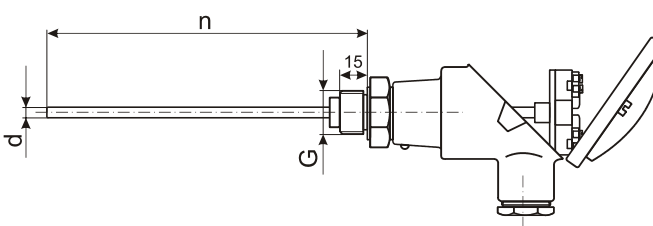
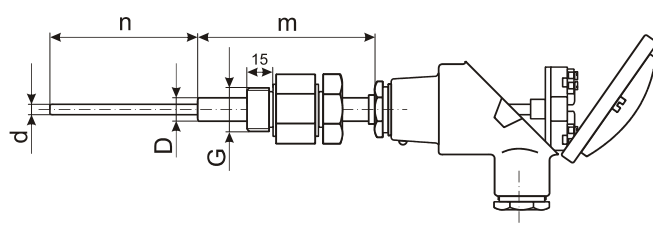
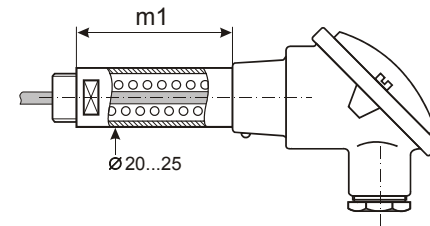
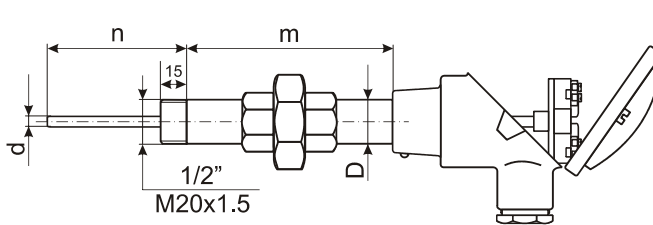


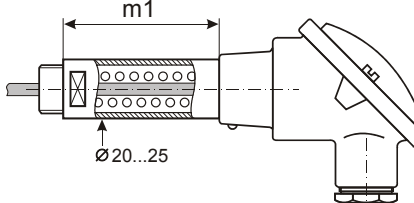
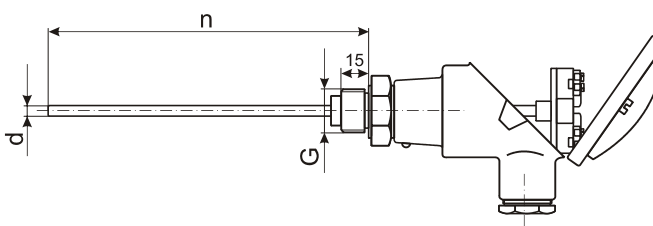
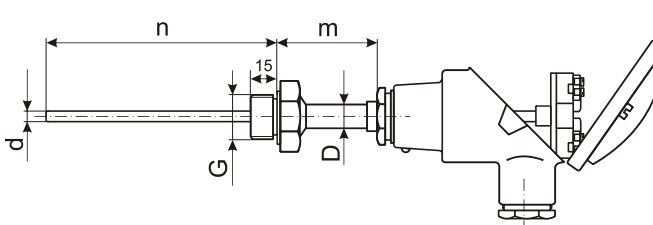
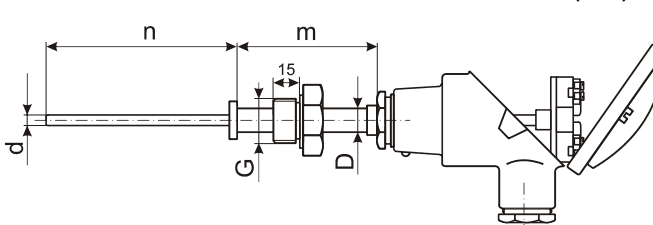
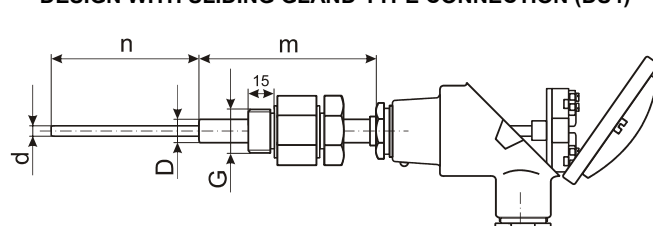
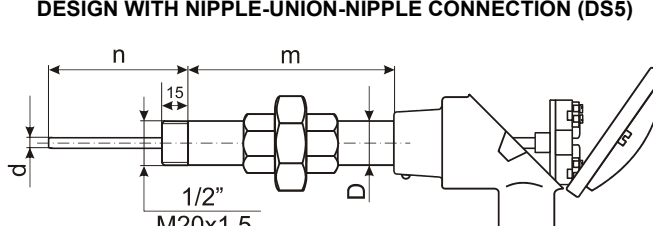
RTD PROBE WITH PROTECTION HEAD AND OPEN REPLACEABLE INSERT FOR THERMOWELL OR PROTECTION TUBE (FOR IN-HEAD TRANSMITTER)** DSx (TSDSx) ODSx (TSODSx) Sheath - stainless steel (see Appendix - Sheath materials) Head - aluminum, stainless steel, or plastic (see Appendix - Protection heads)	SENSITIVE ELEMENT	TEMPERATURE RANGE	DIMENSIONS																
			D [mm]	d [mm]	wires														
DESIGN WITHOUT EXTENSION (DS) 	1 x Pt (RB,RD,RF,RG)	T9 -50...200 °C	8, 10	5	2, 3*														
		T1 -50...400 °C	10, 12	6	2, 3, 4*														
		T11* -50...600 °C	12, 14	8	2, 3, 4														
	2 x Pt (RB,RD,RF,RG)	T2* -200...600 °C	10, 12	6	2x2*														
		T4* -0...800 °C	12, 14	8	2x2(3)*														
1 x Cu (RH, RK)	T9 -50...200 °C	10, 12	6	2, 3, 4*															
2 x Cu (RH, RK)	T9 -50...200 °C	12, 14	8	2, 3, 4															
10, 12		6	2x2*																
12, 14		8	2x2(3)*																
Protection head: B, MA, MB, G, N, Dx, Ex, 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 flange																			
Thermal isolation between nipple and metal head: (for TS(O)DS only)																			
<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®																		
Insertion length (must fit thermowell / protection tube length 'L!'): n = 50...2000 mm																			
Extension length: m = 50...1000 mm (w/o spring-loaded adapter) m = m1...1000 mm (w/ spring-loaded adapter)																			
Tip shape: standard, narrowed, pitted (see Appendix - Tip shapes)																			
Process pressure: - with metal thermowell up to 500 bar (see Accessories - Thermowells) - with ceramic protection tube (see Accessories - Protection tubes) *																			
Sheath material: 1.4301(M1) or 1.4541(M2)																			
Insert sheath material: 1.4301(M1), 1.4404(M9), 1.4541(M2), 1.4571(M3), 1.4362 (M15)																			
Wire material: Cu, Ni, or Ag																			
Accuracy class: 'A', 'B', or '2xB' (see Appendix - RTD Tolerance)																			
Spring-loaded adapter: (mounted between probe and protection head)																			
DESIGN WITH SLIDING GLAND-TYPE CONNECTION (DS4) 																			
DESIGN WITH NIPPLE-UNION-NIPPLE CONNECTION (DS5) 		m1 = 60...100 mm																	
* Please contact COMECO! ** Order transmitter separately!!!																			

Ordering code TS*(1,2,4,5) - G0.G1G2.G3.G4.G6.G7.G9'9".G10.G11.G12.G13.G14 - #1.#2

Code	Feature or option	Code values
*	Base model variant	DS - standard (w/ terminal block), ODS - prepared for in-head transmitter (w/o terminal block)
G0	Protection head	B - type "B", MA - type "MA", MB - type "MB", G - IP65, type "G", N - type "N", D - type "D", DW - windowed, type "DW", DH - w/ high cap, type "DH", DHW - windowed, type "DHW", E - IP65, type "E", ES - stainless-steel, type "ES" ⁽¹⁰⁾ , GS - IP65, type "GS", EG - IP68 ATEX-approved, type "EG", EGS - IP66 ATEX-approved, type "EGS" ⁽¹⁰⁾ , EGW - windowed ATEX-approved, type "EGW", EX - explosion-proof instrument housing (specify!)
G1	Number of RTD sensors	1 or 2
G2	Sensor	RB - Pt50, RD - Pt100, RF - Pt500, RG - Pt1000, RH - Cu50, RK - Cu100
G3	Temperature range	T1 - -50...400 °C, T2 - -200...600 °C (Ni or Ag wires only!), T4 - 0...800 °C (Ag wires only!), T9 - -50...200 °C, T11 - -50...600 °C (Ni or Ag wires only!)
G4	Diameters 'D/d' [mm] ⁽¹⁾	8/5, 10/5, 10/6, 12/6, 14/6, 14/8, 20/6, 21/6, 20/8, 21/8
G6	Probe length 'h' [mm]	50...2000
G7	Probe length 'm' [mm] ⁽²⁾	50...1000 (m1...1000 with 'OA' option)
G9'	Mounting connection	X - no mounting appliances, 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 ⁽³⁾	TF - Teflon®, BR - brass, SS - stainless steel
G10	Insert sheath material	M1 - 1.4301, M2 - 1.4541, M3 - 1.4571, M9 - 1.4404, M15 - 1.4362
G11	Accuracy class ⁽⁴⁾	A - 'A', B - 'B', C - '2xB'
G12	Number of wires	2, 3, 4 ⁽¹⁰⁾
G13	Wire material ⁽⁴⁾	CU - copper, NI - nickel, AG - silver
G14	Tip shape	X - standard closed, N - narrowed, P - pitted ⁽⁵⁾
#1	Options	X - none, OV - vibration proof (MgO or Silicone filled insert, secured screws) ⁽⁶⁾ , OS - spring-loaded insert, OT - thermal isolation ⁽⁷⁾ , OA - spring-loaded adapter ⁽⁸⁾ , OP - electrochemically polished sheath surface
#2	Local indicator	X - none, A - local indicator mounted ⁽⁹⁾

⁽¹⁾ Only 'd' for TS(O)DS!
⁽²⁾ Omit for TS(O)DS without 'OA' option!
⁽³⁾ Only for TS(O)DS4!
⁽⁴⁾ Only for Pt sensors!
⁽⁵⁾ Only for non-explosion-proof RTDs!
⁽⁶⁾ Requires 'OS' option!
⁽⁷⁾ Only for TS(O)DS!
⁽⁸⁾ Only for TS(O)DS, TS(O)DS1, and TS(O)DS5! **Insert is not replaceable!**
⁽⁹⁾ With windowed head only! See indicator datasheets and order separately!
⁽¹⁰⁾ Contact COMECO!

COMECO reserves the right of changing specifications without prior notice!

<p>T/C PROBE WITH PROTECTION HEAD AND OPEN REPLACEABLE INSERT FOR THERMOWELL OR PROTECTION TUBE</p> <p>(FOR IN-HEAD TRANSMITTER)***</p> <p>Sheath - stainless steel (see Appendix - Sheath materials) Head - aluminum, stainless steel, or plastic (see Appendix - Protection heads)</p>	DSx (TSDSx)	SENSITIVE ELEMENT	TEMPERATURE RANGE	DIMENSIONS																																																		
	ODSx (TSODSx)			D [mm]	d [mm]	wires																																																
MI Thermocouple Insert Design																																																						
<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:10%;">1 x J</td> <td rowspan="2" style="width:10%;">T4</td> <td rowspan="2" style="width:10%;">0...800 °C</td> <td rowspan="2" style="width:10%;">8,10,12,14</td> <td rowspan="2" style="width:10%;">3, 4.5, 6, 8</td> <td style="width:10%; text-align: center;">2</td> </tr> <tr> <td>2 x J</td> <td style="text-align: center;">2x2</td> </tr> <tr> <td>1 x K</td> <td rowspan="2">T3</td> <td rowspan="2">0...850 °C</td> <td rowspan="2">8,10,12,14</td> <td rowspan="2">3, 4.5, 6, 8</td> <td style="text-align: center;">2</td> </tr> <tr> <td>1 x N, 1 x E</td> <td style="text-align: center;">2</td> </tr> <tr> <td>2 x K</td> <td rowspan="2">T6*</td> <td rowspan="2">0...1150 °C</td> <td rowspan="2">8,10,12,14</td> <td rowspan="2">3, 4.5, 6, 8</td> <td style="text-align: center;">2x2</td> </tr> <tr> <td>2 x N, 2 x E</td> <td style="text-align: center;">2x2</td> </tr> <tr> <td rowspan="2">1 x S, 1 x R</td> <td>T16</td> <td>0...1100 °C</td> <td rowspan="2">8,10,12,14</td> <td rowspan="2">3, 4.5, 6</td> <td rowspan="2" style="text-align: center;">2</td> </tr> <tr> <td>T6*</td> <td>0...1150 °C</td> </tr> <tr> <td rowspan="3">2 x S, 2 x R</td> <td>T16</td> <td>0...1100 °C</td> <td rowspan="3">8,10,12,14</td> <td rowspan="3">3, 4.5, 6</td> <td rowspan="3" style="text-align: center;">2x2</td> </tr> <tr> <td>T6*</td> <td>0...1150 °C</td> </tr> <tr> <td>T14**</td> <td>0...1600 °C</td> </tr> <tr> <td></td> <td>T15**</td> <td>0...1700 °C</td> <td></td> <td></td> <td></td> </tr> </table>							1 x J	T4	0...800 °C	8,10,12,14	3, 4.5, 6, 8	2	2 x J	2x2	1 x K	T3	0...850 °C	8,10,12,14	3, 4.5, 6, 8	2	1 x N, 1 x E	2	2 x K	T6*	0...1150 °C	8,10,12,14	3, 4.5, 6, 8	2x2	2 x N, 2 x E	2x2	1 x S, 1 x R	T16	0...1100 °C	8,10,12,14	3, 4.5, 6	2	T6*	0...1150 °C	2 x S, 2 x R	T16	0...1100 °C	8,10,12,14	3, 4.5, 6	2x2	T6*	0...1150 °C	T14**	0...1600 °C		T15**	0...1700 °C			
1 x J	T4	0...800 °C	8,10,12,14	3, 4.5, 6, 8	2																																																	
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2 x N, 2 x E					2x2																																																	
1 x S, 1 x R	T16	0...1100 °C	8,10,12,14	3, 4.5, 6	2																																																	
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<p>Protection head: B, MA, MB, G, N, Dx, Ex, EX (see Appendix - Protection heads)</p> <p>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 flange</p> <p>Thermal isolation between nipple and metal head: (for TS(O)DS only)</p> <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th style="width:20%;">Protection head</th> <th style="width:20%;">Length 'n'</th> <th style="width:20%;">Maximum temperature</th> <th style="width:40%;">Insulation material</th> </tr> <tr> <td>MA, MB</td> <td>up to 50 mm</td> <td rowspan="2" style="text-align: center;">200 °C</td> <td rowspan="2" style="text-align: center;">POM</td> </tr> <tr> <td>B</td> <td>up to 100 mm</td> </tr> <tr> <td>other</td> <td>up to 150 mm</td> <td style="text-align: center;">400 °C</td> <td style="text-align: center;">Teflon®</td> </tr> </table> <p>Insertion length (must fit thermowell / protection tube length 'L!'): n = 50...2000 mm</p> <p>Extension length: m = 50...1000 mm (w/o spring-loaded adapter) m = m1...1000 mm (w/ spring-loaded adapter)</p> <p>Tip shape (hot junction design): standard (isolated), grounded, open-tube, exposed (see Appendix - Tip shapes)</p> <p>Process pressure: - with metal thermowell up to 500 bar (see Accessories - Thermowells) - with ceramic protection tube (see Accessories - Protection tubes) *</p> <p>Sheath material: 1.4301(M1) or 1.4541(M2)</p> <p>MI-insert sheath material: 1.4404(M9), 1.4541(M2), 1.4571(M3), 1.4762(M4), 1.4841(M5), 1.4876(M7), 2.4816(M8)</p> <p>Accuracy class: '1' or '2' (see Appendix - T/C Tolerance)</p> <p>Spring-loaded adapter: (mounted between probe and protection head)</p> <div style="text-align: center;">  <p>m1 = 60...100 mm</p> </div>							Protection head	Length 'n'	Maximum temperature	Insulation material	MA, MB	up to 50 mm	200 °C	POM	B	up to 100 mm	other	up to 150 mm	400 °C	Teflon®																																		
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<p>* Please contact COMECO! ** With ceramic protection tubes only! *** Order transmitter separately!!!</p>																																																						

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Ordering code TS*(1,2,4,5) - G0.G1G2.G3.G4.G6.G7.G9'9".G10.G11.G14 - #1.#2

Code	Feature or option	Code values
*	Base model variant	DS - standard (w/ terminal block), ODS - prepared for in-head transmitter (w/o terminal block)
G0	Protection head	B - type "B", MA - type "MA", MB - type "MB", G - IP65, type "G", N - type "N", D - type "D", DW - windowed, type "DW", DH - w/ high cap, type "DH", DHW - windowed, type "DHW", E - IP65, type "E", ES - stainless-steel, type "ES" ⁽⁹⁾ , GS - IP65, type "GS", EG - IP68 ATEX-approved, type "EG", EGS - IP66 ATEX-approved, type "EGS" ⁽⁹⁾ , EGW - windowed ATEX-approved, type "EGW", EX - explosion-proof instrument housing (specify!)
G1	Number of thermocouples	1 or 2
G2	Thermocouple	J - type "J", K - type "K", N - type "N", E - type "E", L - type "L", S - type "S", R - type "R"
G3	Temperature range	T3 - 0...850 °C, T4 - 0...800 °C, T6 - 0...1200 °C ⁽⁹⁾ , T13 - 0...1000 °C, T14 - 0...1600 °C, T15 - 0...1700 °C, T16 - 0...1100 °C
G4	Diameters 'D/d' [mm] ⁽¹⁾	8/3 , 10/3 , 8/4.5 , 10/4.5 , 12/6 , 14/6 , 20/6 ⁽²⁾ , 21/6 , 20/8 ⁽²⁾ , 21/8
G6	Probe length 'n' [mm]	50...2000
G7	Probe length 'm' [mm] ⁽³⁾	50...1000 (m1...1000 with 'OA' option)
G9'	Mounting connection	X - no mounting appliances, 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⁾	TF - Teflon®, BR - brass, SS - stainless steel
G10	Insert sheath material	M2 - 1.4541, M3 - 1.4571, M4 - 1.4762, M5 - 1.4841, M6 - 1.4845, M8 - 2.4816, M9 - 1.4404
G11	Accuracy class	1 - '1' ⁽⁹⁾ , 2 - '2'
G14	Insert 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 (secured screws) ⁽⁵⁾ , OS - spring-loaded insert, OT - thermal isolation ⁽⁶⁾ , OA - spring-loaded adapter ⁽⁷⁾ , OP - electrochemically polished sheath surface
#2	Local indicator	X - none, A - local indicator mounted ⁽⁸⁾

⁽¹⁾ Only 'd' for TS(O)DS!
⁽²⁾ Not available with G10='M6'
⁽³⁾ Omit for TS(O)DS without 'OA' option!
⁽⁴⁾ Only for TS(O)DS4!
⁽⁵⁾ Requires 'OS' option!
⁽⁶⁾ Only for TS(O)DS!
⁽⁷⁾ Only for TS(O)DS, TS(O)DS1, and TS(O)DS5! Insert is not replaceable!
⁽⁸⁾ With windowed head only! See indicator datasheets and order separately!
⁽⁹⁾ Contact COMECO!

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