

Expansion thermometers type ST

Expansion thermometers with inert gas filling. Sensitive bulb rigidly connected to the casing (local thermometers) or by capillary (distance reading thermometers);

- NS 100 and 150 watertight casing;
- indication ranges included between -80 and +600 °C.



These instruments are manufactured in Europe

TECHNICAL FEATURES

• Nominal sizes

- 100 and 150.

• Casing

- case and ring in AISI 304 stainless steel (AISI 316) or on request - option V61) with bayonet bezel.

• Protection degree (according to EN 60529)

- IP 55 for dry execution;
- IP 67 (option V66 and V72).

• Window

- glass for dry execution;
- laminated safety glass for liquid filled execution or on request (option V17)

• Thermometric element

- Cr Mo steel spiral tube

• Movement

- stainless steel.

• Ranges (according to EN 13190)

- Graduation:
 - 0 ÷ 60; 0 ÷ 100; 0 ÷ 120; 0 ÷ 160; 0 ÷ 200; 0 ÷ 250; 0 ÷ 300; 0 ÷ 400; 0 ÷ 500; 0 ÷ 600; -40 ÷ +60; -20 ÷ +40; -20 ÷ +100; (divisions as per table C2 at page 6)
 - other graduations not normalized for single or double range (on request).
- Unit of temperature:
 - °C (Celsius) and °F (Fahrenheit) for single or double range.
- Scale angle:
 - 270 °.

• Working temperature (referred to full scale value)

- from 1/10 to 9/10.

• Over-temperature (occasionally allowed)

- 115% of full scale value for all ranges except 0+600 °C.

• Pointer

- aluminium with micrometer adjustment also for execution with electric contacts.

• Dial

- white aluminium with black figures (for dial modifications see available options).

• Accuracy (according to EN 13190)

- class 1;
- class 0,6 (on request - option V36).
note: accuracy indicated on the thermometer does not consider the interference of an eventually applied electric contact.

• Capillary

- AISI 316 stainless steel, plain; (identification KZ)
 - AISI 316 stainless steel with flexible AISI 304 stainless steel armour. (identification KY)
- note: distance reading thermometers can be identified with the picture number, adding the relating reference of the capillary (K identification), to its material and its armouring (Z or Y identification), followed by the number indicating the length in meters of the same capillary.

• Capillary length

- standard: 1, 2, 3 and 4 meters
- special: on request
- maximum: 25 meters

• Sensitive bulb (see pages ST09 and ST10)

- 12 mm standard cylindrical diameter;
- 8 mm standard cylindrical diameter.

• Thermowell (to be ordered separately)

- built-up from pipe - P2 and P4 type;
- drilled from solid bar stock - P3 and P5 type (dimensions and materials are decided by the customer).

• Thermal drift

- with reference to the ambient temperature of 20 °C and due to the length of the capillary, thermal drift affects the instrument accuracy as $\pm 0,15\%$ per meter every 10 °C of variation

Options**• Maximum Pointer**

To indicate Maximum pressure reached

- Zero setting on the Window (Option V11)
- Zero setting from outside of casing (with electric contact) (Option V12)

• Window

Different from standard

- Laminated safety glass (Option V17)

• Accuracy class 0,6

- (Option V36)

• AISI 316 Stainless Steel case and Ring

- As alternative to AISI 304 Stainless Steel (Option V61)

• Liquid filling

- Silicone fluid filled casing with laminated safety glass window (Option V66)

• IP 67 casing

- Not fillable (Option V72)

• Sensitive bulb diameter

- Not standard (Option V75)

• Metal Tag Plate

- AISI 316 Stainless Steel for Tag Number (Option V82)

• Calibration Certificate

Rising Temperature

- Class 0,6
- Class 1,0 (Option V92)

• Complementary Documents

- Certificate of Compliance with the order EN 10204 – 2.2
- Technical Documentation including:
 - Drawings and Technical information
 - Installation and maintenance instructions
- Inspection and Test Certificates EN 10204 – 3.1
- Material Certificate
- PED Declaration
- ATEX Declaration (II 2 G/D)

Available types

ST 374

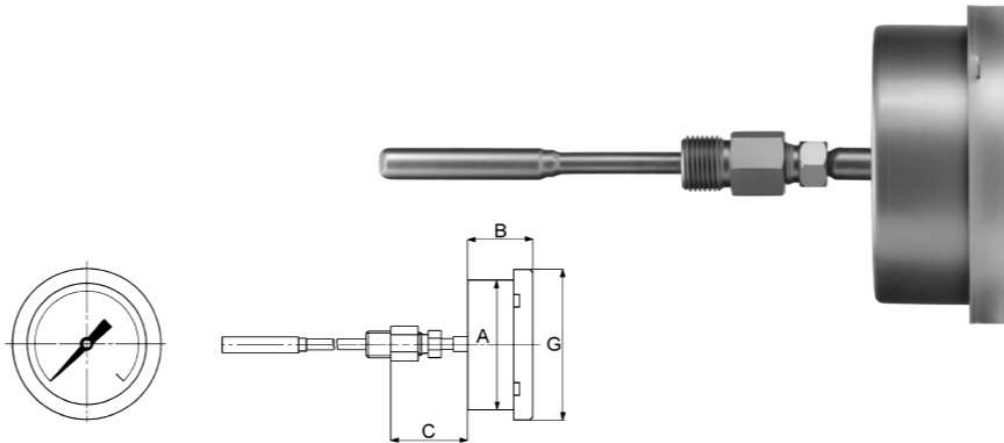
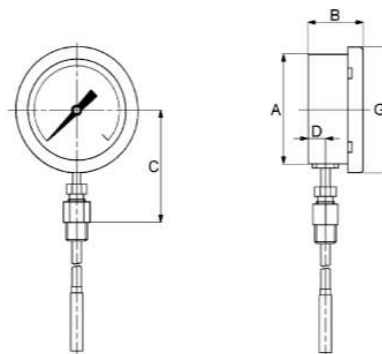


Table ST 374

DN	A	B	C	D	E	F	G	H	I	L	M	N	Ø for 120°	PESO - kg
100	103	50	60				118							0,56
150	150	50	60				166							0,80

Thermometer for direct horizontal mounting

ST 375

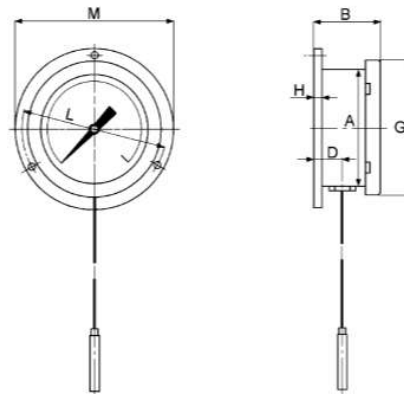


Thermometer for direct vertical mounting

Table ST 375

DN	A	B	C	D	E	F	G	H	I	L	M	N	Ø for 120°	PESO - kg
100	103	50	110	16,5			118							0,56
150	150	50	134	16,5			166							0,80

ST 380

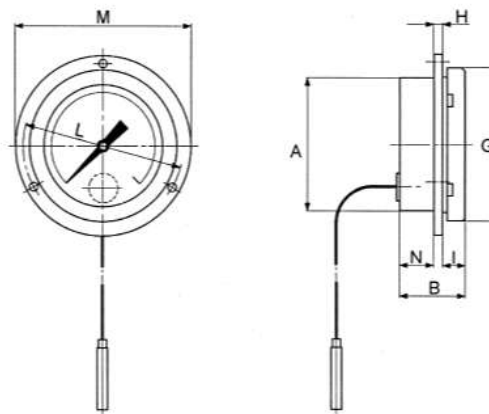


Distance reading thermometer for surface mounting with 3 fixing holes

Table ST 380

DN	A	B	C	D	E	F	G	H	I	L	M	N	Ø fori 120°	PESO - kg
100	103	57		23,5			118	7		126	140	5	5	0,82
150	150	57		23,5			166	7		178	192	5	5	1,18

ST 383



Distance reading thermometer for flush mounting with 3 fixing holes

Table ST 383

DN	A	B	C	D	E	F	G	H	I	L	M	N	Ø fori 120°	PESO - kg
100	103	50					118	7	19	126	140	24	5	0,82
150	150	50					166	7	19	178	192	24	5	1,18

Table ST 1 Sensitive bulbs' and thermowells' length								
Range °C	Lenght L sensitive bulbs (thread included)				Immersion U thermowell (thread escluded) for bulbs D 12 mm			
	D 8 mm		D 12 mm		min	standard	max	special
	min	standard	min	standard	mm	mm	mm	mm
-40 ÷ +60	170	200 – 250 300 – 400	85	100 – 150 200 – 250 300 – 400	70	100 – 150 200 – 250 300 – 400	1000	to be agreed
-20 ÷ +40	170	200 – 250 300 – 400	85	100 – 150 200 – 250 300 – 400	70	100 – 150 200 – 250 300 – 400	1000	to be agreed
-20 ÷ +100	170	200 – 250 300 – 400	85	100 – 150 200 – 250 300 – 400	70	100 – 150 200 – 250 300 – 400	1000	to be agreed
0 ÷ 60	170	200 – 250 300 – 400	85	100 – 150 200 – 250 300 – 400	70	100 – 150 200 – 250 300 – 400	1000	to be agreed
0 ÷ 100	170	200 – 250 300 – 400	85	100 – 150 200 – 250 300 – 400	70	100 – 150 200 – 250 300 – 400	1000	to be agreed
0 ÷ 120	170	200 – 250 300 – 400	85	100 – 150 200 – 250 300 – 400	70	100 – 150 200 – 250 300 – 400	1000	to be agreed
0 ÷ 160	170	200 – 250 300 – 400	85	100 – 150 200 – 250 300 – 400	70	100 – 150 200 – 250 300 – 400	1000	to be agreed
0 ÷ 200	170	200 – 250 300 – 400	85	100 – 150 200 – 250 300 – 400	70	100 – 150 200 – 250 300 – 400	1000	to be agreed
0 ÷ 250	170	200 – 250 300 – 400	85	100 – 150 200 – 250 300 – 400	70	100 – 150 200 – 250 300 – 400	1000	to be agreed
0 ÷ 300	170	200 – 250 300 – 400	85	100 – 150 200 – 250 300 – 400	70	100 – 150 200 – 250 300 – 400	1000	to be agreed
0 ÷ 400	170	200 – 250 300 – 400	85	100 – 150 200 – 250 300 – 400	70	100 – 150 200 – 250 300 – 400	1000	to be agreed
0 ÷ 500	170	200 – 250 300 – 400	85	100 – 150 200 – 250 300 – 400	70	100 – 150 200 – 250 300 – 400	1000	to be agreed
0 ÷ 600	---	---	120	150 200 – 250 300 – 400	105	150 200 – 250 300 – 400	1000	to be agreed

note: on request, sensitive bulbs with diameters (9,6 - 11,5 - others) and lenghts different from those above indicate can be realized.

How to order

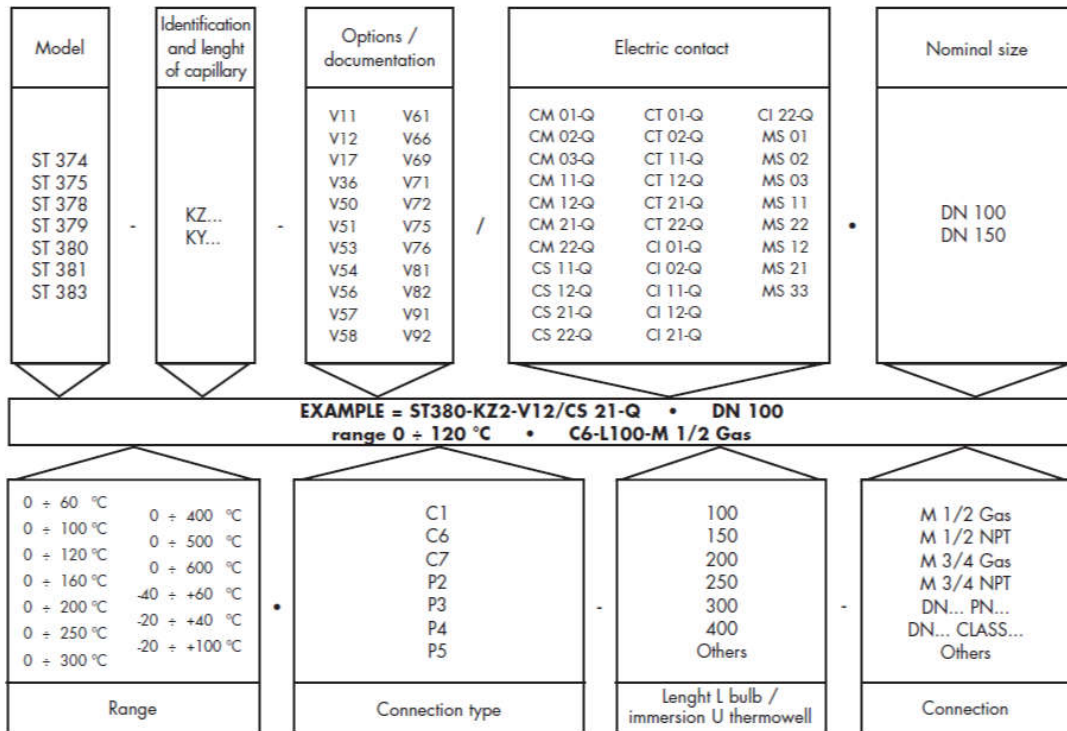


Table C2 -
Scale ranges for temperature values between -50 and 600°C acc. to EN

Graduation	Class 1		Graduation	Class 1	
	Division	Division N.		Division	Division N.
0 ÷ 60	1	60	0 ÷ 400	10	40
0 ÷ 100	2	50	0 ÷ 500	10	50
0 ÷ 120	2	60	0 ÷ 600	10	60
0 ÷ 160	2	80	-50 ÷ +50	2	50
0 ÷ 200	5	40	-40 ÷ +60	2	50
0 ÷ 250	5	50	-20 ÷ +40	1	60
0 ÷ 300	5	60	-20 ÷ +100	2	60