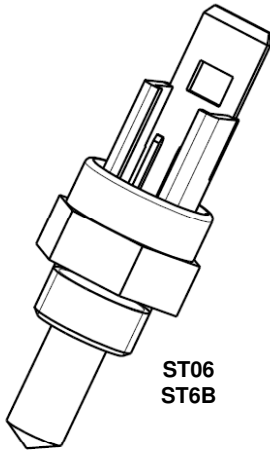
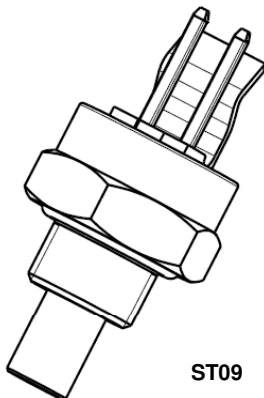


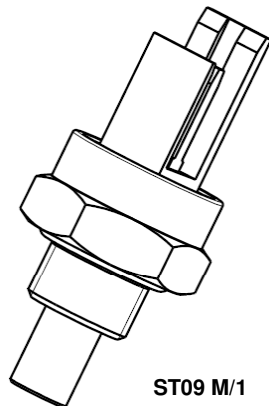
**IMMERSION TEMPERATURE PROBES  
TYPE ST06 - ST6B - ST09**



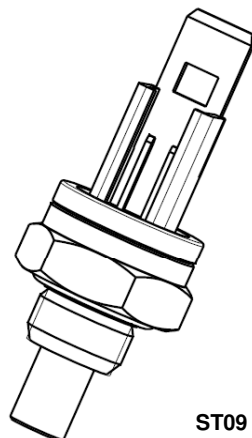
**ST06  
ST6B**



**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°C ÷ +110°C  
    +140°C for 30 minutes

**ST09**

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

**ST09 option M/1**

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

**ST09 option L**

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

(\*) Possible versions with different connectors upon request.

## ELECTRICAL FEATURES

- Sensor NTC thermistor
- Resistance value at 25°C 10kΩ ± 1%
- β coefficient (25°C – 85°C) (\*\*) 3435°K ± 1%
- Reaction time 3977°K ± 1% option Z < 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:

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

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

$$R_{60} = 10k \exp\left[3435\left(\frac{1}{(60+273.15)} - \frac{1}{(25+273.15)}\right)\right] = 298 \Omega$$

## 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.

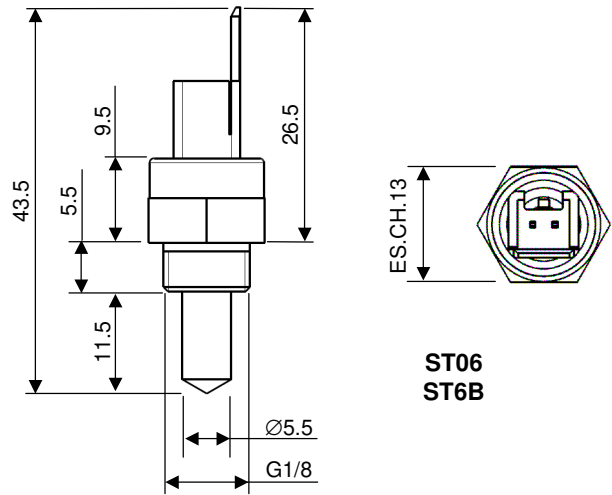


Fig. 1

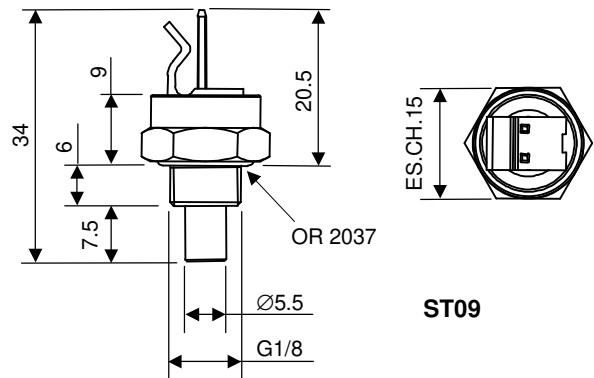


Fig. 2

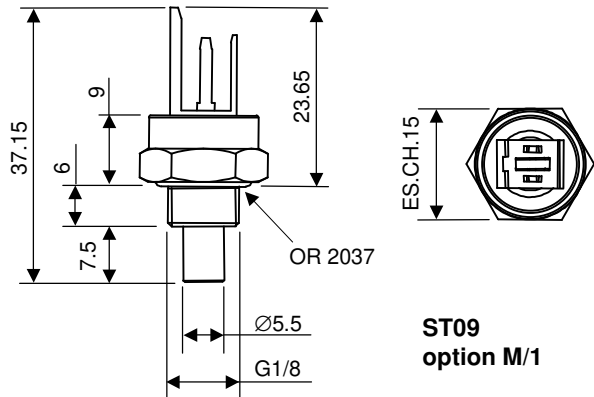


Fig. 3

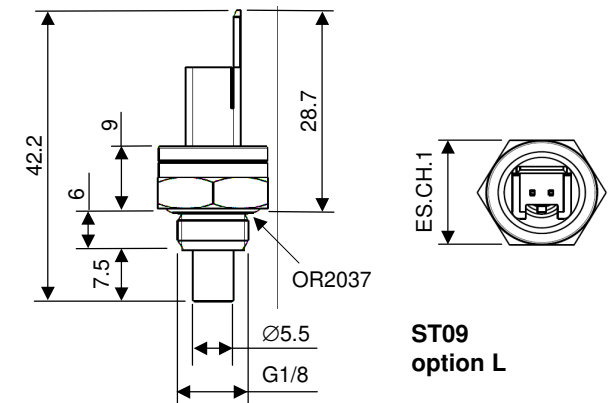
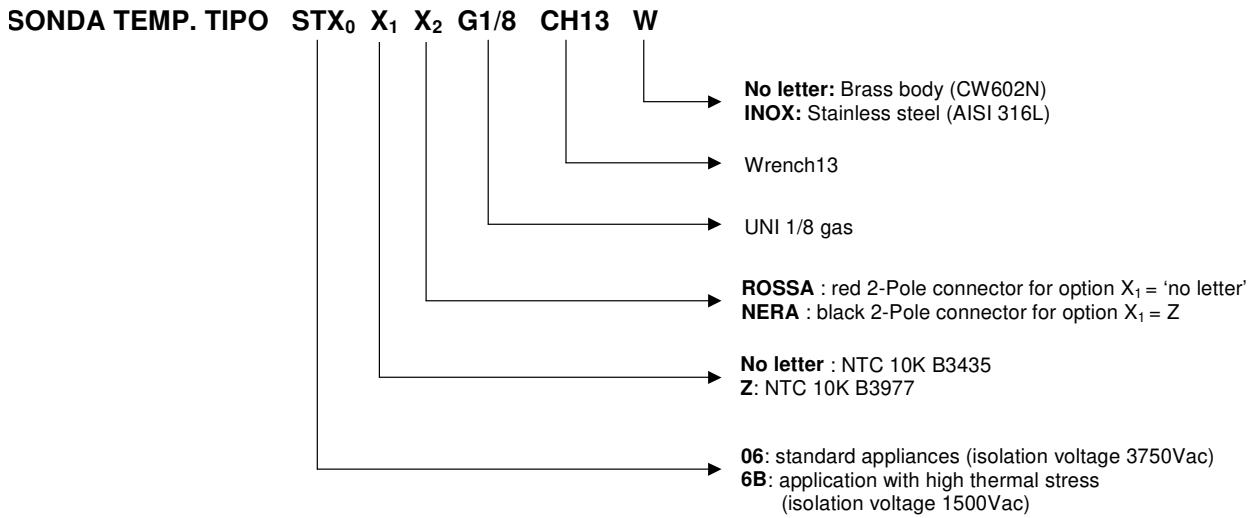


Fig. 4

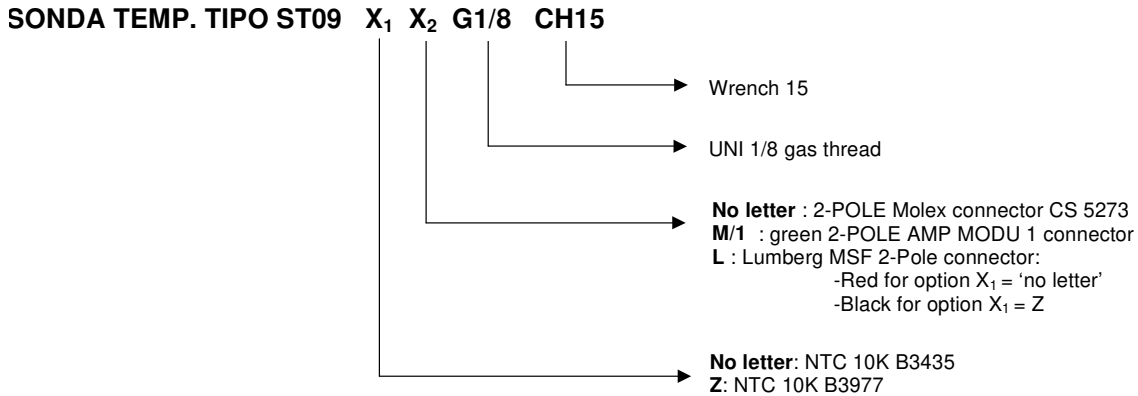
## PART REFERENCES



Esempio:

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

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



Example:

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

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

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

**BRAHMA S.p.A.**

Via del Pontiere, 31  
 37045 Legnago (VR) - ITALY  
 Tel. +39 0442 635211 - Fax +39 0442 25683  
<http://www.brahma.it>  
 E-mail: [brahma@brahma.it](mailto:brahma@brahma.it)

2012/03/19 Subject to amendments without notice