

FRODE PEDERSEN

Application

- Measurement of high temperature in big furnaces and ducts with combustion gasses, especially in places where there are risks of abrasion and corrosive gasses
- The operating range is up to 1500°C (shortly 1800°C)
- Fields of application
 - Brickworks, porcelain factories
 - Refuse and hazardous waste incineration
 - Chemical process engineering

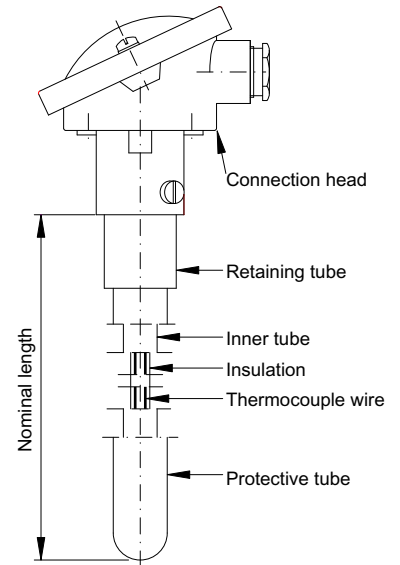
Technical features

- 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, gas-tight flange or compression fitting
- Gas-tight ceramic inner protective tube in KER 610 or KER 710
- Gas-tight ceramic outer protective tube in KER 610 or KER 710
- Modular design and standard length minimize the necessary numbers 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 to our best do solve your specific measuring task.



Ordering information

Specifications number	1102-	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 (in cap)				
24mm OD. 2.5mm wall. KER 610	0											2	FPTU galvanic isolated. EEXIallCT4/6. As terminal block (in cap)				
24mm OD. 3mm wall. KER 710. Rec. f/S/R/B	1											a	FPTT galvanic isolated. As terminal block (in cap)				
Special:	s											b	FPTT galvanic isolated. EEXIallCT4/6. As terminal block (in cap)				
												s	Special:				
												Note 3: Please specify measuring range					
Inner tube, ceramic												Tolerance acc. to IEC 584-2					
15mm OD. 2 mm wall. KER 610	0											0	Class 2, for K and N, i.e. ± 2.5°C or 0.0075 x t _{actual} (°C) 2)				
15mm OD. 2.5mm wall. KER 710. Rec. f/S/R/B	1											1	Class 2, for R, S and B, i.e. ± 1.5°C or 0.0025 x t _{actual} (°C) 2)				
Other:	s											2	Class 1, for K and N, i.e. ± 1.5°C or 0.0040 x t _{actual} (°C) 2)				
												Note 2: The highest value apply					
Nominal length (mm)												Number of thermocouples					
500		0	5	0	0							0	1				
710		0	7	1	0							1	2				
1000		1	0	0	0												
1400		1	4	0	0												
2000		2	0	0	0												
Interim lengths (Min. 250, max. 2000)		x	x	x	x												
Retaining tube												Thermocouple					
32mm OD. 2mm wall. L=200mm steel 35																Max. temperature 1)	
32mm OD. 2mm wall. L=500mm steel 35												0	NiCr-Ni	K	3.0mm	1000°C	1200°C
32mm OD. 2mm wall. L=1000mm steel 35												1	NiCrosil-Nisil	N	3.0mm	1150°C	1250°C
32mm OD. 2mm wall. L=xxxxmm steel 35												2	Pt10% Rh-Pt	S	0.3mm	1300°C	1600°C
												3	Pt10% Rh-Pt	S	0.5mm	1450°C	1600°C
												4	Pt13% Rh-Pt	R	0.3mm	1300°C	1600°C
												5	Pt13% Rh-Pt	R	0.5mm	1450°C	1600°C
												6	Pt30% Rh-Pt 6%Rh	B	0.5mm	1500°C	1800°C
												7	Pt10% Rh-Pt	S	0.35mm	1400°C	1600°C
												8	Pt13% Rh-Pt	R	0.35mm	1400°C	1600°C
												s	Special				
												Note 1: The values apply for the thermocouple					
Process connection (see page 2)												Accessories					
None												Process connection: See data sheet 9113 Protective tube: See data sheet 9111					
Fig. 1 Adjustable flange												Transmitter: See data sheet 9168 Thermocouple: See data sheet 9107					
Fig. 1+2 Adjustable flange (for metallic tube)+counter flange												Customer information					
Fig. 3 1 1/4" BSP Compression fitting for 32 mm OD retaining tube												Name:					
Special:												Tel.:					
Connection head																	
A: Degree of protection IP 53																	
AHSH: Degree of protection IP 53, high cap for transmitter																	
Special:																	

Accessories

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

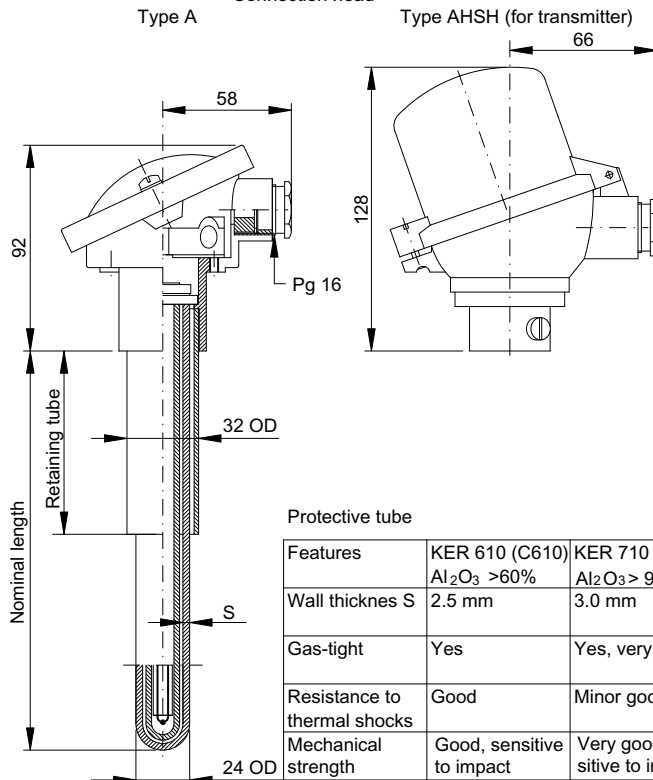
Customer information

Name:
Tel.:

Dimensions

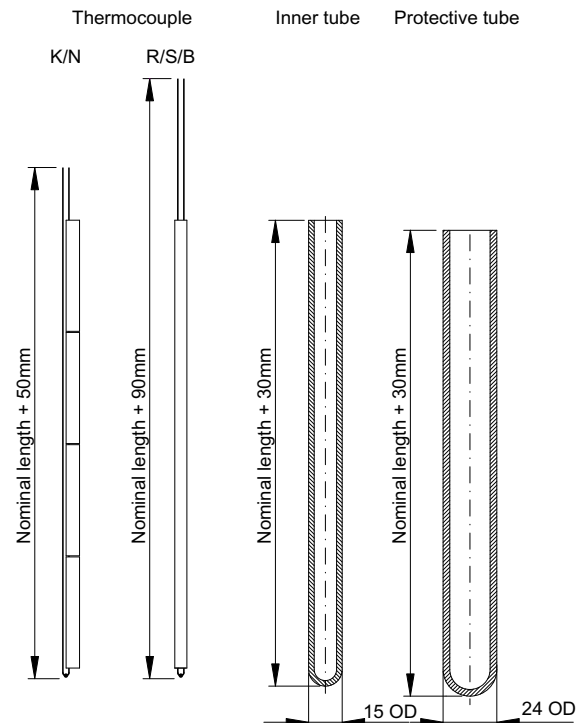
Thermocouple assembly AKK
Connection head

Parts for AKK thermocouple assembly

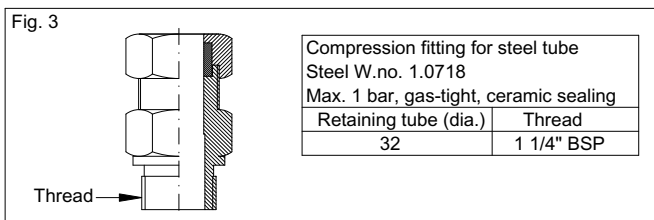
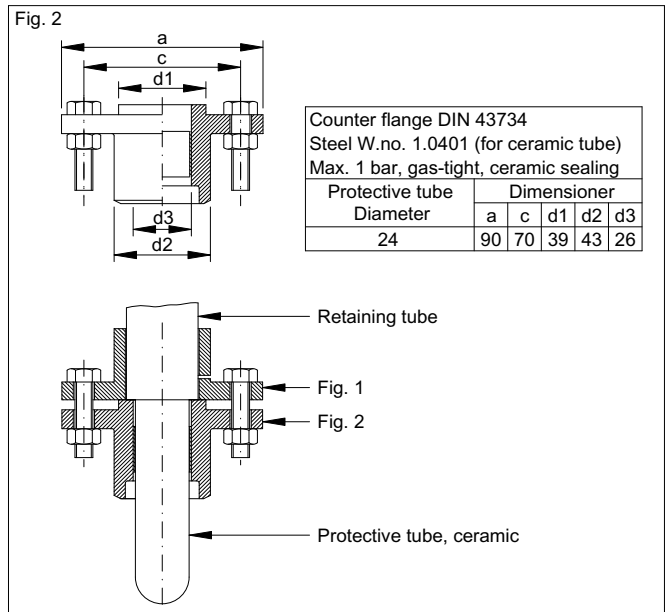
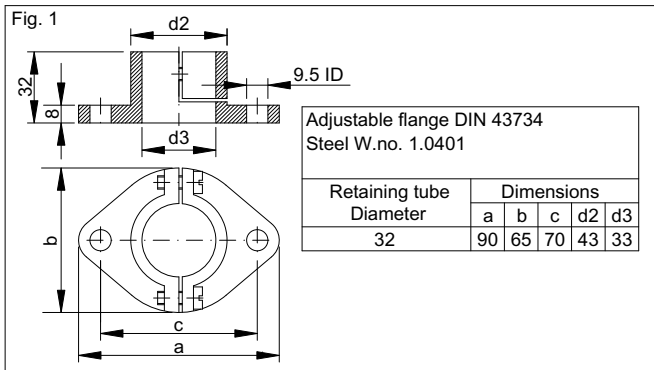


Protective tube

Features	KER 610 (C610)	KER 710 (C799)
$Al_2O_3 > 60\%$		$Al_2O_3 > 99,7\%$
Wall thickness S	2.5 mm	3.0 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}
24	-	-	490	1300

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

