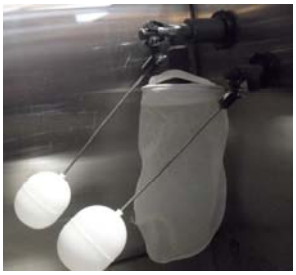
Tips for Maintaining Your Closed Loop Filtration System



Inlet Prefilter:

This filter bag is an extra precaution to catch large debris that can enter the system through the table overflow. The Pre-Filter can and should be checked frequently, and emptied or replaced as needed.

Replacement Bag Part Number : CLS-PFB-150

Pump Strainer:

Inside the dirty tank, is a suction strainer screen. This, should be cleaned regularly. We recommend checking it at least every 30 days.

Replacement Part Number: CLS-FP-SCRN

FYI:

If this screen is not serviced and gets blocked with debris, this will starve the pump suction causing cavitation. This will over-heat the pump seal and cause it to fail prematurely. *Heat effected seals are not covered under warranty.*

NOTE:

To remove the screen for cleaning, simply rotate counterclockwise to unscrew.

Bag Filter- Vessel #1

This filter removes solids down to 1 micron. It removes the bulk of the undesired solids from the system. When the red filter service filter #1 light flashes, you need to look at filter #1. The gauges for this filter are mounted to the top of the vessel (inlet gauge) and in the plumbing between filters #1 and filter #2 (outlet gauge). The PSID, or pressure differential should not exceed 30, It will be almost zero when all of the filters are clean. **Replacement Bag Part Number : WJF-1-G2PS-EA**

(The red light will flash when outlet pressure is approximately 12 PSI.)

TIP: Always change bag filter #1 prior to the others, to ensure a good pressure reading for all of the filters downstream.

TIP: It is a good idea to give the dirty tank a good stir about 5 minutes prior to changing filter bag #1. Regular tank agitation before changing the filter will help maintain a cleaner system as well as maximize filter performance and lower operating costs.

Tip: Included with all new Closed Loop Systems, will be a specially designed installation tool to assist the maintenance technician in making sure the filter bag is properly extended all the way to the bottom of the vessel. Simply insert the insertion tool into the extended area bag.(1), slip the bottom of the bag over the inverted basket and slide the bag all way down to the bottom of the extended area basket (2). **Remove the Installation Tool** (3) Then make sure that the poly-lock seal is snug in the machined register for a positive seal (4).

Tips for Maintaining Your Closed Loop Filtration System

Hurricane Filter -Vessel #2

The Hurricane filter polishes system water to remove particulates down to .35 micron. We recommend that filter #2 be checked every 30 days, or after 200 hours of cutting time. Inlet and outlet gauges need to be checked daily for pressure differentials. If the differential approaches 30 PSID, filter #2 needs to be serviced. (ie: 40 psi in and 10 psi out)
Replacement Cartridge: CLS-HR-930-Q.35

The Hurricane filter normally <u>does not</u> require servicing as often as Filter #1 due to these filters being plumbed in series with one another, as filter #1 gets dirty, the pressures on filter #2 will appear low. It is only after a new Filter #1 has been installed, that an accurate PSID reading can be obtained on filter #2. Monitor the inlet and outlet gages of Filter #2 to determine the actual differential pressure across the vessel. *(Ebbco also recommends changing Filter #2 when outlet pressure drops to 12 PSI)*

TIP: The Hurricane filter can be serviced by carefully removing it from the vessel and gently spraying the filter with fresh water to rinse away particulates collected between the pleats. The Hurricane vessel should be completely drained and rinsed before returning the filter to the vessel. Be very careful while handling the filter, making sure not to tear it.

NOTE: DO NOT use a pressure washer to clean the hurricane filter. Even the slightest tear in the filter media will destroy the filter and render it ineffective

Filter Wax:

A minimal amount of Hurricane Filter Wax, part # **HUR-STW**, should be applied to the bottom of the Hurricane filter cartridge to help with the installation of new cartridges. A small stick of wax is provided with every new system and should be used with every filter change. Additional wax can be purchased separately.

DI Resin- Vessel #3: (White Bag)

The DI Resin filter is designed to control the TDS (Total Dissolved Solids) throughout the system. The yellow Service-Filter #3 light serves as an indicator from the TDS meter, the light will come on when the TDS level exceeds the preset high point.

The following may cause premature spikes in TDS:

- Make-up water was added to the table.
- New city water was added to the waterjet table while changing the abrasive removal sludge hopper.
- Water level in work tank was lowered, thus sending a large slug of tank water into the Closed Loop System.

This light should go out within 60 to 120 minutes, if it does not and the TDS level continues to rise, Filter #3 resin bag needs to be changed. **Replacement Bag: CLS-WJR-100-PKG**

Tip: **DO NOT DISCARD OF THE RESIN BAG**. You can exchange this bag for a new one at one of our 5 locations across the United States. **Exchange Coupon: CLS-WJR-ERC-1**

IMPORTANT: DO NOT LET THE RESIN DRY OUT Allow the resin to drip dry, then place the resin bag back in the plastic bag provided with the new bag.

TIP:
Always check both filters #1 & #2 before changing the resin bag. Low pressure reading on #2 vessel outlet gauge, can give a high TDS reading due to low flow through the DI filter.
Don't waste that water:
When changing any filters, save the water, put it back into the waterjet catch tank. Even though it looks dirty, the TDS level should be low. Remember, you have already paid to treat this water.

Tips for Maintaining Your Closed Loop Filtration System

Optional Soft Seal Resin - (Black Bag)

The *Optional* Soft Seal resin bag passes 100% of the cutting water through this vessel as a final polish to remove organic hardness from the water, extending the life of high-pressure pump seals and lowers operating cost. The resin bag must be changed after every 200 hours of cutting time for best results.

***ATTENTION ***

The *optional* soft seal resin vessel can be retrofitted to any existing closed loop system. If your existing Closed Loop System does not include a soft-seal resin vessel, please contact an us details.

Replacement Bag: CLS-SSR-075-PKG

Final Filter- Vessel #4:

Here is where the finishing touches are put on the system water. As the water leaves the soft-seal resin vessel or the booster pump, it is routed to the final vessel polishing filter. Water passes through a 0.35 micron. From here, system water then goes either to a reservoir, or directly to a high pressure feed pump. Once again, depending on individual system demands, these filters may last well beyond the normal 200 hours of cutting usage. However, responsible maintenance of the system dictates that they be inspected for cleanliness at the 200 hour mark. This vessel is clear, so filter inspection is very simple and convenient, the filters should be changed at 30 PSID.

Replacment Filter: CLS-801-0.35

Ozone Generators:

In the Clean tank there should be bubbles coming from the dispersion stone. If they are dwindling, clean the stone. By examining the stone, it should be pretty obvious if it needs cleaning. If it's brown, soak it in lemon juice or vinegar overnight, and rinse with clean water before reinstalling.

Restarting the System:

Caution: When restarting the system, the pressure should increase to approx. 38 PSI on the inlet side of the of filter #1 within 30 seconds, if it does not, turn the system off for 30 seconds and restart, if the system does not come to pressure shut it off and follow the system pump bleed procedure outlined below.

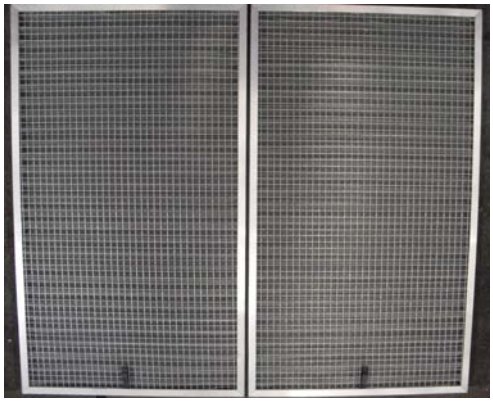
System Pump Bleed Procedure:

1. Loosen the union until water leaks out, this should release any entrapped air at the pump.
2. Hand tighten the union and restart the system.
3. Double check the pressure to make sure everything is working. (the inlet pressure to filter #1 should read near 38 PSI)
4. If the pressure reads aprox. 38 PSI, tighten the union securely with a pair of channel-locks.

FYI:

If the pump does not prime, the pump will starve for water, and the seals WILL over heat and crack. Once again, Ebbco does NOT cover seal replacements under warranty.

Tips for Maintaining Your Closed Loop Filtration System



Chillers:

Keep the air filters clean:

Check the panel filters and the condenser fins on your chiller at least once a month to keep a good air flow to the unit, we all know, that better air-flow means better efficiency.

How to Clean:

Use compressed air on the pleats from the reverse side, but no more than 30 PSI. You can also rinse them from the inside out with clean water and blow them dry. Make sure they're dry before reinstalling them on the chiller.

Check and Clean your Condensing Coils

Keeping the condensing coils clean and free of dirt build up, allows the chiller to perform more efficiently in the cooling process.
Condensing Coils are located internally, checking the condensing coils during the filter screen cleaning is recommended.

Ebbco now offers a special condenser Coil Cleaning agent to assist in the removal of Dirt and Residue Deposits on the coil. By Applying this foaming agent to the coils oil and dirt are easily removed from the coils in a matter of minutes. Contact Ebbco Sales Dept for More info.

Table Spraydown:

We do not recommending using city water to clean parts over the cutting table. Adding city water which has high TDS levels, into the system, prematurely exhausts resin, which in turn, raises operating costs.

A Convenient Spray down valve is located at the bottom of your Hurricane Vessel for this purpose, marked "SPRAY DOWN".

Make-Up Water System:

If you're running a Garnet Removal system and service the hopper, or if you just have hard water, it is a great idea to also run a Reverse Osmosis unit with a storage tank for make-up water.

When would you need this?:

If your city or well water quality exceeds 250 PPM total dissolved solids, which it often can, it is recommended that you install an R.O. make-up system.
Introducing water with a low TDS level into your make-up system, will extend the life of the resin filter, thereby lowering operating costs.