Hamilton Precision Metals
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TECHNICAL DATA SHEET

HPM ® 270 NICKEL

HPM ® 270 Nickel is the highest purity Nickel. The controlled low impurity level provides uniform and repeatable mechanical, electrical, and magnetic properties. 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	99.9%	Iron	.01%
Manganese	.01%	Carbon	.01%

TYPICAL MECHANICAL PROPERTIES:[1]

	ANNEALED	COLD ROLLED
Ultimate Tensile Strength	55,000 PSI	105,000 PSI
Yield Strength (.2% Offset)	15,000 PSI	100,000 PSI
Elongation in 2" *	40%	2%
Modulus of Elasticity (Tension)	30.1×10^6 PSI	
Poisson's Ratio	0.31	

*Measured elongation will decrease for thicknesses at .002" and thinner.

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

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PHYSICAL PROPERTIES:[2]

Density	-	0.322 lbs./cu.in.
Melting Point (approx.)	-	1450°C
Electrical Resistivity @ R.T.	-	7.4 Microhm-cm
Temperature Coefficient of Resistivity (TCR) (0°C to 25°C)	-	6000 ppm/°C
Thermal Expansion Coefficient (20°C to 100°C)	-	14.0 x 10^{-6}/°C
Thermal Conductivity @ R.T.	-	86.3 W/m· K
Curie Temperature	-	355°C
DC Magnetic Properties		
Coercivity	-	3.0 oersteds
Saturation Induction	-	6050 Gauss
Magnetic Attraction	-	Yes
Specific Heat	-	.110 gram· cal./°C

GENERAL INFORMATION:

The alloy can be formed by all conventional cold forming methods, and can be joined by resistance 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 270 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 F3, and UNS N02270.

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