

## Instructions for Cleaning the Electrode Chambers

Because these metal plates are electrically charged, electrolysis causes them to corrode over time. The cleaner the electrodes are, the better they will work. Visually inspect the chambers routinely, and plan on cleaning them the first of each month.

1. Before starting, gather your tools: acid-resistant rubber gloves, two 5-gallon buckets, one gallon of muriatic acid, two filter wrenches\*, and possibly goggles. It helps to have one white bucket and one bucket of another color, or to label two similar buckets, in order to keep track of which bucket contains water and which contains acid.
2. If they are not already labeled, with a marker pen write on the wood or wall next to each chamber which chamber is titanium and which is copper. The titanium is always the first one in the direction of flow.
3. Wear gloves. To be precise, fill the first bucket with one part of muriatic acid to five parts of water. The bucket should be full enough so that the chambers will be fully submerged when added. To be approximate, pour a quarter to a third of the gallon of acid into the bucket and then add about two to five times as much water.
4. Half-fill the second five-gallon bucket with water to be used for rinsing the chambers.
5. Isolate the chambers by turning off the valves located immediately before and after each chamber.
6. Place the water bucket beneath each hose bib and drain the two chambers.
7. Take note how the wires were connected to the electrode chambers. Unplug these electrode wires by carefully pulling them off the tabs located on the outside of the chambers.
8. If the unions on each chamber are too tight to loosen by hand, to break the seal use large channel lock pliers, strap wrenches, or oil filter curved channel locks. As soon as the first union is loosened, the air that enters will release a little more water out of the drain, so have the bucket ready.
9. Remove the unions by hand, carefully sliding them straight out from their normal locations.
10. Pay attention to the large brown rubber O-rings on the union. Sometimes the upper one will fall out when the chamber is being removed. If it does, set the O-ring aside on a clean place where you will remember, such as on top of the wood, or hook it on the valve handle.
11. Wearing rubber gloves, gently set the two chambers into the bucket of diluted acid. Make sure they are submerged. Watch them bubble.
12. Look at the clock to time the process. After 10-12 minutes, the bubbles should slow down and stop. The plates should be clean.

13. With gloves, remove the chambers and visually examine them. They should look clean and new. If there is still corrosion, let them soak a bit longer.
14. When you are satisfied that the plates are clean, rinse the chambers in the bucket of water.
15. Replace the chambers where they belong. When putting them back, check that the rubber "O" rings are inside the indentations in the unions. If the upper one was removed, seat it back in place before sliding the chamber in.
16. Although it doesn't matter which direction the chambers face on the pipes, make sure the titanium goes at the beginning and the copper goes at the end. Replace them where they came from. Once installed, rotate each chamber so that the plates are easy to look through for future inspection.
17. Hand-tighten the unions. Snug them slightly more with the wrenches.
18. Reconnect the wires. Press and wiggle them on until they are fully seated. An easy way to remember where the wires go is to put the red wires on the right side of each chamber: "red" on "right" both start with "R." The remaining black wires go on the only tabs left, and the second letter in "black" is "L" for "left." Just think "red on right" and the rest will be obvious. The goal is to have one positive plate and one negative plate. Put red together with red on one side, and black together with black on the opposite side. To understand the order of the wires, follow them from the source: the impeller on the outlet behind the Birm tank backwash clock spins when water is flowing. A wire goes from the impeller to the white control box. From the white box, another wire goes to the titanium electrode chamber. A third wire connects the titanium chamber to the copper chamber.
19. Turn on the inflowing valves to check for leaks. If the union leaks, tighten it a little more.
20. Now turn on both valves and your water is back in use.
21. Rinse off your buckets and gloves. Create a dedicated and convenient location to keep these tools ready for the next cleaning. Some people hang their wrenches on the wall, others keep everything in the buckets.
22. Keep a log. Hang a clip board or a spiral notebook somewhere near your system and keep track of the date you serviced your system. Record what you just did, including any comments.
23. Whenever water is running, the red lights on the control box should rotate. They alternate directions of rotation between clockwise and counterclockwise as the electrical polarity changes back and forth from positive to negative every 1-1.5 minutes. If the dots do not rotate when water is being used, please contact us for assistance.