

General Purpose End Mills Recommended Speed and Feed - Over 32 HRC

Materials Hard Grades (>32 HRC)		SFM Speed	End Mill Diameter Chip Load Per Tooth							
			1/8"	3/16"	1/4"	3/8"	1/2"	5/8"	3/4"	1"
P	Steel									
	Low Alloy Steels Maraging--23XX, 31XX	100 - 200	0.0005	0.0010	0.0015	0.0020	0.0030	0.0040	0.0050	0.0060
	High Alloy Steels--Stressproof, AmorPlate	80 - 180	0.0005	0.0007	0.0011	0.0017	0.0024	0.0029	0.0036	0.0048
	High Strength Steels--4340M, EDT-150, HP9-430, 300M, D6-Ac, 11-10	80 - 180	0.0005	0.0007	0.0011	0.0017	0.0024	0.0029	0.0036	0.0048
M	Stainless Steel									
	Austenitic--304, 310, 314, 316, 321, 330, 347, 348, 21-6-9	50 - 150	0.0004	0.0007	0.0011	0.0018	0.0025	0.0031	0.0037	0.0050
	Martensitic--420, 430F, 440C, 446	50 - 150	0.0004	0.0007	0.0011	0.0018	0.0025	0.0031	0.0037	0.0050
	Precipitation--17/4, 17/7, AF-71, Custom 450/636, 15/7 Mo, 21-6-9	90 - 150	0.0005	0.0009	0.0014	0.0021	0.0030	0.0037	0.0045	0.0060
K	Cast Iron									
	Ductile Iron	80 - 140	0.0005	0.0010	0.0015	0.0020	0.0020	0.0030	0.0040	0.0050
	Cast Iron--Malleable, Chilled	90 - 160	0.0005	0.0010	0.0020	0.0030	0.0040	0.0050	0.0060	0.0080
N	Non Ferrous									
	Aluminum + Aluminum Alloys--440, 356, 380, C61300	500 - 1000	0.0010	0.0015	0.0020	0.0040	0.0060	0.0080	0.0120	0.0160
	Copper--Navel Brass, High Silicon Bronze, A-17, C-17200	500 - 900	0.0010	0.0010	0.0020	0.0025	0.0030	0.0040	0.0040	0.0050
	Copper Alloys--Nickel Silver, Beryllium Copper, Oxygen-Free Copper	500 - 900	0.0010	0.0010	0.0020	0.0025	0.0030	0.0040	0.0040	0.0050
	Plastics, Acrylics, Phenolics--Polycarbonate	200 - 500	0.0010	0.0020	0.0030	0.0040	0.0060	0.0080	0.0010	0.0150
S	High Temp Alloys									
	Cobalt Base--Ai-Resist 13/213/215, Haynes 21/36, NASA CO-W-RE	40 - 80	0.0004	0.0005	0.0007	0.0010	0.0012	0.0014	0.0017	0.0020
	Iron Base--A-286, Haynes 556, Discoly, V57	50 - 100	0.0005	0.0075	0.0010	0.0015	0.0020	0.0025	0.0030	0.0040
	Titanium Alloys--5AL-2.5Sn-Eli, 8Al-1 Mo-1V	90 - 160	0.0005	0.0075	0.0011	0.0018	0.0025	0.0031	0.0037	0.0050
	Nickel Base--Hastelloy, Inconel 718/X/W, Waspaloy, Rene 41-95	40 - 80	0.0005	0.0075	0.0010	0.0015	0.0020	0.0025	0.0030	0.0040

FORMULAS

RPM = (SFM x 3.82)/tool diameter

IPM = number of flutes x RPM x chip load per tooth

The chart is a starting point based on a coated tool.

Reduce rates up to 50% using an uncoated tool.

Important Disclaimer: The Accupro speed and feed rates are suggested by the manufacturer as a general guideline. Machine type, horsepower, spindle speed limitations, toolholding & workholding devices all may impact a cutting tool's ability to perform properly. MSC is not responsible for tool failure, part damage or injury that may be caused as a result of the previous mentioned factors.