STAINLESS GROUP

High performance Alloys - Medical - Aerospace - Microtechnics - Motorsport - Industry

PERFORMET®

CuNi7Si2Cr1

GENERALITIES

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. This alloy is lead and beryllium free (<0,01%).*

This alloy is melted and produced by MATERION in the USA. Each batch is delivered with its original certificate of conformity to warranty a full traceability.

APPLICATIONS

With a combination of high strength and thermal conductivity, and friction, wear and corrosion resistance, PerforMet® alloy withstands higher pressures and temperatures in high-power-density engines. Combined, these benefits can increase power and torque while lowering fuel consumption. 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.

STANDARDS AND DESIGNATIONS

Trademark :
PerforMet®, NS30®, CAL C900®

TYPICAL CHEMISTRY (weight %)

	Nickel	Silicon	Chromium	Copper
MIN	6.4	1.5	0.4	BALANCE
MAX	7.6	2.5	1.25	

METALLURGY

The alloy is usually mill hardened.

PERFORMET®
CuNi7Si2Cr1

PHYSICAL PROPERTIES AT 20°C

Density.....8.69 g.cm-3.
Coefficient of thermal expansion .....17,5 x 10^{-6} m/m.°C
Young's modulus at 20°C.....130 x 10^{3} MPa
Thermal conductivity at 25°C.....155 W/m .°C
Thermal conductivity at 250°C.....215 W/m .°C
Electrical conductivity .....30-35% IACS
Not magnetic (μr<1,001) – Non sparking

MECHANICAL PROPERTIES OF THE BARS

Usual delivery temper is hot worked and treated (AT) with the following typical mechanical properties:

	UTS (MPa)	YS 0.2% (MPa)	E4d%	Hardness
at 25°C	> 860	> 790	> 7	>27HRc or >265 HBW

MACHINABILITY

This alloy can be easily machined.

CORROSION RESISTANCE

This alloy exhibits a high corrosion resistance to seawater or industrial atmosphere. This alloy is immune to hydrogen embrittlement.

STANDARD SHAPE

- Round bars and tubes up to 4,5" (114 mm) for external diameter
- Other shapes : upon request

STAINLESS 4, rue Thalès 25440 Dannemarie-sur-Crète FRANCE Tél. +33(0)3 81 48 57 40 E-mail : info@stainless.eu www.stainless.eu