BOGERBENZ

SOLID CARBIDE TOOLS. PRODUCTION. SERVICE

PRODUCT CATALOG
SOLID CARBIDE TOOLS

WE ARE THE COMPANY YOU'RE LOOKING FOR
IF YOU WANT QUALITY, PRECISION AND DELIVERY RELIABILITY

BOGER & BENZ specializes in precision tool manufacturing and resharpening.

Since 1971 we have provided highly precise premium quality solid carbide tools to tool, mold and die makers for high-speed and hard machining and to metal cutting manufacturers for individual lot sizes as well as series production.

Not matter how challenging the requirements, whether manufacturing a standard tool or a customized solution – we have two fixed targets: highest quality and utmost precision. We know what we can accomplish.

This makes us efficient and results in delivery reliability. If you are looking for new and just as newly made solid carbide tools, you have come to the right place ... because quality, precision and delivery reliability play an important role.

BOGERBENZ

SOLID CARBIDE TOOLS. PRODUCTION. SERVICE

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SOLID CARBIDE TOOLS

BOGERBENZ

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Cutting edge-Ø	0.5–32	mm

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S 1130	T4 | HRC 58	11
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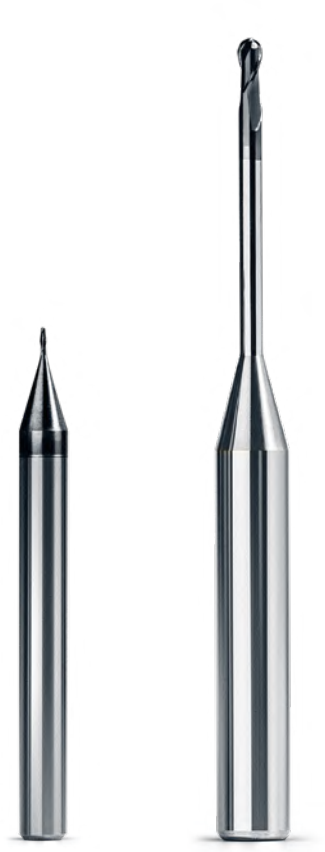
SOLID CARBIDE TOOLS

BOGERBENZ



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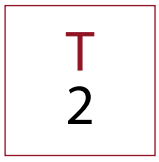
K 1103	T2 | HRC 45	31
T 1123 | T 1124	T2 | HRC 65 | r = 0.05–1	33

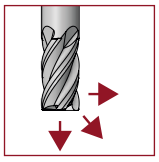
Material Groups

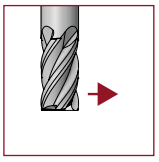
Gen. structural/ case hard. steels	P	1.0037 | 1.0570 | 1.0503 | 1.7131
Tool/ tempering steels		1.2367 | 1.2379 | 1.7225
Alloyed/ cold work steels		1.2312 | 1.2767 | 1.3505 | 1.7707
Cast steel		1.0619 | 1.0446
Stainless steels	M	1.4301 | 1.4305 | 1.4034
Stainless steels		1.4435 | 1.4571
Cast iron	K	GG25 | GG40 | GGG40
Spherical cast iron		GGG50 | GGG60 | GGG70
Aluminum Si content 0,5–9%	N	3.1645 | 3.2163
Aluminum Si content 10–15%		3.2523
Copper/ brass/ bronze		2.0321 | 2.1030
Medium hard/ soft plastics		–
Titanium alloys	S	3.7164 | 3.7165
Nickel alloys		Inconel 713
Hardened steel	H	HRC 45–50
Hardened steel		HRC 51–58
Hardened steel		HRC 59–65

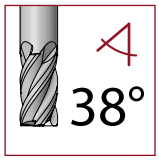
Pictographs



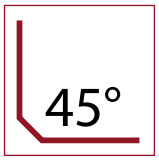
Number of teeth


Spatial

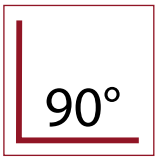

Lateral



Angle of twist

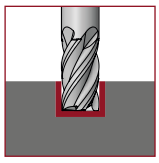


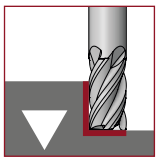
Corner chamfer

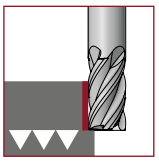


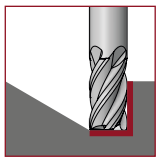
Sharp edged

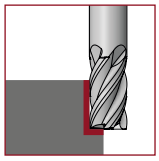
Hardness


Slotting


Rough milling

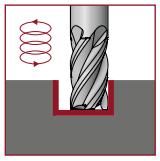

Finishing milling

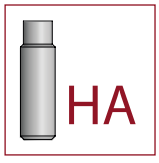

Ramping


Trimming


Ball track milling


Copy milling


Helix



Smooth shank

Weldon (please inquire)

Cutting data v_c | f_z | a_p | a_e

Shoulder/slot/ball track/copy milling cutting. The cutting data listed for the individual tool types are recommended values. It is impossible to take into account all conditions. As a consequence, we do not assume any liability for this data. Please contact our headquarters or your regular service consultant directly if you require process and workpiece specific information.

SHANK END MILLS

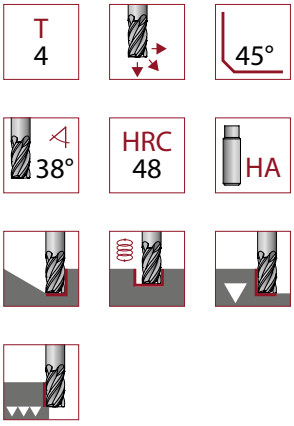
SHANK END MILLS
S 1020

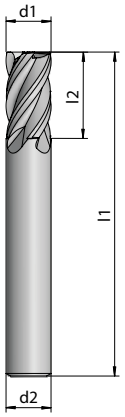
BOGERBENZ

Short version				
Article no.	d1	d2	l1	l2
10200300	3	6	57	8
10200400	4	6	57	11
10200500	5	6	57	13
10200600	6	6	57	13
10200800	8	8	63	19
10201000	10	10	72	22
10201200	12	12	83	26
10201400	14	14	83	26
10201600	16	16	92	32
10201800	18	18	104	34
10202000	20	20	104	38
10202500	25	25	125	48

Medium version				
Article no.	d1	d2	l1	l2
10201001	10	10	98	40
10201201	12	12	104	48
10201601	16	16	104	48
10201801	18	18	140	72
10202001	20	20	145	80
10202501	25	25	152	75

Long version				
Article no.	d1	d2	l1	l2
10201802	18	18	175	108
10202002	20	20	188	120
10202502	25	25	178	100
10202503	25	25	202	125
10202504	25	25	228	150





Shoulder milling	a_p x a_e = 1d x 0.3d
Slot milling	a_p x a_e = 0.65d x 1d

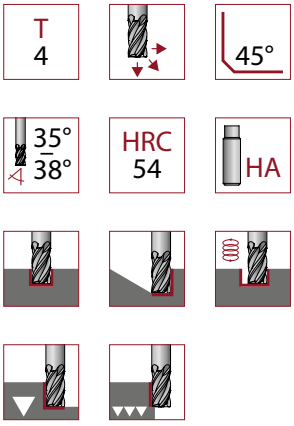
Cutting data for short version			Shoulder	Slot
Material		N/mm²	v_c m/min	
P	Gen. structural/ case hard. steels 1.0037 | 1.0570 | 1.0503 | 1.7131	< 800	130	100
	Tool/ tempering steels 1.2367 | 1.2379 | 1.7225	< 1100	110	80
	Alloyed/ cold work steels 1.2312 | 1.2767 | 1.3505 | 1.7707	< 1400	80	-
M	Stainless steels 1.4301 | 1.4305 | 1.4034	< 750	80	–
N	Copper/ brass/ bronze 2.0321 | 2.1030	–	230	150
	Medium hard/ soft plastics	–	200–300	180–250

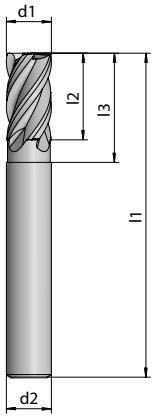
	Shoulder	Slot
d1	fz mm	
3	0.025	0.007
4	0.035	0.010
5	0.040	0.015
6	0.050	0.025
8	0.055	0.030
10	0.055	0.040
12	0.060	0.050
14	0.060	0.050
16	0.070	0.060
18	0.080	0.070
20	0.080	0.070
25	0.100	0.080

SHANK END MILLS
HPC | S 1025

BOGERBENZ

Short version					
Article no.	d1	d2	l1	l2	l3
10250400	4	6	57	11	19
10250500	5	6	57	13	21
10250600	6	6	57	13	21
10250800	8	8	63	19	27
10251000	10	10	72	24	32
10251200	12	12	83	28	36
10251400	14	14	83	29	37
10251600	16	16	92	35	43
10252000	20	20	104	44	54
10252500	25	25	125	52	65





Shoulder milling	a_p x a_e = 1d x 0.3d
Slot milling	a_p x a_e = 0.65d x 1d

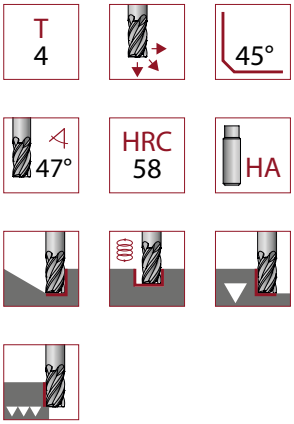
Cutting data for short version			Shoulder	Slot
Material		N/mm²	v_c m/min	
P	Gen. structural/ case hard. steels 1.0037 | 1.0570 | 1.0503 | 1.7131	< 800	150	130
	Tool/ tempering steels 1.2367 | 1.2379 | 1.7225	< 1100	130	100
	Alloyed/ cold work steels 1.2312 | 1.2767 | 1.3505 | 1.7707	< 1400	100	–
M	Stainless steels 1.4301 | 1.4305 | 1.4034	< 750	100	–
	Stainless steels 1.4435 | 1.4571	< 850	75	–
K	Cast iron GG25 | GG40 | GGG40	< 450	160	130
	Spherical cast iron GGG50 | GGG60 | GGG70	< 650	120	100

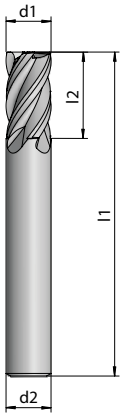
	Shoulder	Slot
d1	fz mm	
4	0.035	0.010
5	0.040	0.015
6	0.050	0.025
8	0.060	0.030
10	0.070	0.040
12	0.080	0.060
14	0.080	0.060
16	0.090	0.070
20	0.100	0.080
25	0.100	0.080

SHANK END MILLS
S 1130

BOGERBENZ

Short version				
Article no.	d1	d2	l1	l2
11300400	4	4	48	8
11300500	5	6	48	10
11300600	6	6	50	12
11300800	8	8	57	16
11301000	10	10	66	20
11301200	12	12	76	24
11301600	16	16	90	32
11301800	18	18	94	36
11302000	20	20	98	40
11302500	25	25	120	50





Shoulder milling	a_p x a_e = 2d x 0.5d
Slot milling	a_p x a_e = 0.65d x 1d

Cutting data for short version			Shoulder	Slot
Material		N/mm²	v_c m/min	
P	Gen. structural/ case hard. steels 1.0037 | 1.0570 | 1.0503 | 1.7131	< 800	140	120
	Tool/ tempering steels 1.2367 | 1.2379 | 1.7225	< 1100	120	90
	Alloyed/ cold work steels 1.2312 | 1.2767 | 1.3505 | 1.7707	< 1400	100	–
M	Stainless steels 1.4301 | 1.4305 | 1.4034	< 750	100	–
	Stainless steels 1.4435 | 1.4571	< 850	75	–
K	Cast iron GG25 | GG40 | GGG40	< 450	160	130
	Spherical cast iron GGG50 | GGG60 | GGG70	< 650	120	100
H	Hardened steel HRC 45–50	–	50-70	40-60
	Hardened steel HRC 51–58	–	30-50	–

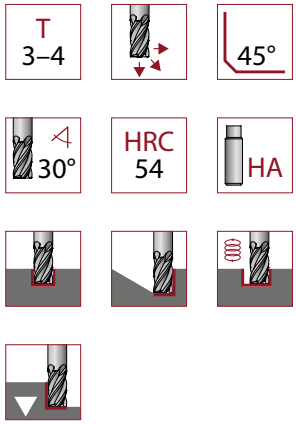
	Shoulder	Slot
d1	fz mm	
4	0.035	0.010
5	0.040	0.015
6	0.050	0.025
8	0.060	0.030
10	0.070	0.040
12	0.100	0.060
16	0.110	0.070
18	0.120	0.090
20	0.150	0.100
25	0.160	0.110

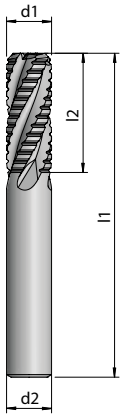
SHANK END MILLS CORD TOOTHED
ROUGHING END MILLS | S 1030

BOGERBENZ

Short version | Number of teeth 3				
Article no.	d1	d2	l1	l2
10300600	6	6	57	10
10300800	8	8	63	16

Short version | Number of teeth 4				
Article no.	d1	d2	l1	l2
10301000	10	10	72	22
10301200	12	12	83	26
10301400	14	14	83	26
10301600	16	16	92	32
10301800	18	18	92	34
10302000	20	20	104	38
10302500	25	25	125	48





Shoulder milling	a_p x a_e = 1d x 0.4d
Slot milling	a_p x a_e = 0.65d x 1d

Cutting data for short version			Shoulder	Slot
Material		N/mm²	v_c m/min	
P	Gen. structural/ case hard. steels 1.0037 | 1.0570 | 1.0503 | 1.7131	< 800	140	110
	Tool/ tempering steels 1.2367 | 1.2379 | 1.7225	< 1100	110	80
	Alloyed/ cold work steels 1.2312 | 1.2767 | 1.3505 | 1.7707	< 1400	80	-
	Cast steel 1.0619 | 1.0446	–	130-170	80-130
M	Stainless steels 1.4301 | 1.4305 | 1.4034	< 750	70-100	50-85
	Stainless steels 1.4435 | 1.4571	< 850	70-100	50-85
K	Cast iron GG25 | GG40 | GGG40	< 450	100-150	80-130
	Spherical cast iron GGG50 | GGG60 | GGG70	< 650	100-150	80-130
S	Titanium alloys 3.7164 | 3.7165	–	50	35
	Nickel alloys Inconel 713	–	50	35

	Shoulder	Slot
d1	fz mm	
6	0.050	0.035
8	0.060	0.040
10	0.080	0.055
12	0.090	0.065
14	0.100	0.080
16	0.120	0.090
18	0.140	0.100
20	0.150	0.110
25	0.160	0.120

SHANK END MILLS CORD TOOTHED

ROUGHINGFINISHING END MILLS | S 1230

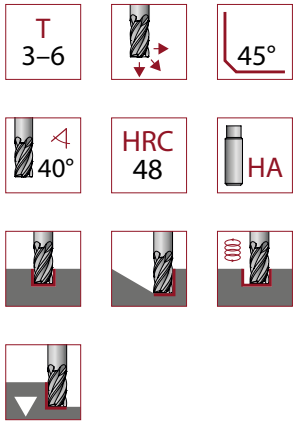
BOGERBENZ

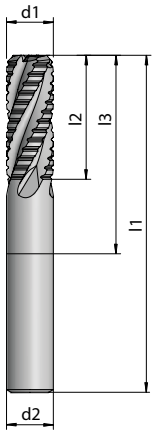
Short version | Number of teeth 3					
Article no.	d1	d2	l1	l2	l3
12300600	6	6	57	6	14
12300800	8	8	63	8	16

Short version | Number of teeth 4					
Article no.	d1	d2	l1	l2	l3
12301000	10	10	72	10	24

Short version | Number of teeth 5					
Article no.	d1	d2	l1	l2	l3
12301200	12	12	80	12	30
12301400	14	14	83	14	32
12301600	16	16	105	16	32
12301800	18	18	108	18	36

Short version | Number of teeth 6					
Article no.	d1	d2	l1	l2	l3
12302000	20	20	109	20	40





Shoulder milling	a_p x a_e = 1d x 0.4d
Slot milling	a_p x a_e = 0.65d x 1d

Cutting data for short version			Shoulder	Slot
Material		N/mm²	v_c m/min	
P	Gen. structural/ case hard. steels 1.0037 | 1.0570 | 1.0503 | 1.7131	< 1100	130	90
	Tool/ tempering steels 1.2367 | 1.2379 | 1.7225	< 1400	80	–
	Alloyed/ cold work steels 1.2312 | 1.2767 | 1.3505 | 1.7707	–	130–170	110–140
M	Stainless steels 1.4301 | 1.4305 | 1.4034	< 750	70-100	50-85
	Stainless steels 1.4435 | 1.4571	< 850	70-100	50-85
S	Titanium alloys 3.7164 | 3.7165	–	50	35
	Nickel alloys Inconel 713	–	50	35
H	Hardened steel HRC 45–50	–	150	–
	Hardened steel HRC 51–58	–	120	–
	Hardened steel HRC 59–65	–	80	–

	Shoulder	Slot
d1	fz mm	
6	0.050	0.035
8	0.060	0.040
10	0.080	0.055
12	0.090	0.065
14	0.100	0.080
16	0.120	0.090
18	0.140	0.100
20	0.150	0.110

SHANK END MILLS
FINISHING END MILLS | S 1040

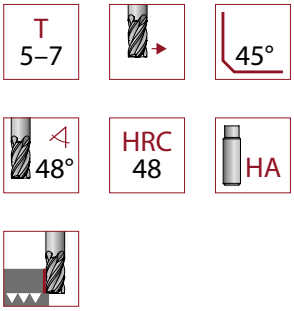
BOGERBENZ

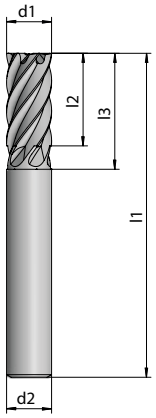
Short version | Number of teeth 5					
Article no.	d1	d2	l1	l2	l3
10400601	6	6	56	12	20
10400801	8	8	62	16	26
10401001	10	10	85	20	40
10401201	12	12	86	24	40

Long version | Number of teeth 5					
Article no.	d1	d2	l1	l2	l3
10400600	6	6	62	18	26
10400800	8	8	70	24	34
10401000	10	10	98	30	50
10401200	12	12	98	36	52

Short version | Number of teeth 7					
Article no.	d1	d2	l1	l2	l3
10401601	16	16	86	32	38
10401801	18	18	90	36	42
10402001	20	20	98	40	48
10402501	25	25	117	50	61

Long version | Number of teeth 7					
Article no.	d1	d2	l1	l2	l3
10401600	16	16	102	48	54
10401800	18	18	108	54	60
10402000	20	20	118	60	68
10402500	25	25	142	75	86





Shoulder milling a_p x a_e = **2.5d x 0.4d**

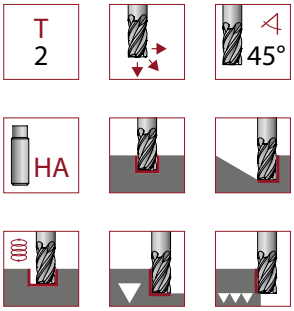
Cutting data for short version			Shoulder
Material		N/mm²	v_c m/min
P	Gen. structural/ case hard. steels 1.0037 | 1.0570 | 1.0503 | 1.7131	< 800	120
	Tool/ tempering steels 1.2367 | 1.2379 | 1.7225	< 1100	100
	Alloyed/ cold work steels 1.2312 | 1.2767 | 1.3505 | 1.7707	< 1400	70
M	Stainless steels 1.4301 | 1.4305 | 1.4034	< 750	70
N	Copper/ brass/ bronze 2.0321 | 2.1030	–	230
	Medium hard/ soft plastics	–	200-300

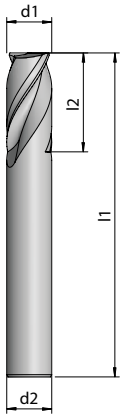
	Shoulder
d1	fz mm
6	0.020
8	0.025
10	0.030
12	0.040
16	0.055
18	0.065
20	0.075
25	0.080

SHANK END MILLS
ALULINE | S 1070

BOGERBENZ

Short version				
Article no.	d1	d2	l1	l2
10700300	3	3	60	6
10700400	4	4	70	8
10700500	5	5	70	10
10700600	6	6	98	12
10700800	8	8	98	16
10701000	10	10	98	20
10701200	12	12	98	24
10701600	16	16	128	32
10702000	20	20	140	40
10702500	25	25	150	50





Shoulder milling	a_p x a_e = 1d x 0.5d
Slot milling	a_p x a_e = 1d x 1d




Cutting data for short version			Shoulder	Slot
Material		N/mm²	v_c m/min	
N	Aluminum Si content 0,5–9% 3.1645 | 3.2163	–	350	285
	Aluminum Si content 10–15% 3.2523	–	300	240

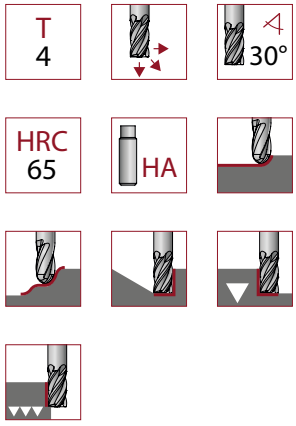
	Shoulder	Slot
d1	fz mm	
3	0.012	0.008
4	0.016	0.010
5	0.025	0.018
6	0.030	0.020
8	0.040	0.030
10	0.055	0.040
12	0.065	0.050
16	0.085	0.065
18	0.100	0.075
20	0.120	0.090
25	0.140	0.100

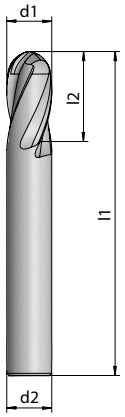
BALL END MILLS

BALL END MILLS
K 1050

BOGERBENZ

Short version				
Article no.	d1	d2	l1	l2
10500400	4	6	57	12
10500500	5	6	57	14
10500600	6	6	57	14
10500800	8	8	63	20
10501000	10	10	72	24
10501200	12	12	83	28
10501600	16	16	92	34
10502000	20	20	104	40





Ball track milling	a_p x a_e = 0.3d x 0.3d
Copy milling	a_p x a_e = 0.65d x 1d

Cutting data for short version			Ball track	Copy
Material		N/mm²	v_c m/min	
P	Gen. structural/ case hard. steels 1.0037 | 1.0570 | 1.0503 | 1.7131	< 800	150	120
	Tool/ tempering steels 1.2367 | 1.2379 | 1.7225	< 1100	110	90
	Alloyed/ cold work steels 1.2312 | 1.2767 | 1.3505 | 1.7707	< 1400	90	80
K	Cast iron GG25 | GG40 | GGG40	< 450	100-180	100-160
	Spherical cast iron GGG50 | GGG60 | GGG70	< 650	100-130	80-130
H	Hardened steel HRC 45–50	–	130	130
	Hardened steel HRC 51–58	–	100	100
	Hardened steel HRC 59–65	–	60	60

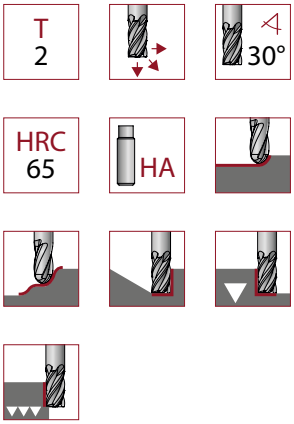
	Ball track	Copy
d1	fz mm	
4	0.060	0.025
5	0.065	0.035
6	0.070	0.040
8	0.080	0.045
10	0.085	0.050
12	0.085	0.070
16	0.085	0.070
20	0.085	0.070

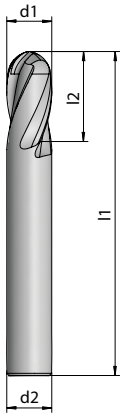
BALL END MILLS
K 1150

BOGERBENZ

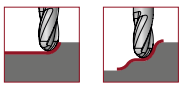
Short version				
Article no.	d1	d2	l1	l2
11500301	3	4	50	5
11500401	4	4	50	6
11500501	5	5	57	8
11500601	6	6	57	9
11500801	8	8	63	12
11501001	10	10	72	15
11501201	12	12	83	18
11501601	16	16	92	24
11502001	20	20	104	30

Long version				
Article no.	d1	d2	l1	l2
11500300	3	4	78	5
11500400	4	4	78	6
11500500	5	5	78	8
11500600	6	6	98	9
11500800	8	8	98	12
11501000	10	10	98	15
11501200	12	12	118	18
11501600	16	16	152	24
11502000	20	20	152	30





Ball track milling	a_p x a_e = 0.3d x 0.3d
Copy milling	a_p x a_e = 0.65d x 1d



Cutting data for short version			Ball track	Copy
Material		N/mm²	v_c m/min	
P	Gen. structural/ case hard. steels 1.0037 | 1.0570 | 1.0503 | 1.7131	< 800	150	120
	Tool/ tempering steels 1.2367 | 1.2379 | 1.7225	< 1100	110	90
	Alloyed/ cold work steels 1.2312 | 1.2767 | 1.3505 | 1.7707	< 1400	90	80
K	Cast iron GG25 | GG40 | GGG40	< 450	100-180	100-160
	Spherical cast iron GGG50 | GGG60 | GGG70	< 650	80-130	80-130
H	Hardened steel HRC 45–50	–	130	130
	Hardened steel HRC 51–58	–	100	100
	Hardened steel HRC 59–65	–	60	60

	Ball track	Copy
d1	fz mm	
3	0.050	0.020
4	0.060	0.025
5	0.065	0.035
6	0.070	0.040
8	0.080	0.045
10	0.085	0.050
12	0.085	0.070
16	0.085	0.070
20	0.085	0.070

BALL END MILLS
K 1110

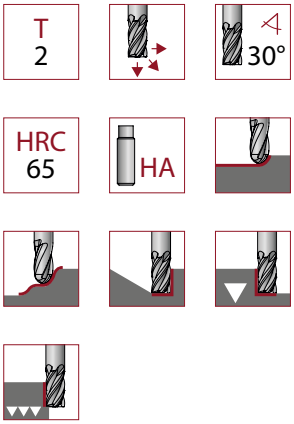
BOGERBENZ

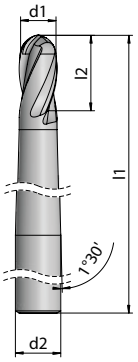
Short version | Neck angle 1°30'				
Article no.	d1	d2	l1	l2
11100401	4	6	85	6
11100502	5	6	85	8
11100600	6	8	98	9
11100802	8	10	110	12
11101001	10	12	110	15

Long version | Neck angle 1°30'				
Article no.	d1	d2	l1	l2
11100400	4	6	98	6
11100501	5	6	118	8
11100602	6	8	138	9
11100801	8	10	152	12
11101000	10	12	152	15

Medium version | Neck angle 1°30'				
Article no.	d1	d2	l1	l2
11100500	5	6	98	8
11100601	6	8	118	9
11100800	8	10	138	12

Extra long version | Neck angle 1°30'				
Article no.	d1	d2	l1	l2
11100603	6	8	152	9





Ball track milling	a_p x a_e = 0.3d x 0.3d
Copy milling	a_p x a_e = 0.65d x 1d

Cutting data for short version			Ball track	Copy
Material		N/mm²	v_c m/min	
P	Gen. structural/ case hard. steels 1.0037 | 1.0570 | 1.0503 | 1.7131	< 800	150	120
	Tool/ tempering steels 1.2367 | 1.2379 | 1.7225	< 1100	110	90
	Alloyed/ cold work steels 1.2312 | 1.2767 | 1.3505 | 1.7707	< 1400	90	80
K	Cast iron GG25 | GG40 | GGG40	< 450	100-180	100-160
	Spherical cast iron GGG50 | GGG60 | GGG70	< 650	100-130	80-130
H	Hardened steel HRC 45–50	–	130	130
	Hardened steel HRC 51–58	–	100	100
	Hardened steel HRC 59–65	–	60	60

	Ball track	Copy
d1	fz mm	
4	0.060	0.025
5	0.065	0.035
6	0.070	0.040
8	0.080	0.045
10	0.085	0.050

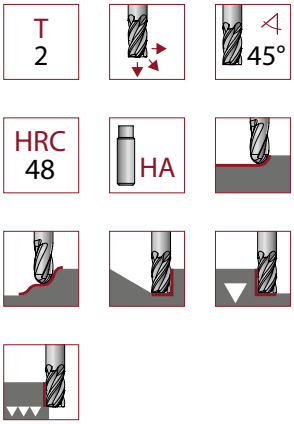
BALL END MILLS

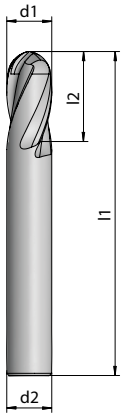
ALULINE | K 1080 | K 1081

BOGERBENZ

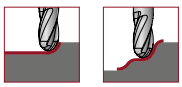
Short version				
Article no.	d1	d2	l1	l2
10800300	3	6	60	8
10800400	4	6	70	10
10800500	5	6	70	14
10800600	6	6	98	16
10800800	8	8	98	24
10801000	10	10	98	30
10801200	12	12	98	36
10801600	16	16	128	48
10802000	20	20	140	60
10802500	25	25	150	75

Long version				
Article no.	d1	d2	l1	l2
10810600	6	6	120	24
10810800	8	8	120	32
10811000	10	10	150	40
10811200	12	12	150	48
10811600	16	16	180	64
10812000	20	20	200	80
10812500	25	25	200	100
10813200	32	32	250	128





Ball track milling	a_p x a_e = 0.5d x 1d
Copy milling	a_p x a_e = 0.5d x 0.5d



Cutting data for short version			Ball track	Copy
Material		N/mm²	v_c m/min	
N	Aluminum Si content 0,5–9% 3.1645 | 3.2163	–	500–2000	500–2000
	Aluminum Si content 10–15% 3.2523	–	500–1300	500–1300

	Ball track	Copy
d1	fz mm	
3	0.030	0.020
4	0.040	0.030
5	0.045	0.030
6	0.055	0.040
8	0.075	0.050
10	0.090	0.065
12	0.105	0.075
16	0.150	0.100
20	0.160	0.110
25	0.170	0.120
32	0.180	0.120

RADIUS END MILLS

RADIUS END MILLS
T 1160 | T 1161

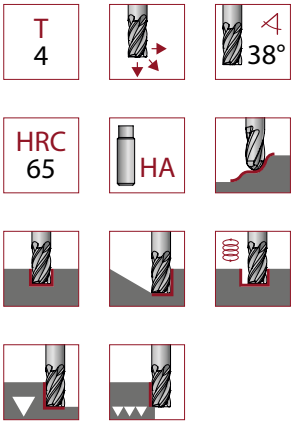
BOGERBENZ

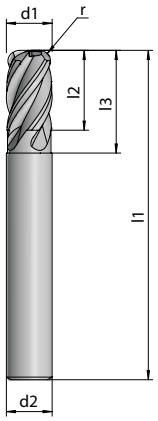
Short version | Corner radius 0.5 mm					
Article no.	d1	d2	l1	l2	l3
11600300	3	6	58	3	9
11600400	4	6	58	4	12
11600500	5	6	58	5	15
11600600	6	6	58	6	18
11600800	8	8	64	8	24
11601000	10	10	73	10	30
11601200	12	12	84	12	36

Short version | Corner radius 1 mm					
Article no.	d1	d2	l1	l2	l3
11600401	4	6	58	4	12
11600501	5	6	58	5	15
11600601	6	6	58	6	18
11600801	8	8	64	8	24
11601001	10	10	73	10	30
11601201	12	12	84	12	36

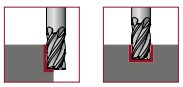
Long version | Corner radius 0.5 mm					
Article no.	d1	d2	l1	l2	l3
11610600	6	6	74	6	18
11610800	8	8	80	8	24
11611000	10	10	100	10	30
11611200	12	12	110	12	36

Long version | Corner radius 1 mm					
Article no.	d1	d2	l1	l2	l3
11610601	6	6	74	6	18
11610801	8	8	80	8	24
11611001	10	10	100	10	30
11611201	12	12	110	12	36





Shoulder milling	a_p x a_e = 1d x 0.4d
Slot milling	a_p x a_e = 0.65d x 1d



Cutting data for short version			Shoulder	Slot
Material		N/mm²	v_c m/min	
P	Gen. structural/ case hard. steels 1.0037 | 1.0570 | 1.0503 | 1.7131	< 800	160	130
	Tool/ tempering steels 1.2367 | 1.2379 | 1.7225	< 1100	130	100
	Alloyed/ cold work steels 1.2312 | 1.2767 | 1.3505 | 1.7707	< 1400	100	–
H	Hardened steel HRC 45–50	–	130	–
	Hardened steel HRC 51–58	–	100	–
	Hardened steel HRC 59–65	–	60	–

	Shoulder	Slot
d1	fz mm	
3	0.022	0.007
4	0.030	0.010
5	0.040	0.015
6	0.060	0.025
8	0.070	0.030
10	0.090	0.040
12	0.110	0.060

RADIUS END MILLS
T 1160 | T 1161

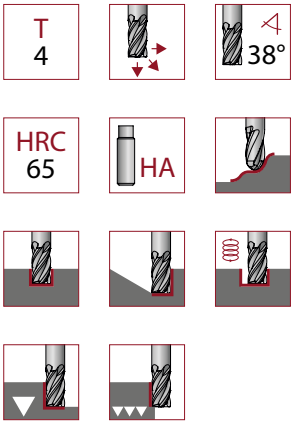
BOGERBENZ

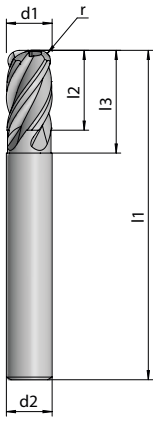
Short version | Corner radius 1.5 mm					
Article no.	d1	d2	l1	l2	l3
11600502	5	6	58	5	15
11600602	6	6	58	6	18
11600802	8	8	64	8	24
11601002	10	10	73	10	30
11601202	12	12	84	12	36
11601602	16	16	93	38	48

Short version | Corner radius 2 mm					
Article no.	d1	d2	l1	l2	l3
11600603	6	6	58	6	18
11600803	8	8	64	8	24
11601003	10	10	73	10	30
11601203	12	12	84	12	36
11601603	16	16	93	38	48

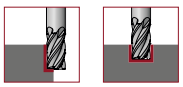
Long version | Corner radius 1.5 mm					
Article no.	d1	d2	l1	l2	l3
11610602	6	6	74	6	18
11610802	8	8	80	8	24
11611002	10	10	100	10	30
11611202	12	12	110	12	36
11611602	16	16	128	38	48

Long version | Corner radius 2 mm					
Article no.	d1	d2	l1	l2	l3
11610603	6	6	74	6	18
11610803	8	8	80	8	24
11611003	10	10	100	10	30
11611203	12	12	110	12	36
11611603	16	16	128	38	48





Shoulder milling	a_p x a_e = 1d x 0.4d
Slot milling	a_p x a_e = 0.65d x 1d



Cutting data for short version			Shoulder	Slot
Material		N/mm²	v_c m/min	
P	Gen. structural/ case hard. steels 1.0037 | 1.0570 | 1.0503 | 1.7131	< 800	130	150
	Tool/ tempering steels 1.2367 | 1.2379 | 1.7225	< 1100	100	100
	Alloyed/ cold work steels 1.2312 | 1.2767 | 1.3505 | 1.7707	< 1400	60	–
H	Hardened steel HRC 45–50	–	130	–
	Hardened steel HRC 51–58	–	100	–
	Hardened steel HRC 59–65	–	60	–

	Shoulder	Slot
d1	fz mm	
5	0.040	0.015
6	0.060	0.025
8	0.070	0.030
10	0.090	0.040
12	0.110	0.060
16	0.120	0.080

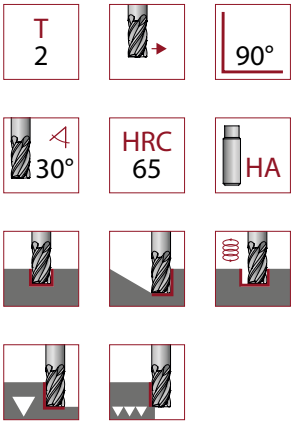
SHANK END MILLS

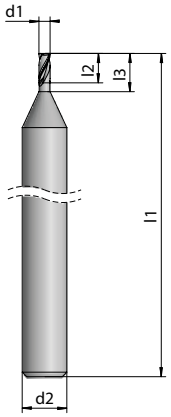
MINI

SHANK END MILLS
MINI | S 1106

BOGERBENZ

Short version | Cutting edge-Ø 0.5–0.8					
Article no.	d1	d2	l1	l2	l3
11060050	0.5	4	45	0.7	2
11060051	0.5	4	45	0.7	2.5
11060052	0.5	4	45	0.7	4
11060053	0.5	4	45	0.7	6
11060054	0.5	4	45	0.7	8
11060060	0.6	4	45	0.9	2
11060061	0.6	4	45	0.9	3
11060062	0.6	4	45	0.9	4
11060063	0.6	4	45	0.9	6
11060064	0.6	4	45	0.9	8
11060065	0.6	4	45	0.9	10
11060080	0.8	4	45	1.2	2
11060081	0.8	4	45	1.2	4
11060082	0.8	4	45	1.2	6
11060083	0.8	4	45	1.2	8
11060084	0.8	4	45	1.2	10
11060085	0.8	4	45	1.2	12





Shoulder milling	a_p x a_e = 0.2d x 0.05d
Slot milling	a_p x a_e = 0.1d x 1d

Cutting data for short version			Shoulder	Slot
Material		N/mm²	v_c m/min	
P	Gen. structural/ case hard. steels 1.0037 | 1.0570 | 1.0503 | 1.7131	< 800	150	60
	Tool/ tempering steels 1.2367 | 1.2379 | 1.7225	< 1100	140	50
	Alloyed/ cold work steels 1.2312 | 1.2767 | 1.3505 | 1.7707	< 1400	125	45
H	Hardened steel HRC 45–50	–	125	40
	Hardened steel HRC 51–58	–	125	30
	Hardened steel HRC 59–65	–	100	20

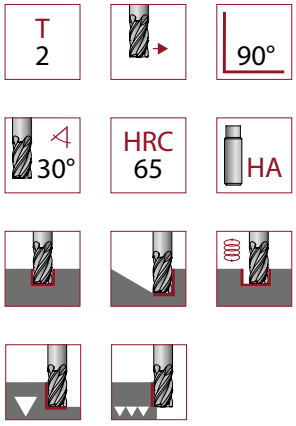
	Shoulder	Slot
d1	fz mm	
0.5	0.008	0.004
0.6	0.010	0.005
0.8	0.012	0.006

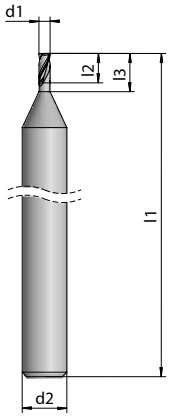
SHANK END MILLS
MINI | S 1106

BOGERBENZ

Short version | Cutting edge-Ø 1–1,5					
Article no.	d1	d2	l1	l2	l3
11060100	1	4	45	1.5	4
11060101	1	4	45	1.5	6
11060102	1	4	45	1.5	8
11060103	1	4	45	1.5	10
11060104	1	4	45	1.5	12
11060105	1	4	50	1.5	16
11060106	1	4	55	1.5	20
11060120	1.2	4	45	1.8	6
11060121	1.2	4	45	1.8	8
11060122	1.2	4	45	1.8	10
11060123	1.2	4	45	1.8	12
11060124	1.2	4	50	1.8	16
11060150	1.5	4	45	2.3	6
11060151	1.5	4	45	2.3	8
11060152	1.5	4	45	2.3	10
11060153	1.5	4	45	2.3	12
11060154	1.5	4	50	2.3	14
11060155	1.5	4	50	2.3	16
11060156	1.5	4	55	2.3	18
11060157	1.5	4	55	2.3	20

Short version | Cutting edge-Ø 2					
Article no.	d1	d2	l1	l2	l3
11060200	2	4	45	3	6
11060201	2	4	45	3	8
11060202	2	4	45	3	10
11060203	2	4	45	3	12
11060204	2	4	50	3	14
11060205	2	4	50	3	16
11060206	2	4	55	3	18
11060207	2	4	55	3	20
11060208	2	4	60	3	25
11060209	2	4	70	3	30
11060300	3	6	45	4.5	10
11060301	3	6	45	4.5	12
11060302	3	6	50	4.5	14
11060303	3	6	55	4.5	16
11060304	3	6	55	4.5	18
11060305	3	6	60	4.5	20
11060306	3	6	65	4.5	25
11060307	3	6	70	4.5	30
11060308	3	6	80	4.5	35
11060309	3	6	90	4.5	40





Shoulder milling	a_p x a_e = **0.2d x 0.05d**
Slot milling	a_p x a_e = **0.1d x 1d**

Cutting data for short version			Shoulder	Slot
Material		N/mm²	v_c m/min	
P	Gen. structural/ case hard. steels 1.0037 | 1.0570 | 1.0503 | 1.7131	< 800	150	60
	Tool/ tempering steels 1.2367 | 1.2379 | 1.7225	< 1100	140	50
	Alloyed/ cold work steels 1.2312 | 1.2767 | 1.3505 | 1.7707	< 1400	125	45
H	Hardened steel HRC 45–50	–	125	40
	Hardened steel HRC 51–58	–	125	30
	Hardened steel HRC 59–65	–	100	20

	Shoulder	Slot
d1	fz mm	
1	0.015	0.008
1.2	0.015	0.008
1.5	0.017	0.009
2	0.025	0.010
3	0.059	0.015

BALL END MILLS

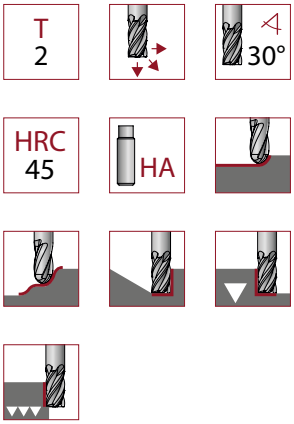
MINI

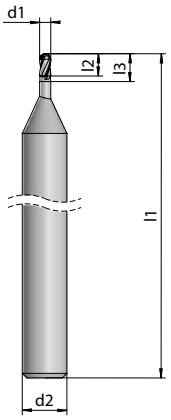
BALL END MILLS
MINI | K 1103

BOGERBENZ

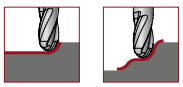
Short version | Cutting edge-Ø 1–1.5					
Article no.	d1	d2	l1	l2	l3
11030100	1	6	64	2	5
11030101	1	6	64	2	10
11030102	1	6	64	2	15
11030120	1.2	6	64	2.4	6
11030121	1.2	6	64	2.4	12
11030140	1.4	6	64	2.8	7
11030141	1.4	6	64	2.8	14
11030150	1.5	6	64	3	7.5
11030151	1.5	6	64	3	10
11030152	1.5	6	64	3	15

Short version | Cutting edge-Ø 1.6–4					
Article no.	d1	d2	l1	l2	l3
11030160	1.6	6	64	3.2	8
11030161	1.6	6	64	3.2	16
11030180	1.8	6	64	3.6	9
11030181	1.8	6	64	3.6	18
11030200	2	6	64	4	10
11030201	2	6	64	4	15
11030202	2	6	64	4	20
11030250	2.5	6	64	5	12.5
11030251	2.5	6	64	5	20
11030300	3	6	64	6	15
11030301	3	6	64	6	25
11030400	4	6	64	6	15





Ball track milling	a_p x a_e = 0.1d x 0.2d
Copy milling	a_p x a_e = 0.04d x 0.04d



Cutting data for short version			Ball track	Copy
Material		N/mm²	v_c m/min	
P	Gen. structural/ case hard. steels 1.0037 | 1.0570 | 1.0503 | 1.7131	< 800	100	80
	Tool/ tempering steels 1.2367 | 1.2379 | 1.7225	< 1100	95	75
	Alloyed/ cold work steels 1.2312 | 1.2767 | 1.3505 | 1.7707	< 1400	90	70
K	Cast iron GG25 | GG40 | GGG40	< 450	100	80
	Spherical cast iron GGG50 | GGG60 | GGG70	< 650	85	65

	Ball track	Copy
d1	fz mm	
1	0.007	0.006
1.2	0.009	0.007
1.4	0.010	0.008
1.5	0.013	0.011
1.6	0.017	0.011
1.8	0.019	0.013
2	0.022	0.014
2.5	0.027	0.018
3	0.032	0.021
4	0.043	0.031

RADIUS END MILLS

MINI

RADIUS END MILLS
MINI | T 1123 | T 1124

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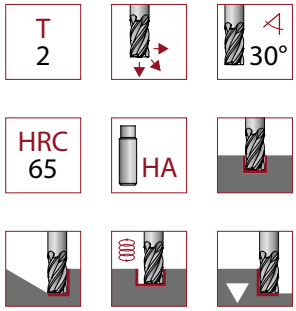
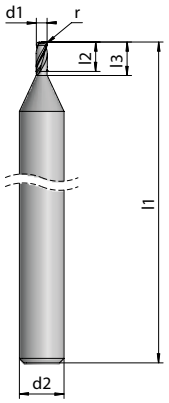
Short version | Cutting edge-Ø 2.0						
Article no.	d1	d2	l1	l2	l3	r
11230200	2	6	50	3	6	0.2
11230201	2	6	50	3	8	0.2
11230202	2	6	55	3	10	0.2
11230203	2	6	55	3	12	0.2
11230204	2	6	50	3	6	0.3
11230205	2	6	50	3	8	0.3
11230206	2	6	55	3	10	0.3
11230207	2	6	55	3	12	0.3
11230208	2	6	55	3	16	0.3
11230209	2	6	50	3	6	0.5
11230210	2	6	55	3	10	0.5
11230211	2	6	55	3	12	0.5
11240200	2	6	50	2.2	6	0.15
11240201	2	6	50	2.2	13	0.15

Short version | Cutting edge-Ø 3.0–4.0						
Article no.	d1	d2	l1	l2	l3	r
11230300	3	6	55	4	8	0.2
11230301	3	6	55	4	10	0.2
11230302	3	6	55	4	12	0.2
11230303	3	6	55	4	16	0.2
11230304	3	6	55	4	8	0.3
11230305	3	6	55	4	10	0.3
11230306	3	6	55	4	12	0.3
11230307	3	6	55	4	16	0.3
11230308	3	6	55	4	10	0.5
11230309	3	6	55	4	12	0.5
11230310	3	6	55	4	16	0.5
11230311	3	6	55	4	20	0.5
11230400	4	6	55	5	12	0.2
11230401	4	6	55	5	16	0.2
11230402	4	6	55	5	20	0.2
11230403	4	6	55	5	10	0.3
11230404	4	6	55	5	12	0.3
11230405	4	6	55	5	16	0.3
11230406	4	6	55	5	20	0.3
11230407	4	6	55	5	12	0.5
11230408	4	6	55	5	16	0.5
11230409	4	6	55	5	20	0.5
11230410	4	6	55	5	12	1
11230411	4	6	55	5	16	1





Shoulder milling	a_p x a_e = 0.1d x 0.05d
Slot milling	a_p x a_e = 0.1d x 1d

Cutting data for short version			Shoulder	Slot
Material		N/mm²	v_c m/min	
P	Gen. structural/ case hard. steels 1.0037 | 1.0570 | 1.0503 | 1.7131	< 800	120	90
	Tool/ tempering steels 1.2367 | 1.2379 | 1.7225	< 1100	100	75
	Alloyed/ cold work steels 1.2312 | 1.2767 | 1.3505 | 1.7707	< 1400	85	65
H	Hardened steel HRC 45–50	–	90	70
	Hardened steel HRC 51–58	–	85	65
	Hardened steel HRC 59–65	–	80	60

	Shoulder	Slot
d1	fz mm	
2	0.033	0.026
3	0.041	0.033
4	0.055	0.044

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AS GOOD AS NEWLY MADE*

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Every tool wears out. Eventually, it will be unfit for use. The BOGER & BENZ service stands for successfully turning old into as good as new: Our team in the tool sharpening department returns solid carbide tools to their original quality and geometry and to the sharpness and contour required.

This also applies to new and re-coating in collaboration with renowned coating companies. Thanks to our optimally equipped machine facilities and highly efficient QA, we can implement individual requirements and all usual quality and precision standards when resharpening. And this we guarantee.

*Empirical value for resharpened/ recoated tools: 5 % less life distance than in new tools on average.

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