

Engineering Data Sheet

Document No:- 015M01807D799 rev 1

Installation, Operation & Maintenance Instructions for
Fig 1807 and Fig 1807C Copper Alloy Strainer Ball Valves

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Date 7th March 2002
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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 valves with a maximum allowable pressure greater than 0.5 bar. Valves with a maximum allowable pressure not exceeding 0.5 bar are outside the scope of the Directive. Valves are 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 valves 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 valves 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 valve 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 valve design, but additionally electrolytic interaction between dissimilar metals in the valve 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 valve.

LIMITS OF USE

The valves 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.

Fig 1807 copper alloy strainer ball valves in PN16 (compression) and PN25 (threaded) pressure ratings and in sizes up to and including 22mm (compression) and ¾ inch (threaded) are categorised as SEP and do not require the CE mark

Operating pressures and temperatures

Valve Size	PN	Non-shock pressure at temperature range	Non-shock pressure at max. temperature
15mm-22mm ½"-¾"	16 Compression 25 Threaded	16 bar from -10°C to 30°C 25 bar from -10°C to 20°C	5 bar at 120 °C 8 bar at 120 °C

Not suitable for fatigue loading, creep conditions, fire testing, fire hazard environment, corrosive or erosive service, transporting fluids with abrasive solids.

PRESSURE/TEMPERATURE RATING

These valves are suitable for PN16 (compression) and PN25 (threaded) pressure rating. They must be installed in a piping system where the normal pressure and temperature do not exceed the above ratings.

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If system testing will subject the valve to pressures in excess of the working pressure rating, this should be within the test pressure for the body with the valve in the open position.

The maximum allowable pressure in valves 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 valve 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 valves will be located to give access for operation, adjustment, maintenance and repair.

Valves must be provided with adequate support. Adjoining pipework must be supported to avoid the imposition of pipeline strains on the valve body, which would impair its performance.

The Fig 1807 and Fig 1807C are uni-directional valves and must be installed with the flow in the correct direction i.e. flow through the ball valve then the strainer.

In the interests of safety, valves installed on end-of-line service in the closed position with infrequent opening should be fitted with a locking device on the operating mechanism. Alternatively, it should be fitted with a blanking plug or cap on the downstream end connection of the valve.

INSTALLATION

Prior to installation, a check of the identification plate and body marking must be made to ensure that the correct valve is being installed.

Valves are precision manufactured items and as such, should not be subjected to misuse such as careless handling, allowing dirt to enter the valve through the end ports, lack of cleaning both valve and system before operation and excessive force during lever operation.

All special packaging material must be removed.

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

The valve must be installed with the direction arrow on the body coincident with the direction of flow in the pipeline.

Compression End Valves

These valves are fitted with compression ends to BSEN 1254 Part 2, which are suitable for installation into copper pipework to BSEN1057: Table X and are provided with olives and compression nuts.

Compression nuts must be tightened hand tight and then further tightened as per the following recommendation:

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	15mm	22mm
Further Tightening	1 turn	1 turn

After installation, the valve should be opened and closed fully to confirm satisfactory operation.

Threaded End Valves

Confirm that the pipe threading length is correct to avoid excessive penetration of the pipe into the valve, which would otherwise cause damage.

Thread sealing compounds appropriate to the application may be used but excessive use should be avoided, since this increases thread interference and may cause overstressing of the body ends.

Ensure the threads are properly engaged and proceed to tighten the valve onto the pipe. The wrench must only be located on the valve end into which the pipe is being threaded to avoid distortion of the valve.

After installation, the valve should be opened and closed fully to confirm satisfactory operation.

Drain valves

A valve may be fitted to the strainer cap for the purpose of flushing or draining.

OPERATION

Ball valves have a quarter turn operation (clockwise to close) providing quick and positive isolation.

Note:- Rapid closure of a quarter turn valve on liquid services may cause system water hammer

To close the valve, the handle is rotated clockwise to a positive stop.
To open the valve, the handle is rotated anti-clockwise to a positive stop.

Note:- The operator should use suitable hand protection at extreme temperature conditions.
The valve should only be used in the open or closed position.
Regulating or throttling service should be avoided.

MAINTENANCE

The Hattersley Ball valve is maintenance free and will have a long service life.

The valve should be at zero pressure and ambient temperature prior to any inspection.

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.

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A maintenance programme should therefore include checks on the development of unforeseen conditions, which could lead to failure.

Strainer Element Cleaning

1. Before commencing work, de-pressurize the system and drain.
2. The Fig 1807 strainer ball valve has 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.

Optional Drain Plug

The drain plug may be removed to allow debris to be flushed from the strainer and 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.

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

Hattersley Newman Hender
Peel House, Peel Road, West Pimbo, Skelmersdale, Lancashire. WN8 9PT

Telephone : 01695 712800
Facsimile : 01695 712820
Email : uksales@hattersley.com
: export@hattersley.com