

SPEEDS & FEEDS
SOLID CARBIDE PERFORMANCE END MILLS

Materials	Speed	Speed	Feed (Inch/Tooth)								Recommendation for
Soft Grades	S.F.M. Under	S.F.M. Over	End Mill Diameter								Coated Tools
	Under 32 HRC	Over 32 HRC	1/8"	3/16"	1/4"	3/8"	1/2"	5/8"	3/4"	1"	
Aluminum + Aluminum Alloys T4, T6, T7, 2014	800-2000	500-1000	0.001	0.002	0.002	0.003	0.004	0.005	0.006	0.007	TiN add 20% on SFM TiCN or TiB2 add 40% on SFM
Copper Yellow Brass, High Lead Brass, Red Brass	800-1500	800-1000	0.001	0.001	0.002	0.0025	0.003	0.004	0.004	0.005	TiCN add 40% on SFM AlTiN add 60% on SFM
Copper Alloys Alum/Bronze, Low Silicon Bronze	800-1000	700-1000	0.001	0.001	0.002	0.0025	0.003	0.004	0.004	0.005	
Magnesium De-CAt, Extruded	1000 min	700-1000	0.001	0.002	0.002	0.003	0.004	0.006	0.008	0.009	
Plastics, Acrylics, Phenolics Polysulfone	200-600	200-500	0.001	0.002	0.003	0.004	0.006	0.008	0.01	0.015	
Carbon, Graphites	200-400		0.004	0.004	0.006	0.008	0.01	0.01	0.015	0.02	
STAINLESS STEEL											
Precipitation 13/8, 15/5, AM-350/355	80-250	90-150	0.0005	.0005	0.001	0.001	0.002	0.002	0.004	0.006	TiCN add 40% on SFM AlTiN add 60%-100% on SFM
Austenitic 200 Series, 302, 303, 304L, 316L	100-350	100-150	0.0001	0.0002	0.0005	0.001	0.0015	0.002	0.003	0.004	
Martensitic 403, 410, 416	100-250	100-175	0.0001	0.0002	0.0005	0.0005	0.001	0.001	0.003	0.004	
HIGH TEMP ALLOYS											
Cobalt Base Stellite, HS-21, HAYNES25/188, x-40, L-605	60-100	40-80	0.0004	.0005	0.001	0.001	0.001	0.001	0.0015	0.002	AlTiN Coating is required add 50%-80% in SFM
Nickel Base INCONEL 600/625, Nickel 200-270, Monel 400-405		50-90	0.0005	0.0005	0.001	0.001	0.002	0.0025	0.003	0.004	
Iron Base Incoly 600-802, Multimet N-155, Timkin 16-25-6	80-130	60-120	0.0005	0.0005	0.001	0.0015	0.002	0.0025	0.003	0.004	
STEELS											
High Steel Strength 4340, 6150, 52100, H-11, H-13	50-250	80-180	0.0005	0.0005	0.001	0.001	0.001	0.0015	0.002	0.004	On Steels >45 HRC on Roughing use Coolant on Finishing Run Dry TiCN add 40% on SFM AlTiN add 60%-100% n SFM
High Alloy Steels A-2/6/10, P-3/10, 01, 02, 06	100-300	80-180	0.0005	0.0005	0.001	0.001	0.001	0.0015	0.002	0.004	TiCN add 40% on SFM
Medium Alloy Steels 200, 250, 300	150-350	80-180	0.0005	0.0005	0.001	0.002	0.0025	0.0035	0.004	0.005	
Low Alloy Steels Maraging 10XX, 11XX, 13XX	100-400	100-200	0.0005	0.001	0.0015	0.002	0.003	0.004	0.005	0.006	
CAST IRON											
Ductile Cast Iron	100-400	80-140	0.0005	0.001	0.0015	0.002	0.002	0.003	0.004	0.005	Always use coolant TiCN add 40% on SFM AlTiN add 60%-100% n SFM
Gray Cast Iron	100-400	90-160	0.0005	0.001	0.002	0.003	0.004	0.005	0.006	0.008	TiCN add 40% on SFM AlTiN add 60%-100% n SFM
TITANIUM											
Titanium Alloys Commercially, Pure, 6AL-4V, Astm 1/2/3, 6 AL-25N-4Zr-2Mo-Si	50-250	90-160	0.0005	0.0005	0.0005	0.001	0.001	0.0015	0.002	0.004	Always use coolant TiCN add 40% on SFM AlTiN add 60%-100% n SFM

*On any material that is over 45 Rc, we would recommend the Alcrona coating.

SLOTING CUTTING DEPTH
RECOMMENDATIONS AND ADJUSTMENTS
Axial Depth of Cut = AD
For Tool Diameters 1/8" and Under: AD = Dia. of Tool X 0.25 to 0.05.
For Diameters above 1/8" AD = Dia. X .05 to 1.5

SFM and Feed
For AD between 0.25 to 0.5 of Tool Dia. SFM = 0.8 Lowest Range Value. Feed at Suggested Value.
For AD equal and above Tool Dia.
SFM = 0.8 X Highest Speed Range. Feed should be 0.5 X Suggested Value.

PROFILING CUTTING DEPTH
RECOMMENDATIONS AND ADJUSTMENTS
Axial Depth of Cut = AD
Axial Depth of Cut = 1.5 X Tool Dia.

SFM and Feed
For Radial Depth of Cut use 0.25 X Tool Dia. Use Higher SFM Range.
For Long and Extra Carbide Reduce Feed by 50%.