Engineering Data Sheet

Installation, Operation & Maintenance Instructions for Fig 808 and 908 "Y" type Bronze Strainers

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CE MARKING AND THE PRESSURE EQUIPMENT DIRECTIVE 97/23/EC

This has been implemented in United Kingdom law by the Pressure Equipment Regulations 1999 (SI 1999/2001).

The regulations apply to all piping with a maximum allowable pressure greater than 0.5 bar. Piping with a maximum allowable pressure not exceeding 0.5 bar are outside the scope of the Directive. Piping is categorised in accordance with the maximum working pressure, size and ascending level of hazard, which is dependent on the fluid being transported. Fluids are classified as Group 1, dangerous fluids or Group 2, all other fluids including steam. Categories are SEP (sound engineering practice) and for ascending levels of hazard, I, II, III or IV. All piping designated as SEP do not bear the CE mark nor require a Declaration of Conformity. Categories I, II, III or IV carry the CE mark and require a Declaration of Conformity (Note- all piping up to and including 25mm (1") having a maximum allowable pressure greater than 0.5 bar are designated SEP regardless of fluid group.)

PRODUCT LIFE CYCLE

The life of the strainer is dependent on its application, frequency of use and freedom from misuse. Compatibility with the system into which it is installed must be considered. The properties of the fluid being transported such as pressure, temperature and the nature of the fluid must be taken into account to minimise or avoid premature failure or non-operability. A well-designed system will take into consideration all the factors considered in the strainer design, but additionally electrolytic interaction between dissimilar metals in the strainer and the system must be examined. Before commissioning a system, it should be flushed to eliminate debris and chemically cleaned as appropriate to eliminate contamination, all of which will prolong the life of the strainer.

LIMITS OF USE

The strainers to which these installation, operation and maintenance instructions apply have been categorised in accordance with the Pressure Equipment Directive.

The fluid to be transported is limited to Group 2 liquids i.e. non-hazardous and on no account must these valves be used on any Group 2 gases, Group 1 liquids or Group 1 gases.

These strainers are not suitable for steam service.

Fluid	Group 2 Liquids		
Fig No.	PN	DN	Category
808 & 908	25	15-150	SEP

Operating pressures and temperatures

Fig No	PN	Non-shock pressure at temperature range	Non-shock pressure at max. temperature
808	25	25 bar from –10°C to 100°C	10.5 bar at 186°C
908	25	25 bar from –10°C to 100°C	21.8 bar at 120°C

Not suitable for fatigue loading, creep conditions, fire testing, fire hazard environment, corrosive or erosive service.

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PRESSURE/TEMPERATURE RATING

Strainers must be installed in a piping system whose normal pressure and temperature do not exceed these ratings.

The maximum allowable pressure in strainers as specified in the standards is for non-shock conditions. Water hammer and impact for example, should be avoided.

If the limits of use specified in these instructions are exceeded or if the strainer is used on applications for which it was not designed, a potential hazard could result.

LAYOUT AND SITING

It should be considered at the design stage where strainers will be located to give access for operation, cleaning, maintenance and repair.

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

Heavy strainers may need independent support or anchorage.

INSTALLATION

The Fig 808/908 are bronze strainers, which have flat face flanges, and therefore the pipework-mating flange must also be flat faced. **The flange gasket must be of full-face design**.

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 bolting.

All special packaging material must be removed.

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

When large strainers are provided with lifting lugs or eye nuts, these should be used to lift the strainer.

Immediately prior to installation, the pipework to which the strainer is to be fastened should be checked for cleanliness and freedom from debris.

Note:
The strainer must be installed with the direction arrow on the body coincident with the direction of flow in the pipeline**.**

For vertical pipework the flow direction must be downwards only.

If strainers are installed in horizontal pipework the strainer body, housing the element, must hang below the pipe.

For maintenance purposes the strainer must 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 the Fig 908 with pressure test points to enable the connection of test probes.

End protectors should only be permanently removed immediately before installation. The strainer interior should be inspected through the end ports to determine whether it is clean and free from foreign matter.

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The mating flange (both strainer and pipework flanges) should be checked for correct gasket contact face, surface finish and condition and must be flat, full faced design. If a condition is found which might cause leakage, no attempt to assemble should be made until the condition has been corrected.

The gasket should be suitable for operating conditions or maximum pressure/temperature ratings.

The gaskets should be checked to ensure freedom from defects or damage.

Care should be taken to provide correct alignment of the flanges being assembled. Suitable lubricant on bolt threads should be used. In assembly, bolts are 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.

Parallel alignment of flanges is especially important in the case of the assembly of a strainer into an existing system.

Flanged joints depend on compressive deformation of the gasket material between the flange surfaces.

The bolting must be checked for correct size, length, material and that all connection flange bolt holes are utilized.

OPERATING

The element will require cleaning after the flushing process and periodically thereafter.

Fig 908 Strainers

Test points can be supplied with strainers to assist with determining maintenance requirements.
Each test point is fitted with a captive cap retained by a coloured strap:

Upstream (HP) - Red
Downstream (LP) - Blue

Note: For safety reasons all probe insertions/connections must be carried out with the system cold.

Measurements are taken by directly inserting the test probe into the test point, a silicone oil / grease should be lightly smeared onto the test probe prior to insertion.

MAINTENANCE

The strainer should be at zero pressure and ambient temperature prior to any maintenance.

Maintenance Engineers & Operators 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.

In systems where corrosion could be a potential hazard, wall thickness checks on the body and cover should be made. This requires either the removal of the strainer from the pipeline or removal of the cover with the system at zero pressure. If the wall thickness has reduced by 25%, the strainer must be replaced.

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Strainer Element Cleaning and Gasket replacement

Strainer sizes up to 50mm

1. Isolate the strainer from the system pressure and drain.
2. These strainers have a screwed cap, which is removed in an anti-clockwise direction to enable the withdrawal of the strainer element.
3. Clean the strainer element using a brush and or water jet. It is recommended that goggles should be worn during the cleaning process.
4. Once the strainer element has been cleaned the strainer can be re-assembled. The sealing gasket should be renewed if damage has occurred.
5. Ensure the body and cover joint faces are clean.
6. Locate the strainer element in the cover and offer up to the body and screw in a clockwise direction and tighten, ensure damage to the gasket does not occur.

Strainer sizes 65mm and above

1. Isolate the strainer from the system pressure and drain.
2. These strainers have a bolted cover. Slacken all bolts gradually and remove sequentially taking care to support the weight of the cover as the final bolt is removed
3. Clean the strainer element using a brush and or water jet. It is recommended that goggles should be worn during the cleaning process.
4. Once the strainer element has been cleaned the strainer can be re-assembled. The sealing gasket should be renewed if damage has occurred.
5. Ensure the body and cover joint faces are clean.
6. Locate the cover on to the strainer body and tighten the bolting sequentially, ensure damage to the gasket does not occur.

All sizes of strainer can be fitted with a blow down valve in the cover to enable the straining element to be emptied without the need to remove the cover.
The cover must be removed after flushing prior to site commissioning, when debris within the pipework is greatest and damage to the element may occur and periodically to inspect the straining element for damage and wear.

For the supply of genuine Hattersley spares, technical assistance or Hattersley ValveServe contact:

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