

Cerwin

THE QUALITY OF EXPERIENCE



RAGOTZKY+GÄTJE

Holtenuer Strasse 288, 24106 Kiel | mail@ragotzkygaetje.de | 0431-389080
ragotzkygaetje.de | shop.ragotzkygaetje.de | spansysteme-shop.de

HANS TREIBER

Gutenbergstrasse 19, 24558 Henstedt-Ulzburg | 04193-77943
mail@hanstreiber.de | shop.hanstreiber.de | fraeser-shop.de

THE QUALITY OF EXPERIENCE

Die Firma **CERIN** begann mit ihren Aktivitäten im Jahre 1971 und ist heute eines der bestbekanntesten und solidesten **italienischen Unternehmen im Bereich Hartmetall-Präzisionswerkzeuge**.

Im Laufe der Jahre hat sich die Firma **CERIN** zu einem Branchenführer entwickelt und konnte sich auf den weltweiten Märkten behaupten durch ihre Produktqualität, Leistungsfähigkeit und Flexibilität der internen Strukturen. Außerdem bewährte sich ihr starkes Entwicklungs- und Forschungsengagement, das sich am Entwurf neuer Produkte orientiert.

Um die Wünsche und Anforderungen unserer Kunden zu erfüllen, steht ein technischer- und kaufmännischer Beratungsdienst immer zur Verfügung.

Die Firma **CERIN** ist zertifiziert nach Norm UNI EN ISO 9001:2008.

*CERIN has been present on the market since 1971 and currently represents one of the most well known and well reputed **Italian manufacturer of carbide precision tools**.*

During the years CERIN has become leader in the field and have been known on the domestic and international markets as high quality manufacturer thanks, above all, to the constant commitment focused to the main purpose: total customer's satisfaction pursued through: Quality of the Products, Efficiency of the inner structure, Services available for the clientele and Research and Development engaged in new products development.

A service of technical and commercial assistance is always available to meet customer needs.

The company is UNI EN ISO 9001:2008 certified.







Seite	6	01
Page	157	
Seite	17	1.01
Page		
Seite	31	1.02
Page	299	
Seite	37	1.03
Page	299	
Seite	39	1.04
Page	299/2	

01

Frässtifte
Rotary burs

21/1
0z1
4
6/3
1/3
86/2
60z2
48/1
18

98/2
3.2
3.2.10
3.2.25
3.2.29
3.2.9
3.3.26
3.2.6
03.2.28
3.2.27

177/1
298/2
298
177

127/1
134/1

127
Schnitt G
sectional view

145
146

298/3

299/1

Werkstückwerkstoffe / Materials

Gruppe Group	Werkstoff Materials	Festigkeit N/mm ² Strength N/mm ²	
Aluminium - Aluminium Knetlegierungen - Alu Gußlegierungen / Aluminium - Wrought aluminium alloys - Cast aluminium alloys			
Leichtmetalle Light Alloys	A 1	A 1.1 Alu Gußlegierungen <5% Si / Cast aluminium alloys <5% Si	≤ 255
		A 1.2 Alu Knetlegierungen / Wrought aluminium alloys	≤ 255
		A 1.3 Alu Gußlegierungen > 12% <Si / Cast aluminium alloys >12% Si	≤ 255
		A 1.4 Alu Gußlegierungen >5% <12% / Cast aluminium alloys >5% <12%	≤ 400
		A 1.5 Alu Gußlegierungen >5% <12% / Cast aluminium alloys >5% <12%	≤ 400
		A 1.6 Alu Knetlegierungen / Wrought aluminium alloys	≤ 705
		A 1.7 Faserverstärkte LM Legierungen / Reinforced aluminium alloys	≤ 705
	Kupfer - Kupfer Legierungen - Messing - Bronze / Cooper - Cooper alloys - Brass - Bronze		
	A 2	A 2.1 Rein- und niedriglegiertes Kupfer / Low alloys cooper	≤ 400
		A 2.2 Kupfer Zinn Legierung / Cu-Sn alloys (cooper)	≤ 400
		A 2.3 Bronze kurzspanend / Cu-Sn alloys (cooper)	≤ 400
		A 2.4 Kupfer-Zinn Legierungen / Cu-Zn alloys (brass) (long chipping)	≤ 705
		A 2.5 Messing kurzspanend / Cu-Zn alloys (brass) (short chipping)	≤ 705
		A 2.6 Messing langspanend / Cu-Zn alloys (brass) (long chipping)	≤ 705
		A 2.7 Kupfer-Alu Legierung/Alubronze / Cu-Sn alloys (bronze)	≤ 850
	Kupfer Sonderlegierungen / Cooper special alloys		
	A 3	A 3.1 Kupfer Sonderlegierungen bis Q18 / Cooper special alloys from Q18	≤ 705
A 3.2 Kupfer Sonderlegierungen über Q18 / Cooper special alloys		≤ 705	
Magnesium Legierungen - Magnesium Gußlegierungen / Magnesium alloys - Cast magnesium alloys			
A 4	A 4.1 Magnesium Knetlegierungen / Magnesium wrought alloys	≤ 705	
	A 4.2 Magnesium Gußlegierungen / Cast magnesium alloys	≤ 705	
Kunststoffe - kurz- und langspanend / Plastics - short and long chipping			
Kunststoffe und Verbundwerkstoffe Plastic & Comp. Materials	B 1	B 1.1 Duroplaste kurzspanend / Duroplaste short chipping	110
		B 1.2 Thermoplaste langspanend / Thermoplaste long chipping	80
		B 1.3 Polykarbonate / Polycarbonate	110
		B 1.4 Faserverstärkte Kunststoffe / Reinforced Plastics Fibers	800-1500
		B 1.5 Plexiglas / Plexiglass	130
		B 1.6 Kevlar / Kevlar	110
NE Werkstoffe - Sonderwerkstoffe / Nonferrous metals - Special plastic			
B 2	B 2.1 Hartholz / Hardwood	< 80	
	B 2.2 Hartgummi / Hard rubber	< 80	
	B 2.3 NE-Metalle / Nonferrous metals	< 80	
	B 2.4 Presskarton / Pressed carton	< 80	
Allgemeine Stähle - Baustähle - Legierte Stähle / Structural Steel			
Stähle Steels	C 1	C 1.1 Kaltfließpressstähle / Materials for rail vehicles	≤ 400
		C 1.2 Magnetweicheisen / Soft magnetic material	≤ 400
		C 1.3 Automatenstähle / Automatic steel	≤ 705
		C 1.4 Allgemeine Baustähle / Structural steel (unalloyed, warm-rolled)	≤ 705
		C 1.5 Einsatzstähle / Hardened steel (unalloyed/alloys)	≤ 705
		C 1.6 Vergütungsstähle / Heat-treatable steel (special steel)	≤ 850
		C 1.7 Legierte Stähle Stahlguß / Cold upsetting and cold extrusion steel, heat-treatable steel	≤ 1125
		C 1.8 Automatenstähle Baustähle / Structural steel (unalloyed, warm-rolled)	≤ 1125
	Nitrierstähle Kalt- und Warmarbeitsstähle / Roller bearing steel - Tool steel for warm working		
	C 2	C 2.1 Nitrierstähle / Roller bearing steel	≤ 1125
		C 2.2 Kaltarbeitsstähle / Tool steel for cold working (alloyed)	≤ 1125
		C 2.3 Warmarbeitsstähle / Tool steel for warm working	≤ 1125
		C 2.4 Vergütungsstähle Nitrierstähle / Cast steel for flame and induction hardening	≤ 1420
	Gehärtete Stähle / Tool Steel for warm working		
	C 3	C 3.1 Gehärtete Stähle / Tool steel for warm working	< 44.5HRc
		C 3.2 Gehärtete Stähle / Tool steel for warm- and cold-working	44 - 56 HRc
		C 3.3 Gehärtete Stähle / Tool steel for warm- and cold-working	56 - 60 HRc
		C 3.4 Gehärtete Stähle / Tool steel for cold working (alloyed)	58 - 63 HRc
C 3.5 Gehärtete Stähle / Tool steel for cold working (alloyed)		56 - 67 HRc	
Sonder Stahl-Werkstoffe / Special Steel			
C 4	C 4.1 Stahl Sonderwerkstoffe / Specialsteel	≤ 1125	
	C 4.2 Stahl Sonderwerkstoffe / Specialsteel	≤ 1420	
Rost- Säure- und Hitzebeständige Stähle / Heat-resistant steel - Stainless austenitic steel			
Rostfreier Stahl Stainless Steel	D 1	D 1.1 Rostbeständige Stähle / Heat-resistant steel	≤ 850
		D 1.2 Rostbeständige Stähle / Heat-resistant steel	≤ 850
		D 1.3 Hitzebeständige Stähle / Austenitic stainless steel	≤ 850
		D 1.4 Rost- Säure- Hitzebeständige Stähle / Valve materials (heat-resistant)	≤ 1125
		D 1.5 Rost- Säure- Hitzebeständige Stähle / High heat-resistant steel and alloys	≤ 1420
Titan - Titanlegierungen / Titanium and Titanium alloys			
Titan Titanium	E 1	E 1.1 Reintitan / Titanium (pure)	≤ 705
		E 1.2 Titanlegierungen / Wrought titanium alloy	≤ 1125
		E 1.3 Titanlegierungen Wrought titanium alloy	≤ 1420
Nickel/Kobaltlegierungen / Wrought nickel-copper alloy			
E 2	E 2.1 Nickel-/Kobaltlegierungen warmfest / Wrought nickel-copper alloy	≤ 705	
	E 2.2 Nickel/Kobaltlegierungen hochwarmfest / Wrought nickel-chrome alloy	≤ 1420	
	E 2.3 Nickel/Kobaltlegierungen hochwarmfest / Wrought nickel-chrome alloy	≤ 2030	
Grau- Hart- und Temperguß / Grey and hard cast iron			
Gußeisen Cast Irons	F 1	F 1.1 Grauguß GG 20 / Grey cast iron	< 333 HB
		F 1.2 Grauguß GG 30 / Grey cast iron	< 333 HB
		F 1.3 Hartguß / Hard cast iron	≤ 416 HB
		F 1.4 Temperguß / Malleable cast iron, decarbonized annealed	≤ 705
		F 1.5 Temperguß / Malleable cast iron, non-decarbonized annealed	≤ 705
	Gußeisen / Cast Iron		
	F 2	F 2.1 Gußeisen mit Kugelgraphit / Nodular graphite iron	≤ 400
		F 2.2 Gußeisen mit Kugelgraphit / Nodular graphite iron	≤ 1125
		F 2.3 Gußeisen mit Vermikulargraphit / Cast iron with vermicular	< 333 HB
		F 2.4 Gußeisen mit Vermikulargraphit / Cast iron with vermicular	< 333 HB
Graphit / Graphite			
Graphit Graphite	G 1	G 1.1 Graphit / Graphite	≤ 255
		Wolfram/Kupferlegierungen / Tungsten-copper alloys	
	G 2	G 2.1 Wolfram-Kupfer Legierungen / Tungsten-copper alloys	≤ 255 HV 10

Eine detaillierte Aufstellung über gebräuchliche Kunststoffe finden Sie in der Werkzeug Gruppe 2-4 - Fräswerkzeuge für Kunststoff / Detailed description of plastic materials to be worked is available under section 2-4 - End Mills for composite materials.
 ■ gut geeignet / Suggested ▲ mit Beschichtung gut geeignet / Suggested with coating









Werkstückwerkstoffe / Materials

Werkstoff Bezeichnung Material designation	Werkstoff Nummer Material Number	Festigkeit N/mm ² Strength N/mm ²	Frässtifte / Rotary burs					
			1 - Aluminium 1 - Aluminium	2 - Grob 2 - Course	3 - Mittel / Standard 3 - Medium	4 - Diamant 4 - Diamond	5 - Fein 5 - Fine	6 - Kreuzverzahnt 6 - Double cut
G-AlMg3	3.3541	130 - 190						
Al 99.5 / F13	3.0255	100 - 250						
GDAISI17Cu4		180 - 250		■				
GD-ALSI12	3.2582	220 - 300		■				
GD-ALSI9Cu3	3.2163	240 - 320		■				
AlCuMg1 / F39	3.1325	300 - 500	■	■				
MMC		600 - 1400	▲	■				
E-Cu	2.0060	220 - 350	■	■				
GCuSn5ZnPb / Rg5	2.1096	150 - 350	■	■				
GCuSn7ZnPb / Rg7	2.1090	150 - 350	■	■				
CuZn40 / Ms60	2.0360	340 - 500	■	■				
CuZn39Pb2 / Ms58	2.0380	350 - 500	■	■				
CuZn37 / Ms63	2.0321	300 - 550	■	■				
CuAl10Ni	2.0966	500 - 800	■	■				
Ampco 16		630	▲	▲	■			■
Ampco 20		600	▲	▲	■			■
MgAl6	3.5662	300 - 500	▲	▲	■			■
GMgAl9Zn1	3.5912	300 - 500	▲	▲	■			■
AFK-CFK-GFK			■			■		■
			■			■		■
			■			■		■
			▲			■		■
			■	■		■		■
			▲	■		■		■
			■	■		■		■
Q-St-37-3	1.0123	< 400		■	■	■	■	■
R-Fe80	1.1014	< 400		■	■	■	■	■
9SMnPb28	1.0718	500 - 700		■	■	■	■	■
St37-2	1.0037	320 - 470		■	■	■	■	■
16MnCr5	1.7131	500 - 700		■	■	■	■	■
Ck45	1.1191	600 - 800		■	■	■	■	■
Gs25CrMo4	1.7218	650 - 950		■	■	■	■	■
St70-2	1.0070	700 - 900		■	■	■	■	■
100Cr6	1.3505	700 - 900			■	■	■	■
X155CrVMo12-1	1.2379	900 - 1100			■	■	■	■
X30WCrV5-3	1.2567	1100			■	■	■	■
42CrMo4V	1.7225	1200 - 1400			■	■	■	■
X38CrMoV5-3	1.2367	900 - 1100			■	■	■	■
55NiCrMoV6	1.2713	47 - 52 HRC			■	■	■	■
45WCrV7	1.2542	56 - 60 HRC			■	■	■	■
X155CrVMo12-1	1.2379	60 - 63 HRC			■	■	■	■
X210CrW12	1.2436	63 - 66 HRC			■	■	■	■
FeroTiC		800 - 900			■	■	■	■
Hardox500		1300 - 1400			■	■	■	■
X10NiCrAlTi32-20 (INCO.800)	1.4876	610 - 850		▲	▲	■		■
X12CrNiTi18-9	1.4878	500 - 700		▲	▲	■		■
X6CrNiMoTi17-12-2	1.4571	500 - 730		▲	▲	■		■
X45SiCr4	1.4704	900 - 1100		▲	▲	■		■
X5NiCrTi26-15	1.4980	1200		▲	▲	■		■
Ti3 (Ti99.4)	3.7055	700		▲				
TiAl6V4	3.7164	700 - 900		▲				
TiAlMo4Sn2	3.7185	900 - 1250		▲				
NiCu30Fe (MONEL400)	2.4360	420 - 610		▲	▲	■		■
NiCr19NbMo (INCONEL718)	2.4668	850-1200		▲	▲	■		■
Haynes 25 (L605)		1550 - 2000		▲	▲	■		■
GG 20	0.6020	120-220 HB			■	■		■
GG 30	0.6030	220 - 270 HB			■	■		■
		< 400 HB			■	■		■
GTW40	0.8040	360 - 420			■	■		■
GTS65	0.8165	560 - 650			■	■		■
GGG 40	0.7040	400		■	■	■		■
GGG 70	0.7070	700 - 1050		■	■	■		■
GGV (80% Perlit)		220 HB		■	■	■		■
GGV (100% Perlit)		230 HB		■	■	■		■
C-800		60		▲	▲	■		■
W-Cu 80/20		230-250 HV	▲	▲	▲			■






01

Eine detaillierte Aufstellung über gebräuchliche Kunststoffe finden Sie in der Werkzeug Gruppe 2-4 - Fräswerkzeuge für Kunststoff / Detailed description of plastic materials to be worked is available under section 2-4 - End Mills for composite materials.
 ■ gut geeignet / Suggested ▲ mit Beschichtung gut geeignet / Suggested with coating


WERKZEUG - GRUPPE 1
TOOL - GROUP 1
STANDARD ROTIERFRÄSER - FRÄSSTIFTE / STANDARD ROTARY BURS

Form Shape	Schaftabmessungen Shank dimensions	Ident - Nr. Code	Seite Page	
ZYA Ohne Stirnverzahnung <i>Cylindrical without end cut</i>	Ø 2,35 mm	20	17	
	Ø 3,00 mm	40	17	
	Standard / Standard	30	17	
	Schaftlänge / Shank length 100 mm	30-100	31	
	Schaftlänge / Shank length 150 mm	30-150	33	
	Schaftlänge / Shank length 300 mm	30-300	35	
ZYA/ST Mit Stirnverzahnung <i>Cylindrical with end cut</i>	Ø 2,35 mm	20-ST	18	
	Ø 3,00 mm	40-ST	18	
	Standard / Standard	30-ST	18	
	Schaftlänge / Shank length 100 mm	30-ST100	31	
	Schaftlänge / Shank length 150 mm	30-ST150	33	
	Schaftlänge / Shank length 300 mm	30-ST300	35	
WRC Walzenrund <i>Cylindrical radius end</i>	Ø 2,35 mm	21	19	
	Ø 3,00 mm	41	19	
	Standard / Standard	31	19	
	Schaftlänge / Shank length 100 mm	31-100	31	
	Schaftlänge / Shank length 150 mm	31-150	33	
	Schaftlänge / Shank length 300 mm	31-300	35	
KEL Rundbogen <i>Taper radius end</i>	Ø 2,35 mm	22	20	
	Ø 3,00 mm	42	20	
	Standard / Standard	32	20	
	Schaftlänge / Shank length 100 mm	32-100	31	
	Schaftlänge / Shank length 150 mm	32-150	33	
	Schaftlänge / Shank length 300 mm	32-300	35	
RBF Rundbogen <i>Tree with radius end</i>	Ø 2,35 mm	23	21	
	Ø 3,00 mm	43	21	
	Standard / Standard	33	21	
	Schaftlänge / Shank length 100 mm	33-100	32	
	Schaftlänge / Shank length 150 mm	33-150	34	
	Schaftlänge / Shank length 300 mm	33-300	36	
SPG Spitzbogen <i>Tree with pointed end</i>	Ø 2,35 mm	24	22	
	Ø 3,00 mm	44	22	
	Standard / Standard	34	22	
	Schaftlänge / Shank length 100 mm	34-100	32	
	Schaftlänge / Shank length 150 mm	34-150	34	
	Schaftlänge / Shank length 300 mm	34-300	36	
SKM Spitzkegel <i>Conical</i>	Ø 2,35 mm	25	23	
	Ø 3,00 mm	45	23	
	Standard / Standard	35	23	
KSK-90° Kegel <i>90° Conical</i>	Ø 3,00 mm	46-90°	24	
	Standard / Standard	36-90°	24	



WERKZEUG - GRUPPE 1
TOOL - GROUP 1
STANDARD ROTIERFRÄSER - FRÄSSTIFTE / STANDARD ROTARY BURS

Form <i>Shape</i>	Schaftabmessungen <i>Shank dimensions</i>	Ident - Nr. <i>Code</i>	Seite <i>Page</i>	
KSJ-60° Kegel <i>60° Conical</i>	Ø 3,00 mm	46-60°	25	
	Standard / <i>Standard</i>	36-60°	25	
TRE Tropfen <i>Oval</i>	Ø 2,35 mm	27	26	
	Ø 3,00 mm	47	26	
	Standard / <i>Standard</i>	37	26	
	Schaftlänge / <i>Shank length</i> 100 mm	37-100	32	
	Schaftlänge / <i>Shank length</i> 150 mm	37-150	34	
Schaftlänge / <i>Shank length</i> 300 mm	37-300	36		
KUD Kugel <i>Ball</i>	Ø 2,35 mm	28	27	
	Ø 3,00 mm	48	27	
	Standard / <i>Standard</i>	38	27	
	Schaftlänge / <i>Shank length</i> 100 mm	38-100	32	
	Schaftlänge / <i>Shank length</i> 150 mm	38-150	34	
Schaftlänge / <i>Shank length</i> 300 mm	38-300	36		
WKN Winkel ohne Stirnverzahnung <i>Inverted cone without end cut</i>	Ø 3,00 mm	49	28	
	Standard / <i>Standard</i>	39	28	
WKN/ST Winkel mit Stirnverzahnung <i>Inverted cone with end cut</i>	Ø 3,00 mm	49-ST	29	
	Standard / <i>Standard</i>	39-ST	29	




01
SÄTZE & ZUBEHÖR / SETS & ACCESSORIES

		Ident - Nr. <i>Code</i>	Seite <i>Page</i>	
Sätze <i>Sets</i>	Nr. 10	10	30	
	Nr. 11	11	30	
	Nr. 12	12	30	
Druckluftschleifer <i>Air grinding unit</i>	Nr. 13	13	30	

WERKZEUG - GRUPPE 1
TOOL - GROUP 1
MATRIZENFRÄSER - WN / MOULD, TOOL AND DIE MAKING ROTARY BURS - INTERNAL STANDARD




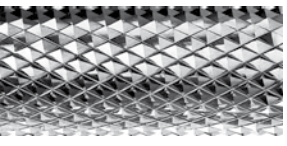
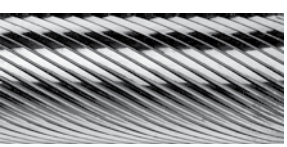
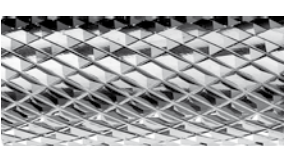
Form Shape	Schaftabmessungen Shank dimensions	Ident - Nr. Code	Seite Page	
Zylinder Cylindrical	Zahnung 4 Cut type	40ST-4	37-38	
Zylinder Cylindrical	Zahnung 6 Cut type	40ST-6	37-38	

SPEZIAL ROTIERFRÄSER - WN / SPECIAL ROTARY BURS - INTERNAL STANDARD

Form Shape	Schaftabmessungen Shank dimensions	Ident - Nr. Code	Seite Page	
Glasnuten- Fräser Groove cutters	WN - 6,00 mm <i>Internal standard</i>	114-90°	39	
Scheiben- Radiusfräser Radius groove cutters	WN - 6,00 mm <i>Internal standard 6,00 mm</i>	115	40	
Scheiben- Zylinderfräser Disc cutters	WN - 6,00 mm <i>Internal standard 6,00 mm</i>	116	40	

01

Schnittgeschwindigkeiten (Richtwerte) für Cerin Frässtifte Cutting speeds (approximative values) for Cerin rotary burs

Werkstoff Material	VHM V _c (m/min)	Cer-T V _c (m/min)	Zahnung Cut type	
< 400 N/mm ²	800 - 1000	800 - 1000	Zahnung 1 Cut type 1	
< 705 N/mm ²	600 - 800	800 - 1000		
Titan Titanlegierungen	max n = 2000 (min ⁻¹)			①
< 400 N/mm ²	650 - 800	650 - 1000	Zahnung 2 Cut type 2	
< 850 N/mm ²	500 - 650	600 - 800		
Titan Titanlegierungen	max n = 2000 (min ⁻¹)			②
< 705 N/mm ²	500 - 650	600 - 800	Zahnung 3 Cut type 3	
< 1125 N/mm ²	400 - 500	400 - 600		
< 46 HRC	200 - 450	300 - 500		
Titan Titanlegierungen	max n = 2000 (min ⁻¹)			③
< 850 N/mm ²	450 - 650	500 - 750	Zahnung 4 Cut type 4	
< 1125 N/mm ²	350 - 500	400 - 600		
< 46 HRC	250 - 350	250 - 500		
< 418 HB	200 - 350	300 - 450		
Titan Titanlegierungen	max n = 2000 (min ⁻¹)			④
< 1125 N/mm ²	350 - 600	400 - 600	Zahnung 5 Cut type 5	
< 1450 N/mm ²	250 - 300	250 - 400		
< 2050 N/mm ²	150 - 250	150 - 300		
< 66HRC	150 - 300	200 - 400		
Titan Titanlegierungen	max n = 2000 (min ⁻¹)			⑤
< 705 N/mm ²	500 - 650	600 - 800	Zahnung 6 Cut type 6	
< 1125 N/mm ²	300 - 500	400 - 600		
< 46 HRC	200 - 450	300 - 500		
Titan Titanlegierungen	max n = 2000 (min ⁻¹)			⑥

* Achtung! Titan und Titanlegierungen max. n = 2000 (min⁻¹)

* Attention! Titanium and Titanium alloys max. n = 2000 (min⁻¹)

Schnittgeschwindigkeiten V_c (m/min) - Drehzahlen n (min⁻¹) Cutting speeds V_c (m/min) - Revolution per minute n (min⁻¹)

Berechnungsformeln: Schnittgeschwindigkeit V_c (m/min) - Drehzahl n (min⁻¹)

Formula: cutting speed V_c (m/min) - Revolution per minute n (min⁻¹)

$$V_c \text{ (m/min)} = \frac{\varnothing D_c \text{ (mm)} \times 3,14 \times n \text{ (min}^{-1}\text{)}}{1000}$$

$$n \text{ (min}^{-1}\text{)} = \frac{V_c \text{ (m/min)} \times 1000}{\varnothing D_c \text{ (mm)} \times 3,14}$$

V _c (m/min)	D _c (mm)									
	2,35	3,00	4,00	5,00	6,00	8,00	10,00	12,00	16,00	20,00
	Drehzahl n (min ⁻¹) / Revolution per minute n (min ⁻¹)									
100	13550	10616	7962	6369	5308	3981	3185	2654	1990	1592
150	20325	15924	11943	9554	7962	5971	4777	3981	2986	2389
200	27100	21231	15924	12739	10616	7962	6369	5308	3981	3185
250	33875	26539	19904	15924	13270	9952	7962	6635	4976	3981
300	40650	31847	23885	19108	15924	11943	9554	7962	5971	4777
350	47425	37155	27866	22293	18577	13933	11146	9289	6967	5573
400	54201	42463	31847	25478	21231	15924	12739	10616	7962	6369
500	67751	53079	39809	31847	26539	19904	15924	13270	9952	7962
600	81301	63694	47771	38217	31847	23885	19108	15924	11943	9554
700	94851	74310	55732	44586	37155	27866	22293	18577	13933	11146
800	108401	84926	63694	50955	42463	31847	25478	21231	15924	12739
900	121951	95541	71656	57325	47771	35828	28662	23885	17914	14331
1000	135501	106157	79618	63694	53079	39809	31847	26539	19904	15924

* Achtung! Titan und Titanlegierungen max. n = 2000 (min⁻¹)

* Attention! Titanium and Titanium alloys max. n = 2000 (min⁻¹)

Verzahnungen bei Cerin Frässtiften

Cut types of Cerin rotary burs

Zahnung 1 - Aluminium

Cut type 1 - Aluminium



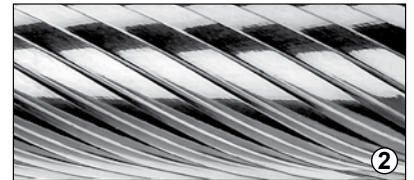
Besonders geeignet für Aluminium, Magnesium, Kunststoffe, Hartholz und Hartgummi.

Gute Schnittleistung und hohe Materialabtragung. Die besondere Auslegung der Zahn- und Nutengeometrie erleichtert die Spanabfuhr und verhindert damit das Zusetzen des Werkzeuges.

Particularly suitable for working on aluminium, magnesium, plastic, and hard rubber. Gives high cutter efficiency, with good removal of material. The specific features of this type of cut facilitate rapid removal of chips preventing these from clogging the tool.

Zahnung 2 - Grob

Cut type 2 - Course

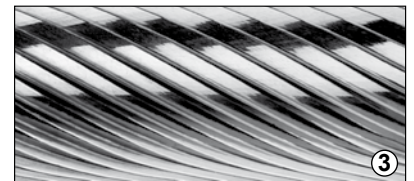


Diese Verzahnung liegt zwischen der Ausführung 1 und 3. Sie eignet sich besonders für Leichtmetalle, Bronze, Messing, Zinn, Zink, Kupfer und andere, leicht zu bearbeitende Werkstoffe. Für langspanige Werkstoffe sollte diese Verzahnung mit Spanbrechernuten eingesetzt werden.

This type of cut is intermediate between cut 1 and cut 3 and, it is recommended for soft materials, bronze, brass, tin, zinc, copper and other easily removable materials. For long chipping material this cut should be used with chip breaker.

Zahnung 3 - Mittel / Standard

Cut type 3 - Medium

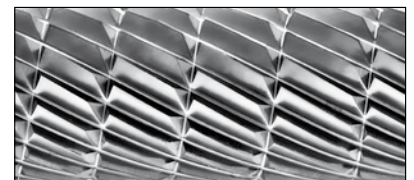


Die Standardverzahnung eignet sich für Stahl bis ca 56 HRC, Gußstahl, Stahllegierungen, Schweißnähte und fast alle metallischen Werkstoffe. Mit diesem Werkzeug werden optimale Schnittleistungen und gute Oberflächen erzielt.

Standard cut. Suitable for steel (including tempered) cast steel, weld seams, and in general almost all metallic materials. To gether with optimum efficiency, it gives a good surface finish.

Spanbrechernuten

Chip breaker



Geeignet für langspanende Werkstoffe, um kurze Späne zu erzeugen. Alle Werkzeuge mit den Verzahnungen 1-2-3-und 5 können auf Wunsch mit Spanbrechernuten zu einem geringen Aufpreis geliefert werden.

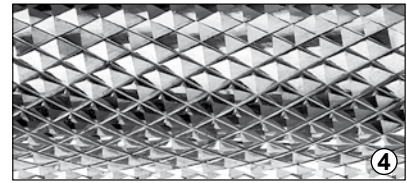
This can be executed on all single cut file cutters. Use is recommended for working of materials which produce long chips. Upon request, Cerin rotary burs with cut type 1-2-3 and 5 can be supplied with chip breaker with a small additional price.

Verzahnungen bei Cerin Frässtiften und Rotierfräsern

Cut types of Cerin rotary burs

Zahnung 4 - Diamant

Cut type 4 - Diamond

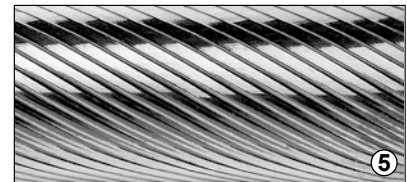


Geeignet für Grauguß, hochlegierte- rostfreie- CrNi- und Mangan-Stähle. Durch die besondere geometrische Verzahnung werden Kurz- und Kleinspäne erzeugt. Damit erfolgt eine gute Spanabfuhr und bessere Leistung als beim Standardwerkzeug.
Recommended for high alloy steel, stainless steel, magnesium alloys, grey cast iron and CrNi steels. Its particular geometry allows considerable material penetration with a removal capacity greater than the standard cut. It avoids the formation of true proper chips pulverising the removed material and thus avoiding the associated disadvantage for the operator during working.

01

Zahnung 5 - Fein

Cut type 5 - Fine



Durch die Feilverzahnung können gehärtete Stähle bis 66 HRC bearbeitet werden. Es wird eine sehr gute Oberflächengüte erzielt.
Fine cut. Particularly suitable for tempered steel up to 66 HRC and for obtaining high surface finish.

Zahnung 6 - Kreuzverzahnt

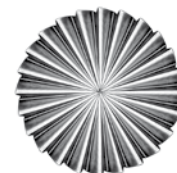
Cut type 6 - Double cut



Mit dieser Universalverzahnung können fast alle Metallwerkstoffe, auch gehärtete und korrosionsbeständige Stähle, weitestgehend vibrationsarm bearbeitet werden. Es wird eine beachtliche Schnittleistung mit guter Oberflächengüte erreicht.
Universal cut suitable for working on almost metallic materials, including tempered steels and corrosion resistant material. Reduces vibration and gives a better control of the cutter during working. Considerable removal capacity with good surface finish.

Stirnverzahnung


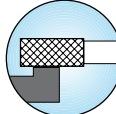

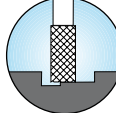

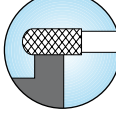
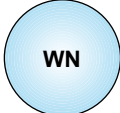
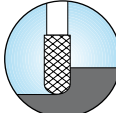

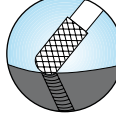
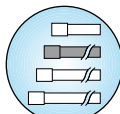
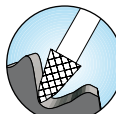
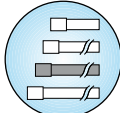
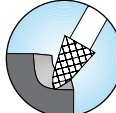
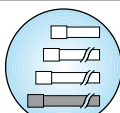


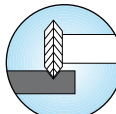

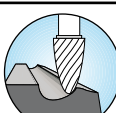
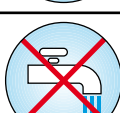
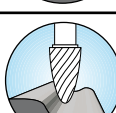
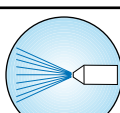
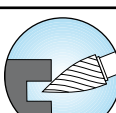
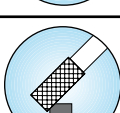
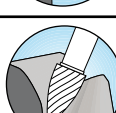
Frontal teeth



Damit kann auch frontal Material abgetragen werden.
 Cerin Frässtifte - Bestell Nummer 30ST und 39ST haben eine Stirnverzahnung.
Cerin rotary burs type 30 and 39 can be supplied with end cut upon request.
Used if frontal material has to be removed.

PIKTOGRAMME (SYMBOLS) ERKLÄRUNG ICONS (SYMBOLS) DESCRIPTION

01

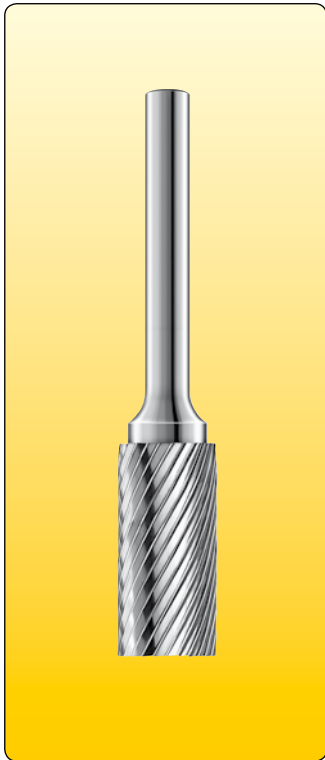
Hartmetall Qualität <i>Carbide grade</i>		Bearbeitungsbeispiel <i>Application example</i>	
Hartmetall Qualität <i>Carbide grade</i>		Bearbeitungsbeispiel <i>Application example</i>	
Baumaße ähnlich DIN 8033 <i>Dimensions similar to DIN 8033</i>		Bearbeitungsbeispiel <i>Application example</i>	
Werksnorm (WN) <i>Internal standard (WN)</i>		Bearbeitungsbeispiel <i>Application example</i>	
Werkzeug - Länge <i>Tool length</i>		Bearbeitungsbeispiel <i>Application example</i>	
Werkzeug - Länge <i>Tool length</i>		Bearbeitungsbeispiel <i>Application example</i>	
Werkzeug - Länge <i>Tool length</i>		Bearbeitungsbeispiel <i>Application example</i>	
Werkzeug - Länge <i>Tool length</i>		Bearbeitungsbeispiel <i>Application example</i>	
Achtung! Reduzierte Schnittgeschwindigkeit <i>Attention! Reduced cutting speed</i>		Bearbeitungsbeispiel <i>Application example</i>	
mit Emulsion <i>With emulsion</i>		Bearbeitungsbeispiel <i>Application example</i>	
Trockenbearbeitung <i>Dry machining</i>		Bearbeitungsbeispiel <i>Application example</i>	
mit Luft <i>With compressed air</i>		Bearbeitungsbeispiel <i>Application example</i>	
Bearbeitungsbeispiel <i>Application example</i>		Bearbeitungsbeispiel <i>Application example</i>	

PIKTOGRAMME (SYMBOLS) ERKLÄRUNG
ICONS (SYMBOLS) DESCRIPTION

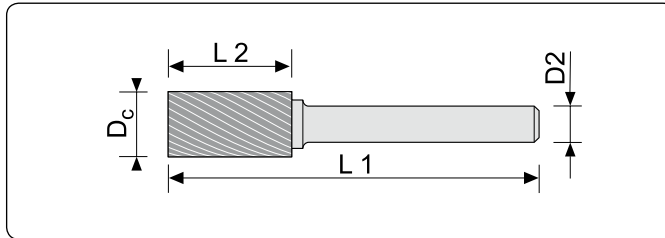
Bearbeitungsbeispiel <i>Application example</i>		Bearbeitungsbeispiel <i>Application example</i>	
Bearbeitungsbeispiel <i>Application example</i>		Bearbeitungsbeispiel <i>Application example</i>	
Bearbeitungsbeispiel <i>Application example</i>		Bearbeitungsbeispiel <i>Application example</i>	
Bearbeitungsbeispiel <i>Application example</i>		Bearbeitungsbeispiel <i>Application example</i>	
Bearbeitungsbeispiel <i>Application example</i>		Bearbeitungsbeispiel <i>Application example</i>	
Bearbeitungsbeispiel <i>Application example</i>		Bearbeitungsbeispiel <i>Application example</i>	
Bearbeitungsbeispiel <i>Application example</i>		Bearbeitungsbeispiel <i>Application example</i>	
Bearbeitungsbeispiel <i>Application example</i>		Bearbeitungsbeispiel <i>Application example</i>	
Bearbeitungsbeispiel <i>Application example</i>		Bearbeitungsbeispiel <i>Application example</i>	
Bearbeitungsbeispiel <i>Application example</i>		Bearbeitungsbeispiel <i>Application example</i>	
Bearbeitungsbeispiel <i>Application example</i>		Bearbeitungsbeispiel <i>Application example</i>	
Bearbeitungsbeispiel <i>Application example</i>		Bearbeitungsbeispiel <i>Application example</i>	
Bearbeitungsbeispiel <i>Application example</i>		Bearbeitungsbeispiel <i>Application example</i>	
Bearbeitungsbeispiel <i>Application example</i>		Bearbeitungsbeispiel <i>Application example</i>	
Bearbeitungsbeispiel <i>Application example</i>		Bearbeitungsbeispiel <i>Application example</i>	
Bearbeitungsbeispiel <i>Application example</i>		Bearbeitungsbeispiel <i>Application example</i>	
Bearbeitungsbeispiel <i>Application example</i>		Bearbeitungsbeispiel <i>Application example</i>	
Bearbeitungsbeispiel <i>Application example</i>		Bearbeitungsbeispiel <i>Application example</i>	

01

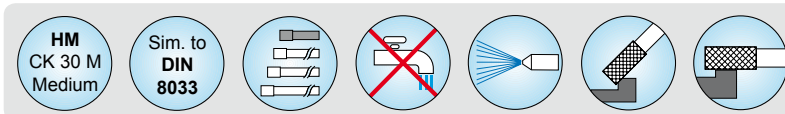
Form ZYA - ohne Stirnverzahnung
Shape ZYA - Cylindrical without end cut



Auf Anfrage auch mit Cer-T Beschichtung lieferbar
 Cer-T coating upon request

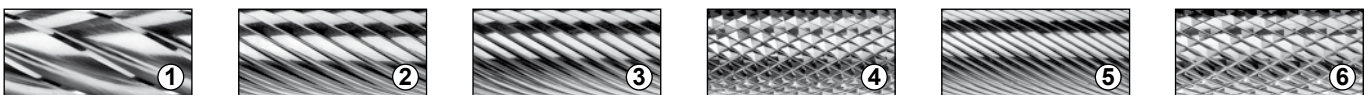


1.
01



D _c	L ₂	L ₁	D ₂	Zahnung / Cut type						20	40	30
				1	2	3	4	5	6			
1,5	8	40	2,35	-	●	●	●	●	●	2015/...		
2,35	12	40	2,35	-	●	●	●	●	●	2020/...		
4	10	45	2,35	-	●	●	●	●	●	2043/...		
5	12	47	2,35	-	●	●	●	●	●	2053/...		
6	13	48	2,35	-	●	●	●	●	●	2063/...		
1,5	8	40	3,00	-	●	●	●	●	●		4015/...	
2	10	40	3,00	-	●	●	●	●	●		4020/...	
2,5	12	40	3,00	-	●	●	●	●	●		4025/...	
3	13	40	3,00	-	●	●	●	●	●		4033/...	
4	10	45	3,00	-	●	●	●	●	●		4043/...	
5	12	47	3,00	-	●	●	●	●	●		4053/...	
6	13	48	3,00	-	●	●	●	●	●		4063/...	
4	13	50	6,00	●	●	●	●	●	●			300406/...
6	16	50	6,00	●	●	●	●	●	●			300606/...
8	20	65	6,00	●	●	●	●	●	●			300806/...
10	20	65	6,00	●	●	●	●	●	●			301006/...
12	25	70	6,00	●	●	●	●	●	●			301206/...
16	25	70	6,00	●	●	●	●	●	●			301606/...
16	25	70	8,00	●	●	●	●	●	●			301608/...
20	25	70	6,00	●	●	●	●	●	●			302006/...
20	25	70	8,00	●	●	●	●	●	●			302008/...

... Zahnung immer mit angeben (zum Beispiel: 2015/4)
 ... Please always indicate cut type (example: 2015/4)

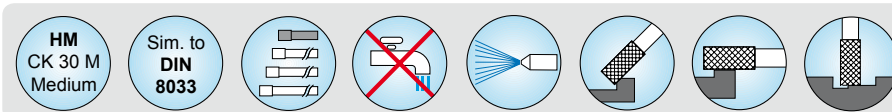
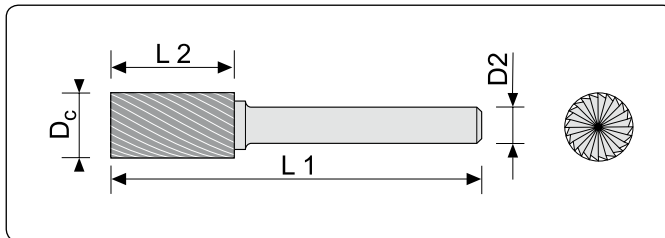


Form ZYA/ST - mit Stirnverzahnung Shape ZYA/ST - Cylindrical with end cut

1.
01



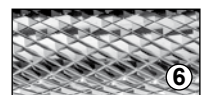
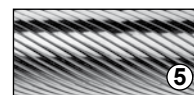
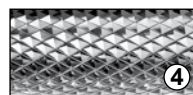
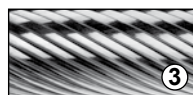
Auf Anfrage auch mit Cer-T Beschichtung lieferbar
Cer-T coating upon request



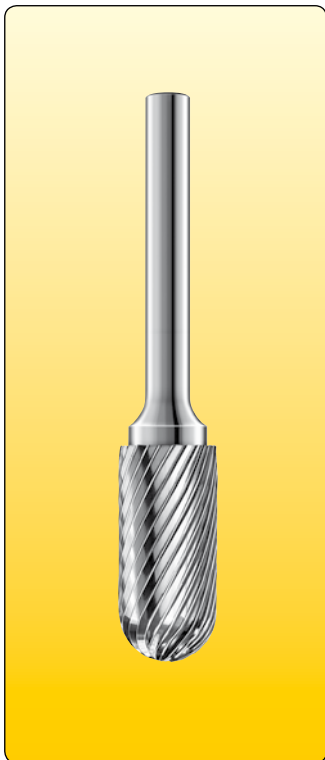
D _c	L2	L1	D2	Zahnung / Cut type						20-ST	40-ST	30-ST
				1	2	3	4	5	6			
1,5	8	40	2,35	-	●	●	●	●	●	2015/...ST		
2,35	12	40	2,35	-	●	●	●	●	●	2020/...ST		
4	10	45	2,35	-	●	●	●	●	●	2043/...ST		
5	12	47	2,35	-	●	●	●	●	●	2053/...ST		
6	13	48	2,35	-	●	●	●	●	●	2063/...ST		
1,5	8	40	3,00	-	●	●	●	●	●		4015/...ST	
2	10	40	3,00	-	●	●	●	●	●		4020/...ST	
2,5	12	40	3,00	-	●	●	●	●	●		4025/...ST	
3	13	40	3,00	-	●	●	●	●	●		4033/...ST	
4	10	45	3,00	-	●	●	●	●	●		4043/...ST	
5	12	47	3,00	-	●	●	●	●	●		4053/...ST	
6	13	48	3,00	-	●	●	●	●	●		4063/...ST	
4	13	50	6,00	●	●	●	●	●	●			300406/...ST
6	16	50	6,00	●	●	●	●	●	●			300606/...ST
8	20	65	6,00	●	●	●	●	●	●			300806/...ST
10	20	65	6,00	●	●	●	●	●	●			301006/...ST
12	25	70	6,00	●	●	●	●	●	●			301206/...ST
16	25	70	6,00	●	●	●	●	●	●			301606/...ST
16	25	70	8,00	●	●	●	●	●	●			301608/...ST
20	25	70	6,00	●	●	●	●	●	●			302006/...ST
20	25	70	8,00	●	●	●	●	●	●			302008/...ST

... Zahnung immer mit angeben (zum Beispiel: 2015/4)

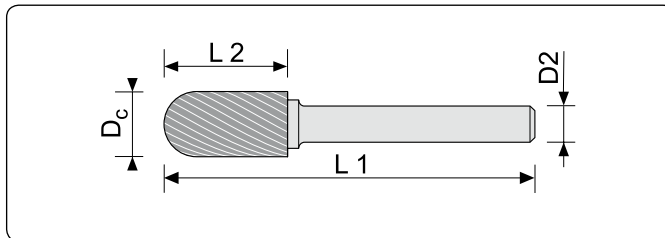
... Please always indicate cut type (example: 2015/4)



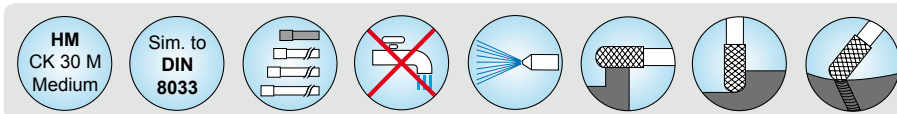
Form WRC - Walzenrund
Shape WRC - Cylindrical radius end



Auf Anfrage auch mit Cer-T Beschichtung lieferbar
 Cer-T coating upon request

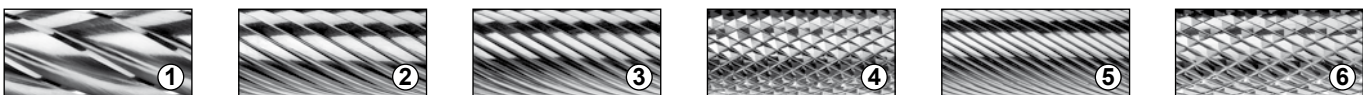


1.
01



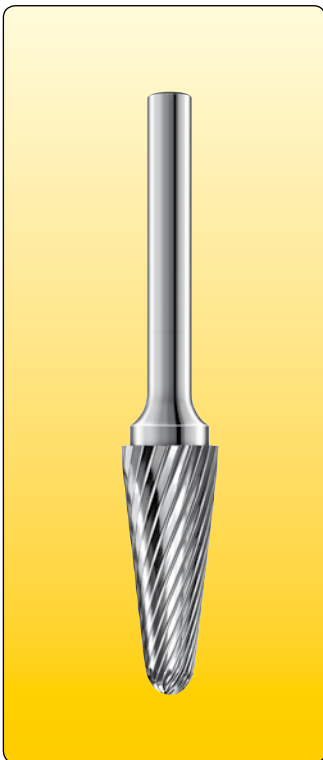
D _c	L ₂	L ₁	D ₂	Zahnung / Cut type						21	41	31
				1	2	3	4	5	6			
1,5	8	40	2,35	-	●	●	●	●	●	2115/...		
2,35	12	40	2,35	-	●	●	●	●	●	2120/...		
4	10	45	2,35	-	●	●	●	●	●	2143/...		
5	12	47	2,35	-	●	●	●	●	●	2153/...		
6	13	48	2,35	-	●	●	●	●	●	2163/...		
1,5	8	40	3,00	-	●	●	●	●	●		4115/...	
2	10	40	3,00	-	●	●	●	●	●		4120/...	
2,5	12	40	3,00	-	●	●	●	●	●		4125/...	
3	13	40	3,00	-	●	●	●	●	●		4133/...	
4	10	45	3,00	-	●	●	●	●	●		4143/...	
5	12	47	3,00	-	●	●	●	●	●		4153/...	
6	13	48	3,00	-	●	●	●	●	●		4163/...	
4	13	50	6,00	●	●	●	●	●	●			310406/...
6	16	50	6,00	●	●	●	●	●	●			310606/...
8	20	65	6,00	●	●	●	●	●	●			310806/...
10	20	65	6,00	●	●	●	●	●	●			311006/...
12	25	70	6,00	●	●	●	●	●	●			311206/...
16	25	70	6,00	●	●	●	●	●	●			311606/...
16	25	70	8,00	●	●	●	●	●	●			311608/...
20	25	70	6,00	●	●	●	●	●	●			312006/...
20	25	70	8,00	●	●	●	●	●	●			312008/...

... Zahnung immer mit angeben (zum Beispiel: 2015/4)
 ... Please always indicate cut type (example: 2015/4)

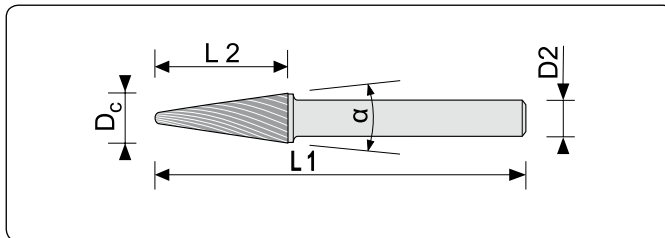


Form KEL - Rundbogen Shape KEL - Taper radius end

1.
01



Auf Anfrage auch mit Cer-T Beschichtung lieferbar
Cer-T coating upon request



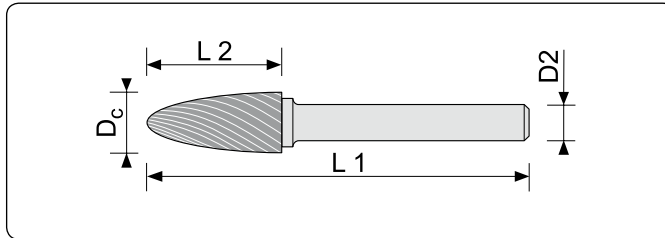
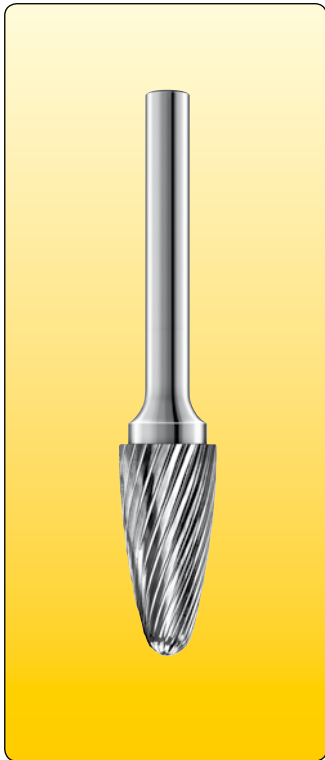
D _c	L ₂	L ₁	D ₂	R	α	Zahnung / Cut type						22	42	32
						1	2	3	4	5	6			
2,35	12	40	2,35	1	4°	-	●	●	●	●	●	2220/...		
4	14	49	2,35	1	10°	-	●	●	●	●	●	2243/...		
5	16	51	2,35	1,5	10°	-	●	●	●	●	●	2253/...		
6	20	55	2,35	1,5	10°	-	●	●	●	●	●	2263/...		
3	14	40	3,00	1	6°	-	●	●	●	●	●		4233/...	
4	14	49	3,00	1	10°	-	●	●	●	●	●		4243/...	
5	16	51	3,00	1,5	10°	-	●	●	●	●	●		4253/...	
6	20	55	3,00	1,5	10°	-	●	●	●	●	●		4263/...	
4	14	50	6,00	1	10°	●	●	●	●	●	●			320406/...
6	20	50	6,00	1,5	10°	●	●	●	●	●	●			320606/...
8	20	65	6,00	1,5	14°	●	●	●	●	●	●			320806/...
10	20	65	6,00	2,9	14°	●	●	●	●	●	●			321006/...
12	30	75	6,00	2,6	14°	●	●	●	●	●	●			321206/...
16	30	75	6,00	4,8	14°	●	●	●	●	●	●			321606/...
16	30	75	8,00	4,8	14°	●	●	●	●	●	●			321608/...
20	42	87	6,00	5,9	14°	●	●	●	●	●	●			322006/...
20	42	87	8,00	5,9	14°	●	●	●	●	●	●			322008/...

... Zahnung immer mit angeben (zum Beispiel: 2015/4)
... Please always indicate cut type (example: 2015/4)



Form RBF - Rundbogen
Shape RBF - Tree with radius end

Auf Anfrage auch mit Cer-T Beschichtung lieferbar
 Cer-T coating upon request

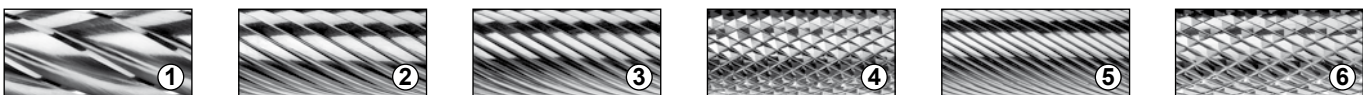


1.
01



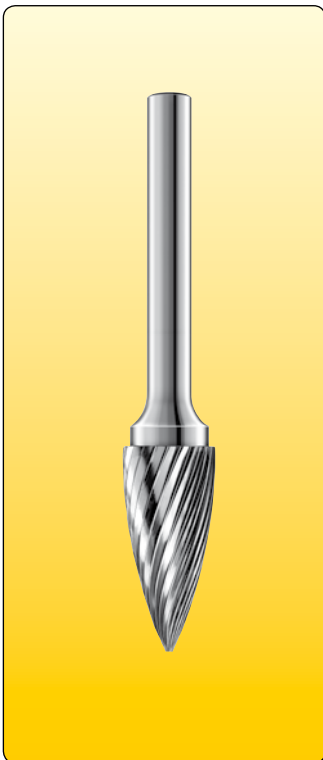
D _c	L ₂	L ₁	D ₂	R~	Zahnung / Cut type						23	43	33
					1	2	3	4	5	6			
2,35	12	40	2,35	0,5	-	●	●	●	●	●	2320/...		
4	10	45	2,35	1	-	●	●	●	●	●	2343/...		
5	12	47	2,35	1,2	-	●	●	●	●	●	2353/...		
6	13	48	2,35	1,5	-	●	●	●	●	●	2363/...		
3	13	40	3,00	0,8	-	●	●	●	●	●		4333/...	
4	10	45	3,00	1	-	●	●	●	●	●		4343/...	
5	12	47	3,00	1,2	-	●	●	●	●	●		4353/...	
6	13	48	3,00	1,4	-	●	●	●	●	●		4363/...	
4	14	50	6,00	1	●	●	●	●	●	●			330406/...
6	18	50	6,00	1,5	●	●	●	●	●	●			330606/...
8	20	65	6,00	1,8	●	●	●	●	●	●			330806/...
10	20	65	6,00	2,5	●	●	●	●	●	●			331006/...
12	25	70	6,00	2,5	●	●	●	●	●	●			331206/...
16	30	75	6,00	3,6	●	●	●	●	●	●			331606/...
16	30	75	8,00	3,6	●	●	●	●	●	●			331608/...
20	35	80	6,00	5	●	●	●	●	●	●			332006/...
20	35	80	8,00	5	●	●	●	●	●	●			332008/...

... Zahnung immer mit angeben (zum Beispiel: 2015/4)
 ... Please always indicate cut type (example: 2015/4)

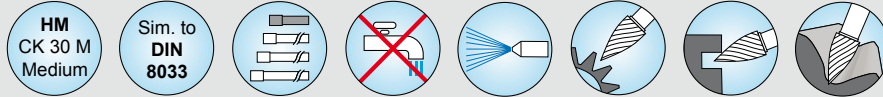
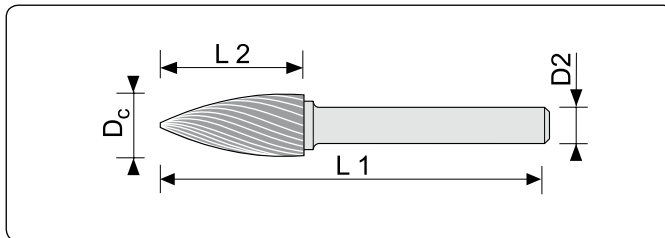


Form SPG - Spitzbogen Shape SPG - Tree with pointed end

1.
01

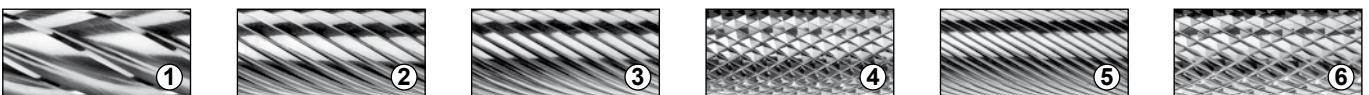


Auf Anfrage auch mit Cer-T Beschichtung lieferbar
Cer-T coating upon request



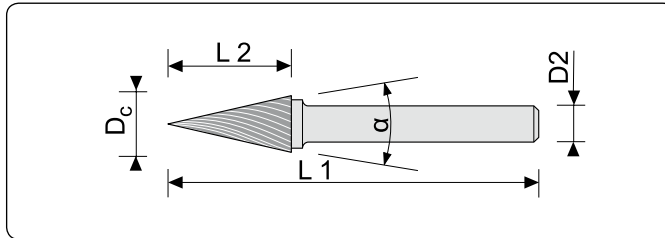
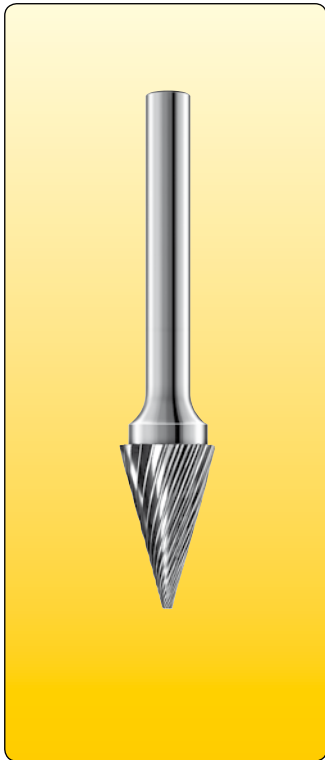
D _c	L ₂	L ₁	D ₂	Zahnung / Cut type						24	44	34
				1	2	3	4	5	6			
2,35	12	40	2,35	-	●	●	●	●	●	2420/...		
4	10	45	2,35	-	●	●	●	●	●	2443/...		
5	12	47	2,35	-	●	●	●	●	●	2453/...		
6	13	48	2,35	-	●	●	●	●	●	2463/...		
3	13	40	3,00	-	●	●	●	●	●		4433/...	
4	10	45	3,00	-	●	●	●	●	●		4443/...	
5	12	47	3,00	-	●	●	●	●	●		4453/...	
6	13	48	3,00	-	●	●	●	●	●		4463/...	
4	14	50	6,00	●	●	●	●	●	●			340406/...
6	18	50	6,00	●	●	●	●	●	●			340606/...
8	20	65	6,00	●	●	●	●	●	●			340806/...
10	20	65	6,00	●	●	●	●	●	●			341006/...
12	25	70	6,00	●	●	●	●	●	●			341206/...
16	30	75	6,00	●	●	●	●	●	●			341606/...
16	30	75	8,00	●	●	●	●	●	●			341608/...
20	40	85	6,00	●	●	●	●	●	●			342006/...
20	40	85	8,00	●	●	●	●	●	●			342008/...

... Zahnung immer mit angeben (zum Beispiel: 2015/4)
... Please always indicate cut type (example: 2015/4)



Form SKM - Spitzkegel
Shape SKM - Conical

Auf Anfrage auch mit Cer-T Beschichtung lieferbar
Cer-T coating upon request

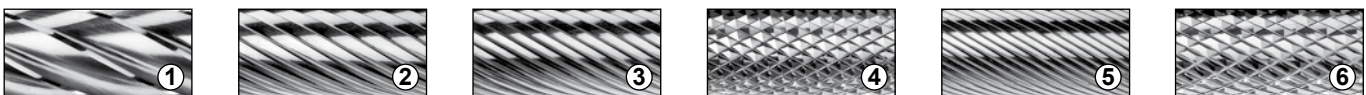


1.
01



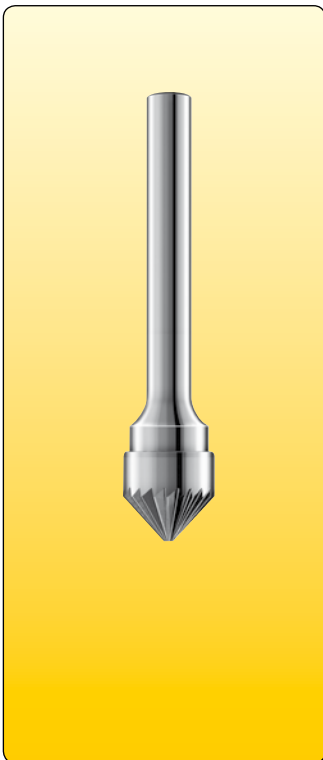
D _c	L2	L1	D2	Zahnung / Cut type						25	45	35
				1	2	3	4	5	6			
2,35	11	40	2,35	-	●	●	●	●	●	2520/...		
4	10	45	2,35	-	●	●	●	●	●	2543/...		
5	12	47	2,35	-	●	●	●	●	●	2553/...		
6	13	48	2,35	-	●	●	●	●	●	2563/...		
3	11	40	3,00	-	●	●	●	●	●		4533/...	
4	10	45	3,00	-	●	●	●	●	●		4543/...	
5	12	47	3,00	-	●	●	●	●	●		4553/...	
6	13	48	3,00	-	●	●	●	●	●		4563/...	
4	14	50	6,00	●	●	●	●	●	●			350406/...
6	18	50	6,00	●	●	●	●	●	●			350606/...
8	20	65	6,00	●	●	●	●	●	●			350806/...
10	20	65	6,00	●	●	●	●	●	●			351006/...
12	25	70	6,00	●	●	●	●	●	●			351206/...
16	25	70	6,00	●	●	●	●	●	●			351606/...
16	25	70	8,00	●	●	●	●	●	●			351608/...
20	24	69	6,00	●	●	●	●	●	●			352006/...
20	24	69	8,00	●	●	●	●	●	●			352008/...

... Zahnung immer mit angeben (zum Beispiel: 2015/4)
... Please always indicate cut type (example: 2015/4)

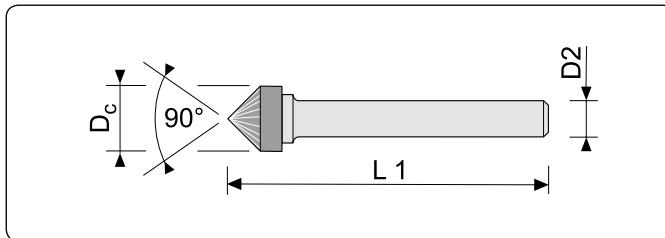


Form KSK - Kegel 90° Shape KSK - 90° Conical

1.
01

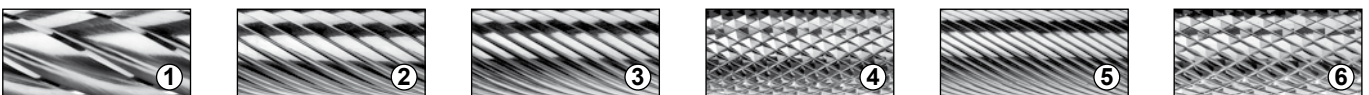


Auf Anfrage auch mit Cer-T Beschichtung lieferbar
Cer-T coating upon request



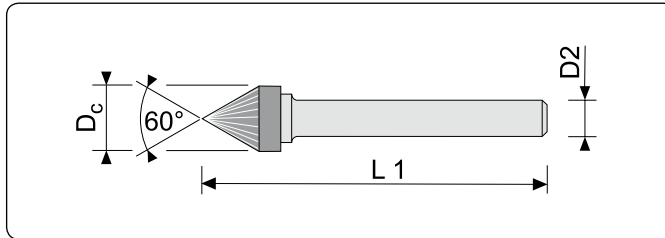
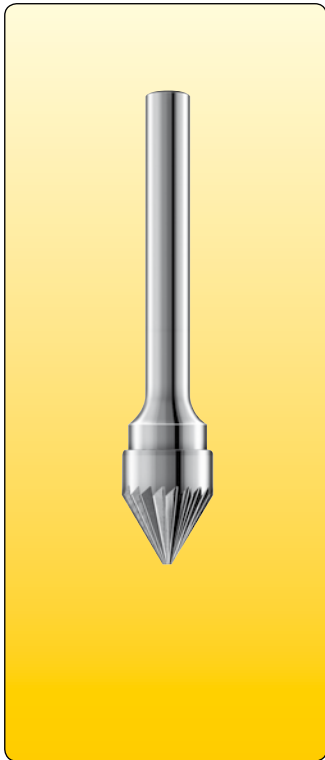
D _c	L1	D2	Zahnung / Cut type							46	36
			1	2	3	4	5	6			
3	40	3,00	-	●	●	●	●	●		4633/...-90°	
4	38	3,00	-	●	●	●	●	●		4643/...-90°	
5	39	3,00	-	●	●	●	●	●		4653/...-90°	
6	40	3,00	-	●	●	●	●	●		4663/...-90°	
4	50	6,00	●	●	●	●	●	●			360406/...-90°
6	50	6,00	●	●	●	●	●	●			360606/...-90°
8	53	6,00	●	●	●	●	●	●			360806/...-90°
10	54	6,00	●	●	●	●	●	●			361006/...-90°
12	56	6,00	●	●	●	●	●	●			361206/...-90°
16	59	6,00	●	●	●	●	●	●			361606/...-90°
20	62	6,00	●	●	●	●	●	●			362006/...-90°
20	62	8,00	●	●	●	●	●	●			362008/...-90°

... Zahnung immer mit angeben (zum Beispiel: 2015/4)
... Please always indicate cut type (example: 2015/4)



Form KSJ - Kegel 60°
Shape KSJ - 60° Conical

Auf Anfrage auch mit Cer-T Beschichtung lieferbar
Cer-T coating upon request

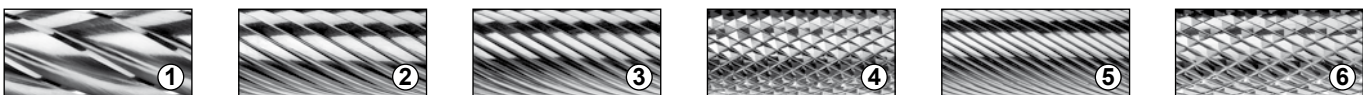


**1.
01**



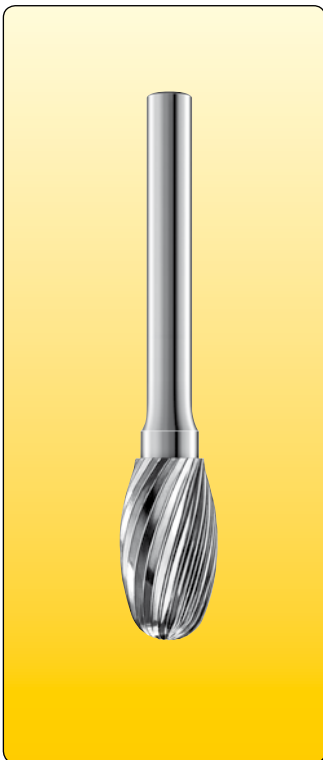
D _c	L1	D2	Zahnung / Cut type						46	36
			1	2	3	4	5	6		
3	40	3,00	-	●	●	●	●	●	4633/...-60°	
4	38	3,00	-	●	●	●	●	●	4643/...-60°	
5	39	3,00	-	●	●	●	●	●	4653/...-60°	
6	40	3,00	-	●	●	●	●	●	4663/...-60°	
4	50	6,00	●	●	●	●	●	●		360406/...-60°
6	50	6,00	●	●	●	●	●	●		360606/...-60°
8	56	6,00	●	●	●	●	●	●		360806/...-60°
10	57	6,00	●	●	●	●	●	●		361006/...-60°
12	60	6,00	●	●	●	●	●	●		361206/...-60°
16	64	6,00	●	●	●	●	●	●		361606/...-60°
20	68	6,00	●	●	●	●	●	●		362006/...-60°
20	68	8,00	●	●	●	●	●	●		362008/...-60°

... Zahnung immer mit angeben (zum Beispiel: 2015/4)
 ... Please always indicate cut type (example: 2015/4)

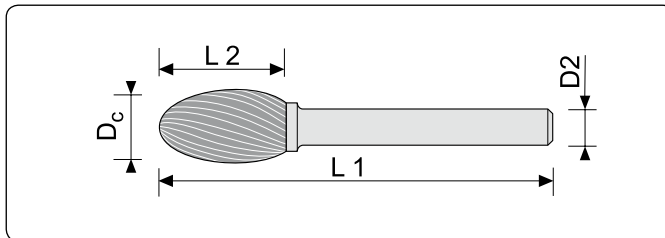


Form TRE - Tropfen Shape TRE - Oval

1.
01

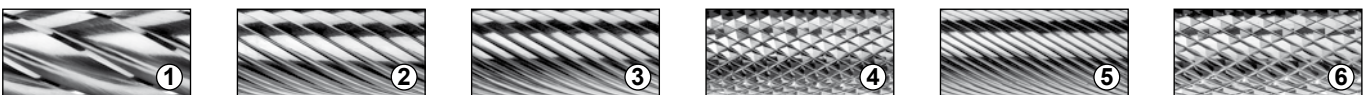


Auf Anfrage auch mit Cer-T Beschichtung lieferbar
Cer-T coating upon request



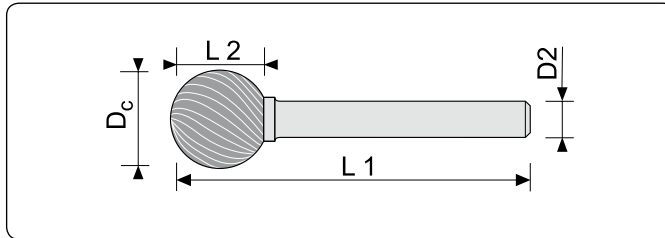
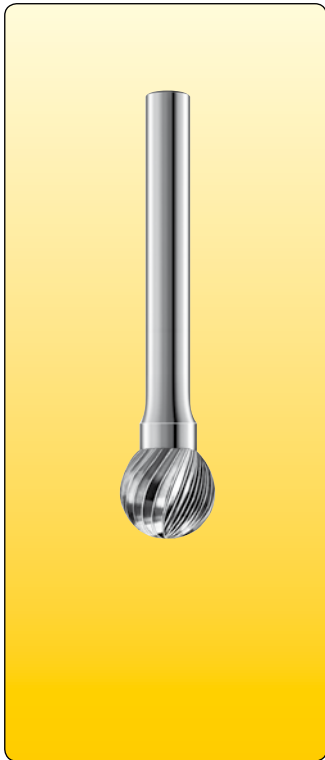
D _c	L ₂	L ₁	D ₂	R	Zahnung / Cut type						27	47	37
					1	2	3	4	5	6			
1,5	2,5	40	2,35	0,64	-	●	●	●	●	●	2715/...		
2,35	4	40	2,35	1	-	●	●	●	●	●	2720/...		
4	7	42	2,35	1,5	-	●	●	●	●	●	2743/...		
5	8	43	2,35	2	-	●	●	●	●	●	2753/...		
6	10	45	2,35	2,8	-	●	●	●	●	●	2763/...		
3	7	40	3,00	1,2	-	●	●	●	●	●		4733/...	
4	7	42	3,00	1,5	-	●	●	●	●	●		4743/...	
5	8	43	3,00	2	-	●	●	●	●	●		4753/...	
6	10	45	3,00	2,8	-	●	●	●	●	●		4763/...	
4	7	50	6,00	1,5	●	●	●	●	●	●			370406/...
6	10	50	6,00	2,8	●	●	●	●	●	●			370606/...
8	13	58	6,00	3,7	●	●	●	●	●	●			370806/...
10	16	61	6,00	4	●	●	●	●	●	●			371006/...
12	20	65	6,00	5	●	●	●	●	●	●			371206/...
16	25	70	6,00	6,5	●	●	●	●	●	●			371606/...
16	25	70	8,00	6,5	●	●	●	●	●	●			371608/...
20	25	70	6,00	9	●	●	●	●	●	●			372006/...
20	25	70	8,00	9	●	●	●	●	●	●			372008/...

... Zahnung immer mit angeben (zum Beispiel: 2015/4)
... Please always indicate cut type (example: 2015/4)

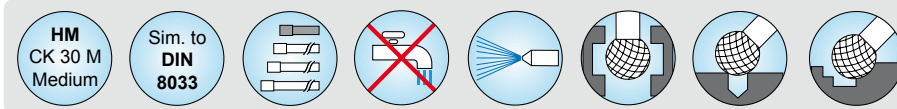


Form KUD - Kugel
Shape KUD - Ball

Auf Anfrage auch mit Cer-T Beschichtung lieferbar
Cer-T coating upon request

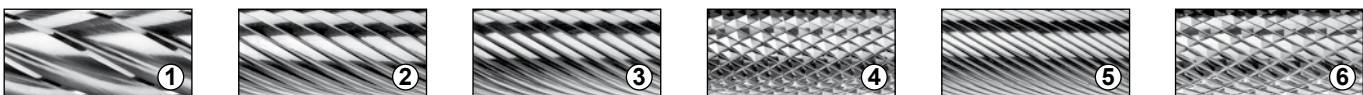


1.
01



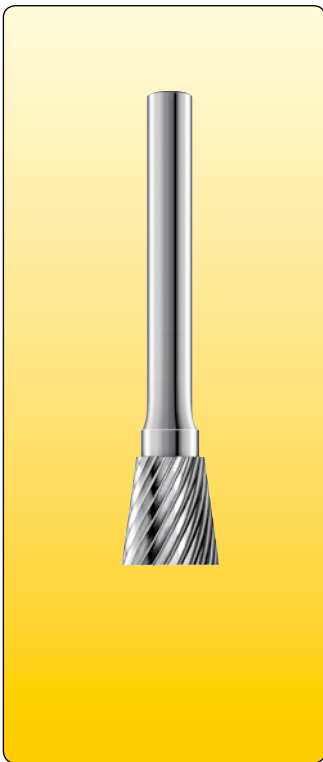
D _c	L ₂	L ₁	D ₂	Zahnung / Cut type						28	48	38
				1	2	3	4	5	6			
1,5	1,35	40	2,35		●	●	●	●	●	2815/...		
2,35	2,1	40	2,35	-	●	●	●	●	●	2820/...		
4	3,6	38,5	2,35	-	●	●	●	●	●	2843/...		
5	4,5	39,5	2,35	-	●	●	●	●	●	2853/...		
6	5,4	40,4	2,35	-	●	●	●	●	●	2863/...		
1,5	1,35	40	3,00	-	●	●	●	●	●		4815/...	
2	1,8	40	3,00	-	●	●	●	●	●		4820/...	
2,5	2,2	40	3,00	-	●	●	●	●	●		4825/...	
3	2,7	40	3,00	-	●	●	●	●	●		4833/...	
4	3,6	38,5	3,00	-	●	●	●	●	●		4843/...	
5	4,5	39,5	3,00	-	●	●	●	●	●		4853/...	
6	5,4	40,4	3,00	-	●	●	●	●	●		4863/...	
4	3,6	50	6,00	●	●	●	●	●	●			380406/...
6	5	50	6,00	●	●	●	●	●	●			380606/...
8	7,2	52,2	6,00	●	●	●	●	●	●			380806/...
10	9	54	6,00	●	●	●	●	●	●			381006/...
12	10,8	55,8	6,00	●	●	●	●	●	●			381206/...
16	14,4	59,4	6,00	●	●	●	●	●	●			381606/...
16	14,4	59,4	8,00	●	●	●	●	●	●			381608/...
20	18	63	6,00	●	●	●	●	●	●			382006/...
20	18	63	8,00	●	●	●	●	●	●			382008/...

... Zahnung immer mit angeben (zum Beispiel: 2015/4)
... Please always indicate cut type (example: 2015/4)

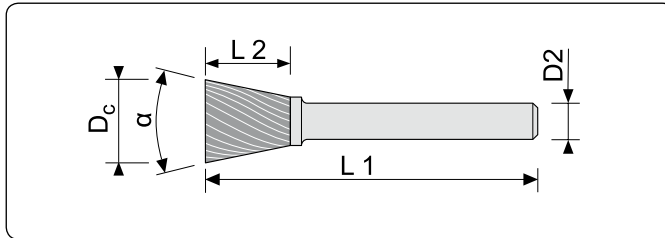


Form WKN - Winkel ohne Stirnverzahnung Shape WKN - Inverted cone without end cut

1.
01

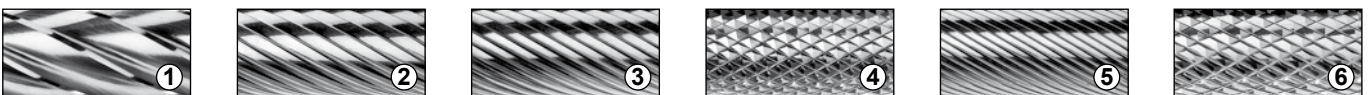


Auf Anfrage auch mit Cer-T Beschichtung lieferbar
Cer-T coating upon request



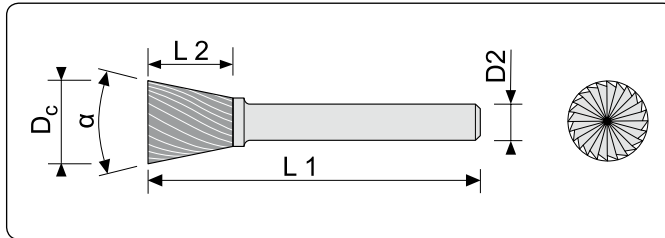
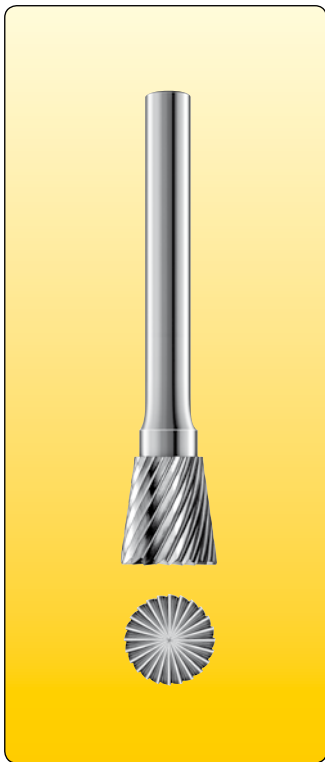
D _c	L ₂	L ₁	D ₂	α	Zahnung / Cut type						49	39	
					1	2	3	4	5	6			
3	7	40	3,00	10°	-	●	●	●	●	●	●	4933/...	
4	7	42	3,00	10°	-	●	●	●	●	●	●	4943/...	
5	7	42	3,00	10°	-	●	●	●	●	●	●	4953/...	
6	7	42	3,00	10°	-	●	●	●	●	●	●	4963/...	
4	7	50	6,00	10°	●	●	●	●	●	●	●		390406/...
6	7	50	6,00	10°	●	●	●	●	●	●	●		390606/...
8	8	53	6,00	10°	●	●	●	●	●	●	●		390806/...
10	13	58	6,00	10°	●	●	●	●	●	●	●		391006/...
12	13	58	6,00	20°	●	●	●	●	●	●	●		391206/...
16	13	58	6,00	20°	●	●	●	●	●	●	●		391606/...
20	13	58	6,00	30°	●	●	●	●	●	●	●		392006/...
20	13	58	8,00	30°	●	●	●	●	●	●	●		392008/...

... Zahnung immer mit angeben (zum Beispiel: 2015/4)
... Please always indicate cut type (example: 2015/4)



Form WKN/ST - Winkel mit Stirnverzahnung
Shape WKN/ST - Inverted cone with end cut

Auf Anfrage auch mit Cer-T Beschichtung lieferbar
 Cer-T coating upon request

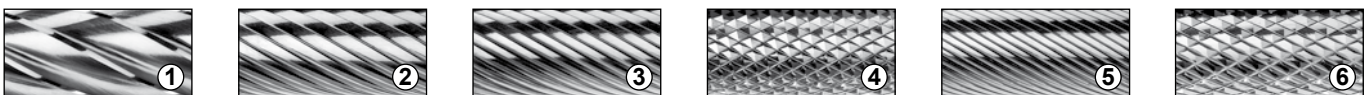


1.
01






D _c	L ₂	L ₁	D ₂	α	Zahnung / Cut type						49-ST	39-ST
					1	2	3	4	5	6		
3	7	40	3,00	10°	-	●	●	●	●	●	4933/...ST	
4	7	42	3,00	10°	-	●	●	●	●	●	4943/...ST	
5	7	42	3,00	10°	-	●	●	●	●	●	4953/...ST	
6	7	42	3,00	10°	-	●	●	●	●	●	4963/...ST	
4	7	50	6,00	10°	●	●	●	●	●	●		390406/...ST
6	7	50	6,00	10°	●	●	●	●	●	●		390606/...ST
8	8	53	6,00	10°	●	●	●	●	●	●		390806/...ST
10	13	58	6,00	10°	●	●	●	●	●	●		391006/...ST
12	13	58	6,00	20°	●	●	●	●	●	●		391206/...ST
16	13	58	6,00	20°	●	●	●	●	●	●		391606/...ST
20	13	58	6,00	30°	●	●	●	●	●	●		392006/...ST
20	13	58	8,00	30°	●	●	●	●	●	●		392008/...ST

... Zahnung immer mit angeben (zum Beispiel: 2015/4)
 ... Please always indicate cut type (example: 2015/4)




Sätze & Zubehör Sets & Accessories

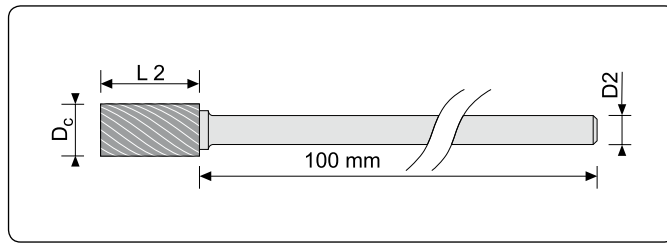
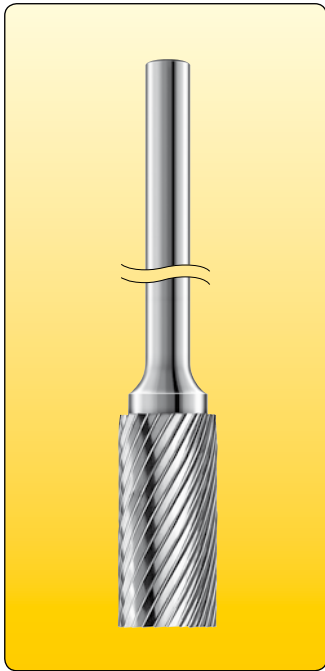
Satz / Set	Nr. 10		<p>Satz Nr. 10 - bestehend aus: 4033 - 4133 - 4233 - 4333 - 4433 - 4533 - 4633 - 4733 - 4833 - 4933 Lieferbar in Zahnung Typ 3-4-5-6</p> <p><i>Set Nr. 10 - including:</i> 4033 - 4133 - 4233 - 4333 - 4433 - 4533 - 4633 - 4733 - 4833 - 4933 Available in cut type 3-4-5-6</p>
Satz / Set	Nr. 11		<p>Satz Nr. 11 - bestehend aus: 4063 - 4163 - 4263 - 4363 - 4463 - 4563 - 4663 - 4763 - 4863 - 4963 Lieferbar in Zahnung Typ 2-3-4-5-6</p> <p><i>Set Nr. 11 - including:</i> 4063 - 4163 - 4263 - 4363 - 4463 - 4563 - 4663 - 4763 - 4863 - 4963 Available in cut type 2-3-4-5-6</p>
Satz / Set	Nr. 12		<p>Satz Nr. 12 - bestehend aus: 300606 - 310606 - 320606 - 330606 - 340606 - 350606 - 360606 - 370606 - 380606 - 390606 Lieferbar in Zahnung Typ 1-2-3-4-5-6</p> <p><i>Set Nr. 12 - including:</i> 300606 - 310606 - 320606 - 330606 - 340606 - 350606 - 360606 - 370606 - 380606 - 390606 Available in cut type 1-2-3-4-5-6</p>

1.
01

DRUCKLUFTSCHLEIFER Drehzahl: 24.000 min⁻¹ - Luftverbrauch: 250 l/min AIR GRINDING UNIT 24.000 min⁻¹ - Air consumption: 250 l/min

Satz / Set	Nr. 13		 <p>Satz Nr. 13 - bestehend aus: 301206/1 - 311206/2 - 321206/3 - 331206/4 - 341206/5 - 351206/3SP - 361206/3 - 371206/3 - 381206/6 - 391206/3 SMS 30 DC</p> <p><i>Set Nr. 13 - including:</i> 301206/1 - 311206/2 - 321206/3 - 331206/4 - 341206/5 - 351206/3SP - 361206/3 - 371206/3 - 381206/6 - 391206/3 SMS 30 DC</p>
-------------------	---------------	---	---

Frässtifte - Schaftlänge 100 mm
Rotary burs shank length 100 mm







HM
CK 30 M
Medium

WN

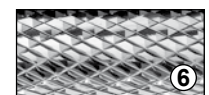
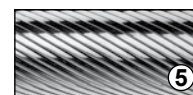
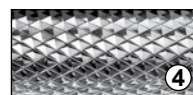
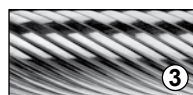


1.
02

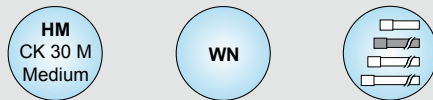
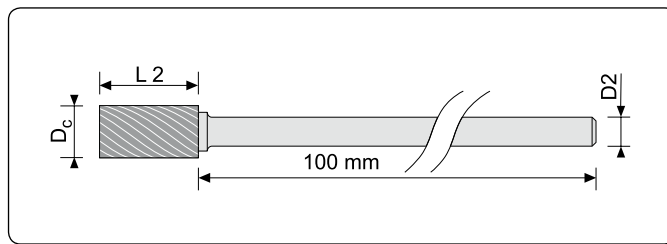
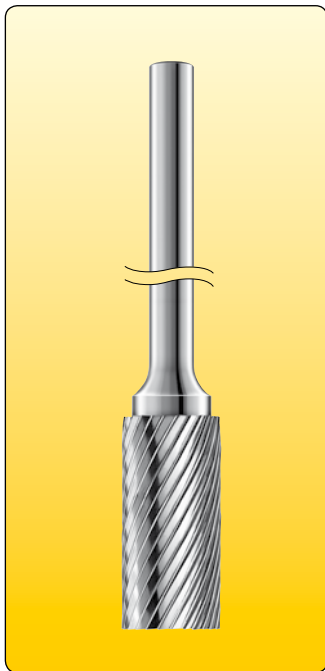
D _c	L2	D2	Zahnung / Cut type						Bestell - Nummer Order code	Ausführung Design
			1	2	3	4	5	6		
6	18	6	-	-	●	●	-	●	300606/...x100	Form - Shape ZYA Ident. 30 
8	20	6	-	-	●	●	-	●	300806/...x100	
10	20	6	-	-	●	●	-	●	301006/...x100	
12	25	6	-	-	●	●	-	●	301206/...x100	
16	25	6	-	-	●	●	-	●	301606/...x100	
16	25	8	-	-	●	●	-	●	301608/...x100	
20	25	6	-	-	●	●	-	●	302006/...x100	
20	25	8	-	-	●	●	-	●	302008/...x100	
6	18	6	-	-	●	●	-	●	300606/...STx100	Form - Shape ZYA-ST Ident. 30-ST 
8	20	6	-	-	●	●	-	●	300806/...STx100	
10	20	6	-	-	●	●	-	●	301006/...STx100	
12	25	6	-	-	●	●	-	●	301206/...STx100	
16	25	6	-	-	●	●	-	●	301606/...STx100	
16	25	8	-	-	●	●	-	●	301608/...STx100	
20	25	6	-	-	●	●	-	●	302006/...STx100	
20	25	8	-	-	●	●	-	●	302008/...STx100	
6	18	6	-	-	●	●	-	●	310606/...x100	Form - Shape WRC Ident. 31 
8	20	6	-	-	●	●	-	●	310806/...x100	
10	20	6	-	-	●	●	-	●	311006/...x100	
12	25	6	-	-	●	●	-	●	311206/...x100	
16	25	6	-	-	●	●	-	●	311606/...x100	
16	25	8	-	-	●	●	-	●	311608/...x100	
20	25	6	-	-	●	●	-	●	312006/...x100	
20	25	8	-	-	●	●	-	●	312008/...x100	
6	20	6	-	-	●	●	-	●	320606/...x100	Form - Shape KEL-14° Ident. 32 
8	20	6	-	-	●	●	-	●	320806/...x100	
10	20	6	-	-	●	●	-	●	321006/...x100	
12	30	6	-	-	●	●	-	●	321206/...x100	
16	30	6	-	-	●	●	-	●	321606/...x100	
16	30	8	-	-	●	●	-	●	321608/...x100	
20	42	6	-	-	●	●	-	●	322006/...x100	
20	42	8	-	-	●	●	-	●	322008/...x100	

... Zahnung immer mit angeben (zum Beispiel: 2015/4)





... Please always indicate cut type (example: 2015/4)



Frässtifte - Schaftlänge 100 mm Rotary burs shank length 100 mm

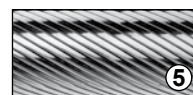
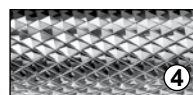
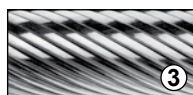


1.
02

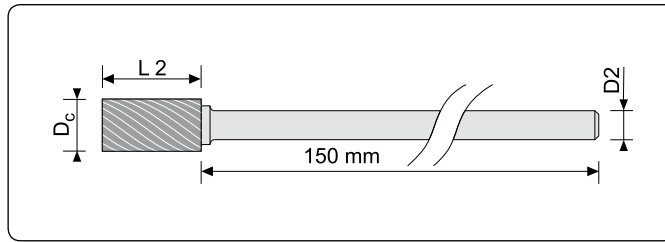
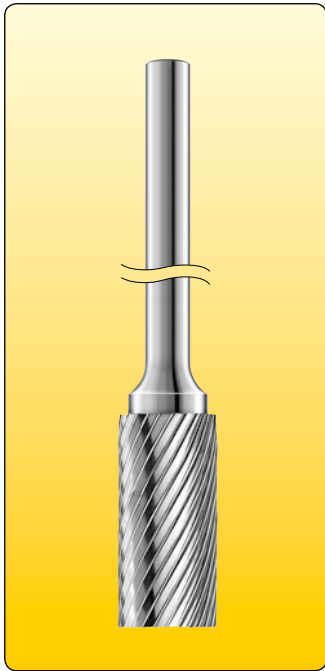
D _c	L2	D2	Zahnung / Cut type						Bestell - Nummer Order code	Ausführung Design	
			1	2	3	4	5	6			
6	18	6	-	-	●	●	-	●	330606/...x100	Form - Shape RBF 	Ident. 33
8	20	6	-	-	●	●	-	●	330806/...x100		
10	20	6	-	-	●	●	-	●	331006/...x100		
12	25	6	-	-	●	●	-	●	331206/...x100		
16	30	6	-	-	●	●	-	●	331606/...x100		
16	30	8	-	-	●	●	-	●	331608/...x100		
20	35	6	-	-	●	●	-	●	332006/...x100		
20	35	8	-	-	●	●	-	●	332008/...x100		
6	18	6	-	-	●	●	-	●	340606/...x100	Form - Shape SPG 	Ident. 34
8	20	6	-	-	●	●	-	●	340806/...x100		
10	20	6	-	-	●	●	-	●	341006/...x100		
12	25	6	-	-	●	●	-	●	341206/...x100		
16	30	6	-	-	●	●	-	●	341606/...x100		
16	30	8	-	-	●	●	-	●	341608/...x100		
20	40	6	-	-	●	●	-	●	342006/...x100		
20	40	8	-	-	●	●	-	●	342008/...x100		
6	20	6	-	-	●	●	-	●	370606/...x100	Form - Shape TRE 	Ident. 37
8	13	6	-	-	●	●	-	●	370806/...x100		
10	16	6	-	-	●	●	-	●	371006/...x100		
12	20	6	-	-	●	●	-	●	371206/...x100		
16	25	6	-	-	●	●	-	●	371606/...x100		
16	25	8	-	-	●	●	-	●	371608/...x100		
20	25	6	-	-	●	●	-	●	372006/...x100		
20	25	8	-	-	●	●	-	●	372008/...x100		
6	5,4	6	-	-	●	●	-	●	380606/...x100	Form - Shape KUD 	Ident. 38
8	7,2	6	-	-	●	●	-	●	380806/...x100		
10	9	6	-	-	●	●	-	●	381006/...x100		
12	10,8	6	-	-	●	●	-	●	381206/...x100		
16	14,4	6	-	-	●	●	-	●	381606/...x100		
16	14,4	8	-	-	●	●	-	●	381608/...x100		
20	18	6	-	-	●	●	-	●	382006/...x100		
20	18	8	-	-	●	●	-	●	382008/...x100		

... Zahnung immer mit angeben (zum Beispiel: 2015/4)

... Please always indicate cut type (example: 2015/4)



Frässtifte - Schaftlänge 150 mm Rotary burs shank length 150 mm







HM
CK 30 M
Medium

WN

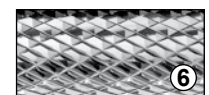
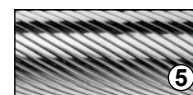
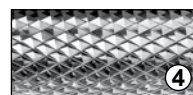
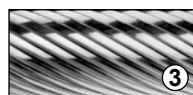


1.
02

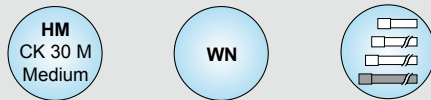
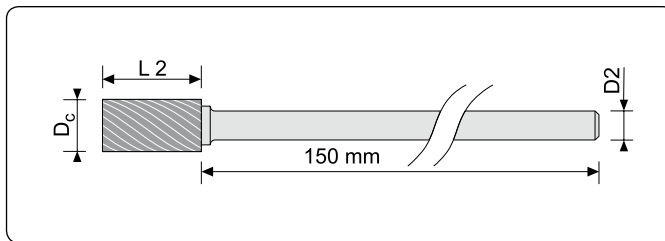
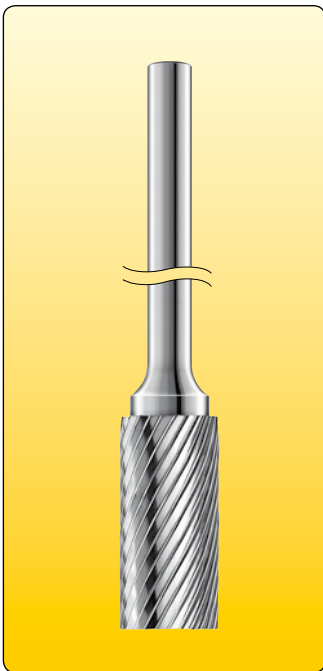
D _c	L2	D2	Zahnung / Cut type						Bestell - Nummer Order code	Ausführung Design
			1	2	3	4	5	6		
6	18	6	-	-	●	●	-	●	300606/...x150	Form - Shape ZYA Ident. 30 
8	20	6	-	-	●	●	-	●	300806/...x150	
10	20	6	-	-	●	●	-	●	301006/...x150	
12	25	6	-	-	●	●	-	●	301206/...x150	
16	25	6	-	-	●	●	-	●	301606/...x150	
16	25	8	-	-	●	●	-	●	301608/...x150	
20	25	6	-	-	●	●	-	●	302006/...x150	
20	25	8	-	-	●	●	-	●	302008/...x150	
6	18	6	-	-	●	●	-	●	300606/...STx150	Form - Shape ZYA-ST Ident. 30-ST 
8	20	6	-	-	●	●	-	●	300806/...STx150	
10	20	6	-	-	●	●	-	●	301006/...STx150	
12	25	6	-	-	●	●	-	●	301206/...STx150	
16	25	6	-	-	●	●	-	●	301606/...STx150	
16	25	8	-	-	●	●	-	●	301608/...STx150	
20	25	6	-	-	●	●	-	●	302006/...STx150	
20	25	8	-	-	●	●	-	●	302008/...STx150	
6	18	6	-	-	●	●	-	●	310606/...x150	Form - Shape WRC Ident. 31 
8	20	6	-	-	●	●	-	●	310806/...x150	
10	20	6	-	-	●	●	-	●	311006/...x150	
12	25	6	-	-	●	●	-	●	311206/...x150	
16	25	6	-	-	●	●	-	●	311606/...x150	
16	25	8	-	-	●	●	-	●	311608/...x150	
20	25	6	-	-	●	●	-	●	312006/...x150	
20	25	8	-	-	●	●	-	●	312008/...x150	
6	20	6	-	-	●	●	-	●	320606/...x150	Form - Shape KEL-14° Ident. 32 
8	20	6	-	-	●	●	-	●	320806/...x150	
10	20	6	-	-	●	●	-	●	321006/...x150	
12	30	6	-	-	●	●	-	●	321206/...x150	
16	30	6	-	-	●	●	-	●	321606/...x150	
16	30	8	-	-	●	●	-	●	321608/...x150	
20	42	6	-	-	●	●	-	●	322006/...x150	
20	42	8	-	-	●	●	-	●	322008/...x150	

... Zahnung immer mit angeben (zum Beispiel: 2015/4)

... Please always indicate cut type (example: 2015/4)



Frässtifte - Schaftlänge 150 mm Rotary burs shank length 150 mm

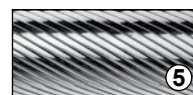
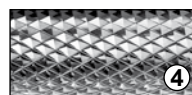
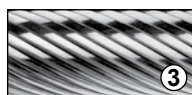


1.
02

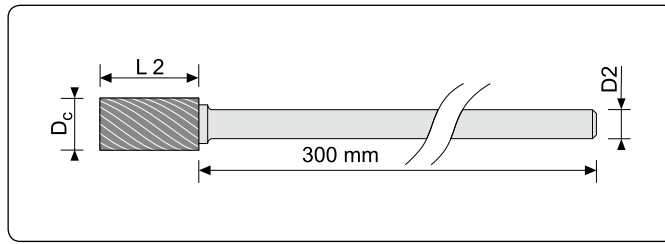
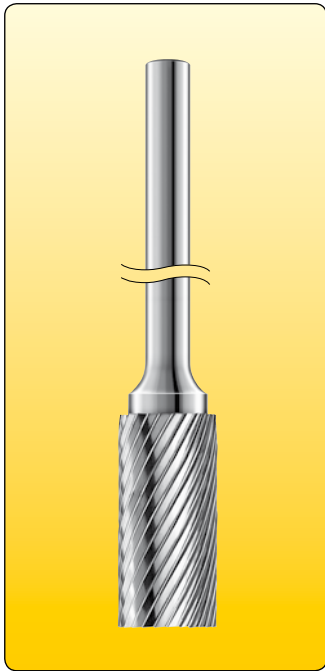
D _c	L2	D2	Zahnung / Cut type						Bestell - Nummer Order code	Ausführung Design	
			1	2	3	4	5	6			
6	18	6	-	-	●	●	-	●	330606/...x150	Form - Shape RBF	Ident. 33
8	20	6	-	-	●	●	-	●	330806/...x150		
10	20	6	-	-	●	●	-	●	331006/...x150		
12	25	6	-	-	●	●	-	●	331206/...x150		
16	30	6	-	-	●	●	-	●	331606/...x150		
16	30	8	-	-	●	●	-	●	331608/...x150		
20	35	6	-	-	●	●	-	●	332006/...x150		
20	35	8	-	-	●	●	-	●	332008/...x150		
6	18	6	-	-	●	●	-	●	344606/...x150	Form - Shape SPG	Ident. 34
8	20	6	-	-	●	●	-	●	344806/...x150		
10	20	6	-	-	●	●	-	●	341006/...x150		
12	25	6	-	-	●	●	-	●	341206/...x150		
16	30	6	-	-	●	●	-	●	341606/...x150		
16	30	8	-	-	●	●	-	●	341608/...x150		
20	40	6	-	-	●	●	-	●	342006/...x150		
20	40	8	-	-	●	●	-	●	342008/...x150		
6	20	6	-	-	●	●	-	●	370606/...x150	Form - Shape TRE	Ident. 37
8	13	6	-	-	●	●	-	●	370806/...x150		
10	16	6	-	-	●	●	-	●	371006/...x150		
12	20	6	-	-	●	●	-	●	371206/...x150		
16	25	6	-	-	●	●	-	●	371606/...x150		
16	25	8	-	-	●	●	-	●	371608/...x150		
20	25	6	-	-	●	●	-	●	372006/...x150		
20	25	8	-	-	●	●	-	●	372008/...x150		
6	5,4	6	-	-	●	●	-	●	380606/...x150	Form - Shape KUD	Ident. 38
8	7,2	6	-	-	●	●	-	●	380806/...x150		
10	9	6	-	-	●	●	-	●	381006/...x150		
12	10,8	6	-	-	●	●	-	●	381206/...x150		
16	14,4	6	-	-	●	●	-	●	381606/...x150		
16	14,4	8	-	-	●	●	-	●	381608/...x150		
20	18	6	-	-	●	●	-	●	382006/...x150		
20	18	8	-	-	●	●	-	●	382008/...x150		

... Zahnung immer mit angeben (zum Beispiel: 2015/4)

... Please always indicate cut type (example: 2015/4)



Frässtifte - Schaftlänge 300 mm
Rotary burs shank length 300 mm

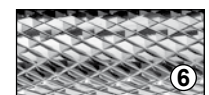
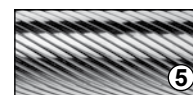
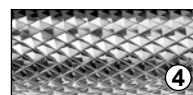
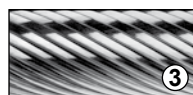


**1.
02**

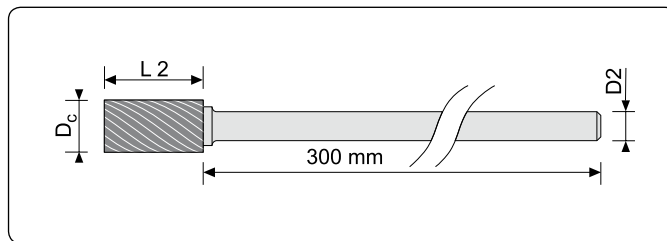
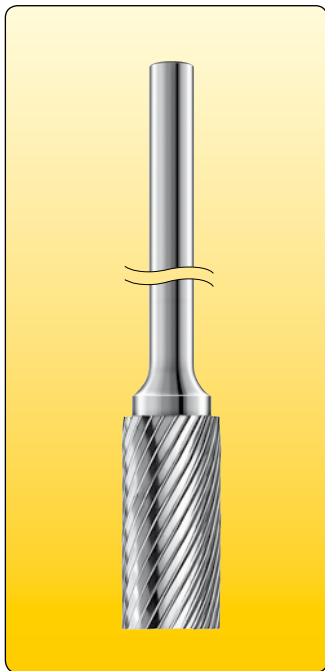
D _c	L2	D2	Zahnung / Cut type						Bestell - Nummer Order code	Ausführung Design
			1	2	3	4	5	6		
6	18	6	-	-	●	●	-	●	300606/...x300	Form - Shape ZYA Ident. 30
8	20	6	-	-	●	●	-	●	300806/...x300	
10	20	6	-	-	●	●	-	●	301006/...x300	
12	25	6	-	-	●	●	-	●	301206/...x300	
16	25	6	-	-	●	●	-	●	301606/...x300	
16	25	8	-	-	●	●	-	●	301608/...x300	
20	25	6	-	-	●	●	-	●	302006/...x300	
20	25	8	-	-	●	●	-	●	302008/...x300	
6	18	6	-	-	●	●	-	●	300606/...STx300	Form - Shape ZYA-ST Ident. 30-ST
8	20	6	-	-	●	●	-	●	300806/...STx300	
10	20	6	-	-	●	●	-	●	301006/...STx300	
12	25	6	-	-	●	●	-	●	301206/...STx300	
16	25	6	-	-	●	●	-	●	301606/...STx300	
16	25	8	-	-	●	●	-	●	301608/...STx300	
20	25	6	-	-	●	●	-	●	302006/...STx300	
20	25	8	-	-	●	●	-	●	302008/...STx300	
6	18	6	-	-	●	●	-	●	310606/...x300	Form - Shape WRC Ident. 31
8	20	6	-	-	●	●	-	●	310806/...x300	
10	20	6	-	-	●	●	-	●	311006/...x300	
12	25	6	-	-	●	●	-	●	311206/...x300	
16	25	6	-	-	●	●	-	●	311606/...x300	
16	25	8	-	-	●	●	-	●	311608/...x300	
20	25	6	-	-	●	●	-	●	312006/...x300	
20	25	8	-	-	●	●	-	●	312008/...x300	
6	20	6	-	-	●	●	-	●	320606/...x300	Form - Shape KEL-14° Ident. 32
8	20	6	-	-	●	●	-	●	320806/...x300	
10	20	6	-	-	●	●	-	●	321006/...x300	
12	30	6	-	-	●	●	-	●	321206/...x300	
16	30	6	-	-	●	●	-	●	321606/...x300	
16	30	8	-	-	●	●	-	●	321608/...x300	
20	42	6	-	-	●	●	-	●	322006/...x300	
20	42	8	-	-	●	●	-	●	322008/...x300	

... Zahnung immer mit angeben (zum Beispiel: 2015/4)

... Please always indicate cut type (example: 2015/4)



Frässtifte - Schaftlänge 300 mm Rotary burs shank length 300 mm



HM
CK 30 M
Medium

WN



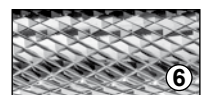
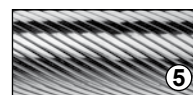
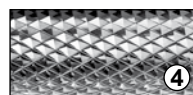
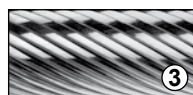
Vc
-30%

1.
02

D _c	L2	D2	Zahnung / Cut type						Bestell - Nummer Order code	Ausführung Design	
			1	2	3	4	5	6			
6	18	6	-	-	●	●	-	●	330606/...x300	Form - Shape RBF	Ident. 33
8	20	6	-	-	●	●	-	●	330806/...x300		
10	20	6	-	-	●	●	-	●	331006/...x300		
12	25	6	-	-	●	●	-	●	331206/...x300		
16	30	6	-	-	●	●	-	●	331606/...x300		
16	30	8	-	-	●	●	-	●	331608/...x300		
20	35	6	-	-	●	●	-	●	332006/...x300		
20	35	8	-	-	●	●	-	●	332008/...x300		
6	18	6	-	-	●	●	-	●	340606/...x300	Form - Shape SPG	Ident. 34
8	20	6	-	-	●	●	-	●	340806/...x300		
10	20	6	-	-	●	●	-	●	341006/...x300		
12	25	6	-	-	●	●	-	●	341206/...x300		
16	30	6	-	-	●	●	-	●	341606/...x300		
16	30	8	-	-	●	●	-	●	341608/...x300		
20	40	6	-	-	●	●	-	●	342006/...x300		
20	40	8	-	-	●	●	-	●	342008/...x300		
6	20	6	-	-	●	●	-	●	370606/...x300	Form - Shape TRE	Ident. 37
8	13	6	-	-	●	●	-	●	370806/...x300		
10	16	6	-	-	●	●	-	●	371006/...x300		
12	20	6	-	-	●	●	-	●	371206/...x300		
16	25	6	-	-	●	●	-	●	371606/...x300		
16	25	8	-	-	●	●	-	●	371608/...x300		
20	25	6	-	-	●	●	-	●	372006/...x300		
20	25	8	-	-	●	●	-	●	372008/...x300		
6	5,4	6	-	-	●	●	-	●	380606/...x300	Form - Shape KUD	Ident. 38
8	7,2	6	-	-	●	●	-	●	380806/...x300		
10	9	6	-	-	●	●	-	●	381006/...x300		
12	10,8	6	-	-	●	●	-	●	381206/...x300		
16	14,4	6	-	-	●	●	-	●	381606/...x300		
16	14,4	8	-	-	●	●	-	●	381608/...x300		
20	18	6	-	-	●	●	-	●	382006/...x300		
20	18	8	-	-	●	●	-	●	382008/...x300		

... Zahnung immer mit angeben (zum Beispiel: 2015/4)

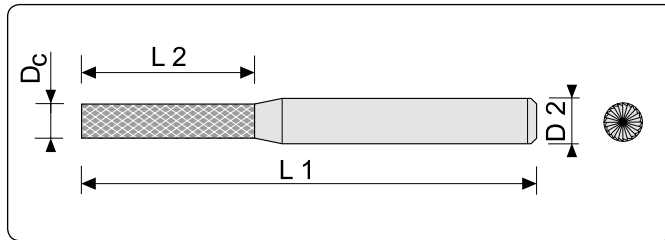
... Please always indicate cut type (example: 2015/4)



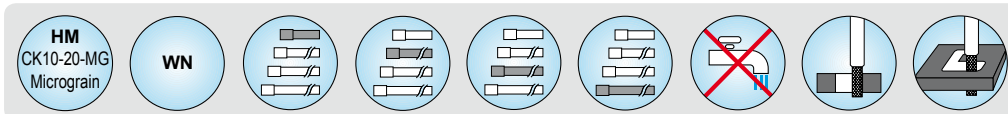
Matrizenfrässtifte mit Stirnverzahnung
Mould, tool and die making rotary burs with end cut



Auf Anfrage auch mit Cer-T Beschichtung lieferbar
 Cer-T coating upon request



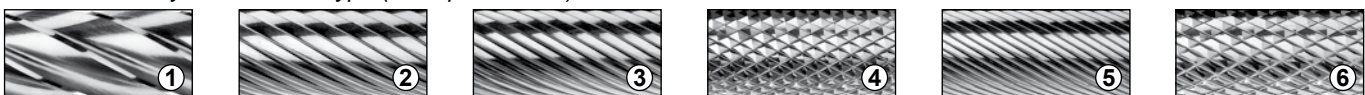
1.
03



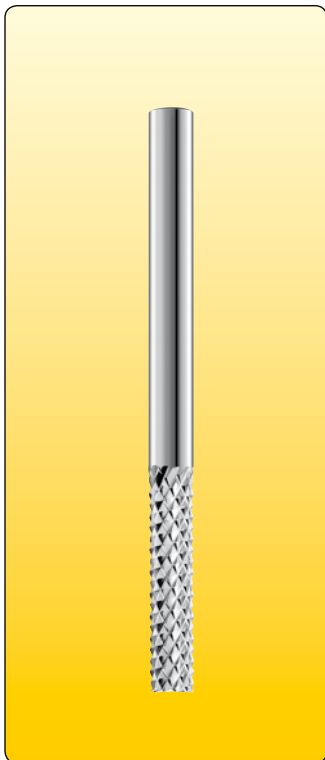
D _c	L2	L1	D2	Zahnung / Cut type						Zahnung 4 Cut type 4	Zahnung 6 Cut type 6
				1	2	3	4	5	6		
1	6	50	3,00	-	-	-	●	-	●	4010/4STx050	4010/6STx050
1	6	65	3,00	-	-	-	●	-	●	4010/4STx065	4010/6STx065
1	6	70	3,00	-	-	-	●	-	●	4010/4STx070	4010/6STx070
1	6	80	3,00	-	-	-	●	-	●	4010/4STx080	4010/6STx080
1	6	90	3,00	-	-	-	●	-	●	4010/4STx090	4010/6STx090
1	6	100	3,00	-	-	-	●	-	●	4010/4STx100	4010/6STx100
1,5	8	50	3,00	-	-	-	●	-	●	4015/4STx050	4015/6STx050
1,5	8	65	3,00	-	-	-	●	-	●	4015/4STx065	4015/6STx065
1,5	8	70	3,00	-	-	-	●	-	●	4015/4STx070	4015/6STx070
1,5	8	80	3,00	-	-	-	●	-	●	4015/4STx080	4015/6STx080
1,5	8	90	3,00	-	-	-	●	-	●	4015/4STx090	4015/6STx090
1,5	8	100	3,00	-	-	-	●	-	●	4015/4STx100	4015/6STx100
2	10	50	3,00	-	-	-	●	-	●	4020/4STx050	4020/6STx050
2	10	65	3,00	-	-	-	●	-	●	4020/4STx065	4020/6STx065
2	10	70	3,00	-	-	-	●	-	●	4020/4STx070	4020/6STx070
2	10	80	3,00	-	-	-	●	-	●	4020/4STx080	4020/6STx080
2	10	90	3,00	-	-	-	●	-	●	4020/4STx090	4020/6STx090
2	10	100	3,00	-	-	-	●	-	●	4020/4STx100	4020/6STx100

... Zahnung immer mit angeben (zum Beispiel: 2015/4)

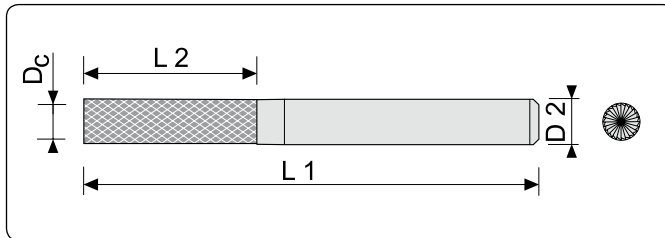
... Please always indicate cut type (example: 2015/4)



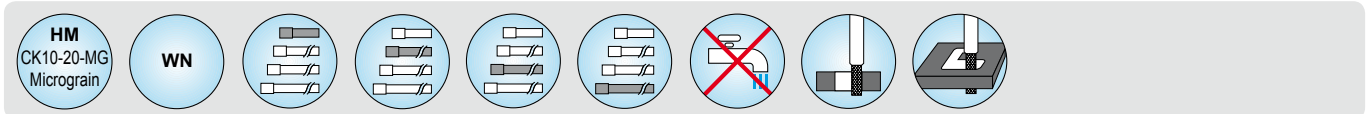
Matrizenfrässtifte mit Stirnverzahnung Mould, tool and die making rotary burs with end cut



Auf Anfrage auch mit Cer-T Beschichtung lieferbar
Cer-T coating upon request



1.
03



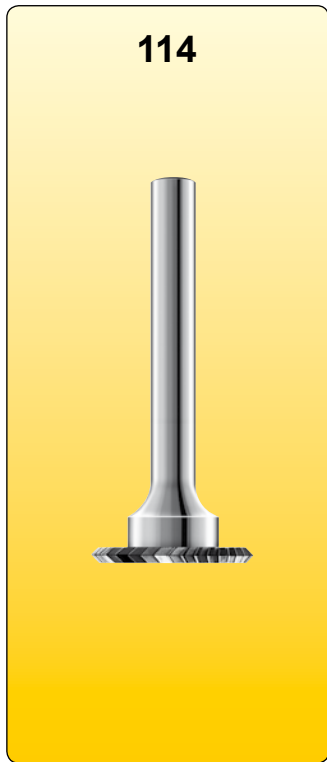
D _c	L2	L1	D2	Zahnung / Cut type						Zahnung 4 Cut type 4	Zahnung 6 Cut type 6
				1	2	3	4	5	6		
2,5	12	50	3,00	-	-	-	●	-	●	4025/4STx050	4025/6STx050
2,5	12	65	3,00	-	-	-	●	-	●	4025/4STx065	4025/6STx065
2,5	12	70	3,00	-	-	-	●	-	●	4025/4STx070	4025/6STx070
2,5	12	80	3,00	-	-	-	●	-	●	4025/4STx080	4025/6STx080
2,5	12	90	3,00	-	-	-	●	-	●	4025/4STx090	4025/6STx090
2,5	12	100	3,00	-	-	-	●	-	●	4025/4STx100	4025/6STx100
3	14	50	3,00	-	-	-	●	-	●	4033/4STx050	4033/6STx050
3	14	65	3,00	-	-	-	●	-	●	4033/4STx065	4033/6STx065
3	14	70	3,00	-	-	-	●	-	●	4033/4STx070	4033/6STx070
3	14	80	3,00	-	-	-	●	-	●	4033/4STx080	4033/6STx080
3	14	90	3,00	-	-	-	●	-	●	4033/4STx090	4033/6STx090
3	14	100	3,00	-	-	-	●	-	●	4033/4STx100	4033/6STx100

... Zahnung immer mit angeben (zum Beispiel: 2015/4)

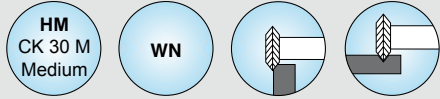
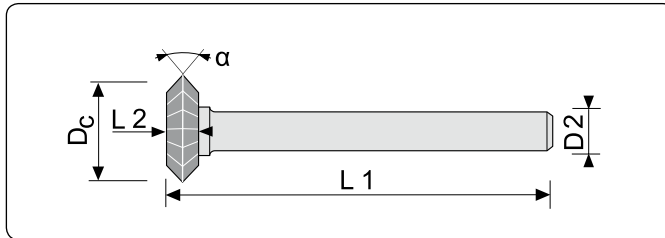
... Please always indicate cut type (example: 2015/4)



Glasnutenfräser - 90°
Grove cutters at 90°



Auf Anfrage auch mit Cer-T Beschichtung lieferbar
Cer-T coating upon request

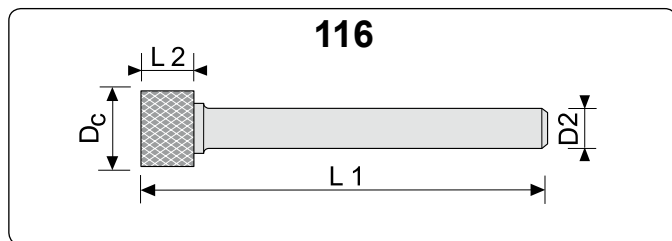
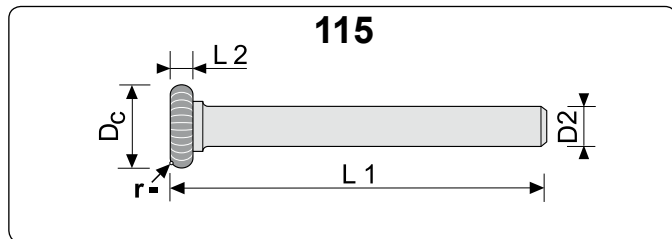
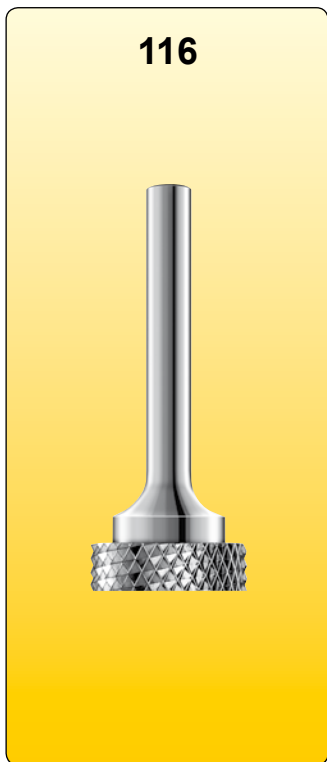
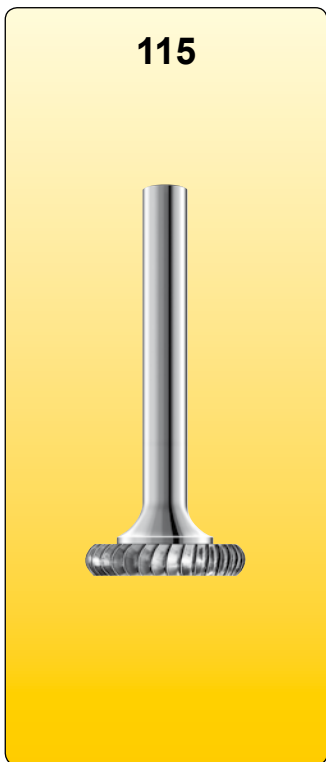


1.
04

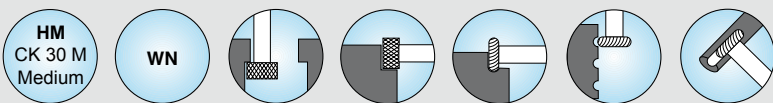
D_c	L2	L1	D2	α	114-90°
10	1,5	47	6	90°	114.1015-90°
12	1,5	47	6	90°	114.1215-90°
16	1,5	47	6	90°	114.1615-90°
20	1,5	47	6	90°	114.2015-90°
10	2	47	6	90°	114.1020-90°
12	2	47	6	90°	114.1220-90°
16	2	47	6	90°	114.1620-90°
20	2	47	6	90°	114.2020-90°
10	2,5	47	6	90°	114.1025-90°
12	2,5	47	6	90°	114.1225-90°
16	2,5	47	6	90°	114.1625-90°
20	2,5	47	6	90°	114.2025-90°

Scheibenfräser abgerundet und zylindrisch
Disc cutters straight or with radius

Auf Anfrage auch mit Cer-T Beschichtung lieferbar
Cer-T coating upon request



1.
04



D _c	L ₂	L ₁	D ₂	r 115	115	116
10	2	47	6	20	1151006/3x2	1161006/4x2
10	3	48	6	20	1151006/3x3	1161006/4x3
10	4	49	6	20	1151006/3x4	1161006/4x4
10	6	51	6	20	1151006/3x6	1161006/4x6
12	2	47	6	24	1151206/3x2	1161206/4x2
12	3	48	6	24	1151206/3x3	1161206/4x3
12	4	49	6	24	1151206/3x4	1161206/4x4
12	6	51	6	24	1151206/3x6	1161206/4x4
16	2	47	6	30	1151606/3x2	1161606/4x2
16	3	48	6	30	1151606/3x3	1161606/4x3
16	4	49	6	30	1151606/3x4	1161606/4x4
16	6	51	6	30	1151606/3x6	1161606/4x6
16	8	53	6	30	1151606/3x8	1161606/4x8
20	2	47	6	35	1152006/3x2	1162006/4x2
20	4	49	6	35	1152006/3x4	1162006/4x4
20	6	51	6	35	1152006/3x6	1162006/4x6
20	8	53	6	35	1152006/3x8	1162006/4x8
20	10	55	6	35	1152006/3x10	1162006/4x10

RAGOTZKY+GÄTJE

Holtenuer Strasse 288, 24106 Kiel | mail@ragotzkygaetje.de | 0431-389080
ragotzkygaetje.de | shop.ragotzkygaetje.de | spannsysteme-shop.de

HANS TREIBER

Gutenbergstrasse 19, 24558 Henstedt-Ulzburg | 04193-77943
mail@hanstreiber.de | shop.hanstreiber.de | fraeser-shop.de

Cod. 02/18 - TD/GB



Miniato (VR)

Cerin[®] Spa

Via Enrico Fermi, 15 - 37010 AFFI (Verona) Italy
Tel. +39 045 7200 844 - Fax +39 045 7200 835
e-mail: cerin@cerin.it
www.cerin.it

45°33'53.28" N - 10°45'58.14" E