

Alcoa Excalibar® 6013-T651 Aluminum

Category : Metal , Nonferrous Metal , Aluminum Alloy , 6000 Series Aluminum Alloy

Material Notes:

Alcoa recommends as a higher machinability alternative to 6061-T651. It has the potential for higher machining speeds and feed rates, easier deburring, ease of clearing 'chips' and better finishes. It is also stronger and harder than 6061-T651. Weldability = A; Stress Corrosion Cracking Resistance = A; General Corrosion Resistance = B (A = best; E = worst). General 6013 characteristics and uses: High strength and good corrosion resistance. Easily joined by all welding and brazing methods. Excellent compressive properties. Good applied coating acceptance and good machinability. Uses: ABS Braking systems, hydraulic applications, valves, machine parts, roller blade parts, munitions. Data supplied by the manufacturer, Alcoa.

Order this product through the following link:

http://www.lookpolymers.com/polymer_Alcoa-Excalibar-6013-T651-Aluminum.php

Physical Properties	Metric	English	Comments
Density	2.71 g/cc	0.0979 lb/in ³	

Mechanical Properties	Metric	English	Comments
Hardness, Brinell	130	130	500 kg load/10 mm ball
Hardness, Knoop	163	163	Estimated from Brinell
Hardness, Rockwell A	49.5	49.5	Estimated from Brinell
Hardness, Rockwell B	80	80	Estimated from Brinell
Hardness, Vickers	149	149	Estimated from Brinell
Tensile Strength, Ultimate	>= 379 MPa	>= 55000 psi	
Tensile Strength, Yield	>= 359 MPa	>= 52100 psi	
Elongation at Break	5.0 %	5.0 %	
Modulus of Elasticity	69.6 GPa	10100 ksi	
Machinability	70 %	70 %	0-100 Scale (A=90; B=70; C=50; D=30; E=10)
Shear Strength	248 MPa	36000 psi	

Thermal Properties	Metric	English	Comments
CTE, linear	23.4 µm/m-°C	13.0 µin/in-°F	average
	@Temperature 20.0 - 100 °C	@Temperature 68.0 - 212 °F	
Thermal Conductivity	164 W/m-K	1140 BTU-in/hr-ft ² -°F	

Component Elements Properties	Metric	English	Comments
Aluminum, Al	97 %	97 %	
Chromium, Cr	<= 0.10 %	<= 0.10 %	
Copper, Cu	0.60 - 1.1 %	0.60 - 1.1 %	
Iron, Fe	<= 0.50 %	<= 0.50 %	
Magnesium, Mg	0.80 - 1.2 %	0.80 - 1.2 %	
Manganese, Mn	0.20 - 0.80 %	0.20 - 0.80 %	
Silicon, Si	0.60 - 1.0 %	0.60 - 1.0 %	
Titanium, Ti	<= 0.10 %	<= 0.10 %	
Zinc, Zn	<= 0.25 %	<= 0.25 %	

Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.00000490 ohm-cm	0.00000490 ohm-cm	

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