



STRAINERS Y TYPE & BASKET TYPE



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PIPELINE VALVE®**



AUSTRALIAN PIPELINE VALVE®

COMPLETE PRODUCT LINE

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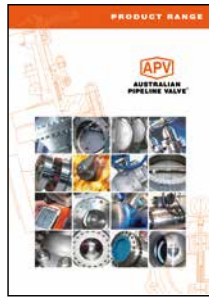
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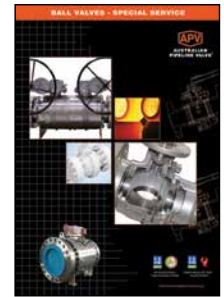
Product Brochure



Ball Valves Floating & Trunnion Mounted



Ball Valves Floating Small Bore



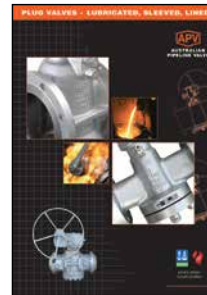
Ball Valves Special Service



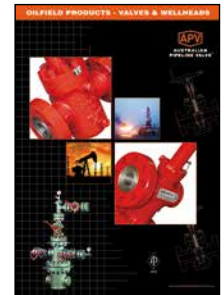
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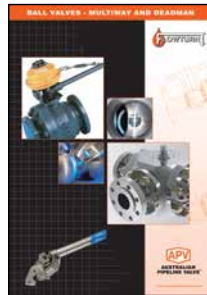


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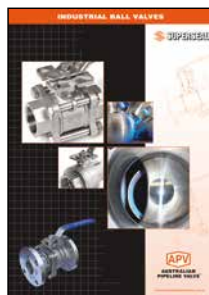
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Supercheck Wafer Check Valves



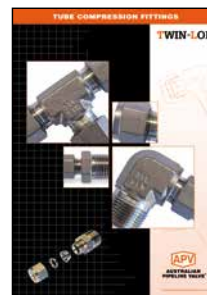
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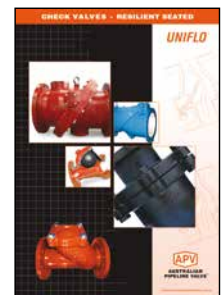
Superseal Industrial Ball Valves



Torqturn Actuators



TwinLok Tube Fittings



Uniflo Check Valves

Contact us for your local stockist/distributor

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INTRODUCTION

The majority of this information is common knowledge to experienced valve and piping component users. When properly installed in applications for which they were designed, Australian Pipeline Valve (APV) - Flowturn Y & Basket strainers will give long reliable service under normal conditions. This instruction manual is only a guide for installation and operation on standard service and covers general maintenance and minor repairs. An APV approved reconditioner should be used for reconditioning and major repairs.



Note

We do recommend however that this entire document be read prior to proceeding with any installation or repair. Australian Pipeline Valve and its parent company take no responsibility for damage or injury to people, property or equipment. It is the sole responsibility of the user to ensure only specially trained valve repair experts perform repairs under the supervision of a qualified supervisor.

RESPONSIBILITY FOR VALVE APPLICATION

The User is responsible for ordering the correct strainers. The user is responsible for ensuring APV - Flowturn strainers are selected and installed in conformance with the correct pressure rating and design temperature requirements. Prior to installation, the strainers and nameplates should be checked for proper identification to ensure the strainer is of the proper type, material and is of a suitable pressure class and temperature rating to satisfy the applications requirements of the service application.



Caution

Do not use any strainer in applications where either the pressure or temperature is higher than the allowable working values. Also, strainers should not be used in service media if not compatible with the valve material of construction, as this will cause chemical attacks, leakage and failure.

RECEIVING INSPECTION AND HANDLING

Strainers should be inspected upon receipt to ensure:

- Conformance with all purchase order requirements.
- Correct type, pressure class, size, body and trim materials and end connections.
- Any damage caused during shipping.



Caution

The User is advised that specifying an incorrect strainer for the application may result in injuries or property damage. Selecting the correct strainer type, rating, mesh size, material and connections, in conformance with the particular performance requirements is important for proper application and is the sole responsibility of the user.

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.



Caution

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.



Caution

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



Caution

- *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.

APV and its resellers refuse 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 utilisation 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:

- a- Graphite body gaskets (where applicable) are very brittle, any compacting, twisting or bending should be avoided.
- b- The strainer's internal parts (mesh/gasket/seal, etc.) shall be handled with care avoiding scratches or surface damage.
- c- All tools and equipment for handling the soft seals shall be soft coated, or else take care.
- d- 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 make reference to position number on part list of the applicable drawing.

1.0 INSTALLATION



Piping should be properly aligned and supported to reduce mechanical loading on the end connections.

1.1 INSTALLATION POSITIONS

Basket and Y type strainers are unidirectional and have the direction of flow indicated on the strainer body.

Flowturn strainers can be used for use in horizontal or vertical lines. For vertical flow lines the preferred direction is downwards provided flow is in direction of the arrow on the body.

1.2 PREPARATION FOR INSTALLATION

- Remove protective end caps or plugs 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.

1.3 END CONNECTIONS

1.3.1 Threaded Ends

Check condition of threads on mating piping.

Apply joint compound to the male end of joint only. This will prevent compound from entering the strainer flow path.

1.3.2 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 the correct studs and nuts for the application and place the gasket between the flange facings.

1.3.3 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 pipe into the valve end connection until it bottoms out in the socket weld bore. Withdraw the pipe 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.

1.3.4 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. (Refer our compatibility cross reference chart for equivalent pipe, valve & fitting grades at the APV website).

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 localised post weld heat treatment depending on material specifications.



Caution

Stud nuts should be tightened in an opposing criss-cross pattern in equal increments to ensure even gasket compression. See Appendix A.

1.4 POST-INSTALLATION PROCEDURES

After installation, the line should be cleaned by flushing to remove any foreign material. When caustics are to be 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 pressurised, 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.

2.0 OPERATION

Basket and 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.



Caution

Personal injury may result from sudden release of any process pressure. APV recommends the use of protective clothing, gloves and eye wear 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.

3.0 MAINTENANCE

3.1 FLANGED & BUTTWELD END STRAINERS

To clean the Basket or 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 4.2) 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.

FLANGED OR BUTTWELD END STRAINER*

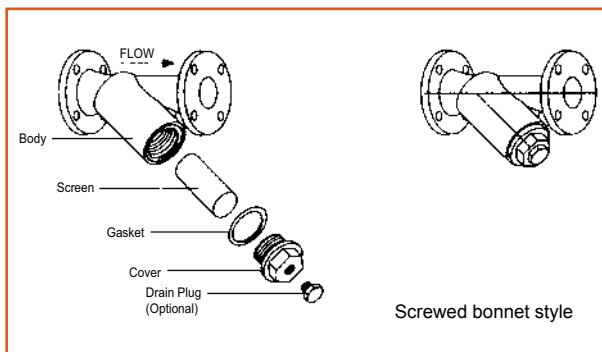


FIGURE 1

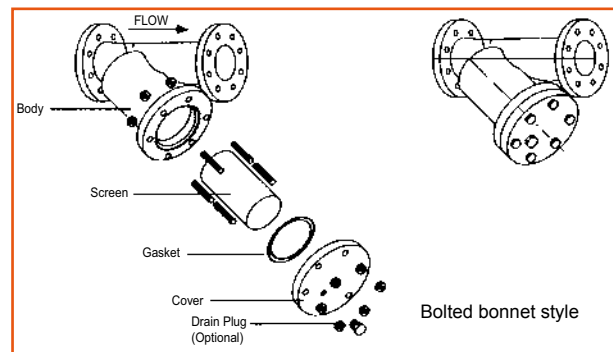


FIGURE 2

Indicative drawings only, refer to as-built drawing. *Y-strainer is shown but basket strainers have the same basic components except the basket is enclosed and the bonnet is optionally available in quick release style.

3.2 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 where fitted. Remove the cover (refer to 4.2) 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 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 seating area.

SOCKETWELD/SCREWED END Y-STRAINER*

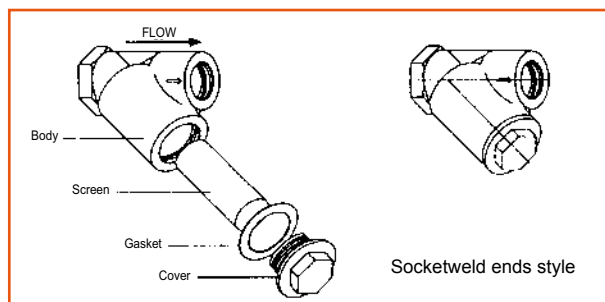


FIGURE 3

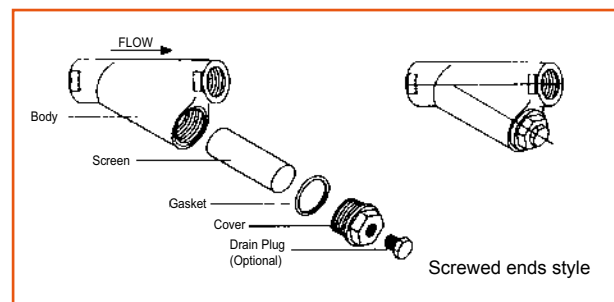


FIGURE 4

Indicative drawings only, refer to as-built drawing. *Special order in basket style - refer to as-built drawing.



Caution

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

4.0 REPAIRS

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

4.1 REPAIR INSTRUCTIONS

Due to the relatively low replacement cost of small diameter standard strainers under 65NB (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 Appendix A).

4.2 GASKET REPLACEMENT

Replace gasket on Basket or Y type strainers with bolted style bonnet as follows: -

1. Disassemble all cover bolts and nuts.
2. For strainers in sizes 400 NB (16") and larger (and in the case of higher pressure classes, in smaller sizes), lift up the cover utilising 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.
3. Clean the gasket face area and replace gasket, replace bonnet as detailed in 4.1 above.

Quick release lid strainers normally have O-ring or PTFE bonnet seals, ensure the correct seal type is used when replacing.

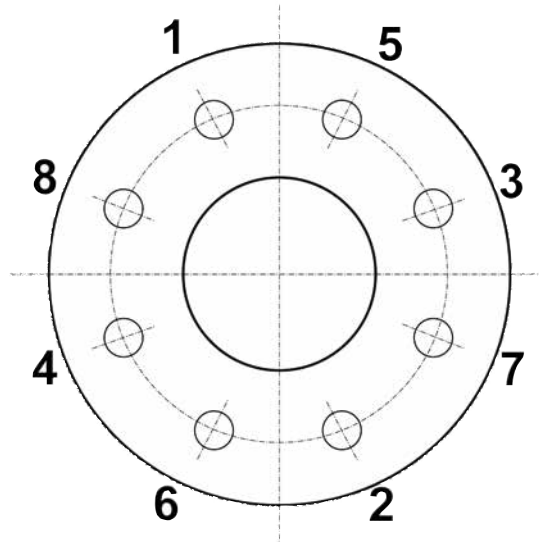


Caution

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

APPENDIX A

FIGURE 5



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

CONSIDERATIONS OF TECHNICAL RISK / LIMIT OF LIABILITY FOR APV - FLOWTURN STRAINERS

Australian Pipeline Valve don't consider in our design the following factors of risk:

1. APV-Flowturn 'Standard' Iron check valves and strainers can be used in a temperature range between -10 to +100°C up to 200°C depending on seats. (Note, pressure limitations apply above 38°C refer to Pressure/Temperature charts.) Australian Pipeline Valve-Flowturn 'Standard' iron valves are not suitable for low temperature service below -10°C. Steel and other grades of steel are as per ASME B16.34 but temperature is also limited by gaskets and seals.
2. The onus is on the customer to specify all materials of construction and service conditions. Australian Pipeline Valve shall assume standard materials and conditions if not otherwise specified.
3. Australian Pipeline Valve 'Standard' strainers are not equipped with devices suitable to avoid internal over-pressures caused by incorrect operations of process or by-fluids & liquids subjected to an increase of volume and/or pressure and/or strainer blockage.
4. Australian Pipeline Valve 'Standard' strainers are not designed with special devices to withstand a sudden thermal jump (thermal shock).
5. In general Australian Pipeline Valve 'Standard' strainers are not mechanically designed to bear overloads due to exceptional atmospheric or natural phenomenon's (such as earthquakes).
6. In general Australian Pipeline Valve 'Standard' strainers are not designed to bear loads on flanges, on pipe connections or pipe-line.
7. The compatibility between the strainers construction materials and medium is selected by the user. The user is ultimately responsible for verifying the compatibility between medium and materials.
8. Abrasive or dirty service applications need to be considered and stated at time of order.
9. The installation shall be designed to provide adequate means of draining and venting to avoid harmful effects such as water hammer, vacuum collapse, corrosion and uncontrolled chemical reactions and to permit cleaning, inspection and maintenance in the correct manner.
10. The strainers have not been designed to include corrosion, erosion or abrasion allowances.
11. The piping system shall be so designed to reduce the risk of fatigue due to vibration of pipes.
12. APV-Flowturn strainers are suitable for liquid working pressures specified (cold working pressure 'cwp'[®]) on drawing and only when used in hydraulic installations in which shock is absent or negligible.

Strainers are not designed to operate under high shock loadings. Where pressure increases occur due to shock loading (water hammer), they should be added to the working pressure to obtain the total pressure acting on the valve. The total must not exceed the pressure rating of the valve. A pressure surge, or shock, is usually caused by the rapid closure of a check valve or quarter turn valve resulting in a sudden reduction in flow rate.

Where shock is likely to occur, the maximum shock pressure should be added to the working pressure ('cwp'[®]) of the line to determine working pressure of products in the line...also, hydraulic installations should be equipped with air chambers or other types of shock absorbers to eliminate, as much as possible, increase in pressure due to shock.

Maximum operating pressure reduces as service temperature increases. Pressure and temperature limitations are as per ASME B16.34 or ASME B16.1 and as shown on the drawing - gaskets and internal components all reduce temperature rating. Cold working pressure[®] or class is shown on the identification plate and drawing, and must not be exceeded.

[®] Cold Working Pressure 'cwp' : where 'Cold Working Pressure' is the maximum rated pressure of the valve at a temperature up to 65°C (150°F). Pressure rating shown on drawing, labels and certificate is always cold working pressure non-shock.

START-UP

Before installing the strainer onto the pipe-line it is mandatory, for the user, to verify the compatibility of the strainer with service conditions (medium, temperature and pressure). With reference to standard strainers held in stock, the reseller and end user will have to assure themselves of the compatibility between the strainer and the conditions required by the customer.

Before using the valve in a potential explosive atmosphere it's necessary for the customer to: -

- To verify the correct type of strainer is specified.
- To verify the compatibility between the strainer and the zone in which the valve should be installed
- To foresee the pipe-line ground condition on which the strainer should be installed
- To check that the temperature if the valve surface is not higher than the flammable point of the atmosphere in which the strainer is installed (in this case specify an insulating cover device for the strainers)
- To avoid mechanical knocks during the installation that may cause sparks.

Australian Pipeline Valve cannot be held responsible for damage caused by use of the product for any reason, especially if it is improper use or modified.



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