

**GENERAL PURPOSE END MILL SPEEDS & FEEDS
RECOMMENDATIONS – SOLID CARBIDE**

MATERIAL	SPEED (SFM)	END MILL DIAMETER FEED PER TOOTH (INCHES)		
		UP TO 1/4"	UP TO 1/2"	UP TO 1"
ALUMINUM/ALUMINUM ALLOYS	600 – 1300	.0002-.002	.002-.004	.004-.008
BRASS/SOFT BRONZE	400 – 700	.0005-.002	.002-.003	.003-.005
BRONZE/HIGH TENSILE	250 – 400	.001-.002	.002-.003	.004-.006
COPPER/COPPER ALLOYS	350 – 900	.005-.002	0.002	.002-.006
IRON-CAST (SOFT)	200 – 500	.0005-.002	.002-.003	.003-.008
IRON-CAST (HARD)	100 – 450	.0003-.001	.0008-.002	.003-.005
IRON-DUCTILE	80 – 400	.0002-.001	.001-.002	.002-.006
IRON-MALLEABLE	250 – 600	.001-.002	.001-.003	.003-.008
MAGNESIUM/MAG. ALLOYS	800 – 1400	.0005-.002	.002-.004	.004-.010
MONEL/HIGH NICKEL STEEL	150 – 300	.0002-.001	.001-.002	.002-.004
NICKEL BASE HI-TEMP ALLOYS	20 – 100	.0003-.0008	.0008-.001	.001-.002
PLASTICS	600 – 1200	.0006-.003	.003-.006	.006-.015
PLASTICS-GLASS FILLED	300 – 800	.0006-.003	.003-.004	.004-.012
REFRACTORY ALLOYS	80 – 400	.0002-.001	0.001	.001-.002
STEEL-LOW CARBON	250 – 550	.0002-.001	.001-.003	.003-.007
STEEL-MEDIUM CARBON	100 – 250	.0004-.0015	.0015-.002	.002-.005
STEEL: UP TO RC 35	150 – 250	.0005-.001	.001-.002	.002-.003
STEEL: RC 35 – RC 50	80 – 150	.0003-.0007	.0007-.001	.002-.003
STEEL: RC 50 – RC 60	25 – 120	.0002-.0005	.0005-.001	.001-.003
STEEL-MOLD	200 – 350	.0002-.001	.001-.002	.002-.006
STEEL-TOOL	100 – 300	.0002-.001	.001-.002	.002-.006
STAINLESS STEEL-SOFT	250 – 400	.0002-.001	.001-.002	.002-.006
STAINLESS STEEL-HARD	50 – 250	.0002-.001	.001-.002	.001-.005
TITANIUM-SOFT	120 – 350	.0002-.001	.001-.002	.002-.006
TITANIUM-HARD	30 – 150	.0002-.0005	.0005-.001	.001-.004

* **Plunge** operations reduce feed per tooth 50 – 65%

* **Slotting** applications surface speeds (sfm), should be reduced approximately 20% of the lowest value.

* **Light Radial** depths of cut, the higher of the recommended surface speeds (sfm) should be used.

* **Greater Radial** depths of cut (more than .5 x diameter), the lower range of surface speeds (sfm) should be used.

* **Axial Depth of Cut:** Recommendations are **not** to exceed 1-1/2 times the diameter. If this conditions exists, **Conventional Milling** should be used and feed per tooth should be reduced by 50%.

PLEASE NOTE: The above recommendations should be considered **only** as a starting point; “fine tuning” may be required in order to maximize performance.

RPM – 3.82 x (SFM/Dia.)
ipm = ipt x # teeth x RPM
ipm: inches per minute

SFM = .262 x Dia. x RPM
ipt = ipm/(RPM x # teeth)
ipt: inches per tooth