

FRODE PEDERSEN

Application

- For temperature measurements in combustion processes and hot-gas environment
- The operating range is up to 1500°C (shortly 1800°C)
- Fields of application
 - Ceramic industry
 - Research and test plants
 - Process industry - combustion, furnaces and heat treatment

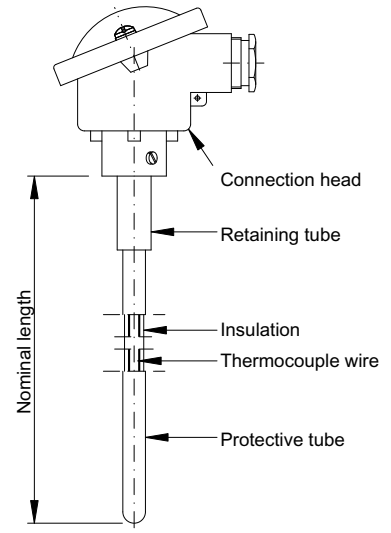
Technical features

- Thermocouple type K, N, R, S or B acc. to IEC 584-1
- Built acc. to DIN 43733
- Connected to the process by adjustable flange or gas-tight compression fitting
- Gas-tight ceramic protective tube in KER 610 or KER 710
- Modular design and standard length minimize the necessary numbers
- 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 to our best do solve your specific measuring task.



Ordering information

Specification number	1105-	Sensor										Transmitter				
												4mA:	°C	20mA:	°C 3)	
Protective tube, ceramic												Transmitter, 2-wire, 4-20mA output				
KER 610. Al ₂ O ₃ >60% max. 1400°C												0	None			
KER 710. Al ₂ O ₃ >99.7% max. 1700°C												1	FPTU galvanic isolated. As terminal block			
10mm OD. 1.5mm wall. KER 610	0											2	FPTU galvanic isolated. In high cap, B-head			
15mm OD. 2.5mm wall. KER 710. Rec. f/S/R/B	1											3	FPTU galvanic isolated. EEXiallCT4/6. As terminal block			
Special:	s											4	FPTU galvanic isolated. EEXiallCT4/6. In high cap, B-head			
Nominal length (mm)												a	FPTT galvanic isolated. As terminal block			
500		0	5	0	0							b	FPTT galvanic isolated. In high cap, B-head			
710		0	7	1	0							c	FPTT galvanic isolated. EEXiallCT4/6. As terminal block			
1000		1	0	0	0							d	FPTT galvanic isolated. EEXiallCT4/6. In high cap, B-head			
1400		1	4	0	0							s	Special			
Interim lengths (Min. 250, max. 1400)		x	x	x	x								Note 3: Please specify measuring range in °C			
Retaining tube												Tolerance acc. to IEC 584-2				
15mm OD. L = 80mm W.no. 1.4571												0	Class 2, for K and N, i.e. ± 2.5°C or 0.0075 x t _{actual} (°C)	2)		
15mm OD. L = 500mm W.no. 1.4571												1	Class 2, for R, S and B, i.e. ± 1.5°C or 0.0025 x t _{actual} (°C)	2)		
15mm OD. L = 1000mm W.no. 1.4571												2	Class 1, for K and N, i.e. ± 1.5°C or 0.0040 x t _{actual} (°C)			
15mm OD. L = xxxxmm W.no. 1.4571													Note 2: The highest value apply			
Special:												Number of thermocouples				
												0	1			
												1	2			
Process connection (see page 2)												Thermocouple				
None												Max. temperature 1)				
Fig. 1 Adjustable flange												Material	Type	Wire diam.	Continuously	Shortly
Fig. 1+2 Adjustable flange (for metallic tube)+counter flange												NiCr-Ni	K	1.5mm	900°C	1200°C
Fig. 3 3/4" BSP Compression fitting for 15mm OD retaining tube												NiCrosil-Nisil	N	1.5mm	1050°C	1250°C
Fig. 4 3/4" BSP compression fitting in ss steel w/steel fixing olive												Pt10% Rh-Pt	S	0.3mm	1300°C	1600°C
Fig. 4 3/4" BSP compression fitting, galvanized w/steel fixing olive												Pt10% Rh-Pt	S	0.5mm	1450°C	1600°C
Special:												Pt13% Rh-Pt	R	0.3mm	1300°C	1600°C
												Pt13% Rh-Pt	R	0.5mm	1450°C	1600°C
												Pt30% Rh-Pt 6%Rh	B	0.5mm	1500°C	1800°C
												Pt10% Rh-Pt	S	0.35mm	1400°C	1600°C
												Pt13% Rh-Pt	R	0.35mm	1400°C	1600°C
												Special:				
												Note 1: The values apply for the thermocouple				

Accessories

Process connection: See data sheet 9113 Protective tube: See data sheet 9111
Transmitter: See data sheet 9168 Thermocouple: See data sheet 9107

Customer information

Name:
Tel.:

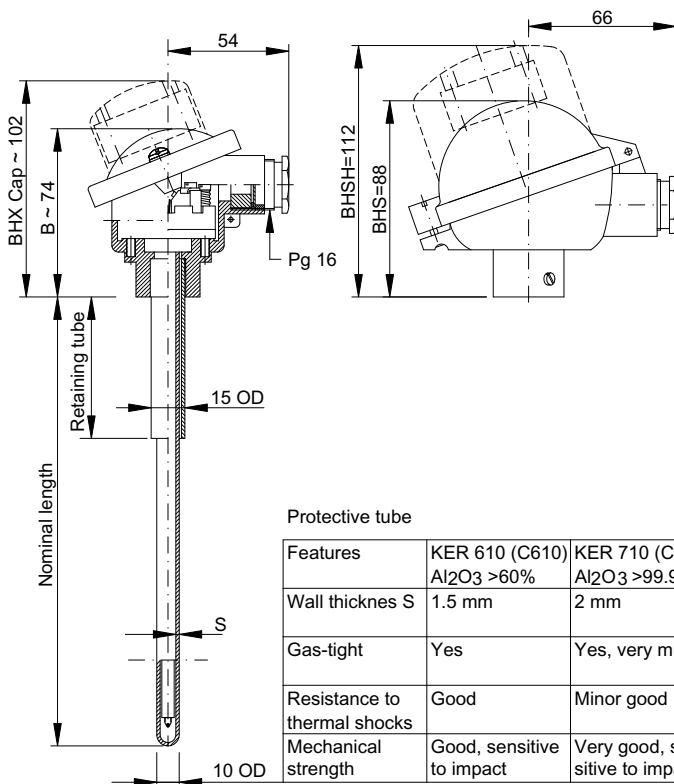
Dimensions

Thermocouple assembly BK
Connection head

Parts for BK thermocouple assembly

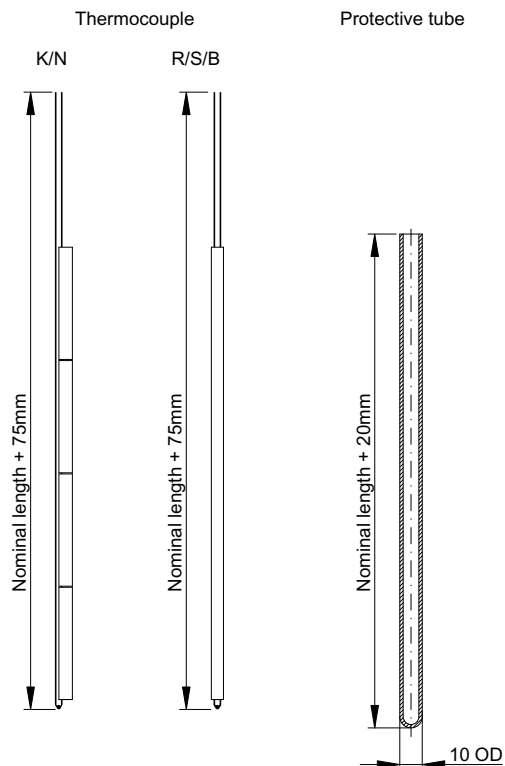
Type B / B+BHX Cap (for transmitter)

Type BHS / BHSB (for transmitter)

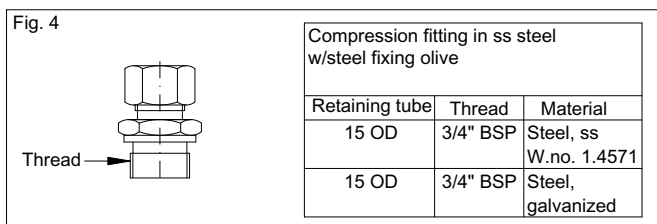
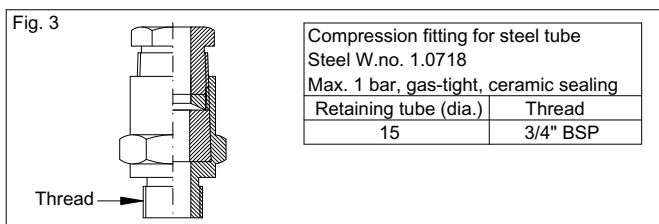
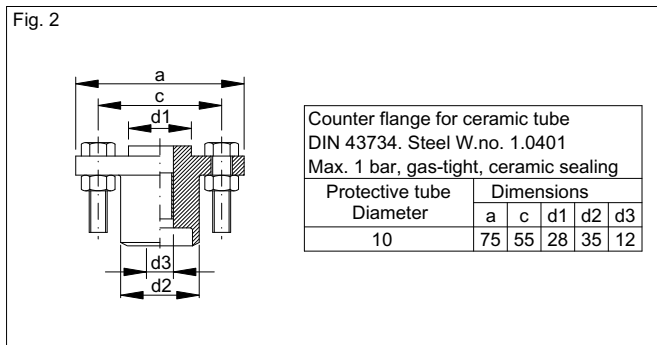
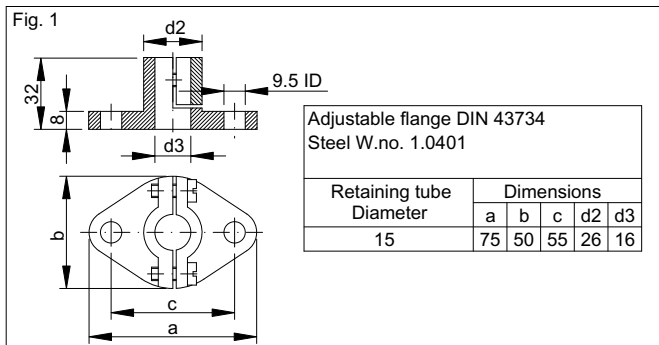


Protective tube

Features	KER 610 (C610) Al ₂ O ₃ >60%	KER 710 (C799) Al ₂ O ₃ >99.97%
Wall thickness S	1.5 mm	2 mm
Gas-tight	Yes	Yes, very much
Resistance to thermal shocks	Good	Minor good
Mechanical strength	Good, sensitive to impact	Very good, sensitive to impact



Process connection



Response time

Protective tube Diameter	Response times in seconds (guidelines)			
	In water @ 0.4m/sec.		In air @ 3m/sec.	
	t _{0.5}	t _{0.9}	t _{0.5}	t _{0.9}
10	-	-	175	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

