

Twister® Hi-Roc®

200 Series Recommended Cutting Data - Inch 3xD, Solid Drilling

Workpiece Material Group	I S O	Hardness	Tool Series	T Y P E	D E P T H	vc - SFM	Drill Diameter (Inch)							
							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	200	●	3x	330	.0010	.0020	.0030	.0060	.0080	.0100	.0110	.0120
			200A			495	.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, 9262, 9840, 52100, O1, O2, O6, S2, W1 to W310	P	28 to 38 Rc	200	●	3x	265	.0010	.0020	.0030	.0060	.0080	.0100	.0110	.0120
			200A			395	.0010	.0020	.0030	.0060	.0080	.0100	.0110	.0120
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	200	●	3x	230	.0010	.0020	.0030	.0060	.0080	.0100	.0110	.0120
			200A			345	.0010	.0020	.0030	.0060	.0080	.0100	.0110	.0120
Hardened Steel	H	45 to 65 Rc	200	●	3x	50	.0003	.0010	.0010	.0010	.0020	.0020	.0020	.0030
			200A			75	.0003	.0010	.0010	.0010	.0020	.0020	.0020	.0030
Stainless Steel - Moderately Difficult 301, 302, 303 High Tensile, 304, 304L, 305, 420, 15-5PH, 17-4PH, 17-7PH	M	up to 28 Rc	200	●	3x	150	.0010	.0020	.0030	.0060	.0080	.0100	.0110	.0120
			200A			225	.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	200	●	3x	100	.0003	.0005	.0020	.0040	.0050	.0060	.0080	.0100
			200A			150	.0003	.0005	.0020	.0040	.0050	.0060	.0080	.0100
High Temp Alloys Nimonic, Inconel, Monel, Hastelloy	S	up to 42 Rc	200	●	3x	70	.0003	.0005	.0020	.0040	.0050	.0060	.0080	.0100
			200A			105	.0003	.0005	.0020	.0040	.0050	.0060	.0080	.0100
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	200	●	3x	180	.0003	.0005	.0020	.0040	.0050	.0060	.0080	.0100
			200A			270	.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	200	●	3x	365	.0010	.0020	.0030	.0060	.0080	.0100	.0110	.0120
			200A			550	.0010	.0020	.0030	.0060	.0080	.0100	.0110	.0120
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	200	●	3x	265	.0010	.0020	.0030	.0060	.0080	.0100	.0110	.0120
			200A			400	.0010	.0020	.0030	.0060	.0080	.0100	.0110	.0120
Plastics	N		200	●	3x	300	.0010	.0020	.0030	.0060	.0080	.0100	.0110	.0120
			200A				.0010	.0020	.0030	.0060	.0080	.0100	.0110	.0120
Kevlar/Graphite	N		200	●	3x	300	.0010	.0020	.0030	.0060	.0080	.0100	.0110	.0120
			200A				.0010	.0020	.0030	.0060	.0080	.0100	.0110	.0120

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

Twister® Hi-Roc®

200 Series Recommended Cutting Data - Metric 3xD, Solid Drilling

Workpiece Material Group	ISO	Hardness	Tool Series	TYPE	DEPTH	vc - m/min	Drill Diameter (mm)								
							1	1.5	3	6	8	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	200	●	3x	100	.0250	.0510	.0760	.1520	.2030	.2540	.2790	.3000	.3300
			200A		3x	150	.0250	.0510	.0760	.1520	.2030	.2540	.2790	.3000	.3300
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	200	●	3x	80	.0250	.0510	.0760	.1520	.2030	.2540	.2790	.3000	.3300
			200A		3x	120	.0250	.0510	.0760	.1520	.2030	.2540	.2790	.3000	.3300
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	200	●	3x	45	.0250	.0510	.0760	.1520	.2030	.2540	.2790	.3000	.3300
			200A		3x	67	.0250	.0510	.0760	.1520	.2030	.2540	.2790	.3000	.3300
Hardened Steel	H	45 to 65 Rc	200	●	3x	15	.0063	.0254	.0254	.0254	.0508	.0508	.0508	.0762	.0800
			200A		3x	23	.0063	.0254	.0254	.0254	.0508	.0508	.0508	.0760	.0800
Stainless Steel - Moderately Difficult 301, 302, 303 High Tensile, 304, 304L, 305, 420, 15-5PH, 17-4PH, 17-7PH	M	up to 28 Rc	200	●	3x	45	.0250	.0510	.0760	.1520	.2030	.2540	.2790	.3000	.3300
			200A		3x	67	.0250	.0510	.0760	.1520	.2030	.2540	.2790	.3000	.3300
Stainless Steel - Difficult to Machine 302B, 304B, 309, 310, 316, 316B, 316L, 316Ti, 317, 317L, 321, PH13-8Mo, Nitronics	M	up to 28 Rc	200	●	3x	30	.0060	.0130	.0510	.1020	.1270	.1520	.2030	.2500	.2700
			200A		3x	45	.0060	.0130	.0510	.1020	.1270	.1520	.2030	.2500	.2700
High Temp Alloys Nimonic, Inconel, Monel, Hastelloy	S	up to 42 Rc	200	●	3x	20	.0060	.0130	.0510	.1020	.1270	.1520	.2030	.2500	.2700
			200A		3x	30	.0060	.0130	.0510	.1020	.1270	.1520	.2030	.2500	.2700
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	200	●	3x	55	.0060	.0130	.0510	.1020	.1270	.1520	.2030	.2500	.2700
			200A		3x	82	.0060	.0130	.0510	.1020	.1270	.1520	.2030	.2500	.2700
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	200	●	3x	110	.0250	.0510	.0760	.1520	.2030	.2540	.2790	.3000	.3300
			200A		3x	165	.0250	.0510	.0760	.1520	.2030	.2540	.2790	.3000	.3300
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	200	●	3x	80	.0250	.0510	.0760	.1520	.2030	.2540	.2790	.3000	.3300
			200A		3x	120	.0250	.0510	.0760	.1520	.2030	.2540	.2790	.3000	.3300
Plastics	N		200	●	3x	90	.0250	.0510	.0760	.1520	.2030	.2540	.2790	.3000	.3300
			200A		3x	90	.0250	.0510	.0760	.1520	.2030	.2540	.2790	.3000	.3300
Kevlar/Graphite	N		200	●	3x	90	.0250	.0510	.0760	.1520	.2030	.2540	.2790	.3000	.3300
			200A		3x	90	.0250	.0510	.0760	.1520	.2030	.2540	.2790	.3000	.3300



Drills - Technical Information Series 200

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