



# HSM Wire International, Inc

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## Aluminum 3003-O

Categories:	3000 Series Aluminum Alloy; Metal; Nonferrous Metal; Aluminum Alloy;		
Material Notes:	Data points with the AA note have been provided by the Aluminum Association, Inc. and are NOT FOR DESIGN.		
Composition Notes:	Good weldability/formability and very good corrosion resistance lead to applications such as food and chemical handling, tanks, trim, litho sheet, pressure vessels and piping.		
KeyWords	Aluminium 3003-O; UNS A93003; AA3003-O; ISO AIMn1Cu		
<b>Physical Properties</b>	<b>Metric</b>	<b>English</b>	<b>Comments</b>
Density	2.73 g/cc	0.0986 lb. / in <sup>3</sup>	AA; Typical
<b>Mechanical Properties</b>	<b>Metric</b>	<b>English</b>	<b>Comments</b>
Hardness, Brinell	28	28	AA; Typical; 500 g load; 10 mm ball
Ultimate Tensile Strength	110 MPa	16000 psi	AA; Typical;
Tensile Yield Strength	41.4 MPa	6000 psi	AA; Typical;
Elongation at Break	30%	30%	AA; Typical; Thickness at 1.59mm / 0.0625 in
Modulus of Elasticity	68.9 Gpa	10000 ksi	AA; Typical; Average of tension and compression. Compression Modulus is about 2% greater than tensile modulus
Poissons Ratio	0.33	0.33	
Machinability	10%	10%	0 - 100 Scale of Aluminum Alloys
Shear Modulus	25.0 Gpa	3630 ksi	
Shear Strength	75.8 MPa	11000 psi	AA; Typical
<b>Electrical Properties</b>	<b>Metric</b>	<b>English</b>	<b>Comments</b>
Electrical Resistivity	0.00000349 ohm-cm	0.00000349 ohm-cm	AA; Typical at 68°F / 20°C
<b>Thermal Properties</b>	<b>Metric</b>	<b>English</b>	<b>Comments</b>
CTE, linear 68°F	23.2 µm/m-°C	12.9 µin/in-°F	AA; Typical; Average over 68-212°F / 20 - 100°C range.
CTE, linear 250°C	25.1 µm/m-°C	13.9 µin/in-°F	Average; 68-572°F / 20-300°C
Specific Heat Capacity	0.893 J/g-°C	0.213 BTU /lb-°F	
Thermal Conductivity	193 W/m-K	1340 BTU-in/hr-ft <sup>2</sup> -°F	AA; Typical at 77°F
Melting Point	643 - 654°C	1190 - 1210°F	AA; Typical range based on typical composition for wrought products 1/4 inch thickness or greater.
Solidus	643°C	1190°F	AA; Typical
Liquidus	654°C	1210°F	AA; Typical
<b>Processing Properties</b>	<b>Metric</b>	<b>English</b>	<b>Comments</b>
Annealing Temperature	413°C	775°F	Commerical practice; 750 to 1100°F. higer temperatures used only for flash annealing
<b>Material Components Properties</b>	<b>Metric &amp; English</b>		<b>Comments</b>
Aluminum, Al	96.7 - 99.0 %		As Remainder
Copper, Cu	0.050 - 0.20 %		
Iron, Fe	<= 0.70 %		
Manganese, Mn	1.0 - 1.50 %		
Other, each	<= 0.050 %		
Other, total	<= 0.15 %		
Silicon, Si	<= 0.60 %		
Zinc, Zn	<= 0.10 %		

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