Installation and Operation Manual

Gate Valve

Fire Protection Products

3299-LI-300-FLA | 3299-LI-300-GG | 3299-LI-300-FG | 3299-LI-300-MJ | 3299-LI-300-FM
3288-LI-300-FLA | 3288-LI-300-GG | 3288-LI-300-FG | 3288-LI-300-MJ | 3288-LI-300-FM
3299-L-200-FLA | 3299-L-250-FLA | 3288-L-200-FLA | 3288-L-250-FLA
3299-365-FLA | 3299-365-FG | 3299-365-GG | 3288-365-FLA | 3288-365-FG | 3288-365-GG |

Mechanical Services & HVAC Products

F23A16 | F23A25 | F23B16 | F23AS16 | F23BS16 | F23AR16 | F23AR25 | F23BR16
F23M16 | F23M25 | F23MR16 | F23MR25 | F23F416 | F23F4R16
V23A16 | V23AR16 | V23AS16

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"

fivalco®

CONTENTS

Gate Valve

GATE VALVE

1 GENERAL

Gate valves form a significant component of the piping systems. Failure of a gate valve in such systems, either due to faulty installation or improper maintenance, could result in extensive damage and costly repairs. In addition, many gate valves are installed in buried-service or underground applications. Problems with or malfunctions of the valves due to faulty installation or improper maintenance may result in extensive and costly unearthing operation to effectively correct or eliminate the problem. Many gate valve problems and failure can be traced back to improper installation, operation, or maintenance procedures.

Gate valves may not be installed and used as anchor points, and should at all times be kept free from stress arising from the system pipeline. Valves should not be installed in applications or for service other than the recommended for that purpose or approved in advance by the manufacture. Valves should not be installed in lines where service pressure will exceed the rated working pressure of the valve.

Gate valves should not be used for throttling service unless the design is specially recommended for that purpose or approved in advance by the manufacture.

Gate valves should not be used in applications that are exposed to freezing temperature unless sufficient flow is maintained through the valve or other protection is provided to prevent freezing.

2 UNLOADING & TRANSPORTATION

A vital consideration in handling valves should be avoid damaging or scratching the coating protection.

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 yokes, stem, or handwheels. Failure to carefully follow these recommendations is likely to result in damage to the valve.

3 STORAGE

Valves should be stored in the fully closed position to prevent the entry of foreign material that could cause damage to the seating surface. Do not remove the protective caps 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 and close the valve before storage. Failure to do so many results in a cracked valve casting and or deterioration of the resilient seat material.

4 INSPECTION PRIOR TO INSTALLATION

Gate valves should be inspected at the time of receipt for damage in shipment. The initial inspection should be to verify compliance with specifications (type, size, material, pressure and temperature ratings), 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 bent stems, broken handwheels, cracked parts, loose bolt, missing parts and accessories, and any other evidence of mishandling during shipment.

Each valve should be operated through one complete opening-and-closing cycle in the position in which it is to be installed. Contact your vendor or local representative immediately if any disorder is found.

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. Gate valves shall install in upright position. They are preferably to be installed with the stem in vertical upright position. In special scenario, gate valves may be permitted to install up to a maximum of 90degree angle. Please contact your vendor or local representative prior to ordering if such installation angle is required. Upside down installation is not recommended. Provide sufficient space for valves for easy installation, operation, maintenance, inspection and replacement.

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. Suitable gaskets between valve flanges and the mating flanges to be used. Valves shall be mounted on the flanges only after the mating or counter flanges have been welded to the pipe and cooled down to atmospheric temperature. Welding heat may damage the resilient seat or rubber seat of the gate valves. Never weld the flanges with valve installed.

All bolts or couplings should be checked for proper tightness and protected by the installer to prevent corrosion, either with a suitable paint or by polyethylene wrapping.

Underground installation valves in water-distribution lines shall, where practical, be located in easily accessible areas. During installation there is the possibility of foreign materials inadvertently entering the valve. Foreign material can damage internal working parts during operation of the gate valve. For this reason, gate valves should be installed in the closed position. Each valve should be placed on firm footing in the trench to prevent setting and excessive strain on the connection to the pipe. Pipe systems should be supported and aligned to avoid damage to the valve.

A valve box or vault should be provided for each valve used in a buried-service application. The valve box should be installed so as not to transmit shock loads or stress to the valve. The valve box should be centered over the operating nut of the valve with the box cover flush

with the surface of the finished area or such other level as directed by the owner. Valve boxes should be of such design that a traffic load on the top of is not transmitted to the valve. Valves buried in unusually deep trenches should have special provisions for operating the valve - either a riser on the stem to permit use of a normal key or a notation on the valve records that a long extension key will be required.

When valves with exposed gearing or operating mechanisms are installed belowground, a vault designed to allow pipe clearance and prevent setting on the pipe should be provided. The operating nut should be accessible from the top opening of the vault with an extension key. The size of the vault should provide for easy removal of the valve bonnet and internal parts of the valve for purpose of repair. Consideration should be given to the possible entry of groundwater and/or surface water and to the need to provide for the disposal of such water.

Valves for aboveground installation or in a plant piping system should be supported and aligned to avoid damage to the valves. Valves should not be used to correct the misalignment of piping.

After installation and before pressurization of the valve, all pressure-containing bolting (bonnet, seal plate, packing gland, and end connections) should be inspected for adequate tightness to prevent leakage. In addition, an inspection should be made for adequate tightness of all tapped and plugged connections to the valve interior. Proper inspection at this time will minimize the possibility of leaks after pressurization of the piping system.

In order to prevent time lost searching for leaks, it is recommended that the valve excavations are not backfilled until after pressure tests have been made. After installation, it is desirable to test newly installed piping sections, including valves, at some pressure above the system design pressure. The valve should not be operated in either the opening or closing direction at different pressures above the rated working 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.

Gate valves should not be installed at a dead end or near a bend in a pipeline without proper and adequate restraint to support the valve and prevent it from blowing off the end of the line.

Gate valves used for hot-tapping or dead-end installation, an end cap or blind flange to be bolted with a short pipe in between if it is for dead end connection or is not connected to a full piping system and/or equipment.

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.

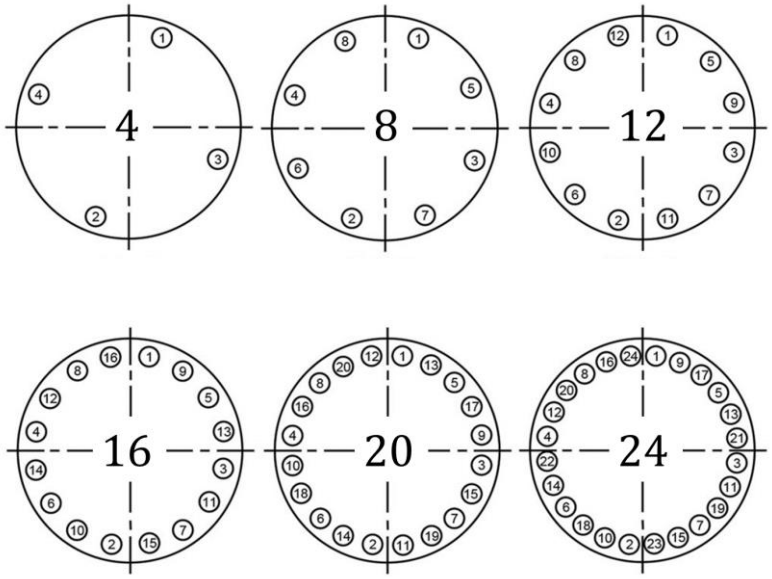

Figure 1: Crosswise pattern for tightening or loosening bolts.

6 OPERATION OF VALVES

Gate valves shall not be used as a throttling function or to control the flow. It must be fully opened or closed at all time. Only hand can be used to open and close the valves, all of the other tools should not be used. For gate valves installed at underground, a suitable extension key to be used to operate the valves. Please contact your vendor or local representative for further information on the extension key.

Once the gate valve has reached the fully opened position, turn the valve slightly towards the closing position so that any stress of the threaded stem may be released.

Please ensure to turn the valves according to the direction of opening and closing which usually indicated on the hand wheel. To prevent damage or deform of the gate valves, it must be operated within the allowable and maximum operating torque.

7 MAINTENANCE

If the valve is installed according to our standard procedures, it is maintenance free.
However, for every 4-5 years, we recommend that you carry out a routine check of the valve for leaks around the stem and the flange gaskets. All seals will in the course of time be influenced by air and sunshine, frequent and careful checks can reveal leaks. Moreover, we recommend you to adjust the bolts in the flange connections, as the compression of the flange gaskets may be reduced in the course of time and thus leaks may arise.

When the valves being used for some time, the leaking may be happened in the filling area because of the friction caused by the stem moving, 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 corrode 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.