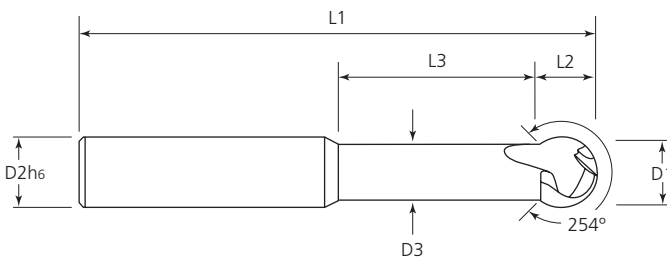
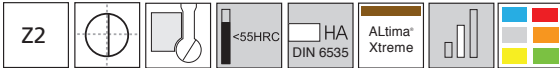




# TuffCut® GP Series FBPM

## Front & Back Profile Mills



### Features

- 254° Spherical Ball
- ALtima® Xtreme Coating

### Benefits

- Designed for 5 axis machining, undercutting and deburring
- Works in wide range of material groups

Tool Number	D1	D2	D3	L1	L2	L3
FBPM 03N3H	3.0	4.0	2.4	50.0	2.5	9.0
FBPM 04N3H	4.0	4.0	3.2	50.0	3.5	11.5
FBPM 05N3H	5.0	6.0	4.0	57.0	4.5	14.0
FBPM 06N3H	6.0	6.0	4.8	64.0	5.4	16.6
FBPM 08N3H	8.0	8.0	6.4	63.0	7.4	21.6
FBPM 10N3H	10.0	10.0	8.0	72.0	9.4	26.6
FBPM 12N3H	12.0	12.0	9.6	83.0	11.4	31.6

# TuffCut® GP Series FBPM Front & Back Profile Mills

## Recommended Speeds and Depths of Cut by Material Group

Workpiece Material Group	Material Type	Ap			Roughing		Finishing	
		Ae			0.05 - 0.1 x D		0.02 - 0.05 x D	
		Coolant			0.2 - 0.3 x D		0.02 - 0.05 x D	
		Max	Air	MMS	Vc-m/min			
Steels	P	Low Carbon Steels ≤180HB	○	●	●	250	280	
		Med Carbon / Alloy Steels 180-350HB	○	●	●	200	220	
		Pre-Hardened Steels 35-45HRC	○	●	●	180	200	
Stainless Steels	M	Free Machining Stainless	●	○	○	160	180	
		Austenitic Stainless	●	○	○	130	150	
		Difficult Stainless	●	○	○	100	110	
Special Alloys	S	High Temp Alloys	●	X	X	50	55	
		Titanium Alloys	●	X	X	110	120	
Cast Irons	K	Grey Cast Iron	○	●	X	220	250	
		Ductile Cast Iron	○	●	X	180	200	
Hardened Steels	H	Hardened Steels 45 - 50HRC	○	●	○	160	170	
Non-Ferrous	N	Aluminium Alloys	●	X	○	300	500	
		Brass / Bronze / Copper	●	X	○	250	400	

● Preferred ○ Possible X Not Possible

## Recommended Feed per Tooth by Material Group

Workpiece Material Group	Material Type	Tool Diameter & Radius (mm)								
		3		4		5		6		
		1.5		2		2.5		3		
		Rough	Finish	Rough	Finish	Rough	Finish	Rough	Finish	
Steels	P	Low Carbon Steels ≤180HB	0.060	0.045	0.080	0.060	0.100	0.075	0.120	0.090
		Med Carbon / Alloy Steels 180-350HB	0.060	0.045	0.080	0.060	0.100	0.075	0.120	0.090
		Pre-Hardened Steels 35-45HRC	0.054	0.045	0.072	0.060	0.090	0.075	0.108	0.090
Stainless Steels	M	Free Machining Stainless	0.054	0.045	0.072	0.060	0.090	0.075	0.108	0.090
		Austenitic Stainless	0.045	0.045	0.060	0.060	0.075	0.075	0.090	0.090
		Difficult Stainless	0.045	0.045	0.060	0.060	0.075	0.075	0.090	0.090
Special Alloys	S	High Temp Alloys	0.024	0.030	0.032	0.040	0.040	0.050	0.048	0.060
		Titanium Alloys	0.036	0.030	0.048	0.040	0.060	0.050	0.072	0.060
Cast Irons	K	Grey Cast Iron	0.060	0.045	0.080	0.060	0.100	0.075	0.120	0.090
		Ductile Cast Iron	0.054	0.045	0.072	0.060	0.090	0.075	0.108	0.090
Hardened Steels	H	Hardened Steels 45 - 50HRC	0.039	0.038	0.052	0.050	0.065	0.063	0.078	0.075
Non-Ferrous	N	Aluminium Alloys	0.075	0.045	0.100	0.060	0.125	0.075	0.150	0.090
		Brass / Bronze / Copper	0.060	0.045	0.080	0.060	0.100	0.075	0.120	0.090

Workpiece Material Group	Material Type	Tool Diameter & Radius (mm)						
		8		10		12		
		4		5		6		
		Rough	Finish	Rough	Finish	Rough	Finish	
Steels	P	Low Carbon Steels ≤180HB	0.160	0.120	0.200	0.150	0.240	0.180
		Med Carbon / Alloy Steels 180-350HB	0.160	0.120	0.200	0.150	0.240	0.180
		Pre-Hardened Steels 35-45HRC	0.144	0.120	0.180	0.150	0.216	0.180
Stainless Steels	M	Free Machining Stainless	0.144	0.120	0.180	0.150	0.216	0.180
		Austenitic Stainless	0.120	0.120	0.150	0.150	0.180	0.180
		Difficult Stainless	0.120	0.120	0.150	0.150	0.180	0.180
Special Alloys	S	High Temp Alloys	0.064	0.080	0.080	0.100	0.096	0.120
		Titanium Alloys	0.096	0.080	0.120	0.100	0.144	0.120
Cast Irons	K	Grey Cast Iron	0.160	0.120	0.200	0.150	0.240	0.180
		Ductile Cast Iron	0.144	0.120	0.180	0.150	0.216	0.180
Hardened Steels	H	Hardened Steels 45 - 50HRC	0.104	0.100	0.130	0.125	0.156	0.150
Non-Ferrous	N	Aluminium Alloys	0.200	0.120	0.250	0.150	0.300	0.180
		Brass / Bronze / Copper	0.160	0.120	0.200	0.150	0.240	0.180

FLY-FBPM-EN-01-UPV

