

INSTALLATION, OPERATION, & MAINTENANCE OF BERIC CHECK VALVES

WARNING

Improper installation, operation, and maintenance of the valve can be dangerous to personnel and the environment. It is recommended that the procedures described herein be performed by competent and trained personnel. For recommendations not addressed in this document, refer to API (American Petroleum Institute) or VRC (Valve Repair Council) documents.

Storage

Until installation, store all valves indoors and cover them with watertight sheets to prevent dust, rain water, and moisture. During storage, do not remove the flange facing cover or bevel end protector, and do not open valves.

Pre-Installation

Prior to installation, user should ensure compatibility between valve materials and media being used. Valve markings and nameplate should be verified to ensure that the valve is of the correct type and pressure class for the intended service.

Check the valve visually and operate the valve to check for damage due to shipping and handling. Particular attention should be paid to pipe threads and flanges, to make sure that no foreign materials, scratches, nicks, or dents are present. It will be necessary to remove the protective caps from the end connections for this inspection. If the valve is not to be installed immediately, the protective caps should be re-installed on the end connections.

INSTALLATION

Care should be taken not to drop the valve on the ground, and not to bump valve against anything. Be especially careful not to damage the flange surface.

When lifting the valve, never apply a lifting device to the handwheel and/or actuator.

Remove any foreign materials inside the connecting piping, such as dirt, sand, scale, metal chips, burrs, and grit particles, which may damage the valve seat.

Install the valve in the connecting piping so that the arrow-head marked on the valve body coincides with the flow direction in the piping, in the event that there is an arrow-head marked on the body of valve. It is recommended to install valves in the upright position in horizontal piping.

It is extremely important to make certain that the valve and piping being installed are properly supported and that the valve and piping are properly aligned.

When installing flanged valves, the flange bolts should all be snugged tight using a "star" pattern. After snugging all bolts, each bolt should be tightened to the required torque, again using a "star" pattern. All bolts should then be re-checked for correct torque.

Butt-weld end or Socket-weld end type Valves

Upon installing of these valves with the connecting piping by welding, please take care of the following points:

1. Before welding, close the valve snugly.
2. Ensure that the welder grounding cable is securely attached to the side of the valve being welded. Failure to do so may allow arcing across the disc-seat.
3. During welding, care should be taken not to leave the weld spatter inside the valve.
4. After welding, fully open the valve and clean the inside.

Once installation is complete, it is highly recommended that the entire system be pressurized and inspected for

leakage. If leakage is detected, the valve and/or piping should be repaired or replaced prior to the system being placed into service.

OPERATION

Swing check valves operate automatically with the flow or cessation of flow through the valve. No manual operation is required.

MAINTENANCE

A good program of inspection and maintenance cannot be over stressed. Periodic inspection of critical leak-path areas such as; body/cover joint, end connections, and seating surfaces should be a requirement. When any problems or defects are found, take the following measures:

Leakage from the gasket area

Tighten the cover bolts and nuts to the torque values shown in Beric Valves **Bolt Torque Chart**. If leakage is still present, disassemble the valve, using the procedure shown in this manual, to inspect for damage and/or defects on the gasket seating surface. If damage is present on the gasket sealing surface, the valve will need to be replaced or the sealing surface re-machined. Re-machining of the sealing surface must be performed by a qualified valve repair shop and is beyond the scope of this manual. If no damage is present on the sealing surfaces, install a new gasket and reassemble the valve using the procedures shown in this manual and retest the valve.

Difficulty opening-closing the valve.

Inspect the disc and disc hinge of the valve for foreign materials and remove any particulate found. If the valve is still does not operate, disassemble the valve, using the procedure shown in this manual, and inspect/clean the interior and replace any components necessary.

Leakage past the valve seat.

Disassemble the valve, using the procedure described in this manual, and repair the valve seat surface, by lapping, etc. Lapping of the sealing surfaces, must be performed by a qualified valve repair shop and is beyond the scope of this manual.

REPLACEMENT PARTS

We recommend using genuine BERIC VALVE replacement parts. These parts are generally available from stock and are manufactured to the same specifications as those parts that were originally supplied. When ordering spare parts or repair or replacement parts, please inform us of the valve type, size, class, parts name, and Beric's serial or shop order number. Most of the information can be found on the valve nameplate (model #, material, and trim specification) or on the valve body (size and class).

VALVE DISASSEMBLY

For interior valve inspection or repairing, please disassemble each valve by referring to the drawing.

Before disassembling, the following items must be performed:

1. Prepare all necessary spare gaskets for replacement.
2. Check if the valve can be opened and closed smoothly.
3. Remove all pressure and drain the system. Make sure that leakage of any residual material will be caught in an appropriate container and disposed of properly.
4. In the event that the bolts and nuts are tight, put deep penetrating oil for screw loosening (P.O.S., Penetrating Oil Spray).
(BERIC can furnish you with this oil upon request)
5. Loosen the cover bolts and nuts to disengage the cover assembly from the body.
6. Lift the cover/cover to disengage it from the body.

7. Remove the hinge pin and hinge from the valve.
8. Remove the disc. Take caution not to damage the seat or seating area of the disc.
9. Inspect the hinge and hinge pin and lube or replace as necessary.

the fluid working pressure, retighten securely to the recommended torque.

INSPECTION, CLEANING AND REPAIRING

1. Clean all parts with soft cloth.
2. Check the following points for wear and damage:
 - a. Gasket seating surfaces.
 - b. Loosening of disc and body seat rings.
 - c. Contact surface of the disc.
 - d. For corrosion and erosion of the disc, body and cover.
 - e. For flaws and wearing of disc seat surface.
 - f. For flaws and wearing of body seat surface.
3. Repairing for the above six points:
 - a. Replace the gasket. If there are any serious flaws or wearing on the seating surfaces, lap them or deposit metal on them according as their condition.
 - b. For loosened seat rings of 2 — (2) above, take out the loosened seat ring, clean up their contact surfaces to be free of any dust, and tighten them securely.
 - c. For any serious wearing of the disc contact surface, lap the worn surface or deposit metal on it according as its condition.
 - d. Deposit metal in the appropriate area and re-machine as necessary. If the corrosion and erosion is serious, replace the component and/or valve.
 - e. For light damage and wearing, make repairs by lapping. For serious flaw or wearing on the disc surface or seat ring, replace the disc or seat ring with new ones.
 - f. For light damage and wearing, make repairs by lapping the seat surface. For serious damage and wearing, replace the body seat rings with the new ones.

Note: The procedures required to perform many of the above repairs should be performed by a qualified valve repair shop and are beyond the scope of this manual.

Note: Valves that are to be used for services of liquid oxygen, beverage, vegetable oil, and materials for food (which should be entirely free of oil and grease inside the valve), clean all components in the following way:

1. Clean and grease free tools, gloves must be worn.
2. Dip them in the bath of trichloroethylene solution for 5 minutes or longer.
3. Wipe with nylon brush.
4. Remove the trichloroethylene solution from their surfaces by steam jet.
5. Leave them in a clean place to dry.
6. Inspect for oils by holding under a black light. If grease/oil residue is indicated, repeat this procedure.

REASSEMBLY

Before re-assembly, carry out the following procedures:

- a. Assure that no foreign materials are left on the seat surfaces.
- b. Apply coatings on each gasket and gland packing as necessary or instructed.
- c. Apply graphite or MOLYKOTE (molybdenum disulfide) on all threaded and sliding parts of bolts, nuts and cover to prevent their galling or seizing.

Note: Valves that are to be used for services of liquid oxygen, beverage, vegetable oil, and materials for food (which should be entirely free of oil and grease inside the valve), a lubricant that is compatible with the intended service must be used.

CAUTION

After putting the valve into service again, check to ensure that the cover nuts are still tight. In the event that they were loosened by

TYPICAL CHECK VALVE NOMENCLATURE

