Y-STRAINERS

INSTALLATION, OPERATION AND MAINTENANCE

INDEX:

1 - SAFETY INFORMATION

The following general safety information should be taken into account in addition to the specific warnings and cautions specified in this manual. They are recommended precautions that must be understood and applied during operation and maintenance of the equipment covered in this I.O.M.

To avoid injury, never attempt disassembly while there are pressures either upstream or downstream. Even when replacing gaskets, caution is necessary to avoid possible injury. Disassemble with caution in the event all pressures are not relieved.

To prevent strainer bending, damage, inefficient operation, or early maintenance problems, support piping on each side of the strainer.

• A strainer is a mechanism containing fluids under pressure and consequently should be handled with appropriate care.
• Strainer surface temperature may be dangerously too hot or too cold for skin contact.
• Upon disassembly, attention should be paid to the possibility of releasing dangerous and or ignitable accumulated fluids.
• Ensure adequate ventilation is available for service.

This manual provides instructions for storing, general servicing, installation and removal of strainers. Trust Valves refuses any liability for damage to people, property or plant as well as loss of production and loss of income under any circumstances but especially if caused by incorrect installation or utilization of the valve or if the valve installed is not fit for intended purpose. It is the sole responsibility of the user to ensure the valve type and materials are correctly specified.
DURING OPERATION, TAKE INTO ACCOUNT THE FOLLOWING WARNINGS:

- Graphite body gaskets (where applicable) are very brittle, any compacting, twisting or bending should be avoided.
- The strainer's internal parts (mesh/gasket/seal, etc.) shall be handled with care avoiding scratches or surface damage.
- All tools and equipment for handling the soft seals shall be soft coated, or else take care.
- Valves can be fitted with bonnet gaskets or seals in PTFE, Buna, Viton, etc., hence high temperatures and some cleaning fluids may damage sealing components.

For all operations, refer to position number on part list of the applicable drawing.

2.0 - INSTALLATION

2.1 - INSTALLATION POSITIONS

Y-strainers are unidirectional and have the direction of flow indicated on the strainer's body.
Y-strainers can be used both in horizontal or vertical lines, following the arrow stamper on the body.

2.2 - PREPARATION FOR INSTALLATION

- Remove protective end caps and inspect strainer ends for damage to threads, socket weld bores or flange faces.
- Thoroughly clean adjacent piping system to remove any foreign material that could cause damage to seating surfaces during strainer operation.
- Verify that the space available for installation is adequate to allow the strainer to be installed.

2.3 END CONNECTIONS

Threaded Ends

Check conditions of threads or mating piping.
Apply joint compound to the male end of joint only; this will prevent compound from entering the strainer flow path.

Flanged Ends

Check to see that mating flanges are dimensionally compatible with the flanges on the strainer body and ensure sealing surfaces are free of debris.
Install correct studs and nuts for the application and place the gasket between flange facings.

Socket Weld Ends

Remove all debris, grease, oil, paint, etc. from the pipe that is to be welded into the strainer and from the valve end connections.
Insert the pipi into the valve end connection until it bottoms out in the socket weld bore. Withdraw the pipi 1/16" so that a gap remains between the pipe and the bottom of the socket weld bore to prevent cracks (ASME B1.11). Tack the pipe into the strainer and complete the fillet weld.

Buttweld Ends

Clean the weld ends as necessary and weld into the line using an approved weld procedure. Make sure the body and pipe material given on the nameplate is compatible with the welding procedure. The responsibility for welding of the strainers into piping systems is that of those performing the welding. Refer to ASME B31.1, B31.3 etc. Written welding procedures covering all attributes of the process and materials to be welded shall be in accordance with Section IX of the ASME Boiler and Pressure Vessel Code and any additional requirements from the applicable piping code including any possible necessary localized post weld heat treatment depending on material specifications.

2.4 - POST-INSTALLATION PROCEDURES

After installation, the line should be cleaned by flushing to remove any foreign material. When caustics are used to flush the line, additional flushing with clean water is required. The strainer should be opened and closed after installation to ensure proper operating function. With the line pressurized, check the strainer end connections, body to bonnet/cover joints and bleed plugs for leaks. The bonnet bolts may have to be tightened to stop leakage.

3 – OPERATIONS

Y type strainer operation is automatic and requires no assistance. However, a lower drain valve can be specified allowing the operator to drain off dirty fluid. Furthermore, a pressure gauge can be specified to monitor the strainer pressure as once the strainer becomes blocked the pressure will rise.

Personal injury may result from sudden release of any process pressure. Trust Valves recommends the use of protective clothing, gloves and eyewear when performing any installation or maintenance. Isolate the strainer from the system and relieve pressure prior to performing maintenance. Disconnect any operating lines providing air pressure, control signals or electrical power to actuators.

4.0 – MAINTENANCE

4.1 - FLANGE D & BUTTWELD END STRAINERS

To clean the Y type strainer screen first isolate the strainer from the line flow. Allow retained fluid to drain down, by removing the drain plug where fitted (refer to Figure 1 & 2 below). Remove the cover (refer to 5.2) and withdraw the screen. The screen can be cleaned with a suitable solvent and/or carefully scrubbed with a wire brush. Ultrasonic cleaning is recommended on fine mesh screens to avoid damage to filter media. Always remove all traces of the gasket and refit a new one.
Re-assembly is simply the reverse of the above procedure. However, care must be taken to seat the screen properly before replacing the cover. In some cases an O-ring may be fitted in the screen seat area.

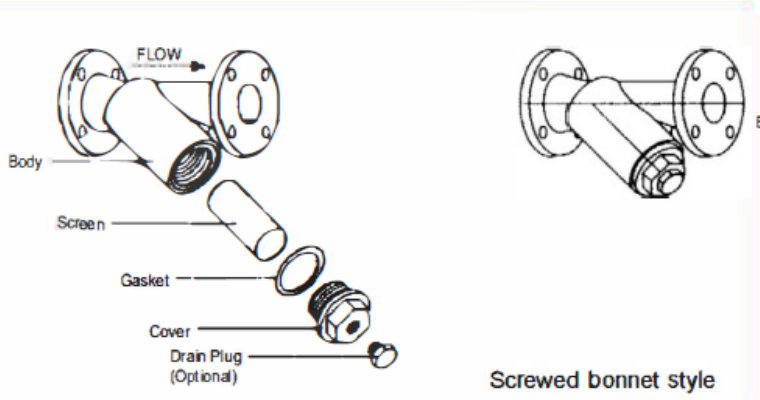


FIGURE 1

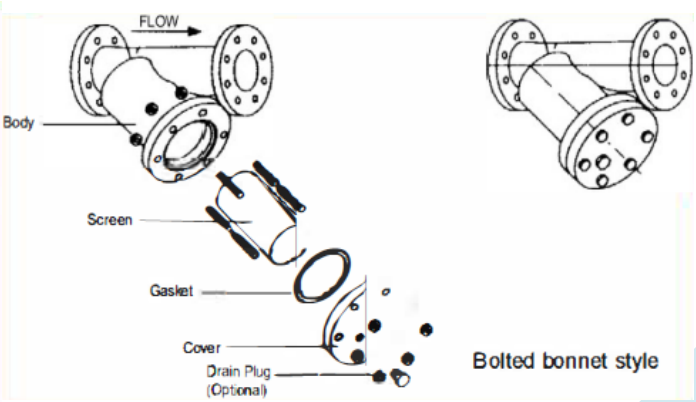


FIGURE 2

4.2 - SCREWED & SOCKETWELD END STRAINERS

To clean screen first isolate the strainer from the line flow. Allow retained fluid to drain down, by removing the drain plug were fitted. Remove the cover (refer to 5.2) and withdraw the screen. The screen can be cleaned with a suitable solvent and/or carefully with a wire brush. Ultrasonic cleaning is recommended on fine mesh screens to avoid damage to filter media. Always remove ali traces of the gasket and refit a new one.

Re-assembly is simply the reverse of the above procedure. However, care must be taken to seat the screen properly before replacing the cover. In some cases an O-ring may be fitted in the screen seating area.

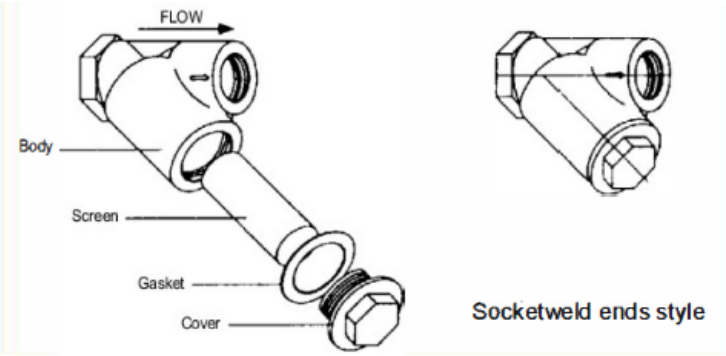


FIGURE 3

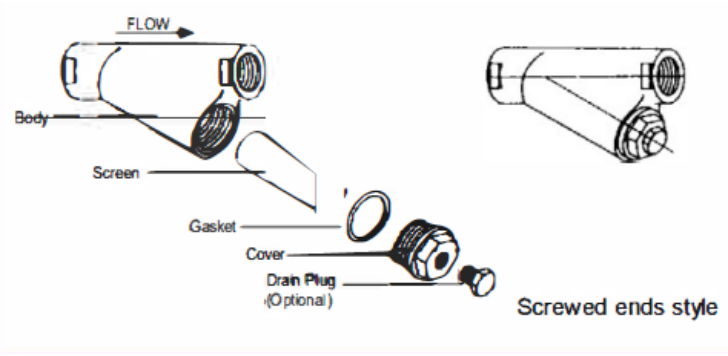


FIGURE 4

Always be sure that the strainer is de-pressurized and isolated prior to performing any maintenance work. Do not attempt to repair strainer in-line if volatile, dangerous, hazardous or flammable service.

5.0 - REPAIRS

Proper safety equipment and apparel should be worn when preparing to service a valve.

5.1 - REPAIR INSTRUCTION

Due to the relatively low replacement cost of small diameter standard strainers under DN65 (2.1/2"), it is usually less expensive to replace the complete strainer than to have maintenance personnel effect repairs. Generally, the only viable repairs are the replacement of bonnet gasket.

Always replace the bonnet gasket whenever a valve is disassembled. Gasket seating surfaces should be scraped clean (avoid radial marks). Bonnet bolts should be tightened in a diagonal pattern (see Attach. A).

5.2 - GASKET REPLACEMENT

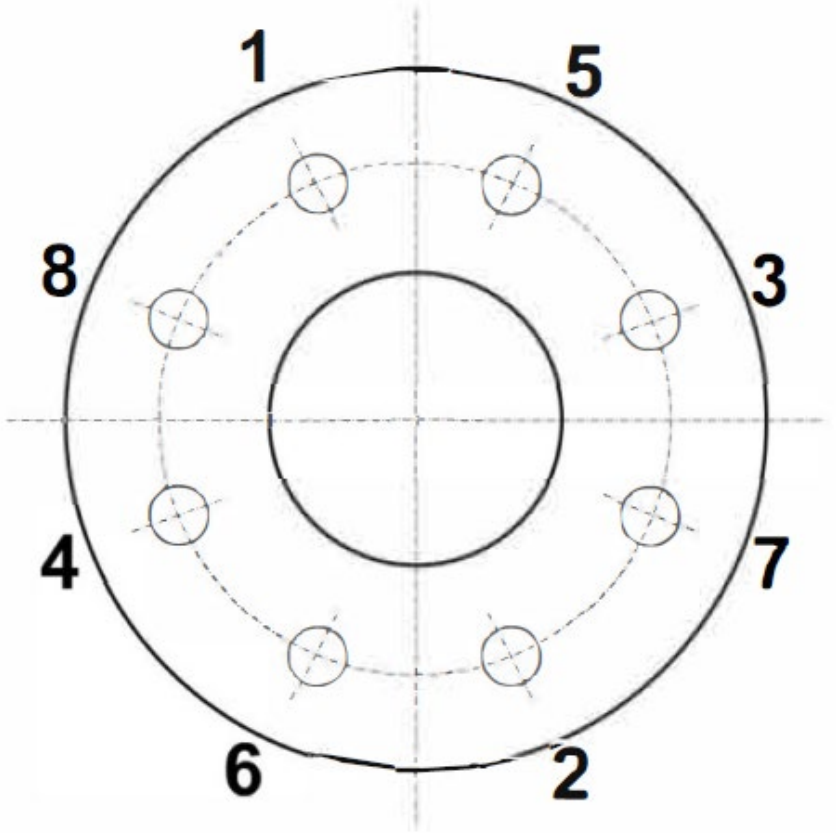
Replace gasket on Y-strainers with bolted cover as follows:

- Disassemble all cover bolts and nuts.
- For strainers in sizes DN400 (16") and larger (and in the case of higher-pressure classes, in smaller sizes), lift up the cover utilizing the lifting lugs provided. For smaller and lower class strainers gently and evenly break the bonnet seal with a lever if required, using adequate force to move the cover upwards.
- Clean the gasket face area and replace gasket, replace bonnet as detailed in 5.1 above.

If a gasket seat is disturbed while removing adjusting gasketed parts, Trust Valves recommends installing a new gasket while reassembling. A proper seal is required to ensure optimum operation.

6 – ATTACH. A

FIGURE 5



Bolting torque sequence: 1 - 2 - 3 - 4 - 5 - 6 - 7 - 8