



Operating- and maintenance manual for Red Dragon® 5 ECO pumps 25W

ENG

v2.0

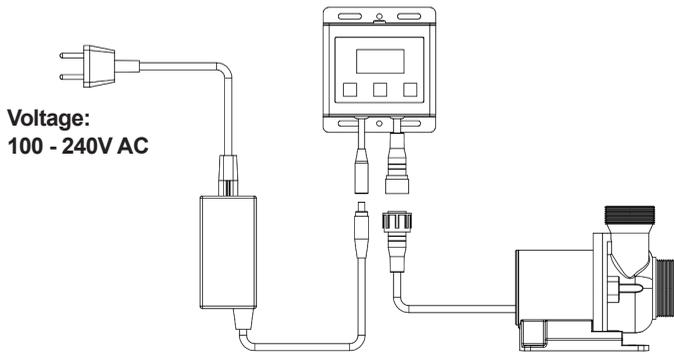
Please read this manual carefully before you install the device. We recommend not to proceed the installation of the device until you read the manual. This prevents any questions and problems that might occur in installation process. As soon as you power-on the pump for the first time, you agree that 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 pump.

Pump model and specification:

Model	Flow(L/h)	Head(m)	Watt(W)	Voltage(VDC)	Current(A)
RD5	4000	2.5	25	24	1.0

Check your package:

- 1x power adapter
- 1x pump controller
- 1x pump motor
- 1x manual
- 2x fittings (25mm outlet, 32mm inlet, or similar 3/4", 1")



Schematic of connection of the Red Dragon® 5 ECO

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1. Defects and claims for compensation, disclaimer

1. Defects and claims for compensation

1.1. 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 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 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. We point out that the controller software is protected by security mechanism. Any attempt to read out the software will instantly result in the execution of a data-erasing program. The software of the pump then is deleted and has to be recovered by the manufacturer. Every user is held responsible for the appropriate usage of his Red Dragon® 5 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.

1.2. 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 pump, 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.

1.3. 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.

1.4. 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.

1.5. 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.

1.6. 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.

1.7. 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 pump. 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.

2. 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.

3. 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.

4. 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 pump. 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.



2. Manufacturer's declaration

The manufacturer assures, that the products of the **Red Dragon® 5 ECO** series comply with the following EWG-directives, when installed and uses according to this manual:

Machinery Directive (98/37/EG)
 Electromagnetic compatibility (89/336/EEC)/(73/23/EWG (95)

- EN 60335-2-55:2003 Specification for safety of household and similar electrical appliances. Particular requirements for appliances for use with aquariums and garden ponds.
- EN 50366:2003 Household and similar electrical appliances. Electromagnetic fields. Methods for evaluation and measurement.
- EN 55014-1:2006 Electromagnetic compatibility. Requirements for household appliances, electric tools and similar apparatus. Emission.
- EN 55014-2:1997 Electromagnetic compatibility. Requirements for household appliances, electric tools and similar apparatus. Immunity. Product family standard.

2.1. Manufacturer

Royal Exclusiv® pumps & skimmer

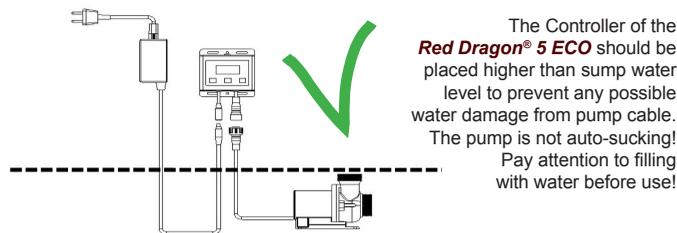
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 Fon +49(0)2236/88055-0 // Fax +49(0)2236/88055-20
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Royal-Exclusiv® EAR-number: WEE.Reg.Nr. 83082352

2.2. Formal obligation

The final inspection, labeling and testing of the **Red Dragon® 5 ECO** pumps is done by **Royal Exclusiv® Pumps and Skimmers**. Titanium parts are made out of saltwater resistant pure titanium, grade 2. All plastic parts are made from ozone and UV resistant material. The wiring is saltwater resistant. The stator casing, the raw mantle and the bearing rings are made from saltwater resistant titanium, grade 2. The parabolic rubber feet are made from 30 shore soft, saltwater resistant natural rubber.

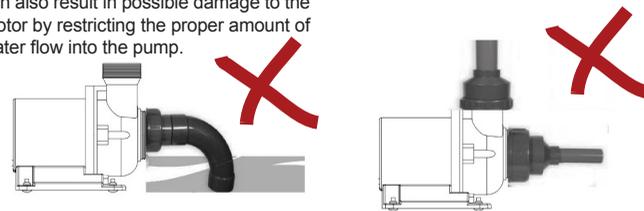
3. Quick installation RD5 ECO 25W with speed regulation



The Controller of the **Red Dragon® 5 ECO** should be placed higher than sump water level to prevent any possible water damage from pump cable. The pump is not auto-sucking! Pay attention to filling with water before use!

The pump motor must be fully submerged while in operation, running externally will result in possible motor damage and controller shut down. Also for optimal performance please do not use elbows or strainers on the pump intake, doing this can also result in possible damage to the motor by restricting the proper amount of water flow into the pump.

The diameter of pipe used on the pump outlet must be the same size but can be bit smaller if necessary. We recommend no less than 25//32mm / 3/4//1" pipe for best performance inlet/outlet. Please do not resize the inlet.



4. Functions of the RD5 ECO 25W

Memory: In case of power failure pump will memorize last speed setting and resume at that power upon restart.

No Water: If pump is running dry without water the controller will shut it down within 15 seconds to prevent damage to the motor.

Speed: Pump is fully adjustable with 2 watt increase or decrease per speed setting.
LCD Screen: Large LCD display will show RPM's, current, power consumption and failure report.

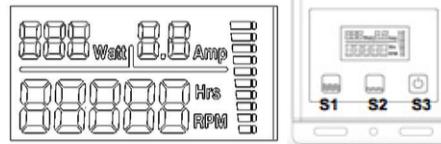
On/Off: Integrated button for up/down speed settings.

Installation: Submersible use only

Protection: Over Heat, Over Voltage, Low voltage, Over Current and Blocked Fault.
0-10V: Control and adjust speed with alternate controllers through the 0-10V port.

5. Operation of the RD5 ECO 25W

Controller is full speed adjustable, 2 watt per step. Big true LCD show worked hours, power consumption, current, running speed, error happened, etc.



Controller has 3 touch buttons, S1: Speed up/start; **S2:** speed down/stop

S3: pause/switch on/off switch
 Plug power adapter into wall socket, LCD will switch off after 3 seconds if out of operation.

Turn On: Press S1, pump will start to run at first speed or previous condition within 10 seconds.

Speed Up: Press S1 to speed pump up, LCD will show power, current and speed setting.
Speed Down: Press S2 to speed down pump, LCD will show power, current and speed setting. Continue pressing S1, pump will ramp up to highest speed within 3 seconds. Continue pressing S2, pump will slow down to lowest speed and stop completely.

Turn Off: Controller will switch off if S3 is pressed two times while pump is running. Press S3 one time to switch off controller if pump is paused.

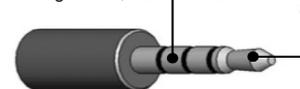
Pause: Pressing S3 will stop pump for 30 minutes at whatever speed is pump running at. Pump will restart automatically after 30 minutes or press S1 to restart pump within that time frame if needed. Controller will switch off if you press S3 while pump is paused.

Soft Start: 10 seconds is needed to speed pump up to highest speed.
No-water Protection: Controller is able to detect if pump running with or without water. If pump is running without water the controller will shut it down within 15 seconds to prevent damage to the motor.

Restart: Press S1 to restart if error is solved.
Memory: If power is cutoff accidentally pump is able to recover previous running status automatically when power is resumed.

0-10V Adjust: Buttons will not work after insert earphone plug input 0.5-10V from min speed to max speed (Negative - segment 3; Positive - segment 1)

Negative - segment 3; Positive - segment 1;



Protection: Over current, over voltage, low voltage, no water, blocked.

Fault showing on LCD: Er 1: No-water fault // Er 2: Low voltage fault // Er 3: Over voltage fault // Er 4: Blocked fault // Er 5: Over current fault //

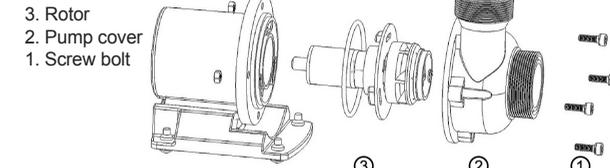
6. Maintenance of the RD5 ECO 25W

The LCD screen on the controller will show fault status when an issue is detected. If problem is removed press S1 to restart pump. If pump will not restart please disconnect power adapter and reconnect again to restart.

- If LCD is showing Er1 try and adjust the location of pump, check out the pump intake and make sure the is adequate water flow into pump.
- If LCD showing Er2 please check the power adapter.
- If LCD showing Er3 please contact technical service.

The pump must be used in clean water, if not please protect pump intake from debris that could clog pump and cause it to shut down.

To clean and maintain the pump periodically, remove the 4 screws with a hexagonal wrench and pull off the pump cover. The entire rotor/ impeller assembly will then slide out for full a cleaning. We recommend to do this every 6 months.



Exploded assembly drawing of the **Red Dragon® 5 Eco** pump

7. Improper usage of the RD5 ECO 25W

- Do not** connect the pump controller to any other power supplies except the original that was included with the pump.
- Do not** use pump in flammable liquid. Use this pump in clean fresh or sea water only.
- Do not** use pump in water over 40 degrees °C.
- Do not** run pump more than 1.5m under water line.
- Children are **not allowed** to operate or play if without adult's supervision.
- Do not** put the connector or plug of pump into water or any other liquid.
- Do not** put fingers or other objects in front of pump inlet.
- Do not** pull or drag the cables on pump, controller and power supply.