Thermocouple assembly AMK

With steel protective tube and ceramic inner tube

Data sheet 1101

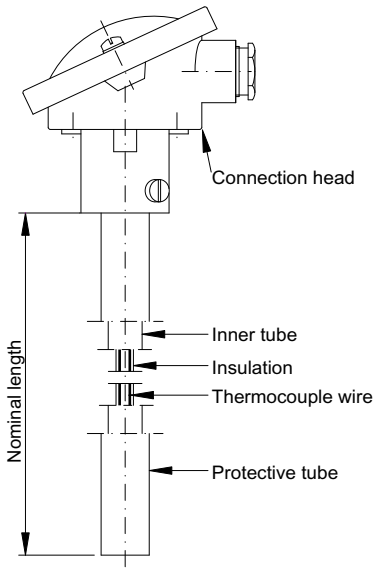
FRODE PEDERSEN & CO

Application

- Measurement of high temperature in big furnaces and ducts with combustion gasses and air
- The operating range is up to 1100°C (shortly 1200°C)
- Fields of application
  - Brickworks
  - Refuse and hazardous waste incineration plants
  - Furnaces

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 compression fitting
- Gas-tight ceramic inner tube for protecting the thermocouple against contamination
- Outer protective tube in heat-resistant steel
- Modular design and standard length minimize the necessary numbers of spares
- Optionally, can be supplied with head mounted transmitter



Ordering

The requested sensor is selcted 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 to solve your specific measuring task

Ordering information

Sensor

Transmitter

Specifications number 1101- | **4mA: °C 20mA: °C** 3)

Protective tube

Heat resistant steel, W.no. 1.4749 (AISI 446)
Max. 1100°C (Continuosly)

21.3mm OD. 2.65 mm wall	0
26mm OD. 4 mm wall	1
Special:	s

Inner tube, ceramic

KER 610. Al_2O_3>60%	0
KER 710. Al_2O_3>99.7%. Recommended f/ S/R/B	1
Special:	s

Nominal length (mm)

500	0 5 0 0
710	0 7 1 0
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

Process connection (see page 2)

None		0
Fig. 1	Adjustable flange	1
Fig. 1+2	Adjustable flange + counter flange	2
Fig. 3	1" BSP Compression fitting for 21.3mm OD protective tube	3
Fig. 3	1 1/4" BSP Compression fitting for 26mm OD protective tube	4
Special:		s

Connection head

A:	Degree of protection IP 53	0
AHSH:	Degree of protection IP 53, high cap for tranmitter	1
Special:		s

Transmitter, 2-wire, 4-20mA output

0	None
1	FPTU galvanic isolated. As terminal block (in cap)
2	FPTU galvanic isolated. EEXiaIICT4/6. As terminal block (in cap)
a	FPTT galvanic isolated. As terminal block (in high cap)
b	FPTT galvanic isolated. EEXiaIICT4/6. As terminal block (in cap)
s	Special:

Note 3: Please specify measuring range

Tolerance acc to IEC 584-2

0	Class 2, for K and N, i.e. ±2.5°C or 0.0075 x t_{actual} (°C)	2)
1	Class 2, for R, S and B, i.e. ±1.5°C or 0.0025 x t_{actual} (°C)	2)
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

Number of thermocouples

0	1
1	2

Thermocouple

	Material	Type	Wire dia.	Max. temperature 1) Continuosly	Shortly
0	NiCr-Ni	K	3.0mm	1000°C	1200°C
1	NiCrosil-Nisil	N	3.0mm	1150°C	1250°C
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

Accessessories

Process connection:	See data sheet 9113
Transmitter:	See data sheet 9168

Customer information

Name:
Tel.:

TECHNICAL DATA

All dimensions in mm

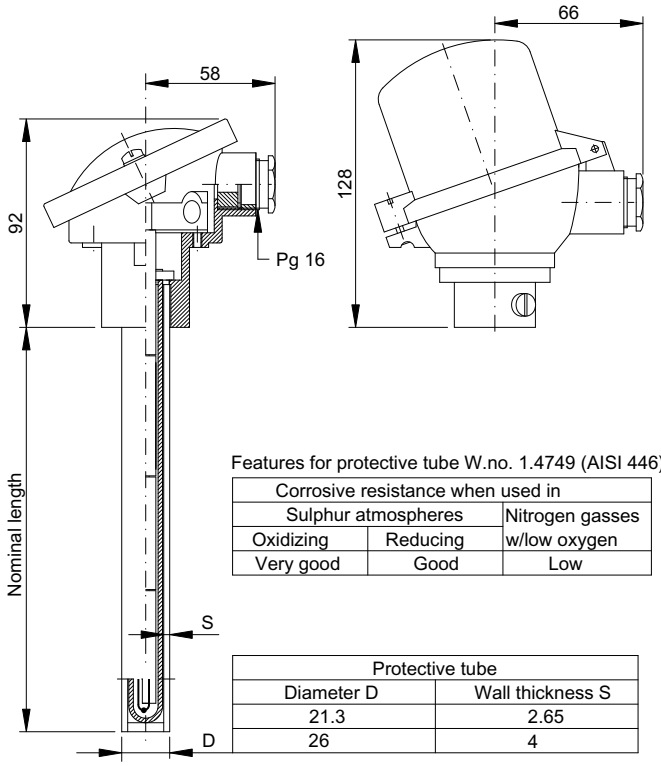
Dimensions

Thermocouple assembly AMK

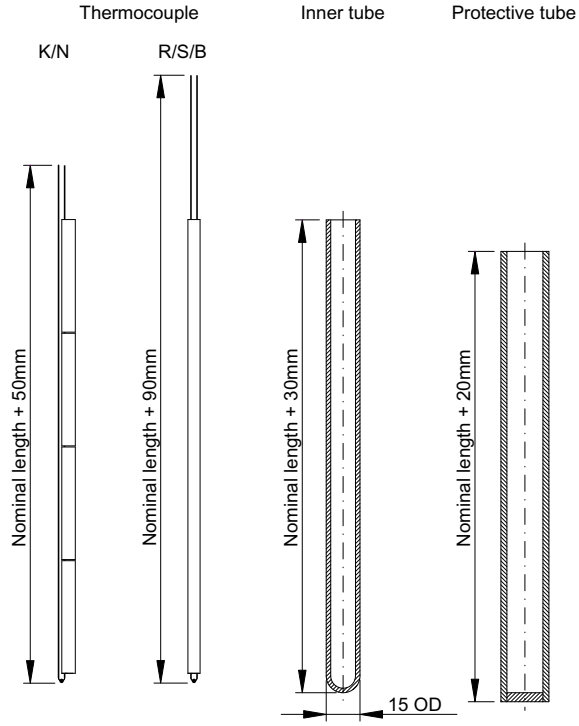
Connection head

Type A

Type AHSH (for transmitter)



Parts for AMK termocouple assembly



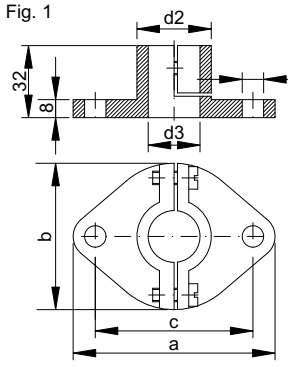
Features for protective tube W.no. 1.4749 (AISI 446)

Corrosive resistance when used in		
Sulphur atmospheres		Nitrogen gasses
Oxidizing	Reducing	w/low oxygen
Very good	Good	Low

Protective tube	
Diameter D	Wall thickness S
21.3	2.65
26	4

Process connection

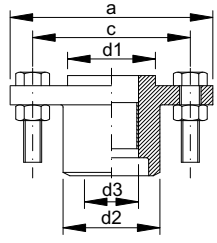
Fig. 1



Adjustable flange DIN 43734
Steel W.no. 1.0401

Protective tube Diameter	Dimensions				
	a	b	c	d2	d3
21.3	90	65	70	33	23
26	90	65	70	43	33

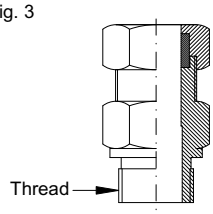
Fig. 2



Counter flange DIN 43734
Steel W.no. 1.0401
Max. 1 bar, Ceramic sealing

Protective tube Diameter	Dimensions				
	a	c	d1	d2	d3
21.3	90	70	39	43	24
26	90	70	39	43	28

Fig. 3



Compression fitting
Steel W.no. 1.0718
Max. 1 bar, Ceramic sealing

Protection tube (dia.)	Thread
21.3	1" BSP
26	1 1/4" BSP

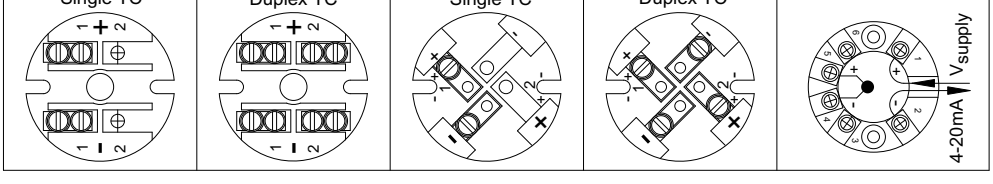
Response time

Protective tube Diameter	Response time in seconds (guidelines)			
	In water @ 0.4m/sec.		In air @ 3m/sec.	
	$t_{0.5}$	$t_{0.9}$	$t_{0.5}$	$t_{0.9}$
21.3	200	440	400	1330
26	230	475	560	1840

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

Thermocouple R/S/B		Thermocouple K/N		Transmitter FPTU/FPTT
Single TC	Duplex TC	Single TC	Duplex TC	



AMETEK DENMARK A/S GYDEVANG 32-34, DK-3450 ALLERØD TEL.: + 4548168000 FAX: +45 48168080