

# TuffCut® GP

*Workhorse* End Mill

NEW



The IDEAL TOOL for Every Job Shop!

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

WORKHORSE

The  
IDEAL TOOL  
for Every  
Job Shop!

# TuffCut<sup>®</sup> GP

*Workhorse* End Mill



## Series 116/169

### *Reliable, Profitable and Efficient*

M. A. Ford's TuffCut<sup>®</sup> GP Workhorse mill excels without sophisticated balancing equipment or shrink fit holders to work and generate profits on all milling machines.

- Produce long cuts at reasonable speeds on everyday equipment.
- Exceptional tool life at moderate speeds and feeds.
- Performs well in all materials including, Stainless Steel, Inconel and Stellite.
- Ideal for long cuts requiring accuracy and minimal tool wear deflection.
- Proven for use in unmanned machining operations.
- .01, .02 and .03 corner radii offered standard for maximum tool life.
- 30 degree helix for maximum strength.
- TiCN coated.
- Available in both stub and standard length.
- Also recommended for more aggressive machining on today's CNC machine tools.
- Special sizes available on requests.

*Reliable*

*Profitable*

*Efficient*

For product information, call your local distributor.

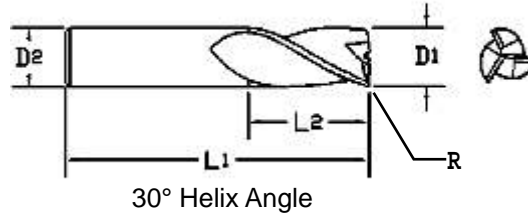
M.A. Ford phone: (800) 553-8024 • [www.maford.com](http://www.maford.com) • e-mail: [sales@maford.com](mailto:sales@maford.com)





**Series 116**  
Three Flute  
Standard Length

**Series 169**  
Three Flute  
Stub Length



*Bred for all types  
of machines  
and materials*



Tool Number	EDP	D1		D2	L2	R	L1
		Fraction	Decimal				
16912508C	16978	1/8	.1250	1/8	1/4	0.01	1-1/2
11612508C	11695	1/8	.1250	1/8	1/2	0.01	1-1/2
16915628C	16979	5/32	.1562	3/16	5/16	0.01	2
11615628C	11696	5/32	.1562	3/16	9/16	0.01	2
16918758C	16980	3/16	.1875	3/16	3/8	0.01	2
11618758C	11697	3/16	.1875	3/16	9/16	0.01	2
16921872C	16981	7/32	.2187	1/4	1/2	0.02	2
11621872C	11698	7/32	.2187	1/4	3/4	0.02	2-1/2
16925002C	16982	1/4	.2500	1/4	1/2	0.02	2
11625002C	11699	1/4	.2500	1/4	3/4	0.02	2-1/2
16928122C	11381	9/32	.2812	5/16	1/2	0.02	2
11628122C	11468	9/32	.2812	5/16	3/4	0.02	2-1/2
16931252C	16983	5/16	.3125	5/16	1/2	0.02	2
11631252C	11469	5/16	.3125	5/16	13/16	0.02	2-1/2
16934382C	16984	11/32	.3438	3/8	1/2	0.02	2
11634382C	11500	11/32	.3438	3/8	7/8	0.02	2-1/2
16937502C	16985	3/8	.3750	3/8	9/16	0.02	2
11637502C	11369	3/8	.3750	3/8	7/8	0.02	2-1/2
16940622C	16986	13/32	.4062	7/16	9/16	0.02	2-1/2
11640622C	11370	13/32	.4062	7/16	1	0.02	2-3/4
16943752C	16987	7/16	.4375	7/16	5/8	0.02	2-1/2
11643752C	11382	7/16	.4375	7/16	1	0.02	2-3/4
16946882C	16988	15/32	.4688	1/2	1/2	0.02	2-1/2
11646882C	11383	15/32	.4688	1/2	1-1/4	0.02	3
16950002C	16989	1/2	.5000	1/2	5/8	0.02	2-1/2
16950003C	16990	1/2	.5000	1/2	5/8	0.03	2-1/2
11650002C	11371	1/2	.5000	1/2	1-1/4	0.02	3
11650003C	11372	1/2	.5000	1/2	1-1/4	0.03	3
16962502C	16991	5/8	.6250	5/8	3/4	0.02	3
16962503C	16992	5/8	.6250	5/8	3/4	0.03	3
11662502C	11373	5/8	.6250	5/8	1-5/8	0.02	3-1/2
11662503C	11374	5/8	.6250	5/8	1-5/8	0.03	3-1/2
16975002C	16993	3/4	.7500	3/4	1	0.02	3
16975003C	16994	3/4	.7500	3/4	1	0.03	3
11675002C	11375	3/4	.7500	3/4	1-1/2	0.02	4
11675003C	11376	3/4	.7500	3/4	1-1/2	0.03	4
11610002C	11379	1	1.0000	1	1-1/2	0.02	4
11610003C	11380	1	1.0000	1	1-1/2	0.03	4
11610012C	11377	1	1.0000	1	2	0.02	4
11610013C	11378	1	1.0000	1	2	0.03	4

INCH	
D1	Tolerance
1/8 -1/4	+ .000/- .002
>1/4	+ .000/- .003

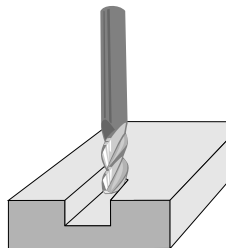
- All tools center cutting.
- Non radii tools available. See full line catalog pgs. 173-175.
- See back cover for feeds and speeds.



# TuffCut® End Mills

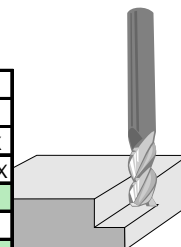
The  
IDEAL TOOL  
for Every  
Job Shop!

## Workhorse End Mill Speeds and Feeds



Steel	
Material Type	SFM
Low Carbon	275
Medium Carbon	205
Alloyed	185
Tool	230

Tool Diameter	Inches Per Tooth			
	Slotting		Side Milling	Side Milling
	Axial Depth .5X	Axial Depth 1X	Axial Depth 1.5X	Axial Depth 1.5X
			Radial Depth .1X	Radial Depth .25X
1/16	.0002 - .0004	.0001 - .0003	.0004 - .0006	.0001 - .0003
1/8	.0005 - .0008	.0003 - .0005	.0008 - .0010	.0002 - .0004
3/16	.0007 - .0011	.0006 - .0010	.0009 - .0015	.0005 - .0009
1/4	.0009 - .0015	.0007 - .0012	.0013 - .0030	.0008 - .0015
5/16	.0011 - .0018	.0008 - .0013	.0020 - .0035	.0011 - .0018
3/8	.0015 - .0020	.0009 - .0015	.0024 - .0044	.0014 - .0022
1/2	.0017 - .0028	.0013 - .0022	.0030 - .0046	.0020 - .0033
5/8	.0020 - .0032	.0017 - .0027	.0035 - .0057	.0026 - .0043
3/4	.0023 - .0038	.0019 - .0031	.0043 - .0065	.0032 - .0053
1	.0032 - .0053	.0026 - .0043	.0050 - .0086	.0040 - .0062



Stainless Steel/ High Temp Alloys	
Material Type	SFM
303 / 416	290
304	190
440	155
15-5 PH	125
High temp nickel base alloys	85-100

Tool Diameter	Inches Per Tooth			
	Slotting		Side Milling	Side Milling
	Axial Depth .5X	Axial Depth 1X	Axial Depth 1.5X	Axial Depth 1.5X
			Radial Depth .1X	Radial Depth .25X
1/16	.0002 - .0004	.0001 - .0003	.0004 - .0006	.0001 - .0003
1/8	.0005 - .0008	.0003 - .0005	.0008 - .0010	.0002 - .0004
3/16	.0007 - .0011	.0006 - .0010	.0009 - .0015	.0005 - .0009
1/4	.0009 - .0015	.0007 - .0012	.0013 - .0030	.0008 - .0015
5/16	.0011 - .0018	.0008 - .0013	.0020 - .0035	.0011 - .0018
3/8	.0015 - .0020	.0009 - .0015	.0024 - .0044	.0014 - .0022
1/2	.0017 - .0028	.0013 - .0022	.0030 - .0046	.0020 - .0033
5/8	.0020 - .0032	.0017 - .0027	.0035 - .0057	.0026 - .0043
3/4	.0023 - .0038	.0019 - .0031	.0043 - .0065	.0032 - .0053
1	.0032 - .0053	.0026 - .0043	.0050 - .0086	.0040 - .0062

Cast Iron	
Material Type	SFM TiCN
Class 20	450
Pearlitic	425
Nodular	450
Malleable	450

Tool Diameter	Inches Per Tooth			
	Slotting		Side Milling	Side Milling
	Axial Depth .5X	Axial Depth 1X	Axial Depth 1.5X	Axial Depth 1.5X
			Radial Depth .1X	Radial Depth .25X
1/16	.0002 - .0004	.0001 - .0003	.0004 - .0006	.0001 - .0003
1/8	.0005 - .0008	.0003 - .0005	.0008 - .0010	.0002 - .0004
3/16	.0007 - .0011	.0006 - .0010	.0009 - .0015	.0005 - .0009
1/4	.0009 - .0015	.0007 - .0012	.0013 - .0030	.0008 - .0015
5/16	.0011 - .0018	.0008 - .0013	.0020 - .0035	.0011 - .0018
3/8	.0015 - .0020	.0009 - .0015	.0024 - .0044	.0014 - .0022
1/2	.0017 - .0028	.0013 - .0022	.0030 - .0046	.0020 - .0033
5/8	.0020 - .0032	.0017 - .0027	.0035 - .0057	.0026 - .0043
3/4	.0023 - .0038	.0019 - .0031	.0043 - .0065	.0032 - .0053
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