



RF300AR

INSTRUCTIONS



Installation and servicing instructions

Rotorflush RF300AR self-cleaning filter

1. 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.

2. 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 by taking a Tee off the output of the 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

3. Flow rates and pressures

- i. The maximum usable flow through the filter, (with standard 300 micron screen), 583 litres per minute with up to an additional 75 - 150 litres per minute required for backflushing, depending on the total suspended solids contained in the fluid and the type of solids, (fatty/ sticky solids will reduce performance)

Pressures and flow Rates to backwash rotor

Pressure at backwash connection (Bars)	Flow to backwash (litres/minute)
0.1	51
0.2	78
0.3	102
0.4	112
0.45	120

Do not exceed 0.7 bar at the backwash connection as the rubber jets may be damaged



4. Installation

Please observe safety precautions as detailed under “servicing and installation safety precautions” above.

i. 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.

ii. Pipe connections:

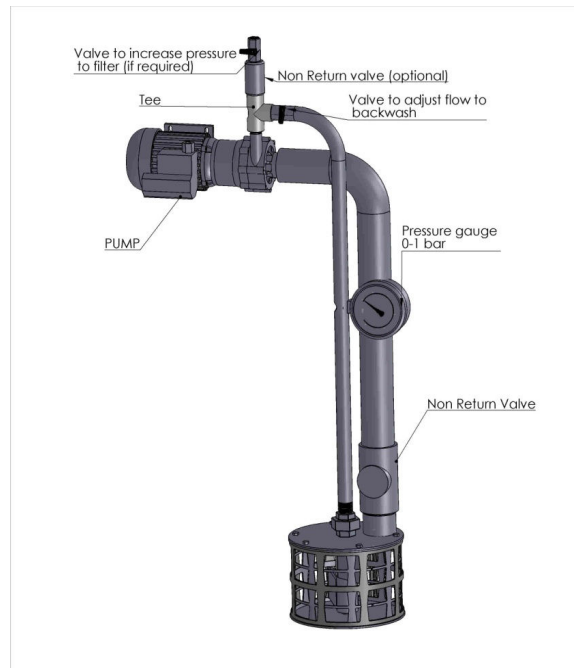
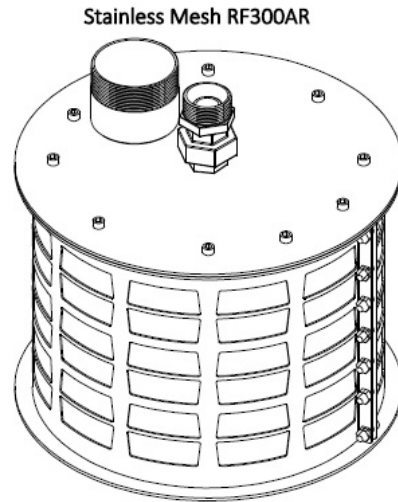
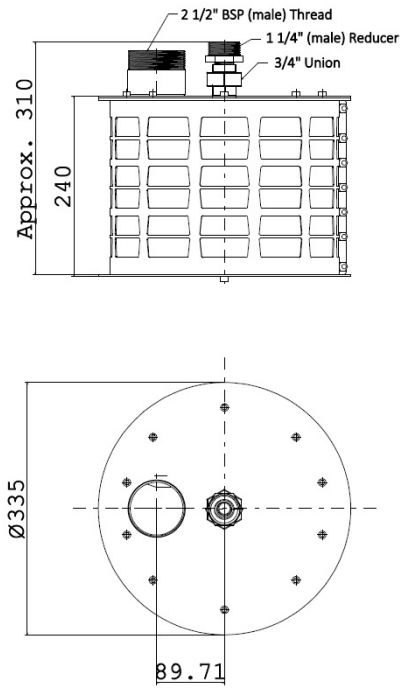
Connect the suction pipe from the pump to the 2 ½ inch B.S.P. pipe which is off-centre at the top of the filter.. A 2 ½ inch non- return valve should be fitted in the suction line near to the filter. It is important that when the pump is switched on water is immediately being returned to the flushing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

Take a “T” off the output pipe of the pump. The return pipe from the Tee to the fitting in the centre of the top of the filter should be a **minimum of 1 ¼ inch** to avoid excessive pipe friction losses. When the pump is switched off the upstream pipe-line may drain back through the filter backwashing line. If this is likely to be a problem fit a non-return valve upstream of the Tee.

Fit a pressure gauge to the backwash line (scale 0-1 bars), as close to the filter as possible to avoid readings affected by friction losses in the backwash line.

Fit a valve on the branch of the TEE going to the filter backwash connection, (the central fitting on the filter). This is used to adjust the flow to the filter. The filter backwash only requires about 0.2-0.7 bars. The Backwash rotor should run at 60-105 rpm depending on pressure to backwash connection. For most applications the pressure to the backwash should be 0.2-0.5 bars. It can be set higher than this if there are a lot of suspended solids in the water and/or they are sticky and difficult to filter this will reduce the life of the screen if nylon screens are fitted. Stainless screens are more robust but may require more regular cleaning (Pressure washing).

iii. Prime pump and run.



5. Fine Tuning

- i. If the water to be filtered is very badly contaminated and filter blocks, unblock filter, by thoroughly cleaning the screen, (observe safety precautions under servicing). If this continues to occur, put a wheel valve or ball valve upstream of the “T” off. This can then be partially closed to send more fluid to the cleaning rotor. This will increase the cleaning power of the filter but reduce the amount of usable filtered flow.

6. 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 a 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.

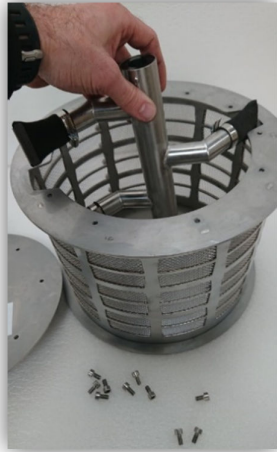


Maintenance cont'd

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 as shown above.

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. If this is the case undo, adjust and retighten.

7. Spare parts are available from Rotorflush Filters Ltd.

- i. 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.

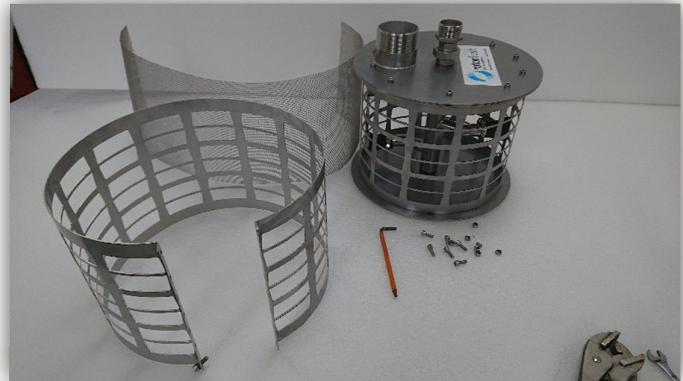
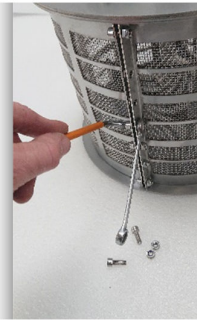
***If in doubt or you encounter difficulties please feel free to contact Rotorflush Filters Ltd.**

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.

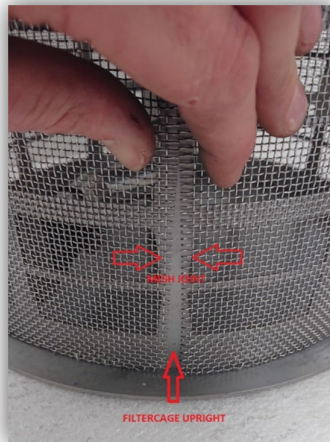
The Stainless Filter Mesh has sharp edges wear gloves to protect from cuts

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.

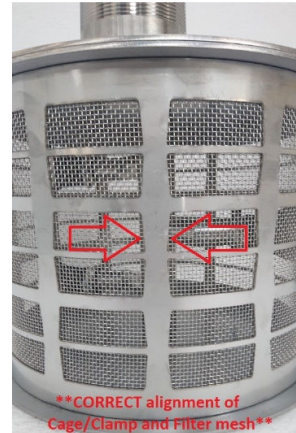


4. Place the outer clamp over the filter mesh with the clamp tabs the opposite side of the filter to the mesh joint to ensure maximum clamping force on the mesh joint.

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.**



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