RHOSONICS
Proven Process Insights

MANUAL
CLAMP-IN INSTALLATION INSTRUCTION

Clamp-in Installation instruction

Required tools:

1. Wrench size 8, and 24
2. Drill
3. Hex keys size 2.5 and 4
4. MoS2 Grease 2

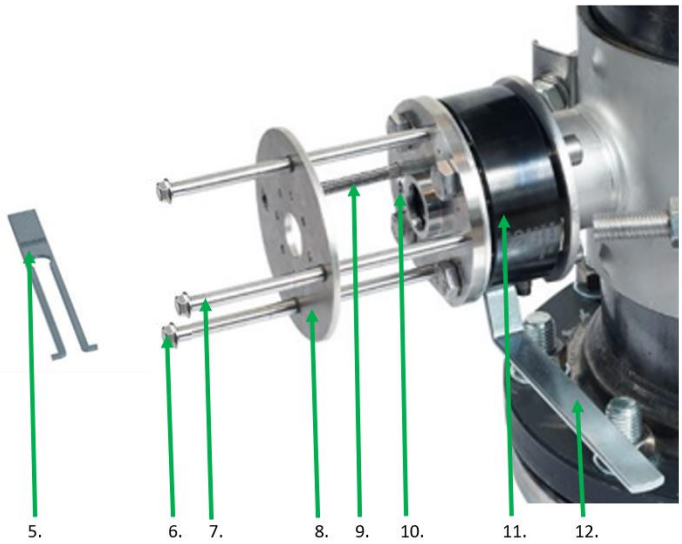



Danger: Maximum pressure for this product is 10 to 16 bar depending on the pipe size. 16 bars for DN40 to DN150/10 bars for DN 175 to DN300. Maximum pressure for mounting and dismounting sensor is 3 bar. For this installation there cannot be any pressure and the pipeline must be shut down.

Important note: Please do not throw away the 3 extension guiders with 3 safety nuts. They are needed in the future to remove the sensor when needed.

Clamp-in Installation instruction

Product description:



1. SDM Analyser
2. SDM Sensor
3. SDM sensor flange
4. Saddle
5. Measuring tool sensor distance
6. Safety bolts (This product has 3 safety bolts)
7. Extension guiders (This product has 3 extension guiders)
8. Clamp-in flange
9. Guider with screw thread (This product has 1 guider with screw treat)
10. Bleed nipple (for pressure relieve)
11. Ball Valve
12. Handle for operating ball valve

Clamp-in Installation instruction

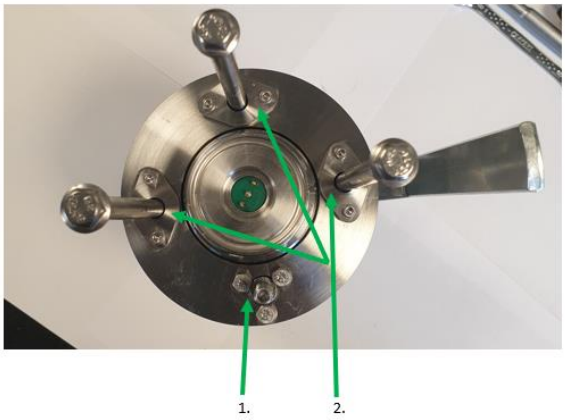
Development updates:

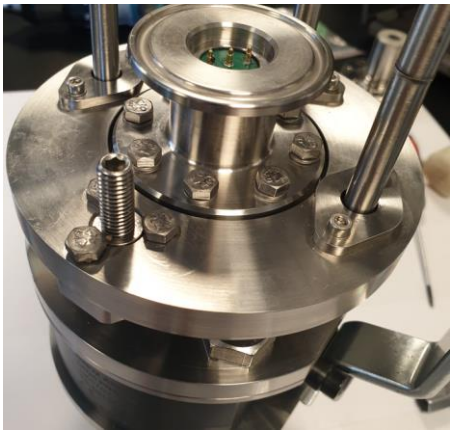
1. **Updated clamp-in flange.**
2. **The 3 safety bolts are fastened making it 1 part.**
3. **The drill tool is improved.**
4. **Allen screw is added to secure the threaded adapter.**

1. After the first field tests, improvements have been made to the design that affect the images and operation in this manual. Keep this in mind when reading this instruction.

The following improvements have been made and can be seen in the pictures below:

- Ball bearings are fitted to the clamp-in flange to make it easier to slide the flange over the 3 extension guiders.
- The 3 safety bolts are fastened to the extension guiders. They now exist of 1 component to ease up the procedures and to decrease the risk of losing parts.
- The thread in the clamp-in flange has been replaced by a threaded adapter which is replaceable and has the advantage that the position of the sensor is preserved when it is disassembled for maintenance.



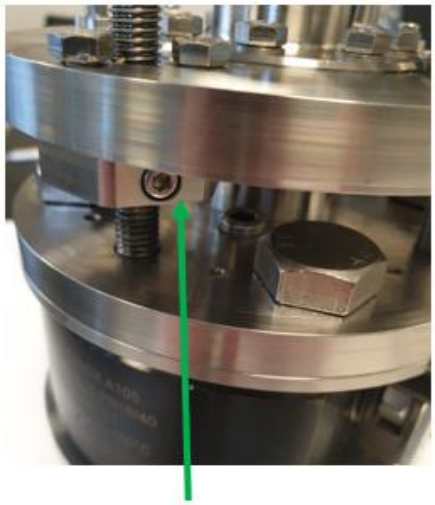


1. Replaceable threaded adapter
2. Ball bearings for extension guiders

2. The 3 safety bolts are fastened to the extension guiders making it 1 part.

3. The drill tool is improved which makes it more resistant to heat transfer. A hexagonal head is added, it replaces the round steel flange and makes it easier to assemble and disassemble the drilling tool.

4. Allen screw to secure the threaded adapter and to maintain the height/flush position of the sensor during disassembly for maintenance.



Important note: Make sure that the Allen screw is tight or loose depending on the procedure you are performing.

- If the clamp-in flange with replaceable threaded adapter must be removed as a whole and the Allen screw is threaded tight, this will damage the thread beyond repair.
- If the clamp-in flange must be removed without the replaceable threaded adapter and the Allen screw is not tight the correct sensor position will be lost.

Clamp-in Installation instruction

Installation instruction:

1. Clamp the saddle on to the pipe where the SDM will be installed.
   - Clean the surface of the pipe and make it free of rust, soil and sand.
   - Check the SDM manual for the correct orientation and determine the correct location on the pipe.
   - Wet the rubber and pipe with a lubricant for example water. Don't use grease or oil based lubricants!

Important note: For the correct orientation on the pipe see the SDM manual first.

2. Fasten the 2 nuts of the saddle and tighten the nuts evenly alternately, increasing by 20Nm with a wrench size 24. (makes sure the threaded ends are clean)

Tightening torque:
90Nm for diameters smaller than 150mm
110Nm for diameters equal to or greater than 150mm
Wait for 20 minutes and tighten again to the desired torque value.

3. Insert the drill tool and tighten until it is fully seated in the saddle.

Clamp-in Installation instruction

Danger: Make sure there is no pressure on the line before you start drilling.

4. Use a drill and the supplied drill bit to drill a hole in the pipe. When the hole is drilled, remove the drill tool and clean thoroughly and make sure that no residue is left in the thread of the saddle. Use for example an air compressor or vacuum cleaner.

Danger: Please be aware parts can become very hot from drilling causing burns if touched. Steel partials can be sharp make sure to use your PPE's.

Clamp-in Installation instruction

Important note: Clean after drilling and make sure no particles are left in the threads. Any residue left will damage the threads and result in incorrect installation or damage the product beyond useability.

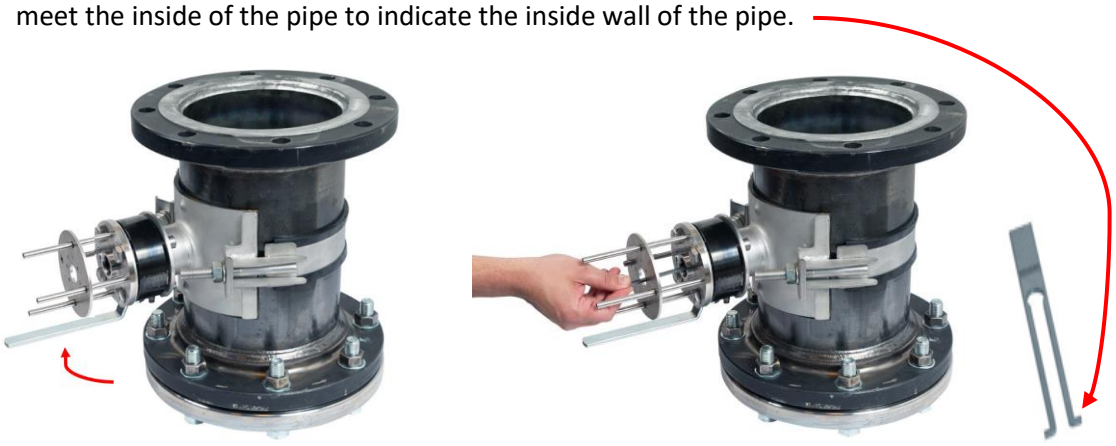
5. Grease the threads of the ball valve and the threads of the saddle. Place the ball valve and tighten firm by hand until the ball valve is completely in the saddle.

6. Place the 3 extension guiders.

7. Place the clamp-in flange until you reach the guider with screw thread. Screw the clamp-in flange a little bit by turning the guider with screw thread with Hex key size 4 to keep it in place. In the next 2 steps you can see how the distance is determined.

Important note: It is very important for the operation of the SDM that the sensor is flush with the inside wall of the pipe. A measuring tool for sensor distance is included to determine the correct distance.

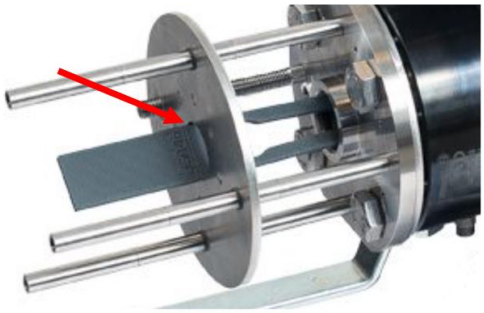
8. Open the ball valve and place the supplied measuring tool for sensor distance true the ball valve into the pipe. The angled points at the end of the measuring tool for sensor distance meet the inside of the pipe to indicate the inside wall of the pipe.



9. Tighten the clamp-in flange by turning the guider with screw threat using hex key 4 until it matches the line marking on the supplied measuring tool for sensor distance. Make sure the

angled points stay on the inside wall of the pipe. This can be checked by pulling the measuring tool for sensor distance back gently.

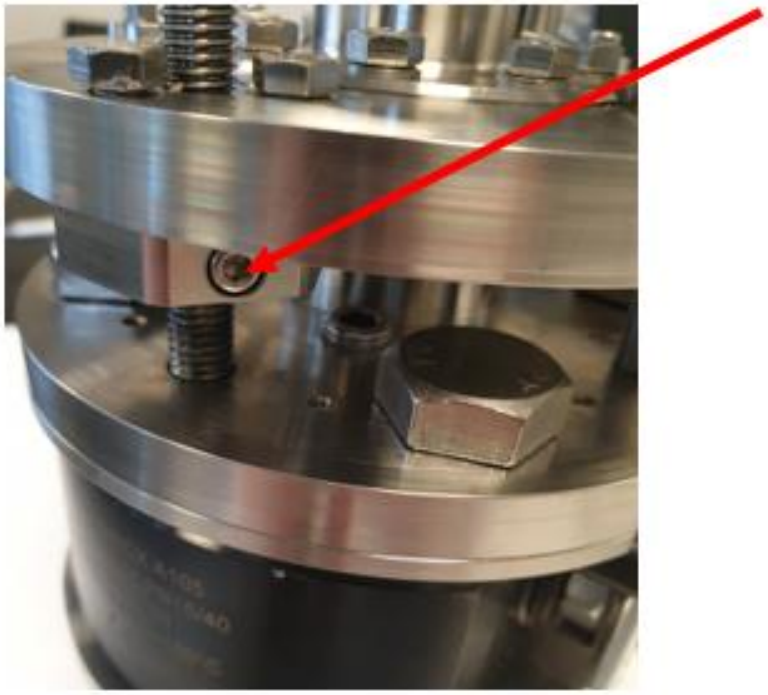
The clamp-in flange may become skewed during tightening. Should this happen, do not over tighten the guider with tread, but align the clamp-in flange by pushing it in by hand. After the clamp-in flange has been aligned, tightening the guider with tread should be smooth again.



Important note: Guider with screw tread can damage due to skewing of the clamp-in flange and damage the product beyond useability.

10. Place the sensor in the clamp-in flange and tighten the 8 bolts to 4.2nM with a wrench size 8.

11. Tighten the Allen screw to secure the threaded adapter and to maintain the height/flush position for the sensor during disassembly for maintenance purposes.

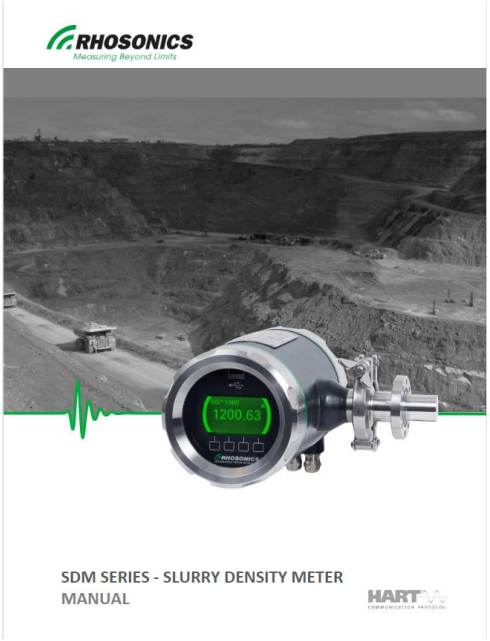


12. Remove the 3 extension guides and keep them stored in order to disassemble the sensor in the future when needed.

Important note: Disconnect the power supply of the SDM before doing any work. Be very careful with the 3 golden spring-loaded contacts of the sensor (see red arrow). Make sure

they are not damaged, get wet or dirty. This could result in a problem with the ultrasonic measurement of the SDM. Protect it, for example, by covering it with plastic or tape.

The clamp-in installation instruction is complete follow the SDM manual to place the SDM analyzer onto the sensor.



Important note: Please do not throw away the 3 extension guiders with 3 safety nuts. They are needed in the future to remove the sensor when needed.

Revision	Date	Description
1	16-9-2021	Concept
2	21-9-2021	Document ready for prototype
3	24-2-2022	Update after field test prototype
4	17-5-2022	Improved drill tool
5	01-07-2022	First release

RHOSONICS
Proven Process Insights

ADDRESS
Hoge Eng West 30
3882 TR Putten

CONTACT
+31 341 37 00 73
info@rhosonics.com