

HPM® BERYLLIUM NICKEL



HPM® Beryllium Nickel (UNS N03360)

HPM® Beryllium Nickel is a Beryllium-Nickel alloy capable of high strength through precipitation heat treatment. The excellent spring characteristics to 550°F make it suitable for many of the most demanding electromechanical devices.

GENERAL INFORMATION

The alloy can be readily formed and even deep drawn from the annealed temper. Cold rolled tempers prior to heat treatment can be blanked and folded provided a radius to thickness ratio approaches 2.0. The optimum heat treatment for highest strength is 925°F for 2 hours. The material can be joined using conventional TIG methods, silver brazed and soldered.

AVAILABILITY

HPM® Beryllium Nickel is available from Hamilton Precision Metals as strip product in thicknesses from 0.0005" to 0.025" in (0.0127 to 0.635 mm) widths up to 7.0" (177.8 mm). A foil product is available as thin as 0.000085" (0.002159 mm) and widths of 4.0" (101.6 mm) maximum. The material conforms to UNS N03360.



Technical Data

TYPICAL MECHANICAL PROPERTIES ¹			
	ANNEALED	COLD ROLLED	COLD ROLLED HEAT TREATED
Ultimate Tensile Strength	100,000 PSI	190,000 PSI	270,000 PSI
Yield Strength	50,000 PSI	180,000 PSI	250,000 PSI
Elongation in 2" *	30%	1%	2%
Modulus of Elasticity (Tension)	28.5 X10 ⁶ PSI		
Poisson's Ratio	0.295		

*The measured elongation will be less as thickness decreases to 0.002" and less.

¹ These values may be adjusted by control of process variables – consult HPM for desired values.

NOMINAL COMPOSITION	
Beryllium	1.90%
Titanium	0.50%
Nickel	Balance

PHYSICAL PROPERTIES ²	
Density	0.309 lbs/cu.in.
Melting Point (Approx.)	1185°C
Electrical Resistivity @ R.T.	
Cold Rolled	43.1 Microhm · cm
Heat Treated	28.7 Microhm · cm
Thermal Expansion Coefficient (25° to 550°C)	14.4 X 10 ⁶ /°C
Thermal Conductivity @ R.T.	48.4 W/m · K
Magnetic Attraction	Yes

² Typical values to guide alloy selection but are not a guarantee of minimum or maximum.