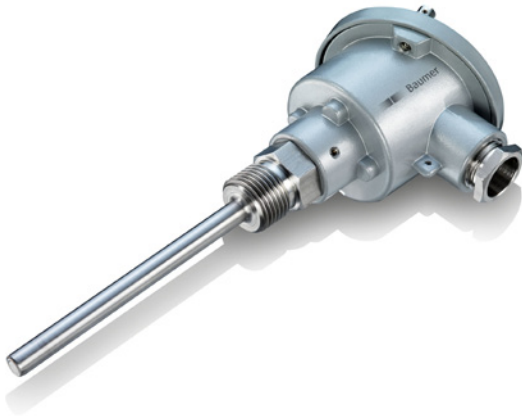




Main features

- Sensor and connection in stainless steel, AISI 316L
- DIN form B housing
- Robust design

Applications

- Industrial applications with industrial process connection
- Pipe systems
- Heating systems
- Water systems
- Tanks and vessels



Technical specification

Housing	DIN form B, Aluminium
El. connection	M20 or M16
Output	Pt100/Pt1000 resistance signal Ceramic terminal block. 4...20 mA, 20...4 mA, HART temperature transmitter
Sensor tube material	Stainless steel 1.4404 (AISI 316L)
Sensor diameter outside	Ø 6, Ø 8 or Ø 10 mm
Sensor length	Standard tip <3000 mm Fast response tip <300 mm
Standard response tip	As outside sensor diameter
Fast response tip	Ø 4 x 20 mm
Max. flow velocity	Air : 40 m/sec Liquid : 5m/sec.

Sensor element, Pt100 - DIN/EN/IEC 60751

Pt100 DIN class B	$\pm (0.3 + 0.005xt) ^\circ\text{C}$
Pt100 1/3 DIN class B	$\pm 1/3 \times (0.3 + 0.005xt) ^\circ\text{C}$
Pt100 1/6 DIN class B	$\pm 1/6 \times (0.3 + 0.005xt) ^\circ\text{C}$
Pt100 DIN class A	$\pm (0.15 + 0.002xt) ^\circ\text{C}$
Single element	1 x Pt100
Double element	2 x Pt100
Connection	2-wire or 4-wire

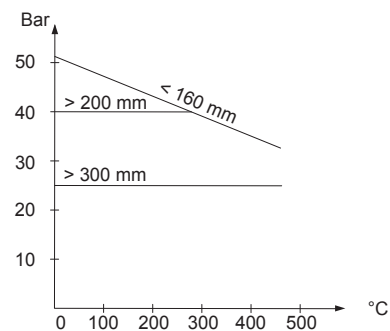
Sensor element, Pt1000 - DIN/EN/IEC 60751

Pt1000 DIN 1/3 DIN class B	$\pm 1/3 \times (0.3 + 0.005xt) ^\circ\text{C}$
Single element	1 x Pt1000
Connection	2-wire

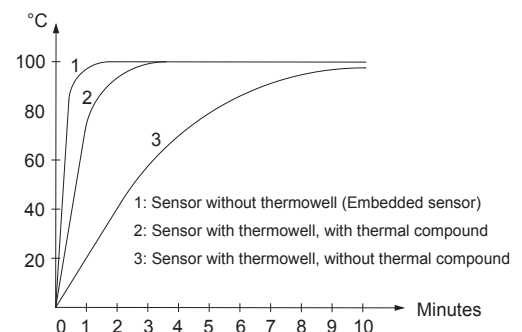
Environment

Ambient temperature	w.terminal block	-40...160 °C
	w. transmitter	-40...85 °C
Process temperature		-50...400 °C, option: <600 °C
Protection class		IP65
Humidity		<100% RH, condensing
Vibrations		GL, test 2

Pressure

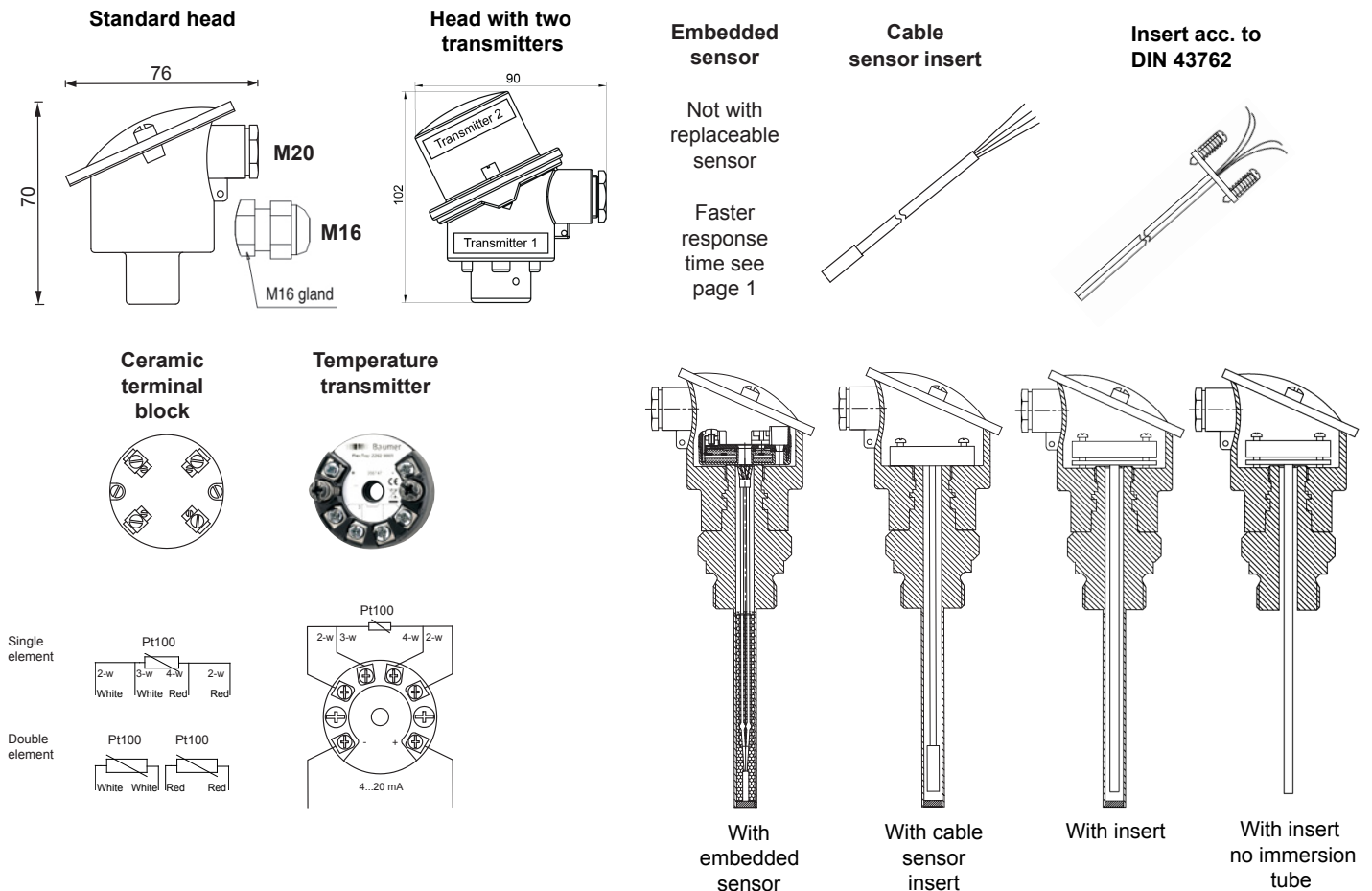


Response time



Note: When a pocket is used, the time delay increases.
The delay is the time duration for the sensor to reflect the correct temperature after a sudden temperature change in the media.

Dimensions (mm), connection diagram and construction details



Transmitter, type FlexTop 2202 - Standard

Input	Pt100
Output	4...20 mA
Accuracy	
Input	< ±0.25°C
Output	< ±0.1% signal span (16mA)
Range	-200...850°C
Minimum span	25°C
Supply	8...35 VDC
Programmability	By FlexProgrammer 9701
For further information please see data sheet for FlexTop 2202	

Transmitter, type FlexTop 2211 - Performance

Input	Pt100 / Pt1000 (universal)
Output	4...20 mA
Accuracy	
Input	< ±0.1°C
Output	< ±0.1% signal span (16mA)
Range	-200...850°C
Minimum span	25°C
Supply	8...35 VDC
Programmability	By FlexProgrammer 9701
For further information please see data sheet for FlexTop 2211	

Transmitter, type FlexTop 2221 - Performance

Input	Pt100 / Pt1000 (universal)
Output	4...20 mA / HART
Accuracy	
Input	< ±0.1°C
Output	< ±0.1% signal span (16mA)
Range	-200...850°C
Minimum span	25°C
Supply	8...35 VDC
Programmability	By FlexProgrammer 9701 By HART terminal/modem
For further information please see data sheet for FlexTop 2221	

Transmitter, type FlexTop 2212 - Performance

Input	Pt100 / Pt1000 (universal)
Output	4...20 mA / 20...4 mA
Accuracy	
Input	≤ ±0.06°C
Output	< ±0.025% of output span (16mA)
Range	-200...850°C
Minimum span	10°C
Supply	7...40 VDC
Programmability	By FlexProgram
For further information please see data sheet for FlexTop 2212	

ATEX data for temperature transmitters

Transmitter, type FlexTop 2202 - ATEX

Approval	Ex ia IIC T5/T6, ATEX II 1G Ex nA II T5, ATEX II 3G
Supply	8...28 VDC
Internal inductivity	$L_i \leq 10 \mu\text{H}$
Internal capacity	$C_i \leq 10 \text{nF}$
Temperature class	T1...T5: $-40 < T_{\text{amb}} < 85^\circ\text{C}$ T6: $-40 < T_{\text{amb}} < 50^\circ\text{C}$
Barrier data	U: $\leq 28 \text{VDC}$ I: $\leq 0.1 \text{A}$ P: $\leq 0.75 \text{W}$

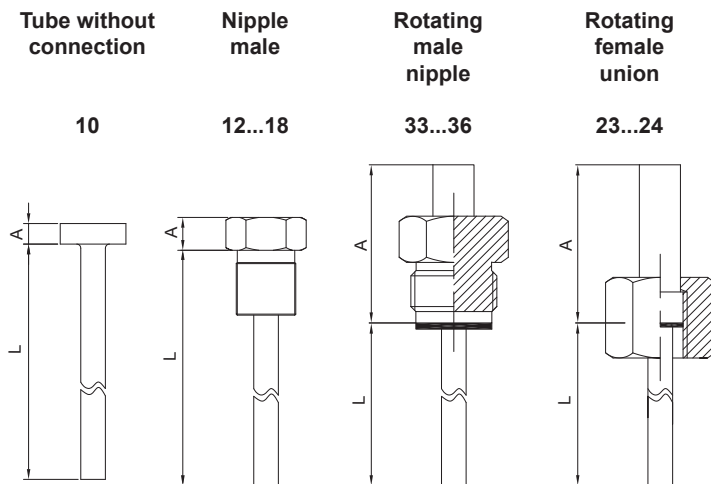
Transmitter, type FlexTop 2211 - ATEX

Approval	Ex ia IIC T5/T6, ATEX II 1G Ex nA II T5, ATEX II 3G
Supply	6.5...30 VDC
Internal inductivity	$L_i \leq 15 \mu\text{H}$
Internal capacity	$C_i \leq 5 \text{nF}$
Temperature class	T1...T5: $-40 < T_{\text{amb}} < 85^\circ\text{C}$ T6: $-40 < T_{\text{amb}} < 50^\circ\text{C}$
Barrier data	U: $\leq 30 \text{VDC}$ I: $\leq 0.1 \text{A}$ P: $\leq 0.75 \text{W}$

Transmitter, type FlexTop 2221 - ATEX

Approval	Ex ia IIC T5/T6, ATEX II 1G Ex nA II T5, ATEX II 3G
Supply	8...30 VDC (Ex nA : 12...30 VDC)
Internal inductivity	$L_i \leq 15 \mu\text{H}$
Internal capacity	$C_i \leq 5 \text{nF}$
Temperature class	T1...T5: $-40 < T_{\text{amb}} < 85^\circ\text{C}$ T6: $-40 < T_{\text{amb}} < 50^\circ\text{C}$
Barrier data	U: $\leq 30 \text{VDC}$ I: $\leq 0.1 \text{A}$ P: $\leq 0.75 \text{W}$

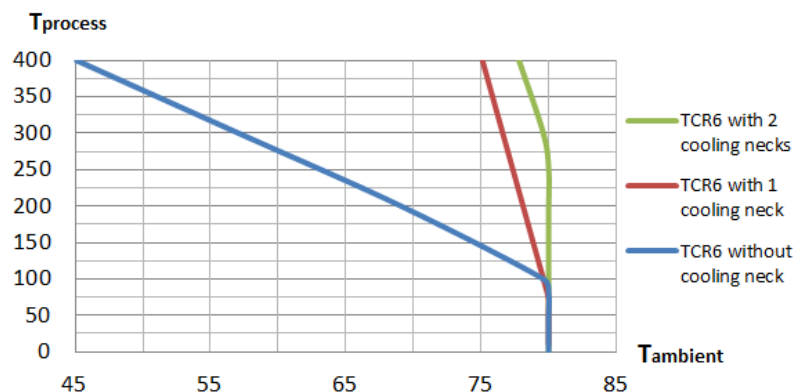
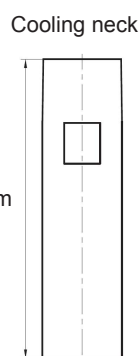
Dimensions (mm) for process connections and immersion tube



Connection	Code	A	A/F	L
Without	10	5	Ø18	20...3.000
G½, R½	12/13	10	22.0	35...3.000
M18, M20	16/17	10	22.0	35...3.000
½" NPT	18	10	22.0	35...3.000
G½ nipple	33	38	27.0	20...3.000
G¾ nipple	35	38	32.0	20...3.000
G1 nipple	36	38	36.0	20...3.000
G½ union	23	38	27.0	20...3.000
G¾ union	24	38	32.0	20...3.000

Standard
Tip
Ø6, Ø8, Ø10

Fast
response tip
Ø4 × 20 mm
Ø6, Ø8, Ø10



Ordering details TCR6

			TCR6	—	xxxx	.	x	x	x	x	.	x	x	xx	.	x	x	x	x	.	xxxx			
Model																								
Standard temperature sensor, CombiTemp TCR6															TCR6									
—																								
Electrical connection																								
Cable gland, M16															1520									
Cable gland, M16, shielded															1620									
Cable gland, M20 (standard)															1720									
Cable gland, M16															for dual transmitter			2520						
Cable gland, M16, shielded															for dual transmitter			2620						
Cable gland, M20 (standard)															for dual transmitter			2720						
.																								
Terminal block/Transmitter																								
Flying leads															Pt100 output			0						
Ceramic terminal block															Pt100 output			1						
FlexTop 2202															4...20 mA			≤ ±0.25°C			2			
FlexTop 2211															4...20 mA			≤ ±0.10°C			3			
FlexTop 2221															4...20 mA + HART®			≤ ±0.10°C			4			
FlexTop 2212															4...20 mA / 20...4 mA			≤ ±0.06°C			6			
2 × FlexTop 2202															4...20 mA			≤ ±0.25°C			A			
2 × FlexTop 2211															4...20 mA			≤ ±0.10°C			B			
2 × FlexTop 2221															4...20 mA + HART®			≤ ±0.10°C			C			
2 × FlexTop 2212															4...20 mA / 20...4 mA			≤ ±0.06°C			D			
Safety																								
Standard															0									
ATEX, ia															Not available for dual transmitter			1						
ATEX, nA															Not available for dual transmitter			3						
Ex ia II 1 G Eex ia IIC, Zone 0, Simple apparatus															No transmitter			9						
Configuration																								
No configuration															0									
Configuration of range															1									
Sensor element																								
None (for Cable Sensor)															0									
1 × Pt100 Cl. B															1									
2 × Pt100 Cl. B															2									
1 × Pt100 Cl. 1/3 B															5									
2 × Pt100 Cl. 1/3 B															6									
1 × Pt100 Cl. 1/6 B															7									
2 × Pt100 Cl. 1/6 B															8									
1 × Pt100 Cl. A															A									
2 × Pt100 Cl. A															B									
1 × Pt100 Cl. B < 600°C															C									
1 × Pt1000, cl. B															J									
1 × Pt1000, cl. 1/3 B															K									
.																								
Sensor insert type																								
Embedded															2-wire			sensor element			1			
Embedded															4-wire			sensor element			2			
Embedded															2x2-wire			sensor element			4			
Insert, DIN 43762															2-wire			sensor element			5			
Insert, DIN 43762															4-wire			sensor element			6			
Insert, DIN 43762															2x2-wire			sensor element			7			
Cable sensor															4-wire, Ø8 mm only			Pt100, 1/1 DIN B			A			
Cable sensor															4-wire, Ø8 mm only			Pt100, 1/3 DIN B			B			
Cable sensor															4-wire, Ø8 mm only			Pt100, 1/6 DIN B			C			
Cable sensor															4-wire, Ø8 mm only			Pt100, 1/1 DIN A			D			
Cooling neck																								
None															0									
71 mm															1									
142 mm															2									
213 mm															3									
Process connection																								
Tube without connection															10									
Nipple, male															G½			DIN3852 form A			12			
Nipple, male															R½			ISO 7/1			13			
Nipple, male															M18×1.5			ISO 261			16			
Nipple, male															M20×1.5			ISO 261			17			
Nipple, male															½"NPT-14			ANSI/ASME B1.20.1			18			
Rotating male nipple															G½			ISO 228/1 incl. NBR gasket			33			
Rotating male nipple															G¾			ISO 228/1 incl. NBR gasket			35			
Rotating male nipple															G1			ISO 228/1 incl. NBR gasket			36			
Rotating female union															G½			ISO 228/1 incl. NBR gasket			23			
Rotating female union															G¾			ISO 228/1 incl. NBR gasket			24			
.																								
Seal																								
No seal															0									
NBR gasket															(-40...108°C) for rotating nipple and union only			1						

Continued on page 5

Ordering details TCR6

TCR6 - xxxx . x x x x . x x xx . x x x x . xxxx

Continued from page 4

Sensor diameter

Ø6.0 mm	Welded	5
Ø8.0 mm	Welded	6
Ø10 mm	Welded	8

Sensor tip

Standard	Normal response			1
Fast	Fast response	Not for cable sensor	Ø4 mm - Max. 300 mm	2
Insert only	Open	No immersion tube below process connection		A

Approvals

Without	0
DNV marine approval	3

Sensor tube length

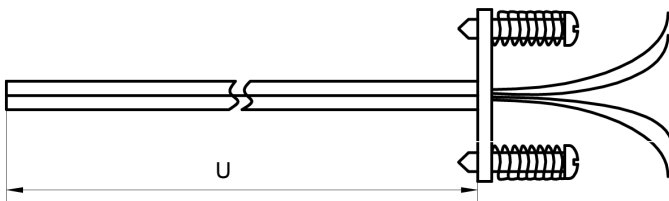
Length in mm (e.g. 60 mm = 0060)

xxxx

Insert TNR6, DIN 43762

For TCR6 standard RTD temperature sensor

Insert as to DIN 43762, spring loaded



Specifications

Material	AISI 316L (1.4404)
Sensor diameter	Ø5,6 mm
Sensor	As per below

Ordering details TNR6

TNR6 - x x x x . x x x x x

Terminal block/Transmitter

Flying leads	Pt100 output		0
Ceramic terminal block	Pt100 output		1
FlexTop 2202	4...20 mA	≤ ±0.25°C	2
FlexTop 2211	4...20 mA	≤ ±0.10°C	3
FlexTop 2221	4...20 mA + HART®	≤ ±0.10°C	4
FlexTop 2212	4...20 mA / 20...4 mA	≤ ±0.06°C	6

Configuration

No configuration	0
Configuration of range	1

Sensor element

None (for Cable Sensor)	0
1 × Pt100 Cl. B	1
2 × Pt100 Cl. B	2
1 × Pt100 Cl. 1/3 B	5
2 × Pt100 Cl. 1/3 B	6
1 × Pt100 Cl. 1/6 B	7
2 × Pt100 Cl. 1/6 B	8
1 × Pt100 Cl. A	A
2 × Pt100 Cl. A	B
1 × Pt100 Cl. B < 600°C	C
1 × Pt1000, cl. B	J
1 × Pt1000, cl. 1/3 B	K

Sensor insert type

Insert, DIN 43762	2-wire	sensor element	5
Insert, DIN 43762	4-wire	sensor element	6
Insert, DIN 43762	2x2-wire	sensor element	7

Insert tube length

Length in mm

x x x x

Insert length, standard:	A + L + 26 mm
Insert length, with 1 cooling neck	A + L + 97 mm
Insert length, with 2 cooling necks	A + L + 168 mm
Insert length, with 3 cooling necks	A + L + 239 mm
For length A please see page 3	
For length L please see sensor length above for TCR6	



Main features

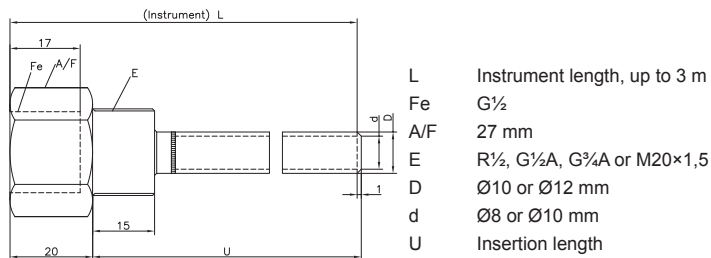
- Stainless steel, AISI 316
- Robust design

Applications

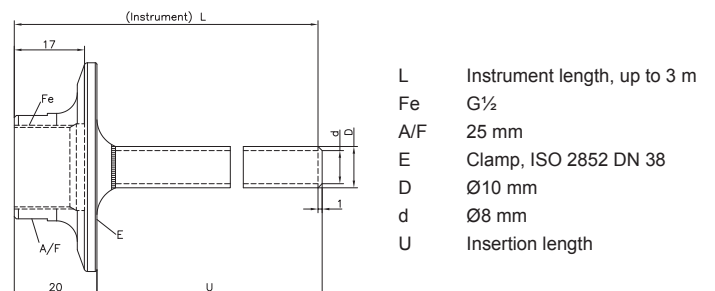
- For threaded process connection - Ø6 and Ø8 sensor
- For hygienic process connection - Ø6 sensor

Dimensions (mm)

Threaded industrial type



Hygienic type, Clamp DN 25 / DN 38, Ra 0,8 µm

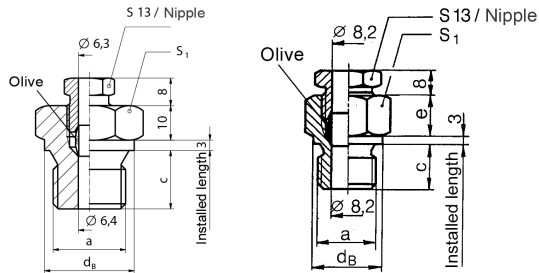


Ordering details ZPT4

Model	ZPT4	-	5	xx	6	x	.	xxxx
Thermowell	ZPT4							
Instrument connection								
Female thread $G\frac{1}{2}$			5					
Process connection								
$R\frac{1}{2}$ ($\frac{1}{2}$ " BSPT)				14				
$G\frac{1}{2}$				15				
$G\frac{3}{4}$				34				
M20x1.5				54				
Clamp ISO 2852 DN 25/DN38				38				
Material								
Stainless steel AISI 316L/1.4404				6				
Sensor diameter								
Ø6 (outside Ø10 mm)					5			
Ø8 (outside Ø12 mm)					7			
Length (L)*								
mm (60 mm = 0060)								xxxx

*When ordering the TCR6 with rotating male nipple (code 33) the length has to be L + 20 mm

Mounting accessories: Compression gland



	A	C	D ₂	S ₁
6 mm sensor	G 1/2 A	15	26	27
-	G 3/4 A	16	32	32
-	G 1 A	19	39	41
-	1/2 NPT	20	-	27
-	M20	14	27	27
Ø8 mm sensor	G 1/4 A	13	19	19
-	G 1/2 A	15	26	27
-	G 3/4 A	16	32	32
-	1/4 NPT	16	-	17
-	1/2 NPT	20	-	27
-	M20	14	27	27

Ventilation duct flange, Ø8 mm sensor only

Material	Stainless steel, AISI 316
Sensor diameter	Ø 8mm



Thermal compound

Recommended within the temperature range of -40 ... +180 °C



Ordering details

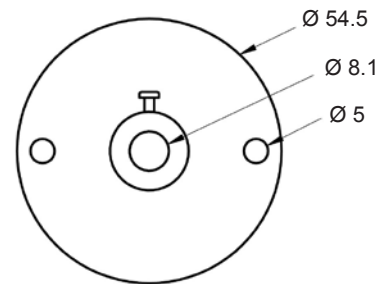
Model		
Compression gland	T 08406	
Process connection		
Ø6 mm sensor	G 1/2 A	0016
-	G 3/4 A	0017
-	G 1 A	0020
-	1/2 NPT	0019
-	M20	2020
Ø8 mm sensor	G 1/4 A	1500
-	G 1/2 A	0003
-	G 3/4 A	0006
-	1/4 NPT	1300
-	1/2 NPT	0009
-	M20	1020

Material

Material	AISI 316L (1.4435)
----------	--------------------

Dimensions for ventilation duct flange

Ventilation duct flange	Order : ZPX1-002
-------------------------	-------------------------



Ordering details

Model	
Duct flange	ZPX1-002

Ordering details for thermal compound

Model	
6 gram in plastic bag	ZPX1-001