

## Chamfer Mills - Straight Flute

HCM													
Material Guide		Hardness	SFM	Inches per Tooth (IPT)									
				Effective Cutting Diameter (Deff)									
				< .125	≥ .125 < .1875	≥ .1875 < .25	≥ .25 < .3125	≥ .3125 < .375	≥ .375 < .5	≥ .5 < .625	≥ .625 < .75	≥ .75	
WROUGHT ALUMINUM ALLOY	2014, 5052, 6061 7050, 7075, 7475	< 120 HBS ≥ 120 HBS	2200	.0009	.0018	.0028	.0035	.0045	.0055	.0070	.0090	.0110	
			2200	.0006	.0012	.0018	.0022	.0028	.0035	.0045	.0055	.0070	
CAST ALUMINUM ALLOY	319.0, 328.0, 355.0 360.0, 380.0, 383.0 390.0, 520.0, 535.0	< 120 HBS ≥ 120 HBS	1800	.0012	.0025	.0040	.0050	.0060	.0080	.0100	.0130	.0150	
			1600	.0010	.0020	.0030	.0040	.0050	.0060	.0080	.0100	.0120	
COPPER ALLOY	Cu-ETP, CuBe2 CuZn30, CuZn36Pb3 CuZn10, CuSn5	< 75 HRB 75 - 98 HRB	600	.0007	.0015	.0022	.0030	.0035	.0045	.0060	.0070	.0090	
			450	.0007	.0015	.0022	.0028	.0035	.0045	.0055	.0070	.0090	
CARBON STEEL	10XX, 11XX, 12XX 12LXX, ASTM A27 ASTM A36	< 75 HRB 75 - 98 HRB 21 - 36 HRC	450	.0010	.0020	.0030	.0040	.0050	.0060	.0080	.0100	.0120	
			450	.0007	.0015	.0020	.0028	.0035	.0040	.0055	.0070	.0080	
			400	.0005	.0010	.0015	.0020	.0025	.0030	.0040	.0050	.0060	
LOW ALLOY STEEL	13XX, 41XX, 43XX 51XX, 86XX, 93XX	75 - 98 HRB 21 - 36 HRC 36 - 50 HRC > 50 HRC	400	.0006	.0012	.0018	.0025	.0030	.0035	.0050	.0060	.0070	
			350	.0005	.0009	.0015	.0018	.0022	.0028	.0035	.0045	.0055	
			200	.0003	.0006	.0010	.0012	.0015	.0020	.0025	.0030	.0040	
			90	.0002	.0005	.0007	.0010	.0012	.0015	.0020	.0025	.0030	
TOOL STEEL	A2, H13, L6, P20, S7	75 - 98 HRB 21 - 36 HRC 36 - 50 HRC > 50 HRC	325	.0005	.0011	.0018	.0022	.0028	.0035	.0045	.0055	.0070	
			250	.0005	.0009	.0015	.0018	.0022	.0028	.0035	.0045	.0055	
			150	.0003	.0007	.0010	.0012	.0018	.0020	.0028	.0035	.0040	
			50	.0002	.0005	.0007	.0010	.0012	.0015	.0020	.0025	.0030	
SPECIALTY STEEL	300M, Invar 36, Kovar Maraging 200 Maraging 250 Maraging 300 Maraging 350	< 75 HRB 75 - 98 HRB 21 - 36 HRC 36 - 50 HRC > 50 HRC	350	.0006	.0012	.0020	.0025	.0030	.0040	.0050	.0060	.0080	
			400	.0005	.0011	.0015	.0020	.0028	.0030	.0040	.0055	.0060	
			225	.0004	.0009	.0012	.0018	.0022	.0025	.0035	.0045	.0050	
			140	.0004	.0008	.0012	.0015	.0020	.0022	.0030	.0040	.0045	
			45	.0002	.0005	.0007	.0010	.0012	.0015	.0020	.0025	.0030	
AUSTENITIC STAINLESS STEEL	Nitronic 50 Nitronic 60, 301, 303 304, 304L Incoloy 27-7MO, 316 316L, 321, 347	75 - 98 HRB 21 - 36 HRC 36 - 50 HRC	250	.0004	.0009	.0012	.0018	.0022	.0028	.0035	.0045	.0055	
			225	.0004	.0009	.0012	.0018	.0022	.0025	.0035	.0045	.0050	
			175	.0003	.0007	.0010	.0012	.0018	.0020	.0028	.0035	.0040	
MARTENSITIC & FERRITIC STAINLESS STEEL	403, 410, 416, 420 440, 430, 446	75 - 98 HRB 21 - 36 HRC	325	.0004	.0008	.0012	.0018	.0020	.0025	.0035	.0040	.0050	
			300	.0005	.0011	.0018	.0022	.0028	.0035	.0045	.0055	.0070	
PH STAINLESS STEEL	15-5, 17-4 Carpenter 450 Carpenter 465	21 - 36 HRC 36 - 50 HRC	225	.0004	.0009	.0012	.0018	.0022	.0028	.0035	.0045	.0055	
			120	.0003	.0007	.0010	.0012	.0018	.0020	.0028	.0035	.0040	
GRAY CAST IRON	SAE J431, ASTM A48	75 - 98 HRB 21 - 36 HRC	450 400	.0011 .0008	.0022 .0015	.0035 .0022	.0045 .0030	.0055 .0040	.0070 .0045	.0090 .0060	.0110 .0080	.0130 .0090	
MALLEABLE CAST IRON	ASTM A47, ASTM A220 ASTM A602	75 - 98 HRB 21 - 36 HRC	350	.0007	.0012	.0020	.0028	.0035	.0040	.0055	.0070	.0080	
			300	.0005	.0009	.0015	.0020	.0022	.0028	.0040	.0055	.0070	.0080
NODULAR (DUCTILE) CAST IRON	ASTM A536, ASTM 897	75 - 98 HRB 21 - 36 HRC 36 - 50 HRC	325	.0007	.0012	.0020	.0028	.0035	.0040	.0055	.0070	.0080	
			275	.0005	.0010	.0015	.0020	.0025	.0030	.0040	.0050	.0060	
			160	.0002	.0005	.0007	.0010	.0012	.0015	.0020	.0025	.0030	
PURE NICKEL	Nickel 200, Nickel 201	< 75 HRB 75 - 98 HRB	450	.0008	.0015	.0022	.0030	.0040	.0045	.0060	.0080	.0090	
			450	.0007	.0015	.0020	.0028	.0035	.0040	.0055	.0070	.0080	
NICKEL ALLOY	Hastelloy C-22 Inconel 625, Waspaloy René 41, Inconel 718 Incoloy 20	75 - 98 HRB 21 - 36 HRC 36 - 50 HRC	175	.0004	.0009	.0012	.0018	.0022	.0028	.0035	.0045	.0055	
			150	.0004	.0008	.0012	.0015	.0020	.0025	.0030	.0040	.0050	
			80	.0004	.0007	.0011	.0015	.0018	.0020	.0028	.0035	.0040	
PURE TITANIUM	Ti Grade 1, Ti Grade 2 Ti Grade 3, Ti Grade 4 Ti Grade 7, Ti Grade 12	< 75 HRB 75 - 98 HRB 21 - 36 HRC	350	.0009	.0018	.0028	.0035	.0045	.0055	.0070	.0090	.0110	
			400	.0005	.0010	.0015	.0020	.0025	.0030	.0040	.0050	.0060	
			350	.0005	.0011	.0015	.0022	.0028	.0030	.0045	.0055	.0060	
TITANIUM ALLOY	Ti 3Al-2.5V, Ti 6Al-4V Ti 10V-2Fe-3Al	21 - 36 HRC 36 - 50 HRC	200	.0004	.0009	.0012	.0018	.0022	.0028	.0035	.0045	.0055	
			140	.0004	.0007	.0010	.0015	.0018	.0022	.0030	.0035	.0045	
COBALT ALLOY	ASTM F562, ASTM F90 ASTM F75, ASTM F799	75 - 98 HRB 21 - 36 HRC 36 - 50 HRC	225	.0003	.0006	.0008	.0010	.0015	.0018	.0022	.0028	.0035	
			150	.0004	.0008	.0012	.0018	.0020	.0025	.0035	.0040	.0050	
			80	.0003	.0006	.0010	.0012	.0015	.0020	.0025	.0030	.0040	

**NOTES:**

Speed (SFM) and feed (IPT) numbers shown in the table above are considered to be average values. Use a tolerance of ± 25% as needed.

Hardness Scales: HBS = Brinell (500-kgf steel ball)

HRB = Rockwell B

HRC = Rockwell C