



Eaton Filtration, LLC

900 Fairmount Avenue, Elizabeth, NJ 07207
 Phone: 908-787-1000 Fax: 908-351-7893
 E-Mail: filtration@eaton.com
 Web: www.filtration.eaton.com

**Installation, Operation &
Service Manual**

**Model 50 Duplex
Basket Strainer
3/4" to 8" Sizes**

Read all instructions before installation or operation of equipment. Failure to comply with these instructions could result in bodily injury or property damage.

Table of Contents

Page No.

Introduction	1
Receiving, Handling & Inspection	1
Installation	2
Operation	3
Start Up	3
Basket Removal/Replacement	4
Basket Cleaning	4
Recommended Spare Parts	4
Exploded Parts Drawing	5



Introduction

A duplex strainer is a device installed in a pipeline to remove dirt and other unwanted debris from fluids. Straining is accomplished by directing the fluid through sized openings in a basket. Duplex strainers are installed where fluid flow cannot be interrupted while the basket is removed for cleaning. Duplex strainers are designed for pressure and suction installations.

For additional information regarding Duplex Basket Strainers visit our website at:

www.filtration.eaton.com

Receiving, Handling and Inspection

Inspect strainer after unpacking for damage incurred during transit. Report any damage to the carrier immediately. If the strainer is not to be installed immediately, store indoors in a clean, dry environment.

Remove preservative with solvent dampened cloths. Exercise care when using solvent. Check to be sure the rated pressure and temperature on the strainer name plate is not less than the maximum pressure and temperature of the installation. The rated pressure shown on the name plate is the maximum pressure, including shock pressure, at which the strainer may be operated.



Installation

Position the strainer in the line so that the fluid enters the connection marked **inlet**. Be sure sufficient headroom is provided for easy removal of cover and baskets.

CAUTION: Lift strainers with slings under the inlet and outlet connections. DO NOT lift the strainer by the jack bonnet located on top of the plug.

Support the strainer in the line as follows:

3" Size or Under

Use pipe supports under the process piping near inlet and outlet connections. Use care to prevent bending and expansion forces from action on the nozzles.

4" Size or Larger

Support on concrete or steel pads.

Connect the strainer to the line. Use same type flange faces. For example, DO NOT bolt raised face flanges to iron flat face flanges. Iron flanges must be flat face with full face gaskets.

Cast strainers are subject to face to face variations due to shrinkage and machining tolerances. Prefabricated piping systems must allow adjustment at the strainer connections.

For threaded strainers, use standard pipe practice when making connections.

Installation, Continued

Be sure flange gaskets are in place and fasteners are tight.

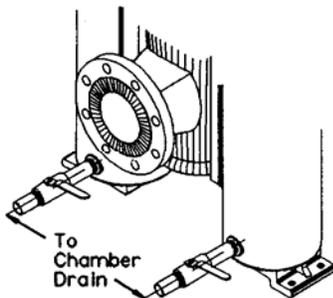
It is recommended that the drain plugs be removed and drain valves be installed at the bottom of each basket chamber as shown in Figure 1. A pressure equalizer, as shown in Figure 2, should be installed when the operating pressure exceeds 50 psi. This pressure equalizer greatly reduces the force required to transfer the position of the strainer valve plug.

To insure proper valve plug seating, the clean-out plug at the bottom of the valve plug chamber should be periodically removed and the accumulated solids and debris washed out.

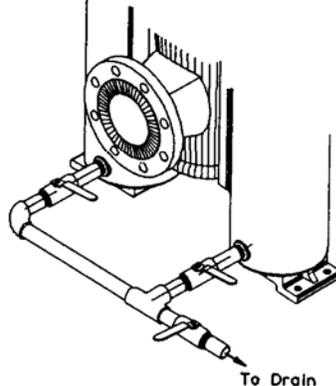
CAUTION: A vent is required when fluids other than water and with temperatures in excess of 120°F are to be handled by the strainer. The vent must be piped to a safe discharge point to protect the operator (see Figure 3). Wear protective clothing which includes gloves, vests, and goggles when handling dangerous fluids.

Pressure gauges near the strainer inlet and outlet are recommended. Cleaning frequency can be determined by the pressure drop across the strainer.

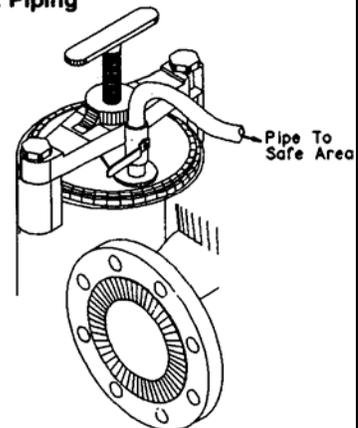
**Figure 1
Drain Valve**



**Figure 2
Drain Valve with
Pressure Equalizer**



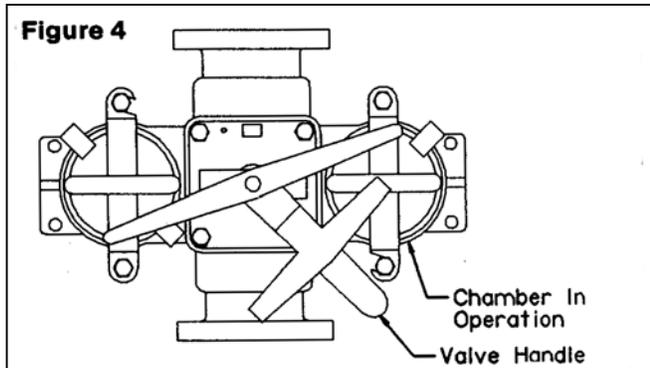
**Figure 3
Vent Piping**





Operation

The chamber in operation can be determined by observing the position of the valve handle. The handle is on the same side of the center line as the chamber in operation (see Figure 4).



Start up

Open both chamber vents, if strainer is so equipped (see figure 3), to expel air from the strainer.

Position valve handle in the center to allow both chambers to fill and close the equalizer valve, if strainer is so equipped (see figure 2).

Slowly allow fluid to enter strainer by opening OUTLET valve first, then followed by opening the INLET valve.

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

Close vents when air is expelled and fluid begins to leak out vent.

Move valve handle to extreme travel position over one clean basket. DO NOT leave valve handle in the center position as both baskets will become dirty. This would require interrupting flow to clean them.

Seat valve plug lightly by turning valve yoke clockwise. To avoid excessive stresses, stuck valve plugs etc. when operating at temperatures above 120°F use only minimum hand pressure on the valve yoke to position the valve plug against the seat.

The valve plug should be firmly seated during basket cleaning to prevent excessive leakage into the opened chamber.

Start up, Continued

NOTE: The strainer valve plug is intended to divert flow. It is not designed to provide absolute tight shut off. Product design criteria requires valve plug seepage to be low enough to provide time for basket cleaning only.

Shut Down

Tightly close pipeline valve on inlet and outlet connections of the strainer. Open vents, (see figure 3), to relieve liquid pressure in the strainer.

CAUTION: DO NOT loosen body covers while there is liquid or air flow from the vent.

Switching Flow

Without Equalizer

Turn lifting handle counterclockwise to lift valve plug and position turning handle (to extreme travel position) over clean basket. Seat valve plug slightly by turning lifting handle clockwise.

With Equalizer

Open pressure equalizer valve and turn lifting handle counterclockwise to lift valve plug.

Position turning handle (to extreme travel position) over clean basket and seat valve plug tightly by turning lifting handle clockwise.

Close equalizer valves.

Basket Removal (Yoke Cover)

Transfer flow from dirty to clean chamber (see Switching Flow) and open vents, and/or drain valve to relieve liquid pressure in dirty chamber.

When pressure is relieved, loosen, but do not remove, T-bolt. Then drain fluid away through the chamber drain connection to a level below the basket seat. This prevents by-pass of dirty fluids.

Swing yoke away from body yoke stud and clear of body cover. Remove cover.

Remove dirty basket.



Basket Replacement (Yoke Cover)

Place new or clean basket squarely on basket seat and be sure the basket handle is sufficiently high to be compressed by the strainer body cover.

Inspect body cover O-ring and seal surface. Clean seat and replace body cover O-ring as necessary.

Always keep spare O-ring gaskets in storage.

Replace body cover, making sure body cover is centered in body opening. If strainer is on suction service, fill basket chamber from outside source before installing body cover.

Swing yoke into position over body cover and onto yoke stud, making sure yoke is level with body. If not, adjust both studs to level the yoke.

Hand tighten yoke studs and tighten the center T-bolt. Make sure vent is open, if strainer is so equipped, (see Fig 3); close drain valve and refill basket chamber with fluid as follows:

Lift valve plug and rotate valve plug handle approximately 20° towards center position until all air is vented from the basket chamber.

Close vents and return valve plug handle to extreme position and reseal tightly.

With Equalizer

Open pressure equalizing valve.
Close vent when air is expelled.
Close pressure equalizing valves.

Basket Cleaning

When to Clean

Clean baskets when there is a 5 PSI increase in the pressure loss across the strainer

CAUTION: To prevent damage to the baskets, DO NOT permit strainer pressure differential between inlet and outlet connections to exceed 20 PSI.

When to Clean, Continued

During shutdown for a temporary period, drain fluid and clean baskets.

How to Clean

Invert basket and wash out debris by directing a stream of air or water against the basket exterior. Follow manufacturer's instructions when using a solvent to clean the baskets.

NOTE: Do not allow basket contents to dry as this will make cleaning most difficult.

Inspect baskets at each cleaning for holes or tears, replace as required. Always keep spare baskets in stock.

Shutdown Periods

During shutdown periods:
Remove valve plug from strainer.

Apply a heavy coat of grease to both the valve plug and the plug cavity in the strainer body.

Replace valve plug and its cover. Do not seat valve plug until strainer is again placed into service.

Recommended Spare Parts

1 Eaton Replacement Basket
1 Eaton Replacement Gasket

When ordering spare parts specify all nameplate data as well as the description and quantity of parts.

Always use genuine Eaton replacement parts for guaranteed fit and performance.

Visit our web site, www.filtration.eaton.com for information about the different types of Eaton Duplex Basket Strainers.

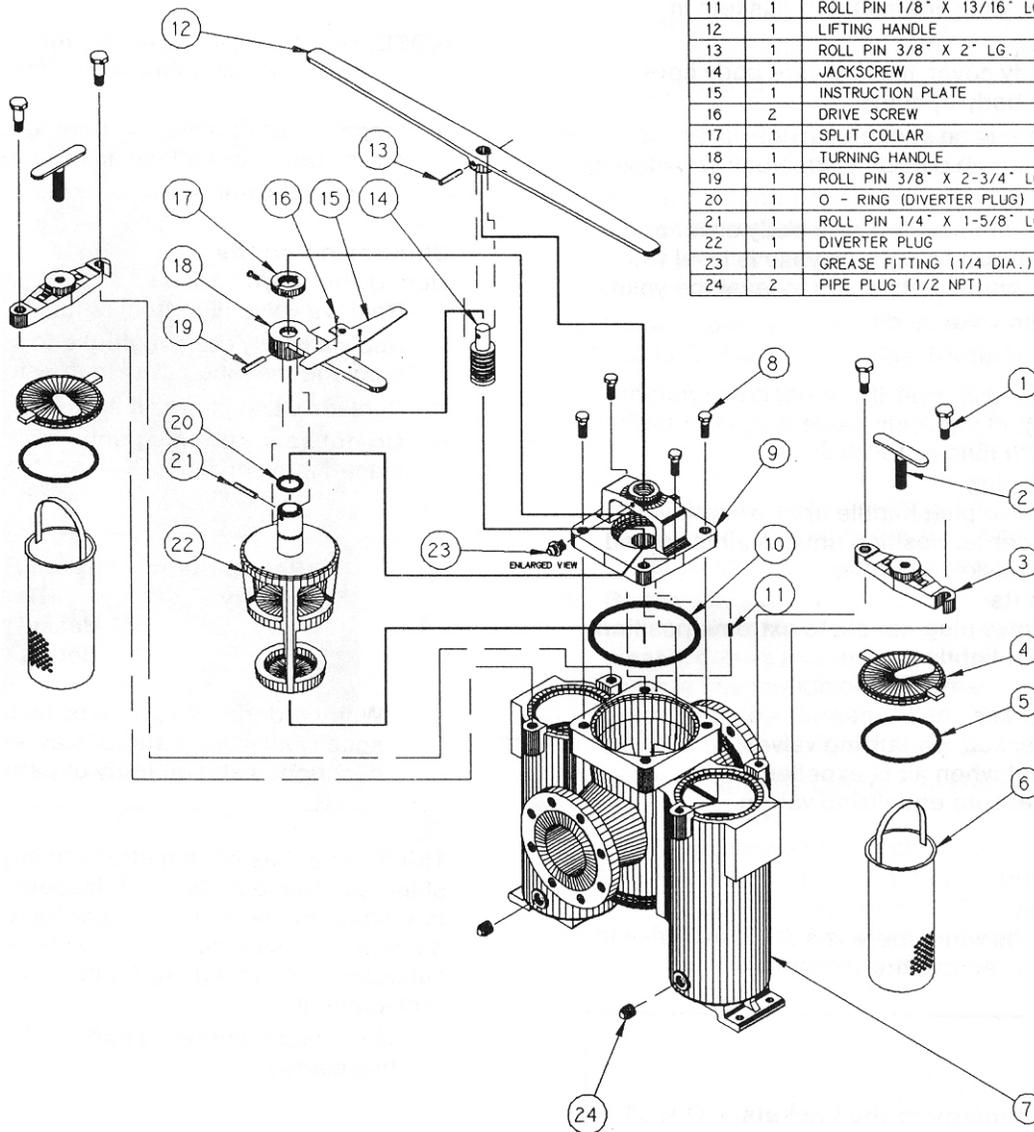


EXPLODED VIEW

* 8" SIZE STRAINER MAKES USE OF A SPECIAL YOKE WITH THREE(3) T-BOLT ASSEMBLY.

** 6" SIZE STRAINER ADDS A "COVER CLAMP" PIECE BETWEEN COVER AND YOKE.

ITEM	QTY	DESCRIPTION
1	4	YOKE STUD
2	2	T-BOLT ASS'Y
3	2	YOKE
4	2	COVER
5	2	O - RING (COVER)
6	2	BASKET
7	1	BODY
8	4	HEX HEAD BOLT (JACKBONNET)
9	1	JACKBONNET
10	1	O - RING (JACKBONNET)
11	1	ROLL PIN 1/8" X 13/16" LG.
12	1	LIFTING HANDLE
13	1	ROLL PIN 3/8" X 2" LG.
14	1	JACKSCREW
15	1	INSTRUCTION PLATE
16	2	DRIVE SCREW
17	1	SPLIT COLLAR
18	1	TURNING HANDLE
19	1	ROLL PIN 3/8" X 2-3/4" LG.
20	1	O - RING (DIVERTER PLUG)
21	1	ROLL PIN 1/4" X 1-5/8" LG.
22	1	DIVERTER PLUG
23	1	GREASE FITTING (1/4 DIA.)
24	2	PIPE PLUG (1/2 NPT)



More From Eaton Filtration

Pipeline Strainers

Eaton provides the most complete range of standard cast pipeline strainers for coarse filtration available from any manufacturer. These include Simplex, Duplex and Y Type Strainers, in Iron, Bronze, Carbon and Stainless Steel. For ultra-pure applications, strainers of all plastic construction are available. Cast Pipeline Strainers range in size from 1/2" to 36" and larger.

When a cast strainer won't meet the applications requirements because of size, weight or design Eaton offers standard fabricated strainers to meet exact customer requirements. without any trade-offs. When a standard design fabricated strainer will not meet an application's requirements Eaton's design team can work with customers to create a unique one that will.

Eaton also offers Automatic Self-Cleaning strainers. These are motorized strainers designed for the continuous removal of entrained solids from liquids in pipeline systems. The strainer operates un-attended and the system flow never has to be shut down for strainer element cleaning. These strainers are available in both cast and fabricated types.

Find out more on the web at: www.Filtration.Eaton.com

Gas/Liquid Separators

Eaton's Gas/Liquid Separators have been the "Industry Standard" for over 100 years. Nobody knows more about gas/liquid separation than us.

Eaton Gas/Liquid Separators are used to remove 99% of damage causing moisture and particulate matter from air, gas and steam pipelines. They protect valuable system components like air compressors and turbines from damage.

Eaton has a wide selection with hundreds of different Gas/Liquid Separators. When a standard model isn't right for an application, Eaton Engineers can work with customers to create a custom fabricated model that fits the application requirements exactly.

Find out more on the web at: www.Filtration.Eaton.com

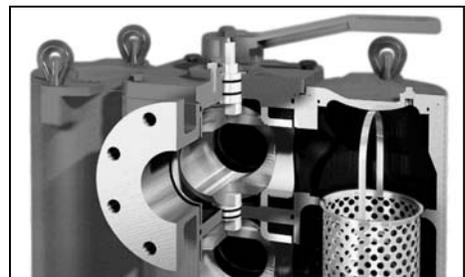
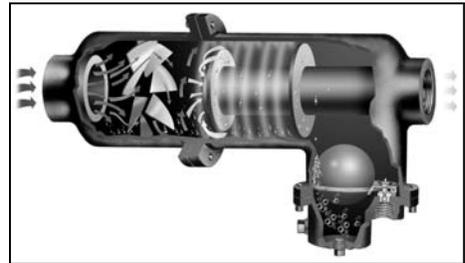
Filtration Systems

With Eaton Filter Housings you have your choice of high grade investment cast construction or engineered fabricated construction in stainless steel or carbon steel. Or, for extremely corrosive or ultra-pure services, you can choose all-plastic construction. You can be sure Eaton Filter Housings will meet specifications because they are all made to ISO 9001:2000 Standards. Eaton has representatives in over 40 countries, experienced professionals to provide the filtration help you need, when and where you need it.

Choosing the correct filter bag is critical to the success of you application. Don't trust anything less than a filter bag from Eaton. They're made under ISO 9001:2000 Standards to ensure

the consistent, reliable performance that you demand. Eaton Filter Bags fit all Eaton Filter Housings and the housings of most other manufacturers as well.

Find out more on the web at: www.Filtration.Eaton.com



Eaton Filtration warrants its products against defective material and workmanship only. Eaton assumes no responsibility for damage or injury resulting from improper installation, abuse, or misapplication of any product. Eaton assumes no responsibility for damage or injury resulting from chemical incompatibility between its products and the process fluids to which they are subjected. The end user should always test to determine application suitability. Contact your Eaton Representative for complete warranty information.

Eaton Filtration, LLC

900 Fairmount Avenue, Elizabeth, NJ 07207 Tel: 908-787-1000 Fax: 908 351 7893

E-Mail: filtration@eaton.com Web: www.filtration.eaton.com

©Copyright 2005 Eaton Filtration, All rights reserved.