



Brand Name	ISATHERM MINUS® 1)		
Material Code	2.4122		
Abbreviation	KN KNX		
Chemical Composition.(mass components.) in % average values of alloy components			
Ni Rest	MnAlSi 5		

Form of Delivery

ISATHERM MINUS® (KN and KNX) is supplied in the form of bare wire with dimensions from 0.03 to 10 mmØ. We supply coated wires from 0.03 to 1.5 mmØ. For oxidized wires the available dimensions are 1 to 4 mmØ. ISATHERM MINUS® can also be supplied in the form of stranded wire, ribbon, flat wire and rods. Please contact us for the range of dimensions. The dimensions 20 AWG (0.81 mm Ø) and 16 AWG (1.29 mm Ø) in the KPX/EPX version are usually available ex stock.

Features and Application Notes

ISATHERM Minus®, also known as ALUMEL® 2) or NiAlCo, is used as negative leg of the thermocouple type K.

In the version for extension leads ISATHERM Minus®, is used for KNX.

ISATHERM MINUS®, is standardized from -200 to 1260°C in thermocouple type K. In the version for extension leads ISATHERM Minus® is standardized from -25 to 200°C See also „Special remarks on the alloy“.

Thermoelectrical and Electrical Values in Soft-Annealed Condition 3)

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	0-2000 ° F / mV	0-1000 ° C / mV	µΩ x cm	Ω / cir mil ft
-1.207	-1.282	-9.523	-8.777	27	162

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	
8.6	0.3107	1400	0.52	30	16	yes

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

Annealing State	Tensile Strength		Elongation	Hardness
	MPa	lb / sq in	%	HV10
hard	>1050	>152250	<2	>300
soft	630	91350	35	100

1) ISATHERM MINUS® is a registered trademark of ISABELLENHÜTTE HEUSIER GMBH & CO. KG.

2) Alumel® is a registered trademark of Hoskins Corp. USA.

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

ISATHERM MINUS® can be brazed without difficulty. All known welding methods are applicable. However, the alloy is difficult to soft-solder.

Special Remarks on the Alloy

ISATHERM MINUS® reacts corrosively at higher temperatures in the presence of sulphur. Thus the thermoelectric voltage may change dramatically as a result. This oxidation also leads to brittleness of the material.