



Where **high performance** is the **standard**®

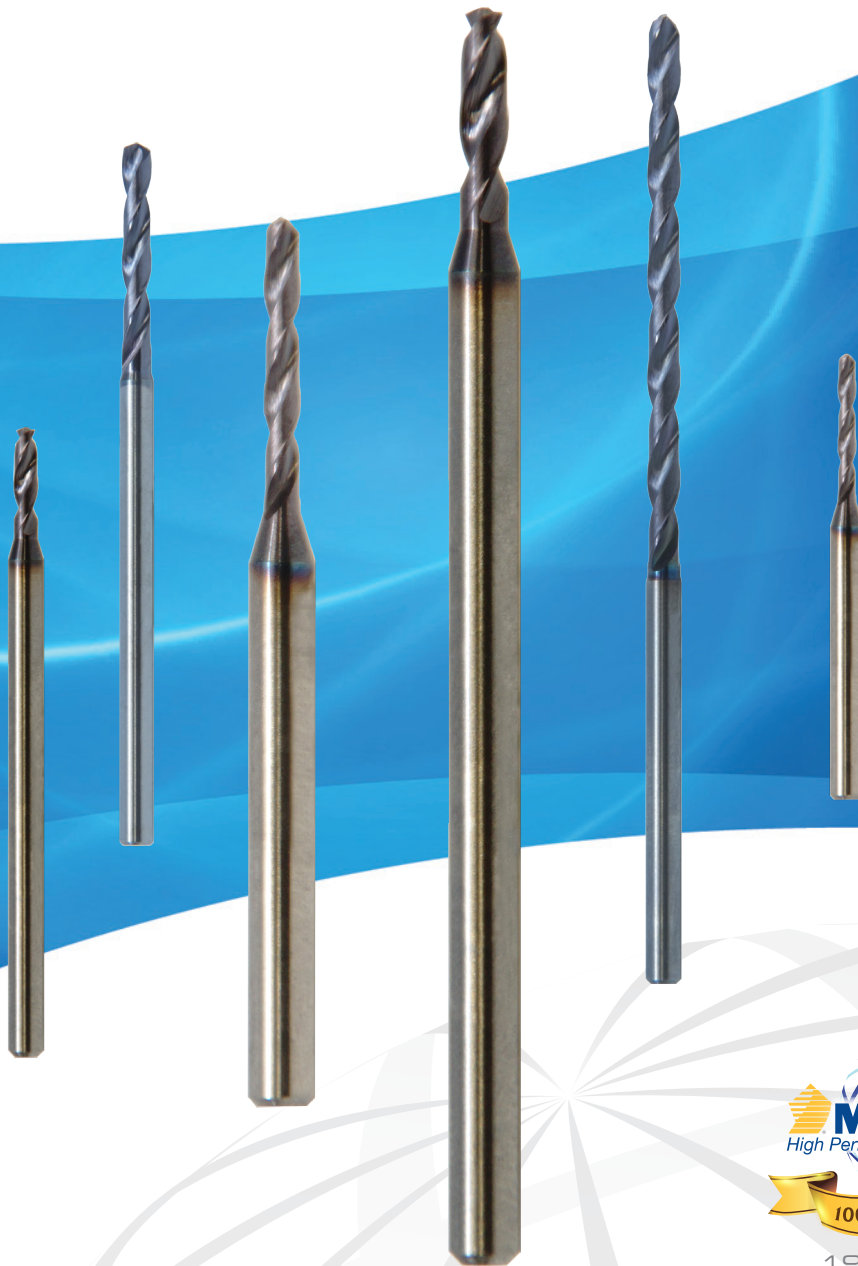
Twister® Micro XD

Series MPDCS

Series MXDSR

Series MXDCR

Series MXDCL



1919 - 2019

www.maford.com



Twister® Micro XD

Twister® Drill Icon Glossary

	Solid	Workpiece Material Group	
	Coolant Fed		
	Drill Length		Steels
	Drill Point Angle		Stainless Steels
	Helix Angle		Cast Iron
	Coatings		Special Alloys
	DIN Specs		Hardened Steels (35-65Rc)
			Non-Ferrous

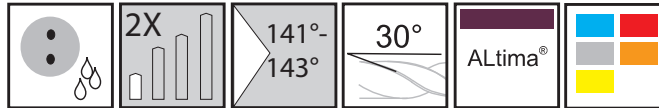
M.A. Ford® is a leading manufacturer of precision ground micro carbide cutting tools. Included in our product line are micro carbide drills, carbide coolant-fed drills, carbide end mills, carbide burs and carbide reamers. Our micro cutting tools are manufactured to the highest standards, so you're assured of quality and performance.



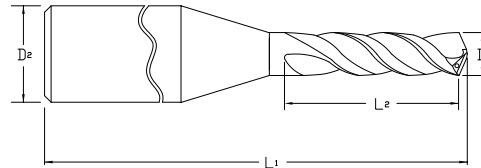
⚠️ WARNING: This product can expose you to chemicals including nickel, cobalt, and lead, which are known to the State of California to cause cancer, and chemicals including lead which are known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

Twister® Micro XD

Twister® Micro Pilot Drill Series MPDCS



- 2 Flute
- Pilot Drill for MXDCR and MXDCL Series
- Carbide coolant fed, ALtima® coated
- Web thinned point helps to reduce cutting forces during the drilling operation
- All sizes have honed cutting edges on the point which increases the strength of the cutting edges



ALtima®		Diameter		Shank	OAL	Flute Length
		D1				
Tool No.	EDP	mm	Decimal	mm	mm	mm
MPDCSM0100A	04874	1.00	.0394	3	45	4
MPDCSM0105A	04875	1.05	.0413	3	45	4
MPDCSM0110A	04876	1.10	.0433	3	45	4
MPDCSM0115A	04877	1.15	.0453	3	45	5
MPDCSM0120A	04878	1.20	.0472	3	45	5
MPDCSM0125A	04879	1.25	.0492	3	45	5
MPDCSM0130A	04880	1.30	.0512	3	45	5
MPDCSM0135A	04881	1.35	.0531	3	45	5
MPDCSM0140A	04882	1.40	.0551	3	45	6
MPDCSM0145A	04883	1.45	.0571	3	45	6
MPDCSM0150A	04884	1.50	.0591	3	45	6
MPDCSM0155A	04885	1.55	.0610	3	45	6
MPDCSM0160A	04886	1.60	.0630	3	45	6
MPDCSM0165A	04887	1.65	.0650	3	50	7
MPDCSM0170A	04888	1.70	.0669	3	50	7
MPDCSM0175A	04889	1.75	.0689	3	50	7
MPDCSM0180A	04890	1.80	.0709	3	50	7
MPDCSM0185A	04891	1.85	.0728	3	50	7
MPDCSM0190A	04892	1.90	.0748	3	50	8
MPDCSM0195A	04893	1.95	.0768	3	50	8
MPDCSM0200A	04894	2.00	.0787	3	50	8
MPDCSM0205A	04895	2.05	.0807	3	60	8
MPDCSM0210A	04896	2.10	.0827	3	60	8
MPDCSM0215A	04897	2.15	.0846	3	60	9
MPDCSM0220A	04898	2.20	.0866	3	60	9
MPDCSM0225A	04899	2.25	.0886	3	60	9
MPDCSM0230A	04900	2.30	.0906	3	60	9

ALtima®		Diameter		Shank	OAL	Flute Length
		D1				
Tool No.	EDP	mm	Decimal	mm	mm	mm
MPDCSM0235A	04901	2.35	.0925	3	60	9
MPDCSM0240A	04902	2.40	.0945	3	60	10
MPDCSM0245A	04903	2.45	.0965	3	60	10
MPDCSM0250A	04904	2.50	.0984	3	60	10
MPDCSM0255A	04905	2.55	.1004	3	60	10
MPDCSM0260A	04906	2.60	.1024	3	60	10
MPDCSM0265A	04907	2.65	.1043	3	60	11
MPDCSM0270A	04908	2.70	.1063	3	60	11
MPDCSM0275A	04909	2.75	.1083	3	60	11
MPDCSM0280A	04910	2.80	.1102	3	60	11
MPDCSM0285A	04911	2.85	.1122	3	60	11
MPDCSM0290A	04912	2.90	.1142	3	60	12
MPDCSM0295A	04913	2.95	.1161	3	60	12

Metric (mm)	
D1	Tolerance
1.00 - 2.95	+0.004/+0.014

Metric (mm)	
D2	Tolerance (h6)
3.00	+0/-0.006



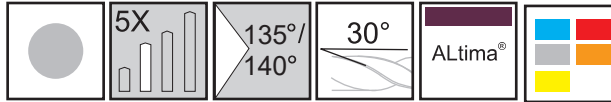
**Made In
USA**

ISO 9001:2008 Certified

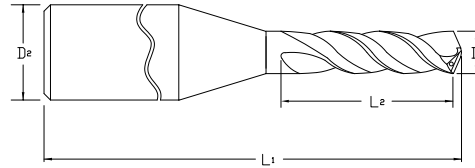


Twister[®] Micro XD

Twister[®] Micro XD Series MXDSR



- Designed for high performance drilling in a broad range of materials
- Web thinned point helps to reduce cutting forces during the drilling operation
- 0.8mm diameters and above have honed cutting edges on the point which increases the strength of the cutting edges
- All sizes have post coat polishing to improve chip evacuation
- Coated with ALtima[®] Coating



ALtima [®]		Diameter		Shank	OAL	Flute Length
		D1		D2	L1	L2
Tool No.	EDP	mm	Decimal	mm	mm	mm
MXDSRM0050A	04694	0.50	.0197	3.0	57	4.0
MXDSRM0055A	04696	0.55	.0217	3.0	57	4.0
MXDSRM0060A	04698	0.60	.0236	3.0	57	5.0
MXDSRM0065A	04700	0.65	.0256	3.0	57	5.0
MXDSRM0070A	04702	0.70	.0276	3.0	57	5.0
MXDSRM0075A	04704	0.75	.0295	3.0	57	6.0
MXDSRM0080A	04706	0.80	.0315	3.0	57	6.0
MXDSRM0085A	04708	0.85	.0335	3.0	57	7.0
MXDSRM0090A	04710	0.90	.0354	3.0	57	7.0
MXDSRM0095A	04712	0.95	.0374	3.0	57	7.0
MXDSRM0100A	04714	1.00	.0394	3.0	57	8.0
MXDSRM0105A	04716	1.05	.0413	3.0	57	8.0
MXDSRM0110A	04718	1.10	.0433	3.0	57	8.0
MXDSRM0115A	04720	1.15	.0453	3.0	57	9.0
MXDSRM0120A	04722	1.20	.0472	3.0	57	9.0
MXDSRM0125A	04724	1.25	.0492	3.0	57	9.0
MXDSRM0130A	04726	1.30	.0512	3.0	57	10.0
MXDSRM0135A	04728	1.35	.0531	3.0	57	10.0
MXDSRM0140A	04730	1.40	.0551	3.0	57	10.0
MXDSRM0145A	04732	1.45	.0571	3.0	57	11.0
MXDSRM0150A	04734	1.50	.0591	3.0	57	11.0
MXDSRM0155A	04736	1.55	.0610	3.0	57	12.0
MXDSRM0160A	04738	1.60	.0630	3.0	57	12.0
MXDSRM0165A	04740	1.65	.0650	3.0	57	12.0
MXDSRM0170A	04742	1.70	.0669	3.0	57	13.0
MXDSRM0175A	04744	1.75	.0689	3.0	57	13.0
MXDSRM0180A	04746	1.80	.0709	3.0	57	13.0
MXDSRM0185A	04748	1.85	.0728	3.0	57	14.0
MXDSRM0190A	04750	1.90	.0748	3.0	57	14.0
MXDSRM0195A	04752	1.95	.0768	3.0	57	14.0

ALtima [®]		Diameter		Shank	OAL	Flute Length
		D1		D2	L1	L2
Tool No.	EDP	mm	Decimal	mm	mm	mm
MXDSRM0200A	04754	2.00	.0787	3.0	57	15.0
MXDSRM0205A	04756	2.05	.0807	3.0	57	15.0
MXDSRM0210A	04758	2.10	.0827	3.0	57	15.0
MXDSRM0215A	04760	2.15	.0846	3.0	57	16.0
MXDSRM0220A	04762	2.20	.0866	3.0	57	16.0
MXDSRM0225A	04764	2.25	.0886	3.0	57	17.0
MXDSRM0230A	04766	2.30	.0906	3.0	57	17.0
MXDSRM0235A	04768	2.35	.0925	3.0	57	17.0
MXDSRM0240A	04770	2.40	.0945	3.0	57	18.0
MXDSRM0245A	04772	2.45	.0965	3.0	57	18.0
MXDSRM0250A	04774	2.50	.0984	3.0	57	18.0
MXDSRM0255A	04776	2.55	.1004	3.0	57	19.0
MXDSRM0260A	04778	2.60	.1024	3.0	57	19.0
MXDSRM0265A	04780	2.65	.1043	3.0	57	19.0
MXDSRM0270A	04782	2.70	.1063	3.0	57	20.0
MXDSRM0275A	04784	2.75	.1083	3.0	57	20.0
MXDSRM0280A	04786	2.80	.1102	3.0	57	20.0
MXDSRM0285A	04788	2.85	.1122	3.0	57	21.0
MXDSRM0290A	04790	2.90	.1142	3.0	57	21.0
MXDSRM0295A	04792	2.95	.1161	3.0	57	22.0

Metric (mm)	
D1	Tolerance (h7)
0.50 - 2.95	+0/-0.010

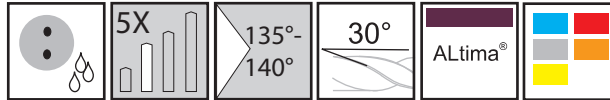
Metric (mm)	
D2	Tolerance (h6)
3.00	+0/-0.006



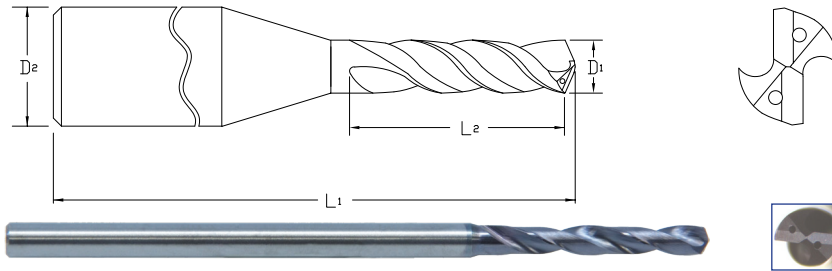
Twister® Micro XD



Twister® Micro XD Series MXDCR



- Designed for high performance drilling in a broad range of materials
- Web thinned point helps to reduce cutting forces during the drilling operation
- All sizes have honed cutting edges on the point which increases the strength of the cutting edges
- Post coat polishing to improve chip evacuation
- Coated with ALtima® Coating



ALtima®		Diameter		Shank	OAL	Flute Length
Tool No.	EDP	D1	D2	L1	L2	
		mm	Decimal	mm	mm	mm
MXDCRM0100A	04794	1.00	.0394	3	57	8
MXDCRM0105A	04795	1.05	.0413	3	57	8
MXDCRM0110A	04796	1.10	.0433	3	57	8
MXDCRM0115A	04797	1.15	.0453	3	57	9
MXDCRM0120A	04798	1.20	.0472	3	57	9
MXDCRM0125A	04799	1.25	.0492	3	57	9
MXDCRM0130A	04800	1.30	.0512	3	57	10
MXDCRM0135A	04801	1.35	.0531	3	57	10
MXDCRM0140A	04802	1.40	.0551	3	57	10
MXDCRM0145A	04803	1.45	.0571	3	57	11
MXDCRM0150A	04804	1.50	.0591	3	57	11
MXDCRM0155A	04805	1.55	.0610	3	57	12
MXDCRM0160A	04806	1.60	.0630	3	57	12
MXDCRM0165A	04807	1.65	.0650	3	57	12
MXDCRM0170A	04808	1.70	.0669	3	57	13
MXDCRM0175A	04809	1.75	.0689	3	57	13
MXDCRM0180A	04810	1.80	.0709	3	57	13
MXDCRM0185A	04811	1.85	.0728	3	57	14
MXDCRM0190A	04812	1.90	.0748	3	57	14
MXDCRM0195A	04813	1.95	.0768	3	57	14
MXDCRM0200A	04814	2.00	.0787	3	57	15
MXDCRM0205A	04815	2.05	.0807	3	60	15
MXDCRM0210A	04816	2.10	.0827	3	60	15
MXDCRM0215A	04817	2.15	.0846	3	60	16
MXDCRM0220A	04818	2.20	.0866	3	60	16
MXDCRM0225A	04819	2.25	.0886	3	60	17
MXDCRM0230A	04820	2.30	.0906	3	60	17

ALtima®		Diameter		Shank	OAL	Flute Length
Tool No.	EDP	D1	D2	L1	L2	
		mm	Decimal	mm	mm	mm
MXDCRM0235A	04821	2.35	.0925	3	60	17
MXDCRM0240A	04822	2.40	.0945	3	60	18
MXDCRM0245A	04823	2.45	.0965	3	60	18
MXDCRM0250A	04824	2.50	.0984	3	60	18
MXDCRM0255A	04825	2.55	.1004	3	60	19
MXDCRM0260A	04826	2.60	.1024	3	60	19
MXDCRM0265A	04827	2.65	.1043	3	60	19
MXDCRM0270A	04828	2.70	.1063	3	60	20
MXDCRM0275A	04829	2.75	.1083	3	60	20
MXDCRM0280A	04830	2.80	.1102	3	60	20
MXDCRM0285A	04831	2.85	.1122	3	60	21
MXDCRM0290A	04832	2.90	.1142	3	60	21
MXDCRM0295A	04833	2.95	.1161	3	60	22

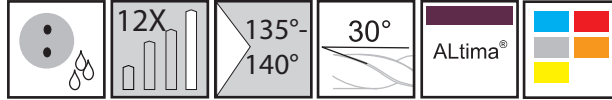
Metric (mm)	
D1	Tolerance (h7)
1.00- 2.95	+0/- .010

Metric (mm)	
D2	Tolerance (h6)
3.00	+0/- .006

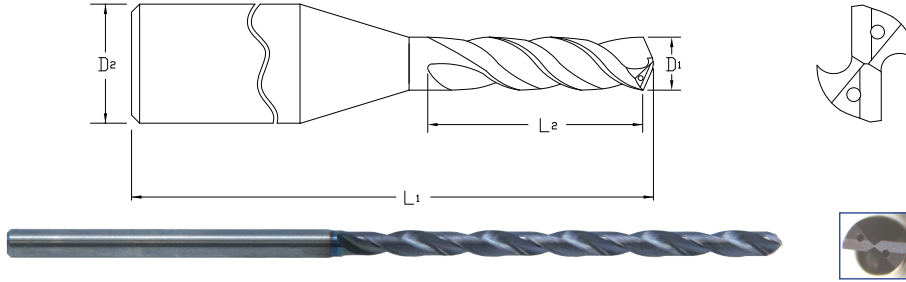


Twister® Micro XD

Twister® Micro XD Series MXDCL



- Designed for high performance drilling in a broad range of materials
- Web thinned point helps to reduce cutting forces during the drilling operation
- All sizes have honed cutting edges on the point which increases the strength of the cutting edges
- Post coat polishing to improve chip evacuation
- Coated with ALtima® Coating

































ALtima®		Diameter		Shank	OAL	Flute Length
		D1	D2			
Tool No.	EDP	mm	Decimal	mm	mm	mm
MXDCLM0100A	04834	1.00	.0394	3	60	16
MXDCLM0105A	04835	1.05	.0413	3	60	17
MXDCLM0110A	04836	1.10	.0433	3	60	18
MXDCLM0115A	04837	1.15	.0453	3	60	19
MXDCLM0120A	04838	1.20	.0472	3	65	20
MXDCLM0125A	04839	1.25	.0492	3	65	20
MXDCLM0130A	04840	1.30	.0512	3	65	21
MXDCLM0135A	04841	1.35	.0531	3	65	22
MXDCLM0140A	04842	1.40	.0551	3	65	23
MXDCLM0145A	04843	1.45	.0571	3	65	24
MXDCLM0150A	04844	1.50	.0591	3	65	24
MXDCLM0155A	04845	1.55	.0610	3	65	25
MXDCLM0160A	04846	1.60	.0630	3	70	26
MXDCLM0165A	04847	1.65	.0650	3	70	27
MXDCLM0170A	04848	1.70	.0669	3	70	28
MXDCLM0175A	04849	1.75	.0689	3	70	28
MXDCLM0180A	04850	1.80	.0709	3	70	29
MXDCLM0185A	04851	1.85	.0728	3	70	30
MXDCLM0190A	04852	1.90	.0748	3	75	31
MXDCLM0195A	04853	1.95	.0768	3	75	32
MXDCLM0200A	04854	2.00	.0787	3	75	32
MXDCLM0205A	04855	2.05	.0807	3	75	33
MXDCLM0210A	04856	2.10	.0827	3	75	34
MXDCLM0215A	04857	2.15	.0846	3	75	35
MXDCLM0220A	04858	2.20	.0866	3	75	36
MXDCLM0225A	04859	2.25	.0886	3	75	36
MXDCLM0230A	04860	2.30	.0906	3	75	37

ALtima®		Diameter		Shank	OAL	Flute Length
		D1	D2			
Tool No.	EDP	mm	Decimal	mm	mm	mm
MXDCLM0235A	04861	2.35	.0925	3	75	38
MXDCLM0240A	04862	2.40	.0945	3	75	39
MXDCLM0245A	04863	2.45	.0965	3	75	40
MXDCLM0250A	04864	2.50	.0984	3	75	40
MXDCLM0255A	04865	2.55	.1004	3	80	41
MXDCLM0260A	04866	2.60	.1024	3	80	42
MXDCLM0265A	04867	2.65	.1043	3	80	43
MXDCLM0270A	04868	2.70	.1063	3	80	44
MXDCLM0275A	04869	2.75	.1083	3	80	44
MXDCLM0280A	04870	2.80	.1102	3	80	45
MXDCLM0285A	04871	2.85	.1122	3	80	46
MXDCLM0290A	04872	2.90	.1142	3	85	47
MXDCLM0295A	04873	2.95	.1161	3	85	48

Metric (mm)	
D1	Tolerance (h7)
1.00- 2.95	+0/- .010

Metric (mm)	
D2	Tolerance (h6)
3.0	+0/- .006

Recommended Cutting Data MPDCS/MXDSR/MXDCR/MXDCL Series - Inch

Workpiece Material Group	I S O	Hardness	Tool Series	T Y P E	D E P T H	vc-SFM	Drill Diameter (mm)					
							0.5	1.0	1.5	2.0	2.5	2.95
							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	MXDSR		5	150	.0005	.0010	.0015	.0020	.0025	.0030
			MPDCS		2	300	-	.0010	.0015	.0020	.0025	.0030
			MXDCR		5		-	.0010	.0015	.0020	.0025	.0030
			MXDCL		12		-	.0010	.0015	.0020	.0025	.0030
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	MXDSR		5	130	.0005	.0010	.0015	.0020	.0025	.0030
			MPDCS		2	300	-	.0010	.0015	.0020	.0025	.0030
			MXDCR		5		-	.0010	.0015	.0020	.0025	.0030
			MXDCL		12		-	.0010	.0015	.0020	.0025	.0030
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	MXDSR		5	120	.0005	.0010	.0015	.0020	.0025	.0030
			MPDCS		2	250	-	.0010	.0015	.0020	.0025	.0030
			MXDCR		5		-	.0010	.0015	.0020	.0025	.0030
			MXDCL		12		-	.0010	.0015	.0020	.0025	.0030
Stainless Steel - Easy to Machine 430F, 301, 303, 410, 416 Annealed, 420F, 430	M	up to 28 Rc	MXDSR		5	140	.0005	.0010	.0015	.0020	.0025	.0030
			MPDCS		2	300	-	.0010	.0015	.0020	.0025	.0030
			MXDCR		5		-	.0010	.0015	.0020	.0025	.0030
			MXDCL		12		-	.0010	.0015	.0020	.0025	.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	MXDSR		5	125	.0005	.0010	.0015	.0020	.0025	.0030
			MPDCS		2	230	-	.0010	.0015	.0020	.0025	.0030
			MXDCR		5		-	.0010	.0015	.0020	.0025	.0030
			MXDCL		12		-	.0010	.0015	.0020	.0025	.0030
Stainless Steel - Difficult to Machine 302B, 304B, 309, 310, 316, 316B, 316L, 316Ti, 317, 317L, 321, PH13-8Mo, Nitronics	M	over 28 Rc	MXDSR		5	60	.0002	.0004	.0007	.0009	.0011	.0014
			MPDCS		2	60	-	.0004	.0007	.0009	.0011	.0014
			MXDCR		5		-	.0004	.0007	.0009	.0011	.0014
			MXDCL		12		-	.0004	.0007	.0009	.0011	.0014
High Temp Alloys Nimonics, Inconel, Monel, Hastelloy, Waspeloy	S	up to 40 Rc	MXDSR		5	60	.0002	.0004	.0007	.0009	.0011	.0014
			MPDCS		2	80	-	.0004	.0007	.0009	.0011	.0014
			MXDCR		5		-	.0004	.0007	.0009	.0011	.0014
			MXDCL		12		-	.0004	.0007	.0009	.0011	.0014
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 40 Rc	MXDSR		5	70	.0005	.0010	.0015	.0020	.0025	.0030
			MPDCS		2	175	-	.0010	.0015	.0020	.0025	.0030
			MXDCR		5		-	.0010	.0015	.0020	.0025	.0030
			MXDCL		12		-	.0010	.0015	.0020	.0025	.0030

Safety Note

Always wear the appropriate personal protective equipment such as safety glasses and protective clothing when using solid carbide or HSS cutting tools. Machines should be fully guarded.

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



Twister® Micro XD

Recommended Cutting Data MPDCS/MXDSR/MXDCR/MXDCL Series - Inch continued

Workpiece Material Group	ISO	Hardness	Tool Series	TYPE	DEPTH	vc-SFM	Drill Diameter (mm)					
							0.5	1.0	1.5	2.0	2.5	2.95
							f - IPR					
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	MXDSR	●	5	150	.0005	.0010	.0015	.0020	.0025	.0030
			MPDCS	●	2							
			MXDCR	●	5	325	-	.0010	.0015	.0020	.0025	.0030
			MXDCL	●	12							
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	MXDSR	●	5	150	.0005	.0010	.0015	.0020	.0025	.0030
			MPDCS	●	2							
			MXDCR	●	5	250	-	.0010	.0015	.0020	.0025	.0030
			MXDCL	●	12							
Hardened Steels A2/52100	H	45 to 55 Rc	MXDSR	●	5	50	.0002	.0004	.0007	.0009	.0011	.0014
			MPDCS	●	2							
			MXDCR	●	5	80	-	.0004	.0007	.0009	.0011	.0014
			MXDCL	●	12							

Recommended Peck Depths For MXDSR Solid Drilling by Diameter*

Diameter	Peck Depth
0.50 mm	.2 x Diameter
1.00 mm	.3 x Diameter
1.50 mm	.6 x Diameter
2.00 mm	.8 x Diameter
2.50 mm	1.0 x Diameter
2.95 mm	3.0 x Diameter

*Peck depths can vary by material type.

Machine Requirements:

High pressure pump system (1,000 psi/68.9 bar)
Coolant filtration of 10 microns or better
Machine runout of .0004" (.01mm) Max.

For best MXDCL performance, the following steps are recommended:

- When Drilling with the MXDCL, drill a pilot hole up to 1.5 x diameter deep using a MPDCS drill.
- Insert MXDCL into pilot hole at a low speed (500-1000 RPM) stopping short of the pilot hole bottom.
- Start coolant flow and increase speed to recommended RPM.
- Under optimal conditions, feed to full depth without pecking. Some cases may require 1-4 pecks to reach full depth.
(to prevent drill whip and corner damage, do not retract all the way out of hole while pecking)
- After reaching desired depth, reduce speed (500-1000 RPM) before retracting from hole.



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

Recommended Cutting Data MPDCS/MXDSR/MXDCR/MXDCL Series - Metric

Workpiece Material Group	ISO	Hardness	Tool Series	TYPE	DEPTH	vc- m/min.	Drill Diameter (mm)					
							0.5	1.0	1.5	2.0	2.5	2.95
							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	MXDSR		5	45	.013	.025	.038	.050	.063	.076
			MPDCS		2	90	-	.025	.038	.050	.063	.076
			MXDCR		5							
			MXDCL		12							
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	MXDSR		5	40	.013	.025	.038	.050	.063	.076
			MPDCS		2	90	-	.025	.038	.050	.063	.076
			MXDCR		5							
			MXDCL		12							
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	MXDSR		5	35	.013	.025	.038	.050	.063	.076
			MPDCS		2	75	-	.025	.038	.050	.063	.076
			MXDCR		5							
			MXDCL		12							
Stainless Steel - Easy to Machine 430F, 301, 303, 410, 416 Annealed, 420F, 430	M	up to 28 Rc	MXDSR		5	40	.013	.025	.038	.050	.063	.076
			MPDCS		2	90	-	.025	.038	.050	.063	.076
			MXDCR		5							
			MXDCL		12							
Stainless Steel - Moderately Difficult 301, 302, 303 High Tensile, 304, 304L, 305, 420, 15-5PH, 17-4PH, 17-7PH	M	up to 28 Rc	MXDSR		5	38	.013	.025	.038	.050	.063	.076
			MPDCS		2	70	-	.025	.038	.050	.063	.076
			MXDCR		5							
			MXDCL		12							
Stainless Steel - Difficult to Machine 302B, 304B, 309, 310, 316, 316B, 316L, 316Ti, 317, 317L, 321, PH13-8Mo, Nitronics	M	over 28 Rc	MXDSR		5	18	.005	.010	.018	.023	.028	.036
			MPDCS		2	18	-	.010	.018	.023	.028	.036
			MXDCR		5							
			MXDCL		12							
High Temp Alloys Nimonic's, Inconel, Monel, Hastelloy' Waspeloy	S	up to 40 Rc	MXDSR		5	18	.005	.010	.018	.023	.028	.036
			MPDCS		2	24	-	.010	.018	.023	.028	.036
			MXDCR		5							
			MXDCL		12							
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 40 Rc	MXDSR		5	20	.013	.025	.038	.050	.063	.076
			MPDCS		2	55	-	.025	.038	.050	.063	.076
			MXDCR		5							
			MXDCL		12							

Safety Note

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Twister® Micro XD

Recommended Cutting Data MPDCS/MXDSR/MXDCR/MXDCL Series - Metric continued

Workpiece Material Group	ISO	Hardness	Tool Series	TYPE	DEPTH	vc-m/min.	Drill Diameter (mm)					
							0.5	1.0	1.5	2.0	2.5	2.95
							f - mm/Rev					
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	MXDSR		5	45	.013	.025	.038	.050	.063	.076
			MPDCS		2	100	-	.025	.038	.050	.063	.076
			MXDCR		5							
			MXDCL		12							
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	MXDSR		5	45	.013	.025	.038	.050	.063	.076
			MPDCS		2	75	-	.025	.038	.050	.063	.076
			MXDCR		5							
			MXDCL		12							
Hardened Steels A2/52100	H	45 to 55 Rc	MXDSR		5	15	.005	.010	.018	.023	.028	.036
			MPDCS		2	25	-	.010	.018	.023	.028	.036
			MXDCR		5							
			MXDCL		12							

Recommended Peck Depths For MXDSR Solid Drilling by Diameter*

Diameter	Peck Depth
0.50 mm	.2 x Diameter
1.00 mm	.3 x Diameter
1.50 mm	.6 x Diameter
2.00 mm	.8 x Diameter
2.50 mm	1.0 x Diameter
2.95 mm	3.0 x Diameter

*Peck depths can vary by material type.

Machine Requirements:

High pressure pump system (1,000 psi/68.9 bar)
Coolant filtration of 10 microns or better
Machine runout of .0004" (.01mm) Max.

For best MXDCL performance, the following steps are recommended:

- When Drilling with the MXDCL, drill a pilot hole up to 1.5 x diameter deep using a MPDCS drill.
- Insert MXDCL into pilot hole at a low speed (500-1000 RPM) stopping short of the pilot hole bottom.
- Start coolant flow and increase speed to recommended RPM.
- Under optimal conditions, feed to full depth without pecking. Some cases may require 1-4 pecks to reach full depth. (to prevent drill whip and corner damage, do not retract all the way out of hole while pecking)
- After reaching desired depth, reduce speed (500-1000 RPM) before retracting from hole.



Made In USA

ISO 9001:2008 Certified

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Also Available:



Twister® Micro-Tuff® Series 305

- Slow helix for efficient metal removal
- Web thinned point sizes 1/32" (.8mm) and above. Below 1/32" (.8mm) 4 facet point, 135° Point
- Solid Carbide
- Diameter range 0.1mm to 3.0mm and #102 (.0039") to 1/8"
- Common Shank, 3X - 10X Drill Lengths
- Available uncoated or with ALtima® Micro coating
- Drill available with color coded depth setting rings upon request



Twister® GP Series 302

- 35° helix
- 130° Point
- Solid Carbide
- Diameter range 0.10mm to 3.15mm and #102 (.0039") to 1/8"
- Common Shank, 3 Drill Length options depending on diameter
- Uncoated
- Drill available with color coded depth setting rings upon request
- An economical micro drilling option



Twister® MD Series 2MDCL

- 15° helix for efficient metal removal
- 140° Point
- Solid Carbide, Coolant Fed
- Diameter range 2.00mm to 2.95mm
- Common Shank, 10X Drill Length
- ALtima® Coated

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