



Congratulations on your purchase of the MRC Nilsen Reactor; the world's finest and most advanced kalkwasser reactor.

A Nilsen Reactor, like a Calcium reactor, helps dissolve calcium into a useable form before distributing it into the rest of your system. However, a Neilson Reactor uses a separate chamber to mix kalkwasser (saturated limewater) into the water; no carbon dioxide is needed. Kalkwasser is made by dissolving calcium hydroxide powder in fresh RO water to produce a limewater solution that contains free calcium and hydroxide ions. This solution, however, is highly affected by the CO₂ in the air, reducing the calcium levels significantly. TO prevent this degradation of the solution, an airtight container is required.

The Nilsen reactor is a long time favorite of reefers for the simplistic approach to topping off with fresh water and raising Ca levels at the same time. Kalkwasser also has the added benefit of precipitating phosphates from the water column, stimulating SPS growth and hindering algae growth. The high ph of kalkwasser, approximately 12 ph, the Nilsen reactor can be used to counteract the low ph of a calcium reactor's effluent.

Required Equipment

For proper operation of the MRC Nilsen Reactor, you will need additional equipment:



- An auto-top off device (float switch with solenoid and pump) or
- A dosing system (LiterMeter, etc.)
- A supply of RO water

The auto-top off unit will monitor the water level within the aquarium and replace the evaporated water with fresh RO water. The RO water will pass through the Nilsen Reactor, pushing out the kalkwasser solution as it enters the unit. As the kalkwasser solution exits the reactor, a fresh batch of RO water is introduced, ready for the Nilsen Reactor to mix with the calcium hydroxide powder.

It is NOT recommended to connect the Nilsen Reactor directly to a RO/DI unit. Doing so may result in consequential damage to the reactor, voiding any and all warranties.

Operating Instructions

The MRC Nilsen Reactor is a very simple, yet powerful system.



Plug in the reactor to check functionality. If the screen does not illuminate, check your power source; if power is available, contact customer support.



Place the reactor in its permanent position. It is best placed outside of the sump.



Attach the pump and hands tighten the unions making sure the o-rings are in place; make a secure seal. Connect the pump to the control panel via the waterproof connector. Do not force the connector.



Fill the reactor approximately $\frac{3}{4}$ full with your top off water.



Slowly add Kalk powder (calcium hydroxide) to the reactor.

- Small & Standard Nilsen – 2 cups
- Large Nilsen – 4 cups

- Care should be taken not to inhale the calcium hydroxide powder/dust. Also, the freshly mixed solution could stain clothing or irritate skin. Please check with the powder manufacturer for details and precautions.

- Finish filling the reactor with your top off water until full.
- Install the reactor lid and hand tighten the thumbscrews in an alternating pattern. Ensure the O-ring is seated in the groove of the reactor flange.
- Connect your fresh water line into the input line on the Nilsen lid (The input line is the one with a clear pipe attached).
- Connect a line to the Kalkwasser effluent port located on the top of the lid. Secure this line in the area of the sump you want to drip the solution. Ideally, you want to drip it in an area of turbulence. Stagnant water can cause a localized calcium concentration which can lead to calcium dropping out of solution.
- Before dosing, allow the Kalk to settle.

Setting the Timer

- Once the above steps have been taken, plug in the MRC Nilsen Control Panel. You will see the “My Reef Nilsen LCD” welcome page.
- The control panel is a touchpad unit; merely touching the buttons will activate them. Use the “up arrow” button to set the options; the “enter” button to confirm.
- Pressing “up” and “enter” simultaneously will reset a particular parameter (the one being displayed) individually back to 1 (1 sec, 1 min, etc). Zero is not an option.
- Press “Menu” to cycle through the menu options:
 - Set Cycle
 - This is the time period between mixing (frequency).
 - Set Mix
 - This is the duration of the mixing.
 - Back Light
 - This is to set the brightness of the LCD
 - Control
 - Auto/Manual option of the Nilsen. To utilize the timer function, you will want to leave the setting on Auto.
 - Manual
 - This merely states if the Nilsen is in manual mode or not.
- The Control Panel is flash based: your new settings should be retained within milliseconds of pressing enter. The new parameter will not be used until the end of the present cycle; powering down the controller will circumvent this procedure. Your settings will be retained even after power interruption.
- The more frequent and the longer the Kalk is stirred, the more saturated the solution will be. The frequency and duration of the mixing will be dependent on what your reef inhabitants require. You want to dose a transparent solution, leaving the undissolved powder in the reactor. On most systems, the best timing cycle will be every 4 hours for 5-15 seconds.

Cleaning/Refilling the Reactor

- Once the kalk powder has been exhausted, unplug the reactor and remove it for cleaning. Drain the unit and discard the residual powder. Rinse with water. Add a vinegar and water solution and run for a few cycles. This will clean the pump and all ports/lines. Rinse again with water. You are now ready to refill the unit.

For further information please contact us:

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