RF300AR-E

INSTRUCTIONS

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Installation and servicing instructions

Rotorflush RF300AR self-cleaning filter

1. **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 FILTER EXEMPTS ROTORFLUSH FILTERS FROM ALL RESPONSIBILITY IN THE EVENT OF PERSONAL INJURY OR DAMAGE TO EQUIPMENT OR PROPERTY AND/OR TO THE FILTER

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

There are no RESIDUAL RISKS with Rotorflush Filters

No particular technical skills are required to use Rotorflush Filters.

No personal safety devices (precaution devices) are required to use Rotorflush Filters

i. **Preventative Measure to be Taken by the User**

The user must specifically comply with all the accident prevention regulations in force in the respective countries in which the Filter is being used.

a. During operation make sure that nobody is in the water
b. Before undertaking any repairs or maintenance to the Filter, 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.
c. Any maintenance operation, installation or moving the Filter with the electrical system live may cause serious injury and could prove fatal.
d. During operation, avoid moving the Filter.
e. Before using the Filter, always check that the cable and all electrical devices are in perfect working order.
f. When starting up the Filter (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.
g. The user must not carry out under his/her own initiative any operations or tasks not contemplated in this manual.

ii. **Significant Protection and Precautions**

(as per EEC 98/37 p. 1.1.2 and 1.7.2; EN 292-2 p.5).
Rotorflush filters are designed so that all moving parts are shrouded by protective casings. Rotorflush Filters 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.

2. Servicing and Installation safety precautions

Before installing or servicing the filter observe safety precautions:

i. Wear gloves to protect hands against the risk of injury from any sharp filtrate particles etc and contamination from any bio-hazards which may be present.

ii. Wear safety shoes to protect against injury to feet if the Filter is accidentally dropped.

iii. Wear safety glasses to prevent eye injury.

iv. Take special care to minimise risks to health from any bio-hazards which may exist due to the operating conditions of the Filter Recommended precautions include

v. Thoroughly clean all external surfaces of the Self-Cleaning Filter and if appropriate, disinfect the pump and filter unit by immersing it in a proprietary disinfectant in accordance with the manufacturer's instructions.

vi. Damp down the filter to minimise the airborne dispersion of any filtrate particles.

Wear a suitable face mask to prevent inhalation of any filtrate particles etc.

vii. Thoroughly wash hands.

ix. Do not eat, drink or smoke in the work area.

3. Description

i. The Self-cleaning filter is designed for use with centrifugal pumps as a pre-filter attached to the end of the suction hose. It has an internal cleaning rotor which continually backflushes the filter screen. The cleaning rotor is powered the integral backwash pump

ii. Construction:

Filter cage	304/316 stainless steel
Cleaning Rotor	304/316 stainless steel with rubber jets
Bearing	Acetal Copolymer/304/316 stainless steel
Filter screen:	Sintered or Woven Stainless steel mesh. 50/100/315 micron, 0.5-3mm

4. Flow rates and pressures

i. The maximum usable flow through the filter, (with standard 300 micron screen), 560 litres per minute, depending on the total suspended solids contained in the fluid and the type of solids, (fatty/ sticky solids will reduce performance)

5. Installation

Please observe safety precautions as detailed under "**servicing and installation safety precautions"** above.

i. DANGER – RISK OF ELECTRIC SHOCK. When installing, please ensure the filter is disconnected from the power supply

ii. Filter positioning:

In Tanks:
It is important that there is enough room around the filter for solids backwashed from the screen to move away from the filter. When positioning in a tank there should be a minimum of 300mm between the outside diameter of the filter and the sides of the tank. It should be kept out of any debris that may settle at the bottom of the tank.

In Flowing Water:
Where the filter is positioned in flowing water, solids backwashed from the filter will be taken down stream and will not build up. It is still important to have space around the filter and we would recommend a minimum of 150mm between the outside diameter of the filter and the sides of the channel that it is sited in.

iii. Pipe connections:

Connect the suction pipe from the pump to the 2 ½ inch B.S.P. pipe which is off-centre at the top of the filter.. A 2 ½ inch non- return valve should be fitted in the suction line near to the filter. It is important that when the main pump is switched on the backwash pump is also switched on so water is immediately being supplied to the flushing rotor inside the filter

iv. Prime pump and run.

6. Electric Connection

i. 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)**

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

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

a. Overload Protection

The Rotorflush Filters single phase 110V and 220-240V 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

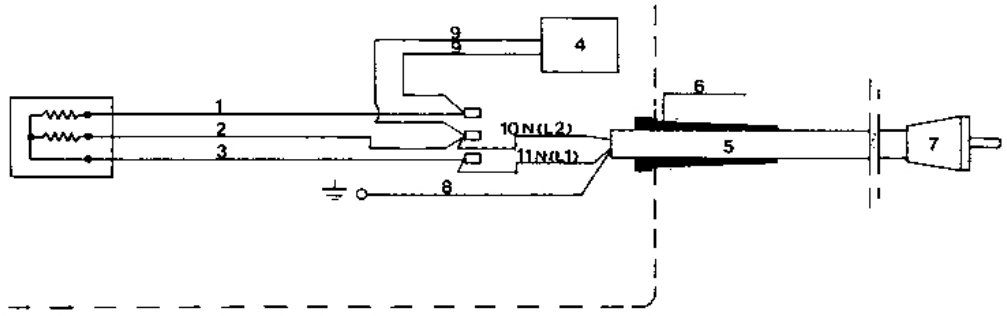
The Three Phase versions of Rotorflush Filters can be protected by using a magneto-thermic motor protector or a contactor with thermal relay. In either case they have to be rated conforming to the nominal power as shown on the pump rating label.

b. Connection Diagram (See Fig.2)

1) Start (green)	5) Supply cord	9) White
2) Run (red)	6) Grommet	10) Light Blue <line>
3) Common (black)	7) Plug	11) Brown <line>
4) Capacitor	8) Yellow-green	12) Float Switch

Fig. 2

A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11 N(L1)
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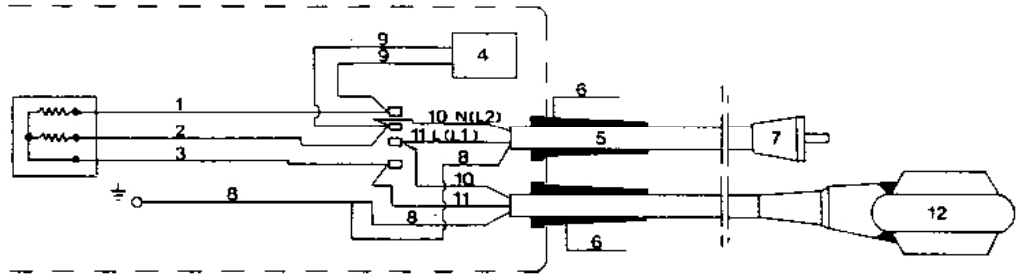
B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9
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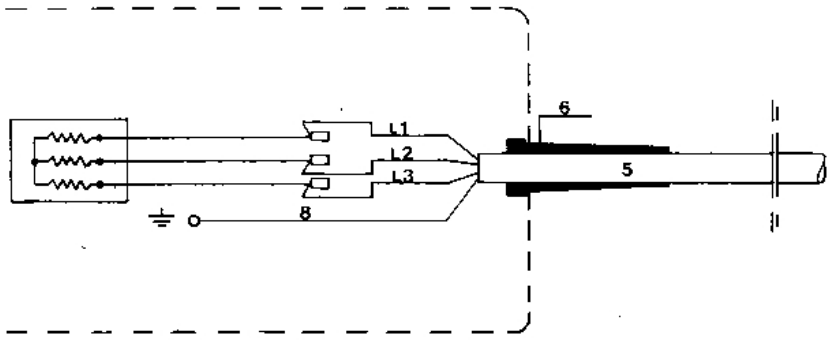
C


6
L1
L2
L3
5
8

7. Trouble Shooting

FAULT	POSSIBLE CAUSE	REMEDY
Motor does not run	1. No electricity supply 2. Incorrect electric connection 3. Circuit breaker has tripped 4. Impeller Blocked 5. Motor or capacitor damaged	1. Check Supply 2. Check connections 3. Re-set circuit breaker, if it trips again call electrician 4. Check Filter Mesh for damage. If damaged contact Rotorflush 5. Contact Rotorflush
Motor runs but no water delivered	1. Filter Blocked 2. Non Return Valve (if fitted) blocked	1. Clean Filter. Reduce suspended solids in water. There is no need to dismantle the filter. Restrict pump output, filter will block less with a reduced flow through pump. 2. Check filter mesh for damage and clean valve
Intermittent operation (single phase versions)	1. Impeller obstructed 2. Liquid Temperature too high 3. Motor broken	1. Check Filter Mesh for damage. If damaged call Rotorflush 2.Reduce temperature of liquid 3.Contact Rotorflush

8. Maintenance

i. **Cleaning of tanks**

As the filter is withdrawing water from the tank and leaving solids behind in the tank, the concentration of solids in the tank will increase. Unless the tank is cleaned out the increased solids concentration will eventually block the filter. Tanks either need to have a flow through them to take solids away, or they need to be cleaned out regularly.

ii. **Cleaning Filter Screen**

Over a period of time the filter screen may become blocked with small particles that the self cleaning mechanism is unable to remove.

Stainless Steel Screens: Clean the outside of the filter using a pressure washer, or even better a steam cleaner. Thoroughly clean the outside of the filter screen.

iii. **Maintenance duration for Screens:**
The 100 micron and 50micron screens will need pressure washed every 1000 hours of operation. The 300 micron nylon screens every 5000 hours. For large mesh size duration will depend on mesh size and the environment the strainer is in but every 5000 hours is an average guideline. New mesh screens are available from Rotorflush Filters Ltd

iv. **Servicing the cleaning Rotor**

Over a period of time, there may be a decline in the cleaning performance of the filter and blockage may occur. This can be due to a build up of detritus in the jets of the cleaning rotor.

Remove the Strainer from the water source and clean the unit thoroughly with a pressure washer.

Remove backwash pipe by undoing the union on top of the filter.
Remove the top plate of the filter (the plate with the suction and return pipes), by unscrewing the 10x M6 bolts and remove the top plate from the filter cage.

IMPORTANT NOTICE: Pay attention to the direction to the Jet Clips and the distance they are set away from the inside of the Cage (approx. 6-8mm) as this is critical to the backwashing system.

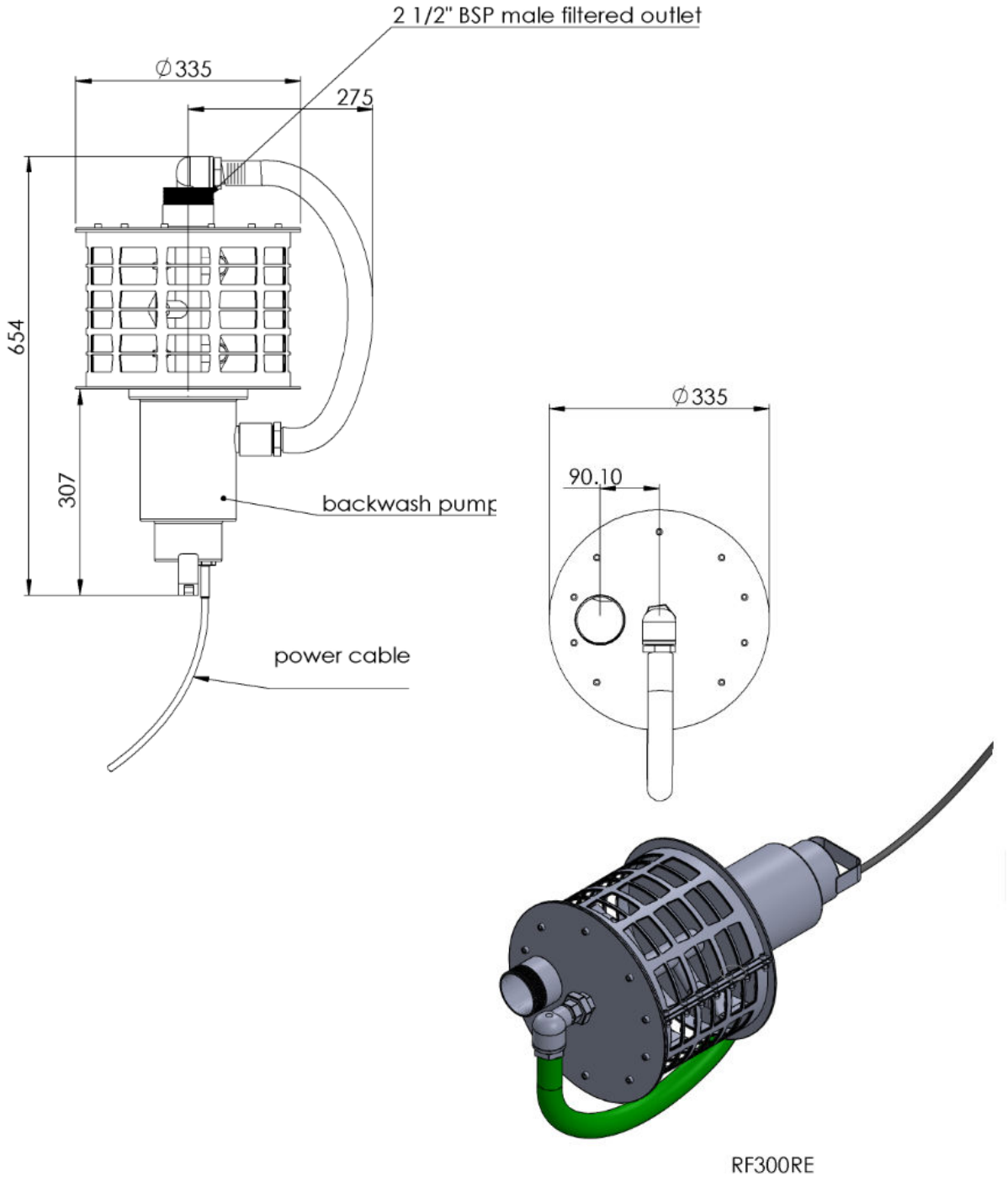
Turn the cleaning rotor so that the ends line up with the cut away parts of the filter cage and remove the cleaning rotor from the filter. As shown below (left).

If the jets appear blocked or excessively dirty - Using a high-pressure hose blast water through the hole in the top of the cleaning rotor to remove detritus.
If the Backwash Jets are damaged and require replacement. Undo the Jubilee clips using a 7mm spanner and remove the damaged Jets replacing them with new jets. Make sure orientation and positioning is correct before retightening the Jubilee clips. Once again check fitment is correct as with tightening the Jets may deform and become misaligned. Is this is the case undo, adjust and retighten.

Spare parts are available from Rotorflush Filters Ltd.

The Backwash Rotor can now be refitted into the filter and the Top plate reattached. This unit can now be reinstalled to the water source.

*If in doubt or you encounter difficulties please feel free to contact Rotorflush Filters Ltd.

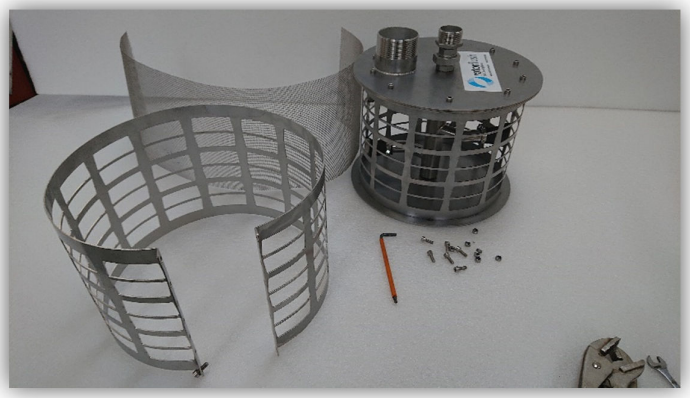

2 1/2" BSP male filtered outlet
∅335
275
654
307
backwash pump
power cable
∅335
90.10
RF300RE

Replacing Stainless Steel Mesh

Please note for general cleaning the filter mesh does NOT need to be removed. Simply remove debris with a pressure washer.

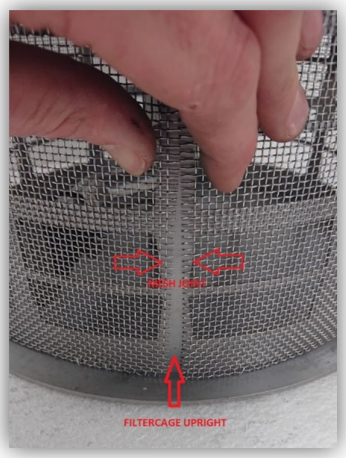
The Stainless Filter Mesh has sharp edges wear gloves to protect from cuts

1. Remove the 7x M6 nut and bolts on the tabs of the Clamp on the filter cage and remove the outer clamping ring.



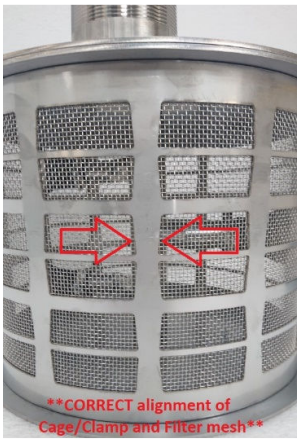
2. Remove the Clamp and damaged mesh. (as shown above) Clean the inner filter Cage and Clamp surfaces to aid fitment of new mesh.

3. Place the Stainless filter mesh (available from Rotorflush Filters) around the filter cage. Ensuring that the joint is in line with a cage upright as shown below.



4. Place the outer clamp over the filter mesh with the clamp tabs the opposite side of the filter to the mesh joint to ensure maximum clamping force on the mesh joint.

5. This is the fiddly bit!!
The outer clamping rings apertures MUST line up with the inner filter cage apertures. The ends of the Stainless mesh MUST be positioned so that they line up with one of the uprights between the apertures.
Have a pair of mole grips handy, so that when is all in the correct position you can clamp the tabs on the outer ring to hold all in position and re-adjust as necessary. As shown below.



6. Double check that the ends of the filter mesh are not visible and are firmly behind one of the uprights. If they are visible then there will be a gap where larger particles can enter the filter.

7. When all Clamp and Mesh fitment is correct, reinstate the 7x M6 nuts and bolts in the outer clamp and tighten.

8. Re-check alignment of the Cage, Clamp and Mesh joint with the upright columns.

Please note that failure to do these alignments will cause reduced flow and/or larger particles to enter the pump. Either way this will eventually lead to a pump failure.

If there is a miss-alignment please go back to step 1.

*If in doubt or you encounter difficulties please feel free to contact Rotorflush Filters Ltd.

NOTES.