Brand Name	**ISA®-NICKEL 405**
Material Code	**2.4363**
Abbreviation	**NiCu30FeS**

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

Ni	Cu	Fe	Mn	S	
Rem.	31	2	2	0.04	

Features and Application Notes

ISA®-NICKEL 405 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 material is easy to machine and is highly resistant to stress corrosion cracking.

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**	**0.38**	**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**	**179**

Notes on Treatment // ISA®-NICKEL 405 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.

Issue April-2026