



Rotorflush Filters Ltd. Langmoor Manor, Charmouth, Dorset, DT6 6BU.

Tel: 01297 560229 email : mail@rotorflush.com

Instruction Manual Rotorflush Inline self cleaning filter system Model SOB001S

Contents:

1. Safety precautions
2. Environmental conditions where filter is installed
3. Liquids to be filtered
4. Description of filter system
 - 4.1 Technical data
 - 4.2 Protection provided in case of fault
5. Installation
6. Electrical connection
7. Commissioning
 - 7.1 Home Screen
 - 7.2 Settings Screen
 - 7.3 Fault Screen
8. Maintenance

1. Safety Precautions



It is strongly advised that gloves, face protection and steel toe capped boots or shoes are worn when installing or servicing the Rotorflush self-cleaning filter unit for analysers.

The relevant safety precautions must be taken with respect to the fluid that the Filter is being installed into. Factors that should be taken account of are: corrosive or poisonous liquids, poisonous or explosive gases, and bio –hazards for example bacteria, fungal spores and viruses.

Care should be taken when handling the filter so that there is no possibility of injury from it falling and causing injury to persons. Ensure that there is no possibility of injury from moving the filter owing to its weight.

When commissioning the filter system keep well away from all pipe work and the filter vessel so that if there are any leaks there is no possibility of coming into contact with the fluid



2. Environmental Conditions

The Filter system should not be used in environments where:

The maximum ambient temperature is above 40C

The minimum ambient temperature is below 2C (unless anti frost protection is in place)

Corrosive atmospheres

Explosive and/or fire danger zones

Where it is liable to flood

If the filter system is sited in an enclosure, make sure that there is adequate ventilation for motor cooling

Where there is excessive vibration

The filter unit should be protected from rain and moisture



3. Liquids to be filtered

Free flowing, specific gravity ≤ 1 .

Should not be used with

Flammable liquids

Toxic liquids

Corrosive liquids

Liquids that can cause explosion

4. Description

The Rotorflush Inline self cleaning filter system is designed for filtering water with suspended particles of debris and has been designed to operate at temperatures up to 80 degrees centigrade and a maximum operating pressure of 8 bars. Maximum flow rate through the filter is 25m³/hr. It can be fitted with a 30, 52, 60, 115 or 300 micron aperture nylon screens.

It requires a compressed air supply of 5-8 bars pressure and a 220-240v single phase electricity supply

The filter system is controlled by an on board touch screen PLC.

The filter continuously cleans itself and solids backwashed from the filter are forced to the bottom of the vessel where they accumulate. The Purge Valve will operate if the vessel is full of solids or the incoming concentration of solids is too high for the filter to keep itself clean.

The PLC continuously monitors the **differential pressure (DP)** across the internal self cleaning filter unit.

If the DP reaches 80 mb then the Pneumatic Purge valve will open to remove accumulated solids from the filter system. The Purge Valve will also open on a timed basis.

The waste water that is purged from the filter unit is collected in the strainer (see Fig 1). This drains through the perforated mesh into the sump. There is a pump that is operated by a float switch that pumps the strained water in the sump back to the waste water source. It is then returned through the filter system. The straining basket needs to be removed and emptied periodically. Frequency of emptying varies depending on the amount of solids in the waste water

4.1 Technical data:

Materials:

Vessel and fittings: 316 stainless steel

Filter mesh: Mono filament Nylon 6

Self cleaning rotor: Acetal

Seals: EPDM

Mechanical seal: EPDM, SiC: SiC

Motor body aluminium.

Control enclosure; 304 stainless steel

Sump: Polyethylene

Sump pump: Aluminium/cast iron

Capacities:

Max flow rate: 25m³/hr

Sump: 250 litres

Weight (approx) : Empty 130 kg, full of water (including full sump) 410 kg

Power supply:

220-240v single phase 50/60Hz.

5 amp supply

4.2 Protection if fault occurs:

If the DP reaches 100mb, for example if the purge pipe is blocked or the compressed air supply is below 5 bars then the spring loaded valve on the intake will shut immediately, stopping water from entering the system and the siren will sound together with the flashing light.

High level float is provided in the sump to shut the unit down if there is a risk of the sump overflowing. This will activate the siren and flashing light

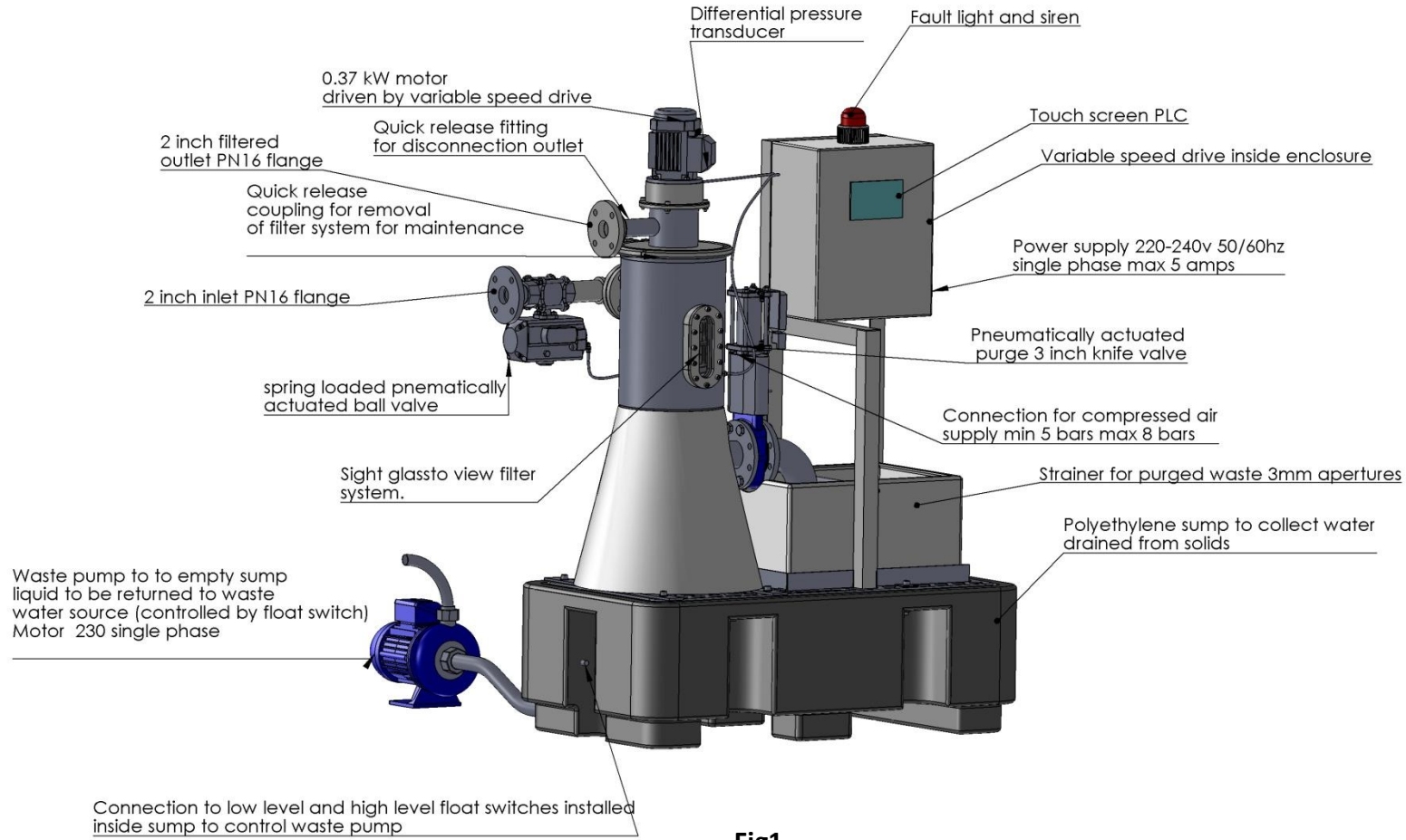


Fig1

SOB Dimensions

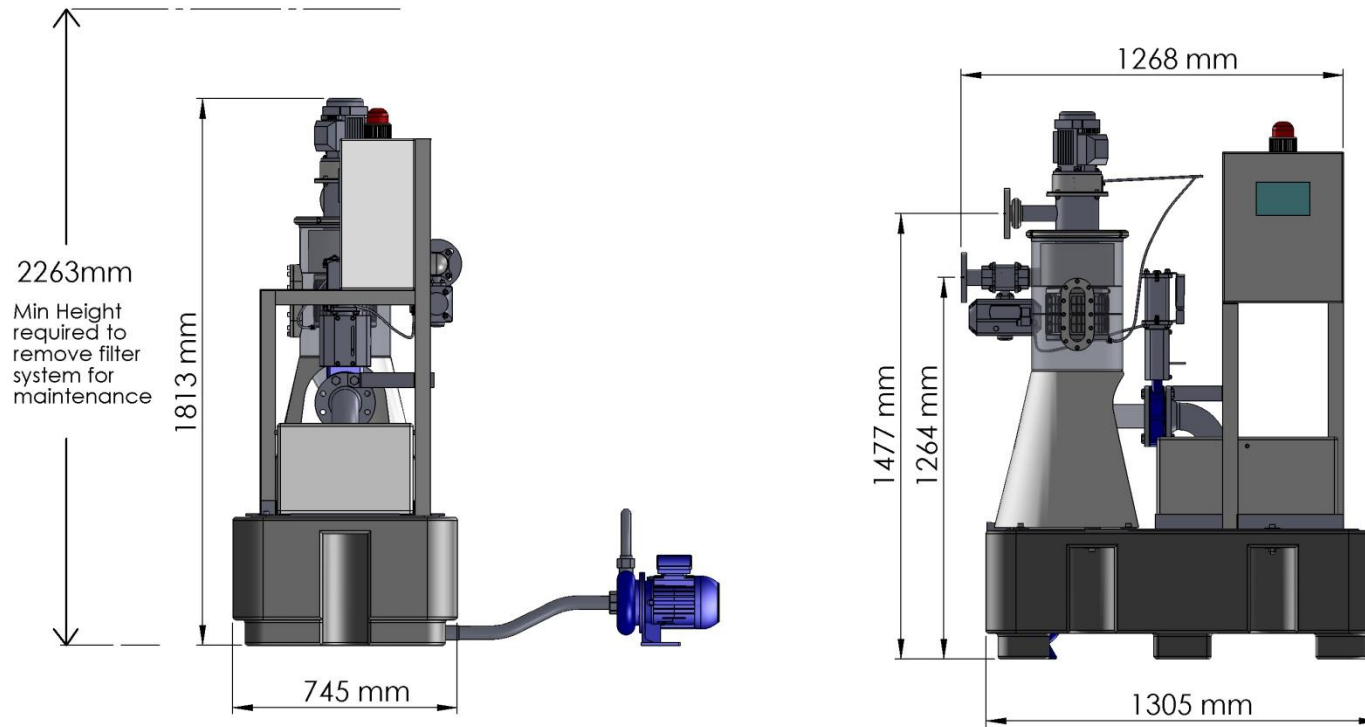


Fig 2

5.Installation.



The filter system should be protected from the weather and should allow enough space around and above it to access the system for maintenance.

Please note a minimum height of 2263 mm is required to enable the filter system to be removed for maintenance (see Fig 2)

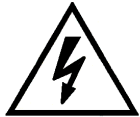
Connect the supply of water to be filtered to the 2 inch intake as shown in Fig 1. Connect a pipe to take the filtered water from the output connection as shown in Fig 1.

Connect the compressed air supply to the 'T' on the Purge Valve solenoid. It requires a **minimum of 5 bars air pressure to operate the pneumatic valves and a maximum air pressure of 8 bars.**

Important Note:

If the compressed air supply to the the spring loaded valve on the filter inlet is interrupted, (usually by the solenoid valve being inactivated) the valve will close very quickly, to protect the filter unit. This can cause over pressure on the inlet pipework or pump and suitable protection must be installed.

6.Electrical Connection.



A qualified electrician must connect the unit to the electrical supply. The unit must be protected by a residual current device and a 5 amp fuse. **It is very important that the unit is earthed.**

A single phase supply should be connected 220-240v, 50 or 60Hz versions available.

7. Commissioning

Start the filter system and immediately slowly introduce the water to be filtered. Once the water level is at the top of the sight glass the flow of incoming water can be increased. **The maximum flow rate into the filter should not exceed 25m³ per hour**

7.1



Home screen

7.1 (Continued)

Differential pressure.

This will vary depending on the level of solids in the water and the flow rate.

Motor Speed.

The motor has 3 speeds, low, medium and high. The filter adjusts the motor speed in response to the differential pressure. The higher the speed the greater the cleaning power of the filter.

Time since last purge.

The time in hours and minutes since the last purge.

Number of purges in the last 24 hours.

Self explanatory

Total run time

Total run time to the nearest hour since the filter system was started. (If the power to the filter system is disconnected then the screen will reset)

Settings

Touching this takes you to the settings screen

7.2



Settings Screen

Purge duration

The length of time the purge valve is open can be adjusted from 3-30 secs. The higher the pressure in the filter the shorter the purge time that should be set. This should normally be 5 secs or less

Purge interval.

The purge valve opens on differential pressure and also time. If there are low levels of solids in the water the purge valve may not open on differential pressure and over time the solids may compact in the vessel. Normally this should be set between 12 and 24 hours

Return

Touch this to return to the home screen

7.3 Fault screen (Not shown)

This screen itemises the fault and has a clear button to clear the fault and return to the home screen

8.0 Maintenance:

The only regular maintenance required is periodic replacement of the filter screen. Normally wrap around mesh is supplied and this requires replacing every 6 months (this may vary depending on temperatures and chemicals in the water, high temperatures > 40C will reduce the life of the mesh)

Remove the filter system from the vessel by releasing the quick release clamps. There are 5 M6 bolts on the filter cage clamp that should be removed. Remove the filter clamp and the old mesh. Fit the new filter mesh and replace the clamp. Reinstall the filter system in the vessel.

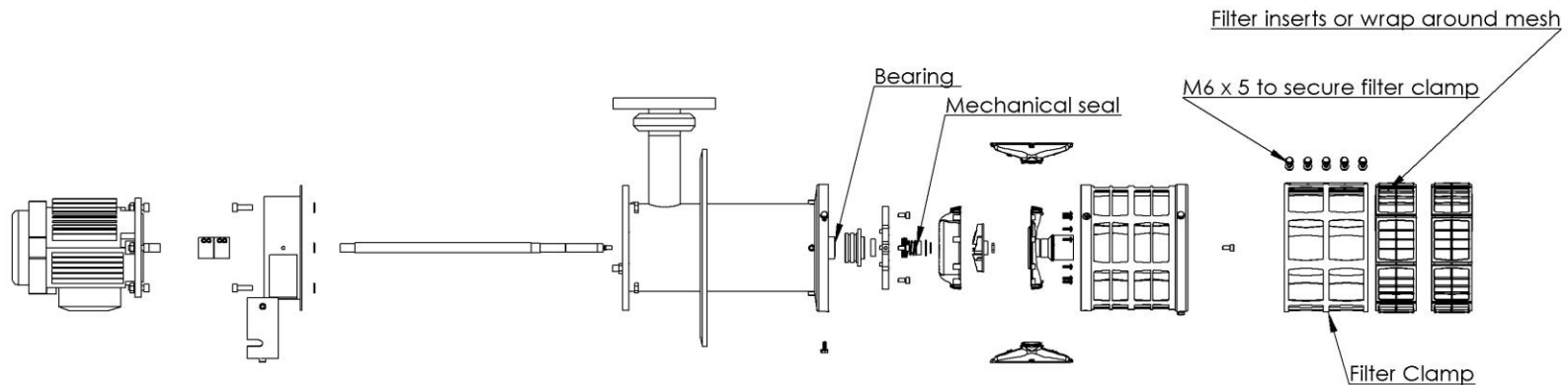


Fig 3