C-Skim 1800

Advanced Protein Skimmer

USER MANUAL

Red Sea

www.redseafish.com

Contents

Welcome

Congratulations on purchasing the Red Sea C-Skim 1800 protein skimmer.

Red Sea C-Skim 1800 represents an integration of revolutionary features, performance characteristics of high demand commercial foam fractionators, and the foot print and affordability of a modernly designed hobby protein skimmer.

The C-Skim provides a new level of protein skimming in terms of efficiency, performance and user friendliness. The C-Skim has been rated according to Red Sea's revised understanding of water quality requirements for different types of marine aquaria.

The C-Skim features include a Peripheral Flow, Closed Loop, Skim Chamber providing improved water/air flow dynamics, an integrated Neck Washing system, which increases long term skimming performances, and the FoamView™ enabling easy adjustment of skimming foam production. The ergonomic rectangular design of the, C-Skim with the complete user interface on one side of the unit, makes the C-Skim ideal for mounting either in or next to a sump.

To get the maximum benefit from this protein skimmer, follow the instructions and recommendations contained in this manual. If you experience any difficulties operating your skimmer or have questions of a more general nature, please do not hesitate to contact us directly at redseafish.com, or call your local Red Sea representative.

Red Sea Group

Introduction to protein skimming

What is protein skimming?

Protein skimming (also called foam fractionation) can be considered as a form of fine mechanical filtration since it is a physical process of removing substances from the water. Whilst a mechanical filter removes large particles such as uneaten fish food, a protein skimmer removes suspended or dissolved organic waste and invisible particles from the aquarium water.

The advantage of protein skimming lies in the fact that waste material is continuously removed, separating it from the water flow. The waste, suspended in foam, is then collected into a cup where it is no longer in contact with the aquarium water. In contrast, the dirt collected in an ordinary mechanical filter stays in contact with the water flow. A mechanical filter should therefore be cleaned very regularly; otherwise bacteria will decompose the collected dirt into harmful dissolved organic material.

A successful marine aquarium should have both a regularly cleaned mechanical filter and an efficient protein skimmer as the first and second stage of the water treatment process.

Why is protein skimming important?

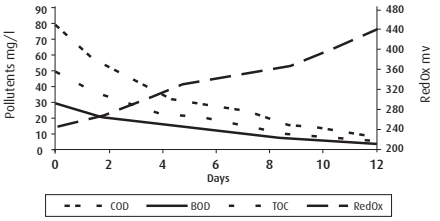
Protein skimming plays a very important role in reducing the amount of dissolved organic material in your aquarium water. This material consists of protein, carbohydrate and fat fragments together with other waste produced by the living organisms in the marine aquarium.

Since these could break down to potentially harmful materials to the aquarium inhabitants, rapid removal is essential.

Efficient removal of dissolved waste also helps to:

- Limit the build-up of harmful organic compounds (measured in COD & TOC) including dissolved organic carbon, nitrogenous components (ammonia, nitrite, nitrate) and phosphates.
- Reduce the quantity of harmful floating bacteria (measured as BOD), since bacteria need dissolved organic material in order to grow and reproduce.
- Increases ORP and dissolved oxygen levels.
- Prevent the development of slime algae (Cyanobacteria or blue green algae). The main food source of these primitive algae (dissolved organic material, nitrate and phosphate) is kept at a very low concentration.

C-Skim 1800 performances

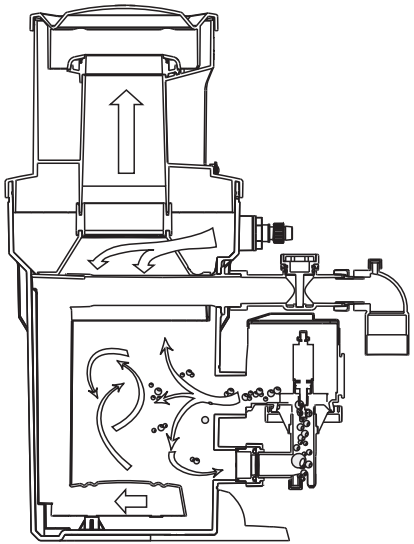


How does the C-Skim protein skimmer work?

The C-Skim is based on a peripheral flow skim chamber with a dedicated closed loop aspiration pump that provides a constant injection of 800 liters (200 gal) of air per hour. The organics laden aquarium water is injected into an air pocket above the conical shaped top of the skimming chamber, and flows smoothly downwards around its periphery into the turbulent air/water mixture below. The aspiration pump with pin wheel impellor re-circulates the water in the chamber while constantly injecting micro air bubbles into the water. The conical top of the skimming chamber concentrates the air/water mixture, forcing it up into the neck of the collection cup where it slowly transforms into dry concentrated organics laden foam.

The water exits the skimmer chamber around the bottom outer edge where it is almost bubble free, and is returned to the sump via a skim regulator that is used to adjust the foaming for optimal skimming performance. Adjusting the skimmer is made easy by viewing the level of foam in the neck through the FoamView™ window in the collection cup.

The optional integrated neck washing system limits the build up of performance-inhibiting organic sludge, as well as keeping the FoamView™ clear at all times.



For what volume of aquarium is the C-Skim suitable?

Saltwater aquaria can be classified into three main types:

- Fish tanks, which contain only fish.
- Soft coral (LPS) tanks, which contain a mixture of soft corals, invertebrates and fish.
- Hard coral (SPS) tanks, which contain mostly hard corals and few fish.

Each aquarium type requires a different turnover rate, i.e. the number of times the total volume of the tank needs to pass through the skimmer in order to maintain the suitable water parameters for the aquarium's inhabitants.

The recommended aquarium volume ratings for the C-Skim have been calculated according to the optimum turnover rate per aquarium type, as determined by laboratory tests conducted by Red Sea.

	Fish tank	*Soft coral (LPS)*	*Hard coral (SPS)*
Aquarium Volume	1800 liter	1200 liter	600 liter
	450 gallon	300 gallon	150 gallon

Unique Features of the C-Skim

Peripheral flow closed loop skim chamber

The C-Skim incorporates a peripheral flow closed loop skim chamber. The aquarium water enters and exits the skimming chamber along its upper and lower peripheral outer edges, and is constantly aerated with micro bubbles by a closed loop aspiration pump.

The organics laden aquarium water enters the skimmer through the inlet hose barb.

The water is injected into an air pocket above the conical top of the skim chamber which spreads the incoming water flow evenly around the periphery of the skim chamber walls This prevents turbulent flows that can destabilize foam production.

The aspiration pump, located on the side of the skim chamber, re-circulates the water within the chamber, while constantly injecting new micro bubbles into the air/water mixture.

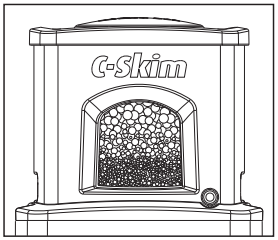
The conical top of the chamber concentrates the air/water mixture, forcing it up into the neck of the collection cup where it slowly transforms into dry concentrated organics laden foam. The closed loop aspiration pump with pin wheel impeller provides a constant injection of 800 liters (200 gal) of air per hour.

The out-flowing water is collected evenly from the lower periphery of the skim chamber, where the water is most relaxed and predominantly free from the micro-bubbles – which naturally remain inside the chamber – exiting the skimmer back into the sump through the skim regulator.

FoamView™

The FoamView™ window built into the front of the collection cup provides a clear view of the foam ingaction inside.the skimmer neck, and allows for easy and accurate adjustment for achieving the desired consistency of the foam.

The integrated neck washing system will keep the neck completely clear at all times.



Optimal compactness

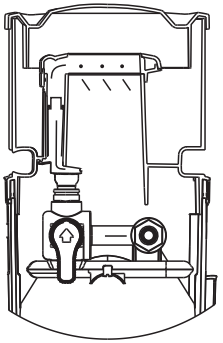
The ergonomic compact rectangular design of the C-Skim with the complete user interface on one side of the unit makes the C-Skim ideal for any conventional filtration system, in-sump or stand alone, without compromising on skimming efficiency or performance.

Integrated Skimmer Neck Washing system

The neck of the protein skimmer is the section where the dense air/water mixture gradually transforms into dry foam.

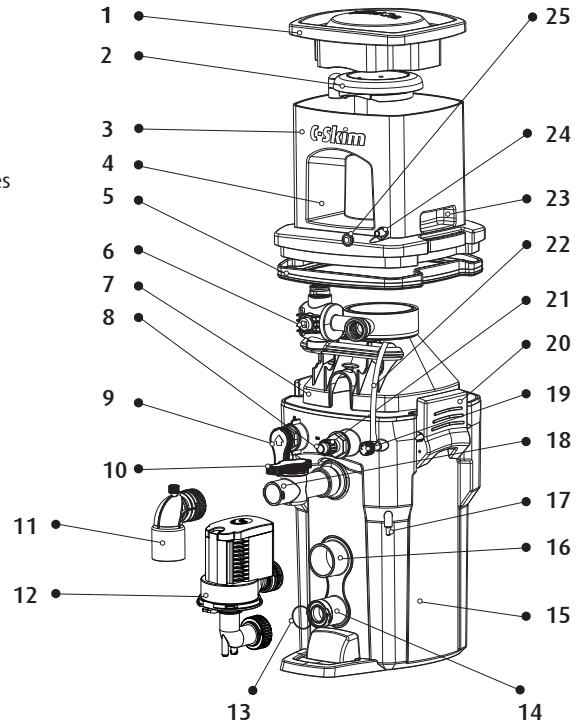
Over time, if not cleaned regularly, a thick layer of organic sludge will form on the inside of the neck. Research has shown that allowing organic sludge to accumulate in the skimmer neck will reduce foam production by 30-40%.

The integrated neck washing system developed for the C-Skim diverts the incoming water for a short period of time from the skim chamber to an annular spray ring around the top of the neck, which sprays concentrated jets of the incoming water onto the inside of the neck. This washes all of the accumulated sludge back into the reaction chamber. Upon returning the water flow back to the skim chamber, most of the sludge is immediately flushed out of the neck into the collection cup.



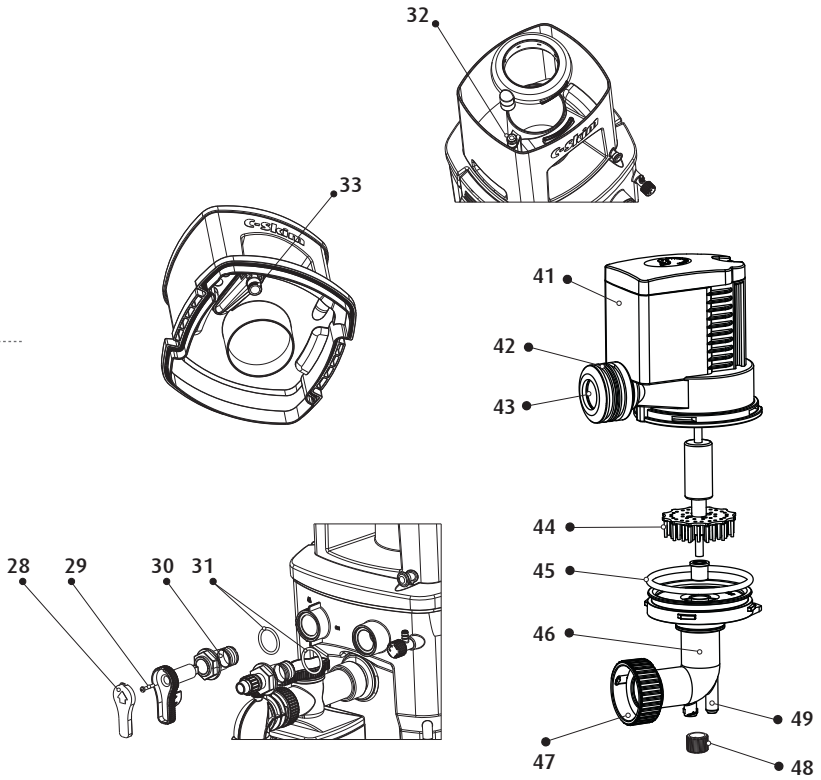
Parts diagrams

1. Collection cup lid
2. Spray ring
3. Collection Cup
4. Foam View
5. Collection Cup Seal
6. Internal Valve Assembly
7. Skim Chamber Top
8. Inlet hose barb
9. Control Lever
10. Skim regulator
11. 90° Outlet elbow
12. Aspiration Pump Assembly
13. Lower port o-ring
14. Aspirating Pump Lower port
15. C-Skim Body
16. Aspirating pump Upper Port
17. Air line hose barb
18. Outlet pipe
19. Air Control Valve
20. Latch
21. Inlet hose Lock-nut
22. Air valve extension
23. Collection cup Handles
24. Waste Drain port
25. Drain plug



28. Control Lever Cover
29. Control Lever Screw
30. Control Lever sleeve
31. Control Panel O-rings
32. Spray ring O-ring
33. Wash connector O-ring

41. Pump body
42. Pump Outlet O-rings
43. Aspiration pump outlet
44. Pin Wheel Impeller
45. Impeller chamber O-ring
46. Pump Connector Assembly
47. Pump Connector bayonet
48. Water drainage Plug
49. Aspiration Pump air inlet



Important Safety Instructions

PLEASE READ AND FOLLOW ALL SAFETY INSTRUCTIONS

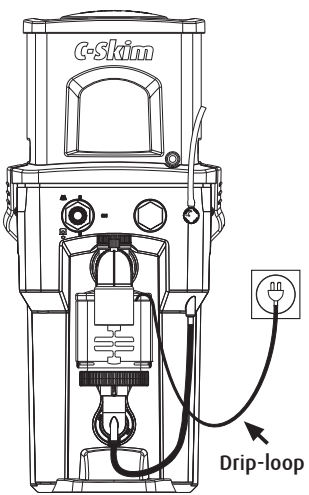
DANGER: To avoid possible electric shock, special care should be taken when handling a wet aquarium. For each of the following situations, do not attempt repairs yourself; return the appliance to an authorized service facility for service or discard the appliance.

WARNING: To guard against injury, basic safety precautions should be observed, including the following:

a. Do not operate any appliance if it has a damaged cord or plug, if it is malfunctioning, or if it is dropped or damaged in any manner.

b. To avoid the possibility of the appliance plug or receptacle getting wet, position the C-Skim to one side of a wall mounted receptacle to prevent water from dripping onto the receptacle or plug. A "drip loop", as shown in the diagram should be arranged for each cord connecting an aquarium appliance to a receptacle. The drip loop is that part of the cord below the level of the receptacle or the connector.Use an extension cord if necessary to prevent water traveling along the cord and coming into contact with the receptacle.

If the plug or receptacle does get wet, DO NOT un-plug the cord. Disconnect the fuse or circuit breaker that supplies power to the appliance. Then, unplug the device and examine for presence of water in the receptacle.



c. Close supervision is necessary when any appliance is used by or near children.

d. To avoid injury, do not contact moving parts.

e. Always unplug an appliance from an outlet when not in use, before putting on or taking off parts, and before cleaning. Never pull the cord itself to remove the plug from the outlet.

Grasp the plug firmly and pull to disconnect.

f. Do not use an appliance for anything other than its intended use. The use of attachments not recommended or sold by the appliance manufacturer may cause an unsafe condition.

g. Do not install or store the appliance where it will be exposed to the weather or to temperatures below freezing point.

h. Make sure an appliance mounted on a tank is securely installed before operating it.

i. Read and observe all IMPORTANT notices on the appliance.

j. If an extension cord is necessary, a cord with a proper rating should be used.

NOTE: A cord rated for less amperes or watts than the appliance rating may overheat. Care should be taken to arrange the cord so that it cannot be tripped over or pulled accidentally.

SAVE THESE INSTRUCTIONS

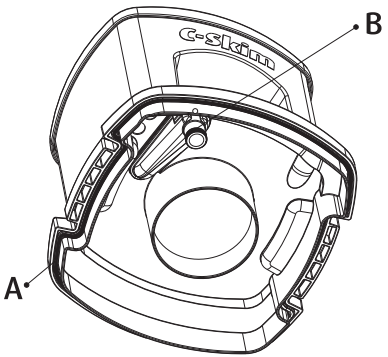
Assembly

Unpack the box carefully and remove all protective packaging materials. Familiarize yourself with the component parts.

Collection cup

1. Position the C-Skim on a flat, stable surface, with the control panel facing you.
2. Open the latches on both sides of the skimmer body by lifting them outwards and upwards, allowing the latches to spread aside.
3. Hold the left handle of the collection cup firmly in place, and gently lift the right handle until the cup separates from the skimmer body. Lift the cup and remove.
4. Inside the skimmer body is the conical top of the Skim chamber and the internal valve assembly (Deluxe version). All of these parts are removable; however, this should not be necessary for standard operation of the C-Skim.
5. In order to reassemble the collection cup, ensure that the latches are spread aside and do not interfere in placing the cup on top of the skimmer body.
6. Ensure that the collection cup seal, (A) is in place.
7. Hold the collection cup by the handles with the Foamview™ facing the C-Skim control panel and position on top of the skimmer body.

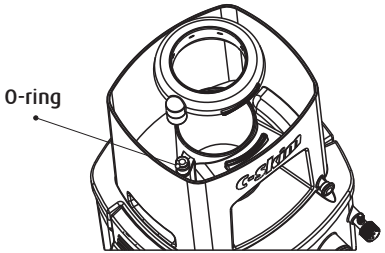
   Align the wash connector with the internal valve assembly and press the collection cup into position. Wetting the wash connector O-ring (B) will make assembly easier.
8. Close the latches.



Spray ring

The removable spray ring of the integrated neck washing system is located at the top of the neck inside the collection cup. Over time, the spray ring will become covered with sludge, and therefore should be removed periodically for cleaning.

1. To remove the spray ring, hold the ring by its outer circumferance and lift it upwards away from the neck of the collection cup.
2. Before reassembling, ensure the spray ring connector O-ring is in place. Wetting the O-ring with water will make assembly easier.
3. Align the spray ring water inlet with the connector. Rotate the spray ring so that the positioning strip is aligned with the recess provided for it on the panel above the FoamView™ window.

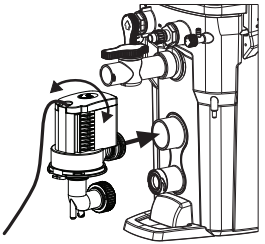


4. Push the spray ring firmly on to the neck such that it becomes a smooth extension of the neck.

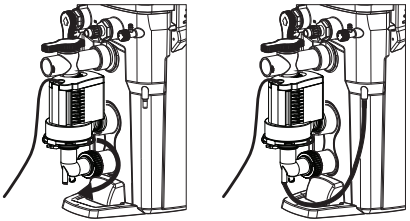
Inspect the inner part of the spary ring adjacent to the connector and ensure that the ring is fully inserted.

Aspiration pump

1. Familiarize yourself with the aspiration pump components by disassembling and reassembling it.
2. The pump connector assembly should be assembled such that the pump inlet and outlets are properly aligned with each other. Ensure that the impeller chamber is fully closed.
3. Wet the pump outlet O-rings with water and gently push the pump outlet into the upper port on the skimmer body with small clockwise and counterclockwise rotations until the pump body is touching the upper port.



4. Ensure that the lower port O-ring is in position and connect the pump connector bayonet to the lower port.
5. Connect one end of the air line to the pump's air inlet and the other end to the air line hose barb on the skimmer body.



6. Ensure that the water drainage plug is securly in position on the drainage port of the pump connector assembly.
7. Connect the air inlet extension pipe to the inlet of the air valve.

Outlet elbow

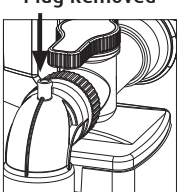
The C-Skim is supplied with a 90° outlet elbow to re-direct the water leaving the skimmer.

The outlet elbow is designed to allow a rigid extension pipe to be glued to it. The outlet will accept both 40mm metric and 1.5" external diameter standard pipes.

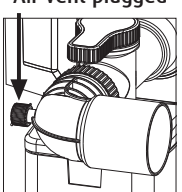
It is necessary to add an extension pipe. when installing the C-Skim as a stand alone unit next to a sump. Always ensure that the final water outlet is above the maximum water level in the sump.

1. Ensure that the outlet elbow O-ring is in place on the connector. Insert the connector into the outlet pipe and turn the bayonet clockwise.
2. If installing the elbow to direct water flow vertically downwards, remove the plug from the air vent. This prevents water from being sucked out of the skimmer, which can cause the skimmer to stop foaming.
3. If installing the elbow to direct water flow sideways, ensure that the air vent is securely plugged.
4. Do not postion the elbow above the horizontal position, as this will adversly affect C-Skim performance.
5. If adding any additional 90° elbows to the outlet pipe-work in order to direct the flow vertically downwards, an air vent must be added to prevent siphoning.
6. Using flexible tubing is not recommended as kinks in the tubing will also cause siphoning.

Plug Removed



Air Vent plugged



Installation

Positioning the skimmer

The C-Skim 1800 is an independent unit that can be installed inside or next to the sump.

The C-Skim outlet is designed to allow standard 40mm or 1.5" rigid pipe to be added as necessary.

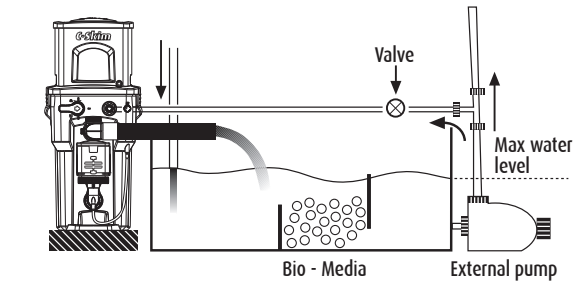
Ideally, the skimmer should be fed with water directly from the aquarium prior to passing through the bio-filter. This allows the skimmer to physically remove as much waste as possible, reducing the nitrate production in the bio-filter as well as providing it with super oxygenated water which improves its performance.

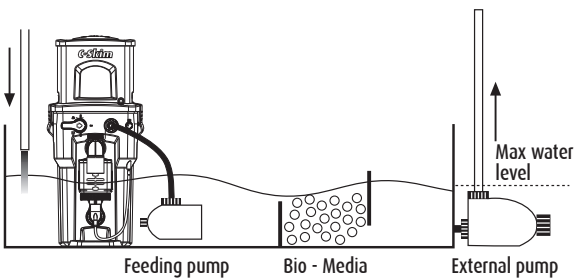
For best results, the out-flowing water should be returned downstream of the water fed into the skimmer.

The out-flowing water must not be subjected to any back-pressure. The outlet elbow (if installed) must never pass the horizontal position, and the ultimate water outlet must always be above the maximum water level in the sump.

Failure to comply with these requirements will cause your skimmer to flood.

1. Always ensure there is at least 5cm (2") of headroom above the skimmer so the collection cup can be removed from the skimmer body.
2. Ensure there is easy access to the control panel and a clear line of sight to the FoamView™ window.
3. If installing the C-Skim in a stand alone (next to sump) configuration, it may be necessary to raise the skimmer by placing it on a small platform. Ensure this platform supports the entire base of the C-Skim.





Connecting the feeding pump

The C-Skim 1800 will run most efficiently when the water throughput is 1500-1800 l/h (400-450 gph).

This throughput can be achieved by connecting the skimmer in-line to the main aquarium pump or to an independent submersible pump.

Do not use a gravity feed as this will not provide enough pressure to operate the washing system.

NOTE: When connecting to the main aquarium pump, or if using a very powerful independent pump, it will be necessary to install a flow valve to reduce the inlet flow to the suitable level for the C-Skim.

The inlet hose barb is designed for a 5/8" - 16mm standard flexible hose which should be secured in place with the lock-nut. After assembling the inlet hose check that it is securely in position by pulling it gently as this connection will be under pressure during the normal operation of the unit.

Waste Collection

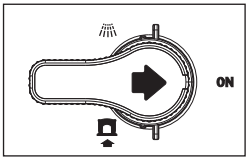
To simplify collection of waste, the C-Skim collection cup incorporates a drain port. The base of the collection cup has a downward spiral directing all collected waste to the drain port.

To use the drain port, remove the drain plug and attach the hose provided. Direct the hose into a suitable container ensuring the hose does not rise above the level of the drain port.

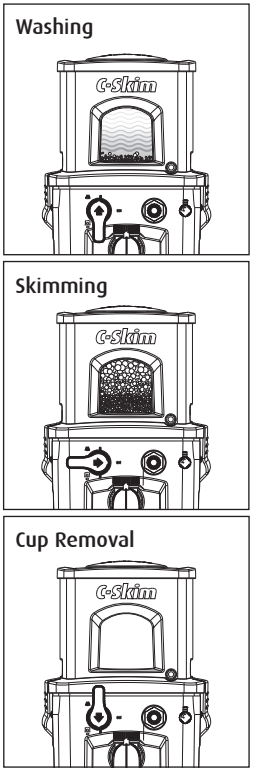
Operation & adjustment

Proper operation and adjustment of the C-Skim is required in order for it to continuously maintain water cleanliness.

The C-Skim has 3 operating states, selected using the Control Lever:

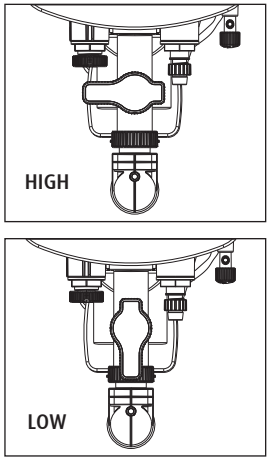


1. Washing Water flow is diverted to the integrated washing system.
2. Skimming ON Normal skimming operation.
3. Cup removal Water flow is reduced to a minimal flow to allow removal of collection cup without turning off the feeding pump or aspiration pump.



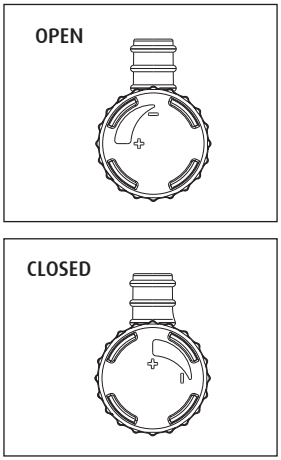
Skim Regulator

1. The skim regulator adjusts the water height within the skim chamber as seen in the FoamView™ window, allowing the foaming point to be brought to the optimum position for any given water conditions.
2. Setting the skim regulator handle in line with the water outlet (Low) lowers the foam to the bottom of the FoamView™. Rotating the handle 90°to the water outlet (High) raises the level of the foam.



Air Control Valve

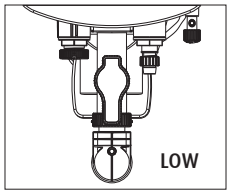
The air control valve is used in conjunction with the skim regulator for fine adjustment of the foam. Rotating the valve in the counterclockwise direction will increase foam level, by providing maximum air flow. Rotating the valve in the clockwise direction will decrease foam level, by shutting off air flow to the aspiration pump.



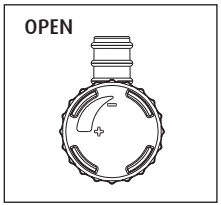
Operating the C-Skim

With the skimmer located in the desired position, ensure the inlet hose is connected tightly without restrictions or kinks.

1. Check that the aspiration pump and the air line are connected properly to the C-Skim body.
2. Ensure the C-Skim latches are tightly closed.
3. Rotate the skim regulator to the Low position.



4. If the C-Skim is fed through the main aquarium pump, open the flow valve to allow water from the main pump to flow into the skimmer. If the skimmer is fed by an independent submersible pump, turn it on.
5. Wait until the skimmer body is full of water and water flows out the outlet pipe.
6. If the water level is visible in the FoamView™, the inlet flow is too strong and should be reduced (see connecting the feeding pump above).
7. Fully open the air control valve by turning it counterclockwise.



8. Turn on the aspiration pump.
9. The water/air mixture will immediately begin to fill the C-Skim skimming chamber. After a few moments

   you will see the water/air mixture beginning to rise up the FoamView™ window in the collection cup.
10. Adjust the foaming action with the skim regulator and air control valve as described in the following section.
11. Over-skimming during initial installation: The C-Skim 1800 has a break-in period that normally lasts between 1-3 days . In some cases the C-Skim 1800 will over skim immediately due to it's powerful air /water mixing and the reaction with bio-organic materials and other pollutants in the water. To control the over-skimming lower the foaming height in the neck by reducing the flow of the feeding pump without reducing the airflow. Keeping the high airflow will remove the pollutants quicker thereby shortening break-in period.

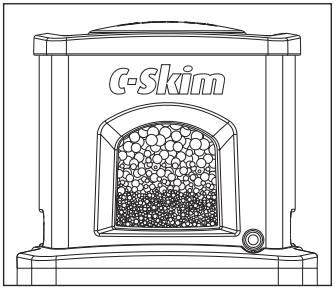
    It is best to avoid making any adjustments or changes to the tank or the skimmer during this period.

Adjusting the C-Skim

1. When your skimmer is adjusted correctly, you should see a stable water/air mixture in the lower half of the FoamView™ window and wet, bubbly foam beginning to build up in the upper half of the window.
2. Correct adjustment is achieved by using the skim regulator and the air control valve.
3. Initially, set the skim regulator to Low and fully open the air valve.
4. If the skimmer over-skims, gradually close the air control valve until optimum foaming is achieved. Recheck the skimmer every few hours and readjust the air control valve as required to maintain optimum foaming. In the event of severe over-skimming (producing a lot of wet foam) reduce the water flow into the skimmer see note above "Over-skimming during initial installation".
5. With the air control valve readjusted to the fully open position, slowly turn the skim regulator clockwise until the foaming in the FoamView™ window reaches the optimum level. Always make small incremental adjustments to the position of the skim regulator and wait a few moments for the skimmer to stabilize.
6. Do not leave the skimmer running unattended with the skim regulator in the High position as the water level in the skim chamber may rise and flood into the collection cup.
7. After setting the height of the air/water column as accurately as possible using the skim regulator, fine tune foam production using the air control valve.

   Close the valve to decrease the airflow and lower the height of the air/water column; open the valve to increase the airflow rate and raise the air/water column.
8. Make small adjustments and wait a few moments after each adjustment for the skimmer to stabilize.

NOTE: The C-Skim has very powerful air/ water mixing rate which enables it to remove even the smallest soluble organic molecules to allow perfect water conditions for SPS's corals. In order to achieve these conditions, the aspiration pump is designed to work with airflows between 300-800 lph. Reducing the airflow below these levels may cause a rattling noise from the pump.



Maintenance

Cleaning the Spray Ring recommended weekly.

1. It is unnecessary to turn off water flow before removing the spray ring for cleaning.

Ensure that the control lever is in the skimming or cup removal position before removing the spray ring. Do not attempt to remove the spray ring with the control lever in the washing position.

2. Remove the collection cup lid.
3. Remove the spray ring as described in the Assembly section above.
4. Wash the accumulated sludge off the spray ring by holding it under running tap water.

Deluxe model: Clean the spray jet holes on the inside of the ring using a pin.

5. If using a scale remover or other cleaning solution, ensure that all residues of these materials are flushed out of the spray ring before reassembling it on the skimmer.

Washing the Neck

For best result the neck washing system should be operated as described below every day. If the washing system is not used for a few days it may be necessary to manually clean the neck. Immediately after using the washing system, there will be a surge of waste into the collection cup.

Ensure that the cup or collection bottle (if you have attached a waste pipe) has enough room to accommodate the extra waste.

To wash the neck:

1. Check the amount of liquid in the collection cup/bottle.
2. Ensure the collection cup lid is securely in place.
3. Turn the control lever 90° counterclockwise to the washing position.
4. Water will immediately flow from the spray ring onto the inner wall of the neck, washing the organic sludge down into the skim chamber. Foam production will immediately collapse.
5. Allow the washing system to operate until the neck (FoamView™) is clear of sludge. Turn the control lever 90° clockwise back to the skimming position.
6. Within a few seconds, foam will rush up the neck with all of the organic sludge that has been removed.The dirty wet foam will overflow into the collection cup.

> **Tip**: Daily operation of the washing system will require less time and water to clean the neck.

Removing the collection cup

Unless connecting a waste hose the collection cup will need to be emptied as waste builds up.

It is not necessary to turn off the feeding pump and the aspiration pump before removing the collection cup.

1. Turn the control lever 90° clockwise to the cup removal position. This significantly reduces the flow of water through the skimmer to prevent any overflow or splashing of water outside the skimmer body while removing the cup.
2. Remove the cup and dispose of the waste (see "Disassembling and reassembling the collection cup" in the Assembly section above).

Cleaning the Collection Cup – recommended monthly.

1. Remove the collection cup from the skimmer body as described in the Assembly section above.
2. Remove the Spray ring and clean as described above.
3. Rinse the collection cup under flowing water and wipe all surfaces with a soft cloth to remove any accumulated sludge.
4. If using a scale remover or other cleaning solution, ensure that all residues of these materials are completely rinsed off the collection cup before reassembling it on the skimmer body.

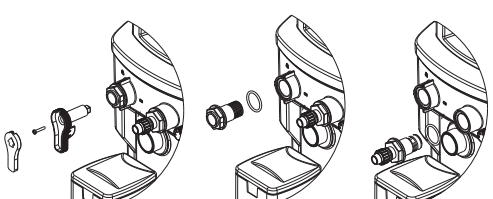
Cleaning the Aspiration pump & Impeller – recommended monthly

1. Turn off or disconnect the C-Skim from its feeding pump.
2. Disconnect the aspiration pump power cord from the power outlet and place in a dry location.
3. Remove the water drain plug of the pump connector assembly to allow all of the water in the body of the skimmer to drain to the level of the lower port.If the C-Skim is installed outside of the sump, place a suitable container under drainage port to collect the water.
4. Disconnect the air pipe from the hose barb on the skimmer body.
5. Open the inlet pump connector bayonet by rotating it counterclockwise
6. Remove the pump by pulling it away from the skimmer body with small alternating clockwise and counterclockwise rotations.
7. Open the impeller chamber and pull out the impeller.
8. Rinse all parts under the tap.
9. If you see any build up of scale on the inside of the pump housing or on the impeller magnet, use hot water or vinegar/scale remover to dissolve it. Make sure that you rinse off all residues of any cleaning materials before reassembling the pump.
10. Reassemble the pump and reconnect to the skimmer body as described in the assembly section above.

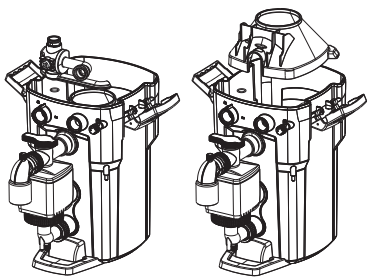
Disassembling and reassembling the internal parts

Should it become necessary to remove either the Internal Valve assembly or the skim chamber top, follow the following procedure.

1. Disconnect the skimmer from your system, remove the collection cup and drain out all of the water.
2. Set the control lever to the Skim position.
3. Using a small flathead screwdriver remove the control lever cover. Insert a small Phillips head screwdriver into the shaft of the control lever body and unscrew the screw that attaches the lever to the internal valve and thereafter pull the control lever body out of its sleeve.
4. Using an adjustable wrench remove both the control lever sleeve and the inlet hose barb. Make sure that you collect the O-rings for reassembly.



5. Lift both the internal valve assembly and the skim chamber top out of the skimmer body.



6. Reassembling the parts should be done in the reverse order.
7. Insert skim chamber top first and position it properly on the outlet pipe and corner pegs.
8. Place the internal valve assembly on the skim chamber top such that the 2 threaded holes are opposite the ports on the skimmer body.
9. Ensure that the control panel o-ring is in position on the left port and screw the control lever sleeve into the internal valve assembly, but do not tighten.
10. Ensure that the control panel o-ring is in position on the right port and screw the inlet hose barb into the internal valve assembly, but do not tighten.

11. Press the internal valve assembly to the inside wall of the skimmer body and tighten the control lever sleeve and the inlet hose barb
12. Insert the control lever into the control lever sleeve in the Skim position, insert and tighten the Phillips head screw.
13. Replace the control lever cover by pressing it into place.
14. Check the integrity of the assembly by filling the skimmer body up with water and check the connections for leaks and repeat the above if necessary.
15. Reassemble the collection cup and reinstall the skimmer in your system.

Troubleshooting

Q The bubbles in the skimmer are too large.

A Ensure that you are using the skimmer in saltwater at the correct specific gravity. Freshwater cannot be efficiently skimmed using a protein skimmer.

Q My skimmer is new (or just cleaned) and doesn't seem to be skimming.

A If your skimmer is new, clean it with fresh water and rinse thoroughly with hot water. Allow the skimmer to run for 48 hours to remove any harmless residues from the production process. These materials are safe for your aquarium, but impede the skimmer's ability to foam efficiently for a couple of days. For more information, refer to Section 7 – Break-in period and foam production.

Q My aquarium is full of micro bubbles or air mist.

A Inspect the water outflow from the skimmer. If it is full of bubbles, reduce the air flow into the aspiration pump, using the air control valve. Monitor the situation for several days, and slowly increase the air flow until it runs in the fully open position.

TIP: You might be getting micro bubbles if you are using tap water with water conditioners or natural seawater. Many conditioners/impurities found in natural seawater increase the surface tension of the water and cause a small proportion of the bubbles to escape the skimmer chamber.

Q My skimmer is producing a lot of weak, watery foam.

A Lower the water/air mixture in the FoamView™ using the skim regulator to allow the foam to become more concentrated. If this does not produce the desired result, lower the water/air column by reducing the air intake slightly using the air control valve. If this does not work, or if the aspiration pump becomes noisy return the airflow to maximum and reduce the water flow from the feeding pump.

TIP: Production of an excessive amount of weak, watery foam is also referred to as over-skimming. This often indicates the presence of chemical substances that need to be removed by the skimmer. Many water conditioners/impurities found in natural seawater increase the surface tension of the water and cause serious over-skimming.

TIP: If you are using natural seawater, you should be aware that most seawater today contains traces of pollutants, e.g. phenols, carbohydrates, oils, etc. Therefore, natural seawater is not recommended for use in reef aquaria. We strongly recommend NOT using tap water. If you intend to use it, however, DO NOT add conditioners/dechlorinators. Instead, allow the water to settle for 24 hours before introducing it to the aquarium, to allow the chlorine to evaporate naturally.

TIP: If you are not using Red Sea Salt or Red Sea Coral Pro salt formulae, be aware that some brands of synthetic salt contain binding substances, such as EDTA, that increases surface tension and causes over-skimming.

Q I cannot lower the water/air mixture in the FoamView™.

A 1. Ensure there are no restrictions on the water outlet, and that the outlet elbow is not above the horizontal position.

2. Reduce the flow from the feeding pump.

Q Water is leaking out of my skimmer.

A If the leak originates between the collection cup and the C-Skim body, ensure the latches are closed and that the collection cup O-ring positioned properly in place. Wipe the bottom of the collection cup seal and the top of the skimmer body to remove any particles that might be breaking the seal.If the leak originates from any of the connections, ensure that the O-rings are properly in place and that no particles are breaking the seal.

Q There is a reduction in the quantity of air bubbles in my skimmer.

A Open the air valve completely. If you still observe a reduction in the quantity of air bubbles, check for blockages in the air pipe. If the problem persists, perform the following procedure:

1. Disconnect the pump and ensure that the air hose barb is free of obstructions.

2. If necessary, submerge the inlet pipe assembly in a mixture of a ½ cup of vinegar and a ½ cup of hot water and clean the air inlet with a toothpick or other small sharp object. Rinse it well under tap water and reconnect to the skimmer.

Q The aspiration pump is making a rattling noise.

A The aspiration pump optimally works with airflow of 300-800 lph. Reducing the airflow below these levels may cause a rattling noise from the pump. In the event of severe over-skimming or you wish to achieve a dryer foam, restrict the flow from the feeding pump and increase the airflow.

Warranty

Red Sea Fish Pharm Aquarium Products Limited Warranty

The limited warranty sets forth all Red Sea Fish Pharm Ltd (Red Sea) responsibilities regarding this product. There are no other express or implied warranties from Red Sea.Red Sea warrants your product against defects in materials and workmanship for a period of 12 months, valid from the date of original purchase and will repair this product free of charge (not including shipping costs) with new/rebuilt parts. Damage to the aquarium glass or to the florescent tubes is not included. The precondition for the warranty is that the stipulated set-up routine is observed. In the event that a problem develops with this product during or after the warranty period, contact your local dealer or Red Sea (at the company address indicated) for details of your nearest authorized service center.

The warranty is extended only to the original purchaser. Proof of date of purchase will be required before warranty performance is rendered. This warranty only covers failures due to defects in materials or workmanship which occur during normal use. It does not cover damage which occurs in shipment or failures which result from misuse, abuse, neglect, improper installation, operation, mishandling, misapplication, alteration, modification or service by anyone other than an authorized Red Sea service center. Red Sea shall not be liable for incidental or consequential damages resulting from the use of this product, or arising out of any breach of this warranty. All express and implied warranties, including the warranties of salability and fitness for particular

purpose, are limited to the applicable warranty period set forth above.

These statements do not affect the statutory rights of the consumer.

USA

Some states do not allow the exclusion or limitation of incidental or consequential damages, or limitations on how long an implied warranty lasts, so the above exclusion or limitations may not apply.

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