

# Cleaning Instruction for Low Pressure Sensors

## Introduction:

Because of the very small size of the sensor, the opening for the measured medium to the pressure element is a very small diameter. Therefore, residuals of the measured medium can block the entry to the pressure element or exert pressure on the pressure element which results in a signal damping or shift. In these cases, it is necessary to clean the sensor. Light soiling of the sensor does not influence the sensor signal.

It is recommended to use ultrasonic cleaning for devices with a serial number > 2600 for M5 sensors and > 2636 for M8 sensors, because through the cavitation bubbles produced by the ultrasonic bath, removing soiling from inside the small opening of the sensor is possible.

## NOTICE

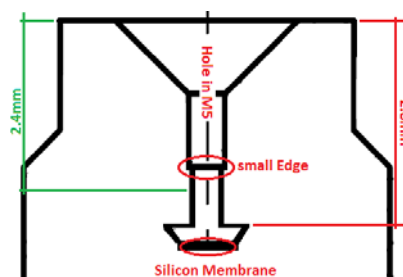
M5 devices with a serial number < 2600 and M8 < 2636 should not be cleaned by ultrasonic, because this cleaning procedure can cause a sensor failure. This is not a problem for serial numbers M5 > 2600 and M8 > 2636. For lower serial numbers repeat the cleaning procedure several times as explained below, but without the ultrasonic. If the sensor is still not clean, it is suggested to send it to AVL for service.

## Cleaning Materials:

- Ultrasonic Bath with the following parameters:
  - Ultrasonic Frequency: 37-45 kHz
  - Effective Ultrasonic Power: < 100 W
  - Ultrasonic Peak Power: < 240 W
  - Durability tested: > 15 h
- Cleaning Fluid: The kind of cleaning liquid depends on the soiling material of the sensor. It is recommended to use solutions with a balanced Ph and are compatible with various materials such as Gold, Nickel, Steel 1.4435, Tin, Silicone.
- Compressed Air to blow the cleaning liquid out of the pressure Transducer (< 10 bar absolute).
- Demineralized Water to eventually remove residues of the cleaning fluid.
- Syringe to fill the sensor with cleaning fluid.

## Cleaning Process for Pressure Transducer:

1. Fill the sensor with cleaning fluid.



To clean the sensor via ultrasonic bath, it is necessary for the cleaning fluid to fill the inside of the Sensor and reach the soiling / silicone membrane:

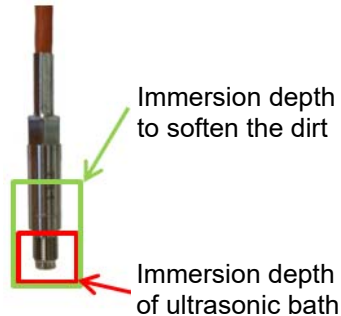
- Inject the cleaning liquid into the sensor by using a syringe and a very small needle.

## NOTICE

Be very careful not to damage the inside of the sensor or the silicone membrane itself. Do not go deeper than 2.4 mm into the hole.

2. Soften dry soil or soot (not necessary if the soil is liquid). If the soil is dried out and would not dissolve during the ultrasonic cleaning procedure, it is recommended to soften the soiling before the cleaning process:

After filling the sensor with cleaning fluid, partially submerge it into a container filled with cleaning fluid and let the dirt soften for a few hours.



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### NOTICE

Only put the sensor halfway into the cleaning liquid (the cable end of the sensor is not liquid proof).

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3. Put the thread of the M5 Sensor into the cleaning liquid of the ultrasonic bath.

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### NOTICE

The sensor must only contact the cleaning fluid. There must be no contact between the sensor and the container of the cleaning liquid.

Only the sensor threaded end is allowed to be submerged into the ultrasonic bath.

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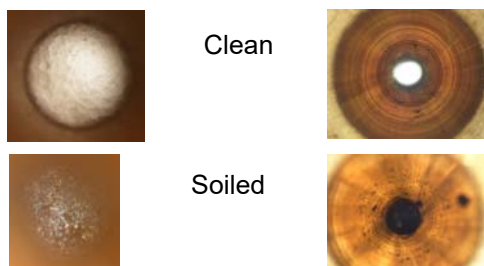
4. Depending on the amount of soil on the sensor, run the ultrasonic bath for 15 to 30 min.
5. Gently blow out the cleaning liquid from inside the sensor with compressed air.
6. If there are still residuals of the cleaning liquid inside of the sensor, repeat the steps **1**, **2** and **3** using demineralized water instead of cleaning liquid (the ultrasonic bath time should only be a few minutes).
7. Gently blow out the demineralized water from inside the sensor with compressed air.
8. If necessary repeat steps **6** and **7** a few times for removing all the residuals of cleaning liquids, and in case the sensor is still soiled, repeat the procedure from step **1** all over again.

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### NOTICE

Check if the sensor is clean by looking inside the hole of the sensor with a microscope or magnifying glass.

A silvery white reflection of the sensor element should be visible.



If blowing out the M5 Sensor did not get the demineralized water completely out, it is possible that the view is blocked by the water. In this case try gently blowing out the sensor again.

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