



Hamilton Precision Metals  
1780 Rohrerstown Road, Lancaster, PA 17602  
Phone: (717) 569-7061 Fax: (717) 569-7642

## TECHNICAL DATA SHEET

### HPM<sup>®</sup> NI 52

HPM<sup>®</sup> Ni 52 is a Nickel-Iron alloy with a thermal expansion characteristic that corresponds to soft glass. Applications include magnetic reed switches and seals that need controlled linear expansion to about 1000°F.

#### NOMINAL COMPOSITION:

Nickel	50.5%	Silicon	.1%
Manganese	.3%	Iron	Balance

#### TYPICAL MECHANICAL PROPERTIES:<sup>1</sup>

	<u>ANNEALED</u>	<u>COLD ROLLED</u>
Ultimate Tensile Strength	75,000 PSI	130,000 PSI
Yield Strength (.2% Offset)	30,000 PSI	125,000 PSI
Elongation in 2" *	30%	1%
Grain Size	.025mm	
Modulus of Elasticity (Tension)	24 X 10 <sup>6</sup> PSI	
Poisson's Ratio	0.29	

\*The measured elongation will be less as thickness decreases to .002" and less.

---

<sup>1</sup> These values may be adjusted by control of process variables – consult Hamilton Precision Metals for desired values.

## HPM NI 52

### PHYSICAL PROPERTIES:<sup>2</sup>

Density.....	0.300 lbs./cu.in
Melting Point (Approx.).....	1425° C
Electrical Resistivity @ R.T.....	43 Microhm.cm
Temperature Coefficient of Resistivity..... (25° to 105° C)	2,900 PPM/°C
Thermal Expansion Coefficient..... (30° to 400°C)	10.00 X 10 <sup>-6</sup> /°C
Thermal Conductivity @ R.T.....	14.0 W/m.K
Curie Temperature.....	510° C Approx.
Magnetic Attraction.....	Yes

### GENERAL INFORMATION:

The alloy is readily formed or deep drawn from a fine grain annealed temper. Joining can be accomplished by conventional welding or brazing techniques. Useful magnetic characteristics can be produced from a continuous strand anneal.

### AVAILABILITY:

HPM Ni 52 available from Hamilton Precision Metals as strip product in thickness from .001” to .050” in widths up to 12.0”. The material conforms to UNS N14052.

---

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