



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 °C	Specific heat at +20 °C J/g K	Thermal conductivity at +20 °C W/m K	Average linear thermal expansion coefficient between +20 °C and		Thermal EMF against copper at +20 °C $\mu\text{V/K}$
g/cm ³	lb/cub in				+100 °C 10 ⁻⁶ /K	+400 °C 10 ⁻⁶ /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 can be worked easily. It can be soldered and brazed without difficulty. All known welding methods are applicable.

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.