



MANUAL **CLAMP-IN DISMOUNTING** **AND MOUNTING SENSOR**

Clamp-in dismantling and mounting sensor.



Required tools:

1. Wrench size 8 and 10
2. Pipe wrench size 8
3. Hex keys size 2.5, 4 and 5



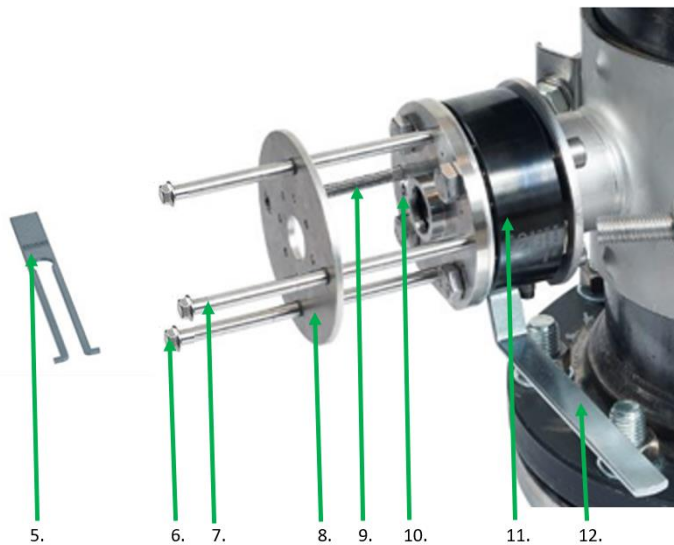
Danger: Pressure and process fluid can be dangerous for humans make sure to follow safety procedures.



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 dismantling sensor is 3 bar.

Product description:

Clamp-in dismounting and mounting sensor.



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

Development updates:

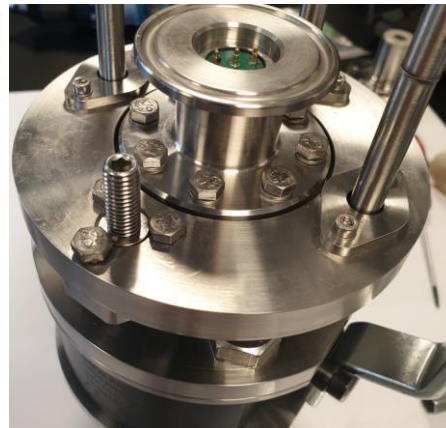
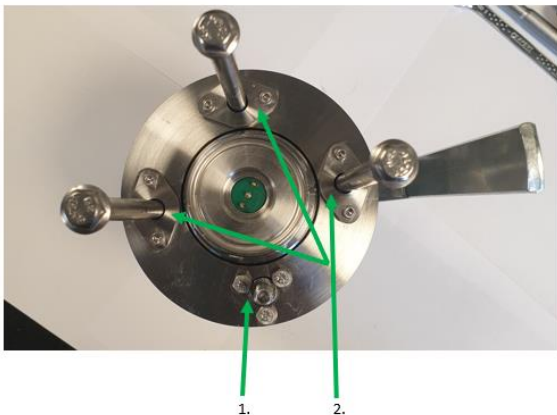
Clamp-in dismounting and mounting sensor.

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- The thread in the clamp-in flange has been replaced by a threaded adapter which is replaceable and has the advantage that the position of the sensor is preserved when it is disassembled for maintenance.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.

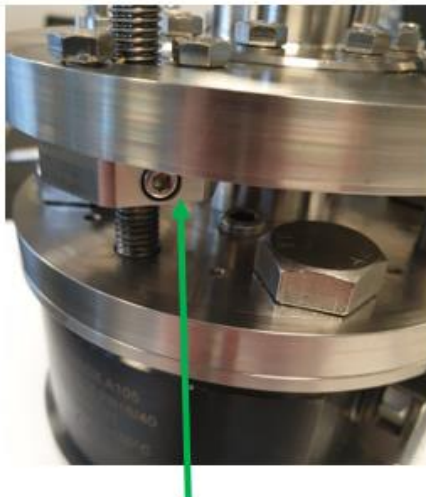


Clamp-in dismounting and mounting sensor.

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 dismounting and mounting sensor.

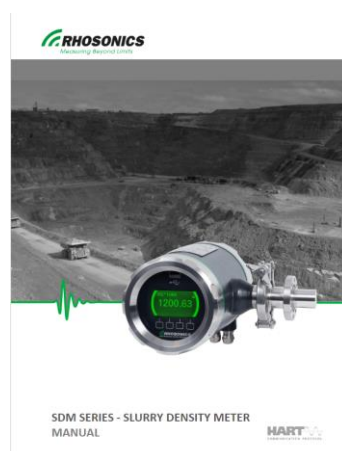
Dismounting sensor:

1. Remove the SDM analyser from the SDM sensor.



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.

Read the SDM manual for instructions on dismounting the SDM analyser.



Clamp-in dismounting and mounting sensor.

2. Check whether the Allen screw with Allen key size 2.5 of the threaded adapter is (still) tight. Hand tight is sufficient, the aim is for the threaded adapter to remain in place during the disassembly of the sensor.



3. Place the 3 extension guiders with safety bolts with a wrench size 10. Make sure the safety bolts and the extension guiders are attached before starting the sensor assembly.



Danger: Be aware that there is pressure when pipeline is alive behind the sensor when dismantled. The maximum pressure for dismantling the sensor is 3 bar.



Danger: For safety precautions do not stand in front of the sensor when it is being dismantled.

Clamp-in dismounting and mounting sensor.

4. Unscrew the 3x M5 bolts from the replaceable threaded adaptor with a (pipe) wrench size 8. When using a wrench, be extra careful not to damage the screw thread.



The advice is to use a pipe wrench (picture 1). When using a wrench (picture 2), be extra careful not to damage the screw thread!

1. Pipe wrench



2. wrench



If there is pressure on the pipeline, the sensor with clamp-in flange will be pushed out due to the pressure.



Clamp-in dismounting and mounting sensor.



Danger: Fingers can get stuck between the clamp-in flange and safety bolts during dismounting under pressure.



Danger: Pressure and the process fluid can be dangerous for humans make sure to follow safety procedures.

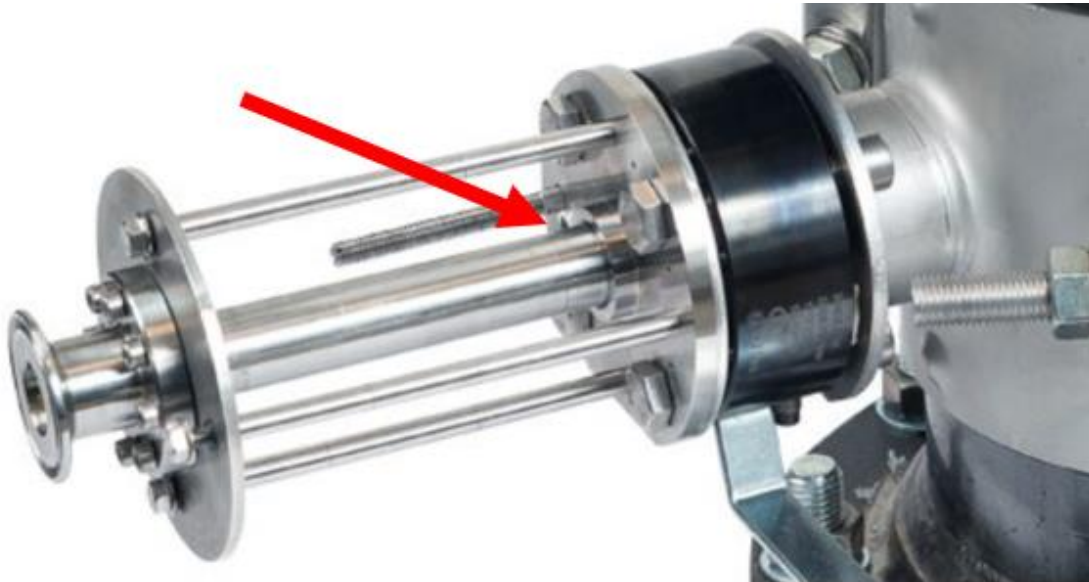
5. Close the ball valve and lock the handle for operating the ball valve.



Danger: Make sure the ball valve is locked and cannot be opened unintendedly.

Clamp-in dismounting and mounting sensor.

- 6.** There is still some pressure on the sensor when ball valve is closed, please open the bleed nipple with Hex key size 5 to release the remaining pressure in the chamber of the ball valve. Close bleed nipple when pressure is relived.

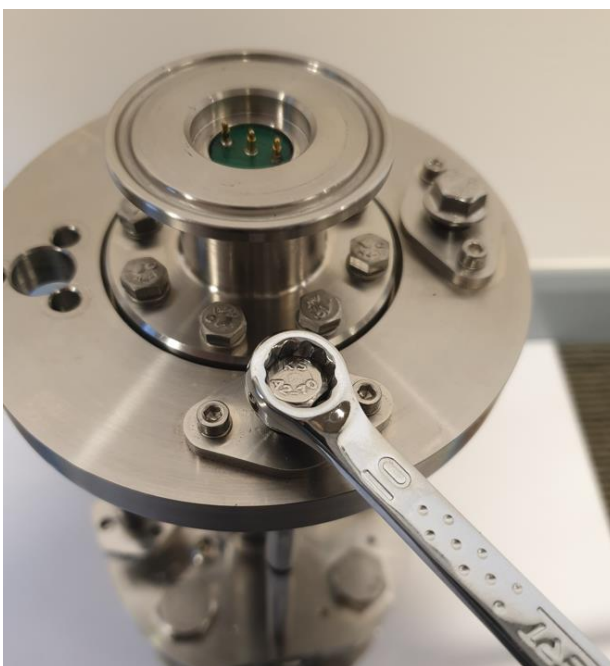


Important note: The bleed nipple is very small and can fall out if it is turned out too far.



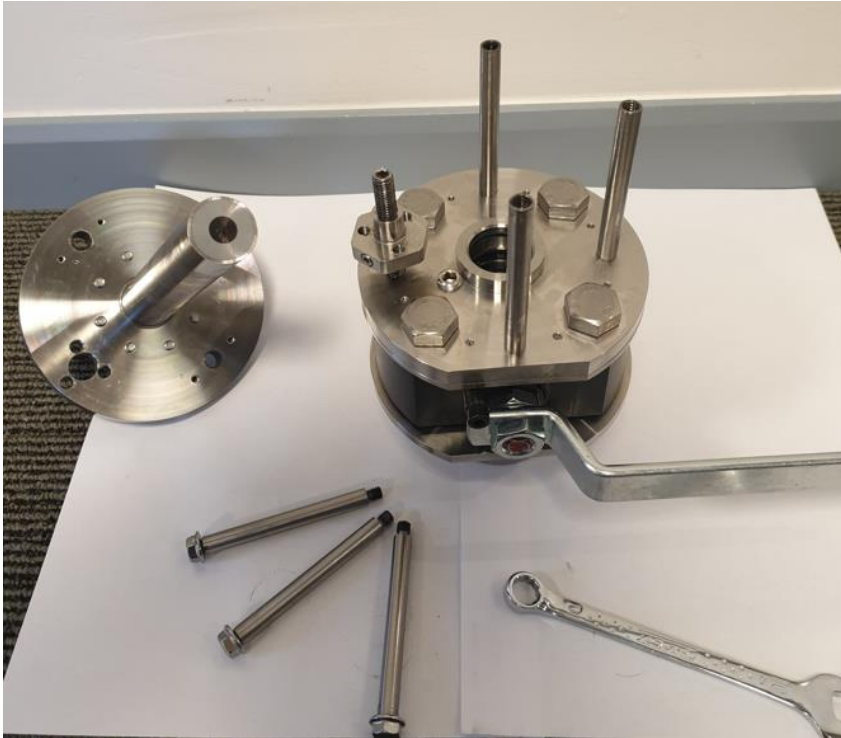
Important note: Do not forget to close the bleed nipple when pressure is relived.

- 7.** Unscrew the 3 safety bolts and extension guiders with wrench size 10 and remove the sensor.



Clamp-in dismounting and mounting sensor.

- 8.** Take out the sensor. When sensor needs to be replaced remove the sensor from the clamp-in flange with wrench size 8.



- 9.** Dismounting sensor completed. Remove the 3 extension guiders when sensor is not replaced immediately. Store the extension guiders and safety bolts for future use.



Clamp-in dismantling and mounting sensor.

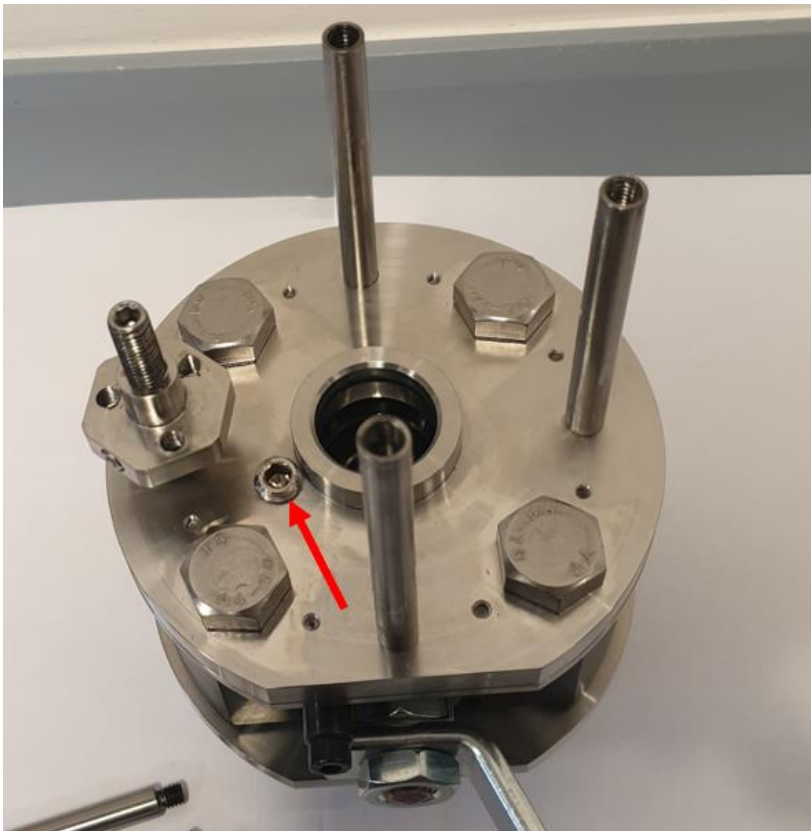
Mounting sensor:

1. Mount the sensor on the clamp-in flange with wrench size 8.



Important note: 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.

2. Make sure bleed nipple is in place and closed with Hex key size 5.

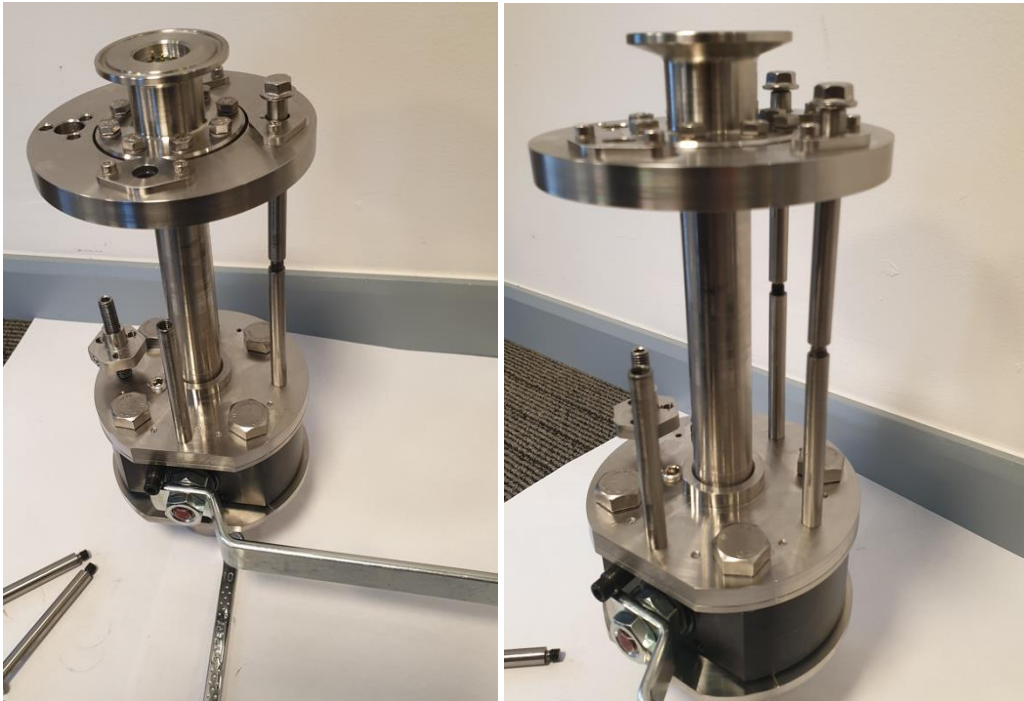


Clamp-in dismounting and mounting sensor.

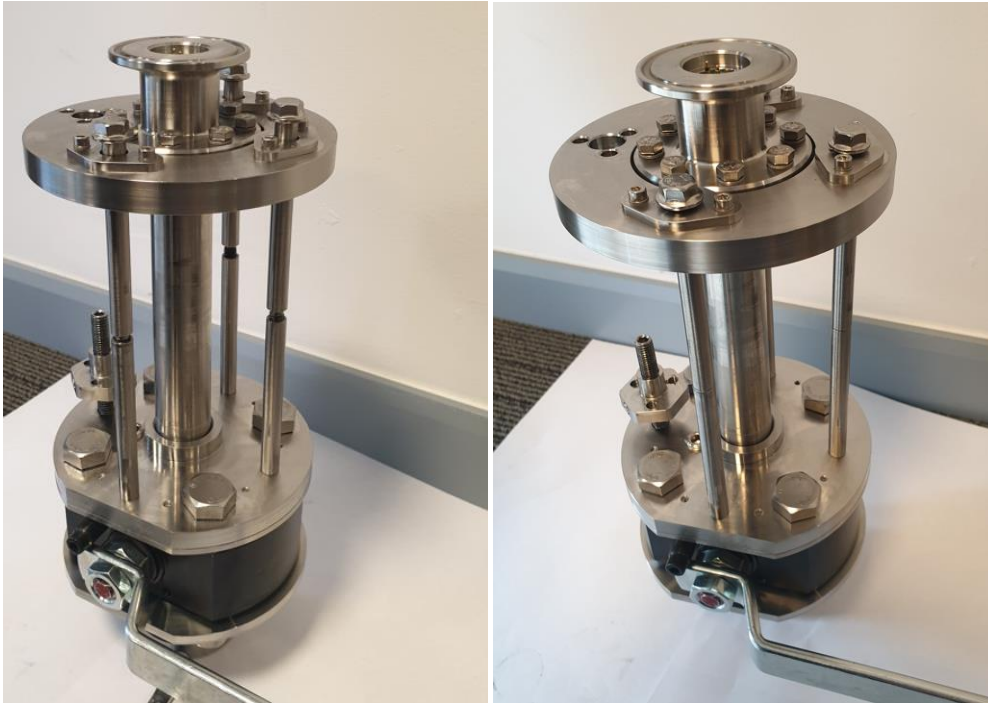
- 3.** Forward the sensor with clamp-in flange into ball valve.



- 4.** Place the 3 safety bolts with the extension guiders. Tighten lightly with wrench size 10.



Clamp-in dismounting and mounting sensor.



Danger: Be aware that there could be pressure on the pipeline when you open the handle of the ball valve. The maximum pressure for mounting the sensor is 3 bar.



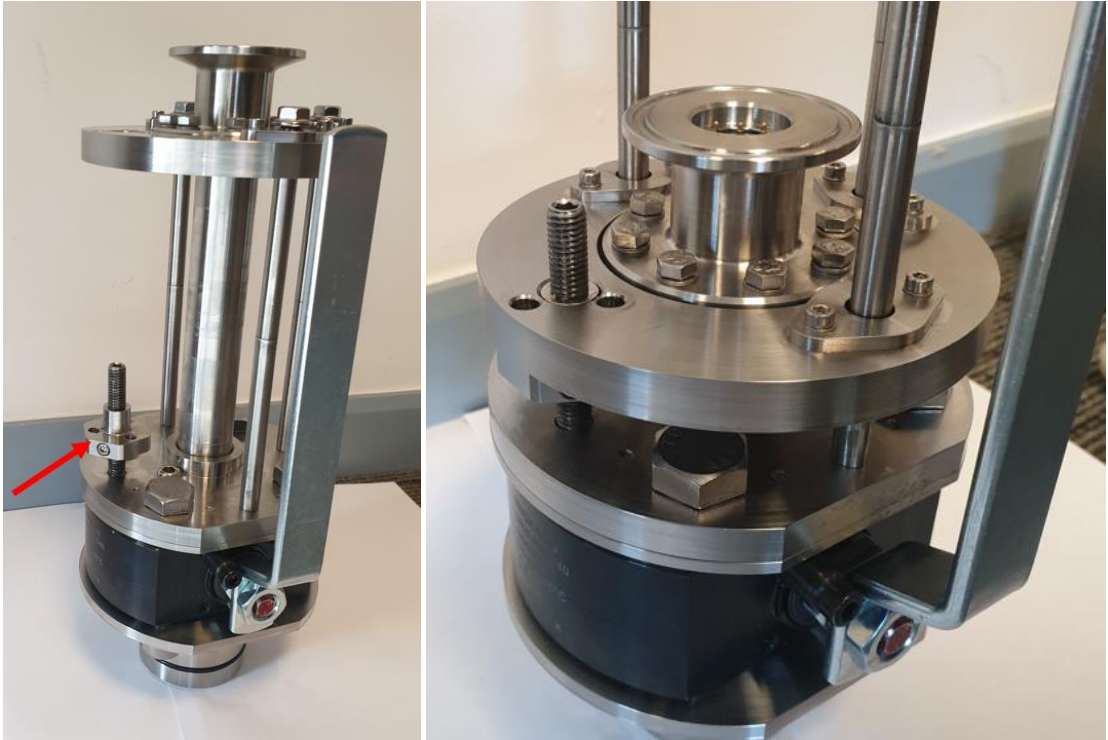
Danger: For safety precautions do not stand in front of the sensor when ball valve is being opened.

5. Open the ball valve by turning the handle.



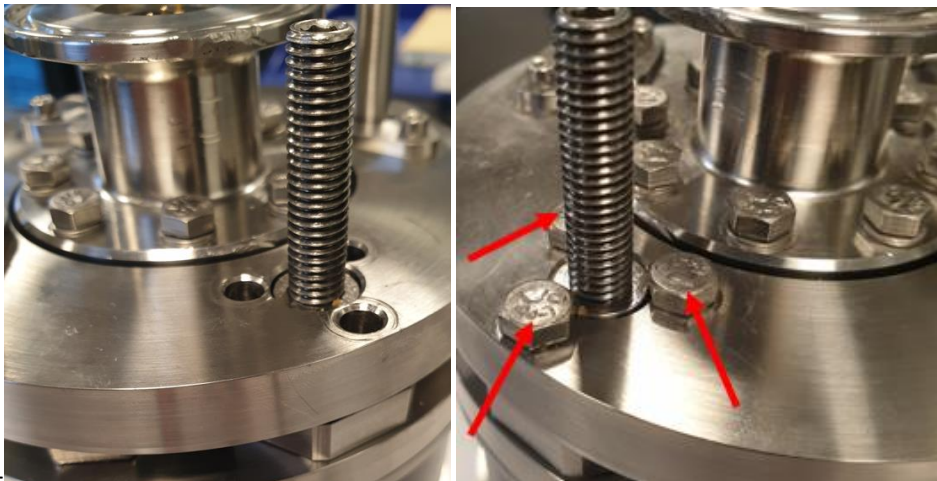
Clamp-in dismounting and mounting sensor.

- 6.** Push against the clamp-in flange to forward the sensor into the ball valve. Push until replaceable guider with screw thread is reached. Make sure to even the pressure on the clamp-in flange so it does not become skewed. Should this happen, do not over push, but check alignment of the clamp-in flange first.



Important note: Clamp-in can damage due to skewing of the clamp-in flange and damage the product beyond useability.

- 7.** Place the 3 x M5 bolts to secure the replaceable guider with treat on to the clamp in flange with pipe wrench size 8.



Clamp-in dismounting and mounting sensor.

- 8.** Remove the 3 extension guiders with safety bolts and keep them stored in order to mount or dismount the sensor in the future if needed.



- 9.** Replacement of the sensor is complete. Read the SDM manual for instructions the place the SDM analyzer onto the sensor.



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



ADDRESS
Hoge Eng West 30
3882 TR Putten

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