

CHOICE TANK

USER MANUAL



The Choice Tank is designed for testing aquatic animal behaviour in a stable horizontal gradient, *i.e.* temperature, oxygen, pollutants etc.

List of parts

- **Choice Tank**
- **Flow meters (2 pcs.)**
- **Flexible tubing for outlets**
- **T-pieces/hose fittings for outlets (2 pcs.)**
- **Hose fittings for inlets (2 pcs.)**
- **Collar bands**

Initial assembly

Place the Choice Tank on a table or some other platform leaving room for two >50 l plastic buckets (pump sumps) underneath.

IMPORTANT: make sure to place the Choice Tank on a completely level and firm foundation!

Mount the two hose fittings (dia 25 mm) on the membrane valves.

Mount the two flow meters. Take care that the internal steel cones don't fall out of the housing.

Mount a T-piece at each of the two outlets.

Divide the flexible tubing in two and mount a piece of suitable length on each of the outlet hose fittings using collar bands.

IMPORTANT: in order to shift the gradient left right during experiments, it is important that the two flexible tubes can be swapped between pump sumps, *i.e.* do not make them too short!

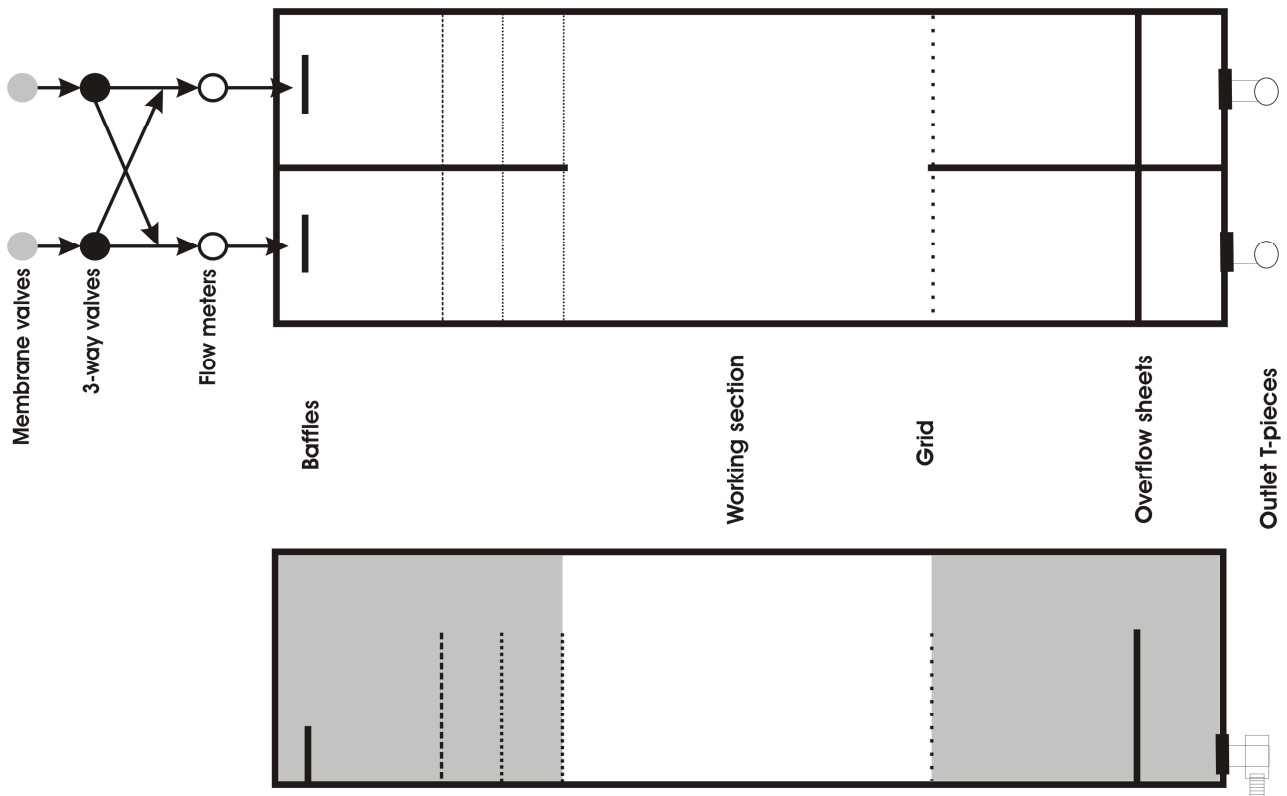
Place the left and the right outlet tube in separate pump sumps, *i.e.* a 50 l plastic buckets, situated below the Choice Tank.

Place a submersible pump in each pump sump and connect them to the inlet hose on the membrane valves using flexible tubing.

Insert two overflow PVC sheets of similar height in the slots closest to the outlets. If the water depths don't fit your needs, use a band saw to change the height of the sheets.

IMPORTANT: in order to obtain a balanced flow in the two sides of the Choice Tank, it is crucial to that the two PVC overflow sheets are absolutely identical in height.

The Choice Tank should now be ready for use!



Start experimenting

Fill the Choice Tank and pump sumps with water and turn on the submersible pumps.

Check for leaks.

Adjust the membrane valves by turning the handles until flow rate in the two sides are even.

IMPORTANT: the Choice Tank is designed for rectilinear (laminar-like) flows and water pressures resulting in water velocities $\gg 2.5$ cm/sec should be avoided due to turbulence and surface waves breaking down the gradient in the working section.

Now treat one or both of the separate water volumes to establish a horizontal gradient in temperature, oxygen content, turbidity, wastewater or some other environmental factor.

IMPORTANT: experimental gradients with severe differences in water density, as a result of large differences in *e.g.* temperature or suspended solids, can become unstable and/or result in a vertical gradient due to dense water moving underneath.

Reversing the gradient during experiments

During Choice Tank experiments it is possible to reverse the horizontal gradient left-to-right (and *visa versa*) in a few seconds and with a minimum of disturbance to the specimens tested.

Start by turning the handles on the two 3-way valves, then swap the outlet tubes between pump sumps and the gradient will reverse within seconds!

Maintenance

The Choice Tank is made for effortless maintenance and easy cleaning. All inner parts of the swim tunnel are detachable and can be taken out for cleaning or repairs.

Clean the Choice Tank in fresh water and wipe it with a dry cloth. If necessary use a mild detergent to remove dirt!

The Choice Tank are constructed of acrylate or PMMA and is NOT to be used with most dissolvents, especially not polar, *i.e.* gasoline, concentrated acids or alcohol.

IMPORTANT: DO NOT use alcohol on any part of the Choice Tank, it will cause cracks in acrylate surfaces!