Aluminum 5052-H36

Subcategory: 5000 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 A95052; ISO AlMg2.5; Aluminium 5052-H36; AA5052-H36

Component	Wt. %	Component	Wt. %	Component	Wt. %
Al	95.7 - 97.7	Mg	2.2 - 2.8	Other, total	Max 0.15
Cr	0.15 - 0.35	Mn	Max 0.1	Si	Max 0.25
Cu	Max 0.1	Other, each	Max 0.05	Zn	Max 0.1
Fe	Max 0.4				

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	2.68 g/cc	0.0968 lb/in³	AA; Typical
Mechanical Properties			
Hardness, Brinell	73	73	AA; Typical; 500 g load; 10 mm ball
Hardness, Knoop	96	96	Converted from Brinell Hardness Value
Hardness, Vickers	83	83	Converted from Brinell Hardness Value
Ultimate Tensile Strength	276 MPa	40000 psi	AA; Typical
Tensile Yield Strength	241 MPa	35000 psi	AA; Typical
Elongation at Break	10 %	10 %	AA; Typical; 1/2 in. (12.7 mm) Diameter
Elongation at Break	8 %	8 %	AA; Typical; 1/16 in. (1.6 mm) Thickness

Modulus of Elasticity	70.3 GPa	10200 ksi	AA; Typical; Average of tension and compression. Compression modulus is about 2% greater than tensile modulus.
Poisson's Ratio	0.33	0.33	
Fatigue Strength	131 MPa	19000 psi	AA; 500,000,000 cycles completely reversed stress; RR Moore machine/specimen
Shear Modulus	25.9 GPa	3760 ksi	
Shear Strength	159 MPa	23000 psi	AA; Typical

Electrical Properties

Electrical Resistivity	4.99e-006 ohm-cm	4.99e-006 ohm-cm	AA; Typical at 68°F

Thermal Properties

CTE, linear 68°F	23.8 µm/m-°C	13.2 µin/in-°F	AA; Typical; Average over 68-212°F range.
CTE, linear 250°C	25.7 µm/m-°C	14.3 µin/in-°F	Average over the range 20-300ºC
Specific Heat Capacity	0.88 J/g-°C	0.21 BTU/lb-°F	Estimated from trends in similar Al alloys.
Thermal Conductivity	138 W/m-K	960 BTU-in/hr-ft²-°F	AA; Typical at 77°F
Melting Point	607 - 649 °C	1125 - 1200 °F	AA; Typical range based on typical composition for wrought products 1/4 inch thickness or greater
Solidus	607 °C	1125 °F	AA; Typical
Liquidus	649 °C	1200 °F	AA; Typical

Processing Properties

Annealing Temperature	343 °C	650 °F	holding at temperature not required
Hot-Working Temperature	260 - 510 °C	500 - 950 °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 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.