

## Materion Beryllium Nickel Strip - Alloy 360 Hard, 1.5 hr at 950°F

Category : Metal , Nonferrous Metal , Beryllium Alloy , Nickel Alloy

### Material Notes:

Information supplied by Brush Wellman Engineered Materials. Treatment required for max strength: 1.5 hrs @ 510°C Stress Relaxation-% Stress Remaining after 1000 hrs @ 100°C: 99% Stress Relaxation after 1000 hrs @ 200°C: 98% Superficial Hardness: 15N 83-90 Brush Wellman's Alloy 360 beryllium nickel strip combines unique mechanical and physical properties required in today's high reliability electrical/electronic systems, heavy duty controls, electromechanical devices and in other high performance applications. Properties of beryllium nickel Alloy 360 strip that a designer can use include ultimate tensile strength approaching 300,000 psi, yield strength up to 245,000 psi, excellent formability, stress relaxation less than 5% at 400°F, and fatigue strength (in reverse bending) of 85,000 - 90,000 psi at 10 million cycles. Typically, this alloy is used for mechanical and electrical/electronic components that are subjected to elevated temperatures (up to 700°F for short times), and require good spring characteristics at these temperatures. Some applications for this alloy are thermostats, bellows, diaphragms, burn-in connectors, and sockets. Rockwell Hardness 15N given as 83 - 90. Brush Engineered Materials Inc. changed its name to Materion Corporation in March 2011.

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[http://www.lookpolymers.com/polymer\\_Materion-Beryllium-Nickel-Strip-Alloy-360-Hard-15-hr-at-950F.php](http://www.lookpolymers.com/polymer_Materion-Beryllium-Nickel-Strip-Alloy-360-Hard-15-hr-at-950F.php)

Physical Properties	Metric	English	Comments
Density	8.28 g/cc	0.299 lb/in <sup>3</sup>	

Mechanical Properties	Metric	English	Comments
Hardness, Vickers	446 - 695	446 - 695	
Tensile Strength, Ultimate	>= 1862 MPa	>= 270100 psi	
Tensile Strength, Yield	>= 1586 MPa	>= 230000 psi	
Elongation at Break	>= 8.0 %	>= 8.0 %	
Modulus of Elasticity	195 - 210 GPa	28300 - 30500 ksi	

Thermal Properties	Metric	English	Comments
CTE, linear	14.0 Åµm/m-Å°C	7.78 Åµin/in-Å°F	
	@Temperature 20.0 - 200 Å°C	@Temperature 68.0 - 392 Å°F	
Thermal Conductivity	48.0 W/m-K	333 BTU-in/hr-ftÅ²-Å°F	
Melting Point	1195 - 1325 Å°C	2183 - 2417 Å°F	
Solidus	1195 Å°C	2183 Å°F	
Liquidus	1325 Å°C	2417 Å°F	

Component Elements Properties	Metric	English	Comments
Beryllium, Be	1.85 - 2.05 %	1.85 - 2.05 %	
Copper, Cu	<= 0.25 %	<= 0.25 %	
Nickel, Ni	97.3 %	97.3 %	as balance
Titanium, Ti	0.40 - 0.60 %	0.40 - 0.60 %	

Electrical Properties	Metric	English	Comments
Electrical Resistivity	<= 0.0000287 ohm-cm	<= 0.0000287 ohm-cm	6% IACS conductivity (minimum)

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