

Ø-TOLERANCES MINERAL INSULATED THERMOCOUPLES

tolerances of outer diameter

tolerance of outer diameter	
outer-Ø of thermocouples	nominal value +/- limit dimensions
0,5 mm	+/- 0,025 mm
1,0 mm	+/- 0,025 mm
1,5 mm	+/- 0,025 mm
2,0 mm	+/- 0,025 mm
3,0 mm	+/- 0,030 mm
4,5 mm	+/- 0,045 mm
6,0 mm	+/- 0,060 mm
8,0 mm	+/- 0,080 mm

thermocouple types: form A / form B

Mineral insulated thermocouples listed in this catalogue are according to DIN EN 61515 with regard to shape, construction and geometrical dimensions or refer to it. Regarding the basic values and tolerances the standards DIN EN 60584-1 and DIN EN 60584-2 are valid.

We furnish mineral insulated thermocouples with insulated hot junction (form A) as standard version acc. to DIN EN 61515.

Form A - ungrounded mineral insulated thermocouple

- ▶ The measuring tip isn't directly welded to the bottom. Mineral insulated thermocouples keep the given min. insulation resistance acc. to DIN EN 61515 of >1000 MΩ at room temperature.

Form B - grounded mineral insulated thermocouple

- ▶ The measuring tip is electrically connected to the sheath.

tolerances of length

tolerances of length		
cutting length (mm)	cutting length up to (mm)	tolerances in (mm)
0	300	+/- 2
300	1000	+/- 4
1000	∞	+/- 10



special tolerances
acc. to agreement

tolerances of thermocouples

type	standard	material	class 1		class 2		class 3	
			temperature range	(2) limit deviation	temperature range	(2) limit deviation	temperature range	(2) limit deviation
T	DIN EN 60584	Cu-CuNi	-40 up to +350°C	±0,5°C or 0,40%	-40 up to +350°C	±1,0°C or 0,75%	-200 up to +40°C	±1,0°C or 1,5%
(1) U	DIN 43710	Cu-CuNi	-	-	0 up to +600°C	±3,0°C or 0,75%	-	-
J	DIN EN 60584	Fe-CuNi	-40 up to +750°C	±1,5°C or 0,40%	-40 up to +750°C	±2,5°C or 0,75%	-	-
(1)L	DIN 43710	Fe-CuNi	-	-	0 up to +900°C	±3,0°C or 0,75%	-	-
K	DIN EN 60584	NiCr-Ni	-40 up to +1000°C	±1,5°C or 0,40%	-40 up to +1200°C	±2,5°C or 0,75%	-200 up to +40°C	±2,5°C or 1,5%
E	DIN EN 60584	NiCr-CuNi	-40 up to +800°C	±1,5°C or 0,40%	-40 up to +900°C	±2,5°C or 0,75%	-200 up to +40°C	±2,5°C or 1,5%
N	DIN EN 60584	NiCrSi-NiSi	-40 up to +1000°C	±1,5°C or 0,40%	-40 up to +1200°C	±2,5°C or 0,75%	-200 up to +40°C	±2,5°C or 1,5%
S	DIN EN 60584	PtRh 10-Pt	0 up to +1600°C	±1,0°C or ⁽³⁾	0 up to +1600°C	±1,5°C or 0,25%	-	-
R	DIN EN 60584	PtRh13-Pt	0 up to +1600°C	±1,0°C or ⁽³⁾	0 up to +1600°C	±1,5°C or 0,25%	-	-
B	DIN EN 60584	PtRh30-PtRh6	-	-	+600 up to +1700°C	±1,5°C or 0,25%	+600 up to +1700°C	±4,0°C or 0,5%

Classes 1, 2, and 3 are valid for thermocouples.

⁽¹⁾ Since April 1994 the standard DIN 43710 is no longer valid.

⁽²⁾ For the limit deviation, the higher value is valid.

⁽³⁾ 1°C or $[1 + (t - 1100) \times 0,003]$ °C