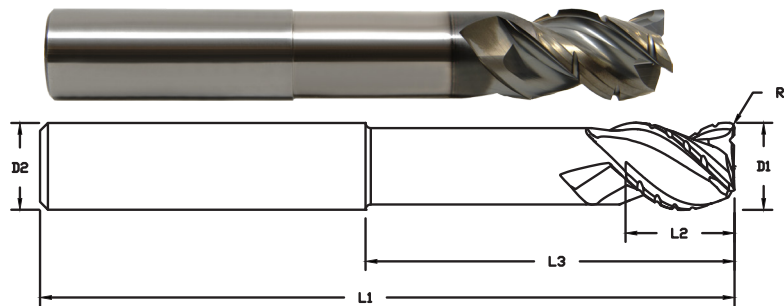


**NEW**

**TuffCut® XR-AL  
Series 334**



- Enhanced flute design for improved chip control and reduced cutting forces
- Chipbreaker design provides better part finish than a traditional knuckle rougher and aids in chip management
- Variable helix strengthens the tool corner reducing the chance of a chipped corner
- Manufactured from premium grade ultrafine carbide material for extended tool life



**XR-AL:  
Xtreme Roughing  
for ALuminum**

Gem+ Coating		Diameter		Shank	OAL	Flute Length	Neck Length	Corner Radius
Tool No.	EDP	D1	Decimal	D2	L1	L2	L3	R
33425000R.020GP	33400	1/4	.2500	1/4	2	1/2		.020
33425010R.020GP	33404	1/4	.2500	1/4	2-1/2	3/4		.020
33437500R.020GP	33408	3/8	.3750	3/8	2	5/8		.020
33437510R.020GP	33412	3/8	.3750	3/8	2-1/2	1		.020
33450000R.030GP	33416	1/2	.5000	1/2	3	5/8		.030
33450010R.030GP	33419	1/2	.5000	1/2	3	1		.030
33450020R.030GP	33423	1/2	.5000	1/2	3	1-1/4		.030
3345000N4R.030GP	33428	1/2	.5000	1/2	4	5/8	2-1/8	.030
334625010R.030GP	33430	5/8	.6250	5/8	3-1/2	1-1/4		.030
33475000R.030GP	33432	3/4	.7500	3/4	4	1		.030
33475010R.030GP	33434	3/4	.7500	3/4	4	1-5/8		.030
33475000N4R.030GP	33436	3/4	.7500	3/4	5	1	3	.030
33410010R.030GP	33439	1	1.0000	1	4	1-1/2		.030

Inch	
D1	Tolerance
.2500 - 1.0000	+0/- .0005

Inch	
D2	Tolerance (h6)
.2500 - .3937	+0/- .00035
.3938 - .7087	+0/- .00043
.7088 - 1.0000	+0/- .00051

**Gem+ Coating (GP):**  
Recommended for aluminum and aluminum alloys, non-ferrous metals and composites. Gem+ provides excellent wear resistance and maintains sharp cutting edges.

Gem+ Coating Properties	
Microhardness (HV)	4710
Max. Service Temperature	500°C / 932°F
Friction Coefficient	0.30
M.A. Ford® Tool Designation Number	GP



WB3342017R1

**⚠ 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](http://www.P65Warnings.ca.gov).

**For More Information Contact:**  
**M.A. Ford Mfg. Co., Inc.**  
**7737 Northwest Blvd.**  
**Davenport IA 52806**  
**800-553-8024/563-391-6220**  
**sales@maford.com**  
**www.maford.com**



## TuffCut® XR-AL

### 334 Series Recommended Cutting Data - Profile Milling Inch

Workpiece Material Group	ISO	Coolant • Preferred 	Profile Milling (ap)		
			1 x D	1.5 x D	2 x D
		Max.	vc - SFM		
Non-Ferrous - Aluminum	N	•	2000-2500	1750-2000	1250-1750
Non-Ferrous - Aluminum Cast	N	•	1600-2000	1400-1600	1000-1400
Non-Ferrous - Brass Yellow/Red	N	•	750-1250	500-1000	400-800
Non-Ferrous - Bronze, Aluminum Bronze	N	•	500-1000	400-800	300-600
Non-Ferrous - Copper	N	•	1500-2000	1250-1500	800-1200



Made in USA

**ISO 9001:2008 Certified**



Diameter	1/4	1/4	3/8	3/8	1/2	1/2	5/8	5/8	3/4	3/4	1	1
Max. ae	30%	50%	30%	50%	30%	50%	30%	50%	30%	50%	30%	50%
fz=in/tooth	.008	.006	.012	.009	.016	.012	.018	.013	.020	.015	.024	.018

### 334 Series Recommended Cutting Data - Slotting Inch

Workpiece Material Group	ISO	Coolant • Preferred 	Slotting (ap)	
			.5 x D	1 x D
		Max.	vc - SFM	
Non-Ferrous - Aluminum	N	•	1750-2000	1250-1750
Non-Ferrous - Aluminum Cast	N	•	1400-1600	1000-1400
Non-Ferrous - Brass Yellow/Red	N	•	500-1000	400-800
Non-Ferrous - Bronze, Aluminum Bronze	N	•	400-800	300-600
Non-Ferrous - Copper	N	•	1250-1500	800-1000

#### 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.

Diameter	1/4	1/4	3/8	3/8	1/2	1/2	5/8	5/8	3/4	3/4	1	1
Max. ap	50%	100%	50%	100%	50%	100%	50%	100%	50%	100%	50%	100%
fz=in/tooth	.008	.005	.012	.008	.020	.010	.022	.012	.025	.015	.030	.020

Spindle Maximum - Should the calculated spindle speed be more than your actual spindle maximum, use this formula:  
 (Calculated Feed x Spindle Maximum)/Calculated Speed. Above 20,000 RPM, tool balancing required.  
 Technical data provided should be considered advisory only as variations may be necessary depending on the particular application.