



Brand Name	E-COPPER				
Material Code	2.0060				
Abbreviation	TP (X) / UP (X) / KPCB / NPC / SPCA / SPCB / RPCA / RPCB / BNC				
Chemical Composition (mass components) in %.					
Average values of alloy components					
Cu					
≥ 99.9					

Features and Application Notes

E-COPPER is used in a wide range of thermocouple, extension and compensating lead types. As a thermocouple, it is used as positive leg for types T and U. As an extension lead, it is used for types TPX and UPX. E-COPPER is also used as the positive leg for the compensating lead to the elements Pt10Rh-Pt, Pt13Rh-Pt, NiCr-Ni (KCB) and NICROSIL-NISIL (NC), as well as the negative leg for compensating lead to the element Pt30Rh-Pt6Rh. The standardized temperature range of the different application possibilities of E-COPPER is available in the tables of the glossary. We supply E-COPPER for applications up to +400 °C. Above this temperature strong oxidation of the metal will start. E-COPPER is standardized up to +200 °C for extension or compensating lead.

Form of Delivery

E-COPPER is supplied in the form of wires with dimensions from 0.05 to 10.00 mm Ø in bare condition. Enamelled wires are available in dimensions between 0.05 and 1.50 mm Ø. E-COPPER can also be supplied in form of stranded wire, ribbon, flat wire and rods. Please contact us for the range of dimensions.

Thermoelectrical¹⁾ and Electrical Values in Soft-Annealed Condition

EMF versus Cu/NIST 175 at +100 °C / mV ²⁾	EMF versus Pt67/NIST 175 at +100 °C / mV ²⁾	EMF versus Cu at +400 °C / mV ²⁾	EMF versus Pt67/NIST 175 at +400 °C / mV ²⁾	Electrical resistivity in $\mu\Omega \times \text{cm}$ at +20 °C
0.000	0.773	0.000	-4.690	1.700

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	
8.90	+1,083	0.38	390.00	17.00	no

Mechanical Properties at +20 °C in Annealed Condition³⁾

	Tensile strength MPa	Elongation %	Hardness HV10
hard	400	3	120
soft	200	30	55

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

1) The exact EMF values can be calculated with a "EMF-Software", which can be downloaded from our homepage.

2) Reference at 0 °C.

3) The mechanical values considerably depend on dimension. The indicated values refer to a dimension of 1.0 mm diameter.