

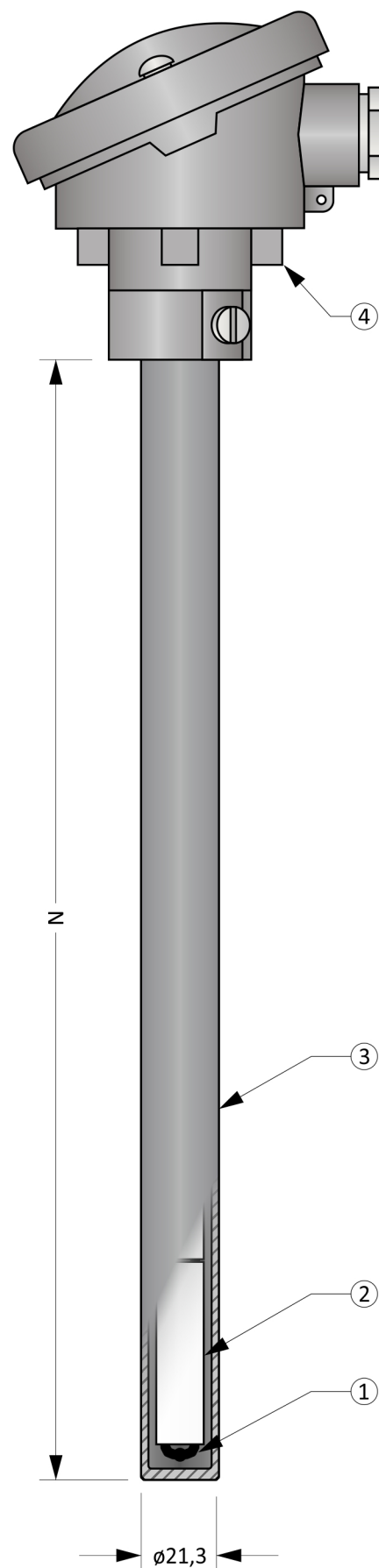
MTC7

THERMOCOUPLE ASSEMBLIES WITH METAL TUBE

Thermocouple assemblies of the MTC7 series are designed for applications with operating temperatures up to 1100 °C and where high mechanical robustness is required.

The measuring element is a base metal thermocouple, 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.

The assembly consists of head, protection metal tube and capillary/beads in which one or two thermocouples can be installed. The head is equipped with a cable gland for connecting the compensation cable.



General Information (Table 7.1)

	Insulation class acc. ČSN EN 60529	IP54 (head) IP68 (measuring part in length N)
①	Base metal thermocouple	
②	Insulating beads / capillary	
	Material	Ceramic C610
	Protection tube	
③	Material	Stainless steel 1.4841
	Outer / inner diameter	21,3 / 17,3 mm
	Head	
④	Material	Aluminium alloy
	Cable bushing	M20 x 1,5

Figure 7.1: MTC7

Optional Parameters Including the Creation of an Order Code (Table 7.2)

Pos.	Code	MTC7 - ① - ② - ③ ④
①	Thermocouple type (acc. ČSN EN 60584-1 ed. 2)	
	0	1 x „J“, accuracy class 2, wire diameter 3,0 mm
	1	1 x „K“, accuracy class 2, wire diameter 3,0 mm
	2	2 x „J“, accuracy class 2, wire diameter 3,0 mm
	3	2 x „K“, accuracy class 2, wire diameter 3,0 mm
	4	1 x „N“, accuracy class 2, wire diameter 3,0 mm
	5	2 x „N“, accuracy class 2, wire diameter 3,0 mm
②	Nominal length N [mm]	
	xxx	Selectable range from 250 mm to 3000 mm (in 10 mm increments)
③	Head type	
	0	A
	1	AUZH with screws with leaden seal holes
	2	AUZH with snap lock
	3	AUZ with screws with leaden seal holes
	4	AUZ with snap lock
④	Transmitter (transmitters are designed for assemblies with AUZH head and one thermocouple)	
	0	Without transmitter
	8	INOR APAQ C130 TC
	3	INOR miniPAQ - HLP
	5	INOR IPAQ C520
	6	INOR IPAQ C330
	7	INOR IPAQ C530
	A	With another transmitter (e.g. supplied by the customer)

Order code example: MTC7-1-800-00

... 1 x „K“, accuracy class 2, wire diameter 3,0 mm

... Nominal length N = 800 mm

... Head A

... Without transmitter

Approximate weight of the product: MTC7-1-800-00 ... 1,5 kg

Length Tolerances (Table 7.3)

Nominal length N	Length tolerance N
$N \leq 1000$ mm	± 2 mm
$1000 < N$ mm	± 3 mm

Recommended Maximum Temperatures of Sensor Parts (Table 7.4)

Sensor part	Continuous operation	Short-term operation
Head / head with transmitter	< 100 °C / < 85 °C	-
Protection tube	< 1100 °C	-
„J“, wire diameter 3,0 mm	< 650 °C	< 760 °C
„K“, wire diameter 3,0 mm	< 1000 °C	< 1150 °C
„N“, wire diameter 3,0 mm	< 1100 °C	< 1260 °C

Notes: Operating temperatures are related to temperature measurement in a chemically inert environment. The values are determined empirically.

Head types

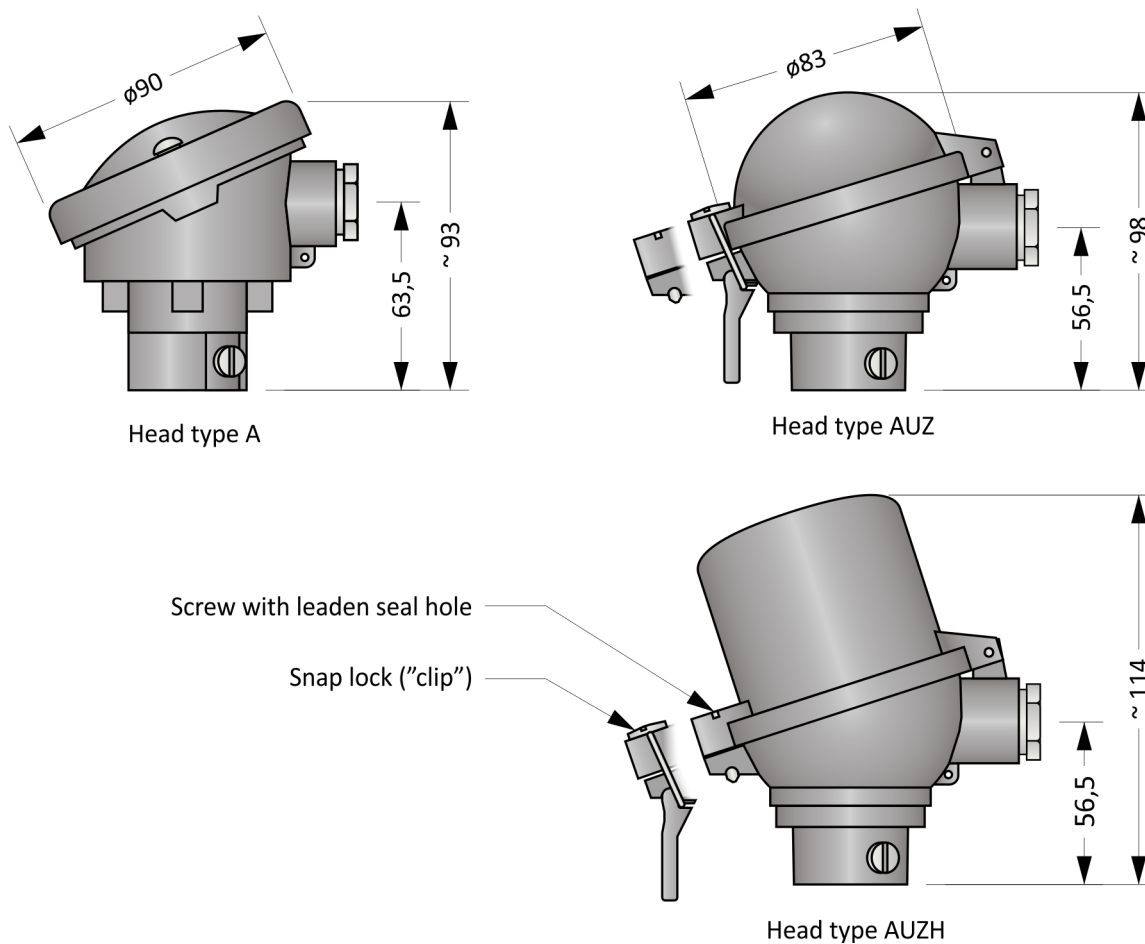


Figure 7.2: Head types

Head mounted transmitter (Table 7.5)

Typ	Input	Output	Setting	Notes
INOR APAQ C130 TC	Thermocouple - B, E, J, K, N, R, S, T	4 ... 20 mA	INOR CONNECT (NFC)	
INOR miniPAQ - HLP	Thermocouple - B, C, E, J, K, L, N, R, S, T, U RTD	4 ... 20 mA	PC WIN ConSoft (ICON USB adapter)	
INOR IPAQ C330	Thermocouple - B, C, D, E, J, K, N, R, S, T RTD, mV	4 ... 20 mA, galvanic isolated	PC WIN ConSoft (ICON USB adapter) INOR CONNECT (NFC, Bluetooth®)	
INOR IPAQ C530	Thermocouple - B, C, D, E, J, K, N, R, S, T RTD, mV	4 ... 20 mA, HART, galvanic isolated	INOR CONNECT (NFC, Bluetooth®) PC WIN ConSoft (ICON USB adapter)	
INOR IPAQ C520	Thermocouple - B, C, D, E, J, K, N, R, S, T RTD, mV	4 ... 20 mA, HART, galvanic isolated	PC WIN ConSoft (ICON USB adapter)	2 inputs (redundancy) SIL 2, ATEX certificate

Notes: Detailed information about the transmitters can be found in the respective data sheets.

Installation And Operating Instructions

The protection tube is used for mechanical mounting of the assembly. The longest lifetime of the sensor can be achieved by mounting it vertically.

To ensure IP54 protection of the head, it is necessary to install the sensor in a vertical position with the head in the upper position.

The electrical connection of sensor with the transmitter is shown in Figure 7.5.

Electrical connection of the sensor without transmitter is shown in the Figures 7.3 and 7.4. The output signal is thermoelectric voltage. The dependence of temperature on thermoelectric voltage is given by the standard ČSN EN 60584-1 ed. 2.

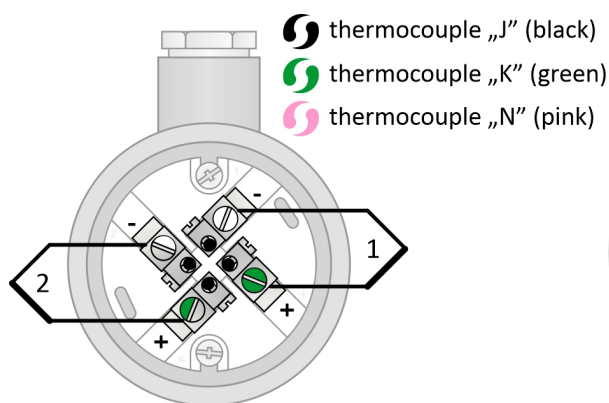


Figure 7.3: Double thermocouple wiring diagram

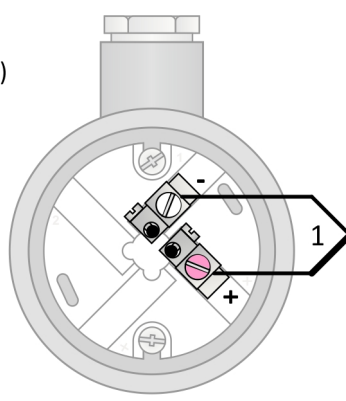


Figure 7.4: Single thermocouple wiring diagram

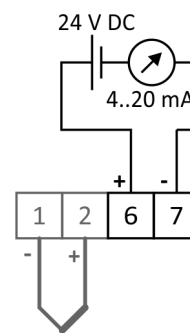


Figure 7.5: Transmitter wiring diagram