



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 Balance	trace elements		

Form of Delivery

E-COPPER is supplied in the form of wires with dimensions from 0.12 to 5.5 mm \varnothing in bare condition. Enamelled wires are available in dimensions between 0.05 and 1.5 mm \varnothing . E-COPPER can also be supplied in form of stranded wire, ribbon, flat wire and rods. Please contact us for the range of dimension.

Features and Application Notes

E-COPPER is used in a wide range of element, extension- and compensating-lead types. As an element it is used as positive leg for types T and U. As a thermocouple 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 and Pt13Rh-Pt, as well as the negative leg for compensating lead to the element Pt30Rh-Pt6Rh.

E-COPPER is standardized from -40 or -200 to 350 or 600 °C in element types T and U. We supply E-Copper up to 400 °C. Above this temperature strong oxidation of the metal will start. E-Copper is standardized between -25 and 100 or 200 °C for extension- or compensating lead.

Thermoelectrical and Electrical Values in Soft-Annealed Condition ¹⁾

EMF vers. Pt/NIST 175 0-200 ° F / mV	EMF vers. Pt67/NIST 175 0-100 ° C / mV	EMF vers. Pt/NIST 175 0-700 ° F / mV	EMF vers. Pt67/NIST 175 0-400 ° C / mV	Electrical resistivity at 20°C in	
				$\mu\Omega \times \text{cm}$	$\Omega / \text{cir mil ft}$
0.711	0.773	4.224	4.690	1.7	10

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/cm ³	lb/cub in	°C	J/g K	W/m K	10 ⁻⁶ /K	
8.9	0.322	1083	0.38	390	17	no

Mechanical Properties at 20 °C in Annealed Condition (Reference Values) ²⁾

Annealing State	Tensile Strength		Elongation	Hardness
	MPa	lb / sq in	%	HV10
hard	400	58000	3	120
soft	200	29000	30	55

1) The exact EMF values according to NIST 175 can be calculated with the „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 mm diameter.

Notes on Treatment

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