FEEDS & SPEEDS FOR ALL Uni - Pro
Normal

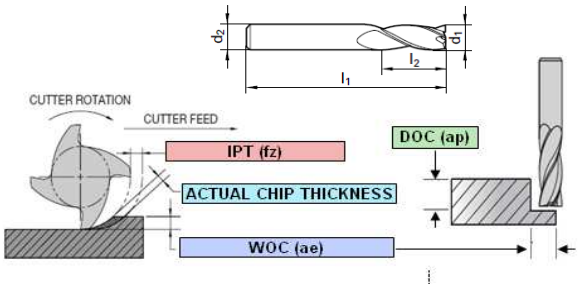
$$RPM = \frac{SFM}{d_1} \times 3.82$$

IPM = No. of Teeth x IPT x RPM

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

SFM
WOC / d_1 = xx%
.050 / .500 = 10%
WOC = 10%
SFM = 1013

IPT
WOC 10%
10% = 1.8 IPT multiplier
IPT .002 x 1.8 = .0036
IPT = .0036



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	Hardness	Uni-Pro	Surface Feet per Minute - SFM Radial Width of Cut WOC (ae)*					Feed Rate Inch per Tooth - IPT d_1 End Mill Diameter							
				5%	10%	30%	50%	100% Slotting	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		1275	1013	563	319	319	.0005	.0011	.0014	.0017	.0020	.0023	.0030	.0035
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		675	469	263	206	206	.0005	.0011	.0014	.0017	.0020	.0023	.0030	.0035
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		413	338	225	150	150	.0004	.0009	.0011	.0014	.0017	.0020	.0026	.0029
Hardened Steels Carbon and Alloy Steels, Tool & Die Steels	H	up to 54 HRc		244	131	94	75	75	.0002	.0005	.0008	.0009	.0011	.0015	.0018	.0023
	H	54 to 60 HRc		150	79	56	45	45	.0002	.0003	.0005	.0008	.0009	.0013	.0015	.0019
Stainless Steel - Easy to Machine 430F, 301, 303, 410, 416 Annealed, 420F, 430, 430F	BLUE	up tp 28 HRc		788	544	300	244	244	.0005	.0011	.0014	.0017	.0020	.0023	.0030	.0035
Stainless Steel - Moderately Difficult 301, 302, 303 High Tensile, 304, 304L, 305, 420, 15-5PH, 17-4PH, 17-7PH	BLUE	up tp 28 HRc		488	338	188	150	150	.0004	.0009	.0011	.0014	.0017	.0020	.0023	.0028
Stainless Steel - Difficult to Machine 302B, 304B, 309, 310, 316, 316B, 316L, 316Ti, 317, 317L, 321, PH13-8MO, Nitronic	BLUE	over 28 HRc		450	300	169	131	131	.0004	.0008	.0009	.0012	.0014	.0018	.0021	.0028
High-Temperature Alloys Nimonic, Inconel, Monel, Hastelloy	GRAY	up to 42 HRc		113	105	90	75	75	.0002	.0005	.0008	.0009	.0011	.0015	.0018	.0023
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		338	244	169	131	131	.0004	.0009	.0011	.0014	.0017	.0021	.0026	.0030
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		975	825	563	281	281	.0005	.0011	.0014	.0017	.0020	.0023	.0030	.0035
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		675	469	300	206	206	.0005	.0011	.0014	.0017	.0020	.0023	.0030	.0035
Aluminum, Al-wrought alloys, Al-alloys 2024, 6061, 7075, 1050, 6351, 5005, 2017, 7075	BLACK	up to 3% Si		2438	2063	1313	750	750	.0008	.0017	.0022	.0026	.0034	.0044	.0051	.0068
Aluminum-cast alloys High Silicon - A380, A390, Castings, 3.2131 G-AlSi5Cu1, 3.2153 G-AlSi7Cu3, 3.2573 G-AlSi9, 3.2581 G-AlSi12, 3.2583 G-AlSi12Cu, - G-AlSi12CuNiMg	BLACK	over 3% Si		1706	1444	919	525	525	.0006	.0014	.0017	.0021	.0027	.0035	.0041	.0054
Magnesium Alloys	PURPLE	-		1575	1125	600	488	488	.0005	.0011	.0014	.0017	.0022	.0028	.0033	.0043
Non-ferrous Copper Alloys, Brass, Bronze	BROWN	up to 28 HRc		1125	750	431	338	338	.0004	.0008	.0011	.0013	.0016	.0021	.0025	.0035