

## 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

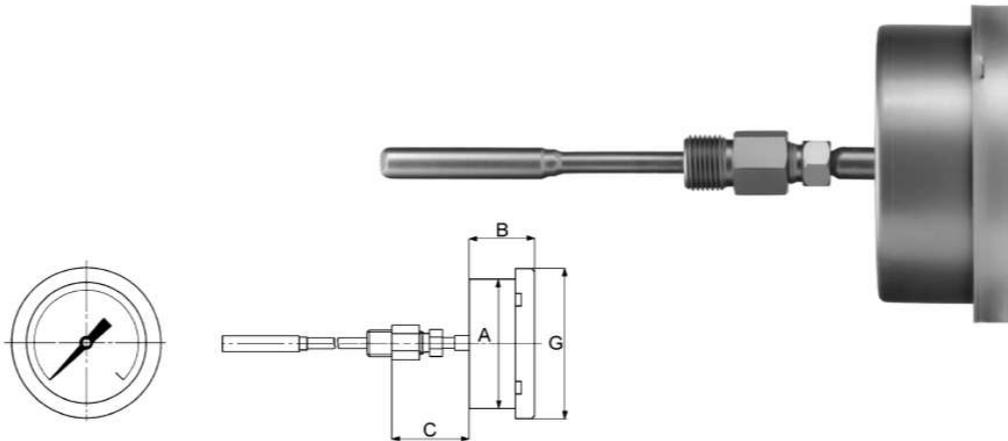
- Class 0,6
- Class 1,0 (Option V92)

**• 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**

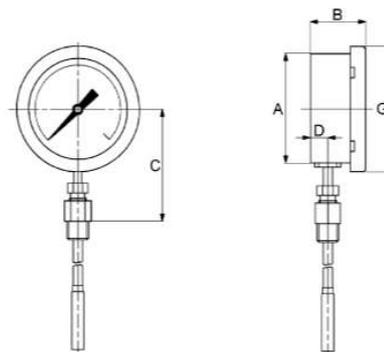


*Thermometer for direct horizontal mounting*

**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

**ST 375**

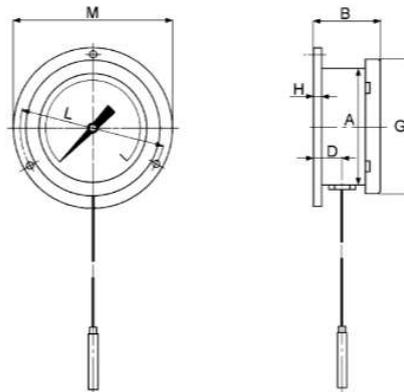


*Thermometer for direct vertical mounting*

**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

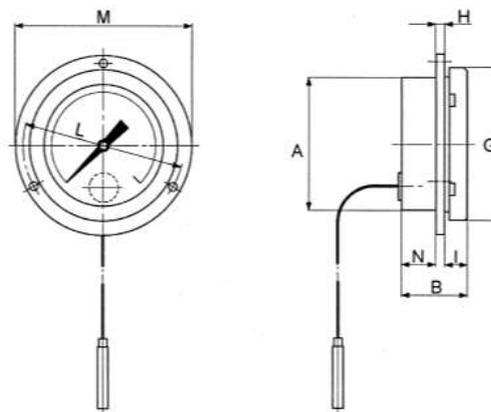


Distance reading thermometer for surface mounting with 3 fixing holes

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

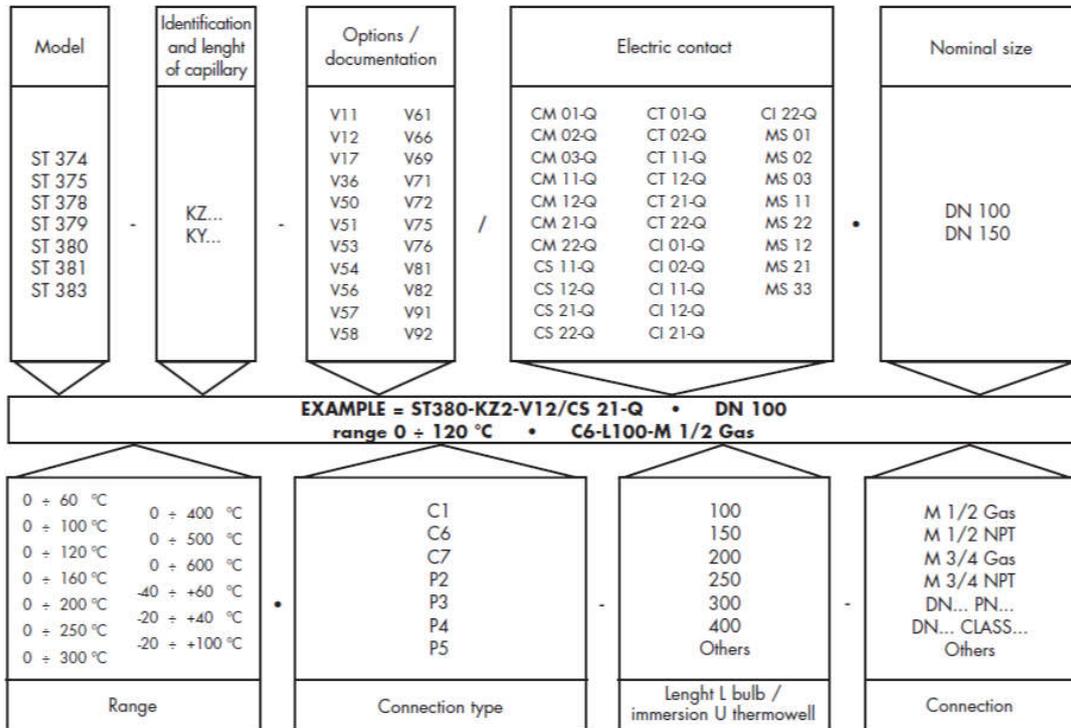
Table ST 383

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

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