

# Installation, Operation and Maintenance Manual

## Duplex Strainers ¾"-6"

### ⚠ WARNING



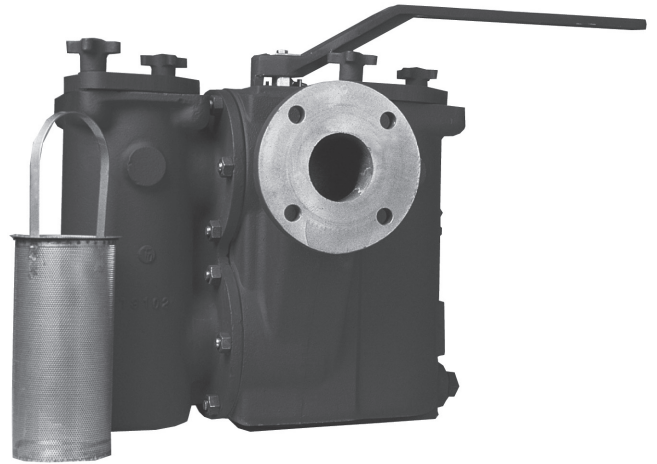
Read this Manual **BEFORE** using this equipment. Failure to read and follow all safety and use information can result in death, serious personal injury, property damage, or damage to the equipment. Keep this Manual for future reference.

### Receiving, Handling and Inspection

1. Unpack and inspect strainer for damage that may have occurred during shipping. Any damage should be reported to the carrier immediately. Store the container in a dry, clean area until the strainer is installed.
2. Remove strainer covers and inspect for any foreign matter that could be washed downstream when the strainer is put into service. The strainer has been packed with a preservative coating on the inside surfaces. This should be removed if there is a possibility of contamination of the piping system. See Disassembly Instructions for Service and Maintenance in this manual.
3. Carefully check the pressure and temperature ratings on the strainer body or nameplate to be sure that they are correct for the intended application.

### Installation Instructions

1. Place the strainer in the line so that the liquid enters the side marked INLET. DO NOT LIFT the strainer by the knobs or gear operator. Use slings around body or flanges for lifting. On sizes 3" or smaller, be sure there are pipe supports close to the inlet and outlet sides of the strainer. Sizes 4" and larger must be supported on a concrete or steel pad.
2. Allow enough room above the strainer for easy basket removal. See TABLE A.
3. When connecting flanged strainers to the line, be sure that the flanges are the same: flat face to flat face or raised face to raised face. Flat face flanges require full-face gaskets. The specified face-to-face dimension of the strainer is an approximate one due to machining tolerances. Allow adjustment in prefabricated piping or request certified dimensions.
4. Check to see that flange gaskets are properly positioned before tightening bolts. Tighten bolts in sequence.
5. We recommend the installation of flexible hoses on the pet cocks on the basket covers if service temperatures greater than 120°F are expected.



### Start Up Instructions

1. Turn handle to the center, directly over the INLET. Open pet cocks on both basket covers. SLOWLY fill the chambers with line fluid. Close pet cocks when fluid starts to flow from them.
2. Allow system to gradually reach normal operating pressure and temperature. Check carefully for leaks at this time. Be sure that all basket cover knobs and bolts are securely tightened. If there are any leaks, follow the procedures in this manual under Disassembly Instructions For Service and Maintenance.
3. Rotate handle until it is directly over one of the chambers. The handle is always over the chamber in service. (On units with gear operators, turn to position 1 or 2) DO NOT leave the handle in the center position or both baskets will become clogged, requiring the system to be shut down for cleaning. See Changeover and Cleaning Instructions in this manual for switching the flow from one to the other.

### ⚠ WARNING

Do not use with water that is microbiologically unsafe or of unknown quality without adequate disinfection before or after the system.

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## Changeover and Cleaning Instructions

### ⚠ WARNING

BEFORE ANY KIND OF SERVICING, BE SURE TO CHECK PRESSURE AND TEMPERATURE OF THE SYSTEM AND WHETHER THE FLUID IS CORROSIVE OR OTHERWISE DANGEROUS. BODILY INJURY AND PROPERTY DAMAGE COULD RESULT IF APPROPRIATE PROTECTION AND SAFETY PROCEDURES ARE NOT USED. READ THE FOLLOWING INSTRUCTIONS COMPLETELY AND CAREFULLY BEFORE SERVICING.

Keep these instructions for future reference.

In the instructions below, it is important to keep in mind that the “dirty” chamber is the one in use NOW. The handle is always directly over the one in use. The “clean” chamber is the one that is not in use. See Figure 1. For units with gear operator, see Figure 2.

1. Open pet cock on clean chamber.
2. Admit liquid slowly into the clean chamber by turning the diverter handle to the halfway position over the inlet or turn gear operator to position “1 and 2”.
3. When liquid flows from the pet cock, close the pet cock.
4. Examine clean chamber for leaks. If none, proceed with step 6.
5. If leakage occurs, turn diverter handle back to its position over the dirty chamber. Vent and drain the clean chamber, remove the cover, correct the cause of leakage, replace cover and repeat steps 1 through 4.
6. Slowly shift flow to the clean chamber by slowly rotating the diverter handle over the clean chamber. If there is no leakage, proceed to step 7. If there is leakage, repeat step 5.
7. Open pet cock slowly on the dirty chamber.
8. Open drain plug on dirty chamber and allow liquid to drain while removing the cover.
9. When liquid level is below the top of the strainer basket, close the drain plug.
10. Remove the strainer basket and allow the liquid to drip into the strainer body.
11. Clean the basket and examine for damage. Repair or replace as necessary.
12. Reinstall basket
13. Examine cover o-ring. Replace if damaged.
14. Reinstall and secure cover.
15. Shift diverter handle back toward the center position.
16. When liquid flows from pet cock, close pet cock.
17. Examine for leaks. If leakage is evident, go to step 5. If there is no evidence of leakage, shift diverter handle back to its position over the clean basket. The newly cleaned basket is now ready for the next changeover when needed.

## Disassembly Instructions for Service and Maintenance

### ⚠ WARNING

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Keep these instructions for future reference.

This strainer can remain in the line while being serviced. If desired, it may also be removed from the line servicing. Care should be taken when removing the basket housing 3” and larger units. Slings should be used to remove the basket housings on these larger units. DO NOT LIFT the strainer or the basket housing by the knobs or gear operator.

1. Shut down flow on both sides of the strainer.
2. Turn diverter handle toward the center position or turn gear operator to position “1 AND 2”. Open pet cocks on both chambers to bleed pressure.
3. Open drain plugs and drain both chambers.
4. Remove the knobs from the basket covers and remove the covers. Pull the strainer baskets from the basket housings.
5. Turn diverter handle toward the main basket housing (Basket #1).
6. Loosen nuts holding the basket housing to the main housing and carefully pull basket housing from the main housing. (Use a sling, if needed, to insure that the basket housing does not drop.)
7. Slide both balls from the main housing by pulling them directly out from the housing.
8. Remove the PTFE seals from both the main housing and the basket housing.
9. If only the seats are to be replaced, skip to Step 16.
10. Remove the lower stem from the main housing by pressing it down from the top into the lower ball area.
11. Remove handle or gear operator from the main housing.
12. Remove the upper stem from the main housing by pressing it down from the top into the upper ball area.

Figure 1

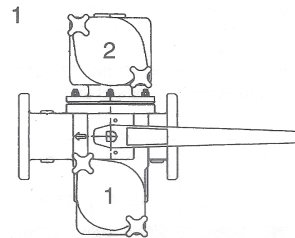
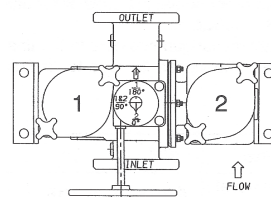
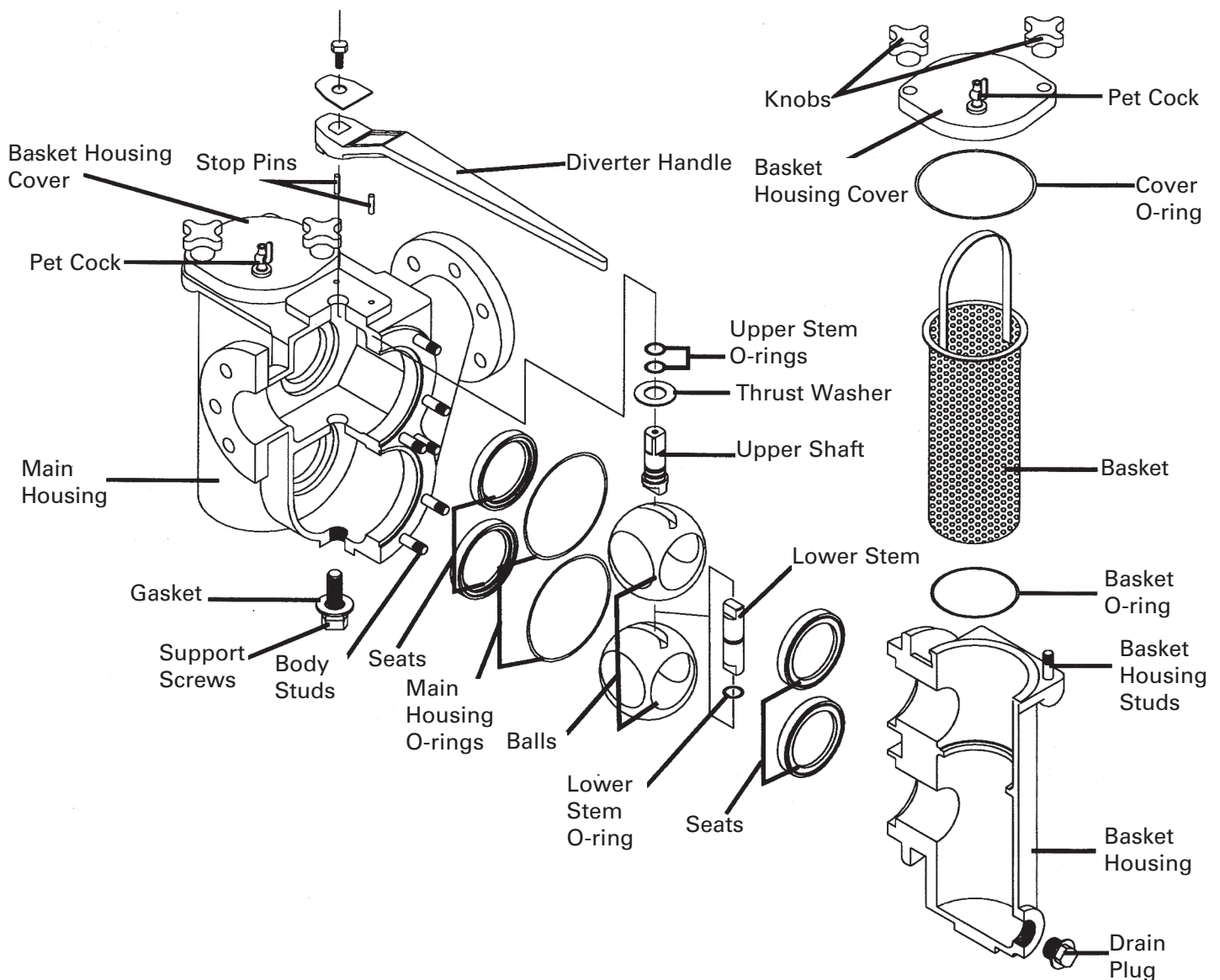


Figure 2





## Assembly Instructions

13. Inspect all o-rings on the upper and lower stems and, if worn, replace them.
14. Slide thrust washer on the upper stem. Lightly grease the o-rings on the upper stem. Insert the upper stem into the main housing from the upper ball area by pushing up through the top hole. Insure that the rounded portion of the stem faces toward the basket in the main housing.
15. Lightly grease the o-ring on the lower stem. Insert the lower stem into the main housing from the lower ball area by pushing up through the center hole. Insure that the flats on both the upper and lower stems are in line and parallel with each other.
16. Inspect the counterbores for the PTFE seats in the main housing to insure that they are clean. Push the PTFE seats into the counterbore making sure that they are flat and parallel to the counterbore.
17. Slide the ball into the upper chamber keeping the solid side of the ball facing the basket in the main housing.
18. Slide the ball into the lower chamber keeping the solid side of the ball facing the basket in the main housing.
19. Inspect the main housing o-rings in the counterbore of the ball chambers and replace if worn.
20. Inspect the counterbores for the PTFE seats in the basket housing to insure that they are clean. Push the PTFE seats into the counterbore making sure that they are flat and parallel to the counterbore.
21. Verify that the balls are installed correctly and slide the basket housing on to studs in the main housing. Install lock washers and nuts and tighten the nuts in the proper sequence.
22. Reinstall handle or gear operator on the main housing.
23. Inspect the o-rings on the baskets and replace if worn. Insert the baskets in the counterbore in the basket chambers.
24. Inspect the o-ring in the covers and replace if worn. Assemble the covers on the basket housings and tighten down with the knobs. See TABLE C for Knob torques.
25. Reinstall the drain plugs in both basket housings.
26. The unit is now ready for service. Follow the procedures under Start Up Instructions in this manual to place the unit in service.

**Table A**

	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
<b>Strainer Size</b>	3/4	20	1	25	1 1/4	32	1 1/2	40	2	50	2 1/2	65	3	80	4	100
<b>Basket Allowance Removal</b>	6 7/16	164	6 7/16	164	7 3/16	183	7 3/16	183	12 1/2	318	17 11/16	449	17 11/16	449	23 3/8	594

**Table B**

	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
<b>Strainer Size</b>	3/4	20	1	25	1 1/4	32	1 1/2	40	2	50	2 1/2	65	3	80	4	100
<b>NPT Plug Drain Plug Size</b>	1/2	15	1/2	15	1 1/4	32	1 1/4	32	1 1/4	32	1 1/2	40	1 1/2	40	1 1/2	40
<b>NPT Pet Cock Size</b>	1/8	3	1/8	3	1/8	3	1/8	3	1/8	3	1/8	3	1/8	3	1/8	3

**Table C**

Unit Size	Torque (ft-lbf)	
	2	20
2 1/2	20	25
3	40	55
4	55	65
5	70	80
6	70	80

Torque noted is for each knob.

**Limited Warranty:** Mueller Steam Specialty warrants each product to be free from defects in material and workmanship under normal usage for a period of one year from the date of original shipment. In the event of such defects within the warranty period, the Company will, at its option, replace or recondition the product without charge. This shall constitute the sole and exclusive remedy for breach of warranty, and the Company shall not be responsible for any incidental, special or consequential damages, including without limitation, lost profits or the cost of repairing or replacing other property which is damaged if this product does not work properly, other costs resulting from labor charges, delays, vandalism, negligence, fouling caused by foreign material, damage from adverse water conditions, chemical, or any other circumstances over which the Company has no control. This warranty shall be invalidated by any abuse, misuse, misapplication or improper installation of the product. **THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.** Any implied warranties that are imposed by law are limited in duration to one year.

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