

6 Maintenance

During maintenance, remember:

- The equipment must be maintained by a professional familiar with the safety requirements and risks.
- Only perform maintenance work described in these operating and installation instructions.
- Observe the respective safety regulations and operating specifications when performing any type of maintenance.
- Always use genuine spare parts.
- The appliance must be checked for external damage and soiling at regular intervals.
- The particle filter may need to be replaced, depending on how dirty it is.
- Any dirty surfaces should be cleaned with a damp cloth.

DANGER

Electrical voltage

Electrocution hazard.



- Disconnect the device from power supply.
- Make sure that the equipment cannot be reconnected to mains unintentionally.
- The device must be opened by trained staff only.
- Regard correct mains voltage.



DANGER

The gas inside the filter, condensate and used filter elements may be caustic or corrosive.

Sample gas can be harmful.



- Before maintenance turn off the gas supply and surge with air if necessary.
- Exhaust sample gas to a safe place.
- Protect yourself against toxic / corrosive gas during maintenance. Wear appropriate personal protection equipment.



CAUTION

Hot surface



Risk of burns

Depending on the operating parameters, the housing temperature may reach over 100 °C during operation.

Allow the unit to cool down before performing maintenance.

CAUTION

Excess pressure



The unit mustn't be pressurised or energised when opened.

If necessary, close the gas supply and ensure a safe pressure on the process end before opening.

CAUTION

Drive pressurised



Never loosen or remove the cover or any accessories with the drive pressurised.

CAUTION

Never open the drive with the function "single-acting"!



This may only be done at the manufacturer's plant.

CAUTION**Do not attach levers or tools to the drive's spindle!**

Levers and tools on the spindle can flap around when switching the compressed air or control voltage back on and cause serious injury or damage!

NOTICE

Under normal operating and ambient conditions the slew drive maintenance free.

6.1 Maintaining the filter element

The probes feature a particle filter which needs to be changed as it becomes dirty.

To do so, disconnect the voltage supply and if applicable close the shut-off valve to the process or switch off the process.

CAUTION! Do not damage the rear filter seat.

NOTICE

Ceramic filter elements are very brittle by nature. Handle them with care, don't let them fall.

Filter elements made out of sintered stainless steel can be cleaned in an ultrasonic bath and be used several times as long as both seals are still in proper conditions.

6.1.1 Replacing the downstream filter

- Unlock and lift up the weather hood.
- Turn the handle at the back end of the probe by 90° (handle must then be horizontal), pushing in slightly, and remove.
- Remove the dirty filter element and check the sealing surfaces.
- Before installing the new filter element, replace the seal on the handle plug (seal included with the filter element).
- Then carefully insert the handle with new filter, push in slightly and turn 90° (handle must then be vertical). Pull on the handle to verify the filter element is firmly seated.
- With the filter removed, if necessary also need clean the inside of the sampling tube by blowing it out or using a cleaning wand.

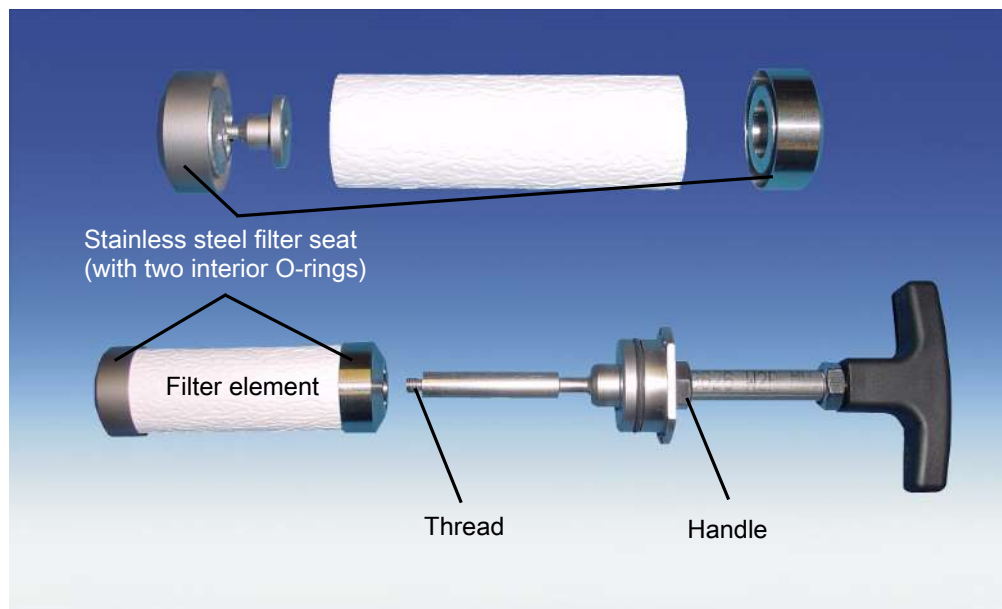
NOTICE

The weather hood can only be closed again when the handle is completely vertical. In order to do so, loosen the hood from the locking supports by lifting slightly and then fold down. Ensure that the hood lock clicks into place correctly.

6.1.2 Replacing the Outlet Filter with Micro-Fibreglass Filter Element

- Turn the handle at the rear end of the probe by 90° (handle must be horizontal), pushing in slightly, and remove.
- Unscrew the dirty filter element counter-clockwise from the thread of the handle.
- Pull both stainless steel filter seats off the filter element.
- Before installing the new filter element, replace the seal on the handle and inside the stainless steel filter seats (seals are included with the filter element).
- Then turn the handle with the new filter by 90° (handle must be vertical), pushing in slightly.

CAUTION! Do not damage the rear filter seat.



With the filter removed, you may also clean the inside of the sampling tube if necessary by blowing it out or using a cleaning wand.

6.1.3 Replacing the upstream filter

The probe can be equipped with both an upstream filter as well as an downstream filter. When sampling flammable gases, nitrogen (inert gas) must be used for blowback. Blowback of explosive gases is prohibited.

The effectiveness of cleaning a filter within a process is directly influenced by the available airflow (amount of gas). We therefore recommend using a pressure vessel directly on the probe.

With sufficient upstream filter blowback (within the process stream) the probes are maintenance-free. However, due to process conditions the filter may clog over time. In this case the filter element will need to be replaced.

To do so, the probe must be completely removed and reinstalled after changing the element. If the probe is equipped with an downstream filter, it must be replaced.

NOTICE



Ceramic filter elements are very brittle by nature. Handle them with care, don't let them fall.

Filter elements made out of sintered stainless steel can be cleaned in an ultrasonic bath and be used several times as long as both seals are still in proper conditions.

NOTICE



The weather hood can only be closed again when the handle is completely vertical. In order to do so, loosen the hood from the locking supports by lifting slightly and then fold down. Ensure that the hood lock clicks into place correctly.

Condensate inside the pressure vessel

Depending on the installation site and application conditions a small amount of condensate may form inside the blowback air pressure vessel. Open the drain screw at the bottom of the vessel and drain the condensate at least once a year.

If the probe needs to be serviced more frequently due to operating conditions, we recommend also draining the condensate at these intervals.

CAUTION



High pressure

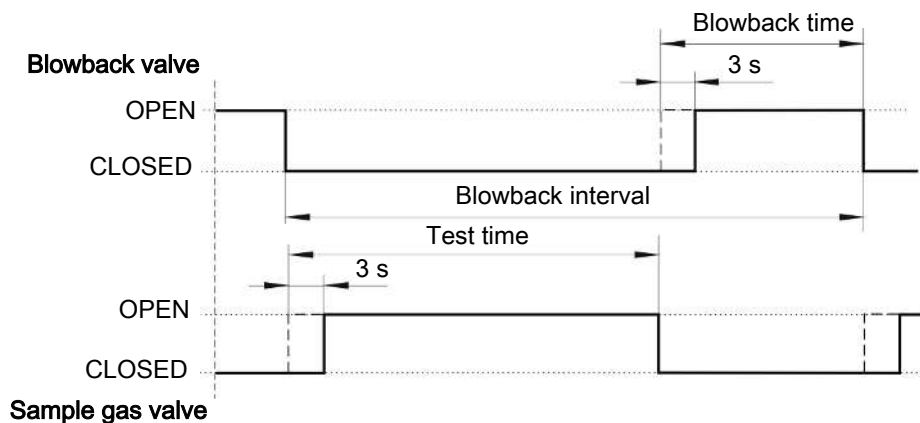
Pressure vessel under pressure.
Before opening the condensate drain, close the air supply to the blowback control and drain the vessel by manual blowback.
Pressing the main switch for the blowback control to interrupt the voltage supply.

6.2 Inlet filter blowback (within the process stream)

Be sure to use filtered air with a minimum rating of PNEUROP / ISO Class 4 for blowback:

Class	Particles / m ³ Particle size: (1 to 5) µm	Pressure dew point [°C]	Residual oil content [mg / m ³]
4	to 1000 (no particles ≥ 15 µm)	≤ 3	≤ 5

The following illustrations are intended to explain the context of the terms blowback time and blowback interval:



6.2.1 Manual Blowback (Without Blowback Control)

The shut-off valve in the air supply to the pressure vessel must be open. The optional pressure gauge on the pressure vessel shows the current operating pressure.

- To blowback, first close the shut-off valve in the gas probe (handle below the probe / weather hood).
- Then **abruptly** open the ball valve inside the connecting line from the pressure vessel to the probe until the display on the pressure gauge has dropped to the lowest reading.
- After blowback, close the ball valve and open the shut-off valve in the probe.

6.2.2 Automatic Blowback (External Blowback Control)

For automatic blowback, the shut-off valve in the probe with must have a pneumatic control (optional). The control unit for the system is designed for sequential valve control, i.e.:

1. Close the shut-off valve in the probe using the pneumatic control.
2. Open the solenoid valve between the pressure vessel and probe for approx. 10 seconds.
3. Open the shut-off valve in the probe.

Blowback can also be set as a closed process at intervals ranging from several minutes to hours or even days based on requirements.

6.2.3 Built-In Blowback Control (Optional)

All required parts are already built into the probe based on your purchase order.

Switching on the probe will first automatically trigger blowback. The set blowback interval will then start.

The display will indicate blowback. During the process the display will alternate between displaying the temperature and "bbon" (blow back on).

Automatic blowback

Please refer to the menu description for how to change the blowback interval or blowback time. The factory settings are: Blow-back interval: 10 minutes; blowback time 10 seconds.

Manual blowback – access via keys

Open the menu and set the built-in blowback control to manual blowback.

The display will alternate between the probe temperature and the "Hand" status (hand = manual). To start blowback, press one of the keys  or  during normal operation (temperature being displayed).

The probe menus must be closed. During blowback the display will alternate between the probe temperature and "bbon".

Manual blowback – external control

Manual blowback may also be externally triggered at any time. This requires connecting a key (not included) per the connection diagram in the appendix. The key must supply the probe with a 24 V DC voltage signal. The external controller does not affect the parameter settings.