5 Operation and control

NOTICE

The device must not be operated beyond its specifications.

DANGER

Danger of explosions, danger of poisoning from poisonous corrosive gases

During maintenance work, depending on the medium used, explosive and/or poisonous corrosive gases could escape, and this could lead to a danger of explosion or could be hazardous to health.

a) Inspect the leak tightness of your sampling system before putting the device into operation.

b) Ensure that gases that are hazardous to health are discharged safely.

c) Turn off the gas supply before beginning any maintenance or repair work and flush the gas lines with inert gas or air. Secure the gas supply so that it cannot be turned on unintentionally.

d) Protect yourself during maintenance from poisonous / corrosive gases. Wear appropriate protective equipment.

DANGER

Adiabatic compression (explosion hazard)!

In case of adiabatic compression, high gas temperatures may occur. The operator is responsible to consider this situation.
Make sure to obey the allowed technical specifications and ambient conditions, take special attention to the media temperature with respect to temperature class T4. These vary in addition to gas composition and ambient conditions. Where necessary, the operator must install temperature sensors for monitoring and must automatically shut down the sample gas pump should the temperature exceed the limits.

DANGER

Dangerous electro-static charge (danger of explosion)

During the pumping of, for instance, very dry gases or gases contaminated with particulate matter, potentially incendiary electro-static charges could build up in the bellow / pump body.
Provide the pump with a particle filtration with a suitable filter unit placed before the pump gas inlet.
The extraction of explosive gaseous media (max. zone 2) with the pumps **is not permitted** if the gas flow leads to a potentially incendiary electro-static charge in the bellow / pump body (projected surface area in bellow / pump body ~ 15 cm^2).

DANGER

Explosion hazard

Flammable media fed into the pump may only be heated to a maximum of 80 % of their respective ignition temperature.

CAUTION

Hot surface

Burning hazard
According to the product type and operation conditions, the temperature of the housing may exceed 50 °C during operation.
Depending on the conditions at the installation site it may be necessary to provide these areas with appropriate warning signs.

5.1 Switching on the sample gas pump

Before switching on the device, ensure that:

- the hose and electrical connections are undamaged and correctly installed,
- no parts of the sample gas pump have been dismantled (e.g. cover),
- the gas inlet and outlet of the sample gas pump is not shut,
- the preliminary pressure is under 0.5 bar,
- in the event of throttling under 150 l/h in continuous operation, a bypass is available,
- the ambient parameters are complied with,
- information on rating plates is observed,
- the voltage and frequency of the motor correspond to those of the network,
- the electrical connections are tightly fastened and the monitoring devices have been connected and configured correctly!
- air inlet openings and cooling surfaces are clean,
- protective measures have been carried out; earthing!
- the motor is secured correctly,
- the terminal box cover is closed and the cable entry points have been properly sealed,
- the elastomer sprocket of the coupling (P2.4C only) is correctly installed and undamaged,
- depending on the operating mode, the necessary protective and monitoring devices are present and functional (depending on the type of pump, e.g. motor circuit breaker, manometer, flame arrestor, temperature monitoring).

When switching the sample gas pump on make sure that

- no abnormal sounds or vibrations occur.
- the flow rate is neither too low nor too high. This would indicate a cracked bellow.

5.2 Operating the sample gas pump

The sample gas pump is intended exclusively for the pumping of gaseous media. It is not suitable for liquids.

The sample gas pump should be operated without pre-compression. A preliminary pressure of more than 0.5 bar is not permitted. The gas outlet must not be shut.

The sample gas pump should be operated without pre-compression. A preliminary pressure of more than 0.5 bar is not permitted. The gas outlet must not be shut. The flow rate must be at least 50 l/h. In the event of throttling under 150 l/h in continuous operation, the flow rate must be regulated via a bypass. In this case you should choose a version with bypass valve.

NOTICE

Extreme throttling reduces the life time of the bellow.

For pumps with an integrated bypass valve, the output power can be adjusted. Do not expend a great amount of power when turning the valve as otherwise the valve could be damaged! The turning range of the valve is around seven rotations.

NOTE: Read and observe the maintenance plan!