MW Components

Aluminum 7075 Fact Sheet

Do you need custom fasteners created with 7075 Aluminum? Since our inception, Elgin Fastener Group has met every challenge of providing quality, timely, cost-effective solutions for specialty fastener applications. Every product is built to your specifications, using your prints if necessary.

Below are the technical specifications of the 7075 Aluminum Bar Stock we have available to meet your needs.

Aluminum 7075-O

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

Close Analogs: None

Composition Notes:
A Zr + Ti limit of 0.25 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: UNS A97075; ISO AlZn5.5MgCu(A); Aluminium 7075-O; AA7075-O

Component	Wt. %
Al	87.1 - 91.4
Cr	0.18 - 0.28
Cu	1.2 - 2
Fe	Max 0.5
Mg	2.1 - 2.9
Mn	Max 0.3
Other, each	Max 0.05
Other, total	Max 0.15
Si	Max 0.4
Ti	Max 0.2
Zn	5.1 - 6.1

Material Notes:

General 7075 characteristics and uses (from Alcoa): Very high strength material used for highly stressed structural parts. The T7351 temper offers improved stress-corrosion cracking resistance.

Uses: Aircraft fittings, gears and shafts, fuse parts, meter shafts and gears, missile parts, regulating valve parts, worm gears, keys, aircraft, aerospace and defense applications.

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	2.81 g/cc	0.102 lb/in³	AA; Typical
Mechanical Properties			
Hardness, Brinell	60	60	AA; Typical; 500 g load; 10 mm ball
Hardness, Knoop	80	80	Converted from Brinell Hardness Value
Hardness, Vickers	68	68	Converted from Brinell Hardness Value
Ultimate Tensile Strength	228 MPa	33000 psi	AA; Typical
Tensile Yield Strength	103 MPa	15000 psi	AA; Typical
Elongation at Break	16 %	16 %	AA; Typical; 1/2 in. (12.7 mm) Diameter
Elongation at Break	17 %	17 %	AA; Typical; 1/16 in. (1.6 mm) Thickness
Modulus of Elasticity	71.7 GPa	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	
Shear Modulus	26.9 GPa	3900 ksi	
Shear Strength	152 MPa	22000 psi	AA; Typical
Electrical Properties			
Electrical Resistivity	3.8e-006 ohm-cm	3.8e-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	Average over the range 20-300ºC
Heat Capacity	0.96 J/g-°C	0.229 BTU/lb-°F	

Thermal Conductivity	173 W/m-K	1200 BTU-in/hr-ft²-°F	
Melting Point	477 - 635 °C	890 - 1175 °F	AA; Typical range based on typical composition for wrought products 1/4 inch thickness or greater. Homogenization may raise eutectic melting temperature 20-40°F but usually does not eliminate eutectic melting.
Solidus	477 °C	890 °F	AA; Typical
Liquidus	635 °C	1175 °F	AA; Typical
Processing Properties			
Annealing Temperature	413 °C	775 °F	
Solution Temperature	466 - 482 °C	870 - 900 °F	

References are available for this material.