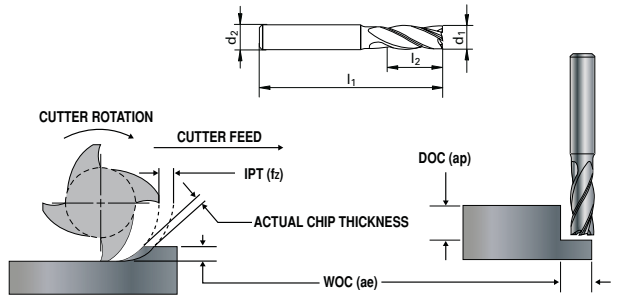
FEEDS & SPEEDS FOR ALL RF100 (variable helix)
Normal & Rougher

$$RPM = \frac{SFM}{d_1} \times 3.82$$

IPM = No. of teeth x IPT x RPM

Example - Adjusting SFM and IPT for
1/2" diameter end mill, WOC .050", material 1018

SFM	IPT
WOC / d1 = xx%	WOC 10%
.050 / .500 = 10%	10% = 1.8 IPT multiplier
WOC = 10%	IPT .0026 x 1.8 = .0047
SFM = 1350	IPT = .0047



If surface finish is the priority use IPT from table with no adjustment for chip thinning. Use SFM for 10% radial width of cut.

Material	Color Code	Hard-ness	RF100	Surface Feet per Minute - SFM Radial Width of Cut WOC (ae) 5%	10%	30%	50%	100% Slotting	Feed Rate Inch per Tooth - IPT d1 End Mill Diameter 1/8	1/4	5/16	3/8	1/2	5/8	3/4	1
				2.3	1.8	1.1	1	1	Multiply IPT x this factor based on WOC							
Free Machining & Low Carbon Steels 1006, 1008, 1015, 1018, 1020, 1022, 1025, 1117, 1140, 1141, 11L08, 11L14, 1213, 12L13, 12L14, 1215, 1330	GREEN	up to 28 HRc	F VA SF	1700	1350	750	425	425	.0006	.0014	.0018	.0022	.0026	.0030	.0040	.0047
Medium Carbon & High Carbon Steels, Alloy Steels & Easy to Machine Tool Steels 1030, 1035, 1040, 1045, 1050, 1052, 1055, 1060, 1085, 1095, 1541, 1551, 9255, 2515, 3135, 3415, 4130, 4137, 4140, 4150, 4320, 4340, 4520, 5015, 5115, 5120, 5132, 5140, 5155, 6150, 8620, 9262, 9840, 52100, O1, O2, O6, S2, W1 to W310	GREEN RED	28 to 38 HRc	U F SF	900	625	350	275	275	.0006	.0014	.0018	.0022	.0026	.0030	.0040	.0047
Tool Steels & Die Steels O7, M1, M2, M3, M4, M7, T1, T2, T4, T5, T8, T15, A2, A3, A6, A7, H10, H11, H12, H13, H19, H21, L3, L6, L7, P2, P20, S1, S5, S7, 52100, A 128, D2, D3, D4, D5, D7	RED	28 to 44 HRc	U U SF	550	450	300	200	200	.0005	.0012	.0015	.0018	.0022	.0026	.0034	.0038
Hardened Steels Carbon and Alloy Steels, Tool & Die Steels	**H** **H**	Up to 54 HRc 54 to 60 HRc	U SF H	325 200					.0003 .0002	.0007 .0004	.0010 .0007	.0012 .0010	.0015 .0012	.0020 .0017	.0024 .0020	.0030 .0025
Stainless Steel - Easy to Machine 430F, 301, 303, 410, 416 Annealed, 420F, 430, 430F	BLUE	Up to 28 HRc	VA VA SF	1050	725	400	325	325	.0006	.0014	.0018	.0022	.0026	.0030	.0040	.0047
Stainless Steel - Moderately Difficult 301, 302, 303 High Tensile, 304, 304L, 305, 420, 15-5PH, 17-4PH, 17-7PH	BLUE	up tp 28 HRc	VA VA SF	650	450	250	200	200	.0005	.0012	.0015	.0018	.0022	.0026	.0030	.0037
Stainless Steel - Difficult to Machine 302B, 304B, 309, 310, 316, 316B, 316L, 316Ti, 317, 317L, 321, PH13-8MO, Nitronic	BLUE	over 28 HRc	VA/F VA/F SF	600	400	225	175	175	.0005	.0010	.0012	.0016	.0018	.0024	.0028	.0037
High-Temperature Alloys Nimonic, Inconel, Monel, Hastelloy	GRAY	up to 42 HRc	Ti/F VA SF	120	120	120	100	100	.0003	.0007	.0010	.0012	.0015	.0020	.0024	.0030
Titanium Alloys 6Al-4V, 5Al-2.5 Sn, 6Al-2Sn-4Zr-6Mo, 3Ai-8V-6Cr4Mo-4Zr, 10V-2Fe-3Ai, 13V-11Cr-3Ai	GRAY	up to 42 HRc	Ti/U VA SF	350	300	250	150	150	.0005	.0012	.0015	.0018	.0022	.0028	.0035	.0040
Cast Iron - Gray CG ASTM A48, CLASS 20, 25, 30, 35, SAE J431C, GRADES G1800, G3000, G3500, GG 10, 15, 20, 25, 30, 35, 40	WHITE	up to 240 HB 30	F U SF	1300	1100	750	375	375	.0006	.0014	.0018	.0022	.0026	.0030	.0040	.0047
Cast Iron - Ductile & Malleable CGI 60-40-18, 65-45-12, D4018, D4512, D5506, 32510, 35108, M3210, M4504, M5503, 250, 300, 350, 400, 450	WHITE	over 240 HB 30	U VA SF	900	625	400	275	275	.0006	.0014	.0018	.0022	.0026	.0030	.0040	.0047
Aluminum, Al-wrought alloys, Al-alloys 2024, 6061, 7075, 1050, 6351, 5005, 2017, 7075	BLACK	up to 3% Si	A	1500	1500	1500	1000	1000	.0010	.0023	.0029	.0035	.0045	.0058	.0068	.0090
Aluminum-cast alloys High Silicon - A380, A390, Castings, 3.2131 G-AlSi-5Cu1, 3.2153 G-AlSi7Cu3, 3.2573 G-AlSi9, 3.2581 G-AlSi12, 3.2583 G-AlSi12Cu, - G-AlSi12CuNiMg	BLACK	over 3% Si	A	1500	1500	1200	700	700	.0008	.0018	.0023	.0028	.0036	.0046	.0054	.0072
Magnesium Alloys	PURPLE	—	A F SF	2100	1500	800	650	650	.0006	.0015	.0019	.0022	.0029	.0037	.0044	.0058
Non-ferrous Copper Alloys, Brass, Bronze	BROWN	up to 28 HRc	A F SF	1500	1000	575	450	450	.0005	.0010	.0014	.0018	.0021	.0028	.0033	.0046