

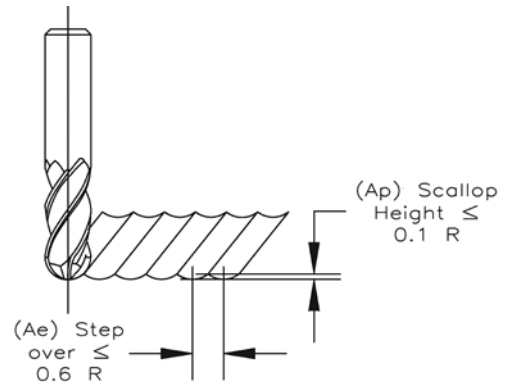
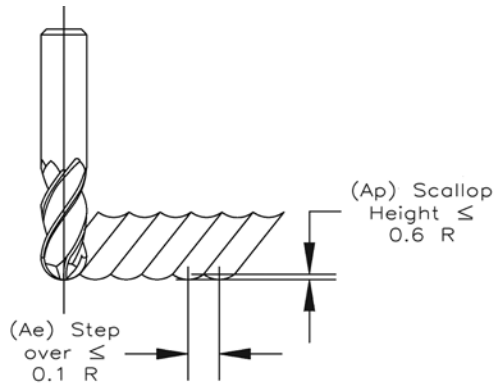
# TuffCut® XT

## 279 Recommended Cutting Data - Contouring

**Inch** See pages 336-339 for profile milling and slotting data.

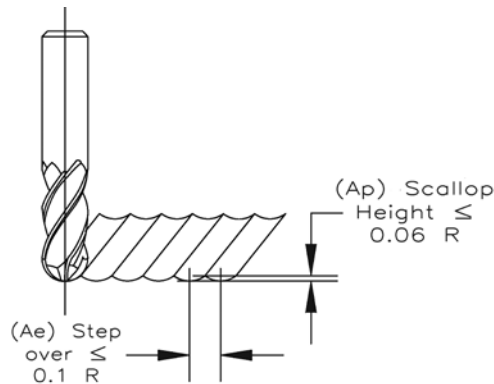
Semi Roughing / Roughing (25 - 48 Rc)						
Diameter	Decimal	Radius	Sfm	in/tooth Range	Max Ae	Max Ap
1/8	0.1250	0.063	820	.0008 - .0012	0.006	0.035
3/16	0.1875	0.094	1020	.0010 - .0017	0.009	0.053
1/4	0.2500	0.125	1235	.0010 - .0027	0.012	0.071
5/16	0.3125	0.156	1235	.0014 - .0032	0.016	0.094
3/8	0.3750	0.188	1235	.0018 - .0037	0.020	0.118
1/2	0.5000	0.250	1235	.0018 - .0040	0.024	0.142
5/8	0.6250	0.313	1235	.0020 - .0041	0.032	0.189
3/4	0.7500	0.375	1235	.0025 - .0045	0.038	0.225

Semi Finishing / Finishing (25 - 48 Rc)						
Diameter	Decimal	Radius	Sfm	in/tooth Range	Max Ae	Max Ap
1/8	0.125	0.063	820	.0008 - .0012	0.035	0.006
3/16	0.187	0.094	1020	.0010 - .0017	0.053	0.009
1/4	0.25	0.125	1235	.0010 - .0027	0.07	0.012
5/16	0.3125	0.156	1235	.0014 - .0032	0.094	0.016
3/8	0.375	0.188	1235	.0018 - .0037	0.118	0.02
1/2	0.5	0.25	1235	.0018 - .0040	0.141	0.024
5/8	0.625	0.312	1235	.0020 - .0041	0.188	0.031
3/4	0.75	0.375	1235	.0025 - .0045	0.225	0.0375



Titanium				
Diameter	Decimal	Radius	Sfm	In/tooth
1/8	0.125	0.063	500	0.0011
3/16	0.187	0.094	500	0.0015
1/4	0.25	0.125	500	0.0018
5/16	0.3125	0.156	500	0.0026
3/8	0.375	0.188	500	0.0031
1/2	0.5	0.25	500	0.0036
5/8	0.625	0.312	500	0.0039
3/4	0.75	0.375	500	0.0041

Titanium				
Diameter	Decimal	Radius	Sfm	In/tooth
1/8	0.125	0.063	150	0.0011
3/16	0.187	0.094	150	0.0015
1/4	0.25	0.125	150	0.0018
5/16	0.3125	0.156	150	0.0026
3/8	0.375	0.188	150	0.0031
1/2	0.5	0.25	150	0.0036
5/8	0.625	0.312	150	0.0039
3/4	0.75	0.375	150	0.0041



Technical data provided should be considered advisory only as variations may be necessary depending on the particular application.

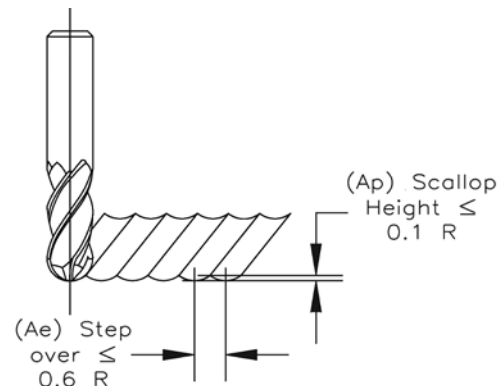
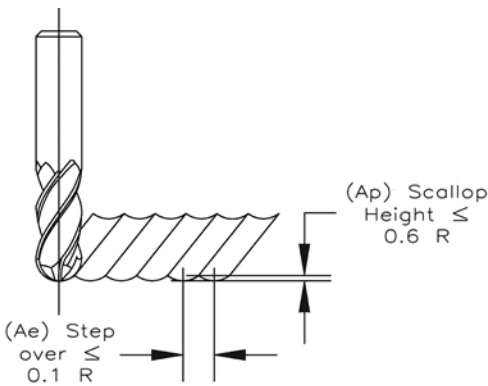
# TuffCut® XT

## 279 Recommended Cutting Data - Contouring

**Metric** See pages 336-339 for profile milling and slotting data.

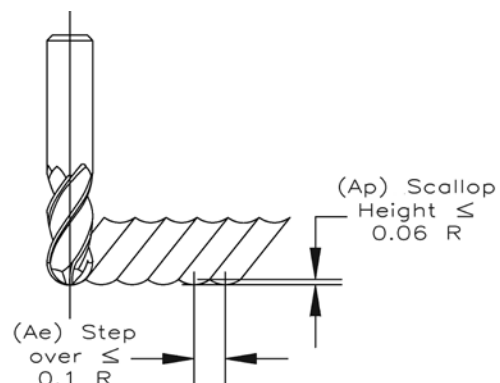
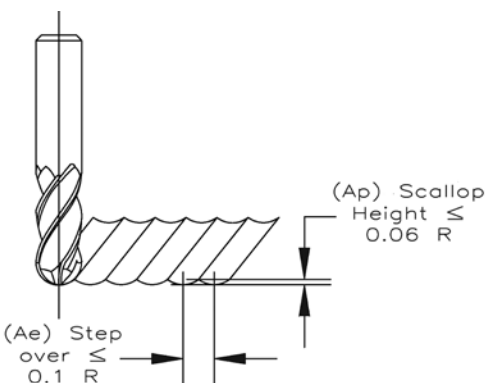
Semi Roughing / Roughing (25 - 48 Rc)					
Diameter	Radius	meters/min	mm/tooth range	Max	
				Ae	Ap
3	1.5	250	.020 - .030	0.15	0.9
4	2	290	.025 - .040	0.2	1.2
5	2.5	315	.025 - .045	0.25	1.5
6	3	375	.025 - .065	0.3	1.8
8	4	375	.035 - .080	0.4	2.4
10	5	375	.045 - .090	0.5	3
12	6	375	.045 - .100	0.6	3.6
16	8	375	.050 - .105	0.8	4.8

Semi Finishing / Finishing (25 - 48 Rc)					
Diameter	Radius	meters/min	mm/tooth range	Max	
				Ae	Ap
3	1.5	250	.020 - .030	0.9	0.15
4	2	290	.025 - .040	1.2	0.2
5	2.5	315	.025 - .045	1.5	0.25
6	3	375	.025 - .065	1.8	0.3
8	4	375	.035 - .080	2.4	0.4
10	5	375	.045 - .090	3	0.5
12	6	375	.045 - .100	3.6	0.6
16	8	375	.050 - .105	4.8	0.8



Titanium					
Diameter	Radius	meters/min	mm/tooth	Max	
				Ae	Ap
3	1.5	150	0.030	0.15	0.09
4	2	150	0.035	0.2	0.12
5	2.5	150	0.040	0.25	0.15
6	3	150	0.045	0.3	0.18
8	4	150	0.065	0.4	0.24
10	5	150	0.080	0.5	0.3
12	6	150	0.090	0.6	0.36
16	8	150	0.100	0.8	0.48

High Temp Alloys					
Diameter	Radius	meters/min	mm/tooth	Max	
				Ae	Ap
3	1.5	45	0.030	0.15	0.09
4	2	45	0.035	0.2	0.12
5	2.5	45	0.040	0.25	0.15
6	3	45	0.045	0.3	0.18
8	4	45	0.065	0.4	0.24
10	5	45	0.080	0.5	0.3
12	6	45	0.090	0.6	0.36
16	8	45	0.100	0.8	0.48










Technical data provided should be considered advisory only as variations may be necessary depending on the particular application.

For product information, call your local distributor.

# TuffCut® XR

## 279/177/177L/177S/177W/179/179L Recommended Cutting Data - Profile Milling

**Inch** 279/179/179L series - If axial depth (ap) is less than the ball diameter, the speed is figured using the effective cutting diameter.  
See pages 332-333 for 279 Series contouring data.

Workpiece Material Group	ISO	Hardness	Coolant			Profiling (ae)				End Mill Diameter								
			● Preferred ○ Possible x Not Possible							1/8*	3/16*	1/4*	5/16	3/8	1/2	5/8	3/4	1
						2.3	1.8	1.2	1.0	*Profile Milling at ≥ 50% ap is not recommended for diameters 1/4" and below. ← Multiply fz by this Factor based on ae. When finishing, use the standard fz per chart below. Only add chip thinning when roughing or semi-finishing.								
			Max.	Air	MMS	vc - SFM												
Low Carbon Steels 1018, 1020	P	up to 28 Rc	●	●	●	1475	1150	980	500	.0012	.0020	.0024	.0031	.0039	.0047	.0060	.0078	.0100
Medium Carbon Steels 1140, 1145	P	28 to 38 Rc	●	●	●	1130	900	840	250	.0012	.0020	.0024	.0031	.0039	.0047	.0060	.0078	.0100
Alloy Steels 4140, 4145	P	28 to 44 Rc	●	●	●	1035	840	755	250	.0012	.0020	.0024	.0031	.0039	.0047	.0060	.0078	.0100
Die / Tool Steels A2, D2, H13, P20	P	28 to 44 Rc	●	●	●	900	725	615	200	.0012	.0020	.0024	.0031	.0039	.0047	.0060	.0078	.0100
Hardened Steels A2, D2	H	45 to 50 Rc	●	○	○	610	495	325	250	.0006	.0010	.0012	.0016	.0020	.0024	.0030	.0040	.0050
Hardened Steels A2, D2	H	50 to 55 Rc	●	○	○	510	410	280	200	.0003	.0005	.0006	.0008	.0010	.0012	.0016	.0020	.0024
Stainless Steel - Easy to Machine 430F, 301, 303, 410, 416 Annealed, 420F, 430	M	up to 28 Rc	●	x	○	675	545	425	360	.0012	.0020	.0024	.0031	.0039	.0047	.0060	.0078	.0100
Stainless Steel - Austenitic 301, 302, 303 High Tensile, 304, 304L, 305, 420, 15-5PH, 17-4PH, 17-7PH	M	up to 28 Rc	●	x	○	525	430	400	210	.0012	.0020	.0024	.0031	.0039	.0047	.0060	.0078	.0100
Stainless Steel - Difficult to Machine 302B, 304B, 309, 310, 316, 316B, 316L, 316Ti, 317, 317L, 321	M	up to 28 Rc	●	x	○	410	330	295	210	.0012	.0020	.0024	.0031	.0039	.0047	.0060	.0078	.0100
Stainless Steel - Difficult to Machine 17-4 PH, PH13-8Mo, Nitronics	M	over 28 Rc	●	x	○	525	430	395	110	.0006	.0010	.0012	.0016	.0020	.0024	.0030	.0040	.0050
Cobalt Chrome Alloys	M		●	x	○	410	325	295	130	.0006	.0010	.0012	.0016	.0020	.0024	.0030	.0040	.0050
Duplex (22%)	M		●	x	○	245	195	180	130	.0006	.0010	.0012	.0016	.0020	.0024	.0030	.0040	.0050
Super Duplex (25%)	M		●	x	○	245	195	180	110	.0006	.0010	.0012	.0016	.0020	.0024	.0030	.0040	.0050
High Temp Alloys	S	up to 42 Rc	●	x	x	180	150	130	85	.0003	.0005	.0006	.0008	.0010	.0012	.0016	.0020	.0024
Inconel	S		●	x	x	180	150	130	85	.0003	.0005	.0006	.0008	.0010	.0012	.0016	.0020	.0024
Titanium Alloys 6Al-4V, 5Al-2.5 Sn, 6Al-2 Sn-4Zr-6Mo, 3Al-8V-6Cr4Mo-4Zr, 10V-2Fe-3Al, 13V-11Cr-3Al	S	up to 42 Rc	●	x	x	375	350	330	175	.0003	.0005	.0006	.0008	.0010	.0012	.0016	.0020	.0024
Cast-Iron - Gray CG, ASTM A48, CLASS 20, 25, 30, 35, SAE J431C, GRADES G1800, G3000, G3500, GG 10, 15, 20, 25, 30, 35, 40	K	up to 240 HB	●	○	○	1625	1295	870	350	.0012	.0020	.0024	.0031	.0039	.0047	.0060	.0078	.0100
Cast Iron - Ductile & Malleable CGI 60-40-18, 65-45-12, D4018, D4512, D5506, 32510, 35108, M3210, M4504, M5503, 250, 300, 350, 400, 450	K	over 240 HB	●	○	○	675	540	510	260	.0012	.0020	.0024	.0031	.0039	.0047	.0060	.0078	.0100

**Spindle Maximum** - Should the calculated spindle speed be more than your actual spindle maximum, use this formula:  

$$\text{Spindle Maximum} = \frac{\text{Calculated Feed} \times \text{Spindle Maximum}}{\text{Calculated Speed}}$$

Technical data provided should be considered advisory only as variations may be necessary depending on the particular application.

## 279/177/177L/177S/177W/179/179L Recommended Cutting Data - Profile Milling

**Metric** 279/179/179L series - If axial depth (ap) is less than the ball diameter, the speed is figured using the effective cutting diameter. See pages 332-333 for 279 Series contouring data.

Workpiece Material Group	ISO	Hardness	Coolant			Profiling (ae)				End Mill Diameter (mm)								
			• Preferred o Possible x Not Possible							3*	5*	6*	8	10	12	16	20	25
						5%	10%	25%	50%	*Profile Milling at ≥ 50% ap is not recommended for diameters 6mm and below.  ← Multiply fz by this Factor based on ae. When finishing, use the standard fz per chart below. Only add chip thinning when roughing or semi-finishing.								
			Max.	Air	MMS	vc - m/min												
Low Carbon Steels 1018, 1020	P	up to 28 Rc	•	•	•	450	350	300	150	.0300	.0500	.0600	.0800	.1000	.1200	.1600	.2000	.2500
Medium Carbon Steels 1140, 1145	P	28 to 38 Rc	•	•	•	345	275	255	75	.0300	.0500	.0600	.0800	.1000	.1200	.1600	.2000	.2500
Alloy Steels 4140, 4145	P	28 to 44 Rc	•	•	•	315	255	230	75	.0300	.0500	.0600	.0800	.1000	.1200	.1600	.2000	.2500
Die / Tool Steels A2, D2, H13, P20	P	28 to 44 Rc	•	•	•	275	220	185	60	.0300	.0500	.0600	.0800	.1000	.1200	.1600	.2000	.2500
Hardened Steels A2, D2	H	45 to 50 Rc	•	o	o	185	150	100	75	.0150	.0250	.0300	.0400	.0500	.0600	.0800	.1000	.1250
Hardened Steels A2, D2	H	50 to 55 Rc	•	o	o	155	125	85	60	.0070	.0120	.0150	.0200	.0250	.0300	.0400	.0500	.0620
Stainless Steel - Easy to Machine 430F, 301, 303, 410, 416 Annealed, 420F, 430	M	up to 28 Rc	•	x	o	205	165	130	110	.0300	.0500	.0600	.0800	.1000	.1200	.1600	.2000	.2500
Stainless Steel - Austenitic 301, 302, 303 High Tensile, 304, 304L, 305, 420, 15-5PH, 17-4PH, 17-7PH	M	up to 28 Rc	•	x	o	160	130	120	65	.0300	.0500	.0600	.0800	.1000	.1200	.1600	.2000	.2500
Stainless Steel - Difficult to Machine 302B, 304B, 309, 310, 316, 316B, 316L, 316Ti, 317, 317L, 321	M	up to 28 Rc	•	x	o	125	100	90	65	.0300	.0500	.0600	.0800	.1000	.1200	.1600	.2000	.2500
Stainless Steel - Difficult to Machine 17-4 PH, PH13-8Mo, Nitronics	M	over 28 Rc	•	x	o	160	130	120	35	.0150	.0250	.0300	.0400	.0500	.0600	.0800	.1000	.1250
Cobalt Chrome Alloys	M		•	x	o	125	100	90	40	.0150	.0250	.0300	.0400	.0500	.0600	.0800	.1000	.1250
Duplex (22%)	M		•	x	o	75	60	55	40	.0150	.0250	.0300	.0400	.0500	.0600	.0800	.1000	.1250
Super Duplex (25%)	M		•	x	o	75	60	55	35	.0150	.0250	.0300	.0400	.0500	.0600	.0800	.1000	.1250
High Temp Alloys	S	up to 42 Rc	•	x	x	55	45	40	25	.0070	.0120	.0150	.0200	.0250	.0300	.0400	.0500	.0620
Inconel	S		•	x	x	55	45	40	25	.0070	.0120	.0150	.0200	.0250	.0300	.0400	.0500	.0620
Titanium Alloys 6Al-4V, 5Al-2.5 Sn, 6Al-2 Sn-4Zr-6Mo, 3Al-8V-6Cr4Mo-4Zr, 10V-2Fe-3Al, 13V-11Cr-3Al	S	up to 42 Rc	•	x	x	115	105	100	55	.0070	.0120	.0150	.0200	.0250	.0300	.0400	.0500	.0620
Cast-Iron - Gray CG, ASTM A48, CLASS 20, 25, 30, 35, SAE J431C, GRADES G1800, G3000, G3500, GG 10, 15, 20, 25, 30, 35, 40	K	up to 240 HB	•	o	o	495	395	265	110	.0300	.0500	.0600	.0800	.1000	.1200	.1600	.2000	.2500
Cast Iron - Ductile & Malleable CGI 60-40-18, 65-45-12, D4018, D4512, D5506, 32510, 35108, M3210, M4504, M5503, 250, 300, 350, 400, 450	K	over 240 HB	•	o	o	205	165	155	80	.0300	.0500	.0600	.0800	.1000	.1200	.1600	.2000	.2500

**Spindle Maximum** - Should the calculated spindle speed be more than your actual spindle maximum, use this formula:  







$$\frac{\text{Calculated Feed} \times \text{Spindle Maximum}}{\text{Calculated Speed}}$$

Technical data provided should be considered advisory only as variations may be necessary depending on the particular application.

For product information, call your local distributor.

## 279/177/177L/177S/177W/179/179L Recommended Cutting Data - Slotting

**Inch** 279/179/179L series - If axial depth (ap) is less than the ball diameter, the speed is figured using the effective cutting diameter. See pages 332-333 for 279 Series contouring data.







Workpiece Material Group	ISO	Hardness	Coolant			Slotting			End Mill Diameter								
			• Preferred o Possible x Not Possible						1/8*	3/16*	1/4*	5/16	3/8	1/2	5/8	3/4	1
						25%	50%	100%	*Slotting at > 25% ap is not recommended for diameters 1/4" and below.								
			Max.	Air	MMS	vc - SFM											
Low Carbon Steels 1018, 1020	P	up to 28 Rc	•	•	•	550	500	475	.0004	.0010	.0012	.0016	.0020	.0025	.0031	.0040	.0050
Medium Carbon Steels 1140, 1145	P	28 to 38 Rc	•	•	•	275	250	225	.0004	.0010	.0012	.0016	.0020	.0025	.0031	.0040	.0050
Alloy Steels 4140, 4145	P	28 to 44 Rc	•	•	•	275	250	225	.0004	.0010	.0012	.0016	.0020	.0025	.0031	.0040	.0050
Die / Tool Steels A2, D2, H13, P20	P	28 to 44 Rc	•	•	•	225	200	175	.0004	.0010	.0012	.0016	.0020	.0025	.0031	.0040	.0050
Hardened Steels A2, D2	H	45 to 50 Rc	•	o	o	275	250	225	.0003	.0005	.0006	.0008	.0010	.0012	.0016	.0020	.0024
Hardened Steels A2, D2	H	50 to 55 Rc	•	o	o	225	200	175	.0001	.0002	.0003	.0004	.0005	.0006	.0008	.0010	.0015
Stainless Steel - Easy to Machine 430F, 301, 303, 410, 416 Annealed, 420F, 430	M	up to 28 Rc	•	x	o	385	360	350	.0004	.0010	.0012	.0016	.0020	.0024	.0031	.0040	.0050
Stainless Steel - Austenitic 301, 302, 303 High Tensile, 304, 304L, 305, 420, 15-5PH, 17-4PH, 17-7PH	M	up to 28 Rc	•	x	o	225	210	200	.0004	.0010	.0012	.0016	.0020	.0024	.0031	.0040	.0050
Stainless Steel - Difficult to Machine 302B, 304B, 309, 310, 316, 316B, 316L, 316Ti, 317, 317L, 321	M	up to 28 Rc	•	x	o	225	210	200	.0004	.0010	.0012	.0016	.0020	.0024	.0031	.0040	.0050
Stainless Steel - Difficult to Machine 17-4 PH, PH13-8Mo, Nitronics	M	over 28 Rc	•	x	o	125	110	100	.0003	.0005	.0006	.0008	.0010	.0012	.0016	.0020	.0024
Cobalt Chrome Alloys	M		•	x	o	150	130	120	.0003	.0005	.0006	.0008	.0010	.0012	.0016	.0020	.0024
Duplex (22%)	M		•	x	o	150	130	120	.0003	.0005	.0006	.0008	.0010	.0012	.0016	.0020	.0024
Super Duplex (25%)	M		•	x	o	120	110	100	.0003	.0005	.0006	.0008	.0010	.0012	.0016	.0020	.0024
High Temp Alloys	S	up to 42 Rc	•	x	x	100	85	75	.0003	.0005	.0006	.0008	.0010	.0012	.0016	.0020	.0024
Inconel	S		•	x	x	95	85	75	.0003	.0005	.0006	.0008	.0010	.0012	.0016	.0020	.0024
Titanium Alloys 6Al-4V, 5Al-2.5 Sn, 6Al-2 Sn-4Zr-6Mo, 3Al-8V-6Cr4Mo-4Zr, 10V-2Fe-3Al, 13V-11Cr-3Al	S	up to 42 Rc	•	x	x	180	175	160	.0003	.0005	.0006	.0008	.0010	.0012	.0016	.0020	.0024
Cast-Iron - Gray CG, ASTM A48, CLASS 20, 25, 30, 35, SAE J431C, GRADES G1800, G3000, G3500, GG 10, 15, 20, 25, 30, 35, 40	K	up to 240 HB	•	o	o	375	350	325	.0004	.0010	.0012	.0016	.0020	.0024	.0031	.0040	.0050
Cast Iron - Ductile & Malleable CGI 60-40-18, 65-45-12, D4018, D4512, D5506, 32510, 35108, M3210, M4504, M5503, 250, 300, 350, 400, 450	K	over 240 HB	•	o	o	275	260	250	.0004	.0010	.0012	.0016	.0020	.0024	.0031	.0040	.0050

**Spindle Maximum** - Should the calculated spindle speed be more than your actual spindle maximum, use this formula:  

$$\text{Spindle Maximum} = \frac{(\text{Calculated Feed} \times \text{Spindle Maximum})}{\text{Calculated Speed}}$$

## 279/177/177L/177S/177W/179/179L Recommended Cutting Data - Slotting

**Metric** 279/179/179L series - If axial depth (ap) is less than the ball diameter, the speed is figured using the effective cutting diameter.  
See pages 332-333 for 279 Series contouring data.

Workpiece Material Group	ISO	Hardness	Coolant			Slotting			End Mill Diameter (mm)								
			● Preferred ○ Possible x Not Possible						3*	5*	6*	8	10	12	16	20	25
						25%	50%	100%	*Slotting at > 25% ap is not recommended for diameters 6mm and below.								
			Max.	Air	MMS	vc - m/min			fz - mm/tooth								
Low Carbon Steels 1018, 1020	P	up to 28 Rc	●	●	●	170	150	145	.0100	.0250	.0300	.0400	.0500	.0600	.0800	.1000	.1250
Medium Carbon Steels 1140, 1145	P	28 to 38 Rc	●	●	●	85	75	70	.0100	.0250	.0300	.0400	.0500	.0600	.0800	.1000	.1250
Alloy Steels 4140, 4145	P	28 to 44 Rc	●	●	●	85	75	70	.0100	.0250	.0300	.0400	.0500	.0600	.0800	.1000	.1250
Die / Tool Steels A2, D2, H13, P20	P	28 to 44 Rc	●	●	●	70	60	55	.0100	.0250	.0300	.0400	.0500	.0600	.0800	.1000	.1250
Hardened Steels A2, D2	H	45 to 50 Rc	●	○	○	85	75	70	.0070	.0120	.0150	.0200	.0250	.0300	.0400	.0500	.0620
Hardened Steels A2, D2	H	50 to 55 Rc	●	○	○	70	60	55	.0030	.0060	.0070	.0100	.0120	.0150	.0200	.0250	.0370
Stainless Steel - Easy to Machine 430F, 301, 303, 410, 416 Annealed, 420F, 430	M	up to 28 Rc	●	x	○	120	110	110	.0100	.0250	.0300	.0400	.0500	.0600	.0800	.1000	.1250
Stainless Steel - Austenitic 301, 302, 303 High Tensile, 304, 304L, 305, 420, 15-5PH, 17-4PH, 17-7PH	M	up to 28 Rc	●	x	○	70	65	60	.0100	.0250	.0300	.0400	.0500	.0600	.0800	.1000	.1250
Stainless Steel - Difficult to Machine 302B, 304B, 309, 310, 316, 316B, 316L, 316Ti, 317, 317L, 321	M	up to 28 Rc	●	x	○	70	65	60	.0100	.0250	.0300	.0400	.0500	.0600	.0800	.1000	.1250
Stainless Steel - Difficult to Machine 17-4 PH, PH13-8Mo, Nitronics	M	over 28 Rc	●	x	○	40	35	30	.0070	.0120	.0150	.0200	.0250	.0300	.0400	.0500	.0620
Cobalt Chrome Alloys	M		●	x	○	45	40	40	.0070	.0120	.0150	.0200	.0250	.0300	.0400	.0500	.0620
Duplex (22%)	M		●	x	○	45	40	40	.0070	.0120	.0150	.0200	.0250	.0300	.0400	.0500	.0620
Super Duplex (25%)	M		●	x	○	40	35	30	.0070	.0120	.0150	.0200	.0250	.0300	.0400	.0500	.0620
High Temp Alloys	S	up to 42 Rc	●	x	x	30	25	25	.0070	.0120	.0150	.0200	.0250	.0300	.0400	.0500	.0620
Inconel	S	up to 42 Rc	●	x	x	30	25	25	.0070	.0120	.0150	.0200	.0250	.0300	.0400	.0500	.0620
Titanium Alloys 6Al-4V, 5Al-2.5 Sn, 6Al-2 Sn-4Zr-6Mo, 3Al-8V-6Cr4Mo-4Zr, 10V-2Fe-3Al, 13V-11Cr-3Al	S	up to 42 Rc	●	x	x	55	55	50	.0070	.0120	.0150	.0200	.0250	.0300	.0400	.0500	.0620
Cast-Iron - Gray CG, ASTM A48, CLASS 20, 25, 30, 35, SAE J431C, GRADES G1800, G3000, G3500, GG 10, 15, 20, 25, 30, 35, 40	K	up to 240 HB	●	○	○	115	105	100	.0100	.0250	.0300	.0400	.0500	.0600	.0800	.1000	.1250
Cast Iron - Ductile & Malleable CGI 60-40-18, 65-45-12, D4018, D4512, D5506, 32510, 35108, M3210, M4504, M5503, 250, 300, 350, 400, 450	K	over 240 HB	●	○	○	85	80	75	.0100	.0250	.0300	.0400	.0500	.0600	.0800	.1000	.1250

**Spindle Maximum** - Should the calculated spindle speed be more than your actual spindle maximum, use this formula:  
(Calculated Feed x Spindle Maximum)/Calculated Speed