

## Questions and Answers related to the “Cost-Effective Installation of Small Sensors on Insulated Pipes” project

### **How precise must the longitudinal positioning of the sensor be?**

We are not looking for a very high accuracy of the longitudinal positioning of the sensors. Let's say 20 mm if you have to give a number

### **How precise must the 6 o'clock positioning of the sensor be?**

We are not looking for a very high accuracy of the circumferential positioning of the sensors either. Let's say 20 mm if you have to give a number

### **Can the sensor be redesigned?**

Yes but only if it has a high impact on the installation cost.

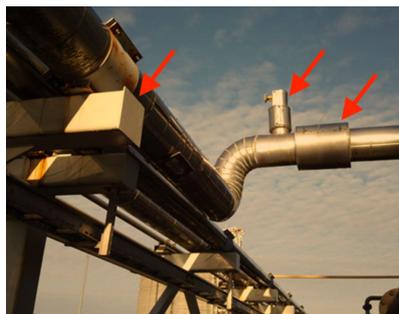
### **Are sensors placed on vertical pipe sections? The Annex 2 image points to sensors on the side wall, but the description only calls for sensors on the bottom of the pipe.**

Sensors may be installed on vertical sections. However, for the trial, the sensors will be installed only on horizontal sections.

### **How are the sensors held in place? The graphic of the sensor shows what appears to be a thread in the middle of the sensor, but a threaded fitting seems unlikely. If they are push fit, do they require adhesive?**

It is correct that the sensor will be screwed. We are currently looking for an easier system (clips, no adhesive), but nowadays, the sensors are held in place with the threaded fitting.

### **What is the width of the short vertical pipe in picture 2 (see picture)?**



At the thickest, approx 250mm

**What is the width of the supporting beam in picture 2? 200mm**

**What is the diameter of the collar in picture 2? approx 450mm**

**Does a solution need to navigate any worse obstacles than shown in the photos, either above or beneath the pipe?**

The test tube is as shown in the pictures but Yes, for the final solution there will be worse obstructions on all sides of the pipes and the diameter of pipes will also vary

**There appear to be fasteners/straps around the pipe about every meter. Please confirm.**

Yes, there are stainless steel straps around the cladding approximately every meter and on flange and valve boxes

**Do you have any other CAD format for the 3D model? We do not use Navisworks. Could you supply the model in DWG, STEP or 3dm format?**

We can convert the 3D file in the following file formats:

- 3D DWF/DWFX
- FBX or
- Google Earth KML

**Maximum height the pipeline reaches?**

The Test pipe shown in the 3D model has a max height of approx 4.0 meters

**Does the pipeline transverse accessible areas for the entirety of its span?**

The entire test area the pipe goes through is about 15 x 15 meters and is available at ground level

**What type/grade of stainless steel is used as the cladding as this will determine the tensile strength?**

Type/grade is SS316 stainless steel , thickness from 0.5 to 0,9mm

**Can the sensor resist shock loads?**

The sensors are not dimensioned to resist shock loads. Their resistance to this kind of load is unknown