

LIMITS OF USE (CONTINUED)

- 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.

For reference, and not exhaustive, certain austenitic stainless steels and aluminium 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

STRESS CORROSION CRACKING

The use of chemicals for system dosing must be determined by the user as all aspects of the 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.

PRESSURE TEMPERATURE RATING – CLASS150

Temperature °C	-29 to 38
Pressure (Bar)	19.6
Temperature °C	425
Pressure (Bar)	5.5

CRANE FLUID SYSTEMS

FM00311 ISO9001

- Design and manufactured under quality management systems in accordance with BS EN ISO 9001:2015

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_147XU_0520
INST_200653-000R01_v1**CRANE** FLUID SYSTEMS**STEEL CHECK VALVE**

147XU

Check valves prevent the fluid within the system traveling in the reverse direction.



151XU

GENERAL INSTALLATION**Preparation**

- Ensure valve is suitable for service conditions e.g. pressure, temperature, service media.
- Remove dust caps/flange protectors, where fitted.
- The installation shall be designed to provide adequate means of draining and venting to permit cleaning, inspection and maintenance in the correct manner.
- If slinging the valve using rope, chain or wire (make sure breaking strain is correct for valve weight) only sling through yoke legs. Never sling through valve bore.
- The complete piping system must be flushed through prior to commissioning to ensure all foreign matter is removed. Subsequent valve failure is frequently caused by dirt and other matter left in the pipeline.

Valve Location

- Valves should be located to ensure ease and safe operation of the valve.
- Swing check valves having 6 diameters of straight uninterrupted lengths of pipe upstream and 3 diameters downstream are suitable for velocities up to 3 metres/second. If the valve is situated such that turbulent flow enters the valve or is situated close to reciprocating pumps, then the velocity should not exceed 2 metres/second.

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GENERAL INSTALLATION (CONTINUED)

Piping Supports

These must be carefully aligned and at the correct distance between centres for the size and type of pipe. Please refer to the current best practice for details of correct spans and installation details.

Flange Joints

- Make sure the pipe flanges are correctly aligned.
- Always use the correct size and number of bolts.
- Appropriate gaskets, bolting, and correct assembly torques should be used to ensure integrity of joint. Do not match flat-faced flanges to raised face flanges.

Assembly

- Make sure the mating faces are free of any defect that can lead to leakage. All flange faces must be clean and free of foreign bodies. The valve must be well supported. Take care to ensure alignment of the flanges. Use a suitable lubricant on bolt threads. Sequence the bolt tightening to ensure the contact between flanges and gasket is flat and parallel. Tighten bolts (not in rotation but by the cross over method) gradually and uniformly to avoid any tendency to twist one flange relative to another.
- This valve is recommended to be installed in the horizontal line, or vertical line if flow is in an upstream direction.

OPERATION

- This valves function is to automatically prevent reverse-current of medium through pipework or equipment and operates in an open or closed state.
- All check valves permit flow in one direction only and close automatically if flow reverses. They are entirely automatic in action, depending upon pressure and velocity of flow within the line. The discs and associated moving parts may be in a constant state of movement if the velocity pressure is not sufficient to hold the disc in a wide open and stable position. Premature wear and noisy operation or vibration can be avoided by selecting the size of check valve on the basis of flow conditions.
- The operating conditions shall be consistent with the requirements in the performance specification.
- This valve shall not be used at the end of the line.
- Occasionally operate valves that remain open or closed for long periods to ensure they are in good working order, thus avoiding the possibility of being inoperable in a time of emergency.
- The valve should be at zero pressure and ambient temperature prior to any maintenance.

GENERAL CONSIDERATIONS

- The surfaces of valves in service may be subject to extreme temperatures; care should be taken when handling.

LIMITS OF USE

These valves have been categorised in accordance with the Pressure Equipment Directive 2014/68/EU.

The fluid to be transported is limited to those shown in the product table below. On no account must these valves be used on any unstable fluids, or for the fluids groups not specified in the product table.

Note: Valves that are classified as SEP (Sound Engineering Practice) are not CE marked and therefore do not require a declaration of conformity.

Fig. No.	Material	PED category by valve size (DN)				Product applications			
		SEP	1	2	3	Group 1 Gas	Group 2 Gas	Group 1 Liquid	Group 1 Liquid
147XU	Steel	2"	2.1/2"-4"	5"-10"	12"-24"	-	✓	✓	✓

- 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.