



Brand Name	ISA MINUS® 1)		
Material Code	-		
Abbreviation	KNC		
Chemical Composition.(mass components.) in % average values of alloy components			
Cu	Ni	Mn	Fe
Balance	45	2	2

Form of Delivery

ISA MINUS® is supplied in the form of wires with dimensions from 0.05 to 8 mm Ø in bare condition. Enamelled wires are available in dimensions between 0.05 and 1.5 mmØ. ISA MINUS® 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

ISA MINUS® is used as negative leg for compensating lead of the element type K as well as positive leg for compensating lead type W5Re/W26Re.

ISA MINUS® is standardized in the temperature range between 0 and 150°C. **ISABELLENHÜTTE delivers ISA MINUS® in standardized tolerance up to 200°C (400°F).**

Thermoelectrical and Electrical Values in Soft-Annealed Condition

EMF vers. Pt/NIST 175 0-200 ° F / mV	EMF vers. Pt67/NIST 175 0-100 ° C / mV	EMF vers. Pt/NIST 175 0-400 ° F / mV	EMF vers. Pt67/NIST 175 0-200 ° C / mV	Electrical resistivity at 20°C in	
				µΩ x cm	Ω / cir mil ft
2.08	2.23	-4.76	-4.66	51	307

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) 2)

Annealing State	Tensile Strength		Elongation %	Hardness HV10
	MPa	lb / sq in		
hard	>840	121800	<2	>240
soft	500	72500	30	120

1.) ISA MINUS® is a registered trademark of ISABELLENHÜTTE Heusler GmbH & Co. KG.

2.) The mechanical values considerably depend on dimension. The indicated values refer to a dimension of 1 mm diameter.

Notes on Treatment

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