

Newest Addition

Twister[®]
Micro-Tuff[™]
Micro Drill

**The Tuffness Of The 205
Series Hi-Tuff[®] Drill On A
Micro Drill Platform!**



*Xtreme High Performance Drilling
with Xtended Tool Life*

 **M.A. FORD**
High Performance Cutting Tools

NEW Addition

Twister® Micro-Tuff™

305 Series Micro Drill

Celebrating

92 Years
1919 - 2011

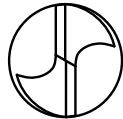
M.A. Ford®

Web-Thinned Point



305

4-Facet Point



302

Features

- Slow Helix for efficient Metal Removal
- ALtima® Micro Coating - Low Friction Coefficient that results in better formation and flow of chips
- Web-Thinned Point for sizes 1/32" (.8mm) and above
Below 1/32" (.8mm) 4 Facet Point
- Solid Carbide
- Diameter Range - 0.3mm to 3.0mm, #83 (.0120") - 1/8"
- Engineered and Produced in the USA

Benefits

- Extended Tool Life
- Elevated Metal Removal Rates (MRR)
- Lower cost Per Hole
- Improved Hole/Part Quality
- Increased Tool Reliability
- Factory Trained Network of Application & Technical Specialists

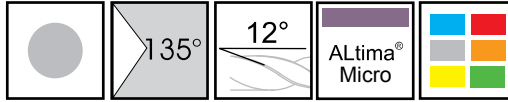
Drill Icon Glossary

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

Coating Properties

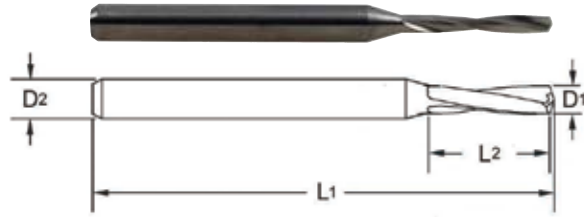
M.A. Ford® Coating	ALtima® Micro
M.A. Ford® Tool Number Designation	AM
Microhardness (HV)	3,300
Maximum Service Temp.	900° C/1652° F
Friction Coefficient	0.30 - 0.35

**Micro-Tuff™
Series 305**



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

- 0.1mm-0.25mm and #101-#84 available Summer 2011.
- Depth setting rings available on 1/8" shank tools.

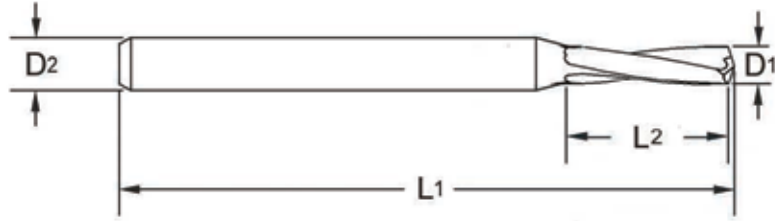
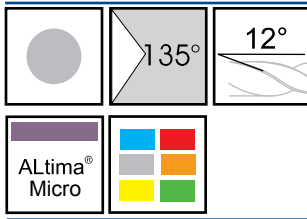


Uncoated		ALtima® Micro		Diameter				Shank		OAL		Flute Length	
				D1				D2		L1		L2	
Tool No.	EDP	Tool No.	EDP	Fraction	Letter/Wire	mm	Decimal	Inch	mm	Inch	mm	Inch	mm
305M0010	34000					0.1	0.0039		3.0		38		1.70
30500430	34001				101		0.0043	1/8		1-1/2			0.065
30500470	34002				100		0.0047	1/8		1-1/2			0.065
30500510	34003				99		0.0051	1/8		1-1/2			0.065
30500550	34004				98		0.0055	1/8		1-1/2			0.065
305M0015	34005					0.15	0.0059		3.0		38		2.50
30500600	34006						0.0060	1/8		1-1/2			0.100
30500630	34007				96		0.0063	1/8		1-1/2			0.100
30500670	34008				95		0.0067	1/8		1-1/2			0.100
30500700	34009						0.0070	1/8		1-1/2			0.100
30500710	34010				94		0.0071	1/8		1-1/2			0.100
30500750	34011				93		0.0075	1/8		1-1/2			0.100
305M0020	34012					0.2	0.0078		3.0		38		2.50
30500790	34013				92		0.0079	1/8		1-1/2			0.125
30500800	34014						0.0080	1/8		1-1/2			0.125
30500830	34015				91		0.0083	1/8		1-1/2			0.125
30500870	34016				90		0.0087	1/8		1-1/2			0.125
30500900	34017						0.0090	1/8		1-1/2			0.125
30500910	34018				89		0.0091	1/8		1-1/2			0.125
30500950	34019				88		0.0095	1/8		1-1/2			0.125
305M0025	34020					0.25	0.0098		3.0		38		3.20
30501000	34021				87		0.0100	1/8		1-1/2			0.150
30501050	34022				86		0.0105	1/8		1-1/2			0.150
30501100	34023				85		0.0110	1/8		1-1/2			0.150
30501150	34024				84		0.0115	1/8		1-1/2			0.150
305M0030	34025	305M0030AM	34206			0.30	0.0118		3.0		38		4.80
30501200	34026	30501200AM	34145		83		0.0120	1/8		1-1/2			0.190
30501250	34027	30501250AM	34146		82		0.0125	1/8		1-1/2			0.190
30501300	34028	30501300AM	34147		81		0.0130	1/8		1-1/2			0.190
30501350	34029	30501350AM	34148		80		0.0135	1/8		1-1/2			0.190
305M0035	34030	305M0035AM	34207			0.35	0.0138		3.0		38		4.80
30501450	34031	30501450AM	34149		79		0.0145	1/8		1-1/2			0.190
30501560	34032	30501560AM	34150	1/64			0.0156	1/8		1-1/2			0.190
305M0040	34033	305M0040AM	34208			0.40	0.0157		3.0		38		4.80
30501600	34034	30501600AM	34151		78		0.0160	1/8		1-1/2			0.190
305M0045	34035	305M0045AM	34209			0.45	0.0177		3.0		38		6.35
30501800	34036	30501800AM	34152		77		0.0180	1/8		1-1/2			0.250
305M0050	34037	305M0050AM	34210			0.50	0.0197		3.0		38		6.35
30502000	34038	30502000AM	34153		76		0.0200	1/8		1-1/2			0.250

Inch			
D1	Tolerance	D2	Tolerance
.0000-.1250	+0/-.0003	.0000-.1250	+0/-.0002
L1	Tolerance	L2	Tolerance
.0000-.1250	+/- .015	.0000-.1250	+ .015/-0

Metric (mm)			
D1	Tolerance	D2	Tolerance
0-3.0	+0/-.008	0-3.0	+0/-.005
L1	Tolerance	L2	Tolerance
0-3.0	+/- .4	0-3.0	+ .4/-0

For product information, call your local distributor.



Uncoated		ALtima® Micro		Diameter				Shank		OAL		Flute Length	
Tool No.	EDP	Tool No.	EDP	D1				D2		L1		L2	
				Fraction	Letter/Wire	mm	Decimal	Inch	mm	Inch	mm	Inch	mm
30502100	34039	30502100AM	34154		75		0.0210	1/8		1-1/2		0.250	
305M0055	34040	305M0055AM	34211			0.55	0.0217		3.0		38		6.35
30502250	34041	30502250AM	34155		74		0.0225	1/8		1-1/2		0.250	
305M0060	34042	305M0060AM	34212			0.60	0.0236		3.0		38		6.35
30502400	34043	30502400AM	34156		73		0.0240	1/8		1-1/2		0.250	
30502500	34044	30502500AM	34157		72		0.0250	1/8		1-1/2		0.250	
305M0065	34045	305M0065AM	34213			0.65	0.0256		3.0		38		6.35
30502600	34046	30502600AM	34158		71		0.0260	1/8		1-1/2		0.250	
305M0070	34047	305M0070AM	34214			0.70	0.0276		3.0		38		8.13
30502800	34048	30502800AM	34159		70		0.0280	1/8		1-1/2		0.320	
30502920	34049	30502920AM	34160		69		0.0292	1/8		1-1/2		0.320	
305M0075	34050	305M0075AM	34215			0.75	0.0295		3.0		38		8.13
30503100	34051	30503100AM	34161		68		0.0310	1/8		1-1/2		0.400	
30503120	34052	30503120AM	34162	1/32			0.0312	1/8		1-1/2		0.400	
305M0080	34053	305M0080AM	34216			0.80	0.0315		3.0		38		10.16
30503200	34054	30503200AM	34163		67		0.0320	1/8		1-1/2		0.400	
30503300	34055	30503300AM	34164		66		0.0330	1/8		1-1/2		0.400	
305M0085	34056	305M0085AM	34217			0.85	0.0335		3.0		38		10.16
30503500	34057	30503500AM	34165		65		0.0350	1/8		1-1/2		0.400	
305M0090	34058	305M0090AM	34218			0.90	0.0354		3.0		38		10.16
30503600	34059	30503600AM	34166		64		0.0360	1/8		1-1/2		0.400	
30503700	34060	30503700AM	34167		63		0.0370	1/8		1-1/2		0.400	
305M0095	34061	305M0095AM	34219			0.95	0.0374		3.0		38		10.16
30503800	34062	30503800AM	34168		62		0.0380	1/8		1-1/2		0.400	
30503900	34063	30503900AM	34169		61		0.0390	1/8		1-1/2		0.400	
305M0100	34064	305M0100AM	34220			1.00	0.0394		3.0		38		10.16
30504000	34065	30504000AM	34170		60		0.0400	1/8		1-1/2		0.400	
30504100	34066	30504100AM	34171		59		0.0410	1/8		1-1/2		0.400	
305M0105	34067	305M0105AM	34221			1.05	0.0413		3.0		38		10.16
30504200	34068	30504200AM	34172		58		0.0420	1/8		1-1/2		0.400	
30504300	34069	30504300AM	34173		57		0.0430	1/8		1-1/2		0.400	
305M0110	34070	305M0110AM	34222			1.10	0.0433		3.0		38		10.16
305M0115	34071	305M0115AM	34223			1.15	0.0452		3.0		38		10.16
30504650	34072	30504650AM	34174		56		0.0465	1/8		1-1/2		0.400	
30504690	34073	30504690AM	34175	3/64			0.0469	1/8		1-1/2		0.400	
305M0120	34074	305M0120AM	34224			1.20	0.0472		3.0		38		10.16
305M0125	34075	305M0125AM	34225			1.25	0.0492		3.0		38		10.16
305M0130	34076	305M0130AM	34226			1.30	0.0511		3.0		38		10.16
30505200	34077	30505200AM	34176		55		0.0520	1/8		1-1/2		0.400	
305M0135	34078	305M0135AM	34227			1.35	0.0531		3.0		38		10.16
30505500	34079	30505500AM	34177		54		0.0550	1/8		1-1/2		0.400	
305M0140	34080	305M0140AM	34228			1.40	0.0551		3.0		38		10.16
305M0145	34081	305M0145AM	34229			1.45	0.0571		3.0		38		10.16
305M0150	34082	305M0150AM	34230			1.50	0.0590		3.0		38		10.16
30505950	34083	30505950AM	34178		53		0.0595	1/8		1-1/2		0.400	
305M0155	34084	305M0155AM	34231			1.55	0.0610		3.0		38		10.16
30506250	34085	30506250AM	34179	1/16			0.0625	1/8		1-1/2		0.480	
305M0160	34086	305M0160AM	34232			1.60	0.0630		3.0		38		12.19
30506350	34087	30506350AM	34180		52		0.0635	1/8		1-1/2		0.480	
305M0165	34088	305M0165AM	34233			1.65	0.0649		3.0		38		12.19
305M0170	34089	305M0170AM	34234			1.70	0.0669		3.0		38		12.19
30506700	34090	30506700AM	34181		51		0.0670	1/8		1-1/2		0.480	

Uncoated		ALtima® Micro		Diameter				Shank		OAL		Flute Length	
				D1				D2		L1		L2	
Tool No.	EDP	Tool No.	EDP	Fraction	Letter/Wire	mm	Decimal	Inch	mm	Inch	mm	Inch	mm
305M0175	34091	305M0175AM	34235			1.75	0.0689		3.0		38		12.19
30507000	34092	30507000AM	34182		50		0.0700	1/8		1-1/2		0.480	
305M0180	34093	305M0180AM	34236			1.80	0.0708		3.0		38		12.19
305M0185	34094	305M0185AM	34237			1.85	0.0728		3.0		38		12.19
30507300	34095	30507300AM	34183		49		0.0730	1/8		1-1/2		0.480	
305M0190	34096	305M0190AM	34238			1.90	0.0748		3.0		38		12.19
30507600	34097	30507600AM	34184		48		0.0760	1/8		1-1/2		0.480	
305M0195	34098	305M0195AM	34239			1.95	0.0767		3.0		38		12.19
30507810	34099	30507810AM	34185	5/64			0.0781	1/8		1-1/2		0.480	
30507850	34100	30507850AM	34186		47		0.0785	1/8		1-1/2		0.480	
305M0200	34101	305M0200AM	34240			2.00	0.0787		3.0		38		12.19
305M0205	34102	305M0205AM	34241			2.05	0.0807		3.0		38		12.19
30508100	34103	30508100AM	34187		46		0.0810	1/8		1-1/2		0.480	
30508200	34104	30508200AM	34188		45		0.0820	1/8		1-1/2		0.480	
305M0210	34105	305M0210AM	34242			2.10	0.0827		3.0		38		12.19
305M0215	34106	305M0215AM	34243			2.15	0.0846		3.0		38		12.19
30508600	34107	30508600AM	34189		44		0.0860	1/8		1-1/2		0.480	
305M0220	34108	305M0220AM	34244			2.20	0.0866		3.0		38		12.19
305M0225	34109	305M0225AM	34245			2.25	0.0886		3.0		38		12.19
30508900	34110	30508900AM	34190		43		0.0890	1/8		1-1/2		0.480	
305M0230	34111	305M0230AM	34246			2.30	0.0906		3.0		38		12.19
305M0235	34112	305M0235AM	34247			2.35	0.0925		3.0		38		12.19
30509350	34113	30509350AM	34191		42		0.0935	1/8		1-1/2		0.480	
30509380	34114	30509380AM	34192	3/32			0.0938	1/8		1-1/2		0.480	
305M0240	34115	305M0240AM	34248			2.40	0.0945		3.0		38		12.19
30509600	34116	30509600AM	34193		41		0.0960	1/8		1-1/2		0.480	
305M0245	34117	305M0245AM	34249			2.45	0.0965		3.0		38		12.19
30509800	34118	30509800AM	34194		40		0.0980	1/8		1-1/2		0.480	
305M0250	34119	305M0250AM	34250			2.50	0.0984		3.0		38		12.19
30509950	34120	30509950AM	34195		39		0.0995	1/8		1-1/2		0.480	
305M0255	34121	305M0255AM	34251			2.55	0.1004		3.0		38		12.19
30510150	34122	30510150AM	34196		38		0.1015	1/8		1-1/2		0.480	
305M0260	34123	305M0260AM	34252			2.60	0.1024		3.0		38		12.19
30510400	34124	30510400AM	34197		37		0.1040	1/8		1-1/2		0.480	
305M0265	34125	305M0265AM	34253			2.65	0.1043		3.0		38		12.19
305M0270	34126	305M0270AM	34254			2.70	0.1063		3.0		38		12.19
30510650	34127	30510650AM	34198		36		0.1065	1/8		1-1/2		0.480	
305M0275	34128	305M0275AM	34255			2.75	0.1083		3.0		38		12.19
30510940	34129	30510940AM	34199	7/64			0.1094	1/8		1-1/2		0.480	
30511000	34130	30511000AM	34200		35		0.1100	1/8		1-1/2		0.480	
305M0280	34131	305M0280AM	34256			2.80	0.1102		3.0		38		12.19
30511100	34132	30511100AM	34201		34		0.1110	1/8		1-1/2		0.480	
305M0285	34133	305M0285AM	34257			2.85	0.1122		3.0		38		12.19
30511300	34134	30511300AM	34202		33		0.1130	1/8		1-1/2		0.480	
305M0290	34135	305M0290AM	34258			2.90	0.1142		3.0		38		12.19
30511600	34136	30511600AM	34203		32		0.1160	1/8		1-1/2		0.480	
305M0295	34137	305M0295AM	34259			2.95	0.1161		3.0		38		12.19
305M0300	34138	305M0300AM	34260			3.00	0.1181		3.0		38		12.19
30512000	34139	30512000AM	34204		31		0.1200	1/8		1-1/2		0.480	
30512500	34143	30512500AM	34205	1/8			0.1250	1/8		1-1/2		0.480	

For product information, call your local distributor.

305 Inch

Recommended Peck Depths by Diameter*

Diameter	Peck Depth
1/64	.5 x Diameter
1/32	1 x Diameter
1/16	1.5 x Diameter
3/32	2 x Diameter
1/8	3 x Diameter

*Peck depths can vary by material type.

Workpiece Material Group		Examples	Series	
			305	305AM
SFM				
Steels	P	Low Carbon Steels 1018	110	150
		Alloy Steels (up to 35 Rc) 4140	90	130
		Alloy Steels (36-45 Rc) 4140	85	120
Austenitic	M	304/316	90	125
Stainless Steels	M	Free Machining 303	110	140
		Ferritic/Martensitic 440C	80	110
Precipitation Hardened Stainless Steels	M	17-4 PH	45	60
Cast Irons	K	Gray Cast Iron A48 Class 20/G4000	110	150
		Ductile Cast Iron A536/60-40-18	110	150
Special Alloys	S	Titanium 6AL-4V	50	70
		High Temp Alloys Inconel/Hastelloy/Waspelloy/Nickel Based Alloys/Monel	45	60
Hardened Steels	H	55 Rc Steel	35	50
Non-Ferrous	N	Plastic	175	
		Aluminum (<10% Si)	175	

Workpiece Material Group	Examples	Tool Diameter					
		1/64	1/32	1/16	3/32	1/8	
IPR							
Steels	P	Low Carbon Steels 1018	.0004	.0008	.0015	.0023	.0030
		Alloy Steels (up to 35 Rc) 4140	.0004	.0008	.0015	.0023	.0030
		Alloy Steels (36-45 Rc) 4140	.0004	.0008	.0015	.0023	.0030
Austenitic	M	304/316	.0004	.0008	.0015	.0023	.0030
Stainless Steels	M	Free Machining 303	.0004	.0008	.0015	.0023	.0030
		Ferritic/Martensitic 440C	.0004	.0008	.0015	.0023	.0030
Precipitation Hardened Stainless Steels	M	17-4 PH	.0002	.0004	.0007	.0011	.0014
Cast Irons	K	Gray Cast Iron A48 Class 20/G4000	.0004	.0008	.0015	.0023	.0030
		Ductile Cast Iron A536/60-40-18	.0004	.0008	.0015	.0023	.0030
Special Alloys	S	Titanium 6AL-4V	.0004	.0008	.0015	.0023	.0030
		High Temp Alloys Inconel/Hastelloy/Waspelloy/Nickel Based Alloys/Monel	.0002	.0004	.0007	.0011	.0014
Hardened Steels	H	55 Rc Steel	.0002	.0004	.0007	.0011	.0014
Non-Ferrous	N	Plastic	.0005	.0010	.0020	.0030	.0040
		Aluminum (<10% Si)	.0005	.0010	.0020	.0030	.0040

305 Metric

Recommended Peck Depths by Diameter*

Diameter	Peck Depth
0.5 mm	.5 x Diameter
1.0 mm	1 x Diameter
1.5 mm	1.5 x Diameter
2.0 mm	2 x Diameter
3.0 mm	3 x Diameter

*Peck depths can vary by material type.

Workpiece Material Group		Examples	Series	
			305	305AM
SMM				
Steels	P	Low Carbon Steels 1018	35	45
		Alloy Steels (up to 35 Rc) 4140	25	40
		Alloy Steels (36-45 Rc) 4140	25	40
Austenitic	M	304/316	25	40
Stainless Steels	M	Free Machining 303	35	45
		Ferritic/Martensitic 440C	25	35
Precipitation Hardened Stainless Steels	M	17-4 PH	15	20
Cast Irons	K	Gray Cast Iron A48 Class 20/G4000	35	45
		Ductile Cast Iron A536/60-40-18	35	45
Special Alloys	S	Titanium 6AL-4V	15	20
		High Temp Alloys Inconel/Hastelloy/Waspelloy/Nickel Based Alloys/Monel		
Hardened Steels	H	55 Rc Steel	10	15
Non-Ferrous	N	Plastic	55	
		Aluminum (<10% Si)	55	

Workpiece Material Group	Examples	Tool Diameter (mm)					
		0.5	1.0	1.5	2.0	3.0	
mm/rev.							
Steels	P	Low Carbon Steels 1018	.010	.020	.040	.060	.075
		Alloy Steels (up to 35 Rc) 4140	.010	.020	.040	.060	.075
		Alloy Steels (36-45 Rc) 4140	.010	.020	.040	.060	.075
Austenitic	M	304/316	.010	.020	.040	.060	.075
Stainless Steels	M	Free Machining 303	.010	.020	.040	.060	.075
		Ferritic/Martensitic 440C	.010	.020	.040	.060	.075
Precipitation Hardened Stainless Steels	M	17-4 PH	.005	.010	.020	.030	.035
Cast Irons	K	Gray Cast Iron A48 Class 20/G4000	.010	.020	.040	.060	.075
		Ductile Cast Iron A536/60-40-18	.010	.020	.040	.060	.075
Special Alloys	S	Titanium 6AL-4V	.010	.020	.040	.060	.075
		High Temp Alloys Inconel/Hastelloy/Waspelloy/Nickel Based Alloys/Monel	.005	.010	.020	.025	.035
Hardened Steels	H	55 Rc Steel	.005	.010	.020	.025	.035
Non-Ferrous	N	Plastic	.015	.025	.050	.075	.100
		Aluminum (<10% Si)	.015	.025	.050	.075	.100

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M.A. Ford® Mfg. Co., Inc.
7737 Northwest Blvd.
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Ph: 563-391-6220 or 800-553-8024
Fax: 563-386-7660 or 800-892-9522
email: sales@maford.com

M.A. Ford® Mfg. Co., Inc.
412 / 412A, Arcadia
Hiranandani Estate,
Thane (W) - 400607
Maharashtra, India
Ph: +91 22 41612222
Fax: +91 22 41612206
email: salesindia@maford.com

M.A. Ford® Europe Ltd.
Unit 38 Royal Scot Road
Pride Park, Derby DE24 8AJ
United Kingdom
Ph: +44 (0) 1332 267960
Fax: +44 (0) 1332 267969
email: sales@mafordeurope.com

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