HPM® Ni 52

HAMILTON PRECISION METALS

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HPM® Ni 52 (UNS N14052)

HPM® 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.

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 0.001" to 0.050" (0.0254 mm to 1.27 mm) in widths up to 12.0" (304.8 mm). The material conforms to UNS N14052.

Technical Data

TYPICAL MECHANICAL PROPERTIES[1]		
	ANNEALED	COLD ROLLED
Ultimate Tensile Strength	75,000 PSI	130,000 PSI
Yield Strength (0.2% Offset)	30,000 PSI	125,000 PSI
Elongation in 2" *	30%	1%
Grain Size	0.025 mm	-
Modulus of Elasticity (Tension)	24 X 10^6 PSI	-
Poisson's Ratio	0.29	-

*The measured elongation will be less as thickness decreases to 0.002" and less.

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

NOMINAL COMPOSITION	
Nickel	50.5%
Manganese	0.3%
Silicon	0.1%
Iron	Balance

PHYSICAL PROPERTIES [2]	
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)	10.0 X 10^{-6}/°C
Thermal Conductivity @ R.T.	14.0 W/m · K
Curie Temperature	510°C Approx.
Magnetic Attraction	Yes

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

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