

AquaForte UltraBead Beadfilters

User manual





Important Please read these instructions for use carefully before installing this device.

AquaForte introduce the new UltraBead filters! After more than 17 years of success, Europe's most popular beadfilter is followed up by a new generation. The new UltraBead filters are manufactured of chemical-resistant, weather resistant, inalterable thermoplastic with the world's most reliable injection moulding method with built in base. All models are equipped with a totally new designed multiport valve construction with integrated by-pass! This guarantees a maximum flow with minimal pressure loss. Furthermore, the UB140 is fitted with Ø75mm pipework for even less resistance.

Beadfilters are closed (pressure) vessels filled with millions of small plastic beads. These beads float and therefore provide a means of mechanical filtration and the enormous surface of these beads provides the biological filtration.

Mechanical filtration: the beads float in a closed vessel and are packed very close to each other. The pressure of the pump makes the water flow upward through the beads. The small dirt particles will stick to the bead pack. The longer the filter is active, the more biofilm there will be around the beads and therefore small particles can be filtered (down to 10 micron!).

Biological filtration: the specific surface of the beads is about 1600m² per m³, so the bio film layer around the beads is extremely useful nor nitrifying bacteria that consume vast amounts of ammonia, nitrites and nitrates.

The fish load in the table is based on 1% feed per day.

Recommended pump capacity: in a water column of 2 - 3 m (0,2 -0,3 bar) the pump should be able to circulate 50% of the actual water volume per hour (see specifications of the various pumps). Ponds larger than 40 m³ should have a pump with an actual capacity of 25% to 33% of the water volume per hour. Filters are delivered incl. beads.

CAUTION: Max. working pressure 2,5 bar (25 meter).

Beadfilters are also the ideal filter for swimming ponds! They provide perfectly clear, healthy water!

FOR MORE INFORMATION: www.ultrabead.com.

UltraBead filters come with a 230VAC electric blower for cleaning the filter. Please read the safety instructions carefully before using this blower:

SAFETY

- Always insert the mains plug of the blower in a switched socket with cover.
- Always use a residual-current device (RCD) (max. 30 mA).
- Always make sure that the blower is voltage-free before you perform maintenance or repair work on the device. Never insert from the plug in or remove it from a socket if you are standing in a pool of water or have wet hands.
- This product is not suitable for use by persons (including children) with reduced physical, sensory or intellectual capacities, or lack of experience and knowledge, unless they are supervised or instructed on the use of the device by a person responsible for their safety.
- The power lead of this device is not replaceable. In the event of damage to the power lead the complete device must be replaced. A device with cut off plug is not covered by warranty.
- Never immerse the device in water.
- Keep children away from this device and the lead.
- This product is only to be used in accordance with the guidelines described in this manual.

INSTALLATION INSTRUCTIONS

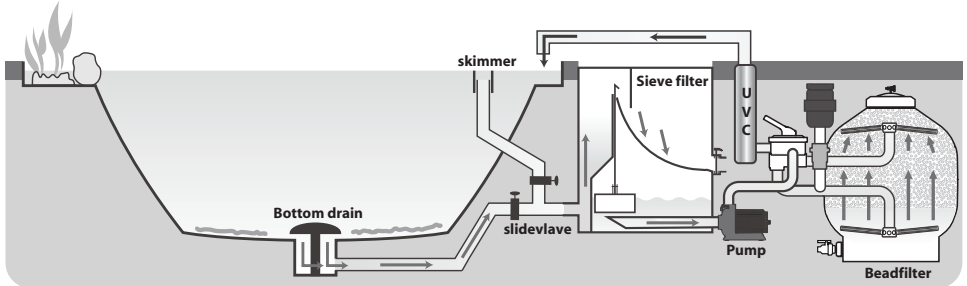


Pre-filters: as the inlet/outlet pipework system of the beadfilters have small openings of $\pm 1,5\text{mm}$ you cannot pump dirty pond water directly into a beadfilter as the waste particles will block these openings. Always use a pre-filter that is capable of filtering out these waste particles first!

Below we give a few examples of possible pre-filter options:

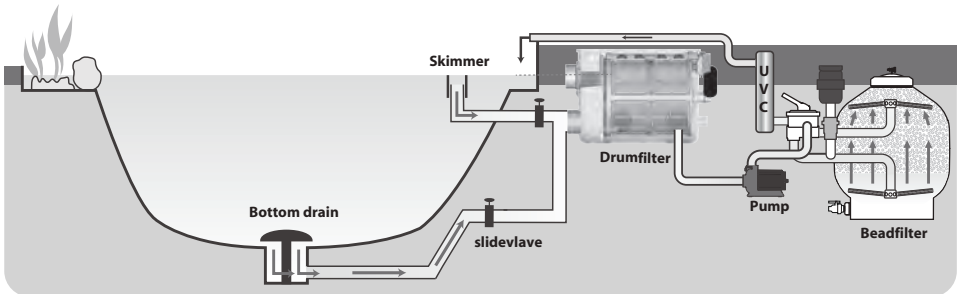
GRAVITY FED SIEVE FILTER SYSTEM

The water travels in gravity from the bottom drain and skimmer to the Sieve filter. From the Sieve filter the water is pumped into the Beadfilter and goes back to the pond through a UVC-unit.



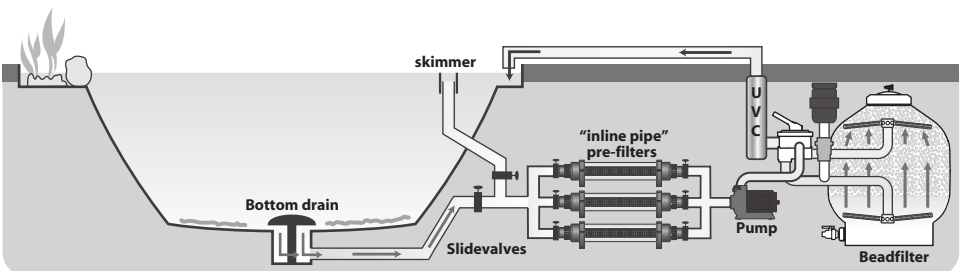
GRAVITY FED DRUMFILTER SYSTEM

The water travels in gravity from the bottom drain and skimmer to the Drumfilter. From the Drumfilter the water is pumped into the Beadfilter and goes back to the pond through a UVC-unit.



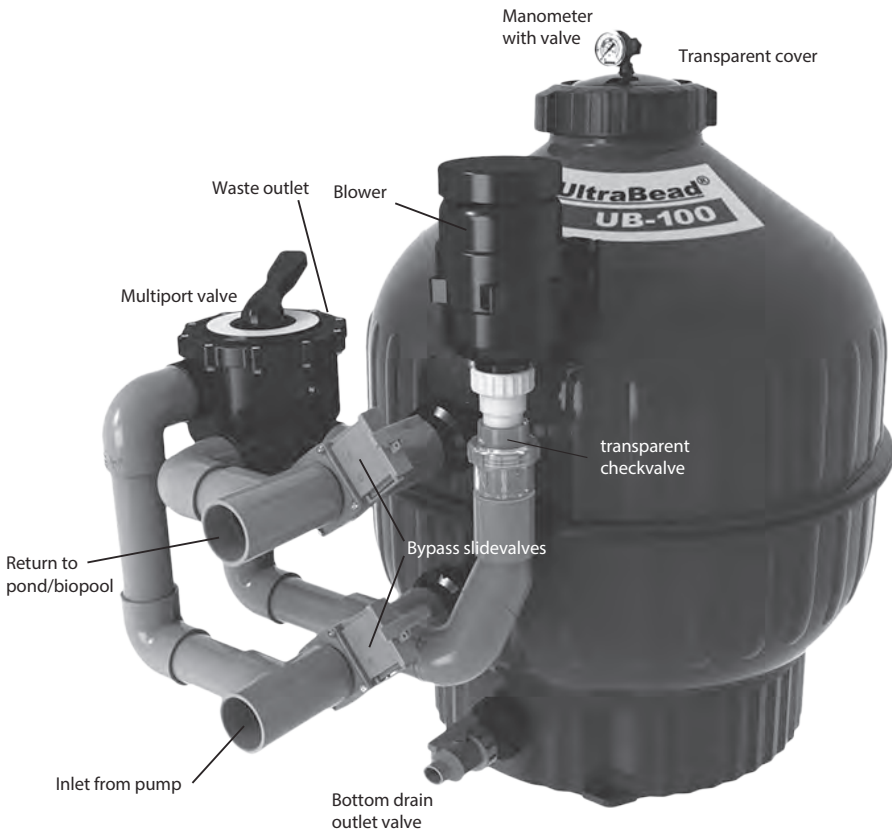
INLINE PIPE PRE-FILTER SYSTEM

When the technical room is lower than the water level of the pond we can use the AquaForte inline pipe pre-filter system (RD430) as an alternative pre-filter. The rest of the system can be the same as in the above examples. When you install 2 or 3 in parallel you can clean them one by one without stopping the pump.



GETTING TO KNOW YOUR AQUAFORTE ULTRABEAD FILTER.

We suggest you take a few minutes to familiarize yourself with your UltraBead® filter.



INSTALLATION INSTRUCTIONS

The filter should be installed as close as possible to the pond/biopool.
Make sure there is drainage available at the place where the filter is to be installed.



If the filter is installed indoors, a correctly sized drain should be installed, to drain off as much water as possible from the pond/biopool, to avoid flooding risks of the premises or adjoining areas. If this is not done, the filter manufacturer will not be held liable for possible damage to third parties caused by the filter.

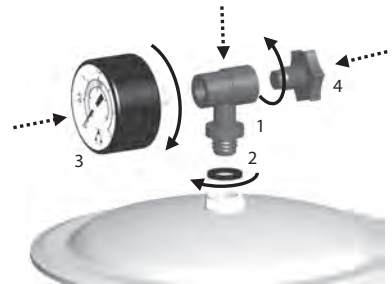
ATTENTION

IMPORTANT: Always leave enough space round the filter in order to perform the necessary examinations and maintenance during the filter's life.

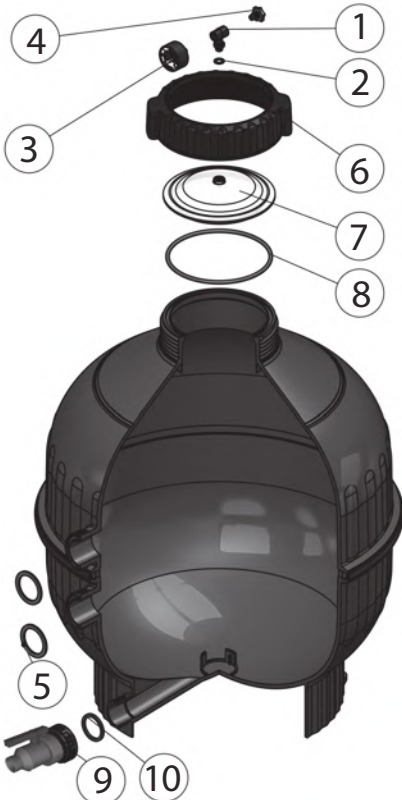
ASSEMBLY (1)

Follow these indications for a correct assembly of the filter:

1. Place the filter on a horizontal and clean surface.
2. Place the filter in its final location.
3. Install the selector valve with bypass in the filter. Make sure that the joints (5) between the valve and the filter are correctly placed.
4. Perform the three connections: pump piping to the "inlet from pump" connection, valve to the waste drain (Ø63mm) and "return to pond/biopool" for the return of the filtered water to the pond/biopool.
5. Set the air drainage (4), the joint (2), the manometer (3) and the air drainage (4). It is not necessary to use teflon tape, as the watertightness is guaranteed in this case by the joint. Do not tighten the manometer T with a tool, as manually will be sufficient.



Assembly of the manometer (with valve)



ASSEMBLY (2)

Install the bottom drain valve (9) by using the joint (10) on the threaded bottom outlet and (hand tighten only, no tools). You can position the blue handle of the ball valve on top by loosening the grey nut of the ball valve and turning the valve.

BEAD LOAD

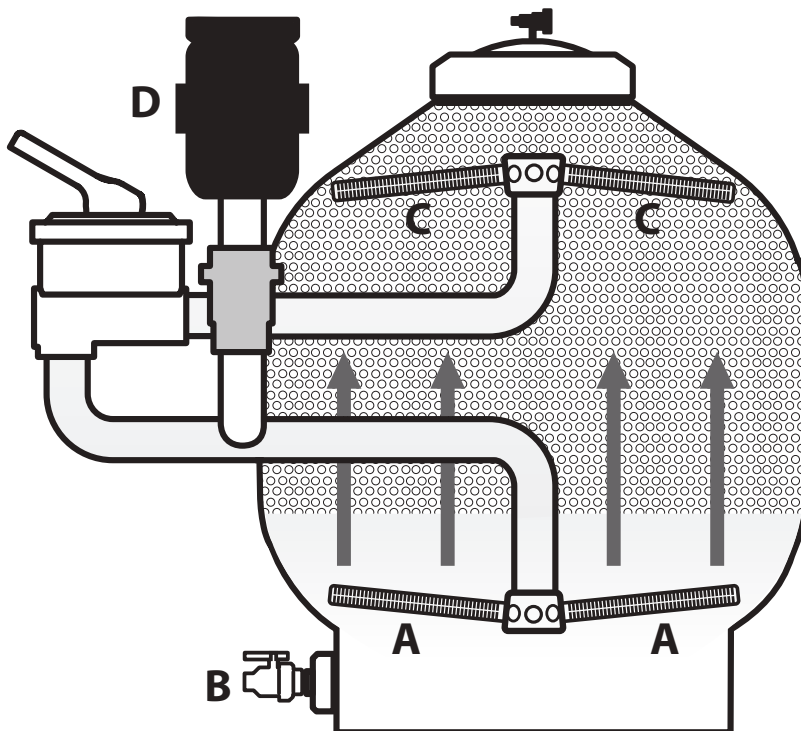
Load up when the filter is installed in position and the connection pipes have been joined.

1. Unscrew and remove the cover (6).
2. Remove the transparent cover (7) and the O-ring (8).
3. Check that all collector arms are in good condition.
4. Fill the filter with water to half capacity.
5. Pour the beads slowly and very carefully inside the filter.
6. Clean the seating of the lid joint.
7. Place the O-ring (8) and transparent cover (7).
8. Screw on the cover (6).

Attention: when operating check that water does not leak from the filter through the cover.

Note: the manufacturer will not be held responsible for any damage caused to the filter while filling it with beads.

BEADFILTER OPERATION



Water enters into the tank (A) under pressure from the pump. The solids are collecting in the centre of the filter, waiting to be hydraulically purged out under pressure from the pump. All you have to do is open the sludge separation valve (B) with the pump running and the filter in it's normal filtration mode and the heavier solids are evacuated in just a couple of seconds. What does all of this mean? The most unique, efficient filter of its kind. An efficient filter doesn't hold solids, it gets rid of them!

Now that the water is in the tank it is forced slowly upward in the vessel through millions of beads about 3-4mm in size. On these beads are billions of nitrifying bacteria and these hungry bacteria are consuming vast amounts of ammonia, nitrites, etc. and performing what is known as nitrification. This is how we actually have clean, healthy water is due to the work these microscopic organisms are performing. Water continues to flow upward through the beads and exits out of the vessel via the top spray bar (C). This water then continues back to the pond/biopool.

The UltraBead[®] series have another unique feature: the Blower (D). This blower is mounted on a special air check valve. It is important that the valve be in the rinse position for the blower agitation of the beads. When the blower is active the beads and debris are dispersed throughout the interior of the filter. This breaks up the beads and releases the trapped particles. This debris then can easily be backwashed out to waste through the spray bar (C). After the RINSE cycle with air we perform a backwash in which the water enters at C en leaves the filter through A. After the backwash there will be another RINSE cycle but with water instead of air. This takes any remaining debris and sends it to waste (from A to C), instead of sending a cloud of dirt back to the pond. You can find the full details on backwashing the filter on page 7 & 8.

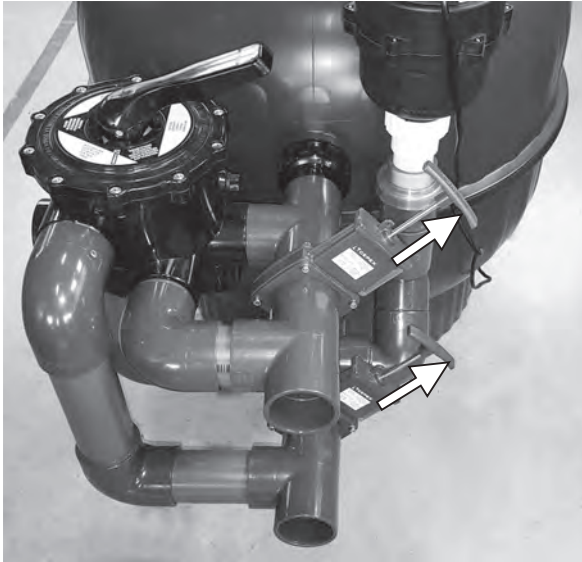
BACKWASH FREQUENCY

For ponds with fish (koi) it is recommended to clean the filter once or twice per week during the feeding season.

For swimming ponds/biopools it is recommended to clean the filter once per week or once per 2 weeks during the swimming season.

USING THE BY-PASS

In order to save precious power consumption, the UltraBead filters come including a by-pass system that allows to bypass the multiport valve during Filtration. This can save up to 30-40% energy (depending on pressure loss and pump type).



FILTRATION

During **FILTRATION** the 2 slide valves are in fully open position and the Multiport valve is in **FILTER** position (see photo).

CLEANING PROCEDURE

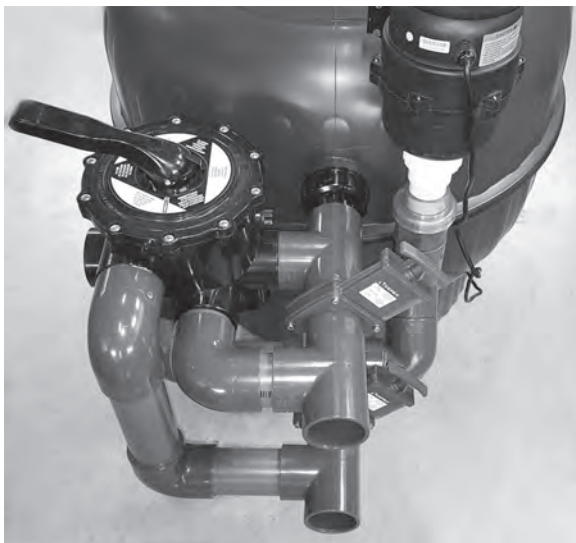


1. RINSE WITH AIR

1. Stop the pump and close the two slidevalves.
2. Move the Multiport valve from **FILTER** to **RINSE** position (see photo).
3. Now start the blower to separate the waste particles from the beads. You can use the blower for 2-3 minutes.
4. Stop the blower and start the pump to refill the tank with water. When the water has reached the top of the lid you can stop the pump.

NOTE: in order to save water during backwash you can repeat steps 3 and 4 to perform an extra rinse with air.

CLEANING PROCEDURE (2)



2. BACKWASH WITH WATER

1. Move the Multiport valve from **RINSE** to the **BACKWASH** position (see photo).
2. Now start the pump to flush the waste particles out with water. Please look at the sightglass of the valve to see if the water going out is still dirty.
3. As soon as this water becomes clear you can stop the pump. A backwash should normally takes 1 - 2 minutes.

NOTE: if you are using a variable speed pump you can increase the speed to perform an extra efficient backwash.



3. RINSE WITH WATER

1. Move the Multiport valve from **BACKWASH** to the **RINSE** position (see photo).
2. Now start the pump to flush the last waste particles out with water. Please look at the sightglass of the valve to see if the water going out is still dirty.
3. As soon as this water becomes clear you can stop the pump. A rinse with water normally takes 30 - 60 seconds.
4. Stop the pump and move the multiport valve back to the **FILTER** position. You can now move the handles of the slidevalves again to the fully open position.
5. Start the pump. You are now back in **FILTRATION** mode.

THE MULTIPORT VALVE

“FILTER”: water enters the Beadfilter at the lower inlet and goes upward through the beads and exits out of the vessel via the top spray bar to return to the pond.



“RECIRCULATE”: With the “RECIRCULATE” feature you can bypass your filter and flow the water from pond to pump to multiport and back to pond. This comes in handy when you are treating the pond with medication.



“WASTE”: allows the water to bypass the filter and go directly to waste, such as when you are performing a backwash cycle. You can also use the waste setting to vacuum out your pond without the garbage going into your filter, it bypasses the filter via the multiport and goes out to waste.



“RINSE”: The first time we use the RINSE feature to wash the beads with the blower which forces huge amounts of air into the vessel and since air rises in water, the beads are broken apart by this action, making a thorough backwash easy to accomplish. After the backwash function we use the RINSE feature again but now with water instead of air. It is impossible to get every little bit of debris out of a filter and this causes these small particles to exit in the waste line instead of going back into the pond.



“BACKWASH”: In this position we let the pump run until the water in sight glass is clear (normally 1 to 2 minutes). The water enters the filter from the top spray bar and exits the vessel at the lower pipework and goes out to waste.



“CLOSED”: Valve closed. Never use this position with the pump running.



FILTER MATURATION

This has been stated earlier, but is very important. It takes 4-6 weeks of operation at temperatures above 16-18°C. Before there is a large enough colony of bacteria to handle the bioconversion of ammonia and fine particulate straining. During this transition period the pond owner must watch the ammonia and nitrite levels in the pond. If they become dangerously high, steps should be taken to correct the problem, such as a water change. Also during this period fine particulate straining will not be fully mature and you may notice your water being less polished than you would like. Both of the above issues will improve with time and the growth of the bacterial colony. This will occur with any type of bead filter used. To help the nitrification process you can add bacterial cultures such as Microbe-Lift Super Start, Microbe-Lift Nite Out II, or Microbe-Lift Filter Gel (available at your UltraBead dealer).

ULTRAVIOLET LIGHT STERILIZERS

Bead filters will remove suspended particles down to 5-10 microns in size. However, some algae particles are smaller than 5 microns and will not be removed by the beads. These tiny algae cells will give the water a green cast and affect the clarity of the water. If the pond owner wants crystal clear swimming pool clarity, then a UV-light is needed. UV-lights will also remove many harmful bacteria and decrease the suspended bacterial counts in the water. We recommend the use of UV-lights for the above reasons.

Note If you leave your filter unbackwashed for two or more weeks, it is a good idea to do an extra long blower treatment on the beads.

Word of Caution If you leave your filter unbackwashed for extended periods of time, and you live in an area with relatively soft water, you may want to buffer your pond water. The bacteria in the filter can consume enough alkalinity (KH) in the water to cause a dangerous pH drop. Total alkalinity should be kept above 50ppm (3°dH) to avoid potentially dangerous shifts. To increase alkalinity, add sodium bicarbonate, change the water, or add a commercially prepared pH Buffer like AquaForte BioStabil.

NOTES ON NITRIFICATION

When ammonia removal is desired first start with MICROBE-LIFT Clean & Clear to reduce the organic waste in the pond as high levels of BOD can inhibit nitrification by competing with the nitrifying micro organisms for necessary oxygen. After applying MICROBE-LIFT Clean & Clear wait 24 to 48 hours to do its job, and then apply MICROBE-LIFT NITE-OUT II. Prior to the addition of NITE-OUT II (to start and maintain nitrification). Check to make sure that the pond pH is in the correct range for nitrification. Adjust the pond pH to a range of 7.5 to 8.7, and check to see if adequate alkalinity is present as you must maintain a level of at least 50/ppm (3°dH) of alkalinity at all times. This is necessary as nitrifying micro organisms use 7 parts of alkalinity for each part of ammonia removed (oxidized). If proper alkalinity is not present, NITRIFICATION WILL NOT OCCUR, and if alkalinity is lost nitrification will cease and the pond pH will drop due to the nitrifying cultures activity. To increase alkalinity add pH buffer or AquaForte BioStabil until you achieve an alkalinity level of 50/ppm (3°dH) to 100/ppm (5,6°dH) (minimum), and then maintain the alkalinity at a level of at least 50/ppm (3°dH).

WINTERIZING YOUR FILTER

It is best for all biological filters to operate 24/7. If you live in an area where you experience hard freezing, you may decide to shut your filter down for the winter. Do the following:

1. Do a good backwash of the filter. Move the multiport valve to the "winter" position (between CLOSED and WASTE).
2. Turn off your pump and open the drain plugs on the pump strainer basket.
3. Open the waste valve at the base of the main filter and then the air release valve at the top of the filter. CAUTION! The UltraBead filters do not have a valve outlet with strainer which causes the beads to come out of the filter. Keep close attention when the beads start coming out of the filter and close it. Then open the valve a little bit so only water can come out and no beads.
4. Loosen all connections and drain exposed pipes, so that no water will be trapped. This is especially important for your UV lights!

In the spring:

1. Tighten all the connections that you loosened in the fall.
2. Move the multiport valve to the filter position and open the air release valve at the top of the filter and close the drain plug. Turn on the pump. When water comes out of the air release valve at the top of the filter, shut it and turn off the pump. Now do a good backwash and rinse before going to the filter mode. Back up to full capacity. During the first few weeks of operation in the spring, it is a good idea for the pond owner to do frequent checks of the ammonia and nitrite levels.

TROUBLE SHOOTING

Decrease in water flow

1. If you notice that your water flow is decreasing the most likely cause is that the filter needs to be backwashed. The bead filter is designed to trap solids and does it very well. When fully loaded with solids, the filter may restrict flow. Perform a backwash procedure (see page 7 & 8).
2. If after backwashing the filter the water flow is still low, next check the strainer basket on the pump. Be sure that it is clean.

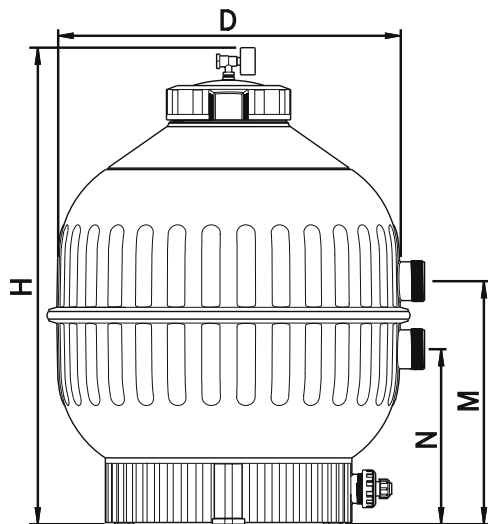
Decrease in water Clarity

1. If your filter has a mature bacterial colony, which could take up to 4-6 weeks at temps. above 16-18°C, and your water quality and clarity have been good then decreases, the first thing to do is a good backwash and rinse. Spend an extra amount of time with the blower agitation of the beads.
2. If you clarity does not improve or improves then decreases quickly, open the filter and inspect the internal condition of the laterals and the beads. If the beads are gelled and channelling is occurring, then the water will bypass most of the bead pack and no mechanical filtration will occur. Manually break up the beads and make sure the laterals are clear of obstruction.
3. If your water clarity does not improve, and you have UV-lights on the system, check to see if the bulbs are still working. Depending on the bulb, some UV-light bulbs will only have killing power for six months of continuous run. Others will last for a year or more. Check to see when they were last changed and replace if needed. They should be changed at least once a season.
4. If your clarity does not improve, check the water flow out of the system. The entire pond water volume should be turned over through the filter system at least 3-4 times per day. If turn over time is slow then the amount of solids that the filter can capture will decrease. Check to make sure that there are no flow restrictions. Follow the low flow trouble-shooting chart. Also make sure that your pump is large enough to move the amount of water needed for enough turn overs through the filter.
5. If after following the above suggestions and the clarity is still off, PLEASE call your dealer.

High Ammonia and Nitrite with previously stable state

If your pond has been up and running at warm temperatures (60-70 F) for six or more weeks and your ammonia and nitrite levels have been previously controlled, but you experience a spike in the ammonia level try the following:

1. Perform an extra long blower treatment on the bead pack and an extra long backwash. If the bead pack becomes totally clogged with solids, the available surface area for bioconversion drops significantly. Backwashing will open up the active surface area and bioconversion will resume.
2. If after backwashing the ammonia levels are still high, open the filter. Check the laterals to make sure they are clear, stir the beads to break up any gelled areas and then backwash.
3. If ammonia levels are still high, consider how much food is being fed to the fish. One cubic foot of mature beads can handle around one pound of 35% protein food per day. Check to see how many cubic feet of beads are in your filter and compare that with how much food your feeding.
4. If ammonia levels are still high, check the flow rate through the filter. The entire volume of the pond should be turned over through the filter AT LEAST 3-4 times per day. If the flow is down for some reason, bioconversion of ammonia will also slow. If you find the flow is in fact down, follow the troubleshooting flow chart for correcting low flows.
5. If all the above are found to be in good condition, consider the fish load on the pond. This actually also relates to the above discussion about amount of food fed. If you have a heavily stocked pond you will also be feeding more to the fish and thus adding more nitrogen to the pond water that will have to be bioconverted. Again, consider your filter size and what your asking it to do.
6. If the ammonia levels are still high, call your dealer.



	UB60	UB100	UB140
Ø D (mm)	600	750	900
H (mm)	875	1045	1215
M (mm)	445	575	675
N (mm)	320	345	405
Connections	Ø63mm	Ø63mm	Ø75mm
Max. Flow m ³ /h	18	24	30

TYPE	ARTNR	MEDIA (BEADS)	MAX. BIOPOOL	MAX. POND SIZE	MAX. FISH LOAD
UB60	SK403	120 ltr	80 m ³	40 m ³	100 kg
UB100	SK405	170 ltr	120 m ³	60 m ³	135 kg
UB140	SK407	255 ltr	200 m ³	100 m ³	200 kg