Aluminum 2219-T87

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

Close Analogs:

Composition Notes:
This designation is considered the sole original alloy for this alloy family.
Aluminum content reported is calculated as remainder.
Composition information provided by the Aluminum Association and is not for design.

Key Words: UNS A92219; ISO AlCu6Mn; Aluminium 2219-T87; AA2219-T87

Component	Wt. %	Component	Wt. %	Component	Wt. %
Al	91.5 - 93.8	Mn	0.2 - 0.4	Ti	0.02 - 0.1
Cu	5.8 - 6.8	Other, each	Max 0.05	V	0.05 - 0.15
Fe	Max 0.3	Other, total	Max 0.15	Zn	Max 0.1
Mg	Max 0.02	Si	Max 0.2	Zr	0.1 - 0.25

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	2.84 g/cc	0.103 lb/in³	AA; Typical
Mechanical Properties			
Hardness, Brinell	130	130	500 kg load with 10 mm ball
Hardness, Knoop	163	163	Converted from Brinell Hardness Value
Hardness, Rockwell A	49.5	49.5	Converted from Brinell Hardness Value
Hardness, Rockwell B	80	80	Converted from Brinell Hardness Value
Hardness, Vickers	149	149	Converted from Brinell Hardness Value
Ultimate Tensile Strength	476 MPa	69000 psi	AA; Typical
Tensile Yield Strength	393 MPa	57000 psi	AA; Typical

Elongation at Break	10 %	10 %	AA; Typical; 1/16 in. (1.6 mm) Thickness
Modulus of Elasticity	73.1 GPa	10600 ksi	AA; Typical; Average of tension and compression. Compression modulus is about 2% greater than tensile modulus.
Notched Tensile Strength	379 MPa	55000 psi	2.5 cm width x 0.16 cm thick side-notched specimen, K_t = 17.
Poisson's Ratio	0.33	0.33	Estimated from trends in similar Al alloys.
Fatigue Strength	103 MPa	15000 psi	AA; 500,000,000 cycles completely reversed stress; RR Moore machine/specimen
Shear Modulus	27 GPa	3920 ksi	Estimated from similar Al alloys.
Shear Strength	280 MPa	40600 psi	

Electrical Properties

Electrical Resistivity	5.82e-006 ohm-cm	5.82e-006 ohm-cm	AA; Typical at 68°F

Thermal Properties

CTE, linear 68°F	22.3 µm/m-°C	12.4 µin/in-°F	AA; Typical; Average over 68-212°F range.
CTE, linear 250°C	24.1 µm/m-°C	13.4 µin/in-°F	Estimated from trends in similar Al alloys. 20-300°C.
Specific Heat Capacity	0.864 J/g-°C	0.207 BTU/lb-°F	
Thermal Conductivity	121 W/m-K	840 BTU-in/hr-ft²-°F	AA; Typical at 77°F
Melting Point	543 - 643 °C	1010 - 1190 °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	543 °C	1010 °F	AA; Typical
Liquidus	643 °C	1190 °F	AA; Typical

Processing Properties

Annealing Temperature	413 °C	775 °F	
Solution Temperature	535 °C	995 °F	
Aging Temperature	163 - 191 °C	325 - 375 °F	from 18 to 36 hr at temperature

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.