



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

Form of Delivery

ISOTAN® is supplied in the form of wires with dimensions from 0.12 to 5.5 mm Ø in bare condition. Enamelled wires are available in dimensions between 0.05 and 1.5 mmØ. ISOTAN® can also be supplied in form of stranded wire, ribbon, flat wire and rods. Please contact us for the range of dimensions.

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. ISOTAN® is standardized between – 40 and 750 °C in thermocouple type J and between –200 and 900 °C in thermocouple type L. In the thermocouple types T and U, ISOTAN® is standardized from –40 or – 200 to 350 or 600°C, as well as from –200 to 900 °C in thermocouple type E. For extension leads or compensating leads ISOTAN® is standardized between –25 and 200 °C. We supply various qualities of ISOTAN®, which are suited for different applications or standards.

Thermoelectrical and Electrical Values in Soft-Annealed Condition³⁾

EMF vers. Pt/NIST 175	EMF vers. Pt67/NIST 175	EMF vers. Pt/NIST 175	EMF vers. Pt67/NIST 175	Electrical resistivity at 20°C in	
0-200 ° F / mV	0-100 ° C / mV	0-1400 ° F / mV	0-700 ° C / mV	μΩ x cm	Ω / cir mil ft
In dependency on thermocouple type and standard				49	295

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 temp.
g/cm³	lb/cub in	°C	J/g K	W/m K	10 ⁻⁶ /K	
8.9	0.322	1280	0.41	23	13.5	no

Mechanical Properties at 20 °C in Annealed Condition (Reference Values)⁴⁾

Annealing State	Tensile Strength		Elongation	Hardness
	MPa	lb / sq in	%	HV10
hard	>740	>107300	2	>230
soft	420	60900	30	95

1) Isotan® is a registered trademark of ISABELLENHÜTTE Heusler GmbH KG.

2) Konstantan®-P 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.