

VXMG Series Variable Helix End Mills

SPEED AND FEED RECOMMENDATIONS

> These recommendations are starting points. Ideal parameters depend on material condition, equipment, setup, actual cutting depths, and coolant conditions

> These recommendations are for materials up to 32HRc

**For materials 33-40HRc, maintain the same RPM and decrease above feed rate by 10%*

**For materials 41-50HRc, maintain the same RPM and decrease above feed rate by 30%*

> The cutting parameters are for cutting depths up to:

**Side Milling (profiling) 0.5D radial depth x 1.5D*

**Slotting 1.0D radial depth x 0.5D*

> The higher SFM/IPM is recommended for high end machining centers with higher H/P, truer spindles and rigid setups.

> The lower SFM/IPM is recommended for older machines with lower H/P, spindles with possible run out and less rigid setups.

> When using extended neck style end mills.

**For tools with reach lengths under 2XD to 4XD, reduce SFM by 20% and maintain the above feed rate*

**For tools with reach lengths from 4XD to 6XD, reduce SFM by 40% and maintain the above feed rate.*

MATERIAL	SFM	CUTTING DIAMETER							
		1/8"	3/16"	1/4"	3/8"	1/2"	5/8"	3/4"	1"
STAINLESS STEELS									
Precipitation									
13-8, 15-5, AM-350/355, 17-4PH	80	0.0007	0.0011	0.0012	0.0015	0.0020	0.0026	0.0031	0.0041
	200	0.0007	0.0010	0.0013	0.0015	0.0020	0.0025	0.0029	0.0039
Austenitic									
200 Series, 302, 303, 304L, 316L	250	0.0004	0.0004	0.0006	0.0010	0.0016	0.0018	0.0022	0.0021
	280	0.0004	0.0004	0.0006	0.0010	0.0016	0.0018	0.0023	0.0021
Martensitic									
403, 410, 416	200	0.0007	0.0010	0.0013	0.0016	0.0020	0.0025	0.0029	0.0039
	250	0.0007	0.0010	0.0013	0.0016	0.0020	0.0025	0.0029	0.0039
HIGH TEMP ALLOYS									
Cobalt Base									
Stellite, HS-21, Haynes 25, 188, X-40, L-605	60	0.0003	0.0004	0.0005	0.0008	0.0011	0.0014	0.0016	0.0022
	100	0.0003	0.0004	0.0007	0.0007	0.0013	0.0016	0.0020	0.0026
Nickel Base									
Inconel 600, 625, 718, Nickel 200, 270, Invar,	75	0.0004	0.0003	0.0007	0.0010	0.0017	0.0016	0.0026	0.0026
Monel 400, 405, K-Monel, PermaNickel 300, Incoly 600, 800, Mar-M-246, 247	90	0.0004	0.0004	0.0007	0.0011	0.0018	0.0018	0.0022	0.0022
Iron Base									
Incoloy 800-802, Multimet N-155, Timken 16-26-6	70	0.0004	0.0005	0.0009	0.0014	0.0019	0.0023	0.0028	0.0037
	125	0.0004	0.0005	0.0010	0.0016	0.0021	0.0026	0.0031	0.0042
STEELS									
High Strength Steels									
4140, 4340, 6150, 52100, H-11	500	0.0006	0.0010	0.0016	0.0025	0.0031	0.0035	0.0037	0.0041
	600	0.0006	0.0010	0.0016	0.0025	0.0031	0.0035	0.0037	0.0040
High Alloy Steels - Mold & Die									
A-2, A-6, A-10, P20, O1, O2, O6, D2, H-13	300	0.0005	0.0007	0.0014	0.0020	0.0025	0.0031	0.0033	0.0035
	550	0.0005	0.0007	0.0014	0.0020	0.0025	0.0031	0.0032	0.0035
Medium Alloy Steels									
200, 250, 300	500	0.0005	0.0005	0.0012	0.0020	0.0025	0.0035	0.0040	0.0050
	600	0.0005	0.0005	0.0012	0.0020	0.0025	0.0035	0.0040	0.0050
Low Alloy Steels-Maraging									
10XX, 11XX, 13XX	500	0.0006	0.0008	0.0008	0.0012	0.0018	0.0020	0.0024	0.0027
	600	0.0006	0.0008	0.0008	0.0012	0.0018	0.0020	0.0024	0.0028
CAST IRONS									
Ductile Iron									
Ductile Cast Iron	400	0.0005	0.0007	0.0015	0.0022	0.0030	0.0040	0.0050	0.0061
	550	0.0005	0.0007	0.0015	0.0022	0.0030	0.0040	0.0050	0.0059
Cast Iron									
Grey Cast Iron	450	0.0008	0.0008	0.0008	0.0012	0.0018	0.0020	0.0024	0.0028
	600	0.0008	0.0008	0.0008	0.0012	0.0018	0.0020	0.0024	0.0028
TITANIUM									
Titanium Alloys									
6AL-4V, ASTM 1, 2, 3, 6AL-2S, N-4Zr-2Mo-Si	160	0.0005	0.0005	0.0006	0.0011	0.0014	0.0015	0.0021	0.0025
For 5553, increase IPM by 25%	190	0.0005	0.0005	0.0006	0.0012	0.0014	0.0015	0.0023	0.0028

Note: All speed and feed data are suggested starting points. They may be increased or decreased depending on machine condition, hole depth, finish required, coolant, etc. If end mill depth exceeds 3 diameters, reduce speed and feed for carbide end mills.



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