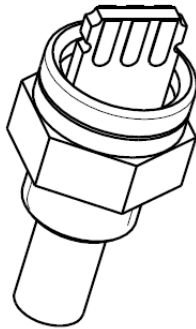
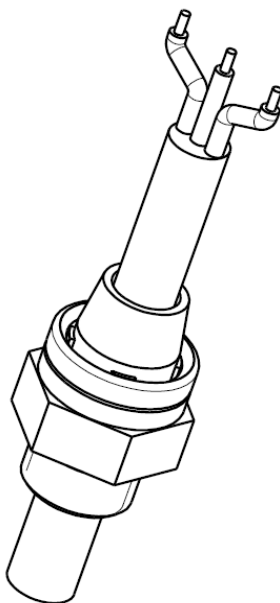


IMMERSION TEMPERATURE PROBES WITH DOUBLE NTC TYPE ST12



ST12R



ST12C

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.

The innovation introduced in this probe is the presence of 2 independent NTCs making the probe more reliable, as if one NTC should not work, the other one will enable the electronic device to read the temperature anyway. Besides, if the probe is coupled to a particular device, it will be possible to remove the boiler safety thermostat and to use the same probe as a safety element.

MECHANICAL FEATURES

- Probe body brass CW602N
- Fixing UNI 1/8 GAS thread, wrench 13
- ST12R Joint to RAST connector type
Lumberg 3512-03-K07
- ST12C With silicone cable 3x0.25mm
- Operating temperature -40°C ÷ +110°C

ELECTRICAL FEATURES

- Sensors NTC thermistors
- Resistance value at 25°C 10kΩ ± 1%
- β coefficient (25°C – 85°C) (*) 3435°K ±1%
- 3977°K ±1% opt. Z
- Reaction time < 3 s
- Insulation voltage 1500 Vac for 1 sec.
(according to EN
60730-1 standard)

(*) 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 having β 3435 at a temperature of 60°C.

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

CONSTRUCTION

These probes consist of a brass 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").

CONNECTIONS

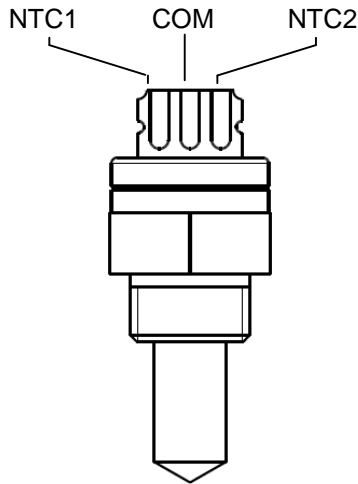


Fig. 1

As shown in Fig.1 and Fig.2, COM represents the common terminal of both NTCs, while NTC1 and NTC2 identify the other terminal of each NTC.

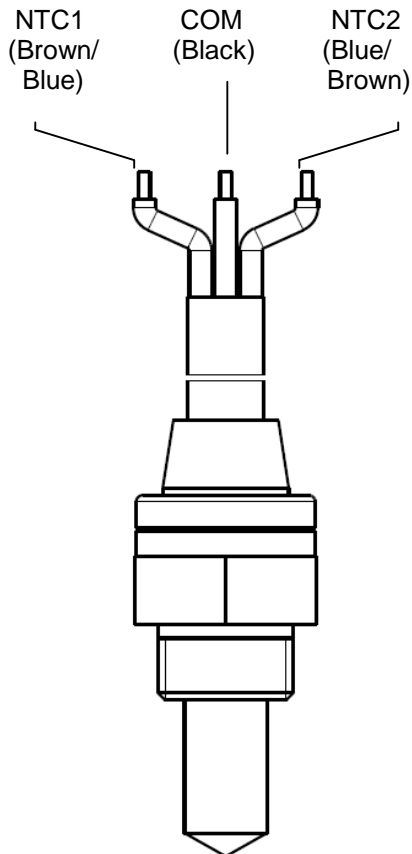


Fig. 2

ASSEMBLY

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

OVERALL DIMENSIONS

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

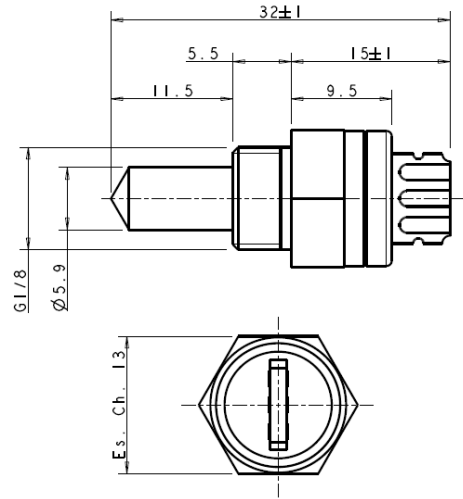


Fig. 3

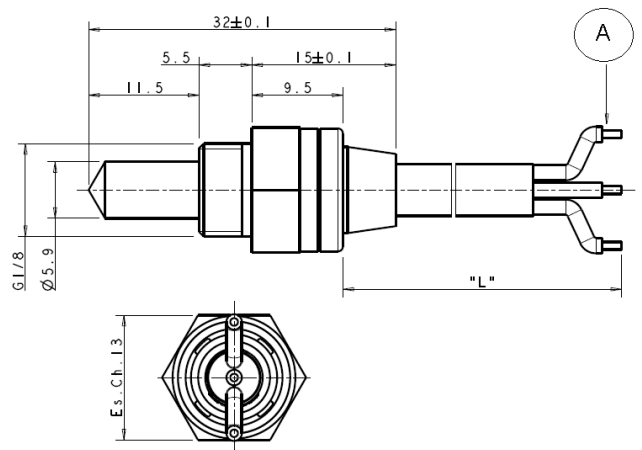
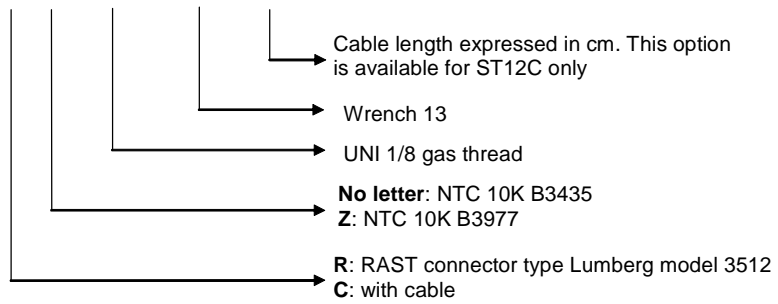


Fig. 4

L = cable length as per customer's requirements
 A = cable finishing as per customer's connection requirements

PART REFERENCES

TEMP. PROBE TYPE ST12X Y G1/8 CH13 J



Example:

- **TEMP. PROBE TYPE ST12R G1/8 CH13**

TEMP. PROBE TYPE ST12	Temperature probe type ST12
	Operating temperature - 40°C ÷ +110°C
R	With RAST connector type Lumberg model 3512
G1/8	UNI 1/8 gas thread
CH13	Wrench 13
-	

ATTENTION -> Company Brahma S.p.A. takes no responsibility for any damage resulting from Customer tampering with the device

BRAHMA S.p.A.

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