Mounting recommendations & Commissioning
Conductivity coaxial probes

GENERALS

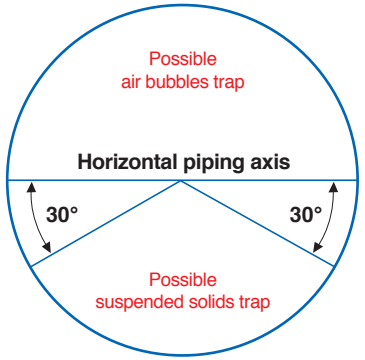
Conductivity probes are defined by a cell coefficient. BAMO coaxial probes have a coefficient of 0.01 or 0.1. The coefficient is the ratio between the resistance gained on the probe and the real resistivity of the fluid. For example a probe with a coefficient of 0.1 the read resistance by the probe is equal to 1/10 of the real resistivity of the fluid. Coefficients are in accordance with our manufacturing standards.

HYDRAULIC MOUNTING

Conductivity coaxial probes with a cell coefficient of 0.1 and 0.01 are made for working conditions like specified in our data sheet 360-01.

Allowing exception, probes are manufactured with thread for screw mounting. Take caution to plug the probe in a place where measuring will be in accordance with the fluid to measure (avoid in particular hydraulic restrictions, dead end pipes). Check that fluid's speed around the probe does not risk to damage the probe, because of a too small difference between the probe and the pipe diameter. We prefer you to mount the probe in an upward vertical pipe more than in an horizontal pipe. But always check that the pipe is fully loaded of water.

Check the miss air bubbles near the probe, instead of the measuring won't be correct. In the aim of avoiding such a trouble, **mount the probes with an angle between 0 up to 30° regarding the horizontal axis.** Check also that probes will be protected from possible suspended solids that can be accumulated into the probe and will false measuring trough time. Holes in the sleeve's probe will be always in contact with fluid's main stream in the piping.



<– **Recommended diagram for coaxial conductivity probes mounting**

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Instruction wiring & Commissioning
Conductivity coaxial probes
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In case of use with a resistivity over 500,000 Ohm .cm, take caution that the probe must be out of reach from the air. Instead of carbon dioxide may dissolve into water and bring resistivity down to 250,000 Ohm .cm

To tighten the probe with the pipe, screw the hexagon section of the probe and not the fitting of the coaxial connector.

MEASURE CABLE FEATURES AND FITTINGS

You must always take caution into the length between the probe and the controller BAMOPHOX 322 RE (resistivity model) following measuring scale and the cell coefficient, like indicated in the following sheet :

Coefficient Scale	0.01	0.1
20 MOhm	50 m	10 m
2 MOhm	100 m	50 m
200 kOhm		100 m
20 kOhm		100 m

For conductivity measures, cable length can be up to **100 m**, whatever cell coefficient and measuring scale.

Example of wiring connections

Product code & reference

Pt 100 Ω *(Ref. C3B)*
Pin-1 : White
Pin-2 : Red *(common)*
Pin-3 : Red *(common)*

Probe *(coaxial cable)*
Pin-4 : Core
Pin-5 : Shield

Cell cœfficient

The cable choice is important. Because of its own resistance and its own capacity, it may generate a drift up to 50% of the measure, more of all for high resistivity values or low conductivity values.

Cable must be straight connected from the probe to the connectors of the controller BAMOPHOX 322 without any middle parts.

BAMO recommends the use of the airy coaxial cable **CCA** (code 368 100), to fit with an end connector type **BNC CCA** (code 368 210).
If use of probes with PL259 connector, **CCA** cable (code 368 100) is also recommended.

If probes are supplied with a Pt100 temperature sensor, a **standard cable** (code 610 010), with two white wires and one red wire, is recommended.

According to the different probes models, cables are crimped or not to the probes. In the case of cables are not crimped, connect the probe to cable like here after.

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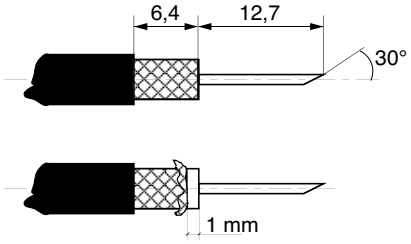
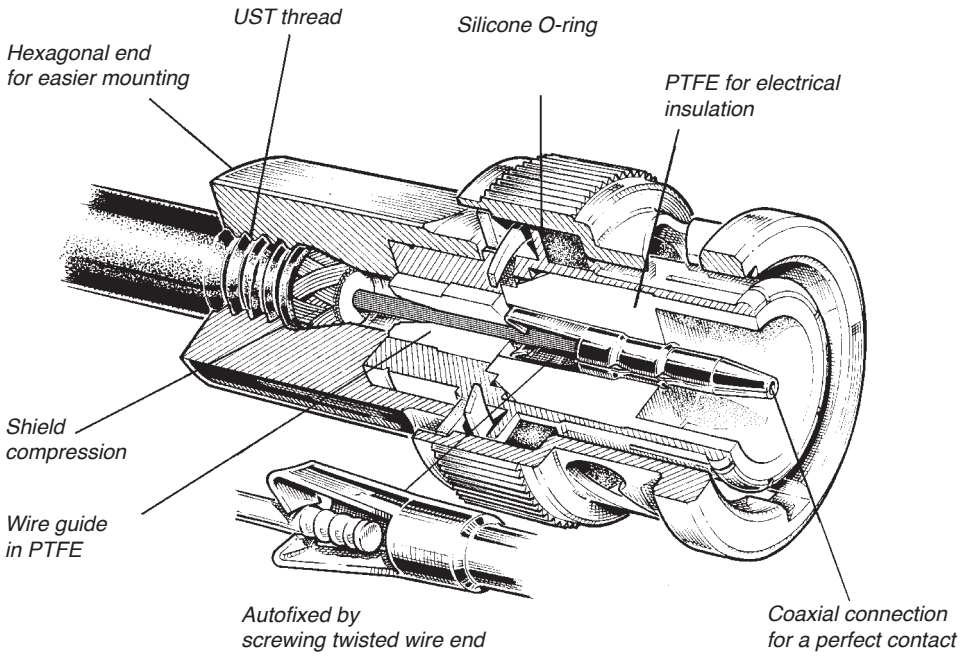
BNC Connector

Connection between measuring wire and BNC connector <u>cannot be dismantled.</u>

- Strip the cable as it is shown.
- Cut the wire rope at 30° to have a good cable position in the connector.
- Put down the shield of **1 mm** to bore a part dielectric. If this stage is WRONGLY DONE, you will get short circuit.
- Introduce the cable in the connector and screw this one with the hexagonal end, and push it smoothly.



Screw the stripped cable into the connector like shown below.



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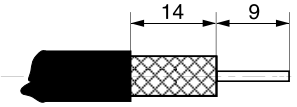
PL259 Connector

Connection between measuring wire and PL259 connector can be DISMANTLED.

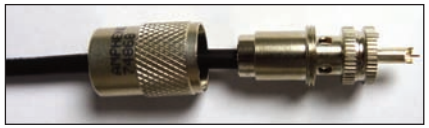
- Strip the cable like indicated –>



- Put in place all the elements of the connector –>

- Put down the shield on the middle part like indicated –>

- Screw the middle part into the male connector. Shield wires should appear trough the holes of the male connector –>



- Weld the extremity of the core cable with the extremity of the male connector to allow a good transmittance of the measuring signal
- Screw the nut onto the male connector –>

- Set the connector into the probe and tighten the whole assembly.

<u>ELECTRICAL CHECKS:</u> If you want to check the line resistances between the different wires, you will find here after, the required values to validate the installation.

Wire or Insulate	Resistance indicative value
Red wire (2 or 3) and white (1)	100 Ohms at 0°C
If Pt100 sensor into the probe	#110 Ohms at 25°C
Core cable and shlield	Infinite
Core cable and body probe	Infinite
Connected probe into the air	Infinite

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