

SPATENBOHRER

SPADE DRILLS



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KONTAKT | CONTACT

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WARUM SPATENBOHRER · WHY SPADE DRILLS

Reduzieren Sie Ihre Kosten pro Bohrung durch Karnasch Spatenbohrer

Spatenbohrer sind das Hauptprodukt von Karnasch im Bereich Bohrer mit auswechselbaren Schneidköpfen. Spatenbohrer sind hocheffiziente Bohrwerkzeuge mit herausragenden Leistungsparametern. Spatenbohrer ersetzen die veraltete Bohrtechnik der komplett aus HSS / HSS-Co Kobalt / Pulverstahl bestehenden Bohrwerkzeuge. Spatenbohrer sind eine hervorragende Ergänzung für den Bereich Vollhartmetallbohrer. Spatenbohrer bestehen aus 2 Teilen – Halter und Schneideinsätze.

Die Vorteile sind:

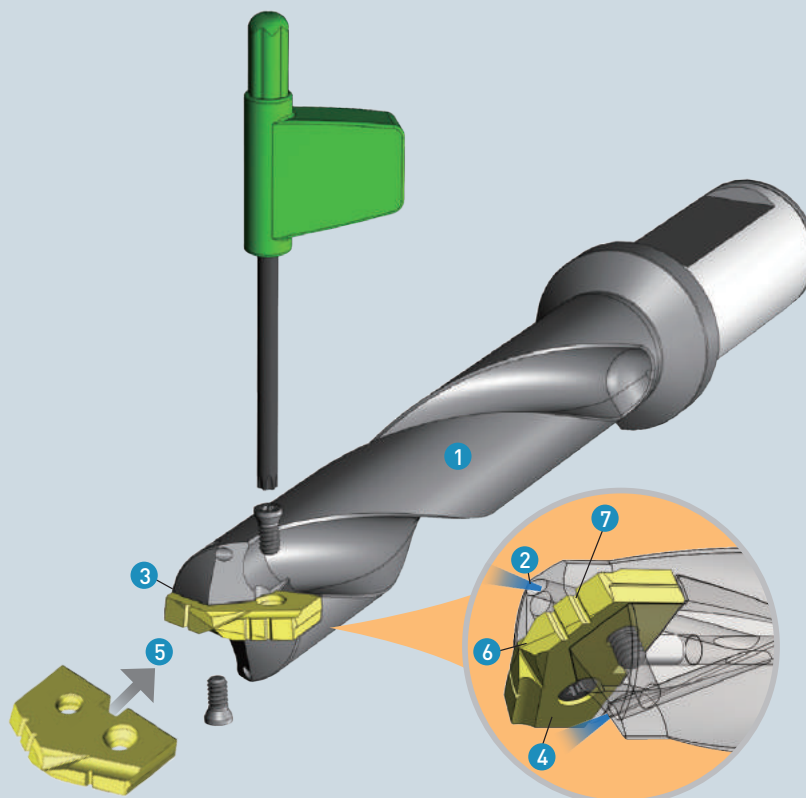
- 1 Es werden nur 14 Halter benötigt um den Durchmesserbereich Ø 9,5 – 114 mm abzudecken.
- 2 Innere Kühlmittelzufuhr für hervorragende Spanabfuhr auch bei tiefen Bohrungen.
- 3 Die hochpräzise Verbindung zwischen Halter und Schneideinsatz gewährleistet engste Toleranzen und leicht zu wechselnde Schneideinsätze.
- 4 Die Schneideinsätze sind aus Pulverstahl oder Hartmetall gefertigt, in Toleranz h8. Zusätzlich erhalten alle Schneideinsätze eine auf Ihren Einsatzzweck optimierte Beschichtung. Aus dieser Kombination resultieren wesentlich höhere Schnittleistungen / Standzeiten als bei konventionellen Bohrwerkzeugen. (Einsatzparameter siehe Seite 1136-1143)
- 5 Durch schnellen Austausch der Schneideinsätze ist der Spatenbohrer sofort wieder einsatzbereit. Nicht nötig (wie bei konventionellen Vollstahl-Bohrern) den kompletten Bohrer zur Aufarbeitung / Schärfe zu schicken.
- 6 Die optimierte XR-Schneidkante an den Schneideinsätzen reduziert erheblich die Zerspanungskräfte.
- 7 Unter anderem verfügen alle Schneideinsätze über eine „Spanbrecher-Funktion“ welche nochmals die Stabilität während des Bohrvorgangs erhöht.

Reduce your drilling cost by using KARNASCH spade drill

Spade drill is one of the main interchangeable insert drill from KARNASCH. It is a high efficient drilling tool with superior performance, designing to substitute those traditional hole drilling products with low efficiency and inconvenient usage. It consists of two parts – holder and inserts.

Its advantages are:

- 1 Only 14 holders can meet the demand for drilling holes from Ø 9.5 to Ø 114 mm.
- 2 Inner cooling design of holder enable excellent chip removal and good cooling when drilling deep holes.
- 3 High accuracy of the connections between the inserts and holders ensures high clamping accuracy, and easy to replace inserts.
- 4 Inserts are made of powder high speed steel or carbide, in tolerance h8, combined with various coatings. This improves extremely the tool life and drilling speed in comparison to normal twist drills (see cutting data page 1136-1143).
- 5 Replaceable structure, which is more convenient. No need of regrinding drill on the scene.
- 6 New type XR edge reduce the cutting resistance greatly.
- 7 Inserts have the function of chip-breaker, which improves the stability of holes drilling.



WARUM SPATENBOHRER · WHY SPADE DRILLS

Spatenbohrer sind das ideale Bohrwerkzeug für alle modernen CNC-Maschinen wie zum Beispiel:

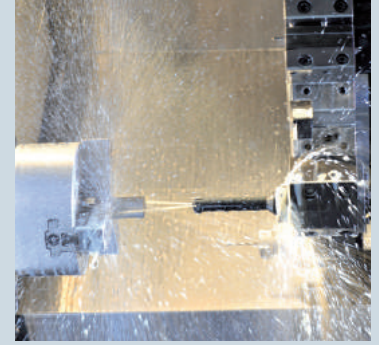
- Numerisch gesteuerte Säulenbohrmaschinen / Radialbohrmaschinen
- Numerisch gesteuerte Drehmaschinen
- Bearbeitungszentren

Vorzugsweise werden hier Hartmetall-Einsätze angewendet

Spade drill is the perfect drilling tool match all kinds of modern CNC machines such as:

- Numerically controlled planar drill
- Numerically controlled lathe
- Machining centers

Preferably carbide insert are applied



Spatenbohrer sind das ideale Bohrwerkzeug für alle traditionellen / manuellen Bohrmaschinen wie zum Beispiel:

- Säulenbohrmaschinen
- Radialbohrmaschinen
- Alle Arten von vertikalen Bohrmaschinen
- Nicht numerisch gesteuerte Drehmaschinen

Vorzugsweise werden hier Pulverstahl-Einsätze angewendet

Spade drill is the perfect drilling tool match all kinds of traditional / manual drilling machines such as:

- Pillar drilling machines
- Radial drilling machines
- Vertical driller
- Non numerically controlled lathe

Preferably powder steel insert are applied



BESCHREIBUNG DES EINSATZES · DESCRIPTION OF INSERT MODEL

Spanbrecher

- Durch Spanbrecher bessere Spanabfuhr sowie weniger Schnittkräfte.

Chip breaker

- Chip breaking, better chip removal
- Reduce drilling torque

Beschichtung

Alle Einsätze erhalten spezielle Beschichtungen

Coating

All inserts receives special coatings

Spanteilerrillen

- Reduziert die Spanlänge.
- Dadurch bessere Spanabfuhr sowie reduzierte Schnittkräfte.

Chip dividing groove

- Reduce cutting width
- Better chip removal
- Reduce drilling torque

Durchmesser-Fase

- Verbessert die Stabilität des Schneideinsatzes.
- Reduziert den Verschleiß des Außendurchmessers am Schneideinsatz.
- Verbessert die Oberfläche am Werkstück.

Diameter chamfer

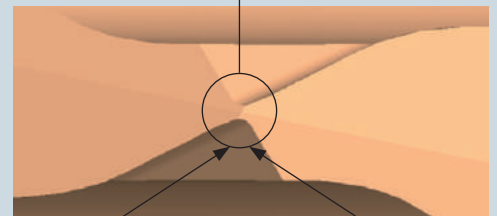
- Increase the strength of insert
- Reduce the wear & tear of outer diameter
- Improve the smoothness on the surface of workpiece

Bohrerspitze

- Durch ausgespitzte Zentrumsschneiden werden die axialen Kräfte bis zu 20% gegenüber konventionellen Bohrern reduziert.

Core drilling

- Thinner core drilling, which reduce 20% axial resistance compared with normal drilling products.
- Better self-centering



XR-Querschneid-Schliff

- Verbessert die Stabilität der Schneidkanten.
- Verbessert im Allgemeinen nochmals die Stabilität des gesamten Schneideinsatzes.

Zwei Rückenflankenflächen

- Reduziert die Reibung mit dem Werkstück.
- Verbessert die Selbstzentrierung.
- Reduziert die axialen Kräfte.

Two back flank surfaces

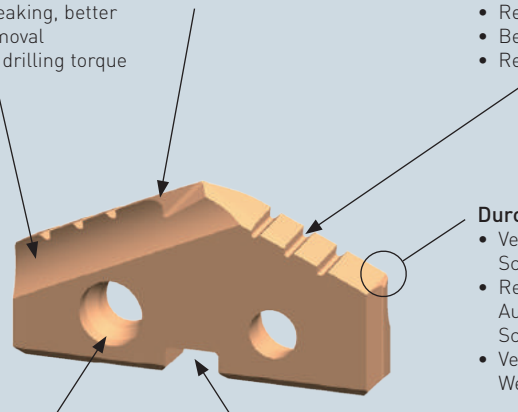
- Reduce the friction with the workpiece
- Better self-centering
- Reduce the axial resistance

Fix screw holes

- Safe and reliable clamping
- Ensure the stability during drilling

Location groove

- Ensure the accuracy of the radial direction



Befestigungsbohrungen

- Sichere und zuverlässige Befestigung der Schneideinsätze für höchste Stabilität während des Bohrvorgangs.

Positionierungs-Nut

- Gewährleistet die akkurate Positionierung der Schneideinsätze bei der radialen Drehbewegung.




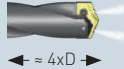
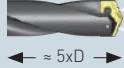
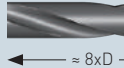


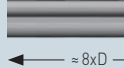

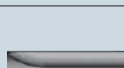

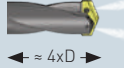
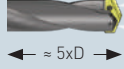
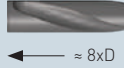


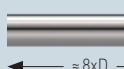
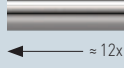
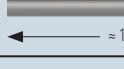

PULVERSTAHL-EINSÄTZE ANWENDUNG · POWDER STEEL INSERTS APPLICATION

  <p>Ø 9,5-65 mm Ø 0.374-2.559"</p>	<p>ART. 22 2010</p> <p>Pulverstahl 25 beschichtet Für Edelstahl, Stahl, Guss</p> <p>Powder steel 25 coated For stainless steel, steel, cast iron</p>	<p>Zum Bohren der meisten Stähle, Gusseisen bis zu einer Härte von 400 HBW (1365 Nmm²)</p>	<p>For drilling almost all sorts of steel, cast iron up to a hardness of 400 HBW (1365 Nmm²)</p>
  <p>Ø 64-114 mm Ø 2.520-4.488"</p>	<p>ART. 22 2510</p> <p>Pulverstahl 15 beschichtet Für legierte Stähle, Stahl, Guss</p> <p>Powder steel 15 coated For alloy steel, steel, cast iron</p>	<p>Zum Bohren der meisten Stähle, Gusseisen bis zu einer Härte von 350 HBW (1180 Nmm²)</p>	<p>For drilling almost all sorts of steel, cast iron up to a hardness of 350 HBW (1180 Nmm²)</p>
  <p>Ø 9,5-65 mm Ø 0.374-2.559"</p>	<p>ART. 22 3010</p> <p>Pulverstahl 25 beschichtet Für Alu, Messing, Kupfer</p> <p>Powder steel 25 coated For alu, brass, copper</p>	<p>Speziell zum Bohren aller Nicht-Eisen-Metalle wie Aluminium, Messing, Kupfer, Bronze ...</p>	<p>Special for drilling all non ferrous metals such as aluminum, brass, copper, bronze ...</p>
  <p>Ø 64-114 mm Ø 2.520-4.488"</p>	<p>ART. 22 3510</p> <p>Pulverstahl 15 beschichtet Für Alu, Messing, Kupfer</p> <p>Powder steel 15 coated For alloy steel, steel, cast iron</p>	<p>Speziell zum Bohren aller Nicht-Eisen-Metalle wie Aluminium, Messing, Kupfer, Bronze ...</p>	<p>Special for drilling all non ferrous metals such as aluminum, brass, copper, bronze ...</p>

HARTMETALL-EINSÄTZE ANWENDUNG · CARBIDE INSERTS APPLICATION

  <p>Ø 9,5-35 mm Ø 0.374-1.378"</p>	<p>ART. 22 4010</p> <p>Hartmetall 20/30 beschichtet Für Edelstahl, hochfester Stahl, gehärteter Stahl</p> <p>Carbide 20/30 coated For stainless steel, high strength alloys, hardened steel</p>	<p>Zum Bohren von Automatenstahl, für Stähle mit mittlerem und niedrigem Kohlenstoffgehalt, Stahllegierungen, Werkzeugstahl, Hochfeste und gehärtete Stähle</p>	<p>For drilling in free machining steel, in low and medium carbon steel, alloy steel, tool steel, high strength alloys, hardened steel</p>
  <p>Ø 9,5-35 mm Ø 0.374-1.378"</p>	<p>ART. 22 4510</p> <p>Hartmetall 20/30 beschichtet Für alle Gussarten</p> <p>Carbide 20/30 coated For all kinds of cast iron</p>	<p>Zum Bohren von Hochtemperatur- und Titanlegierungen, Gusseisen mit Kugelgraphit (schmiedbares Gusseisen), SG-Gusseisen, Grau- und Weißgusseisen, spezielle rostfreie Stähle</p>	<p>For drilling in high-temperature and titanium alloys, all sorts of cast iron (nodular, grey, ductile cast iron), special stainless steels</p>
  <p>Ø 9,5-35 mm Ø 0.374-1.378"</p>	<p>ART. 22 5010</p> <p>Hartmetall 20/30 beschichtet Für Alu, Messing, Kupfer</p> <p>Carbide 20/30 coated For alu, brass, copper</p>	<p>Zum Bohren aller Nicht-Eisen-Metalle wie Aluminiumguss, Schmiedealuminium, Aluminiumbronze, Messing, Kupfer</p>	<p>For drilling in all non ferrous metals such as cast aluminum, wrought aluminum, aluminum bronze, brass, copper</p>
  <p>Ø 9,5-35 mm Ø 0.374-1.378"</p>	<p>ART. 22 5510</p> <p>Hartmetall 20/30 beschichtet Für abrasive Materialien wie: GFK, CFK, Graphit</p> <p>Carbide 20/30 coated For abrasive materials such as: fiberglass, carbon fiber, graphite</p>	<p>Speziell zum Bohren abrasiver Materialien wie Glasfaser- und Kohlefaserwerkstoffe (GFK, CFK) sowie Graphit</p>	<p>Special for drilling in abrasive materials such as glass fiber, carbon fiber (GFK, CFK), graphite and similar</p>

Detaillierte Anwendung siehe Seite 1136-1143 - Detailed application see page 1136-1143

BESCHREIBUNG DER WERKZEUGHALTER · DESCRIPTION OF HOLDER MODELS		xD	Ø mm + Schnitttiefe Ø mm + cutting depths	
 <p>Schaft DIN 1835-B Zylindrischer Schaft mit Spannfläche</p> <p>Schaft DIN 1835-B Lateral fixation type flange shank</p>	<p>Spiral genutet Bohrer rotiert, Werkstück steht still. Z.B. Säulenbohrmaschinen, Radialbohrmaschinen. Spiralgenutete Werkzeughalter sind die am Meisten verwendeten.</p> <p>Helical flute Drills rotate, work piece does not rotate. E.g. vertical or radial drilling machines. The most commonly used holders are with helical flute.</p>	 <p>← ≈ 4xD →</p>	<p>Ø 18-24 mm = 117,5 mm Ø 25-35 mm = 136,5 mm Ø 36-47 mm = 165,1 mm</p>	277
		 <p>← ≈ 5xD →</p>	<p>Ø 9,5-12,5 mm = 60,3 mm Ø 13-17,5 mm = 63,5 mm Ø 18-24 mm = 168,3 mm Ø 25-35 mm = 187,3 mm Ø 36-47 mm = 209,6 mm Ø 48-65 mm = 231,8 mm</p>	279/281
		 <p>← ≈ 8xD →</p>	<p>Ø 9,5-12,5 mm = 111,1 mm Ø 13-17,5 mm = 114,3 mm Ø 18-24 mm = 269,9 mm Ø 25-35 mm = 288,9 mm</p>	283
 <p>Schaft DIN 1835-B Zylindrischer Schaft mit Spannfläche</p> <p>Schaft DIN 1835-B Lateral fixation type flange shank</p>	<p>Gerade genutet Bohrer steht still, Werkstück rotiert. Z.B. Drehmaschinen. Für Gussmaterialien ist die gerade genutete Version grundsätzlich besser, gleichgültig ob sich der Bohrer oder das Werkstück dreht.</p> <p>Straight flute Drills does not rotate, work piece rotates. E.g. lathe. For casting materials are the straight flute versions always better. It does not matter whether the drill or the work piece rotates.</p>	 <p>← ≈ 3xD →</p>	<p>Ø 9,5 - 12,5 mm = 31,8 mm Ø 13-17,5 mm = 34,9 mm Ø 18-24 mm = 66,7 mm Ø 25-35 mm = 85,7 mm Ø 36-47 mm = 120,7 mm Ø 48-65 mm = 130,2 mm</p>	285/287
		 <p>← ≈ 8xD →</p>	<p>Ø 36-47 mm = 349,3 mm Ø 48-65 mm = 422,3 mm</p>	289
		 <p>← ≈ 12xD →</p>	<p>Ø 9,5-11 mm = 222,0 mm Ø 11,5-12,5 mm = 222,3 mm Ø 13-17,5 mm = 295,0 mm Ø 18-24 mm = 457,0 mm Ø 25-35 mm = 511,0 mm Ø 36-47 mm = 558,8 mm Ø 48-65 mm = 625 mm</p>	291/293
		 <p>← ≈ 15xD →</p>	<p>Ø 9,5-11 mm = 290,0 mm Ø 11,5-12,5 mm = 290,5 mm Ø 13-17,5 mm = 387,0 mm Ø 18-24 mm = 569,0 mm Ø 25-35 mm = 692,0 mm Ø 36-47 mm = 787,4 mm Ø 48-65 mm = 879,0 mm</p>	295/297
 <p>Morsekegel ISO 296 Typ BEK</p> <p>Morse taper shank ISO 296 type BEK</p>	<p>Spiral genutet Bohrer rotiert, Werkstück steht still. Z.B. Säulenbohrmaschinen, Radialbohrmaschinen. Spiralgenutete Werkzeughalter sind die am meisten verwendeten.</p> <p>Helical flute Drills rotate, work piece does not rotate. E.g. vertical or radial drilling machines. The most commonly used holders are with helical flute.</p>	 <p>← ≈ 4xD →</p>	<p>Ø 18-24 mm = 120,7 mm Ø 25-35 mm = 136,5 mm Ø 36-47 mm = 165,1 mm</p>	299
		 <p>← ≈ 5xD →</p>	<p>Ø 9,5-12,5 mm = 60,3 mm Ø 13-17,5 mm = 63,5 mm Ø 18-24 mm = 171,5 mm Ø 25-35 mm = 187,3 mm Ø 36-47 mm = 209,5 mm Ø 48-65 mm = 231,8 mm</p>	301/303
		 <p>← ≈ 8xD →</p>	<p>Ø 9,5-12,5 mm = 111,1 mm Ø 13-17,5 mm = 114,3 mm Ø 18-24 mm = 273,1 mm Ø 25-35 mm = 289,0 mm</p>	305
 <p>Morsekegel ISO 296 Typ BEK</p> <p>Morse taper shank ISO 296 type BEK</p>	<p>Gerade genutet Bohrer steht still, Werkstück rotiert. Z.B. Drehmaschinen. Für Gussmaterialien ist die gerade genutete Version grundsätzlich besser, gleichgültig ob sich der Bohrer oder das Werkstück dreht.</p> <p>Straight flute Drills does not rotate, work piece rotates. E.g. lathe. For casting materials are the straight flute versions always better. It does not matter whether the drill or the work piece rotates.</p>	 <p>← ≈ 3xD →</p>	<p>Ø 9,5-12,5 mm = 31,8 mm Ø 13-17,5 mm = 35 mm Ø 18-24 mm = 69,8 mm Ø 25-35 mm = 85,7 mm Ø 36-47 mm = 120,6 mm Ø 48-65 mm = 130,1 mm Ø 64-114 mm = 171,5 mm</p>	307/309
		 <p>← ≈ 8xD →</p>	<p>Ø 36-47 mm = 349,3 mm Ø 48-65 mm = 422,3 mm Ø 64-88 mm = 463,6 mm Ø 90-114 mm = 555,6 mm</p>	311/313
		 <p>← ≈ 12xD →</p>	<p>Ø 36-47 mm = 558,8 mm Ø 48-65 mm = 625,0 mm Ø 64-88 mm = 660,0 mm Ø 90-114 mm = 685,0 mm</p>	315/317
		 <p>← ≈ 15xD →</p>	<p>Ø 36-47 mm = 787,4 mm Ø 48-65 mm = 879,0 mm Ø 64-88 mm = 889,0 mm Ø 90-114 mm = 939,0 mm</p>	319/321
 <p>Morsekegel ISO 296 Typ BEK</p> <p>Morse taper shank ISO 296 type BEK</p>	<p>Sonderlösungen mit Pulverstahl Vollbohrern und Kernbohrer bis Ø 150 mm Ø 5.906"</p> <p>Special solutions with powder steel twist drill and annular cutter up to Ø 150 mm Ø 5.906"</p>			322/323

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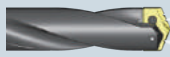


PULVERSTAHL · POWDER STEEL					HARTMETALL · CARBIDE												
Ø	132°	144°	132°	144°	132°	Guss/Cast iron 132°	132°	132°									
Ø mm d1	Ø Zoll Inch d1	Art. 22 2010 Pulverstahl 25 beschichtet Für Edelstahl, Stahl, Guss Powder steel 25 coated For stainless steel, steel, cast iron	Art. 22 2510 Pulverstahl 15 beschichtet Für legierte Stähle, Stahl, Guss Powder steel 15 coated For alloy steel, steel, cast iron	Art. 22 3010 Pulverstahl 25 beschichtet Für Alu, Messing, Kupfer Powder steel 25 coated For alu, brass, copper	Art. 22 3510 Pulverstahl 15 beschichtet Für Alu, Messing, Kupfer Powder steel 15 coated For alloy steel, steel, cast iron	Art. 22 4010 Hartmetall 20/30 beschichtet Für Edelstahl, hochfester Stahl, gehärteter Stahl Carbide 20/30 coated For stainless steel, high strength alloys, hardened steel	Art. 22 4510 Hartmetall 20/30 beschichtet Für alle Gussarten Carbide 20/30 coated For all kinds of cast iron	Art. 22 5010 Hartmetall 20/30 beschichtet Für Alu, Messing, Kupfer Carbide 20/30 coated For alu, brass, copper	Art. 22 5510 Hartmetall 20/30 beschichtet Für abrasive Materialien wie: GFK, CFK, Graphit Carbide 20/30 coated For abrasive materials such as: fiber- glass, carbon fiber, graphite								
Art.	€	Art.	€	Art.	€	Art.	€	Art.	€								
• 18,00	0.7087	22 2010 0180	35,20	-	-	22 3010 0180	38,45	-	-	22 4010 0180	46,40	22 4510 0180	46,40	22 5010 0180	51,70	22 5510 0180	81,45
• 18,50	0.7283	22 2010 0185	35,20	-	-	22 3010 0185	38,45	-	-	22 4010 0185	46,40	22 4510 0185	46,40	22 5010 0185	51,70	22 5510 0185	81,45
• 19,00	0.7480	22 2010 0190	35,20	-	-	22 3010 0190	38,45	-	-	22 4010 0190	46,40	22 4510 0190	46,40	22 5010 0190	51,70	22 5510 0190	102,55
• 19,50	0.7677	22 2010 0195	35,20	-	-	22 3010 0195	38,45	-	-	22 4010 0195	46,40	22 4510 0195	46,40	22 5010 0195	51,70	22 5510 0195	102,55
• 20,00	0.7874	22 2010 0200	35,20	-	-	22 3010 0200	38,45	-	-	22 4010 0200	46,40	22 4510 0200	46,40	22 5010 0200	51,70	22 5510 0200	102,55
• 20,50	0.8071	22 2010 0205	35,20	-	-	22 3010 0205	38,45	-	-	22 4010 0205	46,40	22 4510 0205	46,40	22 5010 0205	51,70	22 5510 0205	118,20
• 21,00	0.8268	22 2010 0210	35,20	-	-	22 3010 0210	38,45	-	-	22 4010 0210	46,40	22 4510 0210	46,40	22 5010 0210	51,70	22 5510 0210	118,20
• 22,00	0.8661	22 2010 0220	35,20	-	-	22 3010 0220	38,45	-	-	22 4010 0220	46,40	22 4510 0220	46,40	22 5010 0220	51,70	22 5510 0220	118,20
• 23,00	0.9055	22 2010 0230	35,20	-	-	22 3010 0230	38,45	-	-	22 4010 0230	46,40	22 4510 0230	46,40	22 5010 0230	51,70	22 5510 0230	118,20
• 24,00	0.9449	22 2010 0240	35,20	-	-	22 3010 0240	38,45	-	-	22 4010 0240	46,40	22 4510 0240	46,40	22 5010 0240	51,70	22 5510 0240	118,20
• 25,00	0.9843	22 2010 0250	41,20	-	-	22 3010 0250	43,40	-	-	22 4010 0250	54,35	22 4510 0250	54,35	22 5010 0250	58,55	22 5510 0250	125,10
• 26,00	1.0236	22 2010 0260	41,20	-	-	22 3010 0260	43,40	-	-	22 4010 0260	54,35	22 4510 0260	54,35	22 5010 0260	58,55	22 5510 0260	125,10
• 27,00	1.0630	22 2010 0270	41,20	-	-	22 3010 0270	43,40	-	-	22 4010 0270	54,35	22 4510 0270	54,35	22 5010 0270	58,55	22 5510 0270	125,10
• 28,00	1.1024	22 2010 0280	41,20	-	-	22 3010 0280	43,40	-	-	22 4010 0280	54,35	22 4510 0280	54,35	22 5010 0280	58,55	22 5510 0280	125,10
• 29,00	1.1417	22 2010 0290	41,20	-	-	22 3010 0290	43,40	-	-	22 4010 0290	54,35	22 4510 0290	54,35	22 5010 0290	58,55	22 5510 0290	125,10
• 30,00	1.1811	22 2010 0300	41,20	-	-	22 3010 0300	43,40	-	-	22 4010 0300	54,35	22 4510 0300	54,35	22 5010 0300	58,55	22 5510 0300	125,10
• 31,00	1.2205	22 2010 0310	41,20	-	-	22 3010 0310	43,40	-	-	22 4010 0310	54,35	22 4510 0310	54,35	22 5010 0310	58,55	22 5510 0310	125,10
• 32,00	1.2598	22 2010 0320	41,20	-	-	22 3010 0320	43,40	-	-	22 4010 0320	54,35	22 4510 0320	54,35	22 5010 0320	58,55	22 5510 0320	125,10
• 33,00	1.2992	22 2010 0330	41,20	-	-	22 3010 0330	43,40	-	-	22 4010 0330	54,35	22 4510 0330	54,35	22 5010 0330	58,55	22 5510 0330	132,60
• 34,00	1.3386	22 2010 0340	41,20	-	-	22 3010 0340	43,40	-	-	22 4010 0340	54,35	22 4510 0340	54,35	22 5010 0340	58,55	22 5510 0340	132,60
• 35,00	1.3780	22 2010 0350	41,20	-	-	22 3010 0350	43,40	-	-	22 4010 0350	54,35	22 4510 0350	54,35	22 5010 0350	58,55	22 5510 0350	132,60
• 36,00	1.4173	22 2010 0360	56,45	-	-	22 3010 0360	57,15	-	-	-	-	-	-	-	-	-	-
• 37,00	1.4567	22 2010 0370	56,45	-	-	22 3010 0370	57,15	-	-	-	-	-	-	-	-	-	-
• 38,00	1.4961	22 2010 0380	56,45	-	-	22 3010 0380	57,15	-	-	-	-	-	-	-	-	-	-
• 39,00	1.5354	22 2010 0390	56,45	-	-	22 3010 0390	57,15	-	-	-	-	-	-	-	-	-	-
• 40,00	1.5748	22 2010 0400	56,45	-	-	22 3010 0400	57,15	-	-	-	-	-	-	-	-	-	-
• 41,00	1.6142	22 2010 0410	56,45	-	-	22 3010 0410	57,15	-	-	-	-	-	-	-	-	-	-
• 42,00	1.6535	22 2010 0420	56,45	-	-	22 3010 0420	57,15	-	-	-	-	-	-	-	-	-	-
• 43,00	1.6929	22 2010 0430	56,45	-	-	22 3010 0430	57,15	-	-	-	-	-	-	-	-	-	-
• 44,00	1.7323	22 2010 0440	56,45	-	-	22 3010 0440	57,15	-	-	-	-	-	-	-	-	-	-
• 45,00	1.7717	22 2010 0450	56,45	-	-	22 3010 0450	57,15	-	-	-	-	-	-	-	-	-	-
• 46,00	1.8110	22 2010 0460	56,45	-	-	22 3010 0460	57,15	-	-	-	-	-	-	-	-	-	-
• 47,00	1.8504	22 2010 0470	56,45	-	-	22 3010 0470	57,15	-	-	-	-	-	-	-	-	-	-

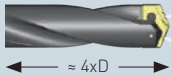
Weitere Ø bis maximal Ø 65 mm | 2.5591" in 5xD siehe Seite 280
 Further Ø up to Ø 65 mm | 2.5591" in 5xD see page 280



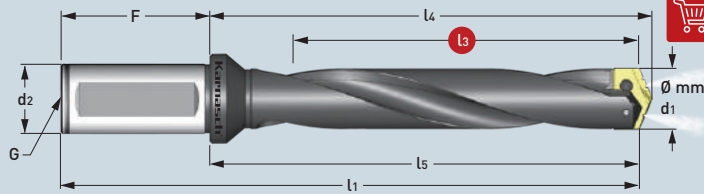
DIN 1835-B
Zylindrischer Schaft mit Spannfläche ·
Lateral fixation type flange shank



Spiral genutet ·
Helical flute



Mittel ·
Intermediate



Art. **22 1010**

Art.	€	l₃ Nutzlänge Max. drill depth	l₅ Körperlänge Body-length	l₄ Neue REF.-Länge REF.-length	l₁ Gesamtlänge Overall length	d₂ Schaft-Ø Shank-Ø	F Schaftlänge Shank length	G Gewinde Pipe tap
		mm Zoll / Inch	mm Zoll / Inch	mm Zoll / Inch	mm Zoll / Inch	mm Zoll / Inch	mm Zoll / Inch	
• 22 1010 01175 0180 Ø 18,0-24,0 mm 0.7087-0.9449" MÖGLICH · POSSIBLE Ø 18,0-21,0 mm 0.7087-0.8268" OPTIMAL · OPTIMAL	161,60	117,5 mm 4.6260"	154,8 mm 6.0945"	158,4 mm 6.2362"	210,8 mm 8.2992"	25,0 mm 0.9843"	56,0 mm 2.2047"	1/8"
• 22 1010 01175 0220 Ø 22,0-24,0 mm 0.8661-0.9449" OPTIMAL · OPTIMAL	161,60							
• 22 1010 01365 0255 Ø 25,0-35,0 mm 0.9843-1.3780" MÖGLICH · POSSIBLE Ø 25,0-29,0 mm 0.9843-1.1417" OPTIMAL · OPTIMAL	210,55	136,5 mm 5.3740"	179,4 mm 7.0630"	183,0 mm 7.2047"	239,4 mm 9.4252"	32,0 mm 1.2598"	60,0 mm 2.3622"	1/4"
• 22 1010 01365 0300 Ø 30,0-35,0 mm 1.1811-1.3780" OPTIMAL · OPTIMAL	210,55							
• 22 1010 01651 0360 Ø 36,0-47,0 mm 1.4173-1.8504" MÖGLICH · POSSIBLE Ø 36,0-41,0 mm 1.4173-1.6142" OPTIMAL · OPTIMAL	298,55	165,1 mm 6.5000"	217,5 mm 8.5630"	222,3 mm 8.7520"	287,5 mm 11.3189"	40,0 mm 1.5748"	70,0 mm 2.7559"	1/4"
• 22 1010 01651 0420 Ø 42,0-47,0 mm 1.6535-1.8504" OPTIMAL · OPTIMAL	298,55							

Halter werden **ohne** Einsätze, inklusive 2x TORX Befestigungsschrauben und 1x TORX Schlüssel geliefert.
 Holders are delivered **without** inserts including 2x TORX-screws and 1x TORX wrench.

Ersatz-Torxschrauben und Schlüssel mit Drehmomentangabe
 Spare Torx-screws and wrench with torque specification

Ø Diameter		TORX		max. Drehmoment / Torque (N/cm)		Schlüssel / Wrench		
mm	Zoll / Inch			€				€
9,5-11,0	0.3740-0.4331		22 9010 0095	3,60	84		22 9011 0084	6,45
11,5-12,5	0.4528-0.4921		22 9010 0115	3,60	84		22 9011 0175	6,45
13,0-17,5	0.5118-0.6890		22 9010 0130	3,60	175		22 9011 0305	11,30
18,0-24,0	0.7087-0.9449		22 9010 0180	3,60	305		22 9011 0690	12,10
25,0-35,0	0.9843-1.3780		22 9010 0250	3,70	690		22 9011 1370	13,15
36,0-65,0	1.4173-2.5591		22 9010 0360	3,75	1370		22 9011 1750	19,35
64,0-114,0	2.5197-4.4882		22 9010 0640	3,80	1750			

Schnittdaten
Cutting data



Film
Movie



1134-1143





PULVERSTAHL · POWDER STEEL

HARTMETALL · CARBIDE

Ø mm d1	Ø Zoll / Inch d1	Art. 22 2010		Art. 22 2510		Art. 22 3010		Art. 22 3510		Art. 22 4010		Art. 22 4510		Art. 22 5010		Art. 22 5510	
		Art.	€	Art.	€	Art.	€	Art.	€	Art.	€	Art.	€	Art.	€	Art.	€
● 9,50	0.3740	22 2010 0095	24,30	-	-	22 3010 0095	24,95	-	-	22 4010 0095	30,35	22 4510 0095	30,35	22 5010 0095	32,00	22 5510 0095	66,45
○ 9,80	0.3858	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
● 10,00	0.3937	22 2010 0100	24,30	-	-	22 3010 0100	24,95	-	-	22 4010 0100	30,35	22 4510 0100	30,35	22 5010 0100	32,00	22 5510 0100	66,45
● 10,20	0.4016	22 2010 0102	24,30	-	-	22 3010 0102	24,95	-	-	22 4010 0102	30,35	22 4510 0102	30,35	22 5010 0102	32,00	22 5510 0102	66,45
● 10,50	0.4134	22 2010 0105	24,30	-	-	22 3010 0105	24,95	-	-	22 4010 0105	30,35	22 4510 0105	30,35	22 5010 0105	32,00	22 5510 0105	66,45
● 10,80	0.4252	22 2010 0108	24,30	-	-	22 3010 0108	24,95	-	-	22 4010 0108	30,35	22 4510 0108	30,35	22 5010 0108	32,00	22 5510 0108	66,45
● 11,00	0.4331	22 2010 0110	24,30	-	-	22 3010 0110	24,95	-	-	22 4010 0110	30,35	22 4510 0110	30,35	22 5010 0110	32,00	22 5510 0110	66,45
● 11,50	0.4528	22 2010 0115	24,30	-	-	22 3010 0115	24,95	-	-	22 4010 0115	30,35	22 4510 0115	30,35	22 5010 0115	32,00	22 5510 0115	66,45
● 12,00	0.4724	22 2010 0120	24,30	-	-	22 3010 0120	24,95	-	-	22 4010 0120	30,35	22 4510 0120	30,35	22 5010 0120	32,00	22 5510 0120	66,45
● 12,50	0.4921	22 2010 0125	24,30	-	-	22 3010 0125	24,95	-	-	22 4010 0125	30,35	22 4510 0125	30,35	22 5010 0125	32,00	22 5510 0125	66,45
● 13,00	0.5118	22 2010 0130	27,65	-	-	22 3010 0130	27,80	-	-	22 4010 0130	35,70	22 4510 0130	35,70	22 5010 0130	36,85	22 5510 0130	71,25
● 13,50	0.5315	22 2010 0135	27,65	-	-	22 3010 0135	27,80	-	-	22 4010 0135	35,70	22 4510 0135	35,70	22 5010 0135	36,85	22 5510 0135	71,25
● 14,00	0.5512	22 2010 0140	27,65	-	-	22 3010 0140	27,80	-	-	22 4010 0140	35,70	22 4510 0140	35,70	22 5010 0140	36,85	22 5510 0140	71,25
● 14,50	0.5709	22 2010 0145	27,65	-	-	22 3010 0145	27,80	-	-	22 4010 0145	35,70	22 4510 0145	35,70	22 5010 0145	36,85	22 5510 0145	71,25
● 15,00	0.5906	22 2010 0150	27,65	-	-	22 3010 0150	27,80	-	-	22 4010 0150	35,70	22 4510 0150	35,70	22 5010 0150	36,85	22 5510 0150	71,25
● 15,50	0.6102	22 2010 0155	27,65	-	-	22 3010 0155	27,80	-	-	22 4010 0155	35,70	22 4510 0155	35,70	22 5010 0155	36,85	22 5510 0155	71,25
● 16,00	0.6299	22 2010 0160	27,65	-	-	22 3010 0160	27,80	-	-	22 4010 0160	35,70	22 4510 0160	35,70	22 5010 0160	36,85	22 5510 0160	71,25
● 16,50	0.6496	22 2010 0165	27,65	-	-	22 3010 0165	27,80	-	-	22 4010 0165	35,70	22 4510 0165	35,70	22 5010 0165	36,85	22 5510 0165	71,25
● 17,00	0.6693	22 2010 0170	27,65	-	-	22 3010 0170	27,80	-	-	22 4010 0170	35,70	22 4510 0170	35,70	22 5010 0170	36,85	22 5510 0170	71,25
● 17,50	0.6890	22 2010 0175	27,65	-	-	22 3010 0175	27,80	-	-	22 4010 0175	35,70	22 4510 0175	35,70	22 5010 0175	36,85	22 5510 0175	71,25
● 18,00	0.7087	22 2010 0180	35,20	-	-	22 3010 0180	38,45	-	-	22 4010 0180	46,40	22 4510 0180	46,40	22 5010 0180	51,70	22 5510 0180	81,45
● 18,50	0.7283	22 2010 0185	35,20	-	-	22 3010 0185	38,45	-	-	22 4010 0185	46,40	22 4510 0185	46,40	22 5010 0185	51,70	22 5510 0185	81,45
● 19,00	0.7480	22 2010 0190	35,20	-	-	22 3010 0190	38,45	-	-	22 4010 0190	46,40	22 4510 0190	46,40	22 5010 0190	51,70	22 5510 0190	102,55
● 19,50	0.7677	22 2010 0195	35,20	-	-	22 3010 0195	38,45	-	-	22 4010 0195	46,40	22 4510 0195	46,40	22 5010 0195	51,70	22 5510 0195	102,55
● 20,00	0.7874	22 2010 0200	35,20	-	-	22 3010 0200	38,45	-	-	22 4010 0200	46,40	22 4510 0200	46,40	22 5010 0200	51,70	22 5510 0200	102,55
● 20,50	0.8071	22 2010 0205	35,20	-	-	22 3010 0205	38,45	-	-	22 4010 0205	46,40	22 4510 0205	46,40	22 5010 0205	51,70	22 5510 0205	118,20
● 21,00	0.8268	22 2010 0210	35,20	-	-	22 3010 0210	38,45	-	-	22 4010 0210	46,40	22 4510 0210	46,40	22 5010 0210	51,70	22 5510 0210	118,20
● 22,00	0.8661	22 2010 0220	35,20	-	-	22 3010 0220	38,45	-	-	22 4010 0220	46,40	22 4510 0220	46,40	22 5010 0220	51,70	22 5510 0220	118,20
● 23,00	0.9055	22 2010 0230	35,20	-	-	22 3010 0230	38,45	-	-	22 4010 0230	46,40	22 4510 0230	46,40	22 5010 0230	51,70	22 5510 0230	118,20
● 24,00	0.9449	22 2010 0240	35,20	-	-	22 3010 0240	38,45	-	-	22 4010 0240	46,40	22 4510 0240	46,40	22 5010 0240	51,70	22 5510 0240	118,20
● 25,00	0.9843	22 2010 0250	41,20	-	-	22 3010 0250	43,40	-	-	22 4010 0250	54,35	22 4510 0250	54,35	22 5010 0250	58,55	22 5510 0250	125,10
● 26,00	1.0236	22 2010 0260	41,20	-	-	22 3010 0260	43,40	-	-	22 4010 0260	54,35	22 4510 0260	54,35	22 5010 0260	58,55	22 5510 0260	125,10
● 27,00	1.0630	22 2010 0270	41,20	-	-	22 3010 0270	43,40	-	-	22 4010 0270	54,35	22 4510 0270	54,35	22 5010 0270	58,55	22 5510 0270	125,10
● 28,00	1.1024	22 2010 0280	41,20	-	-	22 3010 0280	43,40	-	-	22 4010 0280	54,35	22 4510 0280	54,35	22 5010 0280	58,55	22 5510 0280	125,10
● 29,00	1.1417	22 2010 0290	41,20	-	-	22 3010 0290	43,40	-	-	22 4010 0290	54,35	22 4510 0290	54,35	22 5010 0290	58,55	22 5510 0290	125,10
● 30,00	1.1811	22 2010 0300	41,20	-	-	22 3010 0300	43,40	-	-	22 4010 0300	54,35	22 4510 0300	54,35	22 5010 0300	58,55	22 5510 0300	125,10
● 31,00	1.2205	22 2010 0310	41,20	-	-	22 3010 0310	43,40	-	-	22 4010 0310	54,35	22 4510 0310	54,35	22 5010 0310	58,55	22 5510 0310	125,10
● 32,00	1.2598	22 2010 0320	41,20	-	-	22 3010 0320	43,40	-	-	22 4010 0320	54,35	22 4510 0320	54,35	22 5010 0320	58,55	22 5510 0320	125,10
● 33,00	1.2992	22 2010 0330	41,20	-	-	22 3010 0330	43,40	-	-	22 4010 0330	54,35	22 4510 0330	54,35	22 5010 0330	58,55	22 5510 0330	132,60
● 34,00	1.3386	22 2010 0340	41,20	-	-	22 3010 0340	43,40	-	-	22 4010 0340	54,35	22 4510 0340	54,35	22 5010 0340	58,55	22 5510 0340	132,60
● 35,00	1.3780	22 2010 0350	41,20	-	-	22 3010 0350	43,40	-	-	22 4010 0350	54,35	22 4510 0350	54,35	22 5010 0350	58,55	22 5510 0350	132,60
● 36,00	1.4173	22 2010 0360	56,45	-	-	22 3010 0360	57,15	-	-	-	-	-	-	-	-	-	-
● 37,00	1.4567	22 2010 0370	56,45	-	-	22 3010 0370	57,15	-	-	-	-	-	-	-	-	-	-
● 38,00	1.4961	22 2010 0380	56,45	-	-	22 3010 0380	57,15	-	-	-	-	-	-	-	-	-	-
● 39,00	1.5354	22 2010 0390	56,45	-	-	22 3010 0390	57,15	-	-	-	-	-	-	-	-	-	-
● 40,00	1.5748	22 2010 0400	56,45	-	-	22 3010 0400	57,15	-	-	-	-	-	-	-	-	-	-
● 41,00	1.6142	22 2010 0410	56,45	-	-	22 3010 0410	57,15	-	-	-	-	-	-	-	-	-	-
● 42,00	1.6535	22 2010 0420	56,45	-	-	22 3010 0420	57,15	-	-	-	-	-	-	-	-	-	-
● 43,00	1.6929	22 2010 0430	56,45	-	-	22 3010 0430	57,15	-	-	-	-	-	-	-	-	-	-
● 44,00	1.7323	22 2010 0440	56,45	-	-	22 3010 0440	57,15	-	-	-	-	-	-	-	-	-	-
● 45,00	1.7717	22 2010 0450	56,45	-	-	22 3010 0450	57,15	-	-	-	-	-	-	-	-	-	-
● 46,00	1.8110	22 2010 0460	56,45	-	-	22 3010 0460	57,15	-	-	-	-	-	-	-	-	-	-
● 47,00	1.8504	22 2010 0470	56,45	-	-	22 3010 0470	57,15	-	-	-	-	-	-	-	-	-	-

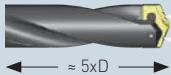
Fortsetzung Seite 280 · Continued page 280



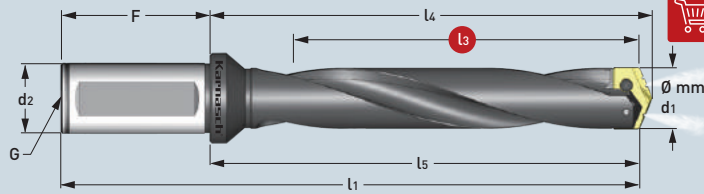
DIN 1835-B
Zylindrischer Schaft
mit Spannfläche ·
Lateral fixation type
flange shank



Spiral genutet ·
Helical flute



≈ 5xD
Mittel-Lang ·
Intermediate-Long



Art. **22 1010**

Art.	€	l3 Nutzlänge Max. drill depth	l5 Körperlänge Body-length	l4 Neue REF.- Länge REF.-length	l1 Gesamtlänge Overall length	d2 Schaft-Ø Shank-Ø	F Schaftlänge Shank length	G Gewinde Pipe tap
		mm Zoll / Inch	mm Zoll / Inch	mm Zoll / Inch	mm Zoll / Inch	mm Zoll / Inch	mm Zoll / Inch	
• 22 1010 00603 0095 Ø 9,5-11,0 mm 0.3740-0.4331" OPTIMAL · OPTIMAL	127,15	60,3 mm 2.3740"	89,7 mm 3.5315"	92,1 mm 3.6260"	139,7 mm 5.5000"	20,0 mm 0.7874"	50,0 mm 1.9685"	1/8"
• 22 1010 00603 0115 Ø 11,5-12,5 mm 0.4528-0.4921" OPTIMAL · OPTIMAL	127,15	60,3 mm 2.3740"	89,7 mm 3.5315"	92,1 mm 3.6260"	139,7 mm 5.5000"	20,0 mm 0.7874"	50,0 mm 1.9685"	1/8"
• 22 1010 00635 0130 Ø 13,0-17,5 mm 0.5118-0.6890" MÖGLICH · POSSIBLE Ø 13,0-15,0 mm 0.5118-0.5906" OPTIMAL · OPTIMAL	134,55	63,5 mm 2.5000"	92,1 mm 3.6260"	94,9 mm 3.7362"	142,1 mm 5.5945"	20,0 mm 0.7874"	50,0 mm 1.9685"	1/8"
• 22 1010 00635 0155 Ø 15,5-17,5 mm 0.6102-0.6890" OPTIMAL · OPTIMAL	134,55	63,5 mm 2.5000"	92,1 mm 3.6260"	94,9 mm 3.7362"	142,1 mm 5.5945"	20,0 mm 0.7874"	50,0 mm 1.9685"	1/8"
• 22 1010 01683 0180 Ø 18,0-24,0 mm 0.7087-0.9449" MÖGLICH · POSSIBLE Ø 18,0-21,0 mm 0.7087-0.8268" OPTIMAL · OPTIMAL	185,15	168,3 mm 6.6260"	205,6 mm 8.0945"	209,2 mm 8.2362"	261,6 mm 10.2992"	25,0 mm 0.9843"	56,0 mm 2.2047"	1/8"
• 22 1010 01683 0220 Ø 22,0-24,0 mm 0.8661-0.9449" OPTIMAL · OPTIMAL	185,15	168,3 mm 6.6260"	205,6 mm 8.0945"	209,2 mm 8.2362"	261,6 mm 10.2992"	25,0 mm 0.9843"	56,0 mm 2.2047"	1/8"
• 22 1010 01873 0250 Ø 25,0-35,0 mm 0.9843-1.3780" MÖGLICH · POSSIBLE Ø 25,0-29,0 mm 0.9843-1.1417" OPTIMAL · OPTIMAL	237,55	187,3 mm 7.3740"	230,2 mm 9.0630"	233,8 mm 9.2047"	290,2 mm 11.4252"	32,0 mm 1.2598"	60,0 mm 2.3622"	1/4"
• 22 1010 01873 0300 Ø 30,0-35,0 mm 1.1811-1.3780" OPTIMAL · OPTIMAL	237,55	187,3 mm 7.3740"	230,2 mm 9.0630"	233,8 mm 9.2047"	290,2 mm 11.4252"	32,0 mm 1.2598"	60,0 mm 2.3622"	1/4"
• 22 1010 02096 0360 Ø 36,0-47,0 mm 1.4173-1.8504" MÖGLICH · POSSIBLE Ø 36,0-41,0 mm 1.4173-1.6142" OPTIMAL · OPTIMAL	321,95	209,6 mm 8.2520"	261,9 mm 10.3110"	266,7 mm 10.5000"	331,9 mm 13.0669"	40,0 mm 1.5748"	70,0 mm 2.7559"	1/4"
• 22 1010 02096 0420 Ø 42,0-47,0 mm 1.6535-1.8504" OPTIMAL · OPTIMAL	321,95	209,6 mm 8.2520"	261,9 mm 10.3110"	266,7 mm 10.5000"	331,9 mm 13.0669"	40,0 mm 1.5748"	70,0 mm 2.7559"	1/4"



Schnittdaten
Cutting data



Film
Movie



- 1
- 2
- 3
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- 9

PULVERSTAHL · POWDER STEEL

HARTMETALL · CARBIDE

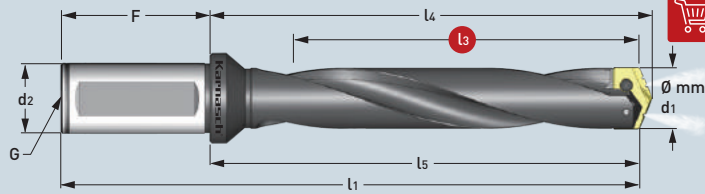
Ø		132°				144°				132°				132°			
Ø mm d1	Ø Zoll / Inch d1	Art. 22 2010		Art. 22 2510		Art. 22 3010		Art. 22 3510		Art. 22 4010		Art. 22 4510		Art. 22 5010		Art. 22 5510	
		Pulverstahl 25 beschichtet Für Edelstahl, Stahl, Guss		Pulverstahl 15 beschichtet Für legierte Stähle, Stahl, Guss		Pulverstahl 25 beschichtet Für Alu, Messing, Kupfer		Pulverstahl 15 beschichtet Für Alu, Messing, Kupfer		Hartmetall 20/30 beschichtet Für Edelstahl, hochfester Stahl, gehärteter Stahl		Hartmetall 20/30 beschichtet Für alle Gussarten		Hartmetall 20/30 beschichtet Für Alu, Messing, Kupfer		Hartmetall 20/30 beschichtet Für abrasive Materialien wie: GFK, CFK, Graphit	
		Powder steel 25 coated For stainless steel, steel, cast iron		Powder steel 15 coated For alloy steel, steel, cast iron		Powder steel 25 coated For alu, brass, copper		Powder steel 15 coated For alloy steel, steel, cast iron		Carbide 20/30 coated For stainless steel, high strength alloys, hardened steel		Carbide 20/30 coated For all kinds of cast iron		Carbide 20/30 coated For alu, brass, copper		Carbide 20/30 coated For abrasive materials such as: fiber-glass, carbon fiber, graphite	
		Art.	€	Art.	€	Art.	€	Art.	€	Art.	€	Art.	€	Art.	€	Art.	€
• 48,00	1.8898	22 2010 0480	80,75	-	-	22 3010 0480	79,30	-	-	-	-	-	-	-	-	-	-
• 49,00	1.9291	22 2010 0490	80,75	-	-	22 3010 0490	79,30	-	-	-	-	-	-	-	-	-	-
• 50,00	1.9685	22 2010 0500	80,75	-	-	22 3010 0500	79,30	-	-	-	-	-	-	-	-	-	-
• 51,00	2.0079	22 2010 0510	80,75	-	-	22 3010 0510	79,30	-	-	-	-	-	-	-	-	-	-
• 52,00	2.0472	22 2010 0520	80,75	-	-	22 3010 0520	79,30	-	-	-	-	-	-	-	-	-	-
• 53,00	2.0866	22 2010 0530	80,75	-	-	22 3010 0530	79,30	-	-	-	-	-	-	-	-	-	-
• 54,00	2.1260	22 2010 0540	80,75	-	-	22 3010 0540	79,30	-	-	-	-	-	-	-	-	-	-
• 55,00	2.1654	22 2010 0550	80,75	-	-	22 3010 0550	79,30	-	-	-	-	-	-	-	-	-	-
• 56,00	2.2047	22 2010 0560	80,75	-	-	22 3010 0560	79,30	-	-	-	-	-	-	-	-	-	-
• 57,00	2.2441	22 2010 0570	80,75	-	-	22 3010 0570	79,30	-	-	-	-	-	-	-	-	-	-
• 58,00	2.2835	22 2010 0580	80,75	-	-	22 3010 0580	79,30	-	-	-	-	-	-	-	-	-	-
• 59,00	2.3228	22 2010 0590	80,75	-	-	22 3010 0590	79,30	-	-	-	-	-	-	-	-	-	-
• 60,00	2.3622	22 2010 0600	80,75	-	-	22 3010 0600	79,30	-	-	-	-	-	-	-	-	-	-
• 61,00	2.4016	22 2010 0610	80,75	-	-	22 3010 0610	79,30	-	-	-	-	-	-	-	-	-	-
• 62,00	2.4409	22 2010 0620	80,75	-	-	22 3010 0620	79,30	-	-	-	-	-	-	-	-	-	-
• 63,00	2.4803	22 2010 0630	80,75	-	-	22 3010 0630	79,30	-	-	-	-	-	-	-	-	-	-
• 64,00	2.5197	22 2010 0640	80,75	-	-	22 3010 0640	79,30	-	-	-	-	-	-	-	-	-	-
• 65,00	2.5591	22 2010 0650	80,75	-	-	22 3010 0650	79,30	-	-	-	-	-	-	-	-	-	-



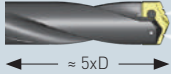
DIN 1835-B
Zylindrischer Schaft mit Spannfläche ·
Lateral fixation type
flange shank



Spiral genutet ·
Helical flute



Art. **22 1010**



Mittel-Lang ·
Intermediate-Long

Art.	€	l3 Nutzlänge Max. drill depth	l5 Körperlänge Body-length	l4 Neue REF.-Länge REF.-length	l1 Gesamtlänge Overall length	d2 Schaft-Ø Shank-Ø	F Schaftlänge Shank length	G Gewinde Pipe tap
		mm Zoll / Inch	mm Zoll / Inch	mm Zoll / Inch	mm Zoll / Inch	mm Zoll / Inch	mm Zoll / Inch	
• 22 1010 02318 0480 Ø 48,0-65,0 mm 1.8898-2.5591" MÖGLICH · POSSIBLE Ø 48,0-55,0 mm 1.8898-2.1654" OPTIMAL · OPTIMAL	345,60	231,8 mm 9.1260"	281,0 mm 11.0630"	285,8 mm 11.2520"	351,0 mm 13.8189"	40 mm 1.5748"	70,0 mm 2.7559"	1/4"
• 22 1010 02318 0560 Ø 56,0-65,0 mm 2.2047-2.5591" OPTIMAL · OPTIMAL	345,60	231,8 mm 9.1260"	281,0 mm 11.0630"	285,8 mm 11.2520"	351,0 mm 13.8189"	40 mm 1.5748"	70,0 mm 2.7559"	1/4"

Halter werden **ohne** Einsätze, inklusive 2x TORX Befestigungsschrauben und 1x TORX Schlüssel geliefert.
Holders are delivered **without** inserts including 2x TORX-screws and 1x TORX wrench.

Ersatz-Torxschrauben und Schlüssel mit Drehmomentangabe
Spare Torx-screws and wrench with torque specification

Ø Diameter		TORX		max. Drehmoment / Torque (N/cm)	Schlüssel / Wrench	
mm	Zoll / Inch		€			€
9,5-11,0	0.3740-0.4331		22 9010 0095	84		22 9011 0084
11,5-12,5	0.4528-0.4921		22 9010 0115	84		22 9011 0305
13,0-17,5	0.5118-0.6890		22 9010 0130	175		22 9011 0175
18,0-24,0	0.7087-0.9449		22 9010 0180	305		22 9011 0305
25,0-35,0	0.9843-1.3780		22 9010 0250	690		22 9011 0690
36,0-65,0	1.4173-2.5591		22 9010 0360	1370		22 9011 1370
64,0-114,0	2.5197-4.4882		22 9010 0640	1750		22 9011 1750

Schnittdaten
Cutting data



Film
Movie



1134-1143





PULVERSTAHL · POWDER STEEL

HARTMETALL · CARBIDE

Ø mm d1	Ø Zoll / Inch d1	Art. 22 2010		Art. 22 2510		Art. 22 3010		Art. 22 3510		Art. 22 4010		Art. 22 4510		Art. 22 5010		Art. 22 5510	
		Art.	€	Art.	€	Art.	€	Art.	€	Art.	€	Art.	€	Art.	€	Art.	€
● 9,50	0.3740	22 2010 0095	24,30	-	-	22 3010 0095	24,95	-	-	22 4010 0095	30,35	22 4510 0095	30,35	22 5010 0095	32,00	22 5510 0095	66,45
○ 9,80	0.3858	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
● 10,00	0.3937	22 2010 0100	24,30	-	-	22 3010 0100	24,95	-	-	22 4010 0100	30,35	22 4510 0100	30,35	22 5010 0100	32,00	22 5510 0100	66,45
● 10,20	0.4016	22 2010 0102	24,30	-	-	22 3010 0102	24,95	-	-	22 4010 0102	30,35	22 4510 0102	30,35	22 5010 0102	32,00	22 5510 0102	66,45
● 10,50	0.4134	22 2010 0105	24,30	-	-	22 3010 0105	24,95	-	-	22 4010 0105	30,35	22 4510 0105	30,35	22 5010 0105	32,00	22 5510 0105	66,45
● 10,80	0.4252	22 2010 0108	24,30	-	-	22 3010 0108	24,95	-	-	22 4010 0108	30,35	22 4510 0108	30,35	22 5010 0108	32,00	22 5510 0108	66,45
● 11,00	0.4331	22 2010 0110	24,30	-	-	22 3010 0110	24,95	-	-	22 4010 0110	30,35	22 4510 0110	30,35	22 5010 0110	32,00	22 5510 0110	66,45
● 11,50	0.4528	22 2010 0115	24,30	-	-	22 3010 0115	24,95	-	-	22 4010 0115	30,35	22 4510 0115	30,35	22 5010 0115	32,00	22 5510 0115	66,45
● 12,00	0.4724	22 2010 0120	24,30	-	-	22 3010 0120	24,95	-	-	22 4010 0120	30,35	22 4510 0120	30,35	22 5010 0120	32,00	22 5510 0120	66,45
● 12,50	0.4921	22 2010 0125	24,30	-	-	22 3010 0125	24,95	-	-	22 4010 0125	30,35	22 4510 0125	30,35	22 5010 0125	32,00	22 5510 0125	66,45
● 13,00	0.5118	22 2010 0130	27,65	-	-	22 3010 0130	27,80	-	-	22 4010 0130	35,70	22 4510 0130	35,70	22 5010 0130	36,85	22 5510 0130	71,25
● 13,50	0.5315	22 2010 0135	27,65	-	-	22 3010 0135	27,80	-	-	22 4010 0135	35,70	22 4510 0135	35,70	22 5010 0135	36,85	22 5510 0135	71,25
● 14,00	0.5512	22 2010 0140	27,65	-	-	22 3010 0140	27,80	-	-	22 4010 0140	35,70	22 4510 0140	35,70	22 5010 0140	36,85	22 5510 0140	71,25
● 14,50	0.5709	22 2010 0145	27,65	-	-	22 3010 0145	27,80	-	-	22 4010 0145	35,70	22 4510 0145	35,70	22 5010 0145	36,85	22 5510 0145	71,25
● 15,00	0.5906	22 2010 0150	27,65	-	-	22 3010 0150	27,80	-	-	22 4010 0150	35,70	22 4510 0150	35,70	22 5010 0150	36,85	22 5510 0150	71,25
● 15,50	0.6102	22 2010 0155	27,65	-	-	22 3010 0155	27,80	-	-	22 4010 0155	35,70	22 4510 0155	35,70	22 5010 0155	36,85	22 5510 0155	71,25
● 16,00	0.6299	22 2010 0160	27,65	-	-	22 3010 0160	27,80	-	-	22 4010 0160	35,70	22 4510 0160	35,70	22 5010 0160	36,85	22 5510 0160	71,25
● 16,50	0.6496	22 2010 0165	27,65	-	-	22 3010 0165	27,80	-	-	22 4010 0165	35,70	22 4510 0165	35,70	22 5010 0165	36,85	22 5510 0165	71,25
● 17,00	0.6693	22 2010 0170	27,65	-	-	22 3010 0170	27,80	-	-	22 4010 0170	35,70	22 4510 0170	35,70	22 5010 0170	36,85	22 5510 0170	71,25
● 17,50	0.6890	22 2010 0175	27,65	-	-	22 3010 0175	27,80	-	-	22 4010 0175	35,70	22 4510 0175	35,70	22 5010 0175	36,85	22 5510 0175	71,25
● 18,00	0.7087	22 2010 0180	35,20	-	-	22 3010 0180	38,45	-	-	22 4010 0180	46,40	22 4510 0180	46,40	22 5010 0180	51,70	22 5510 0180	81,45
● 18,50	0.7283	22 2010 0185	35,20	-	-	22 3010 0185	38,45	-	-	22 4010 0185	46,40	22 4510 0185	46,40	22 5010 0185	51,70	22 5510 0185	81,45
● 19,00	0.7480	22 2010 0190	35,20	-	-	22 3010 0190	38,45	-	-	22 4010 0190	46,40	22 4510 0190	46,40	22 5010 0190	51,70	22 5510 0190	102,55
● 19,50	0.7677	22 2010 0195	35,20	-	-	22 3010 0195	38,45	-	-	22 4010 0195	46,40	22 4510 0195	46,40	22 5010 0195	51,70	22 5510 0195	102,55
● 20,00	0.7874	22 2010 0200	35,20	-	-	22 3010 0200	38,45	-	-	22 4010 0200	46,40	22 4510 0200	46,40	22 5010 0200	51,70	22 5510 0200	102,55
● 20,50	0.8071	22 2010 0205	35,20	-	-	22 3010 0205	38,45	-	-	22 4010 0205	46,40	22 4510 0205	46,40	22 5010 0205	51,70	22 5510 0205	118,20
● 21,00	0.8268	22 2010 0210	35,20	-	-	22 3010 0210	38,45	-	-	22 4010 0210	46,40	22 4510 0210	46,40	22 5010 0210	51,70	22 5510 0210	118,20
● 22,00	0.8661	22 2010 0220	35,20	-	-	22 3010 0220	38,45	-	-	22 4010 0220	46,40	22 4510 0220	46,40	22 5010 0220	51,70	22 5510 0220	118,20
● 23,00	0.9055	22 2010 0230	35,20	-	-	22 3010 0230	38,45	-	-	22 4010 0230	46,40	22 4510 0230	46,40	22 5010 0230	51,70	22 5510 0230	118,20
● 24,00	0.9449	22 2010 0240	35,20	-	-	22 3010 0240	38,45	-	-	22 4010 0240	46,40	22 4510 0240	46,40	22 5010 0240	51,70	22 5510 0240	118,20
● 25,00	0.9843	22 2010 0250	41,20	-	-	22 3010 0250	43,40	-	-	22 4010 0250	54,35	22 4510 0250	54,35	22 5010 0250	58,55	22 5510 0250	125,10
● 26,00	1.0236	22 2010 0260	41,20	-	-	22 3010 0260	43,40	-	-	22 4010 0260	54,35	22 4510 0260	54,35	22 5010 0260	58,55	22 5510 0260	125,10
● 27,00	1.0630	22 2010 0270	41,20	-	-	22 3010 0270	43,40	-	-	22 4010 0270	54,35	22 4510 0270	54,35	22 5010 0270	58,55	22 5510 0270	125,10
● 28,00	1.1024	22 2010 0280	41,20	-	-	22 3010 0280	43,40	-	-	22 4010 0280	54,35	22 4510 0280	54,35	22 5010 0280	58,55	22 5510 0280	125,10
● 29,00	1.1417	22 2010 0290	41,20	-	-	22 3010 0290	43,40	-	-	22 4010 0290	54,35	22 4510 0290	54,35	22 5010 0290	58,55	22 5510 0290	125,10
● 30,00	1.1811	22 2010 0300	41,20	-	-	22 3010 0300	43,40	-	-	22 4010 0300	54,35	22 4510 0300	54,35	22 5010 0300	58,55	22 5510 0300	125,10
● 31,00	1.2205	22 2010 0310	41,20	-	-	22 3010 0310	43,40	-	-	22 4010 0310	54,35	22 4510 0310	54,35	22 5010 0310	58,55	22 5510 0310	125,10
● 32,00	1.2598	22 2010 0320	41,20	-	-	22 3010 0320	43,40	-	-	22 4010 0320	54,35	22 4510 0320	54,35	22 5010 0320	58,55	22 5510 0320	125,10
● 33,00	1.2992	22 2010 0330	41,20	-	-	22 3010 0330	43,40	-	-	22 4010 0330	54,35	22 4510 0330	54,35	22 5010 0330	58,55	22 5510 0330	132,60
● 34,00	1.3386	22 2010 0340	41,20	-	-	22 3010 0340	43,40	-	-	22 4010 0340	54,35	22 4510 0340	54,35	22 5010 0340	58,55	22 5510 0340	132,60
● 35,00	1.3780	22 2010 0350	41,20	-	-	22 3010 0350	43,40	-	-	22 4010 0350	54,35	22 4510 0350	54,35	22 5010 0350	58,55	22 5510 0350	132,60

Schnittdaten
Cutting data



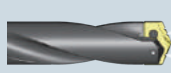
Film
Movie



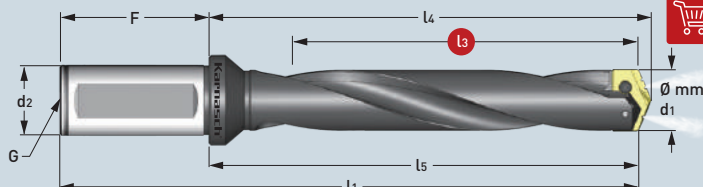
1134-1143



DIN 1835-B
Zylindrischer Schaft
mit Spannfläche ·
Lateral fixation type
flange shank



Spiral genutet ·
Helical flute



Art. **22 1010**



Lang · Long
≈ 8xD

Art.	€	l3 Nutzlänge Max. drill depth	l5 Körperlänge Body-length	l4 Neue REF.- Länge REF.-length	l1 Gesamtlänge Overall length	d2 Schaft-Ø Shank-Ø	F Schaftlänge Shank length	G Gewinde Pipe tap
		mm Zoll / Inch	mm Zoll / Inch	mm Zoll / Inch	mm Zoll / Inch	mm Zoll / Inch	mm Zoll / Inch	
• 22 1010 01111 0095 Ø 9,5-11,0 mm 0.3740-0.4331" OPTIMAL · OPTIMAL	151,80	111,1 mm 4.3740"	140,5 mm 5.5315"	142,9 mm 5.6260"	190,5 mm 7.5000"	20,0 mm 0.7874"	50,0 mm 1.9685"	1/8"
• 22 1010 01111 0115 Ø 11,5-12,5 mm 0.4528-0.4921" OPTIMAL · OPTIMAL	151,80	111,1 mm 4.3740"	140,5 mm 5.5315"	142,9 mm 5.6260"	190,5 mm 7.5000"	20,0 mm 0.7874"	50,0 mm 1.9685"	1/8"
• 22 1010 01143 0130 Ø 13,0-17,5 mm 0.5118-0.6890" MÖGLICH · POSSIBLE Ø 13,0-15,0 mm 0.5118-0.5906" OPTIMAL · OPTIMAL	161,75	114,3 mm 4.5000"	142,9 mm 5.6260"	145,7 mm 5.7362"	192,9 mm 7.5945"	20,0 mm 0.7874"	50,0 mm 1.9685"	1/8"
• 22 1010 01143 0155 Ø 15,5-17,5 mm 0.6102-0.6890" OPTIMAL · OPTIMAL	161,75	114,3 mm 4.5000"	142,9 mm 5.6260"	145,7 mm 5.7362"	192,9 mm 7.5945"	20,0 mm 0.7874"	50,0 mm 1.9685"	1/8"
• 22 1010 02699 0180 Ø 18,0-24,0 mm 0.7087-0.9449" MÖGLICH · POSSIBLE Ø 18,0-21,0 mm 0.7087-0.8268" OPTIMAL · OPTIMAL	232,35	269,9 mm 10.6260"	307,2 mm 12.0945"	310,8 mm 12.2362"	363,2 mm 14.2992"	25,0 mm 0.9843"	56,0 mm 2.2047"	1/8"
• 22 1010 02699 0220 Ø 22,0-24,0 mm 0.8661-0.9449" OPTIMAL · OPTIMAL	232,35	269,9 mm 10.6260"	307,2 mm 12.0945"	310,8 mm 12.2362"	363,2 mm 14.2992"	25,0 mm 0.9843"	56,0 mm 2.2047"	1/8"
• 22 1010 02889 0250 Ø 25,0-35,0 mm 0.9843-1.3780" MÖGLICH · POSSIBLE Ø 25,0-29,0 mm 0.9843-1.1417" OPTIMAL · OPTIMAL	284,60	288,9 mm 11.3740"	331,8 mm 13.0630"	335,4 mm 13.2047"	391,8 mm 15.4252"	32,0 mm 1.2598"	60,0 mm 2.3622"	1/4"
• 22 1010 02889 0300 Ø 30,0-35,0 mm 1.1811-1.3780" OPTIMAL · OPTIMAL	284,60	288,9 mm 11.3740"	331,8 mm 13.0630"	335,4 mm 13.2047"	391,8 mm 15.4252"	32,0 mm 1.2598"	60,0 mm 2.3622"	1/4"

Halter werden **ohne** Einsätze, inklusive 2x TORX Befestigungsschrauben und 1x TORX Schlüssel geliefert.
 Holders are delivered **without** inserts including 2x TORX-screws and 1x TORX wrench.

Ersatz-Torxschrauben und Schlüssel mit Drehmomentangabe
 Spare Torx-screws and wrench with torque specification

Ø Diameter		TORX		max. Drehmoment / Torque (N/cm)	Schlüssel / Wrench	
mm	Zoll / Inch	€			€	
9,5-11,0	0.3740-0.4331	3,60	22 9010 0095	84	22 9011 0084	6,45
11,5-12,5	0.4528-0.4921	3,60	22 9010 0115	84	22 9011 0175	6,45
13,0-17,5	0.5118-0.6890	3,60	22 9010 0130	175	22 9011 0305	11,30
18,0-24,0	0.7087-0.9449	3,60	22 9010 0180	305	22 9011 0690	12,10
25,0-35,0	0.9843-1.3780	3,70	22 9010 0250	690	22 9011 1370	13,15
36,0-65,0	1.4173-2.5591	3,75	22 9010 0360	1370	22 9011 1750	19,35
64,0-114,0	2.5197-4.4882	3,80	22 9010 0640	1750		





PULVERSTAHL · POWDER STEEL

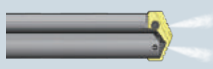
HARTMETALL · CARBIDE

Ø mm d1	Ø Zoll / Inch d1	PULVERSTAHL · POWDER STEEL				HARTMETALL · CARBIDE											
		Art.	€	Art.	€	Art.	€	Art.	€								
9,50	0.3740	22 2010 0095	24,30	-	-	22 3010 0095	24,95	-	-	22 4010 0095	30,35	22 4510 0095	30,35	22 5010 0095	32,00	22 5510 0095	66,45
9,80	0.3858	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10,00	0.3937	22 2010 0100	24,30	-	-	22 3010 0100	24,95	-	-	22 4010 0100	30,35	22 4510 0100	30,35	22 5010 0100	32,00	22 5510 0100	66,45
10,20	0.4016	22 2010 0102	24,30	-	-	22 3010 0102	24,95	-	-	22 4010 0102	30,35	22 4510 0102	30,35	22 5010 0102	32,00	22 5510 0102	66,45
10,50	0.4134	22 2010 0105	24,30	-	-	22 3010 0105	24,95	-	-	22 4010 0105	30,35	22 4510 0105	30,35	22 5010 0105	32,00	22 5510 0105	66,45
10,80	0.4252	22 2010 0108	24,30	-	-	22 3010 0108	24,95	-	-	22 4010 0108	30,35	22 4510 0108	30,35	22 5010 0108	32,00	22 5510 0108	66,45
11,00	0.4331	22 2010 0110	24,30	-	-	22 3010 0110	24,95	-	-	22 4010 0110	30,35	22 4510 0110	30,35	22 5010 0110	32,00	22 5510 0110	66,45
11,50	0.4528	22 2010 0115	24,30	-	-	22 3010 0115	24,95	-	-	22 4010 0115	30,35	22 4510 0115	30,35	22 5010 0115	32,00	22 5510 0115	66,45
12,00	0.4724	22 2010 0120	24,30	-	-	22 3010 0120	24,95	-	-	22 4010 0120	30,35	22 4510 0120	30,35	22 5010 0120	32,00	22 5510 0120	66,45
12,50	0.4921	22 2010 0125	24,30	-	-	22 3010 0125	24,95	-	-	22 4010 0125	30,35	22 4510 0125	30,35	22 5010 0125	32,00	22 5510 0125	66,45
13,00	0.5118	22 2010 0130	27,65	-	-	22 3010 0130	27,80	-	-	22 4010 0130	35,70	22 4510 0130	35,70	22 5010 0130	36,85	22 5510 0130	71,25
13,50	0.5315	22 2010 0135	27,65	-	-	22 3010 0135	27,80	-	-	22 4010 0135	35,70	22 4510 0135	35,70	22 5010 0135	36,85	22 5510 0135	71,25
14,00	0.5512	22 2010 0140	27,65	-	-	22 3010 0140	27,80	-	-	22 4010 0140	35,70	22 4510 0140	35,70	22 5010 0140	36,85	22 5510 0140	71,25
14,50	0.5709	22 2010 0145	27,65	-	-	22 3010 0145	27,80	-	-	22 4010 0145	35,70	22 4510 0145	35,70	22 5010 0145	36,85	22 5510 0145	71,25
15,00	0.5906	22 2010 0150	27,65	-	-	22 3010 0150	27,80	-	-	22 4010 0150	35,70	22 4510 0150	35,70	22 5010 0150	36,85	22 5510 0150	71,25
15,50	0.6102	22 2010 0155	27,65	-	-	22 3010 0155	27,80	-	-	22 4010 0155	35,70	22 4510 0155	35,70	22 5010 0155	36,85	22 5510 0155	71,25
16,00	0.6299	22 2010 0160	27,65	-	-	22 3010 0160	27,80	-	-	22 4010 0160	35,70	22 4510 0160	35,70	22 5010 0160	36,85	22 5510 0160	71,25
16,50	0.6496	22 2010 0165	27,65	-	-	22 3010 0165	27,80	-	-	22 4010 0165	35,70	22 4510 0165	35,70	22 5010 0165	36,85	22 5510 0165	71,25
17,00	0.6693	22 2010 0170	27,65	-	-	22 3010 0170	27,80	-	-	22 4010 0170	35,70	22 4510 0170	35,70	22 5010 0170	36,85	22 5510 0170	71,25
17,50	0.6890	22 2010 0175	27,65	-	-	22 3010 0175	27,80	-	-	22 4010 0175	35,70	22 4510 0175	35,70	22 5010 0175	36,85	22 5510 0175	71,25
18,00	0.7087	22 2010 0180	35,20	-	-	22 3010 0180	38,45	-	-	22 4010 0180	46,40	22 4510 0180	46,40	22 5010 0180	51,70	22 5510 0180	81,45
18,50	0.7283	22 2010 0185	35,20	-	-	22 3010 0185	38,45	-	-	22 4010 0185	46,40	22 4510 0185	46,40	22 5010 0185	51,70	22 5510 0185	81,45
19,00	0.7480	22 2010 0190	35,20	-	-	22 3010 0190	38,45	-	-	22 4010 0190	46,40	22 4510 0190	46,40	22 5010 0190	51,70	22 5510 0190	102,55
19,50	0.7677	22 2010 0195	35,20	-	-	22 3010 0195	38,45	-	-	22 4010 0195	46,40	22 4510 0195	46,40	22 5010 0195	51,70	22 5510 0195	102,55
20,00	0.7874	22 2010 0200	35,20	-	-	22 3010 0200	38,45	-	-	22 4010 0200	46,40	22 4510 0200	46,40	22 5010 0200	51,70	22 5510 0200	102,55
20,50	0.8071	22 2010 0205	35,20	-	-	22 3010 0205	38,45	-	-	22 4010 0205	46,40	22 4510 0205	46,40	22 5010 0205	51,70	22 5510 0205	118,20
21,00	0.8268	22 2010 0210	35,20	-	-	22 3010 0210	38,45	-	-	22 4010 0210	46,40	22 4510 0210	46,40	22 5010 0210	51,70	22 5510 0210	118,20
22,00	0.8661	22 2010 0220	35,20	-	-	22 3010 0220	38,45	-	-	22 4010 0220	46,40	22 4510 0220	46,40	22 5010 0220	51,70	22 5510 0220	118,20
23,00	0.9055	22 2010 0230	35,20	-	-	22 3010 0230	38,45	-	-	22 4010 0230	46,40	22 4510 0230	46,40	22 5010 0230	51,70	22 5510 0230	118,20
24,00	0.9449	22 2010 0240	35,20	-	-	22 3010 0240	38,45	-	-	22 4010 0240	46,40	22 4510 0240	46,40	22 5010 0240	51,70	22 5510 0240	118,20
25,00	0.9843	22 2010 0250	41,20	-	-	22 3010 0250	43,40	-	-	22 4010 0250	54,35	22 4510 0250	54,35	22 5010 0250	58,55	22 5510 0250	125,10
26,00	1.0236	22 2010 0260	41,20	-	-	22 3010 0260	43,40	-	-	22 4010 0260	54,35	22 4510 0260	54,35	22 5010 0260	58,55	22 5510 0260	125,10
27,00	1.0630	22 2010 0270	41,20	-	-	22 3010 0270	43,40	-	-	22 4010 0270	54,35	22 4510 0270	54,35	22 5010 0270	58,55	22 5510 0270	125,10
28,00	1.1024	22 2010 0280	41,20	-	-	22 3010 0280	43,40	-	-	22 4010 0280	54,35	22 4510 0280	54,35	22 5010 0280	58,55	22 5510 0280	125,10
29,00	1.1417	22 2010 0290	41,20	-	-	22 3010 0290	43,40	-	-	22 4010 0290	54,35	22 4510 0290	54,35	22 5010 0290	58,55	22 5510 0290	125,10
30,00	1.1811	22 2010 0300	41,20	-	-	22 3010 0300	43,40	-	-	22 4010 0300	54,35	22 4510 0300	54,35	22 5010 0300	58,55	22 5510 0300	125,10
31,00	1.2205	22 2010 0310	41,20	-	-	22 3010 0310	43,40	-	-	22 4010 0310	54,35	22 4510 0310	54,35	22 5010 0310	58,55	22 5510 0310	125,10
32,00	1.2598	22 2010 0320	41,20	-	-	22 3010 0320	43,40	-	-	22 4010 0320	54,35	22 4510 0320	54,35	22 5010 0320	58,55	22 5510 0320	125,10
33,00	1.2992	22 2010 0330	41,20	-	-	22 3010 0330	43,40	-	-	22 4010 0330	54,35	22 4510 0330	54,35	22 5010 0330	58,55	22 5510 0330	132,60
34,00	1.3386	22 2010 0340	41,20	-	-	22 3010 0340	43,40	-	-	22 4010 0340	54,35	22 4510 0340	54,35	22 5010 0340	58,55	22 5510 0340	132,60
35,00	1.3780	22 2010 0350	41,20	-	-	22 3010 0350	43,40	-	-	22 4010 0350	54,35	22 4510 0350	54,35	22 5010 0350	58,55	22 5510 0350	132,60
36,00	1.4173	22 2010 0360	56,45	-	-	22 3010 0360	57,15	-	-	-	-	-	-	-	-	-	-
37,00	1.4567	22 2010 0370	56,45	-	-	22 3010 0370	57,15	-	-	-	-	-	-	-	-	-	-
38,00	1.4961	22 2010 0380	56,45	-	-	22 3010 0380	57,15	-	-	-	-	-	-	-	-	-	-
39,00	1.5354	22 2010 0390	56,45	-	-	22 3010 0390	57,15	-	-	-	-	-	-	-	-	-	-
40,00	1.5748	22 2010 0400	56,45	-	-	22 3010 0400	57,15	-	-	-	-	-	-	-	-	-	-
41,00	1.6142	22 2010 0410	56,45	-	-	22 3010 0410	57,15	-	-	-	-	-	-	-	-	-	-
42,00	1.6535	22 2010 0420	56,45	-	-	22 3010 0420	57,15	-	-	-	-	-	-	-	-	-	-
43,00	1.6929	22 2010 0430	56,45	-	-	22 3010 0430	57,15	-	-	-	-	-	-	-	-	-	-
44,00	1.7323	22 2010 0440	56,45	-	-	22 3010 0440	57,15	-	-	-	-	-	-	-	-	-	-
45,00	1.7717	22 2010 0450	56,45	-	-	22 3010 0450	57,15	-	-	-	-	-	-	-	-	-	-
46,00	1.8110	22 2010 0460	56,45	-	-	22 3010 0460	57,15	-	-	-	-	-	-	-	-	-	-
47,00	1.8504	22 2010 0470	56,45	-	-	22 3010 0470	57,15	-	-	-	-	-	-	-	-	-	-

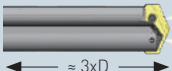
Fortsetzung Seite 286 · Continued page 286



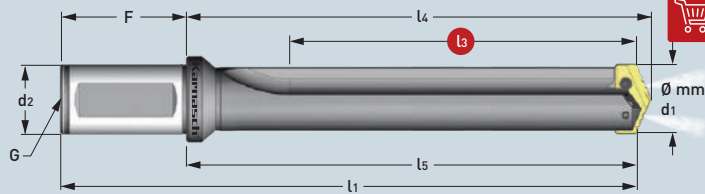
DIN 1835-B
Zylindrischer Schaft mit Spannfläche ·
Lateral fixation type
flange shank



Gerade genutet ·
Straight flute



≈ 3xD
Kurz · Short



Art. **22 1020**

Art.	€	l₃ Nutzlänge Max. drill depth	l₅ Körperlänge Body-length	l₄ Neue REF.-Länge REF.-length	l₁ Gesamtlänge Overall length	d₂ Schaft-Ø Shank-Ø	F Schaftlänge Shank length	G Gewinde Pipe tap
		mm Zoll / Inch	mm Zoll / Inch	mm Zoll / Inch	mm Zoll / Inch	mm Zoll / Inch	mm Zoll / Inch	
• 22 1020 00318 0095 Ø 9,5-11,0 mm 0.3740-0.4331" OPTIMAL · OPTIMAL	115,95	31,8 mm 1.2520"	61,1 mm 2.4055"	63,5 mm 2.5000"	111,1 mm 4.3740"	20,0 mm 0.7874"	50,0 mm 1.9685"	1/8"
• 22 1020 00318 0115 Ø 11,5-12,5 mm 0.4528-0.4921" OPTIMAL · OPTIMAL	115,95	31,8 mm 1.2520"	61,1 mm 2.4055"	63,5 mm 2.5000"	111,1 mm 4.3740"	20,0 mm 0.7874"	50,0 mm 1.9685"	1/8"
• 22 1020 00349 0135 Ø 13,0-17,5 mm 0.5118-0.6890" MÖGLICH · POSSIBLE Ø 13,0-15,0 mm 0.5118-0.5906" OPTIMAL · OPTIMAL	126,90	34,9 mm 1.3740"	63,5 mm 2.5000"	66,3 mm 2.6102"	113,5 mm 4.4685"	20,0 mm 0.7874"	50,0 mm 1.9685"	1/8"
• 22 1020 00349 0155 Ø 15,5-17,5 mm 0.6102-0.6890" OPTIMAL · OPTIMAL	126,90	34,9 mm 1.3740"	63,5 mm 2.5000"	66,3 mm 2.6102"	113,5 mm 4.4685"	20,0 mm 0.7874"	50,0 mm 1.9685"	1/8"
• 22 1020 00667 0180 Ø 18,0-24,0 mm 0.7087-0.9449" MÖGLICH · POSSIBLE Ø 18,0-21,0 mm 0.7087-0.8268" OPTIMAL · OPTIMAL	141,80	66,7 mm 2.6260"	107,2 mm 4.2205"	110,7 mm 4.3583"	163,2 mm 6.4252"	25,0 mm 0.9842"	56,0 mm 2.2047"	1/8"
• 22 1020 00667 0220 Ø 22,0-24,0 mm 0.8661-0.9449" OPTIMAL · OPTIMAL	141,80	66,7 mm 2.6260"	107,2 mm 4.2205"	110,7 mm 4.3583"	163,2 mm 6.4252"	25,0 mm 0.9842"	56,0 mm 2.2047"	1/8"
• 22 1020 00857 0250 Ø 25,0-35,0 mm 0.9843-1.3780" MÖGLICH · POSSIBLE Ø 25,0-29,0 mm 0.9843-1.1417" OPTIMAL · OPTIMAL	172,15	85,7 mm 3.3740"	128,6 mm 5.0630"	132,2 mm 5.2047"	188,6 mm 7.4252"	32,0 mm 1.2598"	60,0 mm 2.3622"	1/4"
• 22 1020 00857 0300 Ø 30,0-35,0 mm 1.1811-1.3780" OPTIMAL · OPTIMAL	172,15	85,7 mm 3.3740"	128,6 mm 5.0630"	132,2 mm 5.2047"	188,6 mm 7.4252"	32,0 mm 1.2598"	60,0 mm 2.3622"	1/4"
• 22 1020 01207 0360 Ø 36,0-47,0 mm 1.4173-1.8504" MÖGLICH · POSSIBLE Ø 36,0-41,0 mm 1.4173-1.6142" OPTIMAL · OPTIMAL	232,05	120,7 mm 4.7520"	173,0 mm 6.8110"	177,8 mm 7.0000"	243,0 mm 9.5669"	40,0 mm 1.5748"	70,0 mm 2.7559"	1/4"
• 22 1020 01207 0420 Ø 42,0-47,0 mm 1.6535-1.8504" OPTIMAL · OPTIMAL	232,05	120,7 mm 4.7520"	173,0 mm 6.8110"	177,8 mm 7.0000"	243,0 mm 9.5669"	40,0 mm 1.5748"	70,0 mm 2.7559"	1/4"



Schnittdaten
Cutting data



Film
Movie

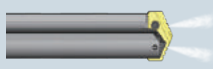


- 1 
- 2 
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- 9 

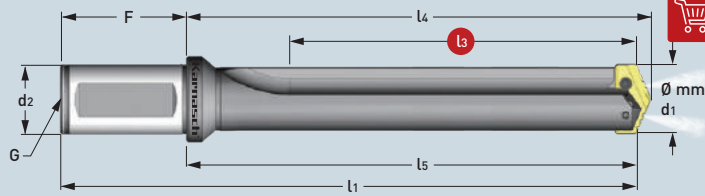
PULVERSTAHL · POWDER STEEL										HARTMETALL · CARBIDE							
Ø		132°		144°		132°		144°		132°		Guss/Cast iron 132°		132°		132°	
Ø mm d1	Ø Zoll / Inch d1	Art. 22 2010 Pulverstahl 25 beschichtet Für Edelstahl, Stahl, Guss Powder steel 25 coated For stainless steel, steel, cast iron		Art. 22 2510 Pulverstahl 15 beschichtet Für legierte Stähle, Stahl, Guss Powder steel 15 coated For alloy steel, steel, cast iron		Art. 22 3010 Pulverstahl 25 beschichtet Für Alu, Messing, Kupfer Powder steel 25 coated For alu, brass, copper		Art. 22 3510 Pulverstahl 15 beschichtet Für Alu, Messing, Kupfer Powder steel 15 coated For alloy steel, steel, cast iron		Art. 22 4010 Hartmetall 20/30 beschichtet Für Edelstahl, hochfester Stahl, gehärteter Stahl Carbide 20/30 coated For stainless steel, high strength alloys, hardened steel		Art. 22 4510 Hartmetall 20/30 beschichtet Für alle Gussarten Carbide 20/30 coated For all kinds of cast iron		Art. 22 5010 Hartmetall 20/30 beschichtet Für Alu, Messing, Kupfer Carbide 20/30 coated For alu, brass, copper		Art. 22 5510 Hartmetall 20/30 beschichtet Für abrasive Materialien wie: GFK, CFK, Graphit Carbide 20/30 coated For abrasive materials such as: fiber- glass, carbon fiber, graphite	
		Art.	€	Art.	€	Art.	€	Art.	€	Art.	€	Art.	€	Art.	€	Art.	€
• 48,00	1.8898	22 2010 0480	80,75	-	-	22 3010 0480	79,30	-	-	-	-	-	-	-	-	-	-
• 49,00	1.9291	22 2010 0490	80,75	-	-	22 3010 0490	79,30	-	-	-	-	-	-	-	-	-	-
• 50,00	1.9685	22 2010 0500	80,75	-	-	22 3010 0500	79,30	-	-	-	-	-	-	-	-	-	-
• 51,00	2.0079	22 2010 0510	80,75	-	-	22 3010 0510	79,30	-	-	-	-	-	-	-	-	-	-
• 52,00	2.0472	22 2010 0520	80,75	-	-	22 3010 0520	79,30	-	-	-	-	-	-	-	-	-	-
• 53,00	2.0866	22 2010 0530	80,75	-	-	22 3010 0530	79,30	-	-	-	-	-	-	-	-	-	-
• 54,00	2.1260	22 2010 0540	80,75	-	-	22 3010 0540	79,30	-	-	-	-	-	-	-	-	-	-
• 55,00	2.1654	22 2010 0550	80,75	-	-	22 3010 0550	79,30	-	-	-	-	-	-	-	-	-	-
• 56,00	2.2047	22 2010 0560	80,75	-	-	22 3010 0560	79,30	-	-	-	-	-	-	-	-	-	-
• 57,00	2.2441	22 2010 0570	80,75	-	-	22 3010 0570	79,30	-	-	-	-	-	-	-	-	-	-
• 58,00	2.2835	22 2010 0580	80,75	-	-	22 3010 0580	79,30	-	-	-	-	-	-	-	-	-	-
• 59,00	2.3228	22 2010 0590	80,75	-	-	22 3010 0590	79,30	-	-	-	-	-	-	-	-	-	-
• 60,00	2.3622	22 2010 0600	80,75	-	-	22 3010 0600	79,30	-	-	-	-	-	-	-	-	-	-
• 61,00	2.4016	22 2010 0610	80,75	-	-	22 3010 0610	79,30	-	-	-	-	-	-	-	-	-	-
• 62,00	2.4409	22 2010 0620	80,75	-	-	22 3010 0620	79,30	-	-	-	-	-	-	-	-	-	-
• 63,00	2.4803	22 2010 0630	80,75	-	-	22 3010 0630	79,30	-	-	-	-	-	-	-	-	-	-
• 64,00	2.5197	22 2010 0640	80,75	-	-	22 3010 0640	79,30	-	-	-	-	-	-	-	-	-	-
• 65,00	2.5591	22 2010 0650	80,75	-	-	22 3010 0650	79,30	-	-	-	-	-	-	-	-	-	-



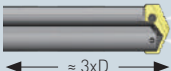
DIN 1835-B
Zylindrischer Schaft
mit Spannfläche ·
Lateral fixation type
flange shank



Gerade genutet ·
Straight flute



Art. **22 1020**



≈ 3xD
Kurz · Short

	l₃	l₅	l₄	l₁	d₂	F	G
	Nutzlänge	Körperlänge	Neue REF.- Länge	Gesamtlänge	Schaft-Ø	Schaftlänge	Gewinde
	Max. drill depth	Body-length	REF.-length	Overall length	Shank-Ø	Shank length	Pipe tap
Art.	€	mm Zoll / Inch	mm Zoll / Inch	mm Zoll / Inch	mm Zoll / Inch	mm Zoll / Inch	
• 22 1020 01302 0480 Ø 48,0-65,0 mm 1.8898-2.5591" MÖGLICH · POSSIBLE Ø 48,0-55,0 mm 1.8898-2.1654" OPTIMAL · OPTIMAL	247,15	130,2 mm 5.1260"	179,4 mm 7.0630"	184,2 mm 7.2520"	249,4 mm 9.8189"	40,0 mm 1.5748"	70,0 mm 2.7559"
• 22 1020 01302 0560 Ø 56,0-65,0 mm 2.2047-2.5591" OPTIMAL · OPTIMAL	247,15	130,2 mm 5.1260"	179,4 mm 7.0630"	184,2 mm 7.2520"	249,4 mm 9.8189"	40,0 mm 1.5748"	70,0 mm 2.7559"

Halter werden **ohne** Einsätze, inklusive 2x TORX Befestigungsschrauben und 1x TORX Schlüssel geliefert.
 Holders are delivered **without** inserts including 2x TORX-screws and 1x TORX wrench.

Ersatz-Torxschrauben und Schlüssel mit Drehmomentangabe
 Spare Torx-screws and wrench with torque specification

Ø Diameter		TORX		max. Drehmoment / Torque (N/cm)	Schlüssel / Wrench	
mm	Zoll / Inch		€			€
9,5-11,0	0.3740-0.4331		22 9010 0095	84		22 9011 0084
11,5-12,5	0.4528-0.4921		22 9010 0115	84		22 9011 0305
13,0-17,5	0.5118-0.6890		22 9010 0130	175		22 9011 0175
18,0-24,0	0.7087-0.9449		22 9010 0180	305		22 9011 0690
25,0-35,0	0.9843-1.3780		22 9010 0250	690		22 9011 1370
36,0-65,0	1.4173-2.5591		22 9010 0360	1370		22 9011 1750
64,0-114,0	2.5197-4.4882		22 9010 0640	1750		

Schnittdaten
Cutting data



Film
Movie



1134-1143





PULVERSTAHL · POWDER STEEL

HARTMETALL · CARBIDE

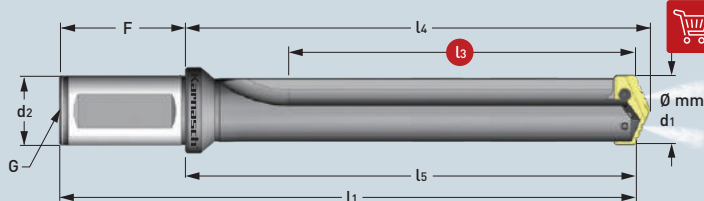
Ø mm d ₁	Ø Zoll / Inch d ₁	Art. 22 2010		Art. 22 2510		Art. 22 3010		Art. 22 3510		Art. 22 4010		Art. 22 4510		Art. 22 5010		Art. 22 5510	
		Art.	€	Art.	€	Art.	€	Art.	€	Art.	€	Art.	€	Art.	€	Art.	€
• 36,00	1.4173	22 2010 0360	56,45	-	-	22 3010 0360	57,15	-	-	-	-	-	-	-	-	-	-
• 37,00	1.4567	22 2010 0370	56,45	-	-	22 3010 0370	57,15	-	-	-	-	-	-	-	-	-	-
• 38,00	1.4961	22 2010 0380	56,45	-	-	22 3010 0380	57,15	-	-	-	-	-	-	-	-	-	-
• 39,00	1.5354	22 2010 0390	56,45	-	-	22 3010 0390	57,15	-	-	-	-	-	-	-	-	-	-
• 40,00	1.5748	22 2010 0400	56,45	-	-	22 3010 0400	57,15	-	-	-	-	-	-	-	-	-	-
• 41,00	1.6142	22 2010 0410	56,45	-	-	22 3010 0410	57,15	-	-	-	-	-	-	-	-	-	-
• 42,00	1.6535	22 2010 0420	56,45	-	-	22 3010 0420	57,15	-	-	-	-	-	-	-	-	-	-
• 43,00	1.6929	22 2010 0430	56,45	-	-	22 3010 0430	57,15	-	-	-	-	-	-	-	-	-	-
• 44,00	1.7323	22 2010 0440	56,45	-	-	22 3010 0440	57,15	-	-	-	-	-	-	-	-	-	-
• 45,00	1.7717	22 2010 0450	56,45	-	-	22 3010 0450	57,15	-	-	-	-	-	-	-	-	-	-
• 46,00	1.8110	22 2010 0460	56,45	-	-	22 3010 0460	57,15	-	-	-	-	-	-	-	-	-	-
• 47,00	1.8504	22 2010 0470	56,45	-	-	22 3010 0470	57,15	-	-	-	-	-	-	-	-	-	-
• 48,00	1.8898	22 2010 0480	80,75	-	-	22 3010 0480	79,30	-	-	-	-	-	-	-	-	-	-
• 49,00	1.9291	22 2010 0490	80,75	-	-	22 3010 0490	79,30	-	-	-	-	-	-	-	-	-	-
• 50,00	1.9685	22 2010 0500	80,75	-	-	22 3010 0500	79,30	-	-	-	-	-	-	-	-	-	-
• 51,00	2.0079	22 2010 0510	80,75	-	-	22 3010 0510	79,30	-	-	-	-	-	-	-	-	-	-
• 52,00	2.0472	22 2010 0520	80,75	-	-	22 3010 0520	79,30	-	-	-	-	-	-	-	-	-	-
• 53,00	2.0866	22 2010 0530	80,75	-	-	22 3010 0530	79,30	-	-	-	-	-	-	-	-	-	-
• 54,00	2.1260	22 2010 0540	80,75	-	-	22 3010 0540	79,30	-	-	-	-	-	-	-	-	-	-
• 55,00	2.1654	22 2010 0550	80,75	-	-	22 3010 0550	79,30	-	-	-	-	-	-	-	-	-	-
• 56,00	2.2047	22 2010 0560	80,75	-	-	22 3010 0560	79,30	-	-	-	-	-	-	-	-	-	-
• 57,00	2.2441	22 2010 0570	80,75	-	-	22 3010 0570	79,30	-	-	-	-	-	-	-	-	-	-
• 58,00	2.2835	22 2010 0580	80,75	-	-	22 3010 0580	79,30	-	-	-	-	-	-	-	-	-	-
• 59,00	2.3228	22 2010 0590	80,75	-	-	22 3010 0590	79,30	-	-	-	-	-	-	-	-	-	-
• 60,00	2.3622	22 2010 0600	80,75	-	-	22 3010 0600	79,30	-	-	-	-	-	-	-	-	-	-
• 61,00	2.4016	22 2010 0610	80,75	-	-	22 3010 0610	79,30	-	-	-	-	-	-	-	-	-	-
• 62,00	2.4409	22 2010 0620	80,75	-	-	22 3010 0620	79,30	-	-	-	-	-	-	-	-	-	-
• 63,00	2.4803	22 2010 0630	80,75	-	-	22 3010 0630	79,30	-	-	-	-	-	-	-	-	-	-
• 64,00	2.5197	22 2010 0640	80,75	-	-	22 3010 0640	79,30	-	-	-	-	-	-	-	-	-	-
• 65,00	2.5591	22 2010 0650	80,75	-	-	22 3010 0650	79,30	-	-	-	-	-	-	-	-	-	-



DIN 1835-B
Zylindrischer Schaft
mit Spannfläche ·
Lateral fixation type
flange shank



Gerade genutet ·
Straight flute



Art. **22 1020**



Lang · Long

Art.	€	L3 Nutzlänge Max. drill depth	L5 Körperlänge Body-length	L4 Neue REF.- Länge REF.-length	L1 Gesamtlänge Overall length	d2 Schaft-Ø Shank-Ø	F Schaftlänge Shank length	G Gewinde Pipe tap
		mm Zoll / Inch	mm Zoll / Inch	mm Zoll / Inch	mm Zoll / Inch	mm Zoll / Inch	mm Zoll / Inch	
22 1020 03493 0360 Ø 36,0-47,0 mm 1.4173-1.8504" MÖGLICH · POSSIBLE Ø 36,0-41,0 mm 1.4173-1.6142" OPTIMAL · OPTIMAL	439,15							
22 1020 03493 0420 Ø 42,0-47,0 mm 1.6535-1.8504" OPTIMAL · OPTIMAL	439,15	349,3 mm 13.7520"	401,6 mm 15.8110"	406,4 mm 16.0000"	471,6 mm 18.5669"	40,0 mm 1.5748"	70,0 mm 2.7559"	1/4"
22 1020 04223 0480 Ø 48,0-65,0 mm 1.8898-2.5591" MÖGLICH · POSSIBLE Ø 48,0-55,0 mm 1.8898-2.1654" OPTIMAL · OPTIMAL	497,20	422,3 mm 16.6260"	471,5 mm 18.5630"	476,3 mm 18.7520"	541,5 mm 21.3189"	40,0 mm 1.5748"	70,0 mm 2.7559"	1/4"
22 1020 04223 0560 Ø 56,0-65,0 mm 2.2047-2.5591" OPTIMAL · OPTIMAL	497,20	422,3 mm 16.6260"	471,5 mm 18.5630"	476,3 mm 18.7520"	541,5 mm 21.3189"	40,0 mm 1.5748"	70,0 mm 2.7559"	1/4"

Halter werden **ohne** Einsätze, inklusive 2x TORX Befestigungsschrauben und 1x TORX Schlüssel geliefert.
 Holders are delivered **without** inserts including 2x TORX-screws and 1x TORX wrench.

Ersatz-Torxschrauben und Schlüssel mit Drehmomentangabe
 Spare Torx-screws and wrench with torque specification

Ø Diameter		TORX	max. Drehmoment / Torque (N/cm)		Schlüssel / Wrench	
mm	Zoll / Inch		€			€
9,5-11,0	0.3740-0.4331	22 9010 0095	3,60	84		
11,5-12,5	0.4528-0.4921	22 9010 0115	3,60	84	22 9011 0084	6,45
13,0-17,5	0.5118-0.6890	22 9010 0130	3,60	175	22 9011 0175	6,45
18,0-24,0	0.7087-0.9449	22 9010 0180	3,60	305	22 9011 0305	11,30
25,0-35,0	0.9843-1.3780	22 9010 0250	3,70	690	22 9011 0690	12,10
36,0-65,0	1.4173-2.5591	22 9010 0360	3,75	1370	22 9011 1370	13,15
64,0-114,0	2.5197-4.4882	22 9010 0640	3,80	1750	22 9011 1750	19,35

Schnittdaten
Cutting data



Film
Movie



1134-1143





PULVERSTAHL · POWDER STEEL

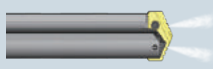
HARTMETALL · CARBIDE

Ø mm d1	Ø Zoll / Inch d1	PULVERSTAHL · POWDER STEEL				HARTMETALL · CARBIDE											
		Art.	€	Art.	€	Art.	€	Art.	€								
9,50	0.3740	22 2010 0095	24,30	-	-	22 3010 0095	24,95	-	-	22 4010 0095	30,35	22 4510 0095	30,35	22 5010 0095	32,00	22 5510 0095	66,45
9,80	0.3858	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10,00	0.3937	22 2010 0100	24,30	-	-	22 3010 0100	24,95	-	-	22 4010 0100	30,35	22 4510 0100	30,35	22 5010 0100	32,00	22 5510 0100	66,45
10,20	0.4016	22 2010 0102	24,30	-	-	22 3010 0102	24,95	-	-	22 4010 0102	30,35	22 4510 0102	30,35	22 5010 0102	32,00	22 5510 0102	66,45
10,50	0.4134	22 2010 0105	24,30	-	-	22 3010 0105	24,95	-	-	22 4010 0105	30,35	22 4510 0105	30,35	22 5010 0105	32,00	22 5510 0105	66,45
10,80	0.4252	22 2010 0108	24,30	-	-	22 3010 0108	24,95	-	-	22 4010 0108	30,35	22 4510 0108	30,35	22 5010 0108	32,00	22 5510 0108	66,45
11,00	0.4331	22 2010 0110	24,30	-	-	22 3010 0110	24,95	-	-	22 4010 0110	30,35	22 4510 0110	30,35	22 5010 0110	32,00	22 5510 0110	66,45
11,50	0.4528	22 2010 0115	24,30	-	-	22 3010 0115	24,95	-	-	22 4010 0115	30,35	22 4510 0115	30,35	22 5010 0115	32,00	22 5510 0115	66,45
12,00	0.4724	22 2010 0120	24,30	-	-	22 3010 0120	24,95	-	-	22 4010 0120	30,35	22 4510 0120	30,35	22 5010 0120	32,00	22 5510 0120	66,45
12,50	0.4921	22 2010 0125	24,30	-	-	22 3010 0125	24,95	-	-	22 4010 0125	30,35	22 4510 0125	30,35	22 5010 0125	32,00	22 5510 0125	66,45
13,00	0.5118	22 2010 0130	27,65	-	-	22 3010 0130	27,80	-	-	22 4010 0130	35,70	22 4510 0130	35,70	22 5010 0130	36,85	22 5510 0130	71,25
13,50	0.5315	22 2010 0135	27,65	-	-	22 3010 0135	27,80	-	-	22 4010 0135	35,70	22 4510 0135	35,70	22 5010 0135	36,85	22 5510 0135	71,25
14,00	0.5512	22 2010 0140	27,65	-	-	22 3010 0140	27,80	-	-	22 4010 0140	35,70	22 4510 0140	35,70	22 5010 0140	36,85	22 5510 0140	71,25
14,50	0.5709	22 2010 0145	27,65	-	-	22 3010 0145	27,80	-	-	22 4010 0145	35,70	22 4510 0145	35,70	22 5010 0145	36,85	22 5510 0145	71,25
15,00	0.5906	22 2010 0150	27,65	-	-	22 3010 0150	27,80	-	-	22 4010 0150	35,70	22 4510 0150	35,70	22 5010 0150	36,85	22 5510 0150	71,25
15,50	0.6102	22 2010 0155	27,65	-	-	22 3010 0155	27,80	-	-	22 4010 0155	35,70	22 4510 0155	35,70	22 5010 0155	36,85	22 5510 0155	71,25
16,00	0.6299	22 2010 0160	27,65	-	-	22 3010 0160	27,80	-	-	22 4010 0160	35,70	22 4510 0160	35,70	22 5010 0160	36,85	22 5510 0160	71,25
16,50	0.6496	22 2010 0165	27,65	-	-	22 3010 0165	27,80	-	-	22 4010 0165	35,70	22 4510 0165	35,70	22 5010 0165	36,85	22 5510 0165	71,25
17,00	0.6693	22 2010 0170	27,65	-	-	22 3010 0170	27,80	-	-	22 4010 0170	35,70	22 4510 0170	35,70	22 5010 0170	36,85	22 5510 0170	71,25
17,50	0.6890	22 2010 0175	27,65	-	-	22 3010 0175	27,80	-	-	22 4010 0175	35,70	22 4510 0175	35,70	22 5010 0175	36,85	22 5510 0175	71,25
18,00	0.7087	22 2010 0180	35,20	-	-	22 3010 0180	38,45	-	-	22 4010 0180	46,40	22 4510 0180	46,40	22 5010 0180	51,70	22 5510 0180	81,45
18,50	0.7283	22 2010 0185	35,20	-	-	22 3010 0185	38,45	-	-	22 4010 0185	46,40	22 4510 0185	46,40	22 5010 0185	51,70	22 5510 0185	81,45
19,00	0.7480	22 2010 0190	35,20	-	-	22 3010 0190	38,45	-	-	22 4010 0190	46,40	22 4510 0190	46,40	22 5010 0190	51,70	22 5510 0190	102,55
19,50	0.7677	22 2010 0195	35,20	-	-	22 3010 0195	38,45	-	-	22 4010 0195	46,40	22 4510 0195	46,40	22 5010 0195	51,70	22 5510 0195	102,55
20,00	0.7874	22 2010 0200	35,20	-	-	22 3010 0200	38,45	-	-	22 4010 0200	46,40	22 4510 0200	46,40	22 5010 0200	51,70	22 5510 0200	102,55
20,50	0.8071	22 2010 0205	35,20	-	-	22 3010 0205	38,45	-	-	22 4010 0205	46,40	22 4510 0205	46,40	22 5010 0205	51,70	22 5510 0205	118,20
21,00	0.8268	22 2010 0210	35,20	-	-	22 3010 0210	38,45	-	-	22 4010 0210	46,40	22 4510 0210	46,40	22 5010 0210	51,70	22 5510 0210	118,20
22,00	0.8661	22 2010 0220	35,20	-	-	22 3010 0220	38,45	-	-	22 4010 0220	46,40	22 4510 0220	46,40	22 5010 0220	51,70	22 5510 0220	118,20
23,00	0.9055	22 2010 0230	35,20	-	-	22 3010 0230	38,45	-	-	22 4010 0230	46,40	22 4510 0230	46,40	22 5010 0230	51,70	22 5510 0230	118,20
24,00	0.9449	22 2010 0240	35,20	-	-	22 3010 0240	38,45	-	-	22 4010 0240	46,40	22 4510 0240	46,40	22 5010 0240	51,70	22 5510 0240	118,20
25,00	0.9843	22 2010 0250	41,20	-	-	22 3010 0250	43,40	-	-	22 4010 0250	54,35	22 4510 0250	54,35	22 5010 0250	58,55	22 5510 0250	125,10
26,00	1.0236	22 2010 0260	41,20	-	-	22 3010 0260	43,40	-	-	22 4010 0260	54,35	22 4510 0260	54,35	22 5010 0260	58,55	22 5510 0260	125,10
27,00	1.0630	22 2010 0270	41,20	-	-	22 3010 0270	43,40	-	-	22 4010 0270	54,35	22 4510 0270	54,35	22 5010 0270	58,55	22 5510 0270	125,10
28,00	1.1024	22 2010 0280	41,20	-	-	22 3010 0280	43,40	-	-	22 4010 0280	54,35	22 4510 0280	54,35	22 5010 0280	58,55	22 5510 0280	125,10
29,00	1.1417	22 2010 0290	41,20	-	-	22 3010 0290	43,40	-	-	22 4010 0290	54,35	22 4510 0290	54,35	22 5010 0290	58,55	22 5510 0290	125,10
30,00	1.1811	22 2010 0300	41,20	-	-	22 3010 0300	43,40	-	-	22 4010 0300	54,35	22 4510 0300	54,35	22 5010 0300	58,55	22 5510 0300	125,10
31,00	1.2205	22 2010 0310	41,20	-	-	22 3010 0310	43,40	-	-	22 4010 0310	54,35	22 4510 0310	54,35	22 5010 0310	58,55	22 5510 0310	125,10
32,00	1.2598	22 2010 0320	41,20	-	-	22 3010 0320	43,40	-	-	22 4010 0320	54,35	22 4510 0320	54,35	22 5010 0320	58,55	22 5510 0320	125,10
33,00	1.2992	22 2010 0330	41,20	-	-	22 3010 0330	43,40	-	-	22 4010 0330	54,35	22 4510 0330	54,35	22 5010 0330	58,55	22 5510 0330	132,60
34,00	1.3386	22 2010 0340	41,20	-	-	22 3010 0340	43,40	-	-	22 4010 0340	54,35	22 4510 0340	54,35	22 5010 0340	58,55	22 5510 0340	132,60
35,00	1.3780	22 2010 0350	41,20	-	-	22 3010 0350	43,40	-	-	22 4010 0350	54,35	22 4510 0350	54,35	22 5010 0350	58,55	22 5510 0350	132,60
36,00	1.4173	22 2010 0360	56,45	-	-	22 3010 0360	57,15	-	-	-	-	-	-	-	-	-	-
37,00	1.4567	22 2010 0370	56,45	-	-	22 3010 0370	57,15	-	-	-	-	-	-	-	-	-	-
38,00	1.4961	22 2010 0380	56,45	-	-	22 3010 0380	57,15	-	-	-	-	-	-	-	-	-	-
39,00	1.5354	22 2010 0390	56,45	-	-	22 3010 0390	57,15	-	-	-	-	-	-	-	-	-	-
40,00	1.5748	22 2010 0400	56,45	-	-	22 3010 0400	57,15	-	-	-	-	-	-	-	-	-	-
41,00	1.6142	22 2010 0410	56,45	-	-	22 3010 0410	57,15	-	-	-	-	-	-	-	-	-	-
42,00	1.6535	22 2010 0420	56,45	-	-	22 3010 0420	57,15	-	-	-	-	-	-	-	-	-	-
43,00	1.6929	22 2010 0430	56,45	-	-	22 3010 0430	57,15	-	-	-	-	-	-	-	-	-	-
44,00	1.7323	22 2010 0440	56,45	-	-	22 3010 0440	57,15	-	-	-	-	-	-	-	-	-	-
45,00	1.7717	22 2010 0450	56,45	-	-	22 3010 0450	57,15	-	-	-	-	-	-	-	-	-	-
46,00	1.8110	22 2010 0460	56,45	-	-	22 3010 0460	57,15	-	-	-	-	-	-	-	-	-	-
47,00	1.8504	22 2010 0470	56,45	-	-	22 3010 0470	57,15	-	-	-	-	-	-	-	-	-	-

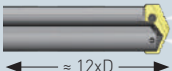
Fortsetzung Seite 292 · Continued page 292



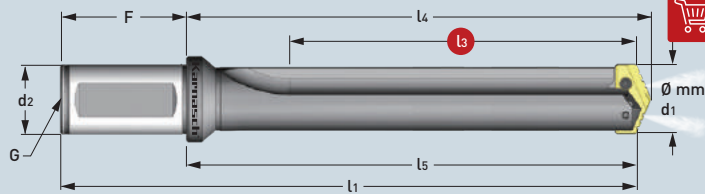
DIN 1835-B
Zylindrischer Schaft mit Spannfläche ·
Lateral fixation type
flange shank



Gerade genutet ·
Straight flute



Überlang · Overlength



Art. **22 1020**

Art.	€	l₃ Nutzlänge Max. drill depth	l₅ Körperlänge Body-length	l₄ Neue REF.-Länge REF.-length	l₁ Gesamtlänge Overall length	d₂ Schaft-Ø Shank-Ø	F Schaftlänge Shank length	G Gewinde Pipe tap
		mm Zoll / Inch	mm Zoll / Inch	mm Zoll / Inch	mm Zoll / Inch	mm Zoll / Inch	mm Zoll / Inch	
• 22 1020 02220 0095 Ø 9,5-11,0 mm 0.3740-0.4331" OPTIMAL · OPTIMAL	203,40	222,0 mm 8.7401"	251,7 mm 9.9094"	254,1 mm 10.0039"	301,7 mm 11.8780"	20,0 mm 0.7874"	50,0 mm 1.9685"	1/8"
• 22 1020 02223 0115 Ø 11,5-12,5 mm 0.4528-0.4921" OPTIMAL · OPTIMAL	203,40	222,3 mm 8.7519"	251,7 mm 9.9094"	254,1 mm 10.0039"	301,7 mm 11.8780"	20,0 mm 0.7874"	50,0 mm 1.9685"	1/8"
• 22 1020 02950 0130 Ø 13,0-17,5 mm 0.5118-0.6890" MÖGLICH · POSSIBLE Ø 13,0-15,0 mm 0.5118-0.5906" OPTIMAL · OPTIMAL	254,15	295,0 mm 11.6142"	323,9 mm 12.7520"	326,7 mm 12.8622"	373,9 mm 14.7205"	20,0 mm 0.7874"	50,0 mm 1.9685"	1/8"
• 22 1020 02950 0155 Ø 15,5-17,5 mm 0.6102-0.6890" OPTIMAL · OPTIMAL	254,15	295,0 mm 11.6142"	323,9 mm 12.7520"	326,7 mm 12.8622"	373,9 mm 14.7205"	20,0 mm 0.7874"	50,0 mm 1.9685"	1/8"
• 22 1020 04570 0180 Ø 18,0-24,0 mm 0.7087-0.9449" MÖGLICH · POSSIBLE Ø 18,0-21,0 mm 0.7087-0.8268" OPTIMAL · OPTIMAL	349,55	457,0 mm 17.9921"	494,5 mm 19.4685"	498,1 mm 19.6102"	550,5 mm 21.6732"	25,0 mm 0.9842"	56,0 mm 2.2047"	1/8"
• 22 1020 04570 0220 Ø 22,0-24,0 mm 0.8661-0.9449" OPTIMAL · OPTIMAL	349,55	457,0 mm 17.9921"	494,5 mm 19.4685"	498,1 mm 19.6102"	550,5 mm 21.6732"	25,0 mm 0.9842"	56,0 mm 2.2047"	1/8"
• 22 1020 05110 0250 Ø 25,0-35,0 mm 0.9843-1.3780" MÖGLICH · POSSIBLE Ø 25,0-29,0 mm 0.9843-1.1417" OPTIMAL · OPTIMAL	421,30	511,0 mm 20.1181"	554,1 mm 21.8150"	557,7 mm 21.9567"	614,1 mm 24.1772"	32,0 mm 1.2598"	60,0 mm 2.3622"	1/4"
• 22 1020 05110 0300 Ø 30,0-35,0 mm 1.1811-1.3780" OPTIMAL · OPTIMAL	421,30	511,0 mm 20.1181"	554,1 mm 21.8150"	557,7 mm 21.9567"	614,1 mm 24.1772"	32,0 mm 1.2598"	60,0 mm 2.3622"	1/4"
• 22 1020 05588 0360 Ø 36,0-47,0 mm 1.4173-1.8504" MÖGLICH · POSSIBLE Ø 36,0-41,0 mm 1.4173-1.6142" OPTIMAL · OPTIMAL	616,30	558,8 mm 22.0000"	611,1 mm 24.0591"	615,9 mm 24.2480"	681,1 mm 26.8150"	40,0 mm 1.5748"	70,0 mm 2.7559"	1/4"
• 22 1020 05588 0420 Ø 42,0-47,0 mm 1.6535-1.8504" OPTIMAL · OPTIMAL	616,30	558,8 mm 22.0000"	611,1 mm 24.0591"	615,9 mm 24.2480"	681,1 mm 26.8150"	40,0 mm 1.5748"	70,0 mm 2.7559"	1/4"



Schnittdaten
Cutting data



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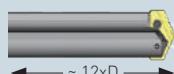
PULVERSTAHL · POWDER STEEL										HARTMETALL · CARBIDE							
Ø		132°		144°		132°		144°		132°		Guss/Cast iron 132°		132°		132°	
Ø mm d1	Ø Zoll / Inch d1	Art. 22 2010 Pulverstahl 25 beschichtet Für Edelstahl, Stahl, Guss Powder steel 25 coated For stainless steel, steel, cast iron		Art. 22 2510 Pulverstahl 15 beschichtet Für legierte Stähle, Stahl, Guss Powder steel 15 coated For alloy steel, steel, cast iron		Art. 22 3010 Pulverstahl 25 beschichtet Für Alu, Messing, Kupfer Powder steel 25 coated For alu, brass, copper		Art. 22 3510 Pulverstahl 15 beschichtet Für Alu, Messing, Kupfer Powder steel 15 coated For alloy steel, steel, cast iron		Art. 22 4010 Hartmetall 20/30 beschichtet Für Edelstahl, hochfester Stahl, gehärteter Stahl Carbide 20/30 coated For stainless steel, high strength alloys, hardened steel		Art. 22 4510 Hartmetall 20/30 beschichtet Für alle Gussarten Carbide 20/30 coated For all kinds of cast iron		Art. 22 5010 Hartmetall 20/30 beschichtet Für Alu, Messing, Kupfer Carbide 20/30 coated For alu, brass, copper		Art. 22 5510 Hartmetall 20/30 beschichtet Für abrasive Materialien wie: GFK, CFK, Graphit Carbide 20/30 coated For abrasive materials such as: fiber- glass, carbon fiber, graphite	
		Art.	€	Art.	€	Art.	€	Art.	€	Art.	€	Art.	€	Art.	€	Art.	€
• 48,00	1.8898	22 2010 0480	80,75	-	-	22 3010 0480	79,30	-	-	-	-	-	-	-	-	-	-
• 49,00	1.9291	22 2010 0490	80,75	-	-	22 3010 0490	79,30	-	-	-	-	-	-	-	-	-	-
• 50,00	1.9685	22 2010 0500	80,75	-	-	22 3010 0500	79,30	-	-	-	-	-	-	-	-	-	-
• 51,00	2.0079	22 2010 0510	80,75	-	-	22 3010 0510	79,30	-	-	-	-	-	-	-	-	-	-
• 52,00	2.0472	22 2010 0520	80,75	-	-	22 3010 0520	79,30	-	-	-	-	-	-	-	-	-	-
• 53,00	2.0866	22 2010 0530	80,75	-	-	22 3010 0530	79,30	-	-	-	-	-	-	-	-	-	-
• 54,00	2.1260	22 2010 0540	80,75	-	-	22 3010 0540	79,30	-	-	-	-	-	-	-	-	-	-
• 55,00	2.1654	22 2010 0550	80,75	-	-	22 3010 0550	79,30	-	-	-	-	-	-	-	-	-	-
• 56,00	2.2047	22 2010 0560	80,75	-	-	22 3010 0560	79,30	-	-	-	-	-	-	-	-	-	-
• 57,00	2.2441	22 2010 0570	80,75	-	-	22 3010 0570	79,30	-	-	-	-	-	-	-	-	-	-
• 58,00	2.2835	22 2010 0580	80,75	-	-	22 3010 0580	79,30	-	-	-	-	-	-	-	-	-	-
• 59,00	2.3228	22 2010 0590	80,75	-	-	22 3010 0590	79,30	-	-	-	-	-	-	-	-	-	-
• 60,00	2.3622	22 2010 0600	80,75	-	-	22 3010 0600	79,30	-	-	-	-	-	-	-	-	-	-
• 61,00	2.4016	22 2010 0610	80,75	-	-	22 3010 0610	79,30	-	-	-	-	-	-	-	-	-	-
• 62,00	2.4409	22 2010 0620	80,75	-	-	22 3010 0620	79,30	-	-	-	-	-	-	-	-	-	-
• 63,00	2.4803	22 2010 0630	80,75	-	-	22 3010 0630	79,30	-	-	-	-	-	-	-	-	-	-
• 64,00	2.5197	22 2010 0640	80,75	-	-	22 3010 0640	79,30	-	-	-	-	-	-	-	-	-	-
• 65,00	2.5591	22 2010 0650	80,75	-	-	22 3010 0650	79,30	-	-	-	-	-	-	-	-	-	-



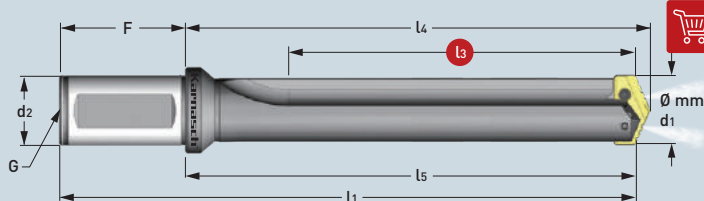
DIN 1835-B
Zylindrischer Schaft
mit Spannfläche ·
Lateral fixation type
flange shank



Gerade genutet ·
Straight flute



Überlang · Overlength



Art. **22 1020**

Art.	€	l3 Nutzlänge Max. drill depth	l5 Körperlänge Body-length	l4 Neue REF.- Länge REF.-length	l1 Gesamtlänge Overall length	d2 Schaft-Ø Shank-Ø	F Schaftlänge Shank length	G Gewinde Pipe tap
		mm Zoll / Inch	mm Zoll / Inch	mm Zoll / Inch	mm Zoll / Inch	mm Zoll / Inch	mm Zoll / Inch	
• 22 1020 06250 0480 Ø 48,0-65,0 mm 1.8898-2.5591" MÖGLICH · POSSIBLE Ø 48,0-55,0 mm 1.8898-2.1654" OPTIMAL · OPTIMAL	754,80	625,0 mm 24.6063"	674,7 mm 26.5630"	679,5 mm 26.7520"	744,7 mm 29.3189"	40,0 mm 1.5748"	70,0 mm 2.7559"	1/4"
• 22 1020 06250 0560 Ø 56,0-65,0 mm 2.2047-2.5591" OPTIMAL · OPTIMAL	754,80	625,0 mm 24.6063"	674,7 mm 26.5630"	679,5 mm 26.7520"	744,7 mm 29.3189"	40,0 mm 1.5748"	70,0 mm 2.7559"	1/4"

Halter werden **ohne** Einsätze, inklusive 2x TORX Befestigungsschrauben und 1x TORX Schlüssel geliefert.
Holders are delivered **without** inserts including 2x TORX-screws and 1x TORX wrench.

Ersatz-Torxschrauben und Schlüssel mit Drehmomentangabe
Spare Torx-screws and wrench with torque specification

Ø Diameter		TORX		max. Drehmoment / Torque (N/cm)	Schlüssel / Wrench	
mm	Zoll / Inch		€			€
9,5-11,0	0.3740-0.4331	22 9010 0095	3,60	84	22 9011 0084	6,45
11,5-12,5	0.4528-0.4921	22 9010 0115	3,60	84	22 9011 0175	6,45
13,0-17,5	0.5118-0.6890	22 9010 0130	3,60	175	22 9011 0305	11,30
18,0-24,0	0.7087-0.9449	22 9010 0180	3,60	305	22 9011 0690	12,10
25,0-35,0	0.9843-1.3780	22 9010 0250	3,70	690	22 9011 1370	13,15
36,0-65,0	1.4173-2.5591	22 9010 0360	3,75	1370	22 9011 1750	19,35
64,0-114,0	2.5197-4.4882	22 9010 0640	3,80	1750		

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PULVERSTAHL · POWDER STEEL

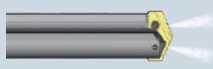
HARTMETALL · CARBIDE

Ø	PULVERSTAHL · POWDER STEEL				HARTMETALL · CARBIDE							
	Ø mm d1	Ø Zoll / Inch d1	Art.	€	Art.	€	Art.	€				
132°	Art. 22 2010		Pulverstahl 25 beschichtet Für Edelstahl, Stahl, Guss		Art. 22 2510		Pulverstahl 15 beschichtet Für legierte Stähle, Stahl, Guss					
	Powder steel 25 coated For stainless steel, steel, cast iron		Art. 22 3010		Pulverstahl 25 beschichtet Für Alu, Messing, Kupfer		Art. 22 3510		Pulverstahl 15 beschichtet Für Alu, Messing, Kupfer			
144°	Art. 22 4010		Hartmetall 20/30 beschichtet Für Edelstahl, hochfester Stahl, gehärteter Stahl		Art. 22 4510		Hartmetall 20/30 beschichtet Für alle Gussarten		Art. 22 5010		Hartmetall 20/30 beschichtet Für Alu, Messing, Kupfer	
	Carbide 20/30 coated For stainless steel, high strength alloys, hardened steel		Art. 22 5510		Hartmetall 20/30 beschichtet Für Alu, Messing, Kupfer		Carbide 20/30 coated For all kinds of cast iron		Carbide 20/30 coated For alu, brass, copper		Hartmetall 20/30 beschichtet Für abrasive Materialien wie: GFK, CFK, Graphit	
132°	Art. 22 0095		24,30		Art. 22 0100		24,30		Art. 22 0102		24,30	
	22 2010 0095		24,30		22 2010 0100		24,30		22 2010 0102		24,30	
132°	Art. 22 0105		24,30		Art. 22 0108		24,30		Art. 22 0110		24,30	
	22 2010 0105		24,30		22 2010 0108		24,30		22 2010 0110		24,30	
132°	Art. 22 0115		24,30		Art. 22 0120		24,30		Art. 22 0125		24,30	
	22 2010 0115		24,30		22 2010 0120		24,30		22 2010 0125		24,30	
132°	Art. 22 0130		27,65		Art. 22 0135		27,65		Art. 22 0140		27,65	
	22 2010 0130		27,65		22 2010 0135		27,65		22 2010 0140		27,65	
132°	Art. 22 0145		27,65		Art. 22 0150		27,65		Art. 22 0155		27,65	
	22 2010 0145		27,65		22 2010 0150		27,65		22 2010 0155		27,65	
132°	Art. 22 0160		27,65		Art. 22 0165		27,65		Art. 22 0170		27,65	
	22 2010 0160		27,65		22 2010 0165		27,65		22 2010 0170		27,65	
132°	Art. 22 0175		27,65		Art. 22 0180		35,20		Art. 22 0185		35,20	
	22 2010 0175		27,65		22 2010 0180		35,20		22 2010 0185		35,20	
132°	Art. 22 0190		35,20		Art. 22 0195		35,20		Art. 22 0200		35,20	
	22 2010 0190		35,20		22 2010 0195		35,20		22 2010 0200		35,20	
132°	Art. 22 0205		35,20		Art. 22 0210		35,20		Art. 22 0215		35,20	
	22 2010 0205		35,20		22 2010 0210		35,20		22 2010 0215		35,20	
132°	Art. 22 0220		35,20		Art. 22 0225		35,20		Art. 22 0230		35,20	
	22 2010 0220		35,20		22 2010 0225		35,20		22 2010 0230		35,20	
132°	Art. 22 0230		35,20		Art. 22 0235		35,20		Art. 22 0240		35,20	
	22 2010 0230		35,20		22 2010 0235		35,20		22 2010 0240		35,20	
132°	Art. 22 0240		35,20		Art. 22 0245		35,20		Art. 22 0250		35,20	
	22 2010 0240		35,20		22 2010 0245		35,20		22 2010 0250		35,20	
132°	Art. 22 0250		41,20		Art. 22 0255		41,20		Art. 22 0260		41,20	
	22 2010 0250		41,20		22 2010 0255		41,20		22 2010 0260		41,20	
132°	Art. 22 0260		41,20		Art. 22 0265		41,20		Art. 22 0270		41,20	
	22 2010 0260		41,20		22 2010 0265		41,20		22 2010 0270		41,20	
132°	Art. 22 0270		41,20		Art. 22 0275		41,20		Art. 22 0280		41,20	
	22 2010 0270		41,20		22 2010 0275		41,20		22 2010 0280		41,20	
132°	Art. 22 0280		41,20		Art. 22 0285		41,20		Art. 22 0290		41,20	
	22 2010 0280		41,20		22 2010 0285		41,20		22 2010 0290		41,20	
132°	Art. 22 0290		41,20		Art. 22 0295		41,20		Art. 22 0300		41,20	
	22 2010 0290		41,20		22 2010 0295		41,20		22 2010 0300		41,20	
132°	Art. 22 0300		41,20		Art. 22 0305		41,20		Art. 22 0310		41,20	
	22 2010 0300		41,20		22 2010 0305		41,20		22 2010 0310		41,20	
132°	Art. 22 0310		41,20		Art. 22 0315		41,20		Art. 22 0320		41,20	
	22 2010 0310		41,20		22 2010 0315		41,20		22 2010 0320		41,20	
132°	Art. 22 0320		41,20		Art. 22 0325		41,20		Art. 22 0330		41,20	
	22 2010 0320		41,20		22 2010 0325		41,20		22 2010 0330		41,20	
132°	Art. 22 0330		41,20		Art. 22 0335		41,20		Art. 22 0340		41,20	
	22 2010 0330		41,20		22 2010 0335		41,20		22 2010 0340		41,20	
132°	Art. 22 0340		41,20		Art. 22 0345		41,20		Art. 22 0350		41,20	
	22 2010 0340		41,20		22 2010 0345		41,20		22 2010 0350		41,20	
132°	Art. 22 0350		41,20		Art. 22 0355		41,20		Art. 22 0360		41,20	
	22 2010 0350		41,20		22 2010 0355		41,20		22 2010 0360		41,20	
132°	Art. 22 0360		56,45		Art. 22 0365		56,45		Art. 22 0370		56,45	
	22 2010 0360		56,45		22 2010 0365		56,45		22 2010 0370		56,45	
132°	Art. 22 0370		56,45		Art. 22 0375		56,45		Art. 22 0380		56,45	
	22 2010 0370		56,45		22 2010 0375		56,45		22 2010 0380		56,45	
132°	Art. 22 0380		56,45		Art. 22 0385		56,45		Art. 22 0390		56,45	
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132°	Art. 22 0390		56,45		Art. 22 0395		56,45		Art. 22 0400		56,45	
	22 2010 0390		56,45		22 2010 0395		56,45		22 2010 0400		56,45	
132°	Art. 22 0400		56,45		Art. 22 0405		56,45		Art. 22 0410		56,45	
	22 2010 0400		56,45		22 2010 0405		56,45		22 2010 0410		56,45	
132°	Art. 22 0410		56,45		Art. 22 0415		56,45		Art. 22 0420		56,45	
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132°	Art. 22 0420		56,45		Art. 22 0425		56,45		Art. 22 0430		56,45	
	22 2010 0420		56,45		22 2010 0425		56,45		22 2010 0430		56,45	
132°	Art. 22 0430		56,45		Art. 22 0435		56,45		Art. 22 0440		56,45	
	22 2010 0430		56,45		22 2010 0435		56,45		22 2010 0440		56,45	
132°	Art. 22 0440		56,45		Art. 22 0445		56,45		Art. 22 0450		56,45	
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132°	Art. 22 0450		56,45		Art. 22 0455		56,45		Art. 22 0460		56,45	
	22 2010 0450		56,45		22 2010 0455		56,45		22 2010 0460		56,45	
132°	Art. 22 0460		56,45		Art. 22 0465		56,45		Art. 22 0470		56,45	
	22 2010 0460		56,45		22 2010 0465		56,45		22 2010 0470		56,45	
132°	Art. 22 0470		56,45		Art. 22 0475		56,45		Art. 22 0480		56,45	
	22 2010 0470		56,45		22 2010 0475		56,45		22 2010 0480		56,45	

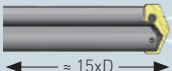
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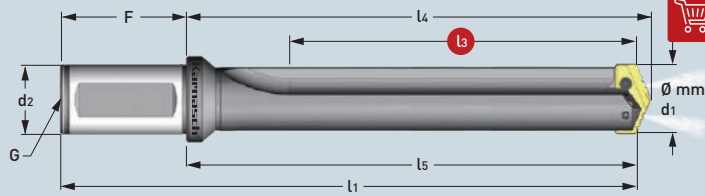
DIN 1835-B
Zylindrischer Schaft mit Spannfläche ·
Lateral fixation type
flange shank



Gerade genutet ·
Straight flute



~ 15xD
Ultralang · Ultralength



Art. **22 1020**

Art.	€	l3 Nutzlänge Max. drill depth	l5 Körperlänge Body-length	l4 Neue REF.-Länge REF.-length	l1 Gesamtlänge Overall length	d2 Schaft-Ø Shank-Ø	F Schaftlänge Shank length	G Gewinde Pipe tap
		mm Zoll / Inch	mm Zoll / Inch	mm Zoll / Inch	mm Zoll / Inch	mm Zoll / Inch	mm Zoll / Inch	
• 221020 02900 0095 Ø 9,5-11,0 mm 0.3740-0.4331" OPTIMAL · OPTIMAL	254,60	290,0 mm 11.4173"	319,9 mm 12.5945"	322,3 mm 12.6890"	369,9 mm 14.5630"	20,0 mm 0.7874"	50,0 mm 1.9685"	1/8"
• 22 1020 02905 0115 Ø 11,5-12,5 mm 0.4528-0.4921" OPTIMAL · OPTIMAL	254,60	290,0 mm 11.4173"	319,9 mm 12.5945"	322,3 mm 12.6890"	369,9 mm 14.5630"	20,0 mm 0.7874"	50,0 mm 1.9685"	1/8"
• 22 1020 03870 0130 Ø 13,0-17,5 mm 0.5118-0.6890" MÖGLICH · POSSIBLE Ø 13,0-15,0 mm 0.5118-0.5906" OPTIMAL · OPTIMAL	317,50	387,0 mm 15.2362"	416,0 mm 16.3780"	418,8 mm 16.4882"	466,0 mm 18.3465"	20,0 mm 0.7874"	50,0 mm 1.9685"	1/8"
• 22 1020 03870 0155 Ø 15,5-17,5 mm 0.6102-0.6890" OPTIMAL · OPTIMAL	317,50	387,0 mm 15.2362"	416,0 mm 16.3780"	418,8 mm 16.4882"	466,0 mm 18.3465"	20,0 mm 0.7874"	50,0 mm 1.9685"	1/8"
• 22 1020 05690 0180 Ø 18,0-24,0 mm 0.7087-0.9449" MÖGLICH · POSSIBLE Ø 18,0-21,0 mm 0.7087-0.8268" OPTIMAL · OPTIMAL	452,35	569,0 mm 22.4016"	602,5 mm 23.7205"	606,1 mm 23.8622"	658,5 mm 25.9252"	25,0 mm 0.9842"	56,0 mm 2.2047"	1/8"
• 22 1020 05690 0220 Ø 22,0-24,0 mm 0.8661-0.9449" OPTIMAL · OPTIMAL	452,35	569,0 mm 22.4016"	602,5 mm 23.7205"	606,1 mm 23.8622"	658,5 mm 25.9252"	25,0 mm 0.9842"	56,0 mm 2.2047"	1/8"
• 22 1020 06920 0250 Ø 25,0-35,0 mm 0.9843-1.3780" MÖGLICH · POSSIBLE Ø 25,0-29,0 mm 0.9843-1.1417" OPTIMAL · OPTIMAL	570,75	692,0 mm 27.2441"	735,1 mm 28.9409"	738,7 mm 29.0827"	795,1 mm 31.3031"	32,0 mm 1.2598"	60,0 mm 2.3622"	1/4"
• 22 1020 06920 0300 Ø 30,0-35,0 mm 1.1811-1.3780" OPTIMAL · OPTIMAL	570,75	692,0 mm 27.2441"	735,1 mm 28.9409"	738,7 mm 29.0827"	795,1 mm 31.3031"	32,0 mm 1.2598"	60,0 mm 2.3622"	1/4"
• 22 1020 07874 0360 Ø 36,0-47,0 mm 1.4173-1.8504" MÖGLICH · POSSIBLE Ø 36,0-41,0 mm 1.4173-1.6142" OPTIMAL · OPTIMAL	825,80	787,4 mm 31.0000"	839,7 mm 33.0591"	844,5 mm 33.2480"	909,7 mm 35.8150"	40,0 mm 1.5748"	70,0 mm 2.7559"	1/4"
• 22 1020 07874 0420 Ø 42,0-47,0 mm 1.6535-1.8504" OPTIMAL · OPTIMAL	825,80	787,4 mm 31.0000"	839,7 mm 33.0591"	844,5 mm 33.2480"	909,7 mm 35.8150"	40,0 mm 1.5748"	70,0 mm 2.7559"	1/4"



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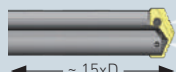
PULVERSTAHL · POWDER STEEL										HARTMETALL · CARBIDE									
Ø		132°		144°		132°		144°		132°		Guss/Cast iron 132°		132°		132°			
Ø mm d1	Ø Zoll / Inch d1	Art. 22 2010 Pulverstahl 25 beschichtet Für Edelstahl, Stahl, Guss Powder steel 25 coated For stainless steel, steel, cast iron		Art. 22 2510 Pulverstahl 15 beschichtet Für legierte Stähle, Stahl, Guss Powder steel 15 coated For alloy steel, steel, cast iron		Art. 22 3010 Pulverstahl 25 beschichtet Für Alu, Messing, Kupfer Powder steel 25 coated For alu, brass, copper		Art. 22 3510 Pulverstahl 15 beschichtet Für Alu, Messing, Kupfer Powder steel 15 coated For alloy steel, steel, cast iron		Art. 22 4010 Hartmetall 20/30 beschichtet Für Edelstahl, hochfester Stahl, gehärteter Stahl Carbide 20/30 coated For stainless steel, high strength alloys, hardened steel		Art. 22 4510 Hartmetall 20/30 beschichtet Für alle Gussarten Carbide 20/30 coated For all kinds of cast iron		Art. 22 5010 Hartmetall 20/30 beschichtet Für Alu, Messing, Kupfer Carbide 20/30 coated For alu, brass, copper		Art. 22 5510 Hartmetall 20/30 beschichtet Für abrasive Materialien wie: GFK, CFK, Graphit Carbide 20/30 coated For abrasive materials such as: fiber- glass, carbon fiber, graphite			
		Art.	€	Art.	€	Art.	€	Art.	€	Art.	€	Art.	€	Art.	€	Art.	€		
• 48,00	1.8898	22 2010 0480	80,75	-	-	22 3010 0480	79,30	-	-	-	-	-	-	-	-	-	-		
• 49,00	1.9291	22 2010 0490	80,75	-	-	22 3010 0490	79,30	-	-	-	-	-	-	-	-	-	-		
• 50,00	1.9685	22 2010 0500	80,75	-	-	22 3010 0500	79,30	-	-	-	-	-	-	-	-	-	-		
• 51,00	2.0079	22 2010 0510	80,75	-	-	22 3010 0510	79,30	-	-	-	-	-	-	-	-	-	-		
• 52,00	2.0472	22 2010 0520	80,75	-	-	22 3010 0520	79,30	-	-	-	-	-	-	-	-	-	-		
• 53,00	2.0866	22 2010 0530	80,75	-	-	22 3010 0530	79,30	-	-	-	-	-	-	-	-	-	-		
• 54,00	2.1260	22 2010 0540	80,75	-	-	22 3010 0540	79,30	-	-	-	-	-	-	-	-	-	-		
• 55,00	2.1654	22 2010 0550	80,75	-	-	22 3010 0550	79,30	-	-	-	-	-	-	-	-	-	-		
• 56,00	2.2047	22 2010 0560	80,75	-	-	22 3010 0560	79,30	-	-	-	-	-	-	-	-	-	-		
• 57,00	2.2441	22 2010 0570	80,75	-	-	22 3010 0570	79,30	-	-	-	-	-	-	-	-	-	-		
• 58,00	2.2835	22 2010 0580	80,75	-	-	22 3010 0580	79,30	-	-	-	-	-	-	-	-	-	-		
• 59,00	2.3228	22 2010 0590	80,75	-	-	22 3010 0590	79,30	-	-	-	-	-	-	-	-	-	-		
• 60,00	2.3622	22 2010 0600	80,75	-	-	22 3010 0600	79,30	-	-	-	-	-	-	-	-	-	-		
• 61,00	2.4016	22 2010 0610	80,75	-	-	22 3010 0610	79,30	-	-	-	-	-	-	-	-	-	-		
• 62,00	2.4409	22 2010 0620	80,75	-	-	22 3010 0620	79,30	-	-	-	-	-	-	-	-	-	-		
• 63,00	2.4803	22 2010 0630	80,75	-	-	22 3010 0630	79,30	-	-	-	-	-	-	-	-	-	-		
• 64,00	2.5197	22 2010 0640	80,75	-	-	22 3010 0640	79,30	-	-	-	-	-	-	-	-	-	-		
• 65,00	2.5591	22 2010 0650	80,75	-	-	22 3010 0650	79,30	-	-	-	-	-	-	-	-	-	-		



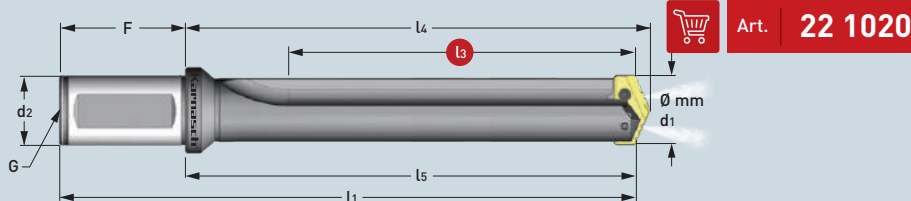
DIN 1835-B
Zylindrischer Schaft
mit Spannfläche ·
Lateral fixation type
flange shank



Gerade genutet ·
Straight flute



~ 15xD
Ultralang · Ultralength



Art. **22 1020**

Art.	€	l3 Nutzlänge Max. drill depth	l5 Körperlänge Body-length	l4 Neue REF.- Länge REF.-length	l1 Gesamtlänge Overall length	d2 Schaft-Ø Shank-Ø	F Schaftlänge Shank length	G Gewinde Pipe tap
		mm Zoll / Inch	mm Zoll / Inch	mm Zoll / Inch	mm Zoll / Inch	mm Zoll / Inch	mm Zoll / Inch	
<ul style="list-style-type: none"> 22 1020 08790 0480 Ø 48,0-65,0 mm 1.8898-2.5591" MÖGLICH · POSSIBLE Ø 48,0-55,0 mm 1.8898-2.1654" OPTIMAL · OPTIMAL 	1010,70	879,0 mm 34.6063"	928,7 mm 36.5630"	933,5 mm 36.7520"	998,7 mm 39.3189"	40,0 mm 1.5748"	70,0 mm 2.7559"	1/4"
<ul style="list-style-type: none"> 22 1020 08790 0560 Ø 56,0-65,0 mm 2.2047-2.5591" OPTIMAL · OPTIMAL 	1010,70	879,0 mm 34.6063"	928,7 mm 36.5630"	933,5 mm 36.7520"	998,7 mm 39.3189"	40,0 mm 1.5748"	70,0 mm 2.7559"	1/4"

Halter werden **ohne** Einsätze, inklusive 2x TORX Befestigungsschrauben und 1x TORX Schlüssel geliefert.
 Holders are delivered **without** inserts including 2x TORX-screws and 1x TORX wrench.

Ersatz-Torxschrauben und Schlüssel mit Drehmomentangabe
 Spare Torx-screws and wrench with torque specification

Ø Diameter		TORX		max. Drehmoment / Torque (N/cm)	Schlüssel / Wrench	
mm	Zoll / Inch		€			€
9,5-11,0	0.3740-0.4331		22 9010 0095	84		22 9011 0084
11,5-12,5	0.4528-0.4921		22 9010 0115	84		22 9011 0305
13,0-17,5	0.5118-0.6890		22 9010 0130	175		22 9011 0175
18,0-24,0	0.7087-0.9449		22 9010 0180	305		22 9011 0305
25,0-35,0	0.9843-1.3780		22 9010 0250	690		22 9011 0690
36,0-65,0	1.4173-2.5591		22 9010 0360	1370		22 9011 1370
64,0-114,0	2.5197-4.4882		22 9010 0640	1750		22 9011 1750

Schnittdaten
Cutting data



Film
Movie



1134-1143





PULVERSTAHL · POWDER STEEL

HARTMETALL · CARBIDE

Ø mm d1	Ø Zoll / Inch d1	PULVERSTAHL · POWDER STEEL				HARTMETALL · CARBIDE											
		Art.	€	Art.	€	Art.	€	Art.	€								
18,00	0.7087	22 2010 0180	35,20	-	-	22 3010 0180	38,45	-	-	22 4010 0180	46,40	22 4510 0180	46,40	22 5010 0180	51,70	22 5510 0180	81,45
18,50	0.7283	22 2010 0185	35,20	-	-	22 3010 0185	38,45	-	-	22 4010 0185	46,40	22 4510 0185	46,40	22 5010 0185	51,70	22 5510 0185	81,45
19,00	0.7480	22 2010 0190	35,20	-	-	22 3010 0190	38,45	-	-	22 4010 0190	46,40	22 4510 0190	46,40	22 5010 0190	51,70	22 5510 0190	102,55
19,50	0.7677	22 2010 0195	35,20	-	-	22 3010 0195	38,45	-	-	22 4010 0195	46,40	22 4510 0195	46,40	22 5010 0195	51,70	22 5510 0195	102,55
20,00	0.7874	22 2010 0200	35,20	-	-	22 3010 0200	38,45	-	-	22 4010 0200	46,40	22 4510 0200	46,40	22 5010 0200	51,70	22 5510 0200	102,55
20,50	0.8071	22 2010 0205	35,20	-	-	22 3010 0205	38,45	-	-	22 4010 0205	46,40	22 4510 0205	46,40	22 5010 0205	51,70	22 5510 0205	118,20
21,00	0.8268	22 2010 0210	35,20	-	-	22 3010 0210	38,45	-	-	22 4010 0210	46,40	22 4510 0210	46,40	22 5010 0210	51,70	22 5510 0210	118,20
22,00	0.8661	22 2010 0220	35,20	-	-	22 3010 0220	38,45	-	-	22 4010 0220	46,40	22 4510 0220	46,40	22 5010 0220	51,70	22 5510 0220	118,20
23,00	0.9055	22 2010 0230	35,20	-	-	22 3010 0230	38,45	-	-	22 4010 0230	46,40	22 4510 0230	46,40	22 5010 0230	51,70	22 5510 0230	118,20
24,00	0.9449	22 2010 0240	35,20	-	-	22 3010 0240	38,45	-	-	22 4010 0240	46,40	22 4510 0240	46,40	22 5010 0240	51,70	22 5510 0240	118,20
25,00	0.9843	22 2010 0250	41,20	-	-	22 3010 0250	43,40	-	-	22 4010 0250	54,35	22 4510 0250	54,35	22 5010 0250	58,55	22 5510 0250	125,10
26,00	1.0236	22 2010 0260	41,20	-	-	22 3010 0260	43,40	-	-	22 4010 0260	54,35	22 4510 0260	54,35	22 5010 0260	58,55	22 5510 0260	125,10
27,00	1.0630	22 2010 0270	41,20	-	-	22 3010 0270	43,40	-	-	22 4010 0270	54,35	22 4510 0270	54,35	22 5010 0270	58,55	22 5510 0270	125,10
28,00	1.1024	22 2010 0280	41,20	-	-	22 3010 0280	43,40	-	-	22 4010 0280	54,35	22 4510 0280	54,35	22 5010 0280	58,55	22 5510 0280	125,10
29,00	1.1417	22 2010 0290	41,20	-	-	22 3010 0290	43,40	-	-	22 4010 0290	54,35	22 4510 0290	54,35	22 5010 0290	58,55	22 5510 0290	125,10
30,00	1.1811	22 2010 0300	41,20	-	-	22 3010 0300	43,40	-	-	22 4010 0300	54,35	22 4510 0300	54,35	22 5010 0300	58,55	22 5510 0300	125,10
31,00	1.2205	22 2010 0310	41,20	-	-	22 3010 0310	43,40	-	-	22 4010 0310	54,35	22 4510 0310	54,35	22 5010 0310	58,55	22 5510 0310	125,10
32,00	1.2598	22 2010 0320	41,20	-	-	22 3010 0320	43,40	-	-	22 4010 0320	54,35	22 4510 0320	54,35	22 5010 0320	58,55	22 5510 0320	125,10
33,00	1.2992	22 2010 0330	41,20	-	-	22 3010 0330	43,40	-	-	22 4010 0330	54,35	22 4510 0330	54,35	22 5010 0330	58,55	22 5510 0330	132,60
34,00	1.3386	22 2010 0340	41,20	-	-	22 3010 0340	43,40	-	-	22 4010 0340	54,35	22 4510 0340	54,35	22 5010 0340	58,55	22 5510 0340	132,60
35,00	1.3780	22 2010 0350	41,20	-	-	22 3010 0350	43,40	-	-	22 4010 0350	54,35	22 4510 0350	54,35	22 5010 0350	58,55	22 5510 0350	132,60
36,00	1.4173	22 2010 0360	56,45	-	-	22 3010 0360	57,15	-	-	-	-	-	-	-	-	-	-
37,00	1.4567	22 2010 0370	56,45	-	-	22 3010 0370	57,15	-	-	-	-	-	-	-	-	-	-
38,00	1.4961	22 2010 0380	56,45	-	-	22 3010 0380	57,15	-	-	-	-	-	-	-	-	-	-
39,00	1.5354	22 2010 0390	56,45	-	-	22 3010 0390	57,15	-	-	-	-	-	-	-	-	-	-
40,00	1.5748	22 2010 0400	56,45	-	-	22 3010 0400	57,15	-	-	-	-	-	-	-	-	-	-
41,00	1.6142	22 2010 0410	56,45	-	-	22 3010 0410	57,15	-	-	-	-	-	-	-	-	-	-
42,00	1.6535	22 2010 0420	56,45	-	-	22 3010 0420	57,15	-	-	-	-	-	-	-	-	-	-
43,00	1.6929	22 2010 0430	56,45	-	-	22 3010 0430	57,15	-	-	-	-	-	-	-	-	-	-
44,00	1.7323	22 2010 0440	56,45	-	-	22 3010 0440	57,15	-	-	-	-	-	-	-	-	-	-
45,00	1.7717	22 2010 0450	56,45	-	-	22 3010 0450	57,15	-	-	-	-	-	-	-	-	-	-
46,00	1.8110	22 2010 0460	56,45	-	-	22 3010 0460	57,15	-	-	-	-	-	-	-	-	-	-
47,00	1.8504	22 2010 0470	56,45	-	-	22 3010 0470	57,15	-	-	-	-	-	-	-	-	-	-

↓
Weitere Ø bis maximal Ø 65 mm | 2.5591" in 5xD siehe Seite 302/303
Further Ø up to Ø 65 mm | 2.5591" in 5xD see page 302/303



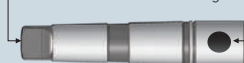
Schnittdaten
Cutting data

Film
Movie

1134-1143

Art. **22 1030**

MK 2+3 mit axialer Kühlung
MT 2+3 with axial cooling



MK 2,3,4,5 – Radiale Kühlung
mit Kühlmittelring
MT 2,3,4,5 – Radial coolant
with oil ring

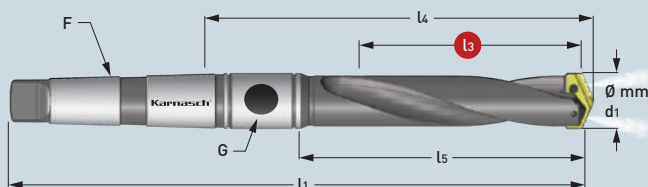
Morsekegel
ISO 296 Typ BEK ·
Morse taper shank
ISO 296 type BEK



~ 4xD



Spiral genutet ·
Helical flute



Art.	€	mm Zoll / Inch	mm Zoll / Inch	mm Zoll / Inch	mm Zoll / Inch	F	G	Art.	€
<ul style="list-style-type: none"> 22 1030 01207 0180 Ø 18,0-24,0 mm 0.7087-0.9449" MÖGLICH · POSSIBLE Ø 18,0-21,0 mm 0.7087-0.8268" OPTIMAL · OPTIMAL 22 1030 01207 0220 Ø 22,0-24,0 mm 0.8661-0.9449" OPTIMAL · OPTIMAL 	170,20	120,7 mm 4.7519"	149,2 mm 5.8740"	193,3 mm 7.6102"	283,3 mm 11.1535"	3	1/8"	<ul style="list-style-type: none"> 22 9002 02540 	35,60
<ul style="list-style-type: none"> 22 1030 01365 0250 Ø 25,0-35,0 mm 0.9843-1.3780" MÖGLICH · POSSIBLE Ø 25,0-29,0 mm 0.9843-1.1417" OPTIMAL · OPTIMAL 22 1030 01365 0300 Ø 30,0-35,0 mm 1.1811-1.3780" OPTIMAL · OPTIMAL 	220,40	136,5 mm 5.3740"	165,1 mm 6.5000"	218,4 mm 8.5984"	331,8 mm 13.0630"	4	1/8" Halter Holder 25,0-35,0 mm	<ul style="list-style-type: none"> 22 9002 03175 	46,15
<ul style="list-style-type: none"> 22 1030 01651 0360 Ø 36,0-47,0 mm 1.4173-1.8504" MÖGLICH · POSSIBLE Ø 36,0-41,0 mm 1.4173-1.6142" OPTIMAL · OPTIMAL 22 1030 01651 0420 Ø 42,0-47,0 mm 1.6535-1.8504" OPTIMAL · OPTIMAL 	310,85	165,1 mm 6.5000"	196,9 mm 7.7519"	250,9 mm 9.8779"	363,6 mm 14.3150"	4	1/4"		

Halter werden **ohne** Einsätze, inklusive 2x TORX Befestigungsschrauben und 1x TORX Schlüssel geliefert.
Holders are delivered **without** inserts including 2x TORX-screws and 1x TORX wrench.

Für Maschinen ohne axiale/radiale Kühlmittelzufuhr kann ein Kühlmittelring auf den Halter montiert werden. Details siehe Seite 324
For machines without radial/axial coolant supply a oil ring can be mounted on the holder. Details see page 324



Ersatz-Torxschrauben und Schlüssel mit Drehmomentangabe
Spare Torx-screws and wrench with torque specification

Ø Diameter		TORX	max. Drehmoment / Torque (N/cm)	Schlüssel / Wrench
mm	Zoll / Inch	€		€
9,5-11,0	0.3740-0.4331	22 9010 0095	84	22 9011 0084
11,5-12,5	0.4528-0.4921	22 9010 0115	84	22 9011 0175
13,0-17,5	0.5118-0.6890	22 9010 0130	175	22 9011 0305
18,0-24,0	0.7087-0.9449	22 9010 0180	305	22 9011 0690
25,0-35,0	0.9843-1.3780	22 9010 0250	690	22 9011 1370
36,0-65,0	1.4173-2.5591	22 9010 0360	1370	22 9011 1750
64,0-114,0	2.5197-4.4882	22 9010 0640	1750	





PULVERSTAHL · POWDER STEEL

HARTMETALL · CARBIDE

Ø mm d1	Ø Zoll / Inch d1	Art. 22 2010		Art. 22 2510		Art. 22 3010		Art. 22 3510		Art. 22 4010		Art. 22 4510		Art. 22 5010		Art. 22 5510	
		Art.	€	Art.	€	Art.	€	Art.	€	Art.	€	Art.	€	Art.	€	Art.	€
● 9,50	0.3740	22 2010 0095	24,30	-	-	22 3010 0095	24,95	-	-	22 4010 0095	30,35	22 4510 0095	30,35	22 5010 0095	32,00	22 5510 0095	66,45
○ 9,80	0.3858	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
● 10,00	0.3937	22 2010 0100	24,30	-	-	22 3010 0100	24,95	-	-	22 4010 0100	30,35	22 4510 0100	30,35	22 5010 0100	32,00	22 5510 0100	66,45
● 10,50	0.4134	22 2010 0102	24,30	-	-	22 3010 0102	24,95	-	-	22 4010 0102	30,35	22 4510 0102	30,35	22 5010 0102	32,00	22 5510 0102	66,45
● 10,80	0.4252	22 2010 0108	24,30	-	-	22 3010 0108	24,95	-	-	22 4010 0108	30,35	22 4510 0108	30,35	22 5010 0108	32,00	22 5510 0108	66,45
● 11,00	0.4331	22 2010 0105	24,30	-	-	22 3010 0105	24,95	-	-	22 4010 0105	30,35	22 4510 0105	30,35	22 5010 0105	32,00	22 5510 0105	66,45
● 11,50	0.4528	22 2010 0110	24,30	-	-	22 3010 0110	24,95	-	-	22 4010 0110	30,35	22 4510 0110	30,35	22 5010 0110	32,00	22 5510 0110	66,45
● 11,50	0.4528	22 2010 0115	24,30	-	-	22 3010 0115	24,95	-	-	22 4010 0115	30,35	22 4510 0115	30,35	22 5010 0115	32,00	22 5510 0115	66,45
● 12,00	0.4724	22 2010 0120	24,30	-	-	22 3010 0120	24,95	-	-	22 4010 0120	30,35	22 4510 0120	30,35	22 5010 0120	32,00	22 5510 0120	66,45
● 12,50	0.4921	22 2010 0125	24,30	-	-	22 3010 0125	24,95	-	-	22 4010 0125	30,35	22 4510 0125	30,35	22 5010 0125	32,00	22 5510 0125	66,45
● 13,00	0.5118	22 2010 0130	27,65	-	-	22 3010 0130	27,80	-	-	22 4010 0130	35,70	22 4510 0130	35,70	22 5010 0130	36,85	22 5510 0130	71,25
● 13,50	0.5315	22 2010 0135	27,65	-	-	22 3010 0135	27,80	-	-	22 4010 0135	35,70	22 4510 0135	35,70	22 5010 0135	36,85	22 5510 0135	71,25
● 14,00	0.5512	22 2010 0140	27,65	-	-	22 3010 0140	27,80	-	-	22 4010 0140	35,70	22 4510 0140	35,70	22 5010 0140	36,85	22 5510 0140	71,25
● 14,50	0.5709	22 2010 0145	27,65	-	-	22 3010 0145	27,80	-	-	22 4010 0145	35,70	22 4510 0145	35,70	22 5010 0145	36,85	22 5510 0145	71,25
● 15,00	0.5906	22 2010 0150	27,65	-	-	22 3010 0150	27,80	-	-	22 4010 0150	35,70	22 4510 0150	35,70	22 5010 0150	36,85	22 5510 0150	71,25
● 15,50	0.6102	22 2010 0155	27,65	-	-	22 3010 0155	27,80	-	-	22 4010 0155	35,70	22 4510 0155	35,70	22 5010 0155	36,85	22 5510 0155	71,25
● 16,00	0.6299	22 2010 0160	27,65	-	-	22 3010 0160	27,80	-	-	22 4010 0160	35,70	22 4510 0160	35,70	22 5010 0160	36,85	22 5510 0160	71,25
● 16,50	0.6496	22 2010 0165	27,65	-	-	22 3010 0165	27,80	-	-	22 4010 0165	35,70	22 4510 0165	35,70	22 5010 0165	36,85	22 5510 0165	71,25
● 17,00	0.6693	22 2010 0170	27,65	-	-	22 3010 0170	27,80	-	-	22 4010 0170	35,70	22 4510 0170	35,70	22 5010 0170	36,85	22 5510 0170	71,25
● 17,50	0.6890	22 2010 0175	27,65	-	-	22 3010 0175	27,80	-	-	22 4010 0175	35,70	22 4510 0175	35,70	22 5010 0175	36,85	22 5510 0175	71,25
● 18,00	0.7087	22 2010 0180	35,20	-	-	22 3010 0180	38,45	-	-	22 4010 0180	46,40	22 4510 0180	46,40	22 5010 0180	51,70	22 5510 0180	81,45
● 18,50	0.7283	22 2010 0185	35,20	-	-	22 3010 0185	38,45	-	-	22 4010 0185	46,40	22 4510 0185	46,40	22 5010 0185	51,70	22 5510 0185	81,45
● 19,00	0.7480	22 2010 0190	35,20	-	-	22 3010 0190	38,45	-	-	22 4010 0190	46,40	22 4510 0190	46,40	22 5010 0190	51,70	22 5510 0190	102,55
● 19,50	0.7677	22 2010 0195	35,20	-	-	22 3010 0195	38,45	-	-	22 4010 0195	46,40	22 4510 0195	46,40	22 5010 0195	51,70	22 5510 0195	102,55
● 20,00	0.7874	22 2010 0200	35,20	-	-	22 3010 0200	38,45	-	-	22 4010 0200	46,40	22 4510 0200	46,40	22 5010 0200	51,70	22 5510 0200	102,55
● 20,50	0.8071	22 2010 0205	35,20	-	-	22 3010 0205	38,45	-	-	22 4010 0205	46,40	22 4510 0205	46,40	22 5010 0205	51,70	22 5510 0205	118,20
● 21,00	0.8268	22 2010 0210	35,20	-	-	22 3010 0210	38,45	-	-	22 4010 0210	46,40	22 4510 0210	46,40	22 5010 0210	51,70	22 5510 0210	118,20
● 22,00	0.8661	22 2010 0220	35,20	-	-	22 3010 0220	38,45	-	-	22 4010 0220	46,40	22 4510 0220	46,40	22 5010 0220	51,70	22 5510 0220	118,20
● 23,00	0.9055	22 2010 0230	35,20	-	-	22 3010 0230	38,45	-	-	22 4010 0230	46,40	22 4510 0230	46,40	22 5010 0230	51,70	22 5510 0230	118,20
● 24,00	0.9449	22 2010 0240	35,20	-	-	22 3010 0240	38,45	-	-	22 4010 0240	46,40	22 4510 0240	46,40	22 5010 0240	51,70	22 5510 0240	118,20
● 25,00	0.9843	22 2010 0250	41,20	-	-	22 3010 0250	43,40	-	-	22 4010 0250	54,35	22 4510 0250	54,35	22 5010 0250	58,55	22 5510 0250	125,10
● 26,00	1.0236	22 2010 0260	41,20	-	-	22 3010 0260	43,40	-	-	22 4010 0260	54,35	22 4510 0260	54,35	22 5010 0260	58,55	22 5510 0260	125,10
● 27,00	1.0630	22 2010 0270	41,20	-	-	22 3010 0270	43,40	-	-	22 4010 0270	54,35	22 4510 0270	54,35	22 5010 0270	58,55	22 5510 0270	125,10
● 28,00	1.1024	22 2010 0280	41,20	-	-	22 3010 0280	43,40	-	-	22 4010 0280	54,35	22 4510 0280	54,35	22 5010 0280	58,55	22 5510 0280	125,10
● 29,00	1.1417	22 2010 0290	41,20	-	-	22 3010 0290	43,40	-	-	22 4010 0290	54,35	22 4510 0290	54,35	22 5010 0290	58,55	22 5510 0290	125,10
● 30,00	1.1811	22 2010 0300	41,20	-	-	22 3010 0300	43,40	-	-	22 4010 0300	54,35	22 4510 0300	54,35	22 5010 0300	58,55	22 5510 0300	125,10
● 31,00	1.2205	22 2010 0310	41,20	-	-	22 3010 0310	43,40	-	-	22 4010 0310	54,35	22 4510 0310	54,35	22 5010 0310	58,55	22 5510 0310	125,10
● 32,00	1.2598	22 2010 0320	41,20	-	-	22 3010 0320	43,40	-	-	22 4010 0320	54,35	22 4510 0320	54,35	22 5010 0320	58,55	22 5510 0320	125,10
● 33,00	1.2992	22 2010 0330	41,20	-	-	22 3010 0330	43,40	-	-	22 4010 0330	54,35	22 4510 0330	54,35	22 5010 0330	58,55	22 5510 0330	132,60
● 34,00	1.3386	22 2010 0340	41,20	-	-	22 3010 0340	43,40	-	-	22 4010 0340	54,35	22 4510 0340	54,35	22 5010 0340	58,55	22 5510 0340	132,60
● 35,00	1.3780	22 2010 0350	41,20	-	-	22 3010 0350	43,40	-	-	22 4010 0350	54,35	22 4510 0350	54,35	22 5010 0350	58,55	22 5510 0350	132,60
● 36,00	1.4173	22 2010 0360	56,45	-	-	22 3010 0360	57,15	-	-	-	-	-	-	-	-	-	-
● 37,00	1.4567	22 2010 0370	56,45	-	-	22 3010 0370	57,15	-	-	-	-	-	-	-	-	-	-
● 38,00	1.4961	22 2010 0380	56,45	-	-	22 3010 0380	57,15	-	-	-	-	-	-	-	-	-	-
● 39,00	1.5354	22 2010 0390	56,45	-	-	22 3010 0390	57,15	-	-	-	-	-	-	-	-	-	-
● 40,00	1.5748	22 2010 0400	56,45	-	-	22 3010 0400	57,15	-	-	-	-	-	-	-	-	-	-
● 41,00	1.6142	22 2010 0410	56,45	-	-	22 3010 0410	57,15	-	-	-	-	-	-	-	-	-	-
● 42,00	1.6535	22 2010 0420	56,45	-	-	22 3010 0420	57,15	-	-	-	-	-	-	-	-	-	-
● 43,00	1.6929	22 2010 0430	56,45	-	-	22 3010 0430	57,15	-	-	-	-	-	-	-	-	-	-
● 44,00	1.7323	22 2010 0440	56,45	-	-	22 3010 0440	57,15	-	-	-	-	-	-	-	-	-	-
● 45,00	1.7717	22 2010 0450	56,45	-	-	22 3010 0450	57,15	-	-	-	-	-	-	-	-	-	-
● 46,00	1.8110	22 2010 0460	56,45	-	-	22 3010 0460	57,15	-	-	-	-	-	-	-	-	-	-
● 47,00	1.8504	22 2010 0470	56,45	-	-	22 3010 0470	57,15	-	-	-	-	-	-	-	-	-	-

Fortsetzung Seite 302 · Continued page 302

MK 2+3 mit axialer Kühlung
MT 2+3 with axial cooling



MK 2,3,4,5 – Radiale Kühlung
mit Kühlmittelring
MT 2,3,4,5 – Radial coolant
with oil ring

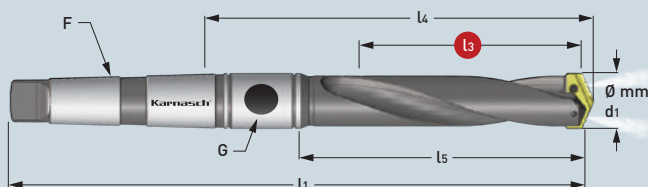
Morsekegel
ISO 296 Typ BEK ·
Morse taper shank
ISO 296 type BEK



~ 5xD
Mittel - Intermediate



Spiral genutet ·
Helical flute



Art.	€	mm Zoll / Inch	mm Zoll / Inch	mm Zoll / Inch	mm Zoll / Inch			Art.	€
• 22 1030 00603 0095 Ø 9,5-11,0 mm 0.3740-0.4331" OPTIMAL · OPTIMAL	132,05	60,3 mm 2.3740"	80,2 mm 3.1574"	116,7 mm 4.5944"	188,9 mm 7.4370"	2	1/16"	• 22 9002 01905	31,65
• 22 1030 00603 0115 Ø 11,5-12,5 mm 0.4528-0.4921" OPTIMAL · OPTIMAL	132,05	60,3 mm 2.3740"	80,2 mm 3.1574"	116,7 mm 4.5944"	188,9 mm 7.4370"	2	1/16"		
• 22 1030 00635 0130 Ø 13,0-17,5 mm 0.5118-0.6890" MÖGLICH · POSSIBLE Ø 13,0-15,0 mm 0.5118-0.5906" OPTIMAL · OPTIMAL	139,45	63,5 mm 2.5000"	84,1 mm 3.3110"	121,0 mm 4.7637"	192,9 mm 7.5944"	2	1/16"		
• 22 1030 00635 0155 Ø 15,5-17,5 mm 0.6102-0.6890" OPTIMAL · OPTIMAL	139,45								
• 22 1030 01715 0180 Ø 18,0-24,0 mm 0.7087-0.9449" MÖGLICH · POSSIBLE Ø 18,0-21,0 mm 0.7087-0.8268" OPTIMAL · OPTIMAL	192,55	171,5 mm 6.7519"	200,0 mm 7.8740"	244,1 mm 9.6102"	334,2 mm 13.1575"	3	1/8"	• 22 9002 02540	35,60
• 22 1030 01715 0220 Ø 22,0-24,0 mm 0.8661-0.9449" OPTIMAL · OPTIMAL	192,55								
• 22 1030 01873 0250 Ø 25,0-35,0 mm 0.9843-1.3780" MÖGLICH · POSSIBLE Ø 25,0-29,0 mm 0.9843-1.1417" OPTIMAL · OPTIMAL	244,95	187,3 mm 7.3740"	215,9 mm 8.5000"	262,0 mm 10.3150"	375,4 mm 14.7795"	4	1/8" Halter Holder 25,0-35,0 mm	• 22 9002 03175	46,15
• 22 1030 01873 0300 Ø 30,0-35,0 mm 1.1811-1.3780" OPTIMAL · OPTIMAL	244,95			269,2 mm 10.5984"	382,6 mm 15.0630"	4	1/4" Halter Holder 30,0-35,0 mm		
• 22 1030 02095 0360 Ø 36,0-47,0 mm 1.4173-1.8504" MÖGLICH · POSSIBLE Ø 36,0-41,0 mm 1.4173-1.6142" OPTIMAL · OPTIMAL	334,30								
• 22 1030 02095 0420 Ø 42,0-47,0 mm 1.6535-1.8504" OPTIMAL · OPTIMAL	334,30	209,5 mm 8.2480"	241,3 mm 9.5000"	295,3 mm 11.6260"	408,0 mm 16.0630"	4	1/4"		

Fortsetzung Seite 303 · Continued page 303

Schnittdaten
Cutting data



Film
Movie



1134-1143



- 1
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- 8
- 9

PULVERSTAHL · POWDER STEEL

HARTMETALL · CARBIDE

Ø		132°		144°		132°		144°		132°		Guss/Cast iron 132°		132°		132°	
Ø mm d1	Ø Zoll / Inch d1	Art. 22 2010 Pulverstahl 25 beschichtet Für Edelstahl, Stahl, Guss Powder steel 25 coated For stainless steel, steel, cast iron		Art. 22 2510 Pulverstahl 15 beschichtet Für legierte Stähle, Stahl, Guss Powder steel 15 coated For alloy steel, steel, cast iron		Art. 22 3010 Pulverstahl 25 beschichtet Für Alu, Messing, Kupfer Powder steel 25 coated For alu, brass, copper		Art. 22 3510 Pulverstahl 15 beschichtet Für Alu, Messing, Kupfer Powder steel 15 coated For alloy steel, steel, cast iron		Art. 22 4010 Hartmetall 20/30 beschichtet Für Edelstahl, hochfester Stahl, gehärteter Stahl Carbide 20/30 coated For stainless steel, high strength alloys, hardened steel		Art. 22 4510 Hartmetall 20/30 beschichtet Für alle Gussarten Carbide 20/30 coated For all kinds of cast iron		Art. 22 5010 Hartmetall 20/30 beschichtet Für Alu, Messing, Kupfer Carbide 20/30 coated For alu, brass, copper		Art. 22 5510 Hartmetall 20/30 beschichtet Für abrasive Materialien wie: GFK, CFK, Graphit Carbide 20/30 coated For abrasive materials such as: fiber- glass, carbon fiber, graphite	
		Art.	€	Art.	€	Art.	€	Art.	€	Art.	€	Art.	€	Art.	€	Art.	€
• 48,00	1.8898	22 2010 0480	80,75	-	-	22 3010 0480	79,30	-	-	-	-	-	-	-	-	-	-
• 49,00	1.9291	22 2010 0490	80,75	-	-	22 3010 0490	79,30	-	-	-	-	-	-	-	-	-	-
• 50,00	1.9685	22 2010 0500	80,75	-	-	22 3010 0500	79,30	-	-	-	-	-	-	-	-	-	-
• 51,00	2.0079	22 2010 0510	80,75	-	-	22 3010 0510	79,30	-	-	-	-	-	-	-	-	-	-
• 52,00	2.0472	22 2010 0520	80,75	-	-	22 3010 0520	79,30	-	-	-	-	-	-	-	-	-	-
• 53,00	2.0866	22 2010 0530	80,75	-	-	22 3010 0530	79,30	-	-	-	-	-	-	-	-	-	-
• 54,00	2.1260	22 2010 0540	80,75	-	-	22 3010 0540	79,30	-	-	-	-	-	-	-	-	-	-
• 55,00	2.1654	22 2010 0550	80,75	-	-	22 3010 0550	79,30	-	-	-	-	-	-	-	-	-	-
• 56,00	2.2047	22 2010 0560	80,75	-	-	22 3010 0560	79,30	-	-	-	-	-	-	-	-	-	-
• 57,00	2.2441	22 2010 0570	80,75	-	-	22 3010 0570	79,30	-	-	-	-	-	-	-	-	-	-
• 58,00	2.2835	22 2010 0580	80,75	-	-	22 3010 0580	79,30	-	-	-	-	-	-	-	-	-	-
• 59,00	2.3228	22 2010 0590	80,75	-	-	22 3010 0590	79,30	-	-	-	-	-	-	-	-	-	-
• 60,00	2.3622	22 2010 0600	80,75	-	-	22 3010 0600	79,30	-	-	-	-	-	-	-	-	-	-
• 61,00	2.4016	22 2010 0610	80,75	-	-	22 3010 0610	79,30	-	-	-	-	-	-	-	-	-	-
• 62,00	2.4409	22 2010 0620	80,75	-	-	22 3010 0620	79,30	-	-	-	-	-	-	-	-	-	-
• 63,00	2.4803	22 2010 0630	80,75	-	-	22 3010 0630	79,30	-	-	-	-	-	-	-	-	-	-
• 64,00	2.5197	22 2010 0640	80,75	-	-	22 3010 0640	79,30	-	-	-	-	-	-	-	-	-	-
• 65,00	2.5591	22 2010 0650	80,75	-	-	22 3010 0650	79,30	-	-	-	-	-	-	-	-	-	-

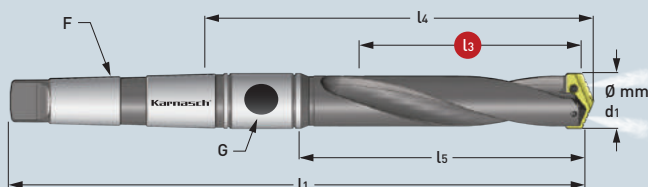
Art. **22 1030**

MK 2+3 mit axialer Kühlung
MT 2+3 with axial cooling



MK 2,3,4,5 – Radiale Kühlung
mit Kühlmittelring
MT 2,3,4,5 – Radial coolant
with oil ring

Morsekegel
ISO 296 Typ BEK ·
Morse taper shank
ISO 296 type BEK



~ 5xD
Mittel - Intermediate

Spiral genutet ·
Helical flute

l3	l5	l4	l1	F	G	
Nutzlänge Max. drill depth	Körperlänge Body-length	Neue REF.- Länge REF.-length	Gesamtlänge Overall length	Morsekegel Morse taper	Gewinde Pipe tap	Kühlmittelring Oil ring
Art. 22 1030 02318 0480 € 357,95 Ø 48,0-65,0 mm 1.8898-2.5591" MÖGLICH · POSSIBLE Ø 48,0-55,0 mm 1.8898-2.1654" OPTIMAL · OPTIMAL	231,8 mm 9.1259"	266,7 mm 10.5000"	320,7 mm 12.6260"	465,1 mm 18.3110"	5 1/4"	 Art. 22 9002 04445 € 60,65
Art. 22 1030 02318 0560 € 357,95 Ø 56,0-65,0 mm 2.2047-2.5591" OPTIMAL · OPTIMAL	231,8 mm 9.1259"	266,7 mm 10.5000"	320,7 mm 12.6260"	465,1 mm 18.3110"	5 1/4"	

Halter werden **ohne** Einsätze, inklusive 2x TORX Befestigungsschrauben und 1x TORX Schlüssel geliefert.
Holders are delivered **without** inserts including 2x TORX-screws and 1x TORX wrench.

Für Maschinen ohne axiale/radiale Kühlmittelzufuhr kann ein Kühlmittelring auf den Halter montiert werden. Details siehe Seite 324
For machines without radial/axial coolant supply a oil ring can be mounted on the holder. Details see page 324

Ersatz-Torxschrauben und Schlüssel mit Drehmomentangabe
Spare Torx-screws and wrench with torque specification

Ø Diameter		TORX		max. Drehmoment / Torque (N/cm)		Schlüssel / Wrench	
mm	Zoll / Inch		€				€
9,5-11,0	0.3740-0.4331	22 9010 0095	3,60	84		22 9011 0084	6,45
11,5-12,5	0.4528-0.4921	22 9010 0115	3,60	84		22 9011 0305	11,30
13,0-17,5	0.5118-0.6890	22 9010 0130	3,60	175		22 9011 0175	6,45
18,0-24,0	0.7087-0.9449	22 9010 0180	3,60	305		22 9011 0305	11,30
25,0-35,0	0.9843-1.3780	22 9010 0250	3,70	690		22 9011 0690	12,10
36,0-65,0	1.4173-2.5591	22 9010 0360	3,75	1370		22 9011 1370	13,15
64,0-114,0	2.5197-4.4882	22 9010 0640	3,80	1750		22 9011 1750	19,35

Schnittdaten
Cutting data



Film
Movie



1134-1143





PULVERSTAHL · POWDER STEEL

HARTMETALL · CARBIDE

Ø mm d1	Ø Zoll / Inch d1	132°				144°				Guss/Cast iron 132°		132°		132°			
		Art.	€	Art.	€	Art.	€	Art.	€	Art.	€	Art.	€	Art.	€		
● 9,50	0.3740	22 2010 0095	24,30	-	-	22 3010 0095	24,95	-	-	22 4010 0095	30,35	22 4510 0095	30,35	22 5010 0095	32,00	22 5510 0095	66,45
○ 9,80	0.3858	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
● 10,00	0.3937	22 2010 0100	24,30	-	-	22 3010 0100	24,95	-	-	22 4010 0100	30,35	22 4510 0100	30,35	22 5010 0100	32,00	22 5510 0100	66,45
● 10,20	0.4016	22 2010 0102	24,30	-	-	22 3010 0102	24,95	-	-	22 4010 0102	30,35	22 4510 0102	30,35	22 5010 0102	32,00	22 5510 0102	66,45
● 10,50	0.4134	22 2010 0105	24,30	-	-	22 3010 0105	24,95	-	-	22 4010 0105	30,35	22 4510 0105	30,35	22 5010 0105	32,00	22 5510 0105	66,45
● 10,80	0.4252	22 2010 0108	24,30	-	-	22 3010 0108	24,95	-	-	22 4010 0108	30,35	22 4510 0108	30,35	22 5010 0108	32,00	22 5510 0108	66,45
● 11,00	0.4331	22 2010 0110	24,30	-	-	22 3010 0110	24,95	-	-	22 4010 0110	30,35	22 4510 0110	30,35	22 5010 0110	32,00	22 5510 0110	66,45
● 11,50	0.4528	22 2010 0115	24,30	-	-	22 3010 0115	24,95	-	-	22 4010 0115	30,35	22 4510 0115	30,35	22 5010 0115	32,00	22 5510 0115	66,45
● 12,00	0.4724	22 2010 0120	24,30	-	-	22 3010 0120	24,95	-	-	22 4010 0120	30,35	22 4510 0120	30,35	22 5010 0120	32,00	22 5510 0120	66,45
● 12,50	0.4921	22 2010 0125	24,30	-	-	22 3010 0125	24,95	-	-	22 4010 0125	30,35	22 4510 0125	30,35	22 5010 0125	32,00	22 5510 0125	66,45
● 13,00	0.5118	22 2010 0130	27,65	-	-	22 3010 0130	27,80	-	-	22 4010 0130	35,70	22 4510 0130	35,70	22 5010 0130	36,85	22 5510 0130	71,25
● 13,50	0.5315	22 2010 0135	27,65	-	-	22 3010 0135	27,80	-	-	22 4010 0135	35,70	22 4510 0135	35,70	22 5010 0135	36,85	22 5510 0135	71,25
● 14,00	0.5512	22 2010 0140	27,65	-	-	22 3010 0140	27,80	-	-	22 4010 0140	35,70	22 4510 0140	35,70	22 5010 0140	36,85	22 5510 0140	71,25
● 14,50	0.5709	22 2010 0145	27,65	-	-	22 3010 0145	27,80	-	-	22 4010 0145	35,70	22 4510 0145	35,70	22 5010 0145	36,85	22 5510 0145	71,25
● 15,00	0.5906	22 2010 0150	27,65	-	-	22 3010 0150	27,80	-	-	22 4010 0150	35,70	22 4510 0150	35,70	22 5010 0150	36,85	22 5510 0150	71,25
● 15,50	0.6102	22 2010 0155	27,65	-	-	22 3010 0155	27,80	-	-	22 4010 0155	35,70	22 4510 0155	35,70	22 5010 0155	36,85	22 5510 0155	71,25
● 16,00	0.6299	22 2010 0160	27,65	-	-	22 3010 0160	27,80	-	-	22 4010 0160	35,70	22 4510 0160	35,70	22 5010 0160	36,85	22 5510 0160	71,25
● 16,50	0.6496	22 2010 0165	27,65	-	-	22 3010 0165	27,80	-	-	22 4010 0165	35,70	22 4510 0165	35,70	22 5010 0165	36,85	22 5510 0165	71,25
● 17,00	0.6693	22 2010 0170	27,65	-	-	22 3010 0170	27,80	-	-	22 4010 0170	35,70	22 4510 0170	35,70	22 5010 0170	36,85	22 5510 0170	71,25
● 17,50	0.6890	22 2010 0175	27,65	-	-	22 3010 0175	27,80	-	-	22 4010 0175	35,70	22 4510 0175	35,70	22 5010 0175	36,85	22 5510 0175	71,25
● 18,00	0.7087	22 2010 0180	35,20	-	-	22 3010 0180	38,45	-	-	22 4010 0180	46,40	22 4510 0180	46,40	22 5010 0180	51,70	22 5510 0180	81,45
● 18,50	0.7283	22 2010 0185	35,20	-	-	22 3010 0185	38,45	-	-	22 4010 0185	46,40	22 4510 0185	46,40	22 5010 0185	51,70	22 5510 0185	81,45
● 19,00	0.7480	22 2010 0190	35,20	-	-	22 3010 0190	38,45	-	-	22 4010 0190	46,40	22 4510 0190	46,40	22 5010 0190	51,70	22 5510 0190	102,55
● 19,50	0.7677	22 2010 0195	35,20	-	-	22 3010 0195	38,45	-	-	22 4010 0195	46,40	22 4510 0195	46,40	22 5010 0195	51,70	22 5510 0195	102,55
● 20,00	0.7874	22 2010 0200	35,20	-	-	22 3010 0200	38,45	-	-	22 4010 0200	46,40	22 4510 0200	46,40	22 5010 0200	51,70	22 5510 0200	102,55
● 20,50	0.8071	22 2010 0205	35,20	-	-	22 3010 0205	38,45	-	-	22 4010 0205	46,40	22 4510 0205	46,40	22 5010 0205	51,70	22 5510 0205	118,20
● 21,00	0.8268	22 2010 0210	35,20	-	-	22 3010 0210	38,45	-	-	22 4010 0210	46,40	22 4510 0210	46,40	22 5010 0210	51,70	22 5510 0210	118,20
● 22,00	0.8661	22 2010 0220	35,20	-	-	22 3010 0220	38,45	-	-	22 4010 0220	46,40	22 4510 0220	46,40	22 5010 0220	51,70	22 5510 0220	118,20
● 23,00	0.9055	22 2010 0230	35,20	-	-	22 3010 0230	38,45	-	-	22 4010 0230	46,40	22 4510 0230	46,40	22 5010 0230	51,70	22 5510 0230	118,20
● 24,00	0.9449	22 2010 0240	35,20	-	-	22 3010 0240	38,45	-	-	22 4010 0240	46,40	22 4510 0240	46,40	22 5010 0240	51,70	22 5510 0240	118,20
● 25,00	0.9843	22 2010 0250	41,20	-	-	22 3010 0250	43,40	-	-	22 4010 0250	54,35	22 4510 0250	54,35	22 5010 0250	58,55	22 5510 0250	125,10
● 26,00	1.0236	22 2010 0260	41,20	-	-	22 3010 0260	43,40	-	-	22 4010 0260	54,35	22 4510 0260	54,35	22 5010 0260	58,55	22 5510 0260	125,10
● 27,00	1.0630	22 2010 0270	41,20	-	-	22 3010 0270	43,40	-	-	22 4010 0270	54,35	22 4510 0270	54,35	22 5010 0270	58,55	22 5510 0270	125,10
● 28,00	1.1024	22 2010 0280	41,20	-	-	22 3010 0280	43,40	-	-	22 4010 0280	54,35	22 4510 0280	54,35	22 5010 0280	58,55	22 5510 0280	125,10
● 29,00	1.1417	22 2010 0290	41,20	-	-	22 3010 0290	43,40	-	-	22 4010 0290	54,35	22 4510 0290	54,35	22 5010 0290	58,55	22 5510 0290	125,10
● 30,00	1.1811	22 2010 0300	41,20	-	-	22 3010 0300	43,40	-	-	22 4010 0300	54,35	22 4510 0300	54,35	22 5010 0300	58,55	22 5510 0300	125,10
● 31,00	1.2205	22 2010 0310	41,20	-	-	22 3010 0310	43,40	-	-	22 4010 0310	54,35	22 4510 0310	54,35	22 5010 0310	58,55	22 5510 0310	125,10
● 32,00	1.2598	22 2010 0320	41,20	-	-	22 3010 0320	43,40	-	-	22 4010 0320	54,35	22 4510 0320	54,35	22 5010 0320	58,55	22 5510 0320	125,10
● 33,00	1.2992	22 2010 0330	41,20	-	-	22 3010 0330	43,40	-	-	22 4010 0330	54,35	22 4510 0330	54,35	22 5010 0330	58,55	22 5510 0330	132,60
● 34,00	1.3386	22 2010 0340	41,20	-	-	22 3010 0340	43,40	-	-	22 4010 0340	54,35	22 4510 0340	54,35	22 5010 0340	58,55	22 5510 0340	132,60
● 35,00	1.3780	22 2010 0350	41,20	-	-	22 3010 0350	43,40	-	-	22 4010 0350	54,35	22 4510 0350	54,35	22 5010 0350	58,55	22 5510 0350	132,60



Schnittdaten
Cutting data

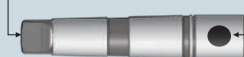


Film
Movie

1134-1143

Art. **22 1030**

MK 2+3 mit axialer Kühlung
MT 2+3 with axial cooling

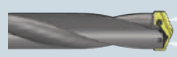


MK 2,3,4,5 – Radiale Kühlung
mit Kühlmittelring
MT 2,3,4,5 – Radial coolant
with oil ring

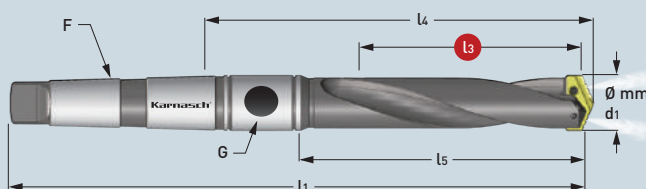
Morsekegel
ISO 296 Typ BEK ·
Morse taper shank
ISO 296 type BEK



~ 8xD



Spiral genutet ·
Helical flute



Art.	€	mm Zoll / Inch	mm Zoll / Inch	mm Zoll / Inch	mm Zoll / Inch	F	G	Art.	€
• 22 1030 01111 0095 Ø 9,5-11,0 mm 0.3740-0.4331" OPTIMAL · OPTIMAL	156,75	111,1 mm 4.3740"	130,9 mm 5.1535"	167,4 mm 6.5905"	239,7 mm 9.4370"	2	1/16"	• 22 9002 01905	31,65
• 22 1030 01111 0115 Ø 11,5-12,5 mm 0.4528-0.4921" OPTIMAL · OPTIMAL	156,75	111,1 mm 4.3740"	130,9 mm 5.1535"	167,4 mm 6.5905"	239,7 mm 9.4370"	2	1/16"		
• 22 1030 01143 0130 Ø 13,0-17,5 mm 0.5118-0.6890" MÖGLICH · POSSIBLE Ø 13,0-15,0 mm 0.5118-0.5906" OPTIMAL · OPTIMAL	169,15	114,3 mm 4.5000"	135,0 mm 5.3150"	171,8 mm 6.7638"	243,7 mm 9.5945"	2	1/16"		
• 22 1030 01143 0155 Ø 15,5-17,5 mm 0.6102-0.6890" OPTIMAL · OPTIMAL	169,15								
• 22 1030 02731 0180 Ø 18,0-24,0 mm 0.7087-0.9449" MÖGLICH · POSSIBLE Ø 18,0-21,0 mm 0.7087-0.8268" OPTIMAL · OPTIMAL	239,75	273,1 mm 10.7520"	301,6 mm 11.8740"	345,7 mm 13.6102"	435,8 mm 17.1575"	3	1/8"	• 22 9002 02540	35,60
• 22 1030 02731 0220 Ø 22,0-24,0 mm 0.8661-0.9449" OPTIMAL · OPTIMAL	239,75								
• 22 1030 02890 0250 Ø 25,0-35,0 mm 0.9843-1.3780" MÖGLICH · POSSIBLE Ø 25,0-29,0 mm 0.9843-1.1417" OPTIMAL · OPTIMAL	296,95	289,0 mm 11.3780"	317,5 mm 12.5000"	363,6 mm 14.3150"	477,0 mm 18.7795"	4	1/8" Halter Holder 25,0-35,0 mm		
• 22 1030 02890 0300 Ø 30,0-35,0 mm 1.1811-1.3780" OPTIMAL · OPTIMAL	296,95			370,8 mm 14.5984"	484,2 mm 19.0630"	4	1/4" Halter Holder 30,0-35,0 mm	• 22 9002 03175	46,15

Ersatz-Torxschrauben und Schlüssel mit Drehmomentangabe
Spare Torx-screws and wrench with torque specification

Ø Diameter		TORX	max. Drehmoment / Torque (N/cm)	Schlüssel / Wrench
mm	Zoll / Inch		€	
9,5-11,0	0.3740-0.4331	22 9010 0095	3,60	22 9011 0084
11,5-12,5	0.4528-0.4921	22 9010 0115	3,60	22 9011 0175
13,0-17,5	0.5118-0.6890	22 9010 0130	3,60	22 9011 0305
18,0-24,0	0.7087-0.9449	22 9010 0180	3,60	22 9011 0690
25,0-35,0	0.9843-1.3780	22 9010 0250	3,70	22 9011 1370
36,0-65,0	1.4173-2.5591	22 9010 0360	3,75	22 9011 1750
64,0-114,0	2.5197-4.4882	22 9010 0640	3,80	





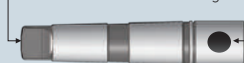
PULVERSTAHL · POWDER STEEL

HARTMETALL · CARBIDE

Ø mm d1	Ø Zoll / Inch d1	PULVERSTAHL · POWDER STEEL				HARTMETALL · CARBIDE											
		Art.	€	Art.	€	Art.	€	Art.	€								
● 9,50	0.3740	22 2010 0095	24,30	-	-	22 3010 0095	24,95	-	-	22 4010 0095	30,35	22 4510 0095	30,35	22 5010 0095	32,00	22 5510 0095	66,45
○ 9,80	0.3858	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
● 10,00	0.3937	22 2010 0100	24,30	-	-	22 3010 0100	24,95	-	-	22 4010 0100	30,35	22 4510 0100	30,35	22 5010 0100	32,00	22 5510 0100	66,45
● 10,20	0.4016	22 2010 0102	24,30	-	-	22 3010 0102	24,95	-	-	22 4010 0102	30,35	22 4510 0102	30,35	22 5010 0102	32,00	22 5510 0102	66,45
● 10,50	0.4134	22 2010 0105	24,30	-	-	22 3010 0105	24,95	-	-	22 4010 0105	30,35	22 4510 0105	30,35	22 5010 0105	32,00	22 5510 0105	66,45
● 10,80	0.4252	22 2010 0108	24,30	-	-	22 3010 0108	24,95	-	-	22 4010 0108	30,35	22 4510 0108	30,35	22 5010 0108	32,00	22 5510 0108	66,45
● 11,00	0.4331	22 2010 0110	24,30	-	-	22 3010 0110	24,95	-	-	22 4010 0110	30,35	22 4510 0110	30,35	22 5010 0110	32,00	22 5510 0110	66,45
● 11,50	0.4528	22 2010 0115	24,30	-	-	22 3010 0115	24,95	-	-	22 4010 0115	30,35	22 4510 0115	30,35	22 5010 0115	32,00	22 5510 0115	66,45
● 12,00	0.4724	22 2010 0120	24,30	-	-	22 3010 0120	24,95	-	-	22 4010 0120	30,35	22 4510 0120	30,35	22 5010 0120	32,00	22 5510 0120	66,45
● 12,50	0.4921	22 2010 0125	24,30	-	-	22 3010 0125	24,95	-	-	22 4010 0125	30,35	22 4510 0125	30,35	22 5010 0125	32,00	22 5510 0125	66,45
● 13,00	0.5118	22 2010 0130	27,65	-	-	22 3010 0130	27,80	-	-	22 4010 0130	35,70	22 4510 0130	35,70	22 5010 0130	36,85	22 5510 0130	71,25
● 13,50	0.5315	22 2010 0135	27,65	-	-	22 3010 0135	27,80	-	-	22 4010 0135	35,70	22 4510 0135	35,70	22 5010 0135	36,85	22 5510 0135	71,25
● 14,00	0.5512	22 2010 0140	27,65	-	-	22 3010 0140	27,80	-	-	22 4010 0140	35,70	22 4510 0140	35,70	22 5010 0140	36,85	22 5510 0140	71,25
● 14,50	0.5709	22 2010 0145	27,65	-	-	22 3010 0145	27,80	-	-	22 4010 0145	35,70	22 4510 0145	35,70	22 5010 0145	36,85	22 5510 0145	71,25
● 15,00	0.5906	22 2010 0150	27,65	-	-	22 3010 0150	27,80	-	-	22 4010 0150	35,70	22 4510 0150	35,70	22 5010 0150	36,85	22 5510 0150	71,25
● 15,50	0.6102	22 2010 0155	27,65	-	-	22 3010 0155	27,80	-	-	22 4010 0155	35,70	22 4510 0155	35,70	22 5010 0155	36,85	22 5510 0155	71,25
● 16,00	0.6299	22 2010 0160	27,65	-	-	22 3010 0160	27,80	-	-	22 4010 0160	35,70	22 4510 0160	35,70	22 5010 0160	36,85	22 5510 0160	71,25
● 16,50	0.6496	22 2010 0165	27,65	-	-	22 3010 0165	27,80	-	-	22 4010 0165	35,70	22 4510 0165	35,70	22 5010 0165	36,85	22 5510 0165	71,25
● 17,00	0.6693	22 2010 0170	27,65	-	-	22 3010 0170	27,80	-	-	22 4010 0170	35,70	22 4510 0170	35,70	22 5010 0170	36,85	22 5510 0170	71,25
● 17,50	0.6890	22 2010 0175	27,65	-	-	22 3010 0175	27,80	-	-	22 4010 0175	35,70	22 4510 0175	35,70	22 5010 0175	36,85	22 5510 0175	71,25
● 18,00	0.7087	22 2010 0180	35,20	-	-	22 3010 0180	38,45	-	-	22 4010 0180	46,40	22 4510 0180	46,40	22 5010 0180	51,70	22 5510 0180	81,45
● 18,50	0.7283	22 2010 0185	35,20	-	-	22 3010 0185	38,45	-	-	22 4010 0185	46,40	22 4510 0185	46,40	22 5010 0185	51,70	22 5510 0185	81,45
● 19,00	0.7480	22 2010 0190	35,20	-	-	22 3010 0190	38,45	-	-	22 4010 0190	46,40	22 4510 0190	46,40	22 5010 0190	51,70	22 5510 0190	102,55
● 19,50	0.7677	22 2010 0195	35,20	-	-	22 3010 0195	38,45	-	-	22 4010 0195	46,40	22 4510 0195	46,40	22 5010 0195	51,70	22 5510 0195	102,55
● 20,00	0.7874	22 2010 0200	35,20	-	-	22 3010 0200	38,45	-	-	22 4010 0200	46,40	22 4510 0200	46,40	22 5010 0200	51,70	22 5510 0200	102,55
● 20,50	0.8071	22 2010 0205	35,20	-	-	22 3010 0205	38,45	-	-	22 4010 0205	46,40	22 4510 0205	46,40	22 5010 0205	51,70	22 5510 0205	118,20
● 21,00	0.8268	22 2010 0210	35,20	-	-	22 3010 0210	38,45	-	-	22 4010 0210	46,40	22 4510 0210	46,40	22 5010 0210	51,70	22 5510 0210	118,20
● 22,00	0.8661	22 2010 0220	35,20	-	-	22 3010 0220	38,45	-	-	22 4010 0220	46,40	22 4510 0220	46,40	22 5010 0220	51,70	22 5510 0220	118,20
● 23,00	0.9055	22 2010 0230	35,20	-	-	22 3010 0230	38,45	-	-	22 4010 0230	46,40	22 4510 0230	46,40	22 5010 0230	51,70	22 5510 0230	118,20
● 24,00	0.9449	22 2010 0240	35,20	-	-	22 3010 0240	38,45	-	-	22 4010 0240	46,40	22 4510 0240	46,40	22 5010 0240	51,70	22 5510 0240	118,20
● 25,00	0.9843	22 2010 0250	41,20	-	-	22 3010 0250	43,40	-	-	22 4010 0250	54,35	22 4510 0250	54,35	22 5010 0250	58,55	22 5510 0250	125,10
● 26,00	1.0236	22 2010 0260	41,20	-	-	22 3010 0260	43,40	-	-	22 4010 0260	54,35	22 4510 0260	54,35	22 5010 0260	58,55	22 5510 0260	125,10
● 27,00	1.0630	22 2010 0270	41,20	-	-	22 3010 0270	43,40	-	-	22 4010 0270	54,35	22 4510 0270	54,35	22 5010 0270	58,55	22 5510 0270	125,10
● 28,00	1.1024	22 2010 0280	41,20	-	-	22 3010 0280	43,40	-	-	22 4010 0280	54,35	22 4510 0280	54,35	22 5010 0280	58,55	22 5510 0280	125,10
● 29,00	1.1417	22 2010 0290	41,20	-	-	22 3010 0290	43,40	-	-	22 4010 0290	54,35	22 4510 0290	54,35	22 5010 0290	58,55	22 5510 0290	125,10
● 30,00	1.1811	22 2010 0300	41,20	-	-	22 3010 0300	43,40	-	-	22 4010 0300	54,35	22 4510 0300	54,35	22 5010 0300	58,55	22 5510 0300	125,10
● 31,00	1.2205	22 2010 0310	41,20	-	-	22 3010 0310	43,40	-	-	22 4010 0310	54,35	22 4510 0310	54,35	22 5010 0310	58,55	22 5510 0310	125,10
● 32,00	1.2598	22 2010 0320	41,20	-	-	22 3010 0320	43,40	-	-	22 4010 0320	54,35	22 4510 0320	54,35	22 5010 0320	58,55	22 5510 0320	125,10
● 33,00	1.2992	22 2010 0330	41,20	-	-	22 3010 0330	43,40	-	-	22 4010 0330	54,35	22 4510 0330	54,35	22 5010 0330	58,55	22 5510 0330	132,60
● 34,00	1.3386	22 2010 0340	41,20	-	-	22 3010 0340	43,40	-	-	22 4010 0340	54,35	22 4510 0340	54,35	22 5010 0340	58,55	22 5510 0340	132,60
● 35,00	1.3780	22 2010 0350	41,20	-	-	22 3010 0350	43,40	-	-	22 4010 0350	54,35	22 4510 0350	54,35	22 5010 0350	58,55	22 5510 0350	132,60
● 36,00	1.4173	22 2010 0360	56,45	-	-	22 3010 0360	57,15	-	-	-	-	-	-	-	-	-	-
● 37,00	1.4567	22 2010 0370	56,45	-	-	22 3010 0370	57,15	-	-	-	-	-	-	-	-	-	-
● 38,00	1.4961	22 2010 0380	56,45	-	-	22 3010 0380	57,15	-	-	-	-	-	-	-	-	-	-
● 39,00	1.5354	22 2010 0390	56,45	-	-	22 3010 0390	57,15	-	-	-	-	-	-	-	-	-	-
● 40,00	1.5748	22 2010 0400	56,45	-	-	22 3010 0400	57,15	-	-	-	-	-	-	-	-	-	-
● 41,00	1.6142	22 2010 0410	56,45	-	-	22 3010 0410	57,15	-	-	-	-	-	-	-	-	-	-
● 42,00	1.6535	22 2010 0420	56,45	-	-	22 3010 0420	57,15	-	-	-	-	-	-	-	-	-	-
● 43,00	1.6929	22 2010 0430	56,45	-	-	22 3010 0430	57,15	-	-	-	-	-	-	-	-	-	-
● 44,00	1.7323	22 2010 0440	56,45	-	-	22 3010 0440	57,15	-	-	-	-	-	-	-	-	-	-
● 45,00	1.7717	22 2010 0450	56,45	-	-	22 3010 0450	57,15	-	-	-	-	-	-	-	-	-	-
● 46,00	1.8110	22 2010 0460	56,45	-	-	22 3010 0460	57,15	-	-	-	-	-	-	-	-	-	-
● 47,00	1.8504	22 2010 0470	56,45	-	-	22 3010 0470	57,15	-	-	-	-	-	-	-	-	-	-

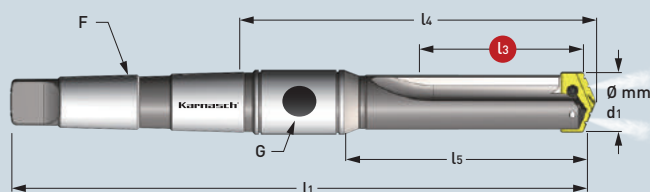
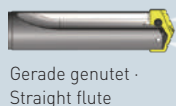
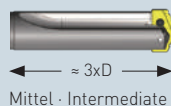
Fortsetzung Seite 308 · Continued page 308

MK 2+3 mit axialer Kühlung
MT 2+3 with axial cooling



MK 2,3,4,5 – Radiale Kühlung
mit Kühlmittelring
MT 2,3,4,5 – Radial coolant
with oil ring

Morsekegel
ISO 296 Typ BEK ·
Morse taper shank
ISO 296 type BEK



Art.	€	mm Zoll / Inch	mm Zoll / Inch	mm Zoll / Inch	mm Zoll / Inch			Art.	€
• 22 1040 00318 0095 Ø 9,5-11,0 mm 0.3740-0.4331" OPTIMAL · OPTIMAL	123,05	31,8 mm 1.2520"	51,5 mm 2.0276"	88,0 mm 3.4646"	160,3 mm 6.3110"	2	1/16"	• 22 9002 01905	31,65
• 22 1040 00318 0115 Ø 11,5-12,5 mm 0.4528-0.4921" OPTIMAL · OPTIMAL	123,05	31,8 mm 1.2520"	51,5 mm 2.0276"	88,0 mm 3.4646"	160,3 mm 6.3110"	2	1/16"		
• 22 1040 00350 0130 Ø 13,0-17,5 mm 0.5118-0.6890" MÖGLICH · POSSIBLE Ø 13,0-15,0 mm 0.5118-0.5906" OPTIMAL · OPTIMAL	132,75	35,0 mm 1.3780"	55,5 mm 2.1850"	92,4 mm 3.6378"	164,3 mm 6.4685"	2	1/16"		
• 22 1040 00350 0155 Ø 15,5-17,5 mm 0.6102-0.6890" OPTIMAL · OPTIMAL	132,75								
• 22 1040 00698 0180 Ø 18,0-24,0 mm 0.7087-0.9449" MÖGLICH · POSSIBLE Ø 18,0-21,0 mm 0.7087-0.8268" OPTIMAL · OPTIMAL	146,20	69,8 mm 2.7480"	98,4 mm 3.8740"	142,5 mm 5.6102"	232,5 mm 9.1535"	3	1/8"	• 22 9002 02540	35,60
• 22 1040 00698 0220 Ø 22,0-24,0 mm 0.8661-0.9449" OPTIMAL · OPTIMAL	146,20								
• 22 1040 00857 0250 Ø 25,0-35,0 mm 0.9843-1.3780" MÖGLICH · POSSIBLE Ø 25,0-29,0 mm 0.9843-1.1417" OPTIMAL · OPTIMAL	172,85	85,7 mm 3.3740"	114,3 mm 4.5000"	160,4 mm 6.3150"	273,8 mm 10.7795"	4	1/8" Halter Holder 25,0-35,0 mm	• 22 9002 03175	46,15
• 22 1040 00857 0300 Ø 30,0-35,0 mm 1.1811-1.3780" OPTIMAL · OPTIMAL	172,85			167,6 mm 6.5984"	281,0 mm 11.0630"	4	1/4" Halter Holder 30,0-35,0 mm		
• 22 1040 01206 0360 Ø 36,0-47,0 mm 1.4173-1.8504" MÖGLICH · POSSIBLE Ø 36,0-41,0 mm 1.4173-1.6142" OPTIMAL · OPTIMAL	232,20								
• 22 1040 01206 0420 Ø 42,0-47,0 mm 1.6535-1.8504" OPTIMAL · OPTIMAL	232,20	120,6 mm 4.7480"	152,4 mm 6.0000"	206,4 mm 8.1259"	319,1 mm 12.5630"	4	1/4"		

Fortsetzung Seite 309 · Continued page 309

Schnittdaten
Cutting data



Film
Movie



1134-1143





PULVERSTAHL · POWDER STEEL

HARTMETALL · CARBIDE

Ø mm d1	Ø Zoll / Inch d1	PULVERSTAHL · POWDER STEEL				HARTMETALL · CARBIDE											
		Art.	€	Art.	€	Art.	€	Art.	€								
• 48,00	1.8898	22 2010 0480	80,75	-	-	22 3010 0480	79,30	-	-	-	-	-	-	-	-	-	-
• 49,00	1.9291	22 2010 0490	80,75	-	-	22 3010 0490	79,30	-	-	-	-	-	-	-	-	-	-
• 50,00	1.9685	22 2010 0500	80,75	-	-	22 3010 0500	79,30	-	-	-	-	-	-	-	-	-	-
• 51,00	2.0079	22 2010 0510	80,75	-	-	22 3010 0510	79,30	-	-	-	-	-	-	-	-	-	-
• 52,00	2.0472	22 2010 0520	80,75	-	-	22 3010 0520	79,30	-	-	-	-	-	-	-	-	-	-
• 53,00	2.0866	22 2010 0530	80,75	-	-	22 3010 0530	79,30	-	-	-	-	-	-	-	-	-	-
• 54,00	2.1260	22 2010 0540	80,75	-	-	22 3010 0540	79,30	-	-	-	-	-	-	-	-	-	-
• 55,00	2.1654	22 2010 0550	80,75	-	-	22 3010 0550	79,30	-	-	-	-	-	-	-	-	-	-
• 56,00	2.2047	22 2010 0560	80,75	-	-	22 3010 0560	79,30	-	-	-	-	-	-	-	-	-	-
• 57,00	2.2441	22 2010 0570	80,75	-	-	22 3010 0570	79,30	-	-	-	-	-	-	-	-	-	-
• 58,00	2.2835	22 2010 0580	80,75	-	-	22 3010 0580	79,30	-	-	-	-	-	-	-	-	-	-
• 59,00	2.3228	22 2010 0590	80,75	-	-	22 3010 0590	79,30	-	-	-	-	-	-	-	-	-	-
• 60,00	2.3622	22 2010 0600	80,75	-	-	22 3010 0600	79,30	-	-	-	-	-	-	-	-	-	-
• 61,00	2.4016	22 2010 0610	80,75	-	-	22 3010 0610	79,30	-	-	-	-	-	-	-	-	-	-
• 62,00	2.4409	22 2010 0620	80,75	-	-	22 3010 0620	79,30	-	-	-	-	-	-	-	-	-	-
• 63,00	2.4803	22 2010 0630	80,75	-	-	22 3010 0630	79,30	-	-	-	-	-	-	-	-	-	-
• 64,00	2.5197	22 2010 0640	80,75	-	-	22 3010 0640	79,30	-	-	-	-	-	-	-	-	-	-
• 65,00	2.5591	22 2010 0650	80,75	-	-	22 3010 0650	79,30	-	-	-	-	-	-	-	-	-	-
• 64,00	2.5197	-	-	22 2510 0640	101,50	-	-	22 3510 0640	93,45	-	-	-	-	-	-	-	-
• 66,00	2.5984	-	-	22 2510 0660	101,50	-	-	22 3510 0660	93,45	-	-	-	-	-	-	-	-
• 68,00	2.6772	-	-	22 2510 0680	101,50	-	-	22 3510 0680	93,45	-	-	-	-	-	-	-	-
• 70,00	2.7559	-	-	22 2510 0700	101,50	-	-	22 3510 0700	93,45	-	-	-	-	-	-	-	-
• 72,00	2.8346	-	-	22 2510 0720	101,50	-	-	22 3510 0720	93,45	-	-	-	-	-	-	-	-
• 74,00	2.9134	-	-	22 2510 0740	101,50	-	-	22 3510 0740	93,45	-	-	-	-	-	-	-	-
• 76,00	2.9921	-	-	22 2510 0760	101,50	-	-	22 3510 0760	93,45	-	-	-	-	-	-	-	-
• 78,00	3.0709	-	-	22 2510 0780	112,10	-	-	22 3510 0780	104,10	-	-	-	-	-	-	-	-
• 80,00	3.1496	-	-	22 2510 0800	112,10	-	-	22 3510 0800	104,10	-	-	-	-	-	-	-	-
• 82,00	3.2283	-	-	22 2510 0820	112,10	-	-	22 3510 0820	104,10	-	-	-	-	-	-	-	-
• 84,00	3.3071	-	-	22 2510 0840	112,10	-	-	22 3510 0840	104,10	-	-	-	-	-	-	-	-
• 86,00	3.3858	-	-	22 2510 0860	112,10	-	-	22 3510 0860	104,10	-	-	-	-	-	-	-	-
• 88,00	3.4646	-	-	22 2510 0880	112,10	-	-	22 3510 0880	104,10	-	-	-	-	-	-	-	-
• 90,00	3.5433	-	-	22 2510 0900	131,60	-	-	22 3510 0900	122,50	-	-	-	-	-	-	-	-
• 92,00	3.6220	-	-	22 2510 0920	131,60	-	-	22 3510 0920	122,50	-	-	-	-	-	-	-	-
• 94,00	3.7008	-	-	22 2510 0940	131,60	-	-	22 3510 0940	122,50	-	-	-	-	-	-	-	-
• 96,00	3.7795	-	-	22 2510 0960	131,60	-	-	22 3510 0960	122,50	-	-	-	-	-	-	-	-
• 98,00	3.8583	-	-	22 2510 0980	131,60	-	-	22 3510 0980	122,50	-	-	-	-	-	-	-	-
• 100,00	3.9370	-	-	22 2510 1000	131,60	-	-	22 3510 1000	122,50	-	-	-	-	-	-	-	-
• 102,00	4.0157	-	-	22 2510 1020	150,00	-	-	22 3510 1020	140,90	-	-	-	-	-	-	-	-
• 104,00	4.0945	-	-	22 2510 1040	150,00	-	-	22 3510 1040	140,90	-	-	-	-	-	-	-	-
• 106,00	4.1732	-	-	22 2510 1060	150,00	-	-	22 3510 1060	140,90	-	-	-	-	-	-	-	-
• 108,00	4.2520	-	-	22 2510 1080	150,00	-	-	22 3510 1080	140,90	-	-	-	-	-	-	-	-
• 110,00	4.3307	-	-	22 2510 1100	150,00	-	-	22 3510 1100	140,90	-	-	-	-	-	-	-	-
• 112,00	4.4094	-	-	22 2510 1120	150,00	-	-	22 3510 1120	140,90	-	-	-	-	-	-	-	-
• 114,00	4.4882	-	-	22 2510 1140	150,00	-	-	22 3510 1140	140,90	-	-	-	-	-	-	-	-

Schnittdaten
Cutting data



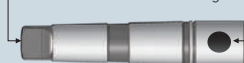
Film
Movie



1134-1143

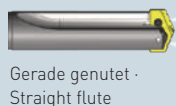
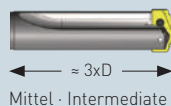
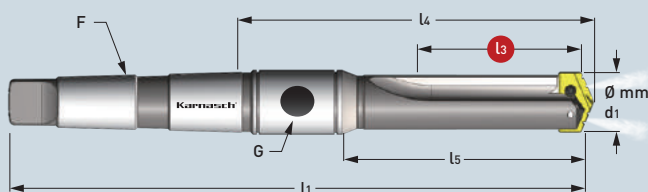
Art. **22 1040**

MK 2+3 mit axialer Kühlung
MT 2+3 with axial cooling



MK 2,3,4,5 – Radiale Kühlung
mit Kühlmittelring
MT 2,3,4,5 – Radial coolant
with oil ring

Morsekegel
ISO 296 Typ BEK ·
Morse taper shank
ISO 296 type BEK



~ 3xD

Gerade genutet ·
Straight flute

l3	l5	l4	l1	F	G	
Nutzlänge	Körperlänge	Neue REF.- Länge	Gesamtlänge	Morsekegel	Gewinde	Kühlmittelring
Max. drill depth	Body-length	REF.-length	Overall length	Morse taper	Pipe tap	Oil ring

Art.	€	mm Zoll / Inch	mm Zoll / Inch	mm Zoll / Inch	mm Zoll / Inch			Art.	€	
22 1040 01301 0480	265,25	Ø 48,0-65,0 mm 1.8898-2.5591" Ø 48,0-55,0 mm 1.8898-2.1654"	130,1 mm 5.1220"	165,1 mm 6.5000"	219,1 mm 8.6260"	363,5 mm 14.3110"	5	1/4"	22 9002 04445	60,65
22 1040 01301 0560	265,25	Ø 56,0-65,0 mm 2.2047-2.5591"	130,1 mm 5.1220"	165,1 mm 6.5000"	219,1 mm 8.6260"	363,5 mm 14.3110"	5	1/4"		
22 1040 01715 0640	413,40	Ø 64,0-88,0 mm 2.5197-3.4646" Ø 64,0-76,0 mm 2.5197-2.9921"	171,5 mm 6.7519"	215,9 mm 8.5000"	287,3 mm 11.3110"	430,2 mm 16.9370"	5	1/2"	22 9002 05715	83,50
22 1040 01715 0780	413,40	Ø 78,0-88,0 mm 3.0709-3.4646"	171,5 mm 6.7519"	215,9 mm 8.5000"	287,3 mm 11.3110"	430,2 mm 16.9370"	5	1/2"		
22 1040 01715 0900	558,60	Ø 90,0-114,0 mm 3.5433-4.4882" Ø 90,0-100,0 mm 3.5433-3.9370"	171,5 mm 6.7519"	225,4 mm 8.8740"	296,8 mm 11.6850"	439,7 mm 17.3110"	5	1/2"		
22 1040 01715 1020	558,60	Ø 102,0-114,0 mm 4.0157-4.4882"	171,5 mm 6.7519"	225,4 mm 8.8740"	296,8 mm 11.6850"	439,7 mm 17.3110"	5	1/2"		

Halter werden **ohne** Einsätze, inklusive 2x TORX Befestigungsschrauben und 1x TORX Schlüssel geliefert.
Holders are delivered **without** inserts including 2x TORX-screws and 1x TORX wrench.

Für Maschinen ohne axiale/radiale Kühlmittelzufuhr kann ein Kühlmittelring auf den Halter montiert werden. Details siehe Seite 324
For machines without radial/axial coolant supply a oil ring can be mounted on the holder. Details see page 324



Ersatz-Torxschrauben und Schlüssel mit Drehmomentangabe
Spare Torx-screws and wrench with torque specification

Ø Diameter		TORX	max. Drehmoment / Torque (N/cm)		Schlüssel / Wrench	
mm	Zoll / Inch		€			€
9,5-11,0	0.3740-0.4331	22 9010 0095	3,60	84	22 9011 0084	6,45
11,5-12,5	0.4528-0.4921	22 9010 0115	3,60	84	22 9011 0175	6,45
13,0-17,5	0.5118-0.6890	22 9010 0130	3,60	175	22 9011 0305	11,30
18,0-24,0	0.7087-0.9449	22 9010 0180	3,60	305	22 9011 0690	12,10
25,0-35,0	0.9843-1.3780	22 9010 0250	3,70	690	22 9011 1370	13,15
36,0-65,0	1.4173-2.5591	22 9010 0360	3,75	1370	22 9011 1750	19,35
64,0-114,0	2.5197-4.4882	22 9010 0640	3,80	1750		





PULVERSTAHL · POWDER STEEL										HARTMETALL · CARBIDE									
Ø		132°		144°		132°		144°		132°		Guss/Cast iron 132°		132°		132°			
Ø mm d1	Ø Zoll / Inch d1	Art. 22 2010 Pulverstahl 25 beschichtet Für Edelstahl, Stahl, Guss Powder steel 25 coated For stainless steel, steel, cast iron		Art. 22 2510 Pulverstahl 15 beschichtet Für legierte Stähle, Stahl, Guss Powder steel 15 coated For alloy steel, steel, cast iron		Art. 22 3010 Pulverstahl 25 beschichtet Für Alu, Messing, Kupfer Powder steel 25 coated For alu, brass, copper		Art. 22 3510 Pulverstahl 15 beschichtet Für Alu, Messing, Kupfer Powder steel 15 coated For alloy steel, steel, cast iron		Art. 22 4010 Hartmetall 20/30 beschichtet Für Edelstahl, hochfester Stahl, gehärteter Stahl Carbide 20/30 coated For stainless steel, high strength alloys, hardened steel		Art. 22 4510 Hartmetall 20/30 beschichtet Für alle Gussarten Carbide 20/30 coated For all kinds of cast iron		Art. 22 5010 Hartmetall 20/30 beschichtet Für Alu, Messing, Kupfer Carbide 20/30 coated For alu, brass, copper		Art. 22 5510 Hartmetall 20/30 beschichtet Für abrasive Materialien wie: GFK, CFK, Graphit Carbide 20/30 coated For abrasive materials such as: fiber- glass, carbon fiber, graphite			
		Art.	€	Art.	€	Art.	€	Art.	€	Art.	€	Art.	€	Art.	€	Art.	€		
• 36,00	1.4173	22 2010 0360	56,45	-	-	22 3010 0360	57,15	-	-	-	-	-	-	-	-	-	-		
• 37,00	1.4567	22 2010 0370	56,45	-	-	22 3010 0370	57,15	-	-	-	-	-	-	-	-	-	-		
• 38,00	1.4961	22 2010 0380	56,45	-	-	22 3010 0380	57,15	-	-	-	-	-	-	-	-	-	-		
• 39,00	1.5354	22 2010 0390	56,45	-	-	22 3010 0390	57,15	-	-	-	-	-	-	-	-	-	-		
• 40,00	1.5748	22 2010 0400	56,45	-	-	22 3010 0400	57,15	-	-	-	-	-	-	-	-	-	-		
• 41,00	1.6142	22 2010 0410	56,45	-	-	22 3010 0410	57,15	-	-	-	-	-	-	-	-	-	-		
• 42,00	1.6535	22 2010 0420	56,45	-	-	22 3010 0420	57,15	-	-	-	-	-	-	-	-	-	-		
• 43,00	1.6929	22 2010 0430	56,45	-	-	22 3010 0430	57,15	-	-	-	-	-	-	-	-	-	-		
• 44,00	1.7323	22 2010 0440	56,45	-	-	22 3010 0440	57,15	-	-	-	-	-	-	-	-	-	-		
• 45,00	1.7717	22 2010 0450	56,45	-	-	22 3010 0450	57,15	-	-	-	-	-	-	-	-	-	-		
• 46,00	1.8110	22 2010 0460	56,45	-	-	22 3010 0460	57,15	-	-	-	-	-	-	-	-	-	-		
• 47,00	1.8504	22 2010 0470	56,45	-	-	22 3010 0470	57,15	-	-	-	-	-	-	-	-	-	-		
• 48,00	1.8898	22 2010 0480	80,75	-	-	22 3010 0480	79,30	-	-	-	-	-	-	-	-	-	-		
• 49,00	1.9291	22 2010 0490	80,75	-	-	22 3010 0490	79,30	-	-	-	-	-	-	-	-	-	-		
• 50,00	1.9685	22 2010 0500	80,75	-	-	22 3010 0500	79,30	-	-	-	-	-	-	-	-	-	-		
• 51,00	2.0079	22 2010 0510	80,75	-	-	22 3010 0510	79,30	-	-	-	-	-	-	-	-	-	-		
• 52,00	2.0472	22 2010 0520	80,75	-	-	22 3010 0520	79,30	-	-	-	-	-	-	-	-	-	-		
• 53,00	2.0866	22 2010 0530	80,75	-	-	22 3010 0530	79,30	-	-	-	-	-	-	-	-	-	-		
• 54,00	2.1260	22 2010 0540	80,75	-	-	22 3010 0540	79,30	-	-	-	-	-	-	-	-	-	-		
• 55,00	2.1654	22 2010 0550	80,75	-	-	22 3010 0550	79,30	-	-	-	-	-	-	-	-	-	-		
• 56,00	2.2047	22 2010 0560	80,75	-	-	22 3010 0560	79,30	-	-	-	-	-	-	-	-	-	-		
• 57,00	2.2441	22 2010 0570	80,75	-	-	22 3010 0570	79,30	-	-	-	-	-	-	-	-	-	-		
• 58,00	2.2835	22 2010 0580	80,75	-	-	22 3010 0580	79,30	-	-	-	-	-	-	-	-	-	-		
• 59,00	2.3228	22 2010 0590	80,75	-	-	22 3010 0590	79,30	-	-	-	-	-	-	-	-	-	-		
• 60,00	2.3622	22 2010 0600	80,75	-	-	22 3010 0600	79,30	-	-	-	-	-	-	-	-	-	-		
• 61,00	2.4016	22 2010 0610	80,75	-	-	22 3010 0610	79,30	-	-	-	-	-	-	-	-	-	-		
• 62,00	2.4409	22 2010 0620	80,75	-	-	22 3010 0620	79,30	-	-	-	-	-	-	-	-	-	-		
• 63,00	2.4803	22 2010 0630	80,75	-	-	22 3010 0630	79,30	-	-	-	-	-	-	-	-	-	-		
• 64,00	2.5197	22 2010 0640	80,75	-	-	22 3010 0640	79,30	-	-	-	-	-	-	-	-	-	-		
• 65,00	2.5591	22 2010 0650	80,75	-	-	22 3010 0650	79,30	-	-	-	-	-	-	-	-	-	-		

Fortsetzung Seite 312 · Continued page 312

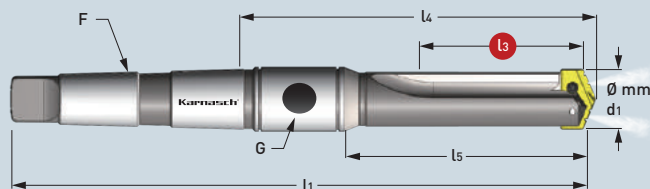
Art. **22 1040**

MK 2+3 mit axialer Kühlung
MT 2+3 with axial cooling



MK 2,3,4,5 – Radiale Kühlung
mit Kühlmittelring
MT 2,3,4,5 – Radial coolant
with oil ring

Morsekegel
ISO 296 Typ BEK ·
Morse taper shank
ISO 296 type BEK



~ 8xD
Mittel · Intermediate

Gerade genutet ·
Straight flute

l3	l5	l4	l1	F	G	
Nutzlänge	Körperlänge	Neue REF.- Länge	Gesamtlänge	Morsekegel	Gewinde	Kühlmittelring
Max. drill depth	Body-length	REF.-length	Overall length	Morse taper	Pipe tap	Oil ring

Art.	€	mm Zoll / Inch	mm Zoll / Inch	mm Zoll / Inch	mm Zoll / Inch			Art.	€
• 22 1040 03493 0360	452,60							• 22 9002 03175	46,15
Ø 36,0-47,0 mm 1.4173-1.8504"									
Ø 36,0-41,0 mm 1.4173-1.6142"									
• 22 1040 03493 0420	452,60	349,3 mm 13.7520"	381,0 mm 15.0000"	435,0 mm 17.1260"	547,7 mm 21.5630"	4	1/4"		
Ø 42,0-47,0 mm 1.6535-1.8504"									
• 22 1040 04223 0480	579,65	422,3 mm 16.6260"	457,2 mm 18.0000"	511,2 mm 20.1260"	655,6 mm 25.8110"	5	1/4"	• 22 9002 04445	60,65
Ø 48,0-65,0 mm 1.8898-2.5591"									
Ø 48,0-55,0 mm 1.8898-2.1654"									
• 22 1040 04223 0560	579,65	422,3 mm 16.6260"	457,2 mm 18.0000"	511,2 mm 20.1260"	655,6 mm 25.8110"	5	1/4"		
Ø 56,0-65,0 mm 2.2047-2.5591"									

Fortsetzung Seite 313 · Continued page 313



Schnittdaten
Cutting data

Film
Movie

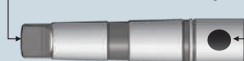
1134-1143



PULVERSTAHL · POWDER STEEL										HARTMETALL · CARBIDE							
Ø		132°		144°		132°		144°		132°		Guss/Cast iron 132°		132°		132°	
Ø mm d1	Ø Zoll / Inch d1	Art. 22 2010 Pulverstahl 25 beschichtet Für Edelstahl, Stahl, Guss Powder steel 25 coated For stainless steel, steel, cast iron		Art. 22 2510 Pulverstahl 15 beschichtet Für legierte Stähle, Stahl, Guss Powder steel 15 coated For alloy steel, steel, cast iron		Art. 22 3010 Pulverstahl 25 beschichtet Für Alu, Messing, Kupfer Powder steel 25 coated For alu, brass, copper		Art. 22 3510 Pulverstahl 15 beschichtet Für Alu, Messing, Kupfer Powder steel 15 coated For alloy steel, steel, cast iron		Art. 22 4010 Hartmetall 20/30 beschichtet Für Edelstahl, hochfester Stahl, gehärteter Stahl Carbide 20/30 coated For stainless steel, high strength alloys, hardened steel		Art. 22 4510 Hartmetall 20/30 beschichtet Für alle Gussarten Carbide 20/30 coated For all kinds of cast iron		Art. 22 5010 Hartmetall 20/30 beschichtet Für Alu, Messing, Kupfer Carbide 20/30 coated For alu, brass, copper		Art. 22 5510 Hartmetall 20/30 beschichtet Für abrasive Materialien wie: GFK, CFK, Graphit Carbide 20/30 coated For abrasive materials such as: fiber-glass, carbon fiber, graphite	
		Art.	€	Art.	€	Art.	€	Art.	€	Art.	€	Art.	€	Art.	€	Art.	€
• 64,00	2.5197	-	-	22 2510 0640	101,50	-	-	22 3510 0640	93,45	-	-	-	-	-	-	-	-
• 66,00	2.5984	-	-	22 2510 0660	101,50	-	-	22 3510 0660	93,45	-	-	-	-	-	-	-	-
• 68,00	2.6772	-	-	22 2510 0680	101,50	-	-	22 3510 0680	93,45	-	-	-	-	-	-	-	-
• 70,00	2.7559	-	-	22 2510 0700	101,50	-	-	22 3510 0700	93,45	-	-	-	-	-	-	-	-
• 72,00	2.8346	-	-	22 2510 0720	101,50	-	-	22 3510 0720	93,45	-	-	-	-	-	-	-	-
• 74,00	2.9134	-	-	22 2510 0740	101,50	-	-	22 3510 0740	93,45	-	-	-	-	-	-	-	-
• 76,00	2.9921	-	-	22 2510 0760	101,50	-	-	22 3510 0760	93,45	-	-	-	-	-	-	-	-
• 78,00	3.0709	-	-	22 2510 0780	112,10	-	-	22 3510 0780	104,10	-	-	-	-	-	-	-	-
• 80,00	3.1496	-	-	22 2510 0800	112,10	-	-	22 3510 0800	104,10	-	-	-	-	-	-	-	-
• 82,00	3.2283	-	-	22 2510 0820	112,10	-	-	22 3510 0820	104,10	-	-	-	-	-	-	-	-
• 84,00	3.3071	-	-	22 2510 0840	112,10	-	-	22 3510 0840	104,10	-	-	-	-	-	-	-	-
• 86,00	3.3858	-	-	22 2510 0860	112,10	-	-	22 3510 0860	104,10	-	-	-	-	-	-	-	-
• 88,00	3.4646	-	-	22 2510 0880	112,10	-	-	22 3510 0880	104,10	-	-	-	-	-	-	-	-
• 90,00	3.5433	-	-	22 2510 0900	131,60	-	-	22 3510 0900	122,50	-	-	-	-	-	-	-	-
• 92,00	3.6220	-	-	22 2510 0920	131,60	-	-	22 3510 0920	122,50	-	-	-	-	-	-	-	-
• 94,00	3.7008	-	-	22 2510 0940	131,60	-	-	22 3510 0940	122,50	-	-	-	-	-	-	-	-
• 96,00	3.7795	-	-	22 2510 0960	131,60	-	-	22 3510 0960	122,50	-	-	-	-	-	-	-	-
• 98,00	3.8583	-	-	22 2510 0980	131,60	-	-	22 3510 0980	122,50	-	-	-	-	-	-	-	-
• 100,00	3.9370	-	-	22 2510 1000	131,60	-	-	22 3510 1000	122,50	-	-	-	-	-	-	-	-
• 102,00	4.0157	-	-	22 2510 1020	150,00	-	-	22 3510 1020	140,90	-	-	-	-	-	-	-	-
• 104,00	4.0945	-	-	22 2510 1040	150,00	-	-	22 3510 1040	140,90	-	-	-	-	-	-	-	-
• 106,00	4.1732	-	-	22 2510 1060	150,00	-	-	22 3510 1060	140,90	-	-	-	-	-	-	-	-
• 108,00	4.2520	-	-	22 2510 1080	150,00	-	-	22 3510 1080	140,90	-	-	-	-	-	-	-	-
• 110,00	4.3307	-	-	22 2510 1100	150,00	-	-	22 3510 1100	140,90	-	-	-	-	-	-	-	-
• 112,00	4.4094	-	-	22 2510 1120	150,00	-	-	22 3510 1120	140,90	-	-	-	-	-	-	-	-
• 114,00	4.4882	-	-	22 2510 1140	150,00	-	-	22 3510 1140	140,90	-	-	-	-	-	-	-	-

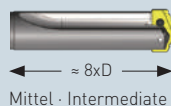
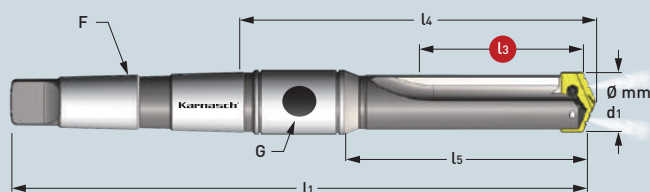
Art. **22 1040**

MK 2+3 mit axialer Kühlung
MT 2+3 with axial cooling



MK 2,3,4,5 – Radiale Kühlung
mit Kühlmittelring
MT 2,3,4,5 – Radial coolant
with oil ring

Morsekegel
ISO 296 Typ BEK
Morse taper shank
ISO 296 type BEK



Art.	€	mm Zoll / Inch	mm Zoll / Inch	mm Zoll / Inch	mm Zoll / Inch			Art.	€
• 22 1040 04636 0640	636,71							• 22 9002 05715	83,50
Ø 64,0-88,0 mm 2.5197-3.4646"									
Ø 64,0-76,0 mm 2.5197-2.9921"									
• 22 1040 04636 0780	636,71	463,6 mm 18.2520"	508,0 mm 20.0000"	579,4 mm 22.8110"	722,3 mm 28.4370"	5	1/2"		
Ø 78,0-88,0 mm 3.0709-3.4646"									
• 22 1040 05556 0900	914,42								
Ø 90,0-114,0 mm 3.5433-4.4882"									
Ø 90,0-100,0 mm 3.5433-3.9370"									
• 22 1040 05556 1020	914,42	555,6 mm 21.8740"	609,6 mm 24.0000"	681,1 mm 26.8150"	823,9 mm 32.4370"	5	1/2"		
Ø 102,0-114,0 mm 4.0157-4.4882"									

Halter werden **ohne** Einsätze, inklusive 2x TORX Befestigungsschrauben und 1x TORX Schlüssel geliefert.
Holders are delivered **without** inserts including 2x TORX-screws and 1x TORX wrench.

Für Maschinen ohne axiale/radiale Kühlmittelzufuhr kann ein Kühlmittelring auf den Halter montiert werden. Details siehe Seite 324
For machines without radial/axial coolant supply a oil ring can be mounted on the holder. Details see page 324



Ersatz-Torxschrauben und Schlüssel mit Drehmomentangabe
Spare Torx-screws and wrench with torque specification

Ø Diameter		TORX	max. Drehmoment / Torque (N/cm)	Schlüssel / Wrench
mm	Zoll / Inch	€		€
9,5-11,0	0.3740-0.4331	22 9010 0095	84	22 9011 0084
11,5-12,5	0.4528-0.4921	22 9010 0115	84	22 9011 0175
13,0-17,5	0.5118-0.6890	22 9010 0130	175	22 9011 0305
18,0-24,0	0.7087-0.9449	22 9010 0180	305	22 9011 0690
25,0-35,0	0.9843-1.3780	22 9010 0250	690	22 9011 1370
36,0-65,0	1.4173-2.5591	22 9010 0360	1370	22 9011 1750
64,0-114,0	2.5197-4.4882	22 9010 0640	1750	

Schnittdaten
Cutting data



Film
Movie



1134-1143





PULVERSTAHL · POWDER STEEL										HARTMETALL · CARBIDE							
Ø		132°		144°		132°		144°		132°		Guss/Cast iron 132°		132°		132°	
Ø mm d1	Ø Zoll / Inch d1	Art. 22 2010 Pulverstahl 25 beschichtet Für Edelstahl, Stahl, Guss Powder steel 25 coated For stainless steel, steel, cast iron		Art. 22 2510 Pulverstahl 15 beschichtet Für legierte Stähle, Stahl, Guss Powder steel 15 coated For alloy steel, steel, cast iron		Art. 22 3010 Pulverstahl 25 beschichtet Für Alu, Messing, Kupfer Powder steel 25 coated For alu, brass, copper		Art. 22 3510 Pulverstahl 15 beschichtet Für Alu, Messing, Kupfer Powder steel 15 coated For alloy steel, steel, cast iron		Art. 22 4010 Hartmetall 20/30 beschichtet Für Edelstahl, hochfester Stahl, gehärteter Stahl Carbide 20/30 coated For stainless steel, high strength alloys, hardened steel		Art. 22 4510 Hartmetall 20/30 beschichtet Für alle Gussarten Carbide 20/30 coated For all kinds of cast iron		Art. 22 5010 Hartmetall 20/30 beschichtet Für Alu, Messing, Kupfer Carbide 20/30 coated For alu, brass, copper		Art. 22 5510 Hartmetall 20/30 beschichtet Für abrasive Materialien wie: GFK, CFK, Graphit Carbide 20/30 coated For abrasive materials such as: fiber-glass, carbon fiber, graphite	
		Art.	€	Art.	€	Art.	€	Art.	€	Art.	€	Art.	€	Art.	€	Art.	€
• 36,00	1.4173	22 2010 0360	56,45	-	-	22 3010 0360	57,15	-	-	-	-	-	-	-	-	-	-
• 37,00	1.4567	22 2010 0370	56,45	-	-	22 3010 0370	57,15	-	-	-	-	-	-	-	-	-	-
• 38,00	1.4961	22 2010 0380	56,45	-	-	22 3010 0380	57,15	-	-	-	-	-	-	-	-	-	-
• 39,00	1.5354	22 2010 0390	56,45	-	-	22 3010 0390	57,15	-	-	-	-	-	-	-	-	-	-
• 40,00	1.5748	22 2010 0400	56,45	-	-	22 3010 0400	57,15	-	-	-	-	-	-	-	-	-	-
• 41,00	1.6142	22 2010 0410	56,45	-	-	22 3010 0410	57,15	-	-	-	-	-	-	-	-	-	-
• 42,00	1.6535	22 2010 0420	56,45	-	-	22 3010 0420	57,15	-	-	-	-	-	-	-	-	-	-
• 43,00	1.6929	22 2010 0430	56,45	-	-	22 3010 0430	57,15	-	-	-	-	-	-	-	-	-	-
• 44,00	1.7323	22 2010 0440	56,45	-	-	22 3010 0440	57,15	-	-	-	-	-	-	-	-	-	-
• 45,00	1.7717	22 2010 0450	56,45	-	-	22 3010 0450	57,15	-	-	-	-	-	-	-	-	-	-
• 46,00	1.8110	22 2010 0460	56,45	-	-	22 3010 0460	57,15	-	-	-	-	-	-	-	-	-	-
• 47,00	1.8504	22 2010 0470	56,45	-	-	22 3010 0470	57,15	-	-	-	-	-	-	-	-	-	-
• 48,00	1.8898	22 2010 0480	80,75	-	-	22 3010 0480	79,30	-	-	-	-	-	-	-	-	-	-
• 49,00	1.9291	22 2010 0490	80,75	-	-	22 3010 0490	79,30	-	-	-	-	-	-	-	-	-	-
• 50,00	1.9685	22 2010 0500	80,75	-	-	22 3010 0500	79,30	-	-	-	-	-	-	-	-	-	-
• 51,00	2.0079	22 2010 0510	80,75	-	-	22 3010 0510	79,30	-	-	-	-	-	-	-	-	-	-
• 52,00	2.0472	22 2010 0520	80,75	-	-	22 3010 0520	79,30	-	-	-	-	-	-	-	-	-	-
• 53,00	2.0866	22 2010 0530	80,75	-	-	22 3010 0530	79,30	-	-	-	-	-	-	-	-	-	-
• 54,00	2.1260	22 2010 0540	80,75	-	-	22 3010 0540	79,30	-	-	-	-	-	-	-	-	-	-
• 55,00	2.1654	22 2010 0550	80,75	-	-	22 3010 0550	79,30	-	-	-	-	-	-	-	-	-	-
• 56,00	2.2047	22 2010 0560	80,75	-	-	22 3010 0560	79,30	-	-	-	-	-	-	-	-	-	-
• 57,00	2.2441	22 2010 0570	80,75	-	-	22 3010 0570	79,30	-	-	-	-	-	-	-	-	-	-
• 58,00	2.2835	22 2010 0580	80,75	-	-	22 3010 0580	79,30	-	-	-	-	-	-	-	-	-	-
• 59,00	2.3228	22 2010 0590	80,75	-	-	22 3010 0590	79,30	-	-	-	-	-	-	-	-	-	-
• 60,00	2.3622	22 2010 0600	80,75	-	-	22 3010 0600	79,30	-	-	-	-	-	-	-	-	-	-
• 61,00	2.4016	22 2010 0610	80,75	-	-	22 3010 0610	79,30	-	-	-	-	-	-	-	-	-	-
• 62,00	2.4409	22 2010 0620	80,75	-	-	22 3010 0620	79,30	-	-	-	-	-	-	-	-	-	-
• 63,00	2.4803	22 2010 0630	80,75	-	-	22 3010 0630	79,30	-	-	-	-	-	-	-	-	-	-
• 64,00	2.5197	22 2010 0640	80,75	-	-	22 3010 0640	79,30	-	-	-	-	-	-	-	-	-	-
• 65,00	2.5591	22 2010 0650	80,75	-	-	22 3010 0650	79,30	-	-	-	-	-	-	-	-	-	-

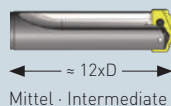
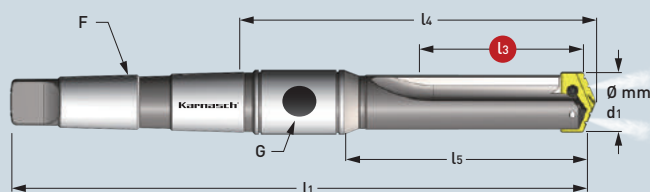
Fortsetzung Seite 316 · Continued page 316

MK 2+3 mit axialer Kühlung
MT 2+3 with axial cooling



MK 2,3,4,5 – Radiale Kühlung
mit Kühlmittelring
MT 2,3,4,5 – Radial coolant
with oil ring

Morsekegel
ISO 296 Typ BEK ·
Morse taper shank
ISO 296 type BEK



l3	l5	l4	l1	F	G	
Nutzlänge	Körperlänge	Neue REF.- Länge	Gesamtlänge	Morsekegel	Gewinde	Kühlmittelring
Max. drill depth	Body-length	REF.-length	Overall length	Morse taper	Pipe tap	Oil ring

Art.	€	mm Zoll / Inch	mm Zoll / Inch	mm Zoll / Inch	mm Zoll / Inch			Art.	€
• 22 1040 05558 0360	635,65	Ø 36,0-47,0 mm 1.4173-1.8504" Ø 36,0-41,0 mm 1.4173-1.6142"	MÖGLICH · POSSIBLE OPTIMAL · OPTIMAL					• 22 9002 03175	46,15
• 22 1040 05558 0420	635,65	Ø 42,0-47,0 mm 1.6535-1.8504"	OPTIMAL · OPTIMAL	558,8 mm 22.0000"	590,6 mm 23.2520"	644,6 mm 25.3780"	757,2 mm 29.8110"	4	1/4"
• 22 1040 06250 0480	783,15	Ø 48,0-65,0 mm 1.8898-2.5591" Ø 48,0-55,0 mm 1.8898-2.1654"	MÖGLICH · POSSIBLE OPTIMAL · OPTIMAL	625,0 mm 24.6063"	660,4 mm 26.0000"	714,4 mm 28.1260"	858,8 mm 33.8110"	5	1/4"
• 22 1040 06250 0560	783,15	Ø 56,0-65,0 mm 2.2047-2.5591"	OPTIMAL · OPTIMAL	625,0 mm 24.6063"	660,4 mm 26.0000"	714,4 mm 28.1260"	858,8 mm 33.8110"	5	1/4"

Fortsetzung Seite 317 · Continued page 317



Schnittdaten
Cutting data

Film
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1134-1143



PULVERSTAHL · POWDER STEEL										HARTMETALL · CARBIDE							
Ø mm d1	Ø Zoll / d1	Art. 22 2010		Art. 22 2510		Art. 22 3010		Art. 22 3510		Art. 22 4010		Art. 22 4510		Art. 22 5010		Art. 22 5510	
		Art.	€	Art.	€	Art.	€	Art.	€	Art.	€	Art.	€	Art.	€	Art.	€
• 64,00	2.5197	-	-	22 2510 0640	101,50	-	-	22 3510 0640	93,45	-	-	-	-	-	-	-	-
• 66,00	2.5984	-	-	22 2510 0660	101,50	-	-	22 3510 0660	93,45	-	-	-	-	-	-	-	-
• 68,00	2.6772	-	-	22 2510 0680	101,50	-	-	22 3510 0680	93,45	-	-	-	-	-	-	-	-
• 70,00	2.7559	-	-	22 2510 0700	101,50	-	-	22 3510 0700	93,45	-	-	-	-	-	-	-	-
• 72,00	2.8346	-	-	22 2510 0720	101,50	-	-	22 3510 0720	93,45	-	-	-	-	-	-	-	-
• 74,00	2.9134	-	-	22 2510 0740	101,50	-	-	22 3510 0740	93,45	-	-	-	-	-	-	-	-
• 76,00	2.9921	-	-	22 2510 0760	101,50	-	-	22 3510 0760	93,45	-	-	-	-	-	-	-	-
• 78,00	3.0709	-	-	22 2510 0780	112,10	-	-	22 3510 0780	104,10	-	-	-	-	-	-	-	-
• 80,00	3.1496	-	-	22 2510 0800	112,10	-	-	22 3510 0800	104,10	-	-	-	-	-	-	-	-
• 82,00	3.2283	-	-	22 2510 0820	112,10	-	-	22 3510 0820	104,10	-	-	-	-	-	-	-	-
• 84,00	3.3071	-	-	22 2510 0840	112,10	-	-	22 3510 0840	104,10	-	-	-	-	-	-	-	-
• 86,00	3.3858	-	-	22 2510 0860	112,10	-	-	22 3510 0860	104,10	-	-	-	-	-	-	-	-
• 88,00	3.4646	-	-	22 2510 0880	112,10	-	-	22 3510 0880	104,10	-	-	-	-	-	-	-	-
• 90,00	3.5433	-	-	22 2510 0900	131,60	-	-	22 3510 0900	122,50	-	-	-	-	-	-	-	-
• 92,00	3.6220	-	-	22 2510 0920	131,60	-	-	22 3510 0920	122,50	-	-	-	-	-	-	-	-
• 94,00	3.7008	-	-	22 2510 0940	131,60	-	-	22 3510 0940	122,50	-	-	-	-	-	-	-	-
• 96,00	3.7795	-	-	22 2510 0960	131,60	-	-	22 3510 0960	122,50	-	-	-	-	-	-	-	-
• 98,00	3.8583	-	-	22 2510 0980	131,60	-	-	22 3510 0980	122,50	-	-	-	-	-	-	-	-
• 100,00	3.9370	-	-	22 2510 1000	131,60	-	-	22 3510 1000	122,50	-	-	-	-	-	-	-	-
• 102,00	4.0157	-	-	22 2510 1020	150,00	-	-	22 3510 1020	140,90	-	-	-	-	-	-	-	-
• 104,00	4.0945	-	-	22 2510 1040	150,00	-	-	22 3510 1040	140,90	-	-	-	-	-	-	-	-
• 106,00	4.1732	-	-	22 2510 1060	150,00	-	-	22 3510 1060	140,90	-	-	-	-	-	-	-	-
• 108,00	4.2520	-	-	22 2510 1080	150,00	-	-	22 3510 1080	140,90	-	-	-	-	-	-	-	-
• 110,00	4.3307	-	-	22 2510 1100	150,00	-	-	22 3510 1100	140,90	-	-	-	-	-	-	-	-
• 112,00	4.4094	-	-	22 2510 1120	150,00	-	-	22 3510 1120	140,90	-	-	-	-	-	-	-	-
• 114,00	4.4882	-	-	22 2510 1140	150,00	-	-	22 3510 1140	140,90	-	-	-	-	-	-	-	-

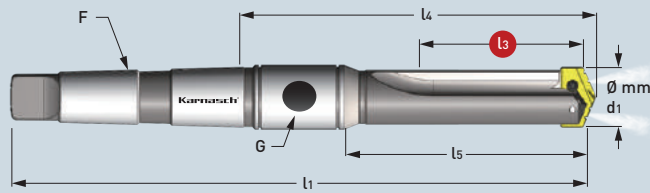
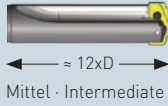
Art. **22 1040**

MK 2+3 mit axialer Kühlung
MT 2+3 with axial cooling



MK 2,3,4,5 – Radiale Kühlung
mit Kühlmittelring
MT 2,3,4,5 – Radial coolant
with oil ring

Morsekegel
ISO 296 Typ BEK ·
Morse taper shank
ISO 296 type BEK



Art.	€	mm Zoll / Inch	mm Zoll / Inch	mm Zoll / Inch	mm Zoll / Inch			Art.	€
• 22 1040 06600 0640	827,95							• 22 9002 05715	83,50
Ø 64,0-88,0 mm 2.5197-3.4646"									
Ø 64,0-76,0 mm 2.5197-2.9921"									
• 22 1040 06600 0780	827,95	660,0 mm 25.9843"	704,8 mm 27.7480"	776,2 mm 30.5591"	919,1 mm 36.1850"	5	1/2"		
Ø 78,0-88,0 mm 3.0709-3.4646"									
• 22 1040 06850 0900	1140,35								
Ø 90,0-114,0 mm 3.5433-4.4882"									
Ø 90,0-100,0 mm 3.5433-3.9370"									
• 22 1040 06850 1020	1140,35	685,0 mm 26.9685"	739,7 mm 29.1220"	811,2 mm 31.9370"	954,0 mm 37.5591"	5	1/2"		
Ø 102,0-114,0 mm 4.0157-4.4882"									

Halter werden **ohne** Einsätze, inklusive 2x TORX Befestigungsschrauben und 1x TORX Schlüssel geliefert.
 Holders are delivered **without** inserts including 2x TORX-screws and 1x TORX wrench.

Für Maschinen ohne axiale/radiale Kühlmittelzufuhr kann ein Kühlmittelring auf den Halter montiert werden. Details siehe Seite 324
 For machines without radial/axial coolant supply a oil ring can be mounted on the holder. Details see page 324



Ersatz-Torxschrauben und Schlüssel mit Drehmomentangabe
 Spare Torx-screws and wrench with torque specification

Ø Diameter		TORX	max. Drehmoment / Torque (N/cm)	Schlüssel / Wrench
mm	Zoll / Inch	€		€
9,5-11,0	0.3740-0.4331	22 9010 0095	84	22 9011 0084
11,5-12,5	0.4528-0.4921	22 9010 0115	84	22 9011 0175
13,0-17,5	0.5118-0.6890	22 9010 0130	175	22 9011 0305
18,0-24,0	0.7087-0.9449	22 9010 0180	305	22 9011 0690
25,0-35,0	0.9843-1.3780	22 9010 0250	690	22 9011 1370
36,0-65,0	1.4173-2.5591	22 9010 0360	1370	22 9011 1750
64,0-114,0	2.5197-4.4882	22 9010 0640	1750	

Schnittdaten
Cutting data



Film
Movie



1134-1143





PULVERSTAHL · POWDER STEEL										HARTMETALL · CARBIDE									
Ø		132°		144°		132°		144°		132°		Guss/Cast iron 132°		132°		132°			
Ø mm d1	Ø Zoll / Inch d1	Art. 22 2010 Pulverstahl 25 beschichtet Für Edelstahl, Stahl, Guss Powder steel 25 coated For stainless steel, steel, cast iron		Art. 22 2510 Pulverstahl 15 beschichtet Für legierte Stähle, Stahl, Guss Powder steel 15 coated For alloy steel, steel, cast iron		Art. 22 3010 Pulverstahl 25 beschichtet Für Alu, Messing, Kupfer Powder steel 25 coated For alu, brass, copper		Art. 22 3510 Pulverstahl 15 beschichtet Für Alu, Messing, Kupfer Powder steel 15 coated For alloy steel, steel, cast iron		Art. 22 4010 Hartmetall 20/30 beschichtet Für Edelstahl, hochfester Stahl, gehärteter Stahl Carbide 20/30 coated For stainless steel, high strength alloys, hardened steel		Art. 22 4510 Hartmetall 20/30 beschichtet Für alle Gussarten Carbide 20/30 coated For all kinds of cast iron		Art. 22 5010 Hartmetall 20/30 beschichtet Für Alu, Messing, Kupfer Carbide 20/30 coated For alu, brass, copper		Art. 22 5510 Hartmetall 20/30 beschichtet Für abrasive Materialien wie: GFK, CFK, Graphit Carbide 20/30 coated For abrasive materials such as: fiber- glass, carbon fiber, graphite			
		Art.	€	Art.	€	Art.	€	Art.	€	Art.	€	Art.	€	Art.	€	Art.	€		
• 36,00	1.4173	22 2010 0360	56,45	-	-	22 3010 0360	57,15	-	-	-	-	-	-	-	-	-	-		
• 37,00	1.4567	22 2010 0370	56,45	-	-	22 3010 0370	57,15	-	-	-	-	-	-	-	-	-	-		
• 38,00	1.4961	22 2010 0380	56,45	-	-	22 3010 0380	57,15	-	-	-	-	-	-	-	-	-	-		
• 39,00	1.5354	22 2010 0390	56,45	-	-	22 3010 0390	57,15	-	-	-	-	-	-	-	-	-	-		
• 40,00	1.5748	22 2010 0400	56,45	-	-	22 3010 0400	57,15	-	-	-	-	-	-	-	-	-	-		
• 41,00	1.6142	22 2010 0410	56,45	-	-	22 3010 0410	57,15	-	-	-	-	-	-	-	-	-	-		
• 42,00	1.6535	22 2010 0420	56,45	-	-	22 3010 0420	57,15	-	-	-	-	-	-	-	-	-	-		
• 43,00	1.6929	22 2010 0430	56,45	-	-	22 3010 0430	57,15	-	-	-	-	-	-	-	-	-	-		
• 44,00	1.7323	22 2010 0440	56,45	-	-	22 3010 0440	57,15	-	-	-	-	-	-	-	-	-	-		
• 45,00	1.7717	22 2010 0450	56,45	-	-	22 3010 0450	57,15	-	-	-	-	-	-	-	-	-	-		
• 46,00	1.8110	22 2010 0460	56,45	-	-	22 3010 0460	57,15	-	-	-	-	-	-	-	-	-	-		
• 47,00	1.8504	22 2010 0470	56,45	-	-	22 3010 0470	57,15	-	-	-	-	-	-	-	-	-	-		
• 48,00	1.8898	22 2010 0480	80,75	-	-	22 3010 0480	79,30	-	-	-	-	-	-	-	-	-	-		
• 49,00	1.9291	22 2010 0490	80,75	-	-	22 3010 0490	79,30	-	-	-	-	-	-	-	-	-	-		
• 50,00	1.9685	22 2010 0500	80,75	-	-	22 3010 0500	79,30	-	-	-	-	-	-	-	-	-	-		
• 51,00	2.0079	22 2010 0510	80,75	-	-	22 3010 0510	79,30	-	-	-	-	-	-	-	-	-	-		
• 52,00	2.0472	22 2010 0520	80,75	-	-	22 3010 0520	79,30	-	-	-	-	-	-	-	-	-	-		
• 53,00	2.0866	22 2010 0530	80,75	-	-	22 3010 0530	79,30	-	-	-	-	-	-	-	-	-	-		
• 54,00	2.1260	22 2010 0540	80,75	-	-	22 3010 0540	79,30	-	-	-	-	-	-	-	-	-	-		
• 55,00	2.1654	22 2010 0550	80,75	-	-	22 3010 0550	79,30	-	-	-	-	-	-	-	-	-	-		
• 56,00	2.2047	22 2010 0560	80,75	-	-	22 3010 0560	79,30	-	-	-	-	-	-	-	-	-	-		
• 57,00	2.2441	22 2010 0570	80,75	-	-	22 3010 0570	79,30	-	-	-	-	-	-	-	-	-	-		
• 58,00	2.2835	22 2010 0580	80,75	-	-	22 3010 0580	79,30	-	-	-	-	-	-	-	-	-	-		
• 59,00	2.3228	22 2010 0590	80,75	-	-	22 3010 0590	79,30	-	-	-	-	-	-	-	-	-	-		
• 60,00	2.3622	22 2010 0600	80,75	-	-	22 3010 0600	79,30	-	-	-	-	-	-	-	-	-	-		
• 61,00	2.4016	22 2010 0610	80,75	-	-	22 3010 0610	79,30	-	-	-	-	-	-	-	-	-	-		
• 62,00	2.4409	22 2010 0620	80,75	-	-	22 3010 0620	79,30	-	-	-	-	-	-	-	-	-	-		
• 63,00	2.4803	22 2010 0630	80,75	-	-	22 3010 0630	79,30	-	-	-	-	-	-	-	-	-	-		
• 64,00	2.5197	22 2010 0640	80,75	-	-	22 3010 0640	79,30	-	-	-	-	-	-	-	-	-	-		
• 65,00	2.5591	22 2010 0650	80,75	-	-	22 3010 0650	79,30	-	-	-	-	-	-	-	-	-	-		

Fortsetzung Seite 320 · Continued page 320

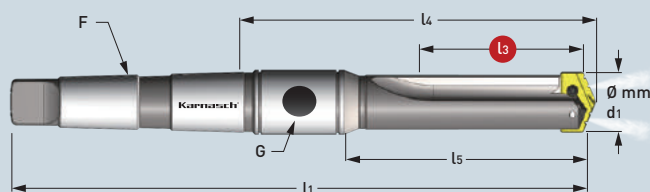
Art. **22 1040**

MK 2+3 mit axialer Kühlung
MT 2+3 with axial cooling



MK 2,3,4,5 – Radiale Kühlung
mit Kühlmittelring
MT 2,3,4,5 – Radial coolant
with oil ring

Morsekegel
ISO 296 Typ BEK
Morse taper shank
ISO 296 type BEK



~ 15xD
Mittel - Intermediate

Gerade genutet -
Straight flute

Art.	€	mm Zoll / Inch	mm Zoll / Inch	mm Zoll / Inch	mm Zoll / Inch			Art.	€
<ul style="list-style-type: none"> 22 1040 07874 0360 Ø 36,0-47,0 mm 1.4173-1.8504" MÖGLICH · POSSIBLE Ø 36,0-41,0 mm 1.4173-1.6142" OPTIMAL · OPTIMAL 22 1040 07874 0420 Ø 42,0-47,0 mm 1.6535-1.8504" OPTIMAL · OPTIMAL 	826,35							<ul style="list-style-type: none"> • 22 9002 03175 46,15 	
<ul style="list-style-type: none"> 22 1040 08790 0480 Ø 48,0-65,0 mm 1.8898-2.5591" MÖGLICH · POSSIBLE Ø 48,0-55,0 mm 1.8898-2.1654" OPTIMAL · OPTIMAL 	979,15	787,4 mm 31.0000"	819,2 mm 32.2520"	873,2 mm 34.3780"	985,8 mm 38.8110"	4	1/4"	<ul style="list-style-type: none"> • 22 9002 04445 60,65 	
<ul style="list-style-type: none"> 22 1040 08790 0560 Ø 56,0-65,0 mm 2.2047-2.5591" OPTIMAL · OPTIMAL 	979,15	879,0 mm 34.6063"	914,4 mm 36.0000"	968,4 mm 38.1260"	1112,8 mm 43.8110"	5	1/4"		

Fortsetzung Seite 321 · Continued page 321



Schnittdaten
Cutting data

Film
Movie

1134-1143



PULVERSTAHL · POWDER STEEL										HARTMETALL · CARBIDE							
Ø		132°		144°		132°		144°		132°		Guss/Cast iron 132°		132°		132°	
Ø mm d1	Ø Zoll / Inch d1	Art. 22 2010 Pulverstahl 25 beschichtet Für Edelstahl, Stahl, Guss Powder steel 25 coated For stainless steel, steel, cast iron		Art. 22 2510 Pulverstahl 15 beschichtet Für legierte Stähle, Stahl, Guss Powder steel 15 coated For alloy steel, steel, cast iron		Art. 22 3010 Pulverstahl 25 beschichtet Für Alu, Messing, Kupfer Powder steel 25 coated For alu, brass, copper		Art. 22 3510 Pulverstahl 15 beschichtet Für Alu, Messing, Kupfer Powder steel 15 coated For alloy steel, steel, cast iron		Art. 22 4010 Hartmetall 20/30 beschichtet Für Edelstahl, hochfester Stahl, gehärteter Stahl Carbide 20/30 coated For stainless steel, high strength alloys, hardened steel		Art. 22 4510 Hartmetall 20/30 beschichtet Für alle Gussarten Carbide 20/30 coated For all kinds of cast iron		Art. 22 5010 Hartmetall 20/30 beschichtet Für Alu, Messing, Kupfer Carbide 20/30 coated For alu, brass, copper		Art. 22 5510 Hartmetall 20/30 beschichtet Für abrasive Materialien wie: GFK, CFK, Graphit Carbide 20/30 coated For abrasive materials such as: fiber-glass, carbon fiber, graphite	
		Art.	€	Art.	€	Art.	€	Art.	€	Art.	€	Art.	€	Art.	€	Art.	€
• 64,00	2.5197	-	-	22 2510 0640	101,50	-	-	22 3510 0640	93,45	-	-	-	-	-	-	-	-
• 66,00	2.5984	-	-	22 2510 0660	101,50	-	-	22 3510 0660	93,45	-	-	-	-	-	-	-	-
• 68,00	2.6772	-	-	22 2510 0680	101,50	-	-	22 3510 0680	93,45	-	-	-	-	-	-	-	-
• 70,00	2.7559	-	-	22 2510 0700	101,50	-	-	22 3510 0700	93,45	-	-	-	-	-	-	-	-
• 72,00	2.8346	-	-	22 2510 0720	101,50	-	-	22 3510 0720	93,45	-	-	-	-	-	-	-	-
• 74,00	2.9134	-	-	22 2510 0740	101,50	-	-	22 3510 0740	93,45	-	-	-	-	-	-	-	-
• 76,00	2.9921	-	-	22 2510 0760	101,50	-	-	22 3510 0760	93,45	-	-	-	-	-	-	-	-
• 78,00	3.0709	-	-	22 2510 0780	112,10	-	-	22 3510 0780	104,10	-	-	-	-	-	-	-	-
• 80,00	3.1496	-	-	22 2510 0800	112,10	-	-	22 3510 0800	104,10	-	-	-	-	-	-	-	-
• 82,00	3.2283	-	-	22 2510 0820	112,10	-	-	22 3510 0820	104,10	-	-	-	-	-	-	-	-
• 84,00	3.3071	-	-	22 2510 0840	112,10	-	-	22 3510 0840	104,10	-	-	-	-	-	-	-	-
• 86,00	3.3858	-	-	22 2510 0860	112,10	-	-	22 3510 0860	104,10	-	-	-	-	-	-	-	-
• 88,00	3.4646	-	-	22 2510 0880	112,10	-	-	22 3510 0880	104,10	-	-	-	-	-	-	-	-
• 90,00	3.5433	-	-	22 2510 0900	131,60	-	-	22 3510 0900	122,50	-	-	-	-	-	-	-	-
• 92,00	3.6220	-	-	22 2510 0920	131,60	-	-	22 3510 0920	122,50	-	-	-	-	-	-	-	-
• 94,00	3.7008	-	-	22 2510 0940	131,60	-	-	22 3510 0940	122,50	-	-	-	-	-	-	-	-
• 96,00	3.7795	-	-	22 2510 0960	131,60	-	-	22 3510 0960	122,50	-	-	-	-	-	-	-	-
• 98,00	3.8583	-	-	22 2510 0980	131,60	-	-	22 3510 0980	122,50	-	-	-	-	-	-	-	-
• 100,00	3.9370	-	-	22 2510 1000	131,60	-	-	22 3510 1000	122,50	-	-	-	-	-	-	-	-
• 102,00	4.0157	-	-	22 2510 1020	150,00	-	-	22 3510 1020	140,90	-	-	-	-	-	-	-	-
• 104,00	4.0945	-	-	22 2510 1040	150,00	-	-	22 3510 1040	140,90	-	-	-	-	-	-	-	-
• 106,00	4.1732	-	-	22 2510 1060	150,00	-	-	22 3510 1060	140,90	-	-	-	-	-	-	-	-
• 108,00	4.2520	-	-	22 2510 1080	150,00	-	-	22 3510 1080	140,90	-	-	-	-	-	-	-	-
• 110,00	4.3307	-	-	22 2510 1100	150,00	-	-	22 3510 1100	140,90	-	-	-	-	-	-	-	-
• 112,00	4.4094	-	-	22 2510 1120	150,00	-	-	22 3510 1120	140,90	-	-	-	-	-	-	-	-
• 114,00	4.4882	-	-	22 2510 1140	150,00	-	-	22 3510 1140	140,90	-	-	-	-	-	-	-	-

Art. **22 1040**

MK 2+3 mit axialer Kühlung
MT 2+3 with axial cooling



MK 2,3,4,5 – Radiale Kühlung
mit Kühlmittelring
MT 2,3,4,5 – Radial coolant
with oil ring

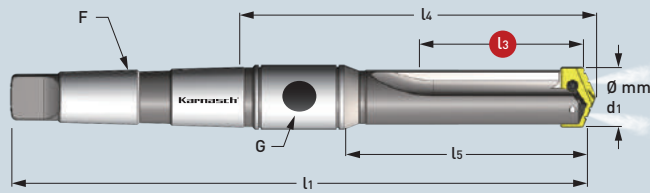
Morsekegel
ISO 296 Typ BEK
Morse taper shank
ISO 296 type BEK



~ 15xD
Mittel - Intermediate



Gerade genutet -
Straight flute



Art.	€	mm Zoll / Inch	mm Zoll / Inch	mm Zoll / Inch	mm Zoll / Inch			Art.	€
• 22 1040 08890 0640	1034,95							• 22 9002 05715	83,50
Ø 64,0-88,0 mm 2.5197-3.4646"									
Ø 64,0-76,0 mm 2.5197-2.9921"									
• 22 1040 08890 0780	1034,95	889,0 mm 35.0000"	933,4 mm 36.7480"	1004,8 mm 39.5591"	1147,7 mm 45.1850"	5	1/2"		
Ø 78,0-88,0 mm 3.0709-3.4646"									
• 22 1040 09390 0900	1425,40								
Ø 90,0-114,0 mm 3.5433-4.4882"									
Ø 90,0-100,0 mm 3.5433-3.9370"									
• 22 1040 09390 1020	1425,40	939,0 mm 36.9685"	993,7 mm 39.1220"	1065,2 mm 41.9370"	1208,0 mm 47.5591"	5	1/2"		
Ø 102,0-114,0 mm 4.0157-4.4882"									

Halter werden **ohne** Einsätze, inklusive 2x TORX Befestigungsschrauben und 1x TORX Schlüssel geliefert.
Holders are delivered **without** inserts including 2x TORX-screws and 1x TORX wrench.

Für Maschinen ohne axiale/radiale Kühlmittelzufuhr kann ein Kühlmittelring auf den Halter montiert werden. Details siehe Seite 324
For machines without radial/axial coolant supply a oil ring can be mounted on the holder. Details see page 324



Ersatz-Torxschrauben und Schlüssel mit Drehmomentangabe
Spare Torx-screws and wrench with torque specification

Ø Diameter		TORX	max. Drehmoment / Torque (N/cm)	Schlüssel / Wrench
mm	Zoll / Inch	€		€
9,5-11,0	0.3740-0.4331	22 9010 0095	84	22 9011 0084
11,5-12,5	0.4528-0.4921	22 9010 0115	84	22 9011 0175
13,0-17,5	0.5118-0.6890	22 9010 0130	175	22 9011 0305
18,0-24,0	0.7087-0.9449	22 9010 0180	305	22 9011 0690
25,0-35,0	0.9843-1.3780	22 9010 0250	690	22 9011 1370
36,0-65,0	1.4173-2.5591	22 9010 0360	1370	22 9011 1750
64,0-114,0	2.5197-4.4882	22 9010 0640	1750	

Schnittdaten
Cutting data



Film
Movie



1134-1143

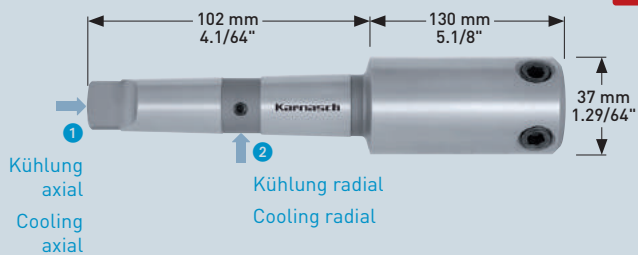


MORSEKONUS · MORSE TAPER
ISO 296 TYP BEK / TYPE BEK

3

€ 57,00 ART. 21 0036

ART. 20 1465



EIGENSCHAFTEN · PROPERTIES

Morsekonus 3 Aufnahme mit obiger ① und/oder seitlicher ② Kühlmittelzufuhr.

Vorteile:

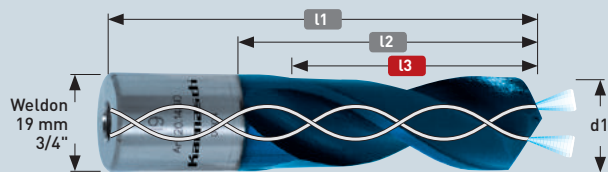
- Ein Morsekonus für alle Bohrer.
- Robust
- Preiswert

Morse taper 3 tool holder with top ① and / or lateral ② cooling supply.

Advantages:

- One morse taper for all drills.
- Robust
- Good value

ART. 20 1465



d1 Ø mm	d1 Ø Zoll/ Inch	Art.	Nutzlänge Max. drill depth L3		Spirallänge Spiral length L2		Gesamtlänge Overall length L1		€
			mm	Zoll/Inch	mm	Zoll/Inch	mm	Zoll/Inch	
● 14	35/64	20 1465 014	50	1.31/32	67	2.41/64	90	3.35/64	78,50
● 15	19/32	20 1465 015	50	1.31/32	67	2.41/64	90	3.35/64	78,50
● 16	5/8	20 1465 016	50	1.31/32	67	2.41/64	90	3.35/64	81,50
● 17	43/64	20 1465 017	55	2.11/64	67	2.41/64	90	3.35/64	81,50
● 18	45/64	20 1465 018	55	2.11/64	67	2.41/64	90	3.35/64	81,50
● 19	3/4	20 1465 019	55	2.11/64	67	2.41/64	90	3.35/64	81,50
● 20	25/32	20 1465 020	55	2.11/64	67	2.41/64	90	3.35/64	87,70
● 21	53/64	20 1465 021	55	2.11/64	67	2.41/64	90	3.35/64	87,70
● 22	55/64	20 1465 022	55	2.11/64	67	2.41/64	90	3.35/64	94,70
● 23	29/32	20 1465 023	55	2.11/64	67	2.41/64	90	3.35/64	94,70
● 24	15/16	20 1465 024	55	2.11/64	67	2.41/64	90	3.35/64	106,35
● 25	63/64	20 1465 025	55	2.11/64	67	2.41/64	90	3.35/64	106,35
● 26	1.1/32	20 1465 026	55	2.11/64	67	2.41/64	90	3.35/64	120,55
● 27	1.1/16	20 1465 027	55	2.11/64	67	2.41/64	90	3.35/64	120,55
● 28	1.7/64	20 1465 028	55	2.11/64	67	2.41/64	90	3.35/64	139,85
● 30	1.3/16	20 1465 030	55	2.11/64	67	2.41/64	90	3.35/64	155,30
● 32	1.17/64	20 1465 032	55	2.11/64	67	2.41/64	90	3.35/64	167,70

EIGENSCHAFTEN · PROPERTIES

ASP-Pulverstahl Bohrer mit Innenkühlung + BLUE-TEC Beschichtung

Gefertigt aus pulvermetallurgischen Schnellarbeitsstahl für:

- Hohe Warmhärte
- Hohe Druckbelastbarkeit
- Hohe Verschleißfestigkeit

Mit BLUE-TEC Beschichtung für eine nochmalige wesentliche Erhöhung der Standzeit auch bei Trockenbearbeitung (ohne/wenig Kühlung)

Zum Bohren in:

- Alle Sorten von Baustähle, Guss und Leichtmetallen.
- Edeltähle (V2A / V4A)
- Rost- und Säurebeständige Stähle
- Titan- und Titanlegierungen

Diese Bohrer sind bis zu 10-mal nachschleifbar und haben somit ein hervorragendes Preis-Leistungs-Verhältnis.

ASP-Powder steel twist drills with internal cooling supply + BLUE-TEC coating

Made of powder metallurgy High Speed speed which results to:

- good thermal curing
- high pressure resistance
- high wear resistance

With BLUE-TEC coating for a further substantial increase in service life also when machining dry (no/little cooling.)

For drilling in:

- All kinds of structural steel, cast iron, non ferrous material.
- High-alloyed chromium steel such as stainless (V2A / V4A)
- Acid resistant steel
- Titanium and titanium alloys

The drills can be resharpended up to 10 times and thus have an excellent cost - performance ratio.

Schnittdaten
Cutting data



Film
Movie



1132



MORSEKONUS · MORSE TAPER
ISO 296 TYP BEK / TYPE BEK

3

• € 58,20 ART. 20 1400



1
Kühlung axial
Cooling axial

2
Kühlung radial
Cooling radial



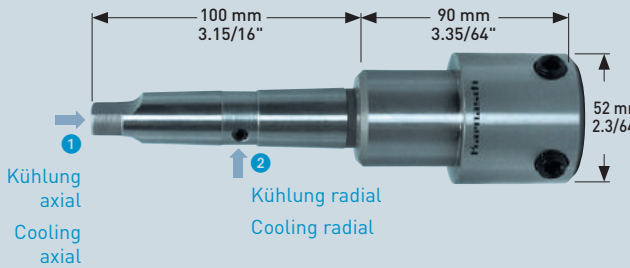
Wir empfehlen unsere Hartmetall-bestückten Kernbohrer HARD-LINE Ø 12-60 mm | 15/32-2.23/64" siehe Seite 334/336

We recommend our carbide-tipped annular cutters HARD-LINE Ø 12-60 mm | 15/32-2.23/64" see page 334/336

MORSEKONUS · MORSE TAPER
ISO 296 TYP BEK / TYPE BEK

3

• € 61,35 ART. 20 1401



1
Kühlung axial
Cooling axial

2
Kühlung radial
Cooling radial



Wir empfehlen unsere Hartmetall-bestückten Kernbohrer HARD-LINE Ø 61-150 mm | 2.13/32-5.29/32" siehe Seite 334/336

We recommend our carbide-tipped annular cutters HARD-LINE Ø 61-150 mm | 2.13/32-5.29/32" see page 334/336

Die Kombination Kernbohrer mit Säge-Bohranlagen ist nicht für die Serienproduktion gedacht, ist aber eine hervorragende Möglichkeit sehr preiswert große Bohrungen zu fertigen.

The combination saw-drilling machines with annular cutters is not intended for mass production, it represents an excellent way to produce very inexpensive large holes.



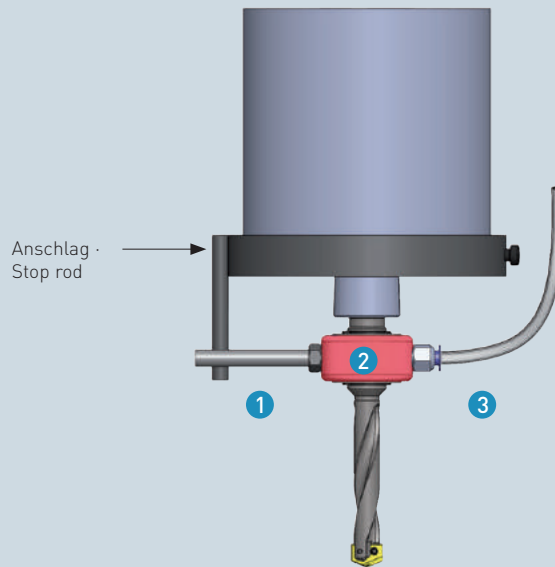
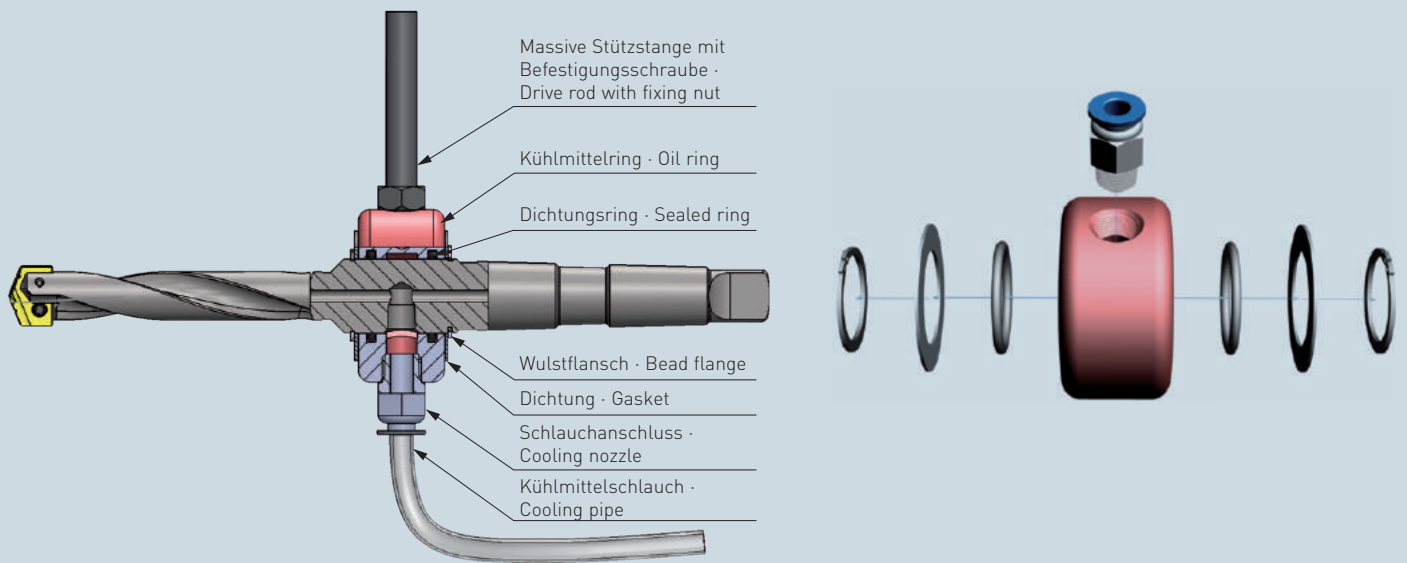
Schnittdaten
Cutting data



Film
Movie



MONTAGE + ZUBEHÖR DES KÜHLMITTELRINGS • OIL RING ASSEMBLY AND ACCESSORIES



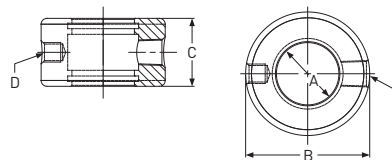
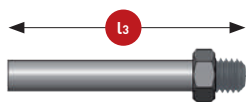
Film Movie



1 Stützstange mit Befestigungsschraube · Drive rod with fixing nut

2 Kühlmittelring · Oil ring

3 Kühlmittelschlauch · Cooling pipe



Art.	€	L3 mm	Art.	€	Ø-Halter Ø-Holder	A Innen-Ø mm Inside-Ø mm	B Außen-Ø mm Outside-Ø mm	C Dicke mm Thickness mm	D Stützstangen Gewinde · Driving rod thread	E Schlauchanschluss Gewinde · Cooling nozzle thread	Art.	€
• 22 9001 08250	5,25	250	22 9002 01905	22,85	9,5-17,5	19,05	44,45	22,23	M8 x 1,25	1/8"	• 22 9003 18	1,85
			22 9002 02540	25,75	18-29	25,40	53,97	28,57	M8 x 1,25	1/8"		
• 22 9001 10250	5,55	250	22 9002 03175	33,35	30-47	31,75	63,50	34,92	M10 x 1,5	1/4"	• 22 9003 14	2,70
			22 9002 04445	43,80	48-65	44,45	76,20	34,92	M10 x 1,5	1/4"		
• 22 9001 12250	5,75	250	22 9002 05715	60,35	64-114	57,15	95,27	44,45	M12 x 1,75	1/2"	• 22 9003 12	4,80

