



Design Features

- Chemical design
- Case, measuring system and wetted parts of stainless steel
- Temperature detecting element diameter 6, 8 and ≥ 10 mm
- Different connections can be supplied
- Short immersion lengths of the temperature detecting element may be used
- Accuracy class 1 as per EN 13190
- Micro adjusting pointer for indication correction

Application

These thermometers are suitable for use outdoors and in aggressive environments. Because of the robust design, these thermometers have been successfully used in the chemical industry, in petrochemistry, in ocean shipping, and in process engineering. The devices can also be supplied with additional liquid damping for use in extreme conditions. Further information on mounting these devices is to be found in data sheet no. T1-027. Suitable thermowells upon request.

Design and Function

The gas expansion thermometer consists mainly of a temperature detecting element with integrated pressure chamber (active part) in the bottom section and an indicating unit with bourdon tube tightly fixed onto it. Ambient temperatures, which influence the indicating unit, are reduced with a compensation. Unless otherwise specified, the minimum immersion depth is the lower edge of the screwing.

Technical Data

Case

bayonet-ring case of stainless steel material no. 1.4301, nominal size 100 and 160 mm

Process connection

rigid temperature detecting element, radially protruding at bottom, alternatively centrally at rear.

Different connections can be supplied, see order details

Case design

degree of protection IP 66 per EN 60529, liquid filling optional

Measuring element

bourdon tube dead zone free with noble gas filling

Temperature detecting element

stainless steel material no. 1.4404. Diameter 6, 8 and ≥ 10 mm. See order details for standard lengths and active lengths, other values upon request

Movement

stainless steel with compensation

Scale

aluminium, white with black inscription. Alternatively with marking resp. fixed reference pointer.

Scale may be positioned as required, at the factory.

Pointer

aluminium, black with micro adjusting device for zero-point correction

Window

safety glass, alternatively macrolon with adjustable reference pointer

Case seal

Buna N

Measuring system damping

liquid filling for damping vibrations

Nominal ranges

per EN 13190
max. -100...700 °C, measuring spans ≥ 60 °C

Accuracy

per EN 13190, class 1

Ambient temperature

per EN 13190
ambient temperatures that deviate from EN are to be specified

Storage and transport temperature

per EN 13190
max. -20...+60 °C

Weights (without screwing and temperature detecting element)

DN 100, without filling: approx. 0.6 kg
DN 100, with filling: approx. 0.8 kg
DN 160, without filling: approx. 1.1 kg
DN 160, with filling: approx. 1.9 kg

Special design

- with construction type approval for connection to zone 0 with thermowells per DIN 43772, upon request
- design without screwing (D1001) also available with sliding screwing

Instructions for use

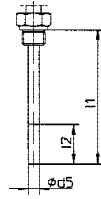
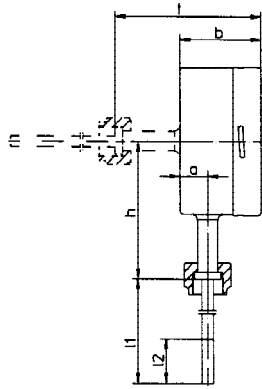
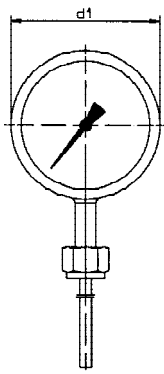
The loading capacity of the temperature detecting element depends on the following parameters:

1. measured medium
2. measured medium pressure
3. measured medium temperature
4. flow velocity
5. immersion length
6. material

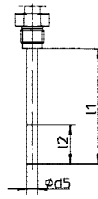
A technical test is necessary where required

Information on other models upon request or see order details

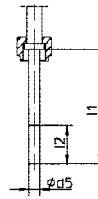
Dimensions



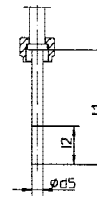
shanks, fixed
G 1/2 B, G 3/4 B,
1/2" NPT
D 1107/1109/1122



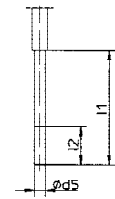
shanks rotating
G 1/2 B
D1207



union nut
G 1/2
D2007



union nut
G 3/4
D2009



without screwing
D1001

process connection radial

process connection rear

Temperature detecting element diameter d5, immersion length l1 and active length l2 see order details

dimensions (mm)				h *					t *				
case	d1	b	a	D1001	D1107/1109/1122	D1207	D2007	D2009	D1001	D1107/1109/1122	D1207	D2007	D2009
DN 100	100	60	15	98	83	98	98	98	108	93	108	108	108
DN 160	160	60	15	128	113	128	128	128	108	93	108	108	108

* dimension increases by 40 mm for nominal ranges > 160 °C

Order Details

- please give additional specifications for models not listed -

Gas expansion thermometer with rigid bulb

case	· DN 100		FN2											standard measuring and nominal ranges °C per EN 13190, class 1			
case	· DN 160		FN3														
case design	· IP 66 process connection radial		400											nominal range °C	meas. range °C	order code	
	· IP 66 process connection rear		300											-20...+40	-10...+30	340	
	· IP 66 process connection radial with filling		600											-20...+60	-10...+50	346	
	· IP 66 process connection rear with filling		500											-30...+50	-20...+40	322	
accuracy ¹	· standard class 1 (full range)				A2									-40...+40	-30...+30	220	
measuring range	· per table				...									-40...+60	-30...+50	222	
process connection	· shanks, fixed G 1/2 B								D1107					0...60	10...50	520	
	· shanks, fixed G 3/4 B								D1109					0...80	10...70	522	
	· shanks, fixed 1/2 NPT								D1122					0...100	10...90	524	
	· shanks, rotating G 1/2 B								D1207					0...120	20...100	540	
	· union nut G 1/2								D2007					0...160	20...140	544	
	· union nut G 3/4								D2009					0...200	20...180	548	
	· without screwing								D1001					0...250	30...220	560	
temperature detecting element Ø d5	· 6 mm (l2 ≥ 180 mm) ²												F6		0...300	30...270	565
	· 8 mm (l2 ≥ 80 mm) ²												F8		0...400	50...350	627
	· 10 mm (l2 ≥ 50 mm) ²												F10		0...500	50...450	630
immersion length l1 (mm) ³	<u>D 11..</u>	<u>D1207</u>	<u>D2007</u>	<u>D2009</u>	<u>D1001</u>										0...600	100...500	640
	shanks fixed	shanks rotating G 1/2 B	union nut G 1/2	union nut G 3/4	without screwing										0...700	100...600	650
	100	080	089	093	100										...		
	160	140	126	130	160										...		
	250	230	186	190	250										...		
	400	380	276	280	400										...		
--	--	426	430	--										...			
deviating length: pls specify														999			
additional features (to be indicated in case of need, only)																	
window	· macrolon with adjustable reference pointer														R13		
marking	· on scale (pls specify)														T2		
	· fast reference pointer (pls specify)														T3		
Order code (example):				FN2400	A2540	D1109	F8100										

¹ ambient temperatures that deviate from EN pls specify

² the active length l2 must completely reach the process temperature that is to be measured. The depth of immersion length l1 should be increased accordingly.

³ standard immersion length to be specified in order code, e.g. l1 100 mm: order code 100