

HM Wire International, Inc.
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Aluminum 4043

Categories:	4000 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:	A Zr + Ti limit of 0.20 percent maximum may be used with this alloy designation for extruded and forged products only, but only when the supplier or producer and the purchaser have mutually so agreed. Agreement may be indicated, for example, by reference to a standard, by letter, by order note, or other means which allow the Zr + Ti limit. Aluminum content reported is calculated as remainder. Composition information provided by the Aluminum Association and is not for design.		
KeyWords	Aluminium 4043-O; UNS A94043; AA4043-O; ISO AISi5		
Physical Properties	Metric	English	Comments
Density	2.69 g/cc	0.0972 lb. / in ³	AA; Typical
Mechanical Properties	Metric	English	Comments
Hardness, Brinell	39	39	500 kg load; 10 mm ball. Calculated Value.
Ultimate Tensile Strength	145 MPa	21000 psi	
Tensile Yield Strength	70.0 MPa	10200 psi	
Elongation at Break	22%	22%	In 5 cm wire, diameter 1.6 mm
Poissons Ratio	0.34	0.34	Estimated from trends in similar Al alloys
Shear Strength	90.0 MPa	13100 psi	Calculated Value
Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.00000416 ohm-cm	0.00000416 ohm-cm	AA; Typical at 68°F / 20°C
Thermal Properties	Metric	English	Comments
CTE, linear 68°F	22.1 µm/m-°C	12.3 µin/in-°F	AA; Typical; Average over 68-212°F / 20 - 100°C range.
CTE, linear 250°C	23.7 µm/m-°C	13.2 µin/in-°F	68-572°F / 20-300°C
Specific Heat Capacity	0.850 J/g-°C	0.203 BTU /lb-°F	Estimated from trends in similar Al alloys
Thermal Conductivity	163 W/m-K	1130 BTU-in/hr-ft ² -°F	AA; Typical at 77°F
Melting Point	573.9 - 632°C	1065 - 1170°F	AA; Typical range based on typical composition for wrought products 1/4 inch thickness or greater.
Solidus	573.9°C	1065°F	AA; Typical
Liquidus	632°C	1170°F	AA; Typical
Processing Properties	Metric	English	Comments
Annealing Temperature	349°C	660°F	
Material Components Properties	Metric & English		Comments
Aluminum, Al	92.3 - 95.5 %		As Remainder
Beryllium, Be	<= 0.000800 %		Welding electrode and filler wire only
Copper, Cu	<= 0.30 %		
Iron, Fe	<= 0.80 %		
Magnesium, Mg	<= 0.050 %		
Manganese, Mn	<= 0.050 %		
Other, each	<= 0.050 %		
Other, total	<= 0.15 %		
Silicon, Si	4.50 - 6.0 %		
Titanium, Ti	<= 0.20 %		
Zinc, Zn	<= 0.10 %		

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