PREMIER STAINLESS SYSTEMS

Operations Manual

Model KW-SA-1V-CS-XXX-XP-A

Premier Stainless Systems, LLC
510 Corporate Drive, Suite A
Escondido, CA 92029
Tel: (760) 796-7999
www.premierstainless.com
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Table of Contents

1. Introduction

1.1. Overview

The **Premier Stainless KW-SA-1V-CS-XXX-XP-A** is an efficient, easy to use, versatile keg washer for even the smallest pub or microbrewery. Two Sankey fitting kegs of any size can be rinsed, washed and sanitized simultaneously. Cleaning can be done with cold or hot detergent, as well as sanitizing with an appropriate no-rinse sanitizer. The pump and low flow valves allow for an efficient way to thoroughly clean the keg stem and inner shell every time.

1.2. Description

The machine is a stainless steel constructed unit with one stainless detergent tank, immersion heater, eight air actuated valves, two stainless sankey couplers, one peristaltic pump, one 3/4hp wash pump and automated touch screen control panel with digital temperature controller and disconnect. The immersion heater is controlled by a digital thermostat and is factory set to a maximum of 150 degrees F.

SERIOUS INJURY OR DAMAGE TO THE WASHER COULD RESULT IF HIGHER TEMPURATURES ARE SET!!

The temperature controller can easily be adjusted to suit the user's specific requirements and the wash cycles can be customized by the user. This unit also employs a pressure switch to allow keg pressurization at the end of the cycle. Keg pressurization is factory set to 12-15 PSI and is adjustable to meet end-user requirements.

SERIOUS INJURY AND/OR DEATH CAN OCCUR IF ALLOWING KEGS TO OVER PRESSURIZE! BE SURE TO KEEP PRESSURE BELOW KEG MAXIMUM WORKING PRESSURE!!

This machine rinses, cleans, and sanitizes kegs by the use of pneumatic angle seat valves and two custom designed and custom-made manifolds. There are a total of eight pneumatic angle seat valves on your machine. These valves are PLC controlled and only allow liquids and gasses to go where they are meant to. All eight valves are mounted to either the supply or return manifold. The following list details which valves are connected to each manifold and the purpose of each valve in the rinsing, cleaning, and sanitizing process.

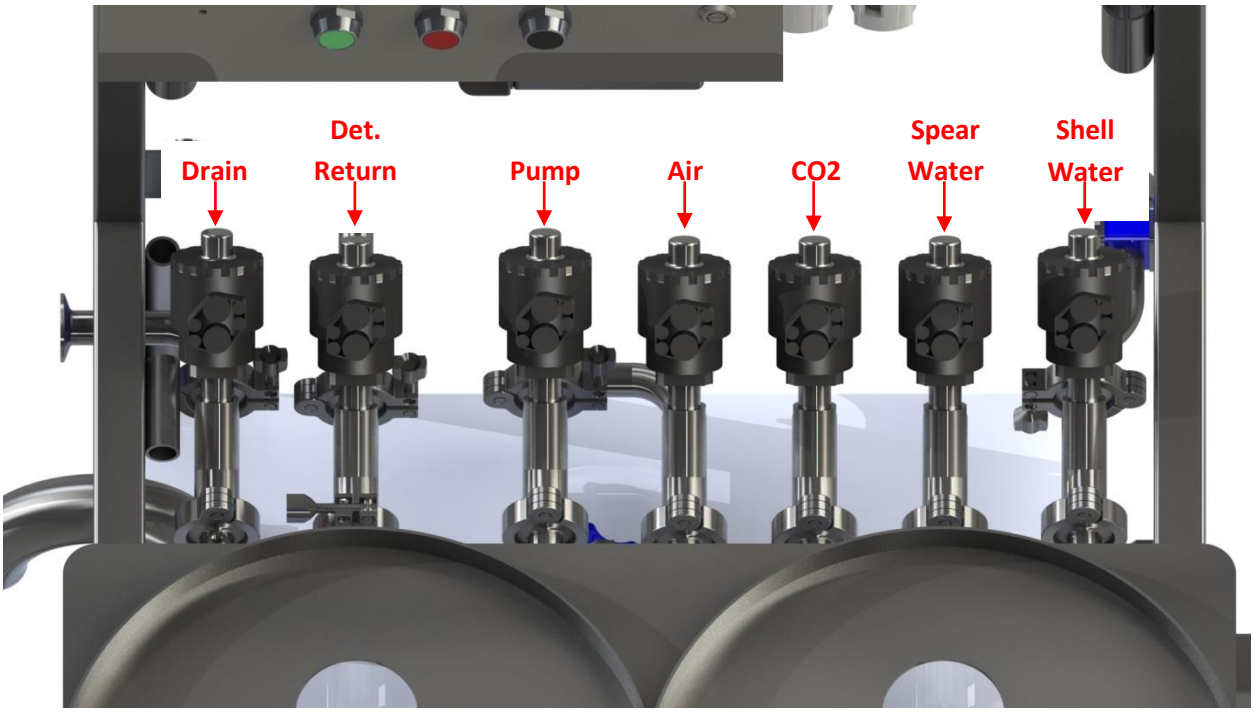


Figure 1 - Angle Seat Valves

Supply Manifold

Shell Water:	For keg shell rinsing
Spear Water:	For keg stem rinsing
CO2:	CO2 purge and fill
Air:	Air purge between cycles
Pump:	For keg shell detergent solution being pumped
Pump low flow (not shown):	For washing spears with solution being pumped

Return Manifold

Detergent return:	Returns detergent to the tank
Drain:	Drains kegs between cleaning cycles

1.3. Best Practices

Below is a list of best practices to follow when operating your keg washer:

- Always be sure to follow and perform everything on both the safety and preparation list before operating the keg washer.
- Before connecting any kegs to the keg washer, prime the sanitizer pump with the dose pump test button. **(See Figure 6)**
- Each day run one or more cycles with clean water in your sanitizer container and caustic tank. This will help extend the life of all non-metal parts on your keg washer.
- When cleaning heavily soiled kegs, run multiple cleaning cycles instead of a single, longer cycle. The keg washer accomplishes cleaning, rinsing, and sanitizing by having liquids cascade down the shell and spear, not by filling the keg. If you extend the time of the cycle, the keg will simply fill more and not be cleaned as well as it could be with multiple short cycles.
- Ensure that all compressed air and CO2 parts meet requirements on compressor and air parts guide.
- Always run two kegs of the same size per cycle.
- Pull random spears to inspect for proper cleanliness.

1.4. Limited Warranty

Seller warrants that the Equipment manufactured by Seller will be free from defects in material and workmanship for a period of one (1) year from the date of manufacture. This warranty will be limited to the repair or replacement, at Seller's option, on any product manufactured by Seller, and deemed to be defective upon reasonable inspection from Seller's representative. Seller is responsible for any labor costs associated with the repair of any defective manufactured item. Seller may contract, by way of a written purchase order, a repair of defect, by others, at our option.

Other Equipment, not manufactured by Seller, is warranted for a period of one (1) year. Seller will assist in honoring any warranty for other Equipment. This Limited Warranty does NOT include liability for any interruption of service, nor does it include liability for any work, services, or parts supplied by Others, nor does it include liability for any labor charges from others for replacement or repair of defective product, nor does it cover costs for parts, fluids, shipping, Purchaser's product or materials for production and contains no contingent liabilities of any kind.

This warranty does not cover damage caused by Purchaser's negligence, neglect, improper maintenance or cleaning, accident, abuse, freezing, or for ordinary wear and tear. Purchaser is responsible for normal maintenance of the Equipment. Equipment finishes are not warranted.

2. Safety

- Use a licensed electrician for main power connection.
- Prior to use, always check hoses and fittings for damage to avoid the possibility of personal injury
- Disconnect power before opening the electrical control box
- Always wear safety glasses with eye splashguards and/or face shield
- Always wear recommended protective wear when using chemicals/detergents
- Never restrict or block overflow (vent) tube on detergent tank serious personal injury could result!
- Always keep liquid level above the heating element
- Check detergent liquid levels and concentrations often
- In case of emergency, use emergency stop button to shut down keg washer immediately
- To avoid injury or worse, always follow all manufacturer's instructions and guidelines

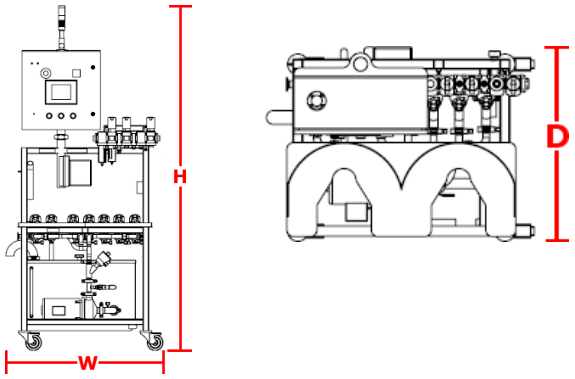
3. Specifications

3.1. Dimensions

Height - 87”

Width - 39”

Depth - 29”



(Dimensions above are rounded to nearest whole number.)

3.2. Capacities

Detergent tank -	23 gallons; 16 gallons operational capacity
Water Consumption -	3-6 gallons per keg on Factory Settings
Peristaltic Pump -	23oz. per minute

3.3. Electrical

FLA:	13 Amps @ 208-230V, 3 phase 18 Amps @ 203-230V, 1 Phase 9 Amps @ 400V, 3 phase 6 & 2 Amps @ 460-480V, 3 phase & 120V, 1 phase

3.4. Recommended Utility Supply

Air supply to the machine:	100 psi, 12+ cfm (See Section 3.5)
Air supply to the air valves:	80-100 psi, dry, clean air
Air supply to the kegs:	30-40 psi, dry, clean air
CO2 supply to the machine:	80-100 psi, 8+ CFM
CO2 supply to the kegs:	30-40 psi
City water:	50-70 psi, ¾” full port supply

3.5. Compressor and Air Manifold

In the case of compressors for keg washers, bigger is better. All equipment using compressed air should be accounted for when selecting a compressor. Oil free is ideal, but also very expensive, so a .01 micron, coalescing filter is **required** on oil lubricated compressors. A general-purpose filter upstream of the coalescing filter is also recommended. An air dryer/ water separator is also recommended, and other machinery using air may also require dry air, so you will want to plan accordingly. A minimum of ½" ID, appropriately rated supply line is required from the compressor to the keg washer for proper operation. **All filters, valves, fittings, hoses, etc. should be at least ½" ID.**

A commercial grade, 60 gallon, 12-14 SCFM, 3 HP compressor is our **MINIMUM** recommendation for the 2 station, SA keg washer.

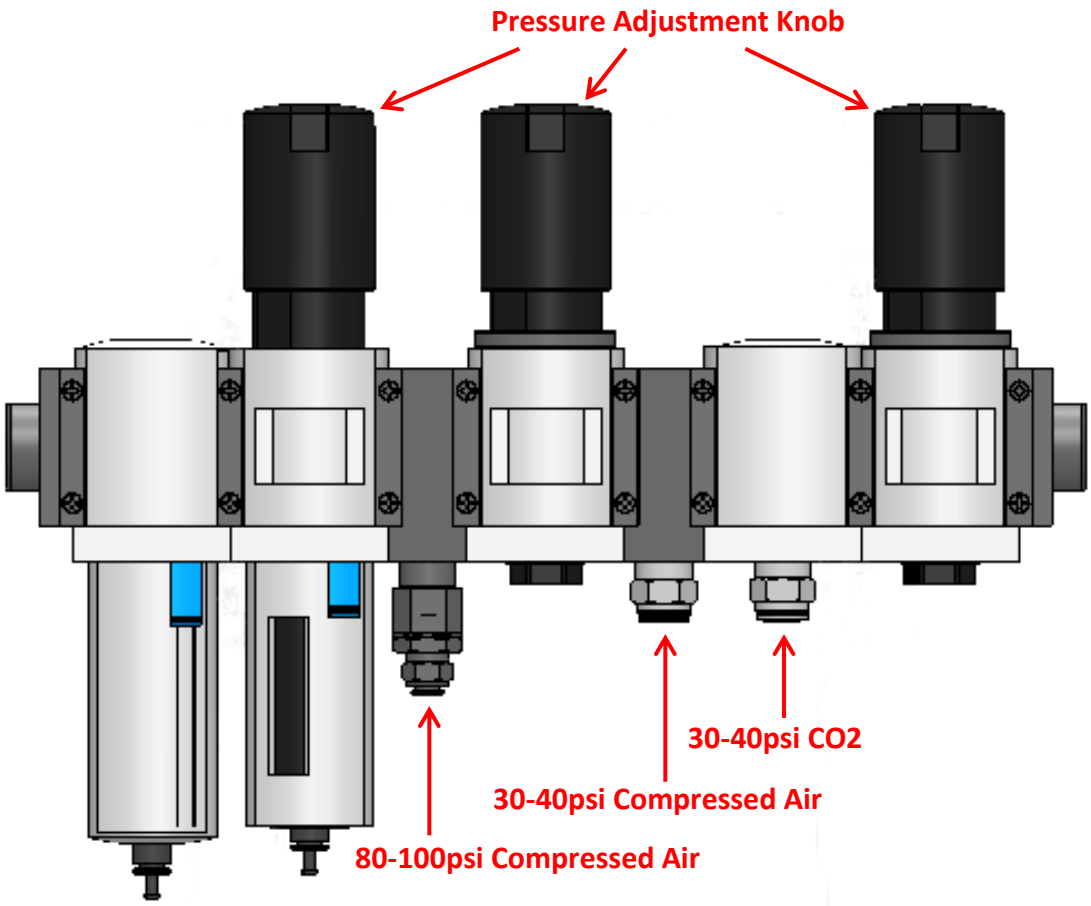


Figure 2 - Festo Air Manifold

3.6. Sanitizer Pump and Dilution Rate

The peristaltic sanitizer pump, located underneath the control panel, delivers approximately 23 ounces/minute of sanitizer to the keg washer manifold. A ¼" OD semi-rigid plastic tube (provided and installed) is used to deliver the sanitizer from its container to the keg washer inlet. Keeping a backup roller assembly, pinch tube, and check valve on hand is highly recommended.

THE PINCH TUBE, ROLLER ASSSEMBLY, AND CHECK VALVE HAVE A LIMITED LIFESPAN AND THEREFORE ARE NOT COVERED UNDER WARRANTY.

The factory sanitizer cycle is approximately 65 seconds, with approximately 45 seconds dedicated to a "Sanitizer Hold" rest. During a normal 65-second sanitizer cycle, the sanitizer pump runs for approximately 20 seconds, where it delivers about 8 oz. of sanitizer. Approximately 2-4 gallons of water is delivered between the 2 kegs during this cycle, depending on water pressure. Based on this volume, the user can determine how to dilute the sanitizer.

For example, if the no rinse sanitizer calls for 2 oz. per 5 gallons of water, and the keg washer uses 2.5 gallons during factory rinse cycle then 1oz. of sanitizer would be required. As the sanitizer pump will inject 8 oz. of liquid into the 2.5 gallons of water, a 7:1 dilution of water to sanitizer would meet the manufacturer's requirement for the sanitizer ratio.

Be sure to prime sanitizer pump and line before connecting kegs. Priming the sanitizer pump can be done by pushing and holding the "Dose Pump Test" button on the Settings screen. Hold the button until your sanitizer system is completely primed.

Flushing the sanitizer pump out with water at the completion of everyday is highly suggested to help extend the lifespan of all rubber parts. This is also a good time to test the evacuated sanitizer and test for the correct dilution specified by the chemical supplier.

Figure 3 - Perastaltic Pump

4. Operation

4.1 Preparation

1. Immerse ¼" sanitizer tube into the sanitizer solution container. Be sure tube can be completely immersed in sanitizer and install tube weight and filter end cap.
2. Ensure sanitizer solution is fresh and mixed correctly.
3. Prime sanitizer line with dose pump test button on settings screen. (See Figure 6)
4. Fill detergent reservoir to about 75% capacity with water and appropriate cleaning chemicals. **DO NOT OVERFILL.**
5. Connect water supply to water valve.
6. Connect both Air and CO2 lines.
7. Inspect, and drain (if needed) the water and filter separator on the air manifold.
8. Ensure correct CO2 and air supply pressure.
9. Connect power and turn on main control panel disconnect.
10. Set temperature controller to correct temperature (MAX 150°F/65°Cc).
11. Inspect all hose clamps and tri-clamp connections. Inspect and tighten all sankey connections.
12. Allow cleaning solution to reach proper cleaning temperature.
13. For proper operation, prime caustic pump by opening the ball valve at the pump outlet until liquid flows (see Figure 3).
14. Ensure proper pump rotation (watch fan rotation (clockwise) on pump motor).
15. Connect appropriate drain hose. **1 ½" ID HOSE RECOMMENDED.**
16. Connect drain hose to appropriate drain.

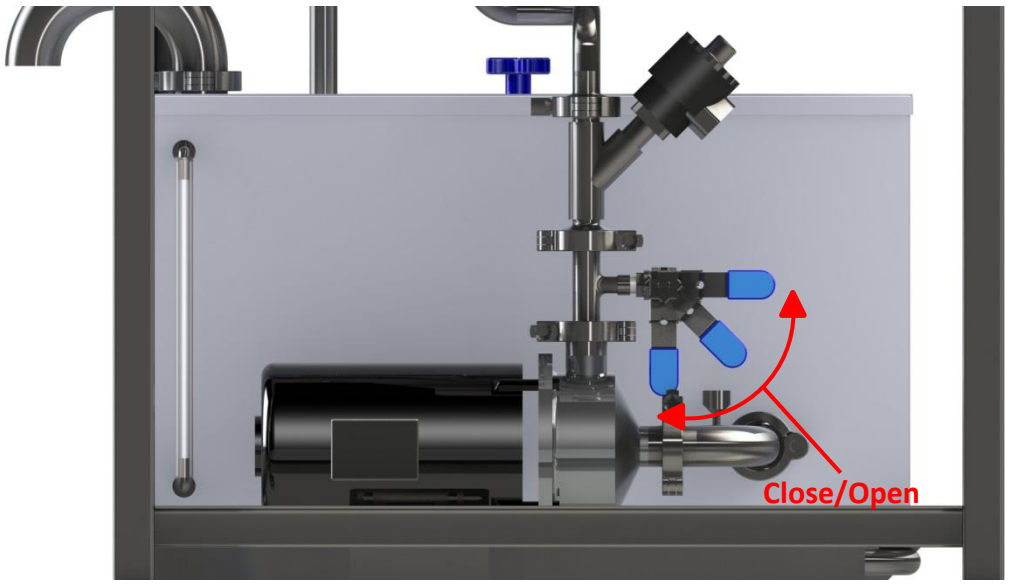
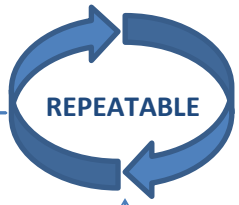


Figure 4 - Bleeding Air From Pump

4.2 Operating Sequence

Step 1.1: Clear keg contents to drain with compressed air.
Step 1.2: Water rinse keg shell
Step 1.3: Water rinse spear
Step 1.4: Clear keg contents to drain with compressed air.

Step 2.1: Caustic shell wash
Step 2.2: Caustic spear wash
Step 2.3: Compressed air purge caustic back to tank



Step 3.1: Water rinse shell
Step 3.2: Water rinse spear
Step 3.3: Compressed air purge water to drain

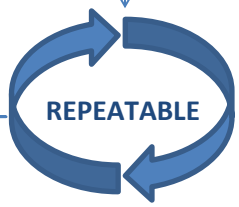
Step 5.1: Water rinse shell
Step 5.2: Water rinse spear
Step 5.3: Compressed air purge water to drain

Only on Wash 1 or Wash 2, not on Factory Settings.

Step 6.1: Sanitize shell
Step 6.2: Sanitize spear
Step 6.3: Sanitizer hold

Step 7.1: CO2 purge sanitizer to drain

Step 8.1: CO2 pressurize
Step 8.2: CO2 depressurize
Step 8.1: CO2 pressurize



4.3 Operator Interface Panel

The Operator Interface Panel is used to monitor keg washing cycles, choose cleaning programs, and count cleaning cycles. Once powered up, the keg washer will display the wash programs available.

PRIOR TO USE, ALWAYS FOLLOW ALL PREPARATION AND SAFETY PROCEDURES.

You can toggle between the factory and user pre-sets by touching the "Factory" or "Wash 1/Wash 2" buttons seen in **Figure 5** below. The operator can customize the cleaning program to match their specific requirements. The selected cycle will be listed on the screen in green.

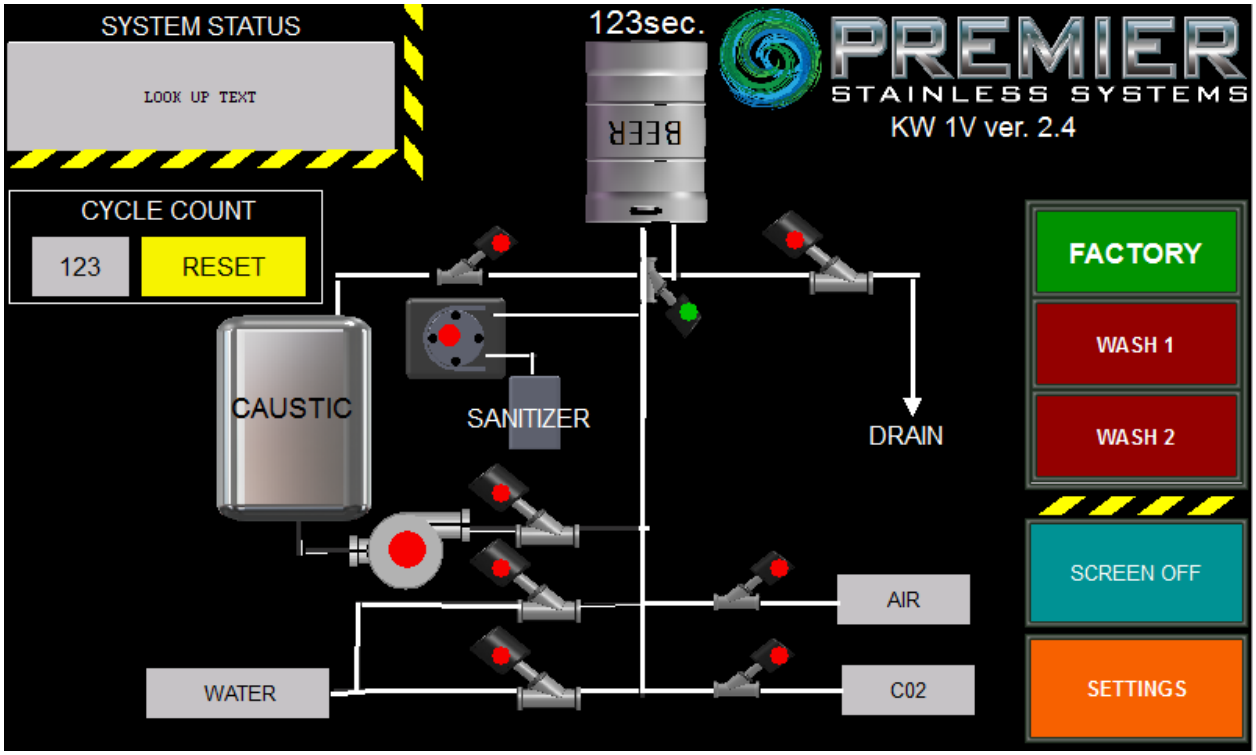


Figure 5 - Home Screen

The Premier Stainless keg washer allows the user to easily adjust their cleaning times by touching the "Settings" button bringing up the selection screens shown in subsequent figures where the parameters for custom wash programs can be entered.

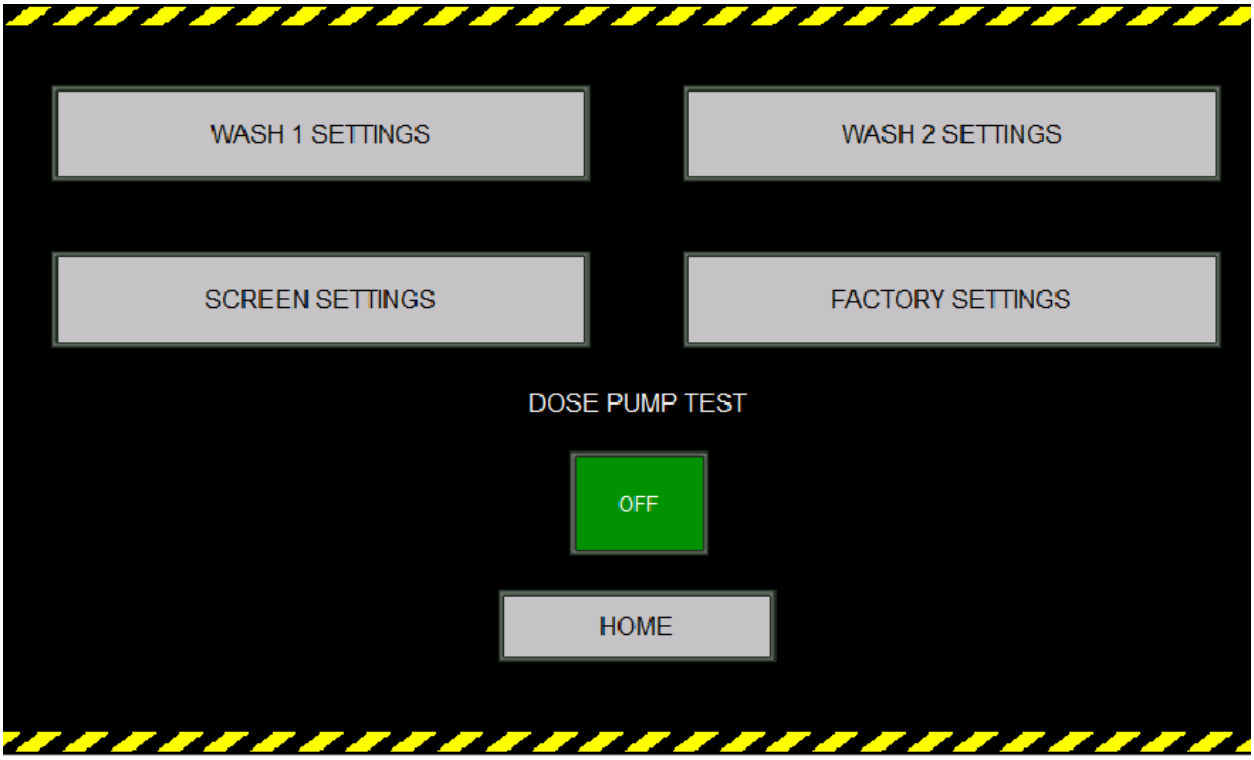


Figure 6 - Settings Screen

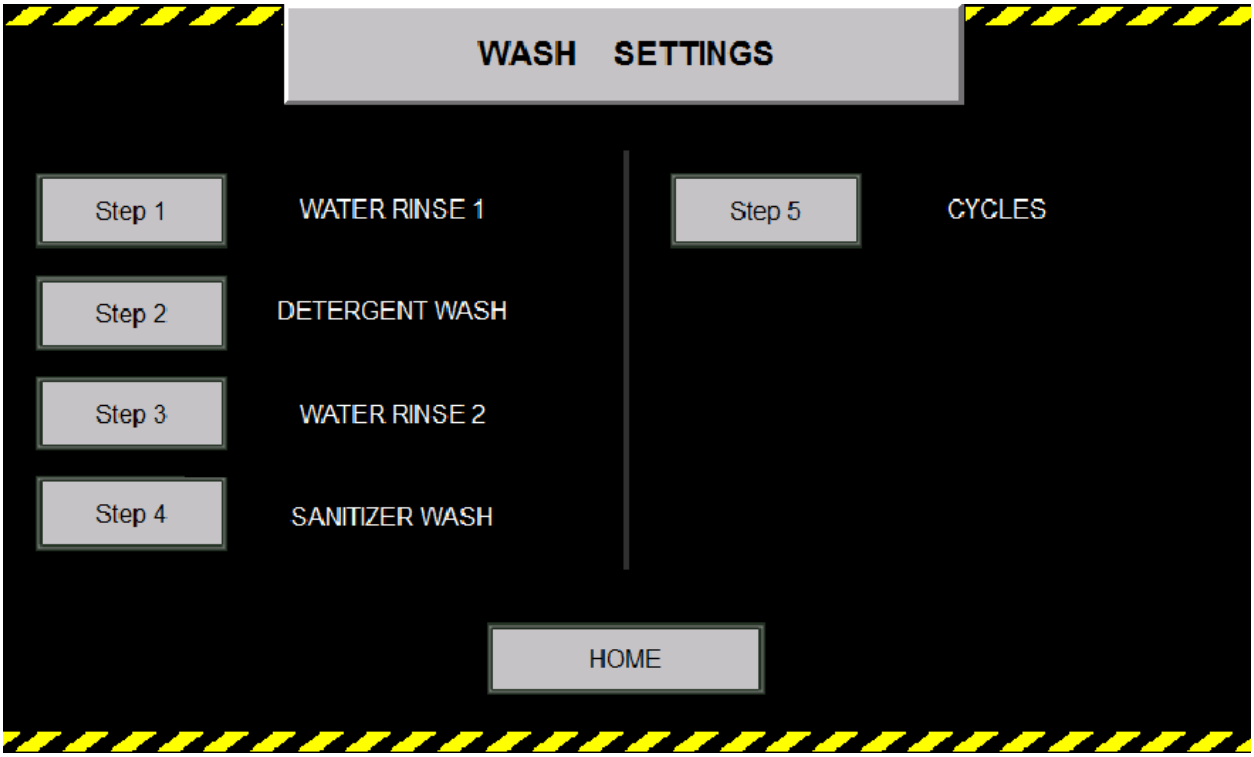


Figure 7 - Wash Settings Main Screen

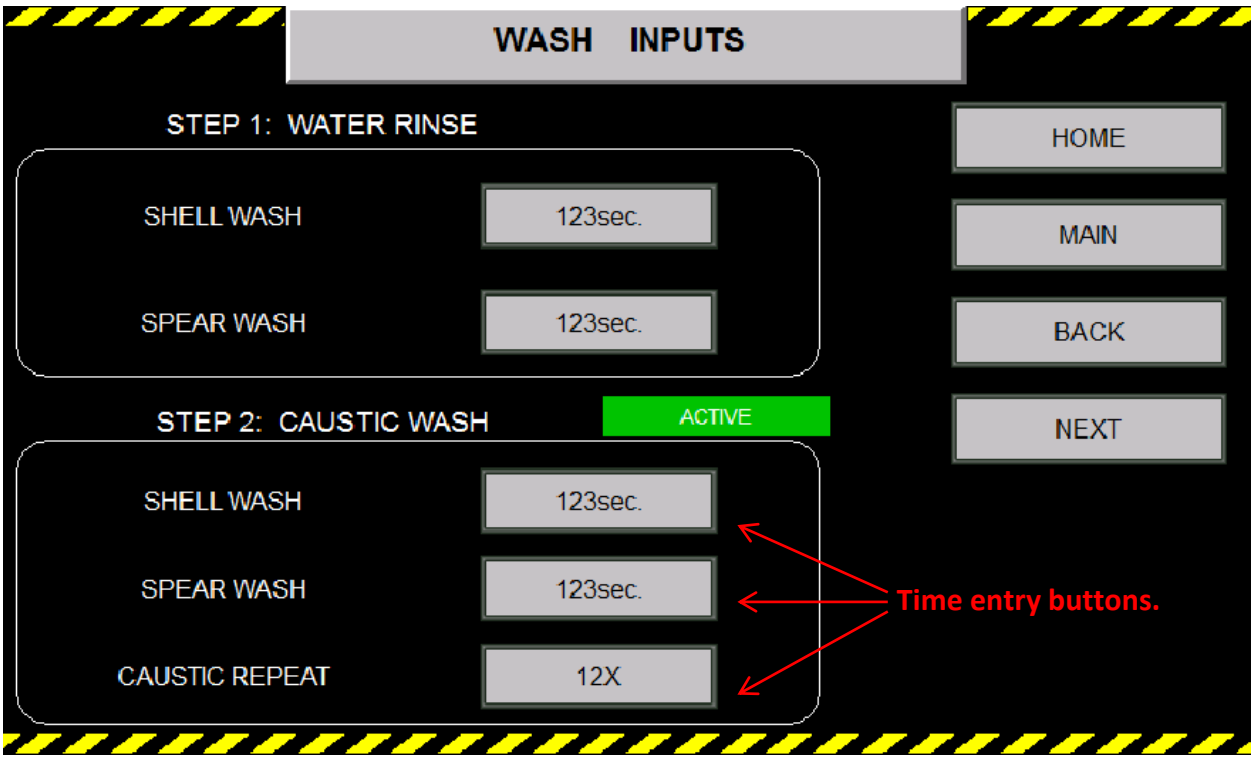


Figure 8 - Wash Steps 1 & 2 Settings Screen

Use the "NEXT" and "BACK" buttons to move between the various step screens. The final screen allows input on how many cycles the washer will run through before displaying the "Check Chemicals/Reset Counter" warning screen

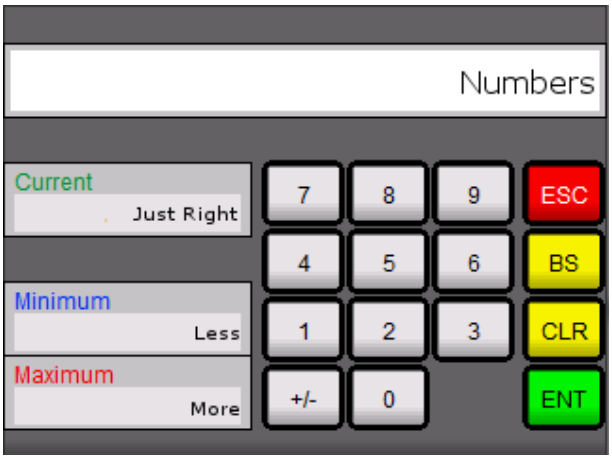


Figure 9 - Numeric Entry Keypad

Figure 10 - Wash Steps 3 & 4 Settings Screen

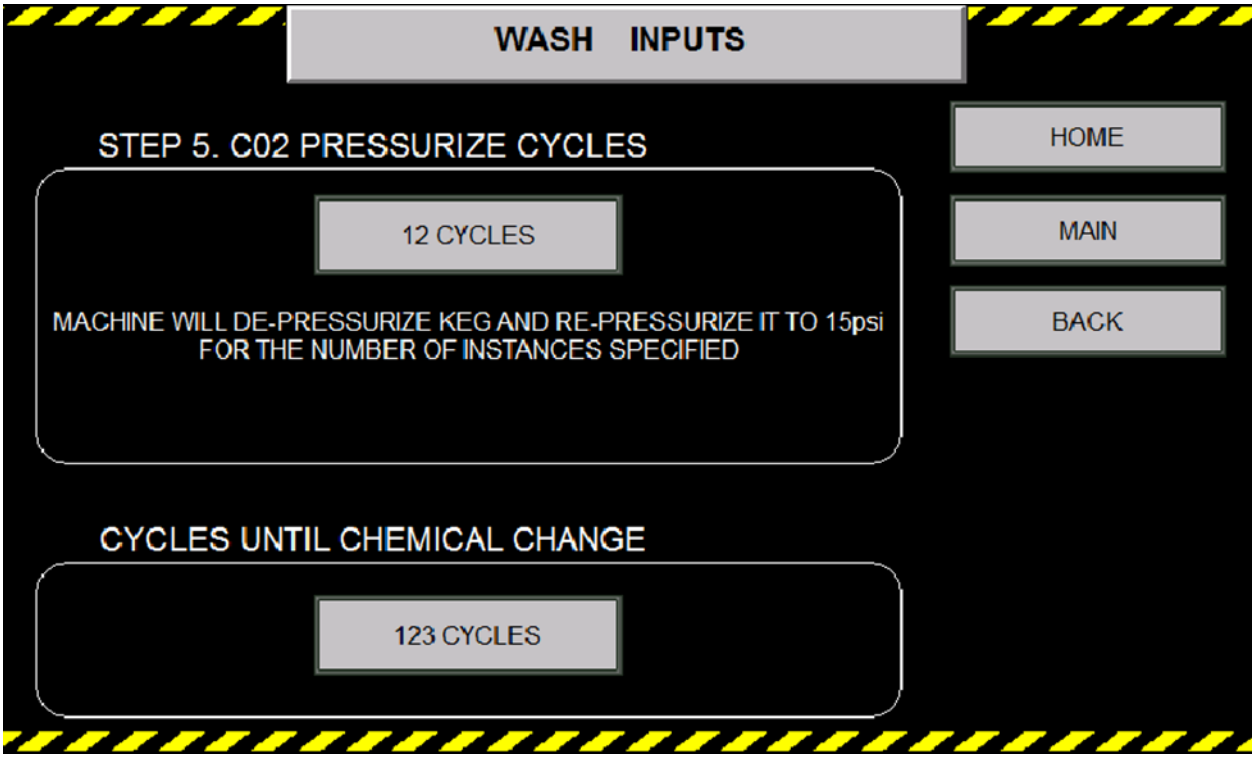


Figure 11 - Wash Step 5 Settings Screen

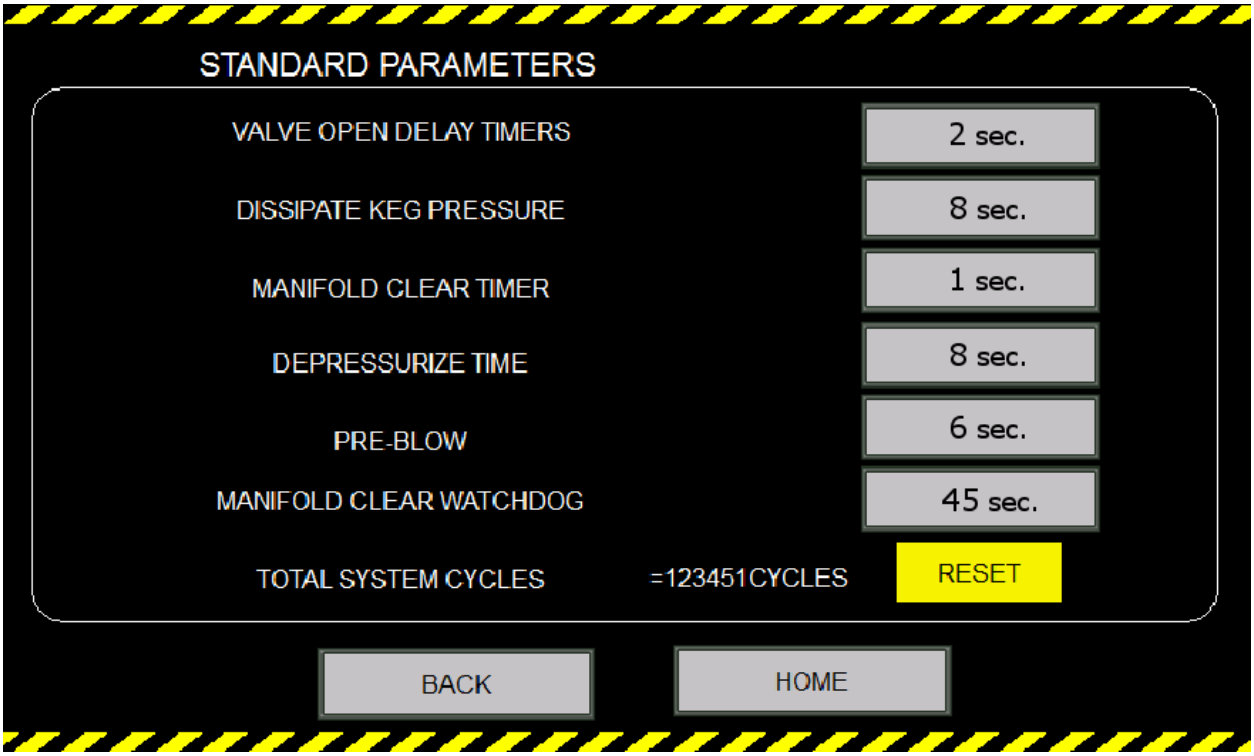


Figure 12 - Standard Parameters Screen

PREMIER RECOMMENDS KEEPING THESE AS A BASELINE FOR THE USER PROGRAMMABLE SETTINGS. PLEASE CONSULT WITH PREMIER BEFORE CHANGING THESE PARAMETERS.

Touch the "MAIN" button to get back to the main settings menu (or "HOME" to return to the Operator Interface screen).

The "SCREEN SETTINGS" button is used to access the menu to adjust the screen display brightness. Touch the "BACK" button to return to the main settings menu or "HOME" to return to the Operator Interface screen.

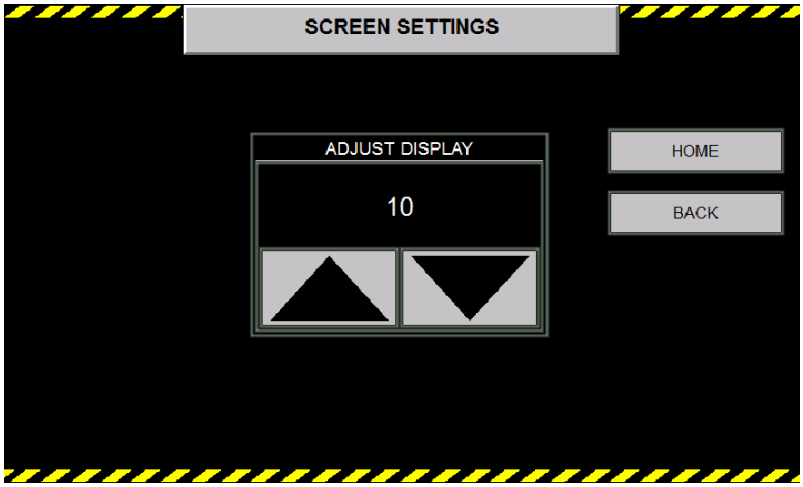


Figure 13 - Screen Settings

4.4. Operation

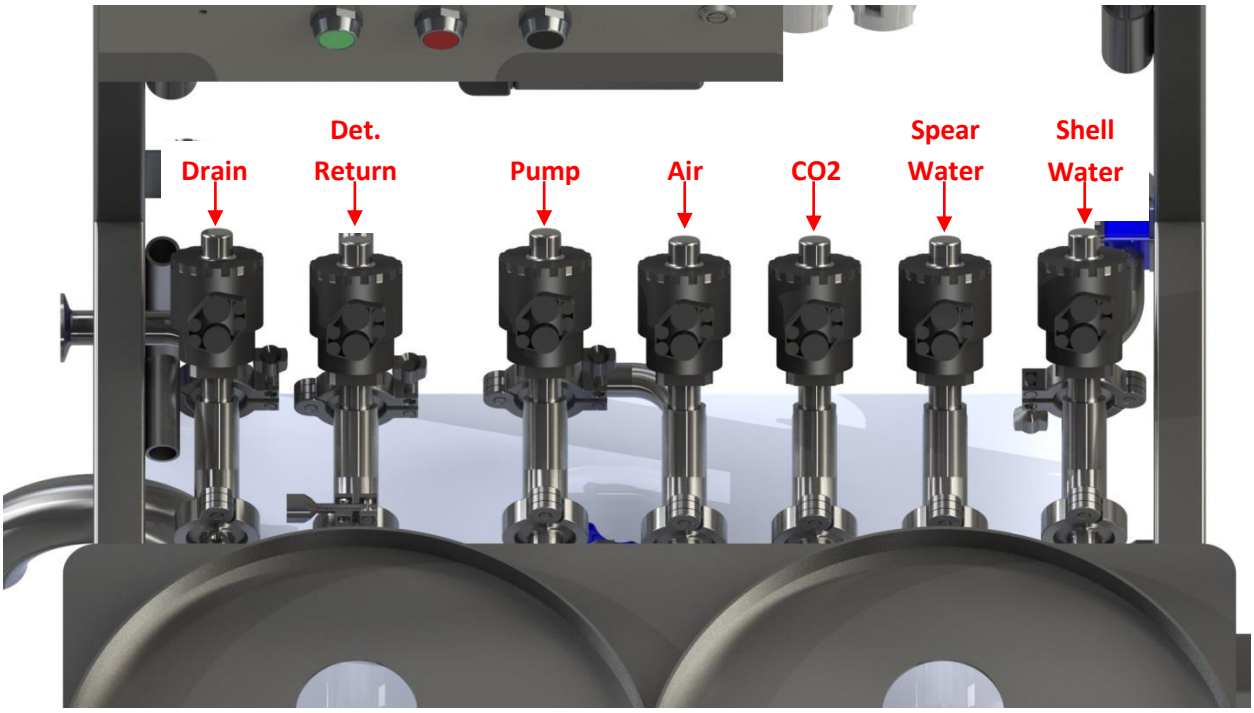


Figure 14 - Angle Seat Valves

PRIOR TO USE, ALWAYS FOLLOW ALL PREPARATION AND SAFETY PROCEDURES.

1. Connect sankey couplers to kegs
2. Open Micro-Matic shut-off valves
3. Place kegs upside down on the keg rack
4. Select appropriate keg washing program from the Operator Interface Panel.
5. Press the green “Start” button.
6. The wash cycle will start with the appropriate valve operation displayed along with the current cycle displayed on the “System Status” window on the Operator Interface Panel.”
7. Once cycle is complete, remove kegs from the rack, close valves on keg couplers and remove kegs.
8. Load new kegs, press the “Reset” button, and press the “Start” button to begin the cycle over again.

The user can use the cycle counter to monitor the number of kegs washed with the current detergent reservoir solution. The user can then check and test the detergent liquid level and concentrations at specific points during the day for maximum cleaning efficiency.

Air Pressure:

Insufficient air pressure/volume can cause numerous issues from prolonged cycle times to fault messages. Premier Stainless recommends a **minimum** of ½" ID air supply from compressor to keg washer with all filters, regulators, valves, fittings, etc. being ½" ID minimum as well. The air supply to the keg washer should be 80-100 psi. The filter/regulator supplying air pressure to the air valve manifold should also be 80-100 psi. Assure that this pressure doesn't drop below 60 psi during the washing cycle, especially during evacuation stages, or proper valve operation may be diminished. A pressure drop of more than a few psi during evacuation stages may indicate a restriction in the air supply and should be addressed or monitored. This is most often caused by using air supply line and/or fittings with too small an ID. Dirty, or otherwise plugged, filters can also cause air flow reductions. The regulator supplying air to the kegs should be 30-40 psi.

CO2 Pressure:

Follow the same guidelines for the CO2 pressure as for the air pressure. If a ½", high flow CO2 regulator is not readily available, use the next largest size available. Low or restricted CO2 pressure/volume can result in a sensor fault and/or prolonged evacuation and pressurization cycles.

5. Maintenance

The **KW-SA-1V-CS-XXX-XP-A** keg rinser, washer, and sanitizer should require very little maintenance outside of routine inspection of the hoses and sankey valves that carry media to the kegs. Periodic checks of the air and CO2 supplies to ensure proper pressures and regular replacement of air filter or desiccant dryer material is advised. To help extend the lifespan of all gaskets and rubber or plastic type materials on the machine, Premier recommends running a cycle or two of water through the machine at the completion of each use. Here is a list of other practices that will also help to extend lifespan of parts on the keg washer:

- Check and drain the filter/regulator as needed. Moisture getting into the air valve manifold on the control panel can cause corrosion and inhibit performance of both the air control valves and angle seat valves.
- Check the immersion heater for any mineral buildup and remove as necessary. Excess mineral buildup can cause slower heating times, but also can cause the elements to overheat and fail. Mineral buildup can also occur in the pumps and, if excessive, can diminish their performance. Running an acid mix occasionally through the water and caustic pumps would be good if there are hard water issues.
- Testing the drain water periodically after the sanitize cycle to confirm proper mixture. A weak/diluted solution can indicate wear or improper performance to the rubber tube and/or check valve.
- Flushing the sanitizer lines with water after each keg run will prolong the life of the rubber tube and check valve.
- Check for nicks/cuts/abrasions on the braided hose and replace as needed.
- When operating the keg washer be observant for any abnormal activity.

6. Troubleshooting

WARNING!!
When performing any troubleshooting requiring the control panels to be opened while powered up, be EXTREMELY careful to have water sources shut off, and surroundings as dry as possible!

Electrical shock, injury, or death could result!

No power to the machine.

- Ensure there is power at your outlet.
- Check circuit breaker at the main power panel feeding the machine.
- Check the internal circuit breakers in the control panel of the machine.
- Check wire connections in power plug.

Caustic tank heating element not working.

- The keg washers are shipped with the heating element circuit breaker turned off so the user will not accidentally turn the heater on without filling the tank first. Verify the circuit breaker (inside main panel) is set to the "on" position (up/red).
- Verify the Emergency Stop button is in the OUT position.
- Make sure temp controller is set to temperature.

Some functions work and display is on but pump(s) will not operate.

- Verify the Emergency Stop button is in the OUT position.
- Check the pump breaker in the panel.
- Check VFD in control panel for fault/error code.

Sanitizer pump is not dispensing sanitizer.

- Verify the Peristaltic pump is spinning, if not, loosen the housing screws, run through a cycle verify the pump turns; retighten screws (the rollers can occasionally stick).
- Verify there is no blockage of the siphon tube going to the sanitizer container.
- Inspect pump tube for any leaks. If a leak is found, replace.
- Verify that the sanitizer check valve is working correctly. Try running the pump with and without the check valve connected at the end of the line. If the pump works without the check valve attached, replace the check valve.
- Inspect roller assembly wheels for wear. If the wheels have become concave at all, they need to be replaced. Generally, this needs to be done at least once a year.

Sensor Fault

A sensor fault will appear when the time it takes for the liquids in the kegs to “clear” the drain sensor during an evacuation cycle exceeds the time limit programmed into the “manifold clear watchdog timer” setting in the PLC, normally 45 seconds. This can be caused by several things including insufficient air pressure, excessive liquid in the kegs, or a faulty drain sensor. Pressing “Repeat”, if kegs still have liquid in them, or “Proceed”, if kegs are empty, will allow the keg washer to move on. Full or mostly full kegs may require pressing the "proceed” button 1 or 2 times to empty the kegs. “Reset” will start the entire cycle over.

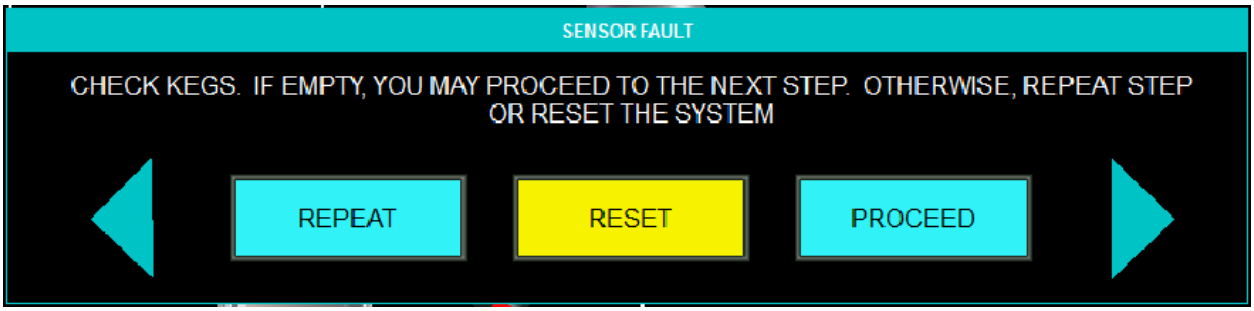


Figure 15 - Sensor Fault Popup Screen

If the sensor fault occurs immediately upon pressing the green start button, the PLC memory for the “watchdog” timer has likely defaulted to “0”, usually after the machine has been sitting unpowered for an extended period. Check the parameters and verify values.

- Verify proper air pressure is available to open the air valves (80-100 PSI) and does not drop excessively during evacuation steps (below 60 PSI). Insufficient air pressure/volume can prevent the valves from opening fully, resulting in longer evacuation times.
- Verify that the drain valve is open and the drain line is of sufficient size and unobstructed.
- Verify air and C02 pressures are at the recommended settings (30-40 PSI) and do not drop excessively during evacuation steps. Insufficient CO2 pressure/volume can prolong the evacuation of the sanitizer solution and pressurization of kegs, causing a sensor fault.

Custom (longer) rinse and/or wash settings will put more liquid into the kegs, resulting in longer evacuation times. Shorten cycle times or lengthen “watchdog” timer. Running multiple, short wash cycles are more thorough than running a single, longer wash cycle.

To check parameters:

Push “SETTINGS”, “FACTORY SETTINGS”, 1516 Enter, “STANDARD PARAMETERS”

Check that each parameter is set as follows:

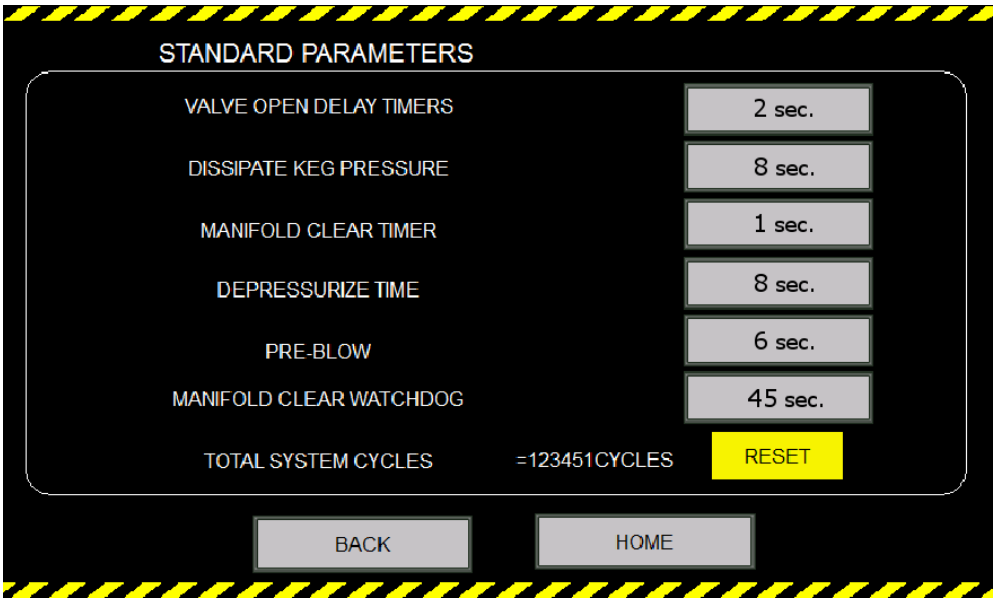


Figure 16 - Standard Parameter Settings

Figure 17 - Sensor Override Location

Pressing and holding the Sensor Override button for a few seconds will bypass the sensor and move the machine to the next step.

Check the **X3** light on the control panel to monitor the status of the evacuation cycle. Light on, drain sensor is sensing liquid. Light off, liquid cleared.

Figure 18 - X3 and X4 Sensor Lights

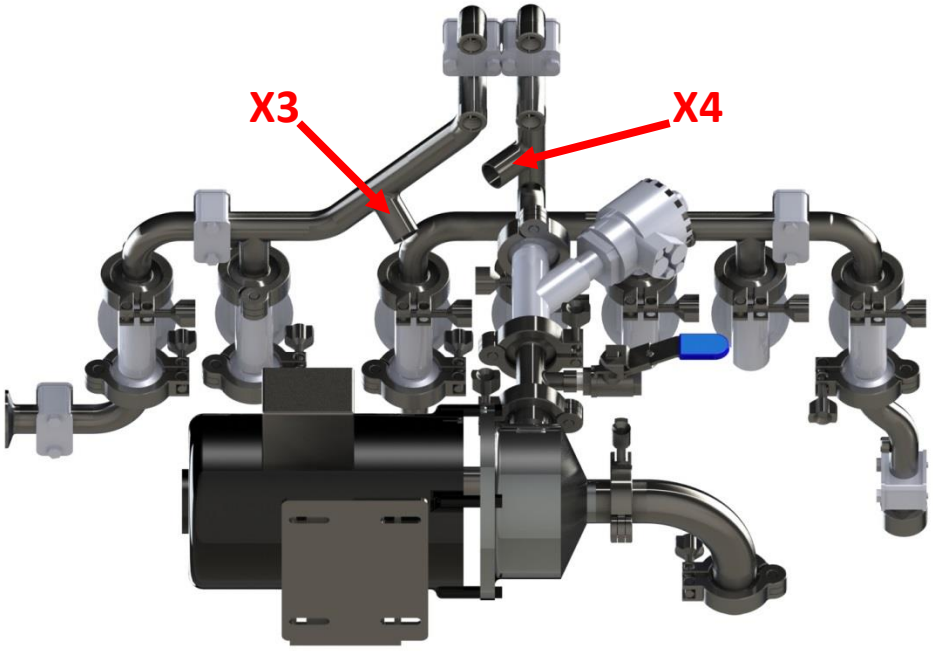


Figure 19 - X3 and X4 Sensor Locations on Manifold

Water / Caustic / Acid Line Fault

A water, caustic, or acid line fault will occur when the inlet sensor does not sense liquid in the inlet manifold during a cleaning/rinsing step. If this fault should occur, press the REPEAT button and visually verify that liquid is flowing through the hoses before the fault reappears. If liquid does not appear to be flowing, check the following:

- Verify the Sankey Coupler shutoff valves are open.
- Make sure air compressor is on and air pressure regulators are set per the guidelines. (See 3.4. Recommended Utility Supply and 3.5. Compressor and Air Manifold) Low air pressure can affect the opening the valves, preventing liquid from reaching the sensor.
- Verify water supply is turned on.
- Make sure the pumps are properly primed. An unprimed pump will not pump liquid.

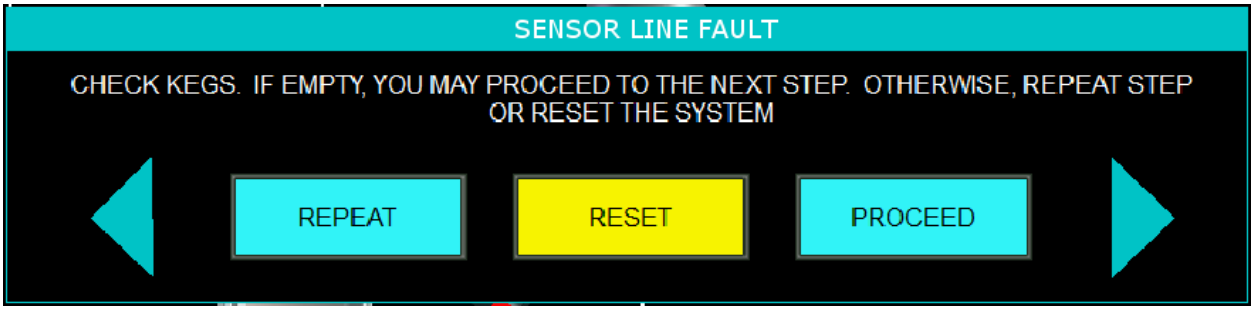


Figure 20 - Sensor Line Fault Popup Screen

Kegs Not Draining/Tank Level Changes

After a cycle, if the kegs have liquid remaining in them or tank levels have changed, check for proper operation of the drain sensor/X3 light on control panel. During the evacuation stages, the keg washer will continue to purge until it detects all liquid from the kegs has been depleted, X3 light goes out, or the time limit has been reached, "sensor fault". If the X3 light fails to come on when liquid is present, or works intermittently, the keg washer may move on to the next step before the kegs are fully evacuated. This can result in liquid remaining in the kegs after cycle completion and/or increasing or decreasing tank levels. Check sensor wiring for loose connections. If the wiring is good, but the X3 light never comes on, the sensor may be bad. If this is the case, lengthening the "**PRE-BLOW**" time (See Figure 16) can get the machine running again until you get a new sensor. Set the "**PRE-BLOW**" time just long enough to evacuate the kegs on the longest wash setting, usually 20-25 sec. on factory settings. This may be longer on custom wash settings and could take a few attempts to get the time right.

If liquid is remaining in a keg after cycle completion, the coupler washers, or the couplers themselves, may need to be replaced. As these parts wear, the couplers may not engage the keg stem properly, resulting in incomplete draining. With this issue, the function of the drain sensor (X3) will be normal. This may occur in one or all kegs, but changing the washers usually will solve the problem.

Sanitize System

The chemical sanitizer is injected into the keg washer's water line by means of a peristaltic pump and injector/check valve. The peristaltic pump uses a rubber "pinch" tube to draw in the sanitizer from a customer supplied container and pump it into the waterline through an injector/check valve. The pinch tube, roller assembly, and injector/check valve are considered wearable parts and are not typically covered under warranty. Problems with the sanitization of kegs are usually the result of a worn or damaged pinch tube, worn or plugged injector/check valve, worn roller assembly, or any combination of these. These parts will require periodic replacement, and with heavy usage of the keg washer and/or the use of harsh chemicals such as peracetic acid, more frequent replacement of these parts will be likely. Premier Stainless recommends replacing both the pinch tube and injector/check valve together when sanitizer flow issues occur. The roller assembly may need replacing once or twice a year depending on usage. Premier Stainless also recommends the periodic testing of post sanitize drain water from the kegs. This can detect changes in the chemical concentration due to the breakdown or failure of the pinch tube, injector/check valve and/or roller assembly before a complete failure

occurs. It is highly recommended to have at least one spare pinch tube and injector/check valve at all times, and advisable to have a spare roller assembly.

Sanitizer Pump Not Working

- Verify the Peristaltic pump is spinning by pushing “Dose Pump Test” button on settings screen. (See Figure 6)
- Verify there is no blockage of the siphon tube going to the sanitizer container.
- Inspect pump tube for any leaks. If a leak is found, replace.
- Verify that the sanitizer check valve is working correctly. Try running the pump with and without the check valve connected at the end of the line. If the pump works without the check valve attached, replace the check valve.
- Inspect roller assembly wheels for wear. If the wheels have become concave at all, they need to be replaced. Generally, this needs to be done once or twice a year depending on usage.

Appendices

Appendix A: Factory Settings

Step 1: Water Rinse

Shell:	16 seconds
Spear:	8 seconds

Step 2: Caustic Wash

Shell:	25 seconds
Spear:	8 seconds

Step 3: Water Rinse 2

Shell:	20 seconds
Spear:	8 seconds

Step 4: Sanitizer Wash

Shell:	15 seconds
Spearl:	5 seconds
Hold:	45 seconds

Step 5: CO2 pressurize

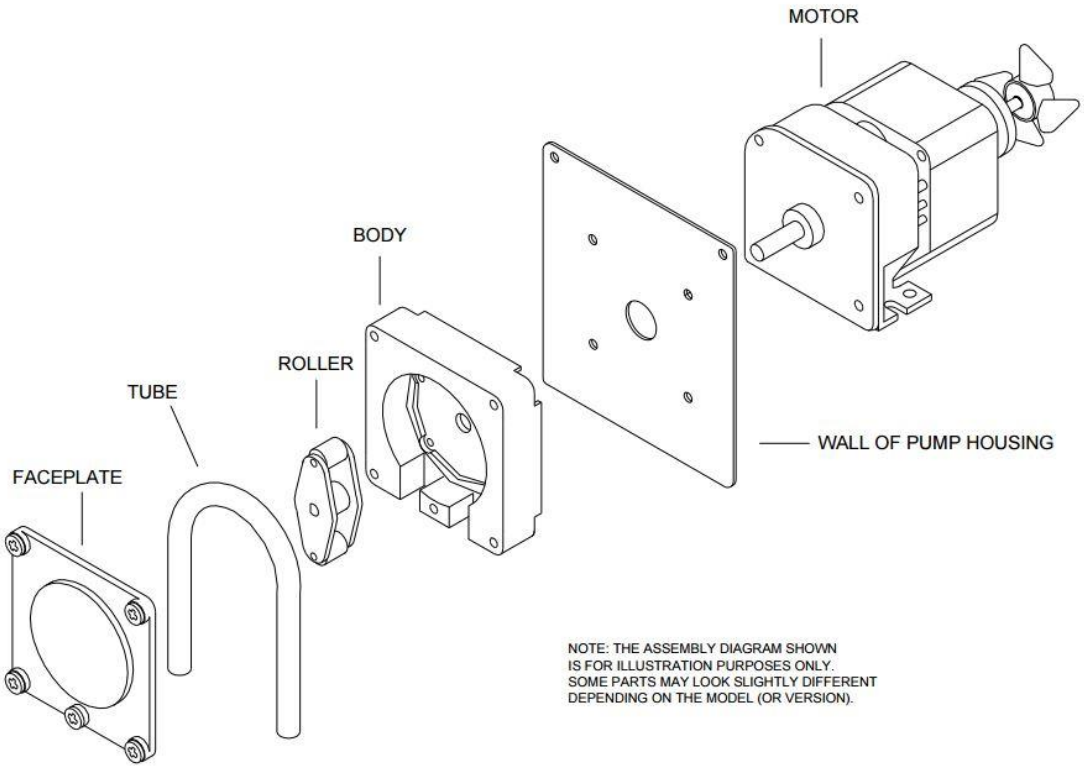
2 cycles

Cycles until Chemical Change warning screen appears:

15 cycles

Appendix B: Peristaltic Pump

TYPICAL PUMPHEAD ASSEMBLY



PUMPSPECS/072103

MAINTENANCE

The PMP Series of Metering Pumps require a minimal amount of maintenance to achieve optimal performance. Periodically check the squeeze tube for cracks, deterioration, or swelling. The squeeze tube will typically need to be replaced about every 6 months (chemical compatibility and duty cycle can cause this interval to vary).

Applying lube to the squeeze tube once a month will extend the life of the tube, minimize wear on other contacting parts, and promote smoother pump operation. Use Knight Tube Lube (P/N 7506621) or an equivalent silicone-based lubricant.

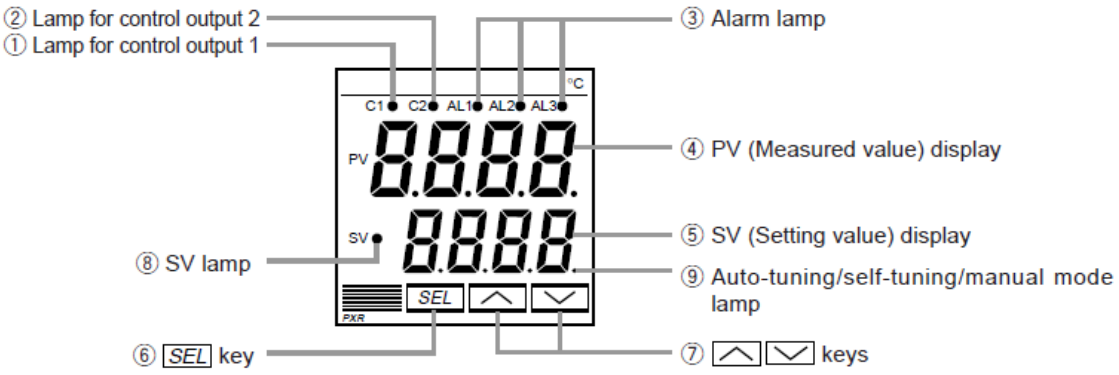
(1) Remove the faceplate of the pump.

(2) Apply a thin bead of Tube Lube to the inner surface (the side that the rollers contact) of the squeeze tube between the 9 o'clock and 3 o'clock positions. Avoid getting lube near the pinch points where the bottom of the faceplate grips the tube.

(3) Put the faceplate back on the pump.

(4) Activate the pump under normal operation — the lubricant will be evenly distributed as the pump rotates.

Appendix C: Temperature Controller



① Lamp for control output 1
Lights up while control output 1 stays ON.

② Lamp for control output 2
Lights up while control output 2 stays ON.

③ Alarm lamp
Lights up on detecting an alarm. The alarm output is turned ON at the same time.
If the optional heater break alarm is provided, the AL3 lamp lights up on detecting a heater break.

④ PV (Measured value) display
Displays the PV. When setting a parameter, its name appears.

⑤ SV (Setting value) display
Displays the SV. When setting a parameter, its value appears.

⑥ SEL key
Used to select a parameter block and a parameter, and register a set value.

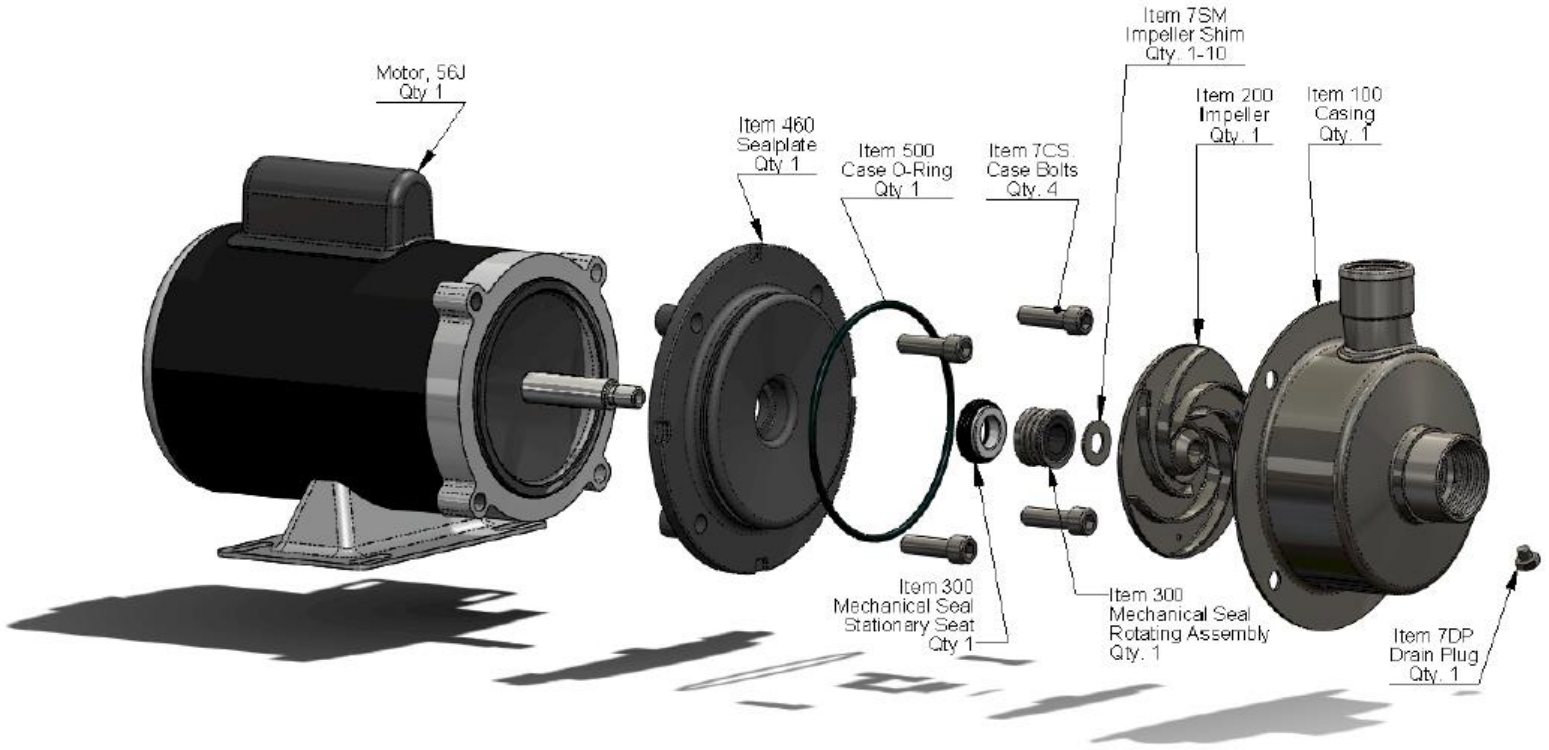
⑦ keys
Used to change the SV, call parameters, and change parameter values.

⑧ SV lamp
Lights up while the SV is displayed in the SV display. When parameters and data are displayed, the SV lamp goes out.

⑨ Auto-tuning/self-tuning/manual mode lamp
Flashes under an auto-tuning or self-tuning operation. The lamp is kept on in manual mode.

AMERICAN STAINLESS PUMPS
Stainless Steel Pumps for the Commercial Marketplace

Model FSP Exploded View



www.aspumps.com
14032 S. Avalon Blvd. Los Angeles CA 90061
Phone (310) 630-8089 ~ Fax (310) 630-8095

Model FSP Exploded View.doc
11/29/2011

Appendix E: Replacement Parts

Sanitizer Parts

Cannon Water

http://www.cannonwater.net/premier_stainless_systems.aspx

Pump Tube	7019060
Tube for PAA	T50BV-14
Roller Assy.	7633330
Straight Rinse Injector (check valve)	051466

PUMP SEALS and INFO

How to instruction…

http://www.aspumps.com/troubleshooting/sspcrepair.htm

http://www.aspumps.com/downloads/SSP-C%20IOM.pdf

www.mcmaster.com

Mechanical Seal (Viton, Phenolic, Ceramic)	9281K62
Lg. O-ring (Viton)	9464K556

www.grainger.com

Mechanical Seal (Viton, Carbon, Ceramic)	1R300
Mechanical Seal (Viton, SiC, SiC)	3ACE8
Lg. O-ring #258 round (Viton)	KAK9

MISC. PARTS

McMaster-Carr

www.mcmaster.com

Polyethylene (plastic) Tubing for sanitize line	5181K39
Clear sight tubing (tank level)	5233K65
Braided Tubing	5238K658
Crimp Clamp	52545K72
	52545K73
	52545K71
	52545K55
½" Air Tubing	5648K436
¼" Air Tubing	5648K416
5/32" Air Tubing	5648K234
Peristaltic pump tube Grease	1204K32
Gasket material for tank lids	93565K75
Pressure Relief Valve	5784T11

Push to Connect – Air Fittings

www.mcmaster.com

1/8" npt x 5/32" Swivel 90(most valves)	51495K212
1/8" npt x ¼" Swivel 90	51495K214
¼" npt x ¼" Swivel 90	51495K218
½" npt x 1/2" Swivel 90	51495K227
1/8" npt x 5/32" Straight (some valves)	51495K182
1/8" npt x ¼" Straight	51495K184
¼" npt x ¼" Straight	51495K191
½" npt x ½" Straight	51495K197

AIR REGULATORS

www.festo.com/us

½" Air/CO2 Regulator	173660
¼" Air Regulator	173764

www.mcmaster.com

½" Air/CO2 Regulator (non Festo)	8812K34
¼" Air Regulator (non Festo)	1399K12
Replacement Filter Element (for 1399K12)	1399K21

SANKE COUPLERS

www.micromatic.com

SS Straight Shutoff Valve	7419-1
Neoprene Coupling Washer	759
White Probe Washer	.102-579
Black Bottom Seal	102-521
Ergo Handle	762-101-F001