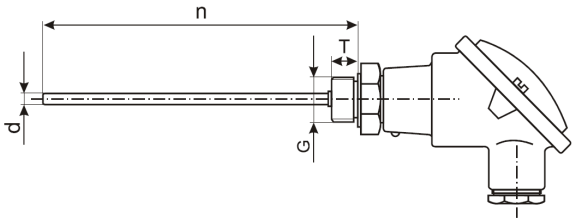
# TERMOCUPLU tip TSC

**T/C PROBE WITH PROTECTION HEAD** — **Cx (TSCx)**

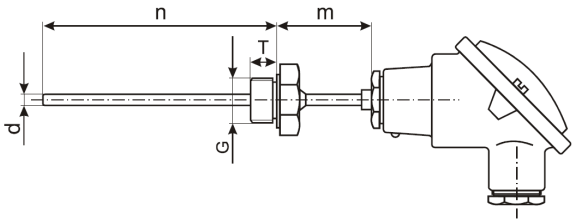
**(FOR IN-HEAD TRANSMITTER)**** — **OCx (TSOCx)**

Sheath - stainless steel (see Appendix - Sheath materials)
Head - aluminum, stainless steel, iron, or plastic (see Appendix - Protection heads)

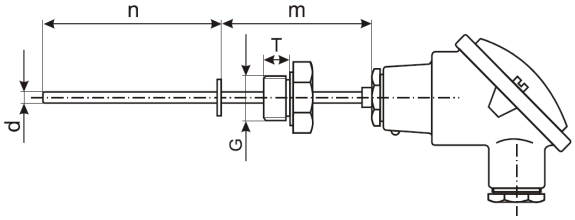
### DESIGN WITHOUT EXTENSION (C)



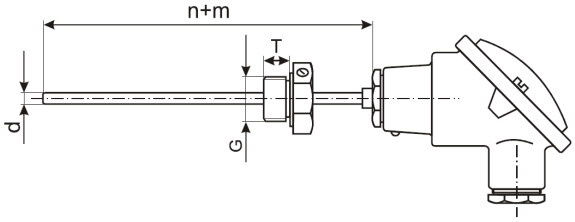

### EXTENDED DESIGN WITH WELDED CONNECTION (C1)



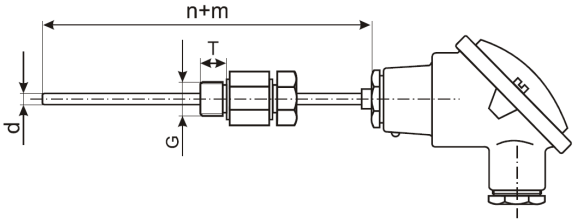

### EXTENDED DESIGN WITH MOVABLE CONNECTION (C2)




### DESIGN WITH ADJUSTABLE CONNECTION (C3)




### DESIGN WITH GLAND-TYPE CONNECTION (C4)




| SENSITIVE ELEMENT | TEMPERATURE RANGE | | DIMENSIONS n [mm] | DIMENSIONS d [mm] | wires |
|---|---|---|---|---|---|
| **Regular Thermocouple Design** | | | | | |
| 1(2) x J<br>1(2) x L | T4 | 0...800 °C | 50...1500 | 6 | 2 (2x2) |
| | | | 50...3000 | 8, 10, 12, 14, 16, 20, 22 | |
| 1(2) x K | T3<br>T16<br>T6* | 0...850 °C<br>0...1100 °C<br>0...1150 °C | 50...1500 | 6 | 2 (2x2) |
| | | | 50...3000 | 8, 10, 12, 14, 16, 20, 22 | |
| 1(2) x E | T3<br>T13 | 0...850 °C<br>0...1000 °C | 50...1500 | 6 | 2 (2x2) |
| | | | 50...3000 | 8, 10, 12, 14, 16, 20, 22 | |
| 1(2) x S<br>1(2) x R | T16<br>T6* | 0...1100 °C<br>0...1150 °C | 50...1500 | 6 | 2 (2x2) |
| | | | 50...3000 | 8, 10, 12, 14, 16, 20, 22 | |
| **MI Thermocouple Design** | | | | | |
| 1 x J | T4 | 0...800 °C | 50...50000 | 3, 4.5, 6, 8, 10* | 2 |
| 2 x J | | | | | 2x2 |
| 1 x T | T8 | 0...400 °C | 50...50000 | 3, 4.5, 6, 8, 10* | 2 |
| 2 x T | | | | | 2x2 |
| 1 x K<br>1 x N, 1 x E | T3<br>T16 | 0...850 °C<br>0...1100 °C | 50...50000 | 3, 4.5, 6, 8, 10* | 2 |
| 2 x K<br>2 x N, 2 x E | T6*<br>T6* | 0...1150 °C<br>0...1250 °C | 50...50000 | 3, 4.5, 6, 8, 10* | 2x2 |
| 2 x S<br>2 x R | T16<br>T6* | 0...1100 °C<br>0...1150 °C | 50...10000 | 3, 4.5, 6 | 2x2 |

**Protection head:**
B, MA, MB, G, N, Cx, Dx, Ex (see Appendix - Protection heads)

**Process connection 'G' (nipple or union nut):**
- M16x1.5(Q0), M18x1.5(Q1), M20x1.5(Q2), M27x2(Q5), M33x2(Q25)
- 3/8"(Q3/Q9), 1/2"(Q4/Q10), 3/4"(Q6/Q11), 1"(Q12/Q15)
- welded or adjustable flange
- other
- w/o mounting appliances

**Thread length:**
- cylindrical thread: T = 15 mm
- NPT thread: according to ANSI B1.20.1

**Thermal isolation between nipple and metal head:** (for TS(O)C only)

| Protection head | Length 'n' |
|---|---|
| MA, MB | up to 50 mm |
| B | up to 100 mm |
| other | up to 150 mm |

| Maximum temperature | Insulation material |
|---|---|
| 200 °C | POM |
| 400 °C | Teflon® |

**Extension length:**
m = 0...1500 mm

**Extension diameter:** (for TS(O)C1 and TS(O)C2 only, [mm])

| Ext. length 'm' \ Probe diameter 'd' | 4.5, 6 mm | 8 mm | 10 mm | 10+ mm |
|---|---|---|---|---|
| up to 50 mm | d | d | d | d |
| 50...150 mm | 8 | d | d | d |
| 150...500 mm | 10 | 10 | d | d |
| 500+ mm | 14 | 14 | 14 | d |

**Tip shape (hot junction design):**
standard (isolated), grounded, open-tube, exposed (see Appendix - Tip shapes)

**Process pressure:**

| Probe design | C, C1 | C2 | C4 | C3 |
|---|---|---|---|---|
| Max. pressure * | 25 bar | 16 bar | 6 bar | 0 bar |

**Sheath material:**
1.4401/1.4404(M9), 1.4541(M2), 1.4571(M3), 1.4762(M4), 1.4841(M5), 1.4845(M6), 1.4876(M7), 2.4816(M8), 1.4362 (M15)

**MI sheath material:**
1.4401/1.4404(M9), 1.4541(M2), 1.4571(M3), 1.4762(M4), 1.4841(M5), 1.4876(M7), 2.4816(M8), Nicrobell® (M10)

**Accuracy class:**
'1' or '2' (see Appendix - T/C Tolerance)

* Please contact

** Order transmitter separately!!!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## Ordering code TS✶(1,2,3,4) - G0.G1G2.G3.G4.G6.G7.G9'9".G10.G11.G14 - #1.#2

| Code | Feature or option | | Code values |
|---|---|---|---|
| ✶ | Base model variant | | C - standard (w/ terminal block), OC - prepared for in-head transmitter (w/o terminal block) |
| G0 | Protection head | | B - type "B", CC - type "CC", CS - type "CS", D - type "D", DH - type "DH", DHW - type "DHW", DW - type "DW", E - type "E", EG - type "EG", EGS - type "EGS", EGW - type "EGW", ES - type "ES", G - type "G", MA - type "MA", MB - type "MB", N - type "N" |
| G1 | Number of thermocouples | | 1 or 2 |
| G2 | Thermocouple | | E - type "E", J - type "J", K - type "K", L - type "L", N - type "N", R - type "R", S - type "S", T - type "T" |
| G3 | Temperature range | | T3 - 0…850 °C, T4 - 0…800 °C, T6 - 0…1200 °C [7], T13 - 0…1000 °C, T16 - 0…1100 °C |
| G4 | Diameter 'd' [mm] | regular T/C | 6, 8, 10, 12, 14, 16, 20, 22 |
| | | MI T/C | 3, 4.5, 6, 8, 10 |
| G6 | Probe length 'n' [mm] [1] | | 50…50000 (see table overleaf) |
| G7 | Probe length 'm' [mm] [2] | | 0…1500 |
| G9' | Mounting connection | | X - no mounting appliances [3], Q0 - M16x1.5, Q1 - M18x1.5, Q2 - M20x1.5, Q3 - G3/8", Q4 - G1/2", Q5 - M27x2, Q6 - G3/4", Q9 - 3/8" NPT, Q10 - 1/2" NPT, Q11 - 3/4" NPT, Q12 - G1", Q15 - 1" NPT, Q25 - M33x2, Uxx - union nut (xx - same as for Qxx), F - flange (specify!), Z - other connection (specify!) |
| G9" | Compression fitting ferrule [4] | | BR - brass, GR - graphite, SS - stainless steel, TF - Teflon® |
| G10 | Sheath material (wetted parts) | regular T/C | M2 - 1.4541, M3 - 1.4571, M4 - 1.4762, M5 - 1.4841, M6 - 1.4845, M7 - 1.4876, M8 - 2.4816, M9 - 1.4401 (1.4404), M15 - 1.4362 |
| | | MI T/C | M2 - 1.4541, M3 - 1.4571, M4 - 1.4762 (1.4749), M5 - 1.4841, M7 - 1.4876 (Incolloy 800), M8 - 2.4816 (Inconel 600), M9 - 1.4401 (1.4404), M10 - Nicrobell® |
| G11 | Accuracy class | | 1 - '1' [7], 2 - '2' |
| G14 | Tip shape (hot junction) | | X - standard (isolated from sheath), G - grounded, E - exposed hot junction, O - open-tube design |
| #1 | Options | | X - none, OV - vibration proof (spring terminals [7], secured screws), OT - thermal isolation [3], OP - electrochemically polished sheath surface [5] |
| #2 | Local indicator | | X - none, A - local indicator mounted [6] |

[1] 'n+m' for TS(O)C3 and TS(O)C4!
[2] Only for TS(O)C1 and TS(O)C2!
[3] Only for TS(O)C!
[4] Only for TS(O)C4!
[5] Only for non-MI (regular) sheath types!
[6] With windowed head only! See indicator datasheets and order separately!
[7] Contact