



Hamilton Precision Metals  
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## TECHNICAL DATA SHEET

### HPM<sup>®</sup> NI 42

HPM<sup>®</sup> Ni 42 is a Nickel-Iron alloy with a thermal expansion coefficient suitable for matching to the ceramic chip in numerous miniature electronic circuits.

#### NOMINAL COMPOSITION:

Nickel	41.0%	Silicon	.20%
Manganese	.40%	Iron	Balance

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

	<u>ANNEALED</u>	<u>COLD ROLLED</u>
Ultimate Tensile Strength	72,000 PSI	110,000 PSI
Yield Strength (.2% Offset)	40,000 PSI	105,000 PSI
Elongation in 2" *	35%	5%
Modulus of Elasticity (Tension)	21 X 10 <sup>6</sup> PSI	
Poisson's Ratio	0.25	

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

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

## HPM NI 42

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

Density.....	0.293 lbs/cu.in.
Melting Point (Approx.).....	1440° C
Electrical Resistivity @ R.T.....	70 Microhm.cm
Temperature Coefficient of Resistivity..... (20° to 100°C)	2500 PPM/°C
Thermal Expansion Coefficient 30° to 400°.....	6.0 X 10 <sup>-6</sup> / °C
Thermal Conductivity @ R.T.....	14.5 W/m.K
Curie Temperature.....	375° C
Magnetic Attraction.....	Yes

### GENERAL INFORMATION:

The alloy is readily formed from the annealed temper and can be welded or brazed by standard methods. The alloy is not corrosion resistant @ 20° C when exposed to a moist or salt-containing atmosphere.

### AVAILABILITY:

HPM Ni 42 is available from Hamilton Precision Metals as strip product in thicknesses from .001” to .050” in widths up to 12.0”. The material conforms to ASTM F30 and UNS K94100.

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