Aluminum 206.0-T7 Casting Alloy

Categories: Metal; Nonferrous Metal; Aluminum Alloy; Aluminum Casting Alloy

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

Key Words: Aluminium 206.0-T7; AA206.0-T7AMS 4235, AMS 4236, AMS 4237; UNS A02060

Vendors: No vendors are listed 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	2.80 g/cc	0.101 lb/in³	

Mechanical Properties	Metric	English	Comments
Hardness, Brinell	120	120	Estimated from Vickers Hardness.
Hardness, Knoop	151	151	Estimated from Vickers Hardness.
Hardness, Rockwell A	47	47	Estimated from Vickers Hardness.
Hardness, Rockwell B	75	75	Estimated from Vickers Hardness.
Hardness, Vickers	137	137	
Tensile Strength, Ultimate	436 MPa	63200 psi	
Tensile Strength, Yield	350 MPa @Strain 0.200 %	50800 psi @Strain 0.200 %	
Elongation at Break	11.7 %	11.7 %	in 50 mm
Reduction of Area	26 %	26 %	
Modulus of Elasticity	70.0 GPa	10200 ksi	In Tension; elastic modulus in compression is typically about 2% higher for aluminum alloys.
Compressive Yield Strength	372 MPa	54000 psi	
Ultimate Bearing Strength	960 MPa	139000 psi	e/D = 2.0
Bearing Yield Strength	660 MPa	95700 psi	e/D = 2.0
Poissons Ratio	0.33	0.33	
Fatigue Strength	90.0 MPa @# of Cycles 1.00e+7	13100 psi @# of Cycles 1.00e+7	Axial; K_t=3.0; R=0.1
	205 MPa @# of Cycles 1.00e+7	29700 psi @# of Cycles 1.00e+7	Axial; R=0.1
	370 MPa @# of Cycles 1000	53700 psi @# of Cycles 1000	Axial; K_t=3.0; R=0.1
	435 MPa @# of Cycles 1000	63100 psi @# of Cycles 1000	Axial; R=0.1
Fracture Toughness	43.0 MPa-m½	39.1 ksi-in½	
Shear Modulus	26.3 GPa	3810 ksi	Calculated
Shear Strength	257 MPa	37300 psi	
Charpy Impact	9.50 J	7.01 ft-lb	V-notch

Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.00000520 ohm-cm	0.00000520 ohm-cm	

Thermal Properties	Metric	English	Comments
Heat of Fusion	389 J/g	167 BTU/lb	Typical for cast aluminum
CTE, linear	19.3 µm/m-°C @Temperature 20.0 - 100 °C	10.7 µin/in-°F @Temperature 68.0 - 212 °F	
	24.7 µm/m-°C @Temperature 20.0 - 300 °C	13.7 µin/in-°F @Temperature 68.0 - 572 °F	Value for Aluminum 201.0
Specific Heat Capacity	0.920 J/g-°C	0.220 BTU/lb-°F	
Thermal Conductivity	121 W/m-K	840 BTU-in/hr-ft²-°F	
Melting Point	570 - 650 °C	1060 - 1200 °F	
Solidus	570 °C	1060 °F	
Liquidus	650 °C	1200 °F	

Processing Properties	Metric	English	Comments
Solution Temperature	510 - 516 °C	950 - 960 °F	for 2 hr followed by 980-990°F for 14-20 hr and a water quench
Aging Temperature	199 °C	390 °F	hold at temperature for 8 hr

Component Elements Properties	Metric	English	Comments
Aluminum, Al	93.2 - 95.3 %	93.2 - 95.3 %	As remainder
Copper, Cu	4.2 - 5.0 %	4.2 - 5.0 %	
Iron, Fe	<= 0.15 %	<= 0.15 %	
Magnesium, Mg	0.15 - 0.35 %	0.15 - 0.35 %	
Manganese, Mn	0.20 - 0.50 %	0.20 - 0.50 %	
Nickel, Ni	<= 0.050 %	<= 0.050 %	
Other, each	<= 0.050 %	<= 0.050 %	
Other, total	<= 0.15 %	<= 0.15 %	
Silicon, Si	<= 0.10 %	<= 0.10 %	
Tin, Sn	<= 0.050 %	<= 0.050 %	
Titanium, Ti	0.15 - 0.30 %	0.15 - 0.30 %	
Zinc, Zn	<= 0.10 %	<= 0.10 %	

References for this datasheet.