

SAND FILTER UNIT

TYPE

TOP 350/S0033

TOP 450/SS050

TOP 500/SS075

TOP 650/SS100

INSTRUCTIONS

Important notice

In connection with the installation and operation of the filter unit, the operator is obliged to comply with legal and technical regulations and standards valid in the Czech Republic. For safety reasons, install the filtration so that the minimum distance from the edge of the pool is 3.5 m and the suction and return pipes are as straight as possible. The greater the distance between the unit and the pool and the more complex the pipes, the greater the pressure losses and the worse the filtration efficiency. Do not install the pump higher than 0.5 m above the water level in the pool.

ATTENTION: The electrical connection of the pump must only be carried out by a worker with appropriate electrical qualifications! The pump must be connected to a grounded network with a voltage of 220-240V, 50Hz, which complies with ČSN and must be equipped with a residual current device with a tripping current of 30 mA. A residual current device must be used to protect the motor against overcurrent /fuse/, set to a value corresponding to the current consumption. The device does not exceed the noise values specified in Art. 1.7.4. letter f) of Annex 1 to Royal Decree No. 170/1997 Coll. and ČSN EN ISO 4871. The pump is not equipped with a running switch.

We recommend that it be connected via a device that allows the pump to be switched on and off. The switch contacts must have minimum distance when switched off 3 mm. Before starting the device, first inspect it for damage. If

If you find any visible damage, do not put the device into operation! Maximum operating pressure 2 bar. The filtration must not be placed deeper than 4 m below the water level in the pool.

Direct connection to the water supply is only possible with special safety measures to prevent pressure higher than 2 bar. The filter container is pressurized, therefore there is a risk of overpressure.

Installation, wiring and servicing must be carried out by an authorized person or company with proper qualifications, or by a person who has been instructed.

For further instructions, refer to the pump manual.

ATTENTION: Safety instructions

The pump must never run without water / dry !!!

Do not manipulate the 6-way valve while the pump is running!!!

Do not cover the pump as it is cooled by the ambient air!!!

Do not install the pump in locations where the pump may be flooded and do not expose the pump to adverse weather conditions. influences!!!

Keep children out of reach of the pump!!!

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1. Description of the filter unit

Please read this manual carefully first, as it will allow you to become more familiar with the features and capabilities of our filter units. The filter units provide mechanical treatment of the pool water. This treatment can only be guaranteed if the instructions for chemical water treatment are also properly followed. Therefore, do not overlook our description of WATER TREATMENT in the following section.

1.1. Description of the 6-way flushing valve:

The functions (positions) marked on the valve make it easier for the customer to navigate and should prevent any possible mistakes.

1.1.1. Filtration: In *Filtration*

this position, water is pumped from the pool to the filter container and from there it is returned filtered back to the pool.

1.1.2. Valve closed: In *Construction*

this position all outlets are closed. The pump must not be in operation (must be switched off). This position is used for maintenance of the filter container.

1.1.3. Backwash: This *Cleaning*

position is used to backwash (clean) the filter media in the container. The water in the container flows in the opposite direction to the filtering position. The impurities drain into the channel.

1.1.4. Finishing the Flush: Filtration into the Channel

This position is used to rinse and settle the filter cartridge after backwashing. The impurities flow into the channel.

1.1.5. Circulation: Pumping without filtering

In this setting, the water does not flow through the filter, but directly into the pool.

1.1.6. Drain to canal: In this *Discharge*

position, the water is pumped out of the pool and flows directly into the canal. This position is used when draining or completely draining the pool.

1.2. Pump description

The task of the circulation pump is to transport water through the filter container back to the pool. The working pressure can be read on pressure gauge located on the filter container (0.4 – 1.5 bar)

1.2.1. Pre-filter

The pre-filter protects the pump from coarse dirt (e.g. hair, leaves, stones)

1.2.2. Shaft seal

The pump is equipped with a smooth sealing O-ring (ceramic-carbon seal) located between the pump body and the motor to ensure the sealing of the motor shaft. This seal wears out, so it is necessary to expect its replacement. (see point 4.2.3.). For proper and trouble-free operation of this seal, the water must meet the following parameters:

hardness max. 14°DH (2.5 mmol/L) max.

alkalinity 175 mg/l 7.0-7.6

pH 35 °C

temperature

chlorine max. max. 1.5 g/m3 free

pump is 4 kg/m3 Salinity If the

operated with a liquid outside these parameters, it may be damaged and subsequent complaints will not be accepted.

1.3. Description of the filter container

The task of the filter container is to remove mechanical impurities from the pool water using the filter media. This happens at a pressure of 0.4 - 0.8 bar. If the pressure increases by about 0.6 bar, the filter must be rinsed. (see point 2.3.)

2. Commissioning

2.1. Filling the container with silica sand

Loosen the screw connection on the 6-way valve, remove the clamps that hold it and remove the loosened valve from the container. Prevent the filter media from entering the central pipe. Fill the container with filter media, see the table below. Clean the rim of the container and do not fit the valve so that it can be connected to the pump and nozzles. Then screw the screw on the filter container.

Amount of sand with a grain size of 0.4 – 0.8 mm (optionally 0.6-1.2 mm)

For TOP 350 container - 20 kg

TOP 450 - 45 kg

TOP 500 - 85 kg

TOP 650 – 145 kg

The amount of filling may vary depending on the selected medium (filter glass, AFM, filter cotton, etc.). Always consult your dealer about the suitability of use and its amount.

2.2. Putting the filtration into operation:

To clean and fill the pool halfway with the skimmer, the pump is also filled at the same time (does not apply to above-water placement).

2.2.1. *Equipment below the surface of the pool*

The shut-off valves in the pipes to and from the pool must remain open.

2.2.2. *Equipment above the pool surface*

For devices located above the pool surface, the pump cover must be unscrewed and the pump filled with water. After filling the pump with water, screw the cover back onto the pump and secure. Pay attention to proper placement and possible damage to the seal on the cover. If installed incorrectly, the pump will suck in air, which will prevent the pump from functioning properly and may cause damage to the pump.

2.3. Sand flushing

Set the lever of the 6-way valve to the backwash position and turn on the pump. For longer pipe systems, this process can take up to 10 minutes. After starting to pump water, let the water flow into the canal for about 0.5 minutes to prevent sand from settling in the filter nozzles. You can monitor the water pumping in the sight glass of the 6-way valve.

2.4. Cleaning the pre-filter

After a certain time, the pre-filter can become clogged with dirt, which reduces the pump flow. In this case, the pre-filter must be cleaned. The pump must not be operated without this pre-filter. Excessive dirt could enter the pump section and cause damage.

2.5. Filtering – Operation

Set the 6-way valve lever to the FILTER position. Turn on the pump. To determine the appropriate time for use BACKFLUSHING is monitored by a pressure gauge. If the pressure increases by 0.3 (max. 0.6 bar), backflushing must occur. We recommend flushing the filter in regular weekly cycles, even if the above value on the pressure gauge has not been reached, in order to maintain a certain cleanliness of the sand.

2.6. Setting the filtering time

The operating time of the filter unit depends on the volume of the pool, its placement, the weather and the chemicals used. Example: We recommend changing the entire pool content twice within 24 hours. If a 25 m³ pool is to be filtered twice a day, this is a total of 50 m³ The ideal filtration time for a private pool is 5 hours.

3. Regular backwashing

If the pressure rises by max. 0.6 bar above the original value or one week has passed since the last backflush, it is necessary to move the 6-way valve lever to the BACKFlush position.

3.1. Backwash

Set the 6-way valve to the BACKFLUSH position.

Turn on the pump. Check the water through the sight glass. If it is clear, the backwash process is complete. The entire process should take approximately 1-3 minutes. Then set the 6-way valve to the FINISH FLUSH position and then FILTERING.

3.2. Completing the flush

The plastic backwash valve offers the possibility of transporting the remaining dirt after backwashing to the sewer instead of the pool. For this process, it is necessary to set the valve to the FINISHING position. In this position, turn on the pump for about 30 seconds. Then set it back to the FILTERING position.

4. Maintenance

4.1. Container maintenance

If the filter unit is located below the water level, the shut-off valves must be closed during maintenance and reopened after maintenance work is completed. Check the quantity and quality of the sand once a year. The sand must remain loose. If it is lumpy, the filling must be replaced! Reference in paragraph 2.1. "Filling the container with sand".

4.2. Pump maintenance

Switch off the pump. Set the 6-way valve to the closed position. Observe the instructions in paragraph 2.2.2.!

Remove and clean the pre-filter. Do not run the pump without the pre-filter!

4.2.1. Pre-filter

The pre-filter built into the pump must be cleaned from time to time depending on the degree of contamination.

4.2.2. Bearings

Both bearings in the motor are self-lubricating and maintenance-free. Depending on the operating environment and age, they may wear out.

4.2.3. Shaft seal

The shaft is equipped with a smooth sealing O-ring (ceramic-carbon seal), which wears out over time. The service life of this part is affected by the quality of the water. It is necessary to observe the operating conditions, see point 1.2.2. The replacement must be carried out by a service technician or an instructed person.

4.2.4. Seals

O-ring seals wear out over time, which can lead to leaks. Their lifespan is affected by the quality of the water. In the case of excessive chlorine, low or high pH values, or higher water hardness, the lifespan of these seals is reduced.

Therefore, occasional inspection and possible replacement are necessary.

4.2.5. Engine

It does not require special maintenance.

4.2.6. Flushing 6-way valve

This valve is also maintenance-free, only occasional inspection of the seals is necessary.

4.3. General maintenance

- general pool maintenance is given by the pool manufacturer's regulations (see also point 7)
- The filter basket in the skimmer must be cleaned regularly.
- the water level in the pool must reach at least half of the skimmer

5. Decommissioning (shutdown)

- Follow the regulations given by the pool manufacturer.
- The filter unit must be protected from possible freezing of the water in the container. Therefore, drain the water from the container for the winter!
For this purpose, a drain valve is located at the bottom of the container.
- the pipes to and from the pool must be completely emptied
- turn off the power and unplug the pump

6. Causes of malfunctions and their elimination

6.1. The pump does not suck in water

1. Check that the suction body is filled with water at least to the suction connection.
2. Check the suction lines for leaks; leaking lines cause air to be sucked into the pump.
3. Check the amount of water in the pool. If there is little water in the skimmer, the pump will also suck in air.
The amount of water should reach half of the skimmer.
4. Check the skimmer door for proper attachment. This is important to ensure proper water intake and to
there was no loss of water in the water column.
5. Check that the filter basket in the skimmer or pump is not clogged. Clean if necessary.
6. Check that the transparent pump cover is properly installed and screwed on tightly.

7. If the suction lines are too long and located above the water level, a check valve must be built into the lines.
with spring.
8. Check whether the shut-off valves in the suction and pressure lines are open.

6.2. Circuit breaker trips

1. If the circuit breaker trips, first try to turn the pump back on, i.e. reset the circuit breaker. If the circuit breaker trips again, call a service technician.
2. Before operating the circuit breaker, use a screwdriver to turn the pump fan so that the pump rotates easily.
3. If the pump is difficult to turn, the impeller may be blocked. This is possible if the pump has been in operation without pre-filter. Remove the pump housing and clean the impeller.
4. Too much power input with little back pressure. Have a service technician check.

6.3. Insufficient pump performance

1. Filtration is clogged. Perform backwash.
2. The shut-off valve in the distribution system is not fully open. Open it.
3. The filter baskets in the pump or skimmer are clogged. Clean them.
4. Reverse pump operation. Have an electrician adjust it.
5. The piping is too long or the discharge head is too high. Consult a professional for the correct oversizing.
6. The suction pipe is leaking, the pump is sucking in air. Eliminate leaks in the pipes.

6.4. The pump is too noisy

1. see point 6.2.
2. Dirt in the pump. Unscrew the pump housing and clean the housing and impeller.
3. The motor bearings are too noisy. They must be replaced by a specialist company.
4. The pump is placed on a varnished wood or concrete floor, which transmits noise to the building. The pump is placed on an insulated base (rubber, cork, etc.)

6.5. The pump will not start

1. Check that the pump is powered.
2. Check that the fuse is in order.
3. For AC pumps, have a professional check the capacitor to make sure it is OK.
4. Test the motor. Have the windings checked by an electrician.
5. Check that the pump is properly seated (the motor shaft can be tightened slightly with a screwdriver).
6. Check if the circuit breaker has tripped. If it has, see point 6.1.

6.6. The pump is leaking

1. During commissioning, drops of water may leak from the pump every 2 minutes. After a few hours, the sealing ring will settle and the pump will stop dripping.
2. If water constantly leaks at this point, the sealing ring is damaged. Replace the sealing ring.

6.7. Sand in the pool

1. Inappropriate sand coarseness (too fine). Follow the recommended sand coarseness of 0.4 – 0.8 mm.
2. The filter star in the container is damaged. Replace the star.

6.8. The pressure in the filtration is not OK

1. The pressure gauge is not working. Replace the pressure gauge.
2. The sand has clumped. Replenish the filling.
3. The suction or pressure lines are insufficient or the 6-way valve is closed. Check with a specialist.
sizing of distribution systems, or open the 6-way valve.

6.9. The water is dirty

1. Filter overload caused chlorination to be too low. Adjust chlorine and pH to the prescribed values.
2. The filtration is inappropriately sized. Consult a specialist.
3. The filtering time is too short. Increase the filtering time.
4. Use a flocculant for sand filters.
5. Insufficient backwashing caused sand to clog the container, which caused poor water filtration.
Follow the backwash time as instructed.

6.10. The water in the pool is decreasing

1. The flush valve has a defective seal. Replace the seal.
2. The piping is leaking. Eliminate the leaks.

7. General information about water treatment

There are a number of different regulations for keeping pool water clean. In addition to mechanical water purification using a sand filter unit, chemical water treatment is also important. Above all, the growth of microorganisms, especially algae, must be prevented.

7.1. pH value

The most optimal pH value for pool water is in the range of 7.0 - 7.6.

- a. Neither acidic nor alkaline irritation to human skin is expected.
- b. the effect of the material in the pool, in the distribution systems, etc. is within permissible values
- c. last but not least, disinfectants and anti-algae products also achieve the best results.

The pH value does not give us any further information about the composition of the water. It informs us whether the water is moving towards higher alkalinity (pH over 7.6), so the pH value determines the degree of acidity or alkalinity of the pool water. A pH value that is too high (over 7.8) can be reduced with the help of special preparations. That is why there is a whole range of health-safe granules on our market. Too high pH also occurs in hard water, in which the pH is regulated by regular doses of these special preparations. Meanwhile, the pH value always rises. A lower pH value (below 7) is usually found in soft water. Here, it is sufficient a single dose of appropriate alkaline preparations to raise the pH as prescribed. In soft water, it is very important to stabilize the pH so that there are no significant fluctuations.

7.2. Fighting algae

Algae are found in all natural waters. They grow and reproduce very quickly, as they are unpretentious organisms. Anti-algae measures are important in every swimming pool. Reliable prevention of algae growth and subsequent destruction is achieved with the help of modern pool chemicals against algae.

7.3. Malfunction

Every pool water contains organic impurities such as human skin secretions, sunscreen, plant parts, etc.

These particles are initially separate, but over time they collect and, together with the precipitated calcium, are the cause of cloudiness.

Above all, these particles are a breeding ground for microorganisms.

Organic contaminants are best removed with chlorine, which not only acts as a disinfectant, but also removes organic matter by oxidizing it. Many products on the market contain chlorine. The most commonly used form at present is chlorine tablets.

7.4. Duration of chlorination

In outdoor pools (hotel swimming pools, public pools, etc.), constant disinfection with chlorine is necessary and prescribed.

The duration of chlorination depends on the choice of product. For example, chlorine tablets dissolve very slowly in tablet buoys or floats. Another option for chlorinating water is an automatic chlorine dispenser.

7.5. Turbidity

Turbidity consists of fine particles that the filter unit is unable to capture. In sand filtration, turbidity can be prevented by using a flocculant, which allows the capture of even such small particles. The flocculant also has the advantage of being independent of the current pH.

7.6. Causes of unsatisfactory water quality

If the water purity does not meet your expectations despite the operation of the filtration unit, the following factors may be the cause:

1. The pH value is not correct, therefore the chlorine is ineffective.
2. Insufficient water disinfection (too long a period between applications, too low doses) promotes development of microorganisms
3. The filter unit is undersized.
4. Backwashing has not been performed for a long time.
5. The filtration cycles are set too tightly, so only part of the water can be filtered and the rest unfiltered.
The water remains cloudy.
6. Insufficient dimensions of the suction and pressure pipes have been determined, which causes poor-quality filtering of the pool water.

8. Manipulation

The filter unit is supplied as a single unit, excluding the connecting hose between the pump and the 6-way valve. Place the hose between the appropriate holes and tighten firmly to prevent water leaks. In this set, the filtration is ready for operation. The filtration is packed in a sufficiently strong cardboard box that corresponds to the weight of the filtration. Use the holes located on the sides of the box for handling! During transport, ensure that the boxes are properly secured to prevent damage to the individual parts of the filter unit.

If you have any questions or encounter a problem, please contact your dealer!!!

9. Warranty conditions

The product is provided with a standard warranty of 24 months. For proper processing of the claim, it is necessary to provide a completed warranty card or proof of purchase with a legible date of issue. If the device has been operated in violation of these instructions, the claim will be rejected.

WARRANTY CERTIFICATE

Product:	Filtration unit
Model:	TOP /SS
Serial number:	
Sale date:	
Installation date:	
Installation company:	

The seller is obliged to fill in all sections of this Warranty Certificate legibly and indelibly. An incompletely filled in, unauthorized overwritten or illegible Warranty Certificate is invalid. Therefore, check immediately upon purchase whether the warranty certificate has been properly filled in by the seller. The product warranty is 24 months.

Name and signature of the person who assembled the product:_____