

Recommended Cutting Data 205 / 207 / 209 / 210 - Inch

Workpiece Material Group	ISO	Hardness	Tool Series	TYPE	DEPTH	vc - SFM	Drill Diameter							
							1/32	1/16	1/8	1/4	3/8	1/2	5/8	3/4
							f - IPR							
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	205		Screw Machine	175	.0010	.0020	.0030	.0060	.0080	.0100	.0110	.0120
			205T				.0010	.0020	.0030	.0060	.0080	.0100	.0110	.0120
			209		5+	275	.0010	.0020	.0030	.0060	.0080	.0100	.0110	.0120
205		Screw Machine	165				.0010	.0020	.0030	.0060	.0080	.0100	.0110	.0120
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, 9282, 9840, 52100, O1, O2, O6, S2, 1 to W310				P	28 to 38 Rc	205T		Screw Machine	165	.0010	.0020	.0030	.0060	.0080
	209		5+			250				.0010	.0020	.0030	.0060	.0080
	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, A 128, D2, D3, D4, D5, D7						P	28 to 44 Rc	205		Screw Machine	150	.0010	.0020
205T		.0010	.0020	.0030	.0060	.0080			.0100				.0110	.0120
209			5+	225	.0010	.0020			.0030	.0060	.0080	.0100	.0110	.0120
Stainless Steel - Moderately Difficult 301, 302, 303 High Tensile, 304, 304L, 305, 420, 15-5PH, 17-4PH, 17-7PH	M				up to 28 Rc	205		Screw Machine	140	.0010	.0020	.0030	.0060	.0080
		205T	.0010	.0020		.0030				.0060	.0080	.0100	.0110	.0120
		210		3		80	.0010	.0020	.0030	.0060	.0080	.0100	.0110	.0120
Stainless Steel - Difficult to Machine 302B, 304B, 309, 310, 316, 316B, 316L, 316Ti, 317, 317L, 321, PH13-8Mo, Nitronics	M	up to 28 Rc			205			Screw Machine	60	.0003	.0005	.0020	.0040	.0050
			205T	.0003	.0005	.0020				.0040	.0050	.0060	.0080	.0100
			209		5+	80	.0003	.0005	.0020	.0040	.0050	.0060	.0080	.0100
High Temp Alloys Nimonic, Inconel, Monel, Hastelloy	S	up to 42 Rc	205					Screw Machine	60	.0003	.0005	.0020	.0040	.0050
			205T	.0003	.0005	.0020				.0040	.0050	.0060	.0080	.0100
			209		5+	50	.0003	.0005	.0020	.0040	.0050	.0060	.0080	.0100
Titanium Alloys 6Al-4V, 5Al-2.5 Sn, 6Al-2 Sn-4Zr-6Mo, 3Al-6V-6Cr-4Mo-4Zr, 10V-2Fe-3Al, 13V-11Cr-3Al	S	up to 42 Rc	205					Screw Machine	80	.0003	.0005	.0020	.0040	.0050
			205T	.0003	.0005	.0020				.0040	.0050	.0060	.0080	.0100
			209		5+	100	.0003	.0005	.0020	.0040	.0050	.0060	.0080	.0100
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	205					Screw Machine	175	.0010	.0020	.0030	.0060	.0080
			205T	.0010	.0020	.0030				.0060	.0080	.0100	.0110	.0120
			210		3	275	.0010	.0020	.0030	.0060	.0080	.0100	.0110	.0120
Cast Iron - Ductile & Malleable CG, 60-40-18, 65-45-12, D4018, D4512, D5506, 32510, 35108, M3210, M4504, M5503, 250, 300, 350, 400, 450	K	over 240 HB	205					Screw Machine	175	.0010	.0020	.0030	.0060	.0080
			205T	.0010	.0020	.0030				.0060	.0080	.0100	.0110	.0120
			210		3	175	.0010	.0020	.0030	.0060	.0080	.0100	.0110	.0120
Plastics	N		205					Screw Machine	300	.0003	.0005	.0020	.0040	.0050
			205T	.0003	.0005	.0020				.0040	.0050	.0060	.0080	.0100
			207		3	300	.0003	.0005	.0020	.0040	.0050	.0060	.0080	.0100
Kevlar/Graphite	N		207					3	375	.0003	.0005	.0020	.0040	.0050
			205		Screw Machine	50				.0003	.0010	.0010	.0010	.0020
Hardened Steel	H	45 to 65 Rc	205T					Screw Machine	50	.0003	.0010	.0010	.0010	.0020
			209	.0003	.0010	.0010				.0010	.0020	.0020	.0020	.0030

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

Recommended Cutting Data 205 / 207 / 209 / 210 - Metric

Workpiece Material Group	ISO	Hardness	Tool Series	TYPE	DEPTH	vc - m/min	Drill Diameter (mm)							
							1	2	3	6	10	12	16	20
							f - mm/Rev							
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	205	●	Screw Machine	55	.025	.050	.078	.152	.203	.254	.275	.305
			205T				.025	.050	.078	.152	.203	.254	.275	.305
			209	●	5+	85	.025	.050	.078	.152	.203	.254	.275	.305
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	205	●	Screw Machine	45	.025	.050	.078	.152	.203	.254	.275	.305
			205T				.025	.050	.078	.152	.203	.254	.275	.305
			209	●	5+	75	.025	.050	.078	.152	.203	.254	.275	.305
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	205	●	Screw Machine	35	.025	.050	.078	.152	.203	.254	.275	.305
			205T				.025	.050	.078	.152	.203	.254	.275	.305
			209	●	5+	70	.025	.050	.078	.152	.203	.254	.275	.305
Stainless Steel - Moderately Difficult 301, 302, 303 High Tensile, 304, 304L, 305, 420, 15-5PH, 17-4PH, 17-7PH	M	up to 28 Rc	205	●	Screw Machine	45	.025	.050	.078	.152	.203	.254	.275	.305
			205T				.025	.050	.078	.152	.203	.254	.275	.305
			210	●	3	25	.025	.050	.078	.152	.203	.254	.275	.305
Stainless Steel - Difficult to Machine 302B, 304B, 309, 310, 316, 316B, 316L, 316Ti, 317, 317L, 321, PH13-8Mo, Nitronics	M	up to 28 Rc	205	●	Screw Machine	20	.006	.013	.050	.076	.101	.152	.203	.225
			205T				.006	.013	.050	.076	.101	.152	.203	.225
			209	●	5+	25	.006	.013	.050	.076	.101	.152	.203	.225
High Temp Alloys Nimonic, Inconel, Monel, Hastelloy	S	up to 42 Rc	205	●	Screw Machine	20	.006	.013	.050	.076	.101	.152	.203	.225
			205T				.006	.013	.050	.076	.101	.152	.203	.225
			209	●	5+	15	.006	.013	.050	.076	.101	.152	.203	.225
Titanium Alloys 6Al-4V, 5Al-2.5 Sn, 6Al-2 Sn-4Zr-6Mo, 3Al-8V-6Cr-4Mo-4Zr, 10V-2Fe-3Al, 13V-11Cr-3Al	S	up to 42 Rc	205	●	Screw Machine	25	.006	.013	.050	.076	.101	.152	.203	.225
			205T				.006	.013	.050	.076	.101	.152	.203	.225
			209	●	5+	30	.006	.013	.050	.076	.101	.152	.203	.225
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	205	●	Screw Machine	55								
			205T											
			210	●	3	85								
Cast Iron - Ductile & Malleable CGI 60-40-18, 65-45-12, D4018, D4512, D5508, 32510, 35108, M3210, M4504, M5503, 250, 300, 350, 400, 450	K	over 240 HB	205	●	Screw Machine	55								
			205T											
			210	●	3									
Plastics	N		205	●	Screw Machine	90								
			205T											
			207	●	3									
Kevlar/Graphite	N		207	●	3	115	.006	.013	.050	.076	.101	.152	.203	.225
Hardened Steel	H	45 to 65 Rc	205	●	Screw Machine	15	.0063	.0254	.0254	.0254	.0508	.0508	.0508	.0762
			205T				.0063	.0254	.0254	.0254	.0508	.0508	.0508	.0762

205 / 207 / 209 / 210

Twister® GP

Technical Information