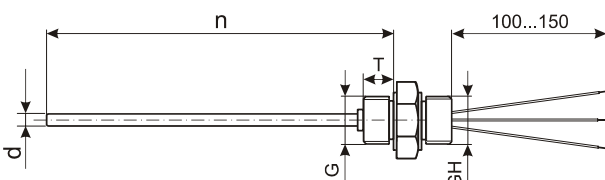
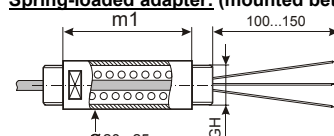
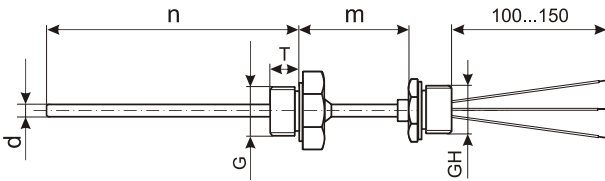
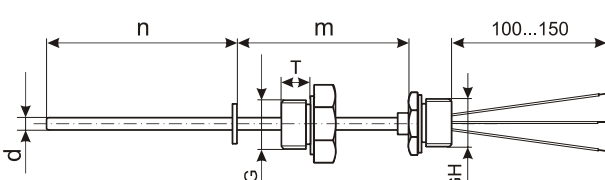
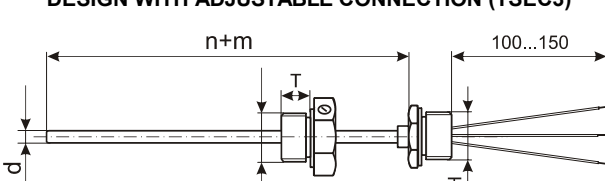
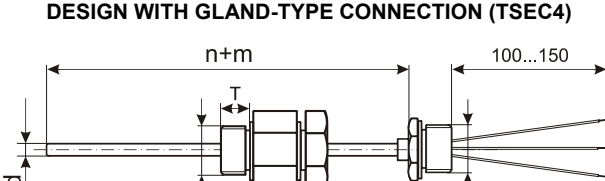
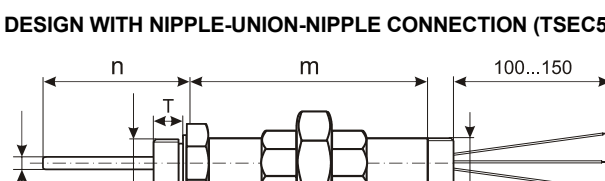


(MI) RTD PROBE FOR HEAD ASSEMBLY TSECx Sheath - stainless steel (see Appendix - Sheath materials) Extension wires - Teflon® or glass fiber	SENSITIVE ELEMENT	TEMPERATURE RANGE	DIMENSIONS																																										
			n [mm]	d [mm]	wires																																								
DESIGN WITHOUT EXTENSION (TSEC)																																													
	Regular Design																																												
1 x Pt (RB,RD,RF,RG)	T9	-50...200 °C	50...500	4	2, 3*																																								
	T1	-50...400 °C		5																																									
	T24	-50...500 °C	50...1500	6	2, 3, 4*																																								
	T11*	-50...600 °C	50...3000	8, 10, 12, 14, 16, 20	2, 3, 4																																								
	T2*	-200...600 °C		6*, 8, 10	2x2(3)*																																								
2(3) x Pt (RB,RD,RF,RG)	T4*	0...800 °C	50...3000	12, 14, 16, 20	2x2(3), 3x2																																								
	T22	-200...200 °C																																											
	1 x Cu (RH, RK)	T9	-50...200 °C	50...1500	6	2, 3, 4*																																							
			50...3000	8, 10, 12, 14, 16, 20																																									
2 x Cu (RH, RK)	T9	-50...200 °C	50...3000	8, 10	2x2																																								
1 x PTC (RP, RQ)	T12	-50...100 °C	50...1500	6	2, 3																																								
			50...3000	8, 10, 12, 14																																									
2 x PTC (RP, RQ)			50...3000	8, 10, 12, 14	2x2																																								
MI Design																																													
1 x Pt (RB,RD,RF,RG)	T9	-50...200 °C	50...50000	3*	2, 3*																																								
	T1	-50...400 °C		4.5	2, 3*																																								
	T24	-50...500 °C		6	2, 3, 4*																																								
	T11*	-50...600 °C		8	2, 3, 4																																								
	T2*	-200...600 °C																																											
2 x Pt (RB,RD,RF,RG)	T4*	0...800 °C	50...50000	6, 8	2x2, 2x3*																																								
	T22	-200...200 °C																																											
<p>Process connection 'G' (nipple or union nut):</p> <ul style="list-style-type: none"> - 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 <p>Thread length:</p> <ul style="list-style-type: none"> - cylindrical thread: T = 15 mm - NPT thread: according to ANSI B1.20.1 <p>Head connection 'GH':</p> <ul style="list-style-type: none"> - M10x1(Q20), M12x1.5(Q7), M16x1.5(Q0), M18x1.5(Q1), M20x1.5(Q2) - 1/4"(Q23/Q24), 3/8"(Q3/Q9), 1/2"(Q4/Q10), 3/4"(Q6/Q11) - welding <p>Extension length:</p> <ul style="list-style-type: none"> m = 0...1500 mm (w/o spring-loaded adapter) m = m1...1500 mm (w/ spring-loaded adapter) <p>Extension diameter: (for TSEC1 and TSEC2 only, [mm])</p> <table border="1"> <thead> <tr> <th>Probe diameter 'd'</th> <th>3, 4 mm</th> <th>4.5...6 mm</th> <th>8 mm</th> <th>10 mm</th> <th>10+ mm</th> </tr> </thead> <tbody> <tr> <td>Ext. length 'm' up to 50 mm</td> <td>8</td> <td>d</td> <td>d</td> <td>d</td> <td>d</td> </tr> <tr> <td>50...150 mm</td> <td>8</td> <td>8</td> <td>d</td> <td>d</td> <td>d</td> </tr> <tr> <td>150...500 mm</td> <td>10</td> <td>10</td> <td>10</td> <td>d</td> <td>d</td> </tr> <tr> <td>500+ mm</td> <td>14</td> <td>14</td> <td>14</td> <td>14</td> <td>d</td> </tr> </tbody> </table> <p>Tip shape: standard, narrowed, pitted (see Appendix - Tip Shapes)</p> <p>Process pressure:</p> <table border="1"> <thead> <tr> <th>Probe design</th> <th>TSEC, TSEC1</th> <th>TSEC2</th> <th>TSEC4</th> <th>TSEC3, TSEC5</th> </tr> </thead> <tbody> <tr> <td>Max. pressure *</td> <td>25 bar</td> <td>16 bar</td> <td>6 bar</td> <td>0 bar</td> </tr> </tbody> </table> <p>Sheath material: 1.4301(M1), 1.4401/1.4404(M9), 1.4541(M2), 1.4571(M3), 1.4362(M15)</p> <p>Wire material: Cu, Ni, or Ag</p> <p>Extension wire isolation: Teflon® (T) or glass fiber (GL)</p> <p>Accuracy class: 'A', 'B', or '2xB' (see Appendix - RTD Tolerance)</p> <p>Spring-loaded adapter: (mounted between probe and protection head)</p>  <p>m1 = 60...100 mm d ≤ 8 mm</p>						Probe diameter 'd'	3, 4 mm	4.5...6 mm	8 mm	10 mm	10+ mm	Ext. length 'm' up to 50 mm	8	d	d	d	d	50...150 mm	8	8	d	d	d	150...500 mm	10	10	10	d	d	500+ mm	14	14	14	14	d	Probe design	TSEC, TSEC1	TSEC2	TSEC4	TSEC3, TSEC5	Max. pressure *	25 bar	16 bar	6 bar	0 bar
Probe diameter 'd'	3, 4 mm	4.5...6 mm	8 mm	10 mm	10+ mm																																								
Ext. length 'm' up to 50 mm	8	d	d	d	d																																								
50...150 mm	8	8	d	d	d																																								
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500+ mm	14	14	14	14	d																																								
Probe design	TSEC, TSEC1	TSEC2	TSEC4	TSEC3, TSEC5																																									
Max. pressure *	25 bar	16 bar	6 bar	0 bar																																									
<p>DESIGN WITH EXTENDED DESIGN WITH WELDED CONNECTION (TSEC1)</p> 																																													
<p>EXTENDED DESIGN WITH MOVABLE CONNECTION (TSEC2)</p> 																																													
<p>DESIGN WITH ADJUSTABLE CONNECTION (TSEC3)</p> 																																													
<p>DESIGN WITH GLAND-TYPE CONNECTION (TSEC4)</p> 																																													
<p>DESIGN WITH NIPPLE-UNION-NIPPLE CONNECTION (TSEC5)</p> 																																													
<p>* Please contact COMECO!</p>																																													

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Ordering code TSEC(1,2,3,4,5) - (MI -) G1G2.G3.G4.G6.G7.G9'9".GH.G10.G11.G12.G13.G14 - #1

Code	Feature or option	Code values
G1	Number of RTD sensors	1, 2, or 3 ⁽¹⁰⁾
G2	Sensor	RB - Pt50, RD - Pt100, RF - Pt500, RG - Pt1000, RH - Cu50, RK - Cu100, RP - PTC 1k, RQ - PTC 2k
G3	Temperature range	T1 - -50...400 °C, T2 - -200...600 °C, T4 - 0...800 °C, T9 - -50...200 °C, T11 - -50...600 °C, T22 - -200...200 °C, T24 - -50...500 °C
G4	Diameter 'd' [mm]	regular design 4, 5, 6, 8, 10, 12, 14, 16, 20
		MI design 3 ⁽¹⁰⁾ , 4, 5, 6, 8
G6	Probe length 'n' [mm] ⁽¹⁾	50...50000 (see table overleaf)
G7	Probe length 'm' [mm] ⁽²⁾	0...1500 (m1...1500 with 'OA' option)
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®
GH	Head connection	W - welding, Q0 - M16x1.5, Q1 - M18x1.5, Q2 - M20x1.5, Q3 - G3/8", Q4 - G1/2", Q6 - G3/4", Q7 - M12x1.5, Q9 - 3/8" NPT, Q10 - 1/2" NPT, Q11 - 3/4" NPT, Q20 - M10x1, Q23 - G1/4", Q24 - 1/4" NPT, Z - other connection (specify!)
G10	Sheath material (wetted parts)	regular design M1 - 1.4301, M2 - 1.4541, M3 - 1.4571, M9 - 1.4401 (1.4404), M15 - 1.4362 ⁽¹⁰⁾
		MI design M1 - 1.4301, M2 - 1.4541, M3 - 1.4571, M9 - 1.4401 (1.4404)
G11	Accuracy class	X - none ⁽⁵⁾ , A - 'A', B - 'B', C - '2xB'
G12	Number of wires	2, 3, 4 ⁽¹⁰⁾
G13	Wire material ⁽⁶⁾	CU - copper ⁽⁷⁾ , NI - nickel, AG - silver ⁽⁸⁾
G14	Tip shape	X - standard closed, N - narrowed ⁽⁸⁾ , P - pitted ⁽⁸⁾
#1	Options	X - none, OV - vibration proof (MgO or Silicone filled) ⁽⁸⁾ , OA - spring-loaded adapter ⁽⁹⁾ , OP - electrochemically polished sheath surface ⁽⁸⁾

⁽¹⁾ 'n+m' for TSEC3 and TSEC4!

⁽²⁾ Only for TSEC1, TSEC2, and TSEC5!

⁽³⁾ Only for TSEC!

⁽⁴⁾ Only for TSEC4!

⁽⁵⁾ For non-Pt sensors

⁽⁶⁾ Only for Pt sensors!

⁽⁷⁾ Not applicable to non-MI (regular) RTDs for above 500 °C!

⁽⁸⁾ Only for non-MI (regular) design!

⁽⁹⁾ Only for TSEC, TSEC1, and TSEC5!

⁽¹⁰⁾ Contact COMECO!

(MI) T/C PROBE FOR HEAD ASSEMBLY TSECx Sheath - stainless steel (see Appendix - Sheath materials) Extension wires - Teflon® or glass fiber	SENSITIVE ELEMENT	TEMPERATURE RANGE	DIMENSIONS																																																
			n [mm]	d [mm]	wires																																														
DESIGN WITHOUT EXTENSION (TSEC)																																																			
	1(2) x J 1(2) x L	T4 0...800 °C	50...1500 50...3000	6 8, 10, 12, 14, 16, 20, 22	2 (2x2)																																														
	1(2) x K	T3 0...850 °C T16 0...1100 °C T6* 0...1150 °C	50...1500 50...3000	6 8, 10, 12, 14, 16, 20, 22	2 (2x2)																																														
	1(2) x E	T3 0...850 °C T13 0...1000 °C	50...1500 50...3000	6 8, 10, 12, 14, 16, 20, 22	2 (2x2)																																														
	1(2) x S 1(2) x R	T16 0...1100 °C T6* 0...1150 °C	50...1500 50...3000	6 8, 10, 12, 14, 16, 20, 22	2 (2x2)																																														
EXTENDED DESIGN WITH WELDED CONNECTION (TSEC1)																																																			
	1 x J 2 x J	T4 0...800 °C	50...50000	3, 4.5, 6, 8, 10*	2 2x2																																														
	1 x T 2 x T	T8 0...400 °C	50...50000	3, 4.5, 6, 8, 10*	2 2x2																																														
	1 x K 1 x N, 1 x E	T3 0...850 °C T16 0...1100 °C	50...50000	3, 4.5, 6, 8, 10*	2																																														
	2 x K 2 x N, 2 x E	T6* 0...1150 °C T6* 0...1250 °C	50...50000	3, 4.5, 6, 8, 10*	2x2																																														
	2 x S 2 x R	T16 0...1100 °C T6* 0...1150 °C	50...10000	3, 4.5, 6	2x2																																														
EXTENDED DESIGN WITH MOVABLE CONNECTION (TSEC2)																																																			
DESIGN WITH ADJUSTABLE CONNECTION (TSEC3)																																																			
DESIGN WITH GLAND-TYPE CONNECTION (TSEC4)																																																			
DESIGN WITH NIPPLE-UNION-NIPPLE CONNECTION (TSEC5)																																																			
<p>Process connection 'G' (nipple or union nut):</p> <ul style="list-style-type: none"> - 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 <p>Thread length:</p> <ul style="list-style-type: none"> - cylindrical thread: T = 15 mm - NPT thread: according to ANSI B1.20.1 <p>Head connection 'GH':</p> <ul style="list-style-type: none"> - M10x1(Q20), M12x1.5(Q7), M16x1.5(Q0), M18x1.5(Q1), M20x1.5(Q2) - 1/4"(Q23/Q24), 3/8"(Q3/Q9), 1/2"(Q4/Q10), 3/4"(Q6/Q11) - welding <p>Extension length:</p> <ul style="list-style-type: none"> m = 0...1500 mm (w/o spring-loaded adapter) m = m1...1500 mm (w/ spring-loaded adapter) <p>Extension diameter: (for TSEC1 and TSEC2 only, [mm])</p> <table border="1"> <thead> <tr> <th>Probe diameter 'd'</th> <th>3 mm</th> <th>4.5, 6 mm</th> <th>8 mm</th> <th>10 mm</th> <th>10+ mm</th> </tr> </thead> <tbody> <tr> <td>Ext. length 'm'</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>up to 50 mm</td> <td>6</td> <td>d</td> <td>d</td> <td>d</td> <td>d</td> </tr> <tr> <td>50...150 mm</td> <td>8</td> <td>8</td> <td>d</td> <td>d</td> <td>d</td> </tr> <tr> <td>150...500 mm</td> <td>10</td> <td>10</td> <td>10</td> <td>d</td> <td>d</td> </tr> <tr> <td>500+ mm</td> <td>14</td> <td>14</td> <td>14</td> <td>14</td> <td>d</td> </tr> </tbody> </table> <p>Tip shape (hot junction design): standard (isolated), grounded, open-tube, exposed (see Appendix - Tip Shapes)</p> <p>Process pressure:</p> <table border="1"> <thead> <tr> <th>Probe design</th> <th>TSEC, TSEC1</th> <th>TSEC2</th> <th>TSEC4</th> <th>TSEC3, TSEC5</th> </tr> </thead> <tbody> <tr> <td>Max. pressure *</td> <td>25 bar</td> <td>16 bar</td> <td>6 bar</td> <td>0 bar</td> </tr> </tbody> </table> <p>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)</p> <p>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), Microbell® (M10)</p> <p>Extension wire isolation: Teflon® (T) or glass fiber (GL)</p> <p>Accuracy class: '1' or '2' (see Appendix - T/C Tolerance)</p> <p>Spring-loaded adapter: (mounted between probe and protection head)</p> <p>m1 = 60...100 mm d ≤ 8 mm</p>						Probe diameter 'd'	3 mm	4.5, 6 mm	8 mm	10 mm	10+ mm	Ext. length 'm'						up to 50 mm	6	d	d	d	d	50...150 mm	8	8	d	d	d	150...500 mm	10	10	10	d	d	500+ mm	14	14	14	14	d	Probe design	TSEC, TSEC1	TSEC2	TSEC4	TSEC3, TSEC5	Max. pressure *	25 bar	16 bar	6 bar	0 bar
Probe diameter 'd'	3 mm	4.5, 6 mm	8 mm	10 mm	10+ mm																																														
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150...500 mm	10	10	10	d	d																																														
500+ mm	14	14	14	14	d																																														
Probe design	TSEC, TSEC1	TSEC2	TSEC4	TSEC3, TSEC5																																															
Max. pressure *	25 bar	16 bar	6 bar	0 bar																																															
* Please contact COMECO!																																																			

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Ordering code TSEC(1,2,3,4,5) - (MI -) G1G2.G3.G4.G6.G7.G9'9".GH.G10.G11.G14 - #1

Code	Feature or option	Code values
G1	Number of thermocouples	1 or 2
G2	Thermocouple	regular design E - type "E", J - type "J", K - type "K", L - type "L", R - type "R", S - type "S"
	MI design	E - type "E", J - type "J", K - type "K", 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 design 6, 8, 10, 12, 14, 16, 20, 22
	MI design	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 (m1...1500 with 'OA' option)
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®
GH	Head connection	W - welding, Q0 - M16x1.5, Q1 - M18x1.5, Q2 - M20x1.5, Q3 - G3/8", Q4 - G1/2", Q6 - G3/4", Q7 - M12x1.5, Q9 - 3/8" NPT, Q10 - 1/2" NPT, Q11 - 3/4" NPT, Q20 - M10x1, Q23 - G1/4", Q24 - 1/4" NPT, Z - other connection (specify!)
G10	Sheath material (wetted parts)	regular design 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 design	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 - Microbell®
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, OA - spring-loaded adapter ⁽⁵⁾ , OP - electrochemically polished sheath surface ⁽⁶⁾

⁽¹⁾ 'n+m' for TSEC3 and TSEC4!
⁽²⁾ Only for TSEC1, TSEC2, and TSEC5!
⁽³⁾ Only for TSEC!
⁽⁴⁾ Only for TSEC4!
⁽⁵⁾ Only for TSEC, TSEC1, and TSEC5!
⁽⁶⁾ Only for non-MI (regular) design!
⁽⁷⁾ Contact COMECO!