

PerforMet™

PerforMet™ alloy from Materion is a nickel-silicide strengthened copper alloy with high strength and high thermal conductivity. It resists mechanical wear, corrosion and galling and has a low coefficient of friction when mated to other metals. PerforMet alloy retains its strength at elevated temperatures. It is non-magnetic and easily machined. Applications include valve seats, valve guides, piston rings and plain bearings, where PerforMet alloy provides long life while efficiently removing heat from critical engine components.

Chemical Composition (Weight Percent)

Alloy	Nickel	Silicon	Chromium	Copper
PerforMet	6.4 - 7.6	1.5 - 2.5	0.6 - 1.2	Balance

Physical Properties

Elastic Modulus	Density	Thermal Expansion Coefficient	Thermal Conductivity (typical @ 25 °C)	Thermal Conductivity (typical @ 250 °C)
18,500 ksi	.314 lb/in ³	9.7 x 10 ⁻⁶ in/in °F	90 BTU/ft hr °F	125 BTU/ft hr °F
130 GPa	8.69 g/cm ³	17.5 x 10 ⁻⁶ m/m °C	155 W/m °C	215 W/m °C

Mechanical Properties*

0.2% Offset Yield Strength	Ultimate Tensile Strength	Elongation	Strength Rating @ 250 °C	Minimum Hardness**
115 ksi	125 ksi	7%	0.90	265 HBW
790 MPa	860 MPa			(27 HRC)

*Typical room temperature tensile properties are provided.

**Hardness is tested via Brinell Test Method at 3000 kgf load and equivalent HRC values converted per ASTM E140, Table 1.

Forms Available

Rod and tube to 4.5" OD. Other sizes and forms are available upon request.

Disclaimer:

Only the buyer can determine the appropriateness of any processing practice, end-product or application. Materion does not make any warranty regarding its recommendations, the suitability of Materion's product, or its processing suggestions for buyer's end product, application or equipment.

The properties presented on this data sheet are for reference purposes only, intended only to initiate the material selection process. They do not constitute, nor are they intended to constitute, a material specification. Material will be produced to one of the applicable industry standards, if any, listed in the Industry Standards and Specification section.

Actual properties may vary by thickness and/or part number. Please contact your local sales engineer for detailed properties to be used in simulation.

Any properties marked as preliminary are subject to change at any time as the manufacturing process is further refined.