



## General Purpose Carbide 45° & 60° Helix End Mills

Material Guide		HRc	SFM			FEED PER TOOTH			
			2, 3 Flute	3 Flute	5 Flute	UP TO 1/8"	1/8" - 1/4"	1/4" - 1/2"	1/2" - 1"
			45° Helix Aluminum	45°, 60° Helix	45° Helix				
COBALT BASE ALLOYS	Stellite, HS - 21, Haynes 25/188, X - 40, L - 605	under 32 over 32		200 - 275 125 - 175	200 - 275 125 - 175	.0005 - .0010 .0003 - .0005	.0008 - .0020 .0005 - .0015	.0010 - .0030 .0010 - .0020	.0020 - .0040 .0010 - .0030
NICKEL BASE ALLOYS	Inconel - 625/718, Waspalloy, Rene, Hastelloy	under 32 over 32		150 - 200 90 - 125	150 - 200 90 - 125	.0005 - .0010 .0003 - .0005	.0008 - .0020 .0005 - .0015	.0010 - .0030 .0010 - .0020	.0020 - .0040 .0010 - .0030
IRON BASE ALLOYS	Incoloy 800 - 802, Multimet N - 155, Timkin 16 - 25 - 6, Carpeneter 22 - b3	under 32 over 32		200 - 300 150 - 200	200 - 300 150 - 200	.0005 - .0010 .0003 - .0005	.0008 - .0020 .0005 - .0015	.0010 - .0030 .0010 - .0020	.0020 - .0040 .0010 - .0030
MONEL	Monel - 65% Nickel			200 - 300	200 - 300	.0007 - .0015	.0010 - .0025	.0015 - .0040	.0030 - .0050
TITANIUM ALLOYS	"Commercially Pure, 6Al - 4V, Astm 1/2/3, 6Al - 25N - 4Zr - 2Mo - Si"		125 - 400	150 - 300	150 - 300	.0007 - .0015	.0010 - .0025	.0015 - .0040	.0030 - .0050
STAINLESS STEEL (PRECIPITATION)	13/8, 15/5, 17 - 4, AM - 350/355	under 32 over 32		200 - 300 150 - 200	200 - 300 150 - 200	.0005 - .0010 .0003 - .0005	.0008 - .0020 .0005 - .0015	.0010 - .0030 .0010 - .0020	.0020 - .0040 .0010 - .0030
STAINLESS STEEL (AUSTENITIC)	200 Series, 302, 303, 304, 316, 304L, 316L	under 32 over 32		250 - 350 175 - 275	250 - 350 175 - 275	.0005 - .0010 .0003 - .0005	.0008 - .0020 .0005 - .0015	.0010 - .0030 .0010 - .0020	.0020 - .0040 .0010 - .0030
STAINLESS STEEL (MARTENSITIC)	403, 410, 416, 440	under 32 over 32		200 - 300 150 - 200	200 - 300 150 - 200	.0005 - .0010 .0003 - .0005	.0008 - .0020 .0005 - .0015	.0010 - .0030 .0010 - .0020	.0020 - .0040 .0010 - .0030
HIGH STRENGTH TOOL STEELS	4140, 4340, 6150, 5210, A2, D2 P20, H11, H13, S2, 01	under 32 over 32		225 - 300 125 - 200	225 - 300 125 - 200	.0005 - .0010 .0003 - .0005	.0008 - .0020 .0005 - .0015	.0010 - .0030 .0010 - .0020	.0020 - .0040 .0010 - .0030
MEDIUM ALLOY STEELS	200, 250, 300	under 32 over 32		250 - 350 150 - 200	250 - 350 150 - 200	.0007 - .0015 .0005 - .0010	.0010 - .0025 .0008 - .0020	.0015 - .0040 .0010 - .0030	.0030 - .0050 .0020 - .0040
CARBON STEELS	1000's, 1100's, 1300's	under 32 over 32		250 - 350 150 - 200	250 - 350 150 - 200	.0007 - .0015 .0005 - .0010	.0010 - .0025 .0008 - .0020	.0015 - .0040 .0010 - .0030	.0030 - .0050 .0020 - .0040
DUCTILE	Ductile Cast Irons			200 - 300	200 - 300	.0010 - .0020	.0015 - .0040	.0020 - .0060	.0030 - .0100
CAST IRONS	Gray Cast Irons			175 - 250	175 - 250	.0010 - .0020	.0015 - .0040	.0020 - .0060	.0030 - .0100
ALUMINUM	2014, 2024, 6061-(T1-T6), 7075, Die Cast, Extruded		300 - 500	200 - 400	200 - 400	.0010 - .0020	.0015 - .0040	.0020 - .0060	.0030 - .0150
MAGNESIUM			200 - 500	200 - 300	200 - 300	.0010 - .0020	.0015 - .0040	.0020 - .0060	.0030 - .0100
COPPER, COPPER ALLOYS			200 - 500	200 - 300	200 - 300	.0007 - .0015	.0010 - .0025	.0015 - .0035	.0020 - .0080
BRASS, BRONZE	Brass, Alum/Bronze, Low Silicon Bronze		200 - 500	200 - 300	200 - 300	.0007 - .0015	.0010 - .0025	.0015 - .0035	.0020 - .0080