

THERMOCOUPLES **TYPE T** / EXTENSION LEADS **TYPE TX**

TYPE T/TX	E-COPPER TP / TPX	ISOTAN® TN / TNX
Chemical composition*	Cu ≥99.9	Cu balance / Ni 44 / Mn 1 %
Melting point / Density*	1,083 °C / 8.90 g/cm³	1,280 °C / 8.90 g/cm³
Magnetic at room temperature	no	no
Electrical resistivity at 20 °C*	1.7 µOhm x cm	49 µOhm x cm
Tensile strength / elongation at 20 °C*	hard condition: >400 MPa / 3 % soft condition: 200 MPa / 30 %	hard condition: > 740 MPa / < 2 % soft condition: 420 MPa / 30 %
Hardness at 20 °C*	hard condition: 120 HV10 soft condition: 55 HV10	hard condition: >230 HV10 soft condition: 95 HV10

THERMOELECTRIC STANDARD TOLERANCES

TYPE T acc. ASTM E230	temperature range: 0 to 370 °C tolerance: Standard ±1.0 °C or 0.75 % (t90) / Special ±0.5 °C or 0.4 % (t90)
TYPE TX acc. ASTM E230	temperature range: -60 to +100 °C tolerance: Standard ±1.0 °C / Special ±0.5 °C
TYPE T acc. IEC 60584	temperature range: -40 °C to +350 °C tolerance: Class 1 ±0.5 °C or 0.4 % (t90) / Class 2 ±1.0 °C or 0.75 % (t90)
TYPE TX acc. IEC 60584	temperature range: -25 to +100 °C tolerance: Class 1 ±30 µV (±0.5 °C) / Class 2 ±60 µV (±1.0 °C)
Special tolerances	possible, depend on customer application, e.g. ½ Special-tolerance acc. ASTM E230

DELIVERY SPECIFICATIONS

Form of delivery	wires: 0.05 to 10.0 mm on spools and coils coated wires: 0.03 to 1.5 mm stranded wires: 0.1 to 0.8 mm (up to 32 strands) on spools flat wires: 0.1 to 1.0 mm thickness and max. 10.0 mm width on spools ribbons: 0.1 to 1.5 mm thickness and max. 110.0 mm width on coils rods: 6.0 / 7.0 / 8.0 / 9.0 / 10.0 mm with max. 2,200 mm length
Measuring range	standard: 0 to 400 °C for T and 100 °C for TX upon request: -40 °C for T and -25/-40 °C for TX

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