

Zinc AG40A (Zn-4Al-0.4Mg; Zamak 3), Cast

Component	Wt. %
Al	4.1
Mg	0.04
Zn	96

Physical Properties	Metric	English	Comments
Density	6.6 g/cc	0.238 lb/in ³	

Mechanical Properties

Hardness, Brinell	82	82	500 kg load; 10 mm hardened steel ball
Hardness, Knoop	106	106	Estimated from Brinell Value
Hardness, Rockwell A	36	36	Estimated from Brinell Value
Hardness, Rockwell B	50	50	Estimated from Brinell Value
Hardness, Vickers	93	93	Estimated from Brinell Value
Tensile Strength, Ultimate	285 MPa	41300 psi	
Elongation at Break	10 %	10 %	in 5 cm
Compressive Strength	415 MPa	60200 psi	
Charpy Impact, Unnotched	58 J	42.8 ft-lb	6.35 mm square bar
Fatigue Strength	48 MPa	6960 psi	5E+8 Cycles, Reverse Bending
Fracture Toughness	12.3 MPa-m^{1/2}	11.2 ksi-in ^{1/2}	K(IC) Pressure Die Cast
Shear Strength	215 MPa	31200 psi	

Electrical Properties

Electrical Resistivity	6.3e-006 ohm-cm	6.3e-006 ohm-cm	
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Thermal Properties

CTE, linear 20°C	27.4 μm/m-°C	15.2 μin/in-°F	
Heat Capacity	0.42 J/g-°C	0.1 BTU/lb-°F	
Thermal Conductivity	113 W/m-K	784 BTU-in/hr-ft ² -°F	
Melting Point	381 - 387 °C	718 - 729 °F	
Solidus	381 °C	718 °F	
Liquidus	387 °C	729 °F	

Processing Properties

Casting Temperature	395 - 425 °C	743 - 797 °F	
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