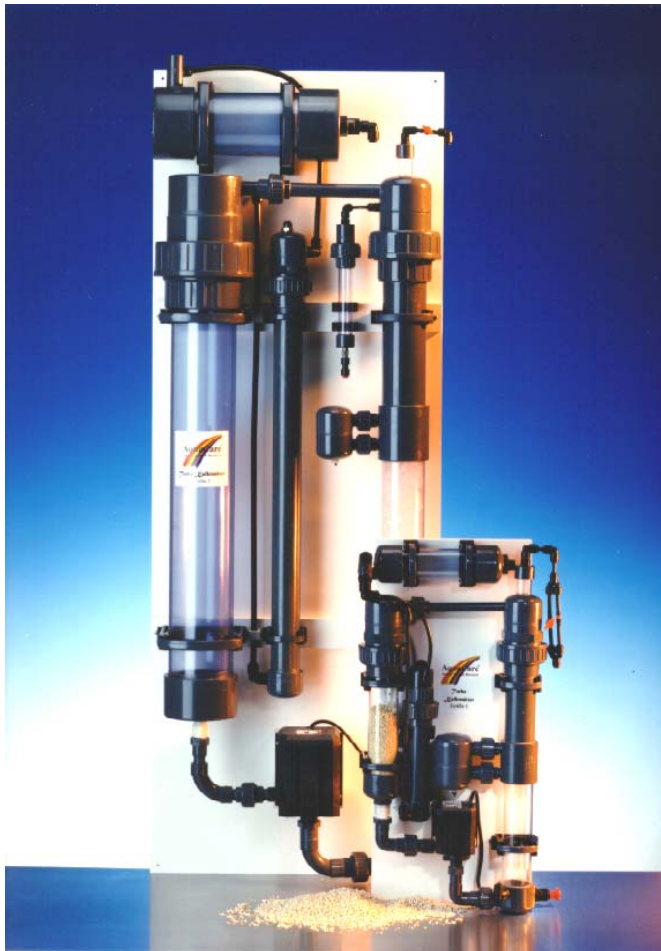


Turbo- Chalk Reactor



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size 5 and size 1

The *Turbo* Chalk Reactor is a patented unit to raise the concentration of calcium and hydrogen carbonate (carbonate hardness) in sea water tanks.

The advantages of the AquaCare Turbo Chalk Reactor :

- **78 to 82% less free CO₂** in the outlet: AquaCare has developed a neutralization chamber that raises the pH of the outlet to 7,0 (unit 1) or 7,3 (units 2-7). This neutralization stage lowers the growth of algae extremely.
- **No over dosing of CO₂** in the reactor: the new control unit without measuring the pH of the water allows a very safe working with the AquaCare *Turbo* Chalk Reactor. Every time there is the right volume of CO₂ in the reactor. No calibration! The control unit works with 24 Volts.
- **Phosphate elimination** with chemosorption is a novelty of the AquaCare *Turbo* Chalk Reactor.
- **fluid bed system:** in every AquaCare *Turbo* Chalk Reactor is a fluid bed system filled with special granules. This system is the most effective technique to

dissolve substances. Additional features: CO₂ bubbles cannot be caught in the granules. The flow through the fluid bed system is constant. No flow channels can be build.

- **new chalk granules** consisting of calcium carbonate: the new granules are dissolving 2 to 5 times better than other materials e.g. lime stone or coral stones. So the AquaCare *Turbo* Chalk Reactor is more effective than others.
- **easy de-aeration of wrong gases:** if the CO₂ is not pure, the efficiency of every chalk reactor decreases with the time. To de-aerate the AquaCare *Turbo* Chalk Reactor you only have to shut of the cycle pump. The inlet drives out all gases. If you start the reactor again all incoming CO₂ is pure. Normally the *Turbo* Chalk Reactor is driven with a timer - only 2 to 4 hours working per day is enough to raise calcium and hydrogen carbonate.
- in every *Turbo* Chalk Reactor is a **CO₂ bubble counter**, **water inlet inspection glass** and a **ball valve**: with these parts the AquaCare *Turbo* Chalk Reactor works well. If you want an automatically driven reactor you need the **control unit** consisting of a solenoid valve, check valve, CO₂ sensor, transformer and the control box. For the proper working you need a water inlet (bypass of the main pump or another small pump), an air pump and a simple timer.

Technical data of the AquaCare Turbo Chalk Reactor

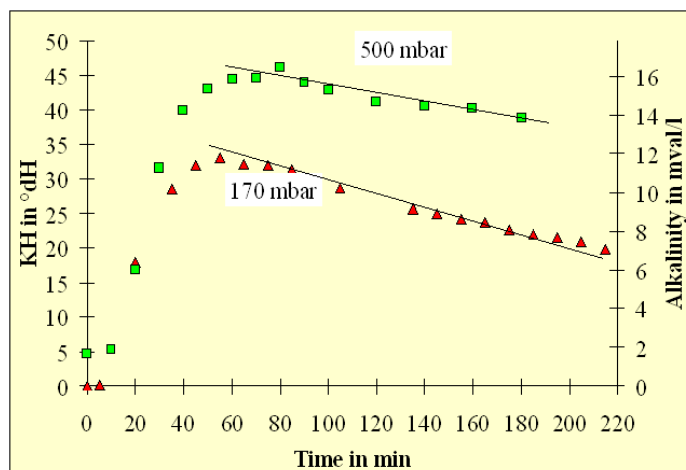
Type order number	size 1	size 2	size 3	size 4	size 5	size 6	size 7
max. tank volume in liters	4000-100	4000-200	4000-300	4000-400	4000-500	4000-600	4000-700
dimensions (B×W×T) in cm	500	1.000	2.500	7.000	10.000	20.000	40.000
dimensions (B×W×T) in cm	30.5×47×13	30.5×57×13	40×57×17	49×110×22*	49×140×22*	200×100	250×150
volume granules in liter	0.24	0.42	0.93	4.9	7	10	22
pH value of water outlet	≥ 7.0	≥ 7.3				depending on pressure	
maximum / average daily efficiency in liters × hardness at 3 h/d operation time	2.000 / 250	4.000 / 500	10.000 / 1.250	20.000 / 2.500	40.000 / 5.000	250.000	500.000
built in pump	UP 500	UP 1000	UP 2000	UP 2000/1	UP 2000/1	MD-40R	MD-70RM
electrical power in watts	5	10	18	38	38	90	265
fittings inlet / outlet	6/10 mm AquaCare push fit fittings					PVC 20 / 32	
optimal water inlet in l/h	4 - 5	8 - 10	20 - 25	40 - 50	80 - 100	250 (1 bar)	500 (1 bar)
dito, in US gal/h	1 - 1.3	2.1 - 2.6	5.3 - 6.6	11 - 13	21 - 26	66 (15 psi)	132 (15 psi)
pass meter (option)	-	3-24	5-50	15-150	15-150	for inlet, air and CO ₂	
necessary air power in l/h	200	300	400	400	500	2000	4000
dito, in US gal/h	53	80	106	106	132	528	1057
necessary CO ₂ supply	CO ₂ pressure vessel with pressure relief valve and needle valve						
CO ₂ -control unit for all Turbo Chalk Reactors (option)	order number: 600-003; control with power supply: 7 watt; 230 (110) VDC; solenoid valve with fittings (6 mm push fit fittings); check valve; CO ₂ sensor 3/4" connector; mounting material					built in	
Other sizes and voltage or special equipment on request.							

* shorter Versions with a little bit lower power are possible: *Turbo 4* minimum height 760 mm, *Turbo 5* minimum height 1060 mm.

The *Turbo Chalk Reactor* sizes 6 and 7 are specially made for very big aquaria. The operation pressure can be manipulated from 0 to 1 bar for highest efficiency. Pass meter for CO₂, air and water flow inlet are built in. For operation you need an water pump with minimum 500 l/h at 12 meter, and air pump with 200 l/min at 200 mbar and a CO₂-pressure tank with needle valve, pressure reducer and a simple timer. The built in pump works at 230 V and 50/60 Hz.



Turbo Chalk Reactor size 6



Output Carbonate hardness of size 7 at 0.17 bar (red) and 0.5 bar (green); 100 l/h water flow, 25°C