



Johnson Centrifugal Technology

Johnson Brass & Machine Foundry, Inc.
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Material Property Datasheet

JC6061™-T6C ANOMAXX

Issued: May 17, 2017

Proudly Presents: *AnoMaxx*

This Alloy represents the best of all
Semiconductor needs.

A super clean Chemistry:

Iron < .04 Verses forgings typical chemistry of .25
Zinc & Manganese <.01 Verses forgings typical.05 & .15 respectfully

Outstanding Anodizing Response
Along with the strength of standard
6061 & 6063

JC6061™-T6C AnoMaxx

(Aluminum Alloy Densified Centrifugal Cylinders and Shapes)

1.0Mg - 0.60Si - 0.28Cu - 0.20Cr (JC6061™-T6C AnoMaxx)

High Chill Rate, Centrifugally Solidified, Densified, Solution and Precipitation Heat Treated

Application:

This alloy is typically used for lightweight simple or complex cylindrical parts requiring enhanced anodized performance. The –T6C temper should be selected for applications requiring optimum mechanical properties and dimensional stability during machining, but usage is not limited to such applications. By employing the centrifugal forming method, HIP (Hot Isostatic Pressing), and thermal treatments, JC6061-T6C AnoMaxx alloy components are capable of producing an anodized layer with corrosion resistance that equals or exceeds that of wrought 6061-T6 forgings. The low impurity chemical composition and custom thermal treatments of JC6061-T6C AnoMaxx, minimize the amount of β-AlFeSi in the microstructure, which are a known hindrance to the formation of a continuous anodized layer.

Composition

Element	Specification		AnoMaxx
	Min.	Max.	Aim
Magnesium	0.80	1.20	Controlled
Silicon	0.40	0.80	Controlled
Copper	0.15	0.40	Controlled
Chromium	0.04	0.35	Controlled
Iron	--	0.70	< 0.04
Zinc	--	0.25	< 0.01
Manganese	--	0.15	< 0.01
Titanium	--	0.15	Controlled
Other, each	--	0.05	
Other, total	--	0.15	
Aluminum	Remainder		

Physical Constants

Density (nominal) lb/cu in. @68°F	0.098
Specific Gravity	2.700
Melting Range, °F	1080-1205
Thermal Coef. Expansion (68-212°F)/°F	13.1 x 10 ⁻⁶ *
Thermal Conductivity, BTU/ft*h*°F (@68°F)	97
Electrical Conductivity, %IACS (@68°F)	38
Electrical Resistivity, nΩ*m (@68°F)	24
Modulus of Elasticity, PSI x 10 ⁶	10
Brinell 500kg/10mm ball	95
Average ASTM Grain Size (up to 3 inch wall)	#5

*Based upon chemistry and microstructure, will be verified by test as necessary.

Mechanical Property Minimums for Centrifugally Solidified Rings, Cylinders, or Shapes

Property	Value
Tensile Strength, MPa (ksi)	290 (42)
Yield Strength, MPa (ksi)	241 (35)
%Elongation in 4D	6%

*May be less in wall thicknesses above 4".

Typical Mechanical Properties for Centrifugally Solidified Rings, Cylinders, or Shapes

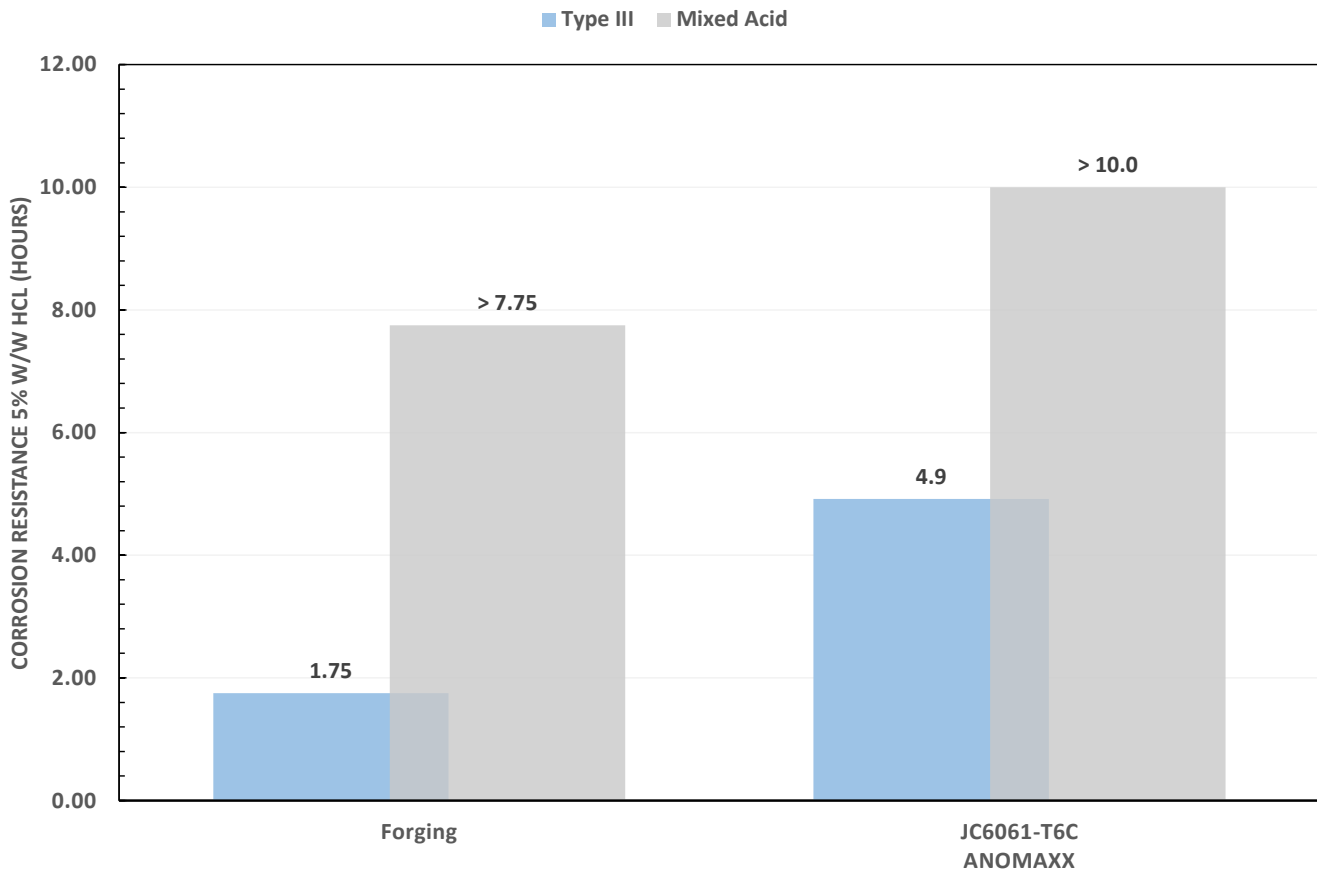
Property	Value
Tensile Strength, MPa (ksi)	317 (46)
Yield Strength, MPa (ksi)	290 (42)
%Elongation in 4D	8%

*May be less in wall thicknesses above 4"

Corrosion Resistance (HCl Bubble Test)

Corrosion resistance as measured by use of the HCl bubble test is shown below. For the sulfuric Type III anodization, the JC6061-T6C AnoMaxx exhibited an improvement over the forged material. Performance was also found for anodization using mixed acid, where failure was not observed after 10 hours of exposure.

Corrosion Resistance - HCl Bubble Test



Corrosion resistance measured by the HCl bubble test of JC6061-T6C AnoMaxx and the forged 6061.