

HPM[®] 965



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HPM[®] 965 is a high purity Nickel-Iron alloy that exhibits moderate electrical resistivity and a high temperature coefficient of resistance. This combination of electrical characteristics makes it suitable for use as a self-regulating heating element or temperature sensor.

GENERAL INFORMATION

The alloy can be readily formed in the annealed temper and can be joined by standard welding methods.

AVAILABILITY

HPM[®] 965 is available from Hamilton Precision Metals as foil and strip product in thicknesses from 0.0005" to 0.015" (0.0127 mm to 0.38 mm) and in widths up to 12" (304.8 mm). It is also available as thin as 0.000100" (0.00254 mm) and in widths up to 4" (101.6 mm) maximum.



Technical Data

| TYPICAL MECHANICAL PROPERTIES ¹ | |
|--|--------------------|
| | ANNEALED |
| Ultimate Tensile Strength | 85,000 PSI |
| Yield Strength (0.2% Offset) | 35,000 PSI |
| Elongation in 2" * | 35% |
| Hardness | 137 H _v |

*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 | |
|---------------------|---------|
| Iron | 35% |
| Manganese | 0.25% |
| Nickel | Balance |

| PHYSICAL PROPERTIES ² | |
|--|---------------------------|
| Density | 0.293 lb/in ³ |
| Melting Point (Approx.) | 1425°C |
| Electrical Resistivity @ R.T. | 21.2 Microhm · cm |
| Temperature Coefficient of Resistivity 0° to 100°C | 5000 to 5500 ppm/°C |
| Thermal EMF vs. Cu (approx.) 0° to 100°C | -44 Microvolts/°C |
| Thermal Expansion Coefficient 20° to 100°C | 15 X 10 ⁻⁶ /°C |
| Thermal Conductivity @ 100°C (approx.) | 29 W/m · K |
| Magnetic Attraction | Yes |

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