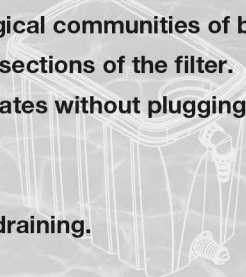


Biosteps-II



Features:

- State of the art progressive filtration.
- Supplied with sufficient volume of Matala filter media with progressive densities.
- Filter design enhances growth of different ecological communities of bacteria and planktonic organisms that will colonize different sections of the filter.
- Cross-flow pattern: traps more dirt at high flow rates without plugging.
- Built in overflow safety.
- Easy maintenance.
- Sloped bottom with extra sink at outlet for easy draining.
- Modular design allows for future expansion.
- Rugged construction.



Operation Guidelines for Biosteps-II Pond Filter

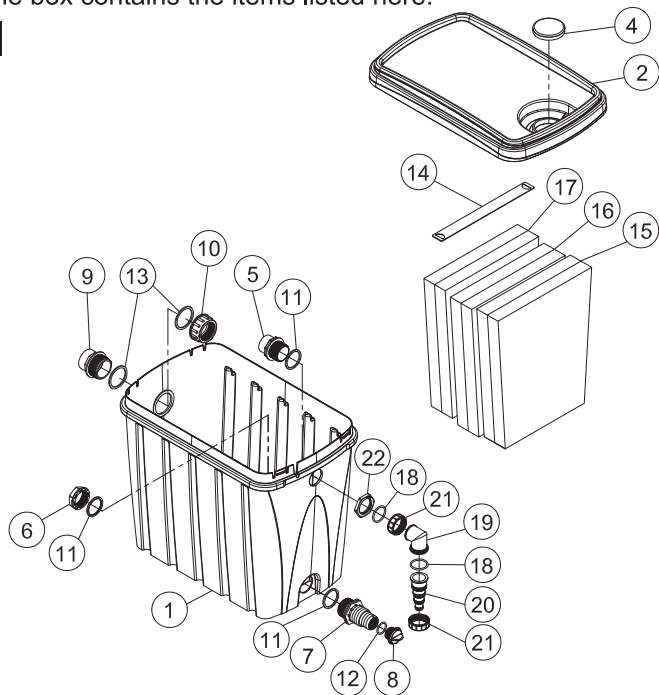
Dear Customer,

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

Construction and Parts List:

Please check the box contains the items listed here:

Biosteps-II

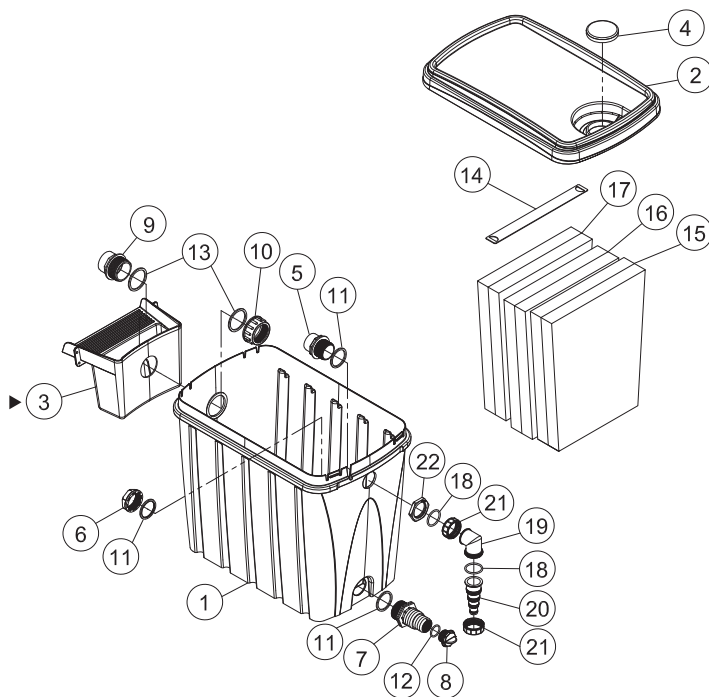


Model: BSTPII

NO	Parts No	Parts / Spec.	Q'ty	NO	Parts No	Parts / Spec.	Q'ty
1	BS201001	Filter Tank	1	13	BS201013	Gasket	2
2	BS201002	Lid	1	14	BS201014	Bracket	1
4	BS201004	Black Cap	1	15	BS201015	Matala Filter Mat (Green) FSM290	2
5	BS201022	Male Adapter 1-1/2"	1	16	BS201016	Matala Filter Mat (Blue) FSM365	2
6	BS201006	Hose Socket Nut 1-1/2"	1	17	BS201017	Matala Filter Mat (Gray) FSM460	2
7	BS201007	2 Section Hose Barb 1-1/2", 2"	1	18	BS201024	O-Ring	2
8	BS201008	Handle Nut 1"	1	19	BS201019	Elbow Adapter 1-1/2"	1
9	BS201009	Male Adapter Ø60mm	1	20	BS201021	4 Section Hose Barb 3/4", 1", 1-1/4", 1-1/2"	1
10	BS201010	Male Adapter Nut Ø60mm	1	21	BS201020	Plastic Nut 1-1/2"	2
11	BS201011	Gasket	3	22	BS201023	Hose Socket Nut 1-1/2"	1
12	BS201012	O-ring	1				

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

Biosteps-II + Waterfall



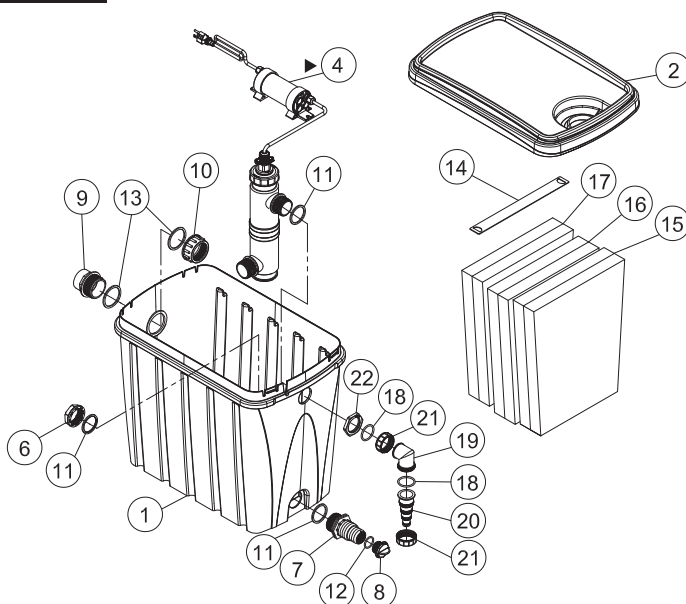
Model: BSTPII-WF

NO	Parts No	Parts / Spec.	Q'ty	NO	Parts No	Parts / Spec.	Q'ty
1	BS201001	Filter Tank	1	12	BS201012	O-Ring	1
2	BS201002	Lid	1	13	BS201013	Gasket	2
▶ 3	BS201018	Waterfall 2" Outlet	1	14	BS201014	Bracket	1
4	BS201004	Black Cap	1	15	BS201015	Matala Filter Mat (Green) FSM290	2
5	BS201022	Male Adapter 1-1/2"	1	16	BS201016	Matala Filter Mat (Blue) FSM365	2
6	BS201006	Plastic Nut 1-1/2"	1	17	BS201017	Matala Filter Mat (Gray) FSM460	2
7	BS201007	2 Section Hose Barb 1-1/2", 2"	1	18	BS201024	O-Ring	2
8	BS201008	Handle Nut 1"	1	19	BS201019	Elbow Adapter 1-1/2"	1
9	BS201009	Male Adapter Ø60mm	1	20	BS201021	4 Section Hose Barb 3/4", 1", 1-1/4", 1-1/2"	1
10	BS201010	Male Adapter Nut Ø60mm	1	21	BS201020	Plastic Nut 1-1/2"	2
11	BS201011	Gasket	3	22	BS201023	Hose Socket Nut 1-1/2"	1

▶ Optional.

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

Biosteps-II + EUV-16W



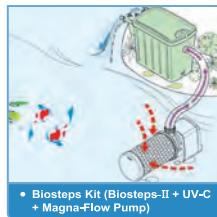
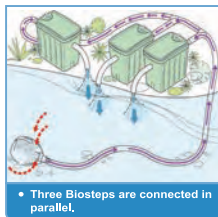
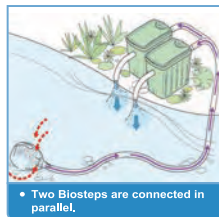
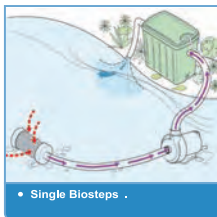
Model: BSTPII-16W

NO	Parts No	Parts / Spec.	Q'ty	NO	Parts No	Parts / Spec.	Q'ty
1	BS201001	Filter Tank	1	13	BS201013	Gasket	2
2	BS201002	Lid	1	14	BS201014	Bracket	1
▶ 4	SSAB103116	EUV-16W	1	15	BS201015	Matala Filter Mat (Green) FSM290	2
6	BS201006	Plastic Nut 1-1/2"	1	16	BS201016	Matala Filter Mat (Blue) FSM365	2
7	BS201007	2 Section Hose Barb 1-1/2", 2"	1	17	BS201017	Matala Filter Mat (Gray) FSM460	2
8	BS201008	Handle Nut 1"	1	18	BS201024	O-Ring	2
9	BS201009	Male Adapter Ø60mm	1	19	BS201019	Elbow Adapter 1-1/2"	1
10	BS201010	Male Adapter Nut Ø60mm	1	20	BS201021	4 Section Hose Barb 3/4", 1", 1-1/4", 1-1/2"	1
11	BS201011	Gasket	3	21	BS201020	Plastic Nut 1-1/2"	2
12	BS201012	O-ring	1	22	BS201023	Hose Socket Nut 1-1/2"	1

▶ Optional.

* 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

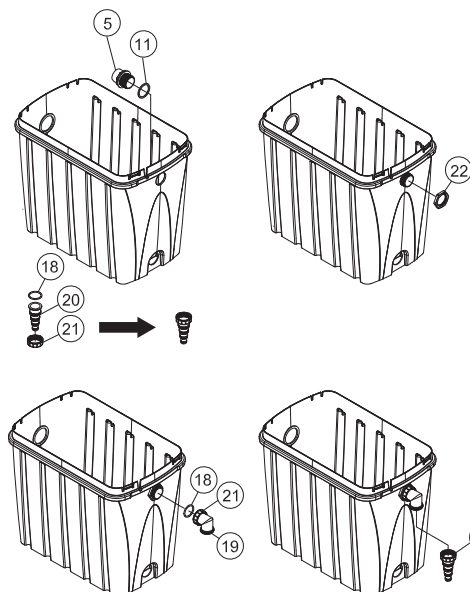
OPTIONAL

Pond volume Up to:		Koi CARP Pond volume			Number of Biosteps-II	Pump capacity		Recommend hose diameter for pump to filter		UV-C capacity range	Recommend Number of EzBio 11 Plus	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	1330 - 1520	350 - 400	19	3/4"	16	1		1
6000	1600	3000	800		1	2650 - 3050	700 - 800	19	3/4"	16	1		1
10000	2660	5000	1330		1	3050 - 3800	800 - 1000	19	3/4"	16		1	1
15000	4000	8000	2100		2	4950 - 6850	1300 - 1800	25	1"	2 x 16		1	2
22500	6000	12000	3200		3	6850 - 11000	1800 - 2900	25	1"	3 x 16		2	3

The choice of pump and UV-C capacity should be made depending on the following variables:

- Height of Biosteps-II 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 UV-C
- Higher capacity fish stocking: more fish → Larger UV-C
- Our Biosteps-II 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:



1

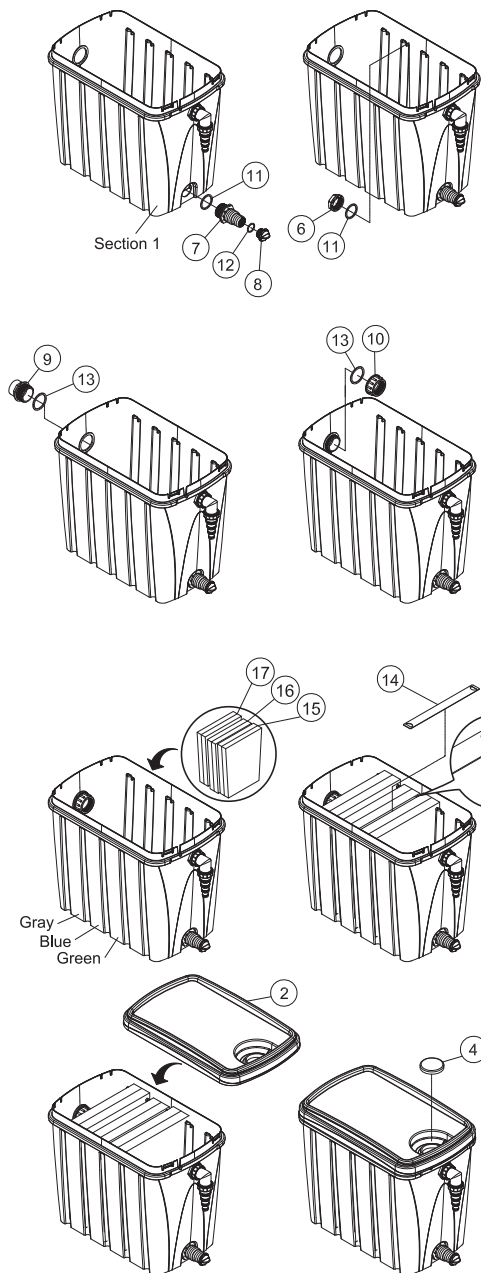
Inlet Fitting Installation

- 1-1. Install one gasket (part no.11) over the thread of inlet fitting (part no.5).
Attach the 4 section hose barb (part no.20) to the nut (part no.21).
Install one o-ring (part no.18) inside the nut (part no.21).

- 1-2. Insert inlet fitting to the hole. Tighten the nut (part no. 22).

2

- 2-1. Install one o-ring (part no.18) inside the nut (part no.21) on elbow adapter (part no.19).
Tighten the nut (part no.21).
- 2-2. Install the 4-section hose barb fitting tighten the nut (part no.21).



3

Waste Drain-Out Fitting Installation

- 3-1. Install one o-ring (part no.12) over the thread of handle nut (part no.8). Tighten the nut. Install one gasket (part no.11) over the thread of 2 section hose barb (part no.7). Insert 2 section hose barb (part no.7) through lower hole in section 1.
- 3-2. Install one gasket (part no.11) on inside of filter tank over the thread of 2 section hose barb (part no.7). Tighten the nut (part no.6).

4

Outlet Fitting Installation

- 4-1. Install one gasket (part no.13) over the thread of outlet fitting (part no.9). Insert outlet fitting (part no.9) to the hole.
- 4-2. Install one gasket (part no.13) on inside of filter tank over the thread of outlet fitting (part no.9). Tighten the nut (part no.10).

5

Filter & Bracket Installation

- 5-1. Insert green Matala (part no.15) in section 3, blue Matala (part no.16) in section 4, gray Matala (part no.17) in section 5.

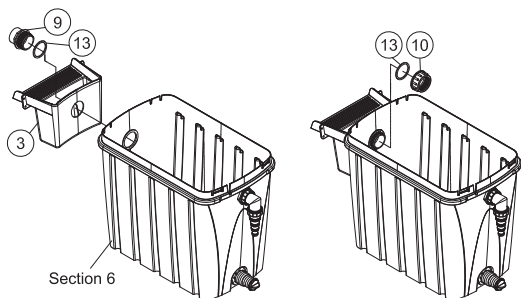
*** Please pay attention to the color arrangement order of the Matala filter. (Green - Blue - Gray)**

- 5-2. Install the bracket (part no.14). Hook the bracket on both side of filter tank.

6

- 6-1. Cover the lid (part no.2) to the filter tank.
- 6-2. Put on a small black cap (part no.4) to the lid.

☒ **Finished!!**

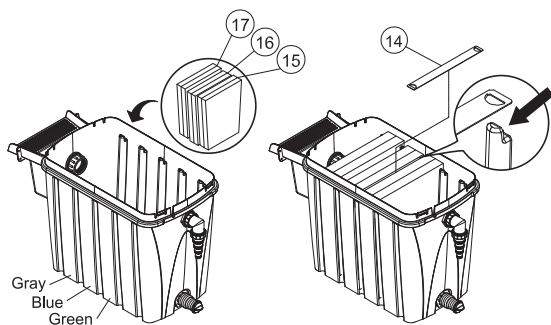


► OPTIONAL WATERFALL

1

Biosteps-II with Waterfall

- 1-1. Check alignment of waterfall (part no.3) with upper outlet hole in section 6 of filter tank. The top of waterfall should fit flush against the filter tank.
Install one gasket (part no.13) over the thread of outlet fitting (part no.9).
Insert outlet fitting (part no.9) to the hole.
- 1-2. Install one gasket (part no.13) on inside of filter tank over the thread of outlet fitting (part no.9).
Tighten the nut (part no.10).



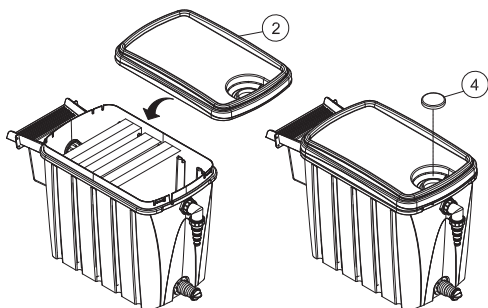
Filter & Bracket Installation

2

- 2-1. Insert green Matala (part no.15) in section 3, blue Matala (part no.16) in section 4, gray Matala (part no.17) in section 5.

*** Please pay attention to the color arrangement order of the Matala filter. (Green - Blue - Gray)**

- 2-2. Install the bracket (part no.14).
Hook the bracket on both side of filter tank.



- 3-1. Cover the lid (part no.2) to the filter tank.

- 3-2. Put on a small black cap (part no.4) to the lid.

3

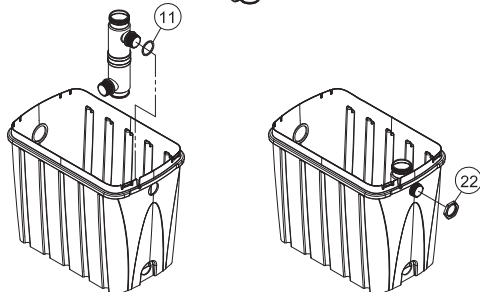
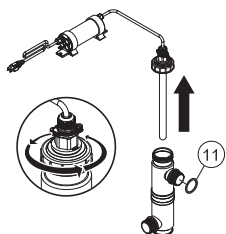
☒ **Finished**

NOTICE

- Use a clean soft cloth or gloves to handle the lamp and quartz sleeve.
- Do not turn UV-C on until you have leak tested all fittings. If any leaks check o-rings and nuts.

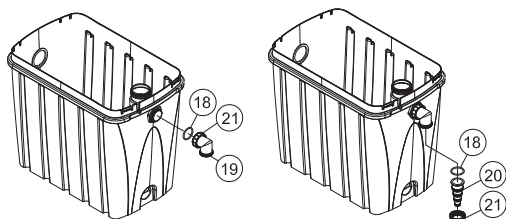
► OPTIONAL EzClear UV Clarifier **1** UV-C & Inlet Fitting Installation

1-1. Separating the UV-C cover (blue cap) from the housing.



2

2-1. Install one gasket (part no. 11) over the threads of upper hole on the housing.
Attach the UV-C housing to the filter tank and through the upper hole.
2-2. Tighten the nut (part no. 22).



3

3-1. Install one o-ring (part no. 18) inside the nut (part no. 21). Tighten the nut.
3-2. Attach the 4 section hose barb (part no. 20) to the nut (part no. 21).
Install one o-ring (part no. 18) inside the nut (part no. 21). Tighten the nut (part no. 21).

After install fitting and filter. Please refer to page 5.

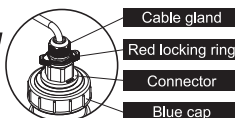
4

4-1. Cover the lid (part no. 2) to the filter tank.
4-2. Put the blue cap with quartz sleeve into the UV-C housing and tighten it.
Please confirm the red locking ring is tightened.

✓ **Finished**

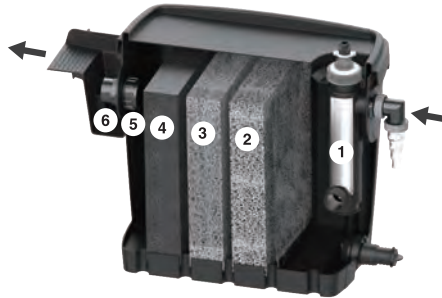
NOTICE

Please make sure all connector / fittings are tightened.



Biosteps-II filtration technology:

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



Filter sections	Contents	Function
1	No filter media	Water inlet and sedimentation of biggest particles.
	Optional: + EUV-16W	To prevent blooms of unicellular algae, bacteria, parasites.
2	Medium Density Matala	Prefiltration: to capture particles for conglomeration, sedimentation. To further digest organic matter by heterotrophic bacteria and plankton.
3	High Density Matala	Biofiltration: Nitrification / nutrient balancing by plankton.
4	Super High Density Matala	Biofiltration: Nitrification, Denitrification and nutrient balancing by plankton.
5	Outlet Chamber	Water polishing: sedimentation of bacterial floc. Water outlet.
6	Optional: + 11" waterfall & fitting	Giving the waterfall feature, create turbulence to increase oxygen level.

Safety

For your own safety, we recommend:

- **Before using , please make sure that the quartz sleeve is not broken and all connector / fittings are tightened.**
- To always unplug the UV-C whenever the pump is not functioning: this will prevent overheating of the UV-C unit and extend the lamps lifetime.
- To strictly avoid to directly looking into the UV light: avoiding direct contact with UV-C 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 UV-C water inlet, the UV-C cap and UV-C housing. If any leaks are noticed, disconnect the UV-C's power plug and immediately repair the leaks. Any defect or damaged UV-C units need to be replaced or turned in to your dealer for repair.
- Be sure to disconnect the power supply before disassembling the UV-C system.
Check the UV-C system routinely to ensure the normal operation of the UV lamp.

Filter start-up:

- Your Biosteps-II 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 UV-C! 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 UV-C. To control proper function you can see the blue light through the transparent UV-C 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 floc and consequently the water starts to flow over the filter mats.

For maintenance please take following steps:

- First switch of the UV-C and then switch of the pump.
- Unscrew the cap of the UV-C and take off the filter cover. Then put the UV-C 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 dislodge dirt. Alternatively, you can pump water from the pond and hose off the filter mats.

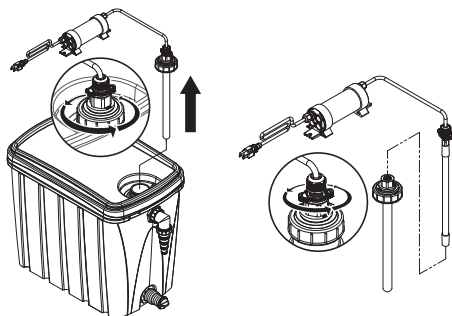
Do not use high pressure and avoid cleaning the Matala overzealously because you will remove too many bacteria and drastically lower the filter's bio-filtration capacity!

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.

NOTICE

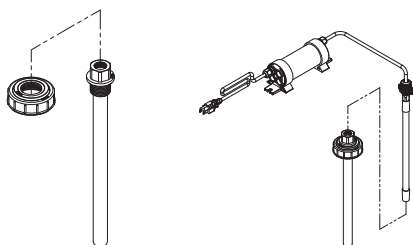
- Be sure to disconnect the power supply before disassembling the UV-C.
- Use soft cloth to handle the lamp and the quartz sleeve.
- Do not turn UV-C on until you have leak tested all fittings. If any leaks check o-rings and nuts.



1

Replace the UV Lamp

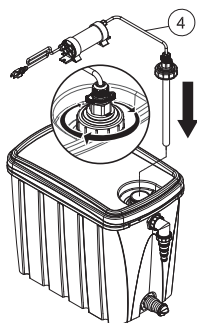
- 1-1. Unscrew the UV-C cover (blue cap) with the quartz sleeve from the housing. Remove the quartz sleeve from the housing.
- 1-2. Separating the UV lamp from the quartz sleeve set. Disconnect the ballast from the UV lamp and replace a new UV lamp.



2

To clean or replace the quartz sleeve

- 2-1. Unscrew the quartz sleeve from the blue cap. Pass a new quartz sleeve set to the blue cap and tighten it.
 - 2-2 Put the UV lamp into quartz sleeve set and tighten the red locking ring.
- * **The Quartz Sleeve can be cleaned with neutral detergent, citric acid, baking soda with water. Wear rubber gloves, do not get on skin, do not inhale acid fumes and protect eyes from splash.**



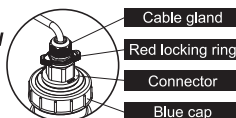
3

- 3-1. Put the blue cap with quartz sleeve into the housing and tighten it. Please confirm the red locking ring is tightened.

☒ **Finished**

NOTICE

Please make sure all connector / fittings are tightened.



Cleaning the Biosteps-II

Every 4 to 6 weeks depending on fish load.



- Turn off pump to Biosteps-II.
- Remove any electrical plug.
- Detach UV-C cap and lamp.



- Remove lid.



- Shake filter mats gently up and down in filter to loosen dirt particles.



- Unplug bottom handle nut.



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

Modular extension of the Biosteps-II filter:

If you wish to extend the Biosteps-II 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-II 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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