MPF

makoi pond filtration

DRUM FILTER AND BIODRUM POND FILTERS

PRODUCT CATALOG

2021

Contents

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MA-KOI DRUM FILTER AND BIODRUM POND FILTERS

We proudly present our high-quality filter systems to you.
By making everything ourselves, testing and our own experience in pond construction, we have come to a concept that meets the maximum quality requirements. This makes our drum filters and combi drum filters not only innovative, but also durable and reliable! Besides supplying the drum filters, we also offer installation and maintenance service.

Why a Makoi drum filter?
Many filters are similar and have the same effect. Why would you still go for a Makoi filter? The Makoi drum / combi filters are powered by an industrial motor that delivers 210 Nm and is specially assembled for this drum! This motor is centred on the filter by means of the centring ring, so that it is always exactly in the middle of the barrier and shaft to prevent leakage and deformation. Because we draw, mill, and assemble everything ourselves, you will receive the best price-quality product available on the market.

All plates are milled at the Makoi Pondfiltraton fabric with our Biesse Skill milling machine. The 110mm input and output are melted on the plate. This ensures that the connection becomes much stronger compared to a welded pipe. Pipes that are welded to a polypropylene (PP) plate can break more easily, with all the consequences that entails. We have devised a technique that makes this no longer possible. Two bypass bungs in the drum wall ensure that the filter continues to work in case of calamities and that the biological part at the Biodrum is not stopped.

The filter comes standard with a 2 year warranty (excluding filter screen).

Are you looking for a reliable, durable drum filter with the best price-quality ratio? Then the Makoi Pondfiltration filters is the best choice for you!

Subject to typesetting and printing errors

WHY A DRUMFILTER?

There have been many pond prefilters in the past, all with the highest expectations. In the 1980s it was the Vortex, connected to a bottom drain. Later came the bend screens such as the SuperSieve, Ultrasieve, Estrosieve etc. Much later the automated screens that work on water pressure were introduced.

The first drum filters hit the pond market around 2000. It has taken 6 to 7 years before more and more people saw the benefit of proper pre-filtration. In the following years, various players entered the market that offered drum filters at very high prices.

Now that more affordable options have been introduced for the past 4 years, the drum filters can no longer be ignored in ponds. The advantage is that a drum filter captures more dirt than any other filter with this water capacity. Furthermore, the fixed costs to run this filter will be only a few tens of euros per year.

The maintenance? Checking every now and then that everything is working properly, that is all.

CUSTOM MADE

Makoi produces and assembles all her filter systems in-house. This makes customization possible in almost any shape. All PP material is milled with our own CNC milling machine.

All our filter systems are designed and drawn by ourselves. This allows us to easily deliver custom work in almost any desired size and shape. Various customers have already preceded you who have had a specially designed drum filter, multi-chamber filters, filter chamber, etc. custom made by us.

Do you have an idea for a filter system, or does one of our filters not fit your situation? Make an appointment with us to discuss your wishes and ideas.

CONTROL PANEL

Through years of testing and innovation, we have developed 2 types of controls for our drum and combi filters. The industrial Makoi Pondfiltration controller and the Makoi drum control.

PONDFILTRATION CONTROLLER:

Supplied as standard with every Makoi Pondfiltration Drum filter or Biodrum.

- The pond pump stops when the water level is too low and switches on again when the water level in the pond is raised.
- Provides automatic rinses
- Industrial Relays
- Industrial electronics cabinet in a compact housing
- Manual rinsing by push button
- Digital display

DRUM CONTROL + € 200:

This electronics with Siemens Logo 8 control is a new generation logic module that is suitable for every customer requirement with a PLC control

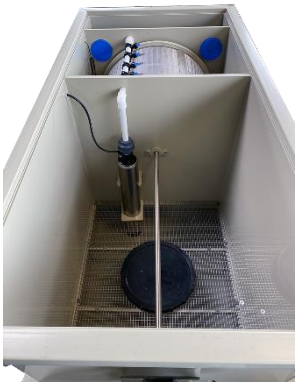
- The pond pump stops when the water level is too low and switches on again when the water level in the pond is raised again
- Provides automatic rinses
- You can read the data via the internet
- You can control the Siemens Logo8 via an app
- Change the rinses yourself if you want to rinse longer or shorter
- A day counter is integrated so that you can read the total number of flushes and day flushes
- A signal is emitted when the drum has been in dry-running protection
- Possibility to flush your waste chute by connecting an extra flushing pump
- Many possibilities to expand to control the drum according to your wishes
- Rinse once per hour to prevent the cloth from drying out (winter mode)

FLUSHING PUMP

A 6bar high pressure internal flushing pump is standard on the Biodrum 50, 80, 100, 120, 100XL, 120, Rotator filters and the Drum 200.

An external flushing pump from Oase is supplied with the drum filters (Drum 30/50/100) with a 3-year warranty.

There is the option to have an internal flushing pump built into the Drum 50 and 100.



HOW DOES A DRUM FILTER WORK?

A drum filter is a pre-filter that can easily filter very fine pollution (<70-120mu) from a water flow. The water flows gravity or pump fed into the drum filter thereby separating the dirt from the water. The water flows from the inside of the drum filter through the wall to the outside of the drum filter. A mesh has been mounted on the wall of the drum, which has a certain fineness. The pollution remains on this mesh. With a certain amount of pollution, the drum filter will silt up completely. For this, there is an automatic control with the drum filter that monitors this. This control constantly measures the water level in the drum filter. This can be done with gravity systems behind and with pump fed systems in front of the drum filter. The moment the drum filter clogs up, the water level will change. In the gravity system the water level drops behind the drum. In a pump fed system the water level in front of the drum rises.

If a difference is measured, the electronics will activate the flushing. During this flushing, the drive motor turns the drum filter and a high-pressure pump from the nozzles (the mouthpiece) sprays the cloth. The nozzles spray the water in from the outside of the drum to remove the dirt. This dirty water is collected on the inside of the drum filter by means of a gutter through which the water flows to the sewer. Once the water level has returned to the correct level, the drum filter will flush for 14 seconds to ensure proper cleaning. After this, the pressure pump and drive motor will switch off and the electronics will continue its measurement until the next flush.

The Makoi drum filters (Drum 30/50/100) come with an external flushing pump from Oase with a 3-year warranty. There is the option to have an internal flushing pump built into the Drum 50 and 100

DRUM 30

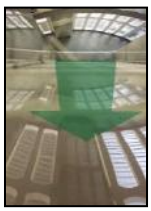
Measurements L x B x H	1020 x 570 x 507 mm
Panel measurements L x Ø	400 x 430 mm
Max. Flow	30 m³/uur
Inlet (mm)	3x110mm
Outlet (mm)	3x110mm
Koipond max	60 m³
Swimming Pond max	90 m³
Motor	Industrial 210Nm
Flushing pump	External

DRUM 50

Measurements L x B x H	1017 x 836 x 786 mm
Panel size L x Ø	400 x 650 mm
Max. Flow	50 m³/uur
Inlet (mm)	4x110mm
Outlet (mm)	2x110mm
Koipond max	100 m³
Swimming Pond max	150 m³
Motor	Industrial 210Nm
Flushing pump	External

DRUM 100

Measurements L x B x H	1450 x 840 x 786 mm
Panel size L x Ø	800 x 650 mm
Max. Flow	100 m³/uur
Inlet (mm)	8x110mm
Outlet (mm)	3x110mm
Koipond max	200 m³
Swimming Pond max	300 m³
Motor	Industrial 210Nm
Flushing pump	External



Incl. aansluiting om de goot door te spoelen.

Subject to typesetting and printing errors

MAKOI DRUM 200

Measurements L x B x H	1450 x 1105 x 925 mm
Panel size L x Ø	800 x 650 mm
Max. Flow	200 m³/uur
Inlet (mm)	10x110mm
Outlet (mm)	5x110mm
Koipond max	300 m³
Swimming Pond max	400 m³
Motor	Industrial 210Nm
Flushing pump	Internal 2x

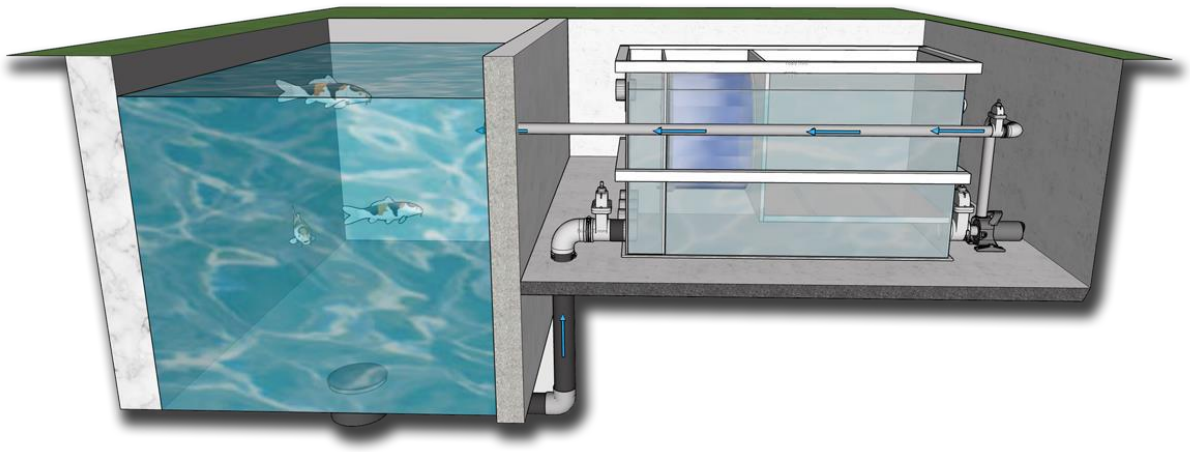
Incl. interne spoelpomp om de goot door te spoelen.

Subject to typesetting and printing errors

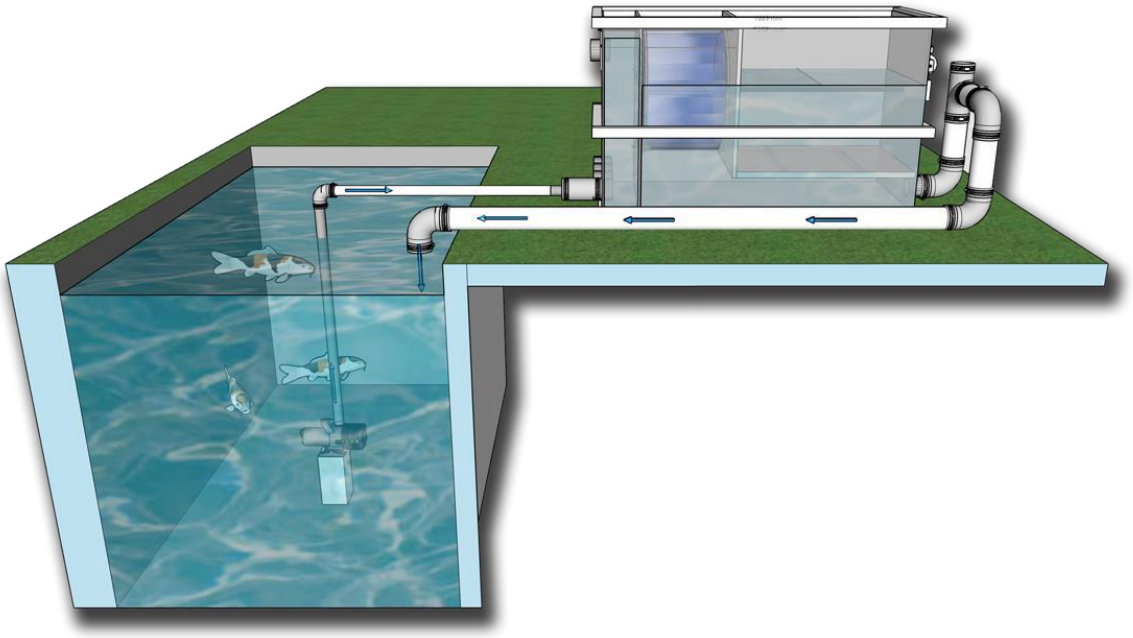
FILTER PLACEMENT

The Makoi filters can be placed both gravity and pump fed

Gravity:
We always advise to set up the filter in gravity. The filter is placed at water level and will then protrude approximately 11-14 cm above the water level. Due to the effect of gravity, your filter fills up with water. A pond pump moves the water from your filter back to the pond.



Pump fed
If a pump-fed system is chosen, there are a few things to consider. First, pump fed systems have less capacity. Take into account a loss of at least 30%. For example, a Biodrum 100 can handle a maximum of 50m3 per hour in gravity setup, and a pump fed system a maximum of 35m3. The biological part will also not be completely filled with water, so less biological material will be able to enter. Our advice is to always go for a gravity system.



MAKOI BIODRUM FILTERS

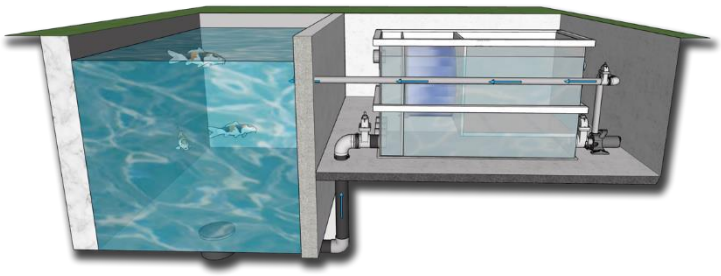
Our Biodrum/combi filters are equipped with an ingenious drum filter technology, and a moving bed system for optimal water movement and filtration. These filters combine a drum and moving bed filter in a compact housing.

The polluted pond water first flows into the collection chamber. The second chamber houses a drum filter and provides mechanical filtration. An air saucer / stone is installed at the bottom of the third chamber to be connected to an external air pump. This ensures that there is movement in the third chamber. This chamber will have to be filled to a maximum of 70% of the content with moving bed material (for example Helix). After a few weeks, bacteria will settle on this moving bed material to filter the water biologically. Because the material is constantly in motion, no dirt will accumulate, the material stays clean and requires no more maintenance!

The filter consists of high-quality materials such as stainless steel and PP and aims to guarantee perfect water quality in a simple and reliable way.

An internal flushing pump is standard on the Makoi Biodrum 50, 80, 100, 120, 100XL, 120, Rotator filters and the Drum 200.

The Makoi drum filters (Drum 30/50/100) come with an external flushing pump from Oase with a 3-year warranty. There is the option to have an internal flushing pump built into the Drum 50 and 100.



BIODRUM 30

Measurements L x B x H	930 x 1040 x 765 mm
Panel size L x Ø	400 x 430 mm
Max. Flow	30 m³/uur
Inlet (mm)	3x110mm
Outlet (mm)	1x110mm
Koipond max	30 m³
Swimming Pond max	60 m³
Moving bed content	130 liter
Motor	Industrial 210Nm
Flushing pump	External

BIODRUM 40

Measurements L x B x H	1335 x 1040 x 765 mm
Panel size L x Ø	400 x 430mm
Max. Flow	30 m³/uur
Inlet (mm)	3x110mm
Outlet (mm)	2x110mm
Koipond max	40 m³
Swimming Pond max	80 m³
Moving bed content	260 liter
Motor	Industrial 210Nm
Flushing pump	External

BIODRUM 40 + Japan Matting

Measurements L x B x H	1335 x 1040 x 765 mm
Panel size L x Ø	400 x 430mm
Max. Flow	30 m³/uur
Inlet (mm)	3x110mm
Outlet (mm)	2x110mm
Koipond max	40 m³
Swimming Pond max	80 m³
Moving bed content	130 liter
Motor	Industrial 210Nm
Flushing pump	External

BIODRUM 50

Measurements L x B x H	1941 x 686 x 947 mm
Panel size L x Ø	400 x 430 mm
Max. Flow	30 m³/uur
Inlet (mm)	3x110mm
Outlet (mm)	2x110mm
Koipond max	50 m³
Swimming Pond max	100 m³
Moving bed content	320 liter
Motor	Industrial 210Nm
Flushing pump	Internal

BIODRUM 50 + Japanese Matting

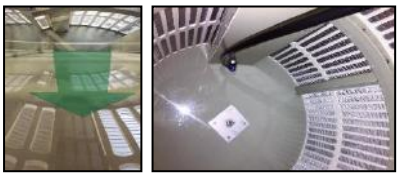
Measurements L x B x H	1941 x 686 x 947 mm
Panel size L x Ø	400 x 430 mm
Max. Flow	50 m³/uur
Inlet (mm)	3x110mm
Outlet (mm)	2x110mm
Koipond max	50 m³
Swimming Pond max	100 m³
Moving bed content	160 liter
Motor	Industrial 210Nm
Flushing pump	Internal

BIODRUM 80

Measurements L x B x H	1750 x 960 x 765mm
Panel size L x Ø	400 x 430 mm
Max. Flow	50 m³/uur
Inlet (mm)	4x110mm
Outlet (mm)	2x110mm
Koipond max	80 m³
Swimming Pond max	150 m³
Moving bed content	320 liter
Motor	Industrial 210Nm
Flushing pump	Internal

BIODRUM 120

Measurements L x B x H	1745 x 1330 x 765mm
Panel size L x Ø	800 x 650 mm
Max. Flow	100 m³/uur
Inlet (mm)	8 x 110mm
Outlet (mm)	3 x 110mm
Koipond max	120 m³
Swimming Pond max	240 m³
Moving bed content	520 liter
Motor	Industrial 210Nm
Flushing pump	Internal



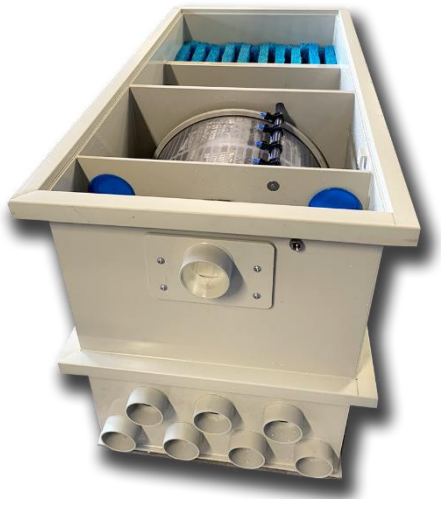
Incl. aansluiting om de goot door te spoelen.

BIODRUM 100

Measurements L x B x H	1941 x 836 x 973 mm
Panel size L x Ø	400 x 650 mm
Max Flow	50 m³/uur
Inlet (mm)	4 x 110mm
Outlet (mm)	2 x 110mm
Koipond max	100 m³
Swimming Pond max	200 m³
Moving bed content	420 liter
Motor	Industrial 210Nm
Flushing pump	Internal

BIODRUM 100 + Japan Matting

Measurements L x B x H	1941 x 836 x 973 mm
Panel size L x Ø	400 x 650 mm
Max. Flow	50 m³/uur
Inlet (mm)	4 x 110mm
Outlet (mm)	2 x 110mm
Koipond	100 m³
Swimming Pond max	200 m³
Moving bed content	210 liter
Motor	Industrial 210Nm
Flushing pump	Internal



BIODRUM 100XXL

Measurements L x B x H	2450x1100x1025 mm
Panel size L x Ø	400 x 715 mm
Max. Flow	80m³/uur
Inlet (mm)	8 x 110mm
Outlet (mm)	3 x 110mm
Koipond max	150m³
Swimming Pond max	250m³
Moving bed content	930 liter
Motor	Industrial 210Nm
Flushing pump	Internal

BIODRUM 200

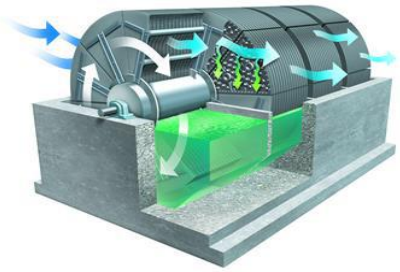
Measurements L x B x H	2380 x 840 x 980 mm
Panel size L x Ø	800 x 650 mm
Max. Flow	100 m³/uur
Inlet (mm)	8 x 110mm
Outlet (mm)	3 x 110mm
Koipond max	100m³
Swimming Pond max	150m³
Moving bed content	420 liter
Motor	Industrial 210Nm
Flushing pump	Internal

Incl. aansluiting om de goot door te spoelen.

MAKOI BIODRUMROTATOR

The Makoi BiodrumRotator is our top model among the Biodrum filters! This model is a major upgrade over a standard Biodrum. The moving bed has been replaced here by Japanese mats and a Rotating Biological Drum (RBC). The RBC is standard filled with Helix as a biologist, with a cassette of Japanese mats underneath! This can also be filled with other biological material if desired.

The RBC is a rotating trickle / drip filter concept that requires no head from the pump! The RBC is 40% under water, and 60% above water for maximum oxygen saturation. The big secret of this design is that oxygen can contain up to 4% * in water and 20% in air. This gives the pond bacteria the best conditions to perform their work efficiently.



The rotating movement of the RBC ensures that a trickle / drop filter is created without a lift head. The industrial motor of 250nM of 60 watts turns the RBC.

Ammonia and nitrite removal:
Scientific studies in fish farming have shown that an RBC guarantees a very high ammonia and nitrite removal, 50% better than trickle filters and many times better than moving bed filters!

Benefits :

- Better biological effect
- No more head compared to a trickle filter
- 2x as efficient as a moving bed
- Faster start-up than a moving bed
- No cooling in winter compared to trickle filters
- No noise
- More stable bacterial culture with use of medication and changing water values
- No need for an air pump anymore
- water is of better quality
- You can feed more

BIODRUM ROTATOR 20

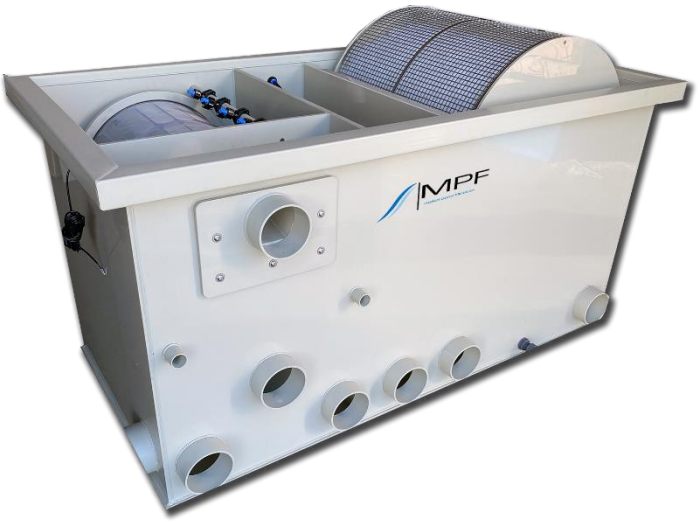
Measurements L x B x H	1435 x 570 x 507 mm
Panel size L x Ø	400 x 430 mm
Max. Flow	20 m^3/hour
Inlet (mm))	3x110mm
Outlet (mm)	3x110mm
Koipond max.	20 m^3
Swimming Pond max	40 m^3
Contents Rotator	50 liter helix 13
Motor:	Industrieel 210Nm
Flushing pump	extern

BIODRUM ROTATOR 40

Measurements L x B x H	1450x840x786 mm
Panel size L x Ø	400 x 650 mm
Max. Flow	30-55 m^3/uur
Inlet (mm)	4x110mm
Outlet (mm)	4x110mm
Koipond max	40m^3
Swimming Pond max	100m^3
Contents Rotator	100 liter helix 13
Motor	Industrial 210Nm
Flushing pump	External

BIODRUM ROTATOR 50

Measurements L x B x H	1535 x 1045 x 980 mm
Panel size L x Ø	400 x 430 mm
Max. Flow	30 m^3/uur
Inlet (mm)	3x110mm
Outlet (mm)	2x110mm
Koipond max	50m^3
Swimming Pond max	100m^3
Contents Rotator	150 liter
Contents Japanese mat	1m^2 Japanese mat
Contents extra room	85 liter
Standard UV connection	Yes (Super UV)
Motor	Industrial 210Nm
Flushing pump	Internal



BIODRUM ROTATOR 80

Measurements L x B x H	1750x930x900 mm
Panel size L x Ø	400 x 650 mm
Max. Flow	50m³/uur
Inlet (mm)	4x110mm
Outlet (mm)	3x110mm
Koipond max	80m³
Swimming Pond max	50m³
Contents Rotator	180 liter
Contents Japanese mat	1.2m² Japanese mat
Contents extra room	85 liter
Standard UV connection	Yes (Super UV)
Motor	Industrial 210Nm
Flushing pump	Internal

BIODRUM ROTATOR 100

Measurements L x B x H	2200x916x1150 mm
Panel size L x Ø	400 x 650 mm
Max. Flow	50 m³/uur
Inlet (mm)	4x110mm
Outlet (mm)	3x110mm
Koipond max	100 m³
Swimming Pond max	150 m³
Contents Rotator	180 liter
Contents Japanese mat	3.6 m² Japanese mat
Contents extra room	300 liter
Standard UV connection	Yes (Super UV)
Motor	Industrial 210Nm
Flushing pump	Internal

TRICKLE FILTERS

Trickle filters effectively convert harmful, dissolved waste (such as proteins, ammonium, nitrite, etc.) in the pond water into harmless compounds.

The water enters the top of the inflow tray where it is distributed over 1 spray pipe. The segments are placed underneath, which are provided with a perforated bottom through which the water flows easily.

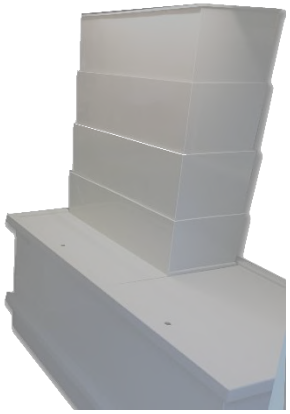
The drip units are filled by you with a filter material of your choice. An optimal oxygen saturation of the water is thus achieved. Due to the surplus of oxygen, even during the warm periods of the year, there is hardly any lack of oxygen in the pond.

To facilitate the application of a trickle filter in combination with our Biodrums, we have tailor-made the trickle filters to fit seamlessly with our Biodrums.

Thanks to the customization that we provide, you can also choose any desired size in consultation.

BIOSHOWER LARGE voor Biodrum 50 / 100 / 200

Measurements L x B x H	920x380x1215 mm
Max. Flow	30 m^3/uur
Inlet tube (mm)	1 x 63 mm
Outlet	Open
Quantity segments	4
Content per segment	65 liter
Incl. Lid	



BIOSHOWER SMALL voor Biodrum 20 / 30

Measurements L x B x H	530 x 330 x 910 mm
Max. Flow	15 m^3/uur
Inlet tube (mm)	1 x 63 mm
Outlet	Open
Quantity segments	3
Content per segment	35 liter
Incl. Lid	

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