Thank You for your purchase of a RX DUO Series Calcium Reactor by Vertex™ Aquaristik. With proper installation and maintenance, this unit will answer your system’s need for Calcium, Alkalinity & many other necessary elements to mimic natural living environments of species you maintain. All Vertex™ products are rigorously tested for safety, efficiency and reliability.

Please take a moment to read these instructions to ensure optimal performance. When using or installing electrical devices, take care and consult a professional. Your safety is our number one concern.

**Important Reminders**

Be sure to follow these directions carefully. Failure to do so may result in damage to your RX DUO Series Calcium Reactor and or possible damage to property.

*Dealers and or the manufacturer are not responsible & cannot be held accountable for any personal or property damage resulting from the use or misuse of this product.*

Carefully remove your new Calcium Reactor from its original packaging, inspect the unit for damages. All damages must be reported to your dealer WITHIN 48 hours of receipt and marked by the delivery driver on the waybill.

**Concept**

Calcium reactor is a device used to replace the Calcium and Carbonate taken up by corals in the process of Calcification. This goal is achieved by reducing the Aquarium Water’s pH passing through the (CaCO3) media inside the reactor. When used and maintained properly, this simple concept is one of the most effective methods of answering those needs.
RX DUO Series layout and components

A- Main Chamber
B- Second Chamber
C- Co2 Chamber
D- Bubble Counter
E- Pump
F- Co2 Intake
G- Source Water Intake
H- Co2 Reduced Outlet
I- Co2 Recycle
J- pH Probe Port
K- Foam Insert
L- Needle Valve
M- Second Chamber Inlet
N- Third Chamber
O- Third Chamber Inlet
P- Third Chamber Outlet
Installation

Step One: Reactor connections

1- Inspect all components for any damage.
2- Fill Bubble counter with clean Fresh water.
3- Rinse Reactor Media with Ro water.
4- Insert Foam above the perforated Plate.
5- Fill Main Chamber with Media & close (use silicone Lubrication on O-ring if necessary).
6- Place second Foam piece above the Media.
7- Place acrylic holder bracket on the top of Foam piece.
8- Open Second Chamber.
9- Place the perforated plate inside.
10- Place foam Insert above the perforated plate.
11- Fill Second Chamber with Media then close (use silicone Lubrication on O-ring if necessary).
12- Fill Third Chamber with Media then close (use silicone Lubrication on O-ring if necessary).
13- Tighten all Union Connections.
14- Using the ¼” OD tube supplied, make all connections complete as shown in this manual.

** For ease of use and avoid leakage all fittings used are quality John Guest quick Speed-fit connections. A water-tight seal is achieved simply by pushing until the tubing stops. **
Step Two: Co2 Supply

As mentioned previously, Carbon Dioxide is required to dissolve the Calcium Carbonate Media.

*Because the CO2 required is supplied in a pressurized container, having a CO2 bottle in your living space requires you to observe a few safety precautions!*

- Ensure the CO2 bottle is checked during each refill to make sure there is no loss of structural integrity.
- Fasten the CO2 bottle securely in a vertical position.
- Carbon Dioxide is colorless and odorless gas, and acts as an asphyxiant, inspect all connections to avoid possible leaks.
- Do not place the Co2 tank near a heat source such as radiators.

1- Only use Co2 Safe tubing
2- Connect the regulator to your Co2 bottle using Teflon tape.
3- Only use good quality Needle Valve and or Solenoid.
4- Connect the Co2 Supply TUBE (1/4” OD) to the Bubble counter.

Step Three: Source Water

There are different ways to supply a calcium Reactor with Aquarium water.

- Gravity Fed
- Pumps

To gravity feed a calcium reactor simply place it under your tank and start the siphon through the feed tube. Open the needle valve and suck on the tube carrying the effluent to the reservoir to prime the reactor. Once it has filled completely with aquarium water, close the valve on the Reactor.

This method is effective but not recommended as it will require more monitoring because of increased resistance of the media due to reduced particle size by dissolving.

Using a pump is a more reliable way of feeding a Calcium Reactor. There are many options available from precision peristaltic pumps to smaller powerheads. You could also simply tee a line from many different pumps used in your system.
such as Return pump or Skimmer feed. To Feed your Reactor using a pump; open the needle valve located at the top of the reactor. Turn on the feed pump and allow water to flow to the calcium reactor. Once it has filled completely with aquarium water, close the valve and shut the pump.

Please refer to the Diagram in this Manual for Source Water Intake.

Step Four: Operation and Control

There are different methods to Control and regulate operations of a Calcium Reactor however we recommend using a Ph controller to regulate the amount of Carbon Dioxide injected.

All Vertex Calcium Reactors are supplied with a pH port on board for this purpose.

Depending on the type of media used and the reactor’s settings, the ideal effluent’s Ph value for maximum efficiency and proper operation could vary from 6.3 to 7.5.

In order to set up a Calcium reactor properly following relations must be kept in mind:

Now you are ready to start dialing in the reactor, however after making adjustments to the reactor, it should be left for a few hours to allow the changes to take effect.

Start operation with lower Water flow and Co2 Injection. During the initial set up stage often test your Aquarium and effluent for pH value and Alkalinity.

Do not allow the Aquarium pH Value to drop below 8.
1- Turn on the feed pump.
2- Turn on the Calcium Reactor pump, this pump will stay on at all times.
3- Wait until the water inside the reactor clears and the reactor is free of air.
4- Adjust the water flow exiting the reactor. This has to be adjusted
depending to your Calcium consumption, however for initial set up, we
recommend to set the valve to allow as low as possible flow without
being able to count the drops. Do not flow too much water through the
reactor to start, this will raise the alkalinity in your aquarium and drop pH
too quickly which could be harmful to the inhabitants.
5- Start the flow of Co2, start with 30 bubbles per minute or less depending
to flow rate and reactor size.
6- Adjust your pH Controller to desired value depending to the media used.
7- Allow the reactor to run for a few hours, test Aquarium pH value to make
sure does not fall below 8.
8- Adjust the flow and Co2 bubble count to achieve the desired pH Value
depending on the media used.
9- Measure the effluents Carbonate hardness after 24 hours of operation,
this value should be between 12 to 20 dkh.
10- Measure your system’s pH Value, Calcium and Alkalinity.
11- Make proper adjustment to flow & amount of Co2 injected based on your
Aquarium’s Calcium Consumption.
12- During the first few days of initial set up, it is important to measure your
Aquarium’s pH, Calcium and Alkalinity values regularly to avoid any
possible harm to the inhabitants due to any sudden parameter swing.

Media

There are many different choices of media available for Calcium Reactors such
as Coarse Coral Media, Aragonite and synthetic.

Using a RX DUO Series Calcium Reactor First chamber should be filled with
CaCo3 Media, which could be supplemented by Pharmaceutical grade Dolomite
media for higher effluent Magnesium levels. Please use dolomite media sparingly
and not more than 10% of the total volume of media used as this product can
increase Alkalinity by a great deal.

The Second Chamber will consume the excess Co2 left in the effluent after
passing through Main chamber this in return will increase pH and or Ca
concentration.
The Third Chamber is used for Phosphate adsorbing Media.

Since most CaCo3 Media available in the hobby are of natural sources, there are considerable amount of Phosphate in these products that can contribute to higher Po4 Concentrations in your Aquarium.

Using proper Phosphate absorbers will help maintaining proper level of elements without adding unnecessary phosphate to your tank.

**Refill and Maintenance**

RX DUO Series Calcium Reactors are supplied with Quick-Lock lids for ease of use.

Simply open the Chamber, refill or replace media and then close.

Follow the same steps after each change to ensure proper operation.

If using a pH controller, do calibrate the probe at least on a monthly basis or more often to ensure proper reading. Replace pH Probes according to manufacturer’s recommendation.

For more information about this or any other Vertex™ products contact your dealer or visit us at:

[www.vertexaquaristik.com](http://www.vertexaquaristik.com)