

# TuffCut® 3D Series XFO-AL

## Recommended Speeds Cutting Data - Inch

Recommended Speeds by Material Group					Finishing	Semi-Finishing	
Workpiece Material Group	Material Type	Stock Allowance 			.01-.03 x D	.05-.07 x D	
		Coolant			Vc-SFM		
		Emulsion	Air	MQL			
Aluminum	N	Wrought (≤ 10% Si)	●	X	○	2000	1900
		Cast (> 10% Si)	●	X	○	1710	1610

● Preferred ○ Possible X Not Possible

## Recommended Feeds Cutting Data - Inch

Recommended Feeds by Material Group		Tool Diameter								
Workpiece Material Group	Material Type	.2362		.3150		.3937		.4724		
		Semi Finish	Finish	Semi Finish	Finish	Semi Finish	Finish	Semi Finish	Finish	
		Fz - in/tooth								
Aluminum	N	Wrought (≤ 10% Si)	.0024	.0015	.0032	.0020	.0039	.0026	.0047	.0031
		Cast (> 10% Si)	.0024	.0015	.0032	.0020	.0039	.0026	.0047	.0031

## Recommended Speeds Cutting Data - Metric

Recommended Speeds by Material Group					Finishing	Semi-Finishing	
Workpiece Material Group	Material Type	Stock Allowance 			.01-.03 x D	.05-.07 x D	
		Coolant			Vc - M/Min		
		Emulsion	Air	MQL			
Aluminum	N	Wrought (≤ 10% Si)	●	X	○	610	580
		Cast (> 10% Si)	●	X	○	520	490

● Preferred ○ Possible X Not Possible

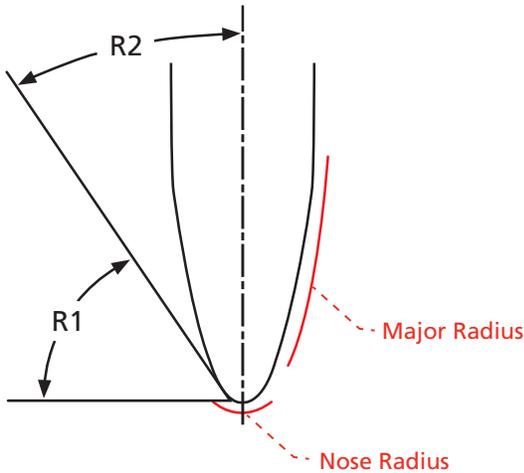
## Recommended Feeds Cutting Data - Metric

Recommended Feeds by Material Group		Tool Diameter								
Workpiece Material Group	Material Type	6		8		10		12		
		Semi Finish	Finish	Semi Finish	Finish	Semi Finish	Finish	Semi Finish	Finish	
		Fz - mm/tooth								
Aluminum	N	Wrought (≤ 10% Si)	.060	.039	.080	.052	.100	.065	.120	.078
		Cast (> 10% Si)	.060	.039	.080	.052	.100	.065	.120	.078

Notes:

- Cutting data provided should be considered advisory only. Adjustments may be necessary depending on the application.
- To prevent chip evacuation issues, avoid cutting with the tip of the tool wherever possible.
- Reduced feeds required when cutting with the tip of the tool.

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## Effective Angles

Tool Ø		Nose Radius		Major Radius	
D1	R1	Effective Angle (Max.)		R2	Effective Angle (Max.)
6	1	78.2°		95	11.8°
8	1	75.1°		90	14.9°
10	2	74.6°		85	15.4°
12	2	71.6°		80	18.4°

\*Numbers above represent maximum angle values.

## Stepover Distance by Cusp Height - Inch

Tool Ø (mm)		Cusp Height (Inch)	.0001	.0002	.0003	.0004	.0005
D1	R2						
6	95	Stepover (Inch)	.059	.077	.097	.109	.124
8	90		.058	.075	.094	.106	.120
10	85		.056	.072	.092	.103	.117
12	80		.054	.070	.089	.100	.113

## Stepover Distance by Cusp Height - Metric

Tool Ø (mm)		Cusp Height (mm)	0.003	0.005	0.008	0.010	0.013
D1	R2						
6	95	Stepover (mm)	1.50	1.95	2.46	2.76	3.14
8	90		1.47	1.90	2.40	2.69	3.06
10	85		1.43	1.84	2.33	2.61	2.97
12	80		1.38	1.79	2.26	2.53	2.88

### 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 cobalt, which is known to the State of California to cause cancer. For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).