



INSTALLATION AND OPERATION MANUAL

Check Valve

Fire Protection Products

5201-LI-300-FLA | 5201-365-GGI | 5201-365-GGP |
5201-300W

Mechanical Services & HVAC Products

F53N16 | F53N25 | F53S16 | F51DD16 | F51DD25 |
F51N16 | F51N25 | F53P16 | F53F16 | F53F25
V51DD16

This manual is also available online.



SAFETY PRECAUTIONS



Caution



Read and understand carefully this document prior attempting to install Fivalco® products. Failure to follow these instructions could cause severe injury, product and/or property damage.



Installation, maintenance and replacement of Fivalco® products must be implemented by an experienced, well trained installer. Wear safety glasses, helmet, hand and foot protection during installation.



The owner is responsible for maintaining the system in proper operation condition.



Fivalco shall not be held responsible for any incidents arising from improper installation, operation and maintenance work. The responsibility for this must rest with the installer and user.



Disclaimer

This manual serves as a general guideline and reference to the installers and users. Every effort has been made to ensure the information contained in this manual is accurate at the time of publication. Fivalco Limited assumes no responsibility or liability for any errors and/or misinterpretation of the information. Contact your local vendor, distributor or Fivalco Limited for detail technical data and specification of each model, and if any additional information is required. We reserve the right to alter this manual without notice.

“THE QUALITY GOES IN BEFORE OUR NAME GOES ON”



CONTENTS

Check Valve

1	General	1
2	Unloading & Transportation	1
3	Storage	1
4	Inspection Prior To Installation	1
5	Installation	2
6	Operation Of Valves	3
7	Maintenance	3
8	Warnings	4

CHECK VALVE

1 GENERAL

Check valve is also known as the “non-return valve” or “one way valve” because they only permit the media flow in one direction. The main purpose of a check valve is to prevent backflow in the piping system.

A check valve relies on a differential pressure to work. They require a higher pressure on the input side of the valve than the output side to open the valve. When the pressure is higher on the outlet side (or the input side pressure is not high enough), the valve will close.

They are commonly installed in applications when there is potential for the contaminated media being transported in the pipe to backflow which can cause damage to the system. Installing check valves in condensate recovery lines not only prevent water hammer, but also safeguard the entire system by protecting the equipment.

There are several types of check valves. The common are double-door check valve, swing check valve and silent check valve. Each of them functioning through a different mechanism. Please ensure the appropriate type of check valves to be applied to the system.

2 UNLOADING & TRANSPORTATION

A vital consideration in handling valves should be avoid damaging or scratching the coating protection. Ensure that there are no heavy load and sharp objects are applied to the valves.

All valves should be unloaded carefully. Each valve should be carefully lowered from the truck to the ground; it should not be dropped. In the case of larger valves, forklifts or slings around the body of the valve or under the skids should be used for unloading. Only hoists and slings with adequate load capacity to handle the weight of the valve or valves should be used. Hoists should not be hooked into or chains fastened around the valve operator, tamper switch box or electric actuator. Failure to carefully follow these recommendations is likely to result in damage to the valve.

3 STORAGE

In order to prevent the entry of foreign material that could cause damage to the seating surface, disc edge or valve interior, do not remove the protection wrapper or unbox the valves until installation. Whenever practical, valves should be stored indoors under dry, cool conditions, away from direct sunlight and corrosive or otherwise chemically active atmosphere. If outside storage is required, means should be provided to protect the operating mechanism from weather elements. During outside storage, valves should be protected from the weather, sunlight, ozone, and foreign materials. In colder climates where valves may be subject to freezing temperatures, it is absolutely essential to remove the water from the valve interior. Failure to do so many results in a cracked valve casting and or deterioration of the resilient seat material.

4 INSPECTION PRIOR TO INSTALLATION

Valves should be inspected at the time of receipt for damage in shipment. The initial inspection should be to verify compliance with specifications, direction of opening, and type of end connections. A visual inspection of the seating surfaces should be performed to detect any damage in shipment or scoring of the seating surfaces. Inspection personnel should look for cracked parts, loose bolt, missing parts and accessories, and any other evidence of mishandling during shipment.

Check the operation of the flapper by pushing it away from the seating surface to be sure it moves freely before it is being installed.

5 INSTALLATION

At the jobsite prior to installation, each valve should be visually inspected and any foreign material in the interior of the valve should be removed.

Before being installed, the valves need to be cleaned so as to eliminate the dust caused during the transportation and storage. Confirm the type of connection and standard before starting the installation work.

Valves can be installed at horizontal or vertical pipe line depending on its application. When being installed, the medium flow direction should be the same as the flowing direction on the valves, if any. Check valves should be installed, if possible, a minimum of 3 pipe diameters straight pipe upstream. Sometimes this is not feasible, but it is important to achieve as much distance as possible. Nevertheless, the installer shall provide sufficient space for valves for easy installation, operation, maintenance, inspection and replacement.

If check valve is installed in a vertical position the direction of flow must be in an up-flow direction. However, if installed in a horizontal position, the valve must be installed with the cover oriented to the top.

During installation, it is essential to ensure an accurate centering between flanges and in a well aligned position so that the stress would not be acting on the valve body.

After installation and before pressurization of the valve, the installation should be inspected for adequate tightness to prevent leakage. Proper inspection at this time will minimize the possibility of leaks after pressurization of the piping system. It is desirable to test newly installed piping sections, including valves, at some pressure above the system design pressure. It is also recognized that wear or foreign material may damage valve seating surfaces and may cause leakage.

On completion of the installation, valve location, size, make, type, date of installation, number of turns to open, direction of opening, and other information deemed pertinent should be entered on permanent records.

Bolts must be tightening in a crosswise pattern (see figure 1). Installer should ensure that the valve flanges are well aligned and an even pressure on the gasket surface is applied.

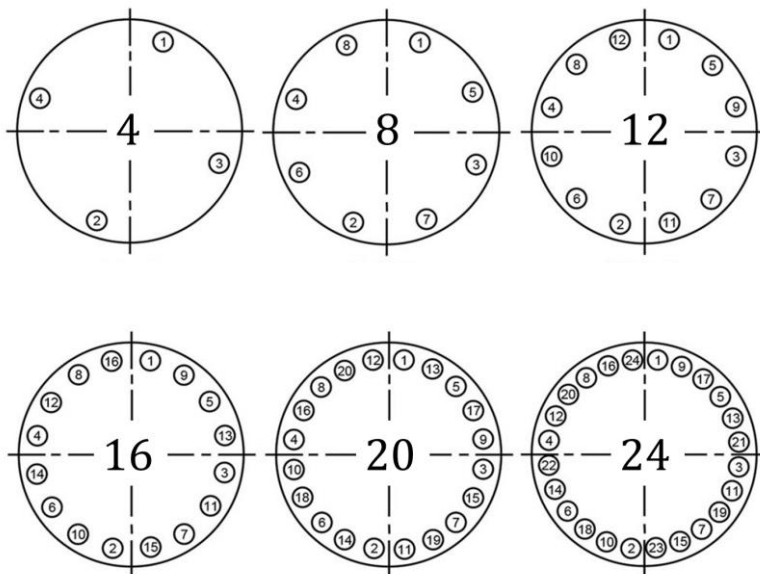


Figure 1: Crosswise pattern for tightening or loosening bolts.

6 OPERATION OF VALVES

Every check valve has an arrow marked on the body to show the flow direction of the media. Please make sure the installation of the check valve is following the direction of the arrow.

A check valve requires a minimum upstream pressure (pressure differential between inlet and outlet) to open the valve and allow flow through it. This minimum upstream pressure at which the valve opening occurs is called the check valve 'cracking pressure'. The specific cracking pressure changes based on the valve design and size, so ensure that your system can generate this cracking pressure and that it is suitable for the application.

Please be aware of the pressure fluctuation of the medium and avoid water hammer within the pipeline as it can damage the internal parts of the check valve.

7 MAINTENANCE

If the valve is installed according to our standard procedures, it is maintenance free.

However, for every 2-3 years, we recommend that you carry out a routine check of the valve for leaks at the sealing surface or the gasket. All seals will in the course of time be influenced by air and sunshine, frequent and careful checks can reveal leaks.

When the valves being used for some time, the leaking may be happened in the filling area because of the friction, you can tighten the connection nut of the filling flange and adjust; it is dangerous to change filling with the pipes full of pressure, so we do not suggest you change the filling when the valves are working. If it is dangerous because of the temperature, high pressure and chemical elements, the filling must not be changed under the pressure situation.

8 WARNINGS

The working pressure, temperature, suitable media of valves must be accord with the regulation of the illumination, or that maybe dangerous.

Prior to any maintenance work that requires disassembly make sure that the pressurized line involved is isolated, depressurized and drained before starting any dissembled. Failure to do so may result in sudden pressure release and subsequent severe injury or death.

If the pressure exceed regulation, the valve maybe leak and the body maybe explode of craze.

If the temperature is too high, the material maybe invalidation and the valve may be broken.

If the media does not accord with the regulation of the illumination, it may rot the body, seat or break the sealing, the body may corode and craze, the media may be leaked.



WARRANTY STATEMENT

Fivalco's products are designed, engineered and manufactured within its specification of intended use, under the highest quality control possible. Commitment on quality and performance is always at the top of our agenda.

Fivalco warrants that for a period of thirty-six (36) months following delivery, the Fivalco products will perform in accordance with published specifications, and will be free from defects in material or workmanship provided that the products are stored and installed in accordance with recommendations in our catalogues.

Fivalco's obligation shall be to replace any product found to be defective in design, material or workmanship during the warranty period. Fivalco shall not be obligated to refund the purchase price and other liabilities on monetary compensation, nor shall it be obligated to pay for any labor or costs associated with the removal of the defective products or the reinstallation of those products. No warranty coverage will be provided for products that have been altered and / or used for a purpose other than that for which they were designed or installed contrary to Fivalco's guidelines.

Fivalco® is Registered Trademark