

SPATENBOHRER

SPADE DRILLS



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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 Bohrwerkzeugen. Spatenbohrer sind eine hervorragende Ergänzung für den Bereich Vollhartmetallbohrer. Spatenbohrer bestehen aus 2 Teilen – Halter und Schneideinsätze.

Die Vorteile sind:

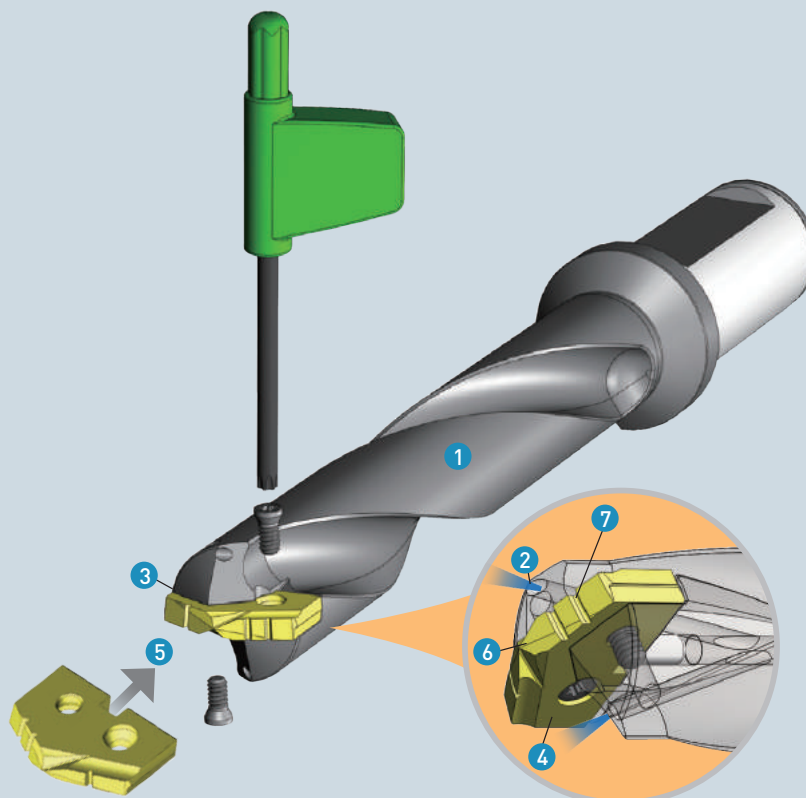
- 1 Es werden nur 14 Halter benötigt um den Durchmesserbereich Ø 9,5 – 114 mm abzudecken.
- 2 Innere Kühlmittelzufuhr für hervorragende Spanabfuhr auch bei tiefen Bohrungen.
- 3 Die hochpräzise Verbindung zwischen Halter und Schneideinsatz gewährleistet engste Toleranzen und leicht zu wechselnde Schneideinsätze.
- 4 Die Schneideinsätze sind aus Pulverstahl oder Hartmetall gefertigt. Zusätzlich erhalten alle Schneideinsätze eine auf Ihren Einsatzzweck optimierte Beschichtung. Aus dieser Kombination resultieren wesentlich höhere Schnittleistungen / Standzeiten als konventionelle Bohrwerkzeuge. (Einsatzparameter siehe Seite 722-731)
- 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, combined with various coatings. This improves extremely the tool life and drilling speed in comparison to normal twist drills (see cutting data page 722-731).
- 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.



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WARUM SPATENBOHRER · WHY SPADE DRILLS

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

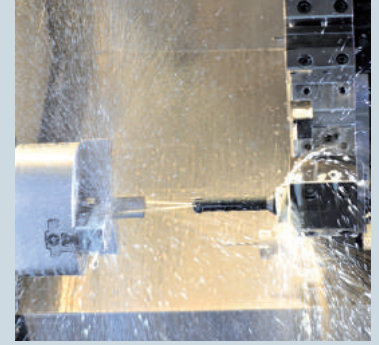
- Numerisch gesteuerte Säulenbohrmaschinen / Radialbohrmaschinen
- Numerisch gesteuerte Drehmaschinen
- Bearbeitungszentren

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

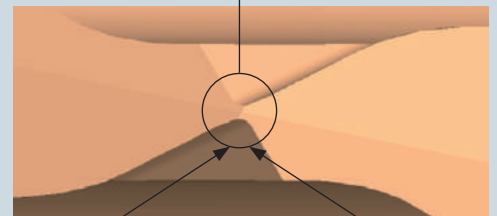
- Increase the strength of insert
- Reduce the wear & tear of outer diameter
- Improve the smoothness on the surface of workpiece

Bohrerspitze

- Durch ausgespitzte Zentrumsschneiden werden die axiale 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

XR chisel edge regrinding

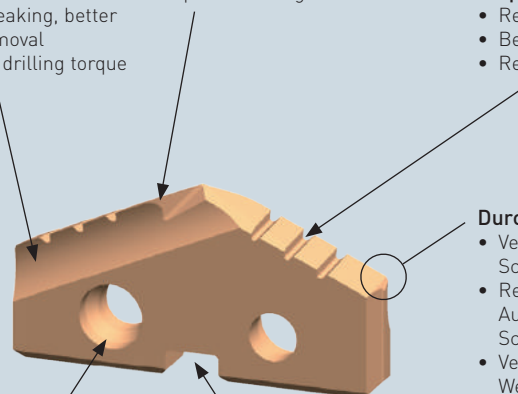
- Improve the strenght of cutting edges
- Increase the stability

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</p>	<p>ART. 22.2010</p> <p>Pulverstahl 25 Beschichtung für Stahl</p> <p>Powder steel 25 Coating for Steel</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</p>	<p>ART. 22.2510</p> <p>Pulverstahl 15 Beschichtung für Stahl</p> <p>Powder steel 15 Coating for Steel</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</p>	<p>ART. 22.3010</p> <p>Pulverstahl 25 Beschichtung für Alu, Messing, Kupfer</p> <p>Powder steel 25 Coating 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</p>	<p>ART. 22.3510</p> <p>Pulverstahl 15 Beschichtung für Alu, Messing, Kupfer</p> <p>Powder steel 15 Coating 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>


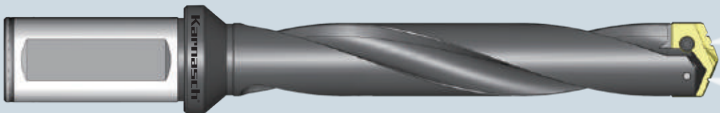
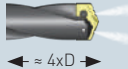
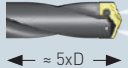
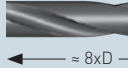


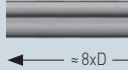
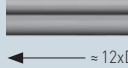
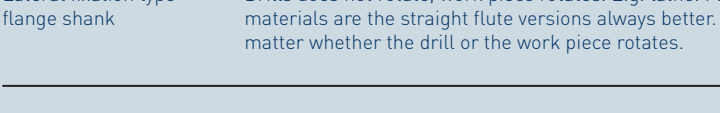

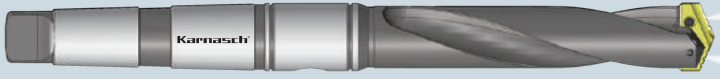
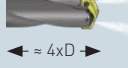
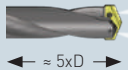


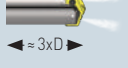
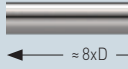

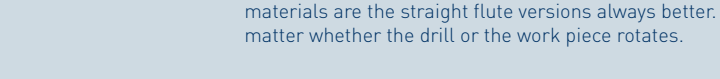




HARTMETALL-EINSÄTZE ANWENDUNG · CARBIDE INSERTS APPLICATION

  <p>Ø 9,5-35 mm</p>	<p>ART. 22.4010</p> <p>Hartmetall 20/30 Beschichtung für Stahl</p> <p>Carbide 20/30 Coating for 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</p>	<p>ART. 22.4510</p> <p>Hartmetall 20/30 Beschichtung für Guss / Geometrie für Guss</p> <p>Carbide 20/30 Coating for cast iron / Geometry for 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</p>	<p>ART. 22.5010</p> <p>Hartmetall 20/30 Beschichtung für Alu, Messing, Kupfer</p> <p>Carbide 20/30 Coating for alu, brass, copper</p>	<p>Zum Bohren aller Nicht-Eisen-Metalle wie Aluminiumguss, Schmiedeauminum, 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</p>	<p>ART. 22.5510</p> <p>Hartmetall 20/30 DIA-Beschichtung für abrasive Materialien wie: GFK, CFK, Graphit</p> <p>Carbide 20/30 DIA-Coating 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 722-731 · Detailed application see page 722-731

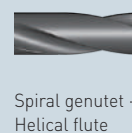
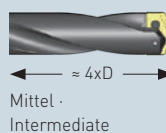
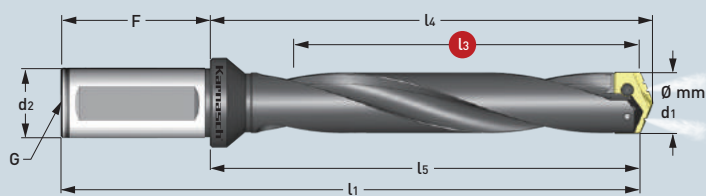


Art. 100 101 102

BESCHREIBUNG DER WERKZEUGHALTER · DESCRIPTION OF HOLDER MODELS		SCHNITTtieFE · CUTTING DEPTHS	Ø mm			
 Schaft DIN 1835-B Zylindrischer Schaft mit Spannfläche Shank DIN 1835-B Lateral fixation type flange shank	Spiral genutet Bohrer rotiert, Werkstück steht still. Z.B. Säulenbohrmaschinen, Radialbohrmaschinen. Spiralgenutete Werkzeughalter sind die am meisten verwendeten.	 ← ≈ 4xD →	Ø 18-47 mm	191		
		 ← ≈ 5xD →	Ø 9,5-65 mm	193/195		
		 ← ≈ 8xD →	Ø 9,5-35 mm	197		
 Schaft DIN 1835-B Zylindrischer Schaft mit Spannfläche Shank DIN 1835-B Lateral fixation type flange shank	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.	 ← ≈ 3xD →	Ø 9,5-65 mm	199/201		
		 ← ≈ 8xD →	Ø 36-65 mm	203		
		 ← ≈ 12xD →	Ø 9,5-65 mm	205/207		
 Schaft DIN 1835-B Lateral fixation type flange shank	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.	 ← ≈ 15xD →	Ø 9,5-65 mm	209/211		
		 Morsekegel ISO 296 Typ BEK Morse taper shank ISO 296 type BEK	Spiral genutet Bohrer rotiert, Werkstück steht still. Z.B. Säulenbohrmaschinen, Radialbohrmaschinen. Spiralgenutete Werkzeughalter sind die am meisten verwendeten.	 ← ≈ 4xD →	Ø 18-47 mm	213
				 ← ≈ 5xD →	Ø 9,5-65 mm	215/217
 ← ≈ 8xD →	Ø 9,5-35 mm			219		
 Morsekegel ISO 296 Typ BEK Morse taper shank ISO 296 type BEK	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.	 ← ≈ 3xD →	Ø 9,5-114 mm	221/223		
		 ← ≈ 8xD →	Ø 36-114 mm	225/227		
		 ← ≈ 12xD →	Ø 36-114 mm	229/231		
 Morse taper shank ISO 296 type BEK	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.	 ← ≈ 15xD →	Ø 36-114 mm	233/235		
		  	Sonderlösungen mit Pulverstahl Vollbohrern und Kernbohrer bis Ø 150 mm (siehe Seite 236/237) Special solutions with powder steel twist drill and annular cutter up to Ø 150 mm (see page 236/237)			



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

	Art. 22.2010		Art. 22.2510		Art. 22.3010		Art. 22.3510		Art. 22.4010		Art. 22.4510		Art. 22.5010		Art. 22.5510	
Ø mm d1	Pulverstahl 25 Beschichtung für Stahl		Pulverstahl 15 Beschichtung für Stahl		Pulverstahl 25 Beschichtung für Alu, Messing, Kupfer		Pulverstahl 15 Beschichtung für Alu, Messing, Kupfer		Hartmetall 20/30 Beschichtung für Stahl		Hartmetall 20/30 Beschichtung für Guss / Geometrie für Guss		Hartmetall 20/30 Beschichtung für Alu, Messing, Kupfer		Hartmetall 20/30 DIA-Beschichtung für abrasive Materialien wie: GFK, CFK, Graphit	
	Powder steel 25 Coating for steel		Powder steel 15 Coating for steel		Powder steel 25 Coating for alu, brass, copper		Powder steel 15 Coating for alu, brass, copper		Carbide 20/30 Coating for steel		Carbide 20/30 Coating for cast iron / Geometry for cast iron		Carbide 20/30 Coating for alu, brass, copper		Carbide 20/30 DIA-Coating for abrasive materials such as: fiberglass, carbon fiber, graphite	
	Art.	€	Art.	€	Art.	€	Art.	€	Art.	€	Art.	€	Art.	€	Art.	€
18,00	222010.0180	35,20	-	-	223010.0180	38,45	-	-	224010.0180	46,40	224510.0180	46,40	225010.0180	51,70	225510.0180	81,45
18,50	222010.0185	35,20	-	-	223010.0185	38,45	-	-	224010.0185	46,40	224510.0185	46,40	225010.0185	51,70	225510.0185	81,45
19,00	222010.0190	35,20	-	-	223010.0190	38,45	-	-	224010.0190	46,40	224510.0190	46,40	225010.0190	51,70	225510.0190	102,55
19,50	222010.0195	35,20	-	-	223010.0195	38,45	-	-	224010.0195	46,40	224510.0195	46,40	225010.0195	51,70	225510.0195	102,55
20,00	222010.0200	35,20	-	-	223010.0200	38,45	-	-	224010.0200	46,40	224510.0200	46,40	225010.0200	51,70	225510.0200	102,55
20,50	222010.0205	35,20	-	-	223010.0205	38,45	-	-	224010.0205	46,40	224510.0205	46,40	225010.0205	51,70	225510.0205	118,20
21,00	222010.0210	35,20	-	-	223010.0210	38,45	-	-	224010.0210	46,40	224510.0210	46,40	225010.0210	51,70	225510.0210	118,20
22,00	222010.0220	35,20	-	-	223010.0220	38,45	-	-	224010.0220	46,40	224510.0220	46,40	225010.0220	51,70	225510.0220	118,20
23,00	222010.0230	35,20	-	-	223010.0230	38,45	-	-	224010.0230	46,40	224510.0230	46,40	225010.0230	51,70	225510.0230	118,20
24,00	222010.0240	35,20	-	-	223010.0240	38,45	-	-	224010.0240	46,40	224510.0240	46,40	225010.0240	51,70	225510.0240	118,20
25,00	222010.0250	41,20	-	-	223010.0250	43,40	-	-	224010.0250	54,35	224510.0250	54,35	225010.0250	58,55	225510.0250	125,10
26,00	222010.0260	41,20	-	-	223010.0260	43,40	-	-	224010.0260	54,35	224510.0260	54,35	225010.0260	58,55	225510.0260	125,10
27,00	222010.0270	41,20	-	-	223010.0270	43,40	-	-	224010.0270	54,35	224510.0270	54,35	225010.0270	58,55	225510.0270	125,10
28,00	222010.0280	41,20	-	-	223010.0280	43,40	-	-	224010.0280	54,35	224510.0280	54,35	225010.0280	58,55	225510.0280	125,10
29,00	222010.0290	41,20	-	-	223010.0290	43,40	-	-	224010.0290	54,35	224510.0290	54,35	225010.0290	58,55	225510.0290	125,10
30,00	222010.0300	41,20	-	-	223010.0300	43,40	-	-	224010.0300	54,35	224510.0300	54,35	225010.0300	58,55	225510.0300	125,10
31,00	222010.0310	41,20	-	-	223010.0310	43,40	-	-	224010.0310	54,35	224510.0310	54,35	225010.0310	58,55	225510.0310	125,10
32,00	222010.0320	41,20	-	-	223010.0320	43,40	-	-	224010.0320	54,35	224510.0320	54,35	225010.0320	58,55	225510.0320	125,10
33,00	222010.0330	41,20	-	-	223010.0330	43,40	-	-	224010.0330	54,35	224510.0330	54,35	225010.0330	58,55	225510.0330	132,60
34,00	222010.0340	41,20	-	-	223010.0340	43,40	-	-	224010.0340	54,35	224510.0340	54,35	225010.0340	58,55	225510.0340	132,60
35,00	222010.0350	41,20	-	-	223010.0350	43,40	-	-	224010.0350	54,35	224510.0350	54,35	225010.0350	58,55	225510.0350	132,60
36,00	222010.0360	56,45	-	-	223010.0360	57,15	-	-	-	-	-	-	-	-	-	-
37,00	222010.0370	56,45	-	-	223010.0370	57,15	-	-	-	-	-	-	-	-	-	-
38,00	222010.0380	56,45	-	-	223010.0380	57,15	-	-	-	-	-	-	-	-	-	-
39,00	222010.0390	56,45	-	-	223010.0390	57,15	-	-	-	-	-	-	-	-	-	-
40,00	222010.0400	56,45	-	-	223010.0400	57,15	-	-	-	-	-	-	-	-	-	-
41,00	222010.0410	56,45	-	-	223010.0410	57,15	-	-	-	-	-	-	-	-	-	-
42,00	222010.0420	56,45	-	-	223010.0420	57,15	-	-	-	-	-	-	-	-	-	-
43,00	222010.0430	56,45	-	-	223010.0430	57,15	-	-	-	-	-	-	-	-	-	-
44,00	222010.0440	56,45	-	-	223010.0440	57,15	-	-	-	-	-	-	-	-	-	-
45,00	222010.0450	56,45	-	-	223010.0450	57,15	-	-	-	-	-	-	-	-	-	-
46,00	222010.0460	56,45	-	-	223010.0460	57,15	-	-	-	-	-	-	-	-	-	-
47,00	222010.0470	56,45	-	-	223010.0470	57,15	-	-	-	-	-	-	-	-	-	-



Weitere Ø bis maximal Ø 65 in 5xD siehe Seite 194
Further Ø up to Ø 65 in 5xD see page 194





Schnittdaten
Cutting data



722-731

Video



Typ Halter · Type holder 300 SZ-4

Art.	€	l3 Nutzlänge Max. drill depth mm	l5 Körperlänge Body-length mm	l4 Neue REF.-Länge REF.-length mm	l1 Gesamtlänge Overall length mm	d2 Schaft-Ø Shank-Ø mm	F Schaftlänge Shank length mm	G Gewinde Pipe tap mm
<ul style="list-style-type: none"> 221010.01175.0180 Ø 18,0-24,0 mm MÖGLICH · POSSIBLE Ø 18,0-21,0 mm OPTIMAL · OPTIMAL 	161,60							
<ul style="list-style-type: none"> 221010.01175.0220 Ø 22,0-24,0 mm OPTIMAL · OPTIMAL 	161,60	117,5	154,8	158,4	210,8	25	56,0	1/8"
<ul style="list-style-type: none"> 221010.01365.0255 Ø 25,0-35,0 mm MÖGLICH · POSSIBLE Ø 25,0-29,0 mm OPTIMAL · OPTIMAL 	210,55							
<ul style="list-style-type: none"> 221010.01365.0300 Ø 30,0-35,0 mm OPTIMAL · OPTIMAL 	210,55	136,5	179,4	183,0	239,4	32	60,0	1/4"
<ul style="list-style-type: none"> 221010.01651.0360 Ø 36,0-47,0 mm MÖGLICH · POSSIBLE Ø 36,0-41,0 mm OPTIMAL · OPTIMAL 	298,55							
<ul style="list-style-type: none"> 221010.01651.0420 Ø 42,0-47,0 mm OPTIMAL · OPTIMAL 	298,55	165,1	217,5	222,3	287,5	40	70,0	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 (mm)	TORX		max. Drehmoment / Torque (N/cm)	Schlüssel / Wrench		
						€
9,5 - 11,0		229010.0095	3,60	84	229011.0084	6,45
11,5 - 12,5		229010.0115	3,60	84		
13,0 - 17,5		229010.0130	3,60	175	229011.0175	6,45
18,0 - 24,0		229010.0180	3,60	305	229011.0305	11,30
25,0 - 35,0		229010.0250	3,70	690	229011.0690	12,10
36,0 - 65,0		229010.0360	3,75	1370	229011.1370	13,15
64,0 - 114,0		229010.0640	3,80	1750	229011.1750	19,35

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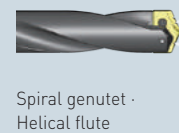
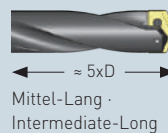
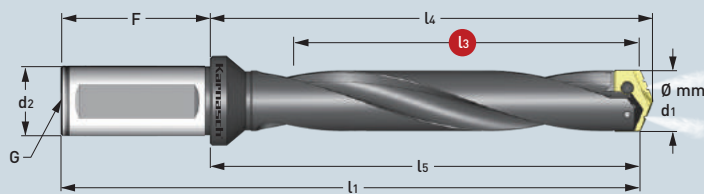


10



Art.
100
101
102

Karnasch® SPATENBOHRER EINSÄTZE • SPADE DRILL INSERTS



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

Ø mm 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	222010.0095	24,30	-	-	223010.0095	24,95	-	-	224010.0095	30,35	224510.0095	30,35	225010.0095	32,00	225510.0095	66,45
○ 9,80	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
● 10,00	222010.0100	24,30	-	-	223010.0100	24,95	-	-	224010.0100	30,35	224510.0100	30,35	225010.0100	32,00	225510.0100	66,45
● 10,20	222010.0102	24,30	-	-	223010.0102	24,95	-	-	224010.0102	30,35	224510.0102	30,35	225010.0102	32,00	225510.0102	66,45
● 10,50	222010.0105	24,30	-	-	223010.0105	24,95	-	-	224010.0105	30,35	224510.0105	30,35	225010.0105	32,00	225510.0105	66,45
● 10,80	222010.0108	24,30	-	-	223010.0108	24,95	-	-	224010.0108	30,35	224510.0108	30,35	225010.0108	32,00	225510.0108	66,45
● 11,00	222010.0110	24,30	-	-	223010.0110	24,95	-	-	224010.0110	30,35	224510.0110	30,35	225010.0110	32,00	225510.0110	66,45
● 11,50	222010.0115	24,30	-	-	223010.0115	24,95	-	-	224010.0115	30,35	224510.0115	30,35	225010.0115	32,00	225510.0115	66,45
● 12,00	222010.0120	24,30	-	-	223010.0120	24,95	-	-	224010.0120	30,35	224510.0120	30,35	225010.0120	32,00	225510.0120	66,45
● 12,50	222010.0125	24,30	-	-	223010.0125	24,95	-	-	224010.0125	30,35	224510.0125	30,35	225010.0125	32,00	225510.0125	66,45
● 13,00	222010.0130	27,65	-	-	223010.0130	27,80	-	-	224010.0130	35,70	224510.0130	35,70	225010.0130	36,85	225510.0130	71,25
● 13,50	222010.0135	27,65	-	-	223010.0135	27,80	-	-	224010.0135	35,70	224510.0135	35,70	225010.0135	36,85	225510.0135	71,25
● 14,00	222010.0140	27,65	-	-	223010.0140	27,80	-	-	224010.0140	35,70	224510.0140	35,70	225010.0140	36,85	225510.0140	71,25
● 14,50	222010.0145	27,65	-	-	223010.0145	27,80	-	-	224010.0145	35,70	224510.0145	35,70	225010.0145	36,85	225510.0145	71,25
● 15,00	222010.0150	27,65	-	-	223010.0150	27,80	-	-	224010.0150	35,70	224510.0150	35,70	225010.0150	36,85	225510.0150	71,25
● 15,50	222010.0155	27,65	-	-	223010.0155	27,80	-	-	224010.0155	35,70	224510.0155	35,70	225010.0155	36,85	225510.0155	71,25
● 16,00	222010.0160	27,65	-	-	223010.0160	27,80	-	-	224010.0160	35,70	224510.0160	35,70	225010.0160	36,85	225510.0160	71,25
● 16,50	222010.0165	27,65	-	-	223010.0165	27,80	-	-	224010.0165	35,70	224510.0165	35,70	225010.0165	36,85	225510.0165	71,25
● 17,00	222010.0170	27,65	-	-	223010.0170	27,80	-	-	224010.0170	35,70	224510.0170	35,70	225010.0170	36,85	225510.0170	71,25
● 17,50	222010.0175	27,65	-	-	223010.0175	27,80	-	-	224010.0175	35,70	224510.0175	35,70	225010.0175	36,85	225510.0175	71,25
● 18,00	222010.0180	35,20	-	-	223010.0180	38,45	-	-	224010.0180	46,40	224510.0180	46,40	225010.0180	51,70	225510.0180	81,45
● 18,50	222010.0185	35,20	-	-	223010.0185	38,45	-	-	224010.0185	46,40	224510.0185	46,40	225010.0185	51,70	225510.0185	81,45
● 19,00	222010.0190	35,20	-	-	223010.0190	38,45	-	-	224010.0190	46,40	224510.0190	46,40	225010.0190	51,70	225510.0190	102,55
● 19,50	222010.0195	35,20	-	-	223010.0195	38,45	-	-	224010.0195	46,40	224510.0195	46,40	225010.0195	51,70	225510.0195	102,55
● 20,00	222010.0200	35,20	-	-	223010.0200	38,45	-	-	224010.0200	46,40	224510.0200	46,40	225010.0200	51,70	225510.0200	102,55
● 20,50	222010.0205	35,20	-	-	223010.0205	38,45	-	-	224010.0205	46,40	224510.0205	46,40	225010.0205	51,70	225510.0205	118,20
● 21,00	222010.0210	35,20	-	-	223010.0210	38,45	-	-	224010.0210	46,40	224510.0210	46,40	225010.0210	51,70	225510.0210	118,20
● 22,00	222010.0220	35,20	-	-	223010.0220	38,45	-	-	224010.0220	46,40	224510.0220	46,40	225010.0220	51,70	225510.0220	118,20
● 23,00	222010.0230	35,20	-	-	223010.0230	38,45	-	-	224010.0230	46,40	224510.0230	46,40	225010.0230	51,70	225510.0230	118,20
● 24,00	222010.0240	35,20	-	-	223010.0240	38,45	-	-	224010.0240	46,40	224510.0240	46,40	225010.0240	51,70	225510.0240	118,20
● 25,00	222010.0250	41,20	-	-	223010.0250	43,40	-	-	224010.0250	54,35	224510.0250	54,35	225010.0250	58,55	225510.0250	125,10
● 26,00	222010.0260	41,20	-	-	223010.0260	43,40	-	-	224010.0260	54,35	224510.0260	54,35	225010.0260	58,55	225510.0260	125,10
● 27,00	222010.0270	41,20	-	-	223010.0270	43,40	-	-	224010.0270	54,35	224510.0270	54,35	225010.0270	58,55	225510.0270	125,10
● 28,00	222010.0280	41,20	-	-	223010.0280	43,40	-	-	224010.0280	54,35	224510.0280	54,35	225010.0280	58,55	225510.0280	125,10
● 29,00	222010.0290	41,20	-	-	223010.0290	43,40	-	-	224010.0290	54,35	224510.0290	54,35	225010.0290	58,55	225510.0290	125,10
● 30,00	222010.0300	41,20	-	-	223010.0300	43,40	-	-	224010.0300	54,35	224510.0300	54,35	225010.0300	58,55	225510.0300	125,10
● 31,00	222010.0310	41,20	-	-	223010.0310	43,40	-	-	224010.0310	54,35	224510.0310	54,35	225010.0310	58,55	225510.0310	125,10
● 32,00	222010.0320	41,20	-	-	223010.0320	43,40	-	-	224010.0320	54,35	224510.0320	54,35	225010.0320	58,55	225510.0320	125,10
● 33,00	222010.0330	41,20	-	-	223010.0330	43,40	-	-	224010.0330	54,35	224510.0330	54,35	225010.0330	58,55	225510.0330	132,60
● 34,00	222010.0340	41,20	-	-	223010.0340	43,40	-	-	224010.0340	54,35	224510.0340	54,35	225010.0340	58,55	225510.0340	132,60
● 35,00	222010.0350	41,20	-	-	223010.0350	43,40	-	-	224010.0350	54,35	224510.0350	54,35	225010.0350	58,55	225510.0350	132,60
● 36,00	222010.0360	56,45	-	-	223010.0360	57,15	-	-	-	-	-	-	-	-	-	-
● 37,00	222010.0370	56,45	-	-	223010.0370	57,15	-	-	-	-	-	-	-	-	-	-
● 38,00	222010.0380	56,45	-	-	223010.0380	57,15	-	-	-	-	-	-	-	-	-	-
● 39,00	222010.0390	56,45	-	-	223010.0390	57,15	-	-	-	-	-	-	-	-	-	-
● 40,00	222010.0400	56,45	-	-	223010.0400	57,15	-	-	-	-	-	-	-	-	-	-
● 41,00	222010.0410	56,45	-	-	223010.0410	57,15	-	-	-	-	-	-	-	-	-	-
● 42,00	222010.0420	56,45	-	-	223010.0420	57,15	-	-	-	-	-	-	-	-	-	-
● 43,00	222010.0430	56,45	-	-	223010.0430	57,15	-	-	-	-	-	-	-	-	-	-
● 44,00	222010.0440	56,45	-	-	223010.0440	57,15	-	-	-	-	-	-	-	-	-	-
● 45,00	222010.0450	56,45	-	-	223010.0450	57,15	-	-	-	-	-	-	-	-	-	-
● 46,00	222010.0460	56,45	-	-	223010.0460	57,15	-	-	-	-	-	-	-	-	-	-
● 47,00	222010.0470	56,45	-	-	223010.0470	57,15	-	-	-	-	-	-	-	-	-	-

Fortsetzung Seite 194 · Continued page 194

Schnittdaten
Cutting data

 Art. **22.1010**


722-731

Video



Typ Halter · Type holder 400 SZ-5

Art.	€	l₃ Nutzlänge Max. drill depth mm	l₅ Körperlänge Body-length mm	l₄ Neue REF.-Länge REF.-length mm	l₁ Gesamtlänge Overall length mm	d₂ Schaft-Ø Shank-Ø mm	F Schaftlänge Shank length mm	G Gewinde Pipe tap mm
• 221010.00603.0095 Ø 9,5-11,0 mm OPTIMAL · OPTIMAL	127,15	60,3	89,7	92,1	139,7	20	50,0	1/8"
• 221010.00603.0115 Ø 11,5-12,5 mm OPTIMAL · OPTIMAL	127,15	60,3	89,7	92,1	139,7	20	50,0	1/8"
• 221010.00635.0130 Ø 13,0-17,5 mm MÖGLICH · POSSIBLE Ø 13,0-15,0 mm OPTIMAL · OPTIMAL	134,55	63,5	92,1	94,9	142,1	20	50,0	1/8"
• 221010.00635.0155 Ø 15,5-17,5 mm OPTIMAL · OPTIMAL	134,55	63,5	92,1	94,9	142,1	20	50,0	1/8"
• 221010.01683.0180 Ø 18,0-24,0 mm MÖGLICH · POSSIBLE Ø 18,0-21,0 mm OPTIMAL · OPTIMAL	185,15	168,3	205,6	209,2	261,6	25	56,0	1/8"
• 221010.01683.0220 Ø 22,0-24,0 mm OPTIMAL · OPTIMAL	185,15	168,3	205,6	209,2	261,6	25	56,0	1/8"
• 221010.01873.0250 Ø 25,0-35,0 mm MÖGLICH · POSSIBLE Ø 25,0-29,0 mm OPTIMAL · OPTIMAL	237,55	187,3	230,2	233,8	290,2	32	60,0	1/4"
• 221010.01873.0300 Ø 30,0-35,0 mm OPTIMAL · OPTIMAL	237,55	187,3	230,2	233,8	290,2	32	60,0	1/4"
• 221010.02096.0360 Ø 36,0-47,0 mm MÖGLICH · POSSIBLE Ø 36,0-41,0 mm OPTIMAL · OPTIMAL	321,95	209,6	261,9	266,7	331,9	40	70,0	1/4"
• 221010.02096.0420 Ø 42,0-47,0 mm OPTIMAL · OPTIMAL	321,95	209,6	261,9	266,7	331,9	40	70,0	1/4"

Fortsetzung Seite 195 · Continued page 195

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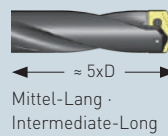
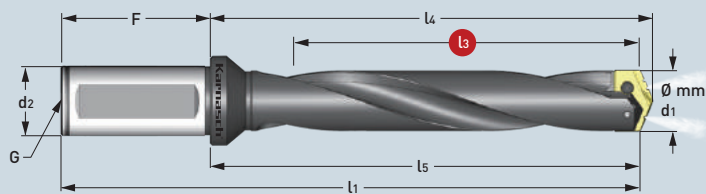


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 Art.
100
101
102



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

Ø mm 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.	€
48,00	222010.0480	80,75	-	-	223010.0480	79,30	-	-	-	-	-	-	-	-	-	-
49,00	222010.0490	80,75	-	-	223010.0490	79,30	-	-	-	-	-	-	-	-	-	-
50,00	222010.0500	80,75	-	-	223010.0500	79,30	-	-	-	-	-	-	-	-	-	-
51,00	222010.0510	80,75	-	-	223010.0510	79,30	-	-	-	-	-	-	-	-	-	-
52,00	222010.0520	80,75	-	-	223010.0520	79,30	-	-	-	-	-	-	-	-	-	-
53,00	222010.0530	80,75	-	-	223010.0530	79,30	-	-	-	-	-	-	-	-	-	-
54,00	222010.0540	80,75	-	-	223010.0540	79,30	-	-	-	-	-	-	-	-	-	-
55,00	222010.0550	80,75	-	-	223010.0550	79,30	-	-	-	-	-	-	-	-	-	-
56,00	222010.0560	80,75	-	-	223010.0560	79,30	-	-	-	-	-	-	-	-	-	-
57,00	222010.0570	80,75	-	-	223010.0570	79,30	-	-	-	-	-	-	-	-	-	-
58,00	222010.0580	80,75	-	-	223010.0580	79,30	-	-	-	-	-	-	-	-	-	-
59,00	222010.0590	80,75	-	-	223010.0590	79,30	-	-	-	-	-	-	-	-	-	-
60,00	222010.0600	80,75	-	-	223010.0600	79,30	-	-	-	-	-	-	-	-	-	-
61,00	222010.0610	80,75	-	-	223010.0610	79,30	-	-	-	-	-	-	-	-	-	-
62,00	222010.0620	80,75	-	-	223010.0620	79,30	-	-	-	-	-	-	-	-	-	-
63,00	222010.0630	80,75	-	-	223010.0630	79,30	-	-	-	-	-	-	-	-	-	-
64,00	222010.0640	80,75	-	-	223010.0640	79,30	-	-	-	-	-	-	-	-	-	-
65,00	222010.0650	80,75	-	-	223010.0650	79,30	-	-	-	-	-	-	-	-	-	-

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Schnittdaten
Cutting data

Art. **22.1010**



722-731

Video



Typ Halter · Type holder 400 SZ-5

Art.	€	l3 Nutzlänge Max. drill depth mm	l5 Körperlänge Body-length mm	l4 Neue REF.- Länge REF.-length mm	l1 Gesamtlänge Overall length mm	d2 Schaft-Ø Shank-Ø mm	F Schaftlänge Shank length mm	G Gewinde Pipe tap mm
<ul style="list-style-type: none"> 221010.02318.0480 Ø 48,0-65 mm MÖGLICH · POSSIBLE Ø 48,0-55 mm OPTIMAL · OPTIMAL 	345,60	231,8	281,0	285,8	351,0	40	70,0	1/4"
<ul style="list-style-type: none"> 221010.02318.0560 Ø 56,0-65,0 mm OPTIMAL · OPTIMAL 	345,60	231,8	281,0	285,8	351,0	40	70,0	1/4"

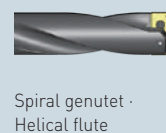
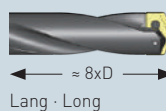
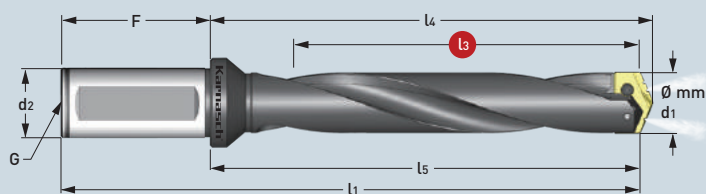
Halter werden **ohne** Einsätze inklusive 2x TORX Befestigungsschrauben und 1x TORX Schlüssel geliefert.
 Holders are delivered **without** inserts including 2x TORX-screws and 1x TORX wrench.

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

Ø Diameter (mm)	TORX		max. Drehmoment / Torque (N/cm)	Schlüssel / Wrench		
				€		€
9,5 - 11,0		229010.0095	84		229011.0084	6,45
11,5 - 12,5		229010.0115	84		229011.0175	6,45
13,0 - 17,5		229010.0130	175		229011.0305	11,30
18,0 - 24,0		229010.0180	305		229011.0690	12,10
25,0 - 35,0		229010.0250	690		229011.1370	13,15
36,0 - 65,0		229010.0360	1370		229011.1750	19,35
64,0 - 114,0		229010.0640	1750			



Art.
100
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DIN 1835-B
Zylindrischer Schaft mit Spannfläche · Lateral fixation type flange shank

	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 Beschichtung für Stahl		Pulverstahl 15 Beschichtung für Stahl		Pulverstahl 25 Beschichtung für Alu, Messing, Kupfer		Pulverstahl 15 Beschichtung für Alu, Messing, Kupfer		Hartmetall 20/30 Beschichtung für Stahl		Hartmetall 20/30 Beschichtung für Guss / Geometrie für Guss		Hartmetall 20/30 Beschichtung für Alu, Messing, Kupfer		Hartmetall 20/30 DIA-Beschichtung für abrasive Materialien wie: GFK, CFK, Graphit	
Ø mm d1	Art.	€	Art.	€	Art.	€	Art.	€	Art.	€	Art.	€	Art.	€	Art.	€
● 9,50	222010.0095	24,30	-	-	223010.0095	24,95	-	-	224010.0095	30,35	224510.0095	30,35	225010.0095	32,00	225510.0095	66,45
○ 9,80	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
● 10,00	222010.0100	24,30	-	-	223010.0100	24,95	-	-	224010.0100	30,35	224510.0100	30,35	225010.0100	32,00	225510.0100	66,45
● 10,20	222010.0102	24,30	-	-	223010.0102	24,95	-	-	224010.0102	30,35	224510.0102	30,35	225010.0102	32,00	225510.0102	66,45
● 10,50	222010.0105	24,30	-	-	223010.0105	24,95	-	-	224010.0105	30,35	224510.0105	30,35	225010.0105	32,00	225510.0105	66,45
● 10,80	222010.0108	24,30	-	-	223010.0108	24,95	-	-	224010.0108	30,35	224510.0108	30,35	225010.0108	32,00	225510.0108	66,45
● 11,00	222010.0110	24,30	-	-	223010.0110	24,95	-	-	224010.0110	30,35	224510.0110	30,35	225010.0110	32,00	225510.0110	66,45
● 11,50	222010.0115	24,30	-	-	223010.0115	24,95	-	-	224010.0115	30,35	224510.0115	30,35	225010.0115	32,00	225510.0115	66,45
● 12,00	222010.0120	24,30	-	-	223010.0120	24,95	-	-	224010.0120	30,35	224510.0120	30,35	225010.0120	32,00	225510.0120	66,45
● 12,50	222010.0125	24,30	-	-	223010.0125	24,95	-	-	224010.0125	30,35	224510.0125	30,35	225010.0125	32,00	225510.0125	66,45
● 13,00	222010.0130	27,65	-	-	223010.0130	27,80	-	-	224010.0130	35,70	224510.0130	35,70	225010.0130	36,85	225510.0130	71,25
● 13,50	222010.0135	27,65	-	-	223010.0135	27,80	-	-	224010.0135	35,70	224510.0135	35,70	225010.0135	36,85	225510.0135	71,25
● 14,00	222010.0140	27,65	-	-	223010.0140	27,80	-	-	224010.0140	35,70	224510.0140	35,70	225010.0140	36,85	225510.0140	71,25
● 14,50	222010.0145	27,65	-	-	223010.0145	27,80	-	-	224010.0145	35,70	224510.0145	35,70	225010.0145	36,85	225510.0145	71,25
● 15,00	222010.0150	27,65	-	-	223010.0150	27,80	-	-	224010.0150	35,70	224510.0150	35,70	225010.0150	36,85	225510.0150	71,25
● 15,50	222010.0155	27,65	-	-	223010.0155	27,80	-	-	224010.0155	35,70	224510.0155	35,70	225010.0155	36,85	225510.0155	71,25
● 16,00	222010.0160	27,65	-	-	223010.0160	27,80	-	-	224010.0160	35,70	224510.0160	35,70	225010.0160	36,85	225510.0160	71,25
● 16,50	222010.0165	27,65	-	-	223010.0165	27,80	-	-	224010.0165	35,70	224510.0165	35,70	225010.0165	36,85	225510.0165	71,25
● 17,00	222010.0170	27,65	-	-	223010.0170	27,80	-	-	224010.0170	35,70	224510.0170	35,70	225010.0170	36,85	225510.0170	71,25
● 17,50	222010.0175	27,65	-	-	223010.0175	27,80	-	-	224010.0175	35,70	224510.0175	35,70	225010.0175	36,85	225510.0175	71,25
● 18,00	222010.0180	35,20	-	-	223010.0180	38,45	-	-	224010.0180	46,40	224510.0180	46,40	225010.0180	51,70	225510.0180	81,45
● 18,50	222010.0185	35,20	-	-	223010.0185	38,45	-	-	224010.0185	46,40	224510.0185	46,40	225010.0185	51,70	225510.0185	81,45
● 19,00	222010.0190	35,20	-	-	223010.0190	38,45	-	-	224010.0190	46,40	224510.0190	46,40	225010.0190	51,70	225510.0190	102,55
● 19,50	222010.0195	35,20	-	-	223010.0195	38,45	-	-	224010.0195	46,40	224510.0195	46,40	225010.0195	51,70	225510.0195	102,55
● 20,00	222010.0200	35,20	-	-	223010.0200	38,45	-	-	224010.0200	46,40	224510.0200	46,40	225010.0200	51,70	225510.0200	102,55
● 20,50	222010.0205	35,20	-	-	223010.0205	38,45	-	-	224010.0205	46,40	224510.0205	46,40	225010.0205	51,70	225510.0205	118,20
● 21,00	222010.0210	35,20	-	-	223010.0210	38,45	-	-	224010.0210	46,40	224510.0210	46,40	225010.0210	51,70	225510.0210	118,20
● 22,00	222010.0220	35,20	-	-	223010.0220	38,45	-	-	224010.0220	46,40	224510.0220	46,40	225010.0220	51,70	225510.0220	118,20
● 23,00	222010.0230	35,20	-	-	223010.0230	38,45	-	-	224010.0230	46,40	224510.0230	46,40	225010.0230	51,70	225510.0230	118,20
● 24,00	222010.0240	35,20	-	-	223010.0240	38,45	-	-	224010.0240	46,40	224510.0240	46,40	225010.0240	51,70	225510.0240	118,20
● 25,00	222010.0250	41,20	-	-	223010.0250	43,40	-	-	224010.0250	54,35	224510.0250	54,35	225010.0250	58,55	225510.0250	125,10
● 26,00	222010.0260	41,20	-	-	223010.0260	43,40	-	-	224010.0260	54,35	224510.0260	54,35	225010.0260	58,55	225510.0260	125,10
● 27,00	222010.0270	41,20	-	-	223010.0270	43,40	-	-	224010.0270	54,35	224510.0270	54,35	225010.0270	58,55	225510.0270	125,10
● 28,00	222010.0280	41,20	-	-	223010.0280	43,40	-	-	224010.0280	54,35	224510.0280	54,35	225010.0280	58,55	225510.0280	125,10
● 29,00	222010.0290	41,20	-	-	223010.0290	43,40	-	-	224010.0290	54,35	224510.0290	54,35	225010.0290	58,55	225510.0290	125,10
● 30,00	222010.0300	41,20	-	-	223010.0300	43,40	-	-	224010.0300	54,35	224510.0300	54,35	225010.0300	58,55	225510.0300	125,10
● 31,00	222010.0310	41,20	-	-	223010.0310	43,40	-	-	224010.0310	54,35	224510.0310	54,35	225010.0310	58,55	225510.0310	125,10
● 32,00	222010.0320	41,20	-	-	223010.0320	43,40	-	-	224010.0320	54,35	224510.0320	54,35	225010.0320	58,55	225510.0320	125,10
● 33,00	222010.0330	41,20	-	-	223010.0330	43,40	-	-	224010.0330	54,35	224510.0330	54,35	225010.0330	58,55	225510.0330	132,60
● 34,00	222010.0340	41,20	-	-	223010.0340	43,40	-	-	224010.0340	54,35	224510.0340	54,35	225010.0340	58,55	225510.0340	132,60
● 35,00	222010.0350	41,20	-	-	223010.0350	43,40	-	-	224010.0350	54,35	224510.0350	54,35	225010.0350	58,55	225510.0350	132,60

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Art.
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Schnittdaten
Cutting data

 Art. **22.1010**


722-731

Video



Typ Halter · Type holder 500 SZ-8

Art.	€	l3	l5	l4	l1	d2	F	G
		Nutzlänge Max. drill depth mm	Körperlänge Body-length mm	Neue REF.- Länge REF.-length mm	Gesamtlänge Overall length mm	Schaft-Ø Shank-Ø mm	Schaftlänge Shank length mm	Gewinde Pipe tap mm
• 221010.01111.0095 Ø 9,5-11,0 mm OPTIMAL · OPTIMAL	151,80	111,1	140,5	142,9	190,5	20	50,0	1/8"
• 221010.01111.0115 Ø 11,5-12,5 mm OPTIMAL · OPTIMAL	151,80	111,1	140,5	142,9	190,5	20	50,0	1/8"
• 221010.01143.0130 Ø 13,0-17,5 mm MÖGLICH · POSSIBLE Ø 13,0-15,0 mm OPTIMAL · OPTIMAL	161,75	114,3	142,9	145,7	192,9	20	50,0	1/8"
• 221010.01143.0155 Ø 15,5-17,5 mm OPTIMAL · OPTIMAL	161,75							
• 221010.02699.0180 Ø 18,0-24,0 mm MÖGLICH · POSSIBLE Ø 18,0-21,0 mm OPTIMAL · OPTIMAL	232,35	269,9	307,2	310,8	363,2	25	56,0	1/8"
• 221010.02699.0220 Ø 22,0-24,0 mm OPTIMAL · OPTIMAL	232,35							
• 221010.02889.0250 Ø 25,0-35,0 mm MÖGLICH · POSSIBLE Ø 25,0-29,0 mm OPTIMAL · OPTIMAL	284,60	288,9	331,8	335,4	391,8	32	60,0	1/4"
• 221010.02889.0300 Ø 30,0-35,0 mm OPTIMAL · OPTIMAL	284,60							

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 (mm)	TORX	€	max. Drehmoment / Torque (N/cm)	Schlüssel / Wrench	€
9,5 - 11,0	229010.0095	3,60	84	229011.0084	6,45
11,5 - 12,5	229010.0115	3,60	84		
13,0 - 17,5	229010.0130	3,60	175	229011.0175	6,45
18,0 - 24,0	229010.0180	3,60	305	229011.0305	11,30
25,0 - 35,0	229010.0250	3,70	690	229011.0690	12,10
36,0 - 65,0	229010.0360	3,75	1370	229011.1370	13,15
64,0 - 114,0	229010.0640	3,80	1750	229011.1750	19,35

1



2



3



4



5



6



7



8



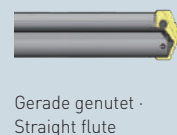
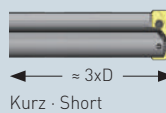
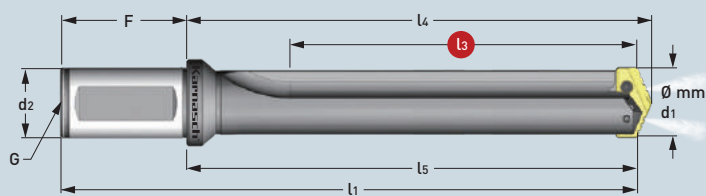
9



10


 Art.
100
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102

Karnasch® SPATENBOHRER EINSÄTZE • SPADE DRILL INSERTS



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

Ø mm 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	222010.0095	24,30	-	-	223010.0095	24,95	-	-	224010.0095	30,35	224510.0095	30,35	225010.0095	32,00	225510.0095	66,45
○ 9,80	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
● 10,00	222010.0100	24,30	-	-	223010.0100	24,95	-	-	224010.0100	30,35	224510.0100	30,35	225010.0100	32,00	225510.0100	66,45
● 10,20	222010.0102	24,30	-	-	223010.0102	24,95	-	-	224010.0102	30,35	224510.0102	30,35	225010.0102	32,00	225510.0102	66,45
● 10,50	222010.0105	24,30	-	-	223010.0105	24,95	-	-	224010.0105	30,35	224510.0105	30,35	225010.0105	32,00	225510.0105	66,45
● 10,80	222010.0108	24,30	-	-	223010.0108	24,95	-	-	224010.0108	30,35	224510.0108	30,35	225010.0108	32,00	225510.0108	66,45
● 11,00	222010.0110	24,30	-	-	223010.0110	24,95	-	-	224010.0110	30,35	224510.0110	30,35	225010.0110	32,00	225510.0110	66,45
● 11,50	222010.0115	24,30	-	-	223010.0115	24,95	-	-	224010.0115	30,35	224510.0115	30,35	225010.0115	32,00	225510.0115	66,45
● 12,00	222010.0120	24,30	-	-	223010.0120	24,95	-	-	224010.0120	30,35	224510.0120	30,35	225010.0120	32,00	225510.0120	66,45
● 12,50	222010.0125	24,30	-	-	223010.0125	24,95	-	-	224010.0125	30,35	224510.0125	30,35	225010.0125	32,00	225510.0125	66,45
● 13,00	222010.0130	27,65	-	-	223010.0130	27,80	-	-	224010.0130	35,70	224510.0130	35,70	225010.0130	36,85	225510.0130	71,25
● 13,50	222010.0135	27,65	-	-	223010.0135	27,80	-	-	224010.0135	35,70	224510.0135	35,70	225010.0135	36,85	225510.0135	71,25
● 14,00	222010.0140	27,65	-	-	223010.0140	27,80	-	-	224010.0140	35,70	224510.0140	35,70	225010.0140	36,85	225510.0140	71,25
● 14,50	222010.0145	27,65	-	-	223010.0145	27,80	-	-	224010.0145	35,70	224510.0145	35,70	225010.0145	36,85	225510.0145	71,25
● 15,00	222010.0150	27,65	-	-	223010.0150	27,80	-	-	224010.0150	35,70	224510.0150	35,70	225010.0150	36,85	225510.0150	71,25
● 15,50	222010.0155	27,65	-	-	223010.0155	27,80	-	-	224010.0155	35,70	224510.0155	35,70	225010.0155	36,85	225510.0155	71,25
● 16,00	222010.0160	27,65	-	-	223010.0160	27,80	-	-	224010.0160	35,70	224510.0160	35,70	225010.0160	36,85	225510.0160	71,25
● 16,50	222010.0165	27,65	-	-	223010.0165	27,80	-	-	224010.0165	35,70	224510.0165	35,70	225010.0165	36,85	225510.0165	71,25
● 17,00	222010.0170	27,65	-	-	223010.0170	27,80	-	-	224010.0170	35,70	224510.0170	35,70	225010.0170	36,85	225510.0170	71,25
● 17,50	222010.0175	27,65	-	-	223010.0175	27,80	-	-	224010.0175	35,70	224510.0175	35,70	225010.0175	36,85	225510.0175	71,25
● 18,00	222010.0180	35,20	-	-	223010.0180	38,45	-	-	224010.0180	46,40	224510.0180	46,40	225010.0180	51,70	225510.0180	81,45
● 18,50	222010.0185	35,20	-	-	223010.0185	38,45	-	-	224010.0185	46,40	224510.0185	46,40	225010.0185	51,70	225510.0185	81,45
● 19,00	222010.0190	35,20	-	-	223010.0190	38,45	-	-	224010.0190	46,40	224510.0190	46,40	225010.0190	51,70	225510.0190	102,55
● 19,50	222010.0195	35,20	-	-	223010.0195	38,45	-	-	224010.0195	46,40	224510.0195	46,40	225010.0195	51,70	225510.0195	102,55
● 20,00	222010.0200	35,20	-	-	223010.0200	38,45	-	-	224010.0200	46,40	224510.0200	46,40	225010.0200	51,70	225510.0200	102,55
● 20,50	222010.0205	35,20	-	-	223010.0205	38,45	-	-	224010.0205	46,40	224510.0205	46,40	225010.0205	51,70	225510.0205	118,20
● 21,00	222010.0210	35,20	-	-	223010.0210	38,45	-	-	224010.0210	46,40	224510.0210	46,40	225010.0210	51,70	225510.0210	118,20
● 22,00	222010.0220	35,20	-	-	223010.0220	38,45	-	-	224010.0220	46,40	224510.0220	46,40	225010.0220	51,70	225510.0220	118,20
● 23,00	222010.0230	35,20	-	-	223010.0230	38,45	-	-	224010.0230	46,40	224510.0230	46,40	225010.0230	51,70	225510.0230	118,20
● 24,00	222010.0240	35,20	-	-	223010.0240	38,45	-	-	224010.0240	46,40	224510.0240	46,40	225010.0240	51,70	225510.0240	118,20
● 25,00	222010.0250	41,20	-	-	223010.0250	43,40	-	-	224010.0250	54,35	224510.0250	54,35	225010.0250	58,55	225510.0250	125,10
● 26,00	222010.0260	41,20	-	-	223010.0260	43,40	-	-	224010.0260	54,35	224510.0260	54,35	225010.0260	58,55	225510.0260	125,10
● 27,00	222010.0270	41,20	-	-	223010.0270	43,40	-	-	224010.0270	54,35	224510.0270	54,35	225010.0270	58,55	225510.0270	125,10
● 28,00	222010.0280	41,20	-	-	223010.0280	43,40	-	-	224010.0280	54,35	224510.0280	54,35	225010.0280	58,55	225510.0280	125,10
● 29,00	222010.0290	41,20	-	-	223010.0290	43,40	-	-	224010.0290	54,35	224510.0290	54,35	225010.0290	58,55	225510.0290	125,10
● 30,00	222010.0300	41,20	-	-	223010.0300	43,40	-	-	224010.0300	54,35	224510.0300	54,35	225010.0300	58,55	225510.0300	125,10
● 31,00	222010.0310	41,20	-	-	223010.0310	43,40	-	-	224010.0310	54,35	224510.0310	54,35	225010.0310	58,55	225510.0310	125,10
● 32,00	222010.0320	41,20	-	-	223010.0320	43,40	-	-	224010.0320	54,35	224510.0320	54,35	225010.0320	58,55	225510.0320	125,10
● 33,00	222010.0330	41,20	-	-	223010.0330	43,40	-	-	224010.0330	54,35	224510.0330	54,35	225010.0330	58,55	225510.0330	132,60
● 34,00	222010.0340	41,20	-	-	223010.0340	43,40	-	-	224010.0340	54,35	224510.0340	54,35	225010.0340	58,55	225510.0340	132,60
● 35,00	222010.0350	41,20	-	-	223010.0350	43,40	-	-	224010.0350	54,35	224510.0350	54,35	225010.0350	58,55	225510.0350	132,60
● 36,00	222010.0360	56,45	-	-	223010.0360	57,15	-	-	-	-	-	-	-	-	-	-
● 37,00	222010.0370	56,45	-	-	223010.0370	57,15	-	-	-	-	-	-	-	-	-	-
● 38,00	222010.0380	56,45	-	-	223010.0380	57,15	-	-	-	-	-	-	-	-	-	-
● 39,00	222010.0390	56,45	-	-	223010.0390	57,15	-	-	-	-	-	-	-	-	-	-
● 40,00	222010.0400	56,45	-	-	223010.0400	57,15	-	-	-	-	-	-	-	-	-	-
● 41,00	222010.0410	56,45	-	-	223010.0410	57,15	-	-	-	-	-	-	-	-	-	-
● 42,00	222010.0420	56,45	-	-	223010.0420	57,15	-	-	-	-	-	-	-	-	-	-
● 43,00	222010.0430	56,45	-	-	223010.0430	57,15	-	-	-	-	-	-	-	-	-	-
● 44,00	222010.0440	56,45	-	-	223010.0440	57,15	-	-	-	-	-	-	-	-	-	-
● 45,00	222010.0450	56,45	-	-	223010.0450	57,15	-	-	-	-	-	-	-	-	-	-
● 46,00	222010.0460	56,45	-	-	223010.0460	57,15	-	-	-	-	-	-	-	-	-	-
● 47,00	222010.0470	56,45	-	-	223010.0470	57,15	-	-	-	-	-	-	-	-	-	-

Fortsetzung Seite 200 · Continued page 200

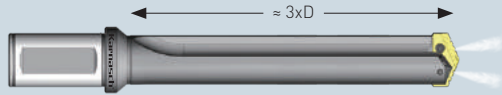


Schnittdaten
Cutting data



722-731

Video



Typ Halter · Type holder 200 GZ-3

Art.	€	l3 Nutzlänge Max. drill depth mm	l5 Körperlänge Body-length mm	l4 Neue REF.- Länge REF.-length mm	l1 Gesamtlänge Overall length mm	d2 Schaft-Ø Shank-Ø mm	F Schaftlänge Shank length mm	G Gewinde Pipe tap mm
• 221020.00318.0095 Ø 9,5-11,0 mm OPTIMAL · OPTIMAL	115,95	31,8	61,1	63,5	111,1	20	50,0	1/8"
• 221020.00318.0115 Ø 11,5-12,5 mm OPTIMAL · OPTIMAL	115,95	31,8	61,1	63,5	111,1	20	50,0	1/8"
• 221020.00349.0135 Ø 13,0-17,5 mm MÖGLICH · POSSIBLE Ø 13,0-15,0 mm OPTIMAL · OPTIMAL	126,90							
• 221020.00349.0155 Ø 15,5-17,5 mm OPTIMAL · OPTIMAL	126,90	34,9	63,5	66,3	113,5	20	50,0	1/8"
• 221020.00667.0180 Ø 18,0-24,0 mm MÖGLICH · POSSIBLE Ø 18,0-21,0 mm OPTIMAL · OPTIMAL	141,80							
• 221020.00667.0220 Ø 22,0-24,0 mm OPTIMAL · OPTIMAL	141,80	66,7	107,2	110,7	163,2	25	56,0	1/8"
• 221020.00857.0250 Ø 25,0-35,0 mm MÖGLICH · POSSIBLE Ø 25,0-29,0 mm OPTIMAL · OPTIMAL	172,15							
• 221020.00857.0300 Ø 30,0-35,0 mm OPTIMAL · OPTIMAL	172,15	85,7	128,6	132,2	188,6	32	60,0	1/4"
• 221020.01207.0360 Ø 36,0-47,0 mm MÖGLICH · POSSIBLE Ø 36,0-41,0 mm OPTIMAL · OPTIMAL	232,05							
• 221020.01207.0420 Ø 42,0-47,0 mm OPTIMAL · OPTIMAL	232,05	120,7	173,0	177,8	243,0	40	70,0	1/4"

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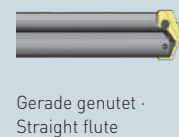
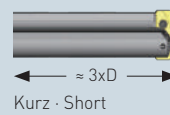
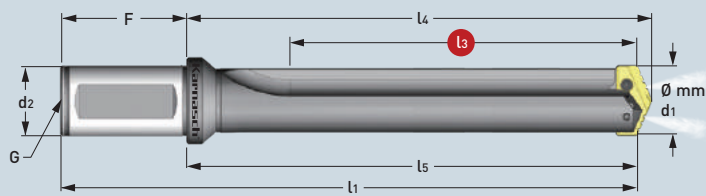
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10



Art.
100
101
102



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

	Art. 22.2010		Art. 22.2510		Art. 22.3010		Art. 22.3510		Art. 22.4010		Art. 22.4510		Art. 22.5010		Art. 22.5510	
Ø mm d1	Pulverstahl 25 Beschichtung für Stahl		Pulverstahl 15 Beschichtung für Stahl		Pulverstahl 25 Beschichtung für Alu, Messing, Kupfer		Pulverstahl 15 Beschichtung für Alu, Messing, Kupfer		Hartmetall 20/30 Beschichtung für Stahl		Hartmetall 20/30 Beschichtung für Guss / Geometrie für Guss		Hartmetall 20/30 Beschichtung für Alu, Messing, Kupfer		Hartmetall 20/30 DIA-Beschichtung für abrasive Materialien wie: GFK, CFK, Graphit	
	Powder steel 25 Coating for steel		Powder steel 15 Coating for steel		Powder steel 25 Coating for alu, brass, copper		Powder steel 15 Coating for alu, brass, copper		Carbide 20/30 Coating for steel		Carbide 20/30 Coating for cast iron / Geometry for cast iron		Carbide 20/30 Coating for alu, brass, copper		Carbide 20/30 DIA-Coating for abrasive materials such as: fiberglass, carbon fiber, graphite	
	Art.	€	Art.	€	Art.	€	Art.	€	Art.	€	Art.	€	Art.	€	Art.	€
48,00	222010.0480	80,75	-	-	223010.0480	79,30	-	-	-	-	-	-	-	-	-	-
49,00	222010.0490	80,75	-	-	223010.0490	79,30	-	-	-	-	-	-	-	-	-	-
50,00	222010.0500	80,75	-	-	223010.0500	79,30	-	-	-	-	-	-	-	-	-	-
51,00	222010.0510	80,75	-	-	223010.0510	79,30	-	-	-	-	-	-	-	-	-	-
52,00	222010.0520	80,75	-	-	223010.0520	79,30	-	-	-	-	-	-	-	-	-	-
53,00	222010.0530	80,75	-	-	223010.0530	79,30	-	-	-	-	-	-	-	-	-	-
54,00	222010.0540	80,75	-	-	223010.0540	79,30	-	-	-	-	-	-	-	-	-	-
55,00	222010.0550	80,75	-	-	223010.0550	79,30	-	-	-	-	-	-	-	-	-	-
56,00	222010.0560	80,75	-	-	223010.0560	79,30	-	-	-	-	-	-	-	-	-	-
57,00	222010.0570	80,75	-	-	223010.0570	79,30	-	-	-	-	-	-	-	-	-	-
58,00	222010.0580	80,75	-	-	223010.0580	79,30	-	-	-	-	-	-	-	-	-	-
59,00	222010.0590	80,75	-	-	223010.0590	79,30	-	-	-	-	-	-	-	-	-	-
60,00	222010.0600	80,75	-	-	223010.0600	79,30	-	-	-	-	-	-	-	-	-	-
61,00	222010.0610	80,75	-	-	223010.0610	79,30	-	-	-	-	-	-	-	-	-	-
62,00	222010.0620	80,75	-	-	223010.0620	79,30	-	-	-	-	-	-	-	-	-	-
63,00	222010.0630	80,75	-	-	223010.0630	79,30	-	-	-	-	-	-	-	-	-	-
64,00	222010.0640	80,75	-	-	223010.0640	79,30	-	-	-	-	-	-	-	-	-	-
65,00	222010.0650	80,75	-	-	223010.0650	79,30	-	-	-	-	-	-	-	-	-	-

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Art.
100
101
102

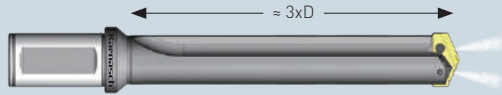
Schnittdaten
Cutting data

Art. **22.1020**



722-731

Video



Typ Halter · Type holder 200 GZ-3

Art.	€	l3 Nutzlänge Max. drill depth mm	l5 Körperlänge Body-length mm	l4 Neue REF.- Länge REF.-length mm	l1 Gesamtlänge Overall length mm	d2 Schaft-Ø Shank-Ø mm	F Schaftlänge Shank length mm	G Gewinde Pipe tap mm
<ul style="list-style-type: none"> 221020.01302.0480 Ø 48,0-65 mm MÖGLICH · POSSIBLE Ø 48,0-55 mm OPTIMAL · OPTIMAL 	247,15	130,2	179,4	184,2	249,4	40	70,0	1/4"
<ul style="list-style-type: none"> 221020.01302.0560 Ø 56,0-65 mm OPTIMAL · OPTIMAL 	247,15	130,2	179,4	184,2	249,4	40	70,0	1/4"

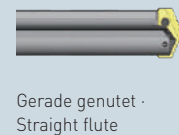
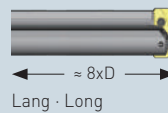
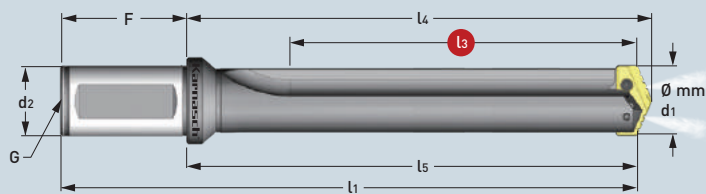
Halter werden **ohne** Einsätze inklusive 2x TORX Befestigungsschrauben und 1x TORX Schlüssel geliefert.
 Holders are delivered **without** inserts including 2x TORX-screws and 1x TORX wrench.

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

Ø Diameter (mm)	TORX		max. Drehmoment / Torque (N/cm)	Schlüssel / Wrench		
				€		€
9,5 - 11,0		229010.0095	3,60	84	229011.0084	6,45
11,5 - 12,5		229010.0115	3,60	84	229011.0175	6,45
13,0 - 17,5		229010.0130	3,60	175	229011.0305	11,30
18,0 - 24,0		229010.0180	3,60	305	229011.0690	12,10
25,0 - 35,0		229010.0250	3,70	690	229011.1370	13,15
36,0 - 65,0		229010.0360	3,75	1370	229011.1750	19,35
64,0 - 114,0		229010.0640	3,80	1750		



Art.
100
101
102



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

Ø mm 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.	€
36,00	222010.0360	56,45	-	-	223010.0360	57,15	-	-	-	-	-	-	-	-	-	-
37,00	222010.0370	56,45	-	-	223010.0370	57,15	-	-	-	-	-	-	-	-	-	-
38,00	222010.0380	56,45	-	-	223010.0380	57,15	-	-	-	-	-	-	-	-	-	-
39,00	222010.0390	56,45	-	-	223010.0390	57,15	-	-	-	-	-	-	-	-	-	-
40,00	222010.0400	56,45	-	-	223010.0400	57,15	-	-	-	-	-	-	-	-	-	-
41,00	222010.0410	56,45	-	-	223010.0410	57,15	-	-	-	-	-	-	-	-	-	-
42,00	222010.0420	56,45	-	-	223010.0420	57,15	-	-	-	-	-	-	-	-	-	-
43,00	222010.0430	56,45	-	-	223010.0430	57,15	-	-	-	-	-	-	-	-	-	-
44,00	222010.0440	56,45	-	-	223010.0440	57,15	-	-	-	-	-	-	-	-	-	-
45,00	222010.0450	56,45	-	-	223010.0450	57,15	-	-	-	-	-	-	-	-	-	-
46,00	222010.0460	56,45	-	-	223010.0460	57,15	-	-	-	-	-	-	-	-	-	-
47,00	222010.0470	56,45	-	-	223010.0470	57,15	-	-	-	-	-	-	-	-	-	-
48,00	222010.0480	80,75	-	-	223010.0480	79,30	-	-	-	-	-	-	-	-	-	-
49,00	222010.0490	80,75	-	-	223010.0490	79,30	-	-	-	-	-	-	-	-	-	-
50,00	222010.0500	80,75	-	-	223010.0500	79,30	-	-	-	-	-	-	-	-	-	-
51,00	222010.0510	80,75	-	-	223010.0510	79,30	-	-	-	-	-	-	-	-	-	-
52,00	222010.0520	80,75	-	-	223010.0520	79,30	-	-	-	-	-	-	-	-	-	-
53,00	222010.0530	80,75	-	-	223010.0530	79,30	-	-	-	-	-	-	-	-	-	-
54,00	222010.0540	80,75	-	-	223010.0540	79,30	-	-	-	-	-	-	-	-	-	-
55,00	222010.0550	80,75	-	-	223010.0550	79,30	-	-	-	-	-	-	-	-	-	-
56,00	222010.0560	80,75	-	-	223010.0560	79,30	-	-	-	-	-	-	-	-	-	-
57,00	222010.0570	80,75	-	-	223010.0570	79,30	-	-	-	-	-	-	-	-	-	-
58,00	222010.0580	80,75	-	-	223010.0580	79,30	-	-	-	-	-	-	-	-	-	-
59,00	222010.0590	80,75	-	-	223010.0590	79,30	-	-	-	-	-	-	-	-	-	-
60,00	222010.0600	80,75	-	-	223010.0600	79,30	-	-	-	-	-	-	-	-	-	-
61,00	222010.0610	80,75	-	-	223010.0610	79,30	-	-	-	-	-	-	-	-	-	-
62,00	222010.0620	80,75	-	-	223010.0620	79,30	-	-	-	-	-	-	-	-	-	-
63,00	222010.0630	80,75	-	-	223010.0630	79,30	-	-	-	-	-	-	-	-	-	-
64,00	222010.0640	80,75	-	-	223010.0640	79,30	-	-	-	-	-	-	-	-	-	-
65,00	222010.0650	80,75	-	-	223010.0650	79,30	-	-	-	-	-	-	-	-	-	-

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Schnittdaten
Cutting data

Art. **22.1020**



722-731

Video



Typ Halter · Type holder 500 GZ-8

Art.	€	l3	l5	l4	l1	d2	F	G
		Nutzlänge Max. drill depth	Körperlänge Body-length	Neue REF.- Länge REF.-length	Gesamtlänge Overall length	Schaft-Ø Shank-Ø	Schaftlänge Shank length	Gewinde Pipe tap
		mm	mm	mm	mm	mm	mm	
<ul style="list-style-type: none"> 221020.03493.0360 Ø 36,0-47,0 mm MÖGLICH · POSSIBLE Ø 36,0-41,0 mm OPTIMAL · OPTIMAL 	439,15							
<ul style="list-style-type: none"> 221020.03493.0420 Ø 42,0-47,0 mm OPTIMAL · OPTIMAL 	439,15	349,3	401,6	406,4	471,6	40	70,0	1/4"
<ul style="list-style-type: none"> 221020.04223.0480 Ø 48,0-65 mm MÖGLICH · POSSIBLE Ø 48,0-55 mm OPTIMAL · OPTIMAL 	497,20	422,3	471,5	476,3	541,5	40	70,0	1/4"
<ul style="list-style-type: none"> 221020.04223.0560 Ø 56,0-65 mm OPTIMAL · OPTIMAL 	497,20	422,3	471,5	476,3	541,5	40	70,0	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.

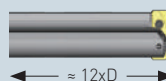
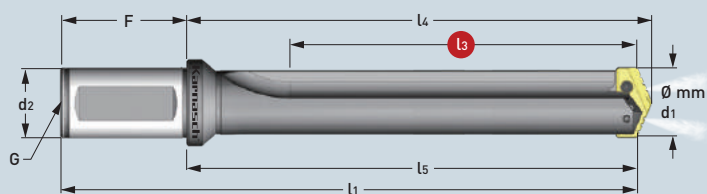
Ersatz-Torxschrauben und Schlüssel mit Drehmomentangabe
 Spare Torx-screws and wrench with torque specification

Ø Diameter (mm)	TORX	€	max. Drehmoment / Torque (N/cm)	Schlüssel / Wrench	€
9,5 - 11,0	229010.0095	3,60	84	229011.0084	6,45
11,5 - 12,5	229010.0115	3,60	84		
13,0 - 17,5	229010.0130	3,60	175	229011.0175	6,45
18,0 - 24,0	229010.0180	3,60	305	229011.0305	11,30
25,0 - 35,0	229010.0250	3,70	690	229011.0690	12,10
36,0 - 65,0	229010.0360	3,75	1370	229011.1370	13,15
64,0 - 114,0	229010.0640	3,80	1750	229011.1750	19,35



Art.
100
101
102

Karnasch® SPATENBOHRER EINSÄTZE • SPADE DRILL INSERTS



Überlang -
Overlength



Gerade genutet -
Straight flute



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

Ø mm 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	222010.0095	24,30	-	-	223010.0095	24,95	-	-	224010.0095	30,35	224510.0095	30,35	225010.0095	32,00	225510.0095	66,45
○ 9,80	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
● 10,00	222010.0100	24,30	-	-	223010.0100	24,95	-	-	224010.0100	30,35	224510.0100	30,35	225010.0100	32,00	225510.0100	66,45
● 10,20	222010.0102	24,30	-	-	223010.0102	24,95	-	-	224010.0102	30,35	224510.0102	30,35	225010.0102	32,00	225510.0102	66,45
● 10,50	222010.0105	24,30	-	-	223010.0105	24,95	-	-	224010.0105	30,35	224510.0105	30,35	225010.0105	32,00	225510.0105	66,45
● 10,80	222010.0108	24,30	-	-	223010.0108	24,95	-	-	224010.0108	30,35	224510.0108	30,35	225010.0108	32,00	225510.0108	66,45
● 11,00	222010.0110	24,30	-	-	223010.0110	24,95	-	-	224010.0110	30,35	224510.0110	30,35	225010.0110	32,00	225510.0110	66,45
● 11,50	222010.0115	24,30	-	-	223010.0115	24,95	-	-	224010.0115	30,35	224510.0115	30,35	225010.0115	32,00	225510.0115	66,45
● 12,00	222010.0120	24,30	-	-	223010.0120	24,95	-	-	224010.0120	30,35	224510.0120	30,35	225010.0120	32,00	225510.0120	66,45
● 12,50	222010.0125	24,30	-	-	223010.0125	24,95	-	-	224010.0125	30,35	224510.0125	30,35	225010.0125	32,00	225510.0125	66,45
● 13,00	222010.0130	27,65	-	-	223010.0130	27,80	-	-	224010.0130	35,70	224510.0130	35,70	225010.0130	36,85	225510.0130	71,25
● 13,50	222010.0135	27,65	-	-	223010.0135	27,80	-	-	224010.0135	35,70	224510.0135	35,70	225010.0135	36,85	225510.0135	71,25
● 14,00	222010.0140	27,65	-	-	223010.0140	27,80	-	-	224010.0140	35,70	224510.0140	35,70	225010.0140	36,85	225510.0140	71,25
● 14,50	222010.0145	27,65	-	-	223010.0145	27,80	-	-	224010.0145	35,70	224510.0145	35,70	225010.0145	36,85	225510.0145	71,25
● 15,00	222010.0150	27,65	-	-	223010.0150	27,80	-	-	224010.0150	35,70	224510.0150	35,70	225010.0150	36,85	225510.0150	71,25
● 15,50	222010.0155	27,65	-	-	223010.0155	27,80	-	-	224010.0155	35,70	224510.0155	35,70	225010.0155	36,85	225510.0155	71,25
● 16,00	222010.0160	27,65	-	-	223010.0160	27,80	-	-	224010.0160	35,70	224510.0160	35,70	225010.0160	36,85	225510.0160	71,25
● 16,50	222010.0165	27,65	-	-	223010.0165	27,80	-	-	224010.0165	35,70	224510.0165	35,70	225010.0165	36,85	225510.0165	71,25
● 17,00	222010.0170	27,65	-	-	223010.0170	27,80	-	-	224010.0170	35,70	224510.0170	35,70	225010.0170	36,85	225510.0170	71,25
● 17,50	222010.0175	27,65	-	-	223010.0175	27,80	-	-	224010.0175	35,70	224510.0175	35,70	225010.0175	36,85	225510.0175	71,25
● 18,00	222010.0180	35,20	-	-	223010.0180	38,45	-	-	224010.0180	46,40	224510.0180	46,40	225010.0180	51,70	225510.0180	81,45
● 18,50	222010.0185	35,20	-	-	223010.0185	38,45	-	-	224010.0185	46,40	224510.0185	46,40	225010.0185	51,70	225510.0185	81,45
● 19,00	222010.0190	35,20	-	-	223010.0190	38,45	-	-	224010.0190	46,40	224510.0190	46,40	225010.0190	51,70	225510.0190	102,55
● 19,50	222010.0195	35,20	-	-	223010.0195	38,45	-	-	224010.0195	46,40	224510.0195	46,40	225010.0195	51,70	225510.0195	102,55
● 20,00	222010.0200	35,20	-	-	223010.0200	38,45	-	-	224010.0200	46,40	224510.0200	46,40	225010.0200	51,70	225510.0200	102,55
● 20,50	222010.0205	35,20	-	-	223010.0205	38,45	-	-	224010.0205	46,40	224510.0205	46,40	225010.0205	51,70	225510.0205	118,20
● 21,00	222010.0210	35,20	-	-	223010.0210	38,45	-	-	224010.0210	46,40	224510.0210	46,40	225010.0210	51,70	225510.0210	118,20
● 22,00	222010.0220	35,20	-	-	223010.0220	38,45	-	-	224010.0220	46,40	224510.0220	46,40	225010.0220	51,70	225510.0220	118,20
● 23,00	222010.0230	35,20	-	-	223010.0230	38,45	-	-	224010.0230	46,40	224510.0230	46,40	225010.0230	51,70	225510.0230	118,20
● 24,00	222010.0240	35,20	-	-	223010.0240	38,45	-	-	224010.0240	46,40	224510.0240	46,40	225010.0240	51,70	225510.0240	118,20
● 25,00	222010.0250	41,20	-	-	223010.0250	43,40	-	-	224010.0250	54,35	224510.0250	54,35	225010.0250	58,55	225510.0250	125,10
● 26,00	222010.0260	41,20	-	-	223010.0260	43,40	-	-	224010.0260	54,35	224510.0260	54,35	225010.0260	58,55	225510.0260	125,10
● 27,00	222010.0270	41,20	-	-	223010.0270	43,40	-	-	224010.0270	54,35	224510.0270	54,35	225010.0270	58,55	225510.0270	125,10
● 28,00	222010.0280	41,20	-	-	223010.0280	43,40	-	-	224010.0280	54,35	224510.0280	54,35	225010.0280	58,55	225510.0280	125,10
● 29,00	222010.0290	41,20	-	-	223010.0290	43,40	-	-	224010.0290	54,35	224510.0290	54,35	225010.0290	58,55	225510.0290	125,10
● 30,00	222010.0300	41,20	-	-	223010.0300	43,40	-	-	224010.0300	54,35	224510.0300	54,35	225010.0300	58,55	225510.0300	125,10
● 31,00	222010.0310	41,20	-	-	223010.0310	43,40	-	-	224010.0310	54,35	224510.0310	54,35	225010.0310	58,55	225510.0310	125,10
● 32,00	222010.0320	41,20	-	-	223010.0320	43,40	-	-	224010.0320	54,35	224510.0320	54,35	225010.0320	58,55	225510.0320	125,10
● 33,00	222010.0330	41,20	-	-	223010.0330	43,40	-	-	224010.0330	54,35	224510.0330	54,35	225010.0330	58,55	225510.0330	132,60
● 34,00	222010.0340	41,20	-	-	223010.0340	43,40	-	-	224010.0340	54,35	224510.0340	54,35	225010.0340	58,55	225510.0340	132,60
● 35,00	222010.0350	41,20	-	-	223010.0350	43,40	-	-	224010.0350	54,35	224510.0350	54,35	225010.0350	58,55	225510.0350	132,60
● 36,00	222010.0360	56,45	-	-	223010.0360	57,15	-	-	-	-	-	-	-	-	-	-
● 37,00	222010.0370	56,45	-	-	223010.0370	57,15	-	-	-	-	-	-	-	-	-	-
● 38,00	222010.0380	56,45	-	-	223010.0380	57,15	-	-	-	-	-	-	-	-	-	-
● 39,00	222010.0390	56,45	-	-	223010.0390	57,15	-	-	-	-	-	-	-	-	-	-
● 40,00	222010.0400	56,45	-	-	223010.0400	57,15	-	-	-	-	-	-	-	-	-	-
● 41,00	222010.0410	56,45	-	-	223010.0410	57,15	-	-	-	-	-	-	-	-	-	-
● 42,00	222010.0420	56,45	-	-	223010.0420	57,15	-	-	-	-	-	-	-	-	-	-
● 43,00	222010.0430	56,45	-	-	223010.0430	57,15	-	-	-	-	-	-	-	-	-	-
● 44,00	222010.0440	56,45	-	-	223010.0440	57,15	-	-	-	-	-	-	-	-	-	-
● 45,00	222010.0450	56,45	-	-	223010.0450	57,15	-	-	-	-	-	-	-	-	-	-
● 46,00	222010.0460	56,45	-	-	223010.0460	57,15	-	-	-	-	-	-	-	-	-	-
● 47,00	222010.0470	56,45	-	-	223010.0470	57,15	-	-	-	-	-	-	-	-	-	-

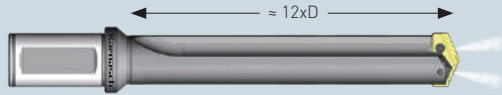
Fortsetzung Seite 206 · Continued page 206

Schnittdaten
Cutting data

 Art. **22.1020**


722-731

Video



Typ Halter · Type holder 700 GZ-12

Art.	€	l3 Nutzlänge Max. drill depth mm	l5 Körperlänge Body-length mm	l4 Neue REF.- Länge REF.-length mm	l1 Gesamtlänge Overall length mm	d2 Schaft-Ø Shank-Ø mm	F Schaftlänge Shank length mm	G Gewinde Pipe tap mm
• 221020.02220.0095 Ø 9,5-11,0 mm OPTIMAL · OPTIMAL	203,40	222,0	251,7	254,1	301,7	20	50,0	1/8"
• 221020.02223.0115 Ø 11,5-12,5 mm OPTIMAL · OPTIMAL	203,40	222,3	251,7	254,1	301,7	20	50,0	1/8"
• 221020.02950.0130 Ø 13,0-17,5 mm MÖGLICH · POSSIBLE Ø 13,0-15,0 mm OPTIMAL · OPTIMAL	254,15							
• 221020.02950.0155 Ø 15,5-17,5 mm OPTIMAL · OPTIMAL	254,15	295,0	323,9	326,7	373,9	20	50,0	1/8"
• 221020.04570.0180 Ø 18,0-24,0 mm MÖGLICH · POSSIBLE Ø 18,0-21,0 mm OPTIMAL · OPTIMAL	349,55							
• 221020.04570.0220 Ø 22,0-24,0 mm OPTIMAL · OPTIMAL	349,55	457,0	494,5	498,1	550,5	25	56,0	1/8"
• 221020.05110.0250 Ø 25,0-35,0 mm MÖGLICH · POSSIBLE Ø 25,0-29,0 mm OPTIMAL · OPTIMAL	421,30							
• 221020.05110.0300 Ø 30,0-35,0 mm OPTIMAL · OPTIMAL	421,30	511,0	554,1	557,7	614,1	32	60,0	1/4"
• 221020.05588.0360 Ø 36,0-47,0 mm MÖGLICH · POSSIBLE Ø 36,0-41,0 mm OPTIMAL · OPTIMAL	616,30							
• 221020.05588.0420 Ø 42,0-47,0 mm OPTIMAL · OPTIMAL	616,30	558,8	611,1	615,9	681,1	40	70,0	1/4"

Fortsetzung Seite 207 · Continued page 207

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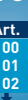
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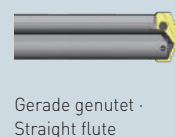
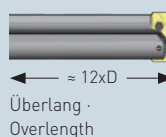
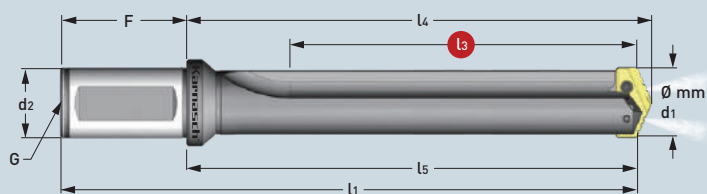


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 Art.
100
101
102



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

	Art. 22.2010		Art. 22.2510		Art. 22.3010		Art. 22.3510		Art. 22.4010		Art. 22.4510		Art. 22.5010		Art. 22.5510	
Ø mm d1	Pulverstahl 25 Beschichtung für Stahl		Pulverstahl 15 Beschichtung für Stahl		Pulverstahl 25 Beschichtung für Alu, Messing, Kupfer		Pulverstahl 15 Beschichtung für Alu, Messing, Kupfer		Hartmetall 20/30 Beschichtung für Stahl		Hartmetall 20/30 Beschichtung für Guss / Geometrie für Guss		Hartmetall 20/30 Beschichtung für Alu, Messing, Kupfer		Hartmetall 20/30 DIA-Beschichtung für abrasive Materialien wie: GFK, CFK, Graphit	
	Powder steel 25 Coating for steel		Powder steel 15 Coating for steel		Powder steel 25 Coating for alu, brass, copper		Powder steel 15 Coating for alu, brass, copper		Carbide 20/30 Coating for steel		Carbide 20/30 Coating for cast iron / Geometry for cast iron		Carbide 20/30 Coating for alu, brass, copper		Carbide 20/30 DIA-Coating for abrasive materials such as: fiberglass, carbon fiber, graphite	
	Art.	€	Art.	€	Art.	€	Art.	€	Art.	€	Art.	€	Art.	€	Art.	€
48,00	222010.0480	80,75	-	-	223010.0480	79,30	-	-	-	-	-	-	-	-	-	-
49,00	222010.0490	80,75	-	-	223010.0490	79,30	-	-	-	-	-	-	-	-	-	-
50,00	222010.0500	80,75	-	-	223010.0500	79,30	-	-	-	-	-	-	-	-	-	-
51,00	222010.0510	80,75	-	-	223010.0510	79,30	-	-	-	-	-	-	-	-	-	-
52,00	222010.0520	80,75	-	-	223010.0520	79,30	-	-	-	-	-	-	-	-	-	-
53,00	222010.0530	80,75	-	-	223010.0530	79,30	-	-	-	-	-	-	-	-	-	-
54,00	222010.0540	80,75	-	-	223010.0540	79,30	-	-	-	-	-	-	-	-	-	-
55,00	222010.0550	80,75	-	-	223010.0550	79,30	-	-	-	-	-	-	-	-	-	-
56,00	222010.0560	80,75	-	-	223010.0560	79,30	-	-	-	-	-	-	-	-	-	-
57,00	222010.0570	80,75	-	-	223010.0570	79,30	-	-	-	-	-	-	-	-	-	-
58,00	222010.0580	80,75	-	-	223010.0580	79,30	-	-	-	-	-	-	-	-	-	-
59,00	222010.0590	80,75	-	-	223010.0590	79,30	-	-	-	-	-	-	-	-	-	-
60,00	222010.0600	80,75	-	-	223010.0600	79,30	-	-	-	-	-	-	-	-	-	-
61,00	222010.0610	80,75	-	-	223010.0610	79,30	-	-	-	-	-	-	-	-	-	-
62,00	222010.0620	80,75	-	-	223010.0620	79,30	-	-	-	-	-	-	-	-	-	-
63,00	222010.0630	80,75	-	-	223010.0630	79,30	-	-	-	-	-	-	-	-	-	-
64,00	222010.0640	80,75	-	-	223010.0640	79,30	-	-	-	-	-	-	-	-	-	-
65,00	222010.0650	80,75	-	-	223010.0650	79,30	-	-	-	-	-	-	-	-	-	-

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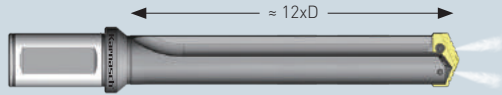
Schnittdaten
Cutting data

Art. **22.1020**



722-731

Video



Typ Halter · Type holder 700 GZ-12

Art.	€	l3 Nutzlänge Max. drill depth mm	l5 Körperlänge Body-length mm	l4 Neue REF.-Länge REF.-length mm	l1 Gesamtlänge Overall length mm	d2 Schaft-Ø Shank-Ø mm	F Schaftlänge Shank length mm	G Gewinde Pipe tap mm
<ul style="list-style-type: none"> 221020.06250.0480 Ø 48,0-65 mm MÖGLICH · POSSIBLE Ø 48,0-55 mm OPTIMAL · OPTIMAL 	754,80	625,0	674,7	679,5	744,7	40	70,0	1/4"
<ul style="list-style-type: none"> 221020.06250.0560 Ø 56,0-65 mm OPTIMAL · OPTIMAL 	754,80	625,0	674,7	679,5	744,7	40	70,0	1/4"

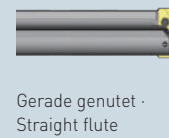
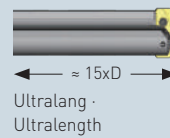
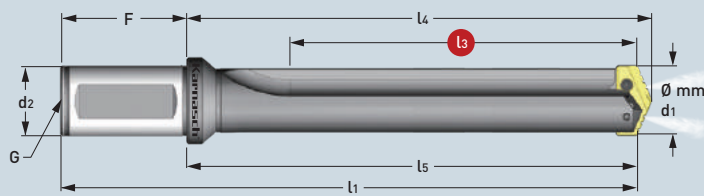
Halter werden **ohne** Einsätze inklusive 2x TORX Befestigungsschrauben und 1x TORX Schlüssel geliefert.
 Holders are delivered **without** inserts including 2x TORX-screws and 1x TORX wrench.

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

Ø Diameter (mm)	TORX		max. Drehmoment / Torque (N/cm)	Schlüssel / Wrench		
				€		€
9,5 - 11,0		229010.0095	3,60	84	229011.0084	6,45
11,5 - 12,5		229010.0115	3,60	84	229011.0175	6,45
13,0 - 17,5		229010.0130	3,60	175	229011.0305	11,30
18,0 - 24,0		229010.0180	3,60	305	229011.0690	12,10
25,0 - 35,0		229010.0250	3,70	690	229011.1370	13,15
36,0 - 65,0		229010.0360	3,75	1370	229011.1750	19,35
64,0 - 114,0		229010.0640	3,80	1750		



Karnasch® SPATENBOHRER EINSÄTZE • SPADE DRILL INSERTS



Ø mm 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	222010.0095	24,30	-	-	223010.0095	24,95	-	-	224010.0095	30,35	224510.0095	30,35	225010.0095	32,00	225510.0095	66,45
○ 9,80	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
● 10,00	222010.0100	24,30	-	-	223010.0100	24,95	-	-	224010.0100	30,35	224510.0100	30,35	225010.0100	32,00	225510.0100	66,45
● 10,20	222010.0102	24,30	-	-	223010.0102	24,95	-	-	224010.0102	30,35	224510.0102	30,35	225010.0102	32,00	225510.0102	66,45
● 10,50	222010.0105	24,30	-	-	223010.0105	24,95	-	-	224010.0105	30,35	224510.0105	30,35	225010.0105	32,00	225510.0105	66,45
● 10,80	222010.0108	24,30	-	-	223010.0108	24,95	-	-	224010.0108	30,35	224510.0108	30,35	225010.0108	32,00	225510.0108	66,45
● 11,00	222010.0110	24,30	-	-	223010.0110	24,95	-	-	224010.0110	30,35	224510.0110	30,35	225010.0110	32,00	225510.0110	66,45
● 11,50	222010.0115	24,30	-	-	223010.0115	24,95	-	-	224010.0115	30,35	224510.0115	30,35	225010.0115	32,00	225510.0115	66,45
● 12,00	222010.0120	24,30	-	-	223010.0120	24,95	-	-	224010.0120	30,35	224510.0120	30,35	225010.0120	32,00	225510.0120	66,45
● 12,50	222010.0125	24,30	-	-	223010.0125	24,95	-	-	224010.0125	30,35	224510.0125	30,35	225010.0125	32,00	225510.0125	66,45
● 13,00	222010.0130	27,65	-	-	223010.0130	27,80	-	-	224010.0130	35,70	224510.0130	35,70	225010.0130	36,85	225510.0130	71,25
● 13,50	222010.0135	27,65	-	-	223010.0135	27,80	-	-	224010.0135	35,70	224510.0135	35,70	225010.0135	36,85	225510.0135	71,25
● 14,00	222010.0140	27,65	-	-	223010.0140	27,80	-	-	224010.0140	35,70	224510.0140	35,70	225010.0140	36,85	225510.0140	71,25
● 14,50	222010.0145	27,65	-	-	223010.0145	27,80	-	-	224010.0145	35,70	224510.0145	35,70	225010.0145	36,85	225510.0145	71,25
● 15,00	222010.0150	27,65	-	-	223010.0150	27,80	-	-	224010.0150	35,70	224510.0150	35,70	225010.0150	36,85	225510.0150	71,25
● 15,50	222010.0155	27,65	-	-	223010.0155	27,80	-	-	224010.0155	35,70	224510.0155	35,70	225010.0155	36,85	225510.0155	71,25
● 16,00	222010.0160	27,65	-	-	223010.0160	27,80	-	-	224010.0160	35,70	224510.0160	35,70	225010.0160	36,85	225510.0160	71,25
● 16,50	222010.0165	27,65	-	-	223010.0165	27,80	-	-	224010.0165	35,70	224510.0165	35,70	225010.0165	36,85	225510.0165	71,25
● 17,00	222010.0170	27,65	-	-	223010.0170	27,80	-	-	224010.0170	35,70	224510.0170	35,70	225010.0170	36,85	225510.0170	71,25
● 17,50	222010.0175	27,65	-	-	223010.0175	27,80	-	-	224010.0175	35,70	224510.0175	35,70	225010.0175	36,85	225510.0175	71,25
● 18,00	222010.0180	35,20	-	-	223010.0180	38,45	-	-	224010.0180	46,40	224510.0180	46,40	225010.0180	51,70	225510.0180	81,45
● 18,50	222010.0185	35,20	-	-	223010.0185	38,45	-	-	224010.0185	46,40	224510.0185	46,40	225010.0185	51,70	225510.0185	81,45
● 19,00	222010.0190	35,20	-	-	223010.0190	38,45	-	-	224010.0190	46,40	224510.0190	46,40	225010.0190	51,70	225510.0190	102,55
● 19,50	222010.0195	35,20	-	-	223010.0195	38,45	-	-	224010.0195	46,40	224510.0195	46,40	225010.0195	51,70	225510.0195	102,55
● 20,00	222010.0200	35,20	-	-	223010.0200	38,45	-	-	224010.0200	46,40	224510.0200	46,40	225010.0200	51,70	225510.0200	102,55
● 20,50	222010.0205	35,20	-	-	223010.0205	38,45	-	-	224010.0205	46,40	224510.0205	46,40	225010.0205	51,70	225510.0205	118,20
● 21,00	222010.0210	35,20	-	-	223010.0210	38,45	-	-	224010.0210	46,40	224510.0210	46,40	225010.0210	51,70	225510.0210	118,20
● 22,00	222010.0220	35,20	-	-	223010.0220	38,45	-	-	224010.0220	46,40	224510.0220	46,40	225010.0220	51,70	225510.0220	118,20
● 23,00	222010.0230	35,20	-	-	223010.0230	38,45	-	-	224010.0230	46,40	224510.0230	46,40	225010.0230	51,70	225510.0230	118,20
● 24,00	222010.0240	35,20	-	-	223010.0240	38,45	-	-	224010.0240	46,40	224510.0240	46,40	225010.0240	51,70	225510.0240	118,20
● 25,00	222010.0250	41,20	-	-	223010.0250	43,40	-	-	224010.0250	54,35	224510.0250	54,35	225010.0250	58,55	225510.0250	125,10
● 26,00	222010.0260	41,20	-	-	223010.0260	43,40	-	-	224010.0260	54,35	224510.0260	54,35	225010.0260	58,55	225510.0260	125,10
● 27,00	222010.0270	41,20	-	-	223010.0270	43,40	-	-	224010.0270	54,35	224510.0270	54,35	225010.0270	58,55	225510.0270	125,10
● 28,00	222010.0280	41,20	-	-	223010.0280	43,40	-	-	224010.0280	54,35	224510.0280	54,35	225010.0280	58,55	225510.0280	125,10
● 29,00	222010.0290	41,20	-	-	223010.0290	43,40	-	-	224010.0290	54,35	224510.0290	54,35	225010.0290	58,55	225510.0290	125,10
● 30,00	222010.0300	41,20	-	-	223010.0300	43,40	-	-	224010.0300	54,35	224510.0300	54,35	225010.0300	58,55	225510.0300	125,10
● 31,00	222010.0310	41,20	-	-	223010.0310	43,40	-	-	224010.0310	54,35	224510.0310	54,35	225010.0310	58,55	225510.0310	125,10
● 32,00	222010.0320	41,20	-	-	223010.0320	43,40	-	-	224010.0320	54,35	224510.0320	54,35	225010.0320	58,55	225510.0320	125,10
● 33,00	222010.0330	41,20	-	-	223010.0330	43,40	-	-	224010.0330	54,35	224510.0330	54,35	225010.0330	58,55	225510.0330	132,60
● 34,00	222010.0340	41,20	-	-	223010.0340	43,40	-	-	224010.0340	54,35	224510.0340	54,35	225010.0340	58,55	225510.0340	132,60
● 35,00	222010.0350	41,20	-	-	223010.0350	43,40	-	-	224010.0350	54,35	224510.0350	54,35	225010.0350	58,55	225510.0350	132,60
● 36,00	222010.0360	56,45	-	-	223010.0360	57,15	-	-	-	-	-	-	-	-	-	-
● 37,00	222010.0370	56,45	-	-	223010.0370	57,15	-	-	-	-	-	-	-	-	-	-
● 38,00	222010.0380	56,45	-	-	223010.0380	57,15	-	-	-	-	-	-	-	-	-	-
● 39,00	222010.0390	56,45	-	-	223010.0390	57,15	-	-	-	-	-	-	-	-	-	-
● 40,00	222010.0400	56,45	-	-	223010.0400	57,15	-	-	-	-	-	-	-	-	-	-
● 41,00	222010.0410	56,45	-	-	223010.0410	57,15	-	-	-	-	-	-	-	-	-	-
● 42,00	222010.0420	56,45	-	-	223010.0420	57,15	-	-	-	-	-	-	-	-	-	-
● 43,00	222010.0430	56,45	-	-	223010.0430	57,15	-	-	-	-	-	-	-	-	-	-
● 44,00	222010.0440	56,45	-	-	223010.0440	57,15	-	-	-	-	-	-	-	-	-	-
● 45,00	222010.0450	56,45	-	-	223010.0450	57,15	-	-	-	-	-	-	-	-	-	-
● 46,00	222010.0460	56,45	-	-	223010.0460	57,15	-	-	-	-	-	-	-	-	-	-
● 47,00	222010.0470	56,45	-	-	223010.0470	57,15	-	-	-	-	-	-	-	-	-	-

Fortsetzung Seite 210 · Continued page 210

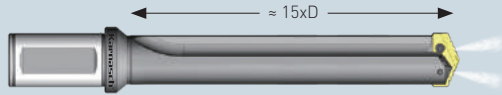
Schnittdaten
Cutting data

 Art. **22.1020**


722-731



Video



Typ Halter · Type holder 900 GZ-15

Art.	€	l₃ Nutzlänge Max. drill depth mm	l₅ Körperlänge Body-length mm	l₄ Neue REF.- Länge REF.-length mm	l₁ Gesamtlänge Overall length mm	d₂ Schaft-Ø Shank-Ø mm	F Schaftlänge Shank length mm	G Gewinde Pipe tap mm
• 221020.02900.0095 Ø 9,5-11,0 mm OPTIMAL · OPTIMAL	254,60	290,0	319,9	322,3	369,9	20	50,0	1/8"
• 221020.02905.0115 Ø 11,5-12,5 mm OPTIMAL · OPTIMAL	254,60	290,5	319,9	322,3	369,9	20	50,0	1/8"
• 221020.03870.0130 Ø 13,0-17,5 mm MÖGLICH · POSSIBLE Ø 13,0-15,0 mm OPTIMAL · OPTIMAL	317,50							
• 221020.03870.0155 Ø 15,5-17,5 mm OPTIMAL · OPTIMAL	317,50	387,0	416,0	418,8	466,0	20	50,0	1/8"
• 221020.05690.0180 Ø 18,0-24,0 mm MÖGLICH · POSSIBLE Ø 18,0-21,0 mm OPTIMAL · OPTIMAL	452,35							
• 221020.05690.0220 Ø 22,0-24,0 mm OPTIMAL · OPTIMAL	452,35	569,0	602,5	606,1	658,5	25	56,0	1/8"
• 221020.06920.0250 Ø 25,0-35,0 mm MÖGLICH · POSSIBLE Ø 25,0-29,0 mm OPTIMAL · OPTIMAL	570,75							
• 221020.06920.0300 Ø 30,0-35,0 mm OPTIMAL · OPTIMAL	570,75	692,0	735,1	738,7	795,1	32	60,0	1/4"
• 221020.07874.0360 Ø 36,0-47,0 mm MÖGLICH · POSSIBLE Ø 36,0-41,0 mm OPTIMAL · OPTIMAL	825,80							
• 221020.07874.0420 Ø 42,0-47,0 mm OPTIMAL · OPTIMAL	825,80	787,4	839,7	844,5	909,7	40	70,0	1/4"

Fortsetzung Seite 211 · Continued page 211

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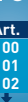
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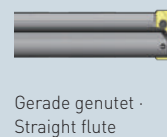
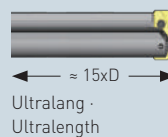
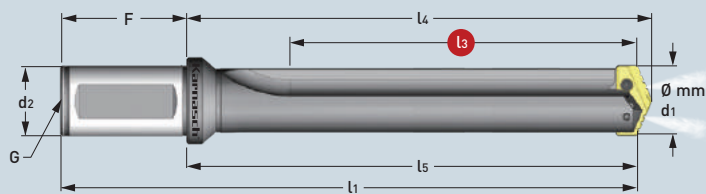


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 Art.
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DIN 1835-B
Zylindrischer Schaft mit Spannfläche · Lateral fixation type flange shank

	Art. 22.2010		Art. 22.2510		Art. 22.3010		Art. 22.3510		Art. 22.4010		Art. 22.4510		Art. 22.5010		Art. 22.5510	
Ø mm d1	Pulverstahl 25 Beschichtung für Stahl		Pulverstahl 15 Beschichtung für Stahl		Pulverstahl 25 Beschichtung für Alu, Messing, Kupfer		Pulverstahl 15 Beschichtung für Alu, Messing, Kupfer		Hartmetall 20/30 Beschichtung für Stahl		Hartmetall 20/30 Beschichtung für Guss / Geometrie für Guss		Hartmetall 20/30 Beschichtung für Alu, Messing, Kupfer		Hartmetall 20/30 DIA-Beschichtung für abrasive Materialien wie: GFK, CFK, Graphit	
	Powder steel 25 Coating for steel		Powder steel 15 Coating for steel		Powder steel 25 Coating for alu, brass, copper		Powder steel 15 Coating for alu, brass, copper		Carbide 20/30 Coating for steel		Carbide 20/30 Coating for cast iron / Geometry for cast iron		Carbide 20/30 Coating for alu, brass, copper		Carbide 20/30 DIA-Coating for abrasive materials such as: fiberglass, carbon fiber, graphite	
	Art.	€	Art.	€	Art.	€	Art.	€	Art.	€	Art.	€	Art.	€	Art.	€
48,00	222010.0480	80,75	-	-	223010.0480	79,30	-	-	-	-	-	-	-	-	-	-
49,00	222010.0490	80,75	-	-	223010.0490	79,30	-	-	-	-	-	-	-	-	-	-
50,00	222010.0500	80,75	-	-	223010.0500	79,30	-	-	-	-	-	-	-	-	-	-
51,00	222010.0510	80,75	-	-	223010.0510	79,30	-	-	-	-	-	-	-	-	-	-
52,00	222010.0520	80,75	-	-	223010.0520	79,30	-	-	-	-	-	-	-	-	-	-
53,00	222010.0530	80,75	-	-	223010.0530	79,30	-	-	-	-	-	-	-	-	-	-
54,00	222010.0540	80,75	-	-	223010.0540	79,30	-	-	-	-	-	-	-	-	-	-
55,00	222010.0550	80,75	-	-	223010.0550	79,30	-	-	-	-	-	-	-	-	-	-
56,00	222010.0560	80,75	-	-	223010.0560	79,30	-	-	-	-	-	-	-	-	-	-
57,00	222010.0570	80,75	-	-	223010.0570	79,30	-	-	-	-	-	-	-	-	-	-
58,00	222010.0580	80,75	-	-	223010.0580	79,30	-	-	-	-	-	-	-	-	-	-
59,00	222010.0590	80,75	-	-	223010.0590	79,30	-	-	-	-	-	-	-	-	-	-
60,00	222010.0600	80,75	-	-	223010.0600	79,30	-	-	-	-	-	-	-	-	-	-
61,00	222010.0610	80,75	-	-	223010.0610	79,30	-	-	-	-	-	-	-	-	-	-
62,00	222010.0620	80,75	-	-	223010.0620	79,30	-	-	-	-	-	-	-	-	-	-
63,00	222010.0630	80,75	-	-	223010.0630	79,30	-	-	-	-	-	-	-	-	-	-
64,00	222010.0640	80,75	-	-	223010.0640	79,30	-	-	-	-	-	-	-	-	-	-
65,00	222010.0650	80,75	-	-	223010.0650	79,30	-	-	-	-	-	-	-	-	-	-

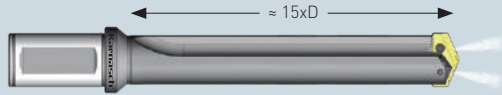
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Schnittdaten
Cutting data

 Art. **22.1020**

 722-731

Video







Typ Halter · Type holder 900 GZ-15

Art.	€	l₃ Nutzlänge Max. drill depth mm	l₅ Körperlänge Body-length mm	l₄ Neue REF.- Länge REF.-length mm	l₁ Gesamtlänge Overall length mm	d₂ Schaft-Ø Shank-Ø mm	F Schaftlänge Shank length mm	G Gewinde Pipe tap mm
• 221020.08790.0480 Ø 48,0-65 mm MÖGLICH · POSSIBLE Ø 48,0-55 mm OPTIMAL · OPTIMAL	1010,70	879,0	928,7	933,5	998,7	40	70,0	1/4"
• 221020.08790.0560 Ø 56,0-65 mm OPTIMAL · OPTIMAL	1010,70	879,0	928,7	933,5	998,7	40	70,0	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 (mm)	TORX		max. Drehmoment / Torque (N/cm)	Schlüssel / Wrench	
					
9,5 - 11,0		229010.0095	84		6,45
11,5 - 12,5		229010.0115	84	229011.0084	6,45
13,0 - 17,5		229010.0130	175	229011.0175	6,45
18,0 - 24,0		229010.0180	305	229011.0305	11,30
25,0 - 35,0		229010.0250	690	229011.0690	12,10
36,0 - 65,0		229010.0360	1370	229011.1370	13,15
64,0 - 114,0		229010.0640	1750	229011.1750	19,35

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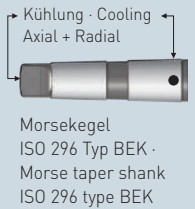
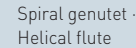
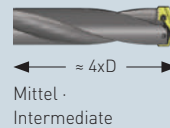
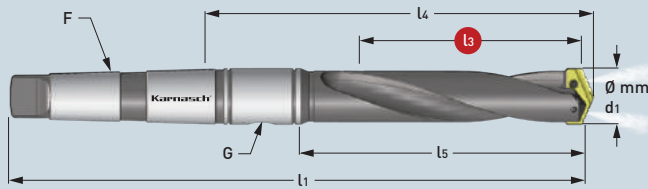


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 Art.
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	Art. 22.2010		Art. 22.2510		Art. 22.3010		Art. 22.3510		Art. 22.4010		Art. 22.4510		Art. 22.5010		Art. 22.5510	
Ø mm d1	Pulverstahl 25 Beschichtung für Stahl		Pulverstahl 15 Beschichtung für Stahl		Pulverstahl 25 Beschichtung für Alu, Messing, Kupfer		Pulverstahl 15 Beschichtung für Alu, Messing, Kupfer		Hartmetall 20/30 Beschichtung für Stahl		Hartmetall 20/30 Beschichtung für Guss / Geometrie für Guss		Hartmetall 20/30 Beschichtung für Alu, Messing, Kupfer		Hartmetall 20/30 DIA-Beschichtung für abrasive Materialien wie: GFK, CFK, Graphit	
	Powder steel 25 Coating for steel		Powder steel 15 Coating for steel		Powder steel 25 Coating for alu, brass, copper		Powder steel 15 Coating for alu, brass, copper		Carbide 20/30 Coating for steel		Carbide 20/30 Coating for cast iron / Geometry for cast iron		Carbide 20/30 Coating for alu, brass, copper		Carbide 20/30 DIA-Coating for abrasive materials such as: fiberglass, carbon fiber, graphite	
	Art.	€	Art.	€	Art.	€	Art.	€	Art.	€	Art.	€	Art.	€	Art.	€
• 18,00	222010.0180	35,20	-	-	223010.0180	38,45	-	-	224010.0180	46,40	224510.0180	46,40	225010.0180	51,70	225510.0180	81,45
• 18,50	222010.0185	35,20	-	-	223010.0185	38,45	-	-	224010.0185	46,40	224510.0185	46,40	225010.0185	51,70	225510.0185	81,45
• 19,00	222010.0190	35,20	-	-	223010.0190	38,45	-	-	224010.0190	46,40	224510.0190	46,40	225010.0190	51,70	225510.0190	102,55
• 19,50	222010.0195	35,20	-	-	223010.0195	38,45	-	-	224010.0195	46,40	224510.0195	46,40	225010.0195	51,70	225510.0195	102,55
• 20,00	222010.0200	35,20	-	-	223010.0200	38,45	-	-	224010.0200	46,40	224510.0200	46,40	225010.0200	51,70	225510.0200	102,55
• 20,50	222010.0205	35,20	-	-	223010.0205	38,45	-	-	224010.0205	46,40	224510.0205	46,40	225010.0205	51,70	225510.0205	118,20
• 21,00	222010.0210	35,20	-	-	223010.0210	38,45	-	-	224010.0210	46,40	224510.0210	46,40	225010.0210	51,70	225510.0210	118,20
• 22,00	222010.0220	35,20	-	-	223010.0220	38,45	-	-	224010.0220	46,40	224510.0220	46,40	225010.0220	51,70	225510.0220	118,20
• 23,00	222010.0230	35,20	-	-	223010.0230	38,45	-	-	224010.0230	46,40	224510.0230	46,40	225010.0230	51,70	225510.0230	118,20
• 24,00	222010.0240	35,20	-	-	223010.0240	38,45	-	-	224010.0240	46,40	224510.0240	46,40	225010.0240	51,70	225510.0240	118,20
• 25,00	222010.0250	41,20	-	-	223010.0250	43,40	-	-	224010.0250	54,35	224510.0250	54,35	225010.0250	58,55	225510.0250	125,10
• 26,00	222010.0260	41,20	-	-	223010.0260	43,40	-	-	224010.0260	54,35	224510.0260	54,35	225010.0260	58,55	225510.0260	125,10
• 27,00	222010.0270	41,20	-	-	223010.0270	43,40	-	-	224010.0270	54,35	224510.0270	54,35	225010.0270	58,55	225510.0270	125,10
• 28,00	222010.0280	41,20	-	-	223010.0280	43,40	-	-	224010.0280	54,35	224510.0280	54,35	225010.0280	58,55	225510.0280	125,10
• 29,00	222010.0290	41,20	-	-	223010.0290	43,40	-	-	224010.0290	54,35	224510.0290	54,35	225010.0290	58,55	225510.0290	125,10
• 30,00	222010.0300	41,20	-	-	223010.0300	43,40	-	-	224010.0300	54,35	224510.0300	54,35	225010.0300	58,55	225510.0300	125,10
• 31,00	222010.0310	41,20	-	-	223010.0310	43,40	-	-	224010.0310	54,35	224510.0310	54,35	225010.0310	58,55	225510.0310	125,10
• 32,00	222010.0320	41,20	-	-	223010.0320	43,40	-	-	224010.0320	54,35	224510.0320	54,35	225010.0320	58,55	225510.0320	125,10
• 33,00	222010.0330	41,20	-	-	223010.0330	43,40	-	-	224010.0330	54,35	224510.0330	54,35	225010.0330	58,55	225510.0330	132,60
• 34,00	222010.0340	41,20	-	-	223010.0340	43,40	-	-	224010.0340	54,35	224510.0340	54,35	225010.0340	58,55	225510.0340	132,60
• 35,00	222010.0350	41,20	-	-	223010.0350	43,40	-	-	224010.0350	54,35	224510.0350	54,35	225010.0350	58,55	225510.0350	132,60
• 36,00	222010.0360	56,45	-	-	223010.0360	57,15	-	-	-	-	-	-	-	-	-	-
• 37,00	222010.0370	56,45	-	-	223010.0370	57,15	-	-	-	-	-	-	-	-	-	-
• 38,00	222010.0380	56,45	-	-	223010.0380	57,15	-	-	-	-	-	-	-	-	-	-
• 39,00	222010.0390	56,45	-	-	223010.0390	57,15	-	-	-	-	-	-	-	-	-	-
• 40,00	222010.0400	56,45	-	-	223010.0400	57,15	-	-	-	-	-	-	-	-	-	-
• 41,00	222010.0410	56,45	-	-	223010.0410	57,15	-	-	-	-	-	-	-	-	-	-
• 42,00	222010.0420	56,45	-	-	223010.0420	57,15	-	-	-	-	-	-	-	-	-	-
• 43,00	222010.0430	56,45	-	-	223010.0430	57,15	-	-	-	-	-	-	-	-	-	-
• 44,00	222010.0440	56,45	-	-	223010.0440	57,15	-	-	-	-	-	-	-	-	-	-
• 45,00	222010.0450	56,45	-	-	223010.0450	57,15	-	-	-	-	-	-	-	-	-	-
• 46,00	222010.0460	56,45	-	-	223010.0460	57,15	-	-	-	-	-	-	-	-	-	-
• 47,00	222010.0470	56,45	-	-	223010.0470	57,15	-	-	-	-	-	-	-	-	-	-

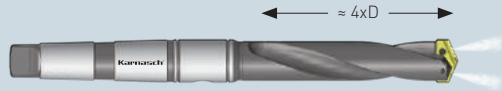
↓
 Weitere Ø bis maximal Ø 65 in 5xD siehe Seite 214/216
 Further Ø up to Ø 65 in 5xD see page 214/216

Schnittdaten
Cutting data



722-731

Video



Typ Halter · Type holder 300 SM-4

Art.	€	l3 Nutzlänge Max. drill depth mm	l5 Körperlänge Body-length mm	l4 Neue REF.- Länge REF.-length mm	l1 Gesamtlänge Overall length mm	F Morsekegel Morse taper	G Gewinde Pipe tap	Kühlmittelring Oil ring Art. €
<ul style="list-style-type: none"> 221030.01207.0180 Ø 18,0-24,0 mm MÖGLICH · POSSIBLE Ø 18,0-21,0 mm OPTIMAL · OPTIMAL 221030.01207.0220 Ø 22,0-24,0 mm OPTIMAL · OPTIMAL 	170,20	120,7	149,2	193,3	283,3	3	1/8"	<ul style="list-style-type: none"> 229002.02540 35,60
<ul style="list-style-type: none"> 221030.01365.0250 Ø 25,0-35,0 mm MÖGLICH · POSSIBLE Ø 25,0-29,0 mm OPTIMAL · OPTIMAL 221030.01365.0300 Ø 30,0-35,0 mm OPTIMAL · OPTIMAL 	220,40	136,5	165,1	218,4	331,8	4	1/8" Halter Holder 25,0-35,0 mm	<ul style="list-style-type: none"> 229002.03175 46,15
<ul style="list-style-type: none"> 221030.01651.0360 Ø 36,0-47,0 mm MÖGLICH · POSSIBLE Ø 36,0-41,0 mm OPTIMAL · OPTIMAL 221030.01651.0420 Ø 42,0-47,0 mm OPTIMAL · OPTIMAL 	310,85	165,1	196,9	250,9	363,6	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 238
 For machines without radial/axial coolant supply a oil ring can be mounted on the holder. Details see page 238

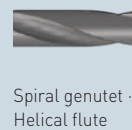
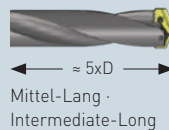
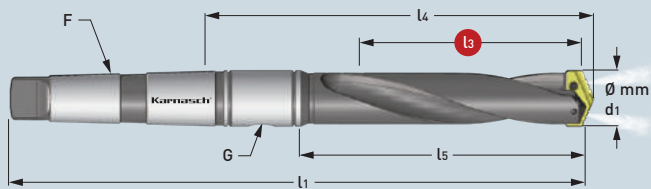


Ersatz-Torxschrauben und Schlüssel mit Drehmomentangabe
 Spare Torx-screws and wrench with torque specification

Ø Diameter (mm)	TORX	€	max. Drehmoment / Torque (N/cm)	Schlüssel / Wrench	€
9,5 - 11,0	229010.0095	3,60	84	229011.0084	6,45
11,5 - 12,5	229010.0115	3,60	84	229011.0305	11,30
13,0 - 17,5	229010.0130	3,60	175	229011.0175	6,45
18,0 - 24,0	229010.0180	3,60	305	229011.0690	12,10
25,0 - 35,0	229010.0250	3,70	690	229011.1370	13,15
36,0 - 65,0	229010.0360	3,75	1370	229011.1750	19,35
64,0 - 114,0	229010.0640	3,80	1750		



Art.
100
101
102



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

Ø mm 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	222010.0095	24,30	-	-	223010.0095	24,95	-	-	224010.0095	30,35	224510.0095	30,35	225010.0095	32,00	225510.0095	66,45
○ 9,80	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
● 10,00	222010.0100	24,30	-	-	223010.0100	24,95	-	-	224010.0100	30,35	224510.0100	30,35	225010.0100	32,00	225510.0100	66,45
● 10,20	222010.0102	24,30	-	-	223010.0102	24,95	-	-	224010.0102	30,35	224510.0102	30,35	225010.0102	32,00	225510.0102	66,45
● 10,50	222010.0105	24,30	-	-	223010.0105	24,95	-	-	224010.0105	30,35	224510.0105	30,35	225010.0105	32,00	225510.0105	66,45
● 10,80	222010.0108	24,30	-	-	223010.0108	24,95	-	-	224010.0108	30,35	224510.0108	30,35	225010.0108	32,00	225510.0108	66,45
● 11,00	222010.0110	24,30	-	-	223010.0110	24,95	-	-	224010.0110	30,35	224510.0110	30,35	225010.0110	32,00	225510.0110	66,45
● 11,50	222010.0115	24,30	-	-	223010.0115	24,95	-	-	224010.0115	30,35	224510.0115	30,35	225010.0115	32,00	225510.0115	66,45
● 12,00	222010.0120	24,30	-	-	223010.0120	24,95	-	-	224010.0120	30,35	224510.0120	30,35	225010.0120	32,00	225510.0120	66,45
● 12,50	222010.0125	24,30	-	-	223010.0125	24,95	-	-	224010.0125	30,35	224510.0125	30,35	225010.0125	32,00	225510.0125	66,45
● 13,00	222010.0130	27,65	-	-	223010.0130	27,80	-	-	224010.0130	35,70	224510.0130	35,70	225010.0130	36,85	225510.0130	71,25
● 13,50	222010.0135	27,65	-	-	223010.0135	27,80	-	-	224010.0135	35,70	224510.0135	35,70	225010.0135	36,85	225510.0135	71,25
● 14,00	222010.0140	27,65	-	-	223010.0140	27,80	-	-	224010.0140	35,70	224510.0140	35,70	225010.0140	36,85	225510.0140	71,25
● 14,50	222010.0145	27,65	-	-	223010.0145	27,80	-	-	224010.0145	35,70	224510.0145	35,70	225010.0145	36,85	225510.0145	71,25
● 15,00	222010.0150	27,65	-	-	223010.0150	27,80	-	-	224010.0150	35,70	224510.0150	35,70	225010.0150	36,85	225510.0150	71,25
● 15,50	222010.0155	27,65	-	-	223010.0155	27,80	-	-	224010.0155	35,70	224510.0155	35,70	225010.0155	36,85	225510.0155	71,25
● 16,00	222010.0160	27,65	-	-	223010.0160	27,80	-	-	224010.0160	35,70	224510.0160	35,70	225010.0160	36,85	225510.0160	71,25
● 16,50	222010.0165	27,65	-	-	223010.0165	27,80	-	-	224010.0165	35,70	224510.0165	35,70	225010.0165	36,85	225510.0165	71,25
● 17,00	222010.0170	27,65	-	-	223010.0170	27,80	-	-	224010.0170	35,70	224510.0170	35,70	225010.0170	36,85	225510.0170	71,25
● 17,50	222010.0175	27,65	-	-	223010.0175	27,80	-	-	224010.0175	35,70	224510.0175	35,70	225010.0175	36,85	225510.0175	71,25
● 18,00	222010.0180	35,20	-	-	223010.0180	38,45	-	-	224010.0180	46,40	224510.0180	46,40	225010.0180	51,70	225510.0180	81,45
● 18,50	222010.0185	35,20	-	-	223010.0185	38,45	-	-	224010.0185	46,40	224510.0185	46,40	225010.0185	51,70	225510.0185	81,45
● 19,00	222010.0190	35,20	-	-	223010.0190	38,45	-	-	224010.0190	46,40	224510.0190	46,40	225010.0190	51,70	225510.0190	102,55
● 19,50	222010.0195	35,20	-	-	223010.0195	38,45	-	-	224010.0195	46,40	224510.0195	46,40	225010.0195	51,70	225510.0195	102,55
● 20,00	222010.0200	35,20	-	-	223010.0200	38,45	-	-	224010.0200	46,40	224510.0200	46,40	225010.0200	51,70	225510.0200	102,55
● 20,50	222010.0205	35,20	-	-	223010.0205	38,45	-	-	224010.0205	46,40	224510.0205	46,40	225010.0205	51,70	225510.0205	118,20
● 21,00	222010.0210	35,20	-	-	223010.0210	38,45	-	-	224010.0210	46,40	224510.0210	46,40	225010.0210	51,70	225510.0210	118,20
● 22,00	222010.0220	35,20	-	-	223010.0220	38,45	-	-	224010.0220	46,40	224510.0220	46,40	225010.0220	51,70	225510.0220	118,20
● 23,00	222010.0230	35,20	-	-	223010.0230	38,45	-	-	224010.0230	46,40	224510.0230	46,40	225010.0230	51,70	225510.0230	118,20
● 24,00	222010.0240	35,20	-	-	223010.0240	38,45	-	-	224010.0240	46,40	224510.0240	46,40	225010.0240	51,70	225510.0240	118,20
● 25,00	222010.0250	41,20	-	-	223010.0250	43,40	-	-	224010.0250	54,35	224510.0250	54,35	225010.0250	58,55	225510.0250	125,10
● 26,00	222010.0260	41,20	-	-	223010.0260	43,40	-	-	224010.0260	54,35	224510.0260	54,35	225010.0260	58,55	225510.0260	125,10
● 27,00	222010.0270	41,20	-	-	223010.0270	43,40	-	-	224010.0270	54,35	224510.0270	54,35	225010.0270	58,55	225510.0270	125,10
● 28,00	222010.0280	41,20	-	-	223010.0280	43,40	-	-	224010.0280	54,35	224510.0280	54,35	225010.0280	58,55	225510.0280	125,10
● 29,00	222010.0290	41,20	-	-	223010.0290	43,40	-	-	224010.0290	54,35	224510.0290	54,35	225010.0290	58,55	225510.0290	125,10
● 30,00	222010.0300	41,20	-	-	223010.0300	43,40	-	-	224010.0300	54,35	224510.0300	54,35	225010.0300	58,55	225510.0300	125,10
● 31,00	222010.0310	41,20	-	-	223010.0310	43,40	-	-	224010.0310	54,35	224510.0310	54,35	225010.0310	58,55	225510.0310	125,10
● 32,00	222010.0320	41,20	-	-	223010.0320	43,40	-	-	224010.0320	54,35	224510.0320	54,35	225010.0320	58,55	225510.0320	125,10
● 33,00	222010.0330	41,20	-	-	223010.0330	43,40	-	-	224010.0330	54,35	224510.0330	54,35	225010.0330	58,55	225510.0330	132,60
● 34,00	222010.0340	41,20	-	-	223010.0340	43,40	-	-	224010.0340	54,35	224510.0340	54,35	225010.0340	58,55	225510.0340	132,60
● 35,00	222010.0350	41,20	-	-	223010.0350	43,40	-	-	224010.0350	54,35	224510.0350	54,35	225010.0350	58,55	225510.0350	132,60
● 36,00	222010.0360	56,45	-	-	223010.0360	57,15	-	-	-	-	-	-	-	-	-	-
● 37,00	222010.0370	56,45	-	-	223010.0370	57,15	-	-	-	-	-	-	-	-	-	-
● 38,00	222010.0380	56,45	-	-	223010.0380	57,15	-	-	-	-	-	-	-	-	-	-
● 39,00	222010.0390	56,45	-	-	223010.0390	57,15	-	-	-	-	-	-	-	-	-	-
● 40,00	222010.0400	56,45	-	-	223010.0400	57,15	-	-	-	-	-	-	-	-	-	-
● 41,00	222010.0410	56,45	-	-	223010.0410	57,15	-	-	-	-	-	-	-	-	-	-
● 42,00	222010.0420	56,45	-	-	223010.0420	57,15	-	-	-	-	-	-	-	-	-	-
● 43,00	222010.0430	56,45	-	-	223010.0430	57,15	-	-	-	-	-	-	-	-	-	-
● 44,00	222010.0440	56,45	-	-	223010.0440	57,15	-	-	-	-	-	-	-	-	-	-
● 45,00	222010.0450	56,45	-	-	223010.0450	57,15	-	-	-	-	-	-	-	-	-	-
● 46,00	222010.0460	56,45	-	-	223010.0460	57,15	-	-	-	-	-	-	-	-	-	-
● 47,00	222010.0470	56,45	-	-	223010.0470	57,15	-	-	-	-	-	-	-	-	-	-

Fortsetzung Seite 216 · Continued page 216

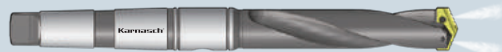
Schnittdaten
Cutting data

 Art. **22.1030**


722-731

Video

≈ 5xD

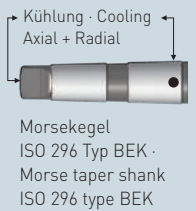
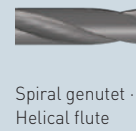
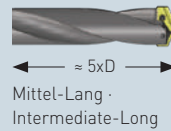
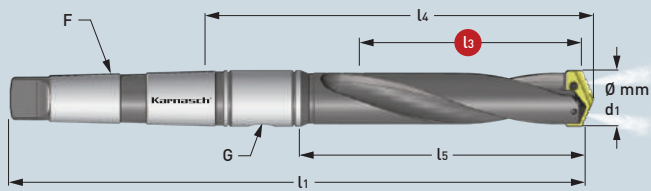


Typ Halter · Type holder 400 SM-5

		l3	l5	l4	l1	F	G	 Kühlmittelring Oil ring	
		Nutzlänge Max. drill depth	Körperlänge Body-length	Neue REF.-Länge REF.-length	Gesamtlänge Overall length	Morsekegel Morse taper	Gewinde Pipe tap		
Art.	€	mm	mm	mm	mm			Art.	€
<ul style="list-style-type: none"> 221030.00603.0095 Ø 9,5-11,0 mm OPTIMAL · OPTIMAL 	132,05	60,3	80,2	116,7	188,9	2	1/16"	<ul style="list-style-type: none"> 229002.01905 	31,65
<ul style="list-style-type: none"> 221030.00603.0115 Ø 11,5-12,5 mm OPTIMAL · OPTIMAL 	132,05	60,3	80,2	116,7	188,9	2	1/16"		
<ul style="list-style-type: none"> 221030.00635.0130 Ø 13,0-17,5 mm MÖGLICH · POSSIBLE Ø 13,0-15,0 mm OPTIMAL · OPTIMAL 	139,45	63,5	84,1	121,0	192,9	2	1/16"		
<ul style="list-style-type: none"> 221030.00635.0155 Ø 15,5-17,5 mm OPTIMAL · OPTIMAL 	139,45								
<ul style="list-style-type: none"> 221030.01715.0180 Ø 18,0-24,0 mm MÖGLICH · POSSIBLE Ø 18,0-21,0 mm OPTIMAL · OPTIMAL 	192,55	171,5	200,0	244,1	334,2	3	1/8"	<ul style="list-style-type: none"> 229002.02540 	35,60
<ul style="list-style-type: none"> 221030.01715.0220 Ø 22,0-24,0 mm OPTIMAL · OPTIMAL 	192,55								
<ul style="list-style-type: none"> 221030.01873.0250 Ø 25,0-35,0 mm MÖGLICH · POSSIBLE Ø 25,0-29,0 mm OPTIMAL · OPTIMAL 	244,95	187,3	215,9	262,0	375,4	4	1/8" Halter Holder 25,0-35,0 mm	<ul style="list-style-type: none"> 229002.03175 	46,15
<ul style="list-style-type: none"> 221030.01873.0300 Ø 30,0-35,0 mm OPTIMAL · OPTIMAL 	244,95			269,2	382,6	4	1/4" Halter Holder 30,0-35,0 mm		
<ul style="list-style-type: none"> 221030.02095.0360 Ø 36,0-47,0 mm MÖGLICH · POSSIBLE Ø 36,0-41,0 mm OPTIMAL · OPTIMAL 	334,30	209,5	241,3	295,3	408,0	4	1/4"		
<ul style="list-style-type: none"> 221030.02095.0420 Ø 42,0-47,0 mm OPTIMAL · OPTIMAL 	334,30								

Fortsetzung Seite 217 · Continued page 217


 Art.
100
101
102



Ø mm 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.	€
48,00	222010.0480	80,75	-	-	223010.0480	79,30	-	-	-	-	-	-	-	-	-	-
49,00	222010.0490	80,75	-	-	223010.0490	79,30	-	-	-	-	-	-	-	-	-	-
50,00	222010.0500	80,75	-	-	223010.0500	79,30	-	-	-	-	-	-	-	-	-	-
51,00	222010.0510	80,75	-	-	223010.0510	79,30	-	-	-	-	-	-	-	-	-	-
52,00	222010.0520	80,75	-	-	223010.0520	79,30	-	-	-	-	-	-	-	-	-	-
53,00	222010.0530	80,75	-	-	223010.0530	79,30	-	-	-	-	-	-	-	-	-	-
54,00	222010.0540	80,75	-	-	223010.0540	79,30	-	-	-	-	-	-	-	-	-	-
55,00	222010.0550	80,75	-	-	223010.0550	79,30	-	-	-	-	-	-	-	-	-	-
56,00	222010.0560	80,75	-	-	223010.0560	79,30	-	-	-	-	-	-	-	-	-	-
57,00	222010.0570	80,75	-	-	223010.0570	79,30	-	-	-	-	-	-	-	-	-	-
58,00	222010.0580	80,75	-	-	223010.0580	79,30	-	-	-	-	-	-	-	-	-	-
59,00	222010.0590	80,75	-	-	223010.0590	79,30	-	-	-	-	-	-	-	-	-	-
60,00	222010.0600	80,75	-	-	223010.0600	79,30	-	-	-	-	-	-	-	-	-	-
61,00	222010.0610	80,75	-	-	223010.0610	79,30	-	-	-	-	-	-	-	-	-	-
62,00	222010.0620	80,75	-	-	223010.0620	79,30	-	-	-	-	-	-	-	-	-	-
63,00	222010.0630	80,75	-	-	223010.0630	79,30	-	-	-	-	-	-	-	-	-	-
64,00	222010.0640	80,75	-	-	223010.0640	79,30	-	-	-	-	-	-	-	-	-	-
65,00	222010.0650	80,75	-	-	223010.0650	79,30	-	-	-	-	-	-	-	-	-	-

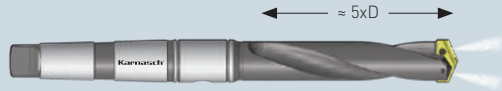
- 1
- 2
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- 5
- 6
- 7
- 8
- 9
- 10

Schnittdaten
Cutting data



722-731

Video



Typ Halter · Type holder 400 SM-5

Art.	€	l3 Nutzlänge Max. drill depth mm	l5 Körperlänge Body-length mm	l4 Neue REF.- Länge REF.-length mm	l1 Gesamtlänge Overall length mm	F Morsekegel Morse taper	G Gewinde Pipe tap	Kühlmittelring Oil ring Art. €
• 221030.02318.0480 Ø 48,0-65 mm Ø 48,0-55 mm MÖGLICH · POSSIBLE OPTIMAL · OPTIMAL	357,95	231,8	266,7	320,7	465,1	5	1/4"	• 229002.04445 60,65
• 221030.02318.0560 Ø 56,0-65 mm OPTIMAL · OPTIMAL	357,95	231,8	266,7	320,7	465,1	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 238
 For machines without radial/axial coolant supply a oil ring can be mounted on the holder. Details see page 238

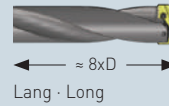
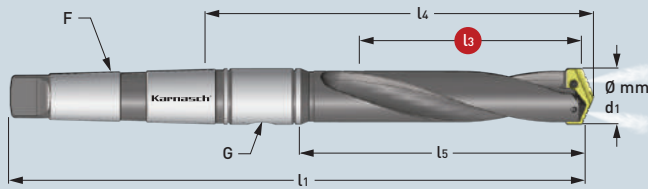


Ersatz-Torxschrauben und Schlüssel mit Drehmomentangabe
 Spare Torx-screws and wrench with torque specification

Ø Diameter (mm)	TORX	€	max. Drehmoment / Torque (N/cm)	Schlüssel / Wrench	€
9,5 - 11,0	229010.0095	3,60	84	229011.0084	6,45
11,5 - 12,5	229010.0115	3,60	84	229011.0175	6,45
13,0 - 17,5	229010.0130	3,60	175	229011.0305	11,30
18,0 - 24,0	229010.0180	3,60	305	229011.0690	12,10
25,0 - 35,0	229010.0250	3,70	690	229011.1370	13,15
36,0 - 65,0	229010.0360	3,75	1370	229011.1750	19,35
64,0 - 114,0	229010.0640	3,80	1750		



Art.
100
101
102



Spiral genutet · Helical flute



Kühlung · Cooling
Axial + Radial
Morsekegel
ISO 296 Typ BEK ·
Morse taper shank
ISO 296 type BEK

	Art. 22.2010		Art. 22.2510		Art. 22.3010		Art. 22.3510		Art. 22.4010		Art. 22.4510		Art. 22.5010		Art. 22.5510	
Ø mm d1	Pulverstahl 25 Beschichtung für Stahl		Pulverstahl 15 Beschichtung für Stahl		Pulverstahl 25 Beschichtung für Alu, Messing, Kupfer		Pulverstahl 15 Beschichtung für Alu, Messing, Kupfer		Hartmetall 20/30 Beschichtung für Stahl		Hartmetall 20/30 Beschichtung für Guss / Geometrie für Guss		Hartmetall 20/30 Beschichtung für Alu, Messing, Kupfer		Hartmetall 20/30 DIA-Beschichtung für abrasive Materialien wie: GFK, CFK, Graphit	
	Powder steel 25 Coating for steel		Powder steel 15 Coating for steel		Powder steel 25 Coating for alu, brass, copper		Powder steel 15 Coating for alu, brass, copper		Carbide 20/30 Coating for steel		Carbide 20/30 Coating for cast iron / Geometry for cast iron		Carbide 20/30 Coating for alu, brass, copper		Carbide 20/30 DIA-Coating for abrasive materials such as: fiberglass, carbon fiber, graphite	
	Art.	€	Art.	€	Art.	€	Art.	€	Art.	€	Art.	€	Art.	€	Art.	€
● 9,50	222010.0095	24,30	-	-	223010.0095	24,95	-	-	224010.0095	30,35	224510.0095	30,35	225010.0095	32,00	225510.0095	66,45
○ 9,80	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
● 10,00	222010.0100	24,30	-	-	223010.0100	24,95	-	-	224010.0100	30,35	224510.0100	30,35	225010.0100	32,00	225510.0100	66,45
● 10,20	222010.0102	24,30	-	-	223010.0102	24,95	-	-	224010.0102	30,35	224510.0102	30,35	225010.0102	32,00	225510.0102	66,45
● 10,50	222010.0105	24,30	-	-	223010.0105	24,95	-	-	224010.0105	30,35	224510.0105	30,35	225010.0105	32,00	225510.0105	66,45
● 10,80	222010.0108	24,30	-	-	223010.0108	24,95	-	-	224010.0108	30,35	224510.0108	30,35	225010.0108	32,00	225510.0108	66,45
● 11,00	222010.0110	24,30	-	-	223010.0110	24,95	-	-	224010.0110	30,35	224510.0110	30,35	225010.0110	32,00	225510.0110	66,45
● 11,50	222010.0115	24,30	-	-	223010.0115	24,95	-	-	224010.0115	30,35	224510.0115	30,35	225010.0115	32,00	225510.0115	66,45
● 12,00	222010.0120	24,30	-	-	223010.0120	24,95	-	-	224010.0120	30,35	224510.0120	30,35	225010.0120	32,00	225510.0120	66,45
● 12,50	222010.0125	24,30	-	-	223010.0125	24,95	-	-	224010.0125	30,35	224510.0125	30,35	225010.0125	32,00	225510.0125	66,45
● 13,00	222010.0130	27,65	-	-	223010.0130	27,80	-	-	224010.0130	35,70	224510.0130	35,70	225010.0130	36,85	225510.0130	71,25
● 13,50	222010.0135	27,65	-	-	223010.0135	27,80	-	-	224010.0135	35,70	224510.0135	35,70	225010.0135	36,85	225510.0135	71,25
● 14,00	222010.0140	27,65	-	-	223010.0140	27,80	-	-	224010.0140	35,70	224510.0140	35,70	225010.0140	36,85	225510.0140	71,25
● 14,50	222010.0145	27,65	-	-	223010.0145	27,80	-	-	224010.0145	35,70	224510.0145	35,70	225010.0145	36,85	225510.0145	71,25
● 15,00	222010.0150	27,65	-	-	223010.0150	27,80	-	-	224010.0150	35,70	224510.0150	35,70	225010.0150	36,85	225510.0150	71,25
● 15,50	222010.0155	27,65	-	-	223010.0155	27,80	-	-	224010.0155	35,70	224510.0155	35,70	225010.0155	36,85	225510.0155	71,25
● 16,00	222010.0160	27,65	-	-	223010.0160	27,80	-	-	224010.0160	35,70	224510.0160	35,70	225010.0160	36,85	225510.0160	71,25
● 16,50	222010.0165	27,65	-	-	223010.0165	27,80	-	-	224010.0165	35,70	224510.0165	35,70	225010.0165	36,85	225510.0165	71,25
● 17,00	222010.0170	27,65	-	-	223010.0170	27,80	-	-	224010.0170	35,70	224510.0170	35,70	225010.0170	36,85	225510.0170	71,25
● 17,50	222010.0175	27,65	-	-	223010.0175	27,80	-	-	224010.0175	35,70	224510.0175	35,70	225010.0175	36,85	225510.0175	71,25
● 18,00	222010.0180	35,20	-	-	223010.0180	38,45	-	-	224010.0180	46,40	224510.0180	46,40	225010.0180	51,70	225510.0180	81,45
● 18,50	222010.0185	35,20	-	-	223010.0185	38,45	-	-	224010.0185	46,40	224510.0185	46,40	225010.0185	51,70	225510.0185	81,45
● 19,00	222010.0190	35,20	-	-	223010.0190	38,45	-	-	224010.0190	46,40	224510.0190	46,40	225010.0190	51,70	225510.0190	102,55
● 19,50	222010.0195	35,20	-	-	223010.0195	38,45	-	-	224010.0195	46,40	224510.0195	46,40	225010.0195	51,70	225510.0195	102,55
● 20,00	222010.0200	35,20	-	-	223010.0200	38,45	-	-	224010.0200	46,40	224510.0200	46,40	225010.0200	51,70	225510.0200	102,55
● 20,50	222010.0205	35,20	-	-	223010.0205	38,45	-	-	224010.0205	46,40	224510.0205	46,40	225010.0205	51,70	225510.0205	118,20
● 21,00	222010.0210	35,20	-	-	223010.0210	38,45	-	-	224010.0210	46,40	224510.0210	46,40	225010.0210	51,70	225510.0210	118,20
● 22,00	222010.0220	35,20	-	-	223010.0220	38,45	-	-	224010.0220	46,40	224510.0220	46,40	225010.0220	51,70	225510.0220	118,20
● 23,00	222010.0230	35,20	-	-	223010.0230	38,45	-	-	224010.0230	46,40	224510.0230	46,40	225010.0230	51,70	225510.0230	118,20
● 24,00	222010.0240	35,20	-	-	223010.0240	38,45	-	-	224010.0240	46,40	224510.0240	46,40	225010.0240	51,70	225510.0240	118,20
● 25,00	222010.0250	41,20	-	-	223010.0250	43,40	-	-	224010.0250	54,35	224510.0250	54,35	225010.0250	58,55	225510.0250	125,10
● 26,00	222010.0260	41,20	-	-	223010.0260	43,40	-	-	224010.0260	54,35	224510.0260	54,35	225010.0260	58,55	225510.0260	125,10
● 27,00	222010.0270	41,20	-	-	223010.0270	43,40	-	-	224010.0270	54,35	224510.0270	54,35	225010.0270	58,55	225510.0270	125,10
● 28,00	222010.0280	41,20	-	-	223010.0280	43,40	-	-	224010.0280	54,35	224510.0280	54,35	225010.0280	58,55	225510.0280	125,10
● 29,00	222010.0290	41,20	-	-	223010.0290	43,40	-	-	224010.0290	54,35	224510.0290	54,35	225010.0290	58,55	225510.0290	125,10
● 30,00	222010.0300	41,20	-	-	223010.0300	43,40	-	-	224010.0300	54,35	224510.0300	54,35	225010.0300	58,55	225510.0300	125,10
● 31,00	222010.0310	41,20	-	-	223010.0310	43,40	-	-	224010.0310	54,35	224510.0310	54,35	225010.0310	58,55	225510.0310	125,10
● 32,00	222010.0320	41,20	-	-	223010.0320	43,40	-	-	224010.0320	54,35	224510.0320	54,35	225010.0320	58,55	225510.0320	125,10
● 33,00	222010.0330	41,20	-	-	223010.0330	43,40	-	-	224010.0330	54,35	224510.0330	54,35	225010.0330	58,55	225510.0330	132,60
● 34,00	222010.0340	41,20	-	-	223010.0340	43,40	-	-	224010.0340	54,35	224510.0340	54,35	225010.0340	58,55	225510.0340	132,60
● 35,00	222010.0350	41,20	-	-	223010.0350	43,40	-	-	224010.0350	54,35	224510.0350	54,35	225010.0350	58,55	225510.0350	132,60

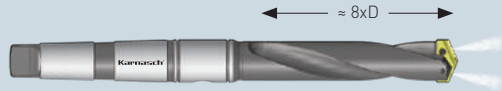
Schnittdaten
Cutting data

Art. **22.1030**




722-731


Video



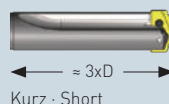
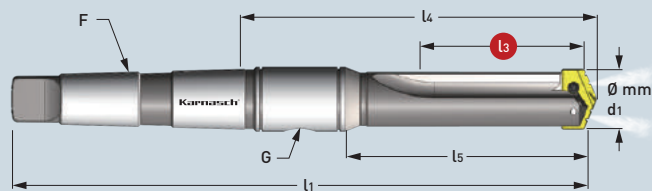
Typ Halter · Type holder 500 SM-8

		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.		mm	mm	mm	mm			Art.	
• 221030.01111.0095	156,75	111,1	130,9	167,4	239,7	2	1/16"	• 229002.01905	31,65
Ø 9,5-11,0 mm OPTIMAL · OPTIMAL									
• 221030.01111.0115	156,75	111,1	130,9	167,4	239,7	2	1/16"		
Ø 11,5-12,5 mm OPTIMAL · OPTIMAL									
• 221030.01143.0130	169,15	114,3	135,0	171,8	243,7	2	1/16"		
Ø 13,0-17,5 mm MÖGLICH · POSSIBLE Ø 13,0-15,0 mm OPTIMAL · OPTIMAL									
• 221030.01143.0155	169,15								
Ø 15,5-17,5 mm OPTIMAL · OPTIMAL									
• 221030.02731.0180	239,75	273,1	301,6	345,7	435,8	3	1/8"	• 229002.02540	35,60
Ø 18,0-24,0 mm MÖGLICH · POSSIBLE Ø 18,0-21,0 mm OPTIMAL · OPTIMAL									
• 221030.02731.0220	239,75								
Ø 22,0-24,0 mm OPTIMAL · OPTIMAL									
• 221030.02890.0250	296,95	289,0	317,5	363,6	477,0	4	1/8" Halter Holder 25,0-35,0 mm	• 229002.03175	46,15
Ø 25,0-35,0 mm MÖGLICH · POSSIBLE Ø 25,0-29,0 mm OPTIMAL · OPTIMAL									
• 221030.02890.0300	296,95			370,8	484,2	4	1/4" Halter Holder 30,0-35,0 mm		
Ø 30,0-35,0 mm OPTIMAL · OPTIMAL									

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

Ø Diameter (mm)	TORX		max. Drehmoment / Torque (N/cm)	Schlüssel / Wrench	
					
9,5 - 11,0		229010.0095	3,60	84	
11,5 - 12,5		229010.0115	3,60	84	229011.0084
13,0 - 17,5		229010.0130	3,60	175	229011.0175
18,0 - 24,0		229010.0180	3,60	305	229011.0305
25,0 - 35,0		229010.0250	3,70	690	229011.0690
36,0 - 65,0		229010.0360	3,75	1370	229011.1370
64,0 - 114,0		229010.0640	3,80	1750	229011.1750





Gerade genutet · Straight flute



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

Ø mm 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	222010.0095	24,30	-	-	223010.0095	24,95	-	-	224010.0095	30,35	224510.0095	30,35	225010.0095	32,00	225510.0095	66,45
○ 9,80	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
● 10,00	222010.0100	24,30	-	-	223010.0100	24,95	-	-	224010.0100	30,35	224510.0100	30,35	225010.0100	32,00	225510.0100	66,45
● 10,20	222010.0102	24,30	-	-	223010.0102	24,95	-	-	224010.0102	30,35	224510.0102	30,35	225010.0102	32,00	225510.0102	66,45
● 10,50	222010.0105	24,30	-	-	223010.0105	24,95	-	-	224010.0105	30,35	224510.0105	30,35	225010.0105	32,00	225510.0105	66,45
● 10,80	222010.0108	24,30	-	-	223010.0108	24,95	-	-	224010.0108	30,35	224510.0108	30,35	225010.0108	32,00	225510.0108	66,45
● 11,00	222010.0110	24,30	-	-	223010.0110	24,95	-	-	224010.0110	30,35	224510.0110	30,35	225010.0110	32,00	225510.0110	66,45
● 11,50	222010.0115	24,30	-	-	223010.0115	24,95	-	-	224010.0115	30,35	224510.0115	30,35	225010.0115	32,00	225510.0115	66,45
● 12,00	222010.0120	24,30	-	-	223010.0120	24,95	-	-	224010.0120	30,35	224510.0120	30,35	225010.0120	32,00	225510.0120	66,45
● 12,50	222010.0125	24,30	-	-	223010.0125	24,95	-	-	224010.0125	30,35	224510.0125	30,35	225010.0125	32,00	225510.0125	66,45
● 13,00	222010.0130	27,65	-	-	223010.0130	27,80	-	-	224010.0130	35,70	224510.0130	35,70	225010.0130	36,85	225510.0130	71,25
● 13,50	222010.0135	27,65	-	-	223010.0135	27,80	-	-	224010.0135	35,70	224510.0135	35,70	225010.0135	36,85	225510.0135	71,25
● 14,00	222010.0140	27,65	-	-	223010.0140	27,80	-	-	224010.0140	35,70	224510.0140	35,70	225010.0140	36,85	225510.0140	71,25
● 14,50	222010.0145	27,65	-	-	223010.0145	27,80	-	-	224010.0145	35,70	224510.0145	35,70	225010.0145	36,85	225510.0145	71,25
● 15,00	222010.0150	27,65	-	-	223010.0150	27,80	-	-	224010.0150	35,70	224510.0150	35,70	225010.0150	36,85	225510.0150	71,25
● 15,50	222010.0155	27,65	-	-	223010.0155	27,80	-	-	224010.0155	35,70	224510.0155	35,70	225010.0155	36,85	225510.0155	71,25
● 16,00	222010.0160	27,65	-	-	223010.0160	27,80	-	-	224010.0160	35,70	224510.0160	35,70	225010.0160	36,85	225510.0160	71,25
● 16,50	222010.0165	27,65	-	-	223010.0165	27,80	-	-	224010.0165	35,70	224510.0165	35,70	225010.0165	36,85	225510.0165	71,25
● 17,00	222010.0170	27,65	-	-	223010.0170	27,80	-	-	224010.0170	35,70	224510.0170	35,70	225010.0170	36,85	225510.0170	71,25
● 17,50	222010.0175	27,65	-	-	223010.0175	27,80	-	-	224010.0175	35,70	224510.0175	35,70	225010.0175	36,85	225510.0175	71,25
● 18,00	222010.0180	35,20	-	-	223010.0180	38,45	-	-	224010.0180	46,40	224510.0180	46,40	225010.0180	51,70	225510.0180	81,45
● 18,50	222010.0185	35,20	-	-	223010.0185	38,45	-	-	224010.0185	46,40	224510.0185	46,40	225010.0185	51,70	225510.0185	81,45
● 19,00	222010.0190	35,20	-	-	223010.0190	38,45	-	-	224010.0190	46,40	224510.0190	46,40	225010.0190	51,70	225510.0190	102,55
● 19,50	222010.0195	35,20	-	-	223010.0195	38,45	-	-	224010.0195	46,40	224510.0195	46,40	225010.0195	51,70	225510.0195	102,55
● 20,00	222010.0200	35,20	-	-	223010.0200	38,45	-	-	224010.0200	46,40	224510.0200	46,40	225010.0200	51,70	225510.0200	102,55
● 20,50	222010.0205	35,20	-	-	223010.0205	38,45	-	-	224010.0205	46,40	224510.0205	46,40	225010.0205	51,70	225510.0205	118,20
● 21,00	222010.0210	35,20	-	-	223010.0210	38,45	-	-	224010.0210	46,40	224510.0210	46,40	225010.0210	51,70	225510.0210	118,20
● 22,00	222010.0220	35,20	-	-	223010.0220	38,45	-	-	224010.0220	46,40	224510.0220	46,40	225010.0220	51,70	225510.0220	118,20
● 23,00	222010.0230	35,20	-	-	223010.0230	38,45	-	-	224010.0230	46,40	224510.0230	46,40	225010.0230	51,70	225510.0230	118,20
● 24,00	222010.0240	35,20	-	-	223010.0240	38,45	-	-	224010.0240	46,40	224510.0240	46,40	225010.0240	51,70	225510.0240	118,20
● 25,00	222010.0250	41,20	-	-	223010.0250	43,40	-	-	224010.0250	54,35	224510.0250	54,35	225010.0250	58,55	225510.0250	125,10
● 26,00	222010.0260	41,20	-	-	223010.0260	43,40	-	-	224010.0260	54,35	224510.0260	54,35	225010.0260	58,55	225510.0260	125,10
● 27,00	222010.0270	41,20	-	-	223010.0270	43,40	-	-	224010.0270	54,35	224510.0270	54,35	225010.0270	58,55	225510.0270	125,10
● 28,00	222010.0280	41,20	-	-	223010.0280	43,40	-	-	224010.0280	54,35	224510.0280	54,35	225010.0280	58,55	225510.0280	125,10
● 29,00	222010.0290	41,20	-	-	223010.0290	43,40	-	-	224010.0290	54,35	224510.0290	54,35	225010.0290	58,55	225510.0290	125,10
● 30,00	222010.0300	41,20	-	-	223010.0300	43,40	-	-	224010.0300	54,35	224510.0300	54,35	225010.0300	58,55	225510.0300	125,10
● 31,00	222010.0310	41,20	-	-	223010.0310	43,40	-	-	224010.0310	54,35	224510.0310	54,35	225010.0310	58,55	225510.0310	125,10
● 32,00	222010.0320	41,20	-	-	223010.0320	43,40	-	-	224010.0320	54,35	224510.0320	54,35	225010.0320	58,55	225510.0320	125,10
● 33,00	222010.0330	41,20	-	-	223010.0330	43,40	-	-	224010.0330	54,35	224510.0330	54,35	225010.0330	58,55	225510.0330	132,60
● 34,00	222010.0340	41,20	-	-	223010.0340	43,40	-	-	224010.0340	54,35	224510.0340	54,35	225010.0340	58,55	225510.0340	132,60
● 35,00	222010.0350	41,20	-	-	223010.0350	43,40	-	-	224010.0350	54,35	224510.0350	54,35	225010.0350	58,55	225510.0350	132,60
● 36,00	222010.0360	56,45	-	-	223010.0360	57,15	-	-	-	-	-	-	-	-	-	-
● 37,00	222010.0370	56,45	-	-	223010.0370	57,15	-	-	-	-	-	-	-	-	-	-
● 38,00	222010.0380	56,45	-	-	223010.0380	57,15	-	-	-	-	-	-	-	-	-	-
● 39,00	222010.0390	56,45	-	-	223010.0390	57,15	-	-	-	-	-	-	-	-	-	-
● 40,00	222010.0400	56,45	-	-	223010.0400	57,15	-	-	-	-	-	-	-	-	-	-
● 41,00	222010.0410	56,45	-	-	223010.0410	57,15	-	-	-	-	-	-	-	-	-	-
● 42,00	222010.0420	56,45	-	-	223010.0420	57,15	-	-	-	-	-	-	-	-	-	-
● 43,00	222010.0430	56,45	-	-	223010.0430	57,15	-	-	-	-	-	-	-	-	-	-
● 44,00	222010.0440	56,45	-	-	223010.0440	57,15	-	-	-	-	-	-	-	-	-	-
● 45,00	222010.0450	56,45	-	-	223010.0450	57,15	-	-	-	-	-	-	-	-	-	-
● 46,00	222010.0460	56,45	-	-	223010.0460	57,15	-	-	-	-	-	-	-	-	-	-
● 47,00	222010.0470	56,45	-	-	223010.0470	57,15	-	-	-	-	-	-	-	-	-	-

Fortsetzung Seite 222 · Continued page 222



Schnittdaten
Cutting data



722-731

Video

← ≈ 3xD →



Typ Halter · Type holder 200 GM-3

		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.		€	mm	mm	mm	mm		Art.	€
•	221040.00318.0095 Ø 9,5-11,0 mm OPTIMAL · OPTIMAL	123,05	31,8	51,5	88,0	160,3	2	1/16"	• 229002.01905 31,65
•	221040.00318.0115 Ø 11,5-12,5 mm OPTIMAL · OPTIMAL	123,05	31,8	51,5	88,0	160,3	2	1/16"	
•	221040.00350.0130 Ø 13,0-17,5 mm MÖGLICH · POSSIBLE Ø 13,0-15,0 mm OPTIMAL · OPTIMAL	132,75							
•	221040.00350.0155 Ø 15,5-17,5 mm OPTIMAL · OPTIMAL	132,75	35,0	55,5	92,4	164,3	2	1/16"	
•	221040.00698.0180 Ø 18,0-24,0 mm MÖGLICH · POSSIBLE Ø 18,0-21,0 mm OPTIMAL · OPTIMAL	146,20							• 229002.02540 35,60
•	221040.00698.0220 Ø 22,0-24,0 mm OPTIMAL · OPTIMAL	146,20	69,8	98,4	142,5	232,5	3	1/8"	
•	221040.00857.0250 Ø 25,0-35,0 mm MÖGLICH · POSSIBLE Ø 25,0-29,0 mm OPTIMAL · OPTIMAL	172,85			160,4	273,8	4	1/8" Halter Holder 25,0-35,0 mm	
•	221040.00857.0300 Ø 30,0-35,0 mm OPTIMAL · OPTIMAL	172,85	85,7	114,3				1/4" Halter Holder 30,0-35,0 mm	• 229002.03175 46,15
•	221040.01206.0360 Ø 36,0-47,0 mm MÖGLICH · POSSIBLE Ø 36,0-41,0 mm OPTIMAL · OPTIMAL	232,20							
•	221040.01206.0420 Ø 42,0-47,0 mm OPTIMAL · OPTIMAL	232,20	120,6	152,4	206,4	319,1	4	1/4"	

1



2



3



4



5



6



7



8

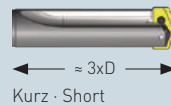
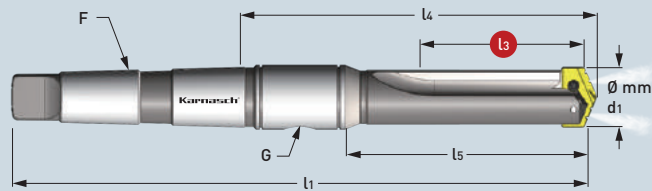


9



10





Gerade genutet · Straight flute



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

Ø mm 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.	€
48,00	222010.0480	80,75	-	-	223010.0480	79,30	-	-	-	-	-	-	-	-	-	-
49,00	222010.0490	80,75	-	-	223010.0490	79,30	-	-	-	-	-	-	-	-	-	-
50,00	222010.0500	80,75	-	-	223010.0500	79,30	-	-	-	-	-	-	-	-	-	-
51,00	222010.0510	80,75	-	-	223010.0510	79,30	-	-	-	-	-	-	-	-	-	-
52,00	222010.0520	80,75	-	-	223010.0520	79,30	-	-	-	-	-	-	-	-	-	-
53,00	222010.0530	80,75	-	-	223010.0530	79,30	-	-	-	-	-	-	-	-	-	-
54,00	222010.0540	80,75	-	-	223010.0540	79,30	-	-	-	-	-	-	-	-	-	-
55,00	222010.0550	80,75	-	-	223010.0550	79,30	-	-	-	-	-	-	-	-	-	-
56,00	222010.0560	80,75	-	-	223010.0560	79,30	-	-	-	-	-	-	-	-	-	-
57,00	222010.0570	80,75	-	-	223010.0570	79,30	-	-	-	-	-	-	-	-	-	-
58,00	222010.0580	80,75	-	-	223010.0580	79,30	-	-	-	-	-	-	-	-	-	-
59,00	222010.0590	80,75	-	-	223010.0590	79,30	-	-	-	-	-	-	-	-	-	-
60,00	222010.0600	80,75	-	-	223010.0600	79,30	-	-	-	-	-	-	-	-	-	-
61,00	222010.0610	80,75	-	-	223010.0610	79,30	-	-	-	-	-	-	-	-	-	-
62,00	222010.0620	80,75	-	-	223010.0620	79,30	-	-	-	-	-	-	-	-	-	-
63,00	222010.0630	80,75	-	-	223010.0630	79,30	-	-	-	-	-	-	-	-	-	-
64,00	222010.0640	80,75	-	-	223010.0640	79,30	-	-	-	-	-	-	-	-	-	-
65,00	222010.0650	80,75	-	-	223010.0650	79,30	-	-	-	-	-	-	-	-	-	-
64,00	-	-	222510.0640	101,50	-	-	223510.0640	93,45	-	-	-	-	-	-	-	-
66,00	-	-	222510.0660	101,50	-	-	223510.0660	93,45	-	-	-	-	-	-	-	-
68,00	-	-	222510.0680	101,50	-	-	223510.0680	93,45	-	-	-	-	-	-	-	-
70,00	-	-	222510.0700	101,50	-	-	223510.0700	93,45	-	-	-	-	-	-	-	-
72,00	-	-	222510.0720	101,50	-	-	223510.0720	93,45	-	-	-	-	-	-	-	-
74,00	-	-	222510.0740	101,50	-	-	223510.0740	93,45	-	-	-	-	-	-	-	-
76,00	-	-	222510.0760	101,50	-	-	223510.0760	93,45	-	-	-	-	-	-	-	-
78,00	-	-	222510.0780	112,10	-	-	223510.0780	104,10	-	-	-	-	-	-	-	-
80,00	-	-	222510.0800	112,10	-	-	223510.0800	104,10	-	-	-	-	-	-	-	-
82,00	-	-	222510.0820	112,10	-	-	223510.0820	104,10	-	-	-	-	-	-	-	-
84,00	-	-	222510.0840	112,10	-	-	223510.0840	104,10	-	-	-	-	-	-	-	-
86,00	-	-	222510.0860	112,10	-	-	223510.0860	104,10	-	-	-	-	-	-	-	-
88,00	-	-	222510.0880	112,10	-	-	223510.0880	104,10	-	-	-	-	-	-	-	-
90,00	-	-	222510.0900	131,60	-	-	223510.0900	122,50	-	-	-	-	-	-	-	-
92,00	-	-	222510.0920	131,60	-	-	223510.0920	122,50	-	-	-	-	-	-	-	-
94,00	-	-	222510.0940	131,60	-	-	223510.0940	122,50	-	-	-	-	-	-	-	-
96,00	-	-	222510.0960	131,60	-	-	223510.0960	122,50	-	-	-	-	-	-	-	-
98,00	-	-	222510.0980	131,60	-	-	223510.0980	122,50	-	-	-	-	-	-	-	-
100,00	-	-	222510.1000	131,60	-	-	223510.1000	122,50	-	-	-	-	-	-	-	-
102,00	-	-	222510.1020	150,00	-	-	223510.1020	140,90	-	-	-	-	-	-	-	-
104,00	-	-	222510.1040	150,00	-	-	223510.1040	140,90	-	-	-	-	-	-	-	-
106,00	-	-	222510.1060	150,00	-	-	223510.1060	140,90	-	-	-	-	-	-	-	-
108,00	-	-	222510.1080	150,00	-	-	223510.1080	140,90	-	-	-	-	-	-	-	-
110,00	-	-	222510.1100	150,00	-	-	223510.1100	140,90	-	-	-	-	-	-	-	-
112,00	-	-	222510.1120	150,00	-	-	223510.1120	140,90	-	-	-	-	-	-	-	-
114,00	-	-	222510.1140	150,00	-	-	223510.1140	140,90	-	-	-	-	-	-	-	-

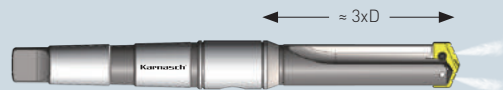
Schnittdaten
Cutting data

Art. **22.1040**



722-731

Video



Typ Halter · Type holder 200 GM-3

Art.	€	l3 Nutzlänge Max. drill depth mm	l5 Körperlänge Body-length mm	l4 Neue REF.- Länge REF.-length mm	l1 Gesamtlänge Overall length mm	F Morsekegel Morse taper	G Gewinde Pipe tap	Kühlmittelring Oil ring Art. €
<ul style="list-style-type: none"> 221040.01301.0480 Ø 48,0-65 mm MÖGLICH · POSSIBLE Ø 48,0-55 mm OPTIMAL · OPTIMAL 	265,25	130,1	165,1	219,1	363,5	5	1/4"	<ul style="list-style-type: none"> • 229002.04445 60,65
<ul style="list-style-type: none"> 221040.01301.0560 Ø 56,0-65 mm OPTIMAL · OPTIMAL 	265,25	130,1	165,1	219,1	363,5	5	1/4"	
<ul style="list-style-type: none"> 221040.01715.0640 Ø 64,0-88,0 mm MÖGLICH · POSSIBLE Ø 64,0-76,0 mm OPTIMAL · OPTIMAL 	413,40	171,5	215,9	287,3	430,2	5	1/2"	<ul style="list-style-type: none"> • 229002.05715 83,50
<ul style="list-style-type: none"> 221040.01715.0780 Ø 78,0-88,0 mm OPTIMAL · OPTIMAL 	413,40							
<ul style="list-style-type: none"> 221040.01715.0900 Ø 90,0-114,0 mm MÖGLICH · POSSIBLE Ø 90,0-100,0 mm OPTIMAL · OPTIMAL 	558,60	171,5	225,4	296,8	439,7	5	1/2"	
<ul style="list-style-type: none"> 221040.01715.1020 Ø 102,0-114,0 mm OPTIMAL · OPTIMAL 	558,60							

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 238
 For machines without radial/axial coolant supply a oil ring can be mounted on the holder. Details see page 238

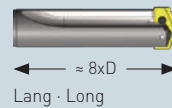
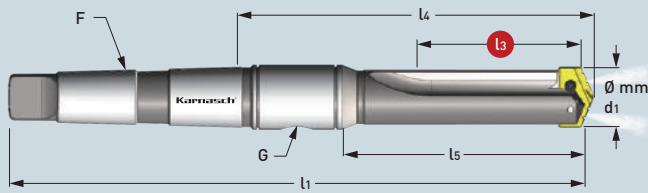


Ersatz-Torxschrauben und Schlüssel mit Drehmomentangabe
 Spare Torx-screws and wrench with torque specification

Ø Diameter (mm)	TORX		max. Drehmoment / Torque (N/cm)	Schlüssel / Wrench	
	€	Image		€	Image
9,5 - 11,0	3,60		84	6,45	
11,5 - 12,5	3,60		84	11,30	
13,0 - 17,5	3,60		175	12,10	
18,0 - 24,0	3,60		305	13,15	
25,0 - 35,0	3,70		690	19,35	
36,0 - 65,0	3,75		1370		
64,0 - 114,0	3,80		1750		



Art.
100
101
102



Gerade genutet ·
Straight flute



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

Ø mm 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.	€
	• 36,00	222010.0360	56,45	-	-	223010.0360	57,15	-	-	-	-	-	-	-	-	-
	• 37,00	222010.0370	56,45	-	-	223010.0370	57,15	-	-	-	-	-	-	-	-	-
	• 38,00	222010.0380	56,45	-	-	223010.0380	57,15	-	-	-	-	-	-	-	-	-
	• 39,00	222010.0390	56,45	-	-	223010.0390	57,15	-	-	-	-	-	-	-	-	-
	• 40,00	222010.0400	56,45	-	-	223010.0400	57,15	-	-	-	-	-	-	-	-	-
	• 41,00	222010.0410	56,45	-	-	223010.0410	57,15	-	-	-	-	-	-	-	-	-
	• 42,00	222010.0420	56,45	-	-	223010.0420	57,15	-	-	-	-	-	-	-	-	-
	• 43,00	222010.0430	56,45	-	-	223010.0430	57,15	-	-	-	-	-	-	-	-	-
	• 44,00	222010.0440	56,45	-	-	223010.0440	57,15	-	-	-	-	-	-	-	-	-
	• 45,00	222010.0450	56,45	-	-	223010.0450	57,15	-	-	-	-	-	-	-	-	-
	• 46,00	222010.0460	56,45	-	-	223010.0460	57,15	-	-	-	-	-	-	-	-	-
	• 47,00	222010.0470	56,45	-	-	223010.0470	57,15	-	-	-	-	-	-	-	-	-
	• 48,00	222010.0480	80,75	-	-	223010.0480	79,30	-	-	-	-	-	-	-	-	-
	• 49,00	222010.0490	80,75	-	-	223010.0490	79,30	-	-	-	-	-	-	-	-	-
	• 50,00	222010.0500	80,75	-	-	223010.0500	79,30	-	-	-	-	-	-	-	-	-
	• 51,00	222010.0510	80,75	-	-	223010.0510	79,30	-	-	-	-	-	-	-	-	-
	• 52,00	222010.0520	80,75	-	-	223010.0520	79,30	-	-	-	-	-	-	-	-	-
	• 53,00	222010.0530	80,75	-	-	223010.0530	79,30	-	-	-	-	-	-	-	-	-
	• 54,00	222010.0540	80,75	-	-	223010.0540	79,30	-	-	-	-	-	-	-	-	-
	• 55,00	222010.0550	80,75	-	-	223010.0550	79,30	-	-	-	-	-	-	-	-	-
	• 56,00	222010.0560	80,75	-	-	223010.0560	79,30	-	-	-	-	-	-	-	-	-
	• 57,00	222010.0570	80,75	-	-	223010.0570	79,30	-	-	-	-	-	-	-	-	-
	• 58,00	222010.0580	80,75	-	-	223010.0580	79,30	-	-	-	-	-	-	-	-	-
	• 59,00	222010.0590	80,75	-	-	223010.0590	79,30	-	-	-	-	-	-	-	-	-
	• 60,00	222010.0600	80,75	-	-	223010.0600	79,30	-	-	-	-	-	-	-	-	-
	• 61,00	222010.0610	80,75	-	-	223010.0610	79,30	-	-	-	-	-	-	-	-	-
	• 62,00	222010.0620	80,75	-	-	223010.0620	79,30	-	-	-	-	-	-	-	-	-
	• 63,00	222010.0630	80,75	-	-	223010.0630	79,30	-	-	-	-	-	-	-	-	-
	• 64,00	222010.0640	80,75	-	-	223010.0640	79,30	-	-	-	-	-	-	-	-	-
	• 65,00	222010.0650	80,75	-	-	223010.0650	79,30	-	-	-	-	-	-	-	-	-

Fortsetzung Seite 226 · Continued page 226

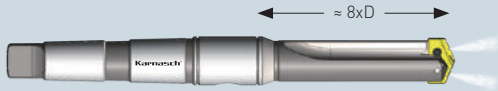
Schnittdaten
Cutting data

Art. **22.1040**



722-731

Video

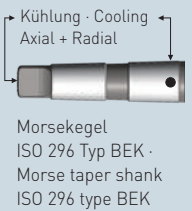
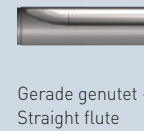
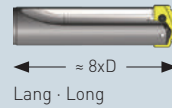
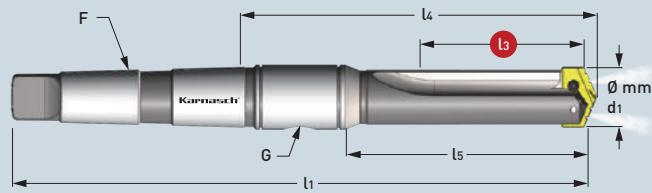


Typ Halter · Type holder 500 GM-8

Art.	€	l3 Nutzlänge Max. drill depth mm	l5 Körperlänge Body-length mm	l4 Neue REF.- Länge REF.-length mm	l1 Gesamtlänge Overall length mm	F Morsekegel Morse taper	G Gewinde Pipe tap	Art.	€
<ul style="list-style-type: none"> 221040.03493.0360 Ø 36,0-47,0 mm MÖGLICH · POSSIBLE Ø 36,0-41,0 mm OPTIMAL · OPTIMAL 221040.03493.0420 Ø 42,0-47,0 mm OPTIMAL · OPTIMAL 	452,60							<ul style="list-style-type: none"> • 229002.03175 46,15 	
<ul style="list-style-type: none"> 221040.04223.0480 Ø 48,0-65,0 mm MÖGLICH · POSSIBLE Ø 48,0-55,0 mm OPTIMAL · OPTIMAL 	579,65	349,3	381,0	435,0	547,7	4	1/4"	<ul style="list-style-type: none"> • 229002.04445 60,65 	
<ul style="list-style-type: none"> 221040.04223.0560 Ø 56,0-65,0 mm OPTIMAL · OPTIMAL 	579,65	422,3	457,2	511,2	655,6	5	1/4"		

Fortsetzung Seite 227 · Continued page 227





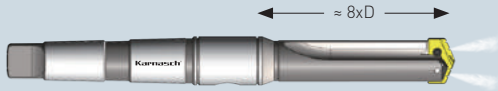
Ø mm d1	Art. 22.2010		Art. 22.2510		Art. 22.3010		Art. 22.3510		Art. 22.4010		Art. 22.4510		Art. 22.5010		Art. 22.5510	
	Art.	€	Art.	€	Art.	€	Art.	€	Art.	€	Art.	€	Art.	€	Art.	€
64,00	-	-	222510.0640	101,50	-	-	223510.0640	93,45	-	-	-	-	-	-	-	-
66,00	-	-	222510.0660	101,50	-	-	223510.0660	93,45	-	-	-	-	-	-	-	-
68,00	-	-	222510.0680	101,50	-	-	223510.0680	93,45	-	-	-	-	-	-	-	-
70,00	-	-	222510.0700	101,50	-	-	223510.0700	93,45	-	-	-	-	-	-	-	-
72,00	-	-	222510.0720	101,50	-	-	223510.0720	93,45	-	-	-	-	-	-	-	-
74,00	-	-	222510.0740	101,50	-	-	223510.0740	93,45	-	-	-	-	-	-	-	-
76,00	-	-	222510.0760	101,50	-	-	223510.0760	93,45	-	-	-	-	-	-	-	-
78,00	-	-	222510.0780	112,10	-	-	223510.0780	104,10	-	-	-	-	-	-	-	-
80,00	-	-	222510.0800	112,10	-	-	223510.0800	104,10	-	-	-	-	-	-	-	-
82,00	-	-	222510.0820	112,10	-	-	223510.0820	104,10	-	-	-	-	-	-	-	-
84,00	-	-	222510.0840	112,10	-	-	223510.0840	104,10	-	-	-	-	-	-	-	-
86,00	-	-	222510.0860	112,10	-	-	223510.0860	104,10	-	-	-	-	-	-	-	-
88,00	-	-	222510.0880	112,10	-	-	223510.0880	104,10	-	-	-	-	-	-	-	-
90,00	-	-	222510.0900	131,60	-	-	223510.0900	122,50	-	-	-	-	-	-	-	-
92,00	-	-	222510.0920	131,60	-	-	223510.0920	122,50	-	-	-	-	-	-	-	-
94,00	-	-	222510.0940	131,60	-	-	223510.0940	122,50	-	-	-	-	-	-	-	-
96,00	-	-	222510.0960	131,60	-	-	223510.0960	122,50	-	-	-	-	-	-	-	-
98,00	-	-	222510.0980	131,60	-	-	223510.0980	122,50	-	-	-	-	-	-	-	-
100,00	-	-	222510.1000	131,60	-	-	223510.1000	122,50	-	-	-	-	-	-	-	-
102,00	-	-	222510.1020	150,00	-	-	223510.1020	140,90	-	-	-	-	-	-	-	-
104,00	-	-	222510.1040	150,00	-	-	223510.1040	140,90	-	-	-	-	-	-	-	-
106,00	-	-	222510.1060	150,00	-	-	223510.1060	140,90	-	-	-	-	-	-	-	-
108,00	-	-	222510.1080	150,00	-	-	223510.1080	140,90	-	-	-	-	-	-	-	-
110,00	-	-	222510.1100	150,00	-	-	223510.1100	140,90	-	-	-	-	-	-	-	-
112,00	-	-	222510.1120	150,00	-	-	223510.1120	140,90	-	-	-	-	-	-	-	-
114,00	-	-	222510.1140	150,00	-	-	223510.1140	140,90	-	-	-	-	-	-	-	-

Schnittdaten
Cutting data



722-731

Video



Typ Halter · Type holder 500 GM-8

Art.	€	l3 Nutzlänge Max. drill depth mm	l5 Körperlänge Body-length mm	l4 Neue REF.- Länge REF.-length mm	l1 Gesamtlänge Overall length mm	F Morsekegel Morse taper	G Gewinde Pipe tap	Kühlmittelring Oil ring Art. €
<ul style="list-style-type: none"> 221040.04636.0640 Ø 64,0-88,0 mm MÖGLICH · POSSIBLE Ø 64,0-76,0 mm OPTIMAL · OPTIMAL 	636,71							<ul style="list-style-type: none"> • 229002.05715 83,50
<ul style="list-style-type: none"> 221040.04636.0780 Ø 78,0-88,0 mm OPTIMAL · OPTIMAL 	636,71	463,6	508,0	579,4	722,3	5	1/2"	
<ul style="list-style-type: none"> 221040.05556.0900 Ø 90,0-114,0 mm MÖGLICH · POSSIBLE Ø 90,0-100,0 mm OPTIMAL · OPTIMAL 	914,42							
<ul style="list-style-type: none"> 221040.05556.1020 Ø 102,0-114,0 mm OPTIMAL · OPTIMAL 	914,42	555,6	609,6	681,1	823,9	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.

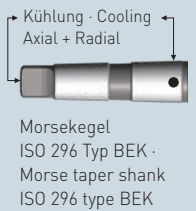
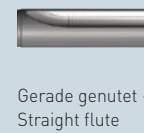
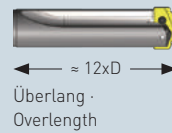
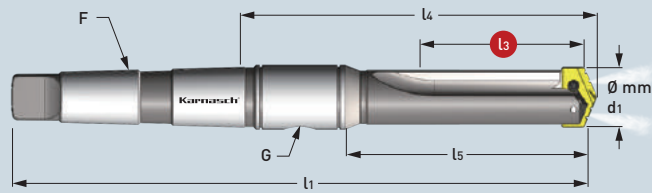
Für Maschinen ohne axiale/radiale Kühlmittelzufuhr kann ein Kühlmittelring auf den Halter montiert werden. Details siehe Seite 238
 For machines without radial/axial coolant supply a oil ring can be mounted on the holder. Details see page 238



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

Ø Diameter (mm)	TORX	€	max. Drehmoment / Torque (N/cm)	Schlüssel / Wrench	€
9,5 - 11,0	229010.0095	3,60	84	229011.0084	6,45
11,5 - 12,5	229010.0115	3,60	84	229011.0175	6,45
13,0 - 17,5	229010.0130	3,60	175	229011.0305	11,30
18,0 - 24,0	229010.0180	3,60	305	229011.0690	12,10
25,0 - 35,0	229010.0250	3,70	690	229011.1370	13,15
36,0 - 65,0	229010.0360	3,75	1370	229011.1750	19,35
64,0 - 114,0	229010.0640	3,80	1750		





Ø mm 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.	€
36,00	222010.0360	56,45	-	-	223010.0360	57,15	-	-	-	-	-	-	-	-	-	-
37,00	222010.0370	56,45	-	-	223010.0370	57,15	-	-	-	-	-	-	-	-	-	-
38,00	222010.0380	56,45	-	-	223010.0380	57,15	-	-	-	-	-	-	-	-	-	-
39,00	222010.0390	56,45	-	-	223010.0390	57,15	-	-	-	-	-	-	-	-	-	-
40,00	222010.0400	56,45	-	-	223010.0400	57,15	-	-	-	-	-	-	-	-	-	-
41,00	222010.0410	56,45	-	-	223010.0410	57,15	-	-	-	-	-	-	-	-	-	-
42,00	222010.0420	56,45	-	-	223010.0420	57,15	-	-	-	-	-	-	-	-	-	-
43,00	222010.0430	56,45	-	-	223010.0430	57,15	-	-	-	-	-	-	-	-	-	-
44,00	222010.0440	56,45	-	-	223010.0440	57,15	-	-	-	-	-	-	-	-	-	-
45,00	222010.0450	56,45	-	-	223010.0450	57,15	-	-	-	-	-	-	-	-	-	-
46,00	222010.0460	56,45	-	-	223010.0460	57,15	-	-	-	-	-	-	-	-	-	-
47,00	222010.0470	56,45	-	-	223010.0470	57,15	-	-	-	-	-	-	-	-	-	-
48,00	222010.0480	80,75	-	-	223010.0480	79,30	-	-	-	-	-	-	-	-	-	-
49,00	222010.0490	80,75	-	-	223010.0490	79,30	-	-	-	-	-	-	-	-	-	-
50,00	222010.0500	80,75	-	-	223010.0500	79,30	-	-	-	-	-	-	-	-	-	-
51,00	222010.0510	80,75	-	-	223010.0510	79,30	-	-	-	-	-	-	-	-	-	-
52,00	222010.0520	80,75	-	-	223010.0520	79,30	-	-	-	-	-	-	-	-	-	-
53,00	222010.0530	80,75	-	-	223010.0530	79,30	-	-	-	-	-	-	-	-	-	-
54,00	222010.0540	80,75	-	-	223010.0540	79,30	-	-	-	-	-	-	-	-	-	-
55,00	222010.0550	80,75	-	-	223010.0550	79,30	-	-	-	-	-	-	-	-	-	-
56,00	222010.0560	80,75	-	-	223010.0560	79,30	-	-	-	-	-	-	-	-	-	-
57,00	222010.0570	80,75	-	-	223010.0570	79,30	-	-	-	-	-	-	-	-	-	-
58,00	222010.0580	80,75	-	-	223010.0580	79,30	-	-	-	-	-	-	-	-	-	-
59,00	222010.0590	80,75	-	-	223010.0590	79,30	-	-	-	-	-	-	-	-	-	-
60,00	222010.0600	80,75	-	-	223010.0600	79,30	-	-	-	-	-	-	-	-	-	-
61,00	222010.0610	80,75	-	-	223010.0610	79,30	-	-	-	-	-	-	-	-	-	-
62,00	222010.0620	80,75	-	-	223010.0620	79,30	-	-	-	-	-	-	-	-	-	-
63,00	222010.0630	80,75	-	-	223010.0630	79,30	-	-	-	-	-	-	-	-	-	-
64,00	222010.0640	80,75	-	-	223010.0640	79,30	-	-	-	-	-	-	-	-	-	-
65,00	222010.0650	80,75	-	-	223010.0650	79,30	-	-	-	-	-	-	-	-	-	-

Fortsetzung Seite 230 - Continued page 230

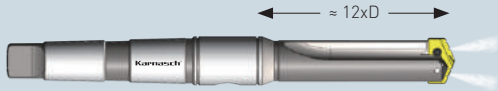
Schnittdaten
Cutting data

Art. **22.1040**



722-731

Video

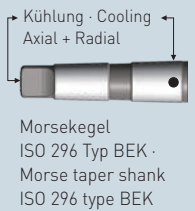
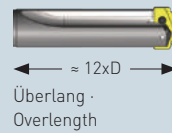
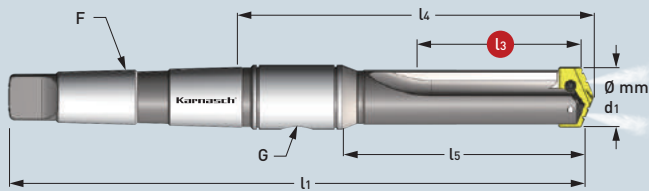


Typ Halter · Type holder 700 GM-12

Art.	€	l ₃ Nutzlänge Max. drill depth mm	l ₅ Körperlänge Body-length mm	l ₄ Neue REF.- Länge REF.-length mm	l ₁ Gesamtlänge Overall length mm	F Morsekegel Morse taper	G Gewinde Pipe tap	• 229002.03175 Kühlmittelring Oil ring Art. € 46,15
<ul style="list-style-type: none"> 221040.05558.0360 Ø 36,0-47,0 mm MÖGLICH · POSSIBLE Ø 36,0-41,0 mm OPTIMAL · OPTIMAL 	635,65							
<ul style="list-style-type: none"> 221040.05558.0420 Ø 42,0-47,0 mm OPTIMAL · OPTIMAL 	635,65	558,8	590,6	644,6	757,2	4	1/4"	
<ul style="list-style-type: none"> 221040.06250.0480 Ø 48,0-65,0 mm MÖGLICH · POSSIBLE Ø 48,0-55,0 mm OPTIMAL · OPTIMAL 	783,15	625,0	660,4	714,4	858,8	5	1/4"	• 229002.04445 60,65
<ul style="list-style-type: none"> 221040.06250.0560 Ø 56,0-65,0 mm OPTIMAL · OPTIMAL 	783,15	625,0	660,4	714,4	858,8	5	1/4"	

Fortsetzung Seite 231 · Continued page 231





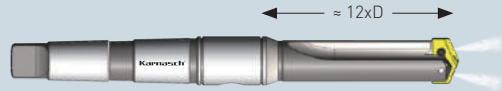
Ø mm d1	Art. 22.2010		Art. 22.2510		Art. 22.3010		Art. 22.3510		Art. 22.4010		Art. 22.4510		Art. 22.5010		Art. 22.5510	
	Art.	€	Art.	€	Art.	€	Art.	€	Art.	€	Art.	€	Art.	€	Art.	€
64,00	-	-	222510.0640	101,50	-	-	223510.0640	93,45	-	-	-	-	-	-	-	-
66,00	-	-	222510.0660	101,50	-	-	223510.0660	93,45	-	-	-	-	-	-	-	-
68,00	-	-	222510.0680	101,50	-	-	223510.0680	93,45	-	-	-	-	-	-	-	-
70,00	-	-	222510.0700	101,50	-	-	223510.0700	93,45	-	-	-	-	-	-	-	-
72,00	-	-	222510.0720	101,50	-	-	223510.0720	93,45	-	-	-	-	-	-	-	-
74,00	-	-	222510.0740	101,50	-	-	223510.0740	93,45	-	-	-	-	-	-	-	-
76,00	-	-	222510.0760	101,50	-	-	223510.0760	93,45	-	-	-	-	-	-	-	-
78,00	-	-	222510.0780	112,10	-	-	223510.0780	104,10	-	-	-	-	-	-	-	-
80,00	-	-	222510.0800	112,10	-	-	223510.0800	104,10	-	-	-	-	-	-	-	-
82,00	-	-	222510.0820	112,10	-	-	223510.0820	104,10	-	-	-	-	-	-	-	-
84,00	-	-	222510.0840	112,10	-	-	223510.0840	104,10	-	-	-	-	-	-	-	-
86,00	-	-	222510.0860	112,10	-	-	223510.0860	104,10	-	-	-	-	-	-	-	-
88,00	-	-	222510.0880	112,10	-	-	223510.0880	104,10	-	-	-	-	-	-	-	-
90,00	-	-	222510.0900	131,60	-	-	223510.0900	122,50	-	-	-	-	-	-	-	-
92,00	-	-	222510.0920	131,60	-	-	223510.0920	122,50	-	-	-	-	-	-	-	-
94,00	-	-	222510.0940	131,60	-	-	223510.0940	122,50	-	-	-	-	-	-	-	-
96,00	-	-	222510.0960	131,60	-	-	223510.0960	122,50	-	-	-	-	-	-	-	-
98,00	-	-	222510.0980	131,60	-	-	223510.0980	122,50	-	-	-	-	-	-	-	-
100,00	-	-	222510.1000	131,60	-	-	223510.1000	122,50	-	-	-	-	-	-	-	-
102,00	-	-	222510.1020	150,00	-	-	223510.1020	140,90	-	-	-	-	-	-	-	-
104,00	-	-	222510.1040	150,00	-	-	223510.1040	140,90	-	-	-	-	-	-	-	-
106,00	-	-	222510.1060	150,00	-	-	223510.1060	140,90	-	-	-	-	-	-	-	-
108,00	-	-	222510.1080	150,00	-	-	223510.1080	140,90	-	-	-	-	-	-	-	-
110,00	-	-	222510.1100	150,00	-	-	223510.1100	140,90	-	-	-	-	-	-	-	-
112,00	-	-	222510.1120	150,00	-	-	223510.1120	140,90	-	-	-	-	-	-	-	-
114,00	-	-	222510.1140	150,00	-	-	223510.1140	140,90	-	-	-	-	-	-	-	-

Schnittdaten
Cutting data



722-731

Video



Typ Halter · Type holder 700 GM-12

Art.	€	l3 Nutzlänge Max. drill depth mm	l5 Körperlänge Body-length mm	l4 Neue REF.- Länge REF.-length mm	l1 Gesamtlänge Overall length mm	F Morsekegel Morse taper	G Gewinde Pipe tap	Kühlmittelring Oil ring Art. €
<ul style="list-style-type: none"> 221040.06600.0640 Ø 64,0-88,0 mm MÖGLICH · POSSIBLE Ø 64,0-76,0 mm OPTIMAL · OPTIMAL 221040.06600.0780 Ø 78,0-88,0 mm OPTIMAL · OPTIMAL 	827,95	660,0	704,8	776,2	919,1	5	1/2"	<ul style="list-style-type: none"> 229002.05715 83,50
<ul style="list-style-type: none"> 221040.06850.0900 Ø 90,0-114,0 mm MÖGLICH · POSSIBLE Ø 90,0-100,0 mm OPTIMAL · OPTIMAL 221040.06850.1020 Ø 102,0-114,0 mm OPTIMAL · OPTIMAL 	1140,35	685,0	739,7	811,2	954,0	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.

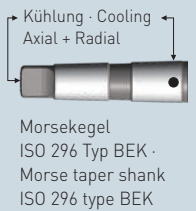
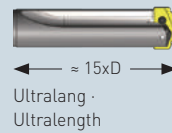
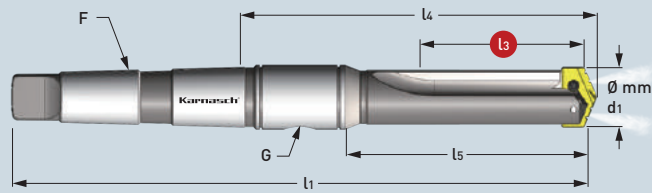
Für Maschinen ohne axiale/radiale Kühlmittelzufuhr kann ein Kühlmittelring auf den Halter montiert werden. Details siehe Seite 238
 For machines without radial/axial coolant supply a oil ring can be mounted on the holder. Details see page 238



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

Ø Diameter (mm)	TORX	€	max. Drehmoment / Torque (N/cm)	Schlüssel / Wrench	€
9,5 - 11,0	229010.0095	3,60	84	229011.0084	6,45
11,5 - 12,5	229010.0115	3,60	84	229011.0175	6,45
13,0 - 17,5	229010.0130	3,60	175	229011.0305	11,30
18,0 - 24,0	229010.0180	3,60	305	229011.0690	12,10
25,0 - 35,0	229010.0250	3,70	690	229011.1370	13,15
36,0 - 65,0	229010.0360	3,75	1370	229011.1750	19,35
64,0 - 114,0	229010.0640	3,80	1750		





Ø mm 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.	€
36,00	222010.0360	56,45	-	-	223010.0360	57,15	-	-	-	-	-	-	-	-	-	-
37,00	222010.0370	56,45	-	-	223010.0370	57,15	-	-	-	-	-	-	-	-	-	-
38,00	222010.0380	56,45	-	-	223010.0380	57,15	-	-	-	-	-	-	-	-	-	-
39,00	222010.0390	56,45	-	-	223010.0390	57,15	-	-	-	-	-	-	-	-	-	-
40,00	222010.0400	56,45	-	-	223010.0400	57,15	-	-	-	-	-	-	-	-	-	-
41,00	222010.0410	56,45	-	-	223010.0410	57,15	-	-	-	-	-	-	-	-	-	-
42,00	222010.0420	56,45	-	-	223010.0420	57,15	-	-	-	-	-	-	-	-	-	-
43,00	222010.0430	56,45	-	-	223010.0430	57,15	-	-	-	-	-	-	-	-	-	-
44,00	222010.0440	56,45	-	-	223010.0440	57,15	-	-	-	-	-	-	-	-	-	-
45,00	222010.0450	56,45	-	-	223010.0450	57,15	-	-	-	-	-	-	-	-	-	-
46,00	222010.0460	56,45	-	-	223010.0460	57,15	-	-	-	-	-	-	-	-	-	-
47,00	222010.0470	56,45	-	-	223010.0470	57,15	-	-	-	-	-	-	-	-	-	-
48,00	222010.0480	80,75	-	-	223010.0480	79,30	-	-	-	-	-	-	-	-	-	-
49,00	222010.0490	80,75	-	-	223010.0490	79,30	-	-	-	-	-	-	-	-	-	-
50,00	222010.0500	80,75	-	-	223010.0500	79,30	-	-	-	-	-	-	-	-	-	-
51,00	222010.0510	80,75	-	-	223010.0510	79,30	-	-	-	-	-	-	-	-	-	-
52,00	222010.0520	80,75	-	-	223010.0520	79,30	-	-	-	-	-	-	-	-	-	-
53,00	222010.0530	80,75	-	-	223010.0530	79,30	-	-	-	-	-	-	-	-	-	-
54,00	222010.0540	80,75	-	-	223010.0540	79,30	-	-	-	-	-	-	-	-	-	-
55,00	222010.0550	80,75	-	-	223010.0550	79,30	-	-	-	-	-	-	-	-	-	-
56,00	222010.0560	80,75	-	-	223010.0560	79,30	-	-	-	-	-	-	-	-	-	-
57,00	222010.0570	80,75	-	-	223010.0570	79,30	-	-	-	-	-	-	-	-	-	-
58,00	222010.0580	80,75	-	-	223010.0580	79,30	-	-	-	-	-	-	-	-	-	-
59,00	222010.0590	80,75	-	-	223010.0590	79,30	-	-	-	-	-	-	-	-	-	-
60,00	222010.0600	80,75	-	-	223010.0600	79,30	-	-	-	-	-	-	-	-	-	-
61,00	222010.0610	80,75	-	-	223010.0610	79,30	-	-	-	-	-	-	-	-	-	-
62,00	222010.0620	80,75	-	-	223010.0620	79,30	-	-	-	-	-	-	-	-	-	-
63,00	222010.0630	80,75	-	-	223010.0630	79,30	-	-	-	-	-	-	-	-	-	-
64,00	222010.0640	80,75	-	-	223010.0640	79,30	-	-	-	-	-	-	-	-	-	-
65,00	222010.0650	80,75	-	-	223010.0650	79,30	-	-	-	-	-	-	-	-	-	-

Fortsetzung Seite 234 - Continued page 234

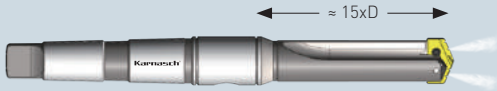
Schnittdaten
Cutting data

Art. **22.1040**



722-731

Video

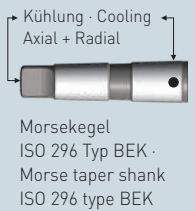
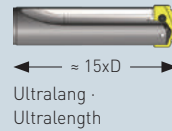
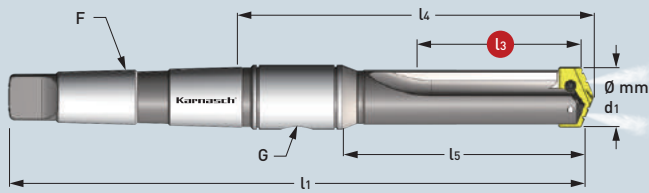


Typ Halter · Type holder 900 GM-15

Art.	€	l3 Nutzlänge Max. drill depth mm	l5 Körperlänge Body-length mm	l4 Neue REF.- Länge REF.-length mm	l1 Gesamtlänge Overall length mm	F Morsekegel Morse taper	G Gewinde Pipe tap	Art. € Kühlmittelring Oil ring
<ul style="list-style-type: none"> 221040.07874.0360 Ø 36,0-47,0 mm MÖGLICH · POSSIBLE Ø 36,0-41,0 mm OPTIMAL · OPTIMAL 	826,35							<ul style="list-style-type: none"> • 229002.03175 46,15
<ul style="list-style-type: none"> 221040.07874.0420 Ø 42,0-47,0 mm OPTIMAL · OPTIMAL 	826,35	787,4	819,2	873,2	985,8	4	1/4"	
<ul style="list-style-type: none"> 221040.08790.0480 Ø 48,0-65,0 mm MÖGLICH · POSSIBLE Ø 48,0-55,0 mm OPTIMAL · OPTIMAL 	979,15	879,0	914,4	968,4	1112,8	5	1/4"	<ul style="list-style-type: none"> • 229002.04445 60,65
<ul style="list-style-type: none"> 221040.08790.0560 Ø 56,0-65,0 mm OPTIMAL · OPTIMAL 	979,15	879,0	914,4	968,4	1112,8	5	1/4"	

Fortsetzung Seite 235 · Continued page 235





Ø mm 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	-	-	222510.0640	101,50	-	-	223510.0640	93,45	-	-	-	-	-	-	-	-
66,00	-	-	222510.0660	101,50	-	-	223510.0660	93,45	-	-	-	-	-	-	-	-
68,00	-	-	222510.0680	101,50	-	-	223510.0680	93,45	-	-	-	-	-	-	-	-
70,00	-	-	222510.0700	101,50	-	-	223510.0700	93,45	-	-	-	-	-	-	-	-
72,00	-	-	222510.0720	101,50	-	-	223510.0720	93,45	-	-	-	-	-	-	-	-
74,00	-	-	222510.0740	101,50	-	-	223510.0740	93,45	-	-	-	-	-	-	-	-
76,00	-	-	222510.0760	101,50	-	-	223510.0760	93,45	-	-	-	-	-	-	-	-
78,00	-	-	222510.0780	112,10	-	-	223510.0780	104,10	-	-	-	-	-	-	-	-
80,00	-	-	222510.0800	112,10	-	-	223510.0800	104,10	-	-	-	-	-	-	-	-
82,00	-	-	222510.0820	112,10	-	-	223510.0820	104,10	-	-	-	-	-	-	-	-
84,00	-	-	222510.0840	112,10	-	-	223510.0840	104,10	-	-	-	-	-	-	-	-
86,00	-	-	222510.0860	112,10	-	-	223510.0860	104,10	-	-	-	-	-	-	-	-
88,00	-	-	222510.0880	112,10	-	-	223510.0880	104,10	-	-	-	-	-	-	-	-
90,00	-	-	222510.0900	131,60	-	-	223510.0900	122,50	-	-	-	-	-	-	-	-
92,00	-	-	222510.0920	131,60	-	-	223510.0920	122,50	-	-	-	-	-	-	-	-
94,00	-	-	222510.0940	131,60	-	-	223510.0940	122,50	-	-	-	-	-	-	-	-
96,00	-	-	222510.0960	131,60	-	-	223510.0960	122,50	-	-	-	-	-	-	-	-
98,00	-	-	222510.0980	131,60	-	-	223510.0980	122,50	-	-	-	-	-	-	-	-
100,00	-	-	222510.1000	131,60	-	-	223510.1000	122,50	-	-	-	-	-	-	-	-
102,00	-	-	222510.1020	150,00	-	-	223510.1020	140,90	-	-	-	-	-	-	-	-
104,00	-	-	222510.1040	150,00	-	-	223510.1040	140,90	-	-	-	-	-	-	-	-
106,00	-	-	222510.1060	150,00	-	-	223510.1060	140,90	-	-	-	-	-	-	-	-
108,00	-	-	222510.1080	150,00	-	-	223510.1080	140,90	-	-	-	-	-	-	-	-
110,00	-	-	222510.1100	150,00	-	-	223510.1100	140,90	-	-	-	-	-	-	-	-
112,00	-	-	222510.1120	150,00	-	-	223510.1120	140,90	-	-	-	-	-	-	-	-
114,00	-	-	222510.1140	150,00	-	-	223510.1140	140,90	-	-	-	-	-	-	-	-

Schnittdaten
Cutting data

 Art. **22.1040**


722-731

Video

≈ 15xD



Typ Halter · Type holder 900 GM-15

Art.	€	l3	l5	l4	l1	F	G	Art.	€
		mm	mm	mm	mm				
• 221040.08890.0640 Ø 64,0-88,0 mm MÖGLICH · POSSIBLE Ø 64,0-76,0 mm OPTIMAL · OPTIMAL	1034,95							• 229002.05715	83,50
• 221040.08890.0780 Ø 78,0-88,0 mm OPTIMAL · OPTIMAL	1034,95	889,0	933,4	1004,8	1147,7	5	1/2"		
• 221040.09390.0900 Ø 90,0-114,0 mm MÖGLICH · POSSIBLE Ø 90,0-100,0 mm OPTIMAL · OPTIMAL	1425,40								
• 221040.09390.1020 Ø 102,0-114,0 mm OPTIMAL · OPTIMAL	1425,40	939,0	993,7	1065,2	1208,0	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 238
 For machines without radial/axial coolant supply a oil ring can be mounted on the holder. Details see page 238



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

Ø Diameter (mm)	TORX	€	max. Drehmoment / Torque (N/cm)	Schlüssel / Wrench	€
9,5 - 11,0	229010.0095	3,60	84	229011.0084	6,45
11,5 - 12,5	229010.0115	3,60	84	229011.0175	6,45
13,0 - 17,5	229010.0130	3,60	175	229011.0305	11,30
18,0 - 24,0	229010.0180	3,60	305	229011.0690	12,10
25,0 - 35,0	229010.0250	3,70	690	229011.1370	13,15
36,0 - 65,0	229010.0360	3,75	1370	229011.1750	19,35
64,0 - 114,0	229010.0640	3,80	1750		

1



2



3



4



5



6



7



8



9



10

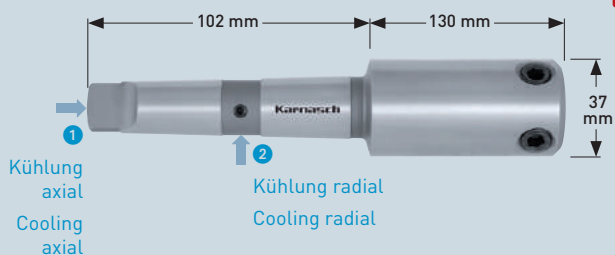

 Art.
100
101
102

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:

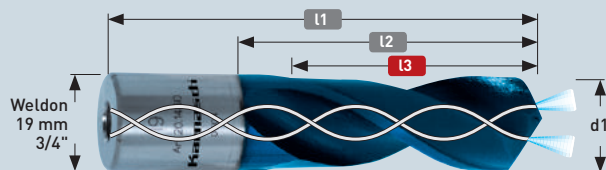
- Ein Morsekonus für alle Bohrer.
- Robust
- Preiswert

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	20.1465	Nutzlänge Max. drill depth L3 mm	Spirallänge Spiral length L2 mm	Gesamtlänge Overall length L1 mm	€
● 14	201465.014	50	67	90	78,50
● 15	201465.015	50	67	90	78,50
● 16	201465.016	50	67	90	81,50
● 17	201465.017	55	67	90	81,50
● 18	201465.018	55	67	90	81,50
● 19	201465.019	55	67	90	81,50
● 20	201465.020	55	67	90	87,70
● 21	201465.021	55	67	90	87,70
● 22	201465.022	55	67	90	94,70
● 23	201465.023	55	67	90	94,70
● 24	201465.024	55	67	90	106,35
● 25	201465.025	55	67	90	106,35
● 26	201465.026	55	67	90	120,55
● 27	201465.027	55	67	90	120,55
● 28	201465.028	55	67	90	139,85
● 30	201465.030	55	67	90	155,30
● 32	201465.032	55	67	90	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 resharpened up to 10 times and thus have an excellent cost - performance ratio.

Schnittdaten
Cutting data

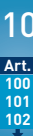


726



Video

EVEREAD

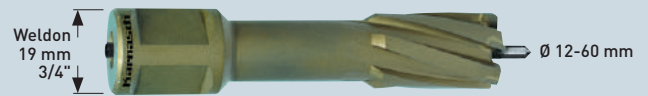
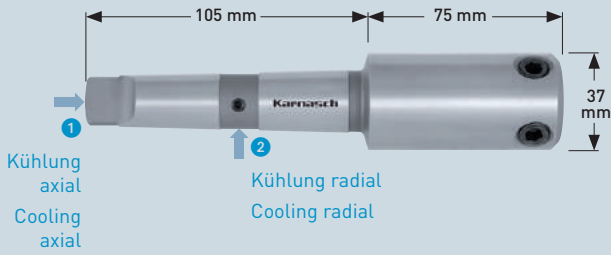


Art.
100
101
102

MORSEKONUS · MORSE TAPER
ISO 296 TYP BEK / TYPE BEK

3

• € 58,20 ART. 20.1400

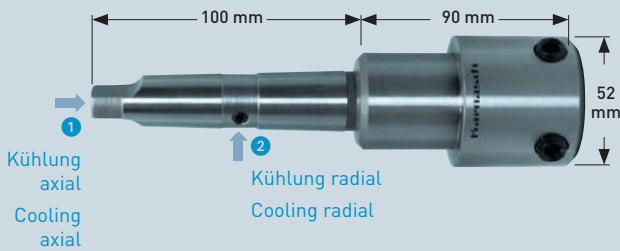


Wir empfehlen unsere Hartmetall-bestückten Kernbohrer HARD-LINE Ø 12-60 mm siehe Seite 14/16
We recommend our carbide-tipped annular cutters HARD-LINE Ø 12-60 mm see page 14/16

MORSEKONUS · MORSE TAPER
ISO 296 TYP BEK / TYPE BEK

3

• € 61,35 ART. 20.1401



Wir empfehlen unsere Hartmetall-bestückten Kernbohrer HARD-LINE Ø 61-150 mm siehe Seite 14/16
We recommend our carbide-tipped annular cutters HARD-LINE Ø 61-150 mm see page 14/16

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



719

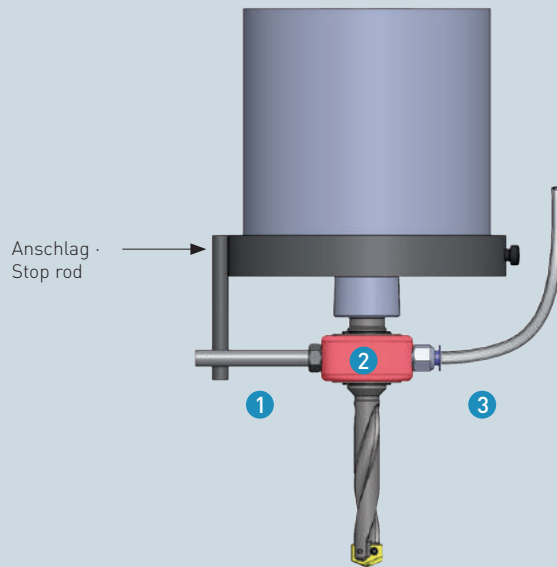
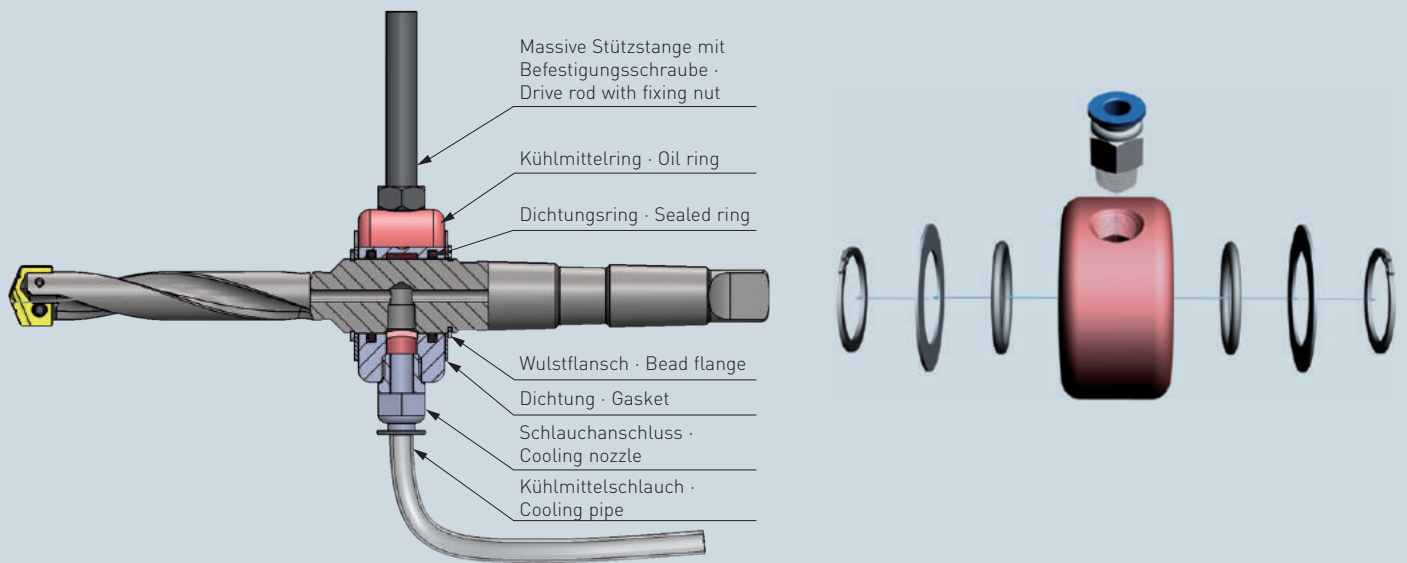


Video

237

Art.
100
101
102

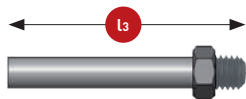
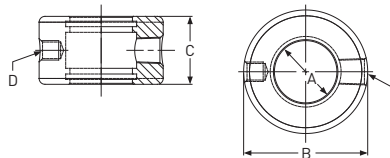
MONTAGE + ZUBEHÖR DES KÜHLMITTELRING • OIL RING ASSEMBLY AND ACCESSORIES



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.	€
• 229001.08250	5,25	250	229002.01905	22,85	9,5-17,5	19,05	44,45	22,23	M8 x 1,25	1/8"	• 229003.18	1,85
			229002.02540	25,75	18-29	25,40	53,97	28,57	M8 x 1,25	1/8"		
• 229001.10250	5,55	250	229002.03175	33,35	30-47	31,75	63,50	34,92	M10 x 1,5	1/4"	• 229003.14	2,70
			229002.04445	43,80	48-65	44,45	76,20	34,92	M10 x 1,5	1/4"		
• 229001.12250	5,75	250	229002.05715	60,35	64-114	57,15	95,27	44,45	M12 x 1,75	1/2"	• 229003.12	4,80

