

Temperature Measurement

Temperature sensors

SITRANS TS300 food and pharmaceuticals / Modular design

Selection and ordering data

SITRANS TS300				Article No.				Order code			
For food, pharmaceuticals and biotechnology				7MC8005-							
Modular design, for installation in pipelines and vessels				● ● ● ● 0 - ● ● ● 0				● ● ●			
Click the article number for online configuration in the PIA Life Cycle Portal.											
Head											
Stainless steel head, BSO, screw cover (standard version)				5							
Aluminum head, BAO, flange cap, standard				1							
Plastic head, BMO, screw cover				2							
Aluminum head, BBO, spring flap low, screw closure				3							
Aluminum head, BCO, spring flap high, screw closure				4							
Special design (specify order code and plain text)				9					H	1	Y
Process connection											
Material 1.4404 or 1.4435/316L											
Dairy connection acc. to DIN 11851											
with slotted union nut and nominal diameter/nominal pressure											
DN 25/PN 40				A	A						
DN 32/PN 40				A	B						
DN 40/PN 40				A	C						
DN 50/PN 25				A	D						
Clamp connection											
ISO 2852	DIN 32676	Tri-Clamp	Outer diameter D ₆								
–	–	½ inch/ ¾ inch	25.0 mm (0.98 inch)	C	A						
DN 25/ 33.7/38	DN 25/32/40	1 inch, 1½ inches	50.5 mm (1.99 inches)	C	B						
DN 40/51	DN 50	2 inches	64.0 mm (2.52 inches)	C	C						
DN 63.5	–	2½ inches	77.5 mm (3.05 inches)	C	D						
DN 88.9	DN 80	–	106.0 mm (4.17 inches)	C	E						
Varivent connection (Tuchenhagen Co.)											
Ø D ₆ = 50 mm (1.97 inches), for Varivent enclosure DN 25 and DN 1"				K	U						
Ø D ₆ = 68 mm (2.68 inches), for Varivent enclosure DN 40 ... DN 125 and 1½ ... 6 inches				K	V						
NEUMO/BioControl with O-ring											
Size 25				B	A						
Size 50				B	B						
Size 65				B	C						
Ingold socket											
DN 25 with hexagonal union nut G 1¼", installation length 40 mm (1.57 inches), diameter 24.8 mm (0.98 inches), incl. O-ring				J	A						
Weld-in piece				L	A						
[spherical diameter 30 × 40 mm (1.2 × 1.6 inches) long]											
Special design:				Z	A				J	1	Y
Type of gland and nominal diameter (add order code and plain text)											
Thermowell											
Measuring insert											
Ø D = 6 mm (0.24 inch)						1					
Ø D = 9 mm (0.35 inch)						2					
Ø D = 9 mm (0.35 inch)						3					
Ø D = 9 mm (0.35 inch)						4					
tapered tip, D ₂ = 5 Ø × 20 mm (0.2 × 0.79 inch)											
Special design						9			L	1	Y
(specify order code and plain text)											
Extension tube length X											
65 mm (2.56 inches) [M = 80 mm (3.15 inches)]						1					
130 mm (5.12 inches) [M = 145 mm (5.71 inches)]						2					
Special design						9			N	1	Y
(add order code and plain text)											
Installation length "U"											
Specify customer-specific length with Y44, see order codes											
15 mm (0.59 inches)								B			
16 ... 35 mm (0.63 ... 1.38 inches)								C			
Initial: 35 mm (1.38 inches)											
36 ... 50 mm (1.42 ... 1.97 inches)								D			
Initial: 50 mm (1.97 inches)											
51 ... 100 mm (2.01 ... 3.94 inches)								E			
Initial: 100 mm (3.94 inches)											
101 ... 160 mm (3.98 ... 6.30 inches)								F			
Initial: 160 mm (6.30 inches)											

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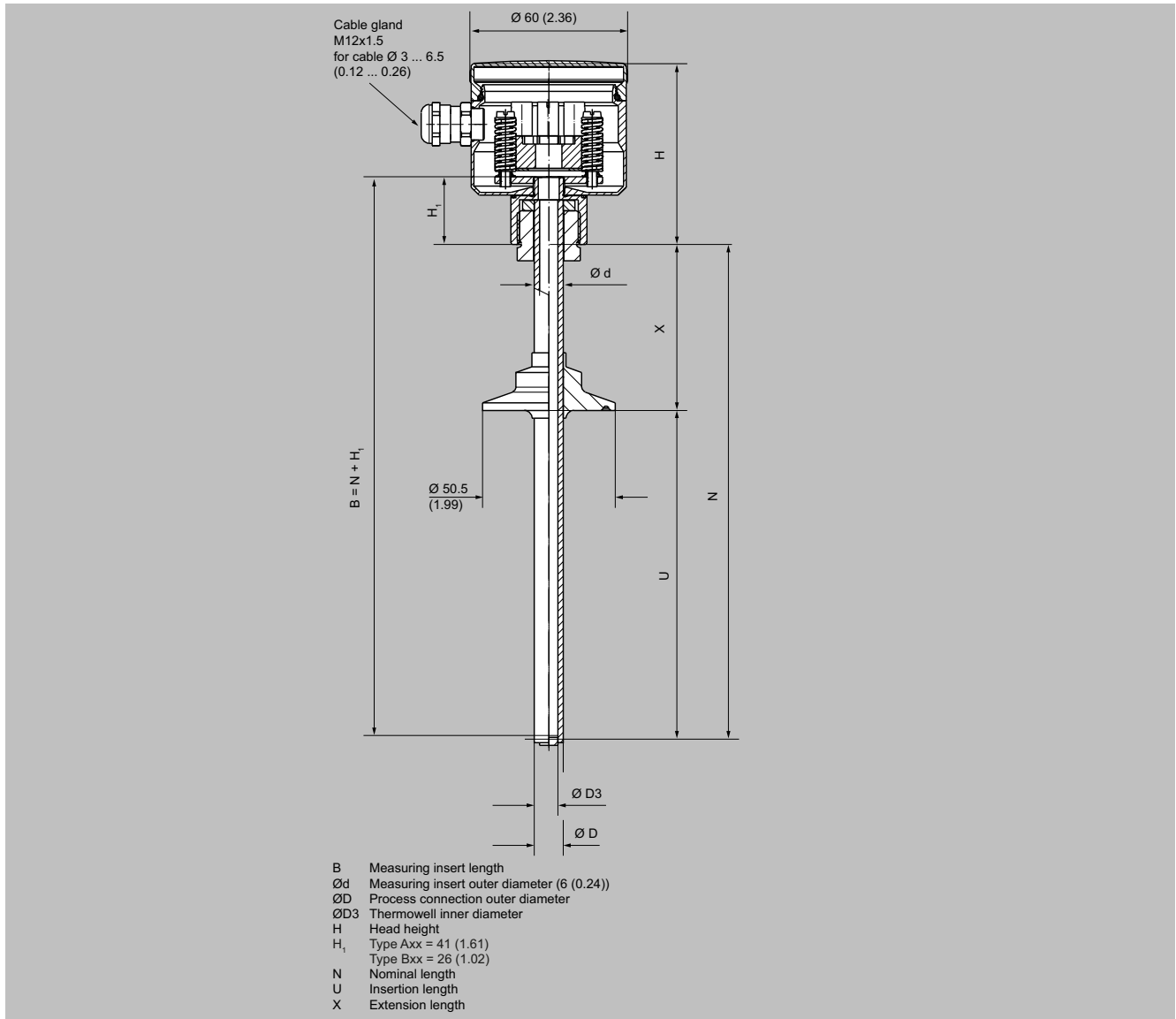
Selection and ordering data (continued)

SITRANS TS300	Article No.										Order code		
For food, pharmaceuticals and biotechnology Modular design, for installation in pipelines and vessels	7MC8005-												
161 ... 250 mm (6.34 ... 9.84 inches) Initial: 250 mm (9.84 inches)										G			
251 ... 400 mm (9.88 ... 15.75 inches) Initial: 400 mm (15.75 inches)										H			
1 ... 4 inches, initial: 4 inches										J			
4 ... 6 inches, initial: 6 inches										K			
6 ... 9 inches, initial: 9 inches										L			
Special design (add order code and plain text)										Z		P	1 Y
Sensor													
Thin layer technology: Range of use -50 ... +400 °C (-58 ... +752 °F)													
1 × Pt100, Class A, 3-wire										F			
2 × Pt100, Class A, 3-wire										G			
1 × Pt100, Class A, 4-wire										H			
Special design (specify order code and plain text)										Z		Q	1 Y

Options	Order code
Add "Z" to article number and specify an order code.	
Certificates and approvals	
Transmitter test report (5 points)	C11
Inspection certificate EN 10204-3.1: Wetted material	C12
Roughness depth measurement R_a certified with a factory certificate according to EN 10204-3.1	C18
Certificates for functional safety	
SITRANS TH320/420 transmitter with SIL2/3 certificate	C20
Type of protection (Ex)	
Manufacturer declaration for intrinsically safe circuits	E01
Special design	
Flying lead connection type (for direct transmitter mounting, delivery without screws or springs)	G01
Cable input for connection head	
M12 device plug (in combination with transmitter, non-Ex and intrinsically safe, max. IP65/67)	G12
Hygiene version	
$R_a < 0.8 \mu\text{m}$ (3.1×10^{-5} inches)	H01
Process connection	
Process connection: Completely extrapolated	P01
Built-in head-mounted transmitter	
Measuring range to be set must be specified with plain text data "Y01".	
SITRANS TH100, input 1 × Pt100, 4 ... 20 mA	T12

Options	Order code
SITRANS TH320, input 1 × universal, 4 ... 20 mA	T24
SITRANS TH320, input 1 × universal, HART	T34
SITRANS TH420, input 2 × universal, HART	T35
Device settings (head-mounted transmitter options)	
Specify measuring range in plain text (Y11: +/-NNNN ... +/-NNNN C,F)	Y11
Tag plate made of stainless steel, specify label/tag no. in plain text	Y15
Specify measuring point description in plain text (max. 16 characters)	Y23
Specify measuring point message in plain text (max. 32 characters)	Y24
Specify bus address in plain text	Y25
Test report (at 0, 50 and 100%); Specify measuring range in plain text.	Y33
Note If optional head-mounted transmitters are installed, all calibration points must be in the set measuring range. If the points are outside the standard measuring range, a Y01 suffix is always required.	
Installation length "U" customer-specific, select range, plain text specification of desired length (no specification = standard length)	Y44
Customer-specific plain text	
Specify special design in plain text	Y98
Handling number of the special design	Y99

Dimensional drawings



SITRANS TS300, modular design, dimensions in mm (inch)

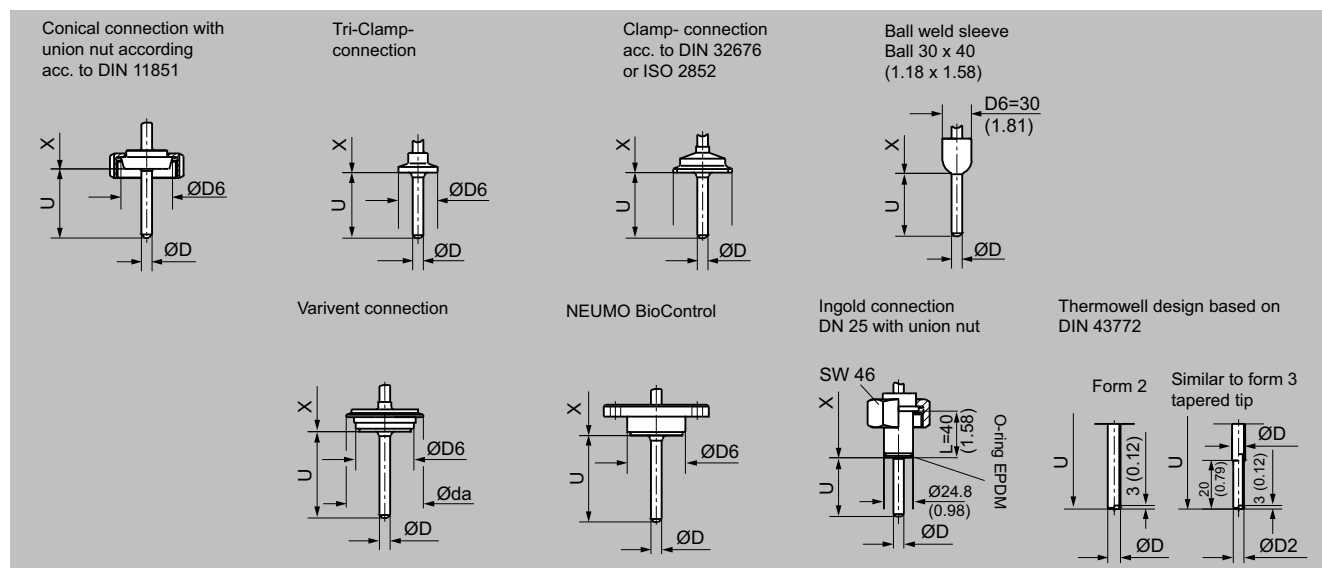
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SITRANS TS300 food and pharmaceuticals / Modular design

Dimensional drawings (continued)

Process connection



SITRANS TS300 modular design, process connections, dimensions in mm (inch)

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SITRANS TS300 food and pharmaceuticals / Clamp-on design

Selection and ordering data

		Article No.				Order code		
SITRANS TS300 for food, pharmaceuticals and biotechnology		7MC8016-						
Clamp-on design for measuring the pipe surface temperature								
		●	●	●	●	0	●	●
Click the article number for online configuration in the PIA Life Cycle Portal.								
Type								
According to IEC 60751, Class A [-40 ... +150 °C (-40 ... +302 °F)]		1						
Connection type								
Device plug M12 × 1		A						
Connection head form B, stainless steel		B						
4 ... 20 mA compact transmitter SITRANS TH100 Slim (standard measuring range 0 ... 100 °C (32 ... 212 °F))		C						
Pipe collar mounting type								
<u>Outer pipe diameter mm (inch)</u>	<u>Collar size mm (inch)</u>							
4 (0.16)	50 × 35 × 20 (1.97 × 1.38 × 0.79)	A	1					
6 (0.24)		B	1					
6.35 (0.25)		C	1					
8 (0.31)		D	1					
9.35 (0.37)		E	1					
10 (0.39)		F	1					
10.2 (0.40)		G	1					
10.3 (0.41)		H	1					
12 (0.47)		J	1					
12.7 (0.50)		K	1					
13 (0.51)		L	1					
13.5 (0.53)		M	1					
13.7 (0.54)		N	1					
14 (0.55)		P	1					
15.88 (0.62)		Q	1					
16 (0.63)		R	1					
17.2 (0.68)		S	1					
18.0 (0.71)	70 × 70 × 20 (2.76 × 2.76 × 0.79)	A	2					
19.0 (0.74)		B	2					
19.05 (0.75)		C	2					
20.0 (0.79)		D	2					
21.3 (0.84)		E	2					
22.0 (0.87)		F	2					
23.0 (0.90)		G	2					
24.0 (0.94)		H	2					
25.0 (0.98)		J	2					
25.4 (1.00)		K	2					
26.7 (1.05)		L	2					
26.9 (1.06)		M	2					
28.0 (1.10)		N	2					
29.0 (1.14)		P	2					
30.0 (1.18)		Q	2					
31.8 (1.25)		R	2					
32.0 (1.26)		S	2					
33.4 (1.31)		T	2					
33.7 (1.33)		U	2					
34.0 (1.34)		V	2					
35.0 (1.38)		W	2					
36.0 (1.42)		X	2					
38.0 (1.49)	90 × 85 × 20 (3.54 × 3.35 × 0.79)	Y	2					
38.1 (1.50)		A	3					
41.0 (1.61)		B	3					
42.4 (1.67)		C	3					
44.5 (1.75)		D	3					
48.3 (1.90)		E	3					
50.8 (2.00)		F	3					
53.0 (2.09)		G	3					
54.0 (2.13)		H	3					

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SITRANS TS300 food and pharmaceuticals / Clamp-on design

Selection and ordering data (continued)

		Article No.					Order code		
SITRANS TS300 for food, pharmaceuticals and biotechnology		7MC8016-							
Clamp-on design for measuring the pipe surface temperature									
57.0 (2.24)		90 × 85 × 20 (3.54 × 3.35 × 0.79)							
Always indicate outer pipe diameter for ¹⁾ :									
• Installation with pipe collar and deviating outer pipe diameter (S11-S19) • Clamping band installation (S31-S35)									

- ¹⁾ Special sizes for outer pipe diameters:
 To process special sizes "Z0", two additional specifications are essential:
 - Plain text specification of the desired diameter under "K1Y"
 - Choice of corresponding pipe collar or clamping band size (order codes "S11" to "S35")

Recommendation

Recommended for all versions: Thermo-lubricant enclosed, silicon-free, injection 3 g, option L15 (see "Options" table)

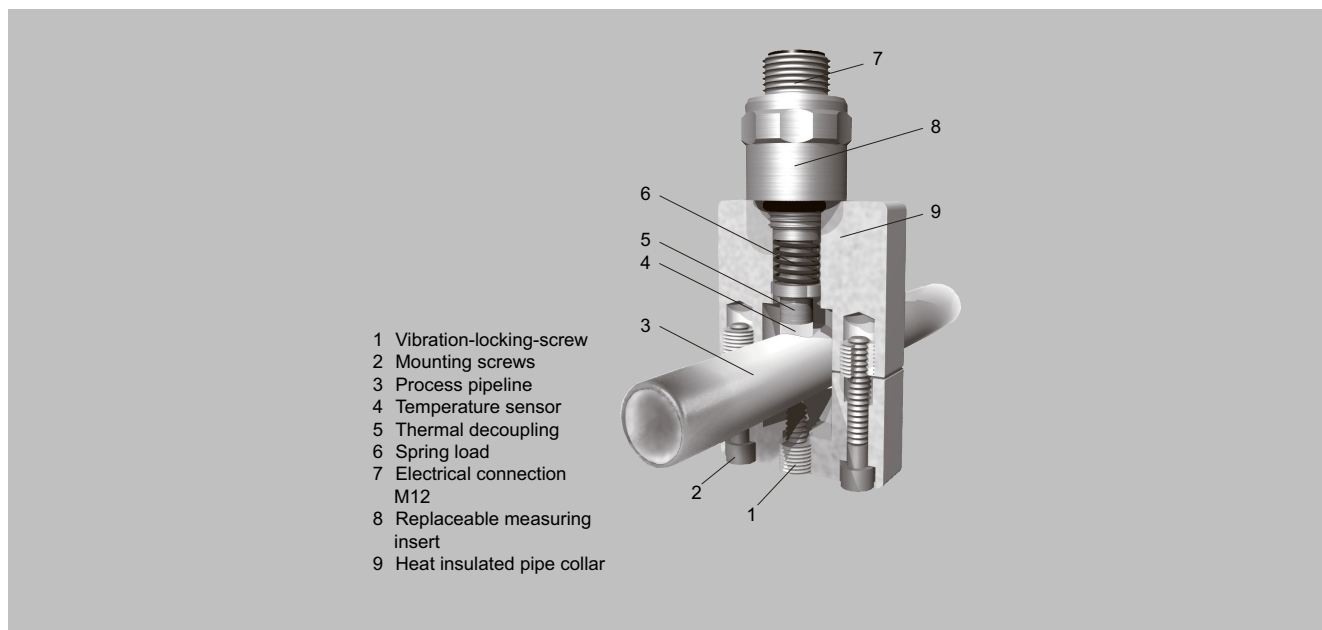
Options	Order code
Add "-Z" to article number and specify order code.	
Certificates and approvals	
Transmitter test report (5 points)	C11
Certificates for functional safety	
SITRANS TH320/420 transmitter with SIL2/3 certificate	C20
Type of protection (Ex)	
Manufacturer declaration for intrinsically safe circuits	E01
Other cable gland (only for connection head)	
Polyamide for cable diameter 4.5 ... 10 mm (0.18 ... 0.39 inches)	K02
Stainless steel for cable diameter 3 ... 6.5 mm (0.12 ... 0.25 inches)	K03
Device plug M12 × 1	K11
Additional options	
Assignment marking, engraving instead of adhesive label (serial number and pipe diameter on plug and plastic block)	L11
2 mm drain hole	L12
Sensor 4-wire connection	L14
Thermo-lubricant enclosed, silicon-free, injection 3 g (0.0066 lb)	L15
Pipe diameter deviating / Collar size; mm (inch)	
4 ... 17.9 (0.16 ... 0.71) / 50 × 35 (1.97 × 1.38)	S11
18 ... 37.50 (0.71 ... 1.48) / 70 × 70 (2.76 × 2.76)	S12
37.51 ... 57 (1.5 ... 2.24) / 90 × 85 (3.54 × 3.35)	S13
Larger nominal diameters on request	S19
Clamping band installation	
For outer pipe diameter; mm (inch):	
• 10 ... 57 (0.39 ... 2.24)	S31
• 58 ... 220 (2.28 ... 8.66)	S32
• Without clamping band installation	S35

Options	Order code
Built-in head transmitter	
Measuring range to be set must be specified with plain text data "Y01".	
SITRANS TH100, input 1 × Pt100, 4 ... 20 mA	T12
SITRANS TH320, input 1 × universal, 4 ... 20 mA	T24
SITRANS TH320, input 1 × universal, HART	T34
SITRANS TH420, input 2 × universal, HART	T35
Device settings (including head transmitter options)	
Specify measuring range in plain text (Y11: +/-NNNN ... +/-NNNN C,F)	Y11
Tag plate made of stainless steel, specify label/tag no. in plain text	Y15
Specify measuring point description in plain text (max. 16 characters)	Y23
Specify measuring point message in plain text (max. 32 characters)	Y24
Specify bus address in plain text	Y25
Test report (at 0, 50 and 100%)	Y33
Specify measuring range in plain text.	
Note If optional head transmitters are installed, all calibration points must be in the set measuring range. If the points are outside the standard measuring range, a Y01 suffix is always required.	
Customer-specific plain text	
Specify special design in plain text	Y98
Handling number of the special design	Y99

Ordering examples

Other pipe diameter 28.5 mm:
 7MC8016-1AZ00-Z K1Y + S12 {K1Y: 28.5 mm}
 Space-saving mounting, pipe diameter 38 mm:
 7MC8016-1AZ00-Z K1Y + S23 {K1Y: 38 mm}; as of diameter ≥ 18 mm, we recommend using the clamping band installation.
 Clamping band installation, pipe diameter 111 mm:
 7MC8016-1AZ00-Z K1Y + S32 {K1Y: 111 mm}

Dimensional drawings



Resistance thermometer with thermowell in clamp-on technology, dimensions in mm (inch)

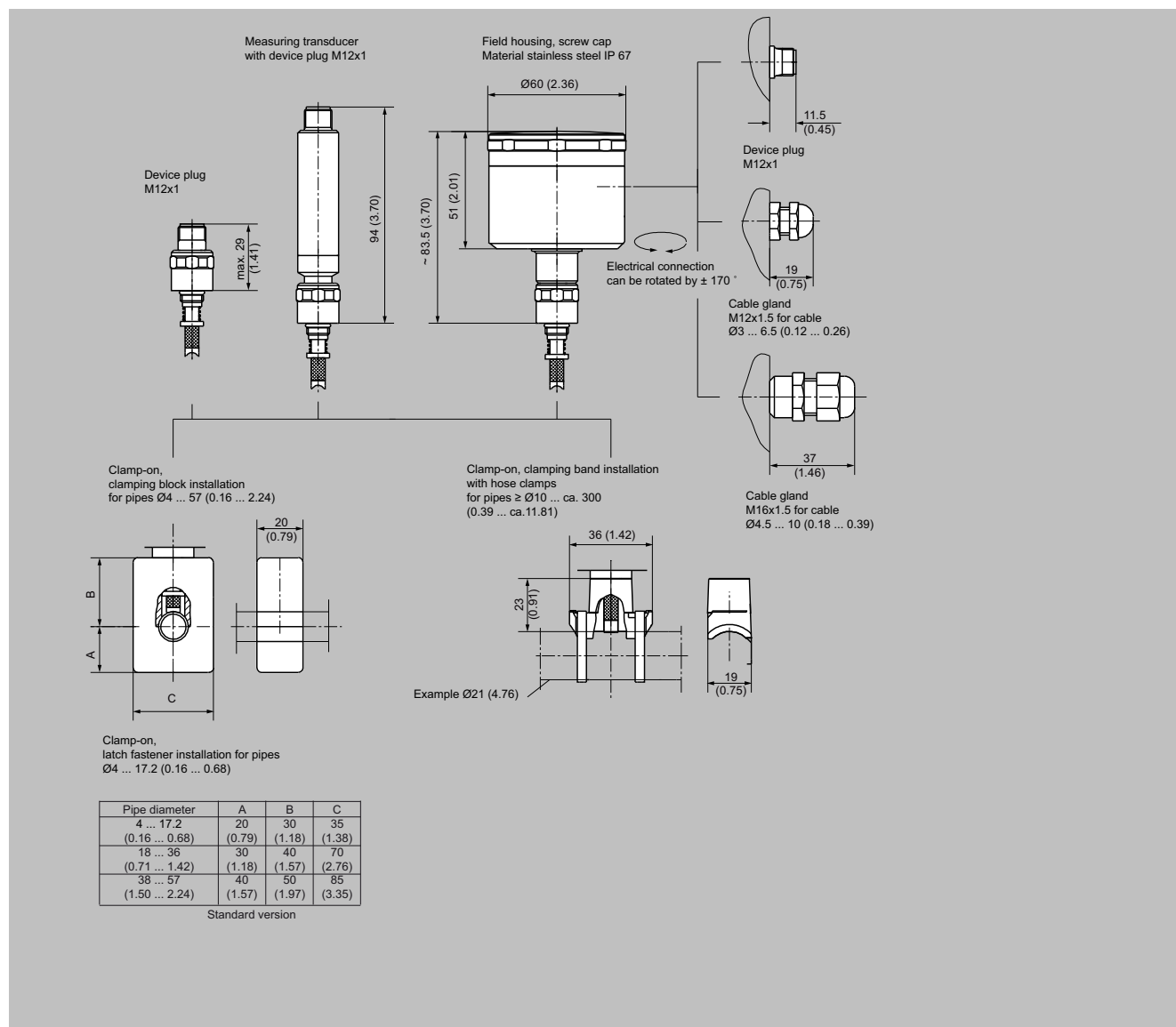
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Dimensional drawings (continued)

Clamp-on design, device plug, field enclosure, cable gland, versions



SITRANS TS300 in clamp-on design, device plug, field enclosure, cable gland, versions, dimensions in mm (inch)