

MAINTENANCE

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 program 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 should be made. This requires the removal of the valve from the pipeline at zero pressure. If the wall thickness has reduced by 25%, the valve must be replaced.

Crane valves are maintenance free.



To visit our Video Library go to:
www.youtube.com/user/CraneBSU

CRANE

FLUID SYSTEMS



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.

CFS_NRV_0316
IOM_0ED16596X_V2



CRANE

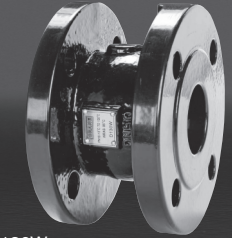
FLUID SYSTEMS

INSTALLATION, OPERATING
AND MAINTENANCE INSTRUCTIONS



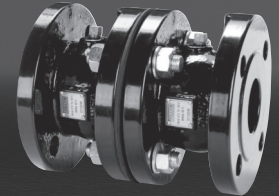
SINGLE NON-RETURN VALVE (D130W PN16)

D130W



DOUBLE NON-RETURN VALVE (D230W PN16)

D230W



CE MARKING AND THE PRESSURE EQUIPMENT DIRECTIVE 97/23/EC AND ARTICLE 13 OF 2014/68/EU

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 valves listed are intended for use on Group 2 liquids only and are therefore rated as SEP according to the Pressure Equipment Directive 97/23/EC and Article 13 of 2014/68/EU.

Valve figure numbers and pressure ratings are given in the table below.

OPERATING PRESSURES AND TEMPERATURES

PN	Valve Fig. No.	Seat Trim	Non-shock Pressure at Max Temp.	WRAS Approved Max Temp.
16	D130W	EPDM	16 bar from -10°C to 120°C	85°C Max.
16	D230W	EPDM	16 bar from -10°C to 120°C	-

Important Note:

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

PRESSURE/TEMPERATURE RATING

Valves given in the previous table must be installed in a piping system whose normal pressure and temperature do not exceed the ratings given in previous table.

If system testing will subject the valve to pressures in excess of the working pressure rating, please check with the Crane helpline.

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

Crane valves may be installed in horizontal pipework and vertical pipework if the flow is in an upwards direction. It is designed for steady flow conditions with a velocity up to 3 metres/second.

For check valves that will be fitted in areas of water turbulence it is recommended that 6 diameters of straight lengths of pipe upstream and 3 diameters downstream are fitted. If the valve is situated such that turbulence enters the valve or is situated close to reciprocating pumps then the velocity should not exceed 2 metres/second.

It should be considered at the design stage where valves will be located to give access for inspection.

Valves must be provided with adequate support. Adjoining pipework must be supported to avoid the imposition of pipeline strains on the valve body.

Heavy valves may need independent support or anchorage.

INSTALLATION

Unpack the valve and check the bores are clean and free from foreign material and that the disks operate smoothly.

The valve 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 should be upwards only.

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 separation and excessive force during bolting.

All special packaging material must be removed.

Valves must be provided with adequate support. Adjoining pipework must be supported to avoid the imposition of pipeline strains on the valve body.

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

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

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

The mating flange (both valve 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 gasket should be suitable for operation 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 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 valve 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.

Double check versions are fitted with 1/4" RC plugs on the valve body. The valves should be installed with the plugs facing upwards, when installed in horizontal pipework. The plugs should be used to bleed all air from between the valve discs of the two valves during system commissioning.

OPERATION

Crane valves are self-acting.