

THE CARBIDE END MILL STORE

Carbide End Mill Speeds and Feeds, General Purpose, Uncoated

SMM = SFM X .3048		Speeds SFM	Feeds - IPT (inches/tooth) and MMPT (mm/tooth)								
Material Group	Examples		1/8" 3mm	3/16" 5mm	1/4" 6mm	5/16" 8mm	3/8" 10mm	1/2" 12mm	5/8" 16	3/4" 20mm	1" 25mm
Steels P	Mild - 1018 (.2-.3 Carbon)	350	.0006"	.0011"	.0017"	.002"	.0025"	.0028"	.0032"	.0033"	.0041"
	Mild - 4140 (.4-.5 Carbon)	250	.016mm	.028mm	.043mm	.051mm	.064mm	.071mm	.081mm	.084mm	.104mm
	Tool Steels A2/D2/H13/P20	200	.0004"	.0009"	.0013"	.0016"	.0019"	.0021"	.0026"	.0028"	.0028"
	Forgings	125	.010mm	.023mm	.033mm	.041mm	.048mm	.053mm	.066mm	.071mm	.071mm
Cast Irons K	Soft	450									
	Medium	300	.0006"	.0011"	.0017"	.002"	.0025"	.0028"	.0032"	.0033"	.0041"
	Hard Chilled	250	.016mm	.028mm	.043mm	.051mm	.064mm	.071mm	.081mm	.084mm	.104mm
	Malleable	225									
Stainless Steels M	Free Machining	300	.0006"	.0011"	.0017"	.002"	.0025"	.0028"	.0032"	.0033"	.0041"
	Ferritic	200	.016mm	.028mm	.043mm	.051mm	.064mm	.071mm	.081mm	.084mm	.104mm
	Austenitic 304/316	180	.0004"	.0009"	.0013"	.0016"	.0019"	.0021"	.0026"	.0028"	.0028"
	Martensitic	150	.010mm	.023mm	.033mm	.041mm	.048mm	.053mm	.066mm	.071mm	.071mm
	PH 17-4 PH	125									
Special Alloys S	Titanium 6AL-V4	175	.0003"	.0005"	.0007"	.001"	.0012"	.0014"	.0017"	.0019"	.0025"
	Co-Based Alloys Stellite	100									
	Ni-Based Alloys Inconel 625/718	100	.0004"	.001"	.0012"	.0015"	.0017"	.002"	.0025"	.003"	.003"
	Fe-Based Alloys Incoloy 800-802	125	.010mm	.025mm	.030mm	.038mm	.043mm	.051mm	.064mm	.076mm	.076mm
Hardened Steels H	35-45Rc	200	.0004"	.001"	.0012"	.0015"	.0017"	.002"	.0025"	.003"	.003"
	45-55Rc	150	.010mm	.025mm	.030mm	.038mm	.043mm	.051mm	.064mm	.076mm	.076mm
	55-65Rc	50									
Non- Ferrous N	Al/Al Alloys	500									
	Brass/Bronze	400	.0011"	.0017"	.0022"	.0027"	.0032"	.0042"	.0065"	.0085"	.0092"
	Mg/Mg Alloys	700	.028mm	.043mm	.056mm	.068mm	.081mm	.107mm	.165mm	.216mm	.234mm
	Plastics/Bakelite	800									
Speeds - Inch			Speeds - Metric								
SFM = surface feet per minute			SMM = surface meters per minute								
RPM = SFM X 3.82 / Tool Diameter			RPM = SMM X 318.057 / Tool Diameter								

Radial Depth of Cut in Percentage of Diameter	50%	30%	20%	15%	10%	5%	1%
CLF = chip load factor	1.0	1.1	1.2	1.4	1.8	2.3	5.0
Feeds - Inch		Feeds - Metric					
IPM = inches per minute		IPT = inches / tooth		MMPM = mm per minute		MMPT = mm / tooth	
IPM = RPM X number of teeth X CLF X IPT				MMPM = RPM X number of teeth X CLF X MMPT			

Safety Notice	
Always wear the appropriate personal protective equipment such as safety glasses and protective clothing when using solid carbide cutting tools. Machines should be fully guarded. Technical data provided should be considered advisory only as variations may be necessary depending on the particular application.	