



ASM Aerospace Specification Metals Inc.



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Aluminum 2017-O

Subcategory: 2000 Series Aluminum Alloy; Aluminum Alloy; Metal; Nonferrous Metal

Close Analogs:

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.

Key Words: Aluminium 2017-O; UNS A92017; QQ-A-4300; QQ-A-222/5; NF A-U46 (France); MIL-R-430; ISO AlCuMgSi, CM41 (Canada); AA2070-O

Component	Wt. %	Component	Wt. %	Component	Wt. %
Al	91.5 - 95.5	Mg	0.4 - 0.8	Si	0.2 - 0.8
Cr	Max 0.1	Mn	0.4 - 1	Ti	Max 0.15
Cu	3.5 - 4.5	Other, each	Max 0.05	Zn	Max 0.25
Fe	Max 0.7	Other, total	Max 0.15		

Material Notes:

Data points with the AA note have been provided by the Aluminum Association, Inc. and are NOT FOR DESIGN.

Physical Properties	Metric	English	Comments
Density	<u>2.79 g/cc</u>	0.101 lb/in ³	AA; Typical

Mechanical Properties

Hardness, Brinell	45	45	AA; Typical; 500 g load; 10 mm ball
Ultimate Tensile Strength	<u>179 MPa</u>	26000 psi	AA; Typical
Tensile Yield Strength	<u>68.9 MPa</u>	10000 psi	AA; Typical
Elongation at Break	<u>22 %</u>	22 %	AA; Typical; 1/2 in. (12.7 mm) Diameter

Modulus of Elasticity	<u>72.4 GPa</u>	10500 ksi	AA; Typical; Average of tension and compression. Compression modulus is about 2% greater than tensile modulus.
Poisson's Ratio	0.33	0.33	Estimated from trends in similar Al alloys.
Fatigue Strength	<u>89.6 MPa</u>	13000 psi	AA; 500,000,000 cycles completely reversed stress; RR Moore machine/specimen
Shear Modulus	<u>27 GPa</u>	3920 ksi	Estimated from similar Al alloys.
Shear Strength	<u>124 MPa</u>	18000 psi	AA; Typical

Electrical Properties

Electrical Resistivity	<u>3.49e-006 ohm-cm</u>	3.49e-006 ohm-cm	AA; Typical at 68°F
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Thermal Properties

CTE, linear 68°F	<u>23.6 $\mu\text{m}/\text{m}\cdot\text{°C}$</u>	13.1 $\mu\text{in}/\text{in}\cdot\text{°F}$	AA; Typical; Average over 68-212°F range.
CTE, linear 250°C	<u>25.4 $\mu\text{m}/\text{m}\cdot\text{°C}$</u>	14.1 $\mu\text{in}/\text{in}\cdot\text{°F}$	Estimated from trends in similar Al alloys. 20-300°C.
Specific Heat Capacity	<u>0.88 J/g·°C</u>	0.21 BTU/lb·°F	Estimated from trends in similar Al alloys.
Thermal Conductivity	<u>193 W/m·K</u>	1340 BTU-in/hr-ft ² ·°F	AA; Typical at 77°F
Melting Point	513 - 641 °C	955 - 1185 °F	AA; Typical range based on typical composition for wrought products 1/4 inch thickness or greater. Eutectic melting is not eliminated by homogenization.
Solidus	<u>513 °C</u>	955 °F	AA; Typical
Liquidus	<u>641 °C</u>	1185 °F	AA; Typical

Processing Properties

Annealing Temperature	338 - 349 °C	640 - 660 °F	cold-work anneal
Annealing Temperature	<u>413 °C</u>	775 °F	heat treated anneal
Solution Temperature	499 - 510 °C	930 - 950 °F	
Aging Temperature	<u>22.2 °C</u>	72 °F	

References for this datasheet.

Some of the values displayed above may have been converted from their original units and/or rounded in order to display the information in a consistent format. Users requiring more precise data for scientific or engineering calculations can click on the property value to see the original value as well as raw conversions to equivalent units. We advise that you only use the original value or one of its raw conversions in your calculations to minimize rounding error.