

PerforMet® Alloy⁽¹⁾

Smiths High Performance



Revision: SHP/english/datasheets/perforMet/12.02.2025

Page: 1 of 2

For Powertrain Applications

Improving the performance of automotive and motorsport powertrains improves engine efficiency and performance and extends the life cycle of components.

PerforMet® Alloy is a nickel silicide-strengthened copper alloy with performance characteristics which enhance powertrain applications. The copper-based alloy includes nickel, silicon and chromium in the alloying mix.

The alloy combines high strength, corrosion and thermal resistance with friction and wear resistance, enabling the product to resist increased pressure and temperature in high-performance engines. PerforMet® Alloy represents a highly conductive engineering material, significantly reducing the risk of hot spots in critical components due to effective heat dissipation. Taking the heat away from critical components prolongs life expectancy, improves performance and allows parts to function efficiently at the highest operating limits. The material is non-magnetic, easy to machine, and retains its strength at high temperatures. PerforMet® Alloy is available in rod and tube forms up to 4.5" in diameter (114.3mm), although other shapes are available on request.

Product Suitability:

PerforMet® Alloy finds suitability in various motorsport and automotive applications, including piston rings, valve guides, intake/exhaust valve seats and plain bearings.

Benefits:

- High-temperature and conductivity performance
- High strength and corrosion resistance
- Non-magnetic
- Improves performance and prolongs the life of critical engine components

(1) PerforMet® Alloy is a proprietary product manufactured and copyrighted by Materion.

About Smiths High Performance

Smiths High Performance is a leading stockholder and supplier of high-performance engineering materials. We are material supply chain partners supporting high-technology market sectors.



Anti Galling Characteristics:

The product is highly resistant to mechanical wear and galling, offering a low friction coefficient when mated to other metals.

Motorsport Applications:

- Plain bearings
- Intake and exhaust valve seats
- Piston rings and valve guides
- Ideal for powertrain applications



Further technical data available on the reverse of this Datasheet

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Revision: SHP/english/datasheets/perforMet/12.02.2025

Page: 2 of 2

Chemical Composition (weight, %)

	Ni	Si	Cr	Cu	
Min:	6.40	1.50	0.60	Bal	
Max:	7.60	2.50	1.20	Bal	

* Mechanical Properties

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

Physical Properties

Elastic Modulus	Density	Thermal Expansion Coefficient	Thermal Conductivity (typical @ 25 °C)	Thermal Conductivity (typical @ 250 °C)
18,500 ksi 130 GPa	0.314 lb/in ³ 8.69 g/cm ³	9.7 x 10 ⁻⁶ in/in °F 17.5 x 10 ⁻⁶ m/m °C	90 BTU/ft hr °F 155 W/m °C	125 BTU/ft hr °F 215 W/m °C

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...where performance matters...

When you purchase high-performance materials from **Smiths High Performance**, you will join some of the biggest and best global engineering companies. We are a Tier 1 supply chain partner to the world's leading motorsport companies. Our unique business structure and ethos allow us to offer services otherwise unavailable in this market sector.

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