

**Read all the following information and instructions prior to installing and operating the equipment.
Failure to comply with these instructions could result in bodily injury or property damage.**



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INTRODUCTION

The Eaton Model 52 Duplex Strainers are devices installed in a pipeline to remove dirt and other unwanted debris from fluids. They are designed for pressure or suction applications.

Straining is accomplished by directing the fluid through sized openings in the basket. Once sediment and debris is collected in the basket, fluid flow is interrupted while the basket is removed for cleaning.

The Model 52 Duplex Strainers employ synchronized butterfly valves to divert flow from one strainer basket chamber to the other. By using balanced butterfly valves, a minimum of effort is required to change over for basket cleaning.

Model 52 Duplex Strainers require only one basket for each well, and has been designed to provide increased screening area which extends the intervals between cleaning and lowers initial pressure loss.

For additional information regarding Model 52 Duplex, visit our website at filtration.eaton.com.

RECEIVING, HANDLING, AND INSPECTION

1. Unpack the strainer and inspect for damage occurring during transit. Report damage to the carrier. If the strainer is not installed immediately, see "Storage" instructions.
2. Remove any preservatives with solvent-dampened cloths. Exercise care when using solvent and follow solvent manufacturer's instructions.
3. Verify that the rating of the strainer is greater than or equal to the maximum pressure and temperature of the installation.
4. Rotate the hand wheel to an extreme travel position.
5. Release the cover swing bolts by loosening the clamping handles until they clear the cover and swing away from the body. Release the swing bolts from both basket chambers.
6. Examine the body to which the arrow on the warning /instruction plate is pointing. Visually check that the butterfly discs on either side of the basket chamber are centered in their seats
7. Remove the basket and check for damage.
8. Examine the O-ring for damage and replace if necessary. *Always keep a spare O-ring on hand.*
9. Rotate the hand wheel in the opposite direction of an extreme travel position and repeat steps 5, 6, 7 and 8.
10. Close both covers carefully. Rough handling could damage cover seals. Lock covers in place by tightening the ball clamping handles firmly.

STORAGE

Replace protective wrap, flange protectors etc. that may have been removed during receiving, handling and inspection. Store the strainer in a clean, dry environment.

INSTALLATION



CAUTION: Before installation, review the application and chemical compatibility of the process fluid to the materials of construction of the strainer. Verify that the correct size and flange rating for the application is marked on the strainer.

Remove protective wraps, etc. before installing the strainer. Be sure to inspect cover gasket or O-ring for possible damage and replace as required. Ideally, the strainer should be installed in a horizontal pipeline with the basket well covers accessible from the top. Sufficient clearance should be allowed above the strainer for easy removal of the strainer basket.



CAUTION: A crane hoist or other lifting aid should be used to lift and restrain the cover during the basket cleaning operation.

1. Be sure sufficient clearance is provided for easy opening of the cover and removal of the basket. Refer to the Sales Drawing for removal clearances. Support the strainer firmly in the pipeline and install in accordance with system flow.
2. **The strainer should not be used to support connecting piping.** Expansion joints should be used where long, straight runs of piping are present, as even small changes in temperature can cause large thermal expansion forces which the strainer is not designed to withstand. Excessive piping loads may also cause deflection into the strainer, which may result in a linkage misalignment, thereby causing valve leakage. Use the mounting provisions integral with the strainer body for mounting the strainer to a concrete foundation or steel pad.
3. The strainer should be lifted by a fork lift truck or by a suitable hoist with slings placed around the inlet and outlet connections only.
4. It is recommended that a differential pressure gauge be installed between the inlet and outlet ends of the strainer in order to alert maintenance personnel as to when flow diversion and strainer basket cleaning is necessary. When there is a 5 psi (0.35kg/cm²) increase in pressure loss across the strainer, it's recommended to clean the basket. Gauge tap holes (1/2" NPT) are provided at the inlet and outlet connections for gauge installation.



CAUTION: To prevent damage to the baskets DO NOT permit strainer pressure differential between inlet and outlet connection to exceed 20 psi (1.4 kg/cm²)

INSTALLATION (CONTINUED)

5. Suitable drain piping with a shut off valve is recommended between the bottom of the strainer chamber and an open sump.
6. Install a vent valve on top of each cover to release trapped air in the vessel.
7. With both covers secured in the closed position and the vent drain valves closed, open the main inlet valve to start the flow. With a cloth over the vent valve of the well in service, to prevent injury, gradually open the vent valve to release trapped air in the vessel. When the escaping liquid is free of air, close the vent valve.
8. The strainer is now ready for service.



NOTE: To prevent accidental closure, especially aboard ship, the cover should be held open with a steel wire cable.



CAUTION: When fluids other than water and with temperatures in excess of 120°F are to be handled by the strainer, the vent cock must be removed and the vent piped to a safe discharge point to protect the operator. Wear protective clothing

which includes gloves, vests and goggles when handling dangerous fluids.



NOTE: The not in service, ready for cleaning basket can be determined by the direction of the arrow on the Warning/Instruction plate. Always be sure that the hand wheel is turned to an extreme travel position before opening the basket chamber cover.

START UP

1. Open both basket chamber vent cocks to expel air from the strainer. (if so equipped)
2. Slowly open the valves upstream and downstream of the strainer to start the flow into the strainer.
3. Turn the hand wheel to a mid-position so that the fluid enters both basket chambers.



CAUTION: Start flow gradually. This eliminates sudden shock to the strainer and other equipment in the line.

4. Close the vent cocks when air is expelled and fluid starts to flow. Use a cloth and gloves to prevent injury.
5. Rotate hand-wheel to extreme travel position to divert flow into a clean basket. DO NOT leave the hand-wheel in the center position or both baskets will become dirty which would require interrupting the flow to clean them.



CAUTION: DO NOT open the cover over the basket well that is in service while the strainer is in operation. The Warning/Instruction plate arrow indicates which basket is not in service and ready for cleaning. To switch the flow from one basket well to the other the hand wheel must be turned fully clockwise or Counter-clockwise.

BASKET REMOVAL, CLEANING, AND REPLACEMENT



CAUTION: To prevent basket damage, DO NOT permit differential pressure across the strainer to exceed 20 psi.



NOTE: In order to avoid high differential pressures across the strainer (difference between inlet and outlet pressure), it is advisable to keep the strainer baskets clean. The pressure drop (differential) should not exceed 10 psi at maximum flow. If the pressure drop exceeds 10 psi (0.7 kg/cm²) with a clean basket the flow through the strainer is too high, or the strainer is undersized for the intended service.

To clean and inspect the strainer basket not in service, the following steps should be taken:

1. Turn the hand wheel so that the arrow on the warning/instruction plate points the basket ready for cleaning.
2. Slowly open the vent cock (if so equipped) to release liquid pressure in the dirty chamber. Slowly release the cover swing bolts loosening the clamping handle until it clears the cover and swing it away from the body.

BASKET REMOVAL, CLEANING, AND REPLACEMENT (CONTINUED)

3. Open the drain valve (if so equipped) or remove the drain plug from the side of the body at the bottom to drain liquid from the basket chamber. Failure to do this may cause floating debris to contaminate the strained liquid.
4. Remove the dirty basket by pulling straight up on the basket handle.

To replace the strainer basket, the following steps should be taken:

1. Replace the cleaned basket making sure that the inlet side is inserted into the groove cast into the strainer body.
2. Inspect the cover O-ring seal and sealing surface, clean seat and replace seal if necessary.
3. If the cover has a vent cock be sure to open it. Close the drain valve (if so equipped) or replace the drain plug.
4. Divert flow to the clean basket and when air is expelled from the chamber with the clean basket, close the vent cock.



CAUTION: To prevent basket damage, DO NOT permit differential pressure across the strainer to exceed 20 psi.

1. Clean the basket when there is a 5 psi (0.35 kg/cm²) increase in pressure loss across the strainer
2. During shut downs for a temporary period, drain fluid and clean the baskets.



CAUTION: Wear eye protection to avoid injury when cleaning baskets with compressed air.

To clean the strainer basket, the following steps should be taken:

1. Invert the basket and shake out all the debris and foreign particles from the basket.



NOTE: Baskets severely plugged with grease and other contaminants should be soaked in a suitable cleaning solution and cleaned with a stream jet or compressed air. Kerosene and aqueous detergents are representative solvents. If the strained fluid is fuel or chemical, use an appropriate solvent to clean the baskets.

2. Inspect basket at each cleaning for holes or tears. *Always keep spare baskets on hand.*

SERVICE

BUTTERFLY VALVE ASSEMBLY

Clean all reusable parts. If possible use silicone base oil or lubricant to facilitate assembly. Place O-rings at the outside stem holes in the seat. Assemble the seat with O-rings in the body bore, taking care to align the stem holes. Install the packing bushing and stem. Use a rotary downward pressure on the stem to facilitate assembly while paying particular attention that the seat is not damaged due to any misalignment of the stem holes. Align the counter drilled portion of the stem screw holes with the disc screw holes. Place O-rings on the disc screws. Install the disc screws and tighten securely. With the valve disc replaced in the semi-closed position, rubber interference and initial torque build up is reduced during installation.

BUTTERFLY VALVE INSTALLATION INSTRUCTIONS

Observe that the disc sealing edge is in line with the parallel flats on the stem. Rotate the stem clockwise to position the disc within the body at least 3/8" (9.5mm) away from the body face. Spread the adjacent flanges and insert the valve. Center the valve body to the flanges and tighten the bolting hand tight. Slowly open the valve counter-clockwise to check for adequate disc clearance. Return the disc to the nearby closed position and cross-tighten all bolting until the flange/valve interface is metal to metal.



NOTE: The valve is non-directional and will control flow equally well in either direction. Replace the linkage and restore proper valve disc alignment and synchronism. Re-install gear operator.

BUTTERFLY VALVE GEAR OPERATOR

If flow diversion becomes difficult, check to be sure that the gear operator is packed with grease.

RODS AND BEARINGS

Periodic lubrication is required for proper functioning of the rod and bearings. Disconnect the tie rod from the linkage arm and rotate the ball so that the surface adjacent to the race is exposed. Grease the surface with multi-purpose lubricant or equivalent. Reconnect the tie rod to the link arm with the clevis pin and cotter pin.

RECOMMENDED SPARE PARTS

Two Eaton Strainer Baskets
Six Eaton Cover O-ring seals

When ordering spare parts, be sure to specify the assemble part number of the strainer (as appears on the invoice) as well as the quantity and description of the parts.

When operating conditions such as pressure, temperature and type of fluid are known, they should be specified.

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WARRANTY

All products manufactured by Seller are warranted against defects in material and workmanship under normal use and service for which such products were designed for a period of eighteen (18) months after shipment from our factory or twelve (12) months after start-up, whichever comes first. OUR SOLE OBLIGATION UNDER THIS WARRANTY IS TO REPAIR OR REPLACE, AT OUR OPTION, ANY PRODUCT OR ANY PART OR PARTS THEREOF FOUND TO BE DEFECTIVE. SELLER MAKES NO OTHER REPRESENTATION OR WARRANTY, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. WE SHALL NOT BE LIABLE FOR CARTAGE, LABOR, CONSEQUENTIAL DAMAGES OR CONTINGENT LIABILITIES. OUR MAXIMUM LIABILITY SHALL NOT IN ANY EVENT EXCEED THE CONTRACT PRICE FOR THE PRODUCT.