Strainers

Fig. 817 / 807 / 907 / 827 / 817.PF / 810 / 810ANSI / 910 / 910 ANSI / 811 / 911 / 822 / 922 / 816W / 825W
Iron and Bronze Strainers

Introduction

Strainers are installed to prevent foreign matter e.g. scale and dirt from causing damage to pipeline equipment.

General Installation

Preparation

- Ensure strainer is suitable for service conditions e.g. pressure, temperature, service media.
- Remove dust caps/flange protectors, where fitted.
- Prior to installation, the pipework to which the strainer is to be fastened should be checked for cleanliness and freedom from debris.
- Prior to installation, a check of the identification plate and body marking must be made to ensure that the correct strainer is being installed.
- Strainers are precision manufactured items and as such, should not be subjected to misuse such as careless handling, allowing dirt to enter the strainer through the end ports, lack of cleaning both strainer and system before operation and excessive force during assembly.

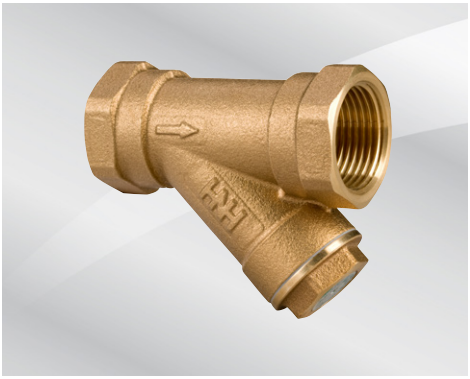

Fig. 817

- All special packaging material must be removed.

Flanged Joints

- Flanges may be damaged by over tightening the bolts. The following procedures will reduce this risk:
- Full-face gaskets reduce the stresses in flat face flanges.
- Low strength carbon steel bolting has traditionally been used to restrict the load imposed on grey iron flanges, but should not be used for temperatures above 200° C.

General Installation (CONTINUED)

- The bolting must be checked for correct size, length, material and that all connection flange bolt holes are utilized.
- Find out the correct assembly torque for the specific gasket and conditions applicable, and use a torque wrench to achieve this. Use the correct tightening sequence.
- Do not match a flat-faced flange to a raised face flange.
- The flange gaskets should be suitable for operating conditions or maximum pressure/ temperature ratings.
- The flange gaskets should be checked to ensure freedom from defects or damage.
- Care should be taken to provide correct alignment of the flanges being assembled. A suitable lubricant on bolt threads is recommended. In assembly, flange bolts should be tightened sequentially to make the initial contact of flanges and gaskets flat and parallel followed by gradual and uniform tightening in an opposite bolting sequence to avoid bending one flange relative to the other, particularly on flanges with raised faces.
- Flanged joints depend on compressive deformation of the gasket material between the flange surfaces.

Threaded Joints

- A thread gauge should be used to confirm that the pipe threading length is correct to avoid excessive penetration of the pipe into the valve which would otherwise cause damage.
- The strainers are supplied with taper threads and, with the use of a thread sealant will give a pressure tight seal.
- To avoid distortion of the valve, when fitting and tightening the pipe, the valve must be gripped using the flats provided at the same end as the pipe is being fitted.
- The male thread on the pipe must have fully formed, undamaged threads.

Press-Fit Joints

- For Press-Fit, please refer to the Geberit website www.geberit.co.uk where installation instructions for Press-Fit can be found.

Valve Location

- It should be considered at the design stage where strainers will be located to give access for operation, cleaning and maintenance.
- The strainer shall be installed with sufficient room so that the strainer element can be withdrawn from beneath in a downwards direction. Also sufficient room is needed for pressure tapped strainers to enable the connection of test probes.

Layout and Sitting

- To ensure strainers work at best efficiency, valves must be installed so that the strainer basket is in the direction of flow and the angled portion of valve pointing down. An indication arrow is cast on the valve body.
- It is recommended for strainers to be installed in horizontal pipework. When installed in vertical lines, the flow must be in downward direction.

Piping Supports

- Strainers must be provided with adequate support. Adjoining pipework must be supported to avoid the imposition of pipeline strains on the strainer.

General Installation (CONTINUED)

- Heavy strainers may need independent support or anchorage.
- When large strainers are provided with lifting lugs or eye nuts, these should be used to lift the strainer.

Operation

- The operating conditions shall be consistent with the requirements in the performance specification.
- The screen will require cleaning after the flushing process and periodically thereafter.

Inspection and Maintenance

- The valve should be at zero pressure and ambient temperature prior to any maintenance.
- The portion of the pipeline in which the valve is installed must be isolated before any dismantling and inspection is carried out.
- Remove the strainer cap and screen and clean out any sediment and other debris. Check for damage to the screen and renew if necessary with a screen of the same material and construction.
- The procedure detailed below should be followed to ensure correct location of the screen in the strainer body.

  Strainers with Screwed Cap

  Step 1: Fit gasket into the groove in the cap.

  Step 2: Push the screen into the inside of the cap, making sure it fits squarely.

  Step 3: Assemble the cap back into the body and tighten.

  Strainers with Bolted Cap

  Step 1: Fit the gasket into the groove in the cap.

  Step 2: Place the screen inside the body making sure it is seating correctly. Keep the screen in this position using a steel rule or something similar temporarily held across the opening in the body.

  Step 3: Place the cap in position on the body studs and push home, making sure the screen engages the seating in the cap. Tighten down each nut gradually to ensure equal compression before fully tightening.
- For any technical queries, please contact Hattersley Technical Department.
- **Strainer Screen Cleaning**

  Strainers with Screwed Cap

  Step 1: Before commencing work, de-pressurize the system and drain.

  Step 2: The strainer has a screwed cap which is removed in an anti-clockwise direction to enable the withdrawal of the strainer screen.

Inspection and Maintenance (CONTINUED)

Step 3: Clean the strainer screen using a brush and or water jet. Appropriate Personal Protective Equipment should be worn during the cleaning process.

Step 4: Once the strainer screen has been cleaned the strainer can be re-assembled.

Strainers with Bolted Cap

Step 1: Isolate the strainer from the system pressure and drain.

Step 2: Slacken all bolts gradually and remove sequentially taking care to support the weight of the cover as the final bolt is removed.

Step 3: Clean the strainer screen using a brush and or water jet. Appropriate Personal Protective Equipment including mask should be worn as a precaution to prevent inhalation of particles or contaminated water.

Step 4: Once the strainer screen has been cleaned the strainer can be re-assembled. Ensure the body and cover joint faces are clean.

Step 5: Locate the strainer screen in the cover and offer up to the body, aligning the bolt holes.

Step 6: Fit bolts and tighten sequentially.

- If fitted with a drain plug, this may be removed to allow debris to be flushed from the strainer but will require isolation of the strainer from the system.
- Prior to commissioning a drain cock may be fitted to replace the plug which will allow strainer flushing whilst under line pressure.
- Maintenance Engineers & Operators should have the appropriate level of competence and are reminded to use correct fitting tools and equipment. A full risk assessment and methodology statement must be compiled prior to any maintenance.
- The risk assessment must take into account the possibility of the limits of use being exceeded whereby a potential hazard could result.
- A maintenance programme should therefore include checks on the development of unforeseen conditions which could lead to failure.

General Considerations

- The surfaces of valves in service may be subject to extreme temperatures; care should be taken when handling.

Limits of Use

These valves have been categorised in accordance with the Pressure Equipment Directive 2014/68/EU.

The fluid to be transported is limited to those shown in the product table below. On no account can these valves be used on any unstable fluids, or for the fluids groups not specified in the product table.

Note: Valves that are classified as SEP (Sound Engineering Practice) are not CE marked and therefore do not require a declaration of conformity.

Products conforming to Cat I of the PED 2014/68/EU shall include the CE Mark.

Products conforming to Cat II and above of the PED 2014/68/EU shall include the CE Mark and applicable Notified Body Number.

Fig. No.	Material	PED Category by valve size (DN)			Product Application			
		SEP	1	2	Group 1 Gas	Group 2 Gas	Group 1 Liquid	Group 2 Liquid
817 / 817.AT	Bronze	15-50	-	-	-	-	-	✓
807 / 807.AT	Bronze	15-50	-	-	-	-	-	✓
907 / 907.AT	Bronze	15-50	-	-	-	-	-	✓
827 / 827.AT	Bronze	15-50	-	-	-	-	✓	✓
817.PF	Bronze	15-54	-	-	-	-	-	✓
810	Cast Iron	-	350-600	-	-	-	-	✓
810 ANSI	Cast Iron	350	400-600	-	-	-	-	✓
910	Cast Iron	-	350-600	-	-	-	-	✓
910 ANSI	Cast Iron	350	400-600	-	-	-	-	✓
822	Cast Iron	50-300	-	-	-	-	-	✓
822A	Cast Iron	50-300	-	-	-	-	-	✓
922	Cast Iron	50-300	-	-	-	-	-	✓
922A	Cast Iron	50-300	-	-	-	-	-	✓
811	Ductile Iron	50-80	-	100-300	-	-	✓	✓
911	Ductile Iron	50-80	-	100-300	-	-	✓	✓
816W	Cast Iron	65-150	-	-	-	-	-	✓
825W	Ductile Iron	65-150	-	-	-	-	-	✓

Limits of Use (CONTINUED)

- Valves must be installed into a well-designed system and it is recommended that the system be inspected in accordance with the appropriate national and regional legislation.
- Valves must be installed by trained personnel only.
- Maximum operating pressure reduces as service temperature increases. Service temperature and pressure indicated on the identification plate or body marking should not be exceeded – please refer to example below.
- The installation should 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.
- Valves 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.
- It is the responsibility of the installer to ensure that the valves do not exceed the allowable limits of pressure. However, the equipment is designed to withstand a momentary pressure surge of up to 10% above the maximum working pressure.
- The product has not been designed to include corrosion, erosion or abrasion allowances. Any queries regarding service applications should be addressed to the Hattersley Technical Sales Department.
- The valves have been designed for loadings, appropriate to its intended use and other reasonably foreseeable operating conditions. Loadings caused by traffic, wind and earthquake have not been taken into account.
- Not suitable for fatigue loading, creep conditions, fire testing, fire hazard environment, corrosive or erosive service, transporting fluids with abrasive solids.
- The piping system shall be designed to reduce the risk of fatigue due to vibration of pipes.
- Hattersley valves have not been designed as fire safe valves.

Operating Pressure and Temperature

Fig. No.	Maximum Operating Pressure Conditions	Maximum Operating Temperature Conditions
817 / 817.AT	16.0 Bar / 100°C	7.0 Bar / 170°C
807 / 807.AT	32.0 Bar / 100°C	14.0 Bar / 200°C
907 / 907.AT	25.0 Bar / 100°C	21.8 Bar / 120°C
827 / 827.AT	20.0 Bar / 100°C	9.0 bar / 180°C
817.PF	16.0 Bar / 100°C	13.5 Bar at 120°C
810	16 Bar / 120°C	12.8 Bar / 200°C
810 ANSI	13.8 Bar / 65°C	8.6 Bar / 230°C
910	16 Bar / 120°C	15.2 Bar / 135°C
910 ANSI	13.8 Bar / 65°C	11.7 Bar / 135°C
822	16.0 Bar / 120°C	12.8 Bar / 200°C
822A	13.8.0 Bar / 65°C	8.6 Bar / 230°C
922	16.0 Bar / 120°C	(limited to 120°C with test points fitted)
922A	13.8 Bar / 65°C	12 Bar / 120°C
811	25 Bar / 120°C	21.5 Bar / 220°C
911	25 Bar / 120°C	23 Bar / 180°C
816W	16 Bar / 85°C	-
825W	25 Bar / 85°C	-

Example of Identification plate showing service pressure and temperature limitations.

Stress Corrosion Cracking

The use of chemicals for system dosing must be determined by the user as all aspects of the system must be established and considered, and the effect of the chemicals used (including compounds arising from chemical combinations) must also be established in order to accurately determine compatibility.

Hattersley (and its related brands) manufacture hardware (valves, couplings, etc) for the Building Services industry and Utilities industries. However, we are not system designers or operators and cannot make recommendations regarding chemical compatibility for the system, as a result of the above variables. Any comments from Hattersley regarding chemical compatibility shall relate solely to the Hattersley product and does not constitute a recommendation on compatibility for the wider system, resultant chemical compounds, components, substances or materials, in whole or in part.

For reference, and not exhaustive, certain austenitic stainless steels and aluminium alloys crack in the presence of chlorides, mild steel cracks in the presence of alkali and nitrates, copper alloys crack in ammoniacal solutions and iron with almost any caustic species (hydrogen presence notwithstanding).

For more information on how SCC can occur, please visit www.hattersley.com

YouTube To visit our video library search Hattersley Valves on YouTube

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