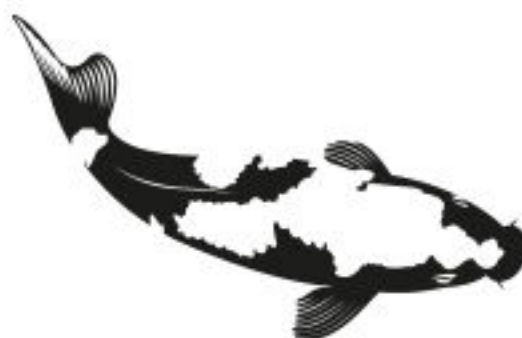
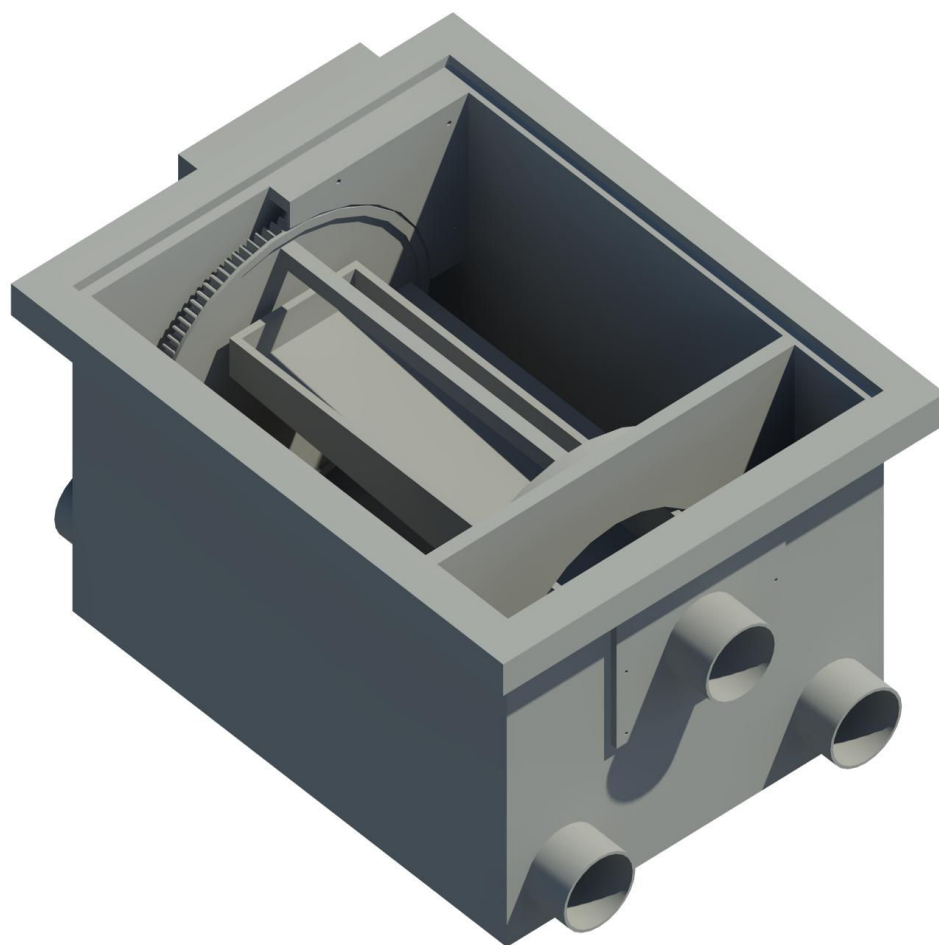


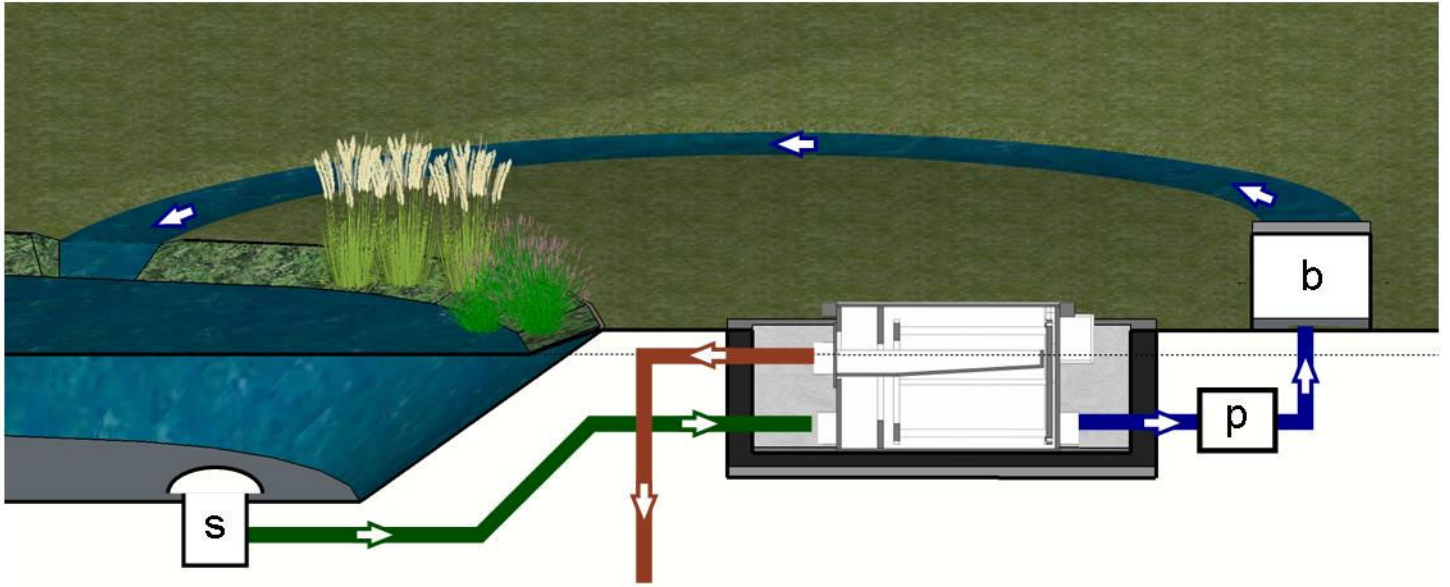
Drum Filter

Original usermanual v1.0

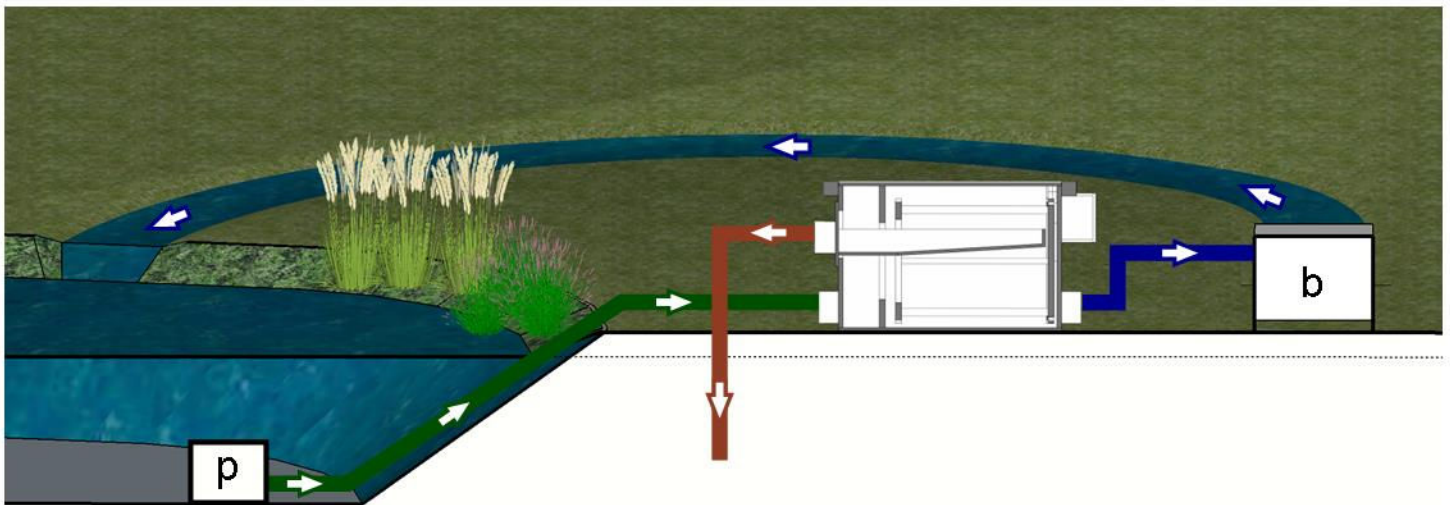
PP22 / PP22eco / PP35 / PP50 / PP65



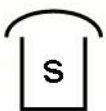
A. Gravitational system



B. Pumped system



Legend



skimmer



pump



biological filter



inlet from pond



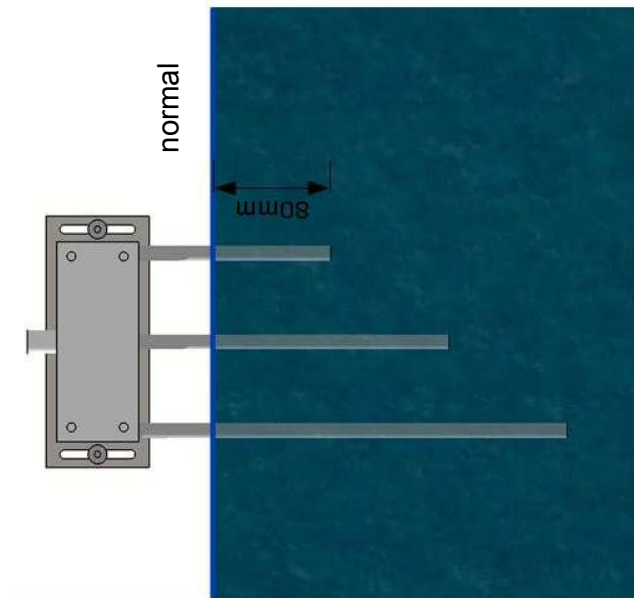
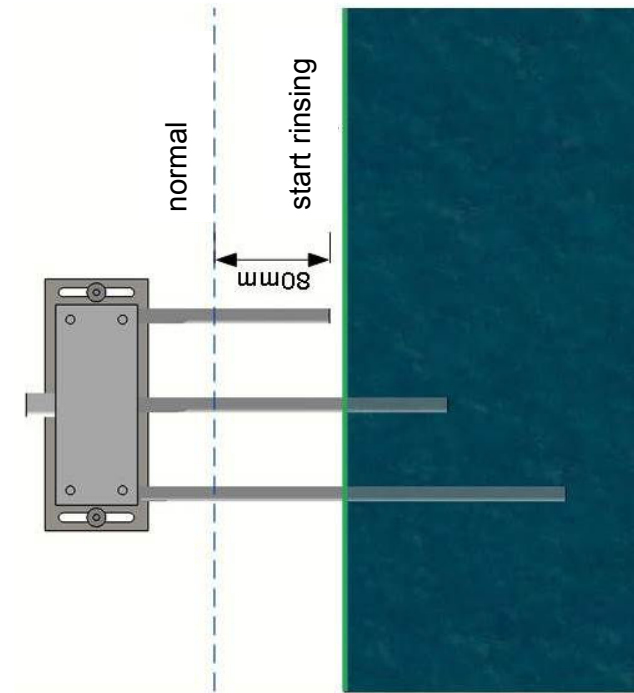
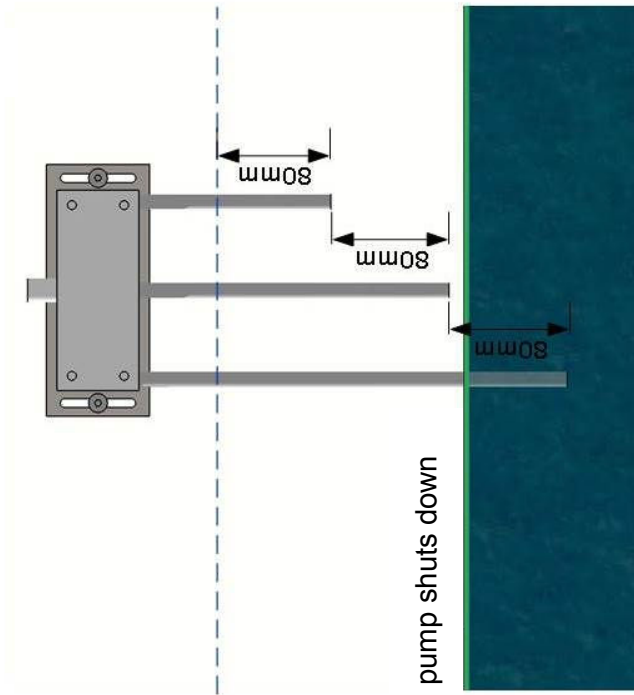
drain into biological filter/pond



waste water drain into sewage

Level regulation

dry-running protection
(only with gravitational
system)



Float positions PP22 eco

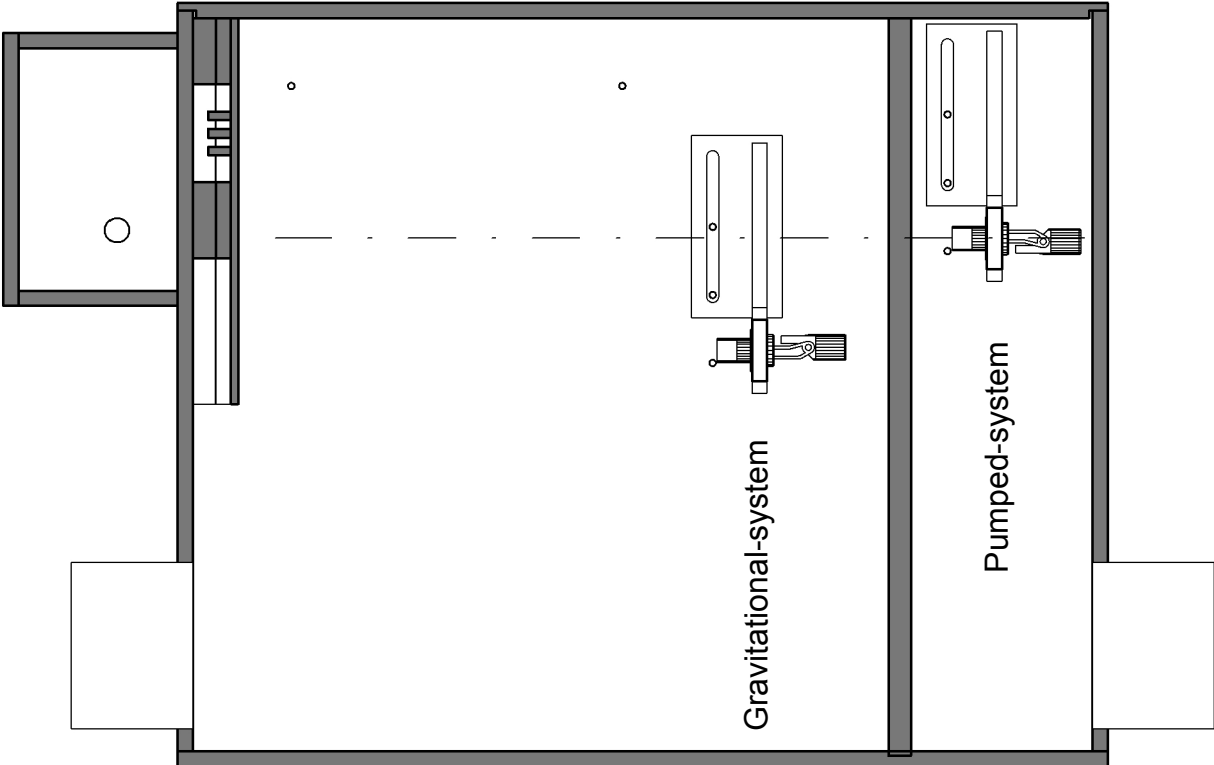


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1 Prologue

1.1 Designation for the customer

The user manual contains important precautionary Measurements to ensure the machine is used as was intended, safely and economically. By following these precautions danger can be avoided, cost for repairs and failure reduced, as well as increase reliability and Lifespan of the Machine.

Before use the user manual, especially the chapter Safety, must be read by the operator who will be working with the Machine. It will be too late to read during the activities. This applies especially to those who do not use the Machine on a regular basis, for example for repairs or maintenance/servicing.

The user manual must always be available to the operator. Keep a copy of the manual with the Machine at all times!

Before you work with the Machine, or service it, you must read the chapter concerned.



Chapter Safety is very important! Every operator must study it thoroughly, before the Machine is used.

When in doubt the manufacturer should always be consulted.

1.2 Target audience

Defenitions:

- a) The operator/owner as legal person, is responsible for proper use of the machine, as well as training and deployment of authorized people. For his company he will document the binding competences and qualifications of authorized personnel.
- b) With qualified personnel, people who, based upon their training, knowledge and experience, can assess the jobs appointed to them, and determine possible danger, are meant. Only trained personnel, or personnel which is deemed fit by the operator, is eligible.
With qualified personnel, team leaders and maintenance personnel as well as technical service is meant.
- c) With trained personnel, a person who was trained in determining possible dangers from unprofessional use, and if necessary was taught. He is also informed with regard to necessary safety devices and safety measures. To be trained personnel can only operate the machine under constant supervision from authorized personnel. Operators belong to this group.

Assembly, disassembly, maintenance and repairs can only be executed by trained personnel.

All other activities can be executed by trained operators.

Competences must be delimited properly and documented. The legally permissible minimum age is to be observed!

1.3 Liability and Indemnification

All designations for employment and maintenance are given with observance of our current experiences and insights.

The Original user manual was prepared in Dutch and substantively checked by us.

This user manual was studiously prepared. However, should you discover any imperfections or mistakes, we would like to ask you to inform us in writing. With your improvements you are helping us create an user friendly manual.

1.4 Backorder

Further copies of this manual can be backordered at the Adress below. Please take in to account that there will be cost involved.

De Vijverspecialist

Aan de Fremme 53B

6269 BK Margraten

www.devijverspecialist.com

Info@devijverspecialist.com



1.5 Copyright

All rights reserved. Reproduction or publication, in whole or in part prohibited without written permission.

2 Description and features

2.1 Identification

This user manual goes with drum filter type PP22 / PP22eco / PP35 / PP50 / PP65.

The type-/identification plate with CE-marking has been attached to the main switch and can be seen on the image below.



Image 1 Identification plate

2.2 Intended use

The machine can only be used as intended, as described in this user manual. Any other use counts as unintended use. The manufacturer is not liable for damage derived from this kind of use. The machine has been built according to the latest state of development and, when used as intended, safe under normal circumstances. Nevertheless damage or injuries can occur to the operator or the machine, or other objects, during use.

Only use the machine when it is fully operational and technically in perfect order. Observe safety measures and any possible technical issues that may occur. Malfunctions which can endanger safety must be resolved immediately.

Changes and/or adaptations to the machine are possible for certain situations. Written consent from the manufacturer must be obtained beforehand.

Any and all manufacturer liability is void when:

- None, or not enough, observance has been paid to the information in this user manual;
- Use of spare parts or parts unpermitted by the manufacturer;
- Incorrect operations;
- Removal, manipulation or not using the safety devices;
- Change of functions;
- Unauthorized changes have been made to the machine
- Servicing/maintenance which has not been conducted in accordance with regulations;
- Unintended use.

2.3 Unprofessional use

Danger can occur by unintended or unprofessional use of the machine.

The main switch is also emergency stop.

The limiting values as mentioned in the documentation can never, under no circumstance, be exceeded.

2.4 Intended use

The drum filter, further referred to as “the machine”, and all associated parts can only be used accordingly:

- For cleaning garden ponds.
- Use under compliance of the technical data.

The following restrictions apply to the machine:

- Operation only with water, and at a temperature between minimum +5 °C and maximum +35 °C.
- Never transport any other fluid but water.
- Not intended for industrial use.
- Not suitable for saltwater.
- Never operate without running water.
- Never use in combination with chemicals, flammable or explosive substances.

2.5 Functional

The machine’s function is to clean/filter the dirtied pond water, and eventually drain grosser particles. The pond water is sieved by a sieve of 70 µm. By separating the particles a great deal of the nutrients are removed from the water.

The maximum flow rate in the filter system depends on the type/make of the machine. (check technical specifications).

The control unit automatically controls, and monitors, the filter process. This means the filter will automatically start to operate as soon as the water level in the filter chamber becomes low, due to pollution of the pond water.

3 Safety

A prerequisite for the safe handling of, and trouble-free use of this device, is knowledge of basic safety notes.

Also the applicable rules and regulations in order to prevent injury, and the technical safety measures are to be observed.

Furthermore, safety measurements belonging to built-in parts are to be included and observed

3.1 Symbols

In the user manual the following symbols are used:



This symbol warns of a possible dangerous situation, risk of injury or danger of life. This symbol also warns of possible material damage.



This symbol indicates an important designation.



This symbol indicates additional documentation.

The following symbol has been applied to the machine itself.



Warning of dangerous electrical voltage.

3.2 Fundamental safety



The machine complies with fundamental safety- and health requirements of the EG. Nevertheless dangerous situations can occur.

1. To guarantee safety, all persons coming into contact with the device, must know the content of this user manual. Only this way risks can be limited to a minimum.
2. It is forbidden to use the machine for other uses as intended by the manufacturer. Unintended use can lead to unforeseeable risks.
3. Locally applicable safety regulations and laws must be adhered to. The same applies to environmental regulations.
4. If personnel determines errors or hazards, the operator or his superior must be informed of this immediately.
5. If several people are working on the machine, a good cooperation and a precise tuning of the work is necessary.
6. The knowledge and the sense of responsibility of the employer and the employee to a large extent define the safe and efficient use of the device.
7. Safety features, such as protective caps / safety circuits must never be removed or bypassed during normal use of the device.
8. If removal of safety equipment in preparation, maintenance and repair is necessary immediately after completion of this work, the reassembly and verification of the safety features must occur.
9. Observe the following dress code: to prevent clothing being grasped by the machine is forbidden to wear loose clothing. Be especially mindful of ties, long hair and jewelry.
10. Dangerous areas around the machine may only be accessed by the authorized personnel.
11. Operations to technical equipment (for example pneumatic or electric) can only be executed by authorized, trained personnel.
12. When oils, greases or other chemical substances are handled, the safety rules of this product are to be observed. Contact with chemicals should be avoided as much as possible. Before these substances can be used, the instructions must be read and followed. This applies to all chemicals, cleansers included.
13. Warning when dealing with electric motors! These will generate heat during use. Therefore always let the motor cool down before operating it. If this is not possible, appropriate safety measures must be taken. For example the use of gloves.
14. Personnel still in any kind of training can only operate the machine under supervision of a trained professional.
15. All safety- danger warnings on the machine must be clearly visible at all times.
16. Hot parts can never come in contact with explosive or flammable chemicals.

3.3 Safety features and regulations

In this paragraph all safety features in place are described.



All safety features must be kept in faultless condition.



Never grab into the drum when operating.

3.4 Emergency break

The main switch also serves as emergency break.

3.5 Safety features

The fixed separations on the gear drive have been attached with fastenings such as bolts. These features prevent any contact with moving parts and therefore protect from severe injury.

The removal of fixed guards, or the operation of the machine without any of these guards is not allowed!

Immediately after the execution of this work, the safety devices must be installed / activated again and checked for their functionality.

For this, only the original mounting hardware of the safety devices can be (re)used.

3.6 Personal Protective Equipment

The necessary, or by regulation required, personal protection equipment, such as safety glasses etc, must be made available to the operator.



Use safety glasses

When sprayhead is enabled.

3.7 Noise

The drive motor of the machine produces less than 70dB (A).

4 Placing and connecting

4.1 Plan alignment



Use suitable transport- and grabbing tools for transporting and placing the machine.

The machine weighs more than 25 kg. For more information please read technical data.

Plan alignment of the machine. By careful planning and observing ambient circumstances optimum operation is achieved.

Basic requirements, which have to be met:

- The machine, in filled condition, is very heavy. Choose a suitable base. At least a sand bed of 10cm, (potentially with a concrete tile or plate) to avoid sinking.
- The machine must be level.
- Think of sufficient motion space, to be able to perform maintenance- or cleaning work.
- Lead wastewater into sewerage or as far away from the pond, that it cannot flow back into it. Use supply- and outlet pipelines DN110 (unless otherwise stated)

The filter system can be used as pumped system or gravitational system.

4.2 A. Gravitational system

The filter system, for the most part, is built into the ground (filter shaft). The inlet is located beneath pond level. Wastewater exits through the floor drain or skimmer in the pond, into the first chamber of the machine and then flows further to the filter chamber. In accordance with the principle of the communicating vessels the water level in the rooms adjusts to pond level. An external pump (not included) pumps the filtered water further through a biological filter (not supplied) after which the water flows through a pipeline or stream / waterfall back into the pond.

Benefits of the gravitation system:

- Good transport and thereby effective removal of particulate matter by taking advantage of the gravitational principle.
- Energy- efficient because there is hardly any difference in height and only a slight friction loss.
- Can be incorporated unobtrusively into the water garden.



The right preparation and a constant water level in the pond are important prerequisites for optimal and smooth operation of the gravitational system.

Making the trench:

- Dig a sufficiently sized pit for the machine. Take enough room into account for several connections.
- Align the baseplate horizontally. (the filter must be completely level) .
- Secure the sides of the pit by the subsidence of the soil (retaining wall masonry, or pouring concrete).
- Protect the pit from flooding. Ensure drainage of rainwater.

Arranging the filter system:

- Determine the max. water level of the pond.
- Line the bottom plate horizontally (the filter must be completely level).
- The installation height is 16.5 cm (distance max. water level to top of filter).

Keep water levels constant:

- For the operation of the system is a gravitational constant water level in the pond is required.

Tolerances down to -20 mm the max. Water level is allowed.

- If the max. Water level exceeded in the pond, the water in the drum filter through the dirty drain flowing down until the max. Water level is reached again.
- If the max. Water level by more than 50 mm undershot, is an optimum, trouble-free operation is not possible.

4.3 B. Pumped system

The filter system is water level above the pond. Soiled water is pumped from the pond into the device with an external filter pump (not included) The filtered water flows through a biological filter (not supplied) after which it flows back into the pond via a pipeline or stream / waterfall.

Advantages of the pumped system:

- less installation work;
- easy system expansion.

Alignment

- Determine the max. Water level of the pond.
- Align the bottom plate horizontally (the filter must be completely level).
- The installation height is 24.5 cm (distance max. Water level to top of filter).
Tip: Use three common concrete slabs, each with size 500 × 500 × 50 mm.
- Install the nozzle in the pond (eg. Via a stream or waterfall) no higher than the outlet of the device.

4.4 Connecting the drum filter



Warning! Dangerous electrical voltage!

Possible consequences: death or serious injury.

Safety measures: Before you enter the water and before you perform any work to the machine, switch off voltage and secure against unintentional use.

4.5 Instruction for pipelines

- Use suitable pipelines Ø110 mm (unless otherwise stated).
- Do not use rectangular pipe pieces. For curves use pipes with a maximum angle of 45°.
- Mount plastic pipes with rubber seals.
- Pipes and tubes should be placed at a slight slope (50mm/m) to ensure drainage.
- With the gravitational system it must be possible to block the feed to the pond as well as the return from the pond, during maintenance and repair work. Install suitable gate valves.
- With the gravitational system the water level in the pond can lower up to 5 cm. Otherwise, during operation, the minimum water level in the system drops below allowed level. An optimal and trouble free operation is not possible.

4.6 Close off inlet (also see image on page 2)

Gravitational system

The machine comes with two inlet connections DN 110.

- Connect the appropriate pipelines DN 110 from the bottom drain and / or skimmer on the inlets.
- Secure the piping so that no fish can swim in.

Pumped system

The machine comes with two inlet connections DN 110.

- Place the filter pump (standard not included) into the pond.
- Connect the filter pump to the feed DN 110 device. Consult the manual of the filter pump for connection instructions.

4.6.1 Connecting returns (also see image on page 2)

Gravitational system

The machine comes with two return connections DN 110.

- Install the filter pump (standard not included) behind the return connections. Consult the manual of the filter pump for connection instructions.

Pumped system

The machine comes with two return connections DN 110.
Connect the return to the biological filter (not included).



A stream or waterfall is best suited to run the water back into the pond. As a result, the filtered pond water is enriched with oxygen, before it flows back into the pond.

4.6.2 Connecting wastewater drain (see image on page 2)

The collected dirt particles will be drained through the waste water drain DN110 (the top exit at the back of the machine)

- Connect a suitable pipe DN 110 and let the waste water drain into the sewerage

5 Operation

5.1 Controls

The controller has two control buttons with the following functions:



Turn machine on/off
Important function for safety. (also serves as emergency stop)



rinse manually

5.2 Take into commission

Clean the pond thoroughly when the machine is taken into commission to avoid the filter becoming overloaded by strongly contaminated water. With a newly created pond, the cleaning rule can be forgone.

5.2.1 Gravitational system

How to proceed:

1. Check the whole system (pipes, and hoses) for completeness.
2. Remove lid from housing.
3. Open inlets and maybe even outlets to fill the system with water.
4. Check all pipes, hoses and connections for waterproofing.
 - Expanding seals initially may not be waterproof as they are designed to become waterproof when they come into contact with water.
5. Fill the pond until the maximum water level has been reached.
6. Set level registration to water level.
See par. Set level registration.
Ideal water level: 16,5 cm under filter-edge
Acceptable tolerance: -2 cm (18,5 cm under filter-edge)
7. Place lid onto the machine.
 - When the lid is lifted the drum will not be moving for safety reasons.



Warning: Place lid the right way. The filter only operates when the magnet switch is operated.

8. Switch on Control
9. Switch on Filter Pumps.

5.2.2 Pumped system

How to proceed:

1. Check the filtration system (pipes and hoses) for completeness.
2. Remove the cover from the housing.
3. Fill the filter halfway with water.
4. Check all pipes, hoses and their connections for waterproofing.
 - • expanding seals may be leaking at first, because they only seal completely with water contact.
5. Fill the pond until the maximum water level has been reached.
6. Set level Registration to the water level in the filter.
 - See par. Setting level registration. Ideal water level: 24,5 cm under filter-edge. Permitted tolerance: 2 cm (26.5 cm below filter edge)
7. Place the lid on the device.
 - When lid is lifted the drum will not be moving for safety reasons.



Warning: Place lid the right way. The filter only operates when the magnet switch is operated.

8. Switch on Control
9. Switch on Filter Pumps.

The water must flow back via the return flow into the pond.

5.3 Setting level registration (also see image page 3)

In order to obtain a proper functioning filter, the level registration should be properly set. Level measurement consists of a coil indicator and a dry-running protection (only with gravitational system). For proper adjustment, see the diagram on p. 3 of the manual.

5.4 Turning the machine on

Turning the machine on as follows::

1. Turn on the main switch on the control box.

5.5 Operation

Once the machine is turned on, it will operate until the water level in the filter is too low.

5.6 Turn off

To stop the machine as follows:

1. turn off the main switch in the control box.

6 Malfunction

In case of malfunction:

- Check level regulator.
- Check whether the cover is placed correctly
- Check water level in the pond
- When rinsing frequently, check filter/mesh.
- Contact supplier

7 Transport and storage

7.1 Transport



Only use undamaged and suitable means of transport, or tools.

Unattached cables and hoses need to be secured to prevent any damage, danger of injury. Danger of tripping must be ruled out.

7.2 Packaging

To prevent possible damage packaging of the different parts must be carried out with great care.

The steps taken must fulfill (depending on the situation) the purpose of:

- Protection against rain during transport
- Protection against damage caused by doors, walls and other objects.
- Protection against frost, whenever there is water present in the different parts of the machine.

7.3 Storage

When the machine is being stored observe the following:

- Only store the machine in dry areas



Avoid damage when storing the machine.

Store the machine complete with all parts to avoid missing parts when the machine is recommissioned.

8 Decommisioning



The machine has several dangerous parts that must be handled carefully. Please observe the following comments.

The following should be considered:

1. Switch off the unit (see Chapter Operation)
2. Drain all parts of electrical voltage / discharge.

The following actions should be taken:

- Remove and destroy the plate with the CE marking
- Completely remove / dispose of machine parts for Recycling

9 Maintenance

This chapter describes procedure for maintenance and repairs.



Regular maintenance and inspection of the machine are of great importance. Malfunction will be reduced and operational safety increased.

9.1 Cleaning

The filter system is self-cleaning. Periodically perform the following tasks, so that the filter system always reaches an optimal cleaning performance:

- Weekly gutter check for blockages and, if necessary spray clean with the garden hose.
- Regularly check whether the nozzles are not clogged. If clogged, unscrew nozzle and clean with a toothpick.

After cleaning, all lines must be checked for loose connections, chafe marks and damage! Identified defects must be repaired immediately!



The contact of liquids with live parts should be avoided, as this could lead to a short circuit.

The device should never be cleaned with the help of cleaning agents, steam cleaner / pressure washer.

9.2 Cleaning the filter system

Only when exceptionally dirty, the machine should be shut down for excessive cleaning.

Do not use chemical cleansers because they will kill filter bacteria.

How to proceed:

1. Turn off all filter pumps.
2. Turn off any and all other electrical machines.
3. Only for gravitational system: Close the inlet as well as the outlet of the filter to prevent any further flow of water.
4. Commence cleaning.
 - Clean the reservoir thoroughly on the inside with flowing water.
5. Recommence use of the machine.

9.3 Drum filter disassembly / assembly

Remove the filter element to undertake operations in the drum filter.

Disassembly

How to proceed:

1. Unscrew nozzle and disassemble.
2. Dismantle water channel by means of M6 bolts (8 pieces) to unscrew the front of the device.
3. Disassemble rubber seal by means of screws, and take off rubber groove.
4. Dismantle the two guide rollers by means of loosening the M8 bolts.
5. Now, the drum can be pulled about 2 cm forward to be taken out of the filter.

Assembly

How to proceed:

1. Place drum filter back.
2. The two guide rollers mounted with M8 bolts.
3. Push rubber seal in groove, and screw tight.
4. Slide water channel back into the filter and fasten using M6 bolts.
5. Replace and connect nozzle.

9.4 Filter element disassembly / assembly

First the drum needs to be disassembled (also see par. 9.3)

How to proceed:

Disassembly

1. Disassemble stainless steel fastening strips.
2. Disassemble stainless steel pipe clamps.
3. Remove/replace bolts from the round disc and remove filter element.



WARNING: do not disassemble the gear wheel.

Assembly

1. Place round disc.
2. Place stainless steel pipe clamps.
3. Place stainless steel fastening strips.

9.5 Maintenance



When dismantling of safety devices during preparation, maintenance and/or repairs becomes necessary, immediately after completion of the maintenance and repairs reassembly and verification of the safety features must take place.

For all maintenance, inspection and repair work, the machine must be de-energized.

Instructions for handling electrical equipment:

1. Work on the electrical equipment of the device must be conducted by an electrician or by trained persons under the guidance and supervision of a qualified electrician in accordance with technical regulations.
2. Before cables are connected or loosened, you must be sure the power turned off. Failure to comply may cause electric shock or malfunction of the device.
3. Only use original fuses with specified current. In case of malfunctions in the electrical power supply turn off the machine off immediately!

9.6 Maintenance time table

During use of the device different maintenance and check must be performed. In this chapter, the respective intervals to abide are indicated. With aggravated operating and environmental conditions the maintenance intervals shorten.



Safe and environmentally friendly disposal of operating and auxiliary materials as well as replacement parts is required! Harmful substances must be removed so that there is no danger to persons and the environment. Also, leakage of hazardous substances leads to environmental hazard. Local regulations are to be observed.

Work		Interval	
		d = daily w = weekly m = monthly	s = semi-yearly y = yearly
Part	Check	Interval	Comments
Safety components			
Main switch	Functional test	m	See chapter safety
Warning images / pictograms	Check for perfect condition	m	If necessary replace. Also see chapter safety
Electrical equipment	Check	j	Loose connections or burnt cable must be replaced immediately
Water connections	Check waterproofing	j	Replace damaged parts immediately
Safety components	Check for function and completeness	j	See chapter safety
General condition of the machine	Visual check	m	Look for corrosion, damage, clogging or defects.

10 Storage and wintering

Protected from frost:

The machine can still operate with water of at least +4 °C.

- Control box must be placed sheltered.

Not protected from frost:

The machine must be decommissioned when the temperature of the water drops below +8 °C, or at latest below zero.

- Clear the unit as much as possible, clean thoroughly and check for damaged.
- Empty out all hoses, tubes and connectors as much possible.
- Leave gate valve open.
- Cover the filter holder off so that rain cannot enter.
- Protect pipes and gate valves against frost.

11 Technical data

type	measurements. (lwxhx) [mm]	weight [kg]	max. flow [m ³ /h]
22	740 x 680 x 510	22	22
35	850 x 680 x 510	35	35
50	790 x 880 x 710	50	50
65	900 x 880 x 710	65	65

connections

control box	:	220V 50Hz 72Watt
control voltage	:	12 V d.c.
flushing pump	:	max. 1000Watt 4,5 Ampere
pond pump	:	max. 1000Watt 4,5 Ampere
nominal operating water pressure	:	5,0 bar

also see technical data on the type plate

noise

<70 db(A)

Enviromental conditions

Floor/ground	:	flat concrete floor
Temperature	:	between +5°C and +40°C
Air	:	relative humidity less than 50% at +40°C. At lower temperatures a higher humidity content is permissible, however, there should be no condensation.