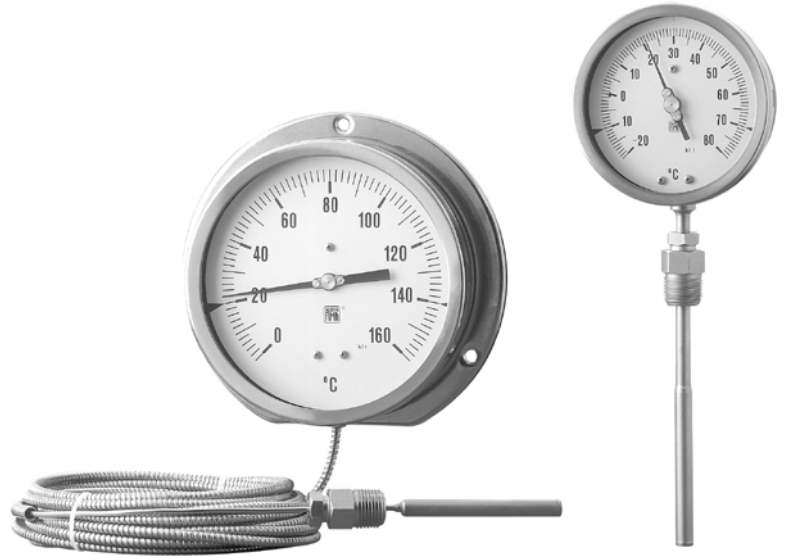


inert gas filled thermometers all stainless steel construction TG8 - DS100-150

06.TG8



These instruments are designed for use in food, beverage, pharmaceutical, cryogenics, chemical and petrochemical processing industries, and in conventional and nuclear power plants. They are built to resist the most severe operating conditions created by the ambient environment and the process medium. An TIG welded case/bulb and capillary strengthens the whole construction. A leak tight fit is ensured if the instrument is filled with a dampening fluid to prevent damage due to vibration.

Functional and constructive characteristics.

Measuring range: the scale range has been marked by two "▼" stamped on the dial. They represent the temperature span recommended for the use of instruments as per DIN 16203.

Accuracy: class 1,0 as per DIN 16203.

Ambient temperature: -25...+65 °C.

Working pressure: 25 bar (without thermowell).

Over temperature limit: 25% of full scale range for temperature ≤ 400 °C; max 600 °C.

Protection degree: IP 55 as per IEC 529.

Operation principles: inert gas filled expansion system.

Process connection: AISI 316 st.st..

Bulb: AISI 316 st.st. ø11,5-9,5-8 mm.

Capillary: AISI 304 st.st. ø 2,5 mm.

Elastic element: AISI 304 st.st. spiral shaped.

Welding: AISI 316 TIG.

Case: AISI 304 st.st.

Ring: AISI 304 st.st., bayonet lock.

Window: glass, 4 mm thick.

Movement: stainless steel.

Dial: aluminium, white with black markings.

Special dials: ranges different from standards, or custom artwork, available on request.

Pointer: micrometer adjustable.

Gasket: in EPDM.

Internal compensation device: by a bimetallic linkage.

ENVIRONMENTALLY FRIENDLY

The inert gas used by Nuova Fima (nitrogen or helium) does not create any danger for the measuring process or atmosphere, in the unlikely event of failure. This is the positive answer of Nuova Fima to the pollution question, replacing previously used dangerous and toxic filling medium such as mercury, toluene, ethylene, freon which greatly contaminate the environment. Our environmentally friendly instruments are very reliable and compared with previous types give a better performance. They measure temperatures within a range of -200° to +600° C with a fast reading response and high accuracy.

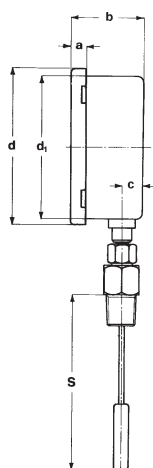
OPERATION PRINCIPLES

Changes in the measured temperature create a change of pressure within the measuring system. The bourdon tube which is connected to the movement reacts to the change in pressure and its displacement is transmitted to the pointer via the movement. Ambient temperature changes which may affect the instrument accuracy are automatically compensated by a bimetallic link mounted inside the case.

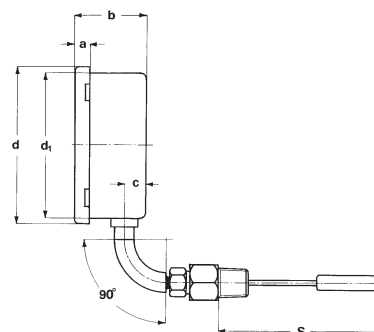
inert gas filled thermometers
all stainless steel construction
TG8 - DS100-150

06.TG8

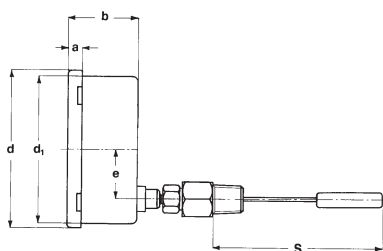
DIRECT STEM: TYPES AND DIMENSIONS (mm.)



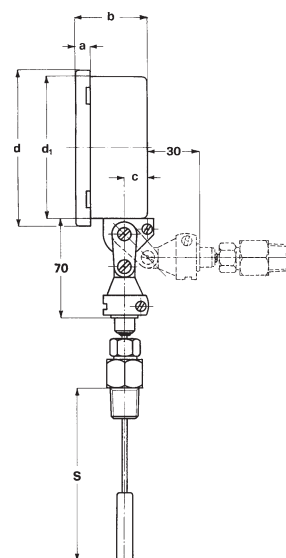
TYPE 1 - Bottom



TYPE 3 - 90° angle



TYPE 4 - Back



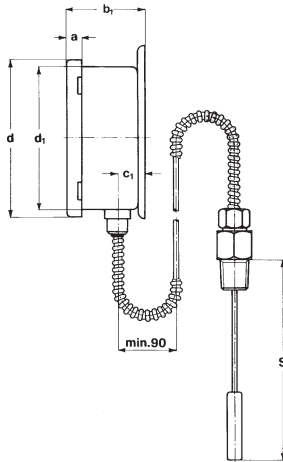
TYPE 9 - Every angle

DS	a	b	c	d	d ₁
100	14,5	50,5	15,5	112	101
150	16,5	53,5	15,5	166	150

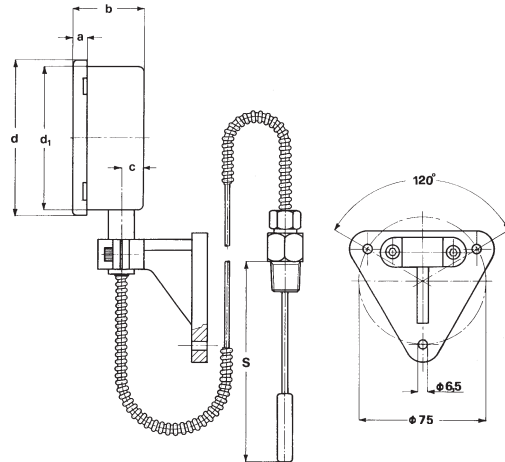
inert gas filled thermometers
all stainless steel construction
TG8 - DS100-150

06.TG8

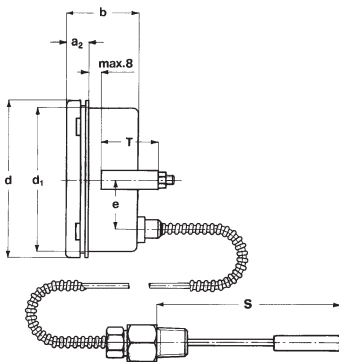
REMOTE READINGS: TYPES AND DIMENSIONS (mm.)



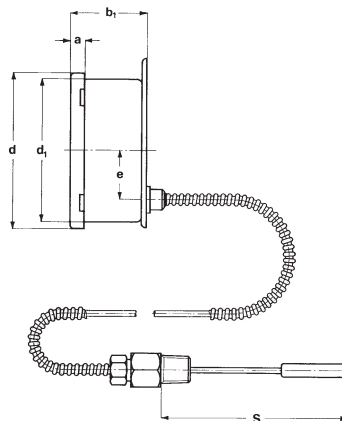
TYPE 5
Back flange for surface mounting.



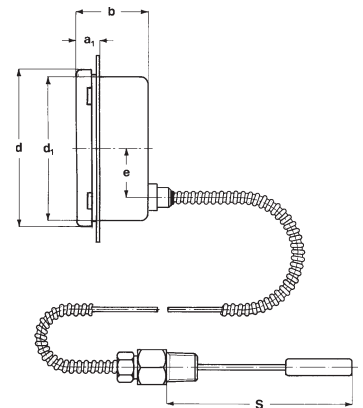
TYPE 6
Wall mounting



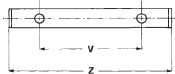
TYPE 7
U-clamp for flush mounting.



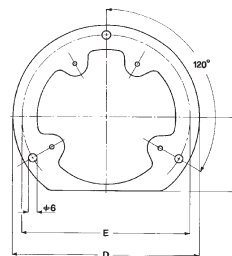
TYPE 8
Back flange for surface mounting.



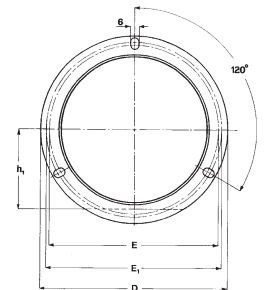
TYPE 0
Front flange for flush mounting.



U-clamp for type 7



Flange for types 5 e 8



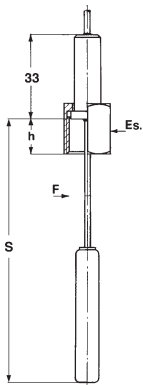
Flange for types 0

DS	A	B	a	a ₁	a ₂	b	b ₁	c	c ₁	d	d ₁	D	E	E ₁	e	h	h ₁	T	V	Z
100	69	60	14,5	21	20	50,5	54,5	15,5	19,5	112	101	130	116	118	34,5	52		41,5	70	112
150	96	60	16,5	21	20	53,5	57,5	15,5	19,5	166	150	190	175		34,5	85	85	45	106	155

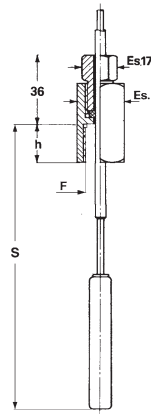
inert gas filled thermometers
all stainless steel construction
TG8 - DS100-150

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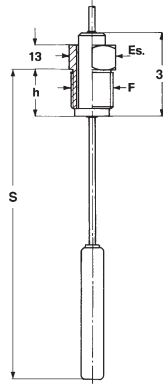
PROCESS CONNECTION: TYPES AND DIMENSIONS (mm.)



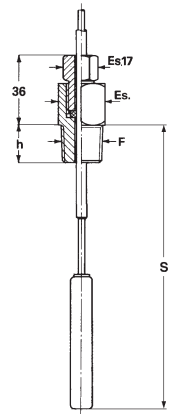
TYPE 8
Female swivel nut.



TYPE 7
Sliding female swivel nut.



TYPE 5
Male swivel nut.



TYPE 9
Sliding male swivel nut.

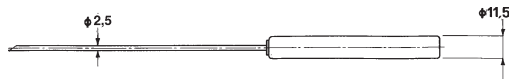
F	CODE	Es	h
1/2" BSP	41F	24	16
3/4" BSP	51F	30	16

F	CODE	Es	h
1/2" NPT	43F	24	18
3/4" NPT	53F	30	18

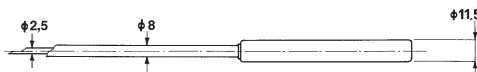
F	CODE	Es	h
1/2" BSP	41M	22	14
3/4" BSP	51M	27	14

F	CODE	Es	h
1/2" BSP	41M	22	14
1/2" NPT	43M	22	17
3/4" BSP	51M	27	16
3/4" NPT	53M	27	17

BULBS: TYPES AND DIMENSIONS (mm.)



TYPE 1
With flexible extension ϕ 2,5 mm.



TYPE 2
With rigid extension ϕ 8 mm. ("S" max = 1000 mm.)
For direct stem and dimension "S" \geq 500 mm. to be ordered with option "S32"

MINIMUM LENGTH "B"

ϕ BULB	CODE	Capillary \leq 15 mt.	Capillary 16...30 mt.
11,5 mm	B00	60	87
9,5 mm	B01	87	127
8 mm	B02	118	167

"S" min. = "B" + 25 mm.

CAPILLARY: TYPES AND DIMENSIONS - Maximum length 30 mt



TYPE L1 - Capillary AISI 304 st.st.
TYPE L3 - Capillary AISI 316 st.st.



TYPE L5 - Capillary AISI 304 st.st. covered with zinc plated steel armour PVC coated
TYPE L6 - Capillary AISI 304 st.st. covered with AISI 304 st.st. armour PVC coated
TYPE L8 - Capillary AISI 316 st.st. covered with AISI 316 st.st. armour
TYPE L9 - Capillary AISI 304 st.st. covered with AISI 304 st.st. armour

inert gas filled thermometers
all stainless steel construction
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SCALE RANGES - "❖" = to be ordered with optional "S32"
 "❖❖" = to be ordered with optional "T03"

TAB. 1

°C	
-200...100	❖❖
-200...50	❖❖
-120...40	❖❖
-80...40	❖❖
-50...50	
-40...80	
-40...60	
-40...40	
-30...50	
-20...40	
-20...60	
-20...80	
-20...120	
0...60	
0...80	
0...100	
0...120	
0...160	
0...200	
0...250	
0...300	
0...400	
0...500	❖
0...600	❖
50...450	❖
100...500	❖

TAB. 2

°F	
-320...200	❖❖
-320...100	❖❖
-200...100	❖❖
-100...100	
-40...180	
-20...120	
0...200	
0...250	
50...300	
50...400	
50...550	
100...800	
200...700	❖
200...1000	❖
400...1200	❖

TAB. 3

Outer °C	Inner °F	
-40...60	-40...140	
-40...100	-40...212	
0...60	30...140	
0...100	32...212	
0...120	32...250	
0...160	32...320	
0...200	35...400	
0...300	35...570	
0...400	40...750	
0...500	0...930	
100...500	200...930	❖
0...600	0...1110	❖
200...600	400...1110	❖

OPTIONS - "E" = DS 100; "G" = DS 150.

DESCRIPTION	CODE	TG8
Inductive and mechanical electric contacts (1)	---	E G
Bulb ø 9,5 mm.	B01	E G
Bulb ø 8 mm.	B02	E G
Case and ring AISI 316 stainless steel	C40	E G
Protection degree IP 65 (not fillable)	E65	E G
Maximum pointer IP 55	L22	E G
Suitable for glycerine filling - IP 67	P00	E G
Suitable for silicone filling (2) - IP 67	P01	E G
Glycerine filling (for direct stem max 160 °C)	R10	E G
Silicone filling (for direct stem max 250 °C) (2)	R11	E G
High temperature calibration	S32	E G
Tropicalization	T01	E G
Low temperature calibration ≤ -80°C	T03	E G
Stainless steel label	T25	E G
Plexiglas window	T31	E G
Safety glass window	T32	E G

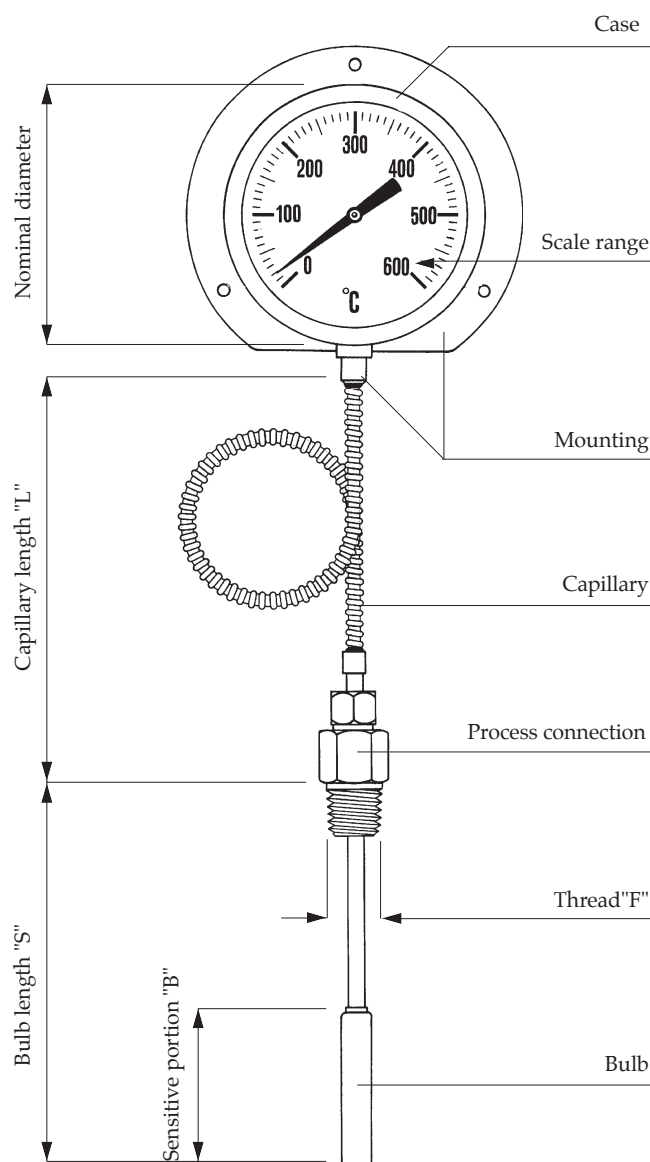
(1) Codes, descriptions and wiring on catalogue sheet MN14.

(2) Gaskets: silicone rubber.

inert gas filled thermometers
all stainless steel construction
TG8 - DS100-150

HOW TO ORDER

	CODE & DESCRIPTION
06	06 - THERMOMETER SECTION
TG	TG - inert gas filled thermometers
8	all stainless steel construction
6	1 - bottom 3 - 90° angle 4 - back 5 - back flange for surface mounting 6 - wall mounting 7 - U-Clamp for flush mounting 8 - back flange for surface mounting 9 - every angle 0 - front flange for flush mounting
7	5 - Male swivel nut 7 - Sliding female swivel nut 8 - Female swivel nut 9 - Sliding male swivel nut
E	E - DS 100 G - DS 150
43F	41M - 1/2" BSP male (connection types 5-9) 43M - 1/2" NPT male (connection type 9) 41F - 1/2" BSP female (connection type 8) 43F - 1/2" NPT female (connection type 7) 51M - 3/4" BSP male (connection types 5-9) 53M - 3/4" NPT male (connection type 9) 51F - 3/4" BSP female (connection type 8) 53F - 3/4" NPT female (connection type 7)
S1	S1 - bulb with flexible extension S2 - bulb with rigid extension
200	bulb length mm.
L5S	L1S - AISI 304 st.st. L3S - AISI 316 st.st. Ø 3mm. L5S - st.st. PVC coated L6S - st.st. covered with st.st. armor PVC coated L8S - AISI 316 covered with AISI 316 armor L9S - st.st. covered with st.st. armor
2000	Capillary length mm.
0/100 °C	see ranges table
P00	see options table



THERMOWELLS

Must be used on all applications where thermometer bulb is subjected to pressure, corrosive fluid or flow rate.

Thermowells will make thermometer disassemble for calibration or replacement easier as the process will not be disturbed.

Type, material and constructive characteristics on catalogue sheet "PZ".

Thermowells available:

- thermowells with thread connection either built up type or machined from bar stock;
- thermowells with flange either built up type or machined from bar stock;
- welding type thermowells.