



Hamilton Precision Metals
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TECHNICAL DATA SHEET

MOLY PERMALLOY

Moly Permalloy is a Nickel-Iron-Molybdenum alloy with a magnetic permeability that makes it suitable for electrical shielding applications.

NOMINAL COMPOSITION:

Nickel	80.0%	Silicon	.35%
Molybdenum	4.8%	Iron	Balance
Manganese	.50%		

TYPICAL MECHANICAL PROPERTIES:¹

	<u>ANNEALED</u>	<u>COLD ROLLED</u>
Ultimate Tensile Strength	90,000 PSI	160,000 PSI
Yield Strength (.2% Offset)	35,000 PSI	150,000 PSI
Elongation in 2" *	30%	1%
Modulus of Elasticity (Tension)	32 x 10 ⁶ PSI	

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

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

MOLY PERMALLOY

PHYSICAL PROPERTIES:²

Density	-	0.315 lbs.cu.in.
Melting Point (Approx.)	-	1450°C
Electrical Resistivity @ R.T.	-	59 Microhm· cm
Temperature Coefficient of Resistivity (-20° to 500°C)	-	1100 PPM/°C
Thermal Expansion Coefficient (25° to 200°C)	-	12.7 x 10 ⁻⁶ /°C
Thermal Conductivity @ R.T.	-	34.6 W/m· K
Curie Temperature	-	455°C
DC Magnetic Properties		
Coercive Force from Hmax = 1.0 oersted	-	.02 max. oersted
Hysteresis Loss @ 1.0 oersted	-	16/cycle
Permeability @ 40 gauss	-	50,000
Permeability @ maximum induction	-	200,000
Saturation Induction	-	8,000 gauss
Maximum Residual Induction	-	3,500 gauss
Magnetic Attraction	-	Yes

GENERAL INFORMATION:

The alloy can be readily formed from the annealed temper. Effective magnetic shielding is provided by annealing at 1900°F or higher. Joining is accomplished by spot welding or tungsten inert gas welding.

AVAILABILITY:

Moly Permalloy is available from Hamilton Precision Metals as strip product from .0005" to .015" in widths to 12.0". It is also available in foil as thin as .000100" in widths of 4.0" maximum. The metal conforms to ASTM A753, Type 4 and MIL N 14411, Type 1.

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