

passion
for precision



SupraCarb[®] roughing cutter with FP profile



50% more performance – For HPC applications in steel materials

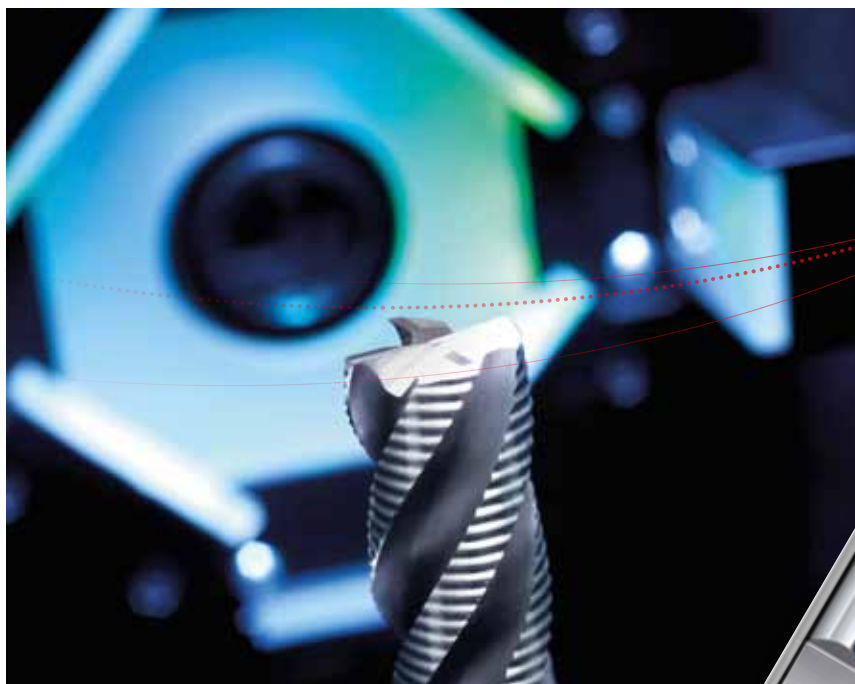


[2] The new **SupraCarb® roughing cutter** sets new standards for rough machining steel materials. The ultra-tough carbide, the optimised cutting shape and the new super finish on the cutting edge combined with the tried and tested hard coating Polychrom from FRAISA lead to an impressive cutting performance. Up to 300% increase of tool life with the highest cutting performance are guaranteed in comparison to conventional roughing cutters.

With conventional roughing cutters made of carbide, cracks on the cutting edge are a well-known and unpopular phenomenon. Special rounding of the cutting edge largely solves this problem. FRAISA has developed this conditioning process ready for launch with **SupraCarb®** and uses it for new tools as well as for sharpening in the service centre. This allows the customer to benefit from the high performance of **SupraCarb®** in several ways.

The advantages:

- Increase in machining performance by at least 50%
- Increase in tool life by up to 300%
- Vibration-free machining process
- Even wear
- Easy to regrind several times

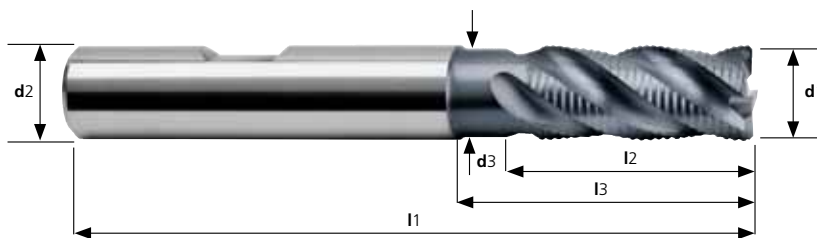
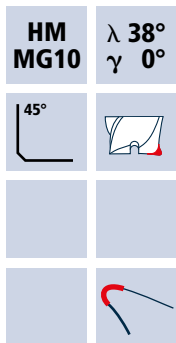


SupraCarb®:
Article number
P15336

Long service life thanks to Polychrom coating

Cylindrical milling cutter NB-RP SupraCarb

Profiled, normal design with short neck



Rough work

Finishing



Rm < 850	Rm 850-1100	Rm 1100-1300				Inox Stainless	Ti Titanium	GG(G) Tool Steel
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Example:										POLYCHROM	
Order no.		Coating	Article no.	Ø code							
		P	15336	.180							
Ø code	d1 e8	d2 h6	d3	L1	L2	L3	45°	α	Z		
.180	3	6	2.8	57	8	14	0.20	5.5°	3	●	
.220	4	6	3.7	57	11	16	0.25	4.0°	3	●	
.260	5	6	4.6	57	13	18	0.30	2.0°	4	●	
.300	6	6	5.5	57	13	20	0.30	0.0°	4	●	
.391	8	8	7.4	63	19	26	0.40	0.0°	4	●	
.450	10	10	9.2	72	22	31	0.50	0.0°	4	●	
.501	12	12	11.0	83	26	37	0.50	0.0°	4	●	
.610	16	16	15.0	92	32	43	0.60	0.0°	4	●	
.612	16	16	15.0	92	32	43	0.60	0.0°	6	●	
.682	20	20	19.0	104	38	53	0.60	0.0°	4	●	
.684	20	20	19.0	104	38	53	0.60	0.0°	6	●	

[3]

For further information please send an e-mail to mail.ch@frais.com. Our customer service will handle your enquiry or you can speak directly with your local customer advisor.

Application



Material

Steel
< 850 N/mm²



Steel
850 - 1100 N/mm²



Titanium alloys
Hardened > 300 HB
[Ti6Al4V]



Corrosion resistant
steel [Cr-Ni/1.4301]



Application



Material

Steel
< 850 N/mm²



Steel
850 - 1100 N/mm²



Titanium alloys
Hardened > 300 HB
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Corrosion resistant
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d1 [mm]	z	v _c [m/min]	f _z [mm]	a _p [mm]	a _e [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm ³ /min]
3	3	180	0.015	3.6	1.8	19100	860	5.5
4	3	180	0.020	4.8	2.4	14325	860	10.0
5	4	180	0.025	6.0	3.0	11460	1145	20.5
6	4	180	0.030	7.2	3.6	9550	1145	29.5
8	4	180	0.040	9.6	4.8	7160	1145	53.0
10	4	180	0.050	12.0	6.0	5730	1145	82.5
12	4	180	0.055	14.4	7.2	4775	1050	109.0
16	4	180	0.055	19.2	9.6	3580	790	145.5
20	4	180	0.060	24.0	12.0	2865	690	198.5

3	3	130	0.015	3.6	1.8	13795	620	4.0
4	3	130	0.020	4.8	2.4	10345	620	7.0
5	4	130	0.025	6.0	3.0	8275	830	15.0
6	4	130	0.030	7.2	3.6	6895	825	21.5
8	4	130	0.040	9.6	4.8	5175	830	38.0
10	4	130	0.050	12.0	6.0	4140	830	60.0
12	4	130	0.055	14.4	7.2	3450	760	79.0
16	4	130	0.055	19.2	9.6	2585	570	105.0
20	4	130	0.060	24.0	12.0	2070	495	142.5

3	3	45	0.010	3.6	1.8	4775	145	1.0
4	3	45	0.015	4.8	2.4	3580	160	2.0
5	4	45	0.020	6.0	3.0	2865	230	4.0
6	4	45	0.025	7.2	3.6	2385	240	6.0
8	4	45	0.030	9.6	4.8	1790	215	10.0
10	4	45	0.040	12.0	6.0	1430	230	16.5
12	4	45	0.045	14.4	7.2	1195	215	22.5
16	4	45	0.045	19.2	9.6	895	160	29.5
20	4	45	0.050	24.0	12.0	715	145	42.0

3	3	60	0.010	3.6	1.8	6365	190	1.0
4	3	60	0.015	4.8	2.4	4775	215	2.5
5	4	60	0.020	6.0	3.0	3820	305	5.5
6	4	60	0.025	7.2	3.6	3185	320	8.5
8	4	60	0.030	9.6	4.8	2385	285	13.0
10	4	60	0.040	12.0	6.0	1910	305	22.0
12	4	60	0.045	14.4	7.2	1590	285	29.5
16	4	60	0.045	19.2	9.6	1195	215	39.5
20	4	60	0.050	24.0	12.0	955	190	54.5

d1 [mm]	z	v _c [m/min]	f _z [mm]	a _p [mm]	a _e [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm ³ /min]
3	3	150	0.015	3.0	3	15915	715	6.5
4	3	150	0.020	4.0	4	11935	715	11.5
5	4	150	0.025	5.0	5	9550	955	24.0
6	4	150	0.030	6.0	6	7960	955	34.5
8	4	150	0.040	8.0	8	5970	955	61.0
10	4	150	0.050	10.0	10	4775	955	95.5
12	4	150	0.055	12.0	12	3980	875	126.0
16	4	150	0.055	16.0	16	2985	655	167.5
20	4	150	0.060	20.0	20	2385	570	228.0

3	3	80	0.015	3.0	3	8490	380	3.5
4	3	80	0.020	4.0	4	6365	380	6.0
5	4	80	0.025	5.0	5	5095	510	13.0
6	4	80	0.030	6.0	6	4245	510	18.5
8	4	80	0.040	8.0	8	3185	510	32.5
10	4	80	0.050	10.0	10	2545	510	51.0
12	4	80	0.055	12.0	12	2120	465	67.0
16	4	80	0.055	16.0	16	1590	350	89.5
20	4	80	0.060	20.0	20	1275	305	122.0

3	3	35	0.010	3.0	3	3715	110	1.0
4	3	35	0.015	4.0	4	2785	125	2.0
5	4	35	0.020	5.0	5	2230	180	4.5
6	4	35	0.025	6.0	6	1855	185	6.5
8	4	35	0.030	8.0	8	1395	165	10.5
10	4	35	0.040	10.0	10	1115	180	18.0
12	4	35	0.045	12.0	12	930	165	24.0
16	4	35	0.045	16.0	16	695	125	32.0
20	4	35	0.050	20.0	20	555	110	44.0

3	3	50	0.010	3.0	3	5305	160	1.5
4	3	50	0.015	4.0	4	3980	180	3.0
5	4	50	0.020	5.0	5	3185	255	6.5
6	4	50	0.025	6.0	6	2655	265	9.5
8	4	50	0.030	8.0	8	1990	240	15.5
10	4	50	0.040	10.0	10	1590	255	25.5
12	4	50	0.045	12.0	12	1325	240	34.5
16	4	50	0.045	16.0	16	995	180	46.0
20	4	50	0.050	20.0	20	795	160	64.0

Geometry

The **SupraCarb®** is conditioned on the cutting edge with a specially developed procedure. The cutting radius after this safe process conditioning is approx. 8 µm. Due to the conditioning, chipping of the cutting edge is reduced by more than **50%**. This means that random cracks on the cutting edge are largely eliminated.

Substrate (Tool material)

With the new **ultra-tough cutting material K40UF (MG10)** together with cutting edge conditioning, cracks that tend to occur during wet machining at exposed points of the profile are largely eliminated. This means the tool performance can be increased by up to **300%** by using cooling lubricant.

Coating

SupraCarb® is coated with the tried and tested hard coating Polychrom from FRAISA. Polychrom offers excellent protection against abrasive wear. The hard coating also protects the tool perfectly against the consequences of thermal loads.

Areas of application

All HPC applications in steel materials (incl. stainless steels) with strengths up to $R_m = 1300 \text{ N/mm}^2$, preferably performed with cooling lubricant. However, dry machining can also be performed in these materials.

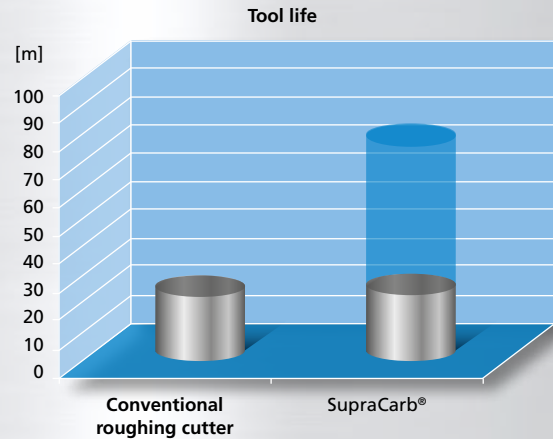
Resharpener

The **SupraCarb®** can easily be resharpened several times. Both cutting edge conditioning and the hard coating Polychrom must be applied to a resharpened tool to attain the tool life and performance of a new tool.

The FRAISA regrinding centre for Europe in Willich near Düsseldorf is pleased to perform this work for you.

SupraCarb® with the regrinding service from FRAISA is therefore even more attractive for you.

Tool performance



Application data according to cutting data recommendation
Material: Tempered steel 1.7225
Cooling lubricant: Emulsion



Wear pattern of conventional roughing cutters after 17 minutes of use in material 1.7725. The cracks on the elevated profile result in premature termination of machining. It is questionable whether regrinding is possible.



Wear pattern of the **SupraCarb®** after 17 minutes of use and application data like the tool in the above picture. An even, hardly visible wear on the cutting edge results. Continued use of the tool is ensured.



Where is it possible to ask questions concerning the product?

If you have any question, please send an email to mail.ch@fraisa.com. You may also directly contact our local customer consultant.

The FRAISA application engineers will be happy to advise you.

For further information, please refer to fraisa.com



Here, you will be provided with further information on the FRAISA Group.



The fastest way to our E-Shop can be found here.

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