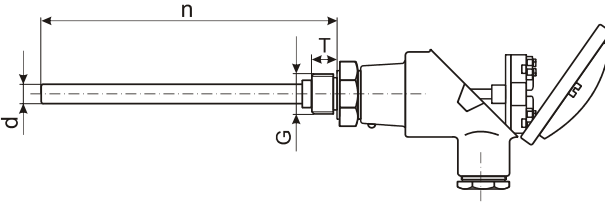
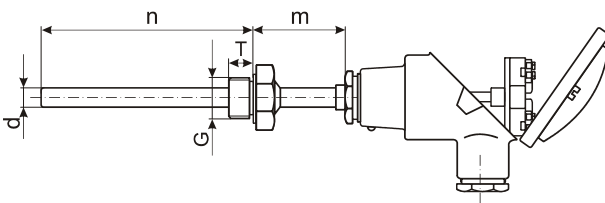
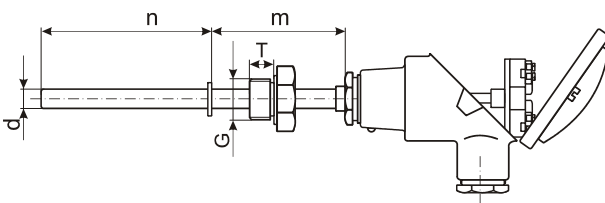
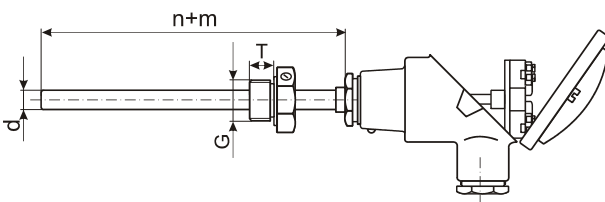
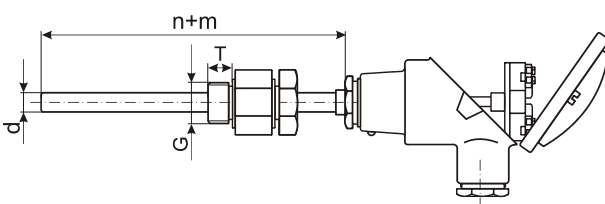


RTD PROBE WITH PROTECTION HEAD AND REPLACEABLE (MI) INSERT - FOR IN-HEAD TRANSMITTER **	TSCSx	SENSITIVE ELEMENT	TEMPERATURE RANGE	DIMENSIONS																																
	TSOCSx			d [mm]	d insert [mm]	wires																														
Sheath - stainless steel (see Appendix - Sheath materials) Head - aluminum, stainless steel, or plastic (see Appendix - Protection heads)																																				
<b>Regular Insert Design</b>																																				
<b>DESIGN WITHOUT EXTENSION (TS(O)CS)</b> 	1 x Pt (RB,RD,RF,RG)	T9	-50...200 °C	8	4, 5	2, 3*																														
		T1	-50...400 °C	9, 10, 12, 14, 16, 20	6	2, 3, 4*																														
		T24	-50...500 °C	12, 14, 16, 20	8	2, 3, 4																														
		T11*	-50...600 °C	9, 10, 12, 14, 16, 20	6	2x2*																														
		T2*	-200...600 °C	12, 14, 16, 20	8	2x2(3)*																														
2 x Pt (RB,RD,RF,RG)	T4*	0...800 °C	9, 10, 12, 14, 16, 20	6	2, 3, 4*																															
	T22	-200...200 °C	12, 14, 16, 20	8	2x2(3)*																															
1 x Cu (RH, RK)	T9	-50...200 °C	9, 10, 12, 14, 16, 20	6	2, 3, 4*																															
2 x Cu (RH, RK)	T9	-50...200 °C	9, 10, 12, 14, 16, 20	6	2x2*																															
			12, 14, 16, 20	8	2x2(3)*																															
<b>MI Insert Design</b>																																				
<b>EXTENDED DESIGN WITH WELDED CONNECTION (TS(O)CS1)</b> 	1 x Pt (RB,RD,RF,RG)	T9	-50...200 °C	6, 8, 9, 10, 12, 14, 16, 20	3*	2, 3*																														
		T1	-50...400 °C	8, 9, 10, 12, 14, 16, 20	4.5	2, 3*																														
		T24	-50...500 °C	9, 10, 12, 14, 16, 20	6	2, 3, 4*																														
		T11*	-50...600 °C	12, 14, 16, 20	8	2, 3, 4																														
		T2*	-200...600 °C	9, 10, 12, 14, 16, 20	6	2x2, 2x3*																														
		T4*	0...800 °C	12, 14, 16, 20	8	2x2, 2x3*																														
		T22	-200...200 °C	12, 14, 16, 20	8	2x2, 2x3*																														
2 x Pt (RB,RD,RF,RG)	T9	-50...200 °C	9, 10, 12, 14, 16, 20	6	2x2, 2x3*																															
			12, 14, 16, 20	8	2x2, 2x3*																															
<b>Protection head:</b> B, MA, MB, G, N, Cx, Dx, Ex (see Appendix - Protection Heads)																																				
<b>Process connection 'G' (nipple or union nut):</b> - 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																																				
<b>Thread length:</b> - cylindrical thread: T = 15 mm - NPT thread: according to ANSI B1.20.1																																				
<b>Thermal isolation between nipple and metal head: (for TS(O)CS only)</b>																																				
<table border="1"> <thead> <tr> <th>Protection head</th> <th>Length 'n'</th> </tr> </thead> <tbody> <tr> <td>MA, MB</td> <td>up to 50 mm</td> </tr> <tr> <td>B</td> <td>up to 100 mm</td> </tr> <tr> <td>other</td> <td>up to 150 mm</td> </tr> </tbody> </table>		Protection head	Length 'n'	MA, MB	up to 50 mm	B	up to 100 mm	other	up to 150 mm	<table border="1"> <thead> <tr> <th>Maximum temperature</th> <th>Insulation material</th> </tr> </thead> <tbody> <tr> <td>200 °C</td> <td>POM</td> </tr> <tr> <td>400 °C</td> <td>Teflon®</td> </tr> </tbody> </table>		Maximum temperature	Insulation material	200 °C	POM	400 °C	Teflon®																			
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®																																			
<b>Extension length:</b> m = 0...1500 mm																																				
<b>Extension diameter: (for TS(O)CS1 and TS(O)CS2 only, [mm])</b>																																				
<table border="1"> <thead> <tr> <th>Probe diameter 'd'</th> <th>6 mm</th> <th>8 mm</th> <th>9, 10 mm</th> <th>10+ mm</th> </tr> </thead> <tbody> <tr> <td>Ext. length 'm'</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>up to 50 mm</td> <td>d</td> <td>d</td> <td>d</td> <td>d</td> </tr> <tr> <td>50...150 mm</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>d</td> <td>d</td> </tr> <tr> <td>500+ mm</td> <td>14</td> <td>14</td> <td>14</td> <td>d</td> </tr> </tbody> </table>		Probe diameter 'd'	6 mm	8 mm	9, 10 mm	10+ mm	Ext. length 'm'					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					
Probe diameter 'd'	6 mm	8 mm	9, 10 mm	10+ mm																																
Ext. length 'm'																																				
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																																
<b>Tip shape:</b> standard, narrowed, pitted (see Appendix - Tip Shapes)																																				
<b>Process pressure:</b>																																				
<table border="1"> <thead> <tr> <th>Probe design</th> <th>TS(O)CS, TS(O)CS1</th> <th>TS(O)CS2</th> <th>TS(O)CS4</th> <th>TS(O)CS3</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>		Probe design	TS(O)CS, TS(O)CS1	TS(O)CS2	TS(O)CS4	TS(O)CS3	Max. pressure *	25 bar	16 bar	6 bar	0 bar																									
Probe design	TS(O)CS, TS(O)CS1	TS(O)CS2	TS(O)CS4	TS(O)CS3																																
Max. pressure *	25 bar	16 bar	6 bar	0 bar																																
<b>Sheath material:</b> 1.4301(M1), 1.4401/1.4404(M9), 1.4541(M2), 1.4571(M3), 1.4362(M15)																																				
<b>Wire material:</b> Cu, Ni, or Ag																																				
<b>Accuracy class:</b> 'A', 'B', or '2xB' (see Appendix - RTD Tolerance)																																				
* Please contact COMECO! ** Order transmitter separately!!!																																				
<b>DESIGN WITH MOVABLE CONNECTION (TS(O)CS2)</b> 																																				
<b>DESIGN WITH ADJUSTABLE CONNECTION (TS(O)CS3)</b> 																																				
<b>DESIGN WITH GLAND-TYPE CONNECTION (TS(O)CS4)</b> 																																				

COMECO reserves the right of changing specifications without prior notice!

**Ordering code** TS\*(1,2,3,4) - (MI -) G0.G1G2.G3.G4.G6.G7.G9'9".G10.G11.G12.G13.G14 - #1.#2

Code	Feature or option	Code values
*	Base model variant	<b>CS</b> - standard (w/ terminal block), <b>OCS</b> - prepared for in-head transmitter (w/o terminal block)
G0	Protection head	<b>B</b> - type "B", <b>CC</b> - type "CC", <b>CS</b> - type "CS", <b>D</b> - type "D", <b>DH</b> - type "DH", <b>DHW</b> - type "DHW", <b>DW</b> - type "DW", <b>E</b> - type "E", <b>EG</b> - type "EG", <b>EGS</b> - type "EGS", <b>EGSS</b> - type "EGSS", <b>EGW</b> - type "EGW", <b>EGWSS</b> - type "EGWSS", <b>ES</b> - type "ES", <b>G</b> - type "G", <b>MA</b> - type "MA", <b>MB</b> - type "MB", <b>N</b> - type "N"
G1	Number of RTD sensors	<b>1</b> or <b>2</b>
G2	Sensor	<b>RB</b> - Pt50, <b>RD</b> - Pt100, <b>RF</b> - Pt500, <b>RG</b> - Pt1000, <b>RH</b> - Cu50, <b>RK</b> - Cu100
G3	Temperature range	<b>T1</b> - -50...400 °C, <b>T2</b> - -200...600 °C, <b>T4</b> - 0...800 °C, <b>T9</b> - -50...200 °C, <b>T11</b> - -50...600 °C, <b>T22</b> - -200...200 °C, <b>T24</b> - -50...500 °C
G4	Diameter 'd' / 'd insert' [mm]	regular insert <b>8/4, 8/5, 9/6, 10/6, 12/6, 14/6, 12/8, 14/8, 16/6, 16/8, 20/6, 20/8</b>
	MI insert	<b>6/3</b> <sup>(12)</sup> , <b>8/4.5, 9/6, 10/6, 12/6, 14/6, 16/6, 16/8, 20/6, 20/8</b>
G6	Probe length 'n' [mm] <sup>(1)</sup>	<b>50...3000</b>
G7	Probe length 'm' [mm] <sup>(2)</sup>	<b>0...1500</b>
G9'	Mounting connection	<b>X</b> - no mounting appliances <sup>(3)</sup> , <b>Q0</b> - M16x1.5, <b>Q1</b> - M18x1.5, <b>Q2</b> - M20x1.5, <b>Q3</b> - G3/8", <b>Q4</b> - G1/2", <b>Q5</b> - M27x2, <b>Q6</b> - G3/4", <b>Q9</b> - 3/8" NPT, <b>Q10</b> - 1/2" NPT, <b>Q11</b> - 3/4" NPT, <b>Q12</b> - G1", <b>Q15</b> - 1" NPT, <b>Q25</b> - M33x2, <b>Uxx</b> - union nut (xx - same as for Qxx), <b>F</b> - flange (specify!), <b>Z</b> - other connection (specify!)
G9"	Compression fitting ferrule <sup>(4)</sup>	<b>BR</b> - brass, <b>GR</b> - graphite, <b>SS</b> - stainless steel, <b>TF</b> - Teflon®
G10	Sheath material (wetted parts and insert)	regular insert <b>M1</b> - 1.4301, <b>M2</b> - 1.4541, <b>M3</b> - 1.4571, <b>M9</b> - 1.4401 (1.4404), <b>M15</b> - 1.4362 <sup>(12)</sup>
	MI insert	<b>M2</b> - 1.4541, <b>M3</b> - 1.4571, <b>M9</b> - 1.4401 (1.4404)
G11	Accuracy class	<b>X</b> - none <sup>(5)</sup> , <b>A</b> - 'A', <b>B</b> - 'B', <b>C</b> - '2xB'
G12	Number of wires	<b>2, 3, 4</b> <sup>(12)</sup>
G13	Wire material <sup>(6)</sup>	<b>CU</b> - copper <sup>(7)</sup> , <b>NI</b> - nickel, <b>AG</b> - silver <sup>(8)</sup>
G14	Tip shape	<b>X</b> - standard closed, <b>N</b> - narrowed <sup>(12)</sup> , <b>P</b> - pitted
#1	Options	<b>X</b> - none, <b>OV</b> - vibration proof (MgO or Silicone filled insert, secured screws) <sup>(8,9)</sup> , <b>OS</b> - spring-loaded insert, <b>OT</b> - thermal isolation <sup>(3)</sup> , <b>OP</b> - electrochemically polished wetted parts
#2	Incorporated devices	<b>X</b> - none, <b>T</b> - in-head transmitter <sup>(10)</sup> , <b>A</b> - local indicator <sup>(11)</sup>

<sup>(1)</sup> 'n+m' for TS(O)CS3 and TS(O)CS4!

<sup>(2)</sup> Only for TS(O)CS1 and TS(O)CS2!

<sup>(3)</sup> Only for TS(O)CS!

<sup>(4)</sup> Only for TS(O)CS4!

<sup>(5)</sup> For non-Pt sensors

<sup>(6)</sup> Only for Pt sensors!

<sup>(7)</sup> Not applicable to non-MI (regular) RTD inserts for above 500 °C!

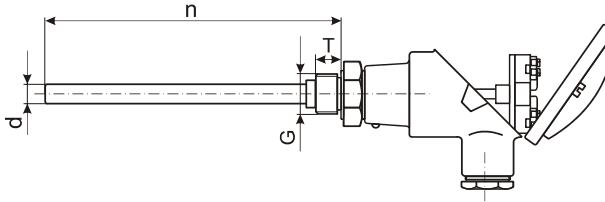
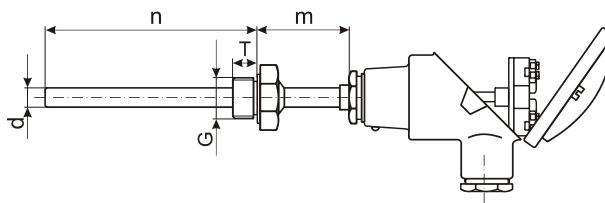
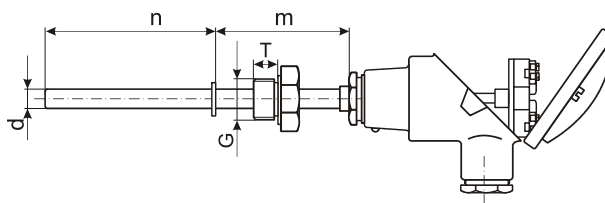
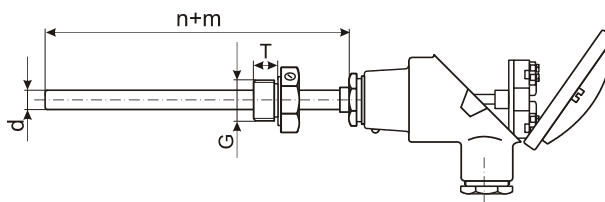
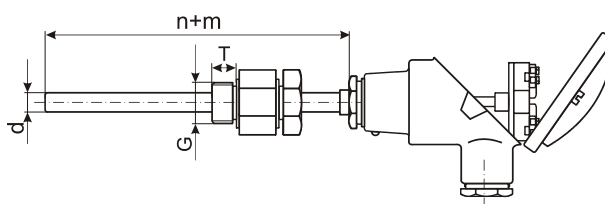
<sup>(8)</sup> Only for non-MI (regular) inserts!

<sup>(9)</sup> Requires 'OS' option!

<sup>(10)</sup> Only for variant 'OCS'! See transmitter datasheets and order separately!

<sup>(11)</sup> With windowed head only! See indicator datasheets and order separately!

<sup>(12)</sup> Contact COMECO!

T/C PROBE WITH PROTECTION HEAD AND REPLACEABLE (MI) INSERT - FOR IN-HEAD TRANSMITTER ** Sheath - stainless steel (see Appendix - Sheath materials) Head - aluminum, stainless steel, or plastic (see Appendix - Protection heads)	TSCSx	SENSITIVE ELEMENT	TEMPERATURE RANGE	DIMENSIONS		
	TSOCSx			d [mm]	d insert [mm]	wires
<b>Regular Insert Design</b>						
<b>DESIGN WITHOUT EXTENSION (TS(O)CS)</b> 	1 x J; 1 x L	T4	0...800 °C	10, 12, 14, 16, 20	6, 8, 10	2
	2 x J; 2 x L			12, 14, 16, 20	8, 10	2x2
	1 x K	T3	0...850 °C	10, 12, 14, 16, 20	6, 8, 10	2
	2 x K					
	1 x E	T3	0...850 °C	10, 12, 14, 16, 20	6, 8, 10	2
	2 x E					
1 x S	T16	0...1100 °C	10, 12, 14, 16, 20	6, 8, 10	2	
1 x R						T6*
2 x S	T16	0...1100 °C	12, 14, 16, 20	8, 10	2x2	
2 x R						T6*
<b>MI Insert Design</b>						
<b>EXTENDED DESIGN WITH WELDED CONNECTION (TS(O)CS1)</b> 	1 x J	T4	0...800 °C	6, 8, 10, 12, 14, 16, 20	3, 4.5, 6, 8	2
	2 x J					2x2
	1 x K	T3	0...850 °C	8, 10, 12, 14, 16, 20	4.5, 6, 8	2
	1 x N, 1 x E					
	2 x K	T6*	0...1150 °C	8, 10, 12, 14, 16, 20	4.5, 6, 8	2x2
	2 x N, 2 x E					
<b>EXTENDED DESIGN WITH MOVABLE CONNECTION (TS(O)CS2)</b> 	<b>Protection head:</b> B, MA, MB, G, N, Cx, Dx, Ex (see Appendix - Protection Heads) <b>Process connection 'G' (nipple or union nut):</b> - 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 <b>Thread length:</b> - cylindrical thread: T = 15 mm - NPT thread: according to ANSI B1.20.1 <b>Thermal isolation between nipple and metal head: (for TS(O)CS only)</b>					
	Protection head	Length 'n'	Maximum temperature		Insulation material	
	MA, MB	up to 50 mm	200 °C		POM	
	B	up to 100 mm	400 °C		Teflon®	
	other	up to 150 mm				
	<b>Process length:</b> n = 50...3000 mm <b>Extension length:</b> m = 0...1500 mm <b>Extension diameter: (for TS(O)CS1 and TS(O)CS2 only, [mm])</b>					
		Probe diameter 'd'	6 mm	8 mm	10 mm	10+ mm
Ext. length 'm'		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
<b>DESIGN WITH ADJUSTABLE CONNECTION (TS(O)CS3)</b> 	<b>Insert tip shape (hot junction design):</b> standard (isolated), grounded, open-tube, exposed (see Appendix - Tip Shapes) <b>Process pressure:</b>					
	Probe design	TS(O)CS, TS(O)CS1	TS(O)CS2	TS(O)CS4	TS(O)CS3	
	Max. pressure *	25 bar	16 bar	6 bar	0 bar	
	<b>Sheath material:</b> 1.4401/1.4404(M9), 1.4541(M2), 1.4571(M3), 1.4762/1.4749(M4), 1.4841(M5), 1.4845(M6), 1.4876(M7), 2.4816(M8), 1.4362(M15)					
	<b>Accuracy class:</b> '1' or '2' (see Appendix - T/C Tolerance)					
	* Please contact COMECO! ** Order transmitter separately!!!					
<b>DESIGN WITH GLAND-TYPE CONNECTION (TS(O)CS4)</b> 						

COMECO reserves the right of changing specifications without prior notice!

**Ordering code** TS\*(1,2,3,4) - (MI -) G0.G1G2.G3.G4.G6.G7.G9'9".G10.G11.G14 - #1.#2

Code	Feature or option	Code values
*	Base model variant	<b>CS</b> - standard (w/ terminal block), <b>OCS</b> - prepared for in-head transmitter (w/o terminal block)
G0	Protection head	<b>B</b> - type "B", <b>CC</b> - type "CC", <b>CS</b> - type "CS", <b>D</b> - type "D", <b>DH</b> - type "DH", <b>DHW</b> - type "DHW", <b>DW</b> - type "DW", <b>E</b> - type "E", <b>EG</b> - type "EG", <b>EGS</b> - type "EGS", <b>EGSS</b> - type "EGSS", <b>EGW</b> - type "EGW", <b>EGWSS</b> - type "EGWSS", <b>ES</b> - type "ES", <b>G</b> - type "G", <b>MA</b> - type "MA", <b>MB</b> - type "MB", <b>N</b> - type "N"
G1	Number of thermocouples	<b>1</b> or <b>2</b>
G2	Thermocouple	
	regular insert	<b>E</b> - type "E", <b>J</b> - type "J", <b>K</b> - type "K", <b>L</b> - type "L", <b>R</b> - type "R", <b>S</b> - type "S"
	MI insert	<b>E</b> - type "E", <b>J</b> - type "J", <b>K</b> - type "K", <b>N</b> - type "N"
G3	Temperature range	<b>T3</b> - 0...850 °C, <b>T4</b> - 0...800 °C, <b>T6</b> - 0...1200 °C <sup>(9)</sup> , <b>T13</b> - 0...1000 °C, <b>T16</b> - 0...1100 °C
G4	Diameter	
	'd' / 'd insert' [mm]	regular insert <b>10/6, 10/8, 12/6, 12/8, 14/6, 14/8, 14/10, 16/10, 20/10</b> <sup>(1)</sup> MI insert <b>6/3, 8/4.5, 10/6, 12/6, 14/6, 16/6, 20/6</b> <sup>(1)</sup> , <b>20/8</b> <sup>(1)</sup>
G6	Probe length 'n' [mm] <sup>(2)</sup>	<b>50...3000</b>
G7	Probe length 'm' [mm] <sup>(3)</sup>	<b>0...1500</b>
G9'	Mounting connection	<b>X</b> - no mounting appliances <sup>(4)</sup> , <b>Q0</b> - M16x1.5, <b>Q1</b> - M18x1.5, <b>Q2</b> - M20x1.5, <b>Q3</b> - G3/8", <b>Q4</b> - G1/2", <b>Q5</b> - M27x2, <b>Q6</b> - G3/4", <b>Q9</b> - 3/8" NPT, <b>Q10</b> - 1/2" NPT, <b>Q11</b> - 3/4" NPT, <b>Q12</b> - G1", <b>Q15</b> - 1" NPT, <b>Q25</b> - M33x2, <b>Uxx</b> - union nut (xx - same as for Qxx), <b>F</b> - flange (specify!), <b>Z</b> - other connection (specify!)
G9"	Compression fitting ferrule <sup>(5)</sup>	<b>BR</b> - brass, <b>GR</b> - graphite, <b>SS</b> - stainless steel, <b>TF</b> - Teflon®
G10	Sheath material	
	(wetted parts and insert)	regular insert <b>M2</b> - 1.4541, <b>M3</b> - 1.4571, <b>M4</b> - 1.4762 (1.4749), <b>M5</b> - 1.4841, <b>M6</b> - 1.4845, <b>M7</b> - 1.4876, <b>M8</b> - 2.4816, <b>M9</b> - 1.4401 (1.4404), <b>M15</b> - 1.4362 MI insert <b>M2</b> - 1.4541, <b>M3</b> - 1.4571, <b>M4</b> - 1.4762 (1.4749), <b>M5</b> - 1.4841, <b>M8</b> - 2.4816, <b>M9</b> - 1.4401 (1.4404)
G11	Accuracy class	<b>1</b> - '1' <sup>(9)</sup> , <b>2</b> - '2'
G14	Insert tip shape (hot junction)	<b>X</b> - standard (isolated from sheath), <b>G</b> - grounded, <b>E</b> - exposed hot junction, <b>O</b> - open-tube design
#1	Options	<b>X</b> - none, <b>OV</b> - vibration proof (secured screws) <sup>(6)</sup> , <b>OS</b> - spring-loaded insert, <b>OT</b> - thermal isolation <sup>(4)</sup> , <b>OP</b> - electrochemically polished wetted parts
#2	Incorporated devices	<b>X</b> - none, <b>T</b> - in-head transmitter <sup>(7)</sup> , <b>A</b> - local indicator <sup>(8)</sup>

<sup>(1)</sup> d = 21.3 mm for sheath materials 'M5' and 'M6'

<sup>(2)</sup> 'n+m' for TS(O)CS3 and TS(O)CS4!

<sup>(3)</sup> Only for TS(O)CS1 and TS(O)CS2!

<sup>(4)</sup> Only for TS(O)CS!

<sup>(5)</sup> Only for TS(O)CS4!

<sup>(6)</sup> Requires 'OS' option!

<sup>(7)</sup> Only for variant 'OCS'! See transmitter datasheets and order separately!

<sup>(8)</sup> With windowed head only! See indicator datasheets and order separately!

<sup>(9)</sup> Contact COMECO!