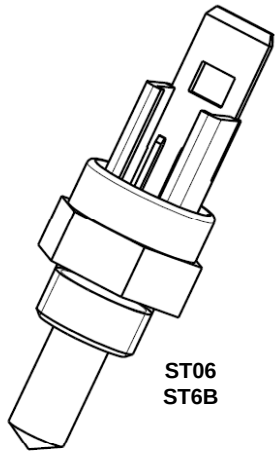
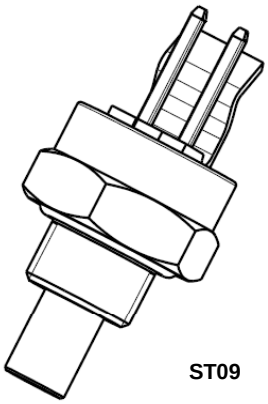
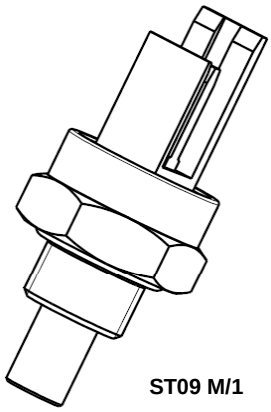
IMMERSION TEMPERATURE PROBES
TYPE ST06 - ST6B - ST09



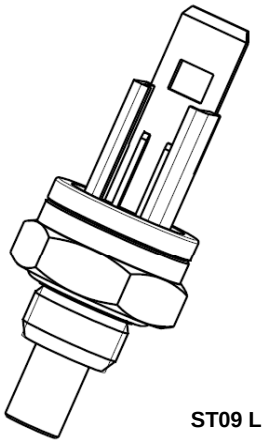
ST06
ST6B



ST09



ST09 M/1



ST09 L

APPLICATION

These temperature probes are suitable to equip temperature adjustment systems installed in hot water generators for heating and domestic use, such as:

- Floor standing boilers
- Wall hung boilers
- Water heaters
- Instantaneous water heaters

They are called "immersion probes", because once they are installed they are in direct contact with the fluid to be controlled, ensuring the shortest reaction time to temperature variations with the consequent advantage of a precise temperature adjustment.

MECHANICAL FEATURES

- Probe body — Brass CW602N
Stainless steel AISI 316L
- Fixing ST06 — UNI 1/8 GAS thread, wrench 13
- Fixing ST09 — UNI 1/8 GAS thread, wrench 15 with sealing O-Ring 9,25x1,78 (OR 2037)
- Connectors:

ST06 and ST06B

Connector (*)	Lumberg MSF p.2,5
Operating temperature	-40℃ ÷ +110℃ +140℃ for 30 minutes

ST09

Connector (*)	Molex 5273 p.3,96
Operating temperature	-40℃ ÷ +105℃

ST09 option M/1

Connector (*)	Amp Modu 1 p.3,96
Operating temperature	-40℃ ÷ +105℃

ST09 option L

Connector (*)	Lumberg MSF p.2,5
Operating temperature	-40℃ ÷ +110℃ +140℃ for 30 minutes

(*) Possible versions with different connectors upon request.

ELECTRICAL FEATURES

● Sensor	NTC thermistor
● Resistance value at 25℃	10kΩ ± 1%
● β coefficient (25℃ – 85℃) (**)	3435ºK ±1%
	3977ºK ±1% option Z
● Reaction time	< 3 s
● Isolation voltage:	
»ST06-ST09-ST09 M/1-ST09 L	3750 Vac for 1 second
»ST6B	1500 Vac for 1 second

(**) Possible versions with different NTC upon request.

FORMULAS

The following formula enables to calculate the resistance value of the NTC sensor at a T temperature expressed in Kelvin degrees:

$$R_T = R_{25} \exp[\beta(\frac{1}{T} - \frac{1}{T_{25}})]$$

Example: calculation of the resistance value of a probe with NTC with β 3435 at a temperature of 60℃.

$$R_{60} = 10k \exp[3435(\frac{1}{(60+273.15)} - \frac{1}{(25+273.15)})] = 2981\Omega$$

CONSTRUCTION

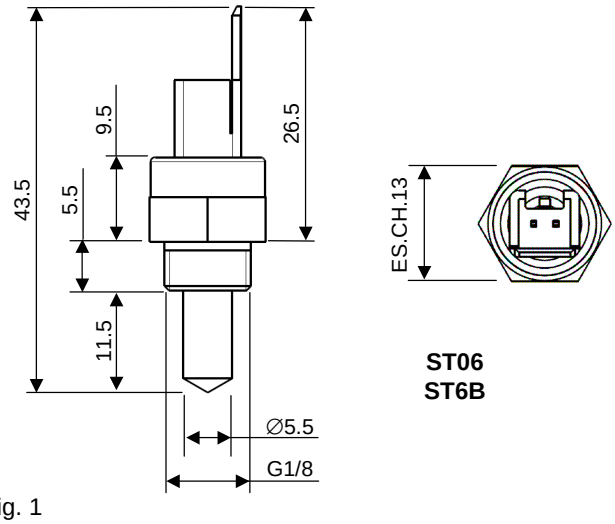
These probes consist of a metal body to be screwed to the pipe. The sensor is incorporated in the metal body, immersed in epoxy resin with high thermal conductivity and connected to two terminals from which the resistance signal is sensed (this value is inversely proportional to the measured temperature according to the formula appearing in the paragraph "Electrical features").
The ST6B probe differs from the ST06 model in the way it is made. The employed materials and the particular production process allow the probe to bear higher thermal stress which results in a longer life of the same.

ASSEMBLY

These probes must be screwed with a max. tightening torque of 5 Nm.

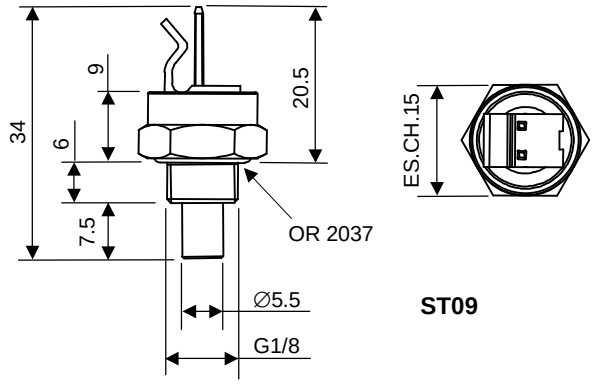
OVERALL DIMENSIONS

Fig. 1, 2, 3 and 4 show the overall dimensions of these probes in mm.



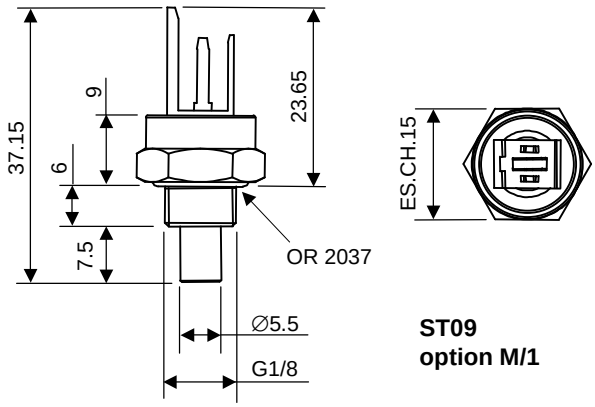
ST06
ST6B

Fig. 1



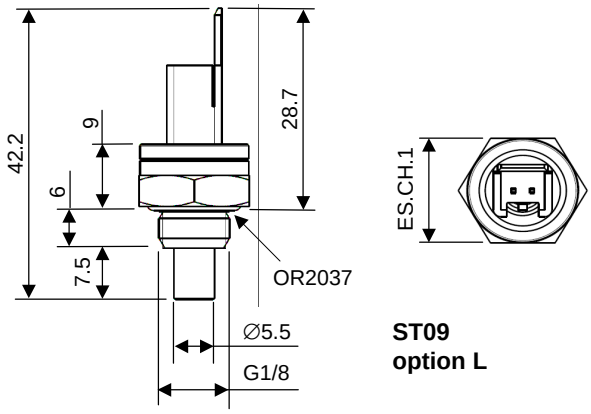
ST09

Fig. 2



ST09
option M/1

Fig. 3

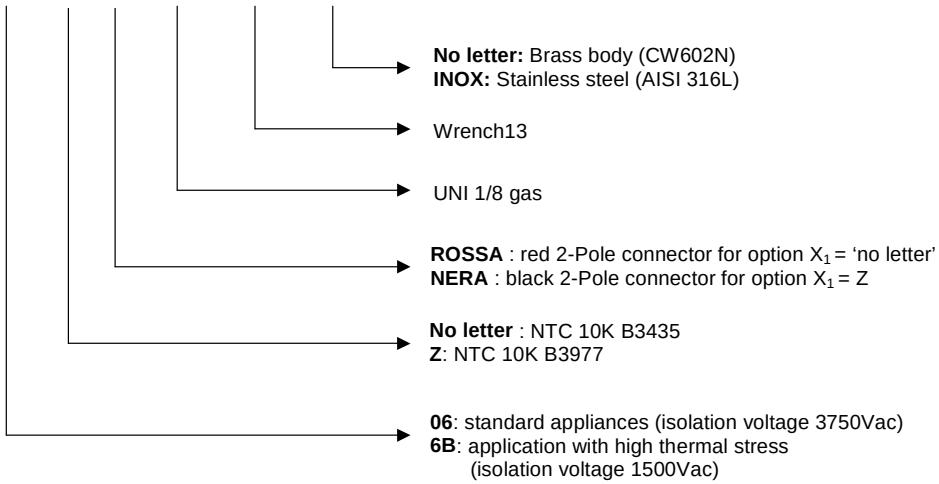


ST09
option L

Fig. 4

PART REFERENCES

SONDA TEMP. TIPO STX$_0$ X$_1$ X$_2$ G1/8 CH13 W

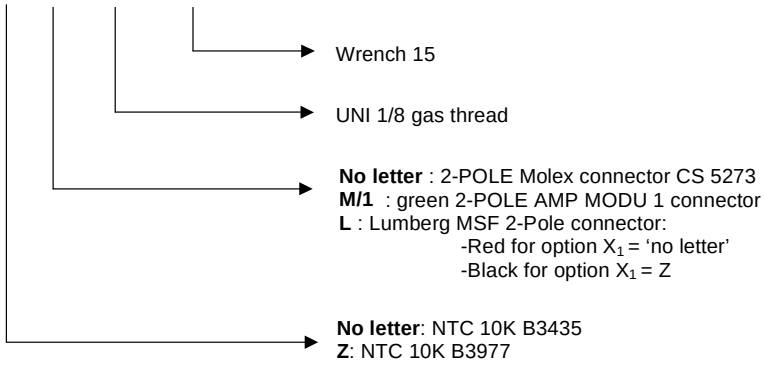


Esempio:

- **SONDA TEMP.ST6B BIANCA G1/8 CH13 INOX**

SONDA TEMP.ST6B	Temperature probe type ST6B Operating temperature – 40°C ÷ +110°C + 140°C per 30 minuti
_	with 10K NTC having B3435
BIANCA	with white 2-Pole connector
G1/8	UNI 1/8 gas thread
CH13	Wrench 13
INOX	with stainless steel body

SONDA TEMP. TIPO ST09 X$_1$ X$_2$ G1/8 CH15



Example:

- **SONDA TEMP.ST09 Z G1/8 CH15**

SONDA TEMP.ST09	Temperature probe type ST09
Z	With 10K NTC having B3977
_	2-pole Molex connector CS 5273
G1/8	UNI 1/8 gas thread
CH15	Wrench 15

ATTENTION -> Company Brahma S.p.A. declines any responsibility for any damage resulting from the Customer's interfering with the device

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