



Where **high performance**
is the **standard**®



ISO 9001:2015 Certified



TuffCut® X-AL Series XAL5F
XTREME **AL**UMINUM **5**-FLUTE **F**INISHER

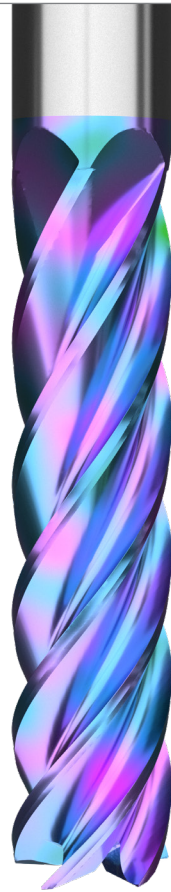
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TuffCut® X-AL Series XAL5F

5-Flute, High Performance, Aluminum Finisher

Product Features

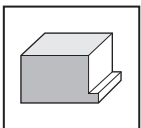
- 5-flute anti-vibration design enables finishing at full flute length
- Special geometry reduces material deflection when machining thin-wall aluminum components, minimizing taper and maintaining accuracy
- Suitable for aerospace structure machining and other precision thin-walled components
- Available in both square or corner-radius versions to improve edge strength and maintain precise component dimensions
- Gem+ coated option for excellent wear resistance and lubricity



Suitable materials

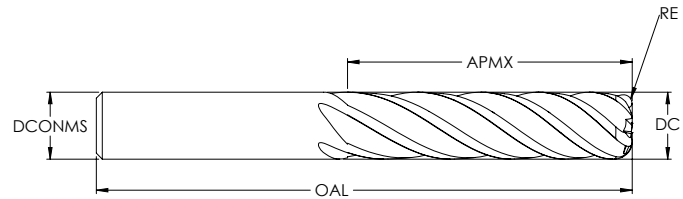


Applications



Finishing

TuffCut® X-AL Series XAL5F



Uncoated		Gem+		DC		DCONMS	OAL	APMX	RE
Tool No.	EDP	Tool No.	EDP	Inch	Decimal	Inch	Inch	Inch	Inch
XAL5F37540	28211	XAL5F37540GP	28222	3/8	.3750	3/8	3-1/2	1-5/8	-
XAL5F37544	28212	XAL5F37544GP	28223	3/8	.3750	3/8	3-1/2	1-5/8	.030
XAL5F50040	28213	XAL5F50040GP	28224	1/2	.5000	1/2	4	2-1/8	-
XAL5F50044	28214	XAL5F50044GP	28225	1/2	.5000	1/2	4	2-1/8	.030
XAL5F50048	28215	XAL5F50048GP	28226	1/2	.5000	1/2	4	2-1/8	.120
XAL5F62540	28216	XAL5F62540GP	28227	5/8	.6250	5/8	5	2-5/8	-
XAL5F62544	28217	XAL5F62544GP	28228	5/8	.6250	5/8	5	2-5/8	.030
XAL5F62548	28218	XAL5F62548GP	28229	5/8	.6250	5/8	5	2-5/8	.120
XAL5F75040	28219	XAL5F75040GP	28230	3/4	.7500	3/4	6	3-1/8	-
XAL5F75044	28220	XAL5F75044GP	28231	3/4	.7500	3/4	6	3-1/8	.030
XAL5F75048	28221	XAL5F75048GP	28232	3/4	.7500	3/4	6	3-1/8	.120

Tolerance (inch)	
DC	DCONMS
+0/- .0005	h6

Gem+ Coating (GP):

Recommended for aluminum and aluminum alloys up to 12% Si, non-ferrous metals and composites. Gem+ provides excellent wear resistance and maintains sharp cutting edges.

Gem+ Coating Properties			
Microhardness (HV)	Max. Service Temp.	Friction Coefficient	Tool No. Designation
4710	500° C / 932° F	0.10	GP

XAL5F Series Recommended Cutting Data - 4xD Cutting Length - Inch

Workpiece Material Group	I S O	Application	Type of cut		Vc (SFM)	Tool Diameter (inch)			
			Radial (Ae)	Axial (Ap)		3/8	1/2	5/8	3/4
						fz - in/tooth			
Aluminum - Wrought (≤ 10 Si)	N	 Floor Finish	≤ 0.75 x D	.005 - .015	980-6500	.0030	.0040	.0050	.0060
		 Wall Finish	.004 - .010	≤ 4 x D	980-6500	.0017	.0023	.0029	.0035
Aluminum - Cast (> 10 Si)		 Floor Finish	≤ 0.75 x D	.005 - .015	785-5000	.0030	.0040	.0050	.0060
		 Wall Finish	.004 - .010	≤ 4 x D	785-5000	.0017	.0023	.0029	.0035

Notes:

- Technical data provided should be considered advisory only. Adjustments may be necessary depending on the application, workpiece rigidity, machine tool, etc.
- The XAL5F should only be used in tool holders with a high level of accuracy. ER collet type holders are not recommended.
- When finishing at full feed rate into corners, care should be taken to ensure that the stock allowance is consistent, and the feature radius is at least .02" larger than the tool radius to avoid over-engagement.
- Recommended stock allowance for wall finishing is .004" to .010"
- This tool can also be used for light roughing, semi-finishing, and corner reduction operations. For these applications, do not exceed a radial cut (ae) of more than 10% of the tool diameter, and use the chip correction factor in the table shown below.

RWOC (ae)	Chip Thickness Compensation Factor	During profile milling with a radial width of less than 50% of the cutter diameter, the actual chip thickness at the cutting edge is less than the programmed chipload. The accompanying table shows the increase in chipload by given radial width percentage to adjust for chip thinning. Multiply your recommended chip thickness by the appropriate feed factor to establish the correct feed rate.
5%	2.30	
10%	1.67	

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.