FLOWKS

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Gate, Globe, Check Valve & Strainer Installation, Operation & Maintenance Manual

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1. Introduction

The purpose of this manual is to ensure that the valves supplied are properly stored, installed, operated and maintained. Proper practices regarding installation and maintenance of the product will aid in standard trouble free performance.

2. Valve Markings

Valve specifications are marked on the body and/or the name plate. Tag plate is available on request. To identify all parts of the valve, refer to the assembly drawing of each purchase order.

3. Valve Transportation & Reception

3.1-While unpacking the valve, confirm that the valve and any accessories were not damaged during transportation.

3.2-If the valve or any of its accessories were damaged or lost during transportation, inform FLOWKS immediately.

3.3-Do not place the valve directly on the ground or concrete floor! PLACE THE VALVE ON A WOODEN PALLET FOR INSPECTION.

3.4-Valves are shipped with flange cover, which is designed to protect the flange face serrations and prevent the entry of foreign debris during transportation.

3.5-Do not remove the end caps or flange cover from the valve until it is ready for installation. If the flange covers are removed for examination, immediately reinstall the covers after the inspection.

4. Valve Storage

FLOWKS recommends storing the valves indoors, in a dry, dust free atmosphere.

If the valves are to be stored for an extended period of time, the following procedures and steps are to be followed.

4.1-Spray the inside of the valve with anti-rust oil or equal.

4.2-Spray anti-rust oil or equal on the flange facing of each end connection.

4.3-Install plastic or plywood flange cover on each flange. Tape the edges of the cover with duct-tape to provide an air tight seal.

4.4-The valve should be operated monthly to ensure the performance.

4.5-All gear operators are to have grease injected in all fittings monthly.

4.6-For valves with actuators, the actuator should have all fluid ports or connections plugged to prevent ingress of water or dust. Coupling parts must be protected with grease or protective oil.

4.7-Valve should be stored in a dry, weatherproof building (preferably climate controlled).

4.8-Place an approved lifting device securely around the valve body or use lifting hooks while handling the valve. Special care should be taken not to damage the hand wheel/bevel gear/actuator.

4.9-When handling the valve or valve package, remember, valves are very heavy! Make sure the workers are protected well when move the valves.

5. Installation

5.1-Before installing a new valve, confirm that the specification of the valve matches those of the intended installation area. The name plate will provide the necessary information.

5.2-When removing the valve from storage, inspect it for damage.

5.3-Before installing the valve, remove the flange cover and end-caps to ensure the serrations on flange face are not damaged and the bore is clean. Clean the valve with approved solutions if necessary.

5.4-Prior to installation, ensure the pipeline is clean. Pipeline debris, scaling, etc. will damage the soft seat ring of the valve and cause seat leakage during commissioning.

5.5-Gate/globe valves: The stem will rise when opening, ensure there's enough head room.

5.6-Check valves: Remove additional packing stuff paced inside the valve bore before installation.

5.7-It may be necessary to firmly support the pipeline in order to protect the valve from excess stress and to reduce the pipeline vibrations.

5.8-During tightening operation, ensure that piping stresses are not transferred to the valve.

5.9-Over-tightening flange studs can cause damage and/or leakage at the flanges or body-to-body end joints.

5.10-Gate valve can be installed for flow in either direction, both in horizontal and vertical pipeline, however preferred installation is in horizontal pipeline with the stem in upright position.

5.11-Globe valve is generally installed in such a way that fluid pressure should act beneath the disc, in order to ensure the sealing performance. While when the valve is used for severe condition like high pressure and high temperature steam, the other way can be designed. Globe valve shall be installed in horizontal pipeline with the stem in upright position.

5.12-Check valve should be installed with flow tending to open the disc. There is arrow on the body to indicate the flow direction. Check valve shall be installed in horizontal pipeline.

5.13-Y-strainer can be installed in either a horizontal or vertical position. Make sure the screen is pointing downward, so that it can collect material in the strainer at the lowest point of the screen.

5.14-Basket strainer can be only installed in a horizontal direction. Please follow the direction arrow on the body.

5.15-After installation, operate the valve slowly up and down to ensure the free movement of stem.

6. Valve Operation

6.1-For hand wheel operated valve, the hand wheel is either assembled with the valve or shipped separately, depending on the size of the valve or hand wheel.

6.2-For gear operated valves, the gear open/close adjustment has been made prior to dispatch and must not be disturbed. Rotation of hand wheel in the clockwise direction closes the valve. Counter clockwise rotation opens the valve (looking from the hand wheel end.) The internal details/construction of gearbox may vary as per manufacturer's standard.

6.3-When valve is fully opened, screw it down about a quarter turn to prevent sticking.

6.4-Do not use gate valve for throttling left partly open or cracked open, the wedge would erode rapidly and may cause a severe damage to the dealing faces.

7. Maintenance

Guidelines for routine user maintenance are as follows.

7.1-Check the tightness of bolting monthly.

7.2-Ensure that no leakage is being observed from the valve.

7.3-Frequent observation is recommended under extreme application/condition.

7.4-Mounting studs/nuts of the bevel gear may be checked for tightness and retightened if necessary.

7.5-In order to avoid failure during operation, all valves in a process plant should be periodically inspected thoroughly for wear on the disc, seats, seals, or body. If wear is discovered, FLOWKS recommends replacing seats, seals, gaskets, and packing with approved parts.

7.6-The type of process, fluids involved, working conditions, and location of the valve in the process plant, will determine the frequency of the inspection/maintenance.

7.7-Preventive maintenance is essential as the failure due to lack of maintenance may cause an emergency shutdown of the plant.

7.8-Before removing the valve from the pipe, it is important to mark the relative position of

the valve flange with respect to pipeline flange and the flow of direction of the valve.

7.9-Once a valve is repaired, it should undergo a complete set of tests to make sure that the valve is adequate for the original working conditions. Hydrostatic/pneumatic shell/seat tests should be carried out as per the specifications relevant to the valve.