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Aluminum 5005-O

Categories:	5000 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:	Same Nominal composition but higher Si and Fe impurity limits than AL-5657		
KeyWords	Aluminium 5005-O; UNS A95005; AA5005-O; ISO AIMg1		
Physical Properties	Metric	English	Comments
Density	2.70 g/cc	0.0975 lb. / in ³	AA; Typical
Mechanical Properties	Metric	English	Comments
Hardness, Brinell	28	28	AA; Typical; 500 g load; 10 mm ball
Ultimate Tensile Strength	124 MPa	18000 psi	AA; Typical;
Tensile Yield Strength	41.4 MPa	6000 psi	AA; Typical;
Elongation at Break	25%	25%	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	25.9 Gpa	3760 ksi	
Shear Strength	75.8 MPa	11000 psi	AA; Typical
Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.00000332 ohm-cm	0.00000332 ohm-cm	AA; Typical at 68°F / 20°C
Thermal Properties	Metric	English	Comments
CTE, linear 68°F	23.8 µm/m-°C	13.2 µin/in-°F	AA; Typical; Average over 68-212°F / 20 - 100°C range.
CTE, linear 250°C	25.6 µm/m-°C	14.2 µin/in-°F	Average: 68-572°F / 20-300°C
Specific Heat Capacity	0.900 J/g-°C	0.215 BTU /lb-°F	
Thermal Conductivity	200 W/m-K	1390 BTU-in/hr-ft ² -°F	AA; Typical at 77°F
Melting Point	632 - 654°C	1170 - 1210°F	AA; Typical range based on typical composition for wrought products 1/4 inch thickness or greater.
Solidus	632°C	1170°F	AA; Typical
Liquidus	654°C	1210°F	AA; Typical
Processing Properties	Metric	English	Comments
Annealing Temperature	343°C	650°F	Holding at temperature not required
Material Components Properties	Metric & English		Comments
Aluminum, Al	<= 97.0 %		As Remainder
Chromium, Cr	<= 0.10 %		
Copper, Cu	<= 0.20 %		
Iron, Fe	<= 0.70 %		
Magnesium, Mg	0.50 - 1.10 %		
Manganese, Mn	<= 0.020 %		
Other, each	<= 0.050 %		
Other, total	<= 0.15 %		
Silicon, Si	<= 0.30 %		
Zinc, Zn	<= 0.25 %		

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