



ASM Aerospace Specification Metals Inc.



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Aluminum 7050-T7651

Subcategory: 7000 Series Aluminum Alloy; Aluminum Alloy; Metal; Nonferrous Metal

Close Analogs:

Composition Notes:

Aluminum content reported is calculated as remainder.

Composition information provided by the Aluminum Association and is not for design.

Key Words: UNS A97050; ISO AlZn6CuMgZr; Aluminium 7050-T7651; AA7050-T7651

Component	Wt. %	Component	Wt. %	Component	Wt. %
Al	87.3 - 90.3	Mg	1.9 - 2.6	Si	Max 0.12
Cr	Max 0.04	Mn	Max 0.1	Ti	Max 0.06
Cu	2 - 2.6	Other, each	Max 0.05	Zn	5.7 - 6.7
Fe	Max 0.15	Other, total	Max 0.15	Zr	0.08 - 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>2.83 g/cc</u>	0.102 lb/in ³	AA; Typical

Mechanical Properties

Hardness, Brinell	147	147	500 kg load with 10 mm ball. Calculated value.
Hardness, Knoop	187	187	Converted from Brinell Hardness Value
Hardness, Rockwell A	53	53	Converted from Brinell Hardness Value
Hardness, Rockwell B	86	86	Converted from Brinell Hardness Value
Hardness, Vickers	171	171	Converted from Brinell Hardness Value
Ultimate Tensile Strength	<u>552 MPa</u>	80000 psi	AA; Typical
Tensile Yield Strength	<u>490 MPa</u>	71000 psi	AA; Typical
Elongation at Break	<u>11 %</u>	11 %	AA; Typical; 1/2 in. (12.7 mm) Diameter

Modulus of Elasticity	<u>71.7 GPa</u>	10400 ksi	AA; Typical; Average of tension and compression. Compression modulus is about 2% greater than tensile modulus.
Poisson's Ratio	0.33	0.33	
Fracture Toughness	<u>26 MPa-m^{1/2}</u>	23.7 ksi-in ^{1/2}	K(IC) in S-L Direction
Fracture Toughness	<u>31 MPa-m^{1/2}</u>	28.2 ksi-in ^{1/2}	K(IC) in T-L Direction
Fracture Toughness	<u>34 MPa-m^{1/2}</u>	30.9 ksi-in ^{1/2}	K(IC) in L-T Direction
Shear Modulus	<u>26.9 GPa</u>	3900 ksi	
Shear Strength	<u>324 MPa</u>	47000 psi	AA; Typical

Electrical Properties

Electrical Resistivity	<u>4.4e-006 ohm-cm</u>	4.4e-006 ohm-cm
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Thermal Properties

CTE, linear 68°F	<u>23 μm/m-°C</u>	12.8 μin/in-°F	AA; Typical; Average over 68-212°F range.
CTE, linear 250°C	<u>25.4 μm/m-°C</u>	14.1 μin/in-°F	Average over the range 20-300°C
Specific Heat Capacity	<u>0.86 J/g-°C</u>	0.206 BTU/lb-°F	
Thermal Conductivity	<u>153 W/m-K</u>	1060 BTU-in/hr-ft ² -°F	
Melting Point	488 - 629 °C	910 - 1165 °F	AA; Typical range based on typical composition for wrought products 1/4 inch thickness or greater
Solidus	<u>488 °C</u>	910 °F	AA; Typical
Liquidus	<u>629 °C</u>	1165 °F	AA; Typical

Processing Properties

Annealing Temperature	<u>413 °C</u>	775 °F
Solution Temperature	<u>477 °C</u>	890 °F
Aging Temperature	121 - 177 °C	250 - 350 °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.