## Twister GP Hi-Roc

## Recommended Cutting Data 200 / 200S - Inch

	ı			Т	D			Drill Diameter							
Workpiece Material		Hardness	Tool	Y	E P	vc - SFM	1/32	1/16	1/8	1/4	3/8	1/2	5/8	3/4	
Group	S O	Hardness	Series	P E	T	VC - SFIVI	f-IPR								
Free Machining & Low Carbon Steels 1006, 1008, 1015, 1018, 1020, 1022, 1025, 1117, 1140,1141, 11L08, 11L14, 1213, 12L13, 12L14, 1215, 1330	Р	up to 28 Rc	200		3		.0010	.0020	.0030	.0060	.0080	.0100	.0110	.0120	
			200S		3	330	.0005	.0010	.0015	.0030	.0040	.0050	.0060	.0060	
			200A		3	495	.0010	.0020	.0030	.0060	.0080	.0100	.0110	.0120	
Medium Carbon & High Carbon Steels,	Р	28 to 38 Rc	200		3		.0010	.0020	.0030	.0060	.0080	.0100	.0110	.0120	
Alloy Steels & Easy to Machine Tool Steels 1030, 1035, 1040, 1045, 1050, 1052, 1055,			200S		3	265	.0005	.0010	.0015	.0030	.0040	.0050	.0060	.0060	
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			200A		3	395	.0010	.0020	.0030	.0060	.0080	.0100	.0110	.0120	
Tool Steels & Die Steels	Р	28 to 44 Rc	200		3	000	.0010	.0020	.0030	.0060	.0080	.0100	.0110	.0120	
O7, M1, M2, M3, M4, M7, T1, T2, T4, T5, T8, T15, A2, A3, A6, A7, H10, H11, H12,			200S		3	230	.0005	.0010	.0015	.0030	.0040	.0050	.0060	.0060	
H13, H19, H21, L3, L6, L7, P2, P20, S1, S5, S7, 52100, A 128, D2, D3, D4, D5, D7			200A		3	345	.0010	.0020	.0030	.0060	.0080	.0100	.0110	.0120	
Hardened Steel	н	45 to 65 Rc	200		3	50	.0003	.0010	.0010	.0010	.0020	.0020	.0020	.0030	
			200S		3		.0002	.0005	.0005	.0005	.0010	.0010	.0010	.0015	
			200A		3	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	М	up to 28 Rc	200		3	150	.0010	.0020	.0030	.0060	.0080	.0100	.0110	.0120	
			200S		3		.0005	.0010	.0015	.0030	.0040	.0050	.0060	.0060	
			200A		3	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	М	up to 28 Rc	200		3	100	.0003	.0005	.0020	.0040	.0050	.0060	.0080	.0100	
			200S		3		.0002	.0003	.0010	.0020	.0025	.0030	.0040	.0050	
			200A		3	150	.0003	.0005	.0020	.0040	.0050	.0060	.0080	.0100	
High Temp Alloys Nimonics, Inconel, Monel, Hastelloy	S	up to 42 Rc	200		3	70	.0003	.0005	.0020	.0040	.0050	.0060	.0080	.0100	
			200S		3		.0002	.0003	.0010	.0020	.0025	.0030	.0040	.0050	
			200A		3	105	.0003	.0005	.0020	.0040	.0050	.0060	.0080	.0100	
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	200		3	180	.0003	.0005	.0020	.0040	.0050	.0060	.0080	.0100	
			200S		3		.0002	.0003	.0010	.0020	.0025	.0030	.0040	.0050	
			200A		3	270	.0003	.0005	.0020	.0040	.0050	.0060	.0080	.0100	
Cas -Iron - Gray CG, ASTM A48, CLASS 20, 25, 30, 35, SAE J431C, GRADES G1800, G3000, G3500, GG 10, 15, 20, 25, 30, 35, 40	К	up to 240 HB	200		3	365	.0010	.0020	.0030	.0060	.0080	.0100	.0110	.0120	
			200S		3		.0005	.0010	.0015	.0030	.0040	.0050	.0060	.0060	
			200A		3	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	К	over 240 HB	200		3	265	.0010	.0020	.0030	.0060	.0080	.0100	.0110	.0120	
			200S		3		.0005	.0010	.0015	.0030	.0040	.0050	.0060	.0060	
			200A		3	400	.0010	.0020	.0030	.0060	.0080	.0100	.0110	.0120	
Plastics	N		200		3	300	.0010	.0020	.0030	.0060	.0080	.0100	.0110	.0120	
			200S		3		.0005	.0010	.0015	.0030	.0040	.0050	.0060	.0060	
			200A		3		.0010	.0020	.0030	.0060	.0080	.0100	.0110	.0120	
			200		3	0.00	.0010	.0020	.0030	.0060	.0080	.0100	.0110	.0120	
Kevlar/Graphite			200S		3		.0005	.0010	.0015	.0030	.0040	.0050	.0060	.0060	
			200A		3		.0010	.0020	.0030	.0060	.0080	.0100	.0110	.0120	

## Twister GP Hi-Roc Twister

## Recommended Cutting Data 200 / 200S - Metric

Workpiece Material Group		Hardness	Tool Series	T Y P E	D E P T	vc - m/min	Drill Diameter (mm)								
	S						1	1.5	3	6	8	10	12	16	20
	ŏ						f - mm/Rev								
Free Machining & Low Carbon			200		3		.0250	.0510	.0760	.1520	.2030	.2540	.2790	.3000	.3300
Steels 1006, 1008, 1015, 1018, 1020,	P	up to 28 Rc	200S		3	100	.0130	.0250	.0380	.0760	.1020	.1270	.1520	.1520	.1600
1022, 1025, 1117, 1140,1141, 11L08, 11L14, 1213, 12L13, 12L14, 1215, 1330	Р		200A		3	150	.0250	.0510	.0760	.1520	.2030	.2540	.2790	.3000	.3300
Medium Carbon & High Carbon		28 to 38 Rc	200		3	80	.0250	.0510	.0760	.1520	.2030	.2540	.2790	.3000	.3300
Steels, Alloy Steels & Easy to Machine Tool Steels			200S		3		.0130	.0250	.0380	.0760	.1020	.1270	.1520	.1520	.1600
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	Р		200A		3	120	.0250	.0510	.0760	.1520	.2030	.2540	.2790	.3000	.3300
Tool Steels & Die Steels			200		3	45	.0250	.0510	.0760	.1520	.2030	.2540	.2790	.3000	.3300
O7, M1, M2, M3, M4, M7, T1, T2, T4, T5, T8, T15, A2, A3, A6,		28 to 44 Rc	200S				.0130	.0250	.0380	.0760	.1020	.1270	.1520	.1520	.1600
	Р		200A		3	67	.0250	.0510	.0760	.1520	.2030	.2540	.2790	.3000	.3300
Hardened Steel H		45 to 65 Rc	200	•	3	15	.0063	.0254	.0254	.0254	.0508	.0508	.0508	.0762	.0800
	Н		200S				.0038	.0127	.0127	.0127	.0254	.0254	.0254	.0381	.0400
			200A		3	23	.0063	.0254	.0254	.0254	.0508	.0508	.0508	.0760	.0800
Stainless Steel - Moderately			200		3	4-	.0250	.0510	.0760	.1520	.2030	.2540	.2790	.3000	.3300
Difficult 301, 302, 303 High Tensile, 304, 304L, 305, 420, 15-5PH, 17-4PH, 17-7PH	up to 28 Rc	200S		3	45	.0130	.0250	.0380	.0760	.1020	.1270	.1520	.1520	.1600	
		20 KG	200A		3	67	.0250	.0510	.0760	.1520	.2030	.2540	.2790	.3000	.3300
Stainless Steel - Difficult to			200	S	3 3	30	.0060	.0130	.0510	.1020	.1270	.1520	.2030	.2500	.2700
Machine	М	up to 28 Rc	200S				.0040	.0060	.0250	.0510	.0640	.0760	.1020	.1270	.1400
316B, 316L, 316Ti, 317,	IVI		200A				.0060	.0130	.0510	.1020	.1270	.1520	.2030	.2500	.2700
317L,321, PH13-8Mo, Nitronics					-	10									
High Temp Alloys Nimonics, Inconel, Monel, Hastelloy		up to 42 Rc	200		3	20	.0060	.0130	.0510	.1020	.1270	.1520	.2030	.2500	.2700
	S		200S		3	30	.0040	.0060	.0250	.0510	.0640	.0760	.1020	.1270	.1400
			200A		3	30	.0060	.0130	.0510	.1020	.1270	.1520	.2030	.2500	.2700
Sn-42r-6Mo, 3Al-8V-6Cr4Mo- 4Zr,10V-2Fe-3Al, 13V-11Cr-3Al 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	S	up to 42 Rc	200		3	55 82	.0060	.0130	.0510	.1020	.1270	.1520	.2030	.2500	.2700
			200S 200A		3		.0040	.0060	.0250	.0510	.0640	.0760	.1020	.1270	.1400
			200A 200		3		.0250	.0130	.0510	.1020	.2030	.2540	.2030	.3000	.3300
		up to	200S		3	110	.0250	.0250	.0760	.0760	.1020	.1270	.1520	.1520	.1600
	K	240 HB			-	105									
			200A		3	165	.0250	.0510	.0760	.1520	.2030	.2540	.2790	.3000	.3300
Cast Iron - Ductile & Malleable CGI		over 240 HB	200		3	80	.0250	.0510	.0760	.1520	.2030	.2540	.2790	.3000	.3300
60-40-18, 65-45-12, D4018, D4512, D5506, 32510,	K		200S		3		.0130	.0250	.0380	.0760	.1020	.1270	.1520	.1520	.1600
35108,M3210, M4504, M5503, 250, 300, 350, 400, 450			200A		3	120	.0250	.0510	.0760	.1520	.2030	.2540	.2790	.3000	.3300
Plastics			200		3	90	.0250	.0510	.0760	.1520	.2030	.2540	.2790	.3000	.3300
	N		200S		3	90	.0130	.0250	.0380	.0760	.1020	.1270	.1520	.1520	.1600
			200A		3		.0250	.0510	.0760	.1520	.2030	.2540	.2790	.3000	.3300
Kevlar/Graphite			200		3	90	.0250	.0510	.0760	.1520	.2030	.2540	.2790	.3000	.3300
	N		200S		3	0.0	.0130	.0250	.0380	.0760	.1020	.1270	.1520	.1520	.1600
			200A		3		.0250	.0510	.0760	.1520	.2030	.2540	.2790	.3000	.3300