

# Engineering Data Sheet

Document No:- 002B00113D799 rev 5

Installation, Operation & Maintenance Instructions for  
Fig 113 Bronze Ball Valves

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Date 18<sup>th</sup> March 2009

## 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 1 Liquids i.e. hazardous, but are not necessarily suitable for all fluids in this group and on no account should these valves be used on any Group 1 gases.**

**These valves may be used on Group 2 Gases and Group 2 Liquids.**

Fluid	Group 1 Liquid		
Fig No.	PN	DN	Category
113	40	1/2" - 1"	SEP
		1 1/4" - 2"	I *
	25	2 1/2" & 3"	I *

\* Category I requires CE mark

## Operating pressures and temperatures

PN	Non-shock pressure at temperature range	Non-shock pressure at max. temperature
40	40 bar from -10°C to 100°C	18 bar at 140°C
25	25 bar from -10°C to 100°C	18 bar at 140°C

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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 PN25 or PN40 pressure ratings as indicated. They must be installed in a piping system where the normal pressure and temperature do not exceed this rating. 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 113 valves are bi-directional and can be installed in any flow direction.

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 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 and 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.

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 must be used but excessive use should be avoided, since this increases thread interference and may cause overstressing of the body ends.

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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 may be opened and closed fully to confirm satisfactory operation.

## **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

Ball valves have PTFE body seats and should only be used in the full open or closed positions.

**Note:** If valves are used in the partially open position for regulation their ability to isolate may be impaired and they may become difficult to operate.

For operation purposes the ball valve is provided with a lever handle.

To close the valve, the lever is rotated clockwise to a positive stop.

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

**Note:** The operator should use suitable hand protection at extreme temperature conditions.

## **MAINTENANCE**

The Fig 113 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.

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

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