Royal Exclusiv pumps & skimmers

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Since 1986

v13

Operating and maintenance manual for Mini Bubble King

For all Mini Bubble King skimmer 200 with Red Dragon® 3 Mini Speedy 50W 1500l/h

ENG

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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.

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1. Installation (putting into operation)

Take the Mini Bubble King (MBK) out of the package and check the skimmer for shipping damages. Your local dealer must be notified about any damages within 24 hours. The Mini Bubble King (MBK) is pre-installed and ready for operation and may be put into the filter sump for instant operation. In order to get familiar with the device, do not install the skimmer head yet.

The lower water level of the Mini Bubble King should **not** be **below 13 cm** and **should not exceed 30 cm**.
The water level should ideally between 20 and 22 cm.

Plug the power cable into the corresponding socket. Please note that sub water level pumps require 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, protects the ***Red Dragon***® (RD) pump from electric shocks which would burn the internal fuse.
The motor cannot be repaired if the RD fuse blows - it must be replaced.

Shortly after the pump is put into operation, a foam cushion should appear, as demonstrated on the figure below.
(skimmer after starting the pump 1 - 2 - 3 - 4)

Run the skimmer in this way for several hours without the skimmer head.

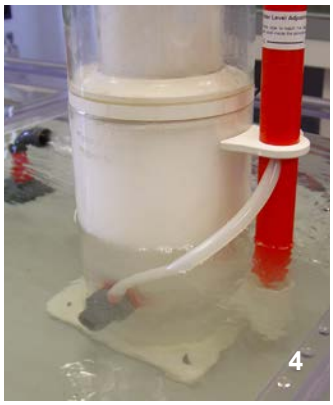
It **takes a while**
for **new** skimmers to be able
to **produce solid foam**.

New skimmers may contain several substances such as grease and glue residue which prevent foam from forming.

Depending on the contamination of your aquarium water it may take from 2 minutes up to 1 week for solid foam to form. It is not possible to make an accurate prediction as to how long it will take for the skimmer to be properly run in.

Once the foam is solid enough, place the skimmer head on the skimmer post. Before installing the skimmer head make sure that the internal red O-ring is correctly placed with no ripples or similar irregularities. These may cause slight leakage.

If the foam is sufficiently solid, the water level can be adjusted by turning the wedge shaped tube clockwise or counter-clockwise.



The small screw on the side of the wedge-shaped tube fastens the tube to its holder. The tool should only be lightly screwed and without the use of tools.

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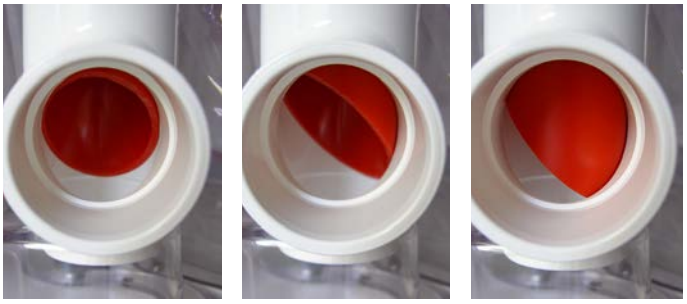
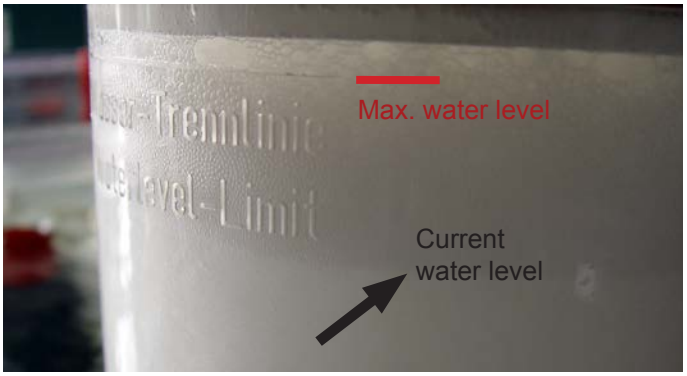


The figure above shows how the water outflow can be regulated by turning the wedge.

Please note the maximum water level. The water to air stripline is the level after which wet foam becomes dry foam. The water level should not exceed the indicated water strip line. This line ensures dry foaming.
Our recommendation is a guideline. The line may be exceeded if necessary. It at the discretion of the user to decide whether he prefers wet or dry foam.



Once the skimmer has formed 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 from being filled with solid dry foam because the bubbles will burst as soon as they come into contact with the grease. This way, only the adsorbate will enter the cup. The dry foam might leave the cup through the ventilation holes and fall back into the filter sump.
On the figure above, the water level stripline is approx. 4 cm below the maximum level. This water level stripline can be lowered or increased by turning the tube.

The water level stripline is different for every aquarium, depending on the quality and surface tension of the salt water.

Keep the skimmer running until the foamy liquid has filled the absorbate pot (skimmer head).

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

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

2. Maintenance + disassembling of the skimmer

We recommend checking the Mini Bubble King at regular intervals to check for impurities on the needle wheel. This does not require removing the skimmer from the filter.

Disconnect the skimmer from the mains by unplugging the nozzle. Then turn the skimmer in your direction to see if any foreign objects such as snails, mussels, activated carbon pellets, filter cotton or food debris have entered the first row of needles. In case of an accumulation of debris in the pump, the pump must be disassembled.

Pull the suction nozzle from its fitting slot/flute. (Fig.: remove the suction inlet to the control of the needle wheel).

All ***Red Dragon Bubble King***® pumps have a built-in automatic shut-off. The internal circuit is permanently measuring the power consumption of the pumps. In the case of serious calcifying, and thus, stiff bearings, the internal circuit will identify the rising power consumption as a failure and will switch off the pump for safety reasons.

This protects the Bubble King® pump from internal fires and other damages, such as short circuit resulting from overcharge. The pump can be brought back into operation

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by switching the plug on and off.

We do not advise repeatedly switching on and off to force the internal pump back into operation. If a ***Red Dragon***® pump switched itself off, there is a defect which needs to be resolved. Often, a clean is all that is required. Permanently tricking the circuit may result in severe motor damage, which is not covered by warranty.

Once the individual parts of the skimmer have been removed from the filter tank, remove the jet tube (nozzle) from its holder and put the skimmer onto a flat, soft surface or a towel and start to disassemble the Mini Bubble King as shown below. A standard mid-size screw driver and a Philips-tip screw driver is required for a complete disassembly.

Take the skimmer-pot and the resonator off. Then remove the air hose from the nozzle and pull those with slight rotation and press movements due to the wedge tube. Now you can remove the wedge pipe.

First untighten the plastic screw of the injection pan, which you can then extract from the body. If you turn the screw connection, remove also the base of the injection pan from the body. As soon as the titanium screws at the bottom are solved, can be pulled the pump with the lower bottom plate carefully from the body of the skimmer. Refer to the following images in a logical sequence.

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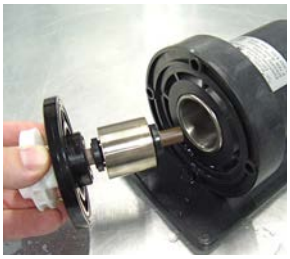
3. Maintenance and cleaning of the RD3

Please solve the 4 titanium screws on the base plate. To do this, please use a sufficiently large screwdriver. After loosen the screws, pull release the complete motor-block out of the column *(figure below: removal of the pump)*.

With a medium-sized screwdriver loosen the four housing screws. Three in the front and one from the back.

Pull the housing cover to the front. Pull out the wheel unit from the front. If the wheel unit is extremely calcified, carefully insert a small screw driver into the gap between the motor block and housing cover, then lift slightly.



Caution: Never apply force to the wheel unit.

Disconnect the pump from the power supply prior to each maintenance work. ***Red Dragon***® supply- and flow pumps are essentially to be classified as low-maintenance. Usually the necessary maintenance work is limited to a check of the impeller for obstruction. Remove obstacles from the impeller with a slim and spiky tool. A decreasing supply rate is often the result of dirt. Possible calcinations (especially in saltwater applications) has to be removed with a very soft acid as for instance vinegar. Avoid applying pressure to the sides of the impeller or the rotor. The pump can be disassembled nearly completely for cleaning.

In freshwater- and saltwater applications calcification only appears in very hard water and after a complete re-filling of the pond. After this the largest amount of carbonate will be omitted within 2-3 days.

To dismount the pumps head from the engine, unscrew the M5 hexagon socket titanium screws with a matching spanner. When this is done the whole pumps head can be removed. I necessary the impeller unit can be removed, by cautiously pulling on the rotor with. When you pull on the rotor, be very careful, as the impeller is held in its position by the magnet. If you release the rotor while trying to pull it out, the bearing can get a serious damage.

Do not underestimate the power of the magnet. If you slightly lose the grip and the axis hits the rear bearing, the risk to damage the bearing is very high. A damage bearing causes high reparation costs.

Use fitting hexagon key to loosen the 4 screws from the case. Grab rotor and cautiously pull out completely. Check parts for calcification.

After the maintenance you can assemble the pump in reversed order. Please pay attention to first only loosely fix the in crossed over order and then fix them semi-solid (hand tight).

For the usage of a cordless screwdriver see the picture. The O-seals of the pump are made from silicone or EPDM/ Viton, depending on the application.

Please use only fresh and original O-seals with the correct thickness and hardness as replacement. When O-seals are aging, the hardness slightly changes. When you re-assemble the pump, the O-seals should always be replaced by new ones. This will increase the lifespan of the pump. Silicone and EPDM / Viton O-seals are resistant against acids and bases.

Decalcify the pump completely. Please do not use hydrochloric acid, not even in extenuated form. This may damage the pump beyond repair. After the decalcification purge the pump with clear water. Re-assemble the pump.

Decalcify the wheel unit using
a suitable decalcifying bath.
NEVER use hydrochloric acid **even if diluted**!!!
The pump could get seriously damaged.

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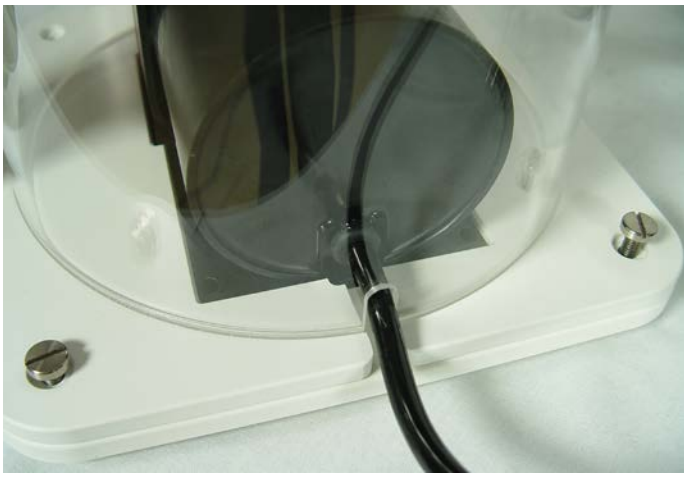
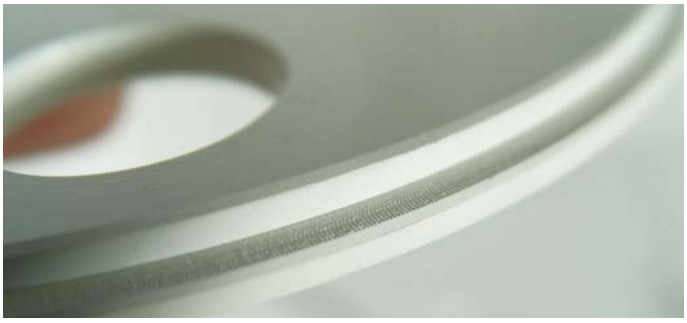
4. Assembly of the skimmer

After a complete clean, reassemble the skimmer according to the following instructions:
Start by reassemble the pump first. Carefully insert the rotor in the engine block.

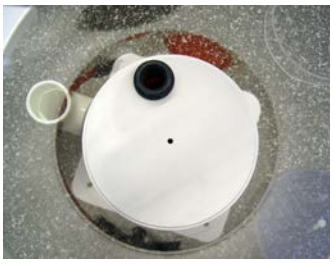
Tighten the four screws until the gap between housing cover and motor block is closed. DO NOT overtighten the screws.

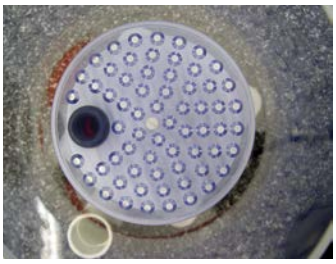
Fix the pump on the lower bottom plate and place the skimmer body. Caution: pay attention to the correct seat of the cable of the pump. Insert the bottom plate screws and tighten moderately. Also please do **not** work with too much force.

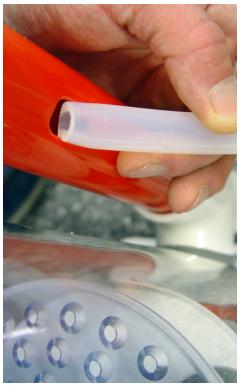




At the base of the injection pan depicted on the right position, *as shown above*, respected the flute/groove. Now replace the pan-like shaped base plate and tighten it softly. The injection pan should be relatively centered in the middle of the tube. Please note: It is important to place the side with no holes on the pressure nozzle of the pump, rather than the side with holes.
Next, pull the silicone tube through the tube, with one end attached to the nozzle and the other to the silencer. Finally, check the silencer.
The upper cover is only loosely stuck on and should be easy to remove. If this is not the case, insert a screw driver from the bottom side of the 10 mm air tube and gently hit the cover. The cover should then be easy to remove and the silencer becomes accessible.
Replace the cover after cleaning. Please do not insert cotton wool or activated carbon into the silencer. We explicitly point out that the pump cannot be operated in dry run. The pump may under no circumstances be operated on a dry run, even for testing purposes. Doing so may result in instant damage.
As a last step, reassemble the red suction tube with the nozzle and ensure tight fit, connect air hose. The skimmer is now operational again.







5. Power outages and emergency power supply

After a blackout the pump will start automatically and the controller will set up the last chosen speed.
The pump can used on a commercial emergency power supply or a commercial UPS, which is fitted with a rectifier package.

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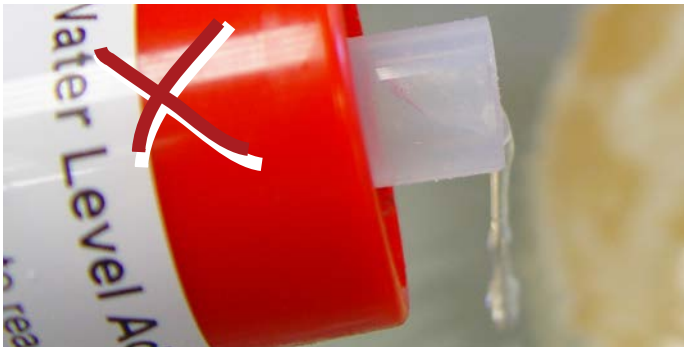
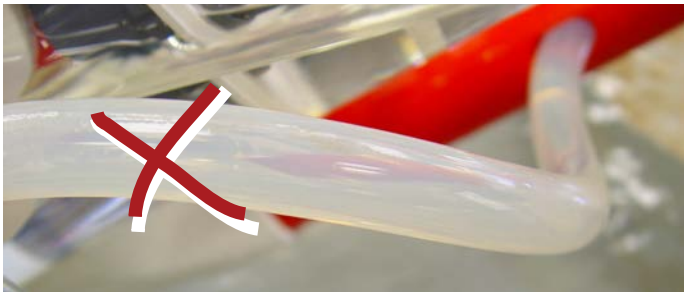
6. Resonator

The pictures below show the opening of the resonator.

The silencer inlay may now be rinsed with fresh water, but must be **completely dry** before being reinstalled!





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.**

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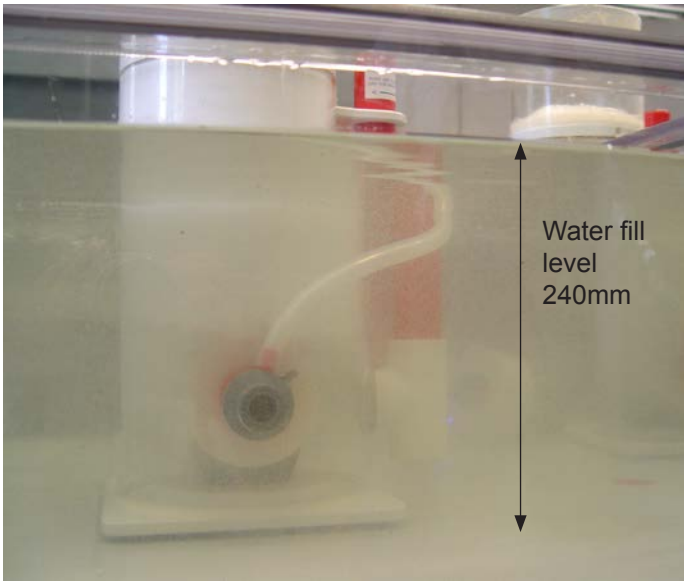
A successfully assembled Mini Bubble King 200 VS13.

Don‘t forget to close the outlet with the silicon plug.

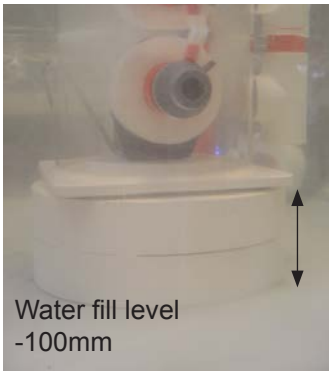


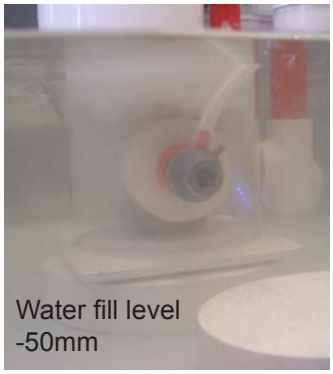
For the skimmer to produce optimal results, the Mini Bubble King must be brought to the correct height. This will depend on the water fill level.

7. Possible sources of error

For optimal skimming results,
please note the following information:

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 ~ 130 mm up to ~ 300 mm (**ideally ~ 210 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.





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

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 are 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 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 ***Mini Bubble King*** 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 peril 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.Nr. 83082352

9.2. Informations and support
Thank your for purchasing a ***Royal Exclusiv®*** Mini 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 long lasting 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 Mini Bubble King 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 Mini Bubble King 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***