M.A. FORD
High Performance Cutting Tools

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

MADE IN USA

ISO 9001:2015 Certified

M.A. FORD JobShop

Twister® HPD Performance Drills

With & Without Internal Coolant Holes

www.maford.com

M.A. FORD
High Performance Cutting Tools

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

Innovation is what drives us. Actively searching for fresh solutions to new technical and manufacturing challenges that enable our customers to improve productivity, accuracy and performance by relying on M.A.Ford® to deliver.

Our extensive range of tooling and 'Integrated Manufacturing Solutions' has developed and evolved to become a virtual byword for precision and performance. The principles of high precision and high quality extend beyond our tooling and are present in every aspect of M.A.Ford® to ensure customer demands are consistently met at all levels.

Twister® HPD - Performance drilling with economy

When you need great performance with economic pricing, our Twister® HPD family of ALtima® coated drills is the 'go-to' choice for job-shops & small batch machining of steels, stainless steels, cast irons and titanium.

Twister® HPD checklist:

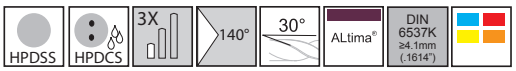
- 3.0mm - 16.0mm diameter inch & metric range
- Through and non-through coolant options
- 3x and 5x diameter flute length as standard
- Self-centering point eliminates spot drilling
- ALtima® coating for high heat resistance
- 45º corner chamfer improves hole break out and protects corner

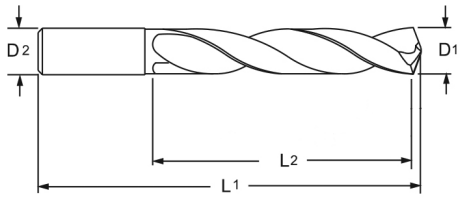
Twister® HPD Performance Drills	Page
Series HPDSS & HPDCS 3xD	3-7
Series HPDSR & HPDCR 5xD	8-12
Technical Information	13-14

www.maford.com sales@maford.com 563-391-6220/800-553-8024

Twister® HPD Performance Drill

Series HPDSS & HPDCS





- Self centering point that eliminates the need for spot drilling.
- 45° corner chamfer angle helps material break out on through hole applications and minimizes burs.
- h7 OD tolerance for precision holes.
- ALtima® Coating provides high toughness with low friction.
- 3X Diameter with solid and coolant through options.
- ≥4.1mm (.1614") manufactured to DIN 6537K.
- h6 Shank OD Tolerance for shrink fit applications.
- Material Applications: Steels, Stainless Steels, Cast Iron and Titanium.
- An economical choice perfect for job shop and batch production work requiring a high performance drill option.
- Max drill depth = L2 - 1.5 x D1

ALtima®				Diameter			Shank	OAL	Flute Length
HPDSS		HPDCS		D1 (h7)			D2 (h6)	L1	L2
Tool No.	EDP	Tool No.	EDP	Inch	mm	Decimal	mm	mm	mm
HPDSS 0300A	19147	HPDCS 0300A	19000	-	3	.1181	3	62	20
HPDSS1200A	19277	HPDCS1200A	19130	#31	-	.1200	4	62	20
HPDSS 0310A	19148	HPDCS 0310A	19001	-	3.1	.1220	4	62	20
HPDSS1250A	19278	HPDCS1250A	19131	1/8	-	.1250	4	62	20
HPDSS 0320A	19149	HPDCS 0320A	19002	-	3.2	.1260	4	62	20
HPDSS1285A	19279	HPDCS1285A	19132	#30	-	.1285	4	62	20
HPDSS 0330A	19150	HPDCS 0330A	19003	-	3.3	.1299	4	62	20
HPDSS 0340A	19151	HPDCS 0340A	19004	-	3.4	.1339	4	62	20
HPDSS1360A	19280	HPDCS1360A	19133	#29	-	.1360	4	62	20
HPDSS 0350A	19152	HPDCS 0350A	19005	-	3.5	.1378	4	62	20
HPDSS 0360A	19153	HPDCS 0360A	19006	-	3.6	.1417	4	62	20
HPDSS 0370A	19154	HPDCS 0370A	19007	-	3.7	.1457	4	62	20
HPDSS 0380A	19155	HPDCS 0380A	19008	-	3.8	.1496	4	66	24
HPDSS 0390A	19156	HPDCS 0390A	19009	-	3.9	.1535	4	66	24
HPDSS1562A	19281	HPDCS1562A	19134	5/32	-	.1562	4	66	24
HPDSS 0400A	19157	HPDCS 0400A	19010	-	4	.1575	4	66	24
HPDSS1590A	19282	HPDCS1590A	19135	#21	-	.1590	6	66	24

TECH
Page 13

Twister® HPD Performance Drill

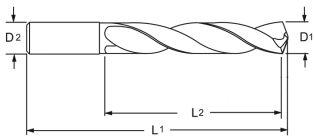
Series HPDSS & HPDCS Continued

ALtima®				Diameter			Shank	OAL	Flute Length
HPDSS		HPDCS		D1 (h7)			D2 (h6)	L1	L2
Tool No.	EDP	Tool No.	EDP	Inch	mm	Decimal	mm	mm	mm
HPDSS 0410A	19158	HPDCS 0410A	19011	-	4.1	.1614	6	66	24
HPDSS 0420A	19159	HPDCS 0420A	19012	-	4.2	.1654	6	66	24
HPDSS 0430A	19160	HPDCS 0430A	19013	-	4.3	.1693	6	66	24
HPDSS 0440A	19161	HPDCS 0440A	19014	-	4.4	.1732	6	66	24
HPDSS 0450A	19162	HPDCS 0450A	19015	-	4.5	.1772	6	66	24
HPDSS 0460A	19163	HPDCS 0460A	19016	-	4.6	.1811	6	66	24
HPDSS 0470A	19164	HPDCS 0470A	19017	-	4.7	.1850	6	66	24
HPDSS1875A	19283	HPDCS1875A	19136	3/16	-	.1875	6	66	28
HPDSS 0480A	19165	HPDCS 0480A	19018	-	4.8	.1890	6	66	28
HPDSS 0490A	19166	HPDCS 0490A	19019	-	4.9	.1929	6	66	28
HPDSS 0500A	19167	HPDCS 0500A	19020	-	5	.1968	6	66	28
HPDSS 0510A	19168	HPDCS 0510A	19021	-	5.1	.2008	6	66	28
HPDSS2031A	19284	HPDCS2031A	19137	13/64	-	.2031	6	66	28
HPDSS 0520A	19169	HPDCS 0520A	19022	-	5.2	.2047	6	66	28
HPDSS 0530A	19170	HPDCS 0530A	19023	-	5.3	.2087	6	66	28
HPDSS 0540A	19171	HPDCS 0540A	19024	-	5.4	.2126	6	66	28
HPDSS 0550A	19172	HPDCS 0550A	19025	-	5.5	.2165	6	66	28
HPDSS2187A	19285	HPDCS2187A	19138	7/32	-	.2187	6	66	28
HPDSS 0560A	19173	HPDCS 0560A	19026	-	5.6	.2205	6	66	28
HPDSS 0570A	19174	HPDCS 0570A	19027	-	5.7	.2244	6	66	28
HPDSS 0580A	19175	HPDCS 0580A	19028	-	5.8	.2283	6	66	28
HPDSS 0590A	19176	HPDCS 0590A	19029	-	5.9	.2323	6	66	28
HPDSS 0600A	19177	HPDCS 0600A	19030	-	6	.2362	6	66	28
HPDSS 0610A	19178	HPDCS 0610A	19031	-	6.1	.2402	8	79	34
HPDSS 0620A	19179	HPDCS 0620A	19032	-	6.2	.2441	8	79	34
HPDSS 0630A	19180	HPDCS 0630A	19033	-	6.3	.2480	8	79	34
HPDSS2500A	19286	HPDCS2500A	19139	1/4	-	.2500	8	79	34
HPDSS 0640A	19181	HPDCS 0640A	19034	-	6.4	.2520	8	79	34
HPDSS 0650A	19182	HPDCS 0650A	19035	-	6.5	.2559	8	79	34
HPDSS2570A	19287	HPDCS2570A	19140	F	-	.2570	8	79	34
HPDSS 0660A	19183	HPDCS 0660A	19036	-	6.6	.2598	8	79	34
HPDSS 0670A	19184	HPDCS 0670A	19037	-	6.7	.2638	8	79	34
HPDSS 0680A	19185	HPDCS 0680A	19038	-	6.8	.2677	8	79	34
HPDSS 0690A	19186	HPDCS 0690A	19039	-	6.9	.2717	8	79	34
HPDSS 0700A	19187	HPDCS 0700A	19040	-	7	.2756	8	79	34
HPDSS 0710A	19188	HPDCS 0710A	19041	-	7.1	.2795	8	79	41
HPDSS2812A	19288	HPDCS2812A	19141	9/32	-	.2812	8	79	41

TECH
Page 13

Twister® HPD Performance Drill

Series HPDSS & HPDCS Continued



ALtima®				Diameter			Shank	OAL	Flute Length
HPDSS		HPDCS		D1 (h7)			D2 (h6)	L1	L2
Tool No.	EDP	Tool No.	EDP	Inch	mm	Decimal	mm	mm	mm
HPDSS 0720A	19189	HPDCS 0720A	19042	-	7.2	.2835	8	79	41
HPDSS 0730A	19190	HPDCS 0730A	19043	-	7.3	.2874	8	79	41
HPDSS 0740A	19191	HPDCS 0740A	19044	-	7.4	.2913	8	79	41
HPDSS 0750A	19192	HPDCS 0750A	19045	-	7.5	.2953	8	79	41
HPDSS 0760A	19193	HPDCS 0760A	19046	-	7.6	.2992	8	79	41
HPDSS 0770A	19194	HPDCS 0770A	19047	-	7.7	.3031	8	79	41
HPDSS 0780A	19195	HPDCS 0780A	19048	-	7.8	.3071	8	79	41
HPDSS 0790A	19196	HPDCS 0790A	19049	-	7.9	.3110	8	79	41
HPDSS3125A	19289	HPDCS3125A	19142	5/16	-	.3125	8	79	41
HPDSS 0800A	19197	HPDCS 0800A	19050	-	8	.3150	8	79	41
HPDSS 0810A	19198	HPDCS 0810A	19051	-	8.1	.3189	10	89	47
HPDSS 0820A	19199	HPDCS 0820A	19052	-	8.2	.3228	10	89	47
HPDSS 0830A	19200	HPDCS 0830A	19053	-	8.3	.3268	10	89	47
HPDSS 0840A	19201	HPDCS 0840A	19054	-	8.4	.3307	10	89	47
HPDSS 0850A	19202	HPDCS 0850A	19055	-	8.5	.3346	10	89	47
HPDSS 0860A	19203	HPDCS 0860A	19056	-	8.6	.3386	10	89	47
HPDSS 0870A	19204	HPDCS 0870A	19057	-	8.7	.3425	10	89	47
HPDSS 0880A	19205	HPDCS 0880A	19058	-	8.8	.3465	10	89	47
HPDSS 0890A	19206	HPDCS 0890A	19059	-	8.9	.3504	10	89	47
HPDSS 0900A	19207	HPDCS 0900A	19060	-	9	.3543	10	89	47
HPDSS 0910A	19208	HPDCS 0910A	19061	-	9.1	.3583	10	89	47
HPDSS 0920A	19209	HPDCS 0920A	19062	-	9.2	.3622	10	89	47
HPDSS 0930A	19210	HPDCS 0930A	19063	-	9.3	.3661	10	89	47
HPDSS 0940A	19211	HPDCS 0940A	19064	-	9.4	.3701	10	89	47
HPDSS 0950A	19212	HPDCS 0950A	19065	-	9.5	.3740	10	89	47
HPDSS3750A	19290	HPDCS3750A	19143	3/8	-	.3750	10	89	47
HPDSS 0960A	19213	HPDCS 0960A	19066	-	9.6	.3780	10	89	47
HPDSS 0970A	19214	HPDCS 0970A	19067	-	9.7	.3819	10	89	47
HPDSS 0980A	19215	HPDCS 0980A	19068	-	9.8	.3858	10	89	47
HPDSS 0990A	19216	HPDCS 0990A	19069	-	9.9	.3898	10	89	47
HPDSS 1000A	19217	HPDCS 1000A	19070	-	10	.3937	10	89	47
HPDSS 1010A	19218	HPDCS 1010A	19071	-	10.1	.3976	12	102	55
HPDSS 1020A	19219	HPDCS 1020A	19072	-	10.2	.4016	12	102	55
HPDSS 1030A	19220	HPDCS 1030A	19073	-	10.3	.4055	12	102	55
HPDSS 1040A	19221	HPDCS 1040A	19074	-	10.4	.4094	12	102	55
HPDSS 1050A	19222	HPDCS 1050A	19075	-	10.5	.4134	12	102	55
HPDSS 1060A	19223	HPDCS 1060A	19076	-	10.6	.4173	12	102	55

Twister® HPD Performance Drill

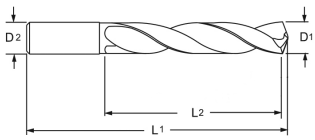
Series HPDSS & HPDCS Continued

ALtima®				Diameter			Shank	OAL	Flute Length
HPDSS		HPDCS		D1 (h7)			D2 (h6)	L1	L2
Tool No.	EDP	Tool No.	EDP	Inch	mm	Decimal	mm	mm	mm
HPDSS 1070A	19224	HPDCS 1070A	19077	-	10.7	.4213	12	102	55
HPDSS 1080A	19225	HPDCS 1080A	19078	-	10.8	.4252	12	102	55
HPDSS 1090A	19226	HPDCS 1090A	19079	-	10.9	.4291	12	102	55
HPDSS 1100A	19227	HPDCS 1100A	19080	-	11	.4331	12	102	55
HPDSS 1110A	19228	HPDCS 1110A	19081	-	11.1	.4370	12	102	55
HPDSS4375A	19291	HPDCS4375A	19144	7/16	-	.4375	12	102	55
HPDSS 1120A	19229	HPDCS 1120A	19082	-	11.2	.4409	12	102	55
HPDSS 1130A	19230	HPDCS 1130A	19083	-	11.3	.4449	12	102	55
HPDSS 1140A	19231	HPDCS 1140A	19084	-	11.4	.4488	12	102	55
HPDSS 1150A	19232	HPDCS 1150A	19085	-	11.5	.4527	12	102	55
HPDSS 1160A	19233	HPDCS 1160A	19086	-	11.6	.4567	12	102	55
HPDSS 1170A	19234	HPDCS 1170A	19087	-	11.7	.4606	12	102	55
HPDSS 1180A	19235	HPDCS 1180A	19088	-	11.8	.4646	12	102	55
HPDSS 1190A	19236	HPDCS 1190A	19089	-	11.9	.4685	12	102	55
HPDSS 1200A	19237	HPDCS 1200A	19090	-	12	.4724	12	102	55
HPDSS 1210A	19238	HPDCS 1210A	19091	-	12.1	.4764	14	107	60
HPDSS 1220A	19239	HPDCS 1220A	19092	-	12.2	.4803	14	107	60
HPDSS 1230A	19240	HPDCS 1230A	19093	-	12.3	.4842	14	107	60
HPDSS 1240A	19241	HPDCS 1240A	19094	-	12.4	.4882	14	107	60
HPDSS 1250A	19242	HPDCS 1250A	19095	-	12.5	.4921	14	107	60
HPDSS 1260A	19243	HPDCS 1260A	19096	-	12.6	.4961	14	107	60
HPDSS5000A	19292	HPDCS5000A	19145	1/2	-	.5000	14	107	60
HPDSS 1280A	19244	HPDCS 1280A	19097	-	12.8	.5039	14	107	60
HPDSS 1290A	19245	HPDCS 1290A	19098	-	12.9	.5079	14	107	60
HPDSS 1300A	19246	HPDCS 1300A	19099	-	13	.5118	14	107	60
HPDSS 1310A	19247	HPDCS 1310A	19100	-	13.1	.5157	14	107	60
HPDSS 1320A	19248	HPDCS 1320A	19101	-	13.2	.5197	14	107	60
HPDSS 1330A	19249	HPDCS 1330A	19102	-	13.3	.5236	14	107	60
HPDSS 1340A	19250	HPDCS 1340A	19103	-	13.4	.5276	14	107	60
HPDSS 1350A	19251	HPDCS 1350A	19104	-	13.5	.5315	14	107	60
HPDSS 1360A	19252	HPDCS 1360A	19105	-	13.6	.5354	14	107	60
HPDSS 1370A	19253	HPDCS 1370A	19106	-	13.7	.5394	14	107	60
HPDSS 1380A	19254	HPDCS 1380A	19107	-	13.8	.5433	14	107	60
HPDSS 1390A	19255	HPDCS 1390A	19108	-	13.9	.5472	14	107	60
HPDSS 1400A	19256	HPDCS 1400A	19109	-	14	.5512	14	107	60
HPDSS 1410A	19257	HPDCS 1410A	19110	-	14.1	.5551	16	115	65
HPDSS 1420A	19258	HPDCS 1420A	19111	-	14.2	.5591	16	115	65

TECH
Page 13

Twister® HPD Performance Drill

Series HPDSS & HPDCS Continued



ALtima®				Diameter			Shank	OAL	Flute Length
HPDSS		HPDCS		D1 (h7)			D2 (h6)	L1	L2
Tool No.	EDP	Tool No.	EDP	Inch	mm	Decimal	mm	mm	mm
HPDSS 1430A	19259	HPDCS 1430A	19112	-	14.3	.5630	16	115	65
HPDSS 1440A	19260	HPDCS 1440A	19113	-	14.4	.5669	16	115	65
HPDSS 1450A	19261	HPDCS 1450A	19114	-	14.5	.5709	16	115	65
HPDSS 1460A	19262	HPDCS 1460A	19115	-	14.6	.5748	16	115	65
HPDSS 1470A	19263	HPDCS 1470A	19116	-	14.7	.5787	16	115	65
HPDSS 1480A	19264	HPDCS 1480A	19117	-	14.8	.5827	16	115	65
HPDSS 1490A	19265	HPDCS 1490A	19118	-	14.9	.5866	16	115	65
HPDSS 1500A	19266	HPDCS 1500A	19119	-	15	.5905	16	115	65
HPDSS 1510A	19267	HPDCS 1510A	19120	-	15.1	.5945	16	115	65
HPDSS 1520A	19268	HPDCS 1520A	19121	-	15.2	.5984	16	115	65
HPDSS 1530A	19269	HPDCS 1530A	19122	-	15.3	.6024	16	115	65
HPDSS 1540A	19270	HPDCS 1540A	19123	-	15.4	.6063	16	115	65
HPDSS 1550A	19271	HPDCS 1550A	19124	-	15.5	.6102	16	115	65
HPDSS 1560A	19272	HPDCS 1560A	19125	-	15.6	.6142	16	115	65
HPDSS 1570A	19273	HPDCS 1570A	19126	-	15.7	.6181	16	115	65
HPDSS 1580A	19274	HPDCS 1580A	19127	-	15.8	.6220	16	115	65
HPDSS6250A	19293	HPDCS6250A	19146	5/8	-	.6250	16	115	65
HPDSS 1590A	19275	HPDCS 1590A	19128	-	15.9	.6260	16	115	65
HPDSS 1600A	19276	HPDCS 1600A	19129	-	16	.6299	16	115	65

TECH
Page 13

Inch	
D1	Tolerance (h7)
.0000 - .1181	+0/-.00039
.1182 - .2362	+0/-.00047
.2363 - .3937	+0/-.00059
.3938 - .6250	+0/-.00071

Inch	
D2	Tolerance (h6)
.0000 - .1181	+0/-.00024
.1182 - .2362	+0/-.00031
.2363 - .3937	+0/-.00035
.3938 - .6250	+0/-.00043

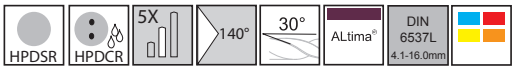
Corner Chamfer Width		
D1	Width Inch	Width mm
3.0 - 4.0	.003 - .007	.076 - .178
4.1 - 6.0	.005 - .009	.127 - .229
6.1 - 8.0	.007 - .012	.178 - .305
8.1 - 10.0	.009 - .015	.229 - .381
10.1 - 12.0	.012 - .018	.305 - .457
12.1 - 16.0	.014 - .020	.355 - .508

Metric (mm)	
D1	Tolerance (h7)
0 - 3	+0/-.010
3.01 - 6	+0/-.012
6.01 - 10.0	+0/-.015
10.01 - 16.0	+0/-.018

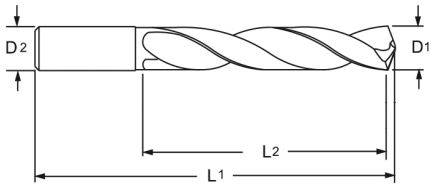
Metric (mm)	
D2	Tolerance (h6)
0 - 3	+0/-.006
3.01 - 6	+0/-.008
6.01 - 10.0	+0/-.009
10.01 - 16.0	+0/-.011

Twister® HPD Performance Drill

Series HPDSR & HPDCR



Designed for high performance drilling in a broad range of materials.



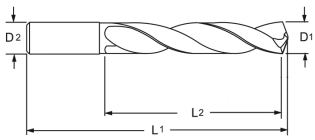
- Self centering point that eliminates the need for spot drilling.
- 45° corner chamfer angle helps material break out on through hole applications and minimizes burs.
- h7 OD tolerance for precision holes.
- ALtima® Coating provides high toughness with low friction.
- 5X Diameter with solid and coolant through options.
- 4.1mm-16.0mm manufactured to DIN 6537L.
- h6 Shank OD Tolerance for shrink fit applications.
- Material Applications: Steels, Stainless Steels, Cast Iron and Titanium.
- An economical choice perfect for job shop and batch production work requiring a high performance drill option.
- Max drill depth = L2 - 1.5 x D1

ALtima®				Diameter			Shank	OAL	Flute Length
HPDSR		HPDCR		D1 (h7)			D2 (h6)	L1	L2
Tool No.	EDP	Tool No.	EDP	Inch	mm	Decimal	mm	mm	mm
HPDSR 0300A	21840	HPDCR 0300A	21700	-	3.0	.1181	3	66	28
HPDSR1200A	21972	HPDCR1200A	21628	#31	-	.1200	4	66	28
HPDSR 0310A	21841	HPDCR 0310A	21701	-	3.1	.1220	4	66	28
HPDSR1250A	21973	HPDCR1250A	21629	1/8	-	.1250	4	66	28
HPDSR 0320A	21842	HPDCR 0320A	21702	-	3.2	.1260	4	66	28
HPDSR1285A	21974	HPDCR1285A	21630	#30	-	.1285	4	66	28
HPDSR 0330A	21843	HPDCR 0330A	21703	-	3.3	.1299	4	66	28
HPDSR 0340A	21844	HPDCR 0340A	21704	-	3.4	.1339	4	66	28
HPDSR1360A	21975	HPDCR1360A	21631	#29	-	.1360	4	66	28
HPDSR 0350A	21845	HPDCR 0350A	21705	-	3.5	.1378	4	66	28
HPDSR 0360A	21846	HPDCR 0360A	21706	-	3.6	.1417	4	66	28
HPDSR 0370A	21847	HPDCR 0370A	21707	-	3.7	.1457	4	66	28
HPDSR 0380A	21848	HPDCR 0380A	21708	-	3.8	.1496	4	74	36
HPDSR 0390A	21849	HPDCR 0390A	21709	-	3.9	.1535	4	74	36
HPDSR1562A	21976	HPDCR1562A	21632	5/32	-	.1562	4	74	36
HPDSR 0400A	21850	HPDCR 0400A	21710	-	4.0	.1575	4	74	36
HPDSR1590A	21977	HPDCR1590A	21633	#21	-	.1590	6	74	36

TECH
Page 14

Twister® HPD Performance Drill

Series HPDSR & HPDCR Continued



ALtima®				Diameter			Shank	OAL	Flute Length
HPDSR		HPDCR		D1 (h7)			D2 (h6)	L1	L2
Tool No.	EDP	Tool No.	EDP	Inch	mm	Decimal	mm	mm	mm
HPDSR 0410A	21851	HPDCR 0410A	21711	-	4.1	.1614	6	74	36
HPDSR 0420A	21852	HPDCR 0420A	21712	-	4.2	.1654	6	74	36
HPDSR 0430A	21853	HPDCR 0430A	21713	-	4.3	.1693	6	74	36
HPDSR 0440A	21854	HPDCR 0440A	21714	-	4.4	.1732	6	74	36
HPDSR 0450A	21855	HPDCR 0450A	21715	-	4.5	.1772	6	74	36
HPDSR 0460A	21856	HPDCR 0460A	21716	-	4.6	.1811	6	74	36
HPDSR 0470A	21857	HPDCR 0470A	21717	-	4.7	.1850	6	74	36
HPDSR1875A	21978	HPDCR1875A	21634	3/16	-	.1875	6	82	44
HPDSR 0480A	21858	HPDCR 0480A	21718	-	4.8	.1890	6	82	44
HPDSR 0490A	21859	HPDCR 0490A	21719	-	4.9	.1929	6	82	44
HPDSR 0500A	21860	HPDCR 0500A	21720	-	5.0	.1968	6	82	44
HPDSR 0510A	21861	HPDCR 0510A	21721	-	5.1	.2008	6	82	44
HPDSR2031A	21979	HPDCR2031A	21635	13/64	-	.2031	6	82	44
HPDSR 0520A	21862	HPDCR 0520A	21722	-	5.2	.2047	6	82	44
HPDSR 0530A	21863	HPDCR 0530A	21723	-	5.3	.2087	6	82	44
HPDSR 0540A	21864	HPDCR 0540A	21724	-	5.4	.2126	6	82	44
HPDSR 0550A	21865	HPDCR 0550A	21725	-	5.5	.2165	6	82	44
HPDSR2187A	21980	HPDCR2187A	21636	7/32	-	.2187	6	82	44
HPDSR 0560A	21866	HPDCR 0560A	21726	-	5.6	.2205	6	82	44
HPDSR 0570A	21867	HPDCR 0570A	21727	-	5.7	.2244	6	82	44
HPDSR 0580A	21868	HPDCR 0580A	21728	-	5.8	.2283	6	82	44
HPDSR 0590A	21869	HPDCR 0590A	21729	-	5.9	.2323	6	82	44
HPDSR 0600A	21870	HPDCR 0600A	21730	-	6.0	.2362	6	82	44
HPDSR 0610A	21871	HPDCR 0610A	21731	-	6.1	.2402	8	91	53
HPDSR 0620A	21872	HPDCR 0620A	21732	-	6.2	.2441	8	91	53
HPDSR 0630A	21873	HPDCR 0630A	21733	-	6.3	.2480	8	91	53
HPDSR2500A	21981	HPDCR2500A	21637	1/4	-	.2500	8	91	53
HPDSR 0640A	21874	HPDCR 0640A	21734	-	6.4	.2520	8	91	53
HPDSR 0650A	21875	HPDCR 0650A	21735	-	6.5	.2559	8	91	53
HPDSR2570A	21982	HPDCR2570A	21638	F	-	.2570	8	91	53
HPDSR 0660A	21876	HPDCR 0660A	21736	-	6.6	.2598	8	91	53
HPDSR 0670A	21877	HPDCR 0670A	21737	-	6.7	.2638	8	91	53
HPDSR 0680A	21878	HPDCR 0680A	21738	-	6.8	.2677	8	91	53
HPDSR 0690A	21879	HPDCR 0690A	21739	-	6.9	.2717	8	91	53
HPDSR 0700A	21880	HPDCR 0700A	21740	-	7.0	.2756	8	91	53
HPDSR 0710A	21881	HPDCR 0710A	21741	-	7.1	.2795	8	91	53
HPDSR2812A	21983	HPDCR2812A	21639	9/32	-	.2812	8	91	53

TECH
Page 14

Twister® HPD Performance Drill

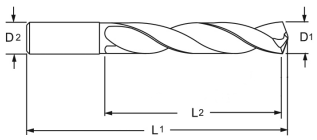
Series HPDSR & HPDCR Continued

ALtima®				Diameter			Shank	OAL	Flute Length
HPDSR		HPDCR		D1 (h7)			D2 (h6)	L1	L2
Tool No.	EDP	Tool No.	EDP	Inch	mm	Decimal	mm	mm	mm
HPDSR 0720A	21882	HPDCR 0720A	21742	-	7.2	.2835	8	91	53
HPDSR 0730A	21883	HPDCR 0730A	21743	-	7.3	.2874	8	91	53
HPDSR 0740A	21884	HPDCR 0740A	21744	-	7.4	.2913	8	91	53
HPDSR 0750A	21885	HPDCR 0750A	21745	-	7.5	.2953	8	91	53
HPDSR 0760A	21886	HPDCR 0760A	21746	-	7.6	.2992	8	91	53
HPDSR 0770A	21887	HPDCR 0770A	21747	-	7.7	.3031	8	91	53
HPDSR 0780A	21888	HPDCR 0780A	21748	-	7.8	.3071	8	91	53
HPDSR 0790A	21889	HPDCR 0790A	21749	-	7.9	.3110	8	91	53
HPDSR3125A	21984	HPDCR3125A	21640	5/16	-	.3125	8	91	53
HPDSR 0800A	21890	HPDCR 0800A	21750	-	8.0	.3150	8	91	53
HPDSR 0810A	21891	HPDCR 0810A	21751	-	8.1	.3189	10	103	61
HPDSR 0820A	21892	HPDCR 0820A	21752	-	8.2	.3228	10	103	61
HPDSR 0830A	21893	HPDCR 0830A	21753	-	8.3	.3268	10	103	61
HPDSR 0840A	21894	HPDCR 0840A	21754	-	8.4	.3307	10	103	61
HPDSR 0850A	21895	HPDCR 0850A	21755	-	8.5	.3346	10	103	61
HPDSR 0860A	21896	HPDCR 0860A	21756	-	8.6	.3386	10	103	61
HPDSR 0870A	21897	HPDCR 0870A	21757	-	8.7	.3425	10	103	61
HPDSR 0880A	21898	HPDCR 0880A	21758	-	8.8	.3465	10	103	61
HPDSR 0890A	21899	HPDCR 0890A	21759	-	8.9	.3504	10	103	61
HPDSR 0900A	21900	HPDCR 0900A	21760	-	9.0	.3543	10	103	61
HPDSR 0910A	21901	HPDCR 0910A	21761	-	9.1	.3583	10	103	61
HPDSR 0920A	21902	HPDCR 0920A	21762	-	9.2	.3622	10	103	61
HPDSR 0930A	21903	HPDCR 0930A	21763	-	9.3	.3661	10	103	61
HPDSR 0940A	21904	HPDCR 0940A	21764	-	9.4	.3701	10	103	61
HPDSR 0950A	21905	HPDCR 0950A	21765	-	9.5	.3740	10	103	61
HPDSR3750A	21985	HPDCR3750A	21641	3/8	-	.3750	10	103	61
HPDSR 0960A	21906	HPDCR 0960A	21766	-	9.6	.3780	10	103	61
HPDSR 0970A	21907	HPDCR 0970A	21767	-	9.7	.3819	10	103	61
HPDSR 0980A	21908	HPDCR 0980A	21768	-	9.8	.3858	10	103	61
HPDSR 0990A	21909	HPDCR 0990A	21769	-	9.9	.3898	10	103	61
HPDSR 1000A	21910	HPDCR 1000A	21770	-	10.0	.3937	10	103	61
HPDSR 1010A	21911	HPDCR 1010A	21771	-	10.1	.3976	12	118	71
HPDSR 1020A	21912	HPDCR 1020A	21772	-	10.2	.4016	12	118	71
HPDSR 1030A	21913	HPDCR 1030A	21773	-	10.3	.4055	12	118	71
HPDSR 1040A	21914	HPDCR 1040A	21774	-	10.4	.4094	12	118	71
HPDSR 1050A	21915	HPDCR 1050A	21775	-	10.5	.4134	12	118	71
HPDSR 1060A	21916	HPDCR 1060A	21776	-	10.6	.4173	12	118	71

TECH
Page 14

Twister® HPD Performance Drill

Series HPDSR & HPDCR Continued

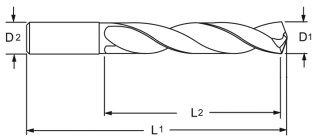


ALtima®				Diameter			Shank	OAL	Flute Length
HPDSR		HPDCR		D1 (h7)			D2 (h6)	L1	L2
Tool No.	EDP	Tool No.	EDP	Inch	mm	Decimal	mm	mm	mm
HPDSR 1070A	21917	HPDCR 1070A	21777	-	10.7	.4213	12	118	71
HPDSR 1080A	21918	HPDCR 1080A	21778	-	10.8	.4252	12	118	71
HPDSR 1090A	21919	HPDCR 1090A	21779	-	10.9	.4291	12	118	71
HPDSR 1100A	21920	HPDCR 1100A	21780	-	11.0	.4331	12	118	71
HPDSR 1110A	21921	HPDCR 1110A	21781	-	11.1	.4370	12	118	71
HPDSR4375A	21986	HPDCR4375A	21642	7/16	-	.4375	12	118	71
HPDSR 1120A	21922	HPDCR 1120A	21782	-	11.2	.4409	12	118	71
HPDSR 1130A	21923	HPDCR 1130A	21783	-	11.3	.4449	12	118	71
HPDSR 1140A	21924	HPDCR 1140A	21784	-	11.4	.4488	12	118	71
HPDSR 1150A	21925	HPDCR 1150A	21785	-	11.5	.4527	12	118	71
HPDSR 1160A	21926	HPDCR 1160A	21786	-	11.6	.4567	12	118	71
HPDSR 1170A	21927	HPDCR 1170A	21787	-	11.7	.4606	12	118	71
HPDSR 1180A	21928	HPDCR 1180A	21788	-	11.8	.4646	12	118	71
HPDSR 1190A	21929	HPDCR 1190A	21789	-	11.9	.4685	12	118	71
HPDSR 1200A	21930	HPDCR 1200A	21790	-	12.0	.4724	12	118	71
HPDSR 1210A	21989	HPDCR 1210A	21645	-	12.1	.4764	14	124	77
HPDSR 1220A	21990	HPDCR 1220A	21646	-	12.2	.4803	14	124	77
HPDSR 1230A	21991	HPDCR 1230A	21647	-	12.3	.4842	14	124	77
HPDSR 1240A	21992	HPDCR 1240A	21648	-	12.4	.4882	14	124	77
HPDSR 1250A	21933	HPDCR 1250A	21793	-	12.5	.4921	14	124	77
HPDSR 1260A	21993	HPDCR 1260A	21649	-	12.6	.4961	14	124	77
HPDSR5000A	21987	HPDCR5000A	21643	1/2	-	.5000	14	124	77
HPDSR 1280A	21935	HPDCR 1280A	21795	-	12.8	.5039	14	124	77
HPDSR 1290A	21994	HPDCR 1290A	21650	-	12.9	.5079	14	124	77
HPDSR 1300A	21939	HPDCR 1300A	21799	-	13.0	.5118	14	124	77
HPDSR 1310A	21995	HPDCR 1310A	21651	-	13.1	.5157	14	124	77
HPDSR 1320A	21996	HPDCR 1320A	21652	-	13.2	.5197	14	124	77
HPDSR 1330A	21997	HPDCR 1330A	21653	-	13.3	.5236	14	124	77
HPDSR 1340A	21998	HPDCR 1340A	21654	-	13.4	.5276	14	124	77
HPDSR 1350A	21940	HPDCR 1350A	21800	-	13.5	.5315	14	124	77
HPDSR 1360A	21999	HPDCR 1360A	21655	-	13.6	.5354	14	124	77
HPDSR 1370A	22000	HPDCR 1370A	21656	-	13.7	.5394	14	124	77
HPDSR 1380A	21945	HPDCR 1380A	21805	-	13.8	.5433	14	124	77
HPDSR 1390A	22001	HPDCR 1390A	21657	-	13.9	.5472	14	124	77
HPDSR 1400A	21950	HPDCR 1400A	21810	-	14.0	.5512	14	124	77
HPDSR 1410A	22002	HPDCR 1410A	21658	-	14.1	.5551	16	133	83
HPDSR 1420A	22003	HPDCR 1420A	21659	-	14.2	.5591	16	133	83

TECH
Page 14

Twister® HPD Performance Drill

Series HPDSR & HPDCR Continued



ALtima®				Diameter			Shank	OAL	Flute Length
HPDSR		HPDCR		D1 (h7)			D2 (h6)	L1	L2
Tool No.	EDP	Tool No.	EDP	Inch	mm	Decimal	mm	mm	mm
HPDSR 1430A	22004	HPDCR 1430A	21660	-	14.3	.5630	16	133	83
HPDSR 1440A	22005	HPDCR 1440A	21661	-	14.4	.5669	16	133	83
HPDSR 1450A	21955	HPDCR 1450A	21815	-	14.5	.5709	16	133	83
HPDSR 1460A	22006	HPDCR 1460A	21662	-	14.6	.5748	16	133	83
HPDSR 1470A	22007	HPDCR 1470A	21663	-	14.7	.5787	16	133	83
HPDSR 1480A	21960	HPDCR 1480A	21820	-	14.8	.5827	16	133	83
HPDSR 1490A	22008	HPDCR 1490A	21664	-	14.9	.5866	16	133	83
HPDSR 1500A	21963	HPDCR 1500A	21823	-	15.0	.5905	16	133	83
HPDSR 1510A	22009	HPDCR 1510A	21665	-	15.1	.5945	16	133	83
HPDSR 1520A	22010	HPDCR 1520A	21666	-	15.2	.5984	16	133	83
HPDSR 1530A	22011	HPDCR 1530A	21667	-	15.3	.6024	16	133	83
HPDSR 1540A	22012	HPDCR 1540A	21668	-	15.4	.6063	16	133	83
HPDSR 1550A	21965	HPDCR 1550A	21825	-	15.5	.6102	16	133	83
HPDSR 1560A	22014	HPDCR 1560A	21669	-	15.6	.6142	16	133	83
HPDSR 1570A	22015	HPDCR 1570A	21670	-	15.7	.6181	16	133	83
HPDSR 1580A	21968	HPDCR 1580A	21828	-	15.8	.6220	16	133	83
HPDSR6250A	21988	HPDCR6250A	21644	5/8	-	.6250	16	133	83
HPDSR 1590A	22016	HPDCR 1590A	21671	-	15.9	.6260	16	133	83
HPDSR 1600A	21970	HPDCR 1600A	21830	-	16.0	.6299	16	133	83

TECH
Page 14

Inch	
D1	Tolerance (h7)
.0000 - .1181	+0/-.00039
.1182 - .2362	+0/-.00047
.2363 - .3937	+0/-.00059
.3938 - .6250	+0/-.00071

Inch	
D2	Tolerance (h6)
.0000 - .1181	+0/-.00024
.1182 - .2362	+0/-.00031
.2363 - .3937	+0/-.00035
.3938 - .6250	+0/-.00043

Corner Chamfer Width		
D1	Width Inch	Width mm
3.0 - 4.0	.003 - .007	.076 - .178
4.1 - 6.0	.005 - .009	.127 - .229
6.1 - 8.0	.007 - .012	.178 - .305
8.1 - 10.0	.009 - .015	.229 - .381
10.1 - 12.0	.012 - .018	.305 - .457
12.1 - 16.0	.014 - .020	.355 - .508

Metric (mm)	
D1	Tolerance (h7)
0 - 3	+0/-.010
3.01 - 6	+0/-.012
6.01 - 10.0	+0/-.015
10.01 - 16.0	+0/-.018

Metric (mm)	
D2	Tolerance (h6)
0 - 3	+0/-.006
3.01 - 6	+0/-.008
6.01 - 10.0	+0/-.009
10.01 - 16.0	+0/-.011

Recommended Cutting Data Series HPDSS / HPDSR 3xD & 5xD, Solid Drilling - Inch

Material Group	ISO	Hardness	Vc - SFM			Drill Diameter (inch)						
						1/8	3/16	1/4	5/16	3/8	1/2	5/8
			Low	Mid	High	Feed (in/rev)						
Low Carbon Steels 12L14, 1018, A36	P	≤ 180 HB	260	**320**	380	.0025 - .0038	.0038 - .0056	.0050 - .0075	.0063 - .0094	.0075 - .0113	.0100 - .0150	.0125 - .0188
Med Carbon / Alloy Steels 1045, 1050, 4140, 4340	P	≤ 38 HRC	210	**260**	310	.0025 - .0038	.0038 - .0056	.0050 - .0075	.0063 - .0094	.0075 - .0113	.0100 - .0150	.0125 - .0188
Die / Tool Steels A2, D2, H13, P20	P	≤ 45 HRC	130	**165**	200	.0019 - .0031	.0028 - .0047	.0038 - .0063	.0047 - .0078	.0056 - .0094	.0075 - .0125	.0094 - .0156
Ferritic / Martensitic Stainless 400 Series	M	≤ 28 HRC	180	**220**	260	.0023 - .0035	.0034 - .0053	.0045 - .0070	.0056 - .0088	.0068 - .0105	.0090 - .0140	.0113 - .0175
Austenitic Stainless 300 Series	M	≤ 28 HRC	100	**120**	140	.0023 - .0035	.0034 - .0053	.0045 - .0070	.0056 - .0088	.0068 - .0105	.0090 - .0140	.0113 - .0175
PH Stainless 15-5 PH, 17-4 PH, 17-7 PH	M	≤ 45 HRC	80	**100**	120	.0016 - .0029	.0024 - .0043	.0033 - .0058	.0041 - .0072	.0049 - .0086	.0065 - .0115	.0081 - .0144
High Temp Alloys Inconel, Hastelloy, Monel	S	≤ 42 HRC	50	**60**	70	.0011- .0018	.0017 - .0026	.0023 - .0035	.0028 - .0044	.0034 - .0053	.0045- .0070	.0056- .0088
Titanium Alloys 6Al-4V	S	≤ 42 HRC	70	**90**	110	.0016 - .0025	.0024 - .0038	.0033 - .0050	.0041- .0063	.0049 - .0075	.0065 - .0100	.0081- .0125
Cast Iron - Gray	K	≤ 240 HB	280	**350**	420	.0031- .0044	.0047- .0066	.0063 - .0088	.0078 - .0109	.0094 - .0131	.0125 - .0175	.0156 - .0219
Cast Iron - Ductile & Malleable	K	> 240 HB	160	**200**	240	.0025 - .0038	.0038 - .0056	.0050 - .0075	.0063 - .0094	.0075 - .0113	.0100 - .0150	.0125 - .0188

Recommended Cutting Data Series HPDSS / HPDSR 3xD & 5xD, Solid Drilling - Metric

Material Group	ISO	Hardness	Vc - M/Min			Drill Diameter (mm)						
						3	5	6	8	10	12	16
			Low	Mid	High	Feed (mm/rev)						
Low Carbon Steels 12L14, 1018, A36	P	≤ 180 HB	80	**100**	120	0.060 - 0.090	0.100 - 0.150	0.120 - 0.180	0.160 - 0.240	0.200 - 0.300	0.240 - 0.360	0.320 - 0.480
Med Carbon / Alloy Steels 1045, 1050, 4140, 4340	P	≤ 38 HRC	65	**80**	95	0.060 - 0.090	0.100 - 0.150	0.120 - 0.180	0.160 - 0.240	0.200 - 0.300	0.240 - 0.360	0.320 - 0.480
Die / Tool Steels A2, D2, H13, P20	P	≤ 45 HRC	40	**50**	60	0.045 - 0.075	0.075 - 0.125	0.090 - 0.150	0.120 - 0.200	0.150 - 0.250	0.180 - 0.300	0.240 - 0.400
Ferritic / Martensitic Stainless 400 Series	M	≤ 28 HRC	50	**65**	80	0.054 - 0.084	0.090 - 0.140	0.108 - 0.168	0.144 - 0.224	0.180 - 0.280	0.216 - 0.336	0.288 - 0.448
Austenitic Stainless 300 Series	M	≤ 28 HRC	30	**35**	40	0.054 - 0.084	0.090 - 0.140	0.108 - 0.168	0.144 - 0.224	0.180 - 0.280	0.216 - 0.336	0.288 - 0.448
PH Stainless 15-5 PH, 17-4 PH, 17-7 PH	M	≤ 45 HRC	25	**30**	35	0.039 - 0.069	0.065 - 0.115	0.078 - 0.138	0.104 - 0.184	0.130 - 0.230	0.156 - 0.276	0.208 - 0.368
High Temp Alloys Inconel, Hastelloy, Monel	S	≤ 42 HRC	15	**20**	25	0.027 - 0.042	0.045 - 0.070	0.054 - 0.084	0.072 - 0.112	0.090 - 0.140	0.108 - 0.168	0.144 - 0.224
Titanium Alloys 6Al-4V	S	≤ 42 HRC	20	**25**	30	0.039 - 0.060	0.065 - 0.100	0.078 - 0.120	0.104 - 0.160	0.130 - 0.200	0.156 - 0.240	0.208 - 0.320
Cast Iron - Gray	K	≤ 240 HB	85	**105**	125	0.075 - 0.105	0.125 - 0.175	0.150 - 0.210	0.200 - 0.280	0.250 - 0.350	0.300 - 0.420	0.400 - 0.560
Cast Iron - Ductile & Malleable	K	> 240 HB	50	**60**	70	0.060 - 0.090	0.100 - 0.150	0.120 - 0.180	0.160 - 0.240	0.200 - 0.300	0.240 - 0.360	0.320 - 0.480

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

Recommended Cutting Data Series HPDCS / HPDCR 3xD & 5xD, Coolant-Fed Drilling- Inch

Material Group	ISO	Hardness	Vc - SFM			Drill Diameter (inch)						
						1/8	3/16	1/4	5/16	3/8	1/2	5/8
			Low	Mid	High	Feed (in/rev)						
Low Carbon Steels 12L14, 1018, A36	P	≤ 180 HB	450	**560**	670	.0025 - .0038	.0038 - .0056	.0050 - .0075	.0063 - .0094	.0075 - .0113	.0100 - .0150	.0125 - .0188
Med Carbon / Alloy Steels 1045, 1050, 4140, 4340	P	≤ 38 HRC	260	**330**	400	.0025 - .0038	.0038 - .0056	.0050 - .0075	.0063 - .0094	.0075 - .0113	.0100 - .0150	.0125 - .0188
Die / Tool Steels A2, D2, H13, P20	P	≤ 45 HRC	160	**200**	240	.0019 - .0031	.0028 - .0047	.0038 - .0063	.0047 - .0078	.0056 - .0094	.0075 - .0125	.0094 - .0156
Ferritic / Martensitic Stainless 400 Series	M	≤ 28 HRC	290	**360**	430	.0023 - .0035	.0034 - .0053	.0045 - .0070	.0056 - .0088	.0068 - .0105	.0090 - .0140	.0113 - .0175
Austenitic Stainless 300 Series	M	≤ 28 HRC	160	**200**	240	.0023 - .0035	.0034 - .0053	.0045 - .0070	.0056 - .0088	.0068 - .0105	.0090 - .0140	.0113 - .0175
PH Stainless 15-5 PH, 17-4 PH, 17-7 PH	M	≤ 45 HRC	140	**180**	220	.0016 - .0029	.0024 - .0043	.0033 - .0058	.0041 - .0072	.0049 - .0086	.0065 - .0115	.0081 - .0144
High Temp Alloys Inconel, Hastelloy, Monel	S	≤ 42 HRC	60	**75**	90	.0011- .0018	.0017 - .0026	.0023 - .0035	.0028 - .0044	.0034 - .0053	.0045- .0070	.0056- .0088
Titanium Alloys 6Al-4V	S	≤ 42 HRC	120	**150**	180	.0016 - .0025	.0024 - .0038	.0033 - .0050	.0041- .0063	.0049 - .0075	.0065 - .0100	.0081- .0125
Cast Iron - Gray	K	≤ 240 HB	370	**460**	550	.0031- .0044	.0047- .0066	.0063 - .0088	.0078 - .0109	.0094 - .0131	.0125 - .0175	.0156 - .0219
Cast Iron - Ductile & Malleable	K	> 240 HB	240	**300**	360	.0025 - .0038	.0038 - .0056	.0050 - .0075	.0063 - .0094	.0075 - .0113	.0100 - .0150	.0125 - .0188

Recommended Cutting Data Series HPDCS / HPDCR 3xD & 5xD, Coolant-Fed Drilling- Metric

Material Group	ISO	Hardness	Vc - M/Min			Drill Diameter (mm)						
						3	5	6	8	10	12	16
			Low	Mid	High	Feed (mm/rev)						
Low Carbon Steels 12L14, 1018, A36	P	≤ 180 HB	135	**170**	205	0.060 - 0.090	0.100 - 0.150	0.120 - 0.180	0.160 - 0.240	0.200 - 0.300	0.240 - 0.360	0.320 - 0.480
Med Carbon / Alloy Steels 1045, 1050, 4140, 4340	P	≤ 38 HRC	80	**100**	120	0.060 - 0.090	0.100 - 0.150	0.120 - 0.180	0.160 - 0.240	0.200 - 0.300	0.240 - 0.360	0.320 - 0.480
Die / Tool Steels A2, D2, H13, P20	P	≤ 45 HRC	50	**60**	70	0.045 - 0.075	0.075 - 0.125	0.090 - 0.150	0.120 - 0.200	0.150 - 0.250	0.180 - 0.300	0.240 - 0.400
Ferritic / Martensitic Stainless 400 Series	M	≤ 28 HRC	90	**110**	130	0.054 - 0.084	0.090 - 0.140	0.108 - 0.168	0.144 - 0.224	0.180 - 0.280	0.216 - 0.336	0.288 - 0.448
Austenitic Stainless 300 Series	M	≤ 28 HRC	50	**60**	70	0.054 - 0.084	0.090 - 0.140	0.108 - 0.168	0.144 - 0.224	0.180 - 0.280	0.216 - 0.336	0.288 - 0.448
PH Stainless 15-5 PH, 17-4 PH, 17-7 PH	M	≤ 45 HRC	45	**55**	65	0.039 - 0.069	0.065 - 0.115	0.078 - 0.138	0.104 - 0.184	0.130 - 0.230	0.156 - 0.276	0.208 - 0.368
High Temp Alloys Inconel, Hastelloy, Monel	S	≤ 42 HRC	20	**25**	30	0.027 - 0.042	0.045 - 0.070	0.054 - 0.084	0.072 - 0.112	0.090 - 0.140	0.108 - 0.168	0.144 - 0.224
Titanium Alloys 6Al-4V	S	≤ 42 HRC	35	**45**	55	0.039 - 0.060	0.065 - 0.100	0.078 - 0.120	0.104 - 0.160	0.130 - 0.200	0.156 - 0.240	0.208 - 0.320
Cast Iron - Gray	K	≤ 240 HB	110	**140**	170	0.075 - 0.105	0.125 - 0.175	0.150 - 0.210	0.200 - 0.280	0.250 - 0.350	0.300 - 0.420	0.400 - 0.560
Cast Iron - Ductile & Malleable	K	> 240 HB	70	**90**	110	0.060 - 0.090	0.100 - 0.150	0.120 - 0.180	0.160 - 0.240	0.200 - 0.300	0.240 - 0.360	0.320 - 0.480

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

www.maford.com sales@maford.com 563-391-6220/800-553-8024

Also available in the M.A. Ford® JobShop Range

Twister® GP Hi-Tuff® Drills

Series 204

Series 205

Series 206

Chamfer Mills

Series 3CH, Series 5CH

TuffCut® XR End Mills

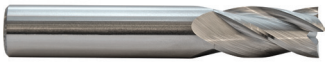
Series 177

Series 178N

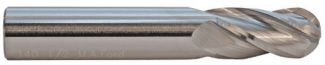
Series 178

Series 179

TuffCut® GP End Mills

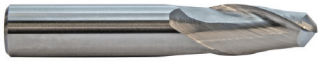


Series 111



Series 140

Series 121



Series 150

M.A. FORD
High Performance Cutting Tools

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

Also available:

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.

⚠ 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.

M.A. Ford® Europe Ltd.
650 City Gate
London Road, Derby
DE24 8WY
United Kingdom

Tel: +44 (0) 1332 267960
Fax: +44 (0) 1332 267969
e-mail: sales@mafordeurope.com
www.mafordeurope.com

M.A. Ford® Mfg. Co., Inc.
7737 Northwest Blvd.

Davenport, IA 52806
USA

Tel: 563-391-6220 or 800-553-8024
e-mail: sales@maford.com
www.maford.com

M.A. Ford® Asia-Pacific Limited

Room 1709, Level 17
Millennium City 2
378 Kwun Tong Road
Kowloon, Hong Kong

Tel: +852-2167-7150
Fax: +852-2167-8150
e-mail: sales@mafordeurope.com

WBHPD21