



Instructions for Deltec Micro Reef.

Congratulations on your decision to purchase a **Deltec Micro Reef**.

The Micro reef is designed to provide same complete systemised approach that is found on all Deltec aquariums.

All of the water from the aquarium passes through the skimmer so that it is cleaned before it enters the biological stage of the specially designed sump. The water return pump is sized to give a turnover in the aquarium up to 13 times per hour to provide effective suspension and removal of waste and to simulate the natural flows found on the reef.

Positioning: Site the aquarium on a suitable floor, which is strong enough to bear the full weight once full of water and adjust the feet of the unit until level. IT IS MOST IMPORTANT THAT THE TANK IS LEVEL.

Assembly: When the unit arrives it is likely that some of the smaller parts and pipes have been packed in a partially disassembled state to prevent damage in transit. Study the diagram overleaf to reassemble.

Tank Connector - when fitting the tank connector at the bottom of the overflow box please fit the black rubber washer inside the tank and the hard white plastic washer below the tank before the nut to ensure a good seal. The tapered seal used with the threaded cap should be used with the narrow part of the seal pointing upwards away from the threaded cap so that it squeezes between the cap and the pipe.

Take the opportunity to remove and strip the skimmer housing, body and pump and have a look at the Patented Pinwheel Impellor with its ceramic shaft. Note the venturi pipe where the air passes into the pump. These are all parts that will require regular cleaning and inspection. Do not switch on the recirculation pumps unless the pumps are immersed or flooded with water.

Lighting: If you have decided to run your aquarium with D-D T5 lighting we will have supplied two runners on the inside of the tank, (lighting channels), and one pair of lighting extension plates per T5 light required.

The white extension plates slide onto the end of the T5 Retro light unit and are held in place with a fastening screw.

The whole unit can then be slid into the lighting channel and the plug passed down through the dry box so that no wires are visible outside of the aquarium.

Further details are available on the 'T5 Retro' light units on our web site.

Skimmer: Deltec skimmers with their Patented Pin Wheel Impellor are renowned throughout the world and are unsurpassed in their ability to mix air and water to produce the fine-bubbled foam that is required for efficient foam fractionation.

The skimmer on the Micro Reef is sized so that all of the water from the aquarium can pass through it on its way to the sump providing optimum cleaning efficiency.

The skimmer parts are removable and should be inspected so that you familiarise with its assembly.

Fresh Water Reservoir: On the 'Standard Micro Reef' there is a section of the sump, which is separate from the main body of water. This is the fresh water reservoir, which is used to store water required for replacing evaporative losses from the aquarium. This reservoir is not present on the larger models due to the extra volume required in the sump.

To utilise this reservoir it will be necessary to purchase a separate top up controller, which will sense the drop in water level in the main sump and then pump water from the reservoir into the system.

Filling the Aquarium with Water: Once all of the pipework and parts have been reassembled and installed you are ready to fill the aquarium with water.

Remove the cabinet doors, lids and any light units to give you good access prior to starting and store them in a safe place where they will not be knocked over.

Fill the aquarium with salt water until the level reaches the top of the overflow box. Further water added past this point will overflow down to the sump, which will also start to fill. (Ensure that the valve beneath the overflow box is open).

At this point check that there are no leaks at any of the pipe connections. If any are found then tighten up the threaded unions until they stop.

Continue to fill the tank until the water level, with the whole system stabilised, reaches a level 50mm (2") from the top of the sump. The pump is not running at this point. Mark this Maximum Fill Level with a piece of coloured tape.

If adding salt to RO water within the tank always allow 24 hours for proper mixing of the solution before the addition of any life forms and check that the salinity is correct through out the whole system.

Operation of Recirculation Pump and Skimmer: The Micro Reef is supplied with a large circulation pump to create good water movement within the tank to simulate the natural flows on the reef. This is positioned in a chamber at the back of the sump.

Prior to starting up the Recirculation pump it is necessary to carry out the following steps.

- 1 – Ensure that the valve below the overflow box is open with the handle inline with the pipework.
- 2 – Push the skimmer overflow weir down so that it is in its lower position (ITEM 16).
- 3 – Remove and squeeze the biological filter foams under water to remove any air, which may reduce the water flow.
- 4 – Check that the safety overflow bypass hole is not blocked with the sponge (ITEM 4).

It is now possible to plug in and switch on the pump.

With the recirculation pump running observe the system and check for any pipework leaks. Tighten if necessary.

The water should rise in the aquarium and fall in the sump and at this stage there will be a gurgle as the water flows down the overflow box. The water levels in the sump will be different in each section with the lowest being in the pump chamber.

Slowly close off the large valve below the over flow box and observe the water level within the box through the glass side. It should be possible to see the level in the box rise as the valve is closed and drop as the valve is opened again. Set the valve so that the water level in the overflow box is about 100mm (4") from the bottom of the tank. You should now observe that the gurgle as the water passes down the pipe has gone.

In the chamber marked 'A' on the drawing there will now be a water level whilst the equipment is running. In the same way as you did with the Max Fill Level mark this Running Level with a piece of coloured tape. As water evaporates from the system this water level will drop and require regular topping up to the running level with R.O. water.

During operation the resistance and subsequent flow rate through the overflow filters will change requiring occasional adjustment of the valve to maintain the correct overflow level. The water height within the aquarium is constant level.

Skimmer Pump: We can now plug in the Skimmer Pump. If the small orange and grey tap is open you will see that the skimmer body immediately fills up with dense white bubbles. As the overflow weir is in its lower position the bubbles will probably not be rising fully up the cup at this stage.

Close off the air tap and observe that the foam disappears but that the pump skimmer pump becomes noisier. This is due to the impeller moving forward and wearing against the body. Prolonged use with the tap closed may damage the pump.

As with all water pumps it is possible to trap air within the body, which will affect the operation and noise produced by the unit. To remove this air, switch the pump off and on at the mains a few times until no further air is released.

Observe the water level within the skimmer with the air intake valves closed. For all Deltec skimmers the ideal operating level for the water is just above the bottom of the black bayonet fitting for the removable cup. Adjust the water level by raising or lowering the adjustable weir plate. Once the ideal level is achieved, the weir plate can be locked in position using the fixing screw.

Open the air intake tap and set it to the 2 o'clock position. The body of the skimmer should now be white with fine dense foam. Leave the skimmer to settle down for a day or so before further adjustment to allow the surface of the plastic and biological foam to wet out fully as until this happens the true capacity of the unit will not be achieved.

Close down the tap slightly if an initial very wet skimmate is being produced this is normally produced by removal of a conditioning compound that is found in some salts. A similar effect may be noticed after a thorough clean or after large water changes.

After two to three days the level of the initial foam in the skimmer should rise to half way up the skimmer tube. Adjust the tap to achieve fine bubbles within the neck of the skimmer.

Raising the adjustable weir slightly will result in an increased quantity of wetter foam and lowering it darker, dryer foam.

During normal operation it is recommended that the skimmer cup is emptied every 2-4 days and that during this operation the riser tube into the cup is wiped clean of any fatty deposits as build up of this waste product will greatly reduce the ability for the foam to climb the neck.

Ensure before removing the cup that the pumps are switched off and that the water level is below the bayonet fitting. Whilst cleaning leave the pump switched off, with the taps open, for 10 minutes to allow any salt deposits in the venturi tube to dissolve.

Use of Skimmer with Ozone: Deltec skimmers are suitable for use with ozone and will automatically suck the gas through the venturi hose. A maximum volume of 50 mg/h per pump should be used with special manifolds available for multi pump units. Do not use excessive ozone, as it is dangerous and can cause severe headaches. Should the skimmer performance deteriorate check the ozoniser for blockage. Ensure that it is not possible for water to siphon through the ozoniser by installing the unit above the skimmer water level.

Maintenance of Skimmer: The Deltec skimmer should need very little adjustment and maintenance once set correctly, however due to the high levels of calcium in marine aquariums and large volumes of air drawn in, it is common for deposits to accumulate requiring periodical cleaning. Regular introduction of a small amount of RO water into the inlet tap may help to prevent any build up.

Aquabee pumps are fitted with a little flap inside the outlet of the pump, which flips from one side to the other depending on the direction of rotation thus ensuring that the pump always operates at full duty. See section drawing.

It is recommended every 3 months, or when required, that the pumps is removed from the. Strip down the pump to check and clean the impellor of debris. Ensure that the direction flap moves easily and if necessary soak the neck of the pump housing in white vinegar or kettle scale remover to dissolve any calcium carbonate deposits.

On older skimmers check for wear on the impeller by holding the two ends of the ceramic shaft between the thumb and first finger and look for excessive movement (slop). If this is found it should be replaced, as the loss of balance will cause unnecessary noise.

This information is also relevant to the recirculation pump impellor, which like on any pump will also wear over time.

VERY IMPORTANT - A build up of calcium, dust and salt will restrict or block the venturi inlet on the connecting pipework and reduce the skimming efficiency over time. This should be checked and carefully cleaned on a monthly basis with a toothpick or fine drill rotated between the fingertips.

Check for damage or wear of the sealing ring on the base of the cup and if necessary replace it.

General Maintenance of Aquarium: The aquarium should require little maintenance once established other than cleaning of the glass, emptying of the skimmer and replacement of evaporative loss however regular checks of all of the systems will prevent sudden problems.

The biological/degassing foam should be rinsed in aquarium water, (but not in the tank), once a month or as required to remove debris.

The overflow level should be checked and adjusted occasionally as required and the top debris guard cleaned regularly.

Trouble shooting and Hints:

1 - On new aquariums with new salt or after large water changes it is possible that excess production of bubbles is encountered at the skimmer, which do not burst and enter the aquarium.

This is common with some salts and is caused by a conditioning agent added to the salt to remove heavy metals. Once the aquarium becomes established with fish waste and food etc this aeration will disappear but may take up to 6 weeks to fully mature. Starting up the system with salt water from an existing aquarium will remove this problem but might not always be an option.

If it is felt that the aeration is unsightly then switch the skimmer off during the day and only run it on a night during the maturation period of the salt water.

2 - All new aquariums go through a maturation cycle whilst established bacterial colonies develop on the filter media.

Advice should be taken from your aquarium shop as to how quickly livestock can be added to the system as some systems mature faster than others.

Read articles on the nitrogen cycle for further information on how these biological processes work.

3 – All new tanks will go through algal or diatom blooms during their maturation, which will look unsightly. Removing the phosphates from the water by use of **RowaPhos** can reduce this problem.

4 – If the aquarium is being run as a Berlin system using live rock then it is possible to remove the biological foam sponges. A system run on fully cured live rock will mature faster than one requiring development of a bacterial biomass.

5 – Remember that although this is a relatively small tank that it is fitted with a powerful skimmer and recirculation pump to produce exceptional results and like all marine aquariums it should not be expected to be totally silent.

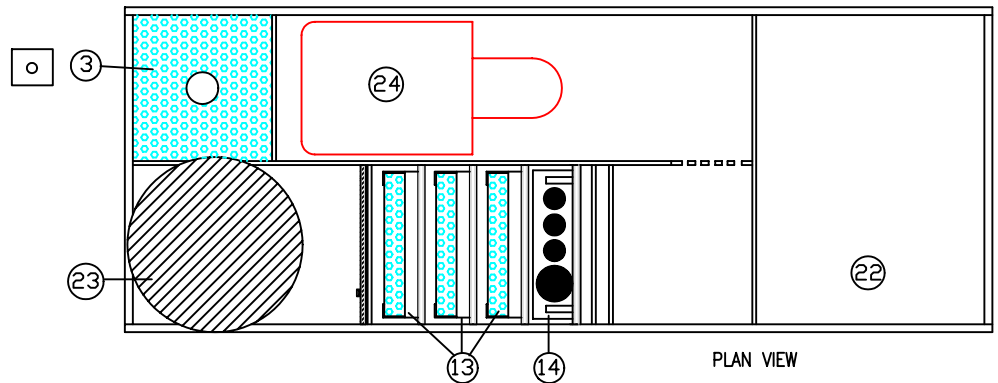
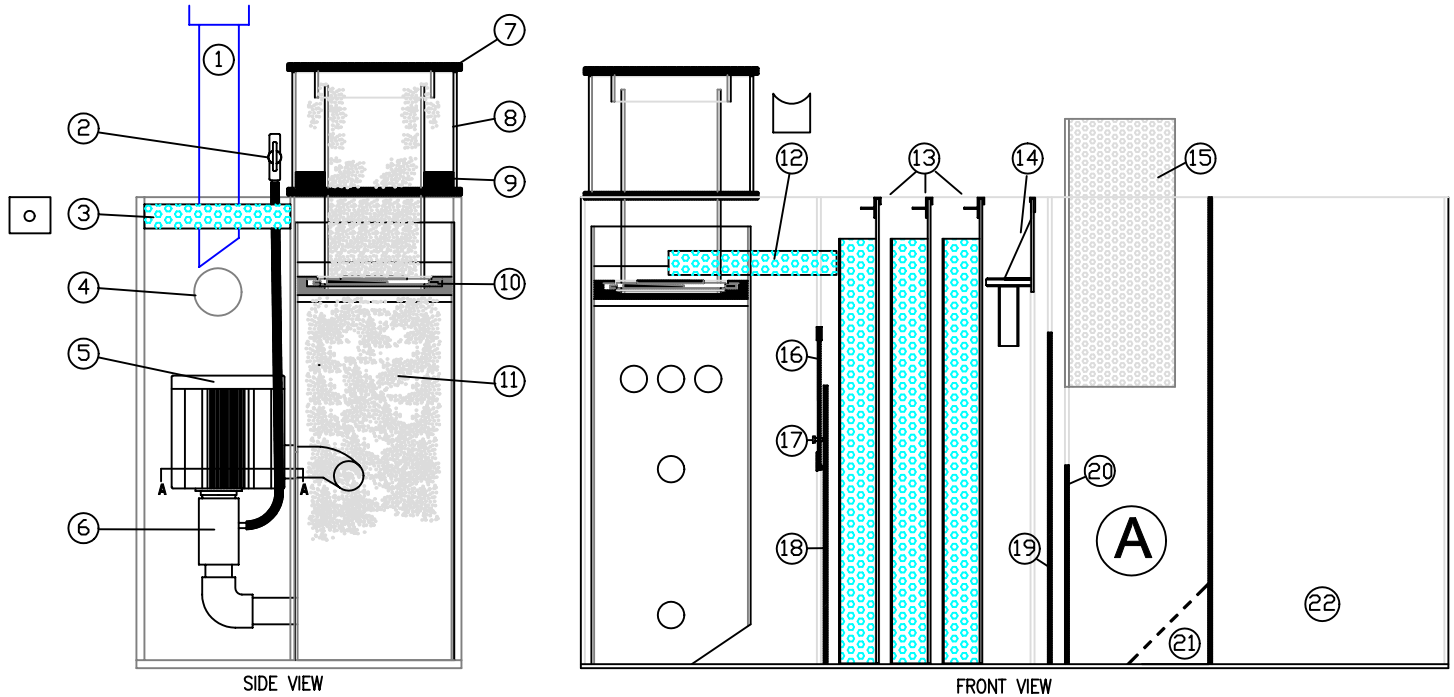
Natural rotation of the recirculation pump or skimmer pump may cause the sump or pipework items to resonate in harmony with the vibration frequency and increase the perception of noise from the system. This can be reduced by placing rubber 'O' rings around the pump body or standing the base of the pump body on a piece of filter sponge.

Moving the pump or sump slightly from time to time may change the frequency of resonance and reduce any noise.

For further information on this or any other D-D product please contact us or visit our website on:

Deltec Micro-Reef

STANDARD SUMP DETAILS

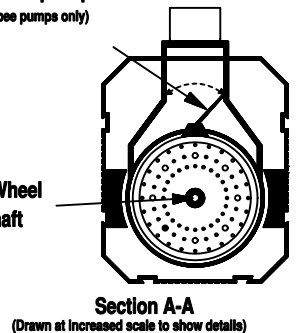


KEY.

1. - OVERFLOW RETURN FROM AQUARIUM.
2. - AIR TAP FOR SKIMMER INLET.
3. - SPLASH REDUCTION FOAM FILTER.
4. - SAFETY OVERFLOW BYPASS HOLE - DO NOT BLOCK.
5. - AQUABEE SKIMMER PUMP.
6. - VENTURI PIPE.
7. - SKIMMER LID.
8. - SKIMMER CUP.
9. - DARK PROTEIN WASTE.
10. - BAYONET FITTING FOR CUP REMOVAL.
11. - DENSE WHITE FOAM.
12. - SHAPED SPLASH REDUCTION FOAM FILTER.
13. - REMOVABLE FOAM BIOLOGICAL FILTER MEDIA.
14. - PROBE AND HEATER SUPPORT SECTION.
15. - OPTIONAL REMOVABLE CARBON/ROWAPHOS/MEDIA BOX.
16. - SLIDING ADJUSTABLE WIER PLATE.
17. - FIXED PLATE.
18. - WEIR POSITIONING SCREW.
19. - FIXED PLATE TO SET LOW WATER LEVEL IN MEDIA SECTION.
20. - SUPPORT PLATE FOR OPTIONAL MEDIA BOX.
21. - CORNER REMOVED FOR WATER FLOW INTO PUMP CHAMBER.
22. - FRESH WATER TOP UP RESERVOIR. (NOT PRESENT ON ALL MODELS)
23. - PLAN VIEW OF SKIMMER POSITION.

Concealed Pump Flap (applies to Aquabee pumps only)

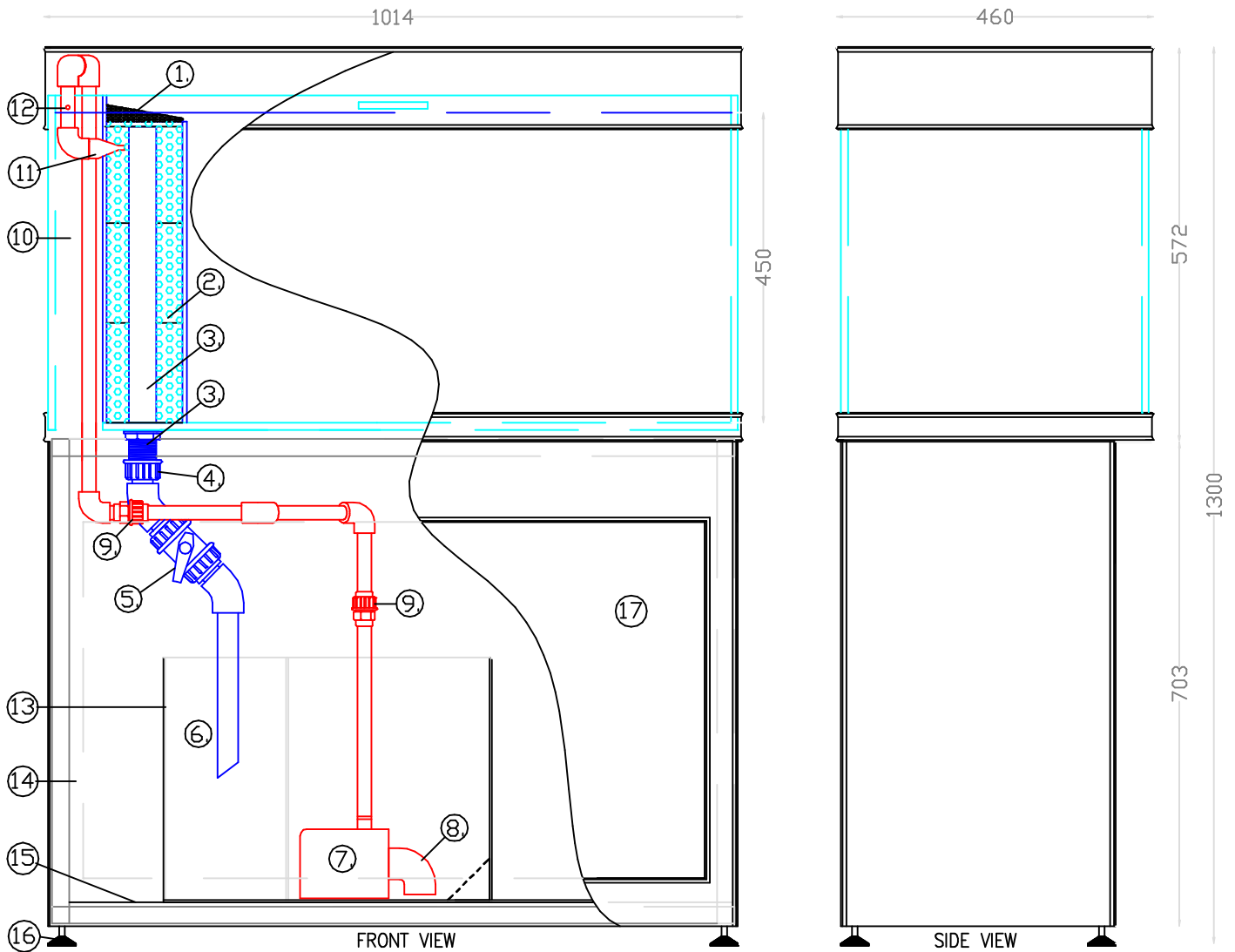
Patented Pin Wheel & Ceramic Shaft



Section A-A
(Drawn at increased scale to show details)

D-Deltec Micro-Reef

COMPLETE SYSTEMISED AQUARIUM.



KEY.

1. - OVERFLOW BOX WITH PERFORATED DEBRIS GUARD.
2. - OVERFLOW PRE-FILTER SPONGES.
3. - OVERFLOW PIPE AND TANK CONNECTOR.
4. - THREADED CONNECTOR FOR PIPE REMOVAL.
5. - BALL VALVE FOR RETURN FLOW REGULATION.
6. - OUTFLOW PIPE INTO SUMP.
7. - INTERNAL RETURN PUMP.
8. - INLET BEND TO PREVENT AIR BEING DRAWN INTO PUMP.
9. - COUPLING CONNECTOR FOR PIPE/PUMP REMOVAL.
10. - DRY CHAMBER TO ALLOW PASSAGE OF CABLES AND PIPES.
11. - BIRDS BEAK/FISH TAIL TO ACCELERATE WATER.
12. - RETURN PIPEWORK WITH SYPHON BREAK.
13. - SUMP. DETAILS SHOWN ON NEXT SHEET.
14. - METAL FRAME TO CABINET.
15. - SEALED WATER PROOF BASE MATERIAL.
16. - FULLY ADJUSTABLE FEET.
17. - SLIDING GLASS/LAMINATE DOORS.
18. - REMOVABLE GLASS/LAMINATE LIDS.

