



# SERIES 'LX', 'SX', 'SM', 'J' & 'GJ' PLASTIC FILTRATION SYSTEMS

OPERATION AND  
SERVICE GUIDE  
O-884  
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Refer to Bulletins F-212 ('LX' Systems), F-213 ('SX' Systems), F-214 ('SM' Systems), F-215 ('J' Systems), F-216 ('GJ' Systems).

Standard units are equipped with Viton elastomers, EPDM elastomers are optional. Verify solution compatibility of all components, maximum operating temperature, and pressure. All fasteners are stainless steel for total chemical resistance, with non-metallic construction of all wetted components. Impellers are designed to offer maximum pump output and the motors are sized for non-overloading at maximum flow conditions. Flow rates are based upon water.

Mechanical seal components that contact the solution are the carbon face, ceramic face, and the elastomers. Double seal pumps require a fresh water supply line connected to the seal chamber. When pump is in operation, a constant flow of 4 GPH @ 15 PSI above pump operating pressure provided to the seal chamber is recommended. Do not use a double mechanical seal pump with solutions that have an endothermic reaction when mixed with water such as concentrated sulfuric acid.

Magnetic drive pumps can not be used with solutions that contain metallic particles.

Care should be taken to protect the pump components against unnecessary wear and physical abuse. Review parts list and maintain an emergency inventory of replacement items to assure that unit is returned to service with the least delay. Record model, serial and product code numbers for future reference. Specify numbers when ordering parts. Refer to unit model number and bulletin to identify materials of construction for your model. Unit is shipped completely assembled and ready for installation. Filter media must be ordered separately.

## INSTALLATION

Filter unit is free standing and stable when placed on a flat level surface. Ball valves installed in front of the pump, immediately after the outlet, and for the drain are suggested to prevent flooding when replacing expended cartridges. Closing valves when system is shut down will prevent back siphoning. Installing a hose from the vent valve to the process tank will prevent solution spraying when venting air from unit. The system's pump is not self-priming. A flooded suction is required to maintain proper prime for the system to function properly. It is strongly suggested to avoid the use of elbows on the suction supply line for the pump. The total flow rate will be decreased by 2.5 gallons per hour for every 90 degree elbow on the suction side. Do not place an elbow or a valve within ten pipe diameters of the suction supply line of the unit. If it is unavoidable to use elbows or to keep the suction in-

take piping run as short as possible, the pipe size for the suction intake will have to be increased to compensate for restriction and friction loss. Do not decrease the pipe size of the suction or the discharge. It is recommended to use schedule-80 slip joint glued fittings for plumbing the unit to and from the process tank.

## ELECTRICAL

All single-phase units are wired for 120 volt operation and are supplied with a line cord.

For three-phase operation, the installation of an external fused disconnect switch and a motor starter installed near the unit is recommended.

Rotation for the system's pump motor must be correct. A rotation arrow affixed to the motor indicates proper rotation. View the motor from the fan end and bump start the pump motor to verify correct rotation.

## INSTALLING D.O.E. CARTRIDGES

Chambers for 10 inch cartridges use a tube guide. Chambers for cartridges twenty inch and up use a cross-post with retaining ring. Insert appropriate guide into base of chamber. Insert filter cartridge. Cartridges of varying lengths can be combined to fill chamber. The shortest should be positioned at the top of chamber. A rubber spacer is supplied with chamber. It is used, if necessary, either between or at the top of the filter cartridge, if stacked height is insufficient to assure a pressure tight seal. Units incorporate a one-piece molded polypropylene compression top seat spring or a 316 SS coated compression spring with seat plate and cap guard to hold filter cartridges in place. Series 'GJ' utilizes a top separator plate. Note there is a dimple mark on the top of the plate. Install dimple (top up) 180 degrees opposite the filter chamber outlet. Check that "O"-ring/gasket is properly seated in groove of cover. A suitable rubber lubricant applied to the gasket will facilitate the seal. Install cover, then top support plate (used on Series 'GJ' only. Optional for Series 'SM') on chamber checking engagement of cover groove. Tighten cover hold-downs in an alternating pattern. Do not over tighten cover. Cartridges made of synthetic fibers should be flushed properly before use.

## INSTALLING S.O.E. CARTRIDGES

Insert cartridges with "O"-rings facing towards chamber base. Firmly presses down to seat "O"-rings into base. Check that "O"-ring/gasket is properly seated in groove of cover. A suitable rubber lubricant applied to the "O"-ring/gasket will facilitate the seal. Install cover, then top support plate (only used on Series 'GC' and 'J'). Optional

for Series 'SM') on chamber checking engagement of cover groove. Tighten cover hold-downs in an alternating pattern. Do not over tighten cover. Cartridges made of synthetic fibers should be flushed properly before use.

**OPERATION**

Open inlet/outlet valves and energize the unit's motor. Open vent valve of the chamber enough to bleed entrapped air from unit. Close when liquid without air bubbles appears. As the filter cartridge removes contaminants, the pressure drop across the unit will slowly rise. This can be observed by installing a SERFILCO gauge guard assembly onto the filter chamber cover. In normal operation, it is desirable to change cartridges when a rise of 25 PSI above initial pressure has been reached and should never exceed 35 PSI differential pressure. A drop in flow will reflect rise in pressure if a centrifugal pump is being used. When flow drops below an acceptable point, filter cartridges should be changed.

Example: Pump is capable of 60 GPM producing a maximum pressure of 18 PSI. After installing new filter cartridges into chamber, pressure gauge on cover reads 3 PSI. When pressure gauge increases to 17 PSI, flow is now reduced to 15 GPM. Cartridges are exhausted and should be replaced.

**PURIFICATION CHAMBER**

Activated carbon is an effective method of removing organic impurities from plating baths and other chemical solutions. The filter chamber ahead of the carbon chamber will remove the bulk of the solid impurities prolonging the life of the carbon. Carbon requires a low flow rate/contact time to properly activate. The quality of solution

purification is controllable by the contact time between the solution and the carbon. The flow through the carbon should be adjusted 1 to 5 GPM for each 7½ lb. of carbon. A pressure gauge installed on the carbon chamber inlet piping will facilitate valve adjustment for establishing duplicate flow rates. Systems are offered with a carbon cartridge, carbon mini-canister or bulk carbon. System 'J' and 'GJ' carbon canister chambers come with a 3 micron trap filter.

**TO REPLACE D.O.E. FILTER CARTRIDGES**

1. Stop pump. Close inlet and outlet valves. Open drain and vent valves. Loosen cover hold downs, lift cover from shell.
2. Remove top seat spring assemblies.
3. Lift cartridges straight up to remove from chamber. For chambers 20 inch and up using less than full length cartridges, the cross-post can be lifted to remove cartridges after the first cartridge has been removed. Set spent cartridges aside in a container for cleaning or disposal.
4. Review section on installing cartridges.

**TO REPLACE S.O.E. FILTER CARTRIDGES**

1. Stop pump. Close inlet and outlet valves. Open drain and vent valves. Loosen cover hold downs, lift cover from shell.
2. Lift cartridges straight up to remove from chamber. Set spent cartridges aside in a container for cleaning or disposal.
3. Insert new cartridges. Firmly press down to seat "O"-rings.
4. Review section on installing cartridges.

**PUMP AND MOTOR**

Refer to the pump's operating and service guide for pump maintenance. Refer to the system number for the correct pump supplied with the unit.

| SYSTEM                             | PUMP   | OPERATION AND SERVICE GUIDE |
|------------------------------------|--|-----------------------------|
| Labmaster 'LX'<br>Space-Saver 'SX' | Series 'X' Magnetic  | O-0194                      |
| Space-Saver 'SM'                   | Series 'M' Magnetic  | O-0187                      |
| Space-Saver 'J'                    | Series 'M' Magnetic or<br>Series HE Single Mechanical Seal                           | O-0187<br>O-0820            |
| Space-Saver 'GJ'                   | Series 'F' Magnetic or<br>Series 'M' Magnetic or<br>Series HE Single Mechanical Seal | O-0186<br>O-0187<br>O-0820  |



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