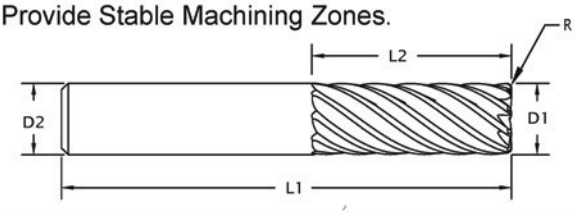
TuffCut® XT9 Series 380

Z9 | 37° | ALtima® Xtreme

- Designed For High Speed Machining Of Titanium, Inconel, And Similar Materials.
- New ALtima® Xtreme (AX) Coating Designed For High Speed Machining And Dry Machining.
- Uneven Number Of Flutes Reduces Harmonics To Provide Stable Machining Zones.

M.A. FORD
High Performance Cutting Tools



Non-Center Cutting

ALtima® Xtreme		Diameter			Shank		OAL		Flute Length		Corner Radius	
		D1			D2 (h6)		L1		L2		R	
Tool No.	EDP	Inch	mm	Decimal	Inch	mm	Inch	mm	Inch	mm	Inch	mm
380M0800-0.5RAX	38042	-	8	.3150	-	8.0	-	63	-	22	-	0.50
380M0800-1.0RAX	38044	-	8	.3150	-	8.0	-	63	-	22	-	1.00
38037511AX	18973	3/8	-	.3750	3/8	-	2-1/2	-	1	-	.010	-
38037512AX	38038	3/8	-	.3750	3/8	-	2-1/2	-	1	-	.015	-
38037513AX	18974	3/8	-	.3750	3/8	-	2-1/2	-	1	-	.020	-
38037514AX	38040	3/8	-	.3750	3/8	-	2-1/2	-	1	-	.030	-
380M1000-0.5RAX	38046	-	10	.3937	-	10.0	-	72	-	27	-	0.50
380M1000-1.0RAX	38048	-	10	.3937	-	10.0	-	72	-	27	-	1.00
380M1200-0.5RAX	38026	-	12	.4724	-	12.0	-	84	-	32	-	0.50
380M1200-1.0RAX	38028	-	12	.4724	-	12.0	-	84	-	32	-	1.00
38050011AX	18975	1/2	-	.5000	1/2	-	3	-	1-1/4	-	.010	-
38050012AX	38000	1/2	-	.5000	1/2	-	3	-	1-1/4	-	.015	-
38050013AX	18976	1/2	-	.5000	1/2	-	3	-	1-1/4	-	.020	-
38050014AX	38002	1/2	-	.5000	1/2	-	3	-	1-1/4	-	.030	-
38050016AX	38004	1/2	-	.5000	1/2	-	3	-	1-1/4	-	.060	-
380L5004AX	38006	1/2	-	.5000	1/2	-	3-1/2	-	1-3/4	-	.030	-
380X5002AX	38081	1/2	-	.5000	1/2	-	4	-	2	-	.015	-
38062512AX	38008	5/8	-	.6250	5/8	-	3-1/2	-	1-1/4	-	.015	-
38062514AX	38010	5/8	-	.6250	5/8	-	3-1/2	-	1-1/4	-	.030	-
38062516AX	38012	5/8	-	.6250	5/8	-	3-1/2	-	1-1/4	-	.060	-
380L6254AX	38014	5/8	-	.6250	5/8	-	4	-	1-7/8	-	.030	-
380M1600-0.5RAX	38030	-	16	.6299	-	16.0	-	92	-	42		0.50
380M1600-1.0RAX	38032	-	16	.6299		16.0	-	92	-	42		1.00
38075012AX	38016	3/4	-	.7500	3/4	-	4	-	1-1/2	-	.015	-
38075014AX	38018	3/4	-	.7500	3/4	-	4	-	1-1/2	-	.030	-
38075016AX	38020	3/4		.7500	3/4		4		1-1/2		.060	
38075018AX	38022	3/4		.7500	3/4		4		1-1/2		.120	
380L7504AX	38024	3/4		.7500	3/4		5		2-1/4		.030	
380M2000-0.5RAX	38034		20	.7874		20.0		104		52		0.50
380M2000-1.0RAX	38036		20	.7874		20.0		104		52		1.00

Inch	
D1	Tolerance
.3750 - .3937	+0/-.0020
>.3937 - 7874	+0/-.0025

Inch	
D2	Tolerance (h6)
.3750 - .3937	+0/-.00035
.3938 - .7087	+0/-.00043
.7088 - .7874	+0/-.00051

mm	
D2	Tolerance (h6)
8.0 - 10.0	+0/-.009
>10.0 - 18.0	+0/-.011
>18.0 - 20.0	+0/-.013

mm	
D1	Tolerance
8.0 - 10.0	+0/-.050
>10.0 - 20.0	+0/-.064

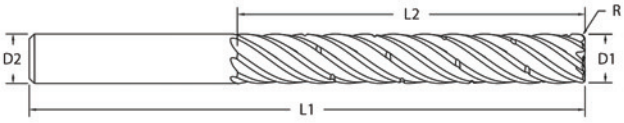
ALtima® Xtreme Coating Properties	
Microhardness (HV)	3800
Max. Service Temp.	1100° C / 2012° F
Friction Coefficient	0.3 - 0.5
Designation	AX
Color	Copper

Phone: 800-553-8024 or 563-391-6220 Email: sales@maford.com www.maford.com

TuffCut® XT9 Series 380CB

M.A. FORD
High Performance Cutting Tools

- Staggered Chipbreaker Technology For Reduced Cutting Forces And Excellent Chip Management.
- Uneven 9 Flute Designed For High Feed Rates With Reduced Harmonics For Stable Machining.
- ALtima® Xtreme Coating Is Excellent For High-Heat And Wear Resistance.



Non-Center Cutting

ALtima® Xtreme		Diameter			Shank		OAL		Flute Length		Corner Radius	
		D1			D2 (h6)		L1		L2		R	
Tool No.	EDP	Inch	mm	Decimal	Inch	mm	Inch	mm	Inch	mm	Inch	mm
380CBM0800-0.5RAX	38050	-	8	.3150	-	8	-	63	-	22	-	0.5
380CBM0800-1.0RAX	38051	-	8	.3150	-	8	-	63	-	22	-	1.0
380CB37511AX	38052	3/8	-	.3750	3/8	-	2-1/2	-	1	-	.010	-
380CB37512AX	38053	3/8	-	.3750	3/8	-	2-1/2	-	1	-	.015	-
380CB37513AX	38054	3/8	-	.3750	3/8	-	2-1/2	-	1	-	.020	-
380CB37514AX	38055	3/8	-	.3750	3/8	-	2-1/2	-	1	-	.030	-
380CBM1000-0.5RAX	38056	-	10	.3937	-	10	-	72	-	27	-	0.5
380CBM1000-1.0RAX	38057	-	10	.3937	-	10	-	72	-	27	-	1.0
380CBM1200-0.5RAX	38058	-	12	.4724	-	12	-	84	-	32	-	0.5
380CBM1200-1.0RAX	38059	-	12	.4724	-	12	-	84	-	32	-	1.0
380CB50011AX	38060	1/2	-	.5000	1/2	-	3	-	1-1/4	-	.010	-
380CB50012AX	38061	1/2	-	.5000	1/2	-	3	-	1-1/4	-	.015	-
380CB50013AX	38062	1/2	-	.5000	1/2	-	3	-	1-1/4	-	.020	-
380CB50014AX	38063	1/2	-	.5000	1/2	-	3	-	1-1/4	-	.030	-
380CB50016AX	38064	1/2	-	.5000	1/2	-	3	-	1-1/4	-	.060	-
380LCB5004AX	38065	1/2	-	.5000	1/2	-	3-1/2	-	1-3/4	-	.030	-
380XCB5002AX	38080	1/2	-	.5000	1/2	-	4	-	5	-	.015	-
380CB62512AX	38066	5/8	-	.6250	5/8	-	3-1/2	-	1-1/4	-	.015	-
380CB62514AX	38067	5/8	-	.6250	5/8	-	3-1/2	-	1-1/4	-	.030	-
380CB62516AX	38068	5/8	-	.6250	5/8	-	3-1/2	-	1-1/4	-	.060	-
380LCB6254AX	38069	5/8	-	.6250	5/8	-	4	-	1-7/8	-	.030	-
380CBM1600-0.5RAX	38070	-	16	.6299	-	16	-	92	-	42	-	0.5
380CBM1600-1.0RAX	38071	-	16	.6299	-	16	-	92	-	42	-	1.0
380CB75012AX	38072	3/4	-	.7500	3/4	-	4	-	1-1/2	-	.015	-
380CB75014AX	38073	3/4	-	.7500	3/4	-	4	-	1-1/2	-	.030	-
380CB75016AX	38074	3/4	-	.7500	3/4	-	4	-	1-1/2	-	.060	-
380CB75018AX	38075	3/4	-	.7500	3/4	-	4	-	1-1/2	-	.120	-
380LCB7504AX	38076	3/4	-	.7500	3/4	-	5	-	2-1/4	-	.030	-
380CBM2000-0.5RAX	38077	-	20	.7874	-	20	-	104	-	52	-	0.5
380CBM2000-1.0RAX	38078	-	20	.7874	-	20	-	104	-	52	-	1.0

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 necesary depending on the particular application.

Phone: 800-553-8024 or 563-391-6220 Email: sales@maford.com www.maford.com

TuffCut® XT9

380/380CB Series Recommended Cutting Data - Profile Milling

Inch

Workpiece Material Group	ISO	Hardness	Coolant • Preferred o Possible x Not Possible			Profiling (ae) 5%	Profiling (ae) 10%	End Mill Diameter (inch) 3/8	1/2	5/8	3/4
						2.3	1.67	← Multiply fz by this Factor based on ae. When finishing, use the standard fz per chart below. Only add chip thinning when roughing or semi-finishing.			
			Max.	Air	MMS	vc - SFM		fz - in/tooth			
Low Carbon Steels 1018, 1020	P	up to 28 Rc	•	•	•	1475	1150	.0039	.0047	.0060	.0078
Medium Carbon Steels 1140, 1145	P	28 to 38 Rc	•	•	•	1130	900	.0039	.0047	.0060	.0078
Alloy Steels 4140, 4145	P	28 to 44 Rc	•	•	•	1035	840	.0039	.0047	.0060	.0078
Die / Tool Steels A2, D2, H13, P20	P	28 to 44 Rc	•	•	•	900	725	.0039	.0047	.0060	.0078
Stainless Steel - Easy to Machine 430F, 301, 303, 410, 416 Annealed, 420F, 430	M	up to 28 Rc	•	x	o	675	545	.0015-.0020	.0020-.0031	.0020-.0033	.0022-.0035
Stainless Steel - Austenitic 301, 302, 303 High Tensile, 304, 304L, 305, 420, 15-5PH, 17-4PH, 17-7PH	M	up to 28 Rc	•	x	o	525	430	.0015-.0020	.0020-.0031	.0020-.0033	.0022-.0035
Stainless Steel - Difficult to Machine 302B, 304B, 309, 310, 316, 316B, 316L, 316Ti, 317, 317L, 321	M	up to 28 Rc	•	x	o	410	330	.0015-.0020	.0020-.0031	.0020-.0033	.0022-.0035
Stainless Steel - Difficult to Machine 17-4 PH, PH13-8Mo, Nitronics	M	over 28 Rc	•	x	o	525	430	.0015-.0020	.0020-.0031	.0020-.0033	.0022-.0035
Cobalt Chrome Alloys	M		•	x	o	410	325	.0020	.0031	.0033	.0035
Duplex (22%)	M		•	x	o	245	195	.0020	.0031	.0033	.0035
Super Duplex (25%)	M		•	x	o	245	195	.0020	.0031	.0033	.0035
High Temp Alloys	S	up to 42 Rc	•	x	x	180	150	.0015-.0020	.0020-.0031	.0020-.0033	.0022-.0035
Inconel	S		•	x	x	180	150	.0010-.0016	.0010-.0016	.0010-.0017	.0011-.0018
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	•	x	x	375	350	.0010-.0016	.0010-.0016	.0010-.0017	.0011-.0018
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	•	o	o	1625	1295	.0039	.0047	.0060	.0078
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	•	o	o	675	540	.0031	.0039	.0047	.0078
Hardened Steels	H	40-50 Rc	•	o	o	610	495	.0024	.0030	.0040	.0048
Hardened Steels	H	50-55 Rc	•	o	o	510	410	.0016	.0018	.0024	.0028
Hardened Steels	H	>55 Rc	•	o	o	330	310	.0010	.0015	.0018	.0021

Spindle Maximum - Should the calculated spindle speed be more than your actual spindle maximum, use this formula: (Calculated Feed x Spindle Maximum)/Calculated Speed.

⚠ **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.

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

Phone: 800-553-8024 or 563-391-6220 Email: sales@maford.com www.maford.com

TuffCut® XT9

380/380CB Series Recommended Cutting Data - Profile Milling

Metric

Workpiece Material Group	ISO	Hardness	Coolant • Preferred o Possible x Not Possible			Profiling (ae)		End Mill Diameter (mm)				
						5%	10%	8	10	12	16	20
						2.3	1.67	← Multiply fz by this Factor based on ae. When finishing, use the standard fz per chart below. Only add chip thinning when roughing or semi-finishing.				
			Max.	Air	MMS	vc - m/min		fz - mm/tooth				
Low Carbon Steels 1018, 1020	P	up to 28 Rc	•	•	•	450	350	.0800	.1000	.1100	.1500	.2540
Medium Carbon Steels 1140, 1145	P	28 to 38 Rc	•	•	•	345	275	.0800	.1000	.1100	.1500	.2540
Alloy Steels 4140, 4145	P	28 to 44 Rc	•	•	•	315	255	.0800	.1000	.1100	.1500	.2540
Die / Tool Steels A2, D2, H13, P20	P	28 to 44 Rc	•	•	•	275	220	.0800	.1000	.1100	.1500	.2540
Stainless Steel - Easy to Machine 430F, 301, 303, 410, 416 Annealed, 420F, 430	M	up to 28 Rc	•	x	o	205	165	.030-.040	.038-.050	.050-.078	.050-.083	.060-.099
Stainless Steel - Austenitic 301, 302, 303 High Tensile, 304, 304L, 305, 420, 15-5PH, 17-4PH, 17-7PH	M	up to 28 Rc	•	x	o	160	130	.030-.040	.038-.050	.050-.078	.050-.083	.060-.099
Stainless Steel - Difficult to Machine 302B, 304B, 309, 310, 316, 316B, 316L, 316Ti, 317, 317L, 321	M	up to 28 Rc	•	x	o	125	100	.030-.040	.038-.050	.050-.078	.050-.083	.060-.099
Stainless Steel - Difficult to Machine 17-4 PH, PH13-8Mo, Nitronics	M	over 28 Rc	•	x	o	160	130	.030-.040	.038-.050	.050-.078	.050-.083	.060-.099
Cobalt Chrome Alloys	M		•	x	o	125	100	.0400	.0500	.0780	.0830	.0990
Duplex (22%)	M		•	x	o	75	60	.0400	.0500	.0780	.0830	.0990
Super Duplex (25%)	M		•	x	o	75	60	.0400	.0500	.0780	.0830	.0990
High Temp Alloys	S	up to 42 Rc	•	x	x	55	45	.020-.030	.025-.040	.025-.040	.025-.043	.030-.050
Inconel	S		•	x	x	55	45	.020-.030	.025-.040	.025-.040	.025-.043	.030-.050
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	•	x	x	115	105	.020-.030	.025-.040	.050-.078	.050-.083	.030-.050
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	•	o	o	495	395	.0800	.1000	.1100	.1500	.2540
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	•	o	o	205	165	.0650	.0800	.1100	.1500	.2540
Hardened Steels	H	40-50 Rc	•	o	o	185	150	.0500	.0600	.1016	.1168	.1524
Hardened Steels		50-55 Rc	•	o	o	155	125	.0300	.0400	.0610	.0762	.0889
Hardened Steels		>55 Rc	•	o	o	100	95	.0200	.0250	.0457	.0559	.0635

Spindle Maximum - Should the calculated spindle speed be more than your actual spindle maximum, use this formula: (Calculated Feed x Spindle Maximum)/Calculated Speed.

Made in USA

ISO 9001:2015 Certified

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

WB3802021

Phone: 800-553-8024 or 563-391-6220 Email: sales@maford.com www.maford.com