



Since 1986



Operating and maintenance manual for Bubble King® Supermarin

For all Bubble King® Supermarin skimmer 200, 250, 300

v1.0

ENG



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1. Commissioning (putting into operation)	2
1.0 Change of the port of the pump	3
1.1. Setup instructions, adjustable nozzle	4
1.2. Adjusting the water stripline	
by the wedge shaped tube	4
2. Maintenance	5
2.1. Disassembling the pump	5
2.2. Deliming and cleaning the impeller	6
2.3. Disassembling of the slave pump Mini BK 1500	
(only Bubble King® Supermain 300 with 2 pumps)	7
3. Disassembling and cleaning the riser tube of the skimmer	8
3.1. Disassembling the plexiglas riser tube from the base plate	8
4. Maintenance of the skimmer head PVC thread	9
5. Maintenance of the resonator / silencer Bubble King® Supermarin 300	9
6. General	9
6.1. Ozon plug	9
6.2. Good to know!	10
7. Possible sources of error	10
7.1. Cleaning the silencer/resonator	
Bubble King® Supermarin 200 + 250	11
8. Defects and claims for compensation, disclaimer	12
9. Manufacturer's declaration	13
9.1. Manufacturer	13
9.2. Informations and support	13

Important Notice

Please read this manual carefully before you install the device. We recommend not to proceed the installation of the device until you read the manual. This prevents any questions and problems that might occur in installation process. As soon as you power-on the skimmer for the first time, you agree that you read and understood this manual. In doubt or if anything is unclear please contact your supplier/vendor or dealer before you start-up the skimmer.

1. Commissioning (putting into operation)

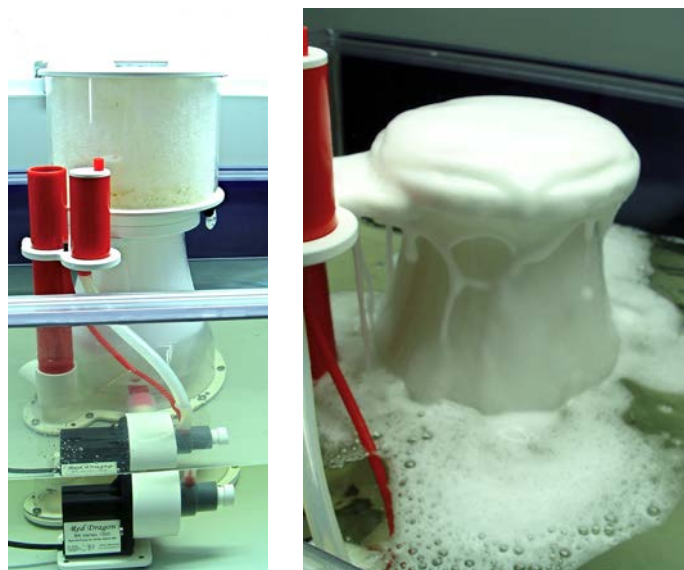
Please take the Bubble King® out of the package and check the skimmer for shipping damage, which must be filed to your local dealer within 24 hours.

The Bubble King® is preinstalled and ready for operation and may be put into the filter sump for instant operation. Please install the skimmer head and put the skimmer into the filter sump or equivalent to get familiar to the device.

The lower water level of the Bubble King® Supermarin should **not be below 18 cm** and **shouldn't exceed 23 cm**. The best matching water level is 20 cm.

Now, please plug the power cable into the desired wall outlet. Please note, that sub water level pumps must be only connected to a ground fault circuit interrupter (FI safety switch). Furthermore we recommend a frame connector with voltage surge protection, which, in the case of a short circuit in the mains, prevents a high voltage boost to the **Red Dragon®** pump which will burn the internal fuse. In the case the RD fuse (melting fuse) was blown, the motor can't be repaired and therefore must be replaced.

Please note that it is absolutely prohibited to cut the plug from the power cable to prolong or short the power line. Sub water pumps with cut power cables do not meet the safety regulations and any warranty on the device will be void. Furthermore, we are not allowed to repair sub water pumps, if the power cable was manipulated.



After running the pump, within a short time, a foam cushion should be formed like shown on the figure to the left. Let the skimmer run for several hours without placing the pot on top.

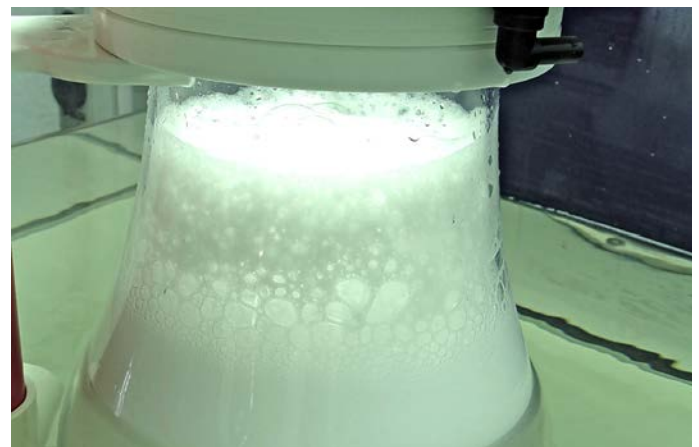
In general, **new** skimmers require a **certain amount of time** to produce **firm foam**.

New skimmers may contain several substances like grease, glue residue and similar substances which prevent foam forming. Depending on the contamination of your aquarium water it may take from 2 minutes to 1 week until solid foam was formed.

A general statement on the amount of time needed for a skimmer to run smoothly cannot be made.

As soon as the foam is firm enough – see photo below – screw the pot onto the column. Please make sure that the O-ring on the inside is firmly attached to the notch, without distortion, warping or other irregularities, as they may result in minor leakage.

If the foam is now sufficiently firm, you can carefully adjust the water level in the skimmer by turning the wedge shaped tube clockwise or counter-clockwise, see photo.



There is a small screw at the edge of the wedge shaped tube holder with which the wedge shaped tube can be clamped into the guide holder.

For more information, look at the net at www.royal-exclusiv.de. Simply enter the part number or name into the search box or email to: info@royal-exclusiv.de.

All information without guarantee. We try our best, but printing errors reserved.

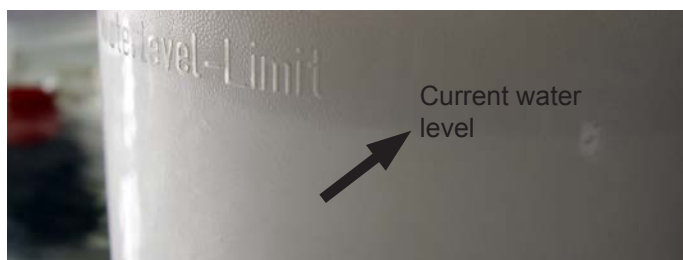
The screw should only be tightened loosely without using any tools. **Risk of breakage!**



The transition of wet water foam into dry foam takes place at the water/air separation line. If possible, the water level should not exceed the maximum water separation line which is usually at the end of the riser. This maximum line ensures dry skimming.

However, this line can be exceeded, if required. Our recommendation is a guideline and not a requirement. It is at the discretion of the user whether he prefers dry or wet skimming.

However, the user should take into consideration that the Bubble King® Supermarin skimmer may become very sensitive if the separation layer is too high. This can result in overflowing if impurities like fat – rich feed, various trace elements or fresh filter media come into contact with water.



On the figure (*Current water level*) you can see the water level stripline approx. 5 cm below the maximum level. This water level stripline can be lowered or risen by turning the tube. The water level stripline is different in every aquarium, depending on quality and surface tension of the salt water.

The left photo below shows the ideal condition – not too dry and not too wet. To maintain this condition it is vital to



operate the device with open outlet in the first few days. Photo right: Mount plug only after “running in”.



After the skimmer was forming enough dry foam it is recommended to grease the upper end of the riser tube as well as the inner foam ring. This will prevent the foam cup to be filled with solid dry foam, because the bubbles will burst immediately when touching the grease.

This will force adsorbate into the cup and no dry foam, which might leave the cup through the ventilation holes and fall back into the filter sump.

Please keep the skimmer running until the absorbate pot (skimmer head) has been filled by a foamy liquid.

All Bubble King® skimmers have a so called “absorbate drain”. On the bottom of the pot (skimmer head) is a 10mm hole located, which was sealed by a silicone plug. This is the hand-over location. The customer may install an additional attachment (p. ex. a small ball tap) to drain the absorbate, which makes cleaning easy.

Notice:

Please do not wait too long until cleaning an over-filled pot.

1.0 Change of the port of the pump

The Bubble King® Supermarin 200 and 250 offers 2 connectivity of the pump on the skimmer. A silicone hose extension is provided for this purpose.





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1.1. Setup instructions, adjustable nozzle

All **internal** Bubble King® skimmers are fit with an adjustable water inlet nozzle. Using the nozzle mainly adjusts the water flow rarely affecting the air performance.

Please note:

A skimmer performs best, when a perfectly well defined amount of water and air enters the skimmer on the lowest point of the device. The Bubble King® Red Dragon® pumps has a so called "ideal operation point". The ideal point is well defined and will be found as shown below:

Please turn to completely screw nozzle, as on the upper left picture shown. Then please turn to the nozzle to the left, counter clockwise.

Usually 1 - 1 1/2 turn. This is the best operating point.

The black dots are used only for orientation.

The user may exceed or under-run this point as desired. Under-running the point may be advisable to reduce the skimmer performance in coral tanks with only a few fish. Increasing the flow-through may be advisable on tanks with many fish or in the case of disaster. A dying big Tridacna, algae emitting spores or poisoning triggered by dying animals or similar reasons require a fast and wet foaming.



Notice:

Each spin increases water flow-through by approx. 500 litres. Operation without nozzle screw is prohibited. The air flow would be reduced by half and water flow would be increased by 300%. In this state the pump will be overloaded and within a short time automatically switched off. The noise level also would exceed dramatically.



1.2. Adjusting the water stripline by the wedge shaped tube

It is also possible to adjust the water level in the skimmer by help of the wedge shaped tube.

The wedge shaped tube should be only used for fine tuning or flooding of the skimmer head. In this case flooding means the cleaning of the Bubble King® head without removing the head.

The wedge shaped tube must be almost closed forcing the water level immediately into the skimmer head. Now use a brush to clean the riser tube to flush the residue into the skimmer head without draining back into the filter tank.



By the resolve of the titanium screw and turn the tube to the left or to the right you will fine tune the foam level.

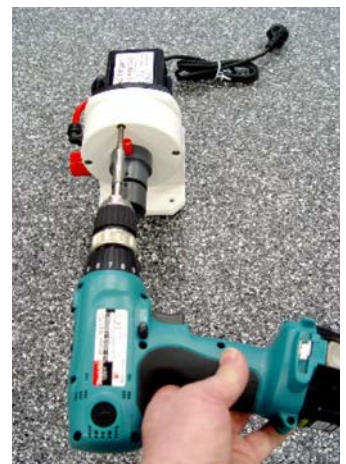
2. Maintenance

We recommend the cleaning of the Bubble King® at frequent intervals respectively to check the needle wheel for foreign objects. To check the needle wheel it is not necessary to remove the skimmer from the filter tank.

Unplug the skimmer from the mains. Remove the jet tube from its seating. Turn the skimmer into your direction and optically check the first row of needles for foreign objects like snails, mussels, activated carbon pellets, filter cotton or food debris. In case of an accumulation of debris in the pump, the pump must be disassembled.

Red Dragon® Bubble King® pumps have a built-in automatic shutoff. The internal circuit is permanently measuring the pumps power consumption. In the case of serious calcifying, and thus, stiff bearings, the internal circuit will classify the rising power consumption as a failure and switch off the pump, due to safety reasons. Because of this behaviour a Bubble King® pump never can be damaged by smouldering fire or other damage due to a short circuit.

Just plug off and on to bring the pump back into operation. Please note, that it is not advisable to trick the internal circuit into normal operation by a repeated switching of the device. If a Red Dragon pump was switched off, a failure occurred apparently, which must be solved. If happened, usually only a cleaning session is required.



IMPORTANT:

Permanently tricking the circuit may result in severe motor damage, which will not be covered by warranty.

Use your fingers to grab behind the needle wheel and softly pull the wheel from its guidance. Clean the wheel by the help of a sharp tip.

Please decalcify the wheel unit in an applicable decalcifying bath.

DO NEVER use hydrochloric acid **even when thoroughly diluted!!!**

The pump may be seriously damaged.

2.1. Disassembling the pump

After removing the pump from the silicone hose please remove the inlet nozzle from the designated opening. Put the skimmer onto a flat, soft surface or a towel and start to disassemble the pump as shown below.

You just need a standard mid size screw driver and an Allen wrench M5 required for a complete disassembling. Turn off the 4 housing screws and remove the head.

Caution: The pump holders are made from plastic. Just tighten the screws until the gap between pump head and holder was closed. Overtighten the screws may damage the threads. The housing screws were made from titan and, thus, are 100 % salt water proof.

Applicable are, formic acid, acetic acid and phosphoric acid or even household decalcifiers for water conditioners and coffee machines. Basically the wheel bearing of the motor should be also decalcified. Thick, greasy residues should be removed under running water by the help of a semi hard brush.

Attention:

Please consider the safety regulations imprinted when using decalcifiers. Please wear protective clothing and safety glasses.



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If the bearing fits on the shaft, like shown on the picture on the left, when pulled out, then manually remove it from the shaft. And the bearing after removal from the shaft. (shown on the picture on the right)



Under **no circumstances** put the bearing loosely onto the shaft and then insert the wheel unit into the motor block. The bearing won't fit in its slide, and thus, the pump will hum extremely after putting into operation. The bearing must be securely installed into its slide before assembling the wheel unit. After the bearing was installed into its slide, the O-ring seal must be seated by the help of a mid-size screw driver.

We recommend to check the **Red Dragon®** pump already after three months, to determine the possible maintenance intervals that, can be depending on precipitation between 2-12 months.

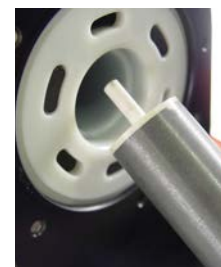
If the impeller group extremely calcified, solve the plate between engine and rotor. Cover enter with a small slot screwdriver, **!carefully!**

After thoroughly rinsing of all decalcified parts with water, we now begin to reassemble the device.

2.2. Deliming and cleaning the impeller

Important notice:

The backside bearing of the wheel unit should have your special attention, because most failures result from there.

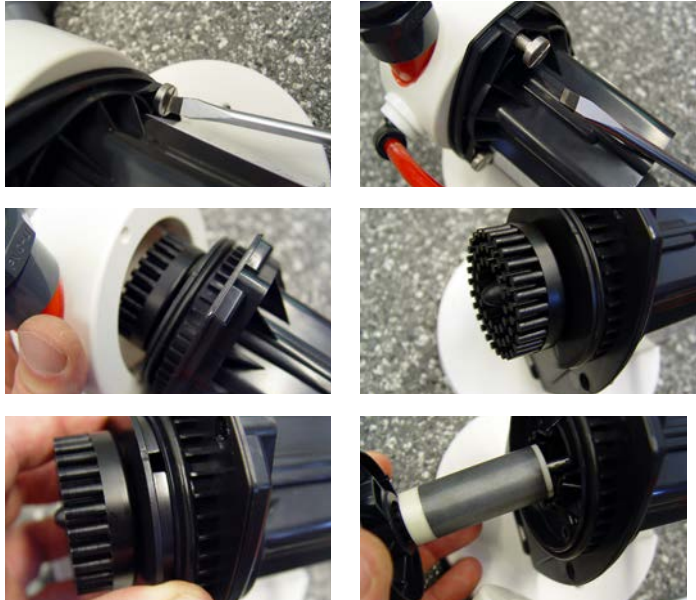


At first, check if the bearing sleeve of the wheel unit on the back was seated properly. Now take the wheel unit and position in a way that the rectangular slide shows upward. This rectangular slide will fit into the motor only, when showing upwards. Wheel unit with slide and the counter-part on the motor shown on the picture on the left.

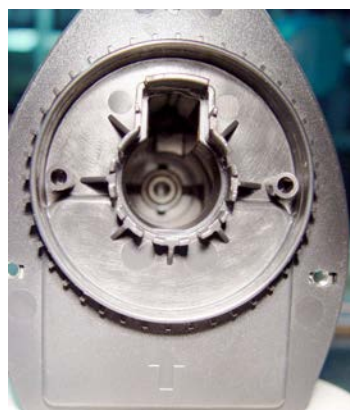
For more information, look at the net at www.royal-exclusiv.de. Simply enter the part number or name into the search box or email to: info@royal-exclusiv.de.

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2.3. Disassembling of the slave pump Mini BK 1500 (only Bubble King® Supermain 300 with 2 pumps)



The disassembling of the Mini BK pump differs just a little on the „big“ bubble King® pump. Depicted here. Dissolving the 3 pump head screw remove the pump head and draw forth the rotor-unit (wheel unit).



Under no circumstances put the bearing loosely onto the shaft and then insert the wheel unit into the motor block.

The bearing won't fit in its slide, and thus, the pump will hum extremely after putting into operation. The bearing must be securely installed into its slide before assembling the wheel unit.

It is important that the bearing, properly in its Groove, is positioned. The O-ring must be above such as in figure.

O-rings points down, the runner in this State may not engage and the whole wheel unit is pressed to approx. 2 mm to the front.

This touches the fan on the front of the cover, causing an extreme noise. The bearings must not be mounted in this position.



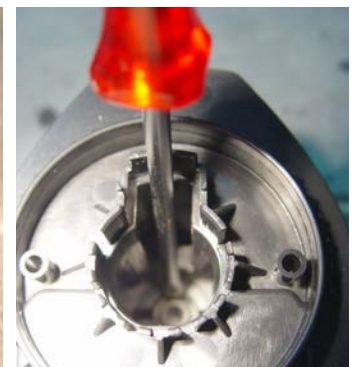
O-Ring at correct position



O-Ring at wrong position



The bearing must be securely installed into its slide before assembling the wheel unit. After the bearing was installed into its slide, the O-ring seal must be seated by the help of a mid-size screw driver.



After thoroughly rinsing of all decalcified parts with water, we now begin to reassemble the device.



At first, check if the bearing sleeve of the wheel unit on the back was seated properly. Now take the wheel unit and position in a way that the rectangular slide shows upward.

Before installing the wheel unit please assemble the O-ring seal. Properly seated O-ring on the picture on the left side shown.

3. Disassembling and cleaning the riser tube of the skimmer

Bubble King® skimmers can be totally disassembled. Thanks to new production processes with a precision range of 100/mm, all CNC-machined parts have a so-called zero fit. This means that most of the parts are not bonded to each other, but feature precise fits.

All screws are made from pure titanium, grade 2, and are absolutely seawater resistant and rustfree.



Please detach the skimmer in the filter tank as far as possible. Remove the pump, pull out the telescope tube and unscrew the skimmer head. Please prevent the head from falling off sideways. Clean the parts as far as possible by a soft material and decalcify if necessary.

Please do not use sharp, abrasive or acid cleansers, because the plexiglass is sensitive to scratches.

3.1. Disassembling the plexiglas riser tube from the base plate

From the date of manufacturing as 2007, 05th, Bubble King® skimmers are not glued to the base plate anymore, but firmly fixed by screws. This allows lifting the riser tube from the base plate to make the innards accessible to thorough cleaning. Please proceed as follows:

First, make the body upside down and untighten the 4 screws with a suitable slot screwdriver. After removing the screws, you can take off the base plate. As shown in the right picture above.



Caution: The PVC-linkers are very sensitive. DO NOT DROP!

After cleaning, reseal the tube into the bearing (fig. left below) and tighten softly.



Attention: Do not overtighten the screws in the base plate. Pay attention to the accuracy of the holes to connect of the silicone hose of pump. (fig. right)

The silicone hose for the air lead with rotating movements through the wedge tube and connect to the silencer to the provided port.



Note for optimal cleaning:

The skimmer tube should be rinsed under flowing water with some chlorine. Chlorine doesn't damage the skimmer parts.

4. Maintenance of the skimmer head PVC thread

All Bubble King® skimmers have a CNC-milled PVC-thread, providing 100% tightness of the head installed to the skimmer tube.

After every thorough cleansing the thread should be lubricated by some silicone grease or oil, which makes the head much easier to spin. The surface of the seal should be also treated by some oil, which allows a smoother seating of the head and adds more tightness. The seal itself was made from silicone and, thus, is permanently salt water proof.



5. Maintenance of the resonator / silencer Bubble King® Supermarin 300

Bubble King® skimmers are extremely low-noise. The noise of the air jet is perfectly dimmed by a valuable resonator. The so called Helmholtz-Resonator reduces noise by frequency phase shifting. The Royal Exclusiv® resonators are mostly maintenance-free, because the air is not forced through filters like in other devices, but smoothly pass through the resonator.

Dusty air or accidentally dipping the resonator into salt water may require an internal cleaning to prevent plugging from accumulated salt crystals.

Please check the resonator for obstructions by manually blowing through it. If you experience some resistance please proceed as follows:

Open the resonator by the use of a matching M5 tool.



The left figure below shows the opened resonator.

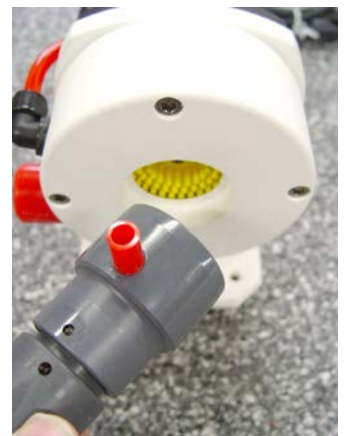
Thoroughly clean the resonator and reassemble. The cellular material is only helpful for noise reduction but must not be replaced if not desired.

Please do not overtighten the screws.

6. General

Important: correctly seated adjustable nozzle

The nozzle fits tightly into a notch and is removable. After cleaning the nozzle please check that it was completely pressed into the notch, like shown in the left figure. The nozzle must be firmly seated. If the nozzle was not firmly seated the consequences are equal to a wide open nozzle screw causing huge water flow and turbulences in the skimmer.



6.1. Ozon plug

Please remove the hose from below the resonator and install a 12mm T-set auf. Install another hose on the lower end of the T-set. The 12mm T-opening must be reduced to 6mm and fitted with a nozzle. Plug the ozoniser to the small nozzle.

Usually the depression of the Bubble King® pump is sufficient to provide enough suction to the ozone. If the hose is too long you may use a small air pump to feed the air-ozone mix into the skimmer.



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Under no circumstances try to connect the 10mm silicone hose from the Bubble King® pump directly to the ozoniser. **It is definitely not functional!**

The high resistance of ozonisers make it impossible to be directly driven through the pump. The skimmer performance would be instantly reduced by 90 %. The pump would be overloaded and the safety circuit will emergency shut off the pump to prevent damage to the pump.

6.2. Good to know!

We state explicitly that the pump must not dry run. Furthermore it is not allowed, even for testing purposes, to switch on the pump in a dry state. Resulting damage to bearings and/or axles are not subject to warranty.

Royal Exclusiv® products are manufactured on state-of-the-art CNC milling machines. Our staff is all well trained carefully working master craftsmen. In the case of complaints or improvements, please contact our service at info@royal-exclusiv.de. We are glad to help you. Royal Exclusiv® guarantees a permanent supply of spare parts for at least 5 years.

7. Possible sources of error

To get an optimal skimming result, the following informations are important:

1. Water does not become water straight away! As a result of the different composition, the skimmer may need a few days before it starts to skim.
(Particularly with new products)
2. Pay attention to the water filling level between from ~ 180 mm up to ~ 230 mm (**ideally ~ 200 mm**) this is the height of the water in the filter basin!
3. The water level in the skimmer is controlled using a tube. This sets the amount of foam to be produced.
(The **level of water in the skimmer** is set by **turning it left or right**).
4. If the skimmer produces a water-air mixture in the tube when it is turned on, this means that the skimmer is operating correctly. The skimming default must lie elsewhere.
5. Do not let the pump run dry -
this would lead to **permanent damage!**
6. A **sufficient pre-filtering** of the water **before** it **enters the skimmer**, is recommended! So, the pump will be spared as before large parts, such as snail shells or shells, which can lead to a blockage of the needle wheel.

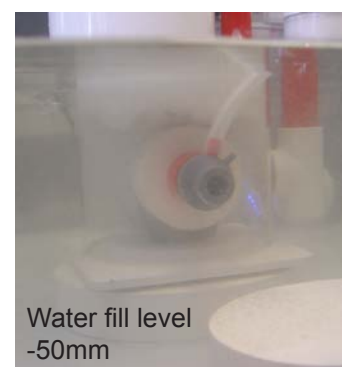
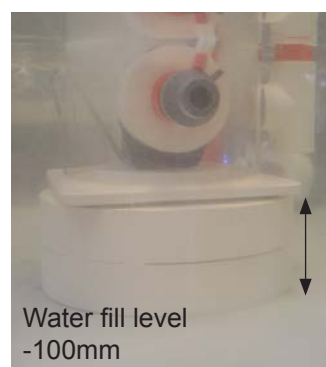
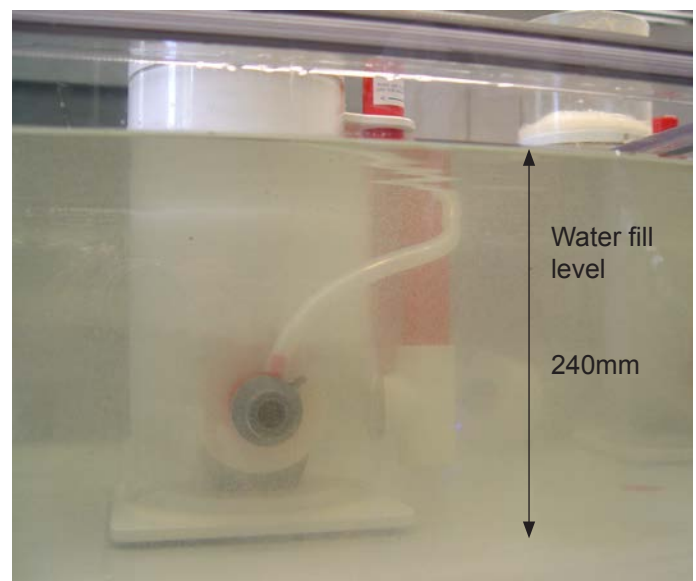
Depending on how high is the water fill level in the filter, the Bubble King® Supermarin can be placed on the right height, to achieve an optimal result of skimming.



Nozzle with air- and ozon- plug



Do not forget! At least 20-30 mm are required for the removal and cleaning of the entire skimmer cup!



For more information, look at the net at www.royal-exclusiv.de. Simply enter the part number or name into the search box or email to: info@royal-exclusiv.de.

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7.1. Cleaning the silencer/resonator Bubble King® Supermarin 200 + 250

The resonator is not glued but clamped in the nut. The silencer needs regular cleaning. When the pump is at rest or the water level in the filter is extremely high, some water can penetrate into the resonator.

This is no cause for concern because once the pump runs again, it will evaporate the water. Over time, salt crystals may clot and heavily block the silencer. Please inspect the silencer regularly, once every 1-3 months.



Solve the resonator - pull the silicone hose - back set up



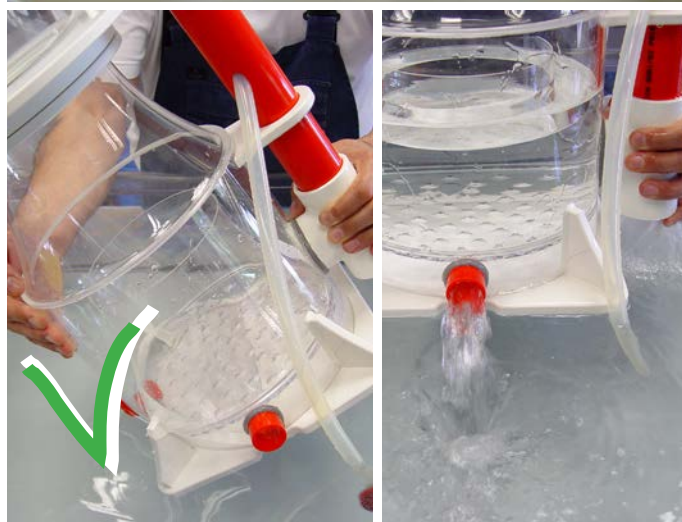
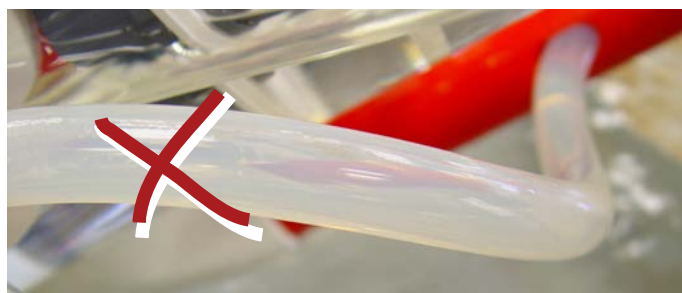
The pictures show the opening of the resonator.

Now, the silencer inlay can be washed out with fresh water. The inlay must be **completely dry** before reinstalled again!

Important:

When removing the skimmer from the filter basin, it is essential to ensure that no salt water enters the silencer!

This could lead to salt crystal formation, which would hamper the performance of the silencer and produce unpleasant noises.



8. Defects and claims for compensation, disclaimer

8. Defects and claims for compensation

8.1. Barring any further claims we are only liable that the supplied goods are free of defects until the initial transfer of perils. Insignificant variations of the contracted appearance and workmanship or marginal limitation of the usability or suitability of the product are unremarkable.

The warranted condition, endurance and usability the product is solely subject to the specification agreed in writing, in the product specification and / or in this manual. Further oral agreements, especially from preliminary talks, advertising and / or in related industrial standards will be only valid as integral part of a written contract. Only conditions and specifications assured specifically by us are valid. We do not accept conditions or specifications made by third parties. Specifically the specification assured in this manual are valid. If the customer wants to use the product for other than the intended purpose, he is obliged to thoroughly test the suitability of the product for the other purposes. We give no warranty and no liability accrues for any applications that are not agreed on by us explicitly and in written form.

Any manipulation of the pump, the (needle wheel) impeller or the electronic as well as any attempt to modify the software, to influence the software or to read out or re-engineer the software of the driver unit immediately causes a loss of warranty and all claims and rights expire.

Every user is held responsible for the appropriate usage of his **Bubble King® Supermarin** skimmer. The user manual does not discharge you from your liability for a safe, appropriate and secure application, installation, operation and maintenance.

By using this manual you agree that in no circumstances the manufacturer can or will be held liable for any personal injuries or property damages which possibly occur due to the usage of the device. This applies specifically for any damages that are due to inappropriate piping or plumbing. Insufficient or missing cleaning- or maintenance intervals and damages that might result due to these are not covered by warranty. This applies especially for calcinations (salt water usage) and accumulated foreign particles (pond usage) such as sand or gravel, which lead to damages on rotors, bearings, rotor housing or motor housing, that are not covered by warranty.

8.2. Our warranty for defects is strictly limited to supplementary performance. This is upon our choice either removal of defects or replacement delivery free from defects. In the case of challenge, impossibility or failure of the supplementary performance the customer has the right for impairment or the right to withdraw from the contract.

Additional expenses which arise because the customer has brought the sales item to another place than his subsidiary. The manufacturer explicitly limits the warranty to the pump itself. We are not reliable for consequential damages, or damages that are caused by a malfunction or failure of the skimmer, such as a loss of animals. It is in the responsibility of the customer to provide back-up devices for the case of a potential malfunction or failure of the pump.

8.3. The customer has to check the goods immediately thoroughly, also for product safety. Apparent damages have to be reported in written form immediately. Hidden damages have to be reported immediately after their discovery. The customer is liable to report transport damages within 24 hours to the carrier and/or the delivery service. Disregarding the rules for checking and reporting results in a loss of warranty.

8.4. Furthermore we are not liable for the consequences of inappropriate application, usage, maintenance and handling of the product by the customer or his subsidiaries, neither for normal abrasion. This applies specifically to the consequences of thermal, chemical, electrochemical or electrical influences as well as for infringements against our uses- and maintenance manuals. The same applies to damages which are the result of changes or adjustments by the customer which have not been approved by us in beforehand.

8.5. Our liability for wanton negligence is limited to claims of injury of life, body and health, to claims based upon the law on product liability and to claims from culpable fundamental breach of the contract which entail contractual obligations. For the rest our liabilities for wantonly negligent breach of contractual obligations, which are foreseeable at the time of the conclusion of the contract, are barred.

Damages, which are unambiguously attributed to inappropriate usage of the product, are in general to be accounted for by the customer. In the case of returns of the product the customer has to use break-proof packaging for the product. The customer is liable for any damages that can be accounted to an inappropriate packaging.



8.6. Claims against us become time-barred within a year after the initial delivery of the goods to the customer. The same applies to claims for damages regardless of their juridical cause. The limitation period does not apply to claims based upon the malicious concealment of damages from the injury of life, health or body and for other damages that result out of intention or wanton negligence.

8.7. If it becomes apparent during our examination of damages reported by the customer or in the course of our removal of defects, that the reported damages or claims were made wantonly negligent or unwarranted, we may charge an adequate consideration for our examination and for the removal of defects. The customer has the right to neglect a necessary repairing and to demand the return of the skimmer. In general every examination of damages is bound to lump-sum compensation if it occurs that the customer has to be accounted for the damages.

8.8. Spare parts

Our liability to deliver and hold spare parts available is limited to the period of 5 years after initial shipment of the product. Our respective list prices apply for spare parts.

8.9. Disposal

We offer our customers to take back products that fall under the restriction of hazardous substances directive (ElektroG) within Germany free of charge, for products, which were brought into circulation after the 13th of August 2005. We will take care for the disposal. If a customer chooses not to let us take care for the disposal, he takes the responsibility of a disposal according to legal regulations and discharges us from our liabilities according to §10 sect. 2 ElektroG and any associated liabilities of others.

8.10. Subject to alterations

The manufacture has the right for changes in hardware and software of the product at any time without preliminary notice, as long as these changes advance reliability or quality of the skimmer. No claims can be made if for instance design, functionality or performance of the skimmer changes elementary. The assured specification of the skimmer is always guaranteed.

9. Manufacturer's declaration

Titles against **Royal Exclusiv®** concerning the products described in this manual address on the **Royal Exclusiv®** guarantee clauses. Specification may vary due technical improvements.

9.1. Manufacturer

Royal Exclusiv® pumps and skimmers

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Made in Germany

Royal-Exclusiv® EAR-number: WEE.Reg.No. 83082352

9.2. Informations and support

Thank your for purchasing a **Royal Exclusiv®** Bubble King® protein skimmer. This protein skimmer is a high quality product made in Germany with the highest manufacturing demands on modern CNC machines. This manual is supposed to help you to setup the protein skimmer for use and to advice you with the necessarily maintenance procedures.

To ensure longlasting satisfaction with this product we please you to read this manual carefully and follow our guidelines.

Royal Exclusiv® guarantees 5 years of spare part availability for the Bubble King® Supermarin protein skimmer.

Should the device in some way not meet the high demands you expect from **Royal Exclusiv®** please contact the dealer where you purchases your Bubble King® Supermarin protein skimmer. This is usually the best way for product support. However you may feel free to contact our support on our website: <http://www.royal-exclusiv.de>