Brand Name	**IRON**
Material Code	**1.000**
Abbreviation	**JP (X) / LP (X) / KPCA**

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

Fe	Mn	Si	Al	C	
Balance					

Features and Application Notes
IRON is used as positive leg of the thermocouple types J and L. For extension leads, IRON is used for JPX and LPX. As compensating lead, IRON is used as positive leg for KCA. The thermoelectric voltages for LP(X) and KPCA differ from JP(X) materials depending on standards. The standardized temperature range of the different application possibilities of IRON is available in the tables of the glossary. The IRON supplied by Isabellenhütte mainly is copper coated and free of rust. All packaging units are protected with antirust substances.

Form of Delivery
IRON is supplied in the form of wires with dimensions from 0.12 to 4.75 mm Ø copper plated. Enamelled wires are available in dimensions between 0.12 and 1.50 mm Ø. IRON can also be supplied in form of stranded wire, ribbon, flat wire and rods. Please contact us for the range of dimensions.

Thermoelectrical[1] and Electrical Values in Soft-Annealed Condition

EMF versus Cu/NIST 175 at +100 °C / mV	EMF versus Pt67/NIST 175 at +100 °C / mV	EMF versus Pt67/NIST 175 at +700 °C / mV	Electrical resistivity in µΩ x cm at +20 °C
1.006	**1.779**	**9.079**	**12**

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/cm³	**°C**	**J/g K**	**W/m K**	**10^{-6}/K**	
7.80	**+1,496**	**0.47**	**81.00**	**11.20 to 12.60***	**yes**

Mechanical Properties at +20 °C in Annealed Condition

	Tensile strength MPa	Elongation %	Hardness HV10
hard	**> 600**	**0 – 1**	**200**
soft	**370**	**28**	**90**

Notes on Treatment // IRON is easy to process. The alloy can be soldered and brazed without difficulty. All known welding methods are applicable.

Special Remarks on the Alloy // IRON has a strong tendency to corrode/rust. The material should be stored and used in a dry environment. Please note that the copper coating does not act as a rust protection. It is only used for production and optical purposes.

1) The exact EMF values can be calculated with a "EMF-Software", which can be downloaded from our homepage.
2) The mechanical values considerably depend on dimension. The indicated values refer to a dimension of 1.0 mm diameter.
* Depending on chemical position.

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