

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 800°C, max. 50 bar and flow velocity up to 25m/sec (air)
- Fields of application
 - Petro- and chemical process engineering
 - Power plants
 - Boilers

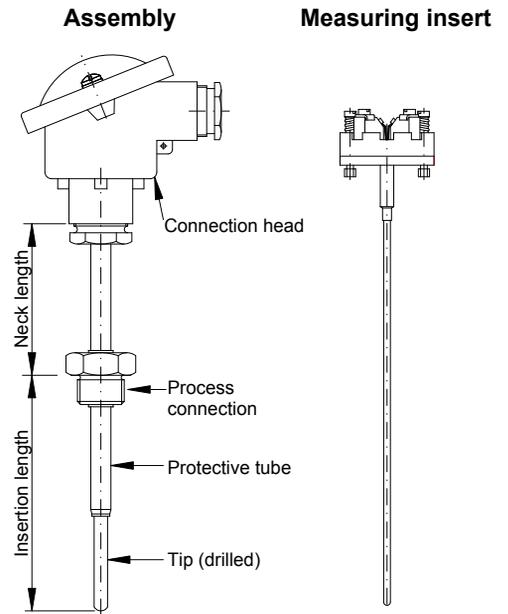
Technical features

- Thermocouple type J, K and N acc. to IEC-584-1
- Permissible mechanical and thermal stress acc. to DIN 43763
- Connected to the process with a screwed attachment welded on the protective tube
- The measuring insert can be exchanged or calibrated without closing down the process
- Fast response time with OD 6 mm tip matched to the OD 3 mm insert
- Protective tube stainless and acidproof steel
- Optionally, can be supplied with head mounted transmitter

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

Specification number	1305-	Sensor										Transmitter					
												4mA:	°C	20mA:	°C 4)		
Protective tube												Transmitter, 2-wire, 4-20mA output					
SS, acidproof steel, W.no.1.4571 (AISI316Ti)												0	None				
Max. 800°C												1	FPTU Standard version. As terminal block				
OD 9x1mm with OD 6/OD 3.2mm tip	0											2	FPTU Standard version. In high cap (B-head)				
OD 11x2mm with OD 6/OD 3.2mm tip	1											3	FPTU galvanic isolated. As terminal block				
OD 15x1.5mm with OD 6/OD 3.2mm tip	2											4	FPTU galvanic isolated. In high cap (B-head)				
Special:	s											5	FPTU galvanic isolated. EEXialCT4/6. As terminal block				
Neck length (mm)												6	FPTU galvanic isolated. EEXialCT4/6. In high cap (B-head)				
25 (min.)		0										a	FPTT galvanic isolated. As terminal block				
50		1										b	FPTT galvanic isolated. In high cap (B-head)				
100		2										c	FPTT galvanic isolated. EEXialCT4/6. As terminal block				
150		3										d	FPTT galvanic isolated. EEXialCT4/6. In high cap (B-head)				
Special:		9										s	Special				
Insertion length (mm)												Note 4: Please specify measuring range					
PS. for length > 400mm OD 15mm protective tube and 3/4"BSP are recommended												Tolerance acc to IEC 584-2					
100		0	1	0	0	0	... Class 2, for J, K and N, i.e. ±2.5°C or 0.0075 x t actual (°C) 3)			0							
150		0	1	5	0	1	... Class 1, for J, K and N, i.e. ±1.5°C or 0.0040 x t actual (°C) 3)			1							
200		0	2	0	0					Note 3: The highest value apply							
250		0	2	5	0					Number of thermocouples							
400		0	4	0	0					0	1						
Interim lengths (Min.100, max. 3000).		x	x	x	x					1	2						
Process connection (see page 2)												Measuring insert					
1/2" BSP						0				Max. temperature 1)							
3/4" BSP						1				Model	Thermocouple	Type	Diam./type	Continuous	Shortly		
1" BSP						2				TK80	Fe-CuNi	J	OD 3 MI 2)	800°C	850°C		
Special:						s				TK115	NiCr-Ni	K	OD 3 MI 2)	1000°C	1150°C		
Connection head												TK125	Nicrosil-Nisil	N	OD 3 MI 2)	1100°C	1250°C
B: Degree of protection IP 65						0				Special:							
BHS: Degree of protection IP 65						1				Note 1: The values apply for the thermocouple.							
BHSH: Degree of protection IP 65, high cap for transmitter						2				Note 2: MI= Mineral insulated.							
Special:						s											

Accessories

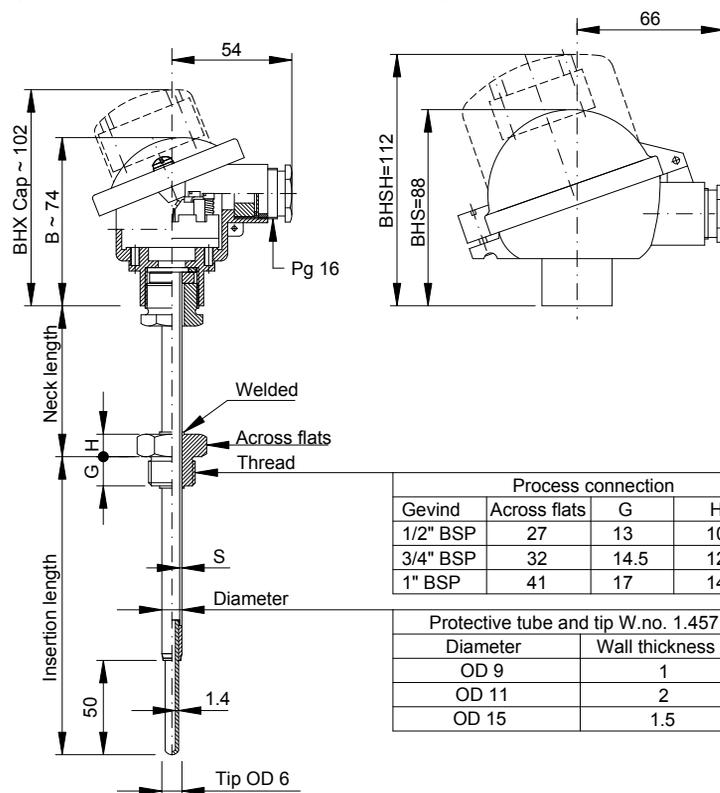
Measuring insert: See data sheet 9108
Transmitter: See data sheet 9168

Customer information

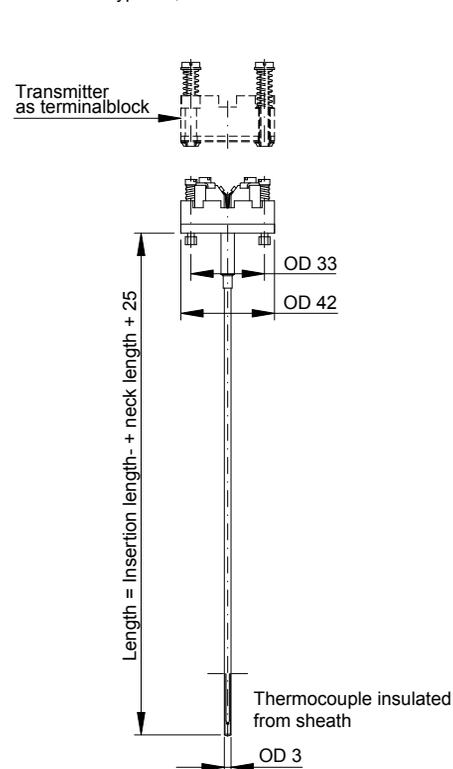
Name:
Tel.:

Dimensions

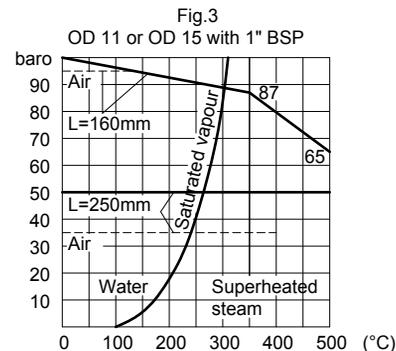
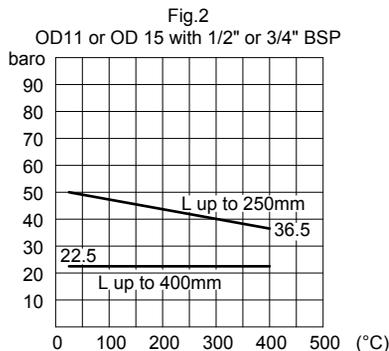
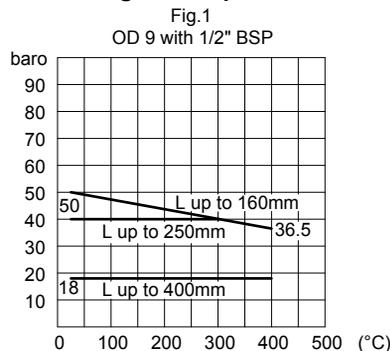
Assembly Connection head
 Type B / B+BHX Cap (for transmitter) Type BHS / BSHS (for transmitter)



Measuring insert
 Type TK, mineral insulated



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



Permissible stress diagram		Fig.1	Fig.2		Fig.3	
Protective tube		OD 9x1	OD 11x2	ø15x1.5	OD 11x2	OD 15x1.5
Process connection		1/2" BSP	1/2" or 3/4" BSP		1" BSP	
Torque on installation, max.		50Nm	50Nm	50Nm	100Nm	100Nm
Maximum flow velocity (m/sec)	Air	25	25	25	40	40
	Superheated steam	25	25	25	40	40
	Water	3	3	3	5	5

Response time

Protective tube OD 9/11/15 with OD 6mm tip	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}
	5	15	75	225

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

