AQUABIOME EXOTUF
POND PROFESSIONAL BEAD FILTER

Installation & Instruction Manual

⚠ WARNING This equipment must be installed and serviced by a qualified technician. Improper installation can create electrical hazards which could result in property damage, serious injury or death. Improper installation will void the warranty.

Notice to Installer

This manual contains important information about the installation, operation and safe use of this product. Once the product has been installed **this manual must be given to the owner/ operator of this equipment.**

WATERCO

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BIOLOGICAL AND MECHANICAL FILTRATION

1. Filtering Pond Water

To maintain good water clarity and a safe environment for fish, the pond water requires a combination of the following features:

1. **Mechanical Filtration**
2. **Biological filtration**
3. **U.V. Sterilisation**
4. **Good circulation**
5. **Aeration**

In simple terms, the 'mechanical filtration' is basically straining the water, separating the solids from the liquid. The solid matter in a pond is usually made up from different forms of debris, which maybe found at any level in the water. The presence of these solids and suspended particles will make the pond water appear murky or cloudy, making it difficult for visual inspection of the fish. The water clarity may not necessarily be a problem to the fish, provided the debris and suspended solids are of a non-harmful nature.

However, some of the debris in a pond can create problems for the fish, often caused by Ammonia, which is produced by faecal, mucus, and other decaying matter. To overcome the build up of harmful Ammonia in the pond water, it is necessary to install a 'Biological filter'. Most often, a Biological filter is a large chamber full of media, which breeds and cultures 'good bacteria'. Within the Biological filter, the good bacteria consume and convert the harmful Ammonia into harmless Nitrate.

Conventional pond filtration systems generally keep the mechanical and Biological filtration aspects separate, and as such the equipment involved can be rather large and bulky. In addition to the size considerations, most conventional filter systems may require a high degree of maintenance and cleaning. This can prove to be very time consuming particularly during the summer months, when the frequency of cleaning can be so often, it becomes impractical.

Combined with the Mechanical and Biological filtration, it is essential that the pond water is re-circulated (turnover time) at a rate of every: 2 – 3 hours.

Any pond filter system must run 24 hours a day – seven days a week!

This is essential to ensure that all aspects of the system work on a continuous basis to ensure a safe and healthy environment for the fish to live.

Therefore, a major consideration for the pond owner is the power and water consumption used to maintain the pond filtration. Usually, Hi Rate sand filters need a fairly powerful pump to force the water through the fine sand, and this can prove expensive when running on a continuous basis. Likewise, the frequency of backwashing will lead to a large volume of water being required. This too can prove costly in the long run.

2. The Benefits of using a Waterco Exotuf Bead Filter System

The principal of using a **Waterco Exotuf Bead Filter filter** is to combine the Biological filtration aspect with the mechanical filtration (water polishing) you would have with a Hi Rate sand filter. In most cases the Exotuf Bead Filter can be installed instead of a Hi Rate sand filter.

By combining these two filtration aspects (mechanical & Biological), using a **Waterco Exotuf Bead Filter**, the whole system can be more compact than a traditional - conventional pond filter system. Or, the Exotuf Bead filter can also be used to enhance an existing system. In addition, the **Waterco Exotuf Bead Filter** requires far less pressure than a conventional Hi Rate sand filter, therefore the type of pump needed will require far less power. Possibly reducing power use by 50%!

Perhaps most important of all, a **Waterco Exotuf Bead Filter** will require far less maintenance – cleaning or back washing than a typical Hi Rate pressure sand filter. This will mean you could save a considerable amount of wasted water and time, whilst keeping your pond in 'tip top condition!

3. How does the Waterco Exotuf Bead Filter work?

The Waterco Exotuf Bead Filter should be installed after your strainer/Vortex. A suitably sized pump must be selected to ensure the correct water flow is delivered to the Exotuf Bead Filter. Once installed, the Exotuf Bead Filter will remove suspended solids down to 10 microns in size, maintaining your water clarity to a very high standard.

The pumped water is fed to the Main Multi-port valve and diverted to the lower filter inlet. The inflowing water is evenly dispersed through the special slotted pipes (Laterals) within the lower section of the filter. The contaminated water flows upwards through the filter vessel depositing waste matter between the crevices of the Polymer Media (Waterco Bio Mec Bead Media).

To assist the growth of Bacteria for removal of the Ammonia present in the inflowing water, you will need to charge the system with a suitable bio-filter maturing product. Once added to the inflowing water, good bacteria will begin to colonise on the filter media enhancing the biological action.

The Waterco Exotuf Bead Filter is designed to reduce the amount of maintenance (and waste water) required and ideally if the equipment has been correctly sized, backwashing will only be required on a weekly basis. The backwashing process is assisted by the use of a very powerful blower (air compressor) and the whole procedure will take less than 5 minutes to perform.

The Waterco Exotuf Bead filter is designed to ensure servicing simplicity. The main filter body has a large clear lid with clamp assembly for easy access to the internals of the filter. Both the top collector assembly and laterals can be easily unscrewed and removed for cleaning if required.

4. Choosing the correct size Exotuf Bead Filter for your pond

The following is the list of specifications for the size range:

Filter Diameter Size	**20”**	**24”**
Filter Surface Area m^2	0.2	0.3
Media Volume in Litres	30	60
Min - Maximum Flow Rate m^3/hr	5 –10	7-16
Max Pond Size m^3	**20**	**36**
Max Pond size gallons	**4400**	**7920**

Make sure the pump you use will operate at the correct flow rate!

5. Installation Instructions:

(Fig 1)

(Fig 2)

(Fig 3)

1. Prior to installation: Prepare an area large enough to stand all the equipment allowing adequate space for connecting pipe-work and routine servicing. Once you have decided on the optimum position, prepare a flat and level concrete base to accommodate the unit.

2. Remove filter – Air blower and pipe-work from packaging. Check to ensure all parts are present and are in good condition. (See fig 1)

3. Place the main filter unit on the pre-prepared concrete base making sure that both the blower and the filter vessel are secure. (See fig 2)

4. Connect the Multi-port valve onto the top and bottom bulkheads, ensuring that the ‘O’ rings are in place. Tighten the connecting unions by hand only. (See fig 3).

5. Screw on the return union to the remaining position (on the lower - RHS) of the Multi-port valve. Tighten the connection by hand only.

6. Use PTFE tape around the threads of the pressure gauge and screw into the threaded hole on the side of the Multi-port valve. There are two positions for this, so install the gauge to the most easy to see position and use the screw cap in the opposite hole. **Be sure NOT to over tighten the pressure gauge as this will damage the threads!**

7. Cut and glue pipe-work from your pump discharge to the MPV connection. Be sure not to stress any pipe-work by providing suitable supports, where required. **NOTE:** All pipe-work connections are 1 ½". An Isolating valve (not supplied) must be fitted between the pump discharge and MPV.

8. Cut and glue pipe-work for the waste line from the MPV and the drain, again ensuring that all pipe-work is well supported.

9. Cut and glue pipe-work between the return union on the MPV and the pipe-work back to the pond. This return line may include a U.V. light system, but again ensure all pipe-work is supported.

10. Once all glued pipe connections have been completed, ensure adequate time for the adhesive to dry. **Most likely this will be at least 12 hours.**

11. **IMPORTANT! Ensure the pipe-work and glued joints have had adequate time to vent any flammable fumes before starting the air blower. Ideally, run the water pump for at least an hour before testing the blower on the system.**

12. **IMPORTANT! The electrical connection of the blower must be made by a qualified electrician and in accordance with the latest edition of the I.E.E. regulations. The blower unit must be protected by a Residual Current Device (RCD).**

13. Remove the main filter lid and check to ensure all the laterals are securely in place in the bottom of the filter before filling the filter.

14. Ensure you have the correct amount of media as stated in the table above in section 4. Carefully pour in the media into the filter avoiding any spillages. Once the whole amount is in the filter re fit the main filter lid.

6. Starting up your Bio-Mec Filter

1. Re-check all threaded connections to ensure they are watertight and select 'Filter' mode on the Multi-port valve.

2. Select the open position of the isolator valve, this will be when the white arrow is pointing to 12pm position and the handle is across the pipe-work.

3. Ensure system water level is to correct level and start the main circulating pump. Water will begin to flow through the filter, which should be observed at the top of the vessel within a few moments. With the filter and valves in this position, the filter is working in it's normal – Filter mode.

4. Once the unit has been run for a while, check all joints to ensure there are no leaks. To check that the blower is functioning correctly, follow the backwash procedure as stated below.

5. Once all parts of the system have been tested, add some 'filter start' to prime the filter for biological growth. (Consult your dealer).

7. Backwashing Procedure for your Bio-Mec Filter

1. Turn the circulating pump off.

2. Close the isolator valve on pump discharge pipework.

3. Select Rinse position on the Multi-port Valve.

4. **Ensure waste line is unobstructed and the circulation pump is NOT switched on!** Switch blower unit on and run for 1.5 - 2 minutes. This will agitate the media causing the entrapped debris to disperse into the available water within the filter. Some of the contaminated water will discharge to waste. Switch blower off.

5. Keep the Multi-port valve in rinse mode, but alter the position of the isolator valve back to the open position.

6. Switch the circulation pump on and run for 30 - 40 seconds during this time dirty water will discharge eventually clearing. Switch pump off.

7. Select backwash mode on the Multi-port valve. Run the circulation pump for 2 - 3 minutes. This will remove the debris collected in the filter. Switch pump off.

8. Re-select rinse and run the pump pump for a further 20 - 30 seconds. Switch pump off.

9. Select filter mode on the multi-port valve. Switch pump on and continue to filter as normal.

IMPORTANT NOTES

Never try to run the Blower and the circulating pump at the same time!

(Fig 4)

Regularly check the Non return valve to ensure water is not bypassing, which could cause the blower to flood. (Fig 4) Leakage could be seen as excessive water dripping or running from the drain hole on the blower pipe-work.

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