USE AND MAINTENANCE
INSTRUCTION MANUAL
for
ROTORFLUSH FILTERPUMPS
Models (“O” range)
O1608-16, O2008-16, O25010-16, O35012-16

For three phase pumps it is imperative that electrical connections are made so that the impellers rotate in the correct direction. If the pumps are run in the wrong direction for more than a few seconds serious damage may result which will invalidate the guarantee.

Read page 6 “Rotation direction of 3 phase pumps.” before installation for the method of checking correct direction of rotation.

Although the filters are self cleaning there may over time be a build up of detritus in the pores of the mesh which the self cleaning mechanism can not remove.
For stainless steel filter mesh use a pressure washer to very thoroughly clean the outside of the mesh.
For nylon screens either clean low pressure water or replacement inserts are available from Rotorflush Filters
If the pump is run with the filter screen clogged it may cause the pump to overheat and seriously damage the motor invalidating the guarantee.

In most conditions the filter should be cleaned every 2 months in some situations it may require more frequent cleaning, particularly with 60 and 115 micron screens, see chapter 5
115 micron and 60 micron nylon screens will need replacement every 1000 hours of operation, over this time the screens may break.
300 micron nylon screens should be replaced every 5000 hours.
Replacement screens are available from Rotorflush Filters Ltd.
1. MANUFACTURER AND FILTERPUMP IDENTIFICATION DATA (as per EEC98/37 p. 1.7.4a)

1.1. Manufacturer Data
Rotorflush Filters
Langmoor Manor
Charmouth
Bridport
Dorset
DT6 6BU
England
Telephone: +44 (0) 1297 560229
Fax: +44 (0) 1297 560110
Email: mail@rotorflush.com

1.2 Filterpump Data
Description: Submersible Filterpump Models (“O” range) O807-16, O1608-16, O2008-16, O25010-16, O35012-16
Year of manufacture: See plate on Filterpump

2. TECHNICAL ASSISTANCE INFORMATION
If a malfunction of the Filterpump is not covered in the TROUBLESHOOTING table contact Rotorflush Filters at the above address.

3. INTRODUCTION
This publication contains all necessary information and instructions for the use and maintenance of your Rotorflush Filterpump.
Follow the advice given to ensure correct operation and optimum performance of the Filterpump.
For any other information, please contact Rotorflush Filters.

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4. CONTENTS

1. Chapter 1 – Features
2. Chapter 2 - Use and limitations
3. Chapter 3 - Installation
4. Chapter 4 – Electrical Connections
5. Chapter 5 – Maintenance and trouble shooting

5. GENERAL SAFETY WARNINGS

* Please pay particular attention and care to the following signs

DANGER
Electric Shock Risk
Improper use may lead to electric shock

DANGER
Improper use may cause serious injury to people or damage to property

FAILURE TO OBSERVE THESE WARNINGS AND/OR ANY TAMPERING WITH THE FILTERPUMP EXEMPTS ROTORFLUSH FILTERS LTD FROM ALL RESPONSIBILITY IN THE EVENT OF PERSONAL INJURY OR DAMAGE TO EQUIPMENT OR PROPERTY AND/OR TO THE FILTERPUMP

Read this manual carefully and check to ensure that the Filterpump has been properly installed and connected in accordance with relevant safety standards before starting the Filterpump.

There are no RESIDUAL RISKS with Rotorflush Filterpumps.

No particular technical skills are required to use Rotorflush Filterpumps.

No personal safety devices (precaution devices) are required to use Rotorflush Filterpumps
5.1. Preventive Measures to be Taken by the User

b) During operation make sure that nobody is in the water

c) Before undertaking any repairs or maintenance to the Filterpump, isolate the electricity supply by removing the plug from the socket and/or turning off the switch (if provided). This will prevent accidental starting which could cause personal injury or damage to equipment or property.

d) Any maintenance operation, installation or moving the Filterpump with the electrical system live may cause serious injury and could prove fatal.

e) During operation, avoid moving the Filterpump.

f) Before using the Filterpump, always check that the cable and all electrical devices are in perfect working order.

g) When starting up the Filterpump (by turning on the switch, if provided, or by inserting the plug in the socket) ensure (i) you do not have wet hands (ii) you are not standing in water and (iii) you are not barefoot.

h) The user must not carry out under his/her own initiative any operations or tasks not contemplated in this manual.

5.2. Significant Protection and Precautions

(as per EEC 98/37 p. 1.1.2 and 1.7.2; EN 292-2 p.5).

Rotorflush Filterpumps are designed so that all moving parts are shrouded by protective casings. Rotorflush Filter declines all responsibility in the event of injury or damage caused as a result of tampering with these devices.

Each lead or live part is electrically insulated to earth; there is also a further safety device in that the accessible conductive parts are connected to an earth lead so that the parts within reach cannot become dangerous in the event of failure of the principal insulation.
Chapter 1 - Features

5.3. General Description

Rotorflush “O” Series Filterpumps are all similar from the functional and constructive point of view; the only differences are the following:

- power
- flow rate
- head
- electric power supply (single phase or three phase)
- weight
- dimensions

Rotorflush Filterpumps are used for handling water containing light loads of suspended solids at temperatures up to 50°C. Unwanted solids are separated by a self-cleaning filter which is continuously backwashed with filtered water pumped though a dual-headed rotor by a secondary impeller mounted on an extended impeller shaft attached to the pump.

Thanks to their small bulk and ease of transport, they may be used for fixed or temporary installations, with or without automatic start.

Please ensure that the pump has not been damaged during transport, please contact the person who supplied it immediately if this is the case and do not use the pump.

Chapter 2 - Use and Limitations

CONTEMPLATED AND NON-CONTEMPLATED USE

WARNING

Failure to respect the prescribed limits constitutes a situation of use that is technically improper and may endanger the safety of persons and thus EXEMPTS ROTORFLUSH FILTERS FROM ANY RESPONSIBILITY IN THE EVENT OF ACCIDENTS TO PERSONS OR DAMAGE TO EQUIPMENT OR PROPERTY AND/OR TO THE FILTERPUMP, THEREBY RENDERING THE GUARANTEE INVALID.

Contemplated Conditions of Use

Rotorflush Filterpumps are suitable for pumping water with light loads of suspended solids.

Max liquid temperature is 40 °C
Max immersion depth is 7 metres
Max on/off cycles/hour not to exceed 30 equally spaced per hour

Non-Contemplated Conditions of Use

Rotorflush Filterpumps must not be installed in swimming pools and similar environment. They must not be used with water containing acids and corrosive liquids in general, water with temperatures over 50°C sea water, inflammable and dangerous liquids in general.

Rotorflush Filterpumps must never be run without water.
Chapter 3 – Installation

DANGER

Risk of electric shock

When installing, please ensure the pump is disconnected from the electricity supply

Please use the handle to move or lift the pump

Please use a non-return valve where the pump is in a fixed installation to avoid water returning back through the pump when it is switched off.

Ensure that there is enough water so that the pump will not switch on/off more than 30 times per hour. (SEE USE AND LIMITATIONS)

Rotorflush 3 phase Filterpumps must be protected by the installation of dry run protection. Single phase pumps have a thermal cut outs in the windings. If the filter blocks because of high levels of solids in the water or for some other reason the pump will run without water. This will cause damage to the pump and will invalidate any guarantee. Dry run protection can be by monitoring the power factor of the motor or by monitoring the flow/pressure from the delivery pipe.

The pump may be supplied with a float switch, this can be adjusted by sliding the cable through the clip on the pump handle. Make sure that the pump switches off at the minimum level. Make sure that there is nothing in the way that will impede the movement of the float.

Chapter 4 – Electric Connection

Ensure that the Voltage and Frequency of the electric supply is the same as that on the rating plate on the pump. (READ RATING PLATE)

DANGER

Risk of electric shock

Installer must make sure that the electricity supply has an earth/ground wire conforming to the current laws

DANGER

Risk of electric shock

Make sure that the electricity supply is provided with a high sensitivity circuit breaker

\[
\triangleq 30\text{mA (DIN VDE 0 100T739)}
\]

Overload Protection
The Rotorflush Filterpumps single phase 110V and 220-240V. “O” range have a built in thermal overload with automatic reset. However a correctly rated fuse or overload protection must be installed in the supply to the pump in addition to the pump’s thermal protection.

The Three Phase versions of the “O” range Rotorflush Filterpumps can be protected by using a magneto-thermic motor protector or a contactor with thermal relay. In either case they have to be rated conforming to the nominal power as shown on the pump rating label.

Rotation direction of 3 phase pumps.

It is imperative that the pump motor rotates in the correct direction. Viewed from the top of the pump (handle end) the motor rotates in a clockwise direction. If it is run for more than a few seconds in the wrong direction it will damage the pump and invalidate the guarantee.

TO ENSURE CORRECT ROTATION:
Connect the pump to the electricity supply and start up for a few seconds. When the pump starts it should kick-back in an anti clockwise direction. If this is not the case invert two of the phases and do the test again.

Connection Diagram (See Fig 2)

<table>
<thead>
<tr>
<th>1) Start (green)</th>
<th>5) Supply cord</th>
<th>9) White</th>
</tr>
</thead>
<tbody>
<tr>
<td>2) Run (red)</td>
<td>6) Grommet</td>
<td>10) Light Blue &lt;line&gt;</td>
</tr>
<tr>
<td>3) Common (black)</td>
<td>7) Plug</td>
<td>11) Brown &lt;line&gt;</td>
</tr>
<tr>
<td>4) Capacitor</td>
<td>8) Yellow-green</td>
<td>12) Float Switch</td>
</tr>
</tbody>
</table>
Chapter 5 - Maintenance and Trouble Shooting

It is recommended that the Filter Screen is manually cleaned every 2 months. In some conditions this may need to be more frequent, particularly with 115 and 60 micron screens and where there are oily or fatty substances in the water.

Nylon screens have a limited life. 60 and 115 micron screens must be replaced every 1000 hours of use, 300 micron screens must be replaced every 5000 hours of use.

Stainless steel screens should be thoroughly cleaned with a pressure washer by directing it on the outside of the filter.

If the Filterpump is not going to be used for any period of time, it must be removed from the water and thoroughly cleaned before storage. If the filter is left in water when it is not running then there may be growth of algae/bacterial films etc on the mesh which will partially or completely block it.

<table>
<thead>
<tr>
<th>FAULT</th>
<th>POSSIBLE CAUSE</th>
<th>REMEDY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motor does not run</td>
<td>1. No electricity supply</td>
<td>1. Check Supply</td>
</tr>
<tr>
<td></td>
<td>2. Incorrect electric connection</td>
<td>2. Check connections</td>
</tr>
<tr>
<td></td>
<td>3. Circuit breaker has tripped</td>
<td>3. Re-set circuit breaker, if it trips again call electrician</td>
</tr>
<tr>
<td></td>
<td>4. Impeller Blocked</td>
<td>4. Check Filter Mesh for damage. If damaged contact Rotorflush</td>
</tr>
<tr>
<td></td>
<td>5. Motor or capacitor damaged</td>
<td>5. Contact Rotorflush</td>
</tr>
<tr>
<td>Motor runs but no water delivered</td>
<td>1. Filter Blocked</td>
<td>1. Clean Filter. Reduce suspended solids in water. Stainless steel screens can be cleaned with a pressure washer. There is no need to dismantle the filter. Restrict pump output, filter will block less with a reduced flow through pump.</td>
</tr>
<tr>
<td></td>
<td>2. Pump is not primed. This can occur particularly with 100 and 50 micron meshes.</td>
<td>2. Disconnect pipe work so that air can exit from the pump. Alternatively pour water down the outlet hose so that it fills the pump with water and expels the air.</td>
</tr>
<tr>
<td></td>
<td>3. Non Return Valve blocked</td>
<td>3. Check filter mesh for damage and clean valve</td>
</tr>
<tr>
<td>Pump delivers reduced flow/pressure</td>
<td>1. Filter blocked</td>
<td>1. Clean Filter. Stainless steel screens can be cleaned with a pressure washer. There is no need to dismantle the filter.</td>
</tr>
<tr>
<td></td>
<td>2. Delivery pipe obstructed</td>
<td>3. Clean pipe</td>
</tr>
<tr>
<td></td>
<td>3. Impeller worn</td>
<td>4. Contact Rotorflush</td>
</tr>
<tr>
<td></td>
<td>4. Pump rotating in wrong direction (three phase version)</td>
<td>5. Invert two phases</td>
</tr>
<tr>
<td>Intermittent operation (single phase versions)</td>
<td>1. Impeller obstructed</td>
<td>1. Check Filter Mesh for damage. If damaged call Rotorflush</td>
</tr>
<tr>
<td></td>
<td>2. Liquid Temperature too high</td>
<td>1. Reduce temperature of liquid</td>
</tr>
<tr>
<td></td>
<td>3. Motor broken</td>
<td>2. Contact Rotorflush</td>
</tr>
</tbody>
</table>
Maintenance of the Rotorflush Filterpumps (Nylon filters)

The Filterpump should be removed from the channel and the filter cage washed with pressured water every 2 months or at the hourly running times listed below.

The filter media should be replaced every 1000 hours of operation for 60 micron and 115 micron and every 5000 hours of operation for 300 micron. Filters for analysers are normally fitted with 115 micron mesh.

The nylon mesh will eventually breakdown if not replaced at the recommended intervals, if this happens particles will enter the filter assembly and block the cleaning jets.

The nylon filter mesh replacement procedure is simple and quick to exercise as follows:-

Remove the pump unit from the channel and follow the removal and replacement procedure. The operation can easily be carried out at the channel.
1. Filterpump removed from the water ready for the replacement of the filter media
2. The top and bottom plates are left secured to the pump and cage, only the filter retaining-cage need be removed. This is achieved by removing the retaining bolts holding the two ends of the cage together. At this stage the cleaning rotor should be checked visually. If there are signs of jet blockage the rotor assembly may be cleaned. **IF THIS IS THE CASE GO TO ITEM 7 OR PROCEED TO ITEM 3.**
3. Press out the filter inserts and replace with the new units, these are pressed into the cut outs as shown. **NOTE:** Make sure the inserts are fully inserted into the cage and they locate centrally into the cage clamp cut outs.
4. The filter retaining clamp is replaced ensuring the two ends of the cage come together at one of the back cage support areas as shown. **IMPORTANT NOTE:** Make sure that you line up the filter inserts and clamp with the apertures in the inner filter cage. Else flow and backwash area will be reduced.
5. The two ends should be held together using grips while the retaining bolts are secured.
6. After a final inspection making sure inserts, cage and clamp are aligned. The pump is now ready for replacement into the channel.
7. Remove the base retaining screw (M6 x 12mm + 6mm washer) and the three filter retaining bolts from the pump. Remove the filter cage.

8. Remove the filter retaining cage and re-fit the filter inserts. See item 3
9. Re-place the filter retaining cage ensuring the two ends of the cage come together at one of the back cage support areas as shown. Refer to items 4 and 5 previous.
10. Split the cleaning rotor assembly by removing the eight screws holding the two halves together, leaving the back section on the pump rotor. Unclip the two cleaning blades and split them using a small screwdriver. Clean each piece and re-assemble. Re-fit the rotor to the back section using the eight screws to secure the assembly. Re-fit the filter cage unit onto the Filterpump. The Pump may now be inserted into the channel.
**Rotorflush Air bleed Valve.**

The air bleed valve is positioned at the top of the pump and allows the escape of air that would otherwise be trapped in the pump stopping it pumping water. Place the pump in the water and air will bubble from the valve. Leave for a couple of minutes or until no more air is coming out. Then switch pump on and it should be primed. **Do not turn the pump on** until all the air has come out as this will prevent the filter priming, there may be a flow from the pump but the self cleaning filter will still have air in it and may not be self cleaning properly. The pressure from the pump will seal the valve, it may weep slightly.

**Maintenance**

Overtime the air bleed valve may become blocked. To clean it, unscrew the top from the body and remove the small ball. Clean the valve by passing a suitable piece of stiff wire down through the valve body into the pump and do the same for the top part of the valve.