



Brand Name	PURE NICKEL				
Material Code	2.4060				
Abbreviation	Ni 99.6				
Chemical Composition (mass components) in %.					
Ni					
≥ 99.6					

Features and Application Notes

PURE NICKEL is especially characterized by very high resistance to oxidation and chemical corrosion. Its resistivity is even lower than the resistivity of NICKEL 99.2 while its temperature coefficient is higher. There is a large scale of possible applications. Wires of PURE NICKEL are mainly used for the manufacture of connections for heating elements as well as heating spirals in spark-plugs. PURE NICKEL is magnetic up to approx. +350 °C. The maximum working temperature in air is +700 °C.

Form of Delivery

PURE NICKEL is supplied in the form of round wires in the range 0.05 to 5.00 mm Ø in bare or enamelled condition.

Electrical Resistance in Annealed Condition

Temperature coefficient of electrical resistance between

Electrical resistivity in: $\mu\Omega \times \text{cm}$ (first line) and Ω/CMF (second line)
Reference Values

0 °C and +100 °C
 $10^{-9}/\text{K}$

+20 °C
tolerance $\pm 10\%$

+100 °C

+200 °C

+300 °C

+400 °C

+500 °C

+5,300 to +6,400

8

12

18

25

32

36

48

72

108

150

192

217

Physical Characteristics (Reference Values)

Density at +20 °C

Melting point

Specific heat
at +20 °C

Thermal conductivity
at +20 °C

Average linear thermal expansion coefficient
between +20 °C and

Thermal EMF
against copper at

+100 °C

+400 °C

+20 °C

g/cm³

lb/cub in

°C

J/g K

W/m K

10⁻⁶/K

10⁻⁶/K

$\mu\text{V}/\text{K}$

8.90

0.32

+1,440

0.47

69.00

13.00

14.00

-23.00

Strength Properties at +20 °C in Annealed Condition

Tensile Strength²⁾

Elongation (L₀ = 100 mm) % at nominal diameter in mm

MPa

psi

0.020 to 0.063

> 0.063 to 0.125

> 0.125 to 0.50

> 0.50 to 1.00

> 1.00

450

65,300

≈ **10**

≈ **15**

≈ **18**

≥ **20**

≥ **25**

General Note // PURE NICKEL is not a standard resistance alloy. Therefore no resistance values are quoted. The weight values correspond to those of ISOTAN[®] wires of the same diameter.

Notes on Treatment // PURE NICKEL can be worked easily. This alloy can be soldered and brazed without difficulty. All known welding methods can be used.

1) As with all pure metals, the thermal conductivity strongly depends on the purity and temperature.

2) This value applies to wires of 2.0 mm diameter. For thinner wires the minimum values will substantially increase, depending on the dimensions.