

TuffCut® SS

112 / 113 Recommended Cutting Data - Profile Milling

Inch

Workpiece Material Group	ISO	Hardness	Coolant			Profile Milling (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
						5%	10%	20%	30%	50%	*Profile milling at ≥ 50% ap is not recommended for diameters 1/4" and below.								
			Max.	Air	MMS	2.3	1.8	1.2	1.1	1	← 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.								
						vc - SFM					fz - in/tooth								
Free Machining & Low Carbon Steels 1006, 1008, 1015, 1018, 1020, 1022, 1025, 1117, 1140, 1141, 11L08, 11L14, 1213, 12L13, 12L14, 1215, 1330	P	up to 28 Rc	●	●	●	1200	800	600	440	400	.0007	.0011	.0026	.0032	.0037	.0053	.0063	.0074	.0100
Medium Carbon & High Carbon Steels, Alloy Steels & Easy to Machine Tool Steels 1030, 1035, 1040, 1045, 1050, 1052, 1055, 1060, 1085, 1095, 1541, 1551, 9255, 2515, 3135, 3415, 4130, 4137, 4140, 4150, 4320, 4340, 4520, 5015, 5115, 5120, 5132, 5140, 5155, 6150, 8620, 9262, 9840, 52100, O1, O2, O6, S2, W1 to W310	P	28 to 38 Rc	●	●	●	720	480	320	265	240	.0007	.0011	.0026	.0032	.0037	.0053	.0063	.0074	.0100
Tool Steels & Die Steels O7, M1, M2, M3, M4, M7, T1, T2, T4, T5, T8, T15, A2, A3, A6, A7, H10, H11, H12, H13, H19, H21, L3, L6, L7, P2, P20, S1, S5, S7, 52100, A128, D2, D3, D4, D5, D7	P	28 to 44 Rc	●	●	●	600	400	320	220	200	.0007	.0011	.0026	.0032	.0037	.0053	.0063	.0074	.0100
Hardened Steels	H	35-45 Rc	●	○	○	480	320	250	175	160	.0007	.0011	.0026	.0032	.0037	.0053	.0063	.0074	.0100
Hardened Steels		45-55 Rc	●	○	○	360	240	200	175	150	.0004	.0007	.0017	.0021	.0024	.0035	.0042	.0049	.0070
Hardened Steels		55-65 Rc	●	○	○	320	220	175	150	100	.0003	.0005	.0012	.0014	.0017	.0024	.0028	.0033	.0047
Stainless Steel - Easy to Machine 430F, 301, 303, 410, 416 Annealed, 420F, 430, 430F	M	up to 28 Rc	●	x	○	1200	800	500	440	400	.0007	.0011	.0026	.0032	.0037	.0053	.0063	.0074	.0100
Stainless Steel - Moderately Difficult 301, 302, 303 High Tensile, 304, 304L, 305, 420, 15-5PH, 17-4PH, 17-7PH	M	up to 28 Rc	●	x	○	600	400	300	220	200	.0007	.0011	.0026	.0032	.0037	.0053	.0063	.0074	.0100
Stainless Steel - Difficult to Machine 302B, 304B, 309, 310, 316, 316B, 316L, 316Ti, 317, 317L, 321, PH13-8Mo, Nitronics	M	over 28 Rc	●	x	○	600	400	300	220	200	.0006	.0008	.0010	.0024	.0028	.0039	.0047	.0055	.0070
High Temp Alloys Nimonic, Inconel, Monel, Hastelloy	S	up to 42 Rc	●	x	x	300	200	150	110	100	.0004	.0005	.0013	.0016	.0018	.0026	.0032	.0037	.0053
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	260	175	125	100	95	.0004	.0005	.0013	.0016	.0018	.0026	.0032	.0037	.0053
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	●	○	○	400	350	325	300	250	.0007	.0011	.0026	.0032	.0037	.0053	.0063	.0074	.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	●	○	○	230	200	190	175	150	.0007	.0011	.0026	.0032	.0037	.0053	.0063	.0074	.0100

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