



## Operating and Assembly Instructions

Bali/ Bali Premium/ ECO Sand Filter System  
with 6-way top-mounted valve



Example photo. May vary!



### **Important notes:**

- Use of the filter system for pools and their protection area is permissible only if the pools have been built according to VDE 0100-49D.
- Please inquire with your specialised retailer or your qualified electrician.
- Find more information in the operating instructions of the pump.

### **Caution – avoid damages:**

- Never let the pump run dry
- Activate 6-way valve only when the pump is switched off



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## 1. Assembly instructions

### 1.1 Filter tank

Install the drain cock (Fig. 1) on the foot of the filter tank (Fig. 2).



(Fig. 1)



(Fig. 2)

Lead the drain cock from the inside to the outside, through the hole in the filter tank with one sealing ring on the inside and outside, respectively (Fig.3).



(Fig. 3)

The drain cock is fastened with the nut and closed with the locking cap (Fig. 4)

(Fig. 4)



Then, the filter tank is set onto the filter pallet (Fig. 5).

For this, the drain cock must be pointed away from the pump side. (Fig. 6)



(Fig. 5)



(Fig. 6)

Now fill the filter tank up to 1/3 with water and insert the standpipe (Fig. 7).

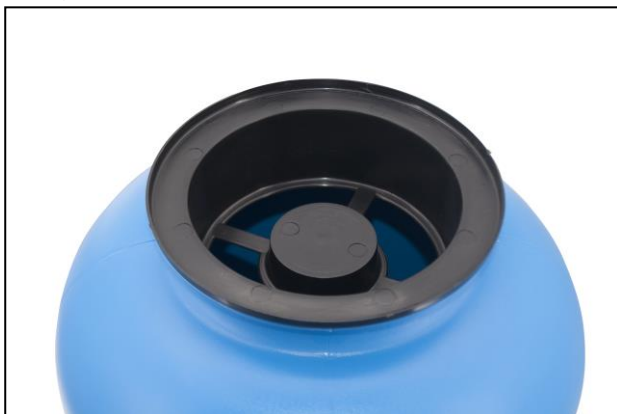


(Fig. 7)



(Fig. 8)

Now place the funnel onto the filter tank to fix the position of the standpipe.  
(Fig. 9)



(Fig. 9)

Then fill the filter tank with sand (Fig. 10).

- Ø300mm = approx. 20 kg
- Ø400mm = approx. 50 kg
- Ø500mm = approx. 75 kg

The amount of filter sand should not be above 2/3 of the tank height



(Fig. 10).

The funnel can be removed again after the filling is completed.

**Keep the funnel for later filling!!!**

## 1.2 Top-mounted valve

Start by tightly sealing the thread of the pressure manometer (Fig. 11) and screw it into the intended thread on the top-mounted valve (Fig. 12).



(Fig. 11)



(Fig. 12)

Now fasten all hose fittings and the sight glass on the valve (Fig. 13)  
(Fig. 14)



(Fig. 13)



(Fig. 14)

Before you fasten the valve onto the filter tank now, ensure that the sealing ring, the fringe area of the filter boiler and the multi-way valve are clean and free from sand grains.

Now place the sealing ring between the filter tank and the valve.  
To connect the valve and the filter tank, place the clamping ring around both and fasten it with a screw (Fig. 15) (Fig. 16).



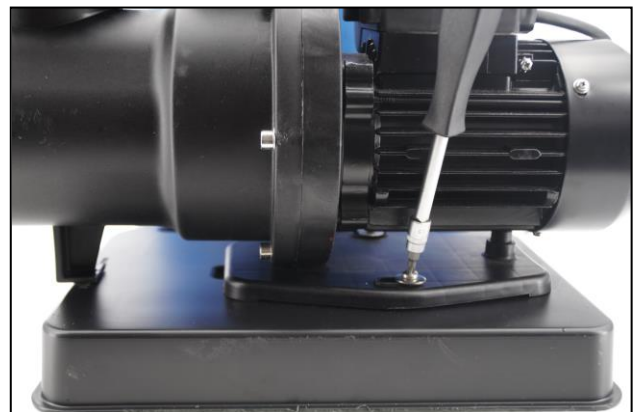
(Fig. 15)



(Fig. 16)

### 1.3 Pump

To do so, bolt the pump onto the baseplate (Fig. 18).



(Fig. 18)



Now connect the pump and the 6-way valve with the hose and the hose fittings (Fig. 19) (Fig. 20).



(Fig. 19)



(Fig. 20)



(Fig. 21)



(Fig. 22)

## 1. Filter systems – description

You have purchased a high-quality product in the filter system made by the company OKU Obermaier GmbH. We hope you will have lots of fun with your swimming pool and the filter system.

We recommend you to read assembly instructions and the operating manual carefully in order to familiarise with the special characteristics of this system and its possible uses. The filter system sees to the mechanical treatment of the pool water. Its fault-free function, however, is assured only if a chemical water treatment is also done. Therefore, please observe our description of the WATER TREATMENT in the annex.

**1.1. Description of the 6-way back-flushing valve:** The individual functions – the positions on the top side of the plastic valves are marked clearly to eliminate any risk of mistake.

### 1.1.1 Filter: *Filter*

In this position, the pool water is led through the filter and then back into the pool.

### 1.1.2 Closed: *Assembly*

In this position, all functions are deactivated.

The recirculating pump must not be switched on.

It is put into this position for maintenance work in the filter tank.

### 1.1.3 Back-flushing: *Cleaning*

In this position, the pool water is pressed through the filter into the opposite direction.

### 1.1.4 Circulation: *Recirculating without filtering*

In this position, the pool water does not flow through the filter but directly back.

### 1.1.5 Flushing: *Filtering in the canal*

In this position, the pool water flows normally through the filter and directly into the canalisation.

### 1.1.6 Canalisation: *Draining*

In this position, the pool water is pumped directly into the canal.

## 1.2 Description of the recirculating pump

The recirculating pump has the purpose of pressing the water out of the pool through the filter tank. The pressure created in the process can be read off on the manometer of the filter tank (0.4 to 1.5 bar).

### 1.2.1 Pre-filter

The pre-filter installed on the suction side protects the pump from coarse dirt (e.g. hair, foliage, small rocks).

### 1.2.2 Shaft seal

The pump is equipped with a shaft seal between the pump housing and the motor for the sealing of the motor shaft. This seal



is a wear part (see pump under Sec. 4.2.3).

### **1.3 Description of the filter tank**

The filter tank is a high-quality device, which has the purpose of cleaning dirt mechanically out of the pool water using special quartz sand (0.4 to 0.8 mm). This is done under pressure of 0.4 to 0.8 bar. The back-flushed filter indicates 0.4 to 0.8 bar. With rising pressure (by max. 0.6 bar), the filter must be back-flushed (see Section 2.3).

## **2. Commissioning**

### **2.1 Filling the quartz sand filter**

Before filling in the sand, it must be ensured that the 6 filter nozzles are twisted in tightly in the middle part of the filter cross of the Ø500 filter boiler. It must be ensured for all filter boilers that the standpipe stands centrally in the boiler and the funnel is positioned in a way so no sand can get into it. In addition, you should check if the complete system is undamaged. Fill the filter boiler 1/3 with water. Place the sand funnel onto the pipe and fill the filter boiler with the indicated filter material.

Then fill the filter sand with grain size 0.4 mm to 0.8 mm. Pay attention to the exact grain size indication. Grain sizes too small result in sand being flushed into the pool. Grain sizes too large reduce the filtering quality.

### **Fill quantity of quartz sand with grain size 0.4 mm to 0.8 mm**

for tanks Ø 400 mm 50 kg, Ø 320 mm 25 kg.

### **2.2 Filling in water – commissioning of the filter**

After the pool has been cleaned and filled with water up to the middle of the skimmer, the filter pump must also be filled with water.

#### **2.2.1 System below water level**

Open the stop valve on the pipe leading from and to the pool (suction and pressure pipe).

#### **2.2.2 System above water level**

The lid of the pool water recirculating pump must be taken off for filters installed above the water level.

Fill pump with water and screw the pump lid back on. Ensure that the seal that sits in the lid is not damaged or twisted. The pump works fault-free only if the seal closes tightly and no air can be aspirated anymore.

### **2.2.3 System with hooked-in skimmer**

The suction hose must be filled completely with water first before connecting it with the skimmer.

### **2.3 Flushing quartz sand**

Turn the manual lever of the 6-way valve to the BACK-FLUSH position; switch on the electricity supply to the filter system

If suction pipes are very long, it can take up to 10 minutes until pool water is pumped. Once the water is being pumped, lead the water into the canalisation for about 3 minutes to avoid that abraded quartz sand gets into the pool through the inlet nozzle.

The water transport can be seen in the sight glass on the 6-way valve.

After this, put the valve to “Flush” for 30 sec. (also see Section 3.2).

### **2.4 Cleaning the pre-filter**

Since construction dirt or foreign matter may have collected in the coarse filter of the pump, the coarse filter must be cleaned after initial operation.

The recirculating pump must not be commissioned without a screen basket (coarse filter), as the pump might otherwise be clogged and blocked.

### **2.5 Filter – operation**

Turn the manual lever of the 6-way valve to FLUSH. Now, the OKU quartz sand filter is ready for the operation of the mechanical water treatment of your pool.

Switch on the electricity supply to the filter system.

To be able to determine the time of filter cleaning – BACK-FLUSH – the pressure must be read off on the manometer. If the pressure rises by 0.3 bar (max. 0.6 bar), the system must be back-flushed. So that the filter sand stays loose, it is recommended to back-flush it at weekly intervals, even if this value is not reached.

### **2.6 Setting the filter time**

The operating time of the quartz sand filter depends on the swimming pool content, occupancy, the weather and chemicals.

Example: It is recommended to recirculate the pool content twice every 24 hours.

If the pool content of 50 m<sup>3</sup> is recirculated twice, overall 100 m<sup>3</sup> must be recirculated per day. If the pump has an output of 10 m<sup>3</sup> per hour, the operating time of the filter is 10 hours. This time can run in cycles or overall.

## **3. Regular back-flushing**

If the pressure has risen max. 0.6 bar above the initial pressure or if a week has passed since the last back-flushing, a filter cleaning must be performed.

### **3.1 Back-flushing**

Set the back-flushing valve to BACK-FLUSH.

Switch on the filter system. Monitor the sight glass.

If clean water is pumped, the back-flushing process, which should take at most about 3 minutes, is finished.

Set the back-flushing valve to FILTER or BACK-FLUSH.

### **3.2 Flushing**

The back-flushing valve in plastic design offers the additional possibility to lead parts of the residual dirt not into the pool after back-flushing but into the canalisation.

For this process to start, set the back-flushing valve to FLUSH.

Switch on the filter system for max. 30 seconds and then set the valve to FILTER.

## **4. Maintenance work**

### **4.1 Maintenance of the filter tank**

If the system is set up below the water level, the stop valves must be closed for maintenance work and be reopened after the maintenance work is finished.

Once a year, the fill level and condition of the quartz sand must be checked.

The sand must run easily through your hands! If chunks form, all of the quartz sand must be replaced. See Section "Filling 2.1" and "Commissioning 2."

### **4.2 Maintenance of the recirculating pump**

Switch the pump off, turn the 6-way valve to the CLOSED position. Note Section 2.2.2! Remove and clean the filter basket. Do not operate pump without the filter basket.

#### **4.2.1 Pre-filter**

The pre-filter installed in the pump must be cleaned from time to time depending on the level of dirt.

#### **4.2.2 Bearing**

The two motor bearings are self-lubricating and maintenance-free.

#### **4.2.3 Shaft seal**

The shaft is equipped with a shaft seal that may become untight after a longer period of operation. Have it replaced by a trained technician.

#### **4.2.4 Seals**

The O-ring seals are subject to only little wear and tear if used as intended; if a leak occurs after a longer period of use, they must be replaced.

#### **4.2.5 Motor**

No particular maintenance is needed.

#### **4.2.6 Maintenance of the 6-way valve**

This valve is maintenance-free; replace any untight seals.

#### **4.3 General maintenance**

- Care and maintenance of the swimming pool according to the applicant requirements of the manufacturer (also see Section 7).
- The filter basket in the skimmer must be cleaned regularly at shorter intervals.
- It is essential that you ensure the water level in the pool always reaches at least the middle of the skimmer.

### **5. Decommissioning**

- The pool is made winterproof according to the applicant requirements of the manufacturer.
- The filter system must be made winterproof if there is a risk of frost. Note the following in the process: Completely drain the water from the filter tank and the pump
- Completely drain the pipes leading from and to the pool.
- Disconnect the power (set to 0), pull out the Schuko plug.

## **6. Causes of faults – fault repair**

### **6.1 Pump does not aspire water on its own or the suction time is very long**

1. Check if the suction casing is filled with water at least up to the suction connection.
2. Check suction pipe for tightness, as the pump aspires air if the pipe has a leak.

3. Check water level in the pool. If the water level is too low in the skimmer, the pump also aspires air. Fill water level up to the middle of the skimmer opening.
4. Check if the skimmer flap is jammed. If so, the pump aspiration is poor or the water column separates repeatedly.
5. Check that the screen baskets in the skimmer and in the pump are not soiled; clean screen baskets if necessary.
6. Check if the lid of the pump rests flush on the pump and is screwed on tightly.
7. If the suction pipe is very long and installed above the water level, a non-spring loaded stop valve must be installed.
8. Check if the slides in the suction and pressure pipes are opened.

### **6.2 Motor circuit breaker trips**

1. For 400 V pumps: Check if the motor circuit breaker is set to nominal current of the pump.
2. If the motor circuit breaker trips, it should be tried only once to restart the pump, i.e. press the motor circuit breaker back in. For the second time, a qualified electrician must be called and the system be checked (motor, supply line, etc.)
3. Before the motor circuit breaker is activated, rotate the vent of the pump with a screwdriver to

determine if the pump can be rotated easily.

4. If it is difficult to rotate the pump, the running wheel may be clogged. This may be the case when the pump has run without the screen basket. Screw off the housing and the running wheel, and clean the housing.
5. Too much power intake with low counter-pressure. Have this checked by a qualified technician; choke the pressure line with the slider if necessary.

### **6.3 Recirculating pump output insufficient**

1. The filter is soiled; it must be back-flushed
2. Sliders in the system are not opened completely
3. Screen basket in the pump and skimmer are soiled – cleaning
4. Rotation direction of the pump is wrong (for three-phase current) – have a qualified electrician reconnect it
5. Pipe is too long and suction height too high
6. Suction pipe leaks, pump aspirates air

### **6.4 Recirculating pump is too loud**

1. Also see Section 6.3.
2. Foreign matter in the pump; unscrew the pump housing, the clean housing and running wheel

3. Motor bearings are too loud; replace complete motor including running wheel

4. Pump is placed on bare wooden or concrete floor, which is how the sound transfers to the

1. building (impact sound)
2. Place pump onto an insulating underground (rubber, cork, etc.)

### **6.5 Recirculating pump does not self-start**

1. Check if the power line is under voltage
2. Check if the fuse is ok
3. If the pump uses alternating current, check if the condenser is ok
4. Check if the motor is ok; have an electrician check the winding
5. Check for the firm seat of the pump (motor shaft cannot be rotated easily using the a screwdriver; otherwise Section 6.4.2)
6. Check if the motor circuit breaker has tripped; if it has tripped, see Section 6.2

### **6.6 Water escapes from the recirculating pump between the pump housing and the motor**

1. On start-up, dripping water may escape at intervals of about 2 minutes.
1. When the slide seal ring has run in after a few hours of operation,
2. the dripping will stop on its own.

3. If water escapes constantly at this point, the slide seal ring is defective and must be replaced.
4. replaced.

#### **6.7 Quartz sand is flushed out of the filter into the pool**

1. Incorrect grain size (too fine) A special grain size of 0.4 to 0.8 mm of the quartz sand is needed.
2. Filter cross is damaged in the filter tank – replace

#### **6.8 Filter pressure on the manometer does not go down to the initial pressure after back-flushing or the initial pressure is too high**

1. Manometer is defective – replace
2. Quartz sand hardened – replace
3. Suction or pressure pipe too small or valve is closed

#### **6.9 Water is not clear**

1. Not enough chlorination causes an overload of the filter; set chlorine and pH value to the prescribed values
2. Filter is laid out for insufficient capacity
3. Recirculation time is too short
4. Use flocking agent for quartz sand filter if necessary
5. Insufficient back-flushing causes filter run times being too short

#### **6.10 The pool loses water through the filter device**

1. Back-flushing valve seals are defective – replace
2. Inlet to the pool leaks

### **7. Water treatment – general information**

To keep the pool water clean, a various measures are required which have coined the term “water maintenance.” Besides the mechanical water treatment of the pool water by the filter system, a chemical treatment of the water is required. Most of all, the growth of microorganisms, in particular algae must be prevented.

#### **7.1 pH value**

The ideal pH value for the water of a pool is between 7.0 and 7.4, as within this range

- a) neither acidic, nor alkaline irritation of human mucosa must be feared;
- b) material corrosion at the pool, pipes, etc. stays within tolerable limits;
- c) not least of all disinfectant and algae control agents are most effective.

The pH value does not stay about the chemical composition of the water.

But it does indicate if the water tends to have high alkaline concentration (pH value above 7.6). The pH value is therefore a measure for the reaction of the water,

indicating how strongly alkaline or acidic it has become.

Too high a pH value (above 7.8) is to be lowered by the addition of acid. For this purpose, an easily soluble acid granulate that can be handled without risks is available in retail. Excessive pH values frequently occur in water with high carbon hardness in which the pH value can only be regulated by repeated addition of acid. The pH value will rise again in the interim.

Too low a pH value (frequently below 7) is primarily measured in soft water. Here, the one-off use of a suitable alkaline product is sufficient to raise the pH value by the required measure and stabilise it so that strong pH-fluctuations cannot occur again, which is also important in soft water. For this, the addition of 50 g of the alkaline agent per cbm is generally sufficient; if necessary, 100 g/cbm may be needed.

### **7.2 Algae control**

Algae get into every body of water, and grow and reproduce there very quickly, as they are unsophisticated organisms. Measures to control algae are absolutely required for every pool. A reliable prevention of algae growth and killing already existing algae is achieved with a modern liquid algae control agent.

### **7.3 Failure**

Organic dirt such as skin secretions, sunbathing oil, soot and plant parts, etc.

gets into every pool. These are often initially distributed very finely, but agglomerate over the course of time and are frequently the cause of clouding together with depositing lime.

These contaminations are foremost also a breeding ground for microorganisms.

Organic contaminations are best removed by chlorine, which not only has a disinfectant effect but also decomposes organic matter by oxidation (a process equivalent of combustion). Numerous chlorine products available in retail serve as the source of chlorine. The currently common form is the chlorine tablet.

### **7.4 Permanent chlorination**

In public pools (including hotel pools, community pools of residential developments, training pools, etc.), constant disinfection with chlorine is necessary and required by regulations.

Permanent chlorination can be achieved using large, extremely slowly soluble chlorine tablets, which are dissolved in either a tablet buoy or a special dosing device.

Another possibility for adding chlorine products is the addition using a liquid dosing system.

### **7.5 Clouding**

Clouding mostly consists of particles so fine that the filter cannot hold them back anymore. The addition of a suitable



flocking agent on the sand filters can reach scarfing, i.e. a flock layer on the filter bed also holds back fine clouding particles. A flocking agent that is effective independently from the pH value is particularly well suitable for this purpose.

### **7.6 Causes of dissatisfactory water condition**

If the water does not clear up in spite of the recirculation filtration, this may be for the following reasons.

1. The pH value is not ok, which is why the added chlorine has nearly no effect.
2. Insufficient disinfection of the water (intervals too long, dosing too low) does not keep the development of microorganisms within the required limits.
3. The filter system is laid out for too low a capacity.
4. The filter system has not been back-flushed for too long an interval.
5. The working cycles of the filter are dimensioned too short, which is why also only a part of the water can be filtered so that the remaining part remains unfiltered.
6. The selected dimension of the suction and pressure pipes may have been too small. It necessarily results from this that the recirculation output is insufficient, which may also result in the clouding of the water.

Enjoy your new  
sand filter system!!

