

Materion Alloy 390 Beryllium Nickel Strip

Category : Metal , Nonferrous Metal , Beryllium Alloy , Copper Alloy

Material Notes:

Alloy 390 was specifically designed for high power applications, providing a unique combination of high strength and high conductivity. Increasing power requirements are driving the need for lower conductor resistance to reduce joule heating. Higher thermal conductivity is critical to thermal management. Higher power requirements are creating harsh environments and higher operating temperatures. Alloy 390 provides excellent stress relaxation resistance at elevated temperatures increasing electrical contact reliability. Alloy 390 has good formability making it possible to create small form factor electrical contacts used in computer, telecommunication, automotive and appliance applications. Alloy 390 is available in strip form ranging from 0.003" to 0.010" thick. Information supplied by Brush Wellman Engineered Materials. Brush Engineered Materials Inc. changed its name to Materion Corporation in March 2011.

Order this product through the following link:

http://www.lookpolymers.com/polymer_Materion-Alloy-390-Beryllium-Nickel-Strip.php

Physical Properties	Metric	English	Comments
Density	8.80 g/cc	0.318 lb/in ³	

Mechanical Properties	Metric	English	Comments
Tensile Strength, Ultimate	951 - 1090 MPa	138000 - 158000 psi	
Tensile Strength, Yield	931 - 1050 MPa	135000 - 153000 psi	
Elongation at Break	>= 1 %	>= 1 %	
Modulus of Elasticity	138 GPa	20000 ksi	
Fatigue Strength	331 MPa @# of Cycles 1.00e+8	48000 psi @# of Cycles 1.00e+8	R = -1

Thermal Properties	Metric	English	Comments
Thermal Conductivity	221.3 W/m-K	1536 BTU-in/hr-ft ² - °F	

Component Elements Properties	Metric	English	Comments
Beryllium, Be	0.15 - 0.50 %	0.15 - 0.50 %	
Copper, Cu	97.6 - 98.85 %	97.6 - 98.85 %	As remainder
Nickel, Ni	1.0 - 1.4 %	1.0 - 1.4 %	
Zirconium, Zr	<= 0.50 %	<= 0.50 %	

Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.00000390 ohm-cm	0.00000390 ohm-cm	Conductivity is 44% IACS

Descriptive Properties	Value	Comments
Stress Relaxation	83%	at 150°C for 1000 hr (Initial stress = 75% of 0.2% Offset Yield Strength)

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