Zinc ZA-27 (Zn-27Al-2Cu-0.015Mg), Die Cast

Categories: Metal; Nonferrous Metal; Zinc Alloy

Material Notes: Used in bearing applications. ZA-27 has a higher bearing load capacity than bronze bearing alloys, although its environment (both temperature and corrosive) is more limited.

Key Words: Zinc Foundry Alloy; UNS Z35841 (Castings); UNS Z35840 (Ingot)

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	5.02 g/cc	0.181 lb/in³	

Mechanical Properties	Metric	English	Comments
Hardness, Brinell	119	119	500 kg load; 10 mm hardened steel ball
Hardness, Knoop	120	120	Estimated from Brinell Value
Hardness, Rockwell A	40	40	Estimated from Brinell Value
Hardness, Rockwell B	60	60	Estimated from Brinell Value
Hardness, Vickers	107	107	Estimated from Brinell Value
Tensile Strength, Ultimate	426 MPa @Diameter 6.35 mm	61800 psi @Diameter 0.250 in	
Tensile Strength, Yield	371 MPa @Strain 0.200 %	53800 psi @Strain 0.200 %	
Elongation at Break	2.5 %	2.5 %	in 5 cm
Modulus of Elasticity	77.9 GPa	11300 ksi	
Compressive Strength	359 MPa	52100 psi	0.1% offset
Fatigue Strength	117 MPa @# of Cycles 5.00e+8	17000 psi @# of Cycles 5.00e+8	Reverse Bending
Shear Strength	325 MPa	47100 psi	
Charpy Impact, Unnotched	12.0 J @Thickness 6.35 mm	8.85 ft-lb @Thickness 0.250 in	square bar
Coefficient of Friction	0.030 - 0.070	0.030 - 0.070	

Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.00000580 ohm-cm	0.00000580 ohm-cm	

Thermal Properties	Metric	English	Comments
Heat of Fusion	128 J/g	55.1 BTU/lb	
CTE, linear	26.0 µm/m-°C @Temperature 20.0 - 200 °C	14.4 µin/in-°F @Temperature 68.0 - 392 °F	
Specific Heat Capacity	0.525 J/g-°C	0.125 BTU/lb-°F	
Thermal Conductivity	125 W/m-K	868 BTU-in/hr-ft²-°F	
Melting Point	376 - 484 °C	709 - 903 °F	
Solidus	376 °C	709 °F	
Liquidus	484 °C	903 °F	

Processing Properties	Metric	English	Comments
Casting Temperature	515 - 545 °C	959 - 1010 °F	

Component Elements Properties	Metric	English	Comments
Aluminum, Al	25 - 28 %	25 - 28 %	Addition, Casting
	25.5 - 28 %	25.5 - 28 %	Addition, Ingot form
Cadmium, Cd	<= 0.0050 %	<= 0.0050 %	Impurity, Ingot form
	<= 0.0060 %	<= 0.0060 %	Impurity, Casting
Copper, Cu	2.0 - 2.5 %	2.0 - 2.5 %	Addition, Casting
	2.0 - 2.5 %	2.0 - 2.5 %	Addition, Ingot form
Iron, Fe	<= 0.072 %	<= 0.072 %	Impurity, Ingot form
	<= 0.075 %	<= 0.075 %	Impurity, Casting
Lead, Pb	<= 0.0050 %	<= 0.0050 %	Impurity, Ingot form
	<= 0.0060 %	<= 0.0060 %	Impurity, Casting
Magnesium, Mg	0.010 - 0.020 %	0.010 - 0.020 %	Addition, Casting
	0.012 - 0.020 %	0.012 - 0.020 %	Addition, Ingot form
Tin, Sn	<= 0.0020 %	<= 0.0020 %	Impurity, Ingot form
	<= 0.0030 %	<= 0.0030 %	Impurity, Casting
Zinc, Zn	69.396 - 72.488 %	69.396 - 72.488 %	As balance; Ingot per ASTM B 669
	69.39 - 72.99 %	69.39 - 72.99 %	As balance; Castings per ASTM B 791

Descriptive Properties

Damping	10.9 $Q^{-1} \times 10^{3}$	at 100 Hz, 100°C
	5 $Q^{-1} \times 10^{3}$	at 100 Hz, 20°C

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 consistent 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. We also ask that you refer to MatWeb's terms of use regarding this information. Click here to view all the property values for this datasheet as they were originally entered into MatWeb.