



THE *Solo* Pure Water System

Effective August, 2023

Pure Water Window Cleaning System Operation and Maintenance Manual



Overview

Congratulations on your purchase.

Thank you for purchasing the Solo Pure Water System! With proper care, this unit will provide you with years of trouble free service. This system was designed with professional window cleaners in mind. The Solo will help you clean faster, safer, and better than ever before, leaving spot free results that you and your customers will love!

The Solo contains an RO membrane that will remove over 90% of the dissolved solids from source water. It also has enough pre-filter media inside the same housing to protect the RO from chlorine and biological fouling for the duration of its lifespan. With proper care and maintenance the Solo System should be able to process 100,000 gallons on most water sources. Failure to follow the instructions in this manual will reduce the lifespan of the system.

In The Box

Parts Check

- TS5010 (Solo) System
- TDS Meter
- Bypass Hose
- Quick-Connect Shut Off

1. Unpacking/Inspecting The System

Your system is packaged to stay undamaged in transit. Please inspect all components to ensure no damage has occurred prior to continuing. Carefully remove the packaging material from around the system and discard. Inspect your Solo for any shipping damage. If damage has occurred, notify the shipping company that made delivery to begin a damage claim.

2. TDS (Total Dissolved Solids) Meter



Total Dissolved Solids (TDS) are the minerals and salts within source water that lead to spotting on glass as the water evaporates. Your TDS meter measures the amount of dissolved solids using the conductivity of the water. The meter can test water before and after the system to determine how it is performing. TDS levels are measured in parts per million (ppm).

Remove the cap from the TDS meter and fill with the sample you wish to test. Push the “On” button on the handheld TDS meter to get a TDS reading of the water sample. A TDS reading of 0 – 10 is acceptable for cleaning most windows, though specific conditions and results may vary.

It is important to rinse out any source water with pure water to ensure accurate readings. Even a single drop of source water will cause the pure water TDS reading to appear higher than it actually is.

Your TDS meter also has a thermometer which reads temperature. This can allow you to monitor the temperature of your feed water. Running your system at feed water temperatures of less than 10 °C (50 °F) will result in low flow exiting the system. RO membranes require more pressure to create the same amount of clean water as the temperature of the water gets colder. A pump can help to compensate for low source water temperatures. Do not let the system freeze when operating in lower temperatures.

3. Initial Setup



You can also watch the quickstart video at:
www.window-cleaning-supply.com/SoloQuickStart

Ver el vídeo de inicio rápido:
www.window-cleaning-supply.com/SoloQuickStartSpanish



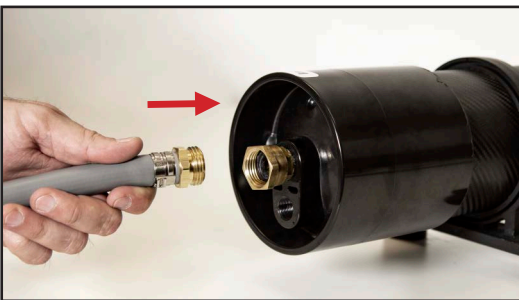
1. Attach bypass hose to the fitting on the side of The Solo system.
2. Open valve on bpass hose fully.
3. Attach shut-off valve to The Solo system outlet.
4. Attach pole tubing to quick connect shut off and turn to open position.
5. Attach source hose to water source and the other end inlet of The Solo system.
6. Turn on source water.
7. Elevate the outlet side of the unit and rotate so bypass is facing upward until air has been purged from the RO housing through the bypass line. Failure to bleed the air out of the system can result in lower production and possible damage to the filter housings. Trapped air may also result in the plastic overheating and pressure rating of the RO housing dropping. Setting up your system up out of direct sunlight on hot days will also help protect the plastic RO housing from heat damage.
8. Once the air has been purged out of the filters, close the bypass valve partially to begin producing pure water. **Do not close off flow through the bypass line while using the system** (some bypass water should always be flowing out). Your bypass hose assembly (WF2200-BHA) is manufactured so that it can't be completely closed. Never plug the end of your bypass while in operation. See Bypass Valve Operation section below for more information.
9. Start cleaning windows.

4. Adding Optional Filters

The Solo System is designed to have everything needed to purify most municipal water sources to acceptable levels for window cleaning, all in one sealed housing. For very hard water sources, an external DI filter may be required, after the system, to polish off the pure water exiting the system in cases of source water with a high content of total dissolved solids (TDS) or for jobs which require 0 part per million pure water to clean.

The Solo system is not designed to be run using well or reclaimed water. This system was designed specifically to operate on municipal water sources. Sediment or other special filters can be added before the system to minimise the effects of well or reclaimed water. Using microbially unsafe source water will reduce the lifespan of the system and may cause biologic fouling of the membrane.

5. Hooking Up To Water Source



Locate an external water source. Attach one end of the feed hose (not supplied) to the water source. Open the faucet at the building and make sure all air is out of your source hose. Turn off water and attach to inlet of The Solo System. A 1/2" garden hose is preferred. Open bypass valve fully and turn on source water. Once the air in the filters has left the bypass line, adjust valve to desired flow rate. Open the shut-off valve between the hose and the pole to allow water to flow through the pole and wash glass. **Do not drink pure water made from your system.** If using a pump, wait for water to flow from brush before turning the pump on. **Do not exceed 120 PSI.**

6. Bypass Valve Operation



The system comes with a bypass hose and valve that control the amount of water leaving The Solo System. RO membrane filters use the bypass flow to remove concentrated dissolved solids from the filter. **There should always be water flowing out of the bypass hose.** Inadequate bypass flow will result in fouling and possibly damage the RO filter.

The water coming out of the bypass hose may initially appear milky. This milky appearance is actually small air bubbles being pushed out of the filter housing through the bypass line.

The bypass valve on your Solo System is drilled out so that enough bypass flow should still exit your system when the valve is fully closed. On some high TDS source water or when operating with a pump, you may want to open the valve to allow more water to exit the system as bypass water. Your bypass flow should be roughly equal to the flow of pure water leaving the system.

When using a pump, open the bypass valve fully to start then reduce flow for optimal pressure. **Do not exceed 120 PSI on your filters.**

Flushing water through the RO filter after use will remove excess minerals from the membrane. **It is recommended that you run your system with the bypass valve fully open for 3-5 minutes each time you finish using your system** to help clean out your RO membrane and extend its life. See Shutdown section of this manual for more details.

7. Using A WaterFed® Pole



Once your Solo system is hooked up, and you have a WaterFed® pole connected to the unit, you're ready to clean windows.

Always begin by cleaning the top row or highest windows first, including scrubbing the frames. Work the WaterFed® pole up one side of the frames, across the top, and back down the other side. Scrub the glass in an up and down motion, moving the pole the entire length of the glass with each stroke if possible. Return the pole to the top of the window, and with a side to side motion, allow rinse water to flow completely down the surface of the glass.

Frame rinsing may not be required. If the height of the glass and the weight of the pole allow for it, hold the brush slightly off of the surface of the glass to rinse. If this is not possible, move the pole side to side slowly with the brush on the glass at the top, and let the water flow down the glass to rinse.

Once you have completed the top row or highest glass on one side of the building, repeat these steps for each tier or level of glass, working your way down. A good initial scrubbing on the glass followed by a complete rinse will ensure that the glass dries completely spot-free.

Pure water is a great natural solvent for many soils. In some cases, such as heavy soils, a pre-soak or even a double scrub and rinse may be needed to achieve optimal results. The agitation of the brush, coupled with the flow of water through the brush when scrubbing, should break down and suspend most soils, readying them for complete removal via the rinse step.

As with any new procedure, practicing the use of your WaterFed® pole is the best way to achieve optimal results. Learn more about basic technique at www.abcWindowSupply.com/StartingWF

8. Soap Residue

Getting spotting when your TDS levels are below 10? A common issue encountered when transitioning buildings from traditional window cleaning methods to pure water cleaning is soap residue. After the initial cleaning with pure water, small white or gray spots and runs may be seen on the glass after drying. Most often this is soap and or detergent residue left behind by previous traditional cleanings and brought out of the pores of the glass by the pure water cleaning process. The soap can take up to 30 minutes to dissolve if it has been baked on or pushed into seals and frames. Soaking the glass 15-20 minutes before performing a normal agitation and rinse cycle will remove soap spotting. Repeat agitation and rinse if the spots persist.

9. Shutdown

1. If using a pump, shut off the pump before turning off supply water.
2. Close the shut off valve to the pole. Open bypass valve to fully open position and flush out the system for 3-5 minutes.
3. Turn supply water off.
4. Disconnect the water line. Make system water right by connecting bypass hose to inlet and closing the shut-off valve.

10. Maintenance

Your Solo system requires little maintenance to operate at peak performance. As stated above, flushing the RO membrane and having sufficient bypass flow is essential to achieving maximum RO lifespan.

RO membranes have the potential to process 100,000 gallons of water when properly maintained. To test the health of your RO membrane compare the TDS levels of the source water to the level of pure water leaving the system. For example, 100 TDS source water with 10 TDS leaving the system indicates 90% rejection. When rejection rate climbs above required levels for your cleaning application it is generally time to buy a new system. Adding a DI filter after the system can allow you to keep an older Solo system in service longer.

11. Storage

Storage - Short Term (2-4 Weeks)

Do not allow the filters or system to freeze. Failure to do so could result in damage to your Solo system. Do not allow the RO filter to dry out. A dry RO membrane will develop cracks which allow more dissolved solids to pass through. abc recommends that you run water through your system once every 2 weeks or so, not only to help keep your filters moist but to also wash out any microorganisms that might try to grow in your filters. The Solo needs to stay moist but does not need to be full of water.

Storage - Long Term (Winterizing)

abc strongly recommends flushing out the system once every 2-4 weeks to ensure the maximum lifespan of the filter. This will ensure that the filter membrane does not dry out and will reduce the chance that biological growth will foul the filter elements while in storage.

If periodic flushing is not feasible, we recommend that users seal the system by attaching the bypass hose to the system inlet and then attach a closed shut off valve to the system outlet. This will reduce the chance that the filter dries out when in storage. Wrap filters tightly in plastic wrap or plastic bags and then seal with tape. Do not allow the system to dry out.

Store system indoors over the winter. Do not allow it to freeze. Failure to do so could result in damage to your Solo system. After the system has been stored this way, it will need to be flushed thoroughly before use. Leaving the system sealed for extended periods of time can lead to biological fouling, which is why we recommend periodic flushing.

12. Troubleshooting

Low Pure Water Flow Out Of The Brush

1. Low tap pressure is one of the most common causes of low flow of pure water. Source water pressure is the primary driver of system performance. Even sources that appear to have plenty of flow out of the tap may not have enough PSI to push water through the RO membrane. Ensure that the tap pressure is sufficient using a pressure gauge (TA-PG Sold Separately). Trying a different source may lead to better performance. Also check all hoses (incoming and outflowing) for kinks or blockages,

especially hose reels that are wound too tight. Trying a larger diameter hose (1/2") or a shorter hose length between the system and the tap can also improve flow. Adding a pump, such as the ABC boost pump (WF1000-BP Sold Separately), can help compensate for low source pressure. **Do not exceed 120 PSI** when using a pump.

2. Mineral fouling of the RO membrane will lead to reduced pure water production from your system. Processing water through the RO membrane without enough (or any) bypass flow will lead to increasing mineral concentration within the RO housing. In minor cases, this will result in a temporary drop in production from the RO membrane. Flushing the excess minerals from the housing will return the filter to normal production rates if no fouling has occurred. In extreme cases the mineral buildup will permanently reduce the flow rate of the filter. These cases can only be fixed by replacing the filter.

3. Biologic fouling is another potential cause of reduced pure water production from the RO filter. Algae, bacteria and fungi can land and grow on the surface of the RO membranes. These organisms eventually block off pores in the membrane leading to reduced production levels. Letting filters sit for long periods of time without running any water through them increases the chances of biological fouling. After long term storage, running a series of long flushes will often return the RO membrane to normal production levels. Fully open the bypass hose and then shut off your system's pure water outlet. Run it like this for 10 minutes and then open your pure water outlet and restrict your bypass to its normal running setting. Test the water coming out of the RO (not the bypass water). If levels are as expected, use the system like normal. Doing this flushing process 2 or 3 times may be required to return to normal production levels.

4. Expect decreased production rates when running your RO with colder source water. The ideal temperature for source water is 77°F. You can expect around half the flow for water at 50 degrees that you would get at 75 degrees, even if both sources are at the same PSI. Use your TDS meter to measure the temperature of your source water to determine if this is the cause of lowered flow rates.

5. Leaks in the system and the pole tubing can release pressure and take flow away from the jets in your brush. A couple of small leaks in the pure water lines can cut pressure to the jets in half. Read the "leaks" section below for more information on eliminating leaks in the system.

High TDS Coming From The System

1. Retest your water sample. When you get a higher than expected reading on your handheld TDS meter, it is a good idea to use the water you are testing to wash out both the measuring lid and the measuring prongs of the meter itself. Do not get the body of the meter wet, it is not waterproof. Minerals can stay in the cup from other measurements and can make the sample appear to have a higher TDS than it actually does. Taking multiple samples ensures maximum accuracy.

2. Elevated TDS levels coming from the RO membrane can indicate that the RO needs to be replaced. Use your handheld TDS meter to measure the TDS water coming out of the RO and compare that to the TDS levels of the source water. Your RO should have a rejection rate of over 80%. If the rejection rates are below normal, follow the step below to ensure that the RO filter needs to be replaced.

3. Running the Solo system on High TDS source water will result in higher levels of TDS in the pure water. Adding a DI filter after the system should remove the rest of the dissolved solids.

4. If your RO rejection is lower than expected, you can try running a 10 minute flush. Increasing flow through the filter housing will help the flushing process. Fully open the bypass hose and then shut off your system's pure water outlet. Run it like this for 10 minutes and then open your pure water outlet and restrict your bypass to its normal running setting. Test water coming out of the RO (not the bypass water) to get the before reading. Check your RO TDS to see if it is dropping to more acceptable levels. Repeat the forward flush 2-3 times if necessary to drop the RO TDS.

5. If your rejection is lower than expected, you can try running a 10 minute flush. Increasing flow through the filter housing will help the flushing process. Fully open the bypass hose and then shut off your system's pure water outlet with the provided quick connect valve. Run it like this for 10 minutes and then open your pure water outlet and restrict your bypass to its normal running setting. Check your RO TDS to see if it is dropping to more acceptable levels. Repeat the forward flush 2-3 times if necessary to drop the RO TDS.

6. If your TDS does not drop, your system is probably exhausted. You can continue to use the exhausted system, as long as the water exiting the system is still pure enough for your cleaning application. Adding a DI filter after the system can allow an exhausted system to still be used longer.

Water Coming Out Of Bypass Hose

1. Strong bypass flow is normal during system operation. This water is the bypass water and it contains a very high TDS. This water is non-potable but is also not harmful to plants. **Do not drink bypass water.**

3. Milky white bypass flow is a common occurrence when starting up the system or using a new RO membrane. It is trapped air being pushed out of the filter housing and will stop once the air is gone.

13. Leaks

Leak Between Brass Garden Hose Fitting And Plastic Housing

1. Unscrew leaky brass fitting.
2. Check brass fittings for damage or deformation. If necessary replace brass fittings. Replacement parts can be ordered from abc or bought from a local store. The plastic hole size is 1/2" national pipe thread (NPT) and the Brass fitting connection are a standard 3/4" Garden Hose thread (GHT).
3. Fittings should be attached with an adhesive to prevent leaks. We recommend Liquid Nails Perfect Glue from Home Depot. If damaged, use Gorilla Glue Two-Part Epoxy to help seal cracks.

Leak Between Brass Garden Hose Fittings

1. With the source water off, check that the fitting is properly tightened. Tighten until you feel the gasket engage. All fittings are leak free hand tightened. **Do not overtighten.**
2. Unscrew the leaky connection. Check the gasket in the female fitting for damage or deformation. Replace gasket if necessary. Replace gasket before tightening fitting. Wrench can cause damage if over tightened.
3. Check brass fittings for damage or deformation. If necessary replace brass fittings. Replacement parts can be ordered from ABC or bought from a local store. The plastic hole size is 1/2" national pipe thread (NPT) and the Brass fitting connection is a standard 3/4" Garden hose thread (GHT). Fittings should be attached with an adhesive to prevent leaks. We recommend Liquid Nails Perfect Glue from Home Depot.

Expressed Warranty

abc Window Cleaning Supply warrants new water purification systems against manufacturing defects under normal use to the original purchaser.

abc Window Cleaning warrants new equipment for one year from the original purchase date to be free from manufacturer defect. Any parts sent out for warranty are warranted from the original purchase date of the machine.

The customer must first contact abc Window Cleaning to notify them of the problem. abc may require the merchandise to be shipped back to them at the customer's expense to evaluate the warranty claim. If the equipment is found to be a manufacturer defect abc Window Cleaning will reimburse shipping expense and parts will be sent out at no charge including standard ground shipping. Rush shipping will be the sole responsibility of the customer.

Wear items exempt from warranty include filters and membranes.

This warranty does not apply to misuse or abuse causing failure of the system. The customer must contact abc Window cleaning before attempting any repairs or modification to the system. Failure to do so will void your warranty.

abc Window cleaning holds no responsibility for loss of labor, time or any costs associated with using the equipment. abc Window Cleaning holds the sole discretion of whether a claim falls under warranty.

Returns

No returns are accepted on this unit. The consumable nature of this system does not allow for us to take returns.

Replacement Parts



Replacement Handle
TS-Handle



Shut-off Valve
WF601311



Rubber Feet
WF7000-RF



Saddle Clamp
TA-2200-FOOT



Bypass Hose
WF2200-BHA



TDS Meter
HMTDS-3

Optional Upgrades



Booster Pump
WF1000-BP



Pressure Gauge
TA-PG



10' Source Hose
WF612010



Hose Reel
112-3-50-100H



Photon DI Only System
TS2300



www.abcWindowSupply.com
12371 Mead Way, Littleton, CO 80125
1.800.989.4003
©abc Window Cleaning Supply, Inc.