

*Royal Exclusiv pumps & skimmers*

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Since 1986



**Operating and maintenance manual for Red Dragon® X / RDX**  
For all Red Dragon® X Skimmer- and Delivery pumps - 12/24V Technology -

v1.0

**ENG**



*Royal Exclusiv*  
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★★★★★



# Operating and maintenance manual for Red Dragon® X / RDX

For all Red Dragon® X Skimmer- and Delivery pumps - 12/24V Technology -

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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 pump 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 pump.



## Delivery content

- Pump with rotor and pump head
- Controller
- Power supply with power plug
- Screws/connection trims
- Manual

## 1. Commissioning (Start up of the pump)

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 safe-ty 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. Voltage **100-240V / 45-65Hz**. Please always watch for the pump to be operated with water filled/dipped/submersible. **Dry running can cause significant damage!**

### 1.1. Meaning of display and buttons on the controller

- Button On/Off** Turn on/off the pump  
**Button +** Increases the performance of the pump  
**Button -** reduces the performance of the pump  
**Button F** Feed Mode of the Pump

By pressing this button you can adjust the feeding timer, i.e. switch off the pump for 10, 20 or 30 minutes (**F-10, F-20, F30**), after this time the pump starts automatically and jumps to the last set value. By pressing this button 4 times, you leave this function.

**Blue LED's:** In addition to the display, the LED lamps in the upper part of the controller symbolically display the set performance.

**Display:** Shows the currently set rotations of the pump (RPM). After restarting, the previously set value will be retained.

**Display ERR:** Pump has been switched off due to overload and will be restarted. Impeller/Needle wheel may be blocked by foreign objects. Or dry run, please check if pump is filled with water or pulls air.



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## 2. Maintenance

We recommend the cleaning of the **Red Dragon® X** delivery / skimmer pump at frequent intervals respectively to check the needle wheel for foreign objects. To check the impeller / needle wheel it is not necessary to remove the skimmer from the filter tank.

Unplug the skimmer from the mains. Remove the nozzle from its seating. Turn the pump 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. For all maintenance, a small-medium cross slit screwdriver may be required.

### 2.1. Maintenance of the pump

Before any maintenance work, the pump must be unplugged from the mains. Delivery/skimmer pumps of the **Red Dragon® X** series are essentially to be classified as very low maintenance. Normally, the necessary maintenance work is limited to the control of the impeller/needle wheel for constipation. Remove possible items from the needle wheel with a slim, pointed object.

When the pump's losing power / capacity becomes less,

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the cause is often pollution. In the case of possible lime deposits (especially seawater use), the lime must be removed with a very weak acidity, such as vinegar. Avoid lateral pressure on the wing wheel or rotor. The pump can be taken apart almost completely for cleaning.

Red Dragon® X pumps have a built-in shutdown automatic. Electronics continuously measure the energy ingested. Should electricity consumption increase for whatever reason, for example with calcification and resulting unwise sliding bearings, pump electronics interprets this as a malfunction and automatically switches off the pump.

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!**

## 2.2. Deliming and cleaning the impeller

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.

If necessary the impeller unit can be removed, by cautiously pulling on the rotor. 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.**

Please loosen the 4 screws, then the housing cover / pump head can be pulled forward. 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.

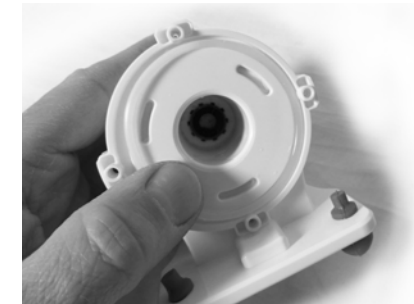
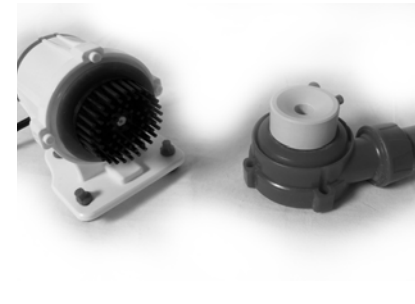
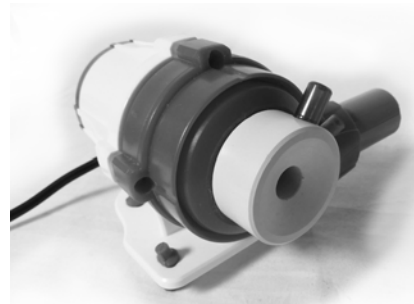
**Caution:** Never apply force to the wheel unit.

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).

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.





The ceramic shaft is very sensitive and may break immediately if bent.

Now delime the impeller unit using a suitable deliming bath.  
**Never use hydrochloric acid - not even diluted!**

This may damage the pump. Suitable substances are: formic acetic phosphoric acid or common deliming agents for water purification appliances like coffee makers. The containment shell of the motor must also be delimed. Coarse, greasy plaques must be removed under ordinary tap water prior to deliming using a mediumcoarse brush. Please observe the relevant safety regulation attached to every sales package prior to using deliming acids. Wear protective clothing and goggles.

**For assembly:** fix the O-ring in position, then carefully let the magnetic impeller with the lip on top click into place.  
**Caution ! Strong magnetic forces !!**

Blocked bearings may cause damage to the pump or prevent it starting up, due to the O-ring grinding against the bearing seat.

#### 4. Cleaning the nozzle and suction pipes Only skimmer pump!

The suction pipe with 10 mm for air induction (red) and 6 mm for ozone (grey) needs regular decalcification and cleaning as, depending on the degree of lime content in the water, a plug may form, which can impair the overall the performance of the pump and deteriorate skimming drastically.

Please inspect and decalcify the nozzle regularly !! Remove major cloggig using a pointed tool before decalcification.





## 5. Defects and claims for compensation, disclaimer

### 5. Defects and claims for compensation

**5.1.** 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 check 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 **Red Dragon® X** pump. 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.

**5.2.** 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 liable 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.

**5.3.** 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.

**5.4.** 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.

**5.5.** 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.

**5.6.** 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.

**5.7.** 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.

#### **5.8. 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.

#### **5.9. 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.

#### **5.10. 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 pumps. No claims can be made if for instance design, functionality or performance of the pump changes elementary. The assured specification of the pump is always guaranteed.

## **6. Manufacturer's declaration**

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

### **6.1. Manufacturer**

**Royal Exclusiv**<sup>®</sup> pumps and skimmers

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Royal-Exclusiv<sup>®</sup> EAR-number: WEE.Reg.No. 83082352

### **6.2. Informations and support**

Thank your for purchasing a **Royal Exclusiv**<sup>®</sup> Red Dragon<sup>®</sup> X pump. This Red Dragon<sup>®</sup> X pump is a high quality product made with the highest manufacturing demands on modern plastics-processing machines. This manual is supposed to help you to setup the product 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**<sup>®</sup> guarantees 5 years of spare part availability for the Red Dragon<sup>®</sup> X pump.

Should the device in some way not meet the high demands you expect from **Royal Exclusiv**<sup>®</sup> please contact the dealer where you purchases your Red Dragon<sup>®</sup> X pump. 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>