CRANE FLUID SYSTEMS

WRAS APPROVED PRODUCT

DOUBLE CHECK VALVES

D220W / D220CW (PN16)

GENERAL NOTES

The Crane range of Double Check Valves are used to prevent the risk of backflow and back siphonage contamination in domestic dwellings, public and commercial buildings. They are WRAS Approved for use with wholesome (potable) water to 85°C, and are complete with either compression or female taper threaded ends.

D220W

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, the 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.

Fig. No	Description	Size Range
D220W	PN16 Double Check Valve Threaded	1/2” to 2”
D220CW	PN16 Double Check Valve Compression	15mm, 22mm and 28mm

LIMITS OF USE

The valves to which these installation, operation and maintenance instructions apply have been categorised in accordance with the Pressure Equipment Directive 2014/68/EU.

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, or unstable fluids.

These valves are classified as SEP (Sound Engineering Practice), and therefore are not CE marked and do not require a declaration of conformity.

Fig. No	Shell Pressure	Max Inlet/Working Pressure	Temperature
D220W	16 bar	16 bar	-10˚C to 85˚C
D220CW	16 bar	16 bar	-10˚C to 60˚C

All check valves are WRAS Approved with a restricted maximum temperature of 85˚C for threaded and 60˚C for compression, for continuous and intermittent service conditions.

Valves must be installed into a well-designed system and it is recommended that the system be inspected in accordance with the appropriate national and regional legislation.

Valves must be installed by trained personnel only.

Service temperature and pressure indicated on the identification plate or body marking should not be exceeded.

The installation should be designed to provide adequate means of draining and venting to avoid harmful effects such as water hammer, vacuum collapse, corrosion and uncontrolled chemical reactions and to permit cleaning, inspection and maintenance in the correct manner.

Valves are not designed to operate under high shock loadings. Where pressure increases occur due to shock loading (water hammer), they should be added to the working pressure to obtain the total pressure acting on the valve. The total must not exceed the pressure rating of the valve. A pressure surge, or shock, is usually caused by the rapid closure of a check valve or quarter turn valve resulting in a sudden reduction in flow rate.

It is the responsibility of the installer to ensure that the valves do not exceed the allowable limits of pressure. However, the equipment is designed to withstand a momentary pressure surge of up to 10% above the maximum working pressure.

The product has not been designed to include corrosion, erosion or abrasion allowances. Any queries regarding service applications should be addressed to the Crane Fluid Systems - Technical Sales Department.

The valves have been designed for loadings, appropriate to its intended use and other reasonably foreseeable operating conditions. Loadings caused by traffic, wind and earthquake have not been taken into account.

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

The piping system shall be designed to reduce the risk of fatigue due to vibration of pipes.

Maximum operating pressure reduces as service temperature increases. Pressure and temperature limitations are shown by the valve body marking or on the identification plate.

Crane valves have not been designed as fire safe valves.

INSTALLATION, OPERATING AND MAINTENANCE INSTRUCTIONS

LAYOUT AND SITING

These valves may be installed in horizontal and vertical pipework. If in vertical pipework the flow must be in upwards direction only.

Check valves having 6 diameters of straight lengths of pipe upstream and 3 diameters downstream are suitable for velocities up to 3 metres/second. If the valve is situated such that turbulence occurs, or is situated close to reciprocating pumps, then the velocity should not exceed 2 metres/second.

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

INSTALLATION

Unpack the valve and check the bores are clean and free from foreign material.

These valves must be installed with the direction arrow on the body coincident with the direction of flow in the pipeline.

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.

All special packaging material must be removed.

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

Compression

These valves are fitted with compression ends to BS EN-12542-2, which are suitable for installation into copper pipework to BS EN 1057: R250 half hard and are provided with olives and compression nuts.

When using compression type connections, make sure the pipe ends are cut square and free from burrs. The pipe must pass through the olive (compression ring) until it seats firmly in the bottom of the valve housing. The compression nut should be tightened sufficiently to firmly grip and slightly indent the pipe.

This will occur at between 3/4 and 1 1/4 turns from hand tight.

A light oil may be used on threads to ease tightening but no lubricant should be used on the pipe or olive.

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

Further Tightening Between 3/4 and 1 1/4 Turns			
Size	15mm	22mm	28mm
Reference Torque	45Nm	90Nm	105Nm

Threaded

The valves are supplied with taper threads and, with the use of a thread sealant, will give a pressure tight seal.

To avoid distortion of the valve, when fitting and tightening the pipe, the valve must be gripped using the flats provided at the same end as the pipe is being fitted.

Care should be taken to avoid ‘pipe ending’. This is a condition that occurs when the pipe is screwed in too far, resulting in distortion of the valve seat.

The male thread on the pipe must have fully formed, undamaged threads.

MAINTENANCE

The D220W and D220CW check valves are maintenance free.

STRESS CORROSION CRACKING

The use of chemicals for system dosing must be determined by the user as all aspects of system must be established and considered, and the effect of the chemicals used (including compounds arising from chemical combinations) must also be established in order to accurately determine compatibility.

Crane (and its related brands) manufacture hardware (valves, couplings, etc) for the Building Services industry and Utilities industries however, we are not system designers or operators and cannot make recommendations regarding chemical compatibility for the system, as a result of the above variables.

Any comments from Crane regarding chemical compatibility shall relate solely to the Crane product and does not constitute a recommendation on compatibility for the wider system, resultant chemical compounds, components, substances or materials, in whole or in part.

For reference, certain austenitic stainless steels and aluminum alloys crack in the presence of chlorides, mild steel cracks in the presence of alkali and nitrates, copper alloys crack in ammoniacal solutions and iron with almost any caustic species (hydrogen presence notwithstanding).

For more information on how SCC can occur, please visit www.cranefs.com

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

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