NPT                   | 451 | GF175931 | NPT (API-LP) | 453 |
| GF163136 | UN                    | 433 | GF16438C | UN                    | 435 | GF173131 | NPTF                  | 456 | GF175931 | NPTF         | 458 |
| GF163151 | G (BSP), Rp (BSPP), W | 436 | GF1643BC | M, MF                 | 432 | GF173131 | Rc (BSPT)             | 461 | GF175936 | NPT (API-LP) | 453 |
| GF163151 | LK-M, LK-MF           | 439 | GF1643BC | UN                    | 435 | GF173136 | NPT                   | 451 | GF175936 | NPTF         | 458 |
| GF163151 | M, MF                 | 428 | GF1643CC | M, MF                 | 432 | GF173136 | NPTF                  | 456 | GF175951 | NPT (API-LP) | 453 |
| GF163151 | UN                    | 433 | GF1643CC | UN                    | 435 | GF173136 | Rc (BSPT)             | 461 | GF175951 | NPTF         | 458 |
| GF163156 | G (BSP), Rp (BSPP), W | 436 | GF16496C | M, MF                 | 432 | GF173151 | NPT                   | 451 | GF175956 | NPT (API-LP) | 453 |
| GF163156 | LK-M, LK-MF           | 439 | GF16496C | UN                    | 435 | GF173151 | NPTF                  | 456 | GF175956 | NPTF         | 458 |
| GF163156 | M, MF                 | 428 | GF16497C | M, MF                 | 432 | GF173151 | Rc (BSPT)             | 461 | GF193101 | NPT          | 452 |
| GF163156 | UN                    | 433 | GF16497C | UN                    | 435 | GF173156 | NPT                   | 451 | GF193101 | NPTF         | 457 |
| GF163211 | G (BSP), Rp (BSPP), W | 436 | GF16498C | M, MF                 | 432 | GF173156 | NPTF                  | 456 | GF193101 | Rc (BSPT)    | 462 |
| GF163211 | LK-M, LK-MF           | 439 | GF16498C | UN                    | 435 | GF173156 | Rc (BSPT)             | 461 | GF193106 | NPT          | 452 |
| GF163211 | M, MF                 | 428 | GF1649BC | M, MF                 | 432 | GF173701 | NPT                   | 451 | GF193106 | NPTF         | 457 |



|          |              |     |          |              |     |          |         |     |          |            |     |
|----------|--------------|-----|----------|--------------|-----|----------|---------|-----|----------|------------|-----|
| GF193106 | Rc (BSPT)    | 462 | GF195901 | NPTF         | 459 | GF322101 | UNC     | 418 | GF335126 | MF         | 417 |
| GF193111 | NPT          | 452 | GF195906 | NPT (API-LP) | 454 | GF322101 | UNF     | 420 | GF335721 | M          | 410 |
| GF193111 | NPTF         | 457 | GF195906 | NPTF         | 459 | GF322106 | G (BSP) | 423 | GF335721 | MF         | 416 |
| GF193111 | Rc (BSPT)    | 462 | GF195911 | NPT (API-LP) | 454 | GF322106 | M       | 409 | GF335726 | M          | 411 |
| GF193116 | NPT          | 452 | GF195911 | NPTF         | 459 | GF322106 | MF      | 415 | GF335726 | MF         | 417 |
| GF193116 | NPTF         | 457 | GF195916 | NPT (API-LP) | 454 | GF322106 | UNC     | 419 | GF342101 | M          | 408 |
| GF193116 | Rc (BSPT)    | 462 | GF195916 | NPTF         | 459 | GF322106 | UNF     | 421 | GF342101 | UNC        | 418 |
| GF193131 | NPT          | 452 | GF195931 | NPT (API-LP) | 454 | GF322701 | G (BSP) | 422 | GF342106 | M          | 409 |
| GF193131 | NPTF         | 457 | GF195931 | NPTF         | 459 | GF322701 | M       | 408 | GF342106 | UNC        | 419 |
| GF193131 | Rc (BSPT)    | 462 | GF195936 | NPT (API-LP) | 454 | GF322701 | MF      | 414 | GF342701 | M          | 408 |
| GF193136 | NPT          | 452 | GF195936 | NPTF         | 459 | GF322701 | UNC     | 418 | GF342701 | UNC        | 418 |
| GF193136 | NPTF         | 457 | GF195951 | NPT (API-LP) | 454 | GF322701 | UNF     | 420 | GF342706 | M          | 409 |
| GF193136 | Rc (BSPT)    | 462 | GF195951 | NPTF         | 459 | GF322706 | G (BSP) | 423 | GF342706 | UNC        | 419 |
| GF193151 | NPT          | 452 | GF195956 | NPT (API-LP) | 454 | GF322706 | M       | 409 | GF422201 | EG M (STI) | 386 |
| GF193151 | NPTF         | 457 | GF195956 | NPTF         | 459 | GF322706 | MF      | 415 | GF422201 | G (BSP)    | 384 |
| GF193151 | Rc (BSPT)    | 462 | GF253101 | M, MF        | 466 | GF322706 | UNC     | 419 | GF422201 | M          | 370 |
| GF193156 | NPT          | 452 | GF253106 | G (BSP)      | 472 | GF322706 | UNF     | 421 | GF422201 | MF         | 376 |
| GF193156 | NPTF         | 457 | GF253106 | M, MF        | 466 | GF323101 | M       | 406 | GF422201 | UNC        | 380 |
| GF193156 | Rc (BSPT)    | 462 | GF253701 | M, MF        | 466 | GF323101 | MF      | 412 | GF422201 | UNF        | 382 |
| GF193701 | NPT          | 452 | GF253701 | UNC, UNF     | 470 | GF323106 | M       | 407 | GF422206 | EG M (STI) | 387 |
| GF193701 | NPTF         | 457 | GF253706 | G (BSP)      | 472 | GF323106 | MF      | 413 | GF422206 | G (BSP)    | 385 |
| GF193701 | Rc (BSPT)    | 462 | GF253706 | M, MF        | 466 | GF323701 | M       | 406 | GF422206 | M          | 371 |
| GF193706 | NPT          | 452 | GF253706 | UNC, UNF     | 470 | GF323701 | MF      | 412 | GF422206 | MF         | 377 |
| GF193706 | NPTF         | 457 | GF26A129 | M, MF        | 473 | GF323706 | M       | 407 | GF422206 | UNC        | 381 |
| GF193706 | Rc (BSPT)    | 462 | GF26A129 | UNC, UNF     | 474 | GF323706 | MF      | 413 | GF422206 | UNF        | 383 |
| GF193711 | NPT          | 452 | GF26A129 | UNF          | 475 | GF332101 | G (BSP) | 422 | GF422251 | M          | 372 |
| GF193711 | NPTF         | 457 | GF26A729 | M, MF        | 473 | GF332101 | M       | 408 | GF422256 | M          | 373 |
| GF193711 | Rc (BSPT)    | 462 | GF26A729 | UNC, UNF     | 474 | GF332101 | MF      | 414 | GF422801 | EG M (STI) | 386 |
| GF193716 | NPT          | 452 | GF26A729 | UNF          | 475 | GF332101 | UNC     | 418 | GF422801 | G (BSP)    | 384 |
| GF193716 | NPTF         | 457 | GF273101 | M, MF        | 467 | GF332101 | UNF     | 420 | GF422801 | M          | 370 |
| GF193716 | Rc (BSPT)    | 462 | GF273106 | M, MF        | 467 | GF332106 | G (BSP) | 423 | GF422801 | MF         | 376 |
| GF193731 | NPT          | 452 | GF273106 | UNC, UNF     | 471 | GF332106 | M       | 409 | GF422801 | UNC        | 380 |
| GF193731 | NPTF         | 457 | GF273106 | UNF          | 471 | GF332106 | MF      | 415 | GF422801 | UNF        | 382 |
| GF193731 | Rc (BSPT)    | 462 | GF273701 | M, MF        | 467 | GF332106 | UNC     | 419 | GF422806 | EG M (STI) | 387 |
| GF193736 | NPT          | 452 | GF273706 | M, MF        | 467 | GF332106 | UNF     | 421 | GF422806 | G (BSP)    | 385 |
| GF193736 | NPTF         | 457 | GF273706 | UNC, UNF     | 471 | GF332701 | G (BSP) | 422 | GF422806 | M          | 371 |
| GF193736 | Rc (BSPT)    | 462 | GF273706 | UNF          | 471 | GF332701 | M       | 408 | GF422806 | MF         | 377 |
| GF193751 | NPT          | 452 | GF283129 | M, MF        | 476 | GF332701 | MF      | 414 | GF422806 | UNC        | 381 |
| GF193751 | NPTF         | 457 | GF283129 | UNC, UNF     | 477 | GF332701 | UNC     | 418 | GF422806 | UNF        | 383 |
| GF193751 | Rc (BSPT)    | 462 | GF283129 | UNF          | 478 | GF332701 | UNF     | 420 | GF422851 | M          | 372 |
| GF193756 | NPT          | 452 | GF283729 | M, MF        | 476 | GF332706 | G (BSP) | 423 | GF422856 | M          | 373 |
| GF193756 | NPTF         | 457 | GF283729 | UNC, UNF     | 477 | GF332706 | M       | 409 | GF429246 | M          | 374 |
| GF193756 | Rc (BSPT)    | 462 | GF283729 | UNF          | 478 | GF332706 | MF      | 415 | GF429248 | M          | 375 |
| GF195301 | NPT (API-LP) | 454 | GF293146 | M, MF        | 469 | GF332706 | UNC     | 419 | GF429846 | M          | 374 |
| GF195301 | NPTF         | 459 | GF293746 | M, MF        | 469 | GF332706 | UNF     | 421 | GF429848 | M          | 375 |
| GF195306 | NPT (API-LP) | 454 | GF2A3106 | M, MF        | 468 | GF333101 | LK-M    | 424 | GF432201 | EG M (STI) | 386 |
| GF195306 | NPTF         | 459 | GF2A3706 | M, MF        | 468 | GF333101 | M       | 406 | GF432201 | G (BSP)    | 384 |
| GF195311 | NPT (API-LP) | 454 | GF2BA129 | M, MF        | 473 | GF333101 | MF      | 412 | GF432201 | M          | 370 |
| GF195311 | NPTF         | 459 | GF2BA129 | UNC, UNF     | 474 | GF333106 | LK-M    | 425 | GF432201 | MF         | 376 |
| GF195316 | NPT (API-LP) | 454 | GF2BA129 | UNF          | 475 | GF333106 | M       | 407 | GF432201 | UNC        | 380 |
| GF195316 | NPTF         | 459 | GF2BA729 | M, MF        | 473 | GF333106 | MF      | 413 | GF432201 | UNF        | 382 |
| GF195331 | NPT (API-LP) | 454 | GF2BA729 | UNC, UNF     | 474 | GF333701 | LK-M    | 424 | GF432206 | EG M (STI) | 387 |
| GF195331 | NPTF         | 459 | GF2BA729 | UNF          | 475 | GF333701 | M       | 406 | GF432206 | G (BSP)    | 385 |
| GF195336 | NPT (API-LP) | 454 | GF303701 | M            | 406 | GF333701 | MF      | 412 | GF432206 | M          | 371 |
| GF195336 | NPTF         | 459 | GF303706 | M            | 407 | GF333706 | LK-M    | 425 | GF432206 | MF         | 377 |
| GF195351 | NPT (API-LP) | 454 | GF313701 | M            | 406 | GF333706 | M       | 407 | GF432206 | UNC        | 381 |
| GF195351 | NPTF         | 459 | GF313706 | M            | 407 | GF333706 | MF      | 413 | GF432206 | UNF        | 383 |
| GF195356 | NPT (API-LP) | 454 | GF322101 | G (BSP)      | 422 | GF335121 | M       | 410 | GF432251 | M          | 372 |
| GF195356 | NPTF         | 459 | GF322101 | M            | 408 | GF335121 | MF      | 416 | GF432256 | M          | 373 |
| GF195901 | NPT (API-LP) | 454 | GF322101 | MF           | 414 | GF335126 | M       | 411 | GF432801 | EG M (STI) | 386 |



|          |                       |     |          |                       |     |          |              |         |          |     |
|----------|-----------------------|-----|----------|-----------------------|-----|----------|--------------|---------|----------|-----|
| GF432801 | G (BSP)               | 384 | GF643205 | G (BSP), Rp (BSPP), W | 499 | GF74682C | UNC          | 392     | GZ341000 | 494 |
| GF432801 | M                     | 370 | GF643205 | M, MF, UN             | 499 | GF74682C | UNF          | 393     | GZ341001 | 496 |
| GF432801 | MF                    | 376 | GF643207 | G (BSP), Rp (BSPP), W | 499 | GF7B622B | M            | 394     | GZ341012 | 498 |
| GF432801 | UNC                   | 380 | GF643207 | M, MF, UN             | 499 | GF7B622B | MF           | 395     | GZ341021 | 496 |
| GF432801 | UNF                   | 382 | GF643207 | NPT                   | 499 | GF7B622B | MJ           | 398     | GZ341032 | 498 |
| GF432806 | EG M (STI)            | 387 | GF643207 | Tr                    | 499 | GF7B622B | UNC          | 396     | GZ341040 | 494 |
| GF432806 | G (BSP)               | 385 | GF643305 | G (BSP), Rp (BSPP), W | 501 | GF7B622B | UNF          | 397     | GZ341050 | 494 |
| GF432806 | M                     | 371 | GF643305 | M, MF, UN             | 501 | GF7B622B | UNJC         | 399     | GZ341101 | 496 |
| GF432806 | MF                    | 377 | GF643307 | G (BSP), Rp (BSPP), W | 501 | GF7B622B | UNJF         | 400     | GZ341112 | 498 |
| GF432806 | UNC                   | 381 | GF643307 | M, MF, UN             | 501 | GF7B682B | M            | 394     | GZ341121 | 496 |
| GF432806 | UNF                   | 383 | GF643307 | Tr                    | 501 | GF7B682B | MF           | 395     | GZ341131 | 496 |
| GF432851 | M                     | 372 | GF643405 | G (BSP), Rp (BSPP), W | 503 | GF7B682B | MJ           | 398     | GZ341143 | 500 |
| GF432856 | M                     | 373 | GF643405 | M, MF, UN             | 503 | GF7B682B | UNC          | 396     | GZ341153 | 500 |
| GF439246 | M                     | 374 | GF643407 | G (BSP), Rp (BSPP), W | 503 | GF7B682B | UNF          | 397     | GZ341200 | 494 |
| GF439246 | MF                    | 378 | GF643407 | M, MF, UN             | 503 | GF7B682B | UNJC         | 399     | GZ341201 | 496 |
| GF439248 | M                     | 375 | GF643407 | Tr                    | 503 | GF7B682B | UNJF         | 400     | GZ341202 | 498 |
| GF439248 | MF                    | 379 | GF643505 | M, MF, UN             | 505 | GF7C622B | M            | 394     | GZ341203 | 500 |
| GF439846 | M                     | 374 | GF643507 | M, MF, UN             | 505 | GF7C622B | MF           | 395     | GZ341211 | 496 |
| GF439846 | MF                    | 378 | GF643507 | Tr                    | 505 | GF7C622B | MJ           | 398     | GZ341212 | 498 |
| GF439848 | M                     | 375 | GF65130A | M, MF, UN             | 489 | GF7C622B | UNC          | 396     | GZ341221 | 496 |
| GF439848 | MF                    | 379 | GF65310A | G (BSP), Rp (BSPP), W | 489 | GF7C622B | UNF          | 397     | GZ341231 | 496 |
| GF442201 | M                     | 370 | GF65310A | M, MF, UN             | 489 | GF7C622B | UNJC         | 399     | GZ343003 | 500 |
| GF442201 | UNC                   | 380 | GF65310A | NPT                   | 490 | GF7C622B | UNJF         | 400     | GZ343014 | 502 |
| GF442206 | M                     | 371 | GF65320A | G (BSP), Rp (BSPP), W | 489 | GF7C682B | M            | 394     | GZ343103 | 500 |
| GF442206 | UNC                   | 381 | GF65320A | M, MF, UN             | 489 | GF7C682B | MF           | 395     | GZ343114 | 502 |
| GF442251 | M                     | 372 | GF65330A | G (BSP), Rp (BSPP), W | 489 | GF7C682B | MJ           | 398     | GZ344003 | 500 |
| GF442256 | M                     | 373 | GF65330A | M, MF, UN             | 489 | GF7C682B | UNC          | 396     | GZ344014 | 502 |
| GF442801 | M                     | 370 | GF65330A | NPT                   | 490 | GF7C682B | UNF          | 397     | GZ344024 | 502 |
| GF442801 | UNC                   | 380 | GF65340A | G (BSP), Rp (BSPP), W | 489 | GF7C682B | UNJC         | 399     | GZ344035 | 504 |
| GF442806 | M                     | 371 | GF65340A | M, MF, UN             | 489 | GF7C682B | UNJF         | 400     | GZ344045 | 504 |
| GF442806 | UNC                   | 381 | GF65350A | G (BSP), Rp (BSPP), W | 489 | GFB3512C | M, MF        | 444     | GZ344103 | 500 |
| GF442851 | M                     | 372 | GF65350A | M, MF, UN             | 489 | GFB3512C | MF           | 444     | GZ344114 | 502 |
| GF442856 | M                     | 373 | GF65350A | NPT                   | 490 | GFB3512C | UNC, UNF, UN | 445     | GZ344124 | 502 |
| GF449246 | M                     | 374 | GF65360A | G (BSP), Rp (BSPP), W | 489 | GFB3512C | UNF, UN      | 445     | GZ344203 | 500 |
| GF449248 | M                     | 375 | GF65360A | M, MF, UN             | 489 | GFB3572C | M, MF        | 444     | GZ344204 | 502 |
| GF449846 | M                     | 374 | GF65360A | NPT                   | 490 | GFB3572C | MF           | 444     | GZ349010 | 495 |
| GF449848 | M                     | 375 | GF65370A | G (BSP), Rp (BSPP), W | 489 | GFB3572C | UNC, UNF, UN | 445     | GZ349011 | 490 |
| GF603117 | G (BSP), Rp (BSPP), W | 483 | GF65370A | M, MF, UN             | 489 | GFB3572C | UNF, UN      | 445     | GZ349011 | 497 |
| GF603117 | M, MF                 | 483 | GF663005 |                       | 506 | GFB4513C | M, MF        | 446     | GZ349012 | 490 |
| GF603117 | UN                    | 483 | GF663007 |                       | 506 | GFB4513C | MF           | 446     | GZ349012 | 499 |
| GF603147 | G (BSP), Rp (BSPP), W | 485 | GF663105 |                       | 506 | GFB4513C | UNC, UNF, UN | 447     | GZ349013 | 490 |
| GF603147 | M, MF                 | 485 | GF663107 |                       | 506 | GFB4513C | UNF, UN      | 447     | GZ349013 | 501 |
| GF613127 | G (BSP), Rp (BSPP), W | 487 | GF663205 |                       | 506 | GFB4573C | M, MF        | 446     | GZ349014 | 490 |
| GF613127 | M, MF, UN             | 487 | GF663207 |                       | 506 | GFB4573C | MF           | 446     | GZ349014 | 503 |
| GF641007 | M, MF                 | 495 | GF663305 |                       | 506 | GFB4573C | UNC, UNF, UN | 447     | GZ349015 | 505 |
| GF641107 | M, MF                 | 497 | GF663307 |                       | 506 | GFB4573C | UNF, UN      | 447     | GZ349020 | 495 |
| GF641207 | M, MF                 | 499 | GF663405 |                       | 506 | GZ301110 |              | 482     | GZ349021 | 490 |
| GF641307 | M, MF                 | 501 | GF663407 |                       | 506 | GZ301130 |              | 482     | GZ349021 | 497 |
| GF641407 | M, MF                 | 503 | GF733709 | M                     | 401 | GZ301140 |              | 482     | GZ349022 | 490 |
| GF643005 | G (BSP), Rp (BSPP), W | 495 | GF733709 | UNC                   | 402 | GZ301310 |              | 482     | GZ349022 | 499 |
| GF643005 | M, MF, UN             | 495 | GF733709 | UNF                   | 403 | GZ301320 |              | 482     | GZ349023 | 490 |
| GF643007 | G (BSP), Rp (BSPP), W | 495 | GF743709 | M                     | 401 | GZ301330 |              | 482     | GZ349023 | 501 |
| GF643007 | M, MF, UN             | 495 | GF743709 | UNC                   | 402 | GZ301340 |              | 482     | GZ349024 | 490 |
| GF643007 | Tr                    | 495 | GF743709 | UNF                   | 403 | GZ303010 |              | 484     | GZ349024 | 503 |
| GF643105 | G (BSP), Rp (BSPP), W | 497 | GF74622C | M                     | 390 | GZ309010 |              | 483     | GZ349025 | 505 |
| GF643105 | M, MF, UN             | 497 | GF74622C | MF                    | 391 | GZ309020 |              | 483-485 | GZ349040 | 495 |
| GF643107 | G (BSP), Rp (BSPP), W | 497 | GF74622C | UNC                   | 392 | GZ309210 |              | 485     | GZ349041 | 490 |
| GF643107 | M, MF, UN             | 497 | GF74622C | UNF                   | 393 | GZ311330 |              | 486     | GZ349041 | 497 |
| GF643107 | NPT                   | 497 | GF74682C | M                     | 390 | GZ319020 |              | 487     | GZ349042 | 490 |
| GF643107 | Tr                    | 497 | GF74682C | MF                    | 391 | GZ319060 |              | 487     | GZ349042 | 499 |





**Hinweis:**

Die allgemeinen Geschäftsbedingungen können Sie bei der für Sie zuständigen Landesvertretung anfordern.

**Please note:**

If you want specific General Sales Conditions for your own country, please ask your local contact.

**I. Allgemeines**

1. Allen Lieferungen und Leistungen liegen diese Bedingungen sowie etwaige gesonderte vertragliche Vereinbarungen zugrunde. Abweichende Einkaufsbedingungen des Bestellers werden auch durch Auftragsannahme nicht Vertragsinhalt.

Ein Vertrag kommt – mangels besonderer Vereinbarung – mit der schriftlichen Auftragsbestätigung des Lieferers zustande.

2. Der Lieferer behält sich an Mustern, Kostenvoranschlägen, Zeichnungen u.ä. Informationen körperlicher und unkörperlicher Art – auch in elektronischer Form – Eigentums- und Urheberrechte vor; sie dürfen Dritten nicht zugänglich gemacht werden. Der Lieferer verpflichtet sich, vom Besteller als vertraulich bezeichnete Informationen und Unterlagen nur mit dessen Zustimmung Dritten zugänglich zu machen.

3. Muster werden nur gegen Berechnung geliefert.

4. Mündliche Nebenabreden bestehen nicht. Änderungen bedürfen der Schriftform.

**II. Preis und Zahlung**

1. Die Preise gelten mangels besonderer Vereinbarung ab Werk einschließlich Verladung im Werk, jedoch ausschließlich Verpackung und Entladung. Zu den Preisen kommt die Umsatzsteuer in der jeweiligen gesetzlichen Höhe hinzu.

2. Mangels besonderer Vereinbarung ist die Zahlung sofort nach Lieferung und ohne jeden Abzug á Konto des Lieferers zu leisten. Berechnet wird die jeweilige Liefermenge.

3. Das Recht, Zahlungen zurückzuhalten, steht dem Besteller nur insoweit zu, als seine Gegenansprüche unbestritten oder rechtskräftig festgestellt sind.

4. Das Recht des Bestellers, mit Gegenansprüchen aus anderen Rechtsverhältnissen aufzurechnen, steht ihm nur insoweit zu, als sie unbestritten oder rechtskräftig festgestellt sind.

**III. Lieferzeit, Lieferverzögerung**

1. Die Lieferzeit ergibt sich aus den Vereinbarungen der Vertragsparteien. Ihre Einhaltung durch den Lieferer setzt voraus, dass alle

kaufmännischen und technischen Fragen zwischen den Vertragsparteien geklärt sind und der Besteller alle ihm obliegenden Verpflichtungen, wie z.B. Beibringung der erforderlichen behördlichen Bescheinigungen oder Genehmigungen oder die Leistung einer Anzahlung erfüllt hat. Ist dies nicht der Fall, so verlängert sich die Lieferzeit angemessen. Dies gilt nicht, soweit der Lieferer die Verzögerung zu vertreten hat.

2. Die Einhaltung der Lieferzeit steht unter dem Vorbehalt richtiger und rechtzeitiger Selbstbelieferung. Sich abzeichnende Verzögerungen teilt der Lieferer sobald als möglich mit.

3. Die Lieferzeit ist eingehalten, wenn der Liefergegenstand bis zu ihrem Ablauf das Werk des Lieferers verlassen hat oder die Versandbereitschaft gemeldet ist. Soweit eine Abnahme zu erfolgen hat, ist – außer bei berechtigter Abnahmeverweigerung – der Abnahmetermin maßgebend, hilfsweise die Meldung der Abnahmebereitschaft.

4. Werden der Versand bzw. die Abnahme des Liefergegenstandes aus Gründen verzögert, die der Besteller zu vertreten hat, so werden ihm, beginnend einen Monat nach Meldung der Versand- bzw. der Abnahmebereitschaft, die durch die Verzögerung entstandenen Kosten berechnet. Wird der Versand auf Wunsch des Bestellers verzögert, so ist der Lieferer berechtigt, nach Setzung und fruchtlosem Ablauf einer angemessenen Frist, anderweitig über den Liefergegenstand zu verfügen und den Besteller mit angemessen verlängerter Frist zu beliefern.

5. Ist die Nichteinhaltung der Lieferzeit auf höhere Gewalt, auf Arbeitskämpfe oder sonstige Ereignisse, die außerhalb des Einflussbereiches des Lieferers liegen, zurückzuführen, so verlängert sich die Lieferzeit angemessen. Der Lieferer wird dem Besteller den Beginn und das Ende derartiger Umstände baldmöglichst mitteilen.

6. Der Besteller kann ohne Fristsetzung vom Vertrag zurücktreten, wenn dem Lieferer die gesamte Leistung vor Gefahrübergang endgültig unmöglich wird. Der Besteller kann darüber hinaus vom Vertrag zurücktreten, wenn bei einer Bestellung die Ausführung eines Teils der Lieferung unmöglich wird und er ein berechtigtes Interesse an der Ablehnung der Teillieferung hat. Ist dies nicht

der Fall, so hat der Besteller den auf die Teillieferung entfallenen Vertragspreis zu zahlen. Dasselbe gilt bei Unvermögen des Lieferers. Im Übrigen gilt Abschnitt VIII.2. Tritt die Unmöglichkeit oder das Unvermögen während des Annahmeverzuges ein oder ist der Besteller für diese Umstände allein oder weit überwiegend verantwortlich, bleibt er zur Gegenleistung verpflichtet.

7. Kommt der Lieferer in Verzug und erwächst dem Besteller hieraus ein Schaden, so ist er berechtigt, eine pauschale Verzugsentschädigung zu verlangen. Sie beträgt für jede volle Woche der Verspätung 0,5 %, im Ganzen aber höchstens 5 % vom Wert desjenigen Teils der Gesamtlieferung, der infolge der Verspätung nicht rechtzeitig oder nicht vertragsgemäß genutzt werden kann. Setzt der Besteller dem Lieferer – unter Berücksichtigung der gesetzlichen Ausnahmefälle – nach Fälligkeit eine angemessene Frist zur Leistung und wird die Frist nicht eingehalten, ist der Besteller im Rahmen der gesetzlichen Vorschriften zum Rücktritt berechtigt. Er verpflichtet sich, auf Verlangen des Lieferers in angemessener Frist zu erklären, ob er von seinem Rücktrittsrecht Gebrauch macht. Weitere Ansprüche aus Lieferverzug bestimmen sich ausschließlich nach Abschnitt VII. 2 dieser Bedingungen.

**IV. Gefahrübergang, Abnahme**

1. Die Gefahr geht auf den Besteller über, wenn der Liefergegenstand das Werk verlassen hat, und zwar auch dann, wenn Teillieferungen erfolgen oder der Lieferer noch andere Leistungen, z.B. die Versandkosten oder Anlieferung und Aufstellung, übernommen hat. Soweit eine Abnahme zu erfolgen hat, ist diese für den Gefahrübergang maßgebend. Sie muss unverzüglich zum Abnahmetermin, hilfsweise nach der Meldung des Lieferers über die Abnahmebereitschaft durchgeführt werden. Der Besteller darf die Abnahme bei Vorliegen eines nicht wesentlichen Mangels nicht verweigern.

2. Verzögert sich oder unterbleibt der Versand bzw. die Abnahme infolge von Umständen, die dem Lieferer nicht zuzurechnen sind, geht die Gefahr vom Tage der Meldung der Versand bzw. Abnahmebereitschaft auf den Besteller über. Der Lieferer verpflichtet sich, auf Kosten des Bestellers die Versicherungen abzuschließen, die dieser verlangt.

- Teillieferungen sind zulässig, soweit für den Besteller zumutbar.

## V. Eigentumsvorbehalt

- Der Lieferer behält sich das Eigentum an dem Liefergegenstand vor, bis sämtliche Forderungen des Lieferers gegen den Besteller aus der Geschäftsverbindung einschließlich der künftig entstehenden Forderungen, auch aus gleichzeitig oder später abgeschlossenen Verträgen, beglichen sind. Dies gilt auch dann, wenn einzelne oder sämtliche Forderungen des Lieferers in eine laufende Rechnung aufgenommen wurden und der Saldo gezogen und anerkannt ist.

Bei vertragswidrigem Verhalten des Bestellers insbesondere bei Zahlungsverzug, ist der Lieferer zur Rücknahme des Liefergegenstandes nach Mahnung berechtigt und der Besteller zur Herausgabe verpflichtet.

Auf Grund des Eigentumsvorbehalts kann der Lieferer den Liefergegenstand nur herausverlangen, wenn er vom Vertrag zurückgetreten ist. Bei Pfändungen oder sonstigen Eingriffen Dritter hat der Besteller den Lieferer unverzüglich zu benachrichtigen.

- Der Besteller ist berechtigt, den Liefergegenstand im ordentlichen Geschäftsgang weiter zu veräußern. Er tritt jedoch dem Lieferer bereits jetzt alle Forderungen ab, die ihm aus der Weiterveräußerung gegen den Abnehmer oder gegen Dritte erwachsen.

Zur Einziehung dieser Forderungen ist der Besteller auch nach der Abtretung ermächtigt. Die Befugnis des Lieferers, die Forderungen selbst einzuziehen, bleibt hiervon unberührt.

Die Einziehungsbefugnis erlischt, wenn

- der Besteller mit seinen Zahlungsverpflichtungen gegenüber dem Lieferer in Verzug gerät oder
- sie widerrufen ist oder
- ein Antrag auf Eröffnung eines Insolvenzverfahrens gestellt ist.

Der Lieferer kann dann verlangen, dass der Besteller ihm die abgetretenen Forderungen und deren Schuldner bekannt gibt, alle zum Einzug erforderlichen Angaben macht, die dazugehörigen Unterlagen aushändigt und den Schuldnern die Abtretung mitteilt, soweit nicht bereits durch den Lieferer geschehen.

Wird der Liefergegenstand zusammen mit anderen Waren, die dem Lieferanten nicht gehören, weiterveräußert, gilt die Forderung des Bestellers gegen den Abnehmer in Höhe des zwischen Lieferer und Besteller vereinbarten Lieferpreises als abgetreten.

- Der Besteller darf den Liefergegenstand weder verpfänden noch zur Sicherheit übereignen.
- Der Lieferer ist berechtigt, den Liefergegenstand auf Kosten des Bestellers gegen Diebstahl, Bruch-, Feuer-, Wasser- und sonstige Schäden zu versichern, sofern nicht der Besteller selbst die Versicherung nachweislich abgeschlossen hat.
- Wird im Zusammenhang mit der Bezahlung des Kaufpreises durch den Besteller eine wechselseitige Haftung des Lieferers begründet, so erlöschen der Eigentumsvorbehalt, einschließlich seiner vereinbarten Sonderformen, oder sonstige zur Zahlungssicherung vereinbarte Sicherheiten nicht vor Einlösung des Wechsels durch den Besteller als Bezogenem.

## VI. Mängelansprüche

Für Sach- und Rechtsmängel der Lieferung haftet der Lieferer unter Ausschluss weiterer Ansprüche – vorbehaltlich Abschnitt VII – wie folgt:

### Sachmängel

- Alle diejenigen Teile sind nach Wahl des Lieferers nachzubessern oder mangelfrei zu ersetzen, die sich infolge eines vor dem Gefahrübergang liegenden Umstandes als mangelhaft herausstellen.  
Die Feststellung solcher Mängel ist dem Lieferer unverzüglich schriftlich anzuzeigen. Ersetzte Teile werden Eigentum des Lieferers.
- Zur Vornahme aller dem Lieferer notwendig erscheinenden Nachbesserungen und Ersatzlieferungen hat der Besteller nach Verständigung mit dem Lieferer diesem die erforderliche Zeit und Gelegenheit zu geben; andernfalls ist der Lieferer von der Haftung für die daraus entstehenden Folgen befreit. Nur in dringenden Fällen der Gefährdung der Betriebssicherheit bzw. zur Abwehr unverhältnismäßig großer Schäden, wobei der Lieferer sofort zu verständigen ist, hat der Besteller das Recht, den Mangel selbst oder durch Dritte beseitigen zu lassen und vom Lieferer Ersatz der erforderlichen Aufwendungen zu verlangen.
- Der Lieferer trägt – soweit sich die Beanstandung als berechtigt herausstellt – die zum Zwecke der Nacherfüllung erforderlichen Aufwendungen, soweit hierdurch keine unverhältnismäßige Belastung des Lieferers eintritt. Soweit sich die Aufwendungen dadurch erhöhen, dass der Käufer die Kaufsache nach Ablieferung an einen anderen Ort als den Erfüllungsort verbracht hat, sind dadurch entstehende Mehrkosten

vom Käufer zu tragen. Der Lieferer ersetzt bei dem Verkauf einer neu hergestellten Sache außerdem im Umfang seiner gesetzlichen Verpflichtungen die vom Besteller geleisteten Aufwendungen im Rahmen von Rückgriffsansprüchen in der Lieferkette.

- Der Besteller hat im Rahmen der gesetzlichen Vorschriften ein Recht zum Rücktritt vom Vertrag, wenn der Lieferer – unter Berücksichtigung der gesetzlichen Ausnahmefälle – eine ihm gesetzte angemessene Frist für die Nachbesserung oder Ersatzlieferung wegen eines Sachmangels fruchtlos verstreichen lässt. Liegt nur ein unerheblicher Mangel vor, steht dem Besteller lediglich ein Recht zur Minderung des Vertragspreises zu. Das Recht auf Minderung des Vertragspreises bleibt ansonsten ausgeschlossen.
- Weitere Ansprüche bestimmen sich ausschließlich nach Abschnitt VII.2. dieser Bedingungen.
- Keine Haftung wird insbesondere in folgenden Fällen übernommen:

Ungeeignete oder unsachgemäße Verwendung, fehlerhafte Montage bzw. Inbetriebsetzung durch den Besteller oder Dritte, natürliche Abnutzung, fehlerhafte oder nachlässige Behandlung, nicht ordnungsgemäße Wartung, ungeeignete Betriebsmittel, mangelhafte Bauarbeiten, ungeeigneter Baugrund, chemische, elektrochemische oder elektrische Einflüsse – sofern sie nicht vom Lieferer zu verantworten sind.

Für Mängel des vom Besteller angelieferten Materials haftet der Lieferer nur, wenn er bei Anwendung fachmännischer Sorgfalt die Mängel hätte erkennen müssen. Bei Fertigung nach Zeichnung des Bestellers haftet der Lieferer nur für die zeichnungsmäßige Ausführung.

Werden Sonderwerkzeuge in Auftrag gegeben, so darf die Bestellmenge um 10 %, mindestens jedoch um 2 Stück über- oder unterschritten werden.

- Bessert der Besteller oder ein Dritter unsachgemäß nach, besteht keine Haftung des Lieferers für die daraus entstehenden Folgen. Gleiches gilt für ohne vorherige Zustimmung des Lieferers vorgenommene Änderungen des Liefergegenstandes.

### Rechtsmängel

- Führt die Benutzung des Liefergegenstandes zur Verletzung von gewerblichen Schutzrechten oder Urheberrechten im Inland, wird der Lieferer auf seine Kosten dem Besteller grundsätzlich das Recht zum weiteren Gebrauch verschaffen oder den



Liefergegenstand in für den Besteller zumutbarer Weise derart modifizieren, dass die Schutzrechtsverletzung nicht mehr besteht.

Ist dies zu wirtschaftlich angemessenen Bedingungen oder in angemessener Frist nicht möglich, ist der Besteller zum Rücktritt vom Vertrag berechtigt. Unter den genannten Voraussetzungen steht auch dem Lieferer ein Recht zum Rücktritt vom Vertrag zu.

Darüber hinaus wird der Lieferer den Besteller von unbestrittenen oder rechtskräftig festgestellten Ansprüchen der betreffenden Schutzrechtsinhaber freistellen.

9. Die in Abschnitt VI.8. genannten Verpflichtungen des Lieferers sind vorbehaltlich Abschnitt VII.2. für den Fall der Schutz oder Urheberrechtsverletzung abschließend.

Sie bestehen nur, wenn

- der Besteller den Lieferer unverzüglich von geltend gemachten Schutz- oder Urheberrechtsverletzungen unterrichtet,
- der Besteller den Lieferer in angemessenem Umfang bei der Abwehr der geltend gemachten Ansprüche unterstützt bzw. dem Lieferer die Durchführung der Modifizierungsmaßnahmen gemäß Abschnitt VI.8. ermöglicht,
- dem Lieferer alle Abwehrmaßnahmen einschließlich außergerichtlicher Regelungen vorbehalten bleiben,
- der Rechtsmangel nicht auf einer Anweisung des Bestellers beruht und
- die Rechtsverletzung nicht dadurch verursacht wurde, dass der Besteller den Liefergegenstand eigenmächtig geändert oder in einer nicht vertragsgemäßen Weise verwendet hat.

10. Der Besteller übernimmt für die von ihm beizubringenden Unterlagen, wie Zeichnungen, Lehren, Muster oder dgl., die alleinige Verantwortung. Der Besteller hat dafür einzustehen, dass von ihm vorgelegte Ausführungszeichnungen in Schutzrechte Dritter nicht eingreifen. Der Lieferer ist dem Besteller gegenüber nicht zur Prüfung verpflichtet, ob durch die Abgabe von Angeboten auf Grund ihm eingesandter Ausführung irgendwelche Schutzrechte Dritter verletzt werden. Ergibt sich trotzdem aus anspruchsbegründenden Tatsachen eine Haftung des Lieferers, so hat der Besteller ihn schadlos zu halten.

## VII. Haftung des Lieferers, Haftungsausschluss

- Wenn der Liefergegenstand infolge vom Lieferer schuldhaft unterlassener oder fehlerhafter Vorschläge oder Beratungen,

die vor oder nach Vertragsschluss erfolgten, oder durch die schuldhafte Verletzung anderer vertraglicher Nebenverpflichtungen – insbesondere Anleitung für Bedienung und Wartung des Liefergegenstandes – vom Besteller nicht vertragsgemäß verwendet werden kann, so gelten unter Ausschluss weiterer Ansprüche des Bestellers die Regelungen der Abschnitte VI und VII.2.

- Für Schäden, die nicht am Liefergegenstand selbst entstanden sind, haftet der Lieferer – aus welchen Rechtsgründen auch immer – nur
  - bei Vorsatz und grober Fahrlässigkeit,
  - bei schuldhafter Verletzung von Leben, Körper, Gesundheit,
  - bei Mängeln, die er arglistig verschwiegen hat,
  - im Rahmen einer Garantiezusage,
  - bei Mängeln des Liefergegenstandes, soweit nach Produktionshaftungsgesetz für Personen- oder Sachschäden an privat genutzten Gegenständen gehaftet wird.

Bei schuldhafter Verletzung wesentlicher Vertragspflichten haftet der Lieferer auch bei einfacher Fahrlässigkeit, allerdings begrenzt auf den vertragstypischen, vernünftigerweise vorhersehbaren Schaden.

Weitere Ansprüche sind ausgeschlossen.

## VIII. Verjährung

Alle Ansprüche des Bestellers – aus welchen Rechtsgründen auch immer – verjähren in 12 Monaten; dies gilt auch für die Verjährung von Rückgriffsansprüchen in der Lieferkette gem. § 445 b Abs. 1 BGB, sofern der letzte Vertrag in dieser Lieferkette kein Verbrauchsgüterkauf ist. Die Ablaufhemmung aus § 445 b Abs. 2 BGB bleibt unberührt. Für Schadensersatzansprüche nach Abschnitt VII.2. a-c und e gelten die gesetzlichen Fristen. Sie gelten auch für Mängel eines Bauwerks oder für Liefergegenstände, die entsprechend ihrer üblichen Verwendungsweise für ein Bauwerk verwendet wurden und dessen Mangelhaftigkeit verursacht haben.

## IX. Softwarenutzung

Soweit im Lieferumfang Software enthalten ist, wird dem Besteller ein nicht ausschließliches Recht eingeräumt, die gelieferte Software einschließlich ihrer Dokumentationen zu nutzen.

Sie wird zur Verwendung auf dem dafür bestimmten Liefergegenstand überlassen. Eine Nutzung der Software auf mehr als einem System ist untersagt.

Der Besteller darf die Software nur im gesetzlich zulässigen Umfang (§§ 69 a ff. UrhG) vervielfältigen, überarbeiten, übersetzen oder von dem Objektcode in den Quellcode umwandeln. Der Besteller verpflichtet sich, Herstellerangaben – insbesondere Copyright-Vermerke – nicht zu entfernen oder ohne vorherige ausdrückliche Zustimmung des Lieferers zu verändern.

Alle sonstigen Rechte an der Software und den Dokumentationen einschließlich der Kopien bleiben beim Lieferer bzw. beim Softwarelieferanten. Die Vergabe von Unterlizenzen ist nicht zulässig.

## X. Anwendbares Recht, Gerichtsstand

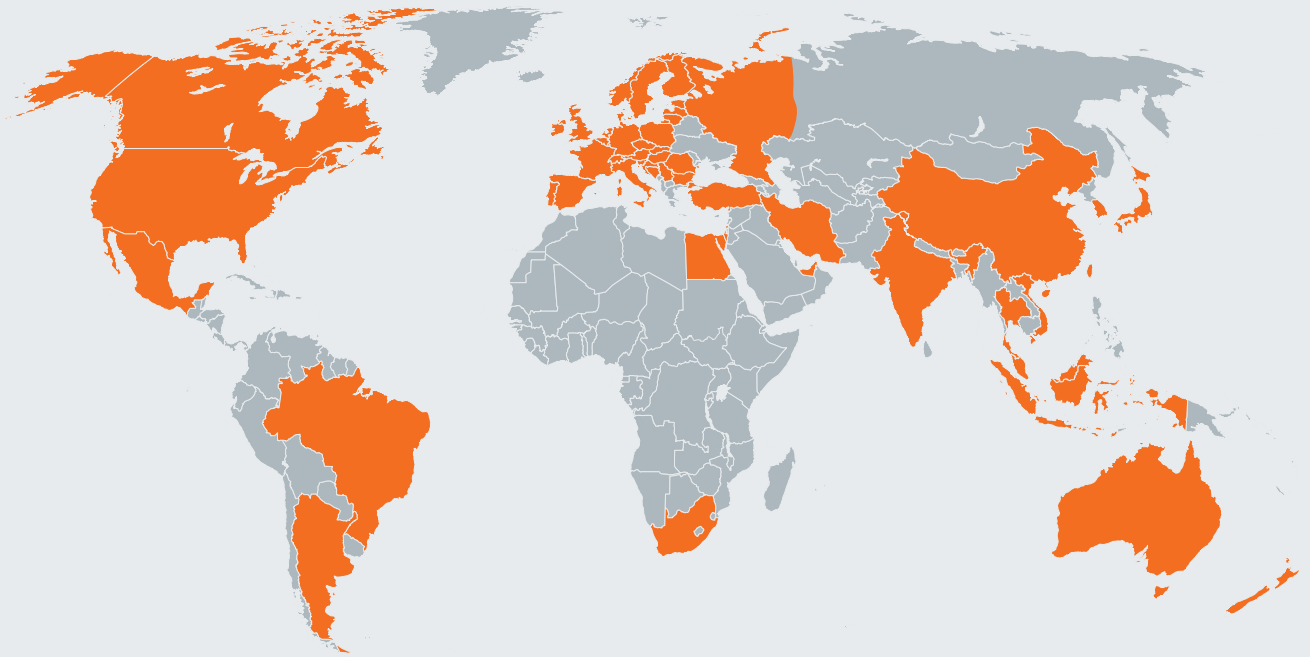
- Für alle Rechtsbeziehungen zwischen dem Lieferer und dem Besteller gilt ausschließlich das für die Rechtsbeziehungen inländischer Parteien untereinander maßgebliche Recht der Bundesrepublik Deutschland.
- Gerichtsstand ist das für den Sitz des Lieferers zuständige Gericht. Der Lieferer ist jedoch berechtigt, am Hauptsitz des Bestellers Klage zu erheben.

## XI. Besondere Bedingungen für Bearbeitungsverträge (Fertigstellung, Aufarbeitung, Umarbeitung oder Wiederherstellung von Werkzeugen)

Ergänzend zu oder abweichend von den Lieferbedingungen gilt für Bearbeitungsverträge:

- Für das Verhalten des an den Bearbeiter eingesandten Materials übernimmt dieser keine Haftung. Sein Anspruch auf Vergütung bleibt unberührt.
- Wird das Material bei der Bearbeitung durch Verschulden des Bearbeiters unbrauchbar, entfällt sein Vergütungsanspruch.

Der Schadensersatzanspruch des Bestellers richtet sich nach Abschnitt VII.2. der Lieferbedingungen.



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