

Aluminum 852.0-T5, Sand Cast

Categories: [Metal](#); [Nonferrous Metal](#); [Aluminum Alloy](#); [Aluminum Casting Alloy](#)

Material Notes: Data points with the AA note have been provided by the Aluminum Association, Inc. and are NOT FOR DESIGN.

Composition Notes:


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

Key Words: Aluminium 852.0-T5; UNS A08520; AA852.0-T5

Vendors: See more about how a supplier optimized cost and mechanical performance of industrial parts with a customized alternative solution to [Cast Aluminum](#) with Long Glass Fiber Reinforced Thermoplastics.

[Click here](#) to view all available suppliers for this material.

Please [click here](#) if you are a supplier and would like information on how to add your listing to this material.

Physical Properties	Metric	English	Comments
Density	2.88 g/cc	0.104 lb/in ³	AA; Typical
Mechanical Properties	Metric	English	Comments
Hardness, Brinell	45 - 75	45 - 75	AA; Typical; 500 g load; 10 mm ball
Hardness, Knoop	83	83	Estimated from Brinell Hardness.
Hardness, Vickers	70	70	Estimated from Brinell Hardness.
Tensile Strength, Ultimate	>= 165 MPa	>= 24000 psi	AA
Tensile Strength, Yield	>= 124 MPa @Strain 0.200 %	>= 18000 psi @Strain 0.200 %	AA
Modulus of Elasticity	71.0 GPa	10300 ksi	In tension for aluminum 850.0
Poissons Ratio	0.33	0.33	Estimated from aluminum 850.0
Machinability	90 %	90 %	0-100 Scale (100=best)
Shear Modulus	26.5 GPa	3840 ksi	Estimated from aluminum 850.0
Shear Strength	103 MPa	14900 psi	Calculated
Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.00000380 ohm-cm	0.00000380 ohm-cm	AA; Typical 45% IACS Conductivity
Thermal Properties	Metric	English	Comments
Heat of Fusion	389 J/g	167 BTU/lb	Typical for cast aluminum
CTE, linear 	23.2 µm/m-°C @Temperature 20.0 - 100 °C	12.9 µin/in-°F @Temperature 68.0 - 212 °F	AA; Typical
	25.5 µm/m-°C @Temperature 20.0 - 300 °C	14.2 µin/in-°F @Temperature 68.0 - 572 °F	Estimated by MatWeb

Specific Heat Capacity	0.963 J/g-°C	0.230 BTU/lb-°F	Typical for cast aluminum
Thermal Conductivity	172 W/m-K	1190 BTU-in/hr-ft ² -°F	AA; Typical at 25°C
Melting Point	204 - 635.0 °C	400 - 1175 °F	AA; Typical
Solidus	204 °C	400 °F	AA; Typical
Liquidus	635.0 °C	1175 °F	AA; Typical

Component Elements Properties	Metric	English	Comments
Aluminum, Al	86.6 - 91.3 %	86.6 - 91.3 %	As remainder
Copper, Cu	1.7 - 2.3 %	1.7 - 2.3 %	
Iron, Fe	<= 0.70 %	<= 0.70 %	
Magnesium, Mg	0.60 - 0.90 %	0.60 - 0.90 %	
Manganese, Mn	<= 0.10 %	<= 0.10 %	
Nickel, Ni	0.90 - 1.5 %	0.90 - 1.5 %	
Other, total	<= 0.30 %	<= 0.30 %	
Silicon, Si	<= 0.40 %	<= 0.40 %	
Tin, Sn	5.5 - 7.0 %	5.5 - 7.0 %	
Titanium, Ti	<= 0.20 %	<= 0.20 %	