

FRODE PEDERSEN

Application

- Measurement of temperature in ducts and furnaces with air and flue gases
- The operating range is up to 800°C in the low-pressure range
- Fields of application
 - Chemical process engineering
 - Drying equipment
 - Process industry

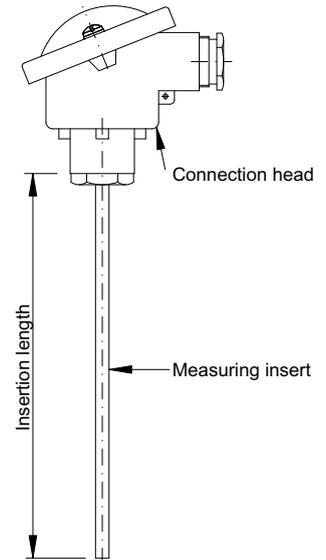
Technical features

- Thermocouple type J, K and N acc. to IEC-584-1
- Built as an measuring insert acc. to DIN 43769
- Connected to the process by adjustable flange or compression fittings
- Fast response time
- Measuring insert is a mineral insulated type, vibrationproof
- Modular design and standard length minimize the necessary number of spares
- 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 will do our best to solve your specific measuring task



Ordering information

Specification number	1308-	Sensor								Transmitter			
										4mA:	°C	20mA:	°C 4)

Measuring diameter

6mm OD	0
Special:	s

Nominal length (mm)

200	0	2	0	0
250	0	2	5	0
300	0	3	0	0
450	0	4	5	0
Interim lengths (Min.100, max. 3000)	x	x	x	x

Process connection (see page 2)

None	0
Fig. 1 1/4" BSP compression fittings. Stainless steel	1
Fig. 1 3/8" BSP compression fittings. Stainless steel	2
Fig. 1 1/2" BSP compression fittings. Stainless steel	3
Fig. 1 1/4" BSP compression fittings. Galvanized steel	4
Fig. 1 3/8" BSP compression fittings. Galvanized steel	5
Fig. 1 1/2" BSP compression fittings. Galvanized steel	6
Fig. 2 Adjustable flange	7
Special:	s

Connection head

B: Degree of protection IP 53	0	2
Special:	s	s

Transmitter, 2-wire, 4-20mA output

0	None
1	FPTU Standard version. As terminal block
2	FPTU Standard version. In high cap (B-head)
3	FPTU galvanic isolated. As terminal block
4	FPTU galvanic isolated. In high cap (B-head)
5	FPTU galvanic isolated. EEXiallCT4/6. As terminal block
6	FPTU galvanic isolated. EEXiallCT4/6. In high cap (B-head)
a	FPTT galvanic isolated. As terminal block
b	FPTT galvanic isolated. In high cap (B-head)
c	FPTT galvanic isolated. EEXiallCT4/6. As terminal block
d	FPTT galvanic isolated. EEXiallCT4/6. In high cap (B-head)
s	Special

Note 4: Please specify measuring range

Tolerance acc. to IEC 584-2

0	Class 2, for J, K and N, i.e. ±2.5°C or 0.0075 x t _{actual} (°C) 3)
1	Class 1, for J, K and N, i.e. ±1.5°C or 0.0040 x t _{actual} (°C) 3)

Note 3: The highest value applies

Number of thermocouples

0	1
1	2

Measuring insert

Max. temperature 1)

Model	Thermocouple	Type	Diam./type	Continuous	Shortly 1)
TK80	Fe-CuNi	J	6 MI 2)	800°C	850°C
TK115	NiCr-Ni	K	6 MI 2)	1000°C	1150°C
TK125	Nicrosil-Nisil	N	6 MI 2)	1100°C	1250°C

Special:

Note 1: The values apply for the thermocouple.

Note 2: MI= Mineral insulated.

Accessories

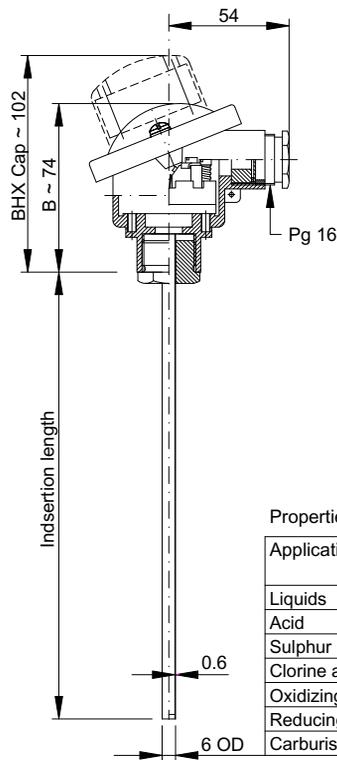
Process connection: See data sheet 9113 Measuring insert: See data sheet 9108-01
Transmitter: See data sheet 9168

Customer information

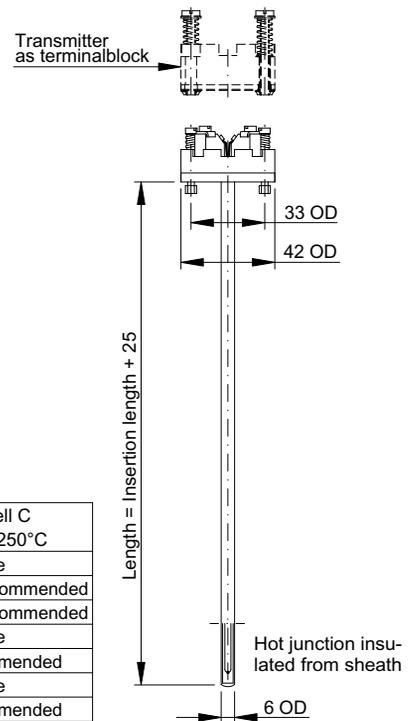
Name:
Tel.:

Dimensions

Complete thermocouple assembly AF
Type B / B+BHX Cap (for transmitter)



Measuring insert
Mineral insulated



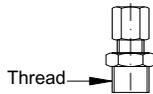
Properties for sheaths of MI

Application	W.no. 1.4571 max. 800°C	W.no. 1.4841 max. 1150°C	Nicrobell C max. 1250°C
Liquids	Recommended	Suitable	Suitable
Acid	Recommended	Not recommended	Not recommended
Sulphur atmospheres	Suitable	Not recommended	Not recommended
Chlorine atmospheres	Suitable	Suitable	Suitable
Oxidizing atmospheres	Recommended	Recommended 1)	Recommended
Reducing atmospheres	Not recommended	Not recommended	Suitable
Carburising atmospheres	Not recommended	Suitable	Recommended

Note 1: Not recommended for continuous operations in the range 425°C to 850°C

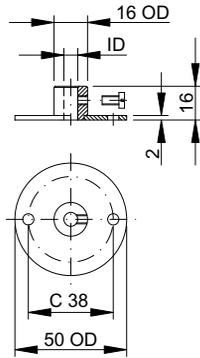
Process connection

Fig. 1



Compression fitting with steel ferrule			
Protective tube	Thread	Material	
6 OD	1/4" BSP	SS steel	
	3/8" BSP	W.no. 1.4571	
	1/2" BSP		
6 OD	1/4" BSP	Steel	
	3/8" BSP	galvanized	
	1/2" BSP		

Fig. 2



Adjustable flange	
Protective tube	Material
6 OD	Steel AISI 316

Response time

Sheath 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}
6 OD	4	10	60	200

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

