Recommended Speeds & Feeds for Variable Endmills 1 of 2

			Radial WOC up to 10% of dia.									Radial WOC 10%-30% of tool dia.							
			Feed Rate, IPT *(Inch per Tooth)*									Feed Rate, IPT *(Inch per Tooth)*							
Material	Hardness R/C	Starting SFM	Endmill Diameter								Starting SFM	Endmill Diameter							
			1/8	1/4	5/16	3/8	1/2	5/8	3/4	1		1/8	1/4	5/16	3/8	1/2	5/8	3/4	1
Low Carbon Steel 1006, 1008, 1018, 1020, 1022, 1025, 1117, 1140, 1215, 1330	Up to 30	1400	.0013	.003	.004	.005	.006	.007	.009	.011	1300-750	.001	.0025	.0032	.004	.0047	.0055	.007	.0085
Medium Carbon and High Carbon Steels 1030, 1040, 1050, 1060, 1085, 1095, 1541, 1551, 9255, 3135, 3415, 4130, 4140, 4150, 4320, 4520, 5015, 5120, 5140, 8620,	30-40 RC	750	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1	700-400	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1
			.0013	.003	.004	.005	.006	.007	.009	.011		.001	.0025	.0032	.004	.0047	.0055	.007	.0085
Tool Steels T1, T2, T15, A2, A7, H13, P20, S7, D2	30-44 RC	500	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1	500-300	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1
			.0011	.0027	.0035	.004	.005	.006	.0078	.0087		.0009	.002	.0028	.0033	.004	.0047	.006	.007
Hardened Steels Hardened Carbon Steels and Tool Steels	42-54 RC	350	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1	350	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1
			.0007	.0016	.0023	.0027	.0034	.0046	.0055	.007		.0005	.0012	.0018	.002	.0027	.0036	.0043	.0054
	54-62 RC	250	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1	250	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1
			.0005	.0009	.0016	.0025	.0028	.004	.0046	.006		.0004	.0007	.0012	.0018	.0022	.003	.0036	.0045
Stainless Steel 430F, 301, 303, 410, 416, 420F, 430, 430F	Up to 30 RC	750	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1	750-450	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1
			.0014	.0033	.004	.004	.0047	.007	.0092	.011		.0011	.0025	.0033	.004	.0047	.055	.007	.0085
Stainless Steel 301, 302, 303, 304, 305, 420, 15-5PH, 17-4PH, 17-7PH	Up to 30 RC	500	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1	500-300	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1
			.0011	.0028	.0035	.0043	.005	.006	.007	.085		.0009	.0022	.0028	.0033	.004	.0047	.0055	.0067
Stainless Steel 302B, 304B, 309, 310, 316, 316B, 316L, 317, 317L, 321, Nitronic	Over 30 RC	450	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1	450-250	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1
			.011	.0023	.0028	.0037	.0042	.0055	.0065	.0085		.0009	.0018	.0022	.0029	.0033	.0044	.005	.0067
High Temp Alloys Inconel, Monel, Hastelloy	Up to 42 RC	125	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1	110	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1
			.0007	.0016	.0023	.0027	.0035	.0046	.0055	.007		.0005	.0012	.0018	.0022	.0027	.0036	.0043	.0055
Titanium	Up to 42 RC	375	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1	375-275	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1
			.0011	.0028	.0035	.0043	.005	.006	.007	.085		.0009	.0022	.0028	.0033	.004	.0047	.0055	.0067
Gray Cast Iron ASTM A48, Class 20,25,30,35, SAE J431C, Grades G1800,G3000,G3500, GG10,15,20,25,30,35,40	———	1200	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1	1200-800	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1
			.0015	.0035	.0042	.0052	.0062	.0072	.0095	.011		.0011	.0026	.0035	.0042	.005	.0055	.0075	.0085
Ductile Cast Iron 60-40-18, 65-45-12, D40148, D4512, 32510, 35108, M3210, M4504, M5503, 2502, 300, 350, 400, 450	———	700	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1	700-450	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1
			.0015	.0035	.0042	.0052	.0062	.0072	.0095	.011		.0011	.0026	.0035	.0042	.005	.0055	.0075	.0085
Aluminum 2024, 6061, 7075, 1050, 6351, 5005, 2017, 7075	Up to 3% Si	1500	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1	1500	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1
			.0025	.0055	.007	.0085	.011	.014	.016	.022		.002	.0045	.0055	.0065	.0085	.0105	.0125	.0165
Cast Aluminum High Silicon A380, Castings	Over 3% Si	1500	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1	1500-1200	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1
			.002	.0045	.0055	.0065	.0085	.011	.0125	.017		.0015	.0035	.0045	.0055	.007	.0085	.010	.013
Magnesium	———	1700	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1	1700-900	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1
			.0015	.0035	.0045	.005	.007	.009	.010	.014		.001	.003	.0035	.004	.005	.007	.008	.010
Non Ferrous Copper, Brass, Bronze	Up to 30 RC	1200	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1	1200-650	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1
			.0015	.0025	.003	.004	.005	.0065	.008	.011		.001	.002	.003	.004	.005	.006	.007	.009

Recommended Speeds & Feeds for Variable Endmills 2 of 2

			Radial WOC 30%-50% of tool dia.									Slotting							
			Endmill Diameter									*Endmill Diameter*							
Material	Hardness R/C	Starting SFM	Feed Rate, IPT *(Inch per Tooth)*								Starting SFM	Feed Rate, IPT *(Inch per Tooth)*							
Low Carbon Steel 1006, 1008, 1018, 1020, 1022, 1025, 1117, 1140, 1215, 1330	Up to 30	750-450	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1	450	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1
			.0007	.0015	.002	.0025	.003	.0035	.005	.006		.0006	.0015	.0018	.0023	.0026	.003	.004	.005
Medium Carbon and High Carbon Steels 1030, 1040, 1050, 1060, 1085, 1095, 1541, 1551, 9255, 3135, 3415, 4130, 4140, 4150, 4320, 4520, 5015, 5120, 5140, 8620	30-40 RC	350-275	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1	300	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1
			.0007	.0015	.002	.0025	.003	.0035	.005	.006		.0006	.0015	.0018	.0023	.0026	.003	.004	.005
Tool Steels T1, T2, T15, A2, A7, H13, P20, S7, D2	30-44 RC	350-250	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1	250	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1
			.0006	.0013	.0017	.002	.0025	.003	.004	.005		.005	.0012	.0015	.0018	.0023	.0027	.0035	.004
Hardened Steels Hardened Carbon Steels and Tool Steels	42-54 RC	350	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1	350	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1
			.0004	.0008	.0011	.0014	.0017	.0025	.003	.004		.0003	.0007	.001	.0012	.0015	.002	.0025	.003
	54-62 RC	250	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1	250	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1
			.0003	.0005	.0008	.0011	.0015	.002	.0025	.003		.0002	.0004	.0007	.001	.0012	.0017	.002	.0025
Stainless Steel 430F, 301, 303, 410, 416, 420F, 430, 430F	Up to 30 RC	425-350	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1	350	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1
			.0007	.0015	.002	.0025	.003	.0035	.005	.006		.0006	.0015	.0018	.0023	.0026	.003	.004	.005
Stainless Steel 301, 302, 303, 304, 305, 420, 15-5PH, 17-4PH, 17-7PH	Up to 30 RC	200-300	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1	225	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1
			.0006	.0013	.0017	.002	.0025	.003	.004	.005		.0005	.0012	.0015	.0018	.0023	.0027	.0035	.004
Stainless Steel 302B, 304B, 309, 310, 316, 316B, 316L, 317, 317L, 321, Nitronic	Over 30 RC	175-275	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1	200	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1
			.0006	.0012	.0015	.0018	.002	.0027	.0032	.004		.0005	.001	.0012	.0016	.0018	.0025	.0028	.0038
High Temp Alloys Inconel, Monel, Hastelloy	Up to 42 RC	125-100	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1	100	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1
			.0004	.0008	.0012	.0014	.0017	.0023	.0027	.0033		.0003	.0007	.001	.0012	.0015	.002	.0025	.003
Titanium	Up to 42 RC	375	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1	150	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1
			.0006	.0013	.0017	.002	.0025	.003	.004	.005		.005	.0012	.0015	.0018	.0023	.0027	.0035	.004
Gray Cast Iron ASTM A48, Class 20,25,30,35, SAE J431C, Grades G1800,G3000,G3500, GG10,15,20,25,30,35,40	———	800-400	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1	400	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1
			.0007	.0015	.002	.0025	.003	.0035	.005	.006		.0006	.0015	.0018	.0023	.0026	.003	.004	.005
Ductile Cast Iron 60-40-18, 65-45-12, D40148, D4512, 32510, 35108, M3210, M4504, M5503, 2502, 300, 350, 400, 450	———	450-300	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1	300	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1
			.0007	.0015	.002	.0025	.003	.0035	.005	.006		.0006	.0015	.0018	.0023	.0026	.003	.004	.005
Aluminum 2024, 6061, 7075, 1050, 6351, 5005, 2017, 7075	Up to 3% Si	1500-1000	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1	1000	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1
			.0012	.0025	.0035	.004	.005	.0065	.0075	.010		.001	.0023	.003	.0035	.0045	.006	.007	.009
Cast Aluminum High Silicon A380, Castings	Over 3% Si	1300-750	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1	750	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1
			.001	.002	.0025	.003	.004	.005	.006	.008		.0008	.0018	.0023	.0028	.0036	.0046	.0055	.0075
Magnesium	———	850-650	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1	700	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1
			.0007	.0017	.002	.0025	.0035	.004	.005	.0065		.0006	.0015	.002	.0023	.003	.004	.0045	.006
Non Ferrous Copper, Brass, Bronze	Up to 30 RC	600-450	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1	500	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1
			.0006	.0012	.0016	.002	.0025	.0032	.0038	.005		.0005	.001	.0015	.002	.0025	.003	.0035	.005

Recommended Speeds & Feeds for Spot Drills

Material	Hardness R/C	Starting SFM	Feed Rate, IPR (Inch per Revolution)							
		Starting SFM	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1
Low Carbon Steel 1006, 1008, 1018, 1020, 1022, 1025, 1117, 1140, 1215, 1330	Up to 30	250	.0025	.004	.005	.006	.007	.008	.010	.012
Medium Carbon and High Carbon Steels 1030, 1040, 1050, 1060, 1085, 1095, 1541, 1551, 9255, 3135, 3415, 4130, 4140, 4150, 4320, 4520, 5015, 5120, 5140, 8620	30-40 RC	200	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1
			.002	.003	.004	.005	.006	.007	.009	.011
Tool Steels T1, T2, T15, A2, A7, H13, P20, S7, D2	30-44 RC	150	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1
			.0015	.0025	.003	.004	.0045	.005	.006	.008
Hardened Steels Hardened Carbon Steels and Tool Steels	42-54 RC	75	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1
			.001	.002	.0025	.003	.004	.005	.006	.007
Stainless Steel 430F, 301, 303, 410, 416, 420F, 430, 430F	Up to 30 RC	125	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1
			.0025	.004	.005	.006	.007	.008	.010	.012
Stainless Steel 301, 302, 303, 304, 305, 420, 15-5PH, 17-4PH, 17-7PH	Up to 30 RC	100	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1
			.002	.003	.004	.005	.006	.007	.009	.010
Stainless Steel 302B, 304B, 309, 310, 316, 316B, 316L, 317, 317L, 321, Nitronic	Over 30 RC	85	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1
			.002	.003	.004	.005	.006	.007	.009	.010
High Temp Alloys Inconel, Monel, Hastelloy	Up to 42 RC	50	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1
			.001	.002	.003	.004	.0045	.005	.0065	.008
Titanium	Up to 42 RC	65	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1
			.002	.003	.0035	.0045	.005	.006	.0075	.009
Gray Cast Iron ASTM A48, Class 20,25,30,35, SAE J431C, Grades G1800,G3000,G3500, GG10,15,20,25,30,35,40	———	325	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1
			.0025	.004	.005	.0055	.0065	.008	.010	.0125
Ductile Cast Iron 60-40-18, 65-45-12, D40148, D4512, 32510, 35108, M3210, M4504, M5503, 2502, 300, 350, 400, 450	———	250	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1
			.002	.0035	.004	.005	.006	.007	.009	.011
Aluminum 2024, 6061, 7075, 1050, 6351, 5005, 2017, 7075	Up to 3% Si	750	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1
			.005	.008	.009	.011	.012	.016	.020	.025
Cast Aluminum High Silicon A380, Castings	Over 3% Si	500	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1
			.004	.006	.008	.010	.011	.013	.016	.020
Magnesium	———	600	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1
			.003	.005	.006	.007	.008	.009	.011	.014
Non Ferrous Copper, Brass, Bronze	Up to 30 RC	450	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1
			.003	.005	.006	.007	.008	.010	.012	.016

Recommended Speeds & Feeds for Drill Mills

		Milling									Chamfering								
		Feed Rate, IPT (Inch per Tooth)									Feed Rate, IPT (Inch per Tooth)								
Material	Hardness R/C	Starting SFM	Drill Mill Diameter								Starting SFM	Drill Mill Diameter							
Low Carbon Steel 1006, 1008, 1018, 1020, 1022, 1025, 1117, 1140, 1215, 1330	Up to 30	450	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1	500	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1
			.0006	.0015	.0018	.0023	.0026	.003	.004	.005		.0006	.0013	.0015	.0018	.0025	.0031	.004	.0052
Medium Carbon and High Carbon Steels 1030, 1040, 1050, 1060, 1085, 1095, 1541, 1551, 9255, 3135, 3415, 4130, 4140, 4150, 4320, 4520, 5015, 5120, 5140, 8620	30-40 RC	300	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1	350	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1
			.0006	.0015	.0018	.0023	.0026	.003	.004	.005		.0005	.0011	.0014	.0017	.0023	.0028	.0034	.0045
Tool Steels T1, T2, T15, A2, A7, H13, P20, S7, D2	30-44 RC	250	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1	250	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1
			.0005	.0012	.0015	.0018	.0023	.0027	.0035	.004		.0006	.0013	.0015	.002	.0025	.003	.004	.005
Stainless Steel 430F, 301, 303, 410, 416, 420F, 430, 430F	Up to 30 RC	350	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1	350	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1
			.0006	.0015	.0018	.0023	.0026	.003	.004	.005		.0006	.0011	.0016	.0021	.0028	.0033	.0041	.0055
Stainless Steel 301, 302, 303, 304, 305, 420, 15-5PH, 17-4PH, 17-7PH	Up to 30 RC	225	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1	200	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1
			.0005	.0012	.0015	.0018	.0023	.0027	.0035	.004		.0002	.0007	.001	.0012	.0016	.002	.0024	.003
Stainless Steel 302B, 304B, 309, 310, 316, 316B, 316L, 317, 317L, 321, Nitronic	Over 30 RC	200	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1	200	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1
			.0005	.001	.0012	.0016	.0018	.0025	.0028	.0038		.0006	.0012	.0016	.0019	.0025	.003	.0037	.0048
Gray Cast Iron ASTM A48, Class 20,25,30,35, SAE J431C, Grades G1800,G3000,G3500, GG10,15,20,25,30,35,40	———	400	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1	900	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1
			.0006	.0015	.0018	.0023	.0026	.003	.004	.005		.0012	.0025	.003	.0035	.005	.006	.007	.009
Ductile Cast Iron 60-40-18, 65-45-12, D40148, D4512, 32510, 35108, M3210, M4504, M5503, 2502, 300, 350, 400, 450	———	300	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1	600	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1
			.0006	.0015	.0018	.0023	.0026	.003	.004	.005		.001	.002	.0025	.003	.004	.005	.0065	.0075
Aluminum 2024, 6061, 7075, 1050, 6351, 5005, 2017, 7075	Up to 3% Si	1000	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1	1000	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1
			.001	.0023	.003	.0035	.0045	.006	.007	.009		.0012	.0025	.003	.0035	.005	.006	.007	.009
Cast Aluminum High Silicon A380, Castings	Over 3% Si	750	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1	700	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1
			.0008	.0018	.0023	.0028	.0036	.0046	.0055	.0075		.0014	.0028	.0035	.0042	.0055	.007	.0085	.011
Magnesium	———	700	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1	1500	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1
			.0006	.0015	.002	.0023	.003	.004	.0045	.006		.0012	.0025	.003	.0035	.0045	.006	.007	.0095
Non Ferrous Copper, Brass, Bronze	Up to 30 RC	500	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1	500	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1
			.0005	.001	.0015	.002	.0025	.003	.0035	.005		.001	.002	.0025	.003	.004	.005	.006	.007

** Use OD of tool for all speed and feed calculations.

** If milling axial DOC exceeds .5 x dia, reduce IPT or radial DOC by 50%.

** Drilling - use milling IPT. Please note feed is listed as inches per tooth, not inches per rev.

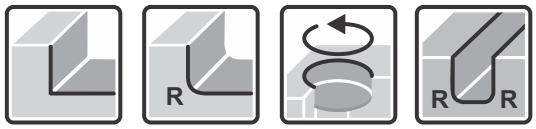
** Calculate all drilling with 2 flutes. Even the 4 flute style since only 2 flutes are effective when drilling.

** Please note speeds and feeds are approximate values and can vary greatly depending on cutting situations.

Recommended Speeds & Feeds for Carbide Chamfer Mills

Material	Hardness R/C	Parameters for Edge break up to 20% of tool dia.									Parameters for chamfer larger than 20% of tool dia.								
		Starting SFM	Chamfer Mill Diameter								Starting SFM	Chamfer Mill Diameter							
			Feed Rate, IPT (Inch per Tooth)									Feed Rate, IPT (Inch per Tooth)							
Low Carbon Steel 1006, 1008, 1018, 1020, 1022, 1025, 1117, 1140, 1215, 1330	Up to 30	650	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1	600-500	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1
			.001	.0017	.002	.0025	.0035	.0042	.005	.007		.0006	.0013	.0015	.0018	.0025	.0031	.004	.0052
Medium Carbon and High Carbon Steels 1030, 1040, 1050, 1060, 1085, 1095, 1541, 1551, 9255, 3135, 3415, 4130, 4140, 4150, 4320, 4520, 5015, 5120, 5140, 8620	30-40 RC	450	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1	400-300	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1
			.0007	.0015	.0018	.0023	.0031	.0037	.0045	.006		.0005	.0011	.0014	.0017	.0023	.0028	.0034	.0045
Tool Steels T1, T2, T15, A2, A7, H13, P20, S7, D2	30-44 RC	350	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1	300-200	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1
			.0008	.0015	.002	.0025	.0032	.004	.005	.0065		.0006	.0013	.0015	.002	.0025	.003	.004	.005
Hardened Steels Hardened Carbon Steels and Tool Steels	42-54 RC	200	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1	150-100	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1
			.0005	.0011	.0016	.0021	.0027	.0034	.0042	.005		.0003	.0008	.0012	.0017	.0022	.003	.0038	.0045
	54-65 RC	150	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1	150-100	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1
			.0004	.0008	.0011	.0016	.002	.0025	.003	.0035									
Stainless Steel 430F, 301, 303, 410, 416, 420F, 430, 430F	Up to 30 RC	500	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1	450-350	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1
			.0008	.0015	.002	.0025	.0032	.004	.005	.0065		.0006	.0011	.0016	.0021	.0028	.0033	.0041	.0055
Stainless Steel 301, 302, 303, 304, 305, 420, 15-5PH, 17-4PH, 17-7PH	Up to 30 RC	250	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1	200-150	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1
			.0005	.001	.0012	.0015	.002	.0025	.003	.0035		.0002	.0007	.001	.0012	.0016	.002	.0024	.003
Stainless Steel 302B, 304B, 309, 310, 316, 316B, 316L, 317, 317L, 321, Nitronic	Over 30 RC	350	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1	300-200	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1
			.0008	.0015	.002	.0025	.003	.0036	.0043	.006		.0006	.0012	.0016	.0019	.0025	.003	.0037	.0048
High Temp Alloys Inconel, Monel, Hastelloy	Up to 42 RC	75	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1	50	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1
			.0004	.0009	.001	.0014	.0018	.0023	.0027	.0036		.0002	.0005	.0007	.0009	.0011	.0014	.0017	.0023
Titanium	Up to 42 RC	150	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1	125-100	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1
			.0005	.0009	.0012	.0015	.002	.0025	.003	.0038		.0003	.0006	.0008	.0009	.0012	.0015	.0018	.0025
Gray Cast Iron ASTM A48, Class 20,25,30,35, SAE J431C, Grades G1800,G3000,G3500, GG10,15,20,25,30,35,40	——	1200	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1	1100-900	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1
			.002	.004	.005	.006	.0075	.0095	.012	.015		.0012	.0025	.003	.0035	.005	.006	.007	.009
Ductile Cast Iron 60-40-18, 65-45-12, D40148, D4512, 32510, 35108, M3210, M4504, M5503, 2502, 300, 350, 400, 450	——	750	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1	700-500	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1
			.0015	.0035	.0042	.0052	.0062	.0072	.0095	.011		.001	.002	.0025	.003	.004	.005	.0065	.0075
Aluminum 2024, 6061, 7075, 1050, 6351, 5005, 2017, 7075	Up to 3% Si	1100	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1	1000	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1
			.002	.004	.005	.006	.0075	.0095	.012	.015		.0012	.0025	.003	.0035	.005	.006	.007	.009
Cast Aluminum High Silicon A380, Castings	Over 3% Si	750	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1	700	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1
			.0018	.0035	.0043	.0052	.007	.0085	.010	.0135		.0014	.0028	.0035	.0042	.0055	.007	.0085	.011
Magnesium	——	1500	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1	1500	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1
			.002	.004	.005	.0055	.0075	.0095	.011	.015		.0012	.0025	.003	.0035	.0045	.006	.007	.0095
Non Ferrous Copper, Brass, Bronze	Up to 30 RC	600	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1	500	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1
			.0015	.003	.004	.0045	.006	.0075	.009	.012		.001	.002	.0025	.003	.004	.005	.006	.007

Recommended Speeds & Feeds for Roughing Endmills



Material	Hardness R/C	Starting SFM	Feed Rate, IPT (Inch per Tooth)								Starting SFM	Feed Rate, IPT (Inch per Tooth)							
		Radial WOC 30%-50% of tool dia.	Endmill Diameter								Slotting	Endmill Diameter							
			1/8	1/4	5/16	3/8	1/2	5/8	3/4	1		1/8	1/4	5/16	3/8	1/2	5/8	3/4	1
Low Carbon Steel 1006, 1008, 1018, 1020, 1022, 1025, 1117, 1140, 1215, 1330	Up to 30	600-350	.0005	.0013	.0016	.002	.0023	.0027	.0036	.0042	350	.0005	.0013	.0016	.002	.0023	.0027	.0036	.0042
Medium Carbon and High Carbon Steels 1030, 1040, 1050, 1060, 1085, 1095, 1541, 1551, 9255, 3135, 3415, 4130, 4140, 4150, 4320, 4520, 5015, 5120, 5140, 8620,	30-40 RC	450-300	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1	300	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1
			.0005	.0013	.0016	.002	.0023	.0027	.0036	.0042		.0005	.0013	.0016	.002	.0023	.0027	.0036	.0042
Tool Steels T1, T2, T15, A2, A7, H13, P20, S7, D2	30-44 RC	350-250	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1	250	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1
			.0003	.001	.0012	.0015	.002	.0023	.0028	.0034		.0003	.001	.0012	.0015	.002	.0023	.0028	.0034
Gray Cast Iron ASTM A48, Class 20,25,30,35, SAE J431C, Grades G1800,G3000,G3500, GG10,15,20,25,30,35,40	——	350	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1	300	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1
			.0005	.0013	.0016	.002	.0023	.0027	.0036	.0042		.0005	.0013	.0016	.002	.0023	.0027	.0036	.0042
Ductile Cast Iron 60-40-18, 65-45-12, D40148, D4512, 32510, 35108, M3210, M4504, M5503, 2502, 300, 350, 400, 450	——	250	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1	200	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1
			.0003	.001	.0012	.0015	.002	.0023	.0028	.0034		.0003	.001	.0012	.0015	.002	.0023	.0028	.0034

Screw-on milling heads - manufactured complete with any cutting geometry.

Recommended Speeds & Feeds for Standard Endmills 1 of 2

Material	Hardness R/C	Endmill Diameter — Feed Rate, IPT (Inch per Tooth) — Starting SFM Radial WOC up to 10% of tool dia.									Endmill Diameter — Feed Rate, IPT (Inch per Tooth) — Starting SFM Radial WOC up to 10%-30% of tool dia.							
			1/8	1/4	5/16	3/8	1/2	5/8	3/4	1		1/8	1/4	5/16	3/8	1/2	5/8	3/4	1
Low Carbon Steel 1006, 1008, 1018, 1020, 1022, 1025, 1117, 1140, 1215, 1330	Up to 30	650	0.0008	0.0015	0.002	0.0023	0.0033	0.0039	0.0048	0.0063	450	.0005	.001	.0013	.0015	.0022	.0026	.0032	.0042
Medium Carbon and High Carbon Steels 1030, 1040, 1050, 1060, 1085, 1095, 1541, 1551, 9255, 3135, 3415, 4130, 4140, 4150, 4320, 4520, 5015, 5120, 5140, 8620,	30-40 RC	550	0.0008	0.0015	0.002	0.0023	0.0033	0.0039	0.0048	0.0063	425	.0005	.001	.0013	.0015	.0022	.0026	.0032	.0042
Tool Steels T1, T2, T15, A2, A7, H13, P20, S7, D2	30-44 RC	500	0.0008	0.0015	0.0020	0.0023	0.0033	0.0039	0.0048	0.0063	359	.0005	.001	.0013	.0015	.0022	.0026	.0032	.0042
Hardened Steels Hardened Carbon Steels and Tool Steels	42-54 RC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	54-62 RC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Stainless Steel 430F, 301, 303, 410, 416, 420F, 430, 430F	Up to 30 RC	350	0.0003	0.0008	0.0011	0.0015	#####	0.0027	0.0032	0.0005	350	.0002	.0005	.0007	.001	.0014	.0018	.0021	.0003
Stainless Steel 301, 302, 303, 304, 305, 420, 15-5PH, 17-4PH, 17-7PH	Up to 30 RC	250	0.0002	0.0005	0.0008	0.0012	0.0015	0.0021	0.0027	0.0038	250	.0001	.0003	.0005	.0008	.001	.0014	.0018	.0025
Stainless Steel 302B, 304B, 309, 310, 316, 316B, 316L, 317, 317L, 321, Nitronic	Over 30 RC	200	0.0002	0.0005	0.0008	0.0012	0.0015	0.0021	0.0027	0.0030	200	.00015	.0003	.0005	.0008	.001	.0014	.0018	.002
High Temp Alloys Inconel, Monel, Hastelloy	Up to 42 RC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Titanium	Up to 42 RC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Gray Cast Iron ASTM A48, Class 20,25,30,35, SAE J431C, Grades G1800,G3000,G3500, GG10,15,20,25,30,35,40	——	500	0.0006	0.0011	0.0015	0.0018	0.0027	0.0033	0.0045	0.0054	400	.0004	.0007	.001	.0012	.0018	.0022	.003	.0036
Ductile Cast Iron 60-40-18, 65-45-12, D40148, D4512, 32510, 35108, M3210, M4504, M5503, 2502, 300, 350, 400, 450	——	450	0.0006	0.0009	0.0015	0.0018	0.0023	0.0030	0.0036	0.0045	350	.0004	.0006	.001	.0012	.0015	.002	.0024	.003
Aluminum 2024, 6061, 7075, 1050, 6351, 5005, 2017, 7075	Up to 3% Si	1100	0.0012	0.0020	0.0030	0.0035	0.0045	0.0060	0.0068	0.0090	900	.0008	.0013	.002	.0023	.003	.004	.0045	.006
Cast Aluminum High Silicon A380, Castings	Over 3% Si	800	0.0008	0.0017	0.0023	0.0032	0.0039	0.0053	0.0060	0.0075	650	.0005	.0011	.0015	.0021	.0026	.0035	.004	.005
Magnesium	——	650	0.0008	0.0017	0.0023	0.0032	0.0039	0.0053	0.0060	0.0075	650	.0005	.0011	.0015	.0021	.0026	.0035	.004	.005
Non Ferrous Copper, Brass, Bronze	Up to 30 RC	900	0.0008	0.0014	0.0017	0.0026	0.0030	0.0038	0.0048	0.0068	900	.0005	.0009	.0011	.0017	.002	.0025	.0032	.0045

Recommended Speeds & Feeds for Standard Endmills 2 of 2

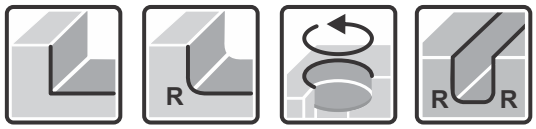
Material	Hardness R/C	Endmill Diameter — Feed Rate, IPT (Inch per Tooth) — Starting SFM Radial WOC up to 30%-50% of tool dia.									Endmill Diameter — Feed Rate, IPT (Inch per Tooth) — Starting SFM Slotting								
			1/8	1/4	5/16	3/8	1/2	5/8	3/4	1		1/8	1/4	5/16	3/8	1/2	5/8	3/4	1
Low Carbon Steel 1006, 1008, 1018, 1020, 1022, 1025, 1117, 1140, 1215, 1330	Up to 30	450	.0005	.001	.0013	.0015	.0022	.0026	.0032	.0042	NA	NA	NA	NA	NA	NA	NA	NA	NA
Medium Carbon and High Carbon Steels 1030, 1040, 1050, 1060, 1085, 1095, 1541, 1551, 9255, 3135, 3415, 4130, 4140, 4150, 4320, 4520, 5015, 5120, 5140, 8620,	30-40 RC	350	.0005	.001	.0013	.0015	.0022	.0026	.0032	.0042	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tool Steels T1, T2, T15, A2, A7, H13, P20, S7, D2	30-44 RC	300	.0005	.001	.0013	.0015	.0022	.0026	.0032	.0042	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hardened Steels Hardened Carbon Steels and Tool Steels	42-54 RC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	54-62 RC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Stainless Steel 430F, 301, 303, 410, 416, 420F, 430, 430F	Up to 30 RC	275	.0002	.0005	.0007	.001	.0014	.0018	.0021	.0003	NA	NA	NA	NA	NA	NA	NA	NA	NA
Stainless Steel 301, 302, 303, 304, 305, 420, 15-5PH, 17-4PH, 17-7PH	Up to 30 RC	200	.0001	.0003	.0005	.0008	.001	.0014	.0018	.0025	NA	NA	NA	NA	NA	NA	NA	NA	NA
Stainless Steel 302B, 304B, 309, 310, 316, 316B, 316L, 317, 317L, 321, Nitronic	Over 30 RC	150	.00015	.0003	.0005	.0008	.001	.0014	.0018	.002	NA	NA	NA	NA	NA	NA	NA	NA	NA
High Temp Alloys Inconel, Monel, Hastelloy	Up to 42 RC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Titanium	Up to 42 RC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Gray Cast Iron ASTM A48, Class 20,25,30,35, SAE J431C, Grades G1800,G3000,G3500, GG10,15,20,25,30,35,40	———	350	.0004	.0007	.001	.0012	.0018	.0022	.003	.0036	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ductile Cast Iron 60-40-18, 65-45-12, D40148, D4512, 32510, 35108, M3210, M4504, M5503, 2502, 300, 350, 400, 450	———	300	.0004	.0006	.001	.0012	.0015	.002	.0024	.003	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aluminum 2024, 6061, 7075, 1050, 6351, 5005, 2017, 7075	Up to 3% Si	850	.0008	.0013	.002	.0023	.003	.004	.0045	.006	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cast Aluminum High Silicon A380, Castings	Over 3% Si	500	.0005	.0011	.0015	.0021	.0026	.0035	.004	.005	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium	———	350	.0005	.0011	.0015	.0021	.0026	.0035	.004	.005	NA	NA	NA	NA	NA	NA	NA	NA	NA
Non Ferrous Copper, Brass, Bronze	Up to 30 RC	600	.0005	.0009	.0011	.0017	.002	.0025	.0032	.0045	NA	NA	NA	NA	NA	NA	NA	NA	NA

Recommended Speeds & Feeds for Carbide Corner Rounding Tools

Material	Hardness R/C	Starting SFM	Feed Rate, IPR (Inch per Revolution) — Corner Rounder Programmable Dia								
Low Carbon Steel 1006, 1008, 1018, 1020, 1022, 1025, 1117, 1140, 1215, 1330	Up to 30	500	0.210	0.225	0.275	0.305	0.335	0.365	0.400	0.430	0.460
			.001	.0013	.0015	.0017	.0018	.0019	.0021	.0022	.0024
Medium Carbon and High Carbon Steels 1030, 1040, 1050, 1060, 1085, 1095, 1541, 1551, 9255, 3135, 3415, 4130, 4140, 4150, 4320, 4520, 5015, 5120, 5140, 8620,	30-40 RC	400	0.210	0.225	0.275	0.305	0.335	0.365	0.400	0.430	0.460
			.0008	.001	.0012	.0013	.0015	.0016	.0017	.0018	.0021
Tool Steels T1, T2, T15, A2, A7, H13, P20, S7, D2	30-44 RC	300	0.210	0.225	0.275	0.305	0.335	0.365	0.400	0.430	0.460
			.0004	.0005	.0006	.0009	.0011	.0013	.0015	.0016	.0019
Hardened Steels Hardened Carbon Steels and Tool Steels	45-65 RC	100	0.210	0.225	0.275	0.305	0.335	0.365	0.400	0.430	0.460
			.0003	.0004	.0005	.0006	.0007	.0008	.0009	.001	.0011
Stainless Steel 430F, 301, 303, 410, 416, 420F, 430, 430F	Up to 30 RC	300	0.210	0.225	0.275	0.305	0.335	0.365	0.400	0.430	0.460
			.001	.0011	.0012	.0013	.0015	.0016	.0018	.002	.0022
Stainless Steel 301, 302, 303, 304, 305, 420, 15-5PH, 17-4PH, 17-7PH	Up to 30 RC	250	0.210	0.225	0.275	0.305	0.335	0.365	0.400	0.430	0.460
			.0008	.001	.0011	.0012	.0014	.0015	.0017	.0018	.002
Stainless Steel 302B, 304B, 309, 310, 316, 316B, 316L, 317, 317L, 321, Nitronic	Over 30 RC	200	0.210	0.225	0.275	0.305	0.335	0.365	0.400	0.430	0.460
			.0005	.0006	.0007	.0008	.0009	.001	.0011	.0013	.0015
High Temp Alloys Inconel, Monel, Hastelloy	Up to 42 RC	75	0.210	0.225	0.275	0.305	0.335	0.365	0.400	0.430	0.460
			.00035	.0004	.00045	.0005	.00055	.0006	.0007	.0009	.001
Titanium	Up to 42 RC	200	0.210	0.225	0.275	0.305	0.335	0.365	0.400	0.430	0.460
			.0006	.00065	.0007	.00076	.00085	.0009	.001	.0011	.0012
Gray Cast Iron ASTM A48, Class 20,25,30,35, SAE J431C, Grades G1800,G3000,G3500, GG10,15,20,25,30,35,40	———	500	0.210	0.225	0.275	0.305	0.335	0.365	0.400	0.430	0.460
			.0012	.0015	.0017	.0019	.0021	.0023	.0026	.0028	.003
Ductile Cast Iron 60-40-18, 65-45-12, D40148, D4512, 32510, 35108, M3210, M4504, M5503, 2502, 300, 350, 400, 450	———	400	0.210	0.225	0.275	0.305	0.335	0.365	0.400	0.430	0.460
			.0008	.001	.0012	.0013	.0015	.0016	.0017	.0018	.0021
Aluminum 2024, 6061, 7075, 1050, 6351, 5005, 2017, 7075	Up to 3% Si	750	0.210	0.225	0.275	0.305	0.335	0.365	0.400	0.430	0.460
			.0022	.0025	.0028	.0032	.0036	.0038	.0042	.0045	.005
Cast Aluminum High Silicon A380, Castings	Over 3% Si	600	0.210	0.225	0.275	0.305	0.335	0.365	0.400	0.430	0.460
			.0021	.0023	.0026	.0028	.0031	.0034	.0038	.004	.0045
Magnesium	———	1000	0.210	0.225	0.275	0.305	0.335	0.365	0.400	0.430	0.460
			.0022	.0025	.0028	.0032	.0036	.0038	.0042	.0045	.005
Non Ferrous Copper, Brass, Bronze	Up to 30 RC	500	0.210	0.225	0.275	0.305	0.335	0.365	0.400	0.430	0.460
			.0018	.002	.0022	.0025	.0027	.003	.0033	.0037	.004

• Programmable diameter is determined by the tools tip diameter added to the tool radius.
• Speeds and Feeds are based on tool at full axial depth and taking 2 radial passes, with first radial pass at 70% and second radial pass at 30%.
• For rounding both sides of a slot simultaneously, reduce IPT by 60%-70%.
• Adding more passes will allow for increased feed rates.
• For better surface finish, increase SFM in 10% increments.

Recommended Speeds & Feeds for High Feed Endmills



Material	Hardness R/C	Starting SFM	Feed Rate, IPT (Inch per Tooth)				Starting SFM	Feed Rate, IPT (Inch per Tooth)			
		Radial WOC up to 60% tool dia.	Endmill Diameter				Slotting	Endmill Diameter			
Low Carbon Steel 1006, 1008, 1018, 1020, 1022, 1025, 1117, 1140, 1215, 1330	Up to 30	750-1000	3/16	1/4	3/8	1/2	750-1000	3/16	1/4	3/8	1/2
			.025	.028	.030	.035		.013	.014	.015	.016
Medium Carbon and High Carbon Steels 1030, 1040, 1050, 1060, 1085, 1095, 1541, 1551, 9255, 3135, 3415, 4130, 4140, 4150, 4320, 4520, 5015, 5120, 5140, 8620	30-40 RC	700-900	3/16	1/4	3/8	1/2	700-900	3/16	1/4	3/8	1/2
			.020	.022	.026	.030		.010	.011	.013	.015
Tool Steels T1, T2, T15, A2, A7, H13, P20, S7, D2	30-44 RC	500-750	3/16	1/4	3/8	1/2	500-750	3/16	1/4	3/8	1/2
			.020	.022	.026	.030		.010	.011	.013	.015
Stainless Steels 300 Series	29-40 RC	600-750	3/16	1/4	3/8	1/2	600-750	3/16	1/4	3/8	1/2
			.020	.022	.026	.030		.010	.011	.013	.015
Stainless Steels 400 Series	20-40 RC	600-800	3/16	1/4	3/8	1/2	600-800	3/16	1/4	3/8	1/2
			.025	.028	.030	.035		.013	.014	.015	.016
Gray Cast Iron ASTM A48, Class 20,25,30,35, SAE J431C, Grades G1800,G3000,G3500, GG10,15,20,25,30,35,40	———	700-800	3/16	1/4	3/8	1/2	700-800	3/16	1/4	3/8	1/2
			.040	.042	.044	.046		.020	.021	.022	.023
Ductile Cast Iron 60-40-18, 65-45-12, D40148, D4512, 32510, 35108, M3210, M4504, M5503, 2502, 300, 350, 400, 450	———	450-600	3/16	1/4	3/8	1/2	450-600	3/16	1/4	3/8	1/2
			.020	.022	.026	.030		.010	.011	.013	.015

• Axial depth of cut 2.5% - 5.0% of the tool diameter.
*• Programmable radius based on tool diameter. REFER TO CATALOG PAGE ***
• Ramp Angle 1-2 degrees.
• Reduce feed per tooth up to 30% for long version of each tool.