

# HPM<sup>®</sup> BERYLLIUM NICKEL



## HPM<sup>®</sup> Beryllium Nickel (UNS N03360)

HPM<sup>®</sup> 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<sup>®</sup> 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 <sup>1</sup>			
	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 <sup>6</sup> PSI		
Poisson's Ratio	0.295		

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

<sup>1</sup> 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 <sup>2</sup>	
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 <sup>6</sup> /°C
Thermal Conductivity @ R.T.	48.4 W/m · K
Magnetic Attraction	Yes

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