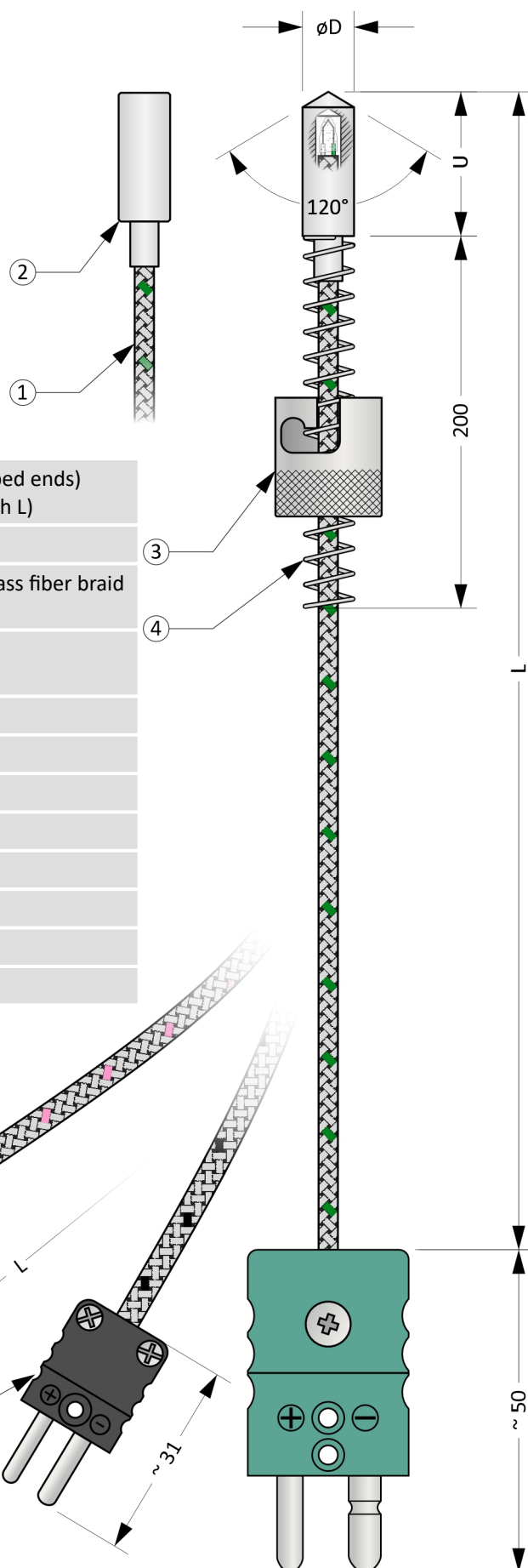


MTC13

CABLE THERMOCOUPLES

Temperature sensors of the MTC13 series are the standard version of cable contact temperature sensors. The shape and size of the sensor tip can be selected according to the borehole in the object to be measured.

The measuring element is a thermocouple of the J, K, L or N type, which uses the dependence of the thermoelectric voltage on the temperature to measure the temperature. The output signal is a thermoelectric voltage, the value of which is according to the ČSN EN 60584-1 ed. 2 or DIN 43 710 for L thermocouple.



General Information (Table 13.1)

	Insulation class acc. ČSN EN 60529	IP50 (connector), IP00 (stripped ends) IP5X (measuring part in length L)
	Cable thermocouple	
	Cable insulation	GHGHV (glass fiber braid / glass fiber braid / stainless steel wire braid)
①	Number x cross-section of wires	2 x 0,22 mm ² , stranded
	Cable diameter	~ 3,0 mm
	Min. bending radius	15 x outer cable diameter
②	Protection tube	
	Material	Stainless steel 1.4541
③	Bayonet cap	
④	Bayonet spring	
⑤	Stripped ends	
⑥	Connector	

Figure 13.1: MTC13

Optional Parameters Including the Creation of an Order Code (Table 13.2)

Pos.	Code	MTC13 - 1 2 3 - 4 - 5 6	
1	Basic design		
	0	Without spring and bayonet cap	
	1	With spring and bayonet cap	
2	Thermocouple type		
	1	1 x „J“, thermocouple isolated from the sheath, accuracy class 2 acc. ČSN EN 60584-1 ed. 2	
	0	1 x „K“, thermocouple isolated from the sheath, accuracy class 2 acc. ČSN EN 60584-1 ed. 2	
	2	1 x „L“, thermocouple isolated from the sheath, acc. DIN 43 710	
	3	1 x „N“, thermocouple isolated from the sheath, accuracy class 2 acc. ČSN EN 60584-1 ed. 2	
3	Protection tube design		
	0	Length U = 60 mm, dia. D = 6 mm, tip with 120° bevel	For spring with dia.= 6 mm
	1	Length U = 20 mm, dia. D = 6 mm, tip with 120° bevel	For spring with dia.= 6 mm
	2	Length U = 10 mm, dia. D = 6 mm, tip with 120° bevel	For spring with dia.= 6 mm
	3	Length U = 14 mm, dia. D = 6 mm, tip with 120° bevel	For spring with dia.= 6 mm
	4	Length U = 14 mm, dia. D = 6 mm, flat tip	For spring with dia.= 6 mm
	5	Length U = 14 mm, dia. D = 8 mm, tip with 120° bevel	For spring with dia.= 8 mm
	6	Length U = 14 mm, dia. D = 8 mm, flat tip	For spring with dia.= 8 mm
	7	Length U = 35 mm, dia. D = 6 mm, tip with 120° bevel	For spring with dia.= 6 mm
	8	Length U = 35 mm, dia. D = 6 mm, flat tip	For spring with dia.= 6 mm
4	Sensor length L [cm]		
	xxx	Selectable range from 10 cm to 450 cm (in 1 cm increments)	
	xxx	Selectable range from 460 cm to 3500 cm (in 10 cm increments)	
5	Design of the cold junction		
	0	Stripped ends, length 40 mm	
	1	Standard connector, MTCK-S type, plug	
	2	Standard connector, MTCK-S type, plug + socket	
	3	Miniature connector, MTCK-M type, plug	
	4	Miniature connector, MTCK-M type, plug + socket	
	5	Ceramic standard connector, MTCK-CS type, plug	
	6	Ceramic standard connector, MTCK-CS type, plug + socket	
	7	Ceramic miniature connector, MTCK-CM type, plug	
6	Bayonet cap		
	N	Not used	Only combination is possible for this option: 1 ... 0
	0	Inner diameter C = 11,3 mm, 2 slots, with a spring of dia. 6 mm	
	1	Inner diameter C = 12,2 mm, 2 slots, with a spring of dia. 6 mm	
	2	Inner diameter C = 15,2 mm, 2 slots, with a spring of dia. 6 mm	
	3	Inner diameter C = 12 mm, 2 slots, with a spring of dia. 8 mm	
	4	Inner diameter C = 15 mm, 2 slots, with a spring of dia. 8 mm	

Order code example: MTC13-100-500-00

- ... With spring and bayonet cap
- ... Thermocouple type K, accuracy class 2
- ... Tube length U = 60 mm, dia. D = 6 mm, tip with 120° bevel
- ... Length L = 500 cm
- ... Stripped ends
- ... Bayonet cap, inner dia. D = 12 mm

Approximate weight of the product: MTC13-100-500-00 ... 0,4 kg

Length Tolerances (Table 13.3)

Length L, U	Tolerance U	Tolerance L
$(L, U) \leq 250 \text{ cm}$	$\pm 1 \text{ mm}$	$\pm 1 \text{ cm}$
$250 < L \leq 500 \text{ cm}$	-	$\pm 1,5 \text{ cm}$
$500 < L \text{ cm}$	-	$\pm 0,5 \% \text{ z } L$

Recommended Maximum Temperatures of Sensor Parts (Table 13.4)

Sensor part	Continuous operation	Short-term operation
Thermocouple - measuring end, cable	-40 ... 600 °C	-
Spring, bayonet cap	< 500 °C	-
Connectors MTCK-S, MTCK-M	< 220 °C	-
Connectors MTCK-CS, MTCK-CM	< 600 °C	-

Bayonet part design (Table 13.5)

The spring compressibility is 50 % (e.g. if we have a spring with a length of 100 mm, then its length after maximum compression will be 50 mm).

④	Bayonet cap	
	Material	Stainless steel
⑤	Bayonet spring	
	Material	Stainless steel

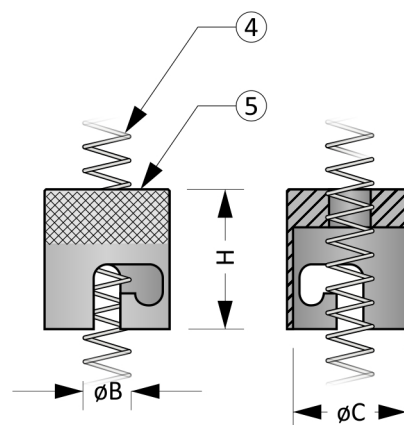


Figure 13.2: Bayonet cap

Dimensions of the bayonet cap (Table 13.6)

ØC	H	ØB
11,3 mm	16 mm	6 mm
12,2 mm	18 mm	6 mm
15,2 mm	18 mm	6 mm
12,0 mm	18 mm	8 mm
15,0 mm	18 mm	8 mm

Installation And Operating Instructions

The sensor stem with bayonet cap is used for mechanical fixing.

The electrical connection of the sensor is shown in Figures 13.3 and 13.4. The output signal is a

thermoelectric voltage, the value of which is according to the ČSN EN 60584-1 ed. 2 or DIN 43 710 for L thermocouple.

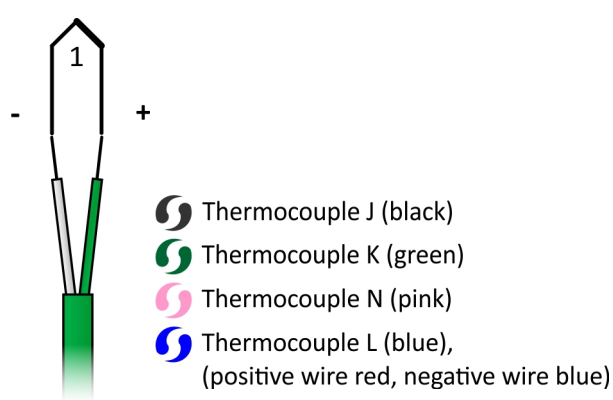


Figure 13.3: Single thermocouple wiring diagram

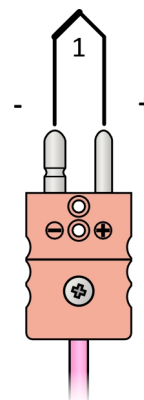


Figure 13.4: Connector wiring diagram