



Thermocouple base materials acc to IEC 584									
Type	Conductors	Temperature range	μV	Tolerance acc IEC 584-2 (reference junction at 0 °C)					
				Class 1		Class 2		Class 3	
T	+ Copper (Cu) - Constantan (CuNi)	-200 °C / + 350 °C	-5603 to -17816	-40 °C / + 350 °C	$\pm 0,5\text{ °C}$ or $\pm 0,004\text{ .t/}$		$\pm 1\text{ °C}$ or $\pm 0,0075\text{ .t/}$	-200 °C / + 40 °C	$\pm 1\text{ °C}$ or $\pm 0,015\text{ .t/}$
J	+ Iron (Fe) - Constantan (CuNi)	-40 °C / + 750 °C	-1960 to +42283	-40 °C / + 750 °C	$\pm 1,5\text{ °C}$ or $\pm 0,004\text{ .t/}$		$\pm 2,5\text{ °C}$ or $\pm 0,0075\text{ .t/}$		
E	+ Chromel (NiCr) - Constantan (CuNi)	-200 °C / + 900 °C	-8824 to +68783	-40 °C / + 800 °C	$\pm 1,5\text{ °C}$ or $\pm 0,004\text{ .t/}$	-40 °C / + 900 °C	$\pm 2,5\text{ °C}$ or $\pm 0,0075\text{ .t/}$	-200 °C / + 40 °C	$\pm 2,5\text{ °C}$ or $\pm 0,015\text{ .t/}$
K	+ Chromel (NiCr) - Alumel (NiAl)	-200 °C / + 1200 °C	-5891 to +48828	-40 °C / + 1000 °C	$\pm 1,5\text{ °C}$ or $\pm 0,004\text{ .t/}$	-40 °C / + 1200 °C	$\pm 2,5\text{ °C}$ or $\pm 0,0075\text{ .t/}$	-200 °C / + 40 °C	$\pm 2,5\text{ °C}$ or $\pm 0,015\text{ .t/}$
N	+ Nicrosil (NiCrSi) - Nisil (NiSi)	-200 °C / + 1200 °C	-3990 to +43836	-40 °C / + 1000 °C	$\pm 1,5\text{ °C}$ or $\pm 0,004\text{ .t/}$	-40 °C / + 1200 °C	$\pm 2,5\text{ °C}$ or $\pm 0,0075\text{ .t/}$	-200 °C / + 40 °C	$\pm 2,5\text{ °C}$ or $\pm 0,015\text{ .t/}$
S	+ Platinum (Pt) - Platinum 10% Rhodium (Pt10%Rh)	0 °C / + 1600 °C	0 to +16771		$\pm 1\text{ °C}$ or $\pm (1+ 0,003(t-1100))$		$\pm 1,5\text{ °C}$ or $\pm 0,0025\text{ .t/}$		
R	+ Platinum (Pt) - Platinum 13% Rhodium (Pt13%Rh)	0 °C / + 1600 °C	0 to +18842		$\pm 1\text{ °C}$ or $\pm (1+ 0,003(t-1100))$		$\pm 1,5\text{ °C}$ or $\pm 0,0025\text{ .t/}$		
B	+ Platinum 30% Rhodium (Pt30%Rh) - Platinum 6% Rhodium (Pt6%Rh)	+ 600 °C / + 1700 °C	+1791 to + 12426				$\pm 0,0025\text{ .t/}$		$\pm 4\text{ °C}$ or $\pm 0,005\text{ .t/}$

The tolerance is expressed either as a deviation in degrees Celsius or as a percentage of the actual temperature. The greater value applies.

Thermocouple materials are normally supplied to meet manufacturing tolerances specified in the table for temperatures above -40 °C.

These materials, however, may not fall within the manufacturing tolerances for low temperatures

given under Class 3 for Type T, E and K thermocouples if thermocouples are required to meet limits of Class 3, as well as those of Class 1 and/or Class 2.

The purchaser shall state this, and selection of materials is usaly required.

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