Brand Name	**ISA®-NICKEL 400**
Material Code	**2.4360**
Abbreviation	**NiCu30Fe**

Chemical Composition (mass components) in %.
Average values of alloy components

Ni	Cu	Fe	Mn		
Rem.	31	1	1		

Features and Application Notes

ISA®-NICKEL 400 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 400 is supplied in the following versions:

- RODS (Ø 12 – 200 mm // 0.5 – 8'')
  - hot rolled / forged / extruded
- WIRE (Ø 0.05 – 5.5 mm // 0.002 – 0.217'')
- STRIP

Electrical Resistance in Annealed Condition

Temperature coefficient[2] of electrical resistance between	Electrical resistivity in: µΩ x cm (first line) and Ω /CMF (second line) Reference Values					
+20 °C and +105 °C 10^{-6}/K	+20 °C tolerance ±10 %	+100 °C	+200 °C	+300 °C	+400 °C	+500 °C
+500 to +700	**51.1**	**53.7**	**55.9**	**57.4**	**58.7**	**60.3**
	307	**322**	**337**	**346**	**355**	**367**

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	
					+100 °C	+400 °C
g/cm³	**lb/cub in**	**°C**	**J/g K**	**W/m K**	**10^{-6}/K**	**10^{-6}/K**
8.8	**0.32**	**+1,300**	**0.43**	**22**	**14.2**	**16.1**

Mechanical Properties at +20 °C in Annealed Condition

Tensile Strength[3]		Elongation (L_0 = 100 mm) % at nominal diameter in mm	E-Module
MPa	**psi**	**%**	**GPa**
450	**85,250**	**30**	**180**

Notes on Treatment // ISA®-NICKEL 400 is easy to process. Copper-nickel alloys can be soft and hard soldered as well as welded by the known processes.

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.

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