Fully Automatic CO2 Injection Systems: how to set up

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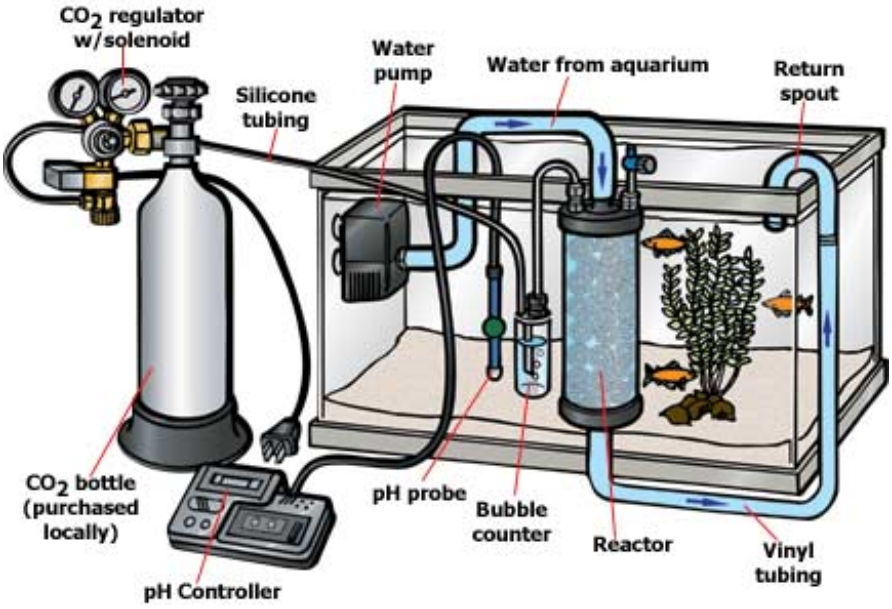
Congratulations on your purchase of the Fully Automatic CO2 Injection System. This system will help your plants grow and flourish by replenishing CO2 levels in your planted freshwater aquarium. CO2 will also help stabilize pH in your aquarium. Therefore, it is crucial to maintain the proper CO2 levels. Factors controlling the pH level in your aquarium include the amount of minerals present in the aquarium water (alkalinity) and the concentration of CO2 (acidity). Excess CO2 levels can lower the pH level dramatically and severely stress your fish. This fully automatic CO2 system helps stabilize your water pH by adding an appropriate amount of CO2 to your aquarium.

Because this system includes a pH controller, you should not have to monitor the amount of CO2 being released into your aquarium. The controller will track pH, which is directly related to CO2 concentration. Ideally, you should not experience pH fluctuations, since the pH controller will keep pH - and CO2 release - consistent and appropriate for your aquarium.

System components:

- CO2 regulator with solenoid
- 20 feet of silicone CO2 tubing
- Bubble counter with built-in check valve
- Pinpoint pH controller
- 10 feet of 1/2" flexible tubing
- CO2 reactor
- Overflow/return spout
- Maxi-Jet 1200 submersible pump & powerhead
- 1/2" ball valve
- 6 -1/2" plastic clamps



Additional tools/supplies you'll need:

- CO2 tank and plastic washer
- Adjustable wrench
- Scissors
- Tape measure

If you need assistance with system assembly or use, please feel free to contact our Aquatic Technicians at 1-800-443-1160.

Directions:

Putting your system together:

1. Obtain a 5 lb. CO2 bottle from a local vendor such as a welding supply company. You can also contact your local fire station for information on obtaining a CO2 bottle. Before tightening the CO2 pressure regulator onto your CO2

bottle, install a plastic washer to help ensure a leakproof connection. Connect the pressure regulator and bottle as tightly as possible to avoid a sudden (and potentially startling) disconnection.
2. Adjust the needle valve to the "off" position.
3. Carefully open the bubble counter and fill 1/3 of the counter tube with fresh water, making sure that the open end of the rigid tubing inside the larger tube is submerged. Be sure the bubble counter o-ring and the top of the large counter tube stay dry when you replace the top on the bubble counter. Otherwise, the counter will not be CO2 tight.
4. Use the bubble counter mounting bracket to attach the bubble counter to the side of your aquarium.
5. Cut a length of tubing to connect the CO2 needle valve and the bubble counter. Measure the distance between them to determine the correct length (add a few inches to your measurement to ensure a proper fit and connection).
6. To connect the silicone tubing to the output of the CO2 needle valve, remove the compression nut, insert tubing through the nut and onto the output nipple, then tighten the compression nut back onto the output to lock it in place. Next, attach the other end of the silicone tubing to the input side of bubble counter (the shorter of the two nozzles on the bubble counter - the one with rigid tubing extending into the counter).
7. You will now need another length of flexible tubing to connect the bubble counter and the CO2 reactor. Once you've selected the right spot for your reactor (mounted outside of the aquarium or in your aquarium stand), cut a length of tubing accordingly. Then, attach one end of the tubing to the output side of bubble counter (output also includes the check valve), and the other end to the CO2 reactor.
8. Next, you'll need a length of 1/2" flexible tubing to connect the reactor to the Maxi-Jet Powerhead. Make sure the unit is completely submerged in your aquarium before you connect it. Attach the 1/2" flexible tubing to the water pump output and then to the top of the CO2 reactor; cut the tubing to the proper length and secure each connection with a plastic clamp.
9. You'll need the remaining clamps and length of 1/2" tubing (cut into two lengths) to connect the reactor, ball valve, and the return spout. Place the return spout over aquarium edge, making sure to direct it back into the aquarium. Once you've situated the return spout, attach one end of the tubing to the reactor output (on its bottom). Secure this connection with a plastic clamp. Now, cut the tubing to an appropriate length and attach the end opposite the reactor output to one side of the ball valve. Secure the connection with a plastic clamp. At this point, you should still have a length of unattached 1/2" tubing. Connect one end of this tubing to the other end of the ball valve and secure with a plastic clamp. Lastly, attach the other end of the tubing to the return spout and secure with a plastic clamp.

Starting your system:

1. Now that you've connected the system equipment, you can begin system operation. First, plug in the water pump and check all fittings for leaks.
2. Next, plug in your pH controller. Calibrate it and adjust the setpoints using the instructions provided with the unit.
3. Place the pH probe into your aquarium, taking care to submerge only the tip (bottom 1 inch) of the probe. Place the probe in a location with good water movement. Keep the tip submerged - otherwise the controller may stay on permanently, regardless of the water pH.
4. Plug the CO2 regulator with solenoid into outlet #1 on the pH controller.
5. Adjust the output of the CO2 needle valve so you can start counting bubbles flowing through your bubble counter. As a general rule, 1-2 bubbles per second should be adequate.

As always, if you have any questions, please contact us at 1-800-443-1160.