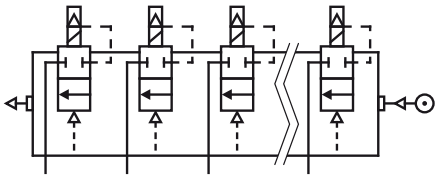
Flushing gas tank system
Series ST148-DN25
Operating instructions

Function



Series ST148-DN25 from the Cleaning-Line Series is a flushing gas tank system with integrated DN25 2-way Power Reflex diaphragm valve. The flushing gas tank consists of extruded aluminium section with a length of up to 4000 mm cut to customer specification. The integrated diaphragm valves with a minimum spacing of 75 mm may vary over the length of the tank. The diaphragm cover is designed with a solenoid valve for the electrical control or with an internal 1/8" thread for the pneumatic control. The standard valve outlet has a 1" external thread and can be supplemented through adapters for different fitting dimensions and connection methods. The pressure connection is made via the closing covers of the extruded section which are equipped with threaded connections of different sizes. Optionally, the tank system is fitted with threaded holes for the connection of a drain valve, safety valve, pressure gauge or additional function units on the profile or the end covers.

Intended use

To ensure hazard-free use and safe function of the flushing gas tank system the technical data and especially the warning notices of these operating instructions must be observed. Operating and use outside the technical data, disregard of these operating instructions or modifications to the flushing gas tank system are considered not as intended and will void warranty and liability.

The flushing gas tank system is designed for gases of the fluid group 2 in accordance with the pressure equipment directive 2014/68/EC. Only qualified and trained personnel is allowed to install the flushing gas tank system. The flushing gas tank system is intended for installation in process control facilities, especially for filtering separators with pressure pulse cleaning.

Improper use is present when the technical boundary conditions on the following page are not complied with.

Attention!

- The flushing gas tank system is designed for a full load change from 7.5 bar to 0.5 bar for 2x 10^6 load cycles at a maximum surface temperature of +85 °C.
- In those cases where, under reasonably foreseeable conditions, the permissible limits may be exceeded, the pressure equipment shall be fitted with, or prepared for the fitting of, suitable protective devices, unless the equipment is part of an assembly protected by other protective devices.

Installation

The products and components from the Cleaning-Line Series may be used and operated only within the specifications listed on the type plate. Before mounting the flushing gas system the compressed air line and components must be checked for contamination and the pressure connection depressurised. The customer may not make any modifications to the tank system.

The installation position of the tank system can be freely chosen. The direction of flow as well as the connection dimensions for the compressed air line and the valve outlet can be taken from the dimensional drawing.

Attention!

- The flushing gas tank system may only be installed by qualified personnel.
- The pipe connection must be sealed with sealing material to ensure a gas-tight connection of the tank system to the supply network. Care must be taken that no sealing material enters the flushing gas tank.
- A reduction at the valve outlet reduces performance and may affect the function.
- The parts under pressure must be protected against contamination and overpressure to ensure the safe and reliable function of the flushing gas tank system. The flushing gas should have grade 3 according to DIN ISO 8573-1. The ambient temperature must be noted at this and a higher quality grade chosen, if necessary.
- The flushing gas tank must not be used as structural component.
- The flushing gas tank system shall be installed without major vibration.

Commissioning

The correct installation, especially compliance with the warning notices, must be verified before applying pressure to the flushing gas tank system. The pressure applied may not be higher than the max. operating pressure of the flushing gas tank system according to the type plate.

Attention!

- The valves open suddenly across the full cross-section within 9.5 ms. Serious injuries may occur as a result of improper installation.
- The noise emission is largely determined by the application, the installation situation and the admission pressure of the flushing gas tank system. For this reason, the exact determination of the noise level can only be made by the manufacturer of the end product and can be reduced through suitable measures, such as silencers or sound insulation enclosures.

Service

Pressure equipment must be serviced at regular intervals. We recommend performing a function and visual check of the RECO flushing gas tank system for wear, external damage and leaks at least once a year. The regular inspections shall especially focus on checking the end covers of the flushing gas tank system at the cover screws for crack propagation and leaks. In case cracks are developing at the end covers, they must be absolutely replaced by an experienced person. Leaks may occur at the end covers in the event of impermissible overpressure stress or material fatigue. However, persons are not put at risk from sudden tearing or bursting of parts of the end cover. The same applies to the valve cover. They also exhibit only leaks after an excessive stress situation and cannot tear suddenly.

Refer to the common national ordinances regarding recurring inspections/tests. The flushing gas tank systems can normally not be subjected to a water pressure test at the installed plant. Filling the flushing gas tank system with water may cause permanent damage to the valve system resulting in malfunctions. Gas pressure testing is possible in these cases.

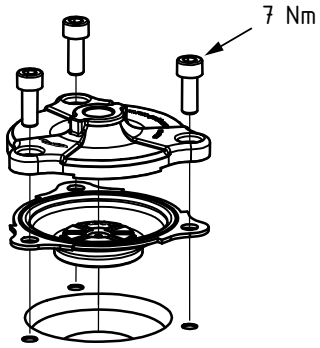
The diaphragms are wearing parts, the service life of which largely depends on the operating conditions. Temperature, moisture, load change cycles and process gases affect the ageing behaviour and thus the service life. In case of unfavourable conditions, the function shall therefore be checked also at shorter intervals than once a year. When procuring spare parts, it is important to make sure that the correct diaphragm is used green diaphragm for a flushing gas temperature of -20 °C to +85 °C (standard), blue diaphragms for a flushing gas temperature of -40 °C to +140 °C (HT-Plus).

We recommend stocking diaphragms to ensure the reliable operation of the plant.

Spare parts are available for all products of the RECO Cleaning-Line Series. The end covers of the flushing gas tank system are not spare parts and may be replaced only by an experienced person. The diaphragms and the valve cover are declared to be wearing parts and may be replaced in accordance with the following instructions. The screws of the valve cover must be released and the parts removed. The order for dismantling and assembling the valves or the valve cover is shown on the explosion drawing (see below).

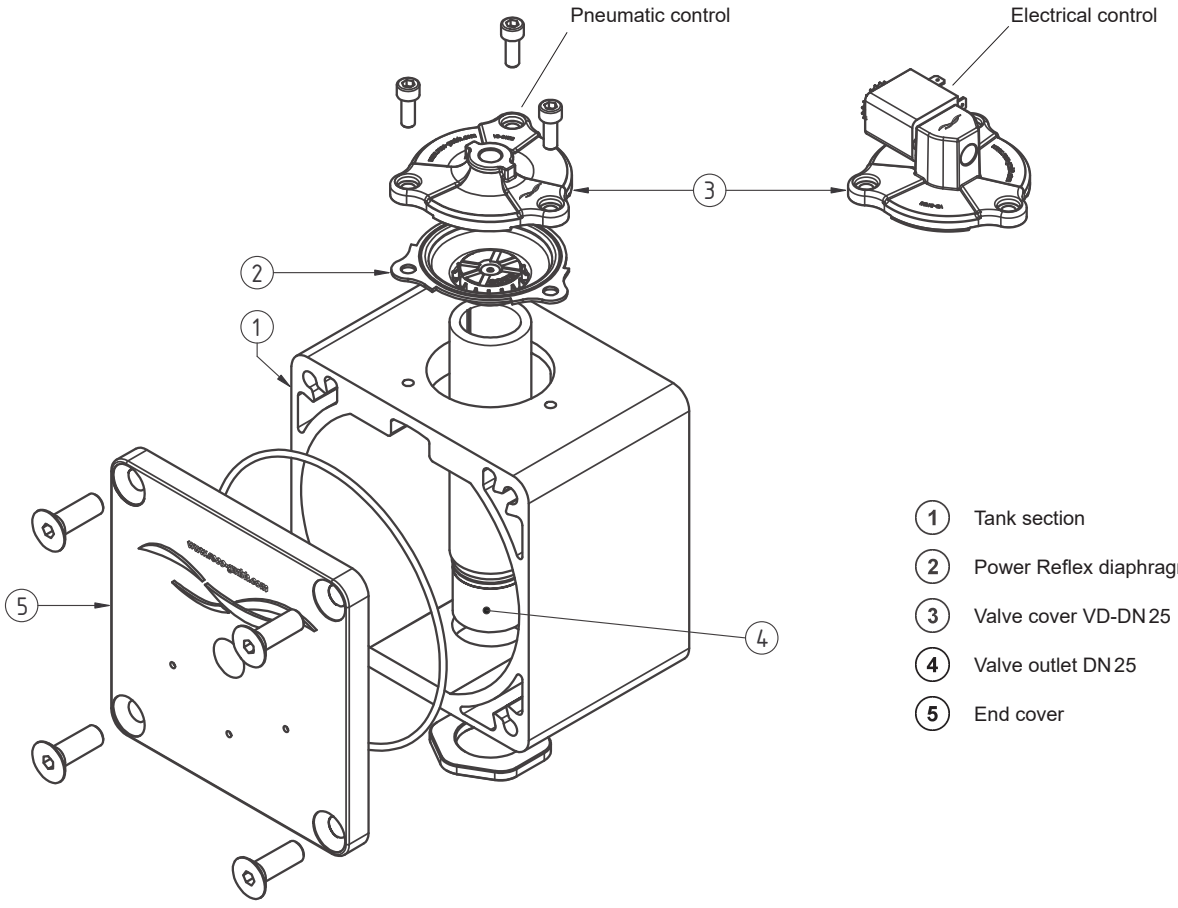
Attention!

- Work on the diaphragm valve may be performed only while depressurised.
- The diaphragm must be inserted into the valve body with the pressure plate facing down.
- The valve cover must enclose the diaphragm from all three sides.
- First start all 3 valve cover screws.
- Then tighten the screws one after the other uniformly in several steps with a max. torque of 7 Nm. If the screws are screwed down unevenly, the diaphragm may jump out of the groove of the valve cover, the cover may be damaged and the function of the diaphragm compromised.

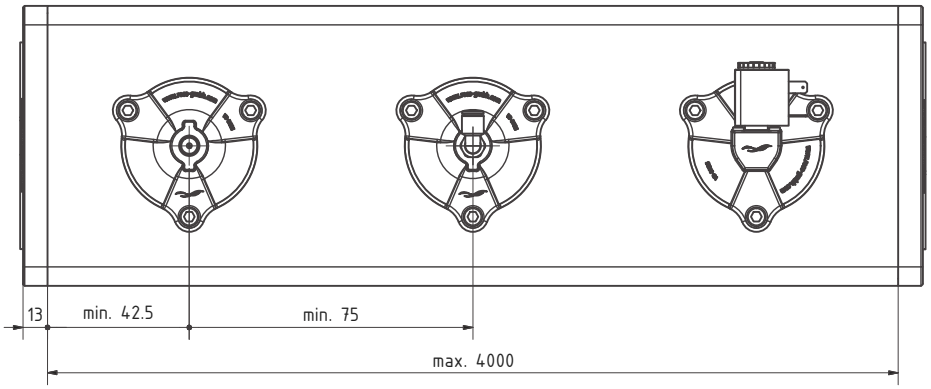


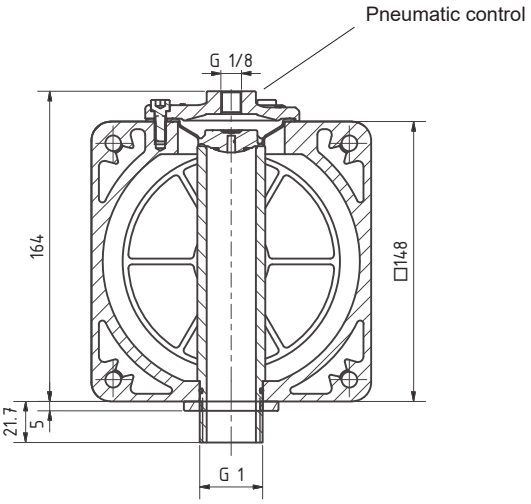
Technical data

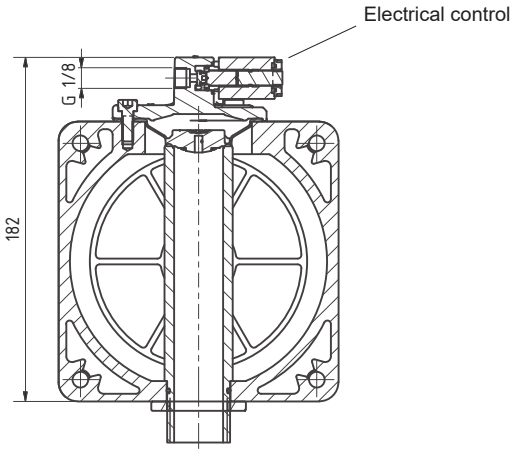
Flushing gas tank system	According to pressure equipment directive DGRL 2014/68/EU Category and module according to the nameplate on the pressure equipment
Switching function	2/2-port directional diaphragm valve, closed in pressurized condition
maximum permissible pressure (PS)	0.5 ... 7.5 bar
Test pressure (PT)	8.5 bar
Design pressure (PD)	10.0 bar
Valve size	DN-25
Control connection for diaphragm valve	Pneumatically with G 1/8 inch female thread
	Electrically with solenoid valve according to the nameplate of the solenoid valve 12 V DC / 24 V DC / 24 V AC / 120 V AC / 230 V AC 22 W / duty cycle 10 % / closed in idle state Electrical connection via valve plug type BI 2-pin with PE Special designs: Coil with UL approval or explosion-proof ATEX designs
Pressure connection	G ½'' internal thread on both end covers, optional connections on customer's request
Medium	Gases of fluid group 2 / compressed air of quality class 3 (ISO 8573-1)
Raw gas temperature Ambient temperature	Standard diaphragm green: -20 °C ... +100 °C / HT-Plus diaphragm blue: -40 °C ... +140 °C for pneumatically controlled tank systems: Standard diaphragm green: -20 °C ... +85 °C / HT-Plus diaphragm blue: -40 °C ... +85 °C for electropneumatically controlled tank systems: uniform -20 °C ... +85 °C
Flow capacity (cv value)	DN 25: 28 m³/h
Volume	1.45 litres / 100 mm minus 0.12 Liter / valve core
Weights	Extruded section: 15.6 g / mm Valve cover with diaphragm and screws: 85 g Valve cover with magnet, diaphragm and screws: 175 g End cover with screws: 700 g
Materials Valve covers Tank and end cover Power-Reflex diaphragm O-rings valve insert / end covers Solenoid armature Solenoid sleeve Solenoid seal	 Aluminium Aluminium, optionally anodized after machining Standard diaphragm green: TPE-E / HT-Plus diaphragm blue: TPE-E plus Additive NBR 70: -20°C ... +85 °C / MVQ: -40°C ... +200°C / FPM: -20°C ... +200°C Stainless steel Brass NBR 70

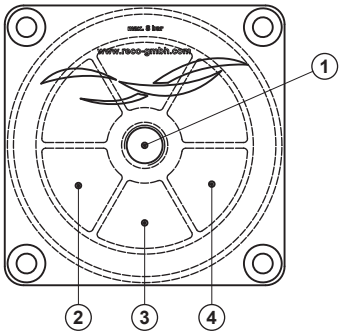


1. Tank section
2. Power Reflex diaphragm MB-DN 25
3. Valve cover VD-DN 25
4. Valve outlet DN 25
5. End cover









① G1/2 inch internal thread, with sealing plug on one side

② - ④ optional G 1/4 Zoll Innengewinde

The staff of RECO GmbH will be glad to answer any questions or provide additional information about the product, operation or service.

Disclaimer

The contents of this documentation have been verified for correctness and completeness. Nevertheless, errors can not be excluded so that we cannot guarantee the correctness of this information. Subject to alterations at any time.

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