



## Outside / External Skimmer Model I

The Outside Skimmer has to be placed beside the aquarium. Normally it is operated with an injector (application 1). Therefore all models are equipped with a preinstalled injector unit (17). If the air bubbles shall be produced by wooden air stones (application 2) the injector can be taken off and the enclosed wooden air stones (9) can be connected with the air connection (19). We recommend skimmers with an "AH-size" exceeding 600mm to be operated with wooden air stones.

### Installation

The Outside Skimmer Model I can be placed beside the aquarium or it can be suspended on the tank.

- The skimmer has to be placed on an even surface.
- Connect the tube coming from the water pump with the water inlet (7) (tube sizes about 12x16mm). Turn the fixing nut to the left to seal the connection. The nut should be checked every now and then for leaking.
- Fix the spout connection (20) to the water outlet (12) with the aeration pointing upwards.
- Please comply exactly with these installation instructions; the manufacturer can not be held responsible for water damages.

### Mode 1 - Operation with Injector

For this application you need a powerful centrifugal pump. It should have a capacity to supply a pressure of 2,5m water column and a volumetric delivery of 20l/min (1200l/h). Connect the pump with a flexible tube with the water inlet (7) and start it. The water coming from the pump passes the water inlet (7) and flows through the rotary valve (14) into the nozzle (16).

Whilst the water is pressed through the nozzle into the injector (17), air is sucked in through the air cock (13) into the injector. Finest air bubbles are pressed down into the reaction tube (8). The skimming process begins: the fine air bubbles rise, the protein in the water sticks to the bubbles and is led upwards through the foam sieve (6) and the foam tube (5) into the foam beaker (3). The purified water flows back through the water return tube (18) past the rotary valve (15) and the water outlet into the aquarium.

Before the first operation open the rotary valves (14+15) and close the air cock (13) completely, then start the water pump.

The water level should be at the height of the foam sieve. Adjusting the water level: by turning the rotary valve to the left, less water is being led out ("-"). By turning it to the right ("+"), more water can be led out .

Now open the air cock and adjust it until the air bubbles are fine enough for the skimming process.

The injector has a high suction capacity : at about 100l air/h it is able to suck in air even through an attached ozonizer and an air dryer. About 60-80 l air / h are required for the skimming process, so there is enough clearance for a precise adjustment of the air bubbles.

Once correctly adjusted, the operation of the skimmer with injector is easy to handle. Should the nozzle (16) be clogged, take off the foam beaker (3), take off the rotary valve (14) (having slightly lifted the locking device) and clear the nozzle with the help of a wire. However, this should only be necessary if the centrifugal pump sucks larger impurities. Please only use pumps with a large-meshed protection sieve at the suction intake!

Please note: do not use an extra filter as it changes the water passage depending on the degree of soiling. In this case the skimming process gets unstable.

Please note the enclosed sketch "Application 1".

#### Informal recommendations:

The following centrifugal pumps correspond with the technical requirements of the Outside Skimmer Model I:

Manufacturer	Type	delivery head Hmax	delivery rate Qmax	power consumption Watt
Aqua Joy	UT204	3	1400	36
Eheim	1250	2.35	1380	28

#### Maintenance

The foam beaker (3) should be emptied every day; especially the inner foam tube (5) should be cleaned thoroughly.

Before turning the foam beaker slightly to the left to take it off, switch off the water pump to avoid water loss.

#### Mode 2 - Operation with wooden air stones

For this application you need a centrifugal pump with a nominal rating of about 300-400 l water /h and an air pump with a delivery of 120 l air/h and a delivery head of 1m.

Connect the centrifugal pump with a flexible tube with the water inlet (7).

Connect the air pump with the air cock (13).

Now start the centrifugal pump. The water coming from the centrifugal pump passes the water inlet (7) and flows through the rotary slide valve (14) into the reaction tube (8).

The water level should be at the height of the foam sieve. For adjustment follow the instructions as in Mode 1.

Now open the air cock (13) and adjust it until the air bubbles are small enough for the best skimming results. The air stones should be replaced every 6-8 weeks.