



# Fig 820 & 920 Y Type Strainers



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

Strainers must be installed into a well-designed system and it is recommended that the system be inspected in accordance with the appropriate member state legislation. In the UK –The Pressure Equipment Directive 97/23/EC and The Pressure Systems Safety Regulations 2000.

Hattersley strainers have not been designed as fire safe pressure equipment.

## 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 of 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.

Fig. Nos 820 and 920 are categorised for Group 1 Liquid, but are not necessarily suitable for all fluids in this group. Refer to Hattersley Technical Application Engineers for advice. Codes of practice, specifications and regulations should be referred to for specific guidance for valve selection on hazardous service.

These strainers may be used on Group 2 Liquids and Group 2 Gases, which includes steam service.

For DN350 to DN400 Fig 820 and 920 strainers the fluid to be transported is limited to Group 2 liquids i.e. non-hazardous and on no account must these strainers be used on any Group 1 or 2 gases and Group 1 liquids.

For Fig 920 strainers the fluid to be transported is limited to Group 2 liquids i.e. non-hazardous and on no account must these strainers be used on any Group 1 or 2 gases and Group 1 liquids.

FLUID	GROUP 1 LIQUIDS		
Fig No.	PN	DN	Category
820 ANSI	13.8 Class 125	2" & 2 1/2" 3" - 5", 6" - 12"	SEP I* II*
820 PN16	16	50 65 - 125 150 - 300 350 - 400	SEP I* II* I*

\* Categories I and II require the CE mark

FLUID	GROUP 2 LIQUIDS		
Fig No.	PN	DN	Category
920 ANSI	13.8 Class 125	2" - 12	SEP
920 PN16	16	50 - 300 350 - 400	SEP I*

\* Category I requires the CE mark

## OPERATING PRESSURES AND TEMPERATURES

FIG. NO.	PN	NON-SHOCK PRESSURE AT TEMPERATURE RANGE	NON-SHOCK PRESSURE AT MAX TEMPERATURE
820 ANSI	13.8	13.8 bar from -10°C to 66°C	8.6 bar at 230°C
820 PN16	16	16 bar from -10°C to 120°C	12.8 bar at 220°C
920 ANSI	13.8	13.8 bar from -10°C to 66°C	12 bar at 120°C
920 PN16	16	16 bar from -10°C to 120°C	16 bar at 120°C

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

---

### 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

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 should be installed in adequately supported pipe systems to prevent the imposition of strain on joints / valve body.

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. If strainers are installed in horizontal pipework the strainer body must be lowermost. For vertical pipework the flow direction shall be downwards only.

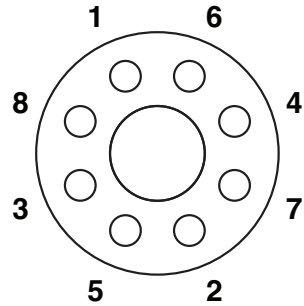
For the purpose of maintenance the strainer shall be installed with sufficient room so that the strainer element can be withdrawn from beneath in a downwards direction. Also sufficient room is needed for the Fig 920 pressure tapped strainers to enable the connection of test probes.

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

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 (see diagram) 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.



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 strainer element (screen) will require cleaning after the flushing process and periodically thereafter. See details below.

### Fig 920 Strainers

Test points are supplied with Fig 920 strainers to assist with determining maintenance requirements.

Each test point is fitted with a captive cap retained by a coloured strap. The test points are supplied separately to be fitted at site, thus avoiding transit damage.

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

#### Note:

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

For the Figure 631 test points, these 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.

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.

### Strainer Element Cleaning and Gasket replacement

The Fig 820 and 920 strainers have a bolted cover which requires removing to allow withdrawal of the strainer element.

1. Isolate the strainer from the system pressure and drain.
2. 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. A face mask should be worn as a precaution to prevent inhalation of particles or contaminated water.
4. Once the strainer element has been cleaned the strainer can be re-assembled. The sealing gasket should be renewed if damage has occurred. Ensure the body and cover joint faces are clean.
5. Locate the strainer screen in the cover and offer up to the body, aligning the bolt holes.
6. Fit bolts and tighten sequentially.

### Drain Plug

The drain plug located in the strainer cap may be removed to allow debris to be flushed from the strainer and will require isolation of the strainer from the system prior to removal.

Prior to commissioning a drain cock may be fitted to replace the plug which will allow strainer flushing whilst under line pressure.



PO BOX 719, IPSWICH, IP1 9DU  
HOME SALES: +44 (0) 1744 458670  
EXPORT SALES: +44 (0)1744 458671  
TECHNICAL HELPLINE: 0845 604 1790  
FAX: +44 (0)1744 26912  
EMAIL: [uksales@hattersley.com](mailto:uksales@hattersley.com)  
EMAIL: [exportsales@hattersley.com](mailto:exportsales@hattersley.com)  
[www.hattersley.com](http://www.hattersley.com)



FM311  
ISO 9001

- Designed and manufactured under quality management systems in accordance with BS EN ISO 9001-2008

Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.

H.FIG\_820\_0511  
IOM\_050M00820D789\_rev1