



# Precision Marine Systems

Congratulations on the purchase of a state of the art kalkreactor manufactured by Precision Marine Systems. READ ALL INSTRUCTIONS. Your warranty begins from the date of purchase, so please keep your receipt and see warranty on last page.

## Kalkeactor KR620 Instructions

### General

Kalkwasser when first mixed has a pH of around 12 and a very high calcium content. Unfortunately, in conventional kalkwasser drippers, the kalk reacts with atmospheric CO<sub>2</sub> and precipitates out into calcium carbonate which is inert. The side effect of this is, by the time your kalk is done dripping, it's not nearly as potent as when you began. This is where your new Precision Marine Kalkreactor comes in. The unit is sealed to keep CO<sub>2</sub> from reacting with your kalkwasser, so that saturated kalkwasser liquid is constantly dosed into your aquarium.

**Note:** We have found that not all calcium hydroxide powders are created equal. Some are more coarse than others. This can cause premature pump impeller corrosion and/or pump failure. At this writing, it has been said that the Kent brand is of better quality than others, but the choice is up to you.

### Water Feed

#### Method #1

In addition to your Precision Marine Kalkreactor, you will need a dosing pump or feed method, and a timer (preferably digital). Dosing pumps that can be set for a drip rate to match your evaporation work quite well. Water Feed

#### Method #2

The other method is to gravity feed the reactor with a container of r.o. water located above the kalkreactor and reservoir. You will need to use a float valve in your reservoir. Simply connect the 1/4" polyethylene tubing from the r.o. container to the kalkreactor, then to the float valve. As water evaporates from your system, the float valve will maintain a constant water level in your reservoir using the r.o. water through your kalkreactor.

### Use and Setup

1. Mix up a kalkwasser slurry using no more than 2 cups of kalkwasser powder mixed with just enough r.o. water that you can pour it through a funnel.
2. Open the port on the top of the unit.
3. Place a funnel in the open port on the top of the unit, and pour the kalkwasser slurry in. How much you add to the unit is up to you, but 2 inches of powder at the bottom after it settles out is plenty.
4. Fill the reactor to within an inch of the top with r.o. water. Close the port on the lid. Hook tubing from the dosing pump (or r.o. vessel) to the input connector (the connector with the line that goes to the bottom of the reactor). This way your fresh r.o. is added right at the level of the kalkwasser powder to insure saturation.
5. Connect tubing from the output of the reactor and run it to your sump and secure it in some manner so that it can drip into the water (or to your float valve).
6. Now that everything is hooked up, you need to set your timer to run the circulating pump. The pump will need to be returned on 3 to 4 times per day for 10 minutes to circulate the kalkwasser powder inside the reactor to ensure saturation of the liquid. It is not recommended or desirable to run this circulation pump continuously. Now that all connections are made and the timer is set, plug in the reactor pump to the timer, and start up your dosing pump. The reactor will now finish filling and begin dosing saturated kalkwasser into your aquarium.

### Maintenance

Cleaning your kalkreactor is done simply by rinsing all components in warm freshwater. Take care when removing the water pump by twisting and aligning the two tabs on the pump volute and body. The impeller pulls right out and should be cleaned thoroughly. If cleaning intervals are too long, the impeller may need to be soaked in straight vinegar overnight. Clean you reactor monthly.

**Please be advised – This Kalkreactor is NOT designed to work with line pressure generated from a reverse osmosis unit.**

# Precision Marine Systems, Inc.

## **LIMITED ONE YEAR WARRANTY**

**IMPORTANT NOTICE:** Read this entire Limited Warranty before purchasing, installing, or using this product. By purchasing, installing, or using this product, you are acknowledging that this Limited Warranty is part of the sale terms.

**COVERED PRODUCTS.** This Limited Warranty applies to the following PRECISION MARINE products: KR620 Kalkreactors (hereinafter referred to as the "Covered Products"). PRECISION MARINE makes the following express limited warranties for the Covered Products purchased within the United States, subject to the conditions and limitations stated below. These limited warranties are the exclusive warranties for the Covered Products. PRECISION MARINE disclaims all warranties, express or implied, for other products.

**LIMITED WARRANTIES.** The Covered Product is warranted to be free from defects in material and workmanship under normal use for period of (1) year from the date of original purchase. This limited warranty is extended to the original buyer of the Covered Products (the "Buyer"). PRECISION MARINE disclaims all warranties, express or implied, to subsequent purchasers or users. If the Buyer gives PRECISION MARINE notice as required below of a defect in materials or workmanship, PRECISION MARINE shall, at its sole option: (1) repair or replace the defective products; or (2) refund the original purchase price. Replacement products may not exactly match replaced products. PRECISION MARINE will not be held liable for damage to any aquarium, aquarium life forms, dwellings, furniture, or other personal objects.

**WATER PUMPS:** All needle-wheel water pumps are warranted for a period of 90 days.

**FAILURE TO COMPLY WITH THE INSTALLATION AND OPERATING INSTRUCTIONS STATED IN THE MANUAL VOIDS ALL WARRANTIES.** This Limited Warranty does not extend to the use of the Covered Products under abnormal conditions, conditions that exceed the stated performance parameters of the products as provided on the product labeling and in the manual or instructions provided with the Covered Products, or under conditions not reasonably foreseeable to, or beyond the control of, PRECISION MARINE. Buyer assumes all risk of any such use. Any attempts at self repair shall void this limited warranty. Water and electricity are a deadly mix it is the sole responsibility of the owner to provide adequate protection for children, and other persons, including themselves from the dangers of electrocution.

**WHAT THIS LIMITED WARRANTY DOES NOT COVER.** PRECISION MARINE is not responsible for and makes no warranties as to the following: 1) product failures or damage due to normal wear and tear, exposure to excessive heat or moisture, corrosive chemicals or substances, improper installation, improper cabling or wired connections, defects or conditions of the existing structure, misuse, abuse, modifications, and alterations; and 2) minor imperfections that do not affect the Covered Product's structural integrity or use.

**DISCLAIMER OF IMPLIED WARRANTIES.** Neither PRECISION MARINE, nor its authorized dealers, make any other warranties, express or implied, including any implied warranties of merchantability or fitness for a particular purpose. In the event this disclaimer is deemed limited or ineffective, the terms and limitations of any implied warranties shall be the same as the express limited warranties contained herein.

**LIMITATION OF LIABILITY.** This Limited Warranty sets forth PRECISION MARINE's maximum liability for Covered Products. IN NO EVENT SHALL PRECISION MARINE OR ITS AUTHORIZED DEALERS BE LIABLE FOR ANY INCIDENTAL, CONSEQUENTIAL, OR SPECIAL DAMAGES RESULTING FROM THE SALE, INSTALLATION, OR USE OF ANY COVERED PRODUCTS. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation may not apply to you. If PRECISION MARINE provides any of the remedies identified above (i.e. repair, replace, or return of the original purchase price), then Buyer agrees that this limitation of remedy shall not have failed the essential purpose of the Limited Warranty.

**NOTICE OF CLAIM.** Buyer shall promptly notify PRECISION MARINE of any claim under this Limited Warranty. PRECISION MARINE reserves the right to deny any claims made by the Buyer more than one (1) year after any defect or other basis of a claim covered by this Limited Warranty is discovered by the Buyer or should have been discovered by the Buyer.

**CLAIM PROCEDURE.** You should make claims under this Limited Warranty in writing to PRECISION MARINE at [sales@precisionmarine.com](mailto:sales@precisionmarine.com) or by calling 830-626-2401. Claims to Precision Marine should include the following information: (1) the claimant's name, address, and telephone number; (2) the product description, purchase price, and the date and location of purchase; (3) copy of the sales invoice or receipt; (4) a description of your product concerns (you may include photos); and (5) a brief summary of the attempts you made to address the concerns. Buyer shall be responsible for shipment and insurance costs to send Covered Products to Precision Marine.

**ENTIRE AGREEMENT.** This Limited Warranty, and all of the terms and limitations contained herein, constitutes the entire agreement between PRECISION MARINE and the Buyer. By purchasing, installing, or using the Covered Products, Buyer is not relying on any oral statements made by anyone, including its authorized dealers, which are in any way different or contrary to the terms and limitations of this Limited Warranty. By purchasing, installing, or using any of the Covered Products, Buyer acknowledges that authorized dealerships are not agents of PRECISION MARINE and any statements or representations made by authorized dealerships and their employees are not attributable to PRECISION MARINE.

Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above exclusions may not apply to you. This warranty is governed by the laws of the State of Texas, excluding its conflict of laws principles. This warranty gives you specific legal rights, and you may also have other rights, which vary from state to state.