Aluminum 6061-T913

Subcategory: 6000 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: al6061, UNS A96061; ISO AlMg1SiCu; Aluminium 6061-T913, AD-33 (Russia); AA6061-T913

Component	Wt. %	Component	Wt. %	Component	Wt. %
Al	95.8 - 98.6	Mg	0.8 - 1.2	Si	0.4 - 0.8
Cr	0.04 - 0.35	Mn	Max 0.15	Ti	Max 0.15
Cu	0.15 - 0.4	Other, each	Max 0.05	Zn	Max 0.25
Fe	Max 0.7	Other, total	Max 0.15		

Material Notes:

Information provided by Alcoa and the references. General 6061 characteristics and uses: Excellent joining characteristics, good acceptance of applied coatings. Combines relatively high strength, good workability, and high resistance to corrosion; widely available. The T8 and T9 tempers offer better chipping characteristics over the T6 temper.

Uses: Aircraft fittings, camera lens mounts, couplings, marines fittings and hardware, electrical fittings and connectors, decorative or misc. hardware, hinge pins, magneto parts, brake pistons, hydraulic pistons, appliance fittings, valves and valve parts.

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	2.7 g/cc	0.0975 lb/in^3	AA; Typical
Mechanical Properties			
Hardness, Brinell	123	123	500 kg load with 10 mm ball. Calculated value.
Hardness, Knoop	153	153	Converted from Brinell Hardness Value

Hardness, Rockwell A	47.7	47.7	Converted from Brinell Hardness Value
Hardness, Rockwell B	76	76	Converted from Brinell Hardness Value
Hardness, Vickers	139	139	Converted from Brinell Hardness Value
Tensile Strength, Ultimate	460 MPa	66700 psi	
Tensile Strength, Yield	455 MPa	66000 psi	
Elongation at Break	10 %	10 %	In 5 cm; Sample 1.6 mm thick
Modulus of Elasticity	69 GPa	10000 ksi	Average of Tension and Compression. In Aluminum alloys, the compressive modulus is typically 2% greater than the tensile modulus
Poisson's Ratio	0.33	0.33	Estimated from trends in similar Al alloys.
Shear Modulus	26 GPa	3770 ksi	Estimated from similar Al alloys.
Shear Strength	240 MPa	34800 psi	

Electrical Properties

Electrical Resistivity	4e-006 ohm-cm	4e-006 ohm-cm	

Thermal Properties

CTE, linear 68°F	23.6 µm/m-°C	13.1 µin/in-°F	AA; Typical; Average over 68-212°F range.
CTE, linear 250°C	25.2 µm/m-°C	14 µin/in-°F	Estimated from trends in similar Al alloys. 20-300°C.
Specific Heat Capacity	0.896 J/g-°C	0.214 BTU/lb-°F	
Thermal Conductivity	170 W/m-K	1180 BTU-in/hr-ft²-°F	Estimated from other heat treatments.
Melting Point	582 - 652 °C	1080 - 1205 °F	AA; Typical range based on typical composition for wrought products 1/4 inch thickness or greater; Eutectic melting can be completely eliminated by homogenization.
Solidus	582 °C	1080 °F	AA; Typical
Liquidus	652 °C	1205 °F	AA; Typical

Processing Properties

Solution Temperature	529 °C	985 °F	
Aging Temperature	160 °C	320 °F	Rolled or drawn products; hold at temperature for 18 hr
Aging Temperature	177 °C	350 °F	Extrusions or forgings; hold at temperature for 8 hr

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 consistant 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.