



Hamilton Precision Metals  
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## TECHNICAL DATA SHEET

### HPM<sup>®</sup> 233 NICKEL

HPM 233 Nickel is a commercially pure wrought Nickel with low carbon. The material has excellent corrosion resistance with high thermal and electrical conductivities. A high thermal coefficient of electrical resistance makes it suitable for temperature sensors, and electronic components.

#### NOMINAL COMPOSITION:

Nickel	99.7%	Iron	.05%
Manganese	.1%	Carbon	.01%

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

	<u>ANNEALED</u>	<u>COLD ROLLED</u>
Ultimate Tensile Strength	55,000 PSI	110,000 PSI
Yield Strength (.2% Offset)	15,000 PSI	100,000 PSI
Elongation in 2" *	40%	2%
Modulus of Elasticity (Tension)	30 X 10 <sup>6</sup> PSI	
Poisson's Ratio	0.28	

\*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 HPM for desired values.

# HPM 233 NICKEL

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

Density	-	0.321 lbs./cu.in.
Melting Point (Approx.)	-	1445°C
Electrical Resistivity @ R.T.	-	7.7 Microhm.cm
Temperature Coefficient of Resistivity (20° to 95° C)	-	5500 PPM/°C
Thermal Expansion Coefficient (20° to 100°C)	-	13.3 X 10 <sup>-6</sup> /°C
Thermal Conductivity @ R.T.	-	80.7 W/m· K
Curie Temperature	-	350°C
Magnetic Attraction	-	Yes

## GENERAL INFORMATION:

The alloy can be formed by all conventional cold-forming methods and can be joined by welding, brazing and soldering. The corrosion resistance is generally very good in most mediums, although it is subject to intergranular embrittlement by sulfur compounds above 315°C.

## AVAILABILITY:

HPM 233 Nickel is available from Hamilton Precision Metals as strip product in thicknesses from .0005” to .020” in widths up to 12.0”. It is available as foil as thin as .000100” in 4.0” maximum width. The material conforms to ASTM B162, ASTM F3, and UNS N02233.

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