

TOOLS FOR COMPOSITES – CRP / GRP – TITANIUM – PLASTICS



HIGH TECHNOLOGY TOOLS IN CVD-PCD-MCD-ND



1.3

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NOW ONLINE FOR YOU!

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Art.	Composites Tools	Material		HSC highspeed cutting	HPC	COMPO- SITES	INCONEL	AFK Aramid	PVDF GF30	Honey comb
11 1350		PCD	225		✓	✓		✓	✓	✓
29 0060		PCD	176	✓	✓	✓	✓	✓	✓	
29 0080A		MICRO GRAIN	178		✓	✓		✓	✓	✓
29 0080B		MICRO GRAIN	178		✓					✓
29 0100		MICRO GRAIN	179		✓					
29 0120		MICRO GRAIN	180- 181		✓	✓			✓	
29 0121		MICRO GRAIN	182		✓	✓			✓	
29 0122		MICRO GRAIN	183		✓	✓			✓	
29 0200		MICRO GRAIN	184							
29 0210		MICRO GRAIN	185							
29 0250		MICRO GRAIN	186							
29 0260		MICRO GRAIN	187							
29 0305		MICRO GRAIN	190		✓	✓		✓	✓	
29 0412		MICRO GRAIN	190		✓	✓		✓	✓	
29 0416		MICRO GRAIN	191		✓	✓		✓	✓	
29 0417		MICRO GRAIN	191		✓	✓		✓	✓	
29 6811		ND MCD	214	✓	✓					
29 6837		MCD Mono- crystalline Diamond	215	✓	✓					
29 6838		MCD Mono- crystalline Diamond	216	✓	✓					
29 6839		MCD Mono- crystalline Diamond	217	✓	✓					
29 6840		MCD Mono- crystalline Diamond	218	✓	✓					
29 6843		MCD Mono- crystalline Diamond	220	✓	✓					
29 1652		SPECIAL MICRO-GRAIN	192	✓	✓					



PA66 GF30	PTFE CF25	POM GF25	PF-31	PEEK	PA-66	PE-HD	Kevlar	Gold Silver Copper	Laminates	Mirror finish	Aluminium > 12% Si	WITH INTERIOR COOLING	ZIRCONIUM	TITANIUM	CT	TC	CA	AC
✓	✓	✓	✓		✓	✓	✓		✓		✓							
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓							
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Art.	Composites Tools	Material		HSC highspeed cutting	HPC	COMPO- SITES	INCONEL	AFK Aramid	PVDF GF30	Honey comb
29 1654		SPECIAL MICRO-GRAIN	193	✓	✓					
29 1658		SPECIAL MICRO-GRAIN	194	✓	✓					
29 1661		SPECIAL MICRO-GRAIN	195	✓	✓					
29 1751		MICRO GRAIN	196	✓		✓				
29 1752		MICRO GRAIN	196	✓		✓				
29 1753		MICRO GRAIN	197	✓		✓				
29 1761		MICRO GRAIN	198		✓	✓				✓
29 1762		MICRO GRAIN	198		✓	✓				✓
29 1763		MICRO GRAIN	199		✓	✓				✓
29 1771		MICRO GRAIN	199		✓	✓			✓	
29 1783		MICRO GRAIN	200		✓	✓		✓	✓	✓
29 1784		MICRO GRAIN	200		✓	✓		✓	✓	✓
29 1790A		MICRO GRAIN	201		✓	✓		✓	✓	✓
29 1790C		MICRO GRAIN	201					✓		✓
11 6001		MICRO GRAIN	202					✓		✓
11 6002		MICRO GRAIN	202					✓		✓
11 6003		MICRO GRAIN	202					✓		✓
11 6004		MICRO GRAIN	202					✓		✓
29 6521		CVD	204	✓	✓	✓		✓	✓	
29 6522	BEST SELLER	CVD	205	✓	✓	✓		✓	✓	
29 6523	BEST SELLER	CVD	206	✓	✓	✓		✓	✓	
29 6524	BEST SELLER	CVD	207	✓	✓	✓		✓	✓	
29 6525	BEST SELLER	CVD	207	✓	✓	✓		✓	✓	



PA66 GF30	PTFE CF25	POM GF25	PF-31	PEEK	PA-66	PE-HD	Kevlar	Gold Silver Copper	Laminates	Mirror finish	Aluminium > 12% Si	WITH INTERIOR COOLING	ZIRCONIUM	TITANIUM	CT	TC	CA	AC
				✓				✓										
				✓				✓										
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Art.	Composites Tools	Material		HSC highspeed cutting	HPC	COMPO- SITES	INCONEL	AFK Aramid	PVDF GF30	Honey comb
29 6526	 BEST SELLER	CVD	208	✓	✓	✓		✓	✓	
29 6553		CVD	208	✓	✓	✓		✓	✓	
29 6562		CVD	209	✓	✓	✓		✓	✓	
29 6572		CVD	210	✓		✓		✓	✓	
29 6573		CVD	211	✓		✓		✓	✓	
29 6574		CVD	211	✓		✓		✓	✓	
29 6600		CVD	212		✓	✓		✓	✓	
29 6620		ND natural diamond	213		✓					
30 6522	 BEST SELLER	PCD	221		✓	✓			✓	
30 6523	 BEST SELLER	PCD	222		✓	✓			✓	
30 6524	 BEST SELLER	PCD	223		✓	✓			✓	
30 6528		PCD	224		✓	✓			✓	
30 6534		PCD	224		✓	✓			✓	
22 0415		MICRO GRAIN	176		✓				✓	
23 2005		MICRO GRAIN	177		✓	✓			✓	
23 2006		MICRO GRAIN	177		✓	✓			✓	
29 6510		CVD	204	✓	✓	✓		✓	✓	
22 0410		MICRO GRAIN	188				✓			
22 0412		MICRO GRAIN	189							

- Stock tool
- No stock tool. Price and delivery on request
- ☑ Short delivery times possible when blanks are in stock.
- 🏷 Sale item. While stocks last. No returns.



PA66 GF30	PTFE CF25	POM GF25	PF-31	PEEK	PA-66	PE-HD	Kevlar	Gold Silver Copper	Laminates	Mirror finish	Aluminium > 12% Si	WITH INTERIOR COOLING	ZIRCONIUM	TITANIUM	CT	TC	CA	AC
✓	✓	✓	✓		✓	✓	✓		✓		✓		✓	✓				
✓	✓	✓	✓		✓	✓	✓		✓		✓		✓	✓				
✓	✓	✓	✓		✓	✓	✓		✓		✓		✓	✓				
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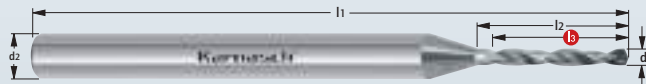
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29 0060 PCD equipped solid carbide high performance micro drill

COMPO-SITES	Sand-wich
Aramid fiber AFK-SFK	GF GF25
Hybrid materials	PVDF GF25
CRP-ALU Composites	GRP
Laminates	CRP
Kevlar	PMMA GS
PA66 GF30	Aluminium < 12% Si
PVDF GF30	Aluminium > 12% Si
PEEK GF30	GRAPHITE
PEEK CF30	ZIRCONIA



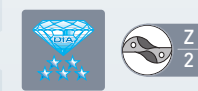
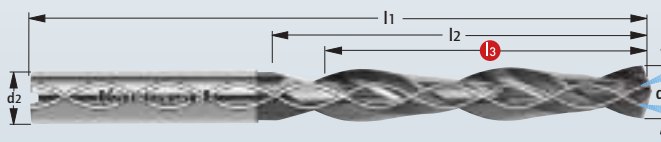
PCD	KARNASCH NORM
SPECIAL	DIN 6535 Shape HA
	25° 130°
	HSC High-Speed-Cutting
	POLISHED
	OIL Emul MMKS

Art.	d1 h7	l3	l2	l1	d2 h5
29 0060 0110 090	1.10	9	10	38	3
29 0060 0120 090	1.20	9	10	38	3
29 0060 0130 080	1.30	8	10	38	3

% Sale item. While stocks last.

22 0415 Diamond coated solid carbide high performance twist drill with internal cooling suitable for thread milling cutter article 23 2005 / 23 2006

COMPO-SITES	TI-CFRP
GRAPHITE	PA66 GF30
GRP	PVDF GF30
CRP	PEEK GF30
Hybrid materials	PEEK CF30
CRP-ALU Composites	ZIRCONIA
Laminates	



MICRO GRAIN	DIN 6537
W	DIN 6535 Shape HA
	30° 130°
	HSC HPC
	DIAMOND DCC 0312
	Air

Recommended cutting data for twist drill with diamond coating

Material group	Workpiece material	Cutting speed Vc (m/min.)	FEED PER REV (mm)		
			Ø 3.0 - 5.0	Ø 5.1 - 8.0	Ø 8.1 - 12.0
14	Graphite < Grade 10	250	0.10 - 0.20	0.15 - 0.25	0.30 - 0.45

Art.	d1 m7	l3	l2	l1	d2 h6
22 0415 0330 023	3.3 / M4 x 0.7	23	28	66	6
22 0415 0680 043	6.8 / M8 x 1.25	43	53	91	8
22 0415 0850 049	8.5 / M10 x 1.50	49	61	103	10
22 0415 1030 056	10.3 / M12 x 1.75	56	71	118	12

% Sale item. While stocks last.
Replacement article 29 0120 + 29 0121 + 29 0122 on page 180-183

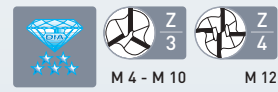
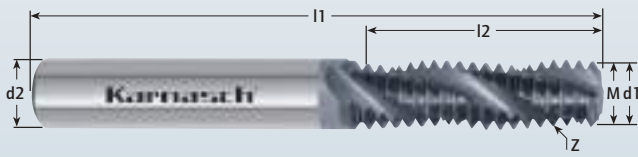
Cutting data



Diamond coated solid carbide thread milling cutter, 30° spiral for internal threads, without internal cooling, without sunk stage, metric ISO-thread DIN13 – 2.5xD

23 2005

COMPO-SITES	TI-CFRP
GRAPHITE	PA66 GF30
GRP	PVDF GF30
CRP	PEEK GF30
Hybrid materials	PEEK CF30
CRP-ALU Composites	ZIRCONIA
Laminates	



MICRO GRAIN	DIN 13
M	DIN 6535 Shape HA
	HSC High-Speed-Cutting
	DCC 0318

Art.	M	Stg	x D	l2	l1	d1	d2 h5	Z
23 2005 04 070 25	• M 4	0.7	2.5xD	10.85	55	3.15	6	3
23 2005 05 080 25	• M 5	0.8	2.5xD	13.15	55	4.00	6	3
23 2005 06 100 25	• M 6	1.0	2.5xD	16.50	55	4.80	6	3
23 2005 08 125 25	• M 8	1.25	2.5xD	21.80	55	6.00	6	3
23 2005 10 150 25	• M 10	1.50	2.5xD	26.20	60	8.00	8	3
23 2005 12 175 25	• M 12	1.75	2.5xD	30.60	75	9.90	10	4

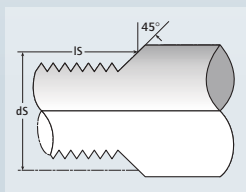
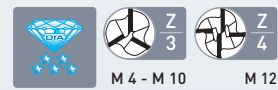
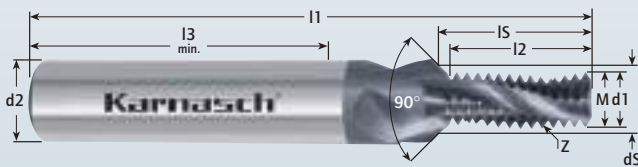
Cutting data

PCD - CVD thread mills available at short notice!

Diamond coated solid carbide thread milling cutter, 30° spiral for internal threads, without internal cooling, with 90° counter sunk stage, metric ISO-thread DIN 13 – 2.0xD

23 2006

COMPO-SITES	TI-CFRP
GRAPHITE	PA66 GF30
GRP	PVDF GF30
CRP	PEEK GF30
Hybrid materials	PEEK CF30
CRP-ALU Composites	ZIRCONIA
Laminates	



MICRO GRAIN	DIN 13
M	DIN 6535 Shape HA
	HSC High-Speed-Cutting
	DCC 0318

Art.	M	Stg	x D	l2	l3/min.	l1	ds	ls	d1	d2 h5	Z
23 2006 04 070 20	• M 4	0.7	2.0xD	8.75	36	55	4.2	9.3	3.14	6	3
23 2006 05 080 20	• M 5	0.8	2.0xD	10.75	36	55	5.3	11.3	4.00	6	3
23 2006 06 100 20	• M 6	1.0	2.0xD	12.40	36	65	6.3	13.1	4.80	8	3
23 2006 08 125 20	• M 8	1.25	2.0xD	16.80	40	75	8.3	17.6	6.50	10	3
23 2006 10 150 20	• M 10	1.50	2.0xD	20.10	45	80	10.3	21.2	8.20	12	3
23 2006 12 175 20	• M 12	1.75	2.0xD	25.20	45	90	12.3	26.4	9.90	14	4

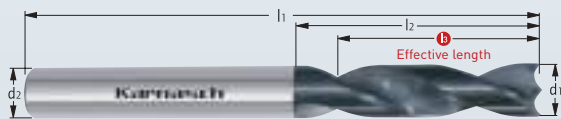
Cutting data

PCD - CVD thread mills available at short notice!



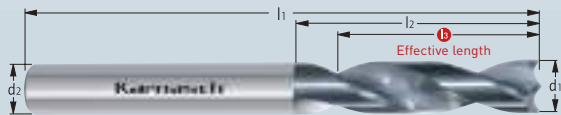
29 0080 A 29 0080 B Solid carbide twist drill GRP/CRP

COMPOSITES	CRP-ALU Composites	PVDF GF30
GRP-CRP	Laminates	PEEK GF30
THERMO-PLASTICS	Kevlar	PEEK CF30
DURO-PLASTICS	AL/TI	GF GF25
Aramid fiber AFK-SFK	TI-CFRP	PVDF GF25
Hybrid materials	PA66 GF30	



MICRO GRAIN	KARNASCH NORM
SPECIAL	Shape HA
	30°
	HSC High-Speed-Cutting
	DCA-06 Polished
	Air

GRP-CRP	CRP-ALU Composites	Kevlar
Plastic	Laminates	Acrylic glass



Cutting data

i
1277

DIAMOND
DCA-06
29 0080 A

POLISHED
29 0080 B

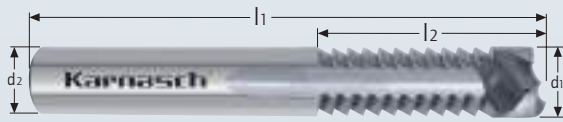
d1	l3	l2	l1	d2 h5	Art.	Art.
• 3.0	12	16	45	3.0	29 0080A 0300 012	29 0080B 0300 012
• 3.2	14	18	50	3.2	29 0080A 0320 014	29 0080B 0320 014
• 3.3	14	18	50	3.2	-	29 0080B 0330 014
• 3.5	15	20	50	3.5	29 0080A 0350 015	29 0080B 0350 015
• 3.7	15	20	52	3.7	-	29 0080B 0370 015
• 4.0	17	22	55	4.0	29 0080A 0400 017	29 0080B 0400 017
• 4.2	17	22	55	4.2	-	29 0080B 0420 017
• 4.5	18	25	57	4.5	29 0080A 0450 018	29 0080B 0450 018
• 4.7	18	24	58	4.7	-	29 0080B 0470 018
• 5.0	20	25	62	5.0	29 0080A 0500 020	29 0080B 0500 020
• 5.3	20	26	62	5.3	-	29 0080B 0530 020
• 5.5	20	28	65	5.5	29 0080A 0550 020	29 0080B 0550 020
• 5.8	20	28	66	5.8	-	29 0080B 0580 020
• 6.0	20	28	65	6.0	29 0080A 0600 020	29 0080B 0600 020
• 6.5	22	30	70	6.5	29 0080A 0650 022	29 0080B 0650 022
• 7.0	25	33	75	7.0	29 0080A 0700 025	29 0080B 0700 025
• 7.5	25	33	74	7.5	-	29 0080B 0750 025
• 8.0	27	36	80	8.0	29 0080A 0800 027	29 0080B 0800 027
• 8.5	27	36	80	8.5	29 0080A 0850 027	29 0080B 0850 027
• 9.0	30	40	85	9.0	29 0080A 0900 030	29 0080B 0900 030
• 9.5	30	37	84	9.5	-	29 0080B 0950 030
• 10.0	32	42	90	10.0	29 0080A 1000 032	29 0080B 1000 032
• 10.5	32	42	90	10.5	-	29 0080B 1050 032
• 11.0	34	47	95	11.0	-	29 0080B 1100 034
• 11.5	34	47	95	11.5	-	29 0080B 1150 034
• 12.0	35	50	100	12.0	29 0080A 1200 035	29 0080B 1200 035
• 13.0	35	50	100	13.0	-	29 0080B 1300 035
• 14.0	37	54	105	14.0	-	29 0080B 1400 037
• 15.0	38	56	110	15.0	-	29 0080B 1500 038
• 16.0	38	58	115	16.0	-	29 0080B 1600 038

	29 0080 A	29 0080 B
d1 tol. Ⓢ	Drill tolerance	Drill tolerance
> 3.0	+ 0.005	+ 0.000
6.0	- 0.008	- 0.012
> 6.0	+ 0.005	+ 0.000
10.0	- 0.010	- 0.015
> 10.0	+ 0.005	+ 0.000
14.0	- 0.012	- 0.018

Combination milling cutter with drill bit for composites

29 0100

- Honey comb
- Kevlar
- Aramid fiber AFK-SFK
- Laminates
- Plastic



Art.	d1	Inch	l2	l1
29 0100 0476	% 4.76	3/16"	25	75
29 0100 0500	% 5.00		25	75
29 0100 0600	% 6.00		30	75
29 0100 0635	% 6.35	1/4"	30	75
29 0100 0800	% 8.00		30	75
29 0100 0952	% 9.52	3/8"	30	75
29 0100 1000	% 10.00		30	75
29 0100 1200	% 12.00		30	75
29 0100 1270	% 12.70	1/2"	30	75

% Sale item. While stocks last.

MICRO GRAIN	KARNASCH NORM
SPECIAL	DIN 6535 Shape HA
	HPC
	POLISHED

Processing instruction: The work temperature must not exceed 60° Celsius in order to avoid the resin melting.

Cutting data

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Material group	Workpiece material	Vc Drill	f Drill	Vf Mill	Vc Mill
11.3	AFK / BFK / GRP	125 m/min	0.08 - 0.15 mm	600 - 1500 m/min	250 - 400 m/min
	CRP / KEFLAR	150 m/min	0.10 - 0.18 mm	800 - 2000 m/min	300 - 500 m/min

Diamond tipped quality products.

Karnasch®
PROFESSIONAL TOOLS



CBN



PCD



Natural Diamond
ND



Monocrystalline
diamond MCD



CVD /
Diamond coating

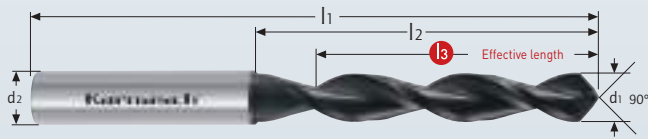
PCD **EXTREME**

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Index

29 0120

Diamond-coated solid-carbide drill for CRP/GRP – multidirectional – with 90° tip angle, prevents delamination



MICRO GRAIN	KARNASCH NORM
MF	DIN 6535 Shape HA
	Composites
	DCC 0318
	Air

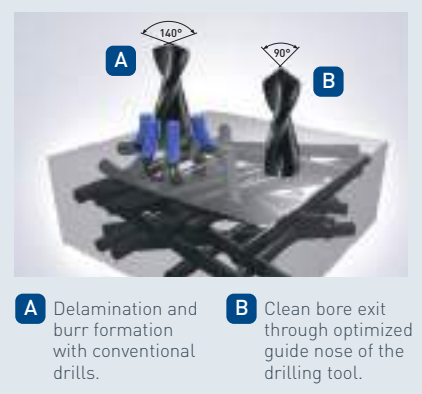
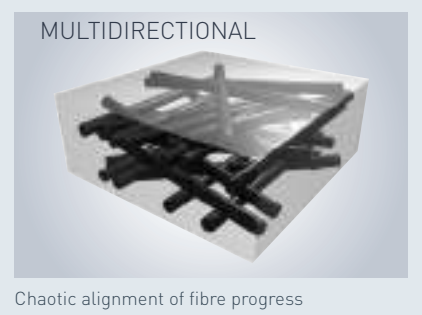
Recommended cutting data

Material group	WORKPIECE MATERIAL	vc m/min	f mm/rev				
			Ø < 3	Ø 3.0 - 4.9	Ø 5.0 - 7.9	Ø 8.0 - 9.9	Ø 10.0 - 12.0
8.3	GRP / CRP Composites	160	0.02 - 0.03	0.04	0.05	0.07	0.1

Art.	d1 m7	l3	l2	l1	d2 h6
29 0120 0050 0045	• 0.5	4.5	5.5	55	3
29 0120 0060 0045	• 0.6	4.5	5.5	55	3
29 0120 0070 0045	• 0.7	4.5	5.5	55	3
29 0120 0080 0045	• 0.8	4.5	5.5	55	3
29 0120 0090 0045	• 0.9	4.5	5.5	55	3
29 0120 0100 005	• 1.0	5	8	55	3
29 0120 0110 008	• 1.1	8	12	55	3
29 0120 0120 008	• 1.2	8	12	55	3
29 0120 0130 008	• 1.3	8	12	55	3
29 0120 0140 008	• 1.4	8	12	55	3
29 0120 0150 008	• 1.5	8	12	55	3
29 0120 0160 011	• 1.6	11	16	68	3
29 0120 0170 011	• 1.7	11	16	68	3
29 0120 0180 011	• 1.8	11	16	68	3
29 0120 0190 011	• 1.9	11	16	68	3
29 0120 0200 011	• 2.0	11	16	68	3
29 0120 0210 014	• 2.1	14	20	74	3
29 0120 0220 014	• 2.2	14	20	74	3
29 0120 0230 014	• 2.3	14	20	74	3
29 0120 0240 014	• 2.4	14	20	74	3
29 0120 0250 014	• 2.5	14	20	74	3
29 0120 0260 016	• 2.6	16	23	81	3
29 0120 0270 016	• 2.7	16	23	81	3
29 0120 0280 016	• 2.8	16	23	81	3
29 0120 0290 016	• 2.9	16	23	81	3
29 0120 0300 023	• 3.0	23	28	66	6
29 0120 0310 023	• 3.1	23	28	66	6
29 0120 03175 023	• 3.175	23	28	66	6
29 0120 0320 023	• 3.2	23	28	66	6
29 0120 0330 023	• 3.3	23	28	66	6
29 0120 0340 023	• 3.4	23	28	66	6
29 0120 0350 023	• 3.5	23	28	66	6
29 0120 0360 023	• 3.6	23	28	66	6
29 0120 0370 023	• 3.7	23	28	66	6
29 0120 0380 023	• 3.8	23	28	66	6
29 0120 0390 023	• 3.9	23	28	66	6
29 0120 0400 029	• 4.0	29	36	74	6
29 0120 0410 029	• 4.1	29	36	74	6
29 0120 0420 029	• 4.2	29	36	74	6
29 0120 0430 029	• 4.3	29	36	74	6
29 0120 0440 029	• 4.4	29	36	74	6
29 0120 0450 029	• 4.5	29	36	74	6
29 0120 0460 029	• 4.6	29	36	74	6
29 0120 0470 029	• 4.7	29	36	74	6
29 0120 04763 029	• 4.763	29	36	74	6
29 0120 0480 029	• 4.8	29	36	74	6
29 0120 0490 029	• 4.9	29	36	74	6
29 0120 0500 035	• 5.0	35	44	82	6
29 0120 0510 035	• 5.1	35	44	82	6
29 0120 0520 035	• 5.2	35	44	82	6
29 0120 0530 035	• 5.3	35	44	82	6
29 0120 0540 035	• 5.4	35	44	82	6
29 0120 0550 035	• 5.5	35	44	82	6
29 0120 0560 035	• 5.6	35	44	82	6
29 0120 0570 035	• 5.7	35	44	82	6
29 0120 0580 035	• 5.8	35	44	82	6
29 0120 0590 035	• 5.9	35	44	82	6

Cutting data | Movie

180



Diamond-coated solid-carbide drill for CRP/GRP – multidirectional – with 90° tip angle, prevents delamination

29 0120

Art.	d1 m7	l3	l2	l1	d2 h6
29 0120 0600 035	• 6.0	35	44	82	6
29 0120 0610 043	• 6.1	43	53	91	8
29 0120 0620 043	• 6.2	43	53	91	8
29 0120 0630 043	• 6.3	43	53	91	8
29 0120 0635 043	• 6.350	43	53	91	8
29 0120 0640 043	• 6.4	43	53	91	8
29 0120 0650 043	• 6.5	43	53	91	8
29 0120 0660 043	• 6.6	43	53	91	8
29 0120 0670 043	• 6.7	43	53	91	8
29 0120 0680 043	• 6.8	43	53	91	8
29 0120 0690 043	• 6.9	43	53	91	8
29 0120 0700 043	• 7.0	43	53	91	8
29 0120 0710 043	• 7.1	43	53	91	8
29 0120 0720 043	• 7.2	43	53	91	8
29 0120 0730 043	• 7.3	43	53	91	8
29 0120 0740 043	• 7.4	43	53	91	8
29 0120 0750 043	• 7.5	43	53	91	8
29 0120 0760 043	• 7.6	43	53	91	8
29 0120 0770 043	• 7.7	43	53	91	8
29 0120 0780 043	• 7.8	43	53	91	8
29 0120 0790 043	• 7.9	43	53	91	8
29 0120 07938 043	• 7.938	43	53	91	8
29 0120 0800 043	• 8.0	43	53	91	8
29 0120 0810 049	• 8.1	49	61	103	10
29 0120 0820 049	• 8.2	49	61	103	10
29 0120 0830 049	• 8.3	49	61	103	10
29 0120 0840 049	• 8.4	49	61	103	10
29 0120 0850 049	• 8.5	49	61	103	10

Art.	d1 m7	l3	l2	l1	d2 h6
29 0120 0860 049	• 8.6	49	61	103	10
29 0120 0870 049	• 8.7	49	61	103	10
29 0120 0880 049	• 8.8	49	61	103	10
29 0120 0890 049	• 8.9	49	61	103	10
29 0120 0900 049	• 9.0	49	61	103	10
29 0120 0910 049	• 9.1	49	61	103	10
29 0120 0920 049	• 9.2	49	61	103	10
29 0120 0930 049	• 9.3	49	61	103	10
29 0120 0940 049	• 9.4	49	61	103	10
29 0120 0950 049	• 9.5	49	61	103	10
29 0120 09525 049	• 9.525	49	61	103	10
29 0120 0960 049	• 9.6	49	61	103	10
29 0120 0970 049	• 9.7	49	61	103	10
29 0120 0980 049	• 9.8	49	61	103	10
29 0120 0990 049	• 9.9	49	61	103	10
29 0120 1000 049	• 10.0	49	61	103	10
29 0120 1010 056	• 10.1	56	71	118	12
29 0120 1020 056	• 10.2	56	71	118	12
29 0120 1030 056	• 10.3	56	71	118	12
29 0120 1040 056	• 10.4	56	71	118	12
29 0120 1050 056	• 10.5	56	71	118	12
29 0120 1060 056	• 10.6	56	71	118	12
29 0120 1070 056	• 10.7	56	71	118	12
29 0120 1080 056	• 10.8	56	71	118	12
29 0120 1090 056	• 10.9	56	71	118	12
29 0120 1100 056	• 11.0	56	71	118	12
29 0120 11111 056	• 11.111	56	71	118	12
29 0120 1200 056	• 12.0	56	71	118	12

CRP drill test



Karnasch Art. 29 0120 – 6.0 mm
Drill entry
Material: CRP

Cutting data
Vc = 160 m/min
Vf = 850 mm/min
n(s) = 8,493 rpm
fz = 0.1 mm
ap = 20 mm



Karnasch Art. 29 0120 – 6.0 mm
Drill exit
Material: CRP

Magnification: 30x



CVD drill 6.0 mm
Competitor
Drill entry
Material: CRP

Cutting data
Vc = 160 m/min
Vf = 850 mm/min
n(s) = 8,493 rpm
fz = 0.1 mm
ap = 20 mm



CVD drill 6.0 mm
Competitor
Drill exit
Material: CRP

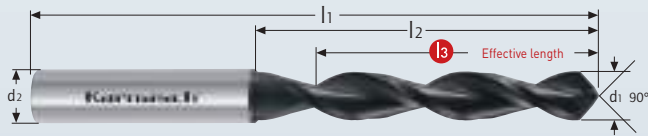
Magnification: 30x



29 0121

Diamond-coated solid-carbide drill for CRP/GRP – unidirectional – with 90° tip angle, prevents delamination

- GRAPHITE
- COMPOSITES
- CRP
- GRP
- PEEK CF30
- PEEK GF30
- GF GF25
- PVDF GF25
- ZIRCONIA
- FR 4

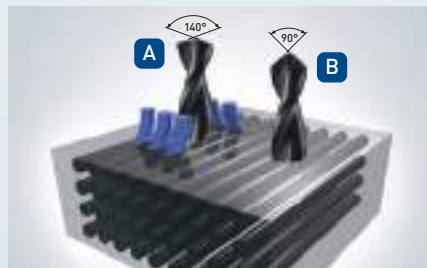


Recommended cutting data

Material group	WORKPIECE MATERIAL	vc m/min	f mm/rev			
			Ø 2.8 - 4.9	Ø 5.0 - 7.9	Ø 8.0 - 9.9	Ø 10.0 - 12.0
8.3	GRP / CRP Composites	160	0.04	0.05	0.07	0.1



Fibre progress in one direction



- A** Delamination and burr formation with conventional drills.
- B** Clean bore exit through optimized guide nose of the drilling tool.

MICRO GRAIN	KARNASCH NORM
MF	DIN 6535 Shape HA
	Composites
	DCC 0318
	Air

Cutting data

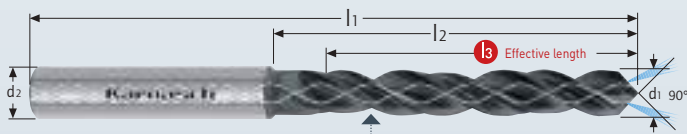


Art.	d1 m7	l3	l2	l1	d2 h6
29 0121 0280 019	• 2.8	19	24	66	6
29 0121 0290 019	• 2.9	19	24	66	6
29 0121 0300 023	• 3.0	23	28	66	6
29 0121 0310 023	• 3.1	23	28	66	6
29 0121 03175 023	• 3.175	23	28	66	6
29 0121 0320 023	• 3.2	23	28	66	6
29 0121 0330 023	• 3.3	23	28	66	6
29 0121 0340 023	• 3.4	23	28	66	6
29 0121 0350 023	• 3.5	23	28	66	6
29 0121 0360 023	• 3.6	23	28	66	6
29 0121 0370 023	• 3.7	23	28	66	6
29 0121 0380 023	• 3.8	23	28	66	6
29 0121 0390 023	• 3.9	23	28	66	6
29 0121 0400 029	• 4.0	29	36	74	6
29 0121 0410 029	• 4.1	29	36	74	6
29 0121 0420 029	• 4.2	29	36	74	6
29 0121 0430 029	• 4.3	29	36	74	6
29 0121 0440 029	• 4.4	29	36	74	6
29 0121 0450 029	• 4.5	29	36	74	6
29 0121 0460 029	• 4.6	29	36	74	6
29 0121 0470 029	• 4.7	29	36	74	6
29 0121 04763 029	• 4.763	29	36	74	6
29 0121 0480 029	• 4.8	29	36	74	6
29 0121 0490 029	• 4.9	29	36	74	6
29 0121 0500 035	• 5.0	35	44	82	6
29 0121 0510 035	• 5.1	35	44	82	6
29 0121 0520 035	• 5.2	35	44	82	6
29 0121 0530 035	• 5.3	35	44	82	6
29 0121 0540 035	• 5.4	35	44	82	6
29 0121 0550 035	• 5.5	35	44	82	6
29 0121 0560 035	• 5.6	35	44	82	6
29 0121 0570 035	• 5.7	35	44	82	6
29 0121 0580 035	• 5.8	35	44	82	6
29 0121 0590 035	• 5.9	35	44	82	6

Diamond-coated solid-carbide drill with interior cooling for CRP/GRP – unidirectional – with 90° tip angle, prevents delamination

29 0122

GRAPHITE	PVDF GF25
COMPOSITES	ZIRCONIA
CRP	FR 4
GRP	
PEEK CF30	
PEEK GF30	
GF GF25	



MICRO GRAIN	KARNASCH NORM
MF	DIN 6535 Shape HAK
	Composites
	DCC 0318
	Air



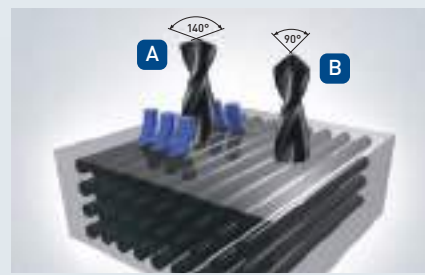
With 2 guide chamfer is a very high precision of the holes possible, by avoiding of delamination.

Recommended cutting data

Material group	WORKPIECE MATERIAL	vc m/min	f mm/rev			
			Ø 3.0 - 4.9	Ø 5.0 - 7.9	Ø 8.0 - 9.9	Ø 10.0 - 12.0
8.3	GRP / CRP Composites	160	0.04	0.05	0.07	0.1



Fibre progress in one direction



- A** Delamination and burr formation with conventional drills.
- B** Clean bore exit through optimized guide nose of the drilling tool.

Cutting data



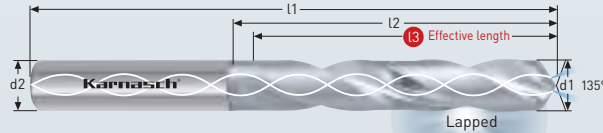
Art.	d1 m7	l3	l2	l1	d2 h6
29 0122 0600 035	• 6.00	35	44	82	6
29 0122 0610 043	• 6.10	43	53	91	8
29 0122 0620 043	• 6.20	43	53	91	8
29 0122 0630 043	• 6.30	43	53	91	8
29 0122 0635 043	• 6.350 1/4"	43	53	91	8
29 0122 0640 043	• 6.40	43	53	91	8
29 0122 0650 043	• 6.50	43	53	91	8
29 0122 0660 043	• 6.60	43	53	91	8
29 0122 0670 043	• 6.70	43	53	91	8
29 0122 0680 043	• 6.80	43	53	91	8
29 0122 0690 043	• 6.90	43	53	91	8
29 0122 0700 043	• 7.00	43	53	91	8
29 0122 0710 043	• 7.10	43	53	91	8
29 0122 0720 043	• 7.20	43	53	91	8
29 0122 0730 043	• 7.30	43	53	91	8
29 0122 0740 043	• 7.40	43	53	91	8
29 0122 0750 043	• 7.50	43	53	91	8
29 0122 0760 043	• 7.60	43	53	91	8
29 0122 0770 043	• 7.70	43	53	91	8
29 0122 0780 043	• 7.80	43	53	91	8
29 0122 0790 043	• 7.90	43	53	91	8
29 0122 07938 043	• 7.938 5/16"	43	53	91	8
29 0122 0800 043	• 8.00	43	53	91	8
29 0122 0810 049	• 8.10	49	61	103	10
29 0122 0820 049	• 8.20	49	61	103	10
29 0122 0830 049	• 8.30	49	61	103	10
29 0122 0840 049	• 8.40	49	61	103	10
29 0122 0850 049	• 8.50	49	61	103	10
29 0122 0860 049	• 8.60	49	61	103	10
29 0122 0870 049	• 8.70	49	61	103	10

Art.	d1 m7	l3	l2	l1	d2 h6
29 0122 0880 049	• 8.80	49	61	103	10
29 0122 0890 049	• 8.90	49	61	103	10
29 0122 0900 049	• 9.00	49	61	103	10
29 0122 0910 049	• 9.10	49	61	103	10
29 0122 0920 049	• 9.20	49	61	103	10
29 0122 0930 049	• 9.30	49	61	103	10
29 0122 0940 049	• 9.40	49	61	103	10
29 0122 0950 049	• 9.50	49	61	103	10
29 0122 09525 049	• 9.525 3/8"	49	61	103	10
29 0122 0960 049	• 9.60	49	61	103	10
29 0122 0970 049	• 9.70	49	61	103	10
29 0122 0980 049	• 9.80	49	61	103	10
29 0122 0990 049	• 9.90	49	61	103	10
29 0122 1000 049	• 10.00	49	61	103	10
29 0122 1010 056	• 10.10	56	71	118	12
29 0122 1020 056	• 10.20	56	71	118	12
29 0122 1030 056	• 10.30	56	71	118	12
29 0122 1040 056	• 10.40	56	71	118	12
29 0122 1050 056	• 10.50	56	71	118	12
29 0122 1060 056	• 10.60	56	71	118	12
29 0122 1070 056	• 10.70	56	71	118	12
29 0122 1080 056	• 10.80	56	71	118	12
29 0122 1090 056	• 10.90	56	71	118	12
29 0122 1100 056	• 11.00	56	71	118	12
29 0122 1111 056	• 11.111 7/16"	56	71	118	12
29 0122 1150 056	• 11.50	56	71	118	12
29 0122 1180 056	• 11.8	56	71	118	12
29 0122 1200 056	• 12.0	56	71	118	12



29 0200 Solid carbide Stack-drill with interior cooling for CRP/GRP-Alu – Alu-CRP/GRP

C	CRP/GRP
A	Aluminum
A	Aluminum
C	CRP/GRP



MICRO GRAIN	KARNASCH NORM
SPECIAL	DIN 6535 Shape HAK
	HSC HPC
	LAPPED
	MMKS



Cutting data	Movie
1263	

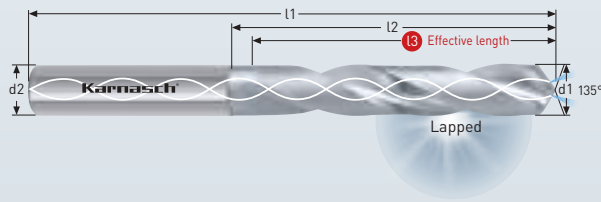
Art.	d1 h7	l3	l2	l1	d2 h6
29 0200 0300 023	• 3.0	23	28	66	6
29 0200 0310 023	• 3.1	23	28	66	6
29 0200 0320 023	• 3.2	23	28	66	6
29 0200 0330 023	• 3.3	23	28	66	6
29 0200 0340 023	• 3.4	23	28	66	6
29 0200 0350 023	• 3.5	23	28	66	6
29 0200 0360 023	• 3.6	23	28	66	6
29 0200 0370 023	• 3.7	23	28	66	6
29 0200 0380 029	• 3.8	29	36	74	6
29 0200 0390 029	• 3.9	29	36	74	6
29 0200 0400 029	• 4.0	29	36	74	6
29 0200 0410 029	• 4.1	29	36	74	6
29 0200 04176 029	• 4.176	29	36	74	6
29 0200 0420 029	• 4.2	29	36	74	6
29 0200 0430 029	• 4.3	29	36	74	6
29 0200 0440 029	• 4.4	29	36	74	6
29 0200 0450 029	• 4.5	29	36	74	6
29 0200 0460 029	• 4.6	29	36	74	6
29 0200 0470 029	• 4.7	29	36	74	6
29 0200 0480 029	• 4.8	29	36	74	6
29 0200 04837 029	• 4.837	29	36	74	6
29 0200 0490 035	• 4.9	35	44	82	6
29 0200 0500 035	• 5.0	35	44	82	6
29 0200 0510 035	• 5.1	35	44	82	6
29 0200 0520 035	• 5.2	35	44	82	6
29 0200 0530 035	• 5.3	35	44	82	6
29 0200 0540 035	• 5.4	35	44	82	6
29 0200 0550 035	• 5.5	35	44	82	6
29 0200 05550 035	• 5.55	35	44	82	6
29 0200 05565 035	• 5.565	35	44	82	6
29 0200 0560 035	• 5.6	35	44	82	6
29 0200 0570 035	• 5.7	35	44	82	6
29 0200 0580 035	• 5.8	35	44	82	6
29 0200 0590 035	• 5.9	35	44	82	6
29 0200 0600 035	• 6.0	35	44	82	6
29 0200 0610 043	• 6.1	43	53	91	8
29 0200 0620 043	• 6.2	43	53	91	8
29 0200 0630 043	• 6.3	43	53	91	8
29 0200 06365 043	• 6.365	43	53	91	8
29 0200 0640 043	• 6.4	43	53	91	8
29 0200 0650 043	• 6.5	43	53	91	8
29 0200 0660 043	• 6.6	43	53	91	8
29 0200 0670 043	• 6.7	43	53	91	8
29 0200 0680 043	• 6.8	43	53	91	8
29 0200 0690 043	• 6.9	43	53	91	8
29 0200 0700 043	• 7.0	43	53	91	8
29 0200 0710 043	• 7.1	43	53	91	8
29 0200 0720 043	• 7.2	43	53	91	8
29 0200 0730 043	• 7.3	43	53	91	8
29 0200 0740 043	• 7.4	43	53	91	8

Art.	d1 h7	l3	l2	l1	d2 h6
29 0200 0750 043	• 7.5	43	53	91	8
29 0200 0760 043	• 7.6	43	53	91	8
29 0200 0770 043	• 7.7	43	53	91	8
29 0200 0780 043	• 7.8	43	53	91	8
29 0200 0790 043	• 7.9	43	53	91	8
29 0200 07953 043	• 7.953	43	53	91	8
29 0200 0800 043	• 8.0	43	53	91	8
29 0200 0810 049	• 8.1	49	61	103	10
29 0200 0820 049	• 8.2	49	61	103	10
29 0200 0830 049	• 8.3	49	61	103	10
29 0200 0840 049	• 8.4	49	61	103	10
29 0200 0850 049	• 8.5	49	61	103	10
29 0200 0860 049	• 8.6	49	61	103	10
29 0200 0870 049	• 8.7	49	61	103	10
29 0200 0880 049	• 8.8	49	61	103	10
29 0200 0890 049	• 8.9	49	61	103	10
29 0200 0900 049	• 9.0	49	61	103	10
29 0200 0910 049	• 9.1	49	61	103	10
29 0200 0920 049	• 9.2	49	61	103	10
29 0200 0930 049	• 9.3	49	61	103	10
29 0200 0940 049	• 9.4	49	61	103	10
29 0200 0950 049	• 9.5	49	61	103	10
29 0200 09540 049	• 9.540	49	61	103	10
29 0200 0960 049	• 9.6	49	61	103	10
29 0200 0970 049	• 9.7	49	61	103	10
29 0200 0980 049	• 9.8	49	61	103	10
29 0200 0990 049	• 9.9	49	61	103	10
29 0200 1000 049	• 10.0	49	61	103	10
29 0200 1010 056	• 10.1	56	71	118	12
29 0200 1020 056	• 10.2	56	71	118	12
29 0200 1030 056	• 10.3	56	71	118	12
29 0200 1040 056	• 10.4	56	71	118	12
29 0200 1050 056	• 10.5	56	71	118	12
29 0200 1060 056	• 10.6	56	71	118	12
29 0200 1070 056	• 10.7	56	71	118	12
29 0200 1080 056	• 10.8	56	71	118	12
29 0200 1090 056	• 10.9	56	71	118	12
29 0200 1100 056	• 11.0	56	71	118	12
29 0200 1110 056	• 11.1	56	71	118	12
29 0200 11133 056	• 11.133	56	71	118	12
29 0200 1120 056	• 11.2	56	71	118	12
29 0200 1130 056	• 11.3	56	71	118	12
29 0200 1140 056	• 11.4	56	71	118	12
29 0200 1150 056	• 11.5	56	71	118	12
29 0200 1160 056	• 11.6	56	71	118	12
29 0200 1170 056	• 11.7	56	71	118	12
29 0200 1180 056	• 11.8	56	71	118	12
29 0200 1190 056	• 11.9	56	71	118	12
29 0200 1200 056	• 12.0	56	71	118	12

Solid carbide Stack-drill with interior cooling for CRP/GRP-Titanium – Titanium-CRP/GRP

29 0210

C	CRP/GRP
T	Titanium
T	Titanium
C	CRP/GRP



MICRO GRAIN	KARNASCH NORM
SPECIAL	DIN 6535 Shape HAK
	HSC HPC
	LAPPED
	MMKS



Cutting data	Movie
1263	

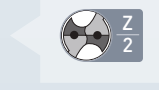
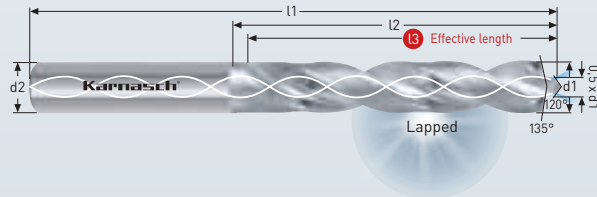
Art.	d1 h7	l3	l2	l1	d2 h6
29 0210 0300 023	• 3.0	23	28	66	6
29 0210 0310 023	• 3.1	23	28	66	6
29 0210 0320 023	• 3.2	23	28	66	6
29 0210 0330 023	• 3.3	23	28	66	6
29 0210 0340 023	• 3.4	23	28	66	6
29 0210 0350 023	• 3.5	23	28	66	6
29 0210 0360 023	• 3.6	23	28	66	6
29 0210 0370 023	• 3.7	23	28	66	6
29 0210 0380 029	• 3.8	29	36	74	6
29 0210 0390 029	• 3.9	29	36	74	6
29 0210 0400 029	• 4.0	29	36	74	6
29 0210 0410 029	• 4.1	29	36	74	6
29 0210 04176 029	• 4.176	29	36	74	6
29 0210 0420 029	• 4.2	29	36	74	6
29 0210 0430 029	• 4.3	29	36	74	6
29 0210 0440 029	• 4.4	29	36	74	6
29 0210 0450 029	• 4.5	29	36	74	6
29 0210 0460 029	• 4.6	29	36	74	6
29 0210 0470 029	• 4.7	29	36	74	6
29 0210 0480 029	• 4.8	29	36	74	6
29 0210 04837 029	• 4.837	29	36	74	6
29 0210 0490 035	• 4.9	35	44	82	6
29 0210 0500 035	• 5.0	35	44	82	6
29 0210 0510 035	• 5.1	35	44	82	6
29 0210 0520 035	• 5.2	35	44	82	6
29 0210 0530 035	• 5.3	35	44	82	6
29 0210 0540 035	• 5.4	35	44	82	6
29 0210 0550 035	• 5.5	35	44	82	6
29 0210 0555 035	• 5.55	35	44	82	6
29 0210 05565 035	• 5.565	35	44	82	6
29 0210 0560 035	• 5.6	35	44	82	6
29 0210 0570 035	• 5.7	35	44	82	6
29 0210 0580 035	• 5.8	35	44	82	6
29 0210 0590 035	• 5.9	35	44	82	6
29 0210 0600 035	• 6.0	35	44	82	6
29 0210 0610 043	• 6.1	43	53	91	8
29 0210 0620 043	• 6.2	43	53	91	8
29 0210 0630 043	• 6.3	43	53	91	8
29 0210 06365 043	• 6.365	43	53	91	8
29 0210 0640 043	• 6.4	43	53	91	8
29 0210 0650 043	• 6.5	43	53	91	8
29 0210 0660 043	• 6.6	43	53	91	8
29 0210 0670 043	• 6.7	43	53	91	8
29 0210 0680 043	• 6.8	43	53	91	8
29 0210 0690 043	• 6.9	43	53	91	8
29 0210 0700 043	• 7.0	43	53	91	8
29 0210 0710 043	• 7.1	43	53	91	8
29 0210 0720 043	• 7.2	43	53	91	8
29 0210 0730 043	• 7.3	43	53	91	8
29 0210 0740 043	• 7.4	43	53	91	8

Art.	d1 h7	l3	l2	l1	d2 h6
29 0210 0750 043	• 7.5	43	53	91	8
29 0210 0760 043	• 7.6	43	53	91	8
29 0210 0770 043	• 7.7	43	53	91	8
29 0210 0780 043	• 7.8	43	53	91	8
29 0210 0790 043	• 7.9	43	53	91	8
29 0210 07953 043	• 7.953	43	53	91	8
29 0210 0800 043	• 8.0	43	53	91	8
29 0210 0810 049	• 8.1	49	61	103	10
29 0210 0820 049	• 8.2	49	61	103	10
29 0210 0830 049	• 8.3	49	61	103	10
29 0210 0840 049	• 8.4	49	61	103	10
29 0210 0850 049	• 8.5	49	61	103	10
29 0210 0860 049	• 8.6	49	61	103	10
29 0210 0870 049	• 8.7	49	61	103	10
29 0210 0880 049	• 8.8	49	61	103	10
29 0210 0890 049	• 8.9	49	61	103	10
29 0210 0900 049	• 9.0	49	61	103	10
29 0210 0910 049	• 9.1	49	61	103	10
29 0210 0920 049	• 9.2	49	61	103	10
29 0210 0930 049	• 9.3	49	61	103	10
29 0210 0940 049	• 9.4	49	61	103	10
29 0210 0950 049	• 9.5	49	61	103	10
29 0210 09540 049	• 9.54	49	61	103	10
29 0210 0960 049	• 9.6	49	61	103	10
29 0210 0970 049	• 9.7	49	61	103	10
29 0210 0980 049	• 9.8	49	61	103	10
29 0210 0990 049	• 9.9	49	61	103	10
29 0210 1000 049	• 10.0	49	61	103	10
29 0210 1010 056	• 10.1	56	71	118	12
29 0210 1020 056	• 10.2	56	71	118	12
29 0210 1030 056	• 10.3	56	71	118	12
29 0210 1040 056	• 10.4	56	71	118	12
29 0210 1050 056	• 10.5	56	71	118	12
29 0210 1060 056	• 10.6	56	71	118	12
29 0210 1070 056	• 10.7	56	71	118	12
29 0210 1080 056	• 10.8	56	71	118	12
29 0210 1090 056	• 10.9	56	71	118	12
29 0210 1100 056	• 11.0	56	71	118	12
29 0210 1110 056	• 11.1	56	71	118	12
29 0210 11133 056	• 11.133	56	71	118	12
29 0210 1120 056	• 11.2	56	71	118	12
29 0210 1130 056	• 11.3	56	71	118	12
29 0210 1140 056	• 11.4	56	71	118	12
29 0210 1150 056	• 11.5	56	71	118	12
29 0210 1160 056	• 11.6	56	71	118	12
29 0210 1170 056	• 11.7	56	71	118	12
29 0210 1180 056	• 11.8	56	71	118	12
29 0210 1190 056	• 11.9	56	71	118	12
29 0210 1200 056	• 12.0	56	71	118	12



29 0250 Solid carbide ROBO-Stack-drill with interior cooling for CRP/GRP – Alu-CRP/GRP

	CRP/GRP
	Aluminum
	Aluminum
	CRP/GRP



MICRO GRAIN KARNASCH NORM

SPECIAL DIN 6535 Shape HAK

34° 135°

HSC HPC

LAPPED

MMKS



Cutting data [i](#) [Movie](#)

1263

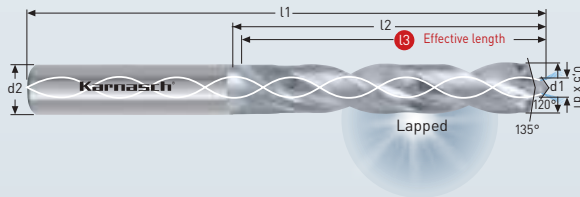
Art.	d1 h7	l3	l2	l1	d2 h6
29 0250 0800 043	• 8.0	43	53	91	8
29 0250 0810 049	• 8.1	49	61	103	10
29 0250 0820 049	• 8.2	49	61	103	10
29 0250 0830 049	• 8.3	49	61	103	10
29 0250 0840 049	• 8.4	49	61	103	10
29 0250 0850 049	• 8.5	49	61	103	10
29 0250 0860 049	• 8.6	49	61	103	10
29 0250 0870 049	• 8.7	49	61	103	10
29 0250 0880 049	• 8.8	49	61	103	10
29 0250 0890 049	• 8.9	49	61	103	10
29 0250 0900 049	• 9.0	49	61	103	10
29 0250 0910 049	• 9.1	49	61	103	10
29 0250 0920 049	• 9.2	49	61	103	10
29 0250 0930 049	• 9.3	49	61	103	10
29 0250 0940 049	• 9.4	49	61	103	10
29 0250 0950 049	• 9.5	49	61	103	10
29 0250 0954 049	• 9.54	49	61	103	10
29 0250 0960 049	• 9.6	49	61	103	10
29 0250 0970 049	• 9.7	49	61	103	10
29 0250 0980 049	• 9.8	49	61	103	10
29 0250 0990 049	• 9.9	49	61	103	10
29 0250 1000 049	• 10.0	49	61	103	10
29 0250 1010 056	• 10.1	56	71	118	12
29 0250 1020 056	• 10.2	56	71	118	12
29 0250 1030 056	• 10.3	56	71	118	12
29 0250 1040 056	• 10.4	56	71	118	12
29 0250 1050 056	• 10.5	56	71	118	12
29 0250 1060 056	• 10.6	56	71	118	12
29 0250 1070 056	• 10.7	56	71	118	12
29 0250 1080 056	• 10.8	56	71	118	12
29 0250 1090 056	• 10.9	56	71	118	12
29 0250 1100 056	• 11.0	56	71	118	12
29 0250 1110 056	• 11.1	56	71	118	12
29 0250 11133 056	• 11.133	56	71	118	12
29 0250 1120 056	• 11.2	56	71	118	12
29 0250 1130 056	• 11.3	56	71	118	12
29 0250 1140 056	• 11.4	56	71	118	12
29 0250 1150 056	• 11.5	56	71	118	12
29 0250 1160 056	• 11.6	56	71	118	12
29 0250 1170 056	• 11.7	56	71	118	12
29 0250 1180 056	• 11.8	56	71	118	12
29 0250 1190 056	• 11.9	56	71	118	12
29 0250 1200 056	• 12.0	56	71	118	12
29 0250 1210 060	• 12.1	60	77	124	14
29 0250 1220 060	• 12.2	60	77	124	14
29 0250 1230 060	• 12.3	60	77	124	14
29 0250 1240 060	• 12.4	60	77	124	14
29 0250 1250 060	• 12.5	60	77	124	14
29 0250 1260 060	• 12.6	60	77	124	14
29 0250 1270 060	• 12.7	60	77	124	14
29 0250 1272 060	• 12.72	60	77	124	14
29 0250 1280 060	• 12.8	60	77	124	14
29 0250 1290 060	• 12.9	60	77	124	14
29 0250 1300 060	• 13.0	60	77	124	14
29 0250 1310 060	• 13.1	60	77	124	14
29 0250 1320 060	• 13.2	60	77	124	14
29 0250 1330 060	• 13.3	60	77	124	14
29 0250 1340 060	• 13.4	60	77	124	14
29 0250 1350 060	• 13.5	60	77	124	14
29 0250 1360 060	• 13.6	60	77	124	14
29 0250 1370 060	• 13.7	60	77	124	14
29 0250 1380 060	• 13.8	60	77	124	14
29 0250 1390 060	• 13.9	60	77	124	14
29 0250 1400 060	• 14.0	60	77	124	14

Art.	d1 h7	l3	l2	l1	d2 h6
29 0250 1410 063	• 14.1	63	83	133	16
29 0250 1420 063	• 14.2	63	83	133	16
29 0250 14295 063	• 14.295	63	83	133	16
29 0250 1430 063	• 14.3	63	83	133	16
29 0250 1440 063	• 14.4	63	83	133	16
29 0250 1450 063	• 14.5	63	83	133	16
29 0250 1460 063	• 14.6	63	83	133	16
29 0250 1470 063	• 14.7	63	83	133	16
29 0250 1480 063	• 14.8	63	83	133	16
29 0250 1490 063	• 14.9	63	83	133	16
29 0250 1500 063	• 15.0	63	83	133	16
29 0250 1510 063	• 15.1	63	83	133	16
29 0250 1520 063	• 15.2	63	83	133	16
29 0250 1530 063	• 15.3	63	83	133	16
29 0250 1540 063	• 15.4	63	83	133	16
29 0250 1550 063	• 15.5	63	83	133	16
29 0250 1560 063	• 15.6	63	83	133	16
29 0250 1570 063	• 15.7	63	83	133	16
29 0250 1580 063	• 15.8	63	83	133	16
29 0250 15882 063	• 15.882	63	83	133	16
29 0250 1590 063	• 15.9	63	83	133	16
29 0250 1600 063	• 16.0	63	83	133	16
29 0250 1610 071	• 16.1	71	93	143	18
29 0250 1620 071	• 16.2	71	93	143	18
29 0250 1630 071	• 16.3	71	93	143	18
29 0250 1640 071	• 16.4	71	93	143	18
29 0250 1650 071	• 16.5	71	93	143	18
29 0250 1660 071	• 16.6	71	93	143	18
29 0250 1670 071	• 16.7	71	93	143	18
29 0250 1680 071	• 16.8	71	93	143	18
29 0250 1690 071	• 16.9	71	93	143	18
29 0250 1700 071	• 17.0	71	93	143	18
29 0250 1710 071	• 17.1	71	93	143	18
29 0250 1720 071	• 17.2	71	93	143	18
29 0250 1730 071	• 17.3	71	93	143	18
29 0250 1740 071	• 17.4	71	93	143	18
29 0250 1750 071	• 17.5	71	93	143	18
29 0250 1760 071	• 17.6	71	93	143	18
29 0250 1770 071	• 17.7	71	93	143	18
29 0250 1780 071	• 17.8	71	93	143	18
29 0250 1790 071	• 17.9	71	93	143	18
29 0250 1800 071	• 18.0	71	93	143	18
29 0250 1810 077	• 18.1	77	101	153	20
29 0250 1820 077	• 18.2	77	101	153	20
29 0250 1830 077	• 18.3	77	101	153	20
29 0250 1840 077	• 18.4	77	101	153	20
29 0250 1850 077	• 18.5	77	101	153	20
29 0250 1860 077	• 18.6	77	101	153	20
29 0250 1870 077	• 18.7	77	101	153	20
29 0250 1880 077	• 18.8	77	101	153	20
29 0250 1890 077	• 18.9	77	101	153	20
29 0250 1900 077	• 19.0	77	101	153	20
29 0250 19065 077	• 19.065	77	101	153	20
29 0250 1910 077	• 19.1	77	101	153	20
29 0250 1920 077	• 19.2	77	101	153	20
29 0250 1930 077	• 19.3	77	101	153	20
29 0250 1940 077	• 19.4	77	101	153	20
29 0250 1950 077	• 19.5	77	101	153	20
29 0250 1960 077	• 19.6	77	101	153	20
29 0250 1970 077	• 19.7	77	101	153	20
29 0250 1980 077	• 19.8	77	101	153	20
29 0250 1990 077	• 19.9	77	101	153	20
29 0250 2000 077	• 20.0	77	101	153	20

Solid carbide ROBO-Stack-drill with interior cooling for CRP/GRP-Titanium – Titanium-CRP/GRP

29 0260

	CRP/GRP
	Titanium
	Titanium
	CRP/GRP



Cutting data 1263

Movie

MICRO GRAIN KARNASCH NORM

SPECIAL DIN 6535 Shape HAK

34° 135°

HSC HPC

LAPPED

MMKS

Art.	d1 h7	l3	l2	l1	d2 h6
29 0260 0800 043	• 8.0	43	53	91	8
29 0260 0810 049	• 8.1	49	61	103	10
29 0260 0820 049	• 8.2	49	61	103	10
29 0260 0830 049	• 8.3	49	61	103	10
29 0260 0840 049	• 8.4	49	61	103	10
29 0260 0850 049	• 8.5	49	61	103	10
29 0260 0860 049	• 8.6	49	61	103	10
29 0260 0870 049	• 8.7	49	61	103	10
29 0260 0880 049	• 8.8	49	61	103	10
29 0260 0890 049	• 8.9	49	61	103	10
29 0260 0900 049	• 9.0	49	61	103	10
29 0260 0910 049	• 9.1	49	61	103	10
29 0260 0920 049	• 9.2	49	61	103	10
29 0260 0930 049	• 9.3	49	61	103	10
29 0260 0940 049	• 9.4	49	61	103	10
29 0260 0950 049	• 9.5	49	61	103	10
29 0260 0954 049	• 9.54	49	61	103	10
29 0260 0960 049	• 9.6	49	61	103	10
29 0260 0970 049	• 9.7	49	61	103	10
29 0260 0980 049	• 9.8	49	61	103	10
29 0260 0990 049	• 9.9	49	61	103	10
29 0260 1000 049	• 10.0	49	61	103	10
29 0260 1010 056	• 10.1	56	71	118	12
29 0260 1020 056	• 10.2	56	71	118	12
29 0260 1030 056	• 10.3	56	71	118	12
29 0260 1040 056	• 10.4	56	71	118	12
29 0260 1050 056	• 10.5	56	71	118	12
29 0260 1060 056	• 10.6	56	71	118	12
29 0260 1070 056	• 10.7	56	71	118	12
29 0260 1080 056	• 10.8	56	71	118	12
29 0260 1090 056	• 10.9	56	71	118	12
29 0260 1100 056	• 11.0	56	71	118	12
29 0260 1110 056	• 11.1	56	71	118	12
29 0260 1113 056	• 11.13	56	71	118	12
29 0260 1120 056	• 11.2	56	71	118	12
29 0260 1130 056	• 11.3	56	71	118	12
29 0260 1140 056	• 11.4	56	71	118	12
29 0260 1150 056	• 11.5	56	71	118	12
29 0260 1160 056	• 11.6	56	71	118	12
29 0260 1170 056	• 11.7	56	71	118	12
29 0260 1180 056	• 11.8	56	71	118	12
29 0260 1190 056	• 11.9	56	71	118	12
29 0260 1200 056	• 12.0	56	71	118	12
29 0260 1210 060	• 12.1	60	77	124	14
29 0260 1220 060	• 12.2	60	77	124	14
29 0260 1230 060	• 12.3	60	77	124	14
29 0260 1240 060	• 12.4	60	77	124	14
29 0260 1250 060	• 12.5	60	77	124	14
29 0260 1260 060	• 12.6	60	77	124	14
29 0260 1270 060	• 12.7	60	77	124	14
29 0260 1272 060	• 12.72	60	77	124	14
29 0260 1280 060	• 12.8	60	77	124	14
29 0260 1290 060	• 12.9	60	77	124	14
29 0260 1300 060	• 13.0	60	77	124	14
29 0260 1310 060	• 13.1	60	77	124	14
29 0260 1320 060	• 13.2	60	77	124	14
29 0260 1330 060	• 13.3	60	77	124	14
29 0260 1340 060	• 13.4	60	77	124	14
29 0260 1350 060	• 13.5	60	77	124	14
29 0260 1360 060	• 13.6	60	77	124	14
29 0260 1370 060	• 13.7	60	77	124	14
29 0260 1380 060	• 13.8	60	77	124	14
29 0260 1390 060	• 13.9	60	77	124	14
29 0260 1400 060	• 14.0	60	77	124	14

Art.	d1 h7	l3	l2	l1	d2 h6
29 0260 1410 063	• 14.1	63	83	133	16
29 0260 1420 063	• 14.2	63	83	133	16
29 0260 14295 063	• 14.295	63	83	133	16
29 0260 1430 063	• 14.3	63	83	133	16
29 0260 1440 063	• 14.4	63	83	133	16
29 0260 1450 063	• 14.5	63	83	133	16
29 0260 1460 063	• 14.6	63	83	133	16
29 0260 1470 063	• 14.7	63	83	133	16
29 0260 1480 063	• 14.8	63	83	133	16
29 0260 1490 063	• 14.9	63	83	133	16
29 0260 1500 063	• 15.0	63	83	133	16
29 0260 1510 063	• 15.1	63	83	133	16
29 0260 1520 063	• 15.2	63	83	133	16
29 0260 1530 063	• 15.3	63	83	133	16
29 0260 1540 063	• 15.4	63	83	133	16
29 0260 1550 063	• 15.5	63	83	133	16
29 0260 1560 063	• 15.6	63	83	133	16
29 0260 1570 063	• 15.7	63	83	133	16
29 0260 1580 063	• 15.8	63	83	133	16
29 0260 15882 063	• 15.882	63	83	133	16
29 0260 1590 063	• 15.9	63	83	133	16
29 0260 1600 063	• 16.0	63	83	133	16
29 0260 1610 071	• 16.1	71	93	143	18
29 0260 1620 071	• 16.2	71	93	143	18
29 0260 1630 071	• 16.3	71	93	143	18
29 0260 1640 071	• 16.4	71	93	143	18
29 0260 1650 071	• 16.5	71	93	143	18
29 0260 1660 071	• 16.6	71	93	143	18
29 0260 1670 071	• 16.7	71	93	143	18
29 0260 1680 071	• 16.8	71	93	143	18
29 0260 1690 071	• 16.9	71	93	143	18
29 0260 1700 071	• 17.0	71	93	143	18
29 0260 1710 071	• 17.1	71	93	143	18
29 0260 1720 071	• 17.2	71	93	143	18
29 0260 1730 071	• 17.3	71	93	143	18
29 0260 1740 071	• 17.4	71	93	143	18
29 0260 1750 071	• 17.5	71	93	143	18
29 0260 1760 071	• 17.6	71	93	143	18
29 0260 1770 071	• 17.7	71	93	143	18
29 0260 1780 071	• 17.8	71	93	143	18
29 0260 1790 071	• 17.9	71	93	143	18
29 0260 1800 071	• 18.0	71	93	143	18
29 0260 1810 077	• 18.1	77	101	153	20
29 0260 1820 077	• 18.2	77	101	153	20
29 0260 1830 077	• 18.3	77	101	153	20
29 0260 1840 077	• 18.4	77	101	153	20
29 0260 1850 077	• 18.5	77	101	153	20
29 0260 1860 077	• 18.6	77	101	153	20
29 0260 1870 077	• 18.7	77	101	153	20
29 0260 1880 077	• 18.8	77	101	153	20
29 0260 1890 077	• 18.9	77	101	153	20
29 0260 1900 077	• 19.0	77	101	153	20
29 0260 19065 077	• 19.065	77	101	153	20
29 0260 1910 077	• 19.1	77	101	153	20
29 0260 1920 077	• 19.2	77	101	153	20
29 0260 1930 077	• 19.3	77	101	153	20
29 0260 1940 077	• 19.4	77	101	153	20
29 0260 1950 077	• 19.5	77	101	153	20
29 0260 1960 077	• 19.6	77	101	153	20
29 0260 1970 077	• 19.7	77	101	153	20
29 0260 1980 077	• 19.8	77	101	153	20
29 0260 1990 077	• 19.9	77	101	153	20
29 0260 2000 077	• 20.0	77	101	153	20

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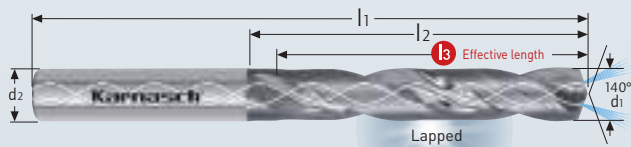
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22 0410 Solid carbide high performance twist drill with interior cooling for INCONEL

- INCONEL
- HASTELLOY
- MONEL
- NIMONIC
- NI-ALLOYS < 900 N/mm²
- NI-CO ALLOYS > 900 N/mm²



MICRO GRAIN	DIN 6537 5xD
SPECIAL	DIN 6535 Shape HAK
	HSC HPC
	LAPPED

Recommended cutting data

Material group	Material	Closeness	Cutting speed Vc m/min	Feed per revolution mm		
				Ø3 - Ø5	Ø5 - Ø8	Ø8 - Ø12
5.1 5.2 5.3	Nickel 100% Nickel alloy Nickel alloy	<900 N/mm ² >900 N/mm ²	25-35	0.04 - 0.09	0.06 - 0.16	0.13 - 0.22

Cutting data



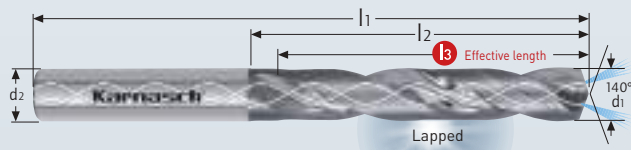
Art.	d1 h7	l3	l2	l1	d2 h6
22 0410 0300 023	• 3.0	23	28	66	6
22 0410 0320 023	• 3.2	23	28	66	6
22 0410 0330 023	• 3.3	23	28	66	6
22 0410 0340 023	• 3.4	23	28	66	6
22 0410 0350 023	• 3.5	23	28	66	6
22 0410 0370 023	• 3.7	23	28	66	6
22 0410 0380 029	• 3.8	29	36	74	6
22 0410 0390 029	• 3.9	29	36	74	6
22 0410 0400 029	• 4.0	29	36	74	6
22 0410 0420 029	• 4.2	29	36	74	6
22 0410 0430 029	• 4.3	29	36	74	6
22 0410 0450 029	• 4.5	29	36	74	6
22 0410 0465 029	• 4.65	29	36	74	6
22 0410 0480 035	• 4.8	35	44	82	6
22 0410 0500 035	• 5.0	35	44	82	6
22 0410 0510 035	• 5.1	35	44	82	6
22 0410 0520 035	• 5.2	35	44	82	6
22 0410 0530 035	• 5.3	35	44	82	6
22 0410 0540 035	• 5.4	35	44	82	6
22 0410 0550 035	• 5.5	35	44	82	6
22 0410 0555 035	• 5.55	35	44	82	6
22 0410 0560 035	• 5.6	35	44	82	6
22 0410 0570 035	• 5.7	35	44	82	6
22 0410 0580 035	• 5.8	35	44	82	6
22 0410 0600 035	• 6.0	35	44	82	6
22 0410 0610 043	• 6.1	43	53	91	8
22 0410 0620 043	• 6.2	43	53	91	8
22 0410 0630 043	• 6.3	43	53	91	8
22 0410 0640 043	• 6.4	43	53	91	8
22 0410 0650 043	• 6.5	43	53	91	8
22 0410 0660 043	• 6.6	43	53	91	8
22 0410 0670 043	• 6.7	43	53	91	8
22 0410 0680 043	• 6.8	43	53	91	8
22 0410 0690 043	• 6.9	43	53	91	8
22 0410 0700 043	• 7.0	43	53	91	8
22 0410 0710 043	• 7.1	43	53	91	8
22 0410 0720 043	• 7.2	43	53	91	8
22 0410 0730 043	• 7.3	43	53	91	8

Art.	d1 h7	l3	l2	l1	d2 h6
22 0410 0740 043	• 7.4	43	53	91	8
22 0410 0750 043	• 7.5	43	53	91	8
22 0410 0760 043	• 7.6	43	53	91	8
22 0410 0780 043	• 7.8	43	53	91	8
22 0410 0790 043	• 7.9	43	53	91	8
22 0410 0800 043	• 8.0	43	53	91	8
22 0410 0810 049	• 8.1	49	61	103	10
22 0410 0820 049	• 8.2	49	61	103	10
22 0410 0830 049	• 8.3	49	61	103	10
22 0410 0840 049	• 8.4	49	61	103	10
22 0410 0850 049	• 8.5	49	61	103	10
22 0410 0860 049	• 8.6	49	61	103	10
22 0410 0870 049	• 8.7	49	61	103	10
22 0410 0880 049	• 8.8	49	61	103	10
22 0410 0890 049	• 8.9	49	61	103	10
22 0410 0900 049	• 9.0	49	61	103	10
22 0410 0910 049	• 9.1	49	61	103	10
22 0410 0920 049	• 9.2	49	61	103	10
22 0410 0930 049	• 9.3	49	61	103	10
22 0410 0950 049	• 9.5	49	61	103	10
22 0410 0960 049	• 9.6	49	61	103	10
22 0410 0970 049	• 9.7	49	61	103	10
22 0410 0980 049	• 9.8	49	61	103	10
22 0410 1000 049	• 10.0	49	61	103	10
22 0410 1010 056	• 10.1	56	69	116	12
22 0410 1020 056	• 10.2	56	69	116	12
22 0410 1030 056	• 10.3	56	69	116	12
22 0410 1050 056	• 10.5	56	69	116	12
22 0410 1060 056	• 10.6	56	69	116	12
22 0410 1070 056	• 10.7	56	69	116	12
22 0410 1080 056	• 10.8	56	69	116	12
22 0410 1090 056	• 10.9	56	69	116	12
22 0410 1100 056	• 11.0	56	69	116	12
22 0410 1120 056	• 11.2	56	69	116	12
22 0410 1150 056	• 11.5	56	69	116	12
22 0410 1180 056	• 11.8	56	69	116	12
22 0410 1200 056	• 12.0	56	69	116	12

Solid carbide high performance twist drill with interior cooling for **TITANIUM**

22 0412

- TITANIUM
- TITANIUM < 1200 N/mm²
- TITANIUM GRADE 1
- TITANIUM GRADE 2
- TITANIUM GRADE 3
- TITANIUM GRADE 4
- TITANIUM GRADE 5
- TITANIUM GRADE 12



MICRO GRAIN	DIN 6537 5xD
SPECIAL	DIN 6535 Shape HAK
	HSC HPC
	LAPPED

Recommended cutting data

Material group	Material	Closeness	Cutting speed Vc m/min	Feed per revolution mm		
				Ø3 - Ø5	Ø5 - Ø8	Ø8 - Ø12
4.1 4.2 4.3	Pure Titanium 3.7105-3.7115-3.7124 3.7154-3.7164-3.7124	<900 N/mm ² >900 N/mm ²	30-45	0.10 - 0.17	0.14 - 0.26	0.20 - 0.40

Cutting data

189

Art.	d1 h7	l3	l2	l1	d2 h6
22 0412 0300 023	• 3.0	23	28	66	6
22 0412 0320 023	• 3.2	23	28	66	6
22 0412 0330 023	• 3.3	23	28	66	6
22 0412 0340 023	• 3.4	23	28	66	6
22 0412 0350 023	• 3.5	23	28	66	6
22 0412 0370 023	• 3.7	23	28	66	6
22 0412 0380 029	• 3.8	29	36	74	6
22 0412 0390 029	• 3.9	29	36	74	6
22 0412 0400 029	• 4.0	29	36	74	6
22 0412 0420 029	• 4.2	29	36	74	6
22 0412 0430 029	• 4.3	29	36	74	6
22 0412 0450 029	• 4.5	29	36	74	6
22 0412 0465 029	• 4.65	29	36	74	6
22 0412 0480 035	• 4.8	35	44	82	6
22 0412 0500 035	• 5.0	35	44	82	6
22 0412 0510 035	• 5.1	35	44	82	6
22 0412 0520 035	• 5.2	35	44	82	6
22 0412 0530 035	• 5.3	35	44	82	6
22 0412 0540 035	• 5.4	35	44	82	6
22 0412 0550 035	• 5.5	35	44	82	6
22 0412 0555 035	• 5.55	35	44	82	6
22 0412 0560 035	• 5.6	35	44	82	6
22 0412 0570 035	• 5.7	35	44	82	6
22 0412 0580 035	• 5.8	35	44	82	6
22 0412 0600 035	• 6.0	35	44	82	6
22 0412 0610 043	• 6.1	43	53	91	8
22 0412 0620 043	• 6.2	43	53	91	8
22 0412 0630 043	• 6.3	43	53	91	8
22 0412 0640 043	• 6.4	43	53	91	8
22 0412 0650 043	• 6.5	43	53	91	8
22 0412 0660 043	• 6.6	43	53	91	8
22 0412 0670 043	• 6.7	43	53	91	8
22 0412 0680 043	• 6.8	43	53	91	8
22 0412 0690 043	• 6.9	43	53	91	8
22 0412 0700 043	• 7.0	43	53	91	8
22 0412 0710 043	• 7.1	43	53	91	8
22 0412 0720 043	• 7.2	43	53	91	8
22 0412 0730 043	• 7.3	43	53	91	8

Art.	d1 h7	l3	l2	l1	d2 h6
22 0412 0740 043	• 7.4	43	53	91	8
22 0412 0750 043	• 7.5	43	53	91	8
22 0412 0760 043	• 7.6	43	53	91	8
22 0412 0780 043	• 7.8	43	53	91	8
22 0412 0790 043	• 7.9	43	53	91	8
22 0412 0800 043	• 8.0	43	53	91	8
22 0412 0810 049	• 8.1	49	61	103	10
22 0412 0820 049	• 8.2	49	61	103	10
22 0412 0830 049	• 8.3	49	61	103	10
22 0412 0840 049	• 8.4	49	61	103	10
22 0412 0850 049	• 8.5	49	61	103	10
22 0412 0860 049	• 8.6	49	61	103	10
22 0412 0870 049	• 8.7	49	61	103	10
22 0412 0880 049	• 8.8	49	61	103	10
22 0412 0890 049	• 8.9	49	61	103	10
22 0412 0900 049	• 9.0	49	61	103	10
22 0412 0910 049	• 9.1	49	61	103	10
22 0412 0920 049	• 9.2	49	61	103	10
22 0412 0930 049	• 9.3	49	61	103	10
22 0412 0950 049	• 9.5	49	61	103	10
22 0412 0960 049	• 9.6	49	61	103	10
22 0412 0970 049	• 9.7	49	61	103	10
22 0412 0980 049	• 9.8	49	61	103	10
22 0412 1000 049	• 10.0	49	61	103	10
22 0412 1010 056	• 10.1	56	69	116	12
22 0412 1020 056	• 10.2	56	69	116	12
22 0412 1030 056	• 10.3	56	69	116	12
22 0412 1050 056	• 10.5	56	69	116	12
22 0412 1060 056	• 10.6	56	69	116	12
22 0412 1070 056	• 10.7	56	69	116	12
22 0412 1080 056	• 10.8	56	69	116	12
22 0412 1090 056	• 10.9	56	69	116	12
22 0412 1100 056	• 11.0	56	69	116	12
22 0412 1120 056	• 11.2	56	69	116	12
22 0412 1150 056	• 11.5	56	69	116	12
22 0412 1180 056	• 11.8	56	69	116	12
22 0412 1200 056	• 12.0	56	69	116	12

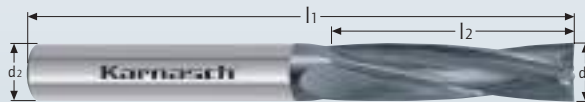
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29 0305

EXPERT

Diamond coated solid carbide finishing cutter, "UGT"

COMPOSITES	AFK Aramid
GRP	GRAPHITE
CRP	FR 4



Recommended cutting data

	GRP	CRP
Vc m/min.	100-180	100-180
f/U mm	0.3-0.5	0.2-0.4

Optimal machining data must be determined during the run in phase.

Art.	d1	l2	d2	l1	Z
29 0305 0300 10 04	• 3.0	10	4	40	4
29 0305 0400 15 04	• 4.0	15	6	50	4
29 0305 0500 15 04	• 5.0	15	6	50	4
29 0305 0600 15 04	• 6.0	15	6	50	4
29 0305 0600 25 04	• 6.0	25	6	64	4
29 0305 0635 26 04	• 6.35	26	6.35	64	4
29 0305 0800 15 04	• 8.0	15	8	60	4
29 0305 0800 30 04	• 8.0	30	8	76	4
29 0305 0953 30 04	• 9.53	30	9.53	64	4
29 0305 1000 20 04	• 10.0	20	10	73	4
29 0305 1000 40 04	• 10.0	40	10	93	4
29 0305 1200 20 04	• 12.0	20	12	73	4
29 0305 1200 40 04	• 12.0	40	12	96	4
29 0305 1600 20 06	% 16.0	20	16	80	6
29 0305 2000 20 04	% 20.0	20	20	80	4
29 0305 2000 20 08	% 20.0	20	20	80	8
29 0305 2000 42 08	% 20.0	42	20	105	8

% Sale item. While stocks last.

MICRO GRAIN	KARNASCH NORM
SPECIAL	DIN 6535 Shape HA
	15°
	HSC HPC
	DCA-06 PLUS
	Air

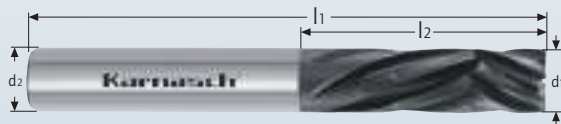
Cutting data



29 0412

Diamond-coated solid-carbide type "V" end mill for burr-free milling of upper and lower edge of fibre-reinforced plastics

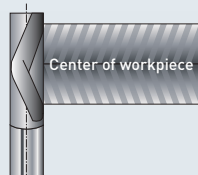
COMPOSITES	PEEK CF30
GRP	Honey comb
PVDF GF25	
POM GF25	
PA-66	
CRP	
PEEK GF30	
PTFE CF25	



d1* = Ø 6.0 tol -0.000 / -0.048

d1* = Ø 8.0 - Ø 10.0 tol -0.000 / -0.058

d1* = Ø 12.0 - Ø 16.0 tol -0.000 / -0.070



Concurrent drawing and pushing blade alignment prevents delamination.

Art.	d1*	l2	d2 h5	l1	Z
29 0412 0600 16	% 6	16	6	58	4
29 0412 0600 21	% 6	21	6	65	4
29 0412 0800 22	% 8	22	8	70	6
29 0412 0800 28	% 8	28	8	85	6
29 0412 1000 25	% 10	25	10	72	6
29 0412 1000 32	% 10	32	10	85	6
29 0412 1200 28	% 12	28	12	85	6
29 0412 1200 36	% 12	36	12	92	6
29 0412 1600 35	% 16	35	16	92	6
29 0412 1600 48	% 16	48	16	110	6

% Sale item. While stocks last.

MICRO GRAIN	KARNASCH NORM
SPECIAL	DIN 6535 Shape HA
	HPC
	DCC031 impuls
	Air

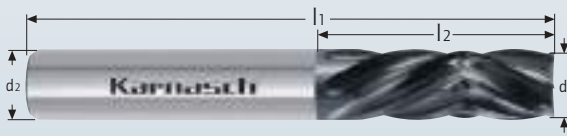
Cutting data



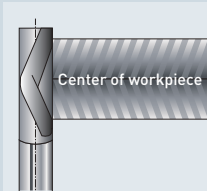
Diamond-coated solid-carbide type "VR" end mill for burr-free milling upper and lower edges in fibre-reinforced plastics **without inner cooling**

29 0416

COMPO-SITES	CRP
GRP	PEEK GF30
PVDF GF25	PTFE CF25
POM GF25	PEEK CF30
PA-66	Honey comb



d1* = Ø 6.0	tol -0.000 / -0.048
d1* = Ø 8.0 - Ø 10.0	tol -0.000 / -0.058
d1* = Ø 12.0	tol -0.000 / -0.070



Concurrent drawing and pushing blade alignment prevents delamination.

Art.	d1*	l2	d2 h5	l1	Z
29 0416 0600 16	6	16	6	58	4
29 0416 0800 22	8	22	8	70	6
29 0416 1000 25	10	25	10	72	6
29 0416 1200 28	12	28	12	85	6

% Sale item. While stocks last.

MICRO GRAIN	KARNASCH NORM
SPECIAL	DIN 6535 Shape HA
	HPC
	DCC031 impuls
	Air

Cutting data

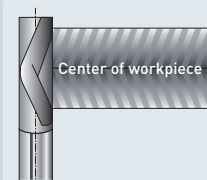
Diamond-coated solid-carbide type "VRK" end mill for burr-free milling upper and lower edges in fibre-reinforced plastics **with inner cooling**

29 0417

COMPO-SITES	CRP
GRP	PEEK GF30
PVDF GF25	PTFE CF25
POM GF25	PEEK CF30
PA-66	Honey comb



d1* = Ø 6.0	tol -0.000 / -0.048
d1* = Ø 8.0 - Ø 10.0	tol -0.000 / -0.058
d1* = Ø 12.0	tol -0.000 / -0.070



Concurrent drawing and pushing blade alignment prevents delamination.

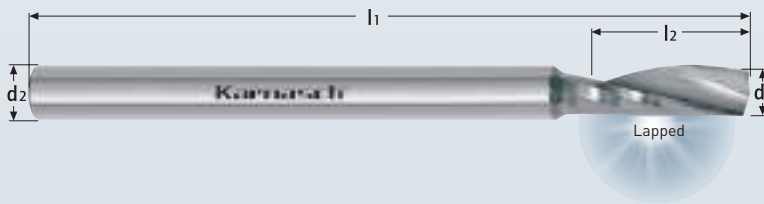
Art.	d1*	l2	d2 h5	l1	Z
29 0417 0600 16	6	16	6	58	4
29 0417 0800 22	8	22	8	70	6
29 0417 1000 25	10	25	10	72	6
29 0417 1200 28	12	28	12	85	6

% Sale item. While stocks last.

MICRO GRAIN	KARNASCH NORM
SPECIAL	DIN 6535 Shape HAK
	HPC
	DCC031 impuls
	Air

Cutting data

29 1652 Solid carbide one-tooth end mill, right spiral – right cutting, drawing cut (upcut)



d1* = Ø 3.0	tol -0.000 / -0.040
d1* = Ø 4.0 - Ø 6.0	tol -0.000 / -0.048
d1* = Ø 8.0 - Ø 10.0	tol -0.000 / -0.058

- Acrylic
- PMMA GS
- PE PP
- PA
- SAN
- ABS
- PC PET PPE
- PMMA XT
- MAKROLON
- Wax

Art.	d1*	l2	d2 h6	l1	Z
29 1652 0010 003 03 030	• 0.10	0.3	3	30	1
29 1652 0020 006 03 030	• 0.20	0.6	3	30	1
29 1652 0030 010 03 030	• 0.30	1.0	3	30	1
29 1652 0040 010 03 030	• 0.40	1.0	3	30	1
29 1652 0050 015 03 030	• 0.50	1.5	3	30	1
29 1652 0060 030 03 030	• 0.60	3.0	3	30	1
29 1652 0080 050 03 030	• 0.80	5.0	3	30	1
29 1652 0100 040 03 030	• 1.00	4.0	3	30	1
29 1652 0150 060 03 030	• 1.50	6.0	3	30	1
29 1652 0200 060 03 030	• 2.00	6.0	3	30	1
29 1652 0200 060 04 050	• 2.00	6.0	4	50	1
29 1652 0200 060 06 050	• 2.00	6.0	6	50	1
29 1652 0200 080 03 030	• 2.00	8.0	3	30	1
29 1652 0200 110 03 038	• 2.00	11.0	3	38	1
29 1652 0300 060 03 030	• 3.00	6.0	3	30	1
29 1652 0300 060 06 050	• 3.00	6.0	6	50	1
29 1652 0300 110 03 038	• 3.00	11.0	3	38	1
29 1652 0300 110 04 050	• 3.00	11.0	4	50	1
29 1652 0300 110 06 050	• 3.00	11.0	6	50	1
29 1652 0300 220 03 050	• 3.00	22.0	3	50	1
29 1652 0300 220 06 060	• 3.00	22.0	6	60	1
29 1652 0400 080 04 050	• 4.00	8.0	4	50	1
29 1652 0400 080 06 050	• 4.00	8.0	6	50	1
29 1652 0400 120 04 050	• 4.00	12.0	4	50	1
29 1652 0400 120 06 050	• 4.00	12.0	6	50	1
29 1652 0400 140 04 050	• 4.00	14.0	4	50	1
29 1652 0400 140 06 050	• 4.00	14.0	6	50	1
29 1652 0400 220 04 050	• 4.00	22.0	4	50	1
29 1652 0400 220 06 050	• 4.00	22.0	6	50	1
29 1652 0400 320 04 064	• 4.00	32.0	4	64	1
29 1652 0500 120 06 050	• 5.00	12.0	6	50	1
29 1652 0500 160 06 050	• 5.00	16.0	6	50	1
29 1652 0500 220 06 050	• 5.00	22.0	6	50	1
29 1652 0600 120 06 050	• 6.00	12.0	6	50	1
29 1652 0600 220 06 050	• 6.00	22.0	6	50	1
29 1652 0600 220 06 058	• 6.00	22.0	6	58	1
29 1652 0600 320 06 064	• 6.00	32.0	6	64	1
29 1652 0600 420 06 075	• 6.00	42.0	6	75	1
29 1652 0600 320 06 100	• 6.00	32.0	6	100	1
29 1652 0800 220 08 064	• 8.00	22.0	8	64	1
29 1652 0800 320 08 064	• 8.00	32.0	8	64	1
29 1652 0800 420 08 075	• 8.00	42.0	8	75	1
29 1652 0800 420 08 100	• 8.00	42.0	8	100	1
29 1652 0800 550 08 100	• 8.00	55.0	8	100	1
29 1652 1000 220 10 064	• 10.00	22.0	10	64	1
29 1652 1000 320 10 075	• 10.00	32.0	10	75	1
29 1652 1000 550 10 100	• 10.00	55.0	10	100	1
29 1652 1000 750 10 120	• 10.00	75.0	10	120	1

- MICRO GRAIN** KARNASCH NORM
- SPECIAL** DIN 6535 Shape HA
- 30°
- HSC** High-Speed-Cutting
- LAPPED**
- Air

Cutting data

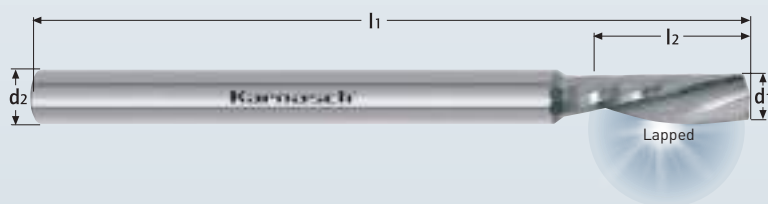
1275

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Solid carbide one-tooth end mill, left spiral – right cutting, pushing cut (down cut)

29 1654

- Acrylic
- PMMA GS
- PE PP
- PA
- SAN
- ABS
- PC PET PPE
- PMMA XT
- MAKROLON
- Wax



d1* = Ø 3.0	tol -0.000 / -0.040
d1* = Ø 4.0 - Ø 6.0	tol -0.000 / -0.048
d1* = Ø 8.0 - Ø 10.0	tol -0.000 / -0.058

Art.	d1*	l2	d2 h6	l3	l1	Z
29 1654 0100 04 03 040	• 1.0	4	3	-	40	1
29 1654 0150 06 03 040	• 1.5	6	3	-	40	1
29 1654 0200 03 03 050	• 2.0	3	3	-	50	1
29 1654 0200 06 06 050	• 2.0	6	6	-	50	1
29 1654 0200 08 03 040	• 2.0	8	3	-	40	1
29 1654 0300 04 03 050	• 3.0	4	3	-	50	1
29 1654 0300 06 03 050	• 3.0	6	3	-	50	1
29 1654 0300 10 03 030	• 3.0	10	3	-	30	1
29 1654 0300 10 03 060	• 3.0	10	3	-	60	1
29 1654 0300 12 06 050	• 3.0	12	6	-	50	1
29 1654 0300 15 08 075	• 3.0	15	8	-	75	1
29 1654 0300 18 08 100	• 3.0	18	8	-	100	1
29 1654 0400 05 04 050	• 4.0	5	4	-	50	1
29 1654 0400 08 04 040	• 4.0	8	4	-	40	1
29 1654 0400 14 06 050	• 4.0	14	6	-	50	1
29 1654 0400 18 08 075	• 4.0	18	8	-	75	1
29 1654 0400 20 04 060	• 4.0	20	4	-	60	1
29 1654 0400 22 08 100	• 4.0	22	8	-	100	1
29 1654 0500 06 06 050	• 5.0	6	6	-	50	1
29 1654 0500 10 06 040	• 5.0	10	6	-	40	1
29 1654 0500 16 06 050	• 5.0	16	6	-	50	1
29 1654 0500 22 06 060	• 5.0	22	6	-	60	1
29 1654 0500 25 08 075	• 5.0	25	8	-	75	1
29 1654 0500 25 08 100	• 5.0	25	8	-	100	1
29 1654 0500 30 06 070	• 5.0	30	6	-	70	1
29 1654 0600 07 06 050	• 6.0	7	6	-	50	1
29 1654 0600 18 06 050	• 6.0	18	6	-	50	1
29 1654 0600 20 06 060	• 6.0	20	6	-	60	1
29 1654 0600 20 06 100	• 6.0	20	6	40	100	1
29 1654 0600 25 06 065	• 6.0	25	6	-	65	1
29 1654 0600 25 08 075	• 6.0	25	8	-	75	1
29 1654 0600 40 06 080	• 6.0	40	6	-	80	1
29 1654 0600 30 08 100	• 6.0	30	8	-	100	1
29 1654 0800 10 08 050	• 8.0	10	8	-	50	1
29 1654 0800 20 08 050	• 8.0	20	8	-	50	1
29 1654 0800 20 08 060	• 8.0	20	8	-	60	1
29 1654 0800 20 08 100	• 8.0	20	8	40	100	1
29 1654 0800 35 08 100	• 8.0	35	8	-	100	1
29 1654 1000 25 10 070	• 10.0	25	10	-	70	1
29 1654 1000 25 10 120	• 10.0	25	10	50	120	1
29 1654 1000 32	• 10.0	32	10	-	75	1
29 1654 1000 35 10 090	• 10.0	35	10	-	90	1

• Sale item. While stocks last.

MICRO GRAIN	KARNASCH NORM
SPECIAL	DIN 6535 Shape HA
	30°
	HSC High-Speed-Cutting
	LAPPED
	Air

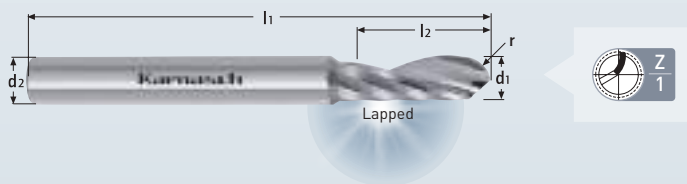
Cutting data



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Index

29 1658 Solid carbide one-tooth end mill with corner radius, right spiral – right cutting, mirror finish



- Acrylic
- PMMA GS
- PE PP
- PA
- SAN
- ABS
- PC PET PPE
- PMMA XT
- MAKROLON
- Wax

Art.	d1	r	l2	d2 h5	l1
29 1658 0200 06	• 2	1.0	6	6	60
29 1658 0300 09	• 3	1.5	9	6	60
29 1658 0400 12	• 4	2.0	12	6	60
29 1658 0500 15	• 5	2.5	15	6	60
29 1658 0600 18	• 6	3.0	18	6	70
29 1658 0800 24	• 8	4.0	24	8	80
29 1658 1000 30	• 10	5.0	30	10	80

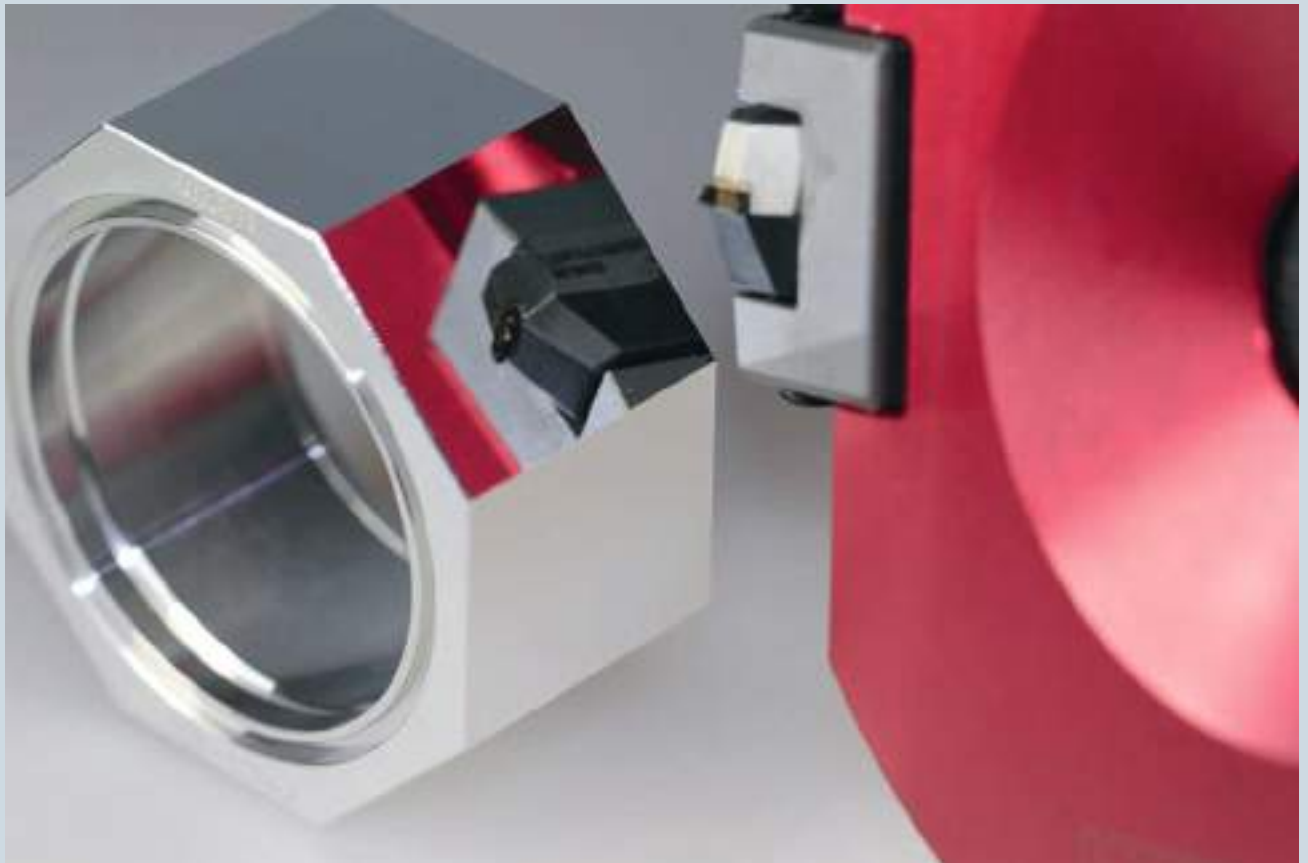
Technology: No chipping at 50-times magnification (< Rz 0.5)

MICRO GRAIN	KARNASCH NORM
SPECIAL	DIN 6535 Shape HA
	Z=1
	HSC High-Speed-Cutting
	LAPPED
	Air

Cutting data

1275

MCD mirror finish cutter head 29 6620 page 213

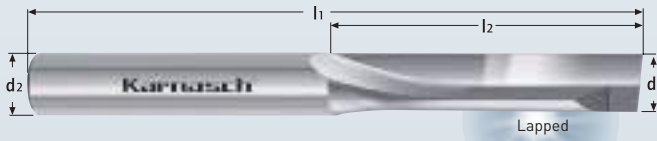


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Solid carbide one-tooth end mill, straight fluted – right cutting

29 1661

- Acrylic
- PMMA
GS
- PE
PP
- PA
- SAN
- ABS
- PC
PET
PPE
- PMMA
XT
- MAKROLON
- Wax



d1* = Ø ≤ 3.0	tol -0.000 / -0.040
d1* = Ø 4.0 - Ø 6.0	tol -0.000 / -0.048
d1* = Ø 8.0 - Ø 10.0	tol -0.000 / -0.058

Art.	d1*	l2	d2 h6	l1
29 1661 0100 04 040	• 1.0	4	3	40
29 1661 0150 06 040	• 1.5	6	3	40
29 1661 0200 03 050	• 2.0	3	3	50
29 1661 0200 06 050	• 2.0	6	6	50
29 1661 0200 08 040	• 2.0	8	3	40
29 1661 0250 09 040	• 2.5	9	3	40
29 1661 0300 06 040	• 3.0	6	3	40
29 1661 0300 10 030	• 3.0	10	3	30
29 1661 0300 10 060	• 3.0	10	3	60
29 1661 0300 12 050	• 3.0	12	6	50
29 1661 0300 15 075	• 3.0	15	8	75
29 1661 0300 18 100	• 3.0	18	8	100
29 1661 0400 05 050	• 4.0	5	4	50
29 1661 0400 08 040	• 4.0	8	4	40
29 1661 0400 14 050	• 4.0	14	6	50
29 1661 0400 18 075	• 4.0	18	8	75
29 1661 0400 20 060	• 4.0	20	4	60
29 1661 0400 22 100	• 4.0	22	8	100
29 1661 0400 30 070	• 4.0	30	4	70
29 1661 0500 06 050	• 5.0	6	5	50
29 1661 0500 10 040	• 5.0	10	5	40
29 1661 0500 16 050	• 5.0	16	6	50
29 1661 0500 22 060	• 5.0	22	5	60
29 1661 0500 25 075	• 5.0	25	8	75
29 1661 0500 25 100	• 5.0	25	8	100
29 1661 0500 30 070	• 5.0	30	5	70
29 1661 0600 07 050	• 6.0	7	6	50
29 1661 0600 18 050	• 6.0	18	6	50
29 1661 0600 20 060	• 6.0	20	6	60
29 1661 0600 25 065	• 6.0	25	6	65
29 1661 0600 25 075	• 6.0	25	8	75
29 1661 0600 30 100	• 6.0	30	8	100
29 1661 0600 40 080	• 6.0	40	6	80
29 1661 0800 09 050	• 8.0	9	8	50
29 1661 0800 20 050	• 8.0	20	8	50
29 1661 0800 20 060	• 8.0	20	8	60
29 1661 0800 30 075	• 8.0	30	8	75
29 1661 0800 35 100	• 8.0	35	8	100
29 1661 1000 25 070	• 10.0	25	10	70
29 1661 1000 35 090	• 10.0	35	10	90



MICRO GRAIN	KARNASCH NORM
SPECIAL	DIN 6535 Shape HA
	HSC High-Speed-Cutting
	LAPPED

Cutting data

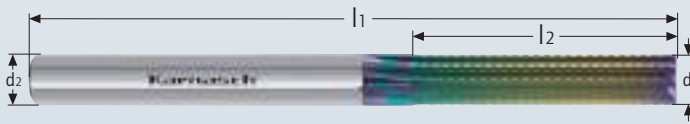


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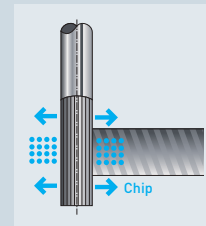
29 1751 Solid carbide roughing and finishing cutter for CRP / GRP, 8 milling blades / straight teeth

COMPOSITES	PA PE PI
PTFE FEP PVDF	ALUMINIUM non-ferrous
PA	Copper
PA-66	
PE PP	
PMMA GS	
PMMA XT	
SAN	
Honey comb	



d1* = Ø 4.0 - Ø 6.0	tol -0.000 / -0.048
d1* = Ø 8.0 - Ø 10.0	tol -0.000 / -0.058
d1* = Ø 12.0 - Ø 16.0	tol -0.000 / -0.070
d1* = Ø 20.0	tol -0.000 / -0.084

Art.	d1*	l2	d2 h6	l1	Z
29 1751 0400 16	• 4	16	6	60	8
29 1751 0500 18	• 5	18	6	60	8
29 1751 0600 20	• 6	20	6	60	8
29 1751 0600 25	• 6	25	6	65	8
29 1751 0600 30	• 6	30	6	75	8
29 1751 0600 50	• 6	50	6	100	8
29 1751 0800 22	• 8	22	8	63	8
29 1751 0800 32	• 8	32	8	75	8
29 1751 0800 50	• 8	50	8	100	8
29 1751 1000 32	• 10	32	10	72	8
29 1751 1000 60	• 10	60	10	120	8
29 1751 1200 32	• 12	32	12	82	8
29 1751 1200 70	• 12	70	12	120	8
29 1751 1600 36	• 16	36	16	92	8
29 1751 1600 80	• 16	80	16	150	8
29 1751 2000 45	• 20	45	20	104	8
29 1751 2000 80	• 20	80	20	150	8



MICRO GRAIN	KARNASCH NORM
	DIN 6535 Shape HA
	HPC
	NHC 7000

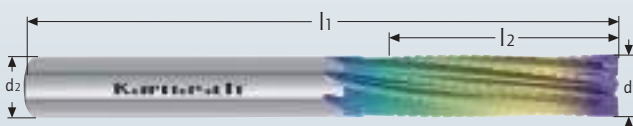
Cutting data

1279

• Sale item. While stocks last.

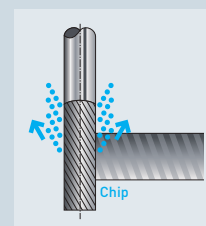
29 1752 Solid carbide roughing and finishing cutter for CRP/GRP, 8 milling blades / drawing cut

COMPOSITES	PA PE PI
PTFE FEP PVDF	ALUMINIUM non-ferrous
PA	Copper
PA-66	
PE PP	
PMMA GS	
PMMA XT	
SAN	
Honey comb	



d1* = Ø 4.0 - Ø 6.0	tol -0.000 / -0.048
d1* = Ø 8.0 - Ø 10.0	tol -0.000 / -0.058
d1* = Ø 12.0 - Ø 16.0	tol -0.000 / -0.070
d1* = Ø 20.0	tol -0.000 / -0.084

Art.	d1*	l2	d2 h6	l1	Z
29 1752 0400 16	• 4	16	6	60	8
29 1752 0500 18	• 5	18	6	60	8
29 1752 0600 20	• 6	20	6	60	8
29 1752 0600 25	• 6	25	6	65	8
29 1752 0600 30	• 6	30	6	75	8
29 1752 0600 50	• 6	50	6	100	8
29 1752 0800 22	• 8	22	8	63	8
29 1752 0800 32	• 8	32	8	75	8
29 1752 0800 50	• 8	50	8	100	8
29 1752 1000 32	• 10	32	10	72	8
29 1752 1000 60	• 10	60	10	120	8
29 1752 1200 32	• 12	32	12	82	8
29 1752 1200 70	• 12	70	12	120	8
29 1752 1600 36	• 16	36	16	92	8
29 1752 1600 80	• 16	80	16	150	8
29 1752 2000 45	• 20	45	20	104	8
29 1752 2000 80	• 20	80	20	150	8



MICRO GRAIN	KARNASCH NORM
	DIN 6535 Shape HA
	HPC
	NHC 7000

Cutting data

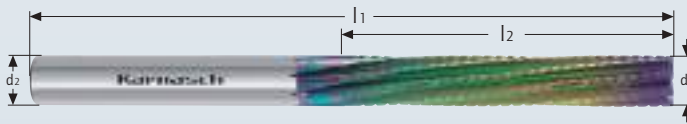
1279

• Sale item. While stocks last.

Solid carbide roughing and finishing cutter for CRP/GRP, 8 milling blades / pushing cut

29 1753

COMPOSITES	PA PE PI
PTFE FEP PVDF	ALUMINIUM non-ferrous
PA	Copper
PA-66	
PE PP	
PMMA GS	
PMMA XT	
SAN	
Honey comb	

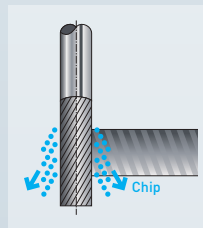


$d1^*$ = Ø 4.0 - Ø 6.0	tol -0.000 / -0.048
$d1^*$ = Ø 8.0 - Ø 10.0	tol -0.000 / -0.058
$d1^*$ = Ø 12.0 - Ø 16.0	tol -0.000 / -0.070
$d1^*$ = Ø 20.0	tol -0.000 / -0.084

Art.	$d1^*$	$l2$	$d2$ $h6$	$l1$	Z
29 1753 0400 16	• 4	16	6	60	8
29 1753 0500 18	• 5	18	6	60	8
29 1753 0600 20	• 6	20	6	60	8
29 1753 0600 25	• 6	25	6	65	8
29 1753 0600 30	• 6	30	6	75	8
29 1753 0600 50	• 6	50	6	100	8
29 1753 0800 22	• 8	22	8	63	8
29 1753 0800 32	• 8	32	8	75	8
29 1753 0800 50	• 8	50	8	100	8
29 1753 1000 32	• 10	32	10	72	8
29 1753 1000 60	• 10	60	10	120	8
29 1753 1200 32	• 12	32	12	82	8
29 1753 1200 70	• 12	70	12	120	8
29 1753 2000 45	• 20	45	20	104	8
29 1753 2000 80	• 20	80	20	150	8

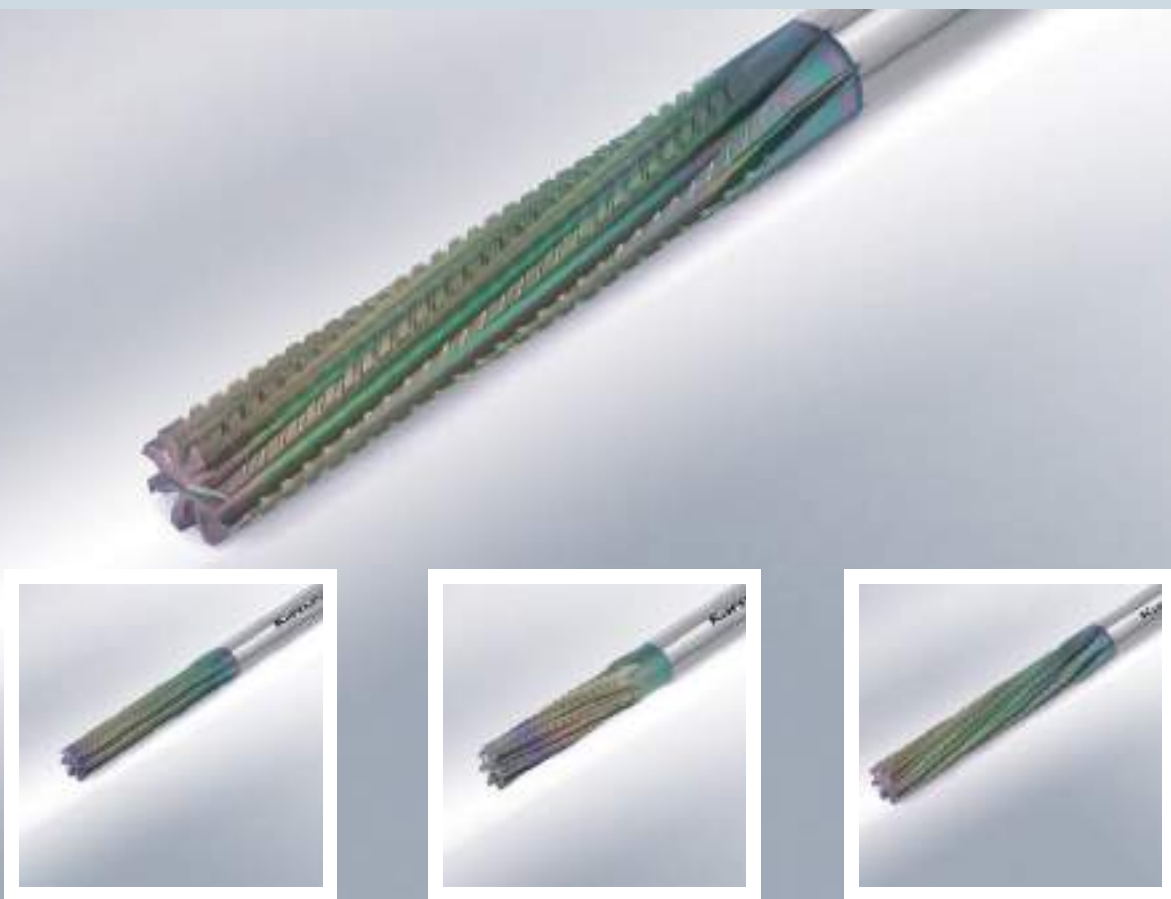
☞ Sale item. While stocks last.

MICRO GRAIN	KARNASCH NORM
	DIN 6535 Shape HA
	HPC
	NHC 7000
	Air



Cutting data

1279



29 1751
Straight flute

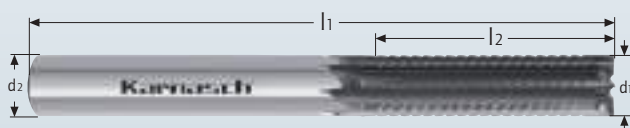
29 1752
Rightspiral, rightcutting

29 1753
Leftspiral, rightcutting

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29 1761 Solid carbide roughing and finishing cutter for CRP-GRP, 8 milling blades 4 cutting edges / straight teeth

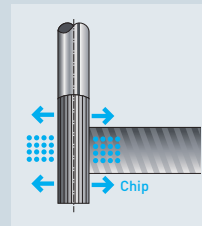
- COMPO-SITES GRAPHITE
- CRP FR 4
- PVDF GF25
- GF GF25
- PEEK GF30
- PA66 GF30
- POM GF25
- PVDF GF30
- Honey comb



d1* = Ø 4.0 - Ø 6.0	tol -0.000 / -0.048
d1* = Ø 8.0 - Ø 10.0	tol -0.000 / -0.058
d1* = Ø 12.0 - Ø 16.0	tol -0.000 / -0.070
d1* = Ø 20.0	tol -0.000 / -0.084

Art.	d1*	l2	d2 h6	l1	Z
29 1761 0400 16	• 4	16	6	60	8
29 1761 0500 18	• 5	18	6	60	8
29 1761 0600 20	• 6	20	6	60	8
29 1761 0600 25	• 6	25	6	65	8
29 1761 0600 30	• 6	30	6	75	8
29 1761 0600 50	• 6	50	6	100	8
29 1761 0800 22	• 8	22	8	63	8
29 1761 0800 32	• 8	32	8	75	8
29 1761 0800 50	• 8	50	8	100	8
29 1761 1000 32	• 10	32	10	72	8
29 1761 1000 60	• 10	60	10	120	8
29 1761 1200 32	• 12	32	12	82	8
29 1761 1200 70	• 12	70	12	120	8
29 1761 1600 36	• 16	36	16	92	8
29 1761 1600 80	• 16	80	16	150	8
29 1761 2000 45	• 20	45	20	104	8
29 1761 2000 80	• 20	80	20	150	8

• Sale item. While stocks last.



MICRO GRAIN	KARNASCH NORM
	DIN 6535 Shape HA
	0°
	HPC
	DCC031 impuls
	Air

Cutting data

1279

29 1762 Solid carbide roughing and finishing cutter for CRP/GRP, 8 milling blades 4 cutting edges / drawing cut

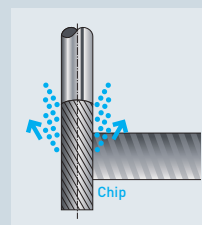
- COMPO-SITES GRAPHITE
- CRP FR 4
- PVDF GF25
- GF GF25
- PEEK GF30
- PA66 GF30
- POM GF25
- PVDF GF30
- Honey comb



d1* = Ø 4.0 - Ø 6.0	tol -0.000 / -0.048
d1* = Ø 8.0 - Ø 10.0	tol -0.000 / -0.058
d1* = Ø 12.0 - Ø 16.0	tol -0.000 / -0.070
d1* = Ø 20.0	tol -0.000 / -0.084

Art.	d1*	l2	d2 h6	l1	Z
29 1762 0400 16	• 4	16	6	60	8
29 1762 0500 18	• 5	18	6	60	8
29 1762 0600 20	• 6	20	6	60	8
29 1762 0600 25	• 6	25	6	65	8
29 1762 0600 30	• 6	30	6	75	8
29 1762 0600 50	• 6	50	6	100	8
29 1762 0800 22	• 8	22	8	63	8
29 1762 0800 32	• 8	32	8	75	8
29 1762 0800 50	• 8	50	8	100	8
29 1762 1000 32	• 10	32	10	72	8
29 1762 1000 60	• 10	60	10	120	8
29 1762 1200 32	• 12	32	12	82	8
29 1762 1200 70	• 12	70	12	120	8
29 1762 1600 36	• 16	36	16	92	8
29 1762 1600 80	• 16	80	16	150	8
29 1762 2000 45	• 20	45	20	104	8
29 1762 2000 80	• 20	80	20	150	8

• Sale item. While stocks last.



MICRO GRAIN	KARNASCH NORM
	DIN 6535 Shape HA
	8°
	HPC
	DCC031 impuls
	Air

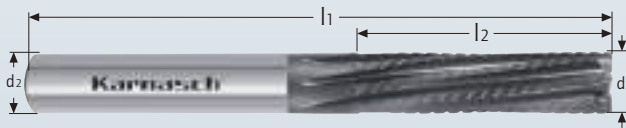
Cutting data

1279

Solid carbide roughing and finishing cutter for CRP-GRP, 8 milling blades 4 cutting edges / pushing cut

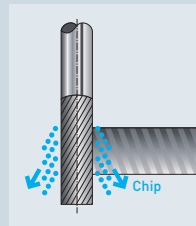
29 1763

- COMPO-SITES** GRAPHITE
- CRP** **FR 4**
- PVDF GF25**
- GF GF25**
- PEEK GF30**
- PA66 GF30**
- POM GF25**
- PVDF GF30**
- Honey comb**



$d1^*$	= $\varnothing 4.0 - \varnothing 6.0$	tol -0.000 / -0.048
$d1^*$	= $\varnothing 8.0 - \varnothing 10.0$	tol -0.000 / -0.058
$d1^*$	= $\varnothing 12.0 - \varnothing 16.0$	tol -0.000 / -0.070
$d1^*$	= $\varnothing 20.0$	tol -0.000 / -0.084

Art.	$d1^*$	$l2$	$d2\ h6$	$l1$	Z
29 1763 0400 16	• 4	16	6	60	8
29 1763 0500 18	• 5	18	6	60	8
29 1763 0600 20	• 6	20	6	60	8
29 1763 0600 25	• 6	25	6	65	8
29 1763 0600 30	• 6	30	6	75	8
29 1763 0600 50	• 6	50	6	100	8
29 1763 0800 22	• 8	22	8	63	8
29 1763 0800 32	• 8	32	8	75	8
29 1763 0800 50	• 8	50	8	100	8
29 1763 1000 32	• 10	32	10	72	8
29 1763 1000 60	• 10	60	10	120	8
29 1763 1200 32	• 12	32	12	82	8
29 1763 1200 70	• 12	70	12	120	8
29 1763 1600 36	• 16	36	16	92	8
29 1763 1600 80	• 16	80	16	150	8
29 1763 2000 45	• 20	45	20	104	8
29 1763 2000 80	• 20	80	20	150	8



MICRO GRAIN KARNASCH NORM

DIN 6535 Shape HA

8°

HPC

DCC031 impuls

Air

Cutting data

i

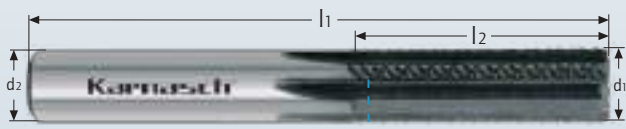
1279

☞ Sale item. While stocks last.

Diamond coated Composites Cross Finish Router

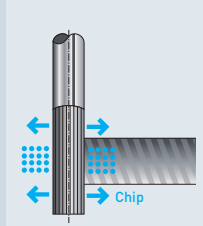
29 1771

- COMPO-SITES** GRAPHITE
- CRP** **FR 4**
- PVDF GF25**
- GF GF25**
- PEEK GF30**
- PA66 GF30**
- POM GF25**
- PVDF GF30**



Cross tothing, upcut Finishing cut Cross tothing, downcut

Art.	$d1$	f	$l2$	$d2\ h5$	$l1$	Z
29 1771 0400 16	• 4	0.1	16	6	57	4
29 1771 0600 22	• 6	0.1	22	6	57	6
29 1771 0800 27	• 8	0.2	27	8	63	6
29 1771 1000 30	• 10	0.2	30	10	72	6



MICRO GRAIN KARNASCH NORM

DIN 6535 Shape HA

0°

f 45°

HPC

DCA-06 PLUS

Air

Cutting data

i

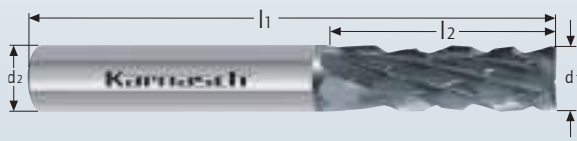
1226



29 1783 Solid carbide-router, circumference and head milling cutter, right-handed cutting, right-handed twist **drawing cut**

PA

Honey comb



d1* = Ø 4.0 - Ø 6.0	tol -0.000 / -0.030	d1* = Ø 12.0 - Ø 16.0	tol -0.000 / -0.043
d1* = Ø 8.0 - Ø 10.0	tol -0.000 / -0.036	d1* = Ø 20.0	tol -0.000 / -0.052

Test	Real cutting data	Test	Real cutting data
Material	CRP n = 18,000 rpm Vf = 1,800 mm/min	Material	Honeycomb n = 14,000 rpm Vf = 3,000 mm/min

Art.	d1*	l2	l1	d2 h6
29 1783 0500 16	5.0	16	50	5
29 1783 0500 20	5.0	16	75	5
29 1783 0600 19	6.0	19	60	6
29 1783 1200 32	12.0	32	83	12
29 1783 2000 45	20.0	45	104	20

⚠ Sale item. While stocks last.

MICRO GRAIN KARNASCH NORM

DIN 6535 Shape HA

Composites

POLISHED

Air

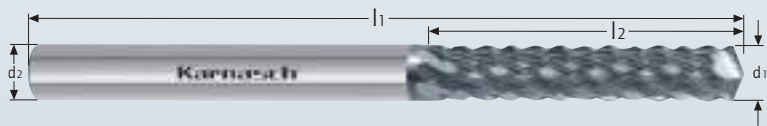
Cutting data

i 1274

29 1784 Solid carbide-router circumference milling cutter with drill-point, right handed twist, **drawing cut**

COMPOSITES

PA



d1* = Ø 4.0 - Ø 6.0	tol -0.000 / -0.030
d1* = Ø 8.0 - Ø 10.0	tol -0.000 / -0.036
d1* = Ø 12.0 - Ø 16.0	tol -0.000 / -0.043
d1* = Ø 20.0	tol -0.000 / -0.052

Art.	d1*	l2	l1	d2 h6
29 1784 0400 16	4.0	16	50	4
29 1784 0500 16	5.0	16	50	5
29 1784 0500 20	5.0	16	75	5
29 1784 0800 25	8.0	25	60	8
29 1784 1600 36	16.0	36	92	16
29 1784 2000 45	20.0	45	104	20

⚠ Sale item. While stocks last.

MICRO GRAIN KARNASCH NORM

DIN 6535 Shape HA

135°

Composites

POLISHED

Air

Cutting data

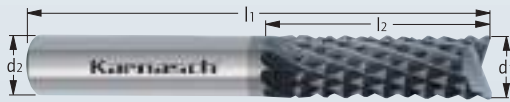
i 1274

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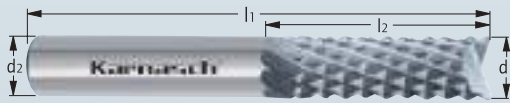
Carbon roughing end mills, HSC

29 1790A 29 1790C

COMPO-SITES	PA66 GF30	GF GF25
GRP	PVDF GF30	PVDF GF25
CRP	PEEK GF30	Aluminium > 6% Si
Aramid fiber AFK-SFK	PEEK CF30	GRAPHITE



COMPO-SITES	THERMO-PLASTICS	Acrylic glass
GRP	DURO-PLASTICS	Acrylic
CRP	UREOL	PMMA GS
Plastic	GMT	
CRP-ALU Composites	Alu-minium	



MICRO GRAIN	KARNASCH NORM
DIACUT	Shape HA
	HSC High-Speed-Cutting
	DCA-06 Polished
	Air

Cutting data

1274

DIAMOND DCA-06	POLISHED
29 1790 A	29 1790 C

d1	l2	l1	d2 h5	Art.	Art.
6.00	20.0	50	6	-	29 1790C 0600

Sale item. While stocks last.
Replacement article on page 202

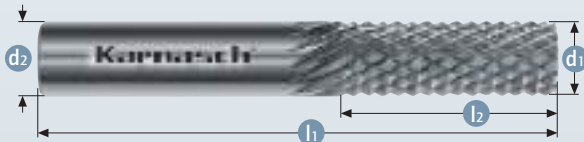


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11 6001 11 6002 11 6003 11 6004

COMPOSITES	Laminates
GRP	Kevlar
CRP	AL/TI
Aramid fiber AFK-SFK	TI-CFRP
Hybrid materials	GMT
CRP-ALU Composites	SMC



Tolerances

- d_1
 \varnothing 1.6 mm, 2.4 mm
 = +0.00/-0.10
- \varnothing 3-12 mm
 = +0.00/-0.13

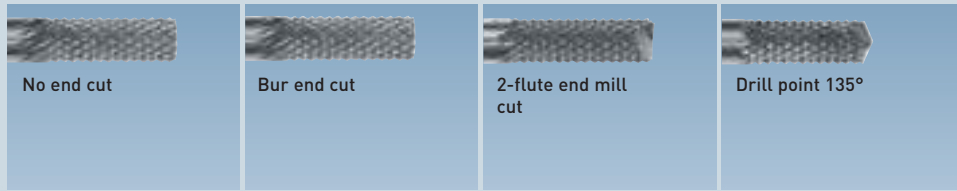
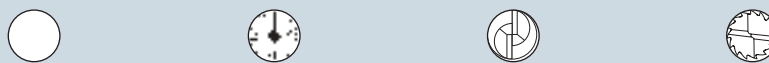
GRP, CRP

Routers for fiberglass, GRP, CRP

Cutting data | Movie

1274

These routers are for contouring, grooving, drilling of a wide range of GRP, CRP, fiberglass reinforced plastics, as well as MMC (Metal Matrix Composites). MMC material such as printed circuit boards, composites such as ceramic with glass fiber, graphite, carbon etc. **We recommend for CRP/GRP our DCA-06 diamond coating.**



d1	l2	d2	l1	VHM solid	11 6001	11 6002	11 6003	11 6004
					Art.	Art.	Art.	Art.
• 1.6	5	3	38	✓	% 11 6001 001	11 6002 001	11 6003 001	11 6004 001
• 2.4	9.5	3	38	✓	% 11 6001 003	11 6002 003	11 6003 003	% 11 6004 003
• 3	12	3	38	✓	11 6001 005	11 6002 005	11 6003 005	11 6004 005
• 4	16	4	50	✓	% 11 6001 010	11 6002 010	11 6003 010	11 6004 010
• 4	16	6	50	✓	% 11 6001 012	11 6002 012	11 6003 012	11 6004 012
• 6	19	6	50	✓	11 6001 013	11 6002 013	11 6003 013	11 6004 013
• 6	19	6	63	✓	11 6001 015	11 6002 015	11 6003 015	11 6004 015
• 6	25	6	75	✓	11 6001 017	11 6002 017	11 6003 017	11 6004 017
• 8	25	8	63	✓	11 6001 020	11 6002 020	11 6003 020	11 6004 020
○ 10	25	10	63	✓	% 11 6001 025	-	-	-
• 10	25	10	75	✓	11 6001 027	11 6002 027	11 6003 027	11 6004 027
• 12	25	12	75	✓	11 6001 029	11 6002 029	11 6003 029	11 6004 029
○ 12	30	12	75	✓	% 11 6001 030	-	-	-

% Sale item. While stocks last.

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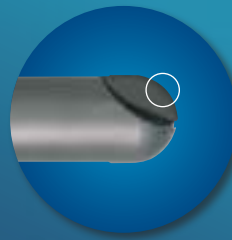
The blade makes the difference between CVD, PCD Extreme and diamond coating

29 6522

Ø 8.0 CVD-blade

CVD

With a very sharp blade, 99.9 % Diamond.



Ø 8.0 CVD-cutting edge

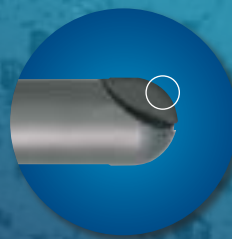
Lens Z 250 : 500x

30 6522

Ø 8.0 PCD-blade

PCD EXTREME

Porous structure / sharp edge.



Ø 8.0 PCD Extreme-cutting edge

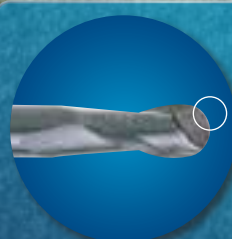
Lens Z 250 : 500x

30 6551

Ø 8.0 Diamond coating

DIAMOND COATED

Cutting edge is rounded.



Ø 8.0 Diamond coated cutting edge

Lens Z 250 : 500x

1



2



3



4



5



6



7



8



9



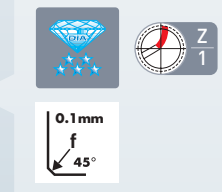
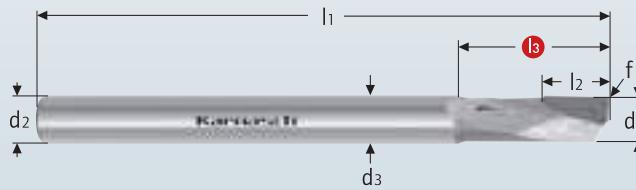
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29 6510 CVD one-tooth end mill, right spiral – right cutting with interior cooling

COMPOSITES	PE PP	Acrylic
GRP-CRP	ZIRCONIUM	
Aramid fiber AFK-SFK	GF GF25	
Hybrid materials	PVDF GF25	
CRP-ALU Composites	TITANIUM	
Laminates	TITANIUM < 1200 N/mm ²	
PA66 GF30	Aluminium > 6% Si	
PVDF GF30	Brass	
PA	Copper	



Art.	d1 h7	f	l3	l2	d2 h6	d3	l1
29 6510 0600 08	6.0	0.1	18	8	6	5.5	80
29 6510 0800 12	8.0	0.1	25	12	8	7.5	80
29 6510 1000 16	10.0	0.1	30	16	10	9.5	80
29 6510 1200 20	12.0	0.1	33	20	12	11.5	80

☹ Sale item. While stocks last.

CVD	KARNASCH NORM
SPECIAL	DIN 6535 Shape HA
	8°
	f 45°
	HSC High-Speed-Cutting
	99,9% Diamond
	Air

Cutting data

i 1274

29 6521 CVD-3D-ball milling cutter, extra short high-speed-cutting

COMPOSITES	E.MAX FOR CAD/CAM TECHNOLOGY	PLASTIC- GRAPHITE
GRP-CRP	GF GF25	Ampco
Aramid fiber AFK-SFK	PVDF GF25	
Hybrid materials	TITANIUM	
CRP-ALU Composites	TITANIUM < 1200 N/mm ²	
Laminates	Aluminium > 6% Si	
PA66 GF30	Brass	
PVDF GF30	Copper	
ZIRCONIUM	STEEL- GRAPHITE	



Art.	d1 h7	r ± 0.005	l3	d2 h6	l1	l2	Z
29 6521 0200 04	2	1.0	-	4	50	2.5	2
29 6521 0200 06	2	1.0	-	6	50	2.5	2
29 6521 0300 04	3	1.5	-	4	50	2.5	2
29 6521 0300 06	3	1.5	-	6	50	2.5	2
29 6521 0300 10	3	1.5	10	6	50	2.5	2
29 6521 0400 06	4	2.0	-	6	50	2.5	2
29 6521 0500 06	5	2.5	-	6	50	3.0	2
29 6521 0600 06	6	3.0	-	6	50	6.0	2
29 6521 0800 08	8	4.0	-	8	60	7.0	2
29 6521 1000 10	10	5.0	-	10	60	8.0	2
29 6521 1200 12	12	6.0	-	12	65	9.0	2

☹ Sale item. While stocks last.

CVD	KARNASCH NORM
SPECIAL	DIN 6535 Shape HA
	0°
	HSC High-Speed-Cutting
	99,9% Diamond
	Air

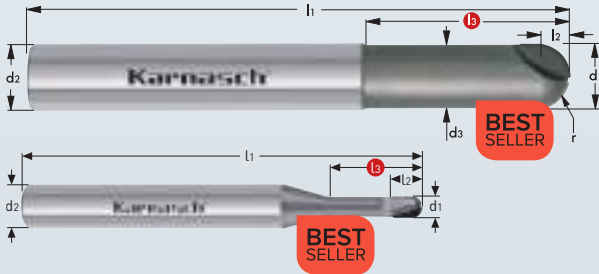
Cutting data

i 1274

CVD-3D-ball milling cutter

29 6522

- COMPO-SITES** **GF GF25**
- GRP-CRP** **PVDF GF25**
- Aramid fiber AFK-SFK** **TITANIUM**
- Hybrid materials** **TITANIUM < 1200 N/mm²**
- CRP-ALU Composites** **Aluminium > 6% Si**
- Laminates** **Brass**
- PA66 GF30** **Copper**
- PVDF GF30** **STEEL-GRAPHITE**
- ZIRCONIUM** **PLASTIC-GRAPHITE**
- E.MAX FOR CAD/CAM TECHNOLOGY** **Ampco**
- FR 4**



d1* = Ø 3.0	tol -0.000 / -0.010
d1* = Ø 4.0 - Ø 6.0	tol -0.000 / -0.012
d1* = Ø 8.0 - Ø 10.0	tol -0.000 / -0.015
d1* = Ø 12.0	tol -0.000 / -0.018

> Ø 2.0

Ø 2.0

QUALITY CONTROL
100 %
ONLY THE BEST

CVD **KARNASCH NORM**

SPECIAL **DIN 6535 Shape HA**

0°

HSC
High-Speed-Cutting

99,9% Diamond

Bestseller – price reduced

Art.	d1*	r ± 0.005	l3	d2 h6	d3	l1	l2	Z
29 6522 0200 06 04	• 2	1.0	6	4	1.92	50	2.5	2
29 6522 0200 08 04	• 2	1.0	8	4	1.92	50	2.5	2
29 6522 0200 10 04	• 2	1.0	10	4	1.92	50	2.5	2
29 6522 0200 06 06	• 2	1.0	6	6	1.92	50	2.5	2
29 6522 0200 08 06	• 2	1.0	8	6	1.92	50	2.5	2
29 6522 0200 10 06	• 2	1.0	10	6	1.92	50	2.5	2
29 6522 0200 12 06	• 2	1.0	12	6	1.92	50	2.5	2
29 6522 0300 06 04	• 3	1.5	6	4	2.8	50	2.5	2
29 6522 0300 08 04	• 3	1.5	8	4	2.8	50	2.5	2
29 6522 0300 10 04	• 3	1.5	10	4	2.8	50	2.5	2
29 6522 0300 10 06	• 3	1.5	10	6	2.8	75	2.5	2
29 6522 0300 15 06	• 3	1.5	15	6	2.8	75	2.5	2
29 6522 0300 20 06	• 3	1.5	20	6	2.8	75	2.5	2
29 6522 0400 10 06	• 4	2.0	10	6	3.8	75	2.5	2
29 6522 0400 20 06	• 4	2.0	20	6	3.8	75	2.5	2
29 6522 0400 30 06	• 4	2.0	30	6	3.8	75	2.5	2
29 6522 0500 15 06	• 5	2.5	15	6	4.6	75	3.0	2
29 6522 0500 25 06	• 5	2.5	25	6	4.6	75	3.0	2
29 6522 0500 35 06	• 5	2.5	35	6	4.6	75	3.0	2
29 6522 0600 20 06	• 6	3.0	20	6	5.6	100	6.0	2
29 6522 0600 30 06	• 6	3.0	30	6	5.6	100	6.0	2
29 6522 0600 40 06	• 6	3.0	40	6	5.6	100	6.0	2
29 6522 0800 25 08	• 8	4.0	25	8	7.4	100	7.0	2
29 6522 0800 40 08	• 8	4.0	40	8	7.4	100	7.0	2
29 6522 1000 30 10	• 10	5.0	30	10	9.6	100	8.0	2
29 6522 1000 50 10	• 10	5.0	50	10	9.6	100	8.0	2
29 6522 1200 35 12	• 12	6.0	35	12	11.6	105	9.0	2
29 6522 1200 60 12	• 12	6.0	60	12	11.6	105	9.0	2

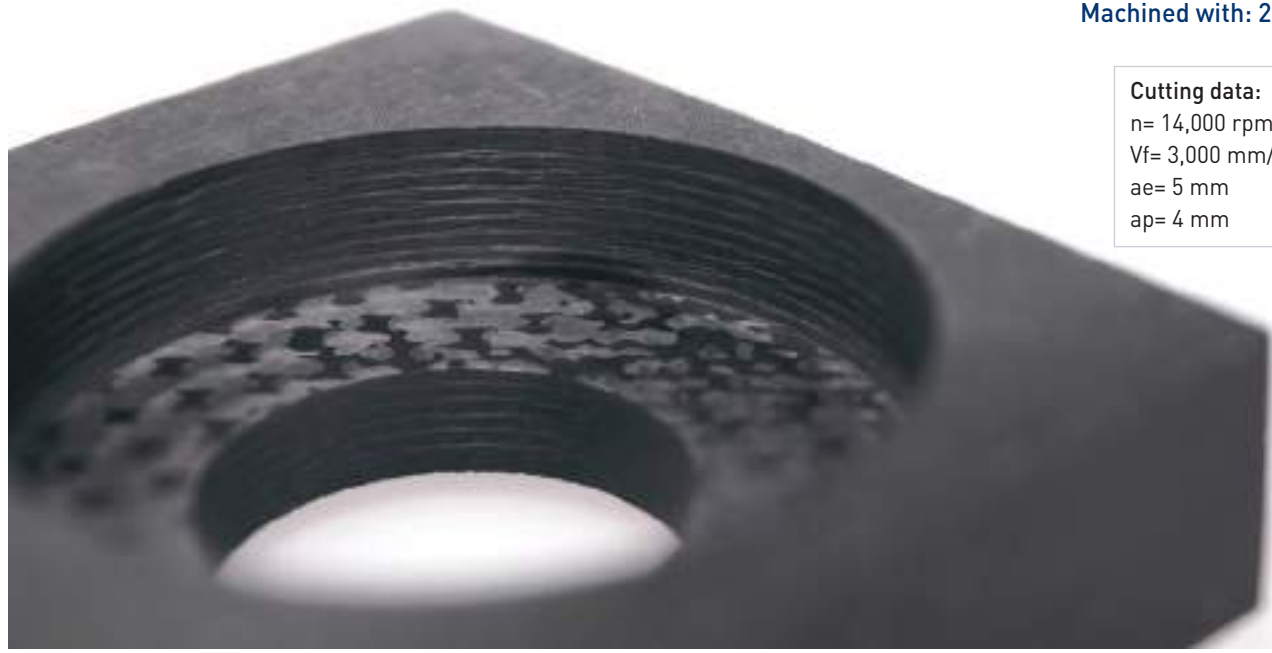
Cutting data

1274

Material: CRP
Machined with: 29 0526 Ø8.0x20

Cutting data:
n= 14,000 rpm
Vf= 3,000 mm/min
ae= 5 mm
ap= 4 mm

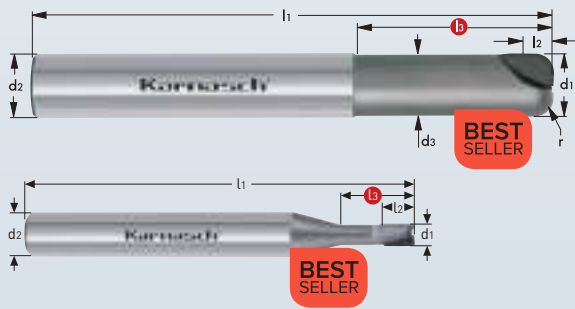
Movie



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29 6523 CVD-end mill with corner radius

COMPOSITES	GF GF25
GRP-CRP	PVDF GF25
Aramid fiber AFK-SFK	TITANIUM
Hybrid materials	TITANIUM < 1200 N/mm ²
CRP-ALU Composites	Aluminium > 6% Si
Laminates	Brass
PA66 GF30	Copper
PVDF GF30	STEEL-GRAPHITE
ZIRCONIUM	PLASTIC-GRAPHITE
E.MAX FOR CAD/CAM TECHNOLOGY	Ampco
FR 4	



d1* = Ø 3.0	tol -0.000 / -0.010
d1* = Ø 4.0 - Ø 6.0	tol -0.000 / -0.012
d1* = Ø 8.0 - Ø 10.0	tol -0.000 / -0.015
d1* = Ø 12.0	tol -0.000 / -0.018



Bestseller – price reduced

Art.	d1*	r ± 0.005	l3	d2 h6	d3	l1	l2	Z
29 6523 0200 020 04	• 2	0.2	4	4	1.92	50	2.5	2
29 6523 0200 020 06	• 2	0.2	6	4	1.92	50	2.5	2
29 6523 0200 020 08	• 2	0.2	8	4	1.92	50	2.5	2
29 6523 0200 020 10	• 2	0.2	10	4	1.92	50	2.5	2
29 6523 0300 030 10	• 3	0.3	10	6	2.8	75	2.5	2
29 6523 0300 030 15	• 3	0.3	15	6	2.8	75	2.5	2
29 6523 0300 030 20	• 3	0.3	20	6	2.8	75	2.5	2
29 6523 0300 050 10	• 3	0.5	10	6	2.8	75	2.5	2
29 6523 0300 050 15	• 3	0.5	15	6	2.8	75	2.5	2
29 6523 0300 050 20	• 3	0.5	20	6	2.8	75	2.5	2
29 6523 0400 030 10	• 4	0.3	10	6	3.8	75	2.5	2
29 6523 0400 030 20	• 4	0.3	20	6	3.8	75	2.5	2
29 6523 0400 030 30	• 4	0.3	30	6	3.8	75	2.5	2
29 6523 0400 050 10	• 4	0.5	10	6	3.8	75	2.5	2
29 6523 0400 050 20	• 4	0.5	20	6	3.8	75	2.5	2
29 6523 0400 050 30	• 4	0.5	30	6	3.8	75	2.5	2
29 6523 0500 030 15	• 5	0.3	15	6	4.6	75	3.0	2
29 6523 0500 030 25	• 5	0.3	25	6	4.6	75	3.0	2
29 6523 0500 030 35	• 5	0.3	35	6	4.6	75	3.0	2
29 6523 0500 050 15	• 5	0.5	15	6	4.6	75	3.0	2
29 6523 0500 050 25	• 5	0.5	25	6	4.6	75	3.0	2
29 6523 0500 050 35	• 5	0.5	35	6	4.6	75	3.0	2
29 6523 0600 030 20	• 6	0.3	20	6	5.6	100	6.0	2
29 6523 0600 030 30	• 6	0.3	30	6	5.6	100	6.0	2
29 6523 0600 030 40	• 6	0.3	40	6	5.6	100	6.0	2
29 6523 0600 050 20	• 6	0.5	20	6	5.6	100	6.0	2
29 6523 0600 050 30	• 6	0.5	30	6	5.6	100	6.0	2
29 6523 0600 050 40	• 6	0.5	40	6	5.6	100	6.0	2
29 6523 0600 100 20	• 6	1.0	20	6	5.6	100	6.0	2
29 6523 0600 100 30	• 6	1.0	30	6	5.6	100	6.0	2
29 6523 0600 100 40	• 6	1.0	40	6	5.6	100	6.0	2
29 6523 0800 030 25	• 8	0.3	25	8	7.6	100	7.0	2
29 6523 0800 030 40	• 8	0.3	40	8	7.6	100	7.0	2
29 6523 0800 050 25	• 8	0.5	25	8	7.6	100	7.0	2
29 6523 0800 050 40	• 8	0.5	40	8	7.6	100	7.0	2
29 6523 0800 100 25	• 8	1.0	25	8	7.6	100	7.0	2
29 6523 0800 100 40	• 8	1.0	40	8	7.6	100	7.0	2
29 6523 1000 050 30	• 10	0.5	30	10	9.6	100	8.0	2
29 6523 1000 050 50	• 10	0.5	50	10	9.6	100	8.0	2
29 6523 1000 100 30	• 10	1.0	30	10	9.6	100	8.0	2
29 6523 1000 100 50	• 10	1.0	50	10	9.6	100	8.0	2
29 6523 1200 050 35	• 12	0.5	35	12	11.6	105	9.0	2
29 6523 1200 050 60	• 12	0.5	60	12	11.6	105	9.0	2
29 6523 1200 100 35	• 12	1.0	35	12	11.6	105	9.0	2
29 6523 1200 100 60	• 12	1.0	60	12	11.6	105	9.0	2

CVD	KARNASCH NORM
SPECIAL	DIN 6535 Shape HA
	0°
	HSC High-Speed-Cutting
	99,9% Diamond
	OK ENV MMS AIR

Cutting data

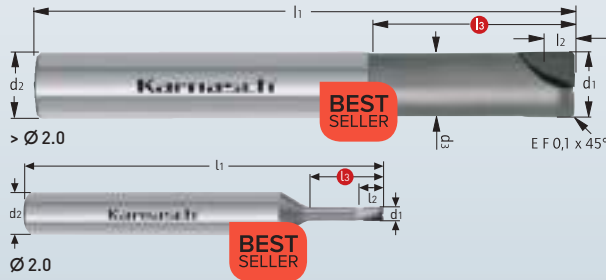


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CVD-end mills

29 6524

COMPO-SITES	E.MAX FOR CAD/CAM TECHNOLOGY	PLASTIC-GRAPHITE
GRP-CRP	GF GF25	Ampco
Aramid fiber AFK-SFK	PVDF GF25	FR 4
Hybrid materials	TITANIUM	
CRP-ALU Composites	TITANIUM < 1200 N/mm ²	
Laminates	Aluminium > 6% Si	
PA66 GF30	Brass	
PVDF GF30	Copper	
ZIRCONIUM	STEEL-GRAPHITE	



d1* = Ø ≤ 3.0	tol -0.000 / -0.010	d1* = Ø 8.0 - Ø 10.0	tol -0.000 / -0.015
d1* = Ø 4.0 - Ø 6.0	tol -0.000 / -0.012	d1* = Ø 12.0 - Ø 16.0	tol -0.000 / -0.018

Bestseller - price reduced

Art.	d1*	f ±0.02	l3	d2 h6	d3	l1	l2	Z
29 6524 0200 04	• 2	0.1	4	4	1.92	50	2.5	2
29 6524 0200 06	• 2	0.1	6	4	1.92	50	2.5	2
29 6524 0200 08	• 2	0.1	8	4	1.92	50	2.5	2
29 6524 0200 10	• 2	0.1	10	4	1.92	50	2.5	2
29 6524 0300 10	• 3	0.1	10	6	2.8	75	2.5	2
29 6524 0300 15	• 3	0.1	15	6	2.8	75	2.5	2
29 6524 0300 20	• 3	0.1	20	6	2.8	75	2.5	2
29 6524 0400 10	• 4	0.1	10	6	3.8	75	2.5	2
29 6524 0400 20	• 4	0.1	20	6	3.8	75	2.5	2
29 6524 0400 30	• 4	0.1	30	6	3.8	75	2.5	2
29 6524 0500 15	• 5	0.1	15	6	4.6	75	3.0	2
29 6524 0500 25	• 5	0.1	25	6	4.6	75	3.0	2
29 6524 0500 35	• 5	0.1	35	6	4.6	75	3.0	2
29 6524 0600 20	• 6	0.1	20	6	5.6	100	6.0	2
29 6524 0600 30	• 6	0.1	30	6	5.6	100	6.0	2
29 6524 0600 40	• 6	0.1	40	6	5.6	100	6.0	2
29 6524 0800 25	• 8	0.1	25	8	7.4	100	7.0	2
29 6524 0800 40	• 8	0.1	40	8	7.4	100	7.0	2
29 6524 1000 30	• 10	0.1	30	10	9.6	100	8.0	2
29 6524 1000 50	• 10	0.1	50	10	9.6	100	8.0	2
29 6524 1200 35	• 12	0.1	35	12	11.6	105	9.0	2
29 6524 1200 60	• 12	0.1	60	12	11.6	105	9.0	2



Test	Real cutting data 29 6524 Ø2.0x4
Material	Solid carbide G55 Finishing n = 5,000 rpm fz = 0.04 mm ae = 2 mm ap = 0.01 mm

Cutting data

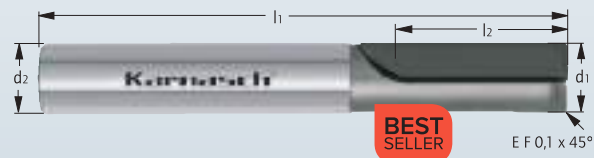
1274

CVD KARNASCH NORM
SPECIAL DIN 6535 Shape HA
45° x 0.1
HSC High-Speed-Cutting
99,9% Diamond

CVD-end mills

29 6525

COMPO-SITES	E.MAX FOR CAD/CAM TECHNOLOGY	PLASTIC-GRAPHITE
GRP-CRP	GF GF25	Ampco
Aramid fiber AFK-SFK	PVDF GF25	FR 4
Hybrid materials	TITANIUM	
CRP-ALU Composites	TITANIUM < 1200 N/mm ²	
Laminates	Aluminium > 6% Si	
PA66 GF30	Brass	
PVDF GF30	Copper	
ZIRCONIUM	STEEL-GRAPHITE	



d1* = Ø ≤ 3.0	tol -0.000 / -0.010
d1* = Ø 4.0 - Ø 6.0	tol -0.000 / -0.012
d1* = Ø 8.0 - Ø 10.0	tol -0.000 / -0.015
d1* = Ø 12.0 - Ø 16.0	tol -0.000 / -0.018

Bestseller - price reduced

Art.	d1*	f ±0.02	l2	d2 h6	l1	Z
29 6525 0300 05	• 3	0.1	5	6	50	2
29 6525 0400 10	• 4	0.1	10	6	50	2
29 6525 0500 10	• 5	0.1	10	6	50	2
29 6525 0500 20	• 5	0.1	20	6	60	2
29 6525 0600 10	• 6	0.1	10	6	50	2
29 6525 0600 20	• 6	0.1	20	6	60	2
29 6525 0800 10	• 8	0.1	10	8	50	2
29 6525 0800 20	• 8	0.1	20	8	60	2
29 6525 1000 10	• 10	0.1	10	10	55	2
29 6525 1000 20	• 10	0.1	20	10	65	2
29 6525 1200 10	• 12	0.1	10	12	60	2
29 6525 1200 20	• 12	0.1	20	12	70	2
29 6525 1600 10	• 16	0.1	10	16	65	2
29 6525 1600 20	• 16	0.1	20	16	75	2



CVD KARNASCH NORM
SPECIAL DIN 6535 Shape HA
45° x 0.1
HSC High-Speed-Cutting
99,9% Diamond

Cutting data

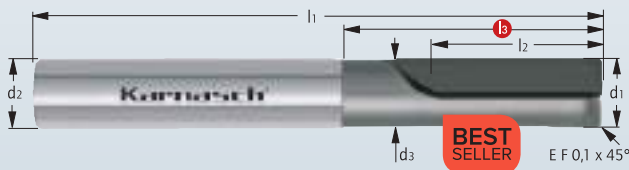
1274



Index

29 6526 CVD-end mills

COMPOSITES	E.MAX FOR CAD/CAM TECHNOLOGY	PLASTIC-GRAPHITE
GRP-CRP	GF GF25	Ampco
Aramid fiber AFK-SFK	PVDF GF25	FR 4
Hybrid materials	TITANIUM	
CRP-ALU Composites	TITANIUM < 1200 N/mm ²	
Laminates	Aluminium > 6% Si	
PA66 GF30	Brass	
PVDF GF30	Copper	
ZIRCONIUM	STEEL-GRAPHITE	



d1*	= Ø 4.0 - Ø 6.0	tol -0.000 / -0.012
d1*	= Ø 8.0 - Ø 10.0	tol -0.000 / -0.015
d1*	= Ø 12.0 - Ø 16.0	tol -0.000 / -0.018



Bestseller - price reduced

Art.	d1*	f ±0.02	l2	l3	d2 h6	d3	l1	Z
29 6526 0400 08	• 4	0.1	8	10	6	3.9	50	2
29 6526 0400 15	• 4	0.1	15	20	6	3.9	50	2
29 6526 0600 10	• 6	0.1	10	15	6	5.8	65	2
29 6526 0600 15	• 6	0.1	15	20	6	5.8	65	2
29 6526 0600 20	• 6	0.1	20	25	6	5.8	65	2
29 6526 0800 10	• 8	0.1	10	15	8	7.6	70	2
29 6526 0800 15	• 8	0.1	15	20	8	7.6	70	2
29 6526 0800 20	• 8	0.1	20	30	8	7.6	70	2
29 6526 1000 10	• 10	0.1	10	15	10	9.6	85	2
29 6526 1000 15	• 10	0.1	15	20	10	9.6	85	2
29 6526 1000 20	• 10	0.1	20	30	10	9.6	85	2
29 6526 1200 10	• 12	0.1	10	15	12	11.8	92	2
29 6526 1200 15	• 12	0.1	15	20	12	11.8	92	2
29 6526 1200 20	• 12	0.1	20	30	12	11.8	92	2
29 6526 1600 10	• 16	0.1	10	30	16	15.8	92	2
29 6526 1600 15	• 16	0.1	15	35	16	15.8	92	2
29 6526 1600 20	• 16	0.1	20	40	16	15.8	102	2

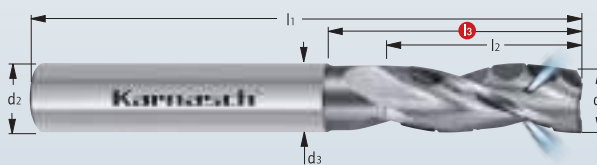
CVD	KARNASCH NORM
SPECIAL	DIN 6535 Shape HA
	45° x 0.1
	HSC High-Speed-Cutting
	99,9% Diamond
	EMU MMS AIR

Cutting data

i 1274

29 6553 CVD-spiked milling cutter – unequally split, non-symmetrical spirals with interior cooling

COMPOSITES	ZIRCONIUM	long chip
GRP-CRP	GF GF25	Ampco
Aramid fiber AFK-SFK	TITANIUM < 1200 N/mm ²	
Hybrid materials	TITANIUM	
CRP-ALU Composites	GRAPHITE	
Laminates	Aluminium > 6% Si	
PA66 GF30	Brass	
PVDF GF30	Copper	
NIMONIC 105	short chip	



d1*	= Ø 8.0 - Ø 10.0	tol -0.000 / -0.022
d1*	= Ø 12.0 - Ø 16.0	tol -0.000 / -0.027
d1*	= Ø 20.0	tol -0.000 / -0.033



Art.	d1*	rp	l2	l3	d2 h6	d3	l1	Z
29 6553 0800 020 15	• 8	0.2	15	30	8	7.4	70	3
29 6553 0800 020 25	• 8	0.2	25	40	8	7.4	80	3
29 6553 1000 020 20	• 10	0.2	20	35	10	9.4	80	3
29 6553 1000 020 30	• 10	0.2	30	45	10	9.4	85	3
29 6553 1200 020 20	• 12	0.2	20	35	12	11.4	85	4
29 6553 1200 020 30	• 12	0.2	30	45	12	11.4	90	4
29 6553 1600 030 20	• 16	0.3	20	35	16	15.4	85	5
29 6553 1600 030 30	• 16	0.3	30	45	16	15.4	95	5
29 6553 2000 030 20	• 20	0.3	20	40	20	19.4	95	5
29 6553 2000 030 30	• 20	0.3	30	50	20	19.4	105	5

CVD	KARNASCH NORM
SPECIAL	DIN 6535 Shape HAK
	25°
	HSC HPC
	99,9% Diamond
	EMU MMS AIR

Cutting data

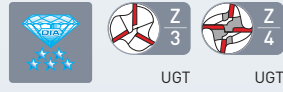
i 1274

☹ Sale item. While stocks last.

CVD milling cutter – "up & down" end mill

29 6562

COMPOSITES	NIMONIC 105
GRP-CRP	ZIRCONIUM
Aramid fiber AFK-SFK	TITANIUM < 1200 N/mm ²
Hybrid materials	PVDF GF25
CRP-ALU Composites	PTFE CF25
Laminates	Aluminium > 12% Si
PA66 GF30	TITANIUM
PVDF GF30	short chip
Ampco	



CVD	KARNASCH NORM
SPECIAL	DIN 6535 Shape HA
UGT	45° x 0.1
	up & down
	99,9% Diamond
	ISO 10000

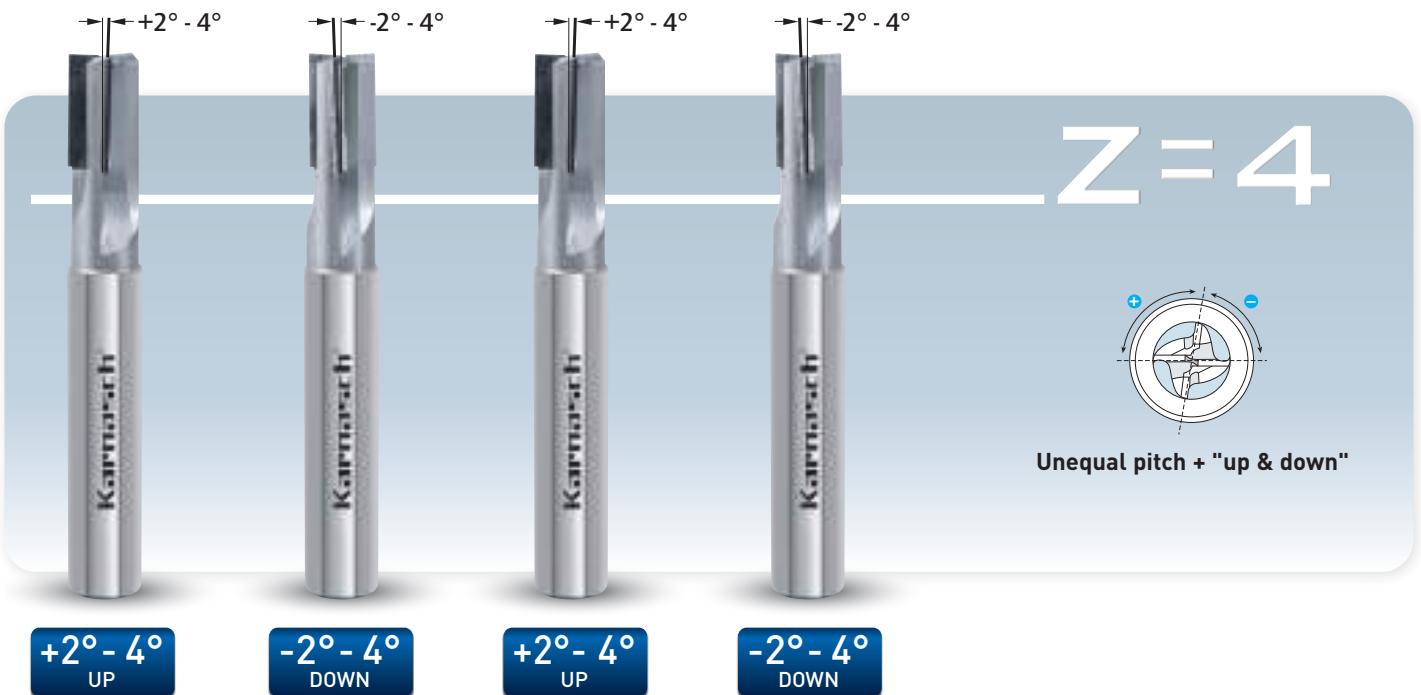
Art.	d1 h8	l2	l3	d2 h6	d3	l1	Z
29 6562 0800 15 3	% 8	15	28	8	7.4	65	3
29 6562 0800 15 4	% 8	15	28	8	7.4	65	4
29 6562 0800 24 4	% 8	24	37	8	7.4	75	4
29 6562 1000 15 3	% 10	15	28	10	9.2	70	3
29 6562 1000 25 3	% 10	25	38	10	9.2	80	3
29 6562 1000 15 4	% 10	15	28	10	9.2	70	4
29 6562 1000 24 4	% 10	24	37	10	9.2	80	4
29 6562 1200 15 4	% 12	15	28	12	11.2	75	4
29 6562 1200 24 4	% 12	24	37	12	11.2	85	4
29 6562 1600 15 4	% 16	15	28	16	15.2	80	4
29 6562 1600 24 4	% 16	24	37	16	15.2	90	4

% Sale item. While stocks last.

Cutting data



Perfect result with Karnasch "up & down" end mill



+2° - 4° UP

-2° - 4° DOWN

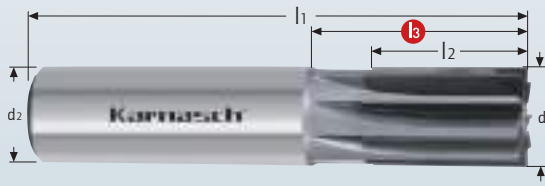
+2° - 4° UP

-2° - 4° DOWN

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29 6572 CVD multiple-tooth-contour mill – high-end superfinish

COMPOSITES	E.MAX FOR CAD/CAM TECHNOLOGY	PLASTIC-GRAPHITE
GRP-CRP	GF GF25	Ampco
Aramid fiber AFK-SFK	PVDF GF25	FR 4
Hybrid materials	TITANIUM	
CRP-ALU Composites	TITANIUM < 1200 N/mm ²	
Laminates	Aluminium > 6% Si	
PA66 GF30	Brass	
PVDF GF30	Copper	
ZIRCONIUM	STEEL-GRAPHITE	



d1* = Ø 8.0 - Ø 10.0	tol -0.000 / -0.022
d1* = Ø 12.0 - Ø 16.0	tol -0.000 / -0.027



CVD	KARNASCH NORM
SPECIAL	DIN 6535 Shape HA
UGT	45° x 0.1
HSC	High-Speed-Cutting
	99,9% Diamond
	OK / END / MMS / AIR

Art.	d1*	l2	l3	d2 h6	d3	l1	Z
29 6572 0800 10 05	8	10	18	8	7.4	55	5
29 6572 0800 20 05	8	20	28	8	7.4	65	5
29 6572 1000 12 05	10	12	20	10	9.2	60	5
29 6572 1000 22 05	10	22	30	10	9.2	70	5
29 6572 1200 15 07	12	15	23	12	11.2	70	7
29 6572 1200 25 07	12	25	33	12	11.2	80	7
29 6572 1600 25 07	16	25	33	16	15.7	80	7
29 6572 1600 25 09	16	25	33	16	15.2	80	9

🔴 Sale item. While stocks last.

Cutting data



Karnasch® PROFESSIONAL TOOLS

Quality products for machining composites.



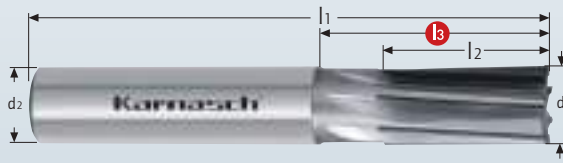
- UP TO 1.0 MM DIAMOND THICKNESS
- EXTREME SHARP CUTTING EDGE BY THE USE OF LASER PROCESS
- HIGH-PRECISION CUTTING EDGE TOLERANCE OF MAX. 1µ
- INCREASE OF TOOL LIFE UP TO 300%



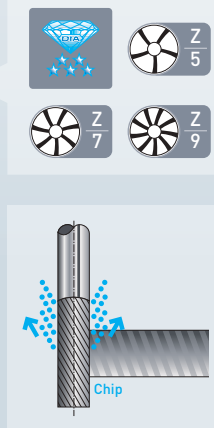
CVD multiple-tooth-contour mill – high-end superfinish, drawing cut

29 6573

COMPO-SITES	E.MAX FOR CAD/CAM TECHNOLOGY	PLASTIC-GRAPHITE
GRP-CRP	GF GF25	Ampco
Aramid fiber AFK-SFK	PVDF GF25	FR 4
Hybrid materials	TITANIUM	
CRP-ALU Composites	TITANIUM < 1200 N/mm ²	
Laminates	Aluminium > 6% Si	
PA66 GF30	Brass	
PVDF GF30	Copper	
ZIRCONIUM	STEEL-GRAPHITE	



d1* = Ø 8.0 - Ø 10.0 tol -0.000 / -0.022
 d1* = Ø 12.0 - Ø 16.0 tol -0.000 / -0.027



CVD	KARNASCH NORM
SPECIAL	DIN 6535 Shape HA
UGT	45° x 0.1
	HSC High-Speed-Cutting
	99,9% Diamond
	COATINGS: TiN, TiAlN, AlTiN, AlCrN, TiAlCrN, TiAlCrN

Art.	d1*	l2	l3	d2 h6	d3	l1	Z
29 6573 0800 20 28 05	8	20	28	8	7.4	65	5
29 6573 1000 12 20 05	10	12	20	10	9.2	60	5
29 6573 1000 22 30 05	10	22	30	10	9.2	70	5
29 6573 1200 15 23 07	12	15	23	12	11.2	70	7
29 6573 1200 24 33 07	12	24	33	12	11.2	80	7
29 6573 1600 24 33 07	16	24	33	16	15.7	80	7
29 6573 1600 24 33 09	16	24	33	16	15.2	80	9

% Sale item. While stocks last.

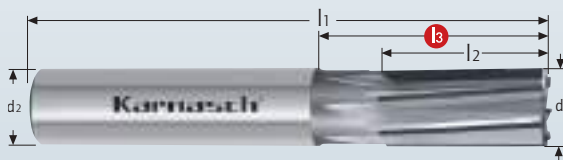
Cutting data



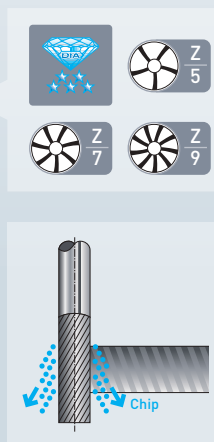
CVD multiple-tooth-contour mill – high-end superfinish, pushing cut

29 6574

COMPO-SITES	E.MAX FOR CAD/CAM TECHNOLOGY	PLASTIC-GRAPHITE
GRP-CRP	GF GF25	Ampco
Aramid fiber AFK-SFK	PVDF GF25	FR 4
Hybrid materials	TITANIUM	
CRP-ALU Composites	TITANIUM < 1200 N/mm ²	
Laminates	Aluminium > 6% Si	
PA66 GF30	Brass	
PVDF GF30	Copper	
ZIRCONIUM	STEEL-GRAPHITE	



d1* = Ø 8.0 - Ø 10.0 tol -0.000 / -0.022
 d1* = Ø 12.0 - Ø 16.0 tol -0.000 / -0.027



CVD	KARNASCH NORM
SPECIAL	DIN 6535 Shape HA
UGT	45° x 0.1
	HSC High-Speed-Cutting
	99,9% Diamond
	COATINGS: TiN, TiAlN, AlTiN, AlCrN, TiAlCrN, TiAlCrN

Art.	d1*	l2	l3	d2 h6	d3	l1	Z
29 6574 0800 10 18 05	8	10	18	8	7.4	55	5
29 6574 0800 20 28 05	8	20	28	8	7.4	65	5
29 6574 1000 12 20 05	10	12	20	10	9.2	60	5
29 6574 1000 22 30 05	10	22	30	10	9.2	70	5
29 6574 1200 15 23 07	12	15	23	12	11.2	70	7
29 6574 1200 24 33 07	12	24	33	12	11.2	80	7
29 6574 1600 24 33 07	16	24	33	16	15.7	80	7
29 6574 1600 24 33 09	16	24	33	16	15.2	80	9

% Sale item. While stocks last.

Cutting data

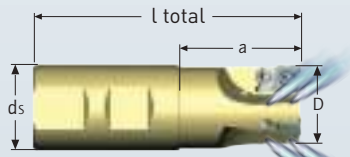


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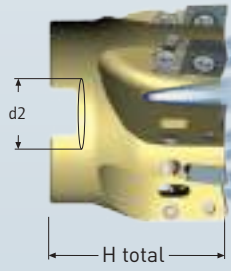
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29 6600 90° level corner cutter with μ-precise axial run-out setting and inner cooling. For Karnasch CVD cutting plates

- COMPO-SITES **PEEK CF30**
- GRP **PEEK**
- PA66 GF30**
- PVDF GF30**
- PEEK GF30**
- GF GF25**
- CRP**
- PTFE CF25**



Art.	D	ds	a	l total	Z	n max. RPM
29 6600 3200	32.0	32	45	100	3	26,000



Art.	D	d2	H total	Z	n max. RPM
29 6600 4000	40.0	16	40	4	24,000
29 6600 5000	50.0	22	40	5	22,000
29 6600 6300	63.0	22	40	6	20,000

Tightening torque: Adjusting screw with 0.6 Nm pretension
 Assembly the insert with 1.2 Nm
 Adjust the axial run-out with the adjustment screw
 Tighten the insert with 3 Nm

CVD	KARNASCH NORM
90°	
15°	
	HPC
	LAPPED

Cutting data

1279

Art.	Inserts	l mm	B mm	r _e	R mm	SKL mm		
29 6610	 CVD Face CXHW 09T3PDFR5	9.67	1.8	0.4	12.5	5	1 Piece	
29 6615	 CVD Shoulder CXHW 09 T3 PD FR 8	9.67	1.2	0.1×45°	25	8	1 Piece	
29 6617	 CVD Finishing CXHW 09 T3 XX FR	9.73	4.0	0.4×45°	100	5	1 Piece	
29 6618		Screwset for inserts Torx T15 Torx Screw T15						10 Pieces
29 6619-1		Torque screwdriver Nm 0.3 - 1.2 Torx T15						1 Piece
29 6619-2		Torque screwdriver Nm 3.0 Torx T15						1 Piece

Sale item. While stocks last.

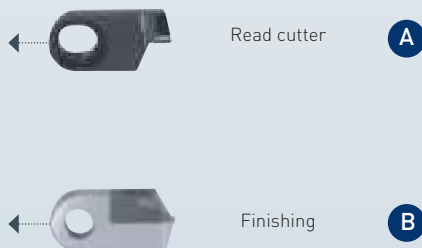
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Knife edge for mirror finish

29 6620

Acrylic glass	SAN
Acrylic	CORIAN
PMMA GS	Aluminium
PE PP	Bronze
PC PET PPE	Brass
PMMA XT	Copper
SAN	Gold
PETG	TITANIUM



ALUMINIUM	KARNASCH NORM
SPECIAL	
SPECIAL	BURRFREE
	ACRYLIC ALUMINIUM COPPER BRASS TITANIUM
	PKD MKD

Art.	Ø d1	H total	d2	Z
29 6620 040 16	• 40	45	16	2
29 6620 050 16	• 50	45	16	2
29 6620 060 22	• 60	45	22	2
29 6620 085 27	• 85	55	27	2
29 6620 100 27	• 100	48	27	2

We can make a milling sample with your material.

Cutting insert for knife head/high gloss mirror finish

A		PCD Universal Read cutter		PMMA GS	PMMA XT	ALUMINIUM SOFT	COPPER SOFT	BRASS SOFT	TITANIUM	29 6621	
B		ND natural diamond Finishing Acrylic		PMMA GS	PMMA XT	PE PP	SAN	PETG	CORIAN	29 6622 On request	
B		ND natural diamond Finishing Soft aluminum		ALUMINIUM SOFT	Gold					29 6623 On request	
B		ND natural diamond Finishing Soft copper		COPPER SOFT	BRASS SOFT					29 6624 On request	
B		ND natural diamond Finishing TITANIUM		TITANIUM						29 6625 On request	

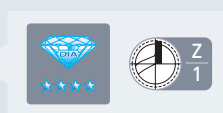
Because of diamond price fluctuation, we ask you, to request the current prices, before ordering.

Adjusting and balancing: We recommend that you make the tool holder available to us when making your order. Your tool holder will be balanced with the newly adjusted cutter head. This is the only way to achieve a mirror finish. All natural diamond finishing cutters can be resharpened. We ask to specify which material should be machined: Acrylic type GS / type XT / Aluminum soft / Brass / Copper / Titanium



29 6811 MCD/mono-crystalline diamond radius milling cutter for high-gloss mirror finish

Acrylic glass	BRASS SOFT
Acrylic	ACRYLIC TYP GS
PMMA GS	ACRYLIC TYP XT
ALUMINIUM SOFT	Gold
COPPER SOFT	

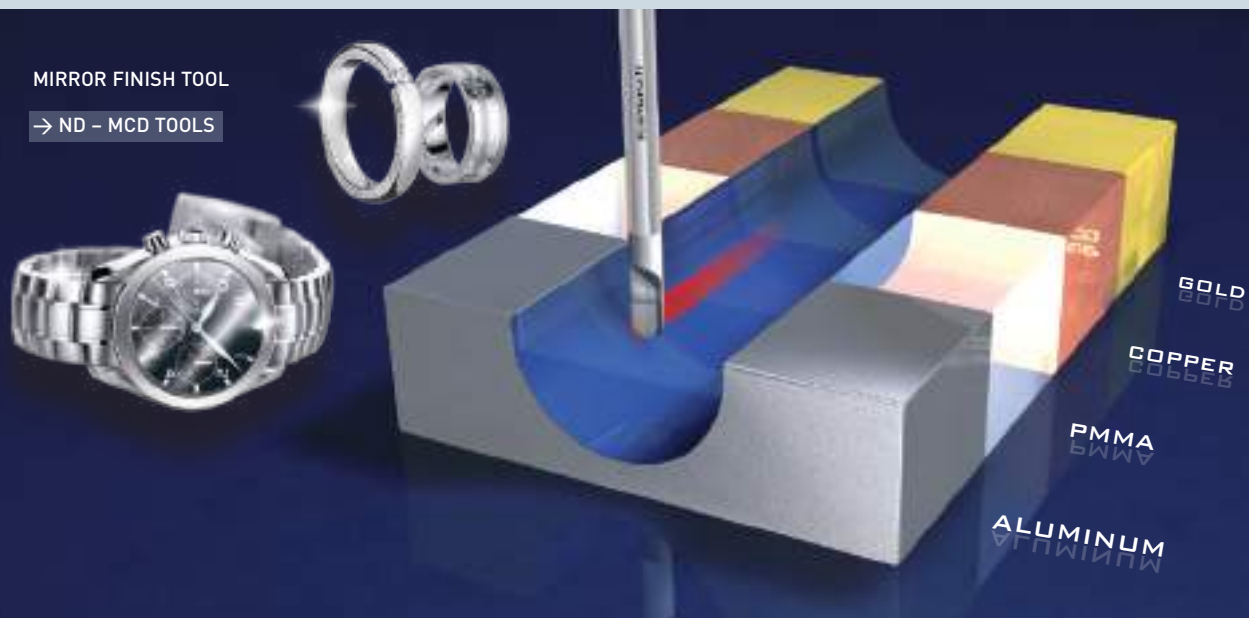


MCD Mono-crystalline	KARNASCH NORM
SPECIAL	DIN 6535 Shape HA
SPECIAL	Z=1
	HSC HPC
	LAPPED
	OK

Art.	d1	r	l3	d2 h5	d3	l1	l2	Z
29 6811 0100 04	• 1	0.5	4	4	0.9	50	3	1
29 6811 0150 04	• 1.5	0.75	4	4	1.3	50	3	1
29 6811 0200 04	• 2	1	4	4	1.7	50	3	1
29 6811 0300 04	• 3	1.5	4	4	2.6	60	3	1
29 6811 0400 05	• 4	2	5	6	3.5	65	3	1
29 6811 0600 05	• 6	3	5	6	5.0	75	4	1

Because of diamond price fluctuation, we ask you, to request the current prices, before ordering.

Cutting data



MIRROR FINISH TOOL

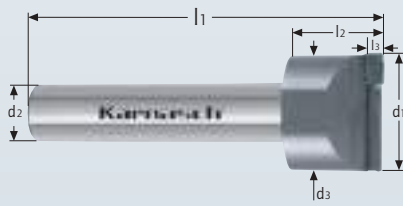
→ ND - MCD TOOLS

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MCD/mono-crystalline diamond milling cutter for high-gloss mirror finish, end cutting

29 6837

Acrylic glass	ALUMINIUM SOFT
Acrylic	ACRYLIC TYP GS
PMMA GS	ACRYLIC TYP XT
Gold	Copper



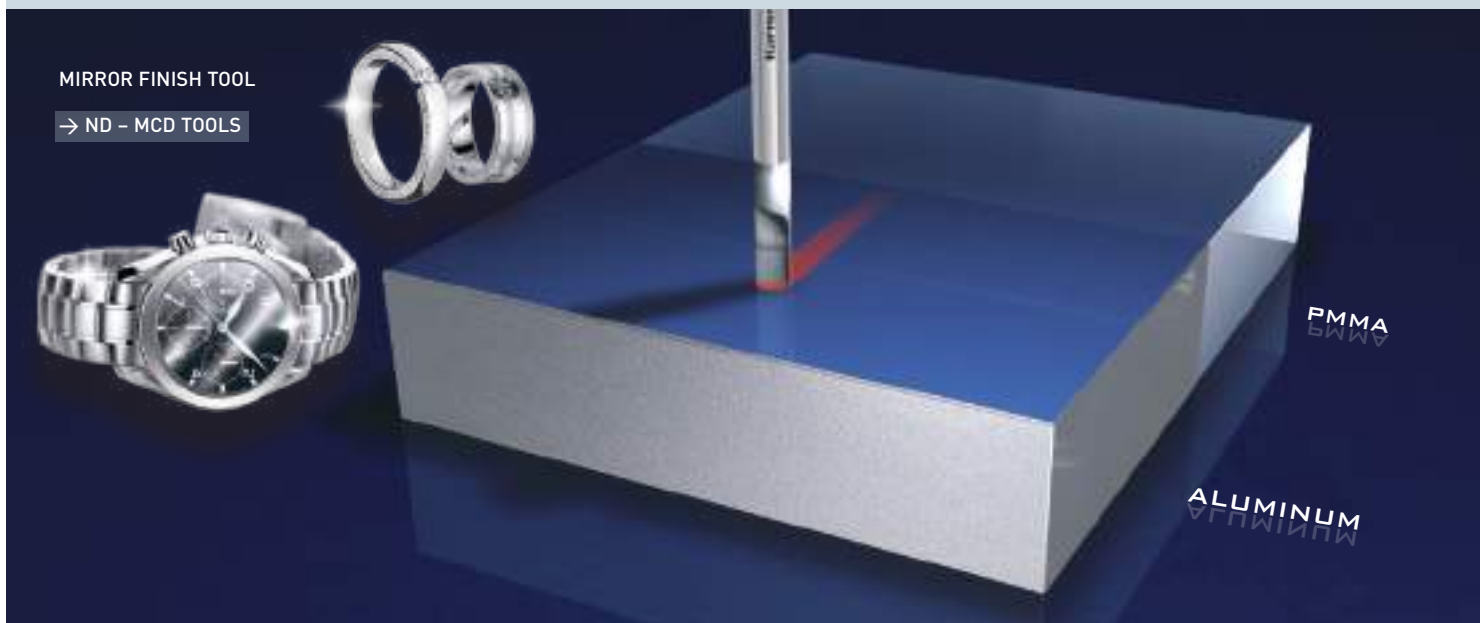
MCD Mono-crystalline	KARNASCH NORM
SPECIAL	DIN 6535 Shape HA
SPECIAL	r-special
HSC HPC	
LAPPED	
	CO Emul MMS AIR

Art.	d1	d1 - 2	d2 h5	d3	l1	l2	l3
29 6837 1200	• 12	5	8	11.4	60	15	3
29 6837 1600	• 16	5	10	15.4	60	15	3
29 6837 2000	• 20	5	10	19.4	60	15	3

Because of diamond price fluctuation, we ask you, to request the current prices, before ordering.

Cutting data

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MIRROR FINISH TOOL

→ ND - MCD TOOLS

PMMA

ALUMINUM

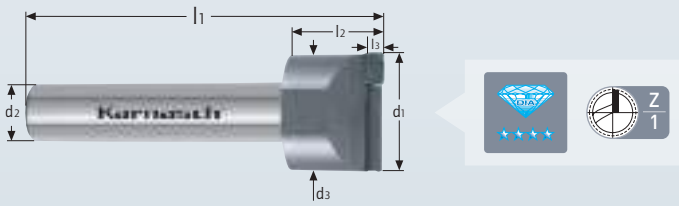
29 6838 MCD/mono-crystalline diamond milling cutter for high-gloss mirror finish, end cutting

COPPER SOFT

BRASS SOFT

Gold

Silver



MCD Mono-crystalline	KARNASCH NORM
SPECIAL	DIN 6535 Shape HA
SPECIAL	r-special
	HSC HPC
	LAPPED

Art.	d1	d1 - 2	d2 h5	d3	l1	l2	l3
29 6838 1200	• 12	5	8	11.4	60	15	3
29 6838 1600	• 16	5	10	15.4	60	15	3
29 6838 2000	• 20	5	10	19.4	60	15	3

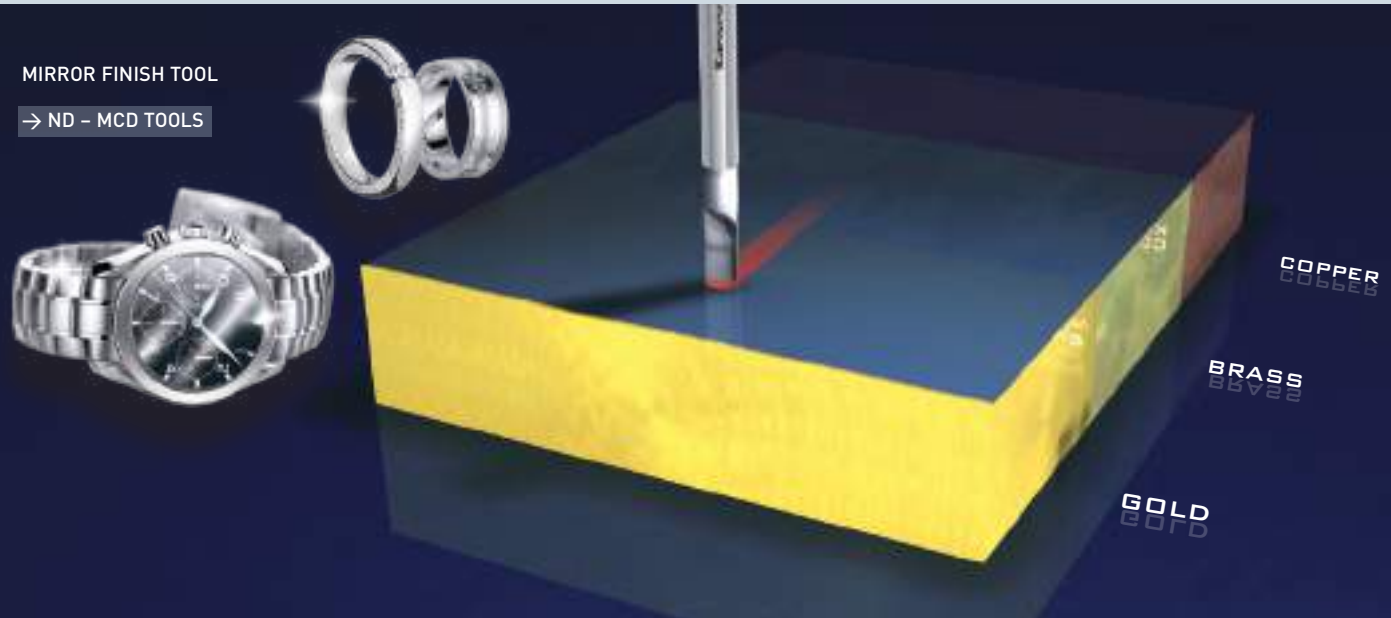
Because of diamond price fluctuation, we ask you, to request the current prices, before ordering.

Cutting data

1277

MIRROR FINISH TOOL

→ ND - MCD TOOLS



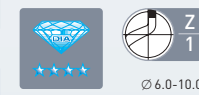
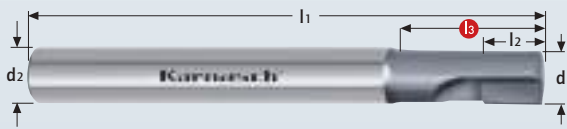
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MCD/mono-crystalline diamond milling cutter for high gloss mirror finish, profile-milling cutter

29 6839

Acrylic	BRASS SOFT
ACRYLIC TYP GS	COPPER SOFT
ACRYLIC TYP XT	ALUMINIUM SOFT
Acrylic glass	Gold
PMMA GS	Silver



Balanced
< 40,000 rpm

Art.	Ø d1 ±0.03	l2	l3	d2 h5	d3	l1	Z
29 6839 0600 03	• 6.0	3	20	6	5.4	50	1
29 6839 0600 04	• 6.0	4	20	6	5.4	50	1
29 6839 0600 05	• 6.0	5	20	6	5.4	50	1
29 6839 0600 06	• 6.0	6	20	6	5.4	50	1
29 6839 0800 04	• 8.0	4	25	8	7.4	60	1
29 6839 0800 05	• 8.0	5	25	8	7.4	60	1
29 6839 0800 06	• 8.0	6	25	8	7.4	60	1
29 6839 0800 08	• 8.0	8	25	8	7.4	60	1
29 6839 0800 10	• 8.0	10	25	8	7.4	60	1
29 6839 0800 11	• 8.0	11	25	8	7.4	60	1
29 6839 0800 12	• 8.0	12	25	8	7.4	60	1
29 6839 1000 04	• 10.0	4	25	10	9.4	60	1
29 6839 1000 05	• 10.0	5	25	10	9.4	60	1
29 6839 1000 06	• 10.0	6	25	10	9.4	60	1
29 6839 1000 08	• 10.0	8	25	10	9.4	60	1
29 6839 1000 10	• 10.0	10	25	10	9.4	60	1
29 6839 1000 11	• 10.0	11	25	10	9.4	60	1
29 6839 1000 12	• 10.0	12	25	10	9.4	60	1

MCD Mono-crystalline	KARNASCH NORM
SPECIAL	DIN 6535 Shape HA
	HSC High-Speed-Cutting
	LAPPED

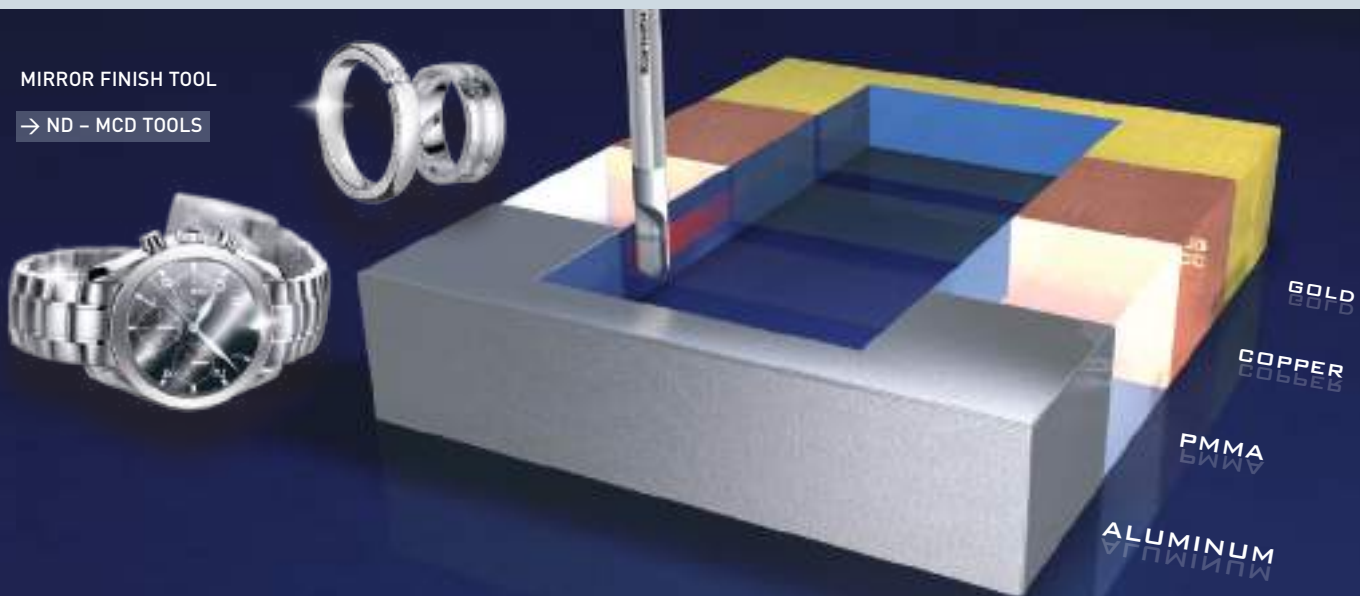
Cutting data	Movie
1277	

Because of diamond price fluctuation, we ask you, to request the current prices, before ordering.

When ordering, please inform us which material you want to machine to adjust the cutting geometry.

MIRROR FINISH TOOL

→ ND - MCD TOOLS



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29 6840

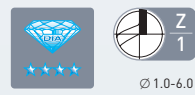
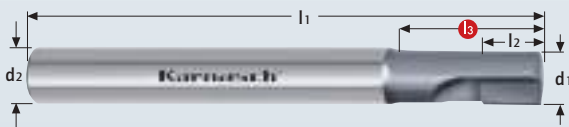
MCD/mono-crystalline diamond milling cutter for high-gloss mirror finish, circumference-milling cutter and end cutting

Acrylic

ALUMINIUM SOFT

Acrylic glass

PMMA GS



Balanced
< 60,000 rpm

Ø 1.0-1.5 no perfect mirror finish by milling on the front cutting edge.

Art.	Ø d1 ±0.03	l2	l3	d2 h5	d3	l1	Z
29 6840 0100 02	• 1.0	2	-	4	-	50	1
29 6840 0100 03	• 1.0	3	-	4	-	50	1
29 6840 0100 04	• 1.0	4	-	4	-	50	1
29 6840 0150 03	• 1.5	3	-	4	-	50	1
29 6840 0150 04	• 1.5	4	-	4	-	50	1
29 6840 0150 05	• 1.5	5	-	4	-	50	1
29 6840 0200 03	• 2.0	3	-	4	-	50	1
29 6840 0200 04	• 2.0	4	-	4	-	50	1
29 6840 0200 05	• 2.0	5	-	4	-	50	1
29 6840 0200 06	• 2.0	6	-	4	-	50	1
29 6840 0300 03	• 3.0	3	-	4	-	60	1
29 6840 0300 04	• 3.0	4	-	4	-	60	1
29 6840 0300 05	• 3.0	5	-	4	-	60	1
29 6840 0300 06	• 3.0	6	-	4	-	60	1
29 6840 0400 03	• 4.0	3	12	4	3.4	50	1
29 6840 0400 04	• 4.0	4	12	4	3.4	50	1
29 6840 0400 05	• 4.0	5	12	4	3.4	50	1
29 6840 0400 06	• 4.0	6	12	4	3.4	50	1
29 6840 0600 03	• 6.0	3	20	6	5.4	50	1
29 6840 0600 04	• 6.0	4	20	6	5.4	50	1
29 6840 0600 05	• 6.0	5	20	6	5.4	50	1
29 6840 0600 06	• 6.0	6	20	6	5.4	50	1

Because of diamond price fluctuation, we ask you, to request the current prices, before ordering.

MCD Mono-crystalline	KARNASCH NORM
SPECIAL	DIN 6535 Shape HA
	HSC High-Speed-Cutting
	LAPPED
	Air

Cutting data

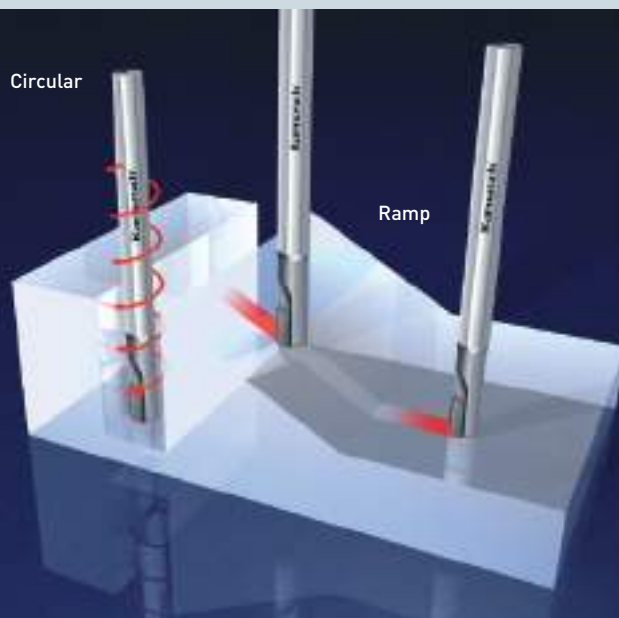
1277

MIRROR FINISH TOOL

→ ND - MCD TOOLS



Circular



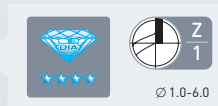
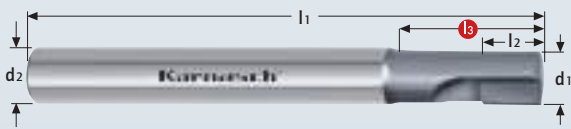
Ramp

PMMA

MCD/mono-crystalline diamond milling cutter for high-gloss mirror finish, circumference-milling cutter and end cutting

29 6841

- Brass
- Copper
- Gold
- Silver



Balanced
< 60,000 rpm

Ø 1.0-1.5 no perfect mirror finish by milling on the front cutting edge.

Art.	Ø d1 ±0.03	l2	l3	d2 h5	d3	l1	Z
29 6841 0100 02	1.0	2	-	4	-	50	1
29 6841 0100 03	1.0	3	-	4	-	50	1
29 6841 0100 04	1.0	4	-	4	-	50	1
29 6841 0150 03	1.5	3	-	4	-	50	1
29 6841 0150 04	1.5	4	-	4	-	50	1
29 6841 0150 05	1.5	5	-	4	-	50	1
29 6841 0200 03	2.0	3	-	4	-	50	1
29 6841 0200 04	2.0	4	-	4	-	50	1
29 6841 0200 05	2.0	5	-	4	-	50	1
29 6841 0200 06	2.0	6	-	4	-	50	1
29 6841 0300 03	3.0	3	-	4	-	60	1
29 6841 0300 04	3.0	4	-	4	-	60	1
29 6841 0300 05	3.0	5	-	4	-	60	1
29 6841 0300 06	3.0	6	-	4	-	60	1
29 6841 0400 03	4.0	3	12	4	3.4	50	1
29 6841 0400 04	4.0	4	12	4	3.4	50	1
29 6841 0400 05	4.0	5	12	4	3.4	50	1
29 6841 0400 06	4.0	6	12	4	3.4	50	1
29 6841 0600 03	6.0	3	20	6	5.4	50	1
29 6841 0600 04	6.0	4	20	6	5.4	50	1
29 6841 0600 05	6.0	5	20	6	5.4	50	1
29 6841 0600 06	6.0	6	20	6	5.4	50	1

- MCD Mono-crystalline
- KARNASCH NORM
- SPECIAL
- DIN 6535 Shape HA
- 0°
- HSC High-Speed-Cutting
- LAPPED
- Air

Cutting data



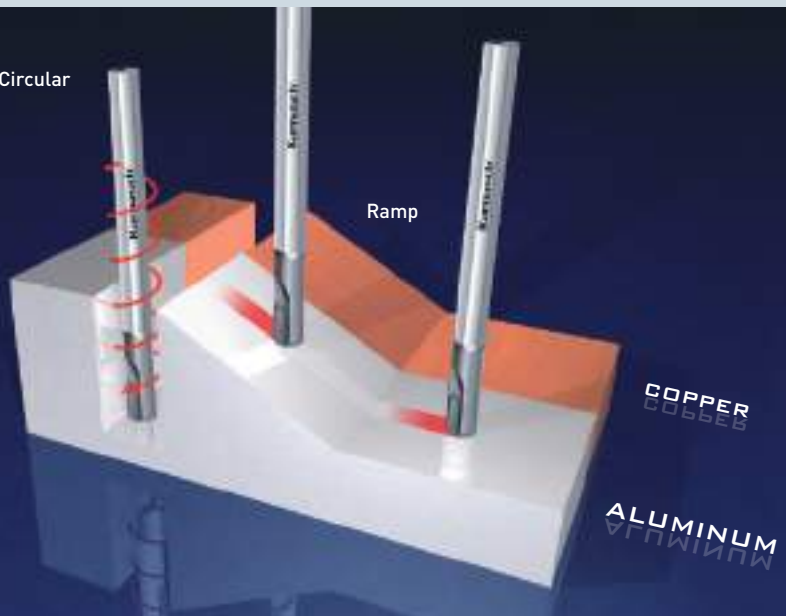
Because of diamond price fluctuation, we ask you, to request the current prices, before ordering.
 ○ No stock tool. Price and delivery on request

MIRROR FINISH TOOL

→ ND - MCD TOOLS



Circular



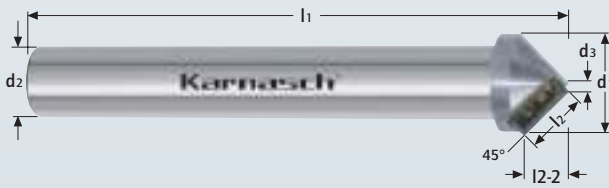
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29 6843

Mono-crystalline Diamond/MCD countersink 45° – high gloss mirror finish. Balanced < 30,000 rpm

- 1 Acrylic
- 2 ACRYLIC TYP GS
- 3 ACRYLIC TYP XT
- 4 Acrylic glass
- 5 PMMA GS
- 6 BRASS SOFT
- 7 COPPER SOFT
- 8 ALUMINIUM SOFT
- 9 Gold
- 10 Silver



Balanced
< 30,000 rpm

Art.	Ø d1	l2	l2 - 2	d2 h5	d3	l1	Z
29 6843 0800 05	• 8.0	5	3.7	8	1.0	60	1
29 6843 0950 06	• 9.5	6	4.3	10	1.0	60	1
29 6843 1100 07	• 11.0	7	5.1	12	1.0	60	1
29 6843 1200 08	• 12.0	8	5.7	12	1.0	60	1
29 6843 1350 09	• 13.5	9	6.4	14	1.0	60	1

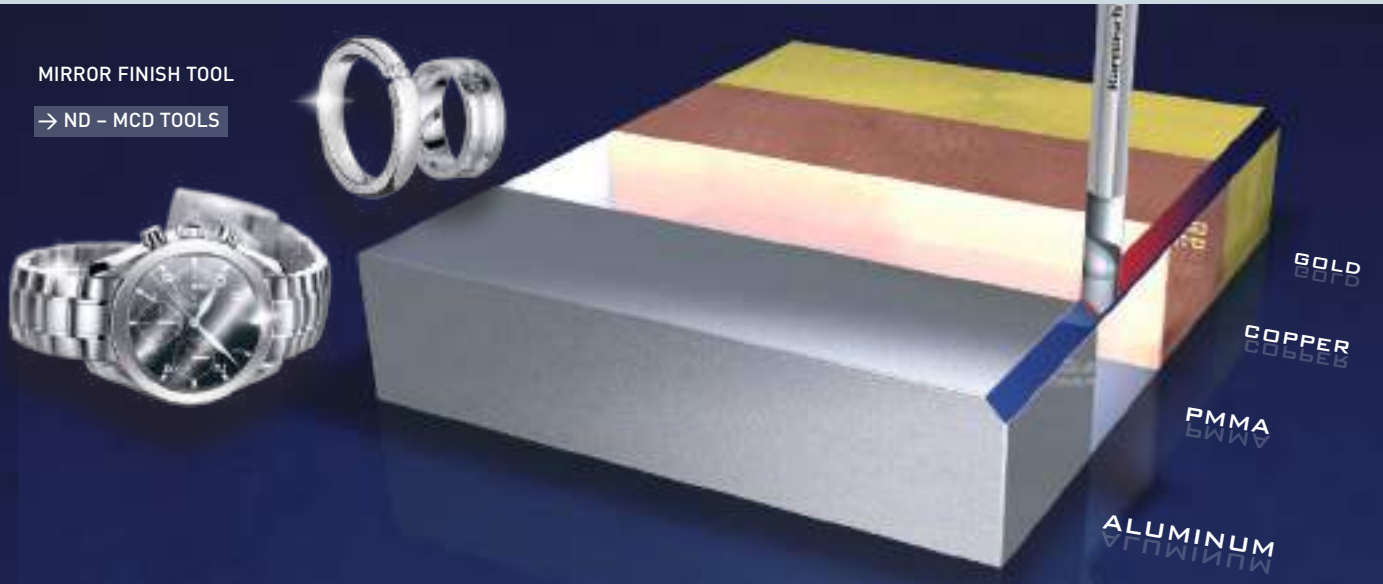
Because of diamond price fluctuation, we ask you, to request the current prices, before ordering.

When ordering, please inform us which material you want to machine to adjust the cutting geometry.

MCD Mono-crystalline	KARNASCH NORM
SPECIAL	DIN 6535 Shape HA

Cutting data | Movie

1277



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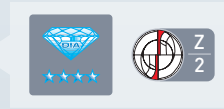
PCD-3D-ball milling cutter, 3xD-5xD-7xD, HSC high-speed-cutting

30 6522

- Aluminium < 6% Si
- Aluminium > 6% Si
- Brass
- Copper
- GRP-CRP
- GRAPHITE
- short chip
- long chip



BEST SELLER



d1* = Ø ≤ 3.0	tol -0.000 / -0.010
d1* = Ø 4.0 - Ø 6.0	tol -0.000 / -0.012
d1* = Ø 8.0 - Ø 10.0	tol -0.000 / -0.015
d1* = Ø 12.0	tol -0.000 / -0.018

Bestseller – price reduced

Art.	d1*	r ± 0.005	l3	d2 h6	d3	l1	l2	Z
30 6522 0300 09	• 3	1.5	9	6	2.8	75	2.5	2
30 6522 0300 15	• 3	1.5	15	6	2.8	75	2.5	2
30 6522 0300 21	• 3	1.5	21	6	2.8	75	2.5	2
30 6522 0400 12	• 4	2.0	12	6	3.8	75	2.5	2
30 6522 0400 20	• 4	2.0	20	6	3.8	75	2.5	2
30 6522 0400 28	• 4	2.0	28	6	3.8	75	2.5	2
30 6522 0500 15	• 5	2.5	15	6	4.9	75	3.0	2
30 6522 0500 25	• 5	2.5	25	6	4.9	75	3.0	2
30 6522 0500 35	• 5	2.5	35	6	4.9	75	3.0	2
30 6522 0600 18	• 6	3.0	18	6	5.9	100	6.0	2
30 6522 0600 30	• 6	3.0	30	6	5.9	100	6.0	2
30 6522 0600 42	• 6	3.0	42	6	5.9	100	6.0	2
30 6522 0600 60	• 6	3.0	60	6	5.9	100	6.0	2
30 6522 0800 24	• 8	4.0	24	8	7.8	100	8.0	2
30 6522 0800 40	• 8	4.0	40	8	7.8	100	8.0	2
30 6522 0800 60	• 8	4.0	60	8	7.8	100	8.0	2
30 6522 1000 30	• 10	5.0	30	10	9.8	100	10.0	2
30 6522 1000 50	• 10	5.0	50	10	9.8	100	10.0	2
30 6522 1000 60	• 10	5.0	60	10	9.8	105	10.0	2
30 6522 1200 36	• 12	6.0	36	12	11.2	105	9.0	2
30 6522 1200 60	• 12	6.0	60	12	11.2	105	9.0	2

PCD EXTREME	KARNASCH NORM
SPECIAL	DIN 6535 Shape HA
0°	
HSC High-Speed-Cutting	
POLISHED	

Cutting data



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Index

30 6523 PCD-end mill with corner radius, 3×D–5×D–7×D, HSC high-speed-cutting

- Aluminium < 6% Si
- Aluminium > 6% Si
- Brass
- Copper
- GRP-CRP



BEST SELLER



d1* = Ø ≤ 3.0	tol -0.000 / -0.010
d1* = Ø 4.0 - Ø 6.0	tol -0.000 / -0.012
d1* = Ø 8.0 - Ø 10.0	tol -0.000 / -0.015
d1* = Ø 12.0	tol -0.000 / -0.018

Bestseller – price reduced

Art.	d1*	r ± 0.005	l3	d2 h6	d3	l1	l2	Z
30 6523 0300 03 09	• 3	0.3	9	6	2.8	75	2.5	2
30 6523 0300 03 15	• 3	0.3	15	6	2.8	75	2.5	2
30 6523 0300 03 21	• 3	0.3	21	6	2.8	75	2.5	2
30 6523 0300 05 21	• 3	0.5	21	6	2.8	75	2.5	2
30 6523 0400 03 12	• 4	0.3	12	6	3.8	75	2.5	2
30 6523 0400 03 20	• 4	0.3	20	6	3.8	75	2.5	2
30 6523 0400 03 28	• 4	0.3	28	6	3.8	75	2.5	2
30 6523 0400 05 28	• 4	0.5	28	6	3.8	75	2.5	2
30 6523 0500 03 15	• 5	0.3	15	6	4.8	75	3.0	2
30 6523 0500 03 25	• 5	0.3	25	6	4.8	75	3.0	2
30 6523 0500 03 35	• 5	0.3	35	6	4.8	75	3.0	2
30 6523 0500 05 35	• 5	0.5	35	6	4.8	75	3.0	2
30 6523 0600 03 18	• 6	0.3	18	6	5.9	100	6.0	2
30 6523 0600 03 30	• 6	0.3	30	6	5.9	100	6.0	2
30 6523 0600 03 42	• 6	0.3	42	6	5.9	100	6.0	2
30 6523 0600 05 18	• 6	0.5	18	6	5.9	100	6.0	2
30 6523 0600 05 30	• 6	0.5	30	6	5.9	100	6.0	2
30 6523 0600 05 42	• 6	0.5	42	6	5.9	100	6.0	2
30 6523 0600 05 60	• 6	0.5	60	6	5.9	100	6.0	2
30 6523 0600 10 18	• 6	1.0	18	6	5.9	100	6.0	2
30 6523 0600 10 30	• 6	1.0	30	6	5.9	100	6.0	2
30 6523 0600 10 42	• 6	1.0	42	6	5.9	100	6.0	2
30 6523 0800 03 24	• 8	0.3	24	8	7.8	100	8.0	2
30 6523 0800 03 40	• 8	0.3	40	8	7.8	100	8.0	2
30 6523 0800 05 24	• 8	0.5	24	8	7.8	100	8.0	2
30 6523 0800 05 40	• 8	0.5	40	8	7.8	100	8.0	2
30 6523 0800 05 60	• 8	0.5	60	8	7.8	100	8.0	2
30 6523 0800 10 24	• 8	1.0	24	8	7.8	100	8.0	2
30 6523 0800 10 40	• 8	1.0	40	8	7.8	100	8.0	2
30 6523 0800 10 60	• 8	1.0	60	8	7.8	100	8.0	2
30 6523 1000 05 30	• 10	0.5	30	10	9.8	100	10.0	2
30 6523 1000 05 50	• 10	0.5	50	10	9.8	100	10.0	2
30 6523 1000 05 60	• 10	0.5	60	10	9.8	105	10.0	2
30 6523 1000 10 30	• 10	1.0	30	10	9.8	100	10.0	2
30 6523 1000 10 50	• 10	1.0	50	10	9.8	100	10.0	2
30 6523 1000 10 60	• 10	1.0	60	10	9.8	105	10.0	2
30 6523 1000 15 30	• 10	1.5	30	10	9.8	100	10.0	2
30 6523 1000 15 50	• 10	1.5	50	10	9.8	100	10.0	2
30 6523 1200 05 36	• 12	0.5	36	12	11.6	105	10.0	2
30 6523 1200 05 60	• 12	0.5	60	12	11.6	105	10.0	2
30 6523 1200 10 36	• 12	1.0	36	12	11.6	105	10.0	2
30 6523 1200 10 60	• 12	1.0	60	12	11.6	105	10.0	2
30 6523 1200 15 36	• 12	1.5	36	12	11.6	105	10.0	2
30 6523 1200 15 60	• 12	1.5	60	12	11.6	105	10.0	2

- PCD EXTREME KARNASCH NORM
- SPECIAL DIN 6535 Shape HA
- HSC High-Speed-Cutting
- POLISHED

Cutting data

1278

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- 9
- 10

PCD-end mills, 3×D–5×D–7×D, HSC high-speed-cutting

30 6524

- Aluminium < 6% Si
- Aluminium > 6% Si
- Brass
- Copper
- GRP-CRP
- GRAPHITE
- short chip
- long chip
- < 12° - 0,1
45°



d1* = Ø 3.0	tol -0.000 / -0.010
d1* = Ø 4.0 - Ø 6.0	tol -0.000 / -0.012
d1* = Ø 8.0 - Ø 10.0	tol -0.000 / -0.015
d1* = Ø 12.0	tol -0.000 / -0.018



Bestseller – price reduced

Art.	d1*	f ±0.02	l3	d2 h6	d3	l1	l2	Z
30 6524 0300 09	• 3	0.1	9	6	2.9	75	2.5	2
30 6524 0300 15	• 3	0.1	15	6	2.9	75	2.5	2
30 6524 0300 21	• 3	0.1	21	6	2.9	75	2.5	2
30 6524 0400 12	• 4	0.1	12	6	3.8	75	2.5	2
30 6524 0400 20	• 4	0.1	20	6	3.8	75	2.5	2
30 6524 0400 28	• 4	0.1	28	6	3.8	75	2.5	2
30 6524 0500 15	• 5	0.1	15	6	4.8	75	3.0	2
30 6524 0500 25	• 5	0.1	25	6	4.8	75	3.0	2
30 6524 0500 35	• 5	0.1	35	6	4.8	75	3.0	2
30 6524 0600 18	• 6	0.1	18	6	5.5	100	6.0	2
30 6524 0600 30	• 6	0.1	30	6	5.5	100	6.0	2
30 6524 0600 42	• 6	0.1	42	6	5.5	100	6.0	2
30 6524 0800 24	• 8	0.1	24	8	7.4	100	7.0	2
30 6524 0800 40	• 8	0.1	40	8	7.4	100	7.0	2
30 6524 1000 30	• 10	0.1	30	10	9.6	100	8.0	2
30 6524 1000 50	• 10	0.1	50	10	9.6	100	8.0	2
30 6524 1200 36	• 12	0.1	36	12	11.6	105	9.0	2
30 6524 1200 60	• 12	0.1	60	12	11.6	105	9.0	2

PCD EXTREME KARNASCH NORM

SPECIAL DIN 6535 Shape HA

0° 45° x 0.1

HSC High-Speed-Cutting

POLISHED

Cutting data



Karnasch®
PROFESSIONAL TOOLS

Diamond tipped quality products.



CBN



PCD



Natural Diamond ND



Monocrystalline diamond MCD



CVD / Diamond coating

PCD EXTREME

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10

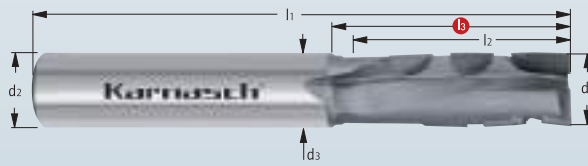
Index

30 6528

PCD **EXTREME**

PCD-Extreme type "V" mill for burr-free milling of upper and lower edge of fibre-reinforced plastics

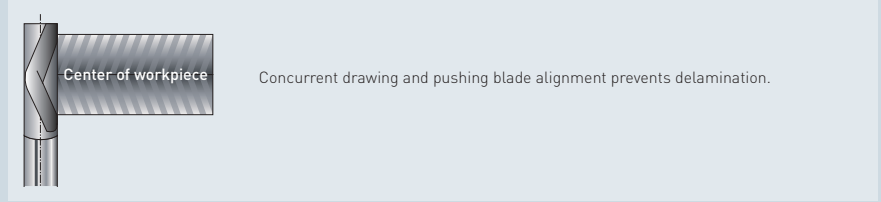
- COMPOSITES: PEEK CF30
- GRP-CRP: GF GF25
- Aramid fiber AFK-SFK: PVDF GF25
- Hybrid materials: TITANIUM
- CRP-ALU Composites: Aluminium > 6% Si
- Laminates: Brass
- PA66 GF30: Copper
- PVDF GF30: short chip
- PEEK GF30: long chip



d1*	= Ø 10.0	tol -0.000 / -0.022
d1*	= Ø 12.0	tol -0.000 / -0.027

Art.	d1 h8	f ±0.02	l2	l3	d2 h6	d3	l1	Z
30 6528 1000	% 10	0.1	22	30	10	9.4	72	2
30 6528 1200	% 12	0.1	26	36	12	11.4	83	2

% Sale item. While stocks last.



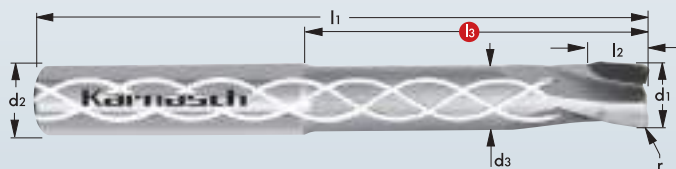
- PCD EXTREME: KARNASCH NORM
- SPECIAL: DIN 6535 Shape HA
- 45° x 0.1
- HPC
- POLISHED
- Air

Cutting data

30 6534

PCD-Corner radius end mill, positive, with interior cooling

- Aluminium < 6% Si
- Aluminium > 6% Si
- Brass
- Copper
- GRP-CRP
- GRAPHITE
- short chip
- long chip



Art.	d1 h7	r ± 0.005	l3	d2	d3	l1	l2	Z
30 6534 0600 10 18	% 6	1.0	18	6	5.4	100	6	3
30 6534 0600 20 18	% 6	2.0	18	6	5.4	100	6	3
30 6534 0600 10 30	% 6	1.0	30	6	5.4	100	6	3
30 6534 0600 10 42	% 6	1.0	42	6	5.4	100	6	3
30 6534 0800 03 24	% 8	0.3	24	8	7.2	100	7	3
30 6534 0800 03 40	% 8	0.3	40	8	7.2	100	7	3
30 6534 1000 10 30	% 10	1.0	30	10	9.0	100	8	3
30 6534 1000 10 50	% 10	1.0	50	10	9.0	100	8	3
30 6534 1200 05 36	% 12	0.5	36	12	11.0	105	9	3
30 6534 1200 20 36	% 12	2.0	36	12	11.0	105	9	3

% Sale item. While stocks last.

- PCD MICRO-GRAIN: KARNASCH NORM
- SPECIAL: DIN 6535 Shape HA
- 15°
- HSC High-Speed-Cutting
- POLISHED
- EMU MMS AIR

Cutting data

Dia-Cut

11 1350

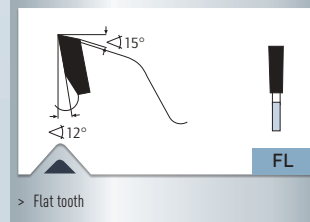
GRP-CRP	PA66 GF30
THERMO-PLASTICS	PVDF GF30
DURO-PLASTICS	PEEK GF30
Aramid fiber AFK-SFK	PEEK CF30
Hybrid materials	GF GF25
GRP-ALU Composites	PVDF GF25
Laminates	GMT
Kevlar	SMC
Acrylic glass	Acrylic
AL/TI	PMMA GS
TI-CFRP	Eternit



PCD MICRO-GRAIN	KARNASCH NORM
SPECIAL	
$\alpha = 12^\circ$ $\beta = 15^\circ$	
	HSC High-Speed-Cutting
	PCD
	Air

Machine

For hand-held circular saws, mitre saws, cross-cut saws, table and sizing saws



Art.							
11 1350 120 010	• 120	2.2/1.6	20	6 FL	-	-	-
11 1350 136 010	• 136	2.2/1.6	20	6 FL	2-6-32	-	-
11 1350 160 005	• 160	2.2/1.6	20/16	4 FL	2-6-32.5	-	-
11 1350 160 010	• 160	2.2/1.6	20/16	8 FL	2-6-32.5	-	-
11 1350 160 020	• 160	2.2/1.6	20/16	30 FL	2-6-32.5	-	-
11 1350 180 010	• 180	2.2/1.6	30/20	8 FL	2-7-42	-	-
11 1350 190 010	• 190	2.2/1.6	30/20	8 FL	2-7-42		✓
11 1350 190 015	• 190	2.2/1.6	30/20	12 FL	2-7-42		✓
11 1350 190 020	• 190	2.2/1.6	30/20	30 FL	2-7-42		✓
11 1350 210 005	• 210	2.2/1.6	30	8 FL	UNI		✓
11 1350 210 010	• 210	2.2/1.6	30	12 FL	UNI		✓
11 1350 210 020	• 210	2.2/1.6	30	30 FL	UNI		✓
11 1350 216 005	• 216	2.2/1.6	30	8 FL	UNI		✓
11 1350 216 010	• 216	2.2/1.6	30	12 FL	UNI		✓
11 1350 216 020	• 216	2.2/1.6	30	30 FL	UNI		✓
11 1350 230 005	• 230	2.4/1.8	30	6 FL	UNI		✓
11 1350 230 007	• 230	2.4/1.8	30	8 FL	UNI		✓
11 1350 230 010	• 230	2.4/1.8	30	15 FL	UNI		✓
11 1350 230 020	• 230	2.4/1.8	30	30 FL	UNI		✓
11 1350 250 005	• 250	2.4/1.8	30	6 FL	UNI		✓
11 1350 250 007	• 250	2.4/1.8	30	8 FL	UNI		✓
11 1350 250 010	• 250	2.4/1.8	30	16 FL	UNI		✓
11 1350 250 015	• 250	2.4/1.8	30	28 FL	UNI		✓
11 1350 250 020	• 250	2.4/1.8	30	40 FL	UNI		✓
11 1350 250 030	• 250	2.4/1.8	30	48 FL	UNI		✓
11 1350 300 005	• 300	2.6/2.0	30	8 FL	UNI		✓
11 1350 300 015	• 300	2.6/1.8	30	18 FL	UNI		✓
11 1350 300 020	• 300	2.6/2.0	30	36 FL	UNI		✓
11 1350 300 030	• 300	2.6/2.0	30	48 FL	UNI		✓
11 1350 300 040	• 300	2.6/2.0	30	60 FL	UNI		✓
11 1350 350 002	• 350	2.8/2.2	30	10 FL	UNI		✓
11 1350 350 004	• 350	2.8/2.2	30	24 FL	UNI		✓
11 1350 350 006	• 350	2.8/2.2	30	36 FL	UNI		✓
11 1350 350 008	• 350	2.8/2.2	30	48 FL	UNI		✓
11 1350 350 010	• 350	2.8/2.2	30	60 FL	UNI		✓

• Sale item. While stocks last.
UNI = 2-7-42 + 2-9-46.40 + 2-10-60



