










Benchmark Carbide End Mills Speeds & Feed Rates		
Material to be Cut	(2) Aluminum Alloys 440, 356, 380, C61300 (1) Aluminum Alloys 6061-T6,7075-T6	350 Aluminum Series 3 Flute Roughing & Finishing E/M

SFM Based upon Benchmark Coatings.







" TOC " Type of Cut		Range	SFM Range	0.2500	.3750	0.5000	.6250	.7500	1.000	
	Shallow Slotting	< 1/2 x Dia.	1	1200 Plus	0.0045	0.0071	0.0100	0.0123	0.0149	0.0200
			2	600 Plus	0.0036	0.0057	0.0080	0.0098	0.0119	0.0160
	Deep Slotting	3/4- 1 x Dia.	1	1200 Plus	0.0036	0.0057	0.0080	0.0098	0.0119	0.0160
			2	600 Plus	0.0027	0.0043	0.0060	0.0074	0.0089	0.0120
	Medium Radial 1.0 X DIA DEPTH	30% x Dia. Radial	1	1200 Plus	0.0045	0.0071	0.0100	0.0123	0.0149	0.0200
			2	600 Plus	0.0036	0.0057	0.0080	0.0098	0.0119	0.0160
	HEAVY Radial 1.0 X DIA DEPTH	50% x Dia. Radial	1	1200 Plus	0.0036	0.0057	0.0080	0.0098	0.0119	0.0160
			2	600 Plus	0.0027	0.0043	0.0060	0.0074	0.0089	0.0120
	Medium Radial 2.0 X DIA DEPTH	30% x Dia. Radial	1	1200 Plus	0.0045	0.0071	0.0100	0.0123	0.0149	0.0200
			2	600 Plus	0.0036	0.0057	0.0080	0.0098	0.0119	0.0160
	HEAVY Radial 2.0 X DIA DEPTH	50% x Dia. Radial	1	1200 Plus	0.0036	0.0057	0.0080	0.0098	0.0119	0.0160
			2	600 Plus	0.0027	0.0043	0.0060	0.0074	0.0089	0.0120
	Finishing MEDIUM Radial	< 25% OF Dia.	1	1200 Plus	0.0045	0.0071	0.0100	0.0123	0.0149	0.0200
			2	600 Plus	0.0036	0.0057	0.0080	0.0098	0.0119	0.0160
	Finishing Light Radial	< 10% OF Dia.	1	1200 Plus	0.0045	0.0071	0.0100	0.0123	0.0149	0.0200
			2	600 Plus	0.0036	0.0057	0.0080	0.0098	0.0119	0.0160
	Finishing	< .010 RADIAL DEPTH	1	1200 Plus	0.0054	0.0086	0.0120	0.0147	0.0178	0.0240
			2	600 Plus	0.0045	0.0071	0.0100	0.0123	0.0149	0.0200

COMMONLY USED CUTTING TOOL FORMULAS

RPM = $\frac{SFM \times 3.82}{DIA.}$ SFM = SURFACE FEET/MIN.
SFM = $\frac{RPM \times DIA.}{3.82}$ IPR = FEED IN./REV.
IPM = IPR X RPM IPM = FEED IN./MIN.
IPM ÷ RPM ÷ NO. OF FLTS. = CHIP LOAD PER TOOTH

Benchmark Carbide End Mills Speeds & Feed Rates															
Material to be Cut	(2) Aluminum Alloys 440, 356, 380, C61300 Aluminum Alloys 6061-T6,7075-T6								(1)	350 Aluminum Series 3 Flute Roughing & Finishing E/M					

The Chart is a starting point based on a 50 Taper Machine Spindle and the lower starting point on the SFM Range. *** NOTE Reduce SFM & IPM by 10% for 45 Taper and 20% for a 40 Taper Machine Spindle***

" TOC " Type of Cut	Rc " C " Range	SFM Range	RPM		IPM		RPM		IPM		RPM		IPM		Based On SFM		
			0.2500	0.2500	0.3750	0.3750	0.5000	0.5000	0.6260	0.6250	0.7500	0.7500	1.0000	1.0000			
	Shallow Slotting	< 1/2 x Dia.	< 32	1200 Plus	18336	247.5	12224	261.3	9168	275.0	7323	269.1	6112	272.3	4584	275.0	1200
			> 32	600 Plus	9168	99.0	6112	104.5	4584	110.0	3661	107.6	3056	108.9	2292	110.0	600
	Deep Slotting	3/4- 1 x Dia.	< 32	1200 Plus	18336	198.0	12224	209.0	9168	220.0	7323	215.3	6112	217.8	4584	220.1	1200
			> 32	600 Plus	9168	74.3	6112	78.4	4584	82.5	3661	80.7	3056	81.7	2292	82.5	600
	Medium Radial 1.0 X DIA DEPTH	30% x Dia. Radial	< 32	1200 Plus	18336	247.5	12224	261.3	9168	275.0	7323	269.1	6112	272.3	4584	275.0	1200
			> 32	600 Plus	9168	99.0	6112	104.5	4584	110.0	3661	107.6	3056	108.9	2292	110.0	600
	HEAVY Radial 1.0 X DIA DEPTH	50% x Dia. Radial	< 32	1200 Plus	18336	198.0	12224	209.0	9168	220.0	7323	215.3	6112	217.8	4584	220.0	1200
			> 32	600 Plus	9168	74.3	6112	78.4	4584	82.5	3661	80.7	3056	81.7	2292	82.5	600
	Medium Radial 2.0 X DIA DEPTH	30% x Dia. Radial	< 32	1200 Plus	18336	247.5	12224	261.3	9168	275.0	7323	269.1	6112	272.3	4584	275.0	1200
			> 32	600 Plus	9168	99.0	6112	104.5	4584	110.0	3661	107.6	3056	108.9	2292	110.0	600
	HEAVY Radial 2.0 X DIA DEPTH	50% x Dia. Radial	< 32	1200 Plus	18336	198.0	12224	209.0	9168	220.0	7323	215.3	6112	217.8	4584	220.0	1200
			> 32	600 Plus	9168	74.3	6112	78.4	4584	82.5	3661	80.7	3056	81.7	2292	82.5	600
	Finishing MEDIUM Radial	< 25% OF Dia.	< 32	1200 Plus	18336	330.0	12224	261.3	9168	275.0	7323	269.1	6112	272.3	4584	275.0	1200
			> 32	600 Plus	9168	132.0	6112	104.5	4584	110.0	3661	107.6	3056	108.9	2292	110.0	600
	Finishing Light Radial	< 10% OF Dia.	< 32	1200 Plus	18336	330.0	12224	261.3	9168	275.0	7323	269.1	6112	272.3	4584	275.0	1200
			> 32	600 Plus	9168	132.0	6112	104.5	4584	110.0	3661	107.6	3056	108.9	2292	110.0	600
	Finishing	< .010 RADIAL DEPTH	< 32	1200 Plus	18336	396.1	12224	313.5	9168	330.0	7323	322.9	6112	326.7	4584	330.0	1200
			> 32	600 Plus	9168	165.0	6112	130.6	4584	137.5	3661	134.6	3056	136.1	2292	137.5	600