



Mainstream[®] and Streamline[®] Filter/Strainer

All Models

Service & Installation Manual



Tri-Clover Inc.

CONTENTS

Thank you for purchasing a Tri-Clover Product!

This manual contains disassembly and assembly instructions, maintenance procedures, troubleshooting, and a complete parts list for all Mainstream® and Streamline® baskets and filters.

READ THIS MANUAL carefully to learn how to service these filters and strainers. Failure to do so could result in personal injury or equipment damage.

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SAFETY


IMPORTANT SAFETY INFORMATION


Safety is very important!

DO NOT attempt to modify any Tri-Clover product. To do so could create unsafe conditions and void all warranties. **DO NOT place any Tri-Clover product in an application where general product service ratings are exceeded.**

The following DANGER, WARNING, AND CAUTION signs and their meanings are used within these instructions.

	<p style="text-align: center;"> DANGER</p> <p>Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury. The word Danger is used in the most extreme cases.</p>
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	<p style="text-align: center;"> WARNING</p> <p>Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. May also be used to alert against an unsafe operating or maintenance practice.</p>
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	<p style="text-align: center;"> CAUTION</p> <p>Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.</p>
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INTRODUCTION

GENERAL INFORMATION

DESCRIPTION

Both Streamline and Mainstream Filters and Strainers are perfect solutions for continuous processing operations.

Mainstream filters and strainers are suitable for vertical mounting using an optional stand, wall mount brackets, or other external means. The Streamline filters and strainers are suitable for horizontal or vertical mounting, directly into the pipe work.

Both Streamline and Mainstream filters and strainers can use a twin setup. A twin filter or strainer setup consists of two complete units mounted onto a single stand. Directional valves at the inlet and outlet ports allow one unit to operate while the filter media in the other unit is being changed or cleaned.

Both Mainstream and Streamline filters and strainers are available in long or short models, with standard construction of stainless steel. All Mainstream models have side-entry ports. Streamline models have ports either at both ends (model SM or FM), or with a side inlet, bottom discharge configuration (model SMS or FMS).

FILTER VERSUS STRAINER (MAINSTREAM EXAMPLE USED)

When used as a filter, the unit contains a basket with a disposable bag that allows you to remove undesirable particles from a liquid or gas (down to 0.5 microns).

A strainer contains a perforated stainless steel basket, v-shaped wire basket, or wire mesh basket that allows you to remove larger particles (from 73 microns and higher) from the process stream.

FILTER/STRAINER OPTIONS

Mainstream

- SEF** Mainstream Filter: allows filtering from 0.5 micron to 800 micron using a filter bag.
- SES** Mainstream Strainer: allows medium or fine straining with either a perforated metal basket (0.033 or 0.062 diameter perforations) or a wire mesh basket with 20, 40, 60, 80, 100, 150, or 200 mesh. Suited for straining particles down to 73 micron.
- SEB** Mainstream Strainer Basket: allows course straining of large particles and foreign matter using large perforations (0.5, 0.25, 0.125, and 0.09375 diameter).
- SEBW** Mainstream Strainer Basket: allows for fine straining using a v-shaped (Vee-Wire®) basket with wire gaps of 0.005, 0.0075, 0.010, 0.015, 0.020, 0.025, 0.030, and 0.035.

Note: Minimum rating per 3A standard for Vee-Wire applications is 125 microns (0.005 gap.) Vee-Wire is a registered trademark of U.S. Filter.

Streamline

- SM/FM** Streamline inline filter or strainer: allows you to strain or filter using either an overscreen or a filter sock. Suited for coarse to medium straining ¼" to 200 mesh, or filtering 765 to 38 micron.
- SMS/FMS** Streamline inline filter or strainer: allows you to strain or filter using either an overscreen or a filter sock. Suited for coarse to medium straining ¼" to 200 mesh, or filtering 765 to 38 micron.

INSTALLATION

UNPACKING

The Streamline filter/strainer comes completely assembled, and ready to install. The Mainstream filter/strainer must be assembled.

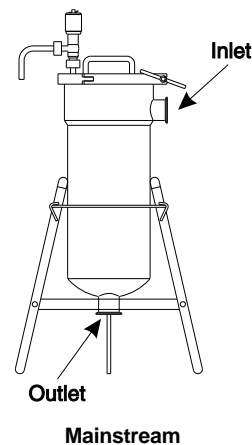
When you unpack the Mainstream filter or strainer, remove the special packing inside the unit.

For both the Mainstream and Streamline units, check for damage that could have occurred during shipping. Report any damage to the carrier.

PIPELINE INSTALLATION

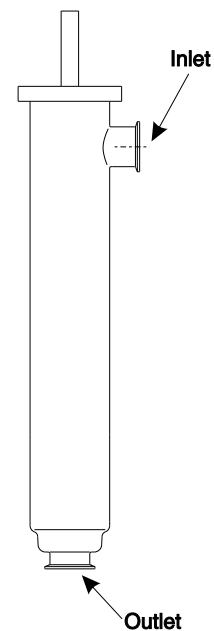
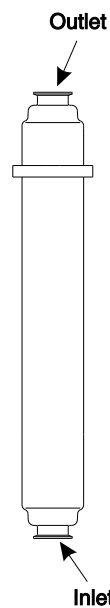
MAINSTREAM

Unless otherwise specified, all Mainstream units operate in a vertical position. Flow translates from the side inlet to the discharge on the bottom.



STREAMLINE

All Streamline models can operate in any position. Flow for the standard Streamline versions translates from the inlet on the body to the discharge on the outlet assembly. Flow for the side inlet unit translates from the inlet on the side of the body to the discharge at the bottom of the body.



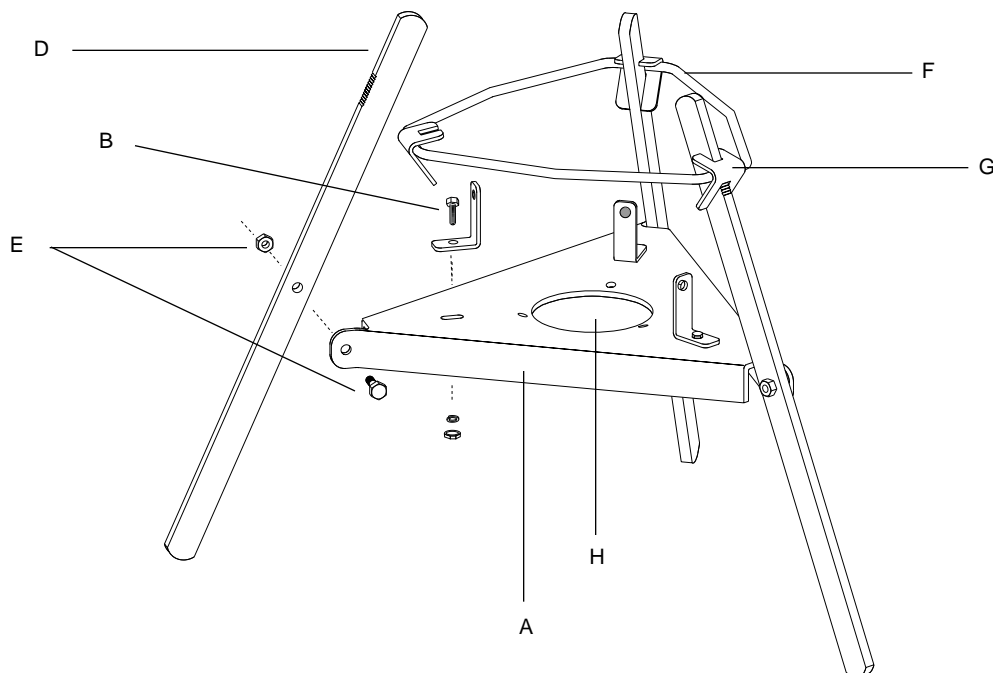
INSTALLATION

ASSEMBLING THE MAINSTREAM STAND

1. Remove the triangular base (A) and three right angle adjustable brackets (B) from the packing.
2. Assemble one bracket bolt combination (B) into each of the three slotted base holes with the washer on the underside of the base and the flat face of the rubber cushion toward the base center. Adjust the three brackets* to the widest opening for the housing, and partially tighten nuts but do not secure nuts until the housing is placed in stand.

*Note: Slotted holes allow for adjustment so that housing top surface can be level when assembly is placed on uneven floor.

3. Attach the three legs (D) to the triangular base (A) with the plastic or rubber caps upright and notched leg surface to the outside. Partially tighten the legs, but do not secure bolts (E) until the housing is placed in the stand.
4. Take the retainer ring (F) and orient the three tab slot openings (G) with the three slots so that the tabs (longer tab slot is down) are located between the notches and plastic/rubber cushion. This will allow the three legs to be opened greater than the diameter of the housing. The leg notches provide friction to hold legs securely against the housing during process operations. The retainer ring assembly anchors the legs in place.
5. Place stand assembly in a location that Filter/Strainer housing is to be installed.
6. Lower the housing through the stand retaining ring (F), so that the outlet port fits into the stand base hole (H). (Adjustable brackets should be wide enough so that no interference occurs between the legs and the housing.)
7. Adjust the angle of the brackets (B) to contact housing, and partially secure in place.
8. Press the tops of the 3 legs (D) on the stand inward so that they rest against the housing. Secure the inlet and outlet process lines to housing. (See *Pipeline Installation*.)
9. Lock the retaining ring (F) onto the grooves of the legs (D). Gently use a rubber hammer to secure the ring onto the grooves.
10. Tighten the adjustable brackets (B) and leg bolts (E).



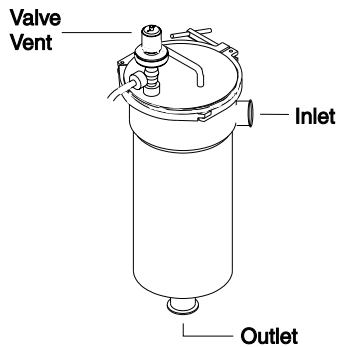
OPERATION

STARTING THE SYSTEM

Important: When installing new non-woven (felt) filter media, recirculate the process fluid through the filter. This will capture loose fibers before they go down stream.

MAINSTREAM

Ensure that the correct port is used for the inlet. (See figure below.)



Starting the Filter System

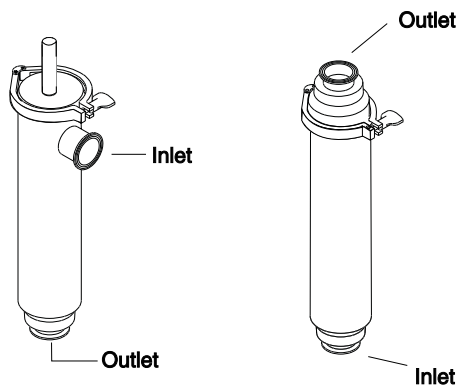
Open the vent valve slightly. Gradually fill the vessel by opening the inlet valve slowly. Close the vent valve when liquid emerges. Do not exceed a 50 psi differential across the bag.

Starting the Strainer System

Open the vent valve slightly. Gradually fill the vessel by opening the inlet valve slowly. Close the vent valve when liquid emerges.

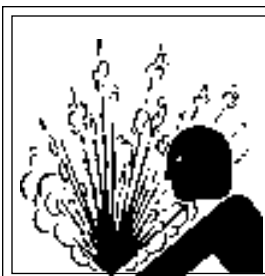
STREAMLINE

Ensure that you are using the proper inlet. (See figures below.)



MAINTENANCE

MAINSTREAM FILTER/STRAINER - DISASSEMBLY



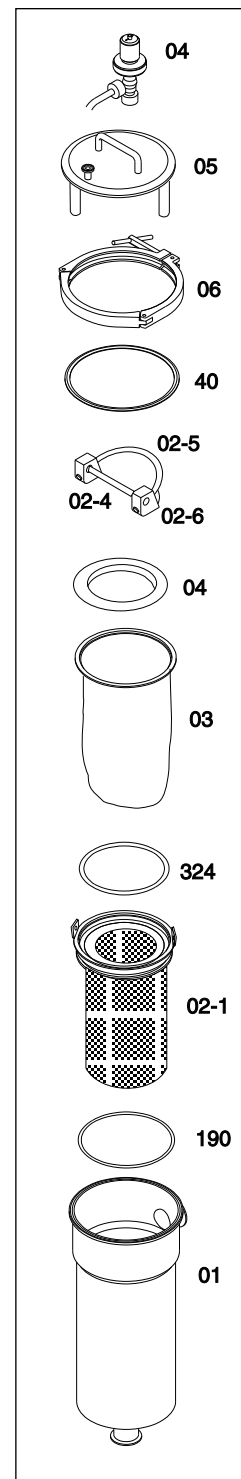
WARNING

Warning - Before disassembling any Mainstream filter or strainer, make certain that the system is not under pressure and that the system is drained of all liquids. Release pressure inside filter or strainer by opening the relief valve *before* disassembling.

Note: The cover of new Mainstream filters/strainers have three legs on the cover that rest on the screen ring assembly of the SEF, the support assembly of the SES or the basket of the SEB/SEBW. Older models do not have legs on the cover.

MAINSTREAM SEF

1. Open the air relief valve to relieve all pressure inside the filter.
2. Remove the clamp (06) and lift off the filter cover (05).
3. Remove the cover gasket (40) and inspect for damage or wear.
4. Lift the screen ring assembly (02-1) from the filter body (01) using the cam pin (02-4) as a handle. Do not use the cam handle (02-5) to remove the assembly.
5. Disassemble the screen ring assembly handle:
 - a. Force/deflect the cam handle (02-5) up from the retaining ring (04) toward center of the screen ring assembly (02-1).
 - b. Push one end of the cam pin (02-4) through the cam locks (02-6) until the cam locks, pin, and handle (02-5) are free of each other.
6. Remove the retaining ring (04), and remove the filter bag (03) from the basket and replace as necessary.
7. Remove the o-ring (324) from the inside diameter of the screen ring assembly and inspect for damage and wear.
8. Remove the o-ring (190) from the outside diameter of the screen ring assembly and inspect for damage and wear.



Mainstream Filter Type SEF

MAINTENANCE

MAINSTREAM FILTER/STRAINER - DISASSEMBLY (CONT.)

MAINSTREAM SES

1. Open the air relief valve (04) to relieve all pressure inside the strainer.
2. Remove the clamp (06) and lift off the strainer cover (05).
3. Remove the cover gasket (40) and inspect for damage or wear.
4. Lift the strainer ring support assembly (03) and strainer ring assembly (02) out of the strainer body (01) using the support assembly handle. Then remove the handle.

Note: The support assembly may stick to the housing due to product residue. In this case use a rubber mallet to jar the support assembly loose before attempting to lift it out of the strainer body.

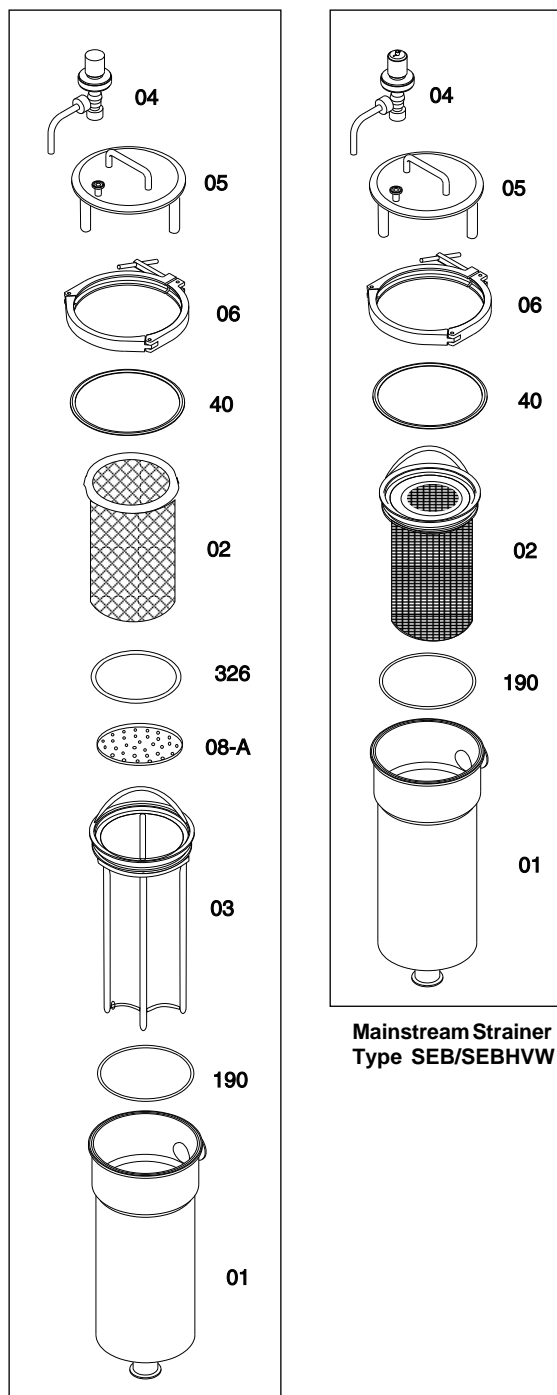
5. Grasp the upper lip of the strainer ring assembly (02), and lift it out of the strainer ring support assembly (03).
6. Remove the support plate (08 or 08A) from the strainer ring support assembly (03).
7. Remove the o-ring (326) from the strainer ring assembly, and inspect for damage or wear.
8. Remove the o-ring (190) from the strainer ring support assembly, and inspect for damage or wear.

MAINSTREAM SEB AND SEB/HVW

1. Open the air relief valve to relieve all pressure inside the strainer.
2. Remove the clamp (06) and lift off the strainer cover (05).
3. Remove the cover gasket (40) and inspect for damage or wear.
4. Using the handle at the top of the strainer ring assembly (02), lift the assembly out of the strainer body (01).

Note: The assembly may stick to the strainer body due to product residue. In this case use a soft rubber mallet to jar the screen loose before attempting to lift it out of the support assembly.

5. Remove the o-ring (190) from the strainer ring assembly (02), and inspect for damage or wear.



**Mainstream Strainer
Type SES**
(perforated screen shown)

**Mainstream Strainer
Type SEB/SEBHVW**

MAINTENANCE

MAINSTREAM FILTER/STRAINER - REASSEMBLY

Note: The cover of new Mainstream filters/strainers have three legs on the cover that rest on the screen ring assembly of the SEF, the support assembly of the SES or the basket of the SEB/SEBW. Older models do not have legs on the cover.

MAINSTREAM SEF

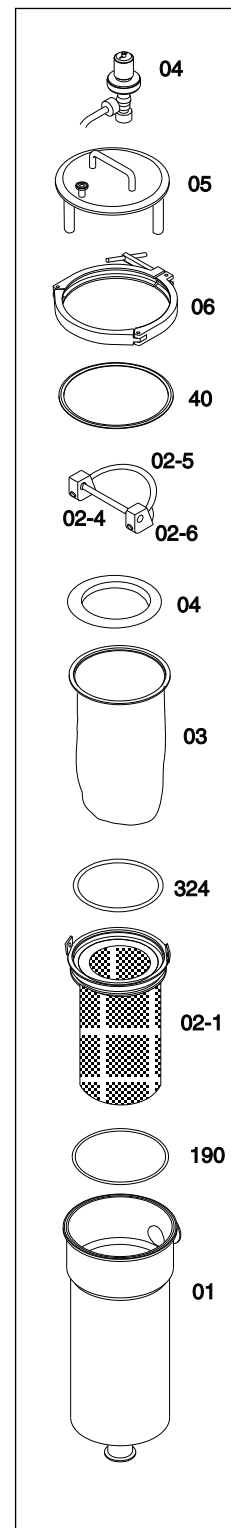
1. Lubricate the o-ring (190) that seals the filter body (01) with a food grade lubricant (L-1011B) and place it on the outside diameter of the screen ring assembly (02-1).
2. Place the screen ring assembly o-ring (324) on the inside diameter of the assembly.
3. Insert the filter media (03) inside the screen ring assembly (02-1), pressing against the sides and bottom of the bag to ensure that the bag is smooth against the sides and bottom of the assembly. The filter bag should rest on top of the screen ring assembly o-ring (324).
4. Assemble the screen ring assembly handle:
 - a. Align the cam locks (02-6) with the notch on the handle (02-5) and the holes in the support ring.
 - b. Slide the cam pin (02-4) through the cam locks (02-6) until each end of the pin rests in the holes in the tabs on the screen ring assembly (02-1) ring.
 - c. Insert the retaining ring (04), (tapered rim downward), and fold the handle (02-5) to the locked position.
5. Using the cam pin (02-4) as a handle, lift the screen ring assembly (02-1) into the filter body (01), ensuring that it is snugly seated in the bottom of the body.

Note: The rim of the screen ring assembly should rest just below the inside diameter of the inlet port when properly assembled.

6. Place the gasket (40) and cover (05) on the top of the body (01).

Note: The cover of new Mainstream filters/strainers have three legs on the cover that rest on the screen ring assembly. Older models do not have legs on the cover.

7. Attach and tighten the clamp (06).



Mainstream Filter
Type SEF

MAINTENANCE

MAINSTREAM FILTER/STRAINER - REASSEMBLY (CONT.)

MAINSTREAM SES

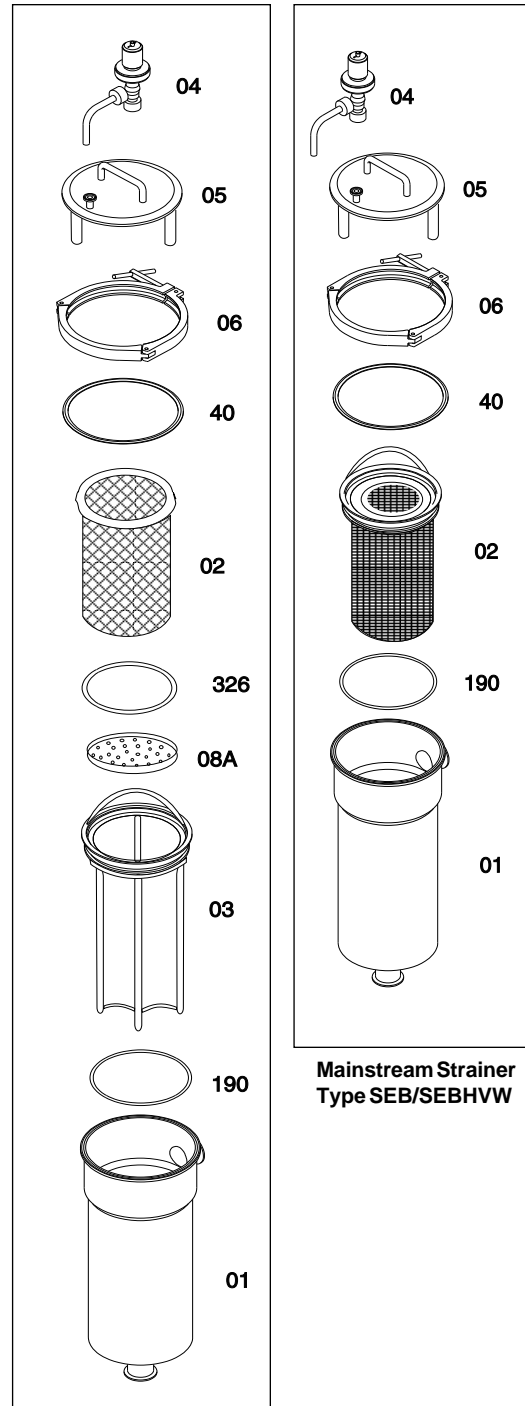
1. Lubricate the o-ring (190) that seals the strainer body (01) with a food grade lubricant (L-1011B) and place on the outside diameter of the strainer ring support assembly (03).
2. Place the strainer ring support assembly (03) inside the strainer body (01) so that it rests snugly on the bottom of the body.
3. If you are using a wire mesh strainer, place the strainer support plate (08) inside the strainer support with the rim facing downward.

If you are using a perforated strainer, place the strainer support plate (08A) inside the strainer support with the rim facing upward.
4. Lubricate the o-ring (326) that seals the strainer ring assembly (02) with a food grade lubricant (L-1011B) and place it on the outside diameter of the strainer ring assembly (02).
5. Place the strainer ring assembly (02) inside the strainer ring support assembly (03) so that the bottom strainer ring assembly rests snugly on the strainer support plate (08 or 08A).
6. Place the handle on the strainer ring support assembly (02) by compressing the handle and sliding the ends into the two holes on the assembly. Once the handle is attached, lay it flat against the strainer support ring assembly.
7. Place the gasket (40) and cover (05) on the top of the strainer body (01).
8. Attach and tighten the clamp (06).

MAINSTREAM SEB/SEBHVW

1. Lubricate the o-ring (190) that seals the strainer body (01) with a food grade lubricant (L-1011B) and place it on the outside diameter of the strainer ring assembly (02).
2. Place the strainer ring assembly (02) inside the body (01) so that the support ring on the assembly rests snugly against the lip inside the body.

Note: Fold the basket handle down over the support ring assembly.
3. Place the gasket (40) and cover (05) on the top of the strainer body (01).
4. Attach and tighten the clamp (06).

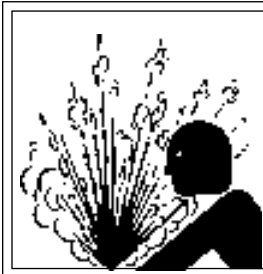


**Mainstream Strainer
Type SES**
(perforated screen shown)

**Mainstream Strainer
Type SEB/SEBHVW**

MAINTENANCE

STREAMLINE BASKET FILTER/STRAINER - DISASSEMBLY



⚠ WARNING

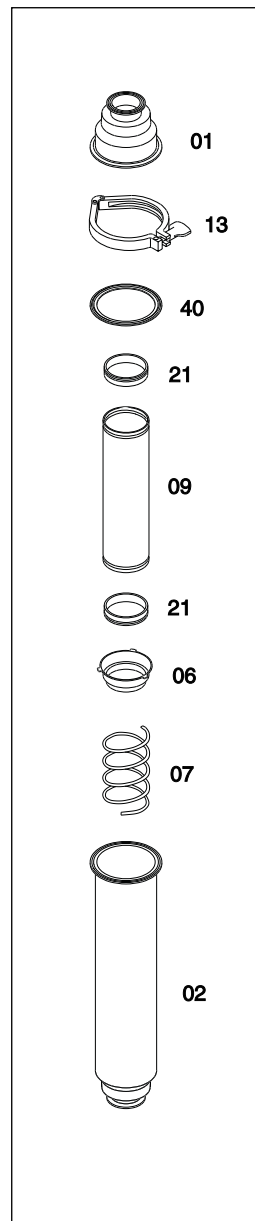
Warning - Make certain that the strainer system is not under pressure and that the system is drained of all liquids before removing any Streamline strainer from pipe work.

MODEL SM/FM

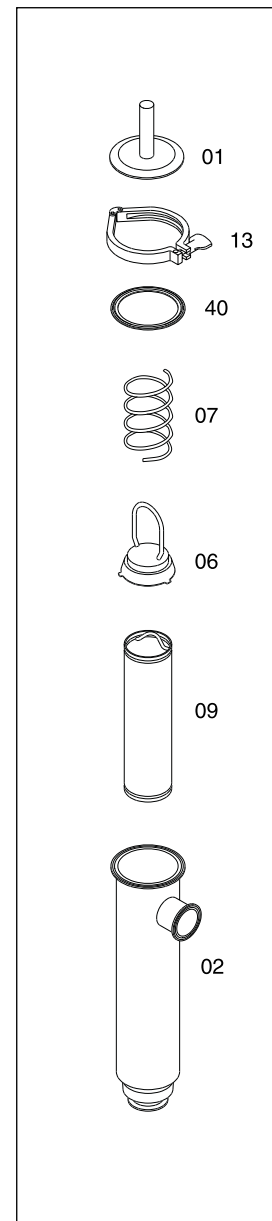
1. Remove the clamp (13) and lift off the outlet assembly (01).
Note: Apply pressure to the outlet assembly when you remove the clamp, as the strainer/filter spring will force the outlet assembly away from the body when the clamp is removed.
2. Remove the gasket (40) and inspect it for damage or wear.
3. Remove the back up tube (09) with filter sock or overscreen, spring (07), and distributor cap (06).
4. Change the filter sock or overscreen if necessary. Refer to *Changing the Filter Media* later in this manual for details.

MODEL SMS/FMS

1. Remove the clamp (13) and lift off the cap (01).
Note: Apply pressure to the cap when you remove the clamp, as the strainer/filter spring will force the cap away from the body when the clamp is removed.
2. Remove the gasket (40) and inspect it for damage or wear.
3. Remove the spring (07), distributor cap (06), and back up tube (09).
4. Change the filter sock or overscreen if necessary. Refer to *Changing the Filter Media* later in this manual for details.



Streamline Strainer
Type FM



Streamline Strainer
Type SMS

MAINTENANCE

STREAMLINE BASKET FILTER/STRAINER - REASSEMBLY

MODEL SM/FM

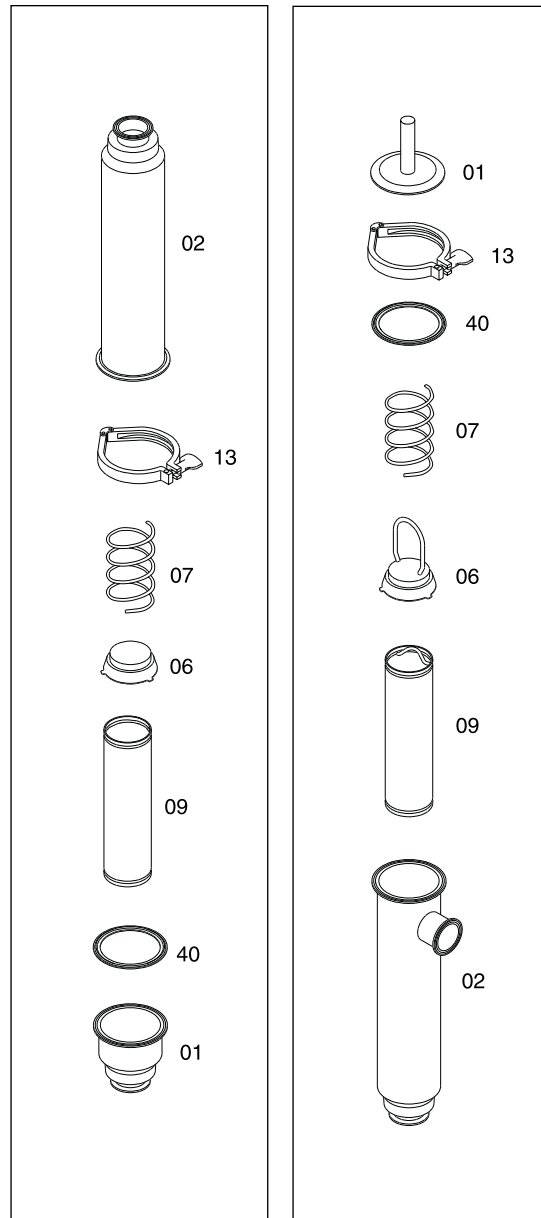
1. Ensure that the filter media is in place on the back up tube (09). Refer to *Changing the Filter Media*, later in this manual.
2. Place the gasket (40) on the outlet assembly (01).
3. Place the back up tube (09) in the outlet assembly (01).
4. Press the distributor cap (06) onto the back up tube (09).
5. Press the spring (07) onto the outside diameter of the distributor cap.
6. Press the filter body (02) over the entire assembly and compress it to the outlet assembly (01).
7. Attach and tighten the clamp (13).

MODEL SMS/FMS

1. Ensure that the filter media is in place on the back up tube (09). Refer to *Changing the Filter Media*, later in this manual.
2. Insert the back up tube (09) inside the body (02) ensuring that the bottom of the back up tube is seated firmly against the bottom of the body.
3. Insert the distributor cap (06) inside the body (02) ensuring that the cap is seated firmly against the top of the back up tube (09).

Note: The opening on the handle of the distributor cap should be facing the opening of the inlet port so that the port is not blocked.

4. Insert the spring (07) inside the body (02) ensuring that the spring is seated firmly against the ridge on the distributor cap (06).
5. Place the gasket (40) on the body (02).
6. Compress the cap (06) onto the body (02), and attach and tighten the clamp (13).



Streamline:
Model SM

Streamline:
Model SMS

MAINTENANCE

CHANGING THE FILTER MEDIA

MAINSTREAM SEF

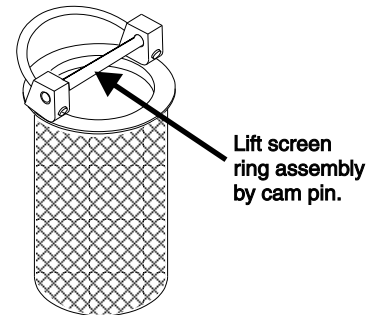


WARNING

Warning - Make certain that the strainer system is not under pressure and that the system is drained of all liquids. Release pressure inside filter/strainer by opening the relief valve *before* replacing the bag.

Important: When installing a filter bag, remove the tag and save it. The tag will help you identify your filter type when reordering.

1. Open the air relief valve to relieve all pressure inside the filter. Make certain the filtration system is drained of all liquid. Residual can result in the bag floating and not seating properly.
2. Remove the filter cover, and lift the screen ring assembly from the housing using the cam pin as a handle. (Do not use the filter strainer handle to remove the basket assembly.)
3. Raise the assembly handle upward toward the center of the assembly to unlock the handle.
4. Remove the filter media retainer ring that secures the basket filter bag onto the o-ring.
5. Withdraw the filter bag from the basket and discard.



Note: Where ID filter tags are used (fine filtration bags), remove the tag and set aside. The lot number on this tag can be an important piece of information.

For basket filter bags that are nearly filled, it may be necessary to disassemble the cam lock assembly in order to remove the filled bag. (Refer to Mainstream Filter/Strainer Disassembly earlier in this manual for more information on disassembly the cam lock assembly.)

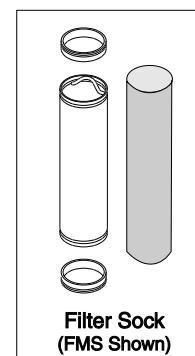
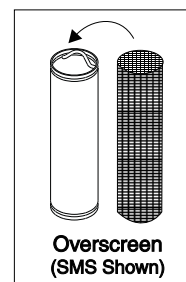
6. Insert a new bag into the basket, contouring the bag against the basket, making sure it fits smoothly against the sides and bottom of the basket.
7. Reinstall the o-ring, cam lock assembly (if necessary), and retainer ring, and lock bag in place. (See the *Mainstream Filter/Strainer - Reassembly* section for details.)
8. Install the screen ring assembly into the housing.
9. Close the cover, and replace and tighten the clamp.

MAINTENANCE

STREAMLINE MODELS FM/SM AND FMS/SMS

Important: When installing a filter sock or overscreen, save the original packaging. This will help you identify your filter media type when reordering.

1. Relieve all pressure inside the system and make certain the filtration system is drained of all liquid.
2. Remove the outlet assembly (for model FM or SM) or the filter/strainer cap (for model FMS or SMS).
3. Remove the spring, distributor cap, and back up tube from the body.
4. If you are using an overscreen, slide the overscreen off of the backup tube, clean it or replace it, and go to Step 8.
5. If you are using a filter sock, remove the retaining rings on both ends of the back up tube, and slide the sock off of the tube.
6. Insert a new sock over the back up tube and tuck the ends of the filter bag over both ends of the tube. Then insert the retaining rings inside each end of the tube to hold the bag in place.
7. Replace the back up tube, distributor, and spring inside the housing. (For detailed information, refer to *Streamline Filter/Strainer - Reassembly* earlier in this manual.)
8. Compress the outlet assembly (for model FM) or the cap (model FMS) onto the body, and attach and tighten the clamp.



TROUBLESHOOTING

TROUBLESHOOTING GUIDELINES

The Troubleshooting section chart below applies to problems which may arise during filter or strainer operation. Contact Tri-Clover if assistance is required.

Problem	Probable Cause	Remedy
SM: Split in overscreen along length	Pump pulsation is causing the screen to stretch and fold along the length and cause fatigue and failure.	Dampen pulsation, or use a different type of pump.
SM: Blown out screen	Backflushing through the screen. On fine wire mesh screens, the screen is wrapped around the O.D. of the back up tube, which provides support for the designed direction of flow. No such support exists to protect the screen in a reverse flow pattern. Even a momentary reverse flow spike can lead to this problem.	Protect the system from backflush by installing check valves or relief lines.
SM: Holes in screen FM: Torn filter	Differential pressure too high.	Stop and clean screen, or change media at 10 psi ΔP .
SEF: Bag blown through	Either the filter bag is not contoured to the support basket, or a momentary backflow has pushed the bag away from the support basket.	See Filter Bag Replacement for proper installation instructions. Install backflow prevention devices or pressure relief devices as appropriate.
SES: Screen folded or crushed	Backflushing through the screen. On fine wire mesh screens, a coarser screen wrapped around the O.D. of the fine screen provides support for the designed direction of flow. No such support exists to protect the screen in a reverse flow pattern. Even a momentary reverse flow spike can lead to this problem.	Protect the system from backflush by installing check valves or relief lines.
SES: Bottom of screen has damaged wire mesh or is blown out	Support plate not installed or installed incorrectly. On the finer wire mesh screens, the support plate at the immediate exterior of the bottom of the basket provides a solid support against differential pressure due to clogging. In some cases, the plate is not installed or installed upside down, allowing the screen to fatigue under strain and ultimately give way to pressure.	Install support plate correctly as described under <i>Mainstream Filter/Strainer Reassembly</i> earlier in this manual.
SES: Screen ring support assembly is difficult to remove from housing.	Dried product, especially sticky sugar type solutions, can cause the o-ring seal to bind on the housing.	Grasp the strainer assembly handle and twist the assembly in the housing to break the o-ring free. Then lift the assembly out of the housing.

PARTS LIST

MAINSTREAM

ORDERING INFORMATION

The exploded view and parts key facilitate ordering repair parts from Tri-Clover. All parts for Mainstream Filter/Strainers are keyed to the parts list.

SEF

Key No.	Description	Qty
04	Relief Valve (optional)	1
05	Filter Cover*	1
06	Clamp	1
40	Gasket	1
02-5	Cam Handle	1
02-6	Cam Lock	2
02-4	Cam Pin	1
04	Retainer Ring	1
324	O-Ring (I.D. support ring assembly)	1
03	Filter Media	1
02-1	Screen Ring Assembly	1
190	O-Ring (O.D. support ring assembly)	1
190	Filter Body	1

SES

Key No.	Description	Qt
04	Relief Valve (optional)	1
05	Filter Cover*	1
06	Clamp	1
40	Gasket	1
326	O-Ring (strainer ring assembly)	1
02	Strainer Ring Assembly	1
03	Strainer Ring Support Assembly	1
08/08A	Strainer Support Plate	1
190	O-Ring (strainer support assembly)	1
01	Filter Body	1

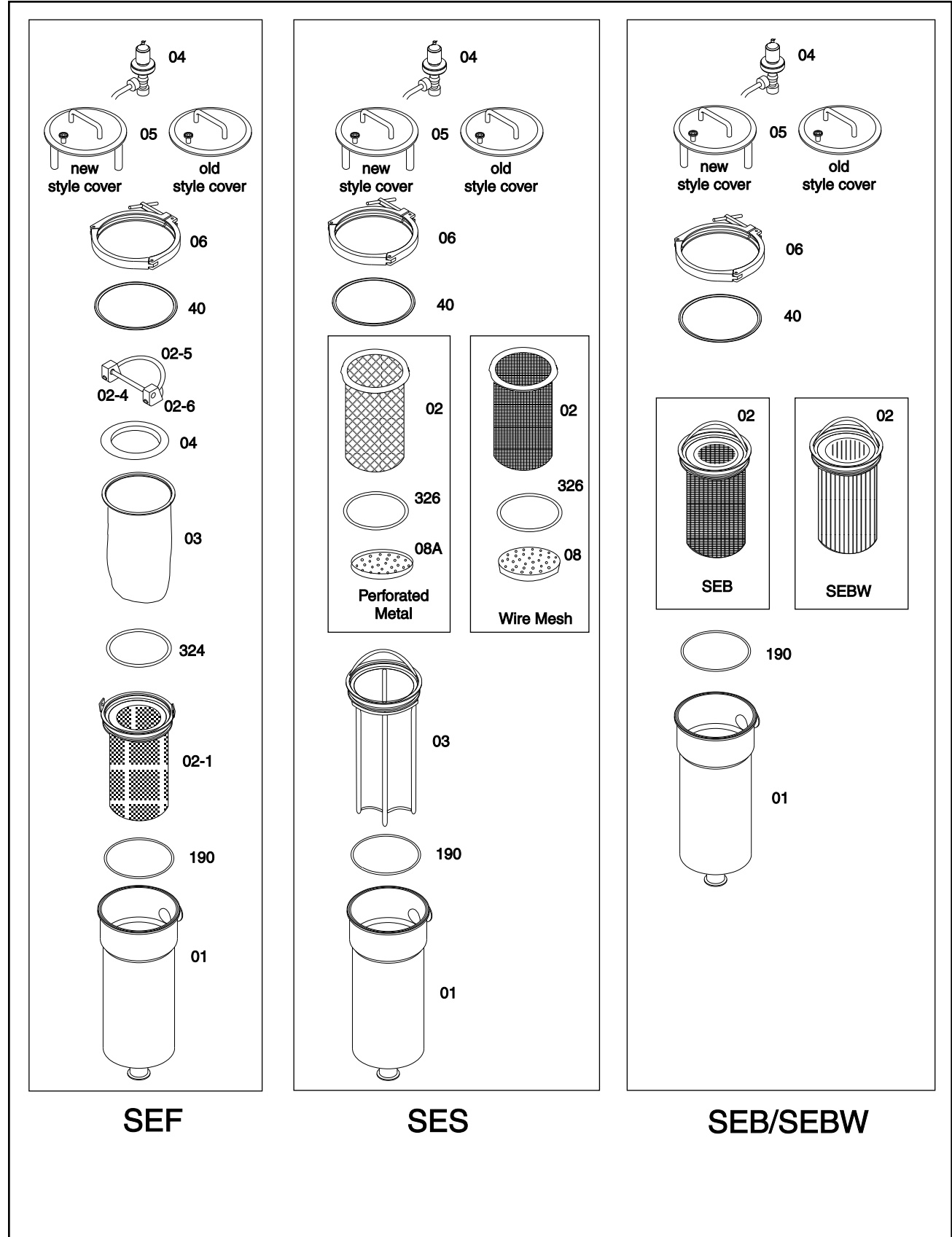
SEB/SEBW

Key No.	Description	Qty
04	Relief Valve (optional)	1
05	Filter Cover*	1
06	Clamp	1
40	Gasket	1
02	Strainer Ring Assembly	1
190	O-Ring (strainer ring assembly)	1
01	Filter Body	1

* The cover of new Mainstream filters/strainers have three legs on the cover that rest on the screen ring assembly of the SEF, the support assembly of the SES or the basket of the SEB/SEBW. Older models do not have legs on the cover.

PARTS LIST

EXPLODED VIEW



PARTS LIST

STREAMLINE

ORDERING INFORMATION

The exploded view and parts key facilitate ordering repair parts from Tri-Clover. All parts for Mainstream Filter/Strainers are keyed to the parts list.

SM/FM

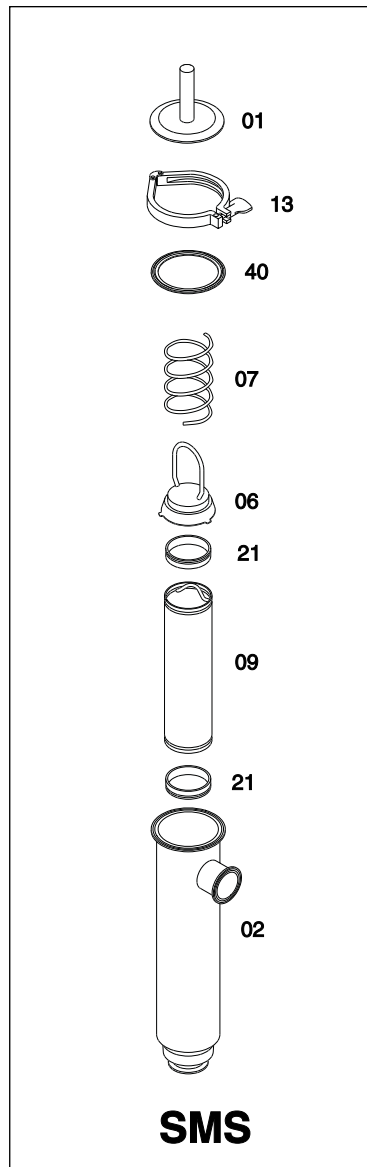
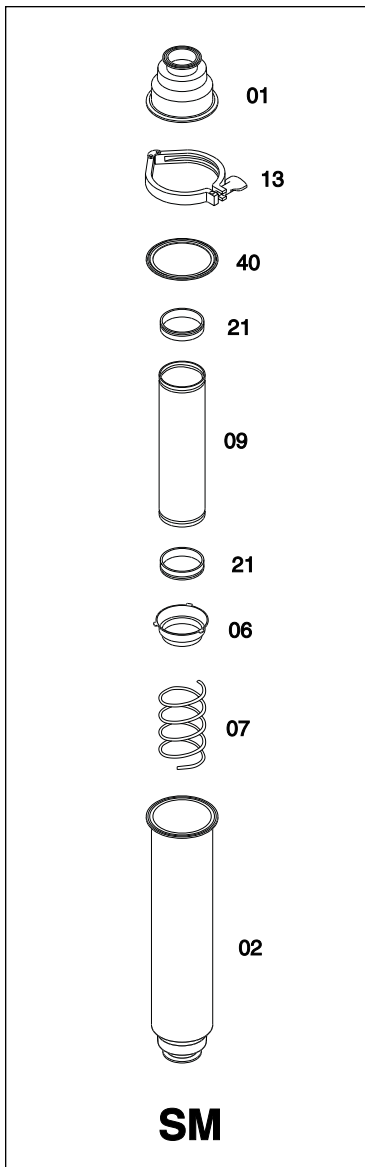
Key No.	Description	Qty
01	Outlet Assemnbly	1
13	Clamp	1
40	Gasket	1
07	Spring	1
06	Distributor Cap	1
09	Back Up Tube	1
21	Retainer Ring (FM only)	2
30	Filter Sock (FM only)	1
44	Overscreen (SM only)	1
02	Body	1

SMS/FMS

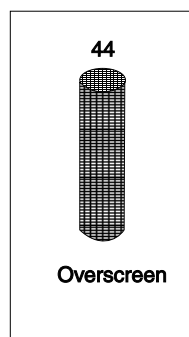
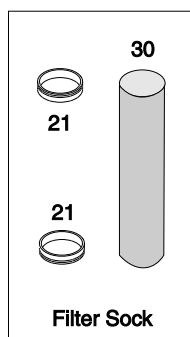
Key No.	Description	Qt
01	Cap	1
13	Clamp	1
40	Gasket	1
07	Spring	1
06	Distributor Cap	1
09	Back Up Tube	1
21	Retainer Ring (FMS only)	2
30	Filter Sock (FMS only)	1
44	Overscreen (FMS only)	1
02	Body	1

PARTS LIST

EXPLODED VIEW



Filter Media



Tri-Clover

manufactures

a complete line of

TRI-WELD® fittings

TRI-CLAMP® fittings

BEVEL SEAT fittings

POSITIVE PUMPS

CENTRIFUGAL PUMPS

AUTOMATIC Air Actuated VALVES

STAINLESS STEEL TUBING

AUTOMATED FLOW CONTROL SYSTEMS

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Prices and all terms and conditions of sale are established in current price sheets and are subject to change without notice. All orders are subject to acceptance by Tri-Clover Inc. at its Kenosha, Wisconsin or Distribution Center* offices only. No assignment of the purchaser's rights may be made without consent of Tri-Clover Inc.

Each Tri-Clover item is warranted to be free from manufacturing defects for a period of one (1) year from the date of shipment, providing it has been used as recommended and in accordance with recognized piping practice, and providing it has not been worn out due to severe service, such as encountered under extremely corrosive or abrasive conditions.

This warranty is expressly in lieu of any other warranties, express or implied, including but not limited to, any implied warranty of merchantability or fitness for a particular purpose.

All claims must be in writing and must be mailed or delivered by purchaser within thirty (30) days after purchaser learns of the facts upon which such claim is based. Any claim not made in

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