Santa Monica Filtration®

DROP-5.5
DROP-5.5x
DROP-10
DROP-10x
DROP-11
DROP-11x
DROP-20
DROP-20x

Drop-In UAS®

Updated July 2025

If your DROP is not showing some color of growth after 2 weeks,
call 801-502-3009, email parts@santa-monica.cc, or ask on our socials.
Updated instructions: www.AlgaeScrubber.net/DROP-Instructions.pdf

Thank you for your purchase of the Santa Monica Filtration® DROP™ drop-in upflow algae scrubber® (UAS®) with GEM5® lights and Green-Grabber® growth surfaces, patent number 9,115,008 and 9,708,207 and China CN203392929U, and other patents pending. This filter will do most of the filtering needed for your fresh or saltwater aquarium, and in most cases all the filtering. Part of this filtering includes helping eliminate two very important things: Algae and waterchanges. The filter works by purposely growing algae inside the filter, so that the algae consume all the "bad" things out of the water*. This is how all the oceans, reefs, and lakes are naturally filtered. It also can provide natural feeding to the livestock.

Do not the power supply boxes in a humid or wet area. If possible, keep outside of sump cabinet area.

Reduced Light: Too much light will prevent algae growth, and when new the white Green Grabber surfaces reflect so much light that it can be too bright. The first way to reduce this light is to plug in only one GEM5 light until some color of growth covers the growth surface. A further way is to use the included black plastic shade screen that clips on the GEM5 light. After some type of growth of any color is covering the white surfaces, you can remove the plastic screen; after the growth gets thicker you can plug in a second light, etc. You will not need to use the shade again unless you re-start the scrubber from scratch.

Aquarium size: The amount of water in the aquarium, or the dimensions of the aquarium, are not important. Algae scrubbers are sized instead by the amount of feeding you do, because the amount of feeding (input) should equal the amount of filtering (output) or else nutrients will build up in the aquarium. Sizing is based on 3-gram frozen food cubes, and the number on the DROP (for example DROP-10) is how many cubes of food per day it can handle. If you feed more than the amount the DROP can handle, but have no other filters or waterchanges, you can use additional DROP filters to add up to the amount that you are feeding and then clean one filter at a time on a rotating schedule (one per week, etc). If you feed much less than the feeding amount of the DROP, the filter will just grow less until it is needed more. You cannot "over filter" with algae scrubbers the way you can with chemicals.

Note that if you have live rock (not river rock) which is soaked with phosphate because it came from a problem aquarium or was mined from the ground (not taken from the ocean), then each 50 pounds (23 kg) of this problem rock would add 1 cube a day to your nutrient amounts; so be sure to account for this when choosing a scrubber size or number of scrubbers. For example, if you feed 5 cubes a day, but have 200 pounds of rock that came from a tank with nuisance algae problems, this rock will add 4 cubes a day to your feeding, and the total would then be 9 cubes a day. This applies even if the rock was dried out and bleached, because this does not remove nutrients from the rock.

Position: This DROP filter is to be set into your sump in at least 6" (15cm) of water, or if you have a non-sump freshwater tank, it can be hidden in the display. It does not matter where it goes because it will filter the same. If you want air bubbles to go into the your water, set the filter so the top is below the water surface. If you don't want air bubbles to go into your water, set the filter so the top is slightly above the water surface. Or you can put it below the water surface and use the included black tubing with or without the air-baffles to rise up above the water surface. The baffles remove water coming up out of the black tubes, and can reduce sound too.

Light Timer: For saltwater, the red light (LEDs) in the filter can be put on a timer or controller so that they stay on for part of the day and off for the rest. You can try, however, starting without a timer, and freshwater should always be started without a timer. A good starting point is 18 hours of light per day. If the growth is good after a few weeks, you can try up to 22 hours per day. If the growth has lots of bright yellow or clear or bald areas, then decrease the hours by 2 per day. Bright yellow or clear growth means you need less hours; black growth means you need more hours. Eventually you will find the overall best number of hours for your system. No matter how many hours, however, always start with the plastic black shade clip that is provided, because the red light is usually too strong to allow algae to grow with all the white surfaces reflecting the light.

Air Pump: The DROP filter requires an air pump to make the air bubbles which make the air/water turbulent interface inside the growth compartment; this is what makes scrubbers filter so well, much better than chaeto (which has no air/water interface turbulence). The bubbles also circulate the water.The recommended air pump for single-tray models (DROP-5.5, 5.5x, 10 and 10x) is the smaller 25 watt version here, although the larger 50 watt version works also, which connects directly to the included silicone tubing:

https://pentairaes.com/outdoor-air-pumps.html

For double-tray models (DROP-11, 11x, 20, 20x) the larger 50 watt version is recommend, and the included Y adapter will divide the single air line from the pump to two air lines for the two trays.

It is the air bubbles which move water into the growth compartment and up the growth surfaces, and also which supply carbon dioxide CO2 from the air (after the CO2 from the water is used up) to the surfaces, which allow algae to grow fast in the filter. CO2 in the water is used up quickly, and without additional CO2 from the air, the growth rate would be limited like it is with chaeto reactors. The air pump should run 24 hours a day,

Cleaning/harvesting: Algae scrubbers absorb nutrients out of the water into the growth quickly (about five times faster than chaeto reactors), and this growth should be cleaned when the growth gets thick which is usually every 5 to 10 days (after the initial starting period which might be a few weeks). If the growth is not thick by 10 days, check to see if it is covered in slime, especially a dark or black slime. Slime needs cleaning with a brush

in your sink with running water so that the white surfaces can be seen again; this will allow more light to reflect, which is what is needed to get through black growth. Newer filters usually have to run for more days than older filters do before thick algae grows. Just check it every few days to make sure the bubbles are still flowing properly, and the light is on for 18+ hours. Also, if you are using the filter on a brand new tank that you have not started feeding yet (for example, if it is still cycling), then there will be very little growth at all until you start feeding the tank.

Once your filter has grown algae (any type: green, brown, black), you can feed some of it to your livestock at any time by just pulling some algae from the growth tray and putting it in a feeding clip, or by putting the growth tray into the display. By feeding your animals from your filter, your animals get very fresh live growth, and no additional nutrients (nitrate, phosphate, etc) are added to your water because you do not add packaged food to the tank that day. Live growth feeding simply takes nutrients from your aquarium water and converts (grows) them into food so that they can be put back into your animals to grow more. It's very much like growing your own food in a garden. Generally, the more you can feed your animals from your filter instead of from packages, the "cleaner" your aquarium will be because the nitrate, phosphate etc. that were accumulating in your water are now helping your animals to grow.

For cleaning (instead of feeding), remove more growth from the compartment than you would for feeding. The removed growth can of course be thrown away but it also makes great plant fertilizer, pet food, and beauty (seaweed) baths and skin wraps. In saltwater, the bright green growth that sometimes looks like Easter basket filler is actually Sea Lettuce (Ulva), and if it is thin green hair, then it is probably Cladophora. In freshwater, it is probably Spirogyra. And remember that if the growth never seems to turn green and always stays brown, it is still filtering because brown absorbs lots of nutrients from the water. And black growth absorbs the most, which is why it's black; it just needs cleaning more often.

If the growth is slime (of any color), then take the growth tray to your sink and brush it out so you see all the white growth surfaces again. This is commonly needed when scrubbers are put on older problem tanks, because of the high nutrients in the water, or on freshwater tanks, because the growth is usually more slime.

Other Filters: Although a DROP scrubber can be the only filter on your aquarium, it can also be operated with most other aquarium filters and additives. One exception might be additives that kill algae (like Vibrant), or medications that contain copper, depending on how much you use. Carbon dosing (not GAC carbon filters) such as Zeo or pellets, can also reduce scrubber growth if used heavily. Chaeto reactors and macroalgae refugiums, while they won't reduce scrubber growth, will usually die when your scrubber gets fully functional because your scrubber will out-compete them for nutrients. DROP scrubbers can, however, be used on planted aquariums that have algae problems to help remove the nuisance algae dust from the plants.

Light Replacement: The GEM5 lights are easily removed from the clips, and replaced.

*** Water Changes:** If you have been doing water changes to reduce nitrate, phosphate, or nuisance algae, then an algae scrubber filter will greatly reduce the need for them and may possibly eliminate them. When algae grow in the filter, they consume nitrate, nitrite, phosphate, ammonia/ammonium, metals, CO2, and some toxins; so it's just a matter of growing enough algae inside the filter to do the filtering you need, compared to how many nutrients you are putting into the tank with the food you feed (that is why the DROP filter is sized for a certain amount of feeding per day). However, this filter (and algae in general) do not supply calcium, alkalinity, magnesium or strontium to the water. So if you wish to reduce or eliminate water changes, you will need to supplement any calcium, alkalinity, magnesium or strontium that you were using water changes for. Ponds or freshwater aquariums, which may only need alkalinity (hardness) to be maintained, may get enough alkalinity from just doing evaporation top-offs with tap water.

Power Supply: Do not put the power supply box in a humid area, or get any water on it. The power supply box is the black box on the power cord. Also do not let salt spray accumulate on the power supply box. The power supply box is best placed far away from the aquarium, reservoir, sump, stand or cabinet, so that if water is spilled then the power supply box will not get wet. Setting it high up off the floor is a good idea.

The GEM5 lights use a low voltage that is perfectly safe. The lights are sealed in a triple waterproofed manner; this prevents corrosion from fresh and saltwater. The UL, Canadian UL, and CE approved power supply works on both 120 or 220 volts; it converts and isolates the 120 or 220 volt mains to the safe low voltage which is isolated from the water, meaning that even if the lights were not sealed at all you could put them into the water and they would continue to work. The power plug is for North America so if you need to plug into a different type of outlet you'll need to get a plug-adapter (available at any hardware, electronics, home improvement store, or online) or just cut the plug off and attach your own 2-prong plug from a hardware store. Also, you can use a GFCI or RCD safely plug if you like, available at any hardware, electrical or home improvement store, or online. The power cord is actually the same as a laptop computer cord with a C7 connector (the connector looks like a figure eight), so you can swap your laptop cord with your DROP if you want to, and you won't need to change the plug.

Troubleshooting:

All GEM5 light strips have stopped working or are flashing: If the little green light on the power supply box is on, all of the red lights on all the light strips should be on with the same brightness. Sometimes moisture gets inside the power supply box from drips, sprays, or condensation in humid areas like sumps. This can sometimes be solved by setting the power supply in warm sunlight for several hours, or on top of a warm surface (like your aquarium lights) for several days, or putting it into a bowl of dry rice with a lid. If none of the above works, or if the little green light is not on, then the power supply might be bad.

Only one GEM5 light strip has stopped working: In this case the single light might be bad. Check this by changing the connectors. A single light is easily replaced.

Some of the individual red LEDs in one GEM5 light strip has stopped working: All individual red LEDs in a strip should be the same brightness at all times. If one or more is dim or out, then the light strip is bad and needs to be replaced.

Reduced Bubbles: Sometimes a white lime carbonate buildup that looks like salt will occur inside the ends of the air tubing where the bubbles come out, and this will slow down the airflow and bubbles. You would notice this when growth only occurs on some sections of the growth tray but not others.

To fix this, turn off the air and set the outer illumination box (not the growth tray) into a container or sink and pour some vinegar into the box so the tubing is covered. Let sit for an hour, and then try the air again. Repeat if needed. Also you can push a paper clip or toothpick into the ends of the air tubing where the bubbles come out; and break the hard white buildup up into small pieces so they will blow out. Or you can remove the ends of the tubing from the clips, and lightly squeeze the tubing with pliers. Then turn the air on and this should blow out the hard white pieces out of the tubing. Throw away the vinegar when finished, and wash it out of the box; do not let any vinegar get it into your tank.

Completely Black Growth: Some aquariums, even if you are not feeding much each day, have huge accumulations of nutrients (usually phosphate) in the rock and sand/gravel after years of use without good phosphate removal. These situations will cause a black "oil" or "tar" to grow in the growth tray because phosphate is now being removed quickly from your aquarium for the first time. These large concentrations of nutrients, like phosphate, will cause black growth. Not to fear: Since the black growth contains lots of phosphate, you can be assured that the filter is indeed working and is removing these nutrients from your aquarium. However if the white growth textures are covered in black growth, then this would be a case for needing to take the tray to your sink and using a brush to remove all of the black growth from the textures. After only 3 to 5 days you may need to clean it in the sink again because black growth gets thick fast due to the rapid transfer of nutrients out of the water into the growth.

At some point enough nutrients will be removed from your aquarium that green growth will start growing and you can then (if saltwater) do in-place cleaning/harvesting which does not require taking the unit to the sink. How many months this takes depends on how much rock, sand, and water you have, how many DROP filters you are using, and how many other phosphate filters (including water changes) are helping with the phosphate removal. Note: Canisters, sponges, floss, socks, skimmers, roll filters and bio media do not remove phosphate. In all cases of black growth, run all of the lights as much as possible (24 hours per day), and do not use the light-shading plastic clips.

Black and White Surfaces: Black "oil" or "tar" growth filters the most, but does not attach well to the textures. So if you are getting the high-nutrient black growth described above, but the air bubbles are blowing the growth away, then you will see patches of

white where the black growth let go. To get through this phase, brush out in your sink before this happens, probably every 3-5 days.

Completely White Surfaces: If your tank is new, or if your tank has low nutrients because lots of nuisance algae in the tank is absorbing the nutrients, or if you are running a low-nutrient system such as zeo or carbon dosing, your DROP scrubber textures may stay "paper white" with absolutely no sign of tan, brown, green, or any other color growth for several weeks because the LED light is too strong compared to how many nutrients are in the water. This is solved by using only one GEM5 light, and using the included black plastic shade clip on it. After some tan, brown, green or other growth covers the white growth textures, you can remove the shading clip. After more growth occurs, you can plug in a second light, etc.

Algae On Rocks Increases: If after running your DROP scrubber (or any scrubber) for several months and you have been removing lots of growth from it, and you start seeing more (not less) algae growth on the rocks in your aquarium, what probably is happening is that phosphate is coming out of the rocks. This is good! This is usually the case when the phosphate in the water measures “zero”, and the algae that is starting to grow on the rocks is green, long, and concentrated in certain spots; usually near the top and on sharp rock edges and points. Another indicator will be that there will be no algae growing on clean plastic or glass (with no coralline) even if these parts are up at the top, because plastic and glass do not absorb phosphate. The rock algae will increase for a while, and when the phosphate in the rock is used up by your DROP scrubber, the rock algae will start turning yellow and letting go, sometimes in large chunks which get caught in filters or pumps. The time for all this to happen can be from a one to three months, depending on how much phosphate was in the rock, how many DROP scrubbers you have, and how many other filters you have.

Warranty: This DROP scrubber comes with a 12 month warranty for the original purchaser. Warranty is for replacement or repair only; not a refund. Costs for shipping back to us are not covered; you will need to ship the entire filter back to us before we can repair or ship a replacement.

Warranty is limited to repair or replacement, and does not cover fish loss, personal injury, property loss, or direct, incidental or consequential damage arising from the use of it. The warranty and remedies set forth above are exclusive and in lieu of all others, whether oral or written, express or implied. We specifically disclaim any and all implied warranties, including but not limited to lost profits, downtime, goodwill, damage to or replacement of other equipment and property, and any costs of recovering animals, plants, tanks or other aquarium related items and/or equipment. We are not responsible for special, incidental, or consequential damages resulting from any breach of warranty, or replacement of equipment or property, or any costs of recovering or reproducing any equipment, animals or plants used or grown with this product.