

Solid Carbide End Mill

Speed & Feed Recommendations

	Speed (S.F.M.)	End Mill Diameter Feed Per Tooth (inches)		
		Up to 1/4"	Up To 1/2"	Up To 1"
Aluminum/Aluminum Alloys	600-1200	.0002-.0020	.0020-.0040	.0040-.0080
Brass/Bronze	200-350	.0005-.0020	.0020-.0030	.0030-.0050
Copper/Copper Alloys	350-900	.0005-.0020	.0020	.0020-.0060
Iron-Cast (soft)	200-500	.0005-.0020	.0020-.0030	.0030-.0080
Iron-Cast (hard)	80-350	.0003-.0008	.0008-.0020	.0020-.0040
Iron-Ductile	80-400	.0002-.0010	.0010-.0020	.0020-.0060
Iron-Malleable	200-600	.0002-.0010	.0010-.0030	.0030-.0070
Magnesium/Magnesium Alloys	800-1400	.0005-.0020	.0020-.0040	.0040-.0100
Monel/High Nickel Steel	150-300	.0002-.0010	.0010-.0020	.0020-.0040
Nickel Base High-Temperature Alloys	20-130	.0003-.0008	.0008-.0010	.0010-.0020
Plastics	600-1200	.0006-.0030	.0030-.0060	.0060-.0150
Plastics-Glass Filled	300-800	.0006-.0030	.0030-.0040	.0040-.0120
Refractory Alloys	80-400	.0002-.0010	.0010	.0010-.0020
Steel-Low Carbon	200-500	.0002-.0010	.0010-.0030	.0030-.0070
Steel-Medium Carbon	100-250	.0004-.0015	.0015-.0020	.0020-.0050
Steel-Hardened	25-120	.0002-.0005	.0005-.0010	.0010-.0030
Steel-Mold	200-350	.0002-.0010	.0010-.0020	.0020-.0060
Steel-Tool	100-300	.0002-.0010	.0010-.0020	.0020-.0060
Stainless Steel-Soft	150-350	.0002-.0010	.0010-.0020	.0020-.0060
Stainless Steel-Hard	50-200	.0002-.0005	.0005-.0010	.0010-.0050
Titanium-Soft	120-350	.0002-.0010	.0010-.0020	.0020-.0060
Titanium-Hard	30-150	.0002-.0005	.0005-.0010	.0010-.0040

For Lighter Radial Depths Of Cut- Higher Range Of Recommended Surface Speeds Should Be Used.

For Greater Radial Depths Of Cut- Lower Range Of Recommended Surface Speeds Should Be Used.

For Slotting Applications- Speeds Should Be Reduced Approximately 20% Of Lowest Range Value.

Axial Depth Of Cut- Recommendations Are Not To Exceed 1-1/2 Times The Cutter Diameter.

Please Note: The above recommendations should be considered only as a starting point, with possible variations to achieve optimum results.

Solid Carbide Drill

Speed & Feed Recommendations

	Speed (S.F.M.)
Aluminum/Aluminum Alloys	250-450
Aluminum-High Silicon	100-250
Brass	250-450
Bronze	150-250
Copper/Copper Alloys	150-350
Cast Iron (soft)	130-200
Cast Iron (medium)	100-150
Cast Iron (hard)	50-130
Magnesium	300-600
Monel	60-180
Steel-Cast & Forged	60-120
Steel-Heat Treated (35-40 Rc)	60-80
Steel-Heat Treated (40-45 Rc)	40-60
Steel-Heat Treated (45 Rc+)	20-40
Steel-Medium carbon	100-180
Mold Steel	60-130
Tool Steel	40-110
Stainless Steel-300 Series	30-90
Stainless Steel-400 Series	40-130
Inconel	30-70
Rene	30-60
Titanium	40-100
Waspoly	30-60
Epoxy Fiber	200-350
Plastic	200-600
Resin-Fiberglass	200-400
Masonite	80-200
Phenolic	70-120

Diameter Range (Inches)	Feed (Inches Per Revolution)
under 1/16"	.0005-.001
over 1/16" thru 1/8"	.001-.002
over 1/8" thru 1/4"	.002-.003
over 1/4" thru 3/8"	.003-.005
over 3/8" thru 1/2"	.005-.008

Please Note: Reduce the speed and feed when hole depth exceeds three times the drill diameter.

Please Note: The above recommendations should be considered only as a starting point, with possible variations to achieve optimum results.

Solid Carbide Reamer

Speed & Feed Recommendations

	Speed (S.F.M.)	Feed (I.P.R.)
Aluminum/Aluminum Alloys	100-250	.005-.015
Aluminum-High Silicon	80-200	.003-.012
Brass	100-250	.005-.015
Bronze	90-175	.003-.012
Copper/Copper Alloys	90-220	.005-.015
Cast Iron (soft)	80-200	.006-.015
Cast Iron (medium)	60-150	.006-.012
Cast Iron (hard)	40-90	.004-.010
Magnesium	100-250	.005-.015
Monel	40-120	.004-.012
Steel-Cast & Forged	40-100	.003-.010
Steel-Heat Treated (35-40 Rc)	40-70	.004-.008
Steel-Heat Treated (40-45 Rc)	30-50	.002-.006
Steel-Heat Treated (45 Rc+)	15-40	.001-.004
Steel-Medium carbon	50-100	.005-.010
Mold Steel	40-120	.004-.006
Tool Steel	30-90	.004-.006
Stainless Steel-300 Series	20-80	.004-.008
Stainless Steel-400 Series	30-120	.005-.010
Inconel	20-60	.001-.005
Rene	20-60	.002-.006
Titanium	30-90	.002-.008
Waspoly	20-60	.002-.006
Epoxy Fiber	100-250	.005-.015
Plastic	100-300	.005-.015
Resin-Fiberglass	100-300	.005-.015
Masonite	60-150	.005-.015
Phenolic	60-100	.005-.015

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

F/TOOTH

$$RPM (F/TOOTH \times \# TEETH) = FEED RATE$$