



Form of Delivery

ISOTAN® is supplied in the form of wires with dimensions from 0.03 to 10 mm Ø in bare condition. Enamelled wires are available in dimensions between 0.05 and 1.5 mm Ø.

ISOTAN® can also be supplied in form of stranded wire, ribbon, flat wire and rods. Please contact us for the range of dimensions.

Brand Name	ISOTAN® ¹⁾		
Material Code	2.0842		
Abbreviation	JN / LN / TN / UN / EN / JNX / LNX / TNX / UNX / ENX / KNCB / CNC		
Chemical Composition (mass components) in % Average values of alloy components			
Cu	Ni	Mn	
Balance	44	1	

Thermoelectrical and Electrical Values in Soft-Annealed Condition ³⁾

EMF versus Cu/NIST 175 0 – 100 °C / mV	EMF versus Pt67/NIST 175 0 – 100 °C / mV	EMF versus Pt67/NIST 175 0 – 700 °C / mV	Electrical resistivity in µΩ x cm at 20 °C
- 4.1 to - 4.7	- 3.3 to - 3.9	- 29.6 to - 34.7	49

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	Magnetic at room temperature
g/cm ³	°C	J/g K	W/m K	10 ⁻⁶ /K	
8.9	1280	0.41	23	13.5	no

Mechanical Properties at 20 °C in Annealed Condition ⁴⁾

	Tensile strength MPa	Elongation %	Hardness HV10
hard	> 740	2	> 230
soft	420	30	95

- 1) ISOTAN® is a registered trademark of Isabellenhütte Heusler GmbH & Co. KG.
- 2) Konstantan® is a registered trademark of KRUPP VDM GmbH.
- 3) The exact EMF values according to NIST 175 can be calculated with the "EMF-Software", which can be downloaded from our homepage.
- 4) The mechanical values considerably depend on dimension. The indicated values refer to a dimension of 1 mm diameter.

Notes on Treatment

ISOTAN® is easy to process. The alloy can be soldered and brazed without difficulty. All known welding methods are applicable.

Features and Application Notes

ISOTAN®, also named Konstantan®²⁾, is used as negative leg of thermocouple types J and L as well as T, U and E. In the version for extension leads, ISOTAN® is used for JNX, LNX as well as TNX, UNX and ENX. ISOTAN® is also used as compensating lead in type KNCB as well as negative leg for compensating lead type W5Re/W26Re. The standardized temperature range of the different application possibilities of ISOTAN®, is available in the tables on pages 10 and 11, 14 and 15 as well as 18 and 19. See also "Special Remarks on the Alloy". We supply various qualities of ISOTAN®, which are suited for different applications or standards.