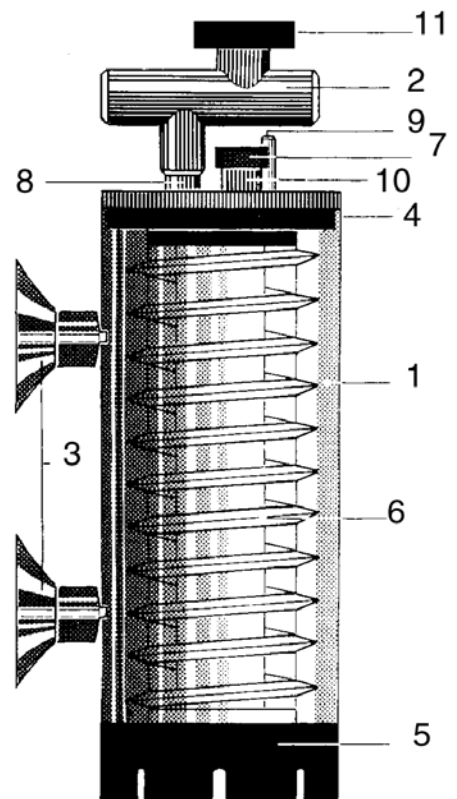


## << CO<sub>2</sub> reactor 500 <<

Use this reactor to replace CO<sub>2</sub> loss in freshwater or saltwater. This reactor has been designed for underwater operation only. Read and follow all instructions in this leaflet carefully for best results.

fig 2: reactor

1. CO<sub>2</sub>- reactor
2. flow adjustment valve
3. rubber sucker
4. lid with inner pipe
5. bottom lid
6. spiral tube
7. closing cap
8. water connection
9. CO<sub>2</sub> connection
10. spare port
11. adjudtion valve



### technical characteristics

unit	CO <sub>2</sub>
art no:	71111
CO <sub>2</sub> - connection port:	9 mm
CO <sub>2</sub> input tube connection	6 /4 mm, (1/4")
water flow	min 500l/h ( 125 gph), max 1000 l/h (250 gph)
holding system	rubber sucker

The unit is designed for aquariums up to 500 l ( 120 gal) and 10°KH ( 4 mmol alcalinity). It can be increased with up to 4 enlargements. Each enlargement will increase the capacity for 300 l (80 gal).

## Reactor tube assembly:

1. Attach both suction cups (3)
2. slide output adapter onto water output connection  
Hint: The adapter can also be attached to the water output connection with a piece of hose to lower the position of th unit in the aquarium.
3. Attach filter or circulating pump outlet with a piece of hose to the output adapter tube. Minimum output for the circulation device through the output adapter is 100 l/h.
4. Attach the black CO<sub>2</sub> tube to the CO<sub>2</sub> connection.
5. Remove the cap (7)
6. Place reactor tube assembly into position
7. Hint: Allow the Reactor tube assembly to completely submerge and fill with water before pressing the suction cups into position on the aquarium glass.
8. Turn on the circulation pump/filter unit. Warning: close the CO<sub>2</sub> hose to prevent water leakage.

fig 3: reactor  
12. connection hose

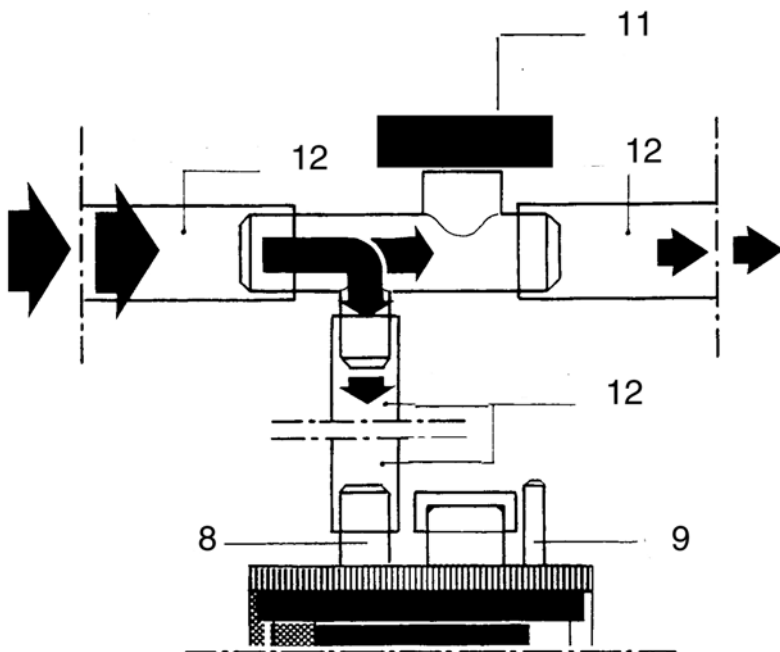
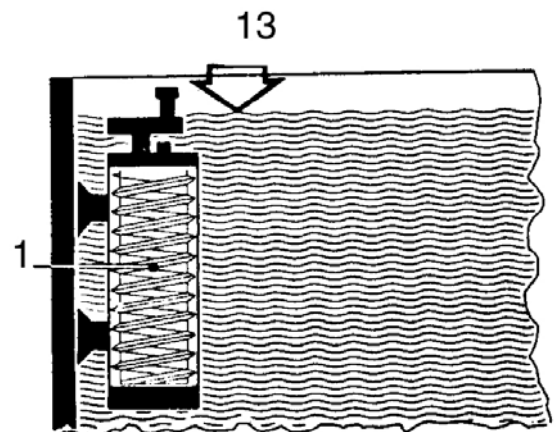


fig 4: reactor mounting.  
13. minimum water level



Before using the **reactor**, the rest of the CO<sub>2</sub> system has to be assembled: The pressure regulator **regular** has to be mounted on the pressure bottle **station**. As soon as the regulator and the reactor have been mounted, the reactor can be adjusted:

## CO<sub>2</sub> reactor adjustment:

1. Turn on the circulation pump to start the water flow.
2. Open the valve of the CO<sub>2</sub> pressure bottle
3. The working pressure gauge of the **regular** is set to 1.5 bar ( +/- .5 bar)
4. open slowly the needle valve of the regular.
5. Check the flow of the CO<sub>2</sub> bubbles on the bubble counter. The initial flow should be approx 15 bubbles/minute.
6. The CO<sub>2</sub> will flow into the reactor and dissolved in the water flow.
7. Determine the CO<sub>2</sub> content in the water using a pH controller or a pH test. Take an initial pH reading before starting the reactor. Raise the bubble count per minute daily until a reading of 7.0 – 7.4 ( for freshwater aquaria) is reached. It may take some days, until the proper CO<sub>2</sub> level is reached and maintained.

Check the pH value regularly and adjust the CO<sub>2</sub> bubble count as required.

The CO<sub>2</sub> gas in the pressure bottle is 99.8% pure carbon dioxide. The remaining 0.02% are nitrogen, oxygen and other insoluble gases. These impurities are collected in the CO<sub>2</sub> reactor and can decrease its efficiency. An air hole allows these gases to escape automatically, when they reach a preset concentration. Because of this safety exhaust, the reactor will work continuously without interruption.

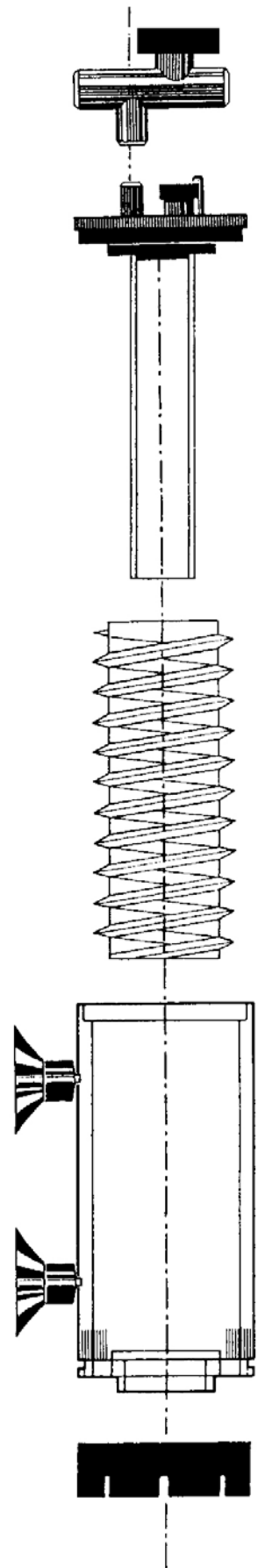
## raising the carbonate hardness ( alkalinity)

Aquarium water, freshwater or saltwater should have a minimum carbonate hardness of 4 – 6 °KH (1.5 – 2 mmol/l). Below this limit, the pH of the water cannot be stabilised. Biological processes produce permanently organic acids, that reduce the carbonate hardness. Filtration with peat or the use of other acids ( Phosphoric acid or hydrochloric acid). If peat products are used for filtration, the carbonate hardness of the water should be checked weekly. If the KH drops below 4° in freshwater or 6 ° in saltwater, it should be raised. We recommend the buffer tablets **AQUA MEDIC aqua+ KH**.

## Maintenance

Keep CO<sub>2</sub> reactor always clean. For cleaning, it can be completely disassembled.

1. dismantle the reactor
2. Separate the reactor cover (4) from the reactor by twisting the bayonet joint to the left.  
Pull out the spiral tube insert (6)
3. Clean all parts under running water with the brush provided with the kit.
4. reassemble the parts and install into the aquarium.



### **Enhancing the performance**


The maximum capacity of the **reactor** is reached, when the inner tube is completely filled with CO<sub>2</sub>-gas and a pH of 7.0 – 7.4 cannot be reached. In this case, the capacity of the **reactor** can be increased using an additional extension set. With this extension, it is possible to dissolve more CO<sub>2</sub>. Up to 4 extension sets can be connected to the reactor. If extension sets are used, the pump capacity has to be increased.

### **The optimum CO<sub>2</sub> quantity**

The amount of CO<sub>2</sub>, that can be dissolved in water depends mainly on the carbonate hardness (alkalinity) of the water. The higher the carbonate hardness, the higher is the CO<sub>2</sub> concentration – at the same pH value. The toxic level of the CO<sub>2</sub>-concentration is also depending on the pH value. At pH 7.1 – 7.4 for freshwater and 8.1 – 8.4 for seawater the balance between free CO<sub>2</sub> and carbonate hardness is reached. In this range, the CO<sub>2</sub> quantity is not dangerous for fish, independent of the carbonate hardness.

## **6. Warranty**

On the CO<sub>2</sub> reactor 500 we guarantee 12 months on material defects. Excluded are wearing parts. Proof of purchase is the original invoice.

 **AQUA MEDIC** warrants only material and workmanship defects. The warranty will not apply to complaints which are due to improper installation or misappliance, poor cleaning, frost, calcium deposition or improper repairing.

In our production we use only quality materials. Nevertheless, in case of a justified complaint, we provide a repair or a replacement of defective parts free of charge. We reserve the right to charge the assembly costs. Generally, all warranty claims have to be treated either through us or an approved service centre.

If you make use of the warranty, send the defective unit or part inclusive the proof of purchase and a complaint report prepaid in.

We are not liable for consequential damages caused by failures of the regular.

Complaints due to transport damages can only be handled if the damage has been monitored and confirmed by the carrier at the time of delivery.