



Brand Name	ISA®-NICKEL 1)				
Material Code	2.4360				
Abbreviation	NiCu30Fe				
Chemical Composition (mass components) in %. Average values of alloy components					
Ni Rem.	Cu 31	Fe 1	Mn 1		

Features and Application Notes

ISA®-NICKEL is known for its high resistance to oxidation and chemical corrosion. These features govern the application: Wire cloth, connecting braids for heating elements, welding wires and many more applications. The maximum working temperature in air is +700 °C.

Form of Delivery

ISA®-NICKEL is supplied in the form of round wires in the range 0.03 to 8.00 mm Ø and stranded wires in bare condition.

Electrical Resistance in Annealed Condition

Temperature coefficient²⁾ of electrical resistance between

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

+20 °C and +105 °C
10⁻⁶/K

+20 °C
tolerance $\pm 10\%$

+100 °C

+200 °C

+300 °C

+400 °C

+500 °C

+400 to +600

49

51

53

55

56

57

295

307

319

331

337

343

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

$\mu\text{V/K}$

8.90

0.32

+1,360

0.42

22.00

13.50

15.00

-33.00

Mechanical Properties at +20 °C in Annealed Condition

Tensile Strength³⁾

Elongation ($L_0 = 100 \text{ mm}$) % 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

65,250

~ 12

~ 18

~ 20

≥ 20

≥ 25

General Note // Since ISA®-NICKEL alloy itself cannot be used as a resistance material, but merely for accessories for resistive components, no resistance values per meter are given. The weight values correspond to those of ISOTAN® wires of the same diameter.

Notes on Treatment // ISA®-NICKEL is easy to process. Copper-nickel alloys can be soft and hard soldered as well as welded by the known processes. On request we supply material tested according to DIN EN 60068-2-20.

1) ISA®-NICKEL is a registered trademark of Isabellenhütte Heusler GmbH & Co. KG.

2) ISA®-NICKEL is not standardized as a resistance alloy.

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