

FRODE PEDERSEN

Application

- Measurement of temperature in pipes and containers with gaseous and liquids media, such as air, vapour, gasses, water and oil
- The operating range is up to 600°C, max. 50 bar and flow velocity up to 25m/sec (air)
- Fields of application
 - Marine industry
 - Diesel engines for generators

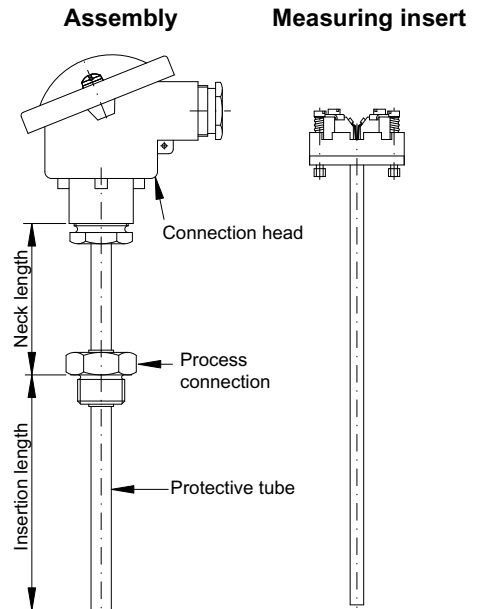
Technical features

- Pt100 resistance thermometer acc. to IEC 751
- Permissible mechanical and thermal stress acc. to DIN 43763
- 3-wire connection is standard
- Connected to the process with a screwed attachment on the protective tube
- The measuring insert can be exchanged or calibrated without closing down the process
- Solid construction with high resistance against vibration acc. to IEC 68-2-6
- Type approved by classification societies (see page 2).
- Can be supplied with head mounted transmitter as an option

Ordering

The requested sensor is selected from the table below
The colour code means:

- Standard: Built of standard modules (short delivery time)
- Variant: Modified standard modules
- Special: Special versions and material. We are specialist in temperature measurement. Please contact us and we shall do our utmost to solve your specific measuring task



Ordering information

Specifications number	1810-	Sensor										Transmitter				
												4mA:	°C	20mA:	°C ³⁾	
Protective tube												Transmitter, 2-wire, 4-20mA output				
SS, acidproof steel, W.no. 1.4571 (AISI 316Ti)												0	None			
Max. 800°C												1	FPTM as terminal block (Sensor only 3-wire)			
11mm OD. 2mm wall		0										2	FPTM in high cap, B-head. (Sensor only 3-wire)			
15mm OD. 1,5mm wall (3/4" BSP recommended)		1										3	FPTU standard version. As terminal block			
Special: (not type approved)		s										4	FPTU standard version. In high cap, B-head			
												5	FPTU galvanic isolated. As terminal block			
												6	FPTU galvanic isolated. In high cap, B-head			
												7	FPTU galvanic isolated. EEXIallCT4/6. As terminal block			
												8	FPTU galvanic isolated. EEXIallCT4/6. In high cap, B-head			
												s	Special:			
													Note 3: Please specify measuring range in °C			
Neck length (mm) ¹⁾												Connection. Wiring configuration				
25 (min.)		0										0	... 3-wire			
50		1										1	... 4-wire			
100		2										2	... 2-wire			
Special: Max. 100		9														
Note 1: With OD 11 and transmitter max. 50																
												0	... Class B, i.e. ± (0.3°C + 0.005 x t _{actual}) °C			
												1	... Class A, i.e. ± (0.15°C + 0.002 x t _{actual}) °C			
												2	... 1/3 Class B @ 0°C, i.e. ± (0.10°C + 0.005 x t _{actual}) °C			
												3	... 1/6 Class B @ 0°C, i.e. ± (0.05°C + 0.005 x t _{actual}) °C			
												s	Special:			
Insertion length (mm)												Resistance value (ohm) acc. to IEC 751				
100			0	1	0	0						0	... 1xPt100			
150			0	1	5	0						1	... 2xPt100			
200 max. for 11mm OD			0	2	0	0										
250 Only for 15mm OD			0	2	5	0										
Special (Min 50, max. 250) ²⁾			x	x	x	x										
Note 2: Insertion length > 250 not type approved																
Process connection (see page 2)																
1/2" BSP							0									
3/4" BSP							1									
Special:							s									
Connection head																
B: Degree of protection IP 65							0	0								
Special:							s	1								
								s								

Accessories

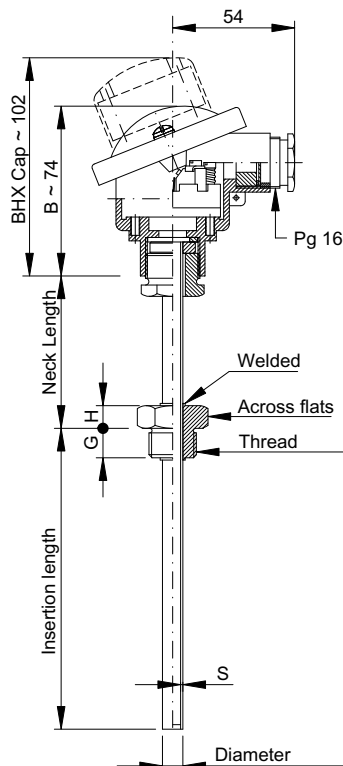
Measuring insert: See data sheet 9108-02
Transmitter: See data sheet 9168

Customer information

Name:
Tel.:

Dimensions

Assembly
Connection head
Type B / B+BHX Cap (for transmitter)

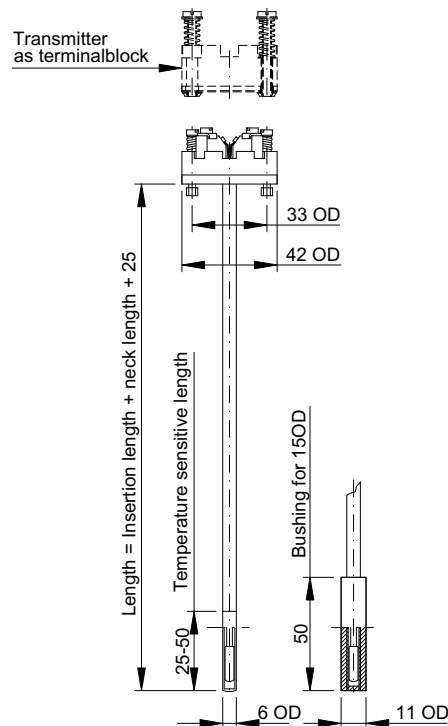


Process connection			
Thread	Across flats	G	H
1/2" BSP	27	13	10
3/4" BSP	32	14.5	12

Protective tube W.no. 1.4571 (AiSi 316 Ti)	
Diameter	Wall thickness S
11	2
15	1.5

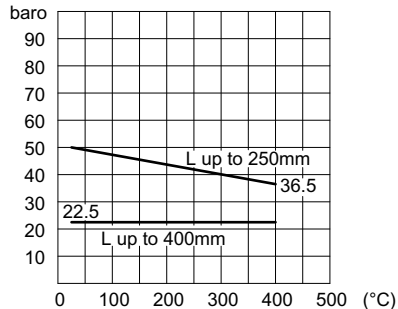
Measuring insert

Type M40 / MK60



Stress diagram for protective tube acc. to DIN 43763, material W.no. 1.4571

11 or 15 OD with 1/2" BSP or 3/4" BSP



Permissible stress diagram		
Protective tube	11 OD	15 OD
Process connection	1/2" BSP or 3/4" BSP	
Torgue on installation (max.)	50Nm	50Nm
Maximum flow velocity (m/sec.)	Air: 25	25
	Superheated steam: 25	25
	Water: 3	3

L=Insertion length

Type Approvals

- Lloyd's Register of Shipping
- Det Norske Veritas

Response time

Protective tube Diameter	Response time in seconds (guidelines)			
	In water @ 0.4m/sec.		In air @ 3m/sec.	
	t _{0.5}	t _{0.9}	t _{0.5}	t _{0.9}
11	25	80	120	360
15	30	90	140	410

Note:

The 0.5/0.9 time is the time that it takes the sensor to reach 50%/90% of the final value of a temperature change of a medium. If media and velocity are different from the ones stated, the time can change significantly.

Connection diagram

