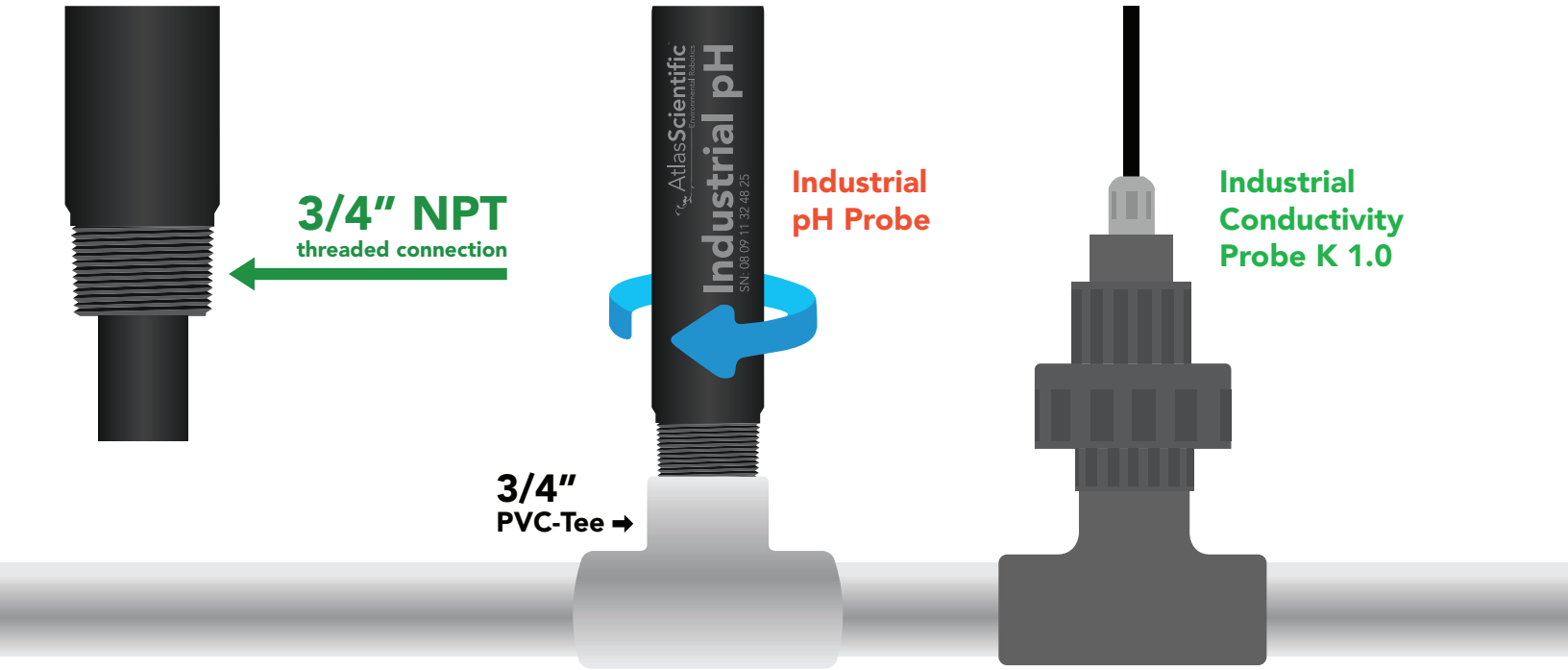
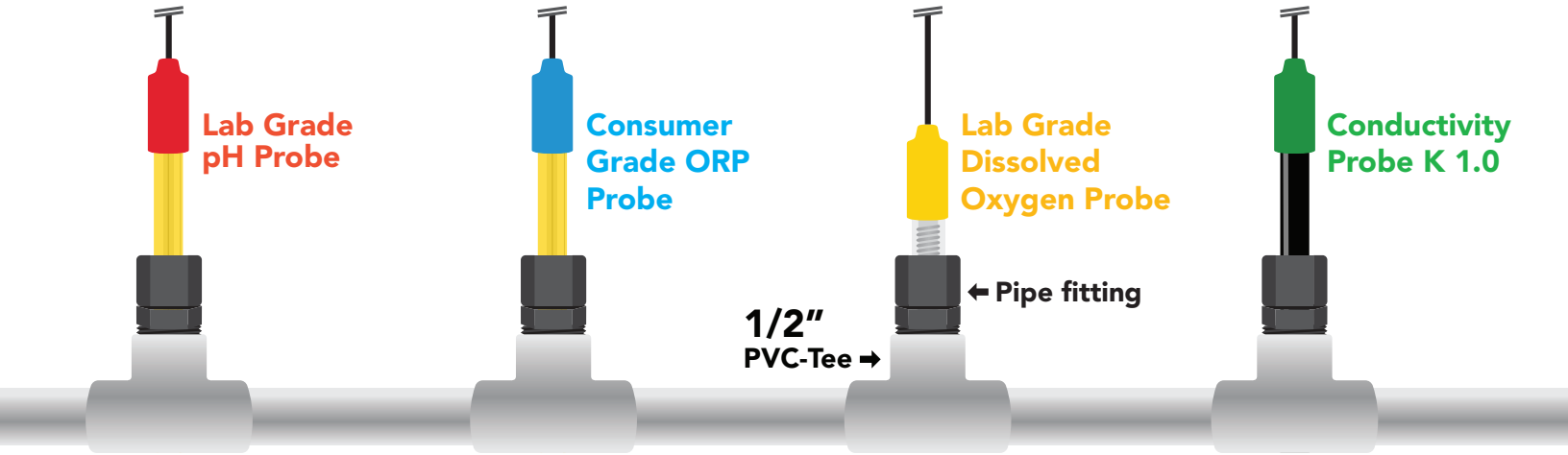
Connecting probes into a pipe

All Atlas Scientific probes can be connected into a pipe.
(This is known as "mounting the probe inline").

Industrial probes



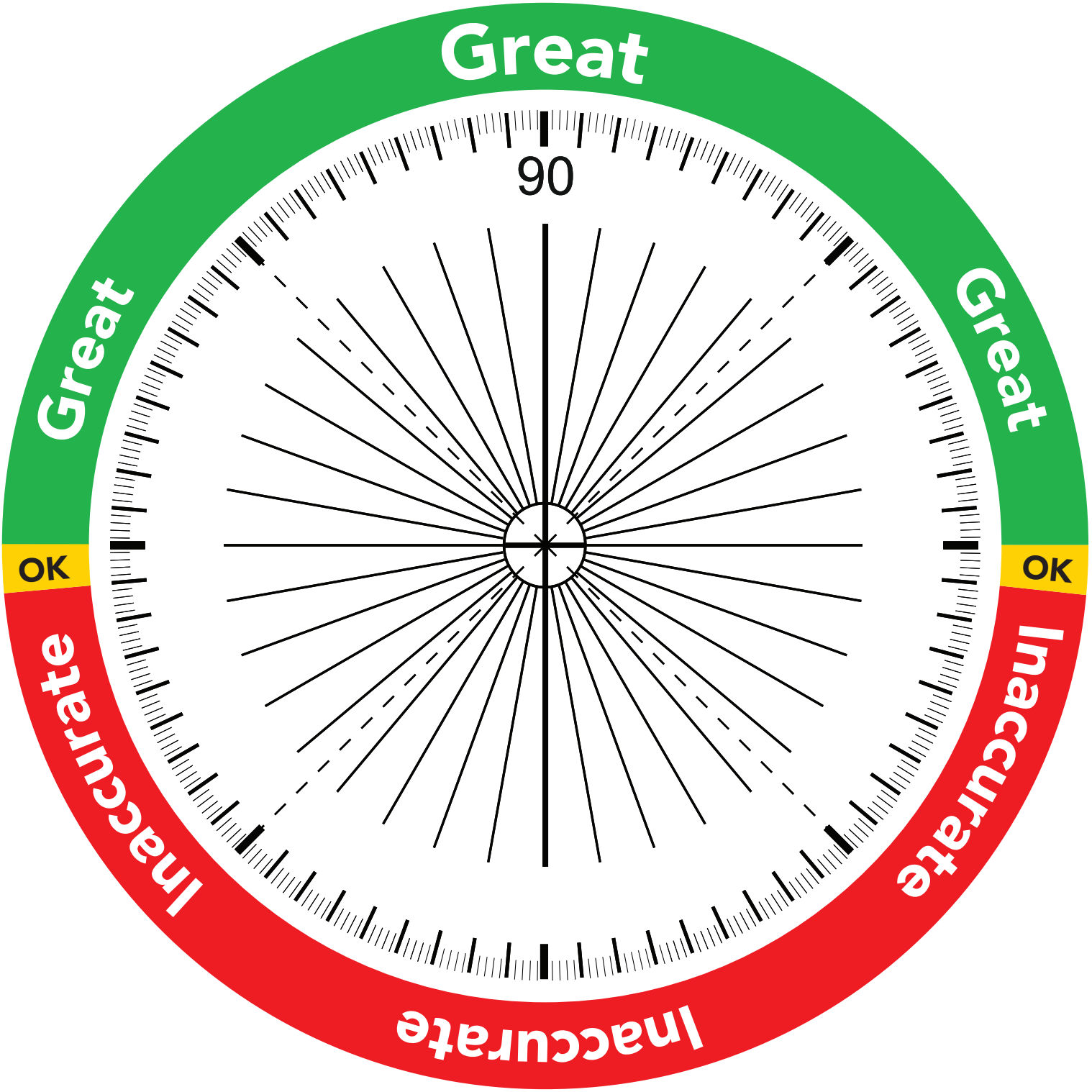
Laboratory size probes



Max flow rate = none
There is no maximum flow rate. These probes can take accurate readings at any flow rate.
(Extreme flow rates will damage the probe. If the flow rate is strong enough to break your finger it will break the probe too).

Minimum flow rate = Only the Dissolved Oxygen probe needs moving water.
In stagnant water, the readings will read lower than normal. The minimum flow rate for Dissolved Oxygen can not be easily quantified. The slightest movement will correct the problem. All other probes can take accurate readings in stagnant water.

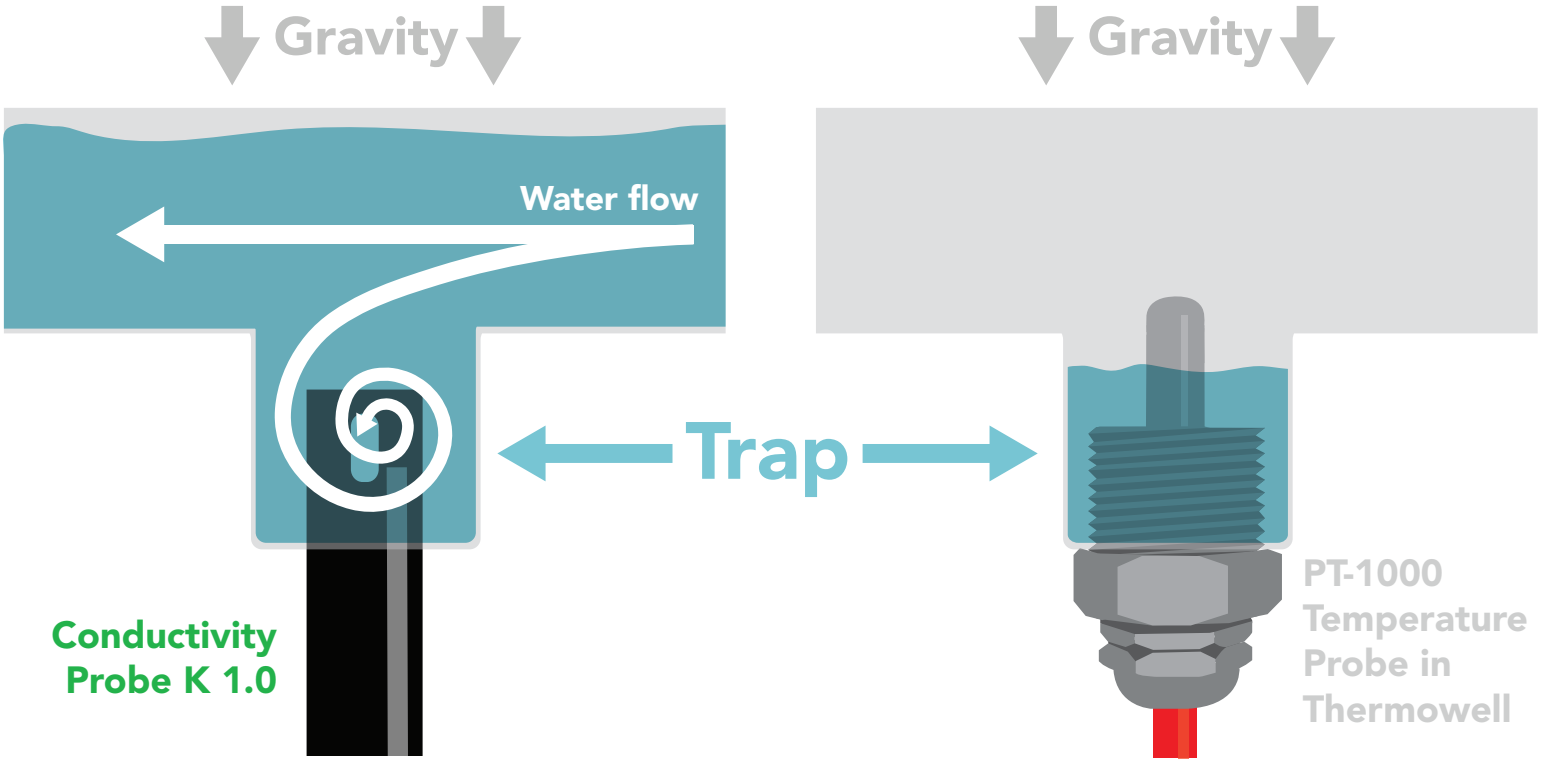
Mounting at an angle



This illustration shows what angles work best when mounting a probe inline.

Common problem I

Water trap

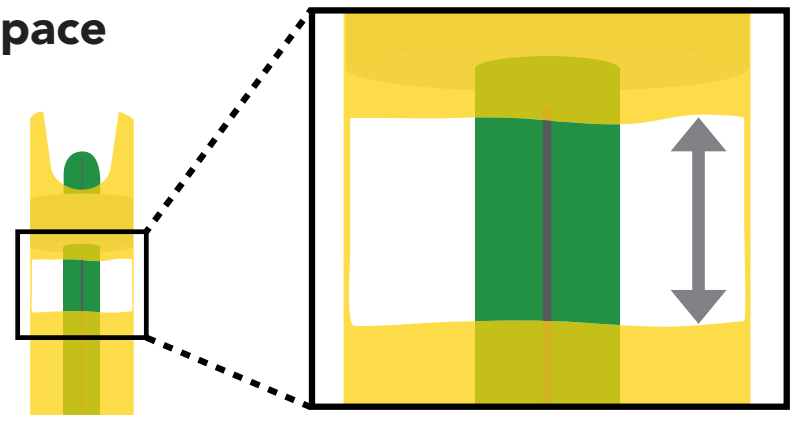


Water will collect in a trap. This water will move much slower than the rest of the water in the pipe. Your readings will seem to move slowly or become stuck. It will appear that the readings are flow rate depended *(which they are not)* because increasing the flow can get the readings to normalize. In reality, increasing the flow rate is simply clearing out the water stuck in the trap faster.

Although increasing the flow rate may seem like a simple solution, you will always be left questioning the readings, never knowing for sure if the readings are correct.

Mounting probes that contain a conductive gel *(such as pH, ORP, or Dissolved Oxygen)* upside down can lead to serious issues. In this position, the gel can settle to the lower end of the probe, creating a "void space" inside. Once a void forms, proper contact is lost, and the probe's readings become unreliable. This problem does not occur with Conductivity or Temperature probes, as they do not use a conductive gel.

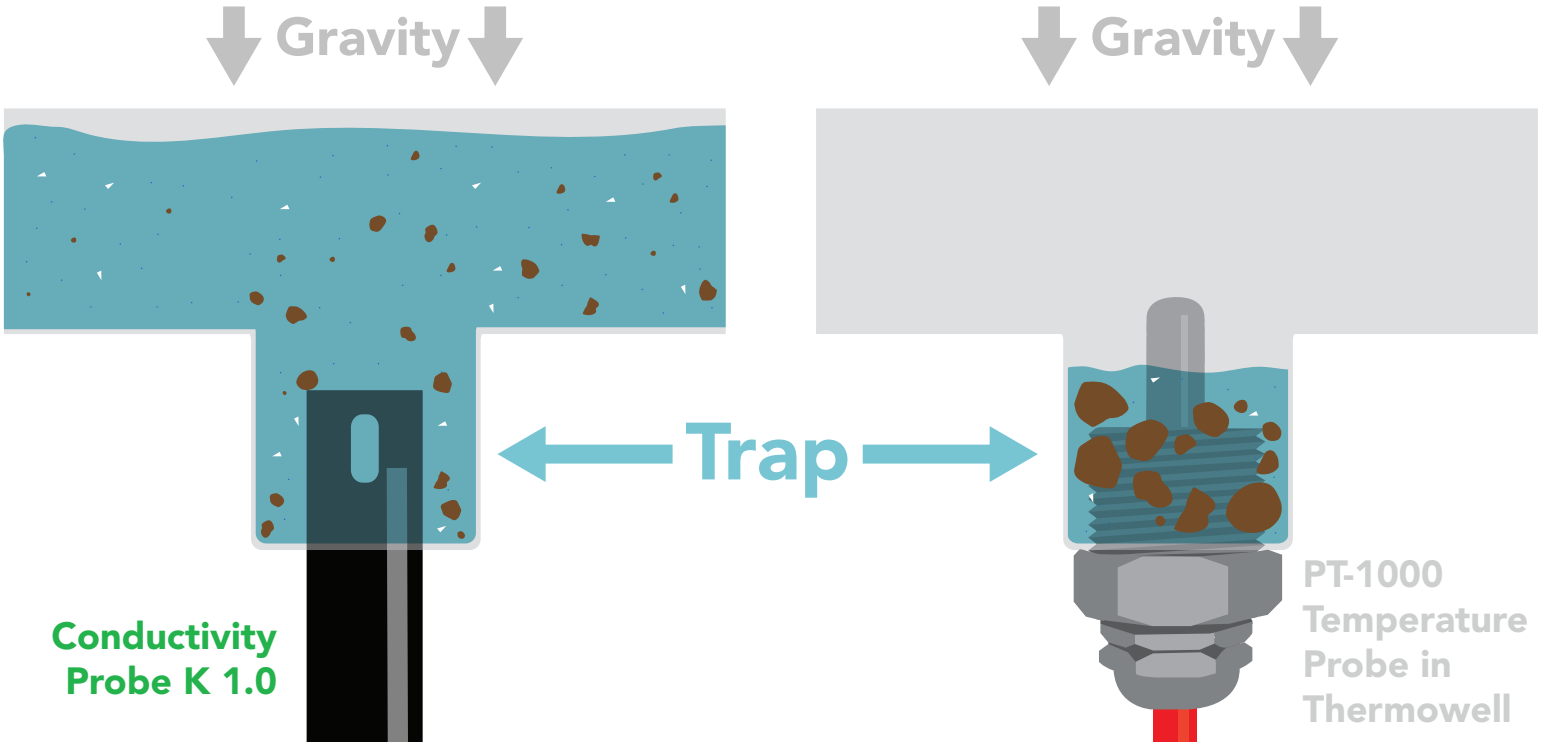
Void Space



AtlasScientific™ Environmental Robotics

Common problem II

Debris trap

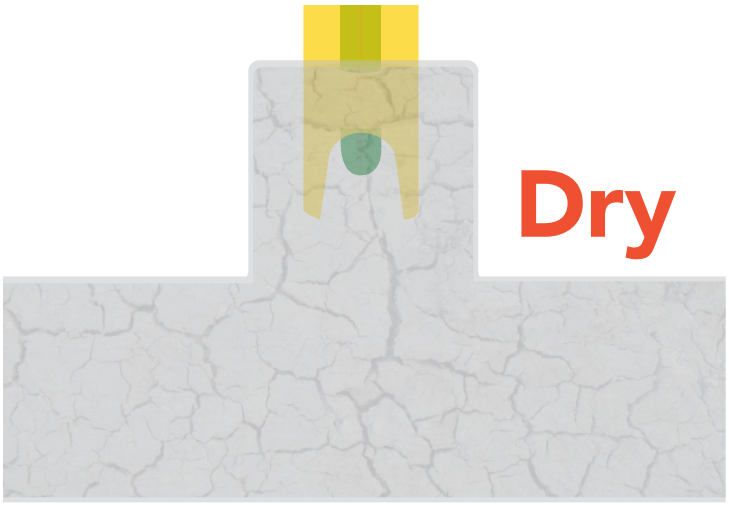


It is with 100% certainty that debris will collect in the trap. Depending on what the probe is used for that debris could be undissolved chemicals, sand, mud; you name it. Whatever it is, it is guaranteed to affect your readings.

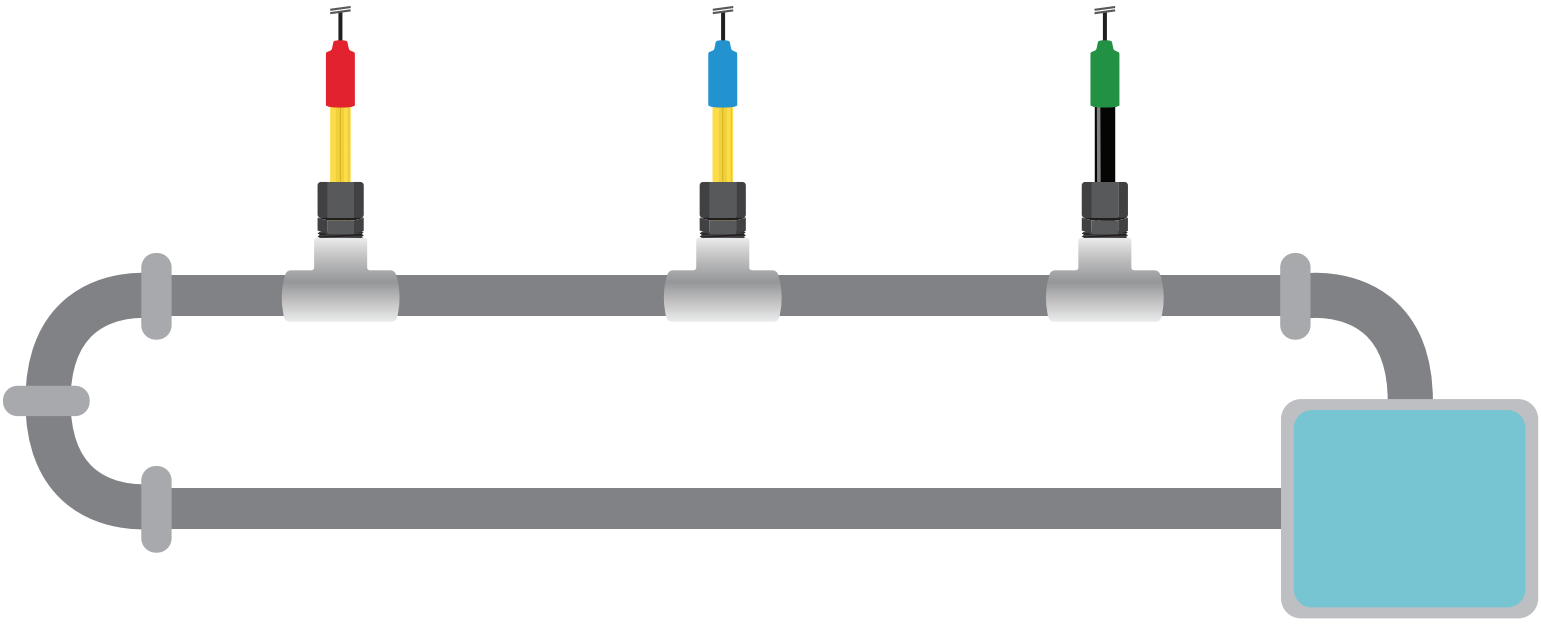
Common problem III

Probe drying

Some probes *(like pH)* can not be stored dry. A common concern is that if the probe is mounted vertically and the water flow stops the probe will dry out. Although the concern is valid, as long as the probe is kept in a high humidity environment, it will not dry out. This is quite easy to do, and it does not require you to measure the humidity levels in your pipe. As long as the probe is in a closed system, the probe will not dry out.

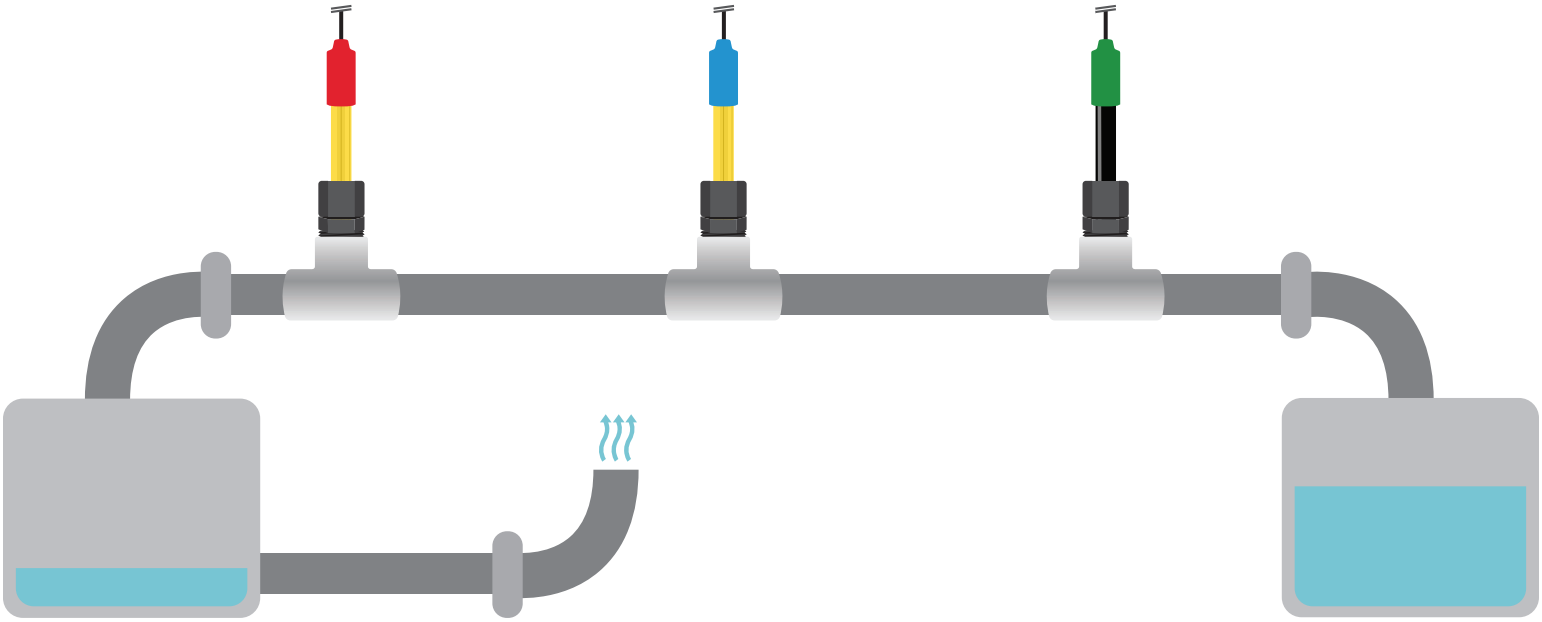


Closed system



In a closed system the probes will never have an opportunity to dry out. The humidity in the pipes will be around 100% even if no water is flowing.

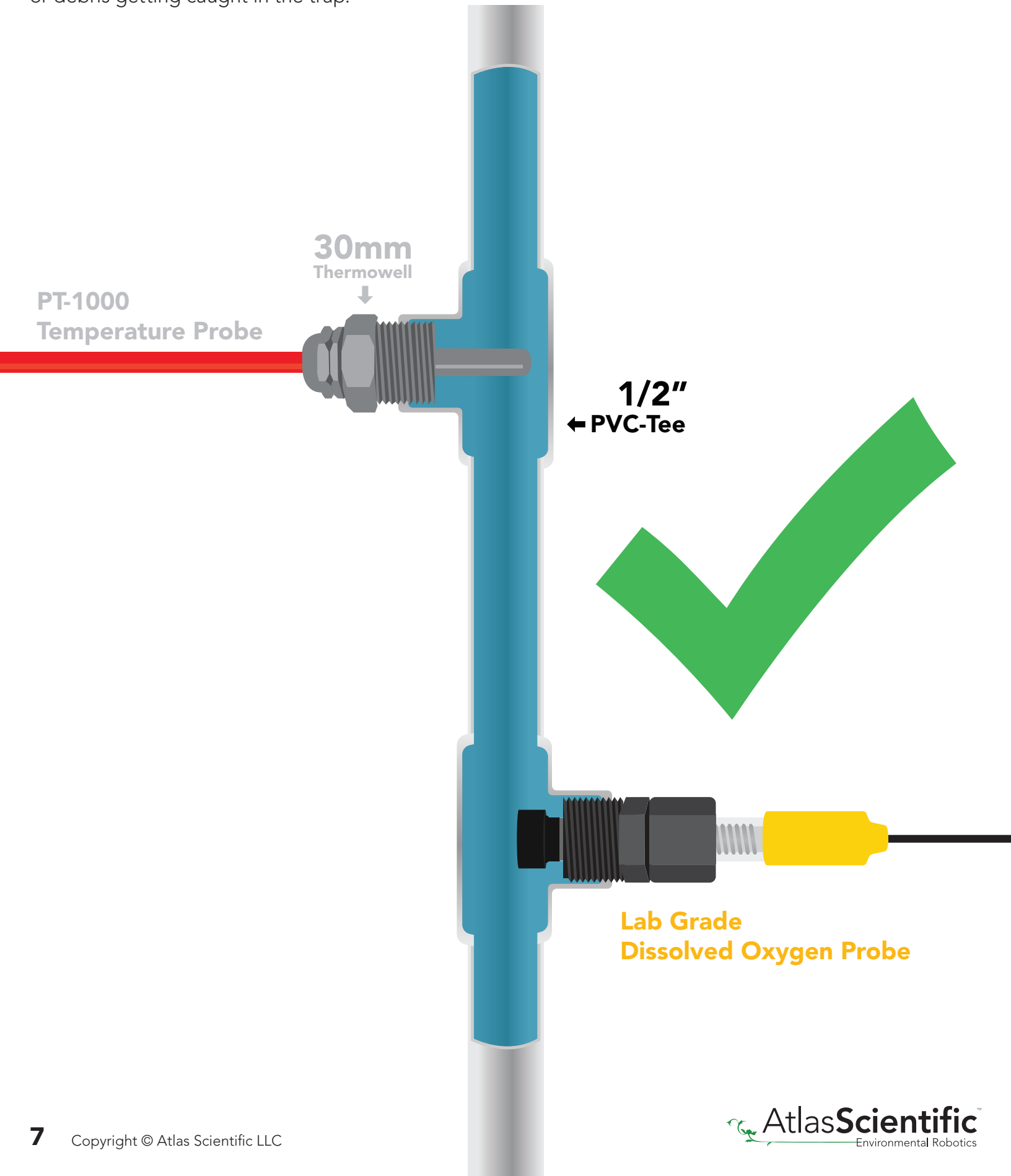
Open system



In an open system the probes can dry out. You will need to engineer a solution to this problem.

Mounting probes into a vertical pipe

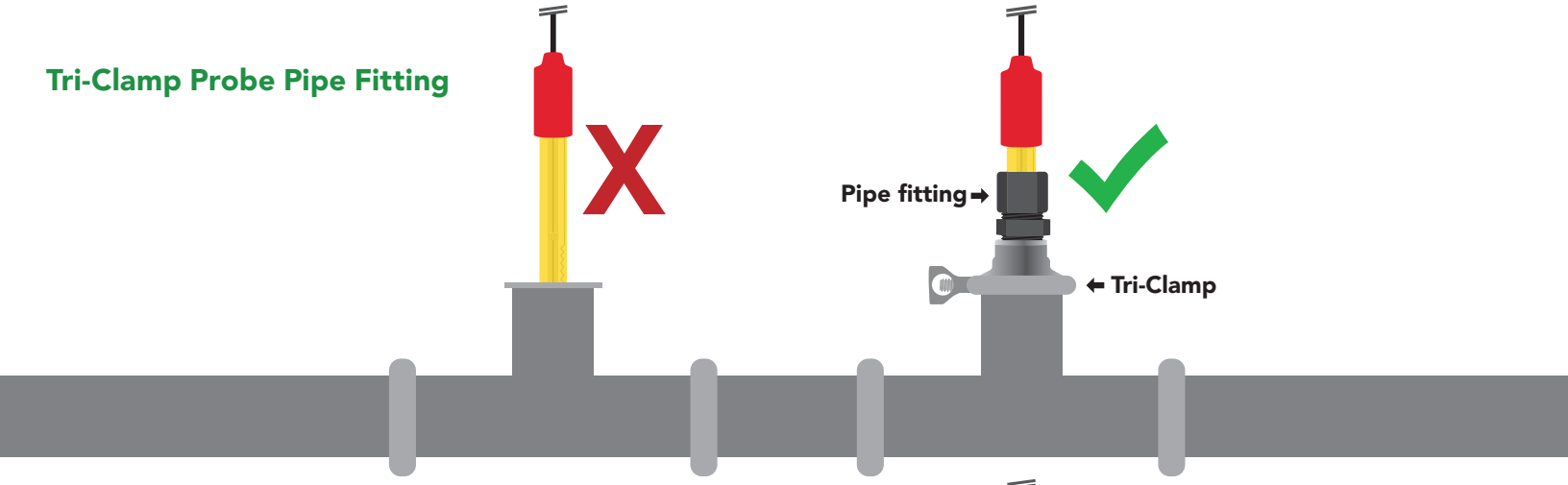
Mounting probes into a vertical pipe is simple; you don't have to worry about water or debris getting caught in the trap.



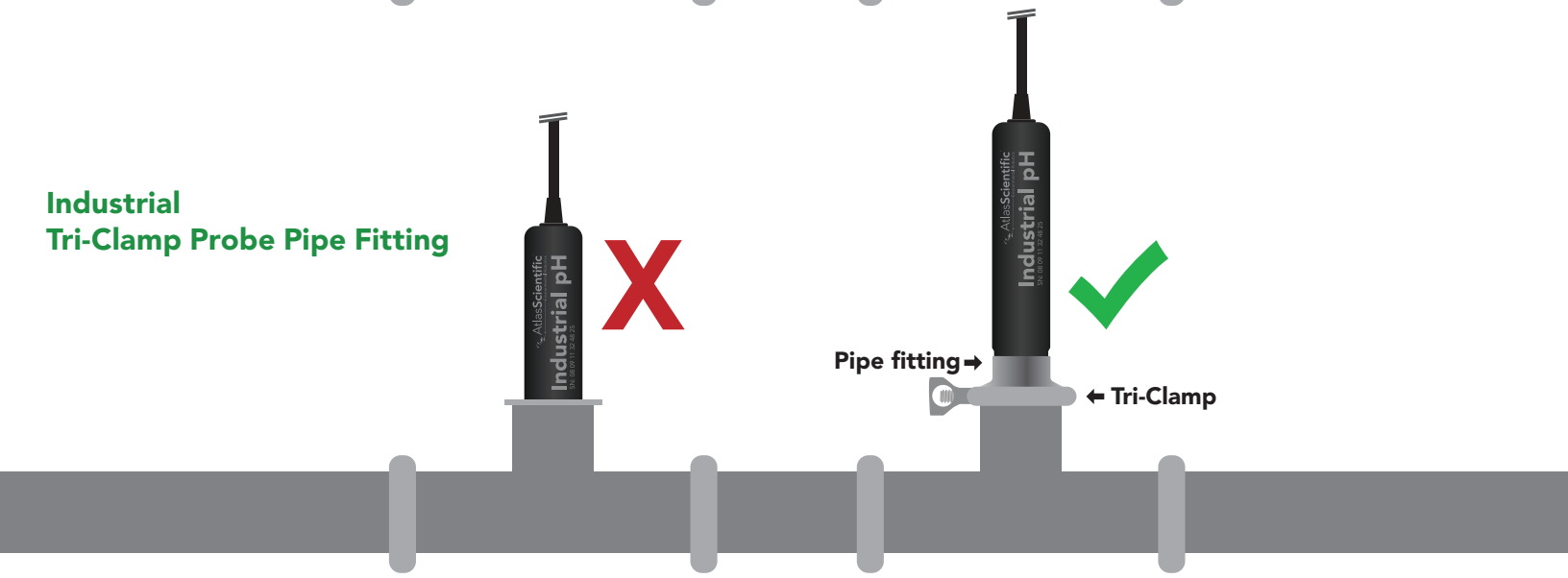
Sanitary fittings

Mounting probes into Sanitary fittings *(also known as Tri-clamp fittings)* is incredibly easy, thanks to our Tri-clamp and Industrial Tri-clamp probe pipe fittings. These pipe fittings connect to any 1.5" *(50.5 cm)* standard sanitary pipe.

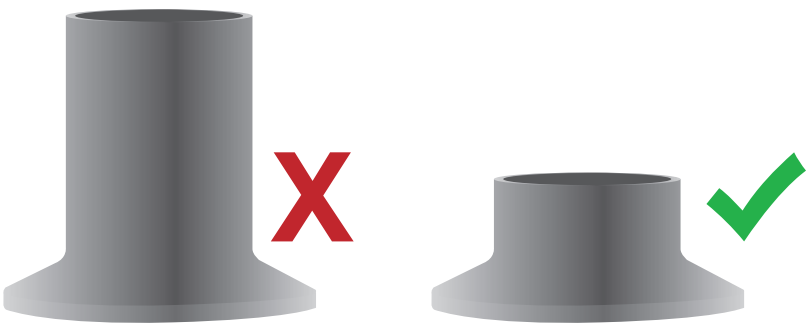
Tri-Clamp Probe Pipe Fitting



Industrial Tri-Clamp Probe Pipe Fitting



If you plan to use your own sanitary fitting connectors, ensure that the connector is low-profile or designed as a sensor adapter. Using a standard height fitting may create a stack-up that is too tall for the probe to be placed correctly.



Standard height fitting **Low-profile fitting**

AtlasScientific™
Environmental Robotics