

Matala[®]
"Make water alive"

Biosteps 10

For PONDS UP TO 10,000L | 2,700 GAL









Operation Guidelines for BioSteps Pond Filter

Dear Customer,

Congratulations on your selection of BioSteps10 as your pond filter! In the following instructions and guidelines we provide you with important information for installation, start-up and maintenance of your BioSteps10.

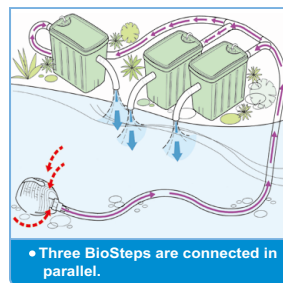
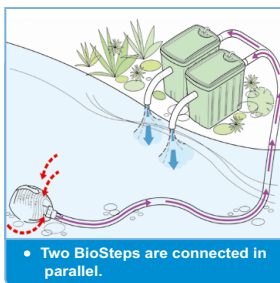
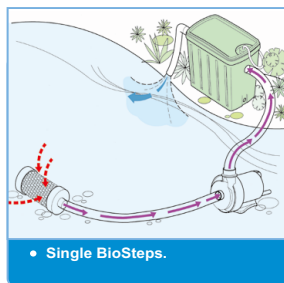
Scope of supply:

Please check your package for the following items:

	Contents:	QTY		Article no.
	Filter container	1		40001102
	Filter cover	1		40002102
Section 1	Inlet:universal hose adapter 1", 1 1/4", 1 1/2"	1		30819244
	Sludge drain:Univeral hose tail + stopper 1 1/4", 1 1/2", + stopper 1"	1		30819453
Section 2	Matala filter mat Green	2		46191281
Section 3	Matala filter mat Blue	2		46191381
Section 4	Matala filter mat Grey	2		46191461
Section 5	Matala filter mat Grey	2		46191461
	Partitioning screen	1		40003106
Section 6	Outlet :Bulkhead fitting, Compression/Push-Fit type, 2-steps: 50mm European fit is first inner diameter followed by 1 1/2" Sch40 PVC in deeper. This section is a compression fit and requires firm pressure to insert fully.	1		40004103

*The items in the above parts list are subject to replacement in function of improved filter characteristics.

INSTALLATION



Plug and play recommendations: complete filter systems for different pond sizes

OPTIONAL

Pond volume Up to:		KOI CARP Pond volume		Number of BioSteps	Pump capacity (MAXIMUM RECOMMENDED FLOW RATE)		Recommend hose diameter for pump to filter		UVC capacity range	Recommend Number of EzBio 11	Recommend Number of EzBio 20	Recommend Number of Waterfall
Liters	Gallons	Liters	Gallons		Liters/H	Gallons/H	mm	inch	Watt			
3000	800	1500	400	1	750-1200	200-320	25	1"	9 to 13	1		1
6000	1600	3000	800	1	1500 - 2500	400 - 660	32	1¼"	9 to 18	1		1
10000	2660	5000	1330	1	2500 - 4000	660 - 1060	40	1½"	18		1	1
15000	4000	8000	2100	2	4000 - 6000	1060 - 1590	40	1½"	2 x 18		1	2
22500	6000	12000	3200	3	6000 - 10000	1590 - 2640	40	1½"	3 x 18		2	3
30000	8000	16000	4230	4	10000 - 13500	2640 - 3570	40	1½"	4 x 18		2	4

The choice of pump and UVC capacity should be made depending on the following variables:

- Height of Biosteps above water level → Pump should be able to give desired flow rate at filter position.
- Water garden pond with few fish → Try to achieve 500 to 900 gph pump flow rate.
- Koi fish pond → Try to achieve 900 to Max.1080 gph pump flow rate.
- Pond in direct sunlight or long hours of sun → Larger UVC
- Higher capacity fish stocking: more fish → Larger UVC

Our Biosteps design is GRAVITY FLOW back to the pond.

- The outlet fitting needs to be higher than the point of return at the waterfall or pond otherwise filter may overflow.
- Also the distance from outlet fitting to the pond should be kept as close as possible. Maximum distance for outlet pipe should be less than 10 feet otherwise filter may overflow.

Assembling and Start-up of the filter:

Attaching Inlet and Outlet Fittings to BioSteps



Outlet Fitting Installation:

- Insert outflow socket through upper hole.
 - Place O-ring on inside of filter and over the threads.
 - Hand tighten nut. Do not over tighten.
- *note-A Sch 40 1.5" outlet pipe may be inserted deeply into outlet bulkhead to extend water outflow.



Three options for outlet connection to pond:

Option 1)

- Use 1.5" schedule 40 PVC or ABS pipe from your local hardware store.
- Slide the pipe into the outlet fitting until it comes to a stop.



- At this point push really hard and twist. Alternatively, tap the pipe with a rubber mallet until secure. THE OUTLET FITTING HAS A COMPRESSION FIT and no glue is required. The fit is so tight you will probably not be able to remove the pipe once inserted.
- Tip: Lightly sand the very edge of the pipe to help get it started.



Option 2)

- Install 2 inch rubber coupler (from hardware store) over the outlet fitting.



- Insert 2 inch PVC pipe into rubber coupler and tighten screws.



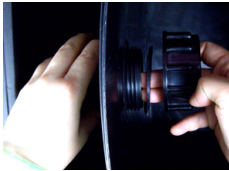
Option 3)

Biosteps10 with Waterfall Spillway option.

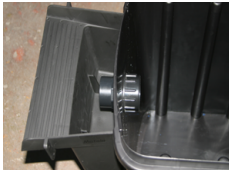
- Check alignment of spillway with upper outlet hole in section 6 of body.
- The top of spillway should fit flush against the body.



- Install one O-ring over threads of outlet fitting.
- Insert outlet fitting through inside of spillway.



- Align spillway with upper hole in filter body and insert outlet fitting through hole.
- Install one O-ring on inside of filter body over the male threads.
- Hand tighten nut.



- Finished



Waste Drain-Out Fitting Installation:

- Insert drain socket through lower hole in section 1.
- Place one O-ring on inside AND one O-ring outside of the filter over the threads.
- Hand tighten nut. Do not over tighten.



Inlet Fitting Installation:

(Photo shows installation with optional UVC.)

- Align and insert UVC upper male thread into female thread of clear hose socket. Twist clear hose socket fully onto the male threads of the UVC.



- The O-ring is installed first over the clear hose socket and then the clear hose socket is installed through the hole in the section 1.
- Hand tighten nut 3/4 tight. Do not over tighten.



- Finish tightening nut to make a water proof seal against the O-ring.
- You may need to twist clear hose socket until completely tight and flush with UVC.



- Insert Green Matala section 2, Blue Matala Sec. 3, Gray Matala Sec. 4 & Sec.5. Slide partition screen after Gray Matala.



- Insert partitioning screen after the Gray Matala in section 5.
- This prevents media from blocking the outlet pipe.



- Place lid over the UVC and snap onto filter.



- Attach UVC bulb into electric socket.
- Caution: UVC bulb is delicate.
- Cover cap has safety switch. Lamp will only light when fitted fully into body.



- Carefully insert UVC bulb into UVC body.
- Caution: UVC bulb is delicate.
- Tighten hand nut cap into UVC body.
- Hand nut must be firm and snug to prevent water leakage into UV light.



- Connect pump to BioSteps.
- Do not turn UV on until you have leak tested all fittings.
- If any leaks check O-rings and nuts.

Safety

For your own safety, we recommend:

- To always unplug the UVC whenever the pump is not functioning: this will prevent overheating of the UVC unit and extend the lamps lifetime.
- To strictly avoid to directly looking into the UV light: avoiding direct contact with UVC radiation, which can result into harm to eyes and skin!
- Before initial start-up of the filter or after any maintenance whatsoever, to check carefully that there are no leaks between the pump, the UVC water inlet, the UVC cover cap and UVC housing. If any leaks are noticed, disconnect the UVC's power plug and immediately repair the leaks. Any defect or damaged UVC units need to be replaced or turned in to your dealer for repair.

BioSteps filtration technology:

The BioSteps cross flow filter enhances a “Steps” -wise transition from mechanical-prefiltration to high efficiency bio-filtration:

Filter sections	Contents	Function
Section 1	No filter media	Water inlet and sedimentation of biggest particles.
	Optional: + UVC	Prevent blooms of unicellular algae, bacteria, parasites
Section 2	Flex-Matala: 2 Medium Density filtermat	Capture of big particles, conglomeration, and sedimentation. Further degradation of organic matter by heterotrophic bacteria and plankton
Section 3	Flex-Matala: 2 High Density filter mats	Biofiltration: Nitrification Nutrient balancing by plankton
Section 4	Flex-Matala: 2 Super High Density filter mat	Biofiltration: Nitrification Nutrient balancing by plankton
Section 5	Flex-Matala: 2 Super High Density filter mat	Biofiltration: Nitrification / Denitrification Nutrient balancing by plankton
Section 6	Polishing section: (OPTIONAL) This is a good area to place a bag of filter CARBON or ZEOLITE or Matala BIO-ACTIVE STONE to help regulate pH.	Water polishing: Substrate helps for water conditioning: Buffering of pH and mineral content of water.



Filter start-up:

- Your BioSteps filter is now assembled and can be put close to your water garden in a shaded spot chosen in function of convenience, easy maintenance and landscape esthetics. Position the filter in horizontal way on a non compactable surface and make sure that the outlet drain valve can function properly.
- Connect the inlet of the filter to the hose that is already connected to the water pump. Connect the clean water outlet to the water pipe that returns the clean water to the water garden. Connect the sludge outlet to the hose or water pipe that leads away the dirty water. Switch on the pump only, not the UVC! Check that there are no leaks! If any leaks please make sure that these are sealed:
 - position the O-rings correctly,
 - use some Teflon tape on the threads of the fittings
 - Check that the nuts are correctly secured
 - Use proper PVC glue to connect the piping
 - Use a hose clamp to secure the position of the hose on the hose socket.
- Once confirmed that there are no leaks you can switch on the UVC. To control proper function you can see the blue light through the transparent UVC water inlet socket. Never look direct into the UV light as it can harm your eyes.
- For proper function of a biofilter it is imperative to let the water flow through the filter 24h/24h continuously. If the water pump is not functioning for more than 2 hours, the oxygen level of the water in the filter will drop quickly which might kill the nitrifying bacteria and plankton that purify the water.

Filter Maintenance:

Frequency of maintenance will depend on many factors such as:

- Fish load and feeding rate, season and water temperature, etc...
- new- or old water garden and level of existing sediment or algal blooms

In principle, maintenance of the filter is needed when the filter mats are clogged up with dirt, silt or bacterial flock and consequently the water starts to flow over the filter mats.

For maintenance please take following steps:

- First switch of the UVC and then switch of the pump.
- Unscrew the cap of the UVC and take off the filter cover. Then put the UVC cap back in place and tighten it.
- Lower the water level of the filter by opening the drain valve and simultaneously rinse the filter mats. Normally, this can be done without removing the Matala from the filter. Only in cases of heavy silting or clogging of the filter mats or substrate it will be necessary to remove these from the filter, clean and put back into position.
- For rinsing, we advise to use pond water. Prepare pond water in a bucket on the side and pour over the Matala mats with sufficient volume to dislocate dirt. Alterably, you can pump water from the pond and hose off the filter mats.

Do not use high pressure and avoid cleaning the Matala overzealously because you will remove too many bacteria and drastically lower the filter's bio-filtration capacity!

For countries with distinct winters it is advisable in case of shallow ponds to switch off the filter system when water temperature reaches below 8 degrees C (46 degrees F) and fish are no longer feeding. In such case clean out the filter properly and store until next spring.

When cleaning the filter, simultaneously clean the pump's filter housing or prefilter in order to keep a normal flow capacity to the filter.

Cleaning the BioSteps

Every 4 to 6 weeks depending on fish load.



- Turn off pump to BioSteps.
- Detach UVC hand cap + bulb.



- A 1.5" drain hose & valve may be attached to bottom drain to carry waste water away.



- Remove lid.
- Reinsert blub for safety.



Optional Bottom Drain Valve

- The drain outlet fitting has a 1 inch internal female pipe thread. You can install a 1 inch male pipe thread fitting and attach to a 1 inch gate valve to simplify the cleaning of filter.



- Turn off pump. Close pump valve-optional.
- Shake Matala pads gently up and down in filter to loosen dirt particles.



- Unplug bottom drain plug



- This 1 inch drain valve can be attached to a drain pipe and plumbed to a remote area to carry waste away for an easier cleaning process.

Modular extension of the BioSteps filter:

If you wish to extend the BioSteps filter's capacity or you wish to combine 2 or multiple filters, please consider that combined filters should be installed in parallel position and the flow of water needs to be spread out evenly into each filter.

Guarantee:

The BioSteps filter is offered with a 2 year guarantee for material or manufacturing defects. Supplementary, we offer a one year "Clear Water Guarantee" on condition that no verifiable success was obtained on reduction of suspended solids and suspended unicellular algae, within 6 weeks of the filter's start-up. Obviously, such guarantee will only be valid if the customer has followed our guidelines for installation, start-up and maintenance of the filter.

The warranty doesn't cover any problems resulting from inappropriate installation or operation, overloading, frost, use of force, third-party faults, mechanical damage or vandalism, or any defects caused by improper functioning or installation of pump, hoses or piping.

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