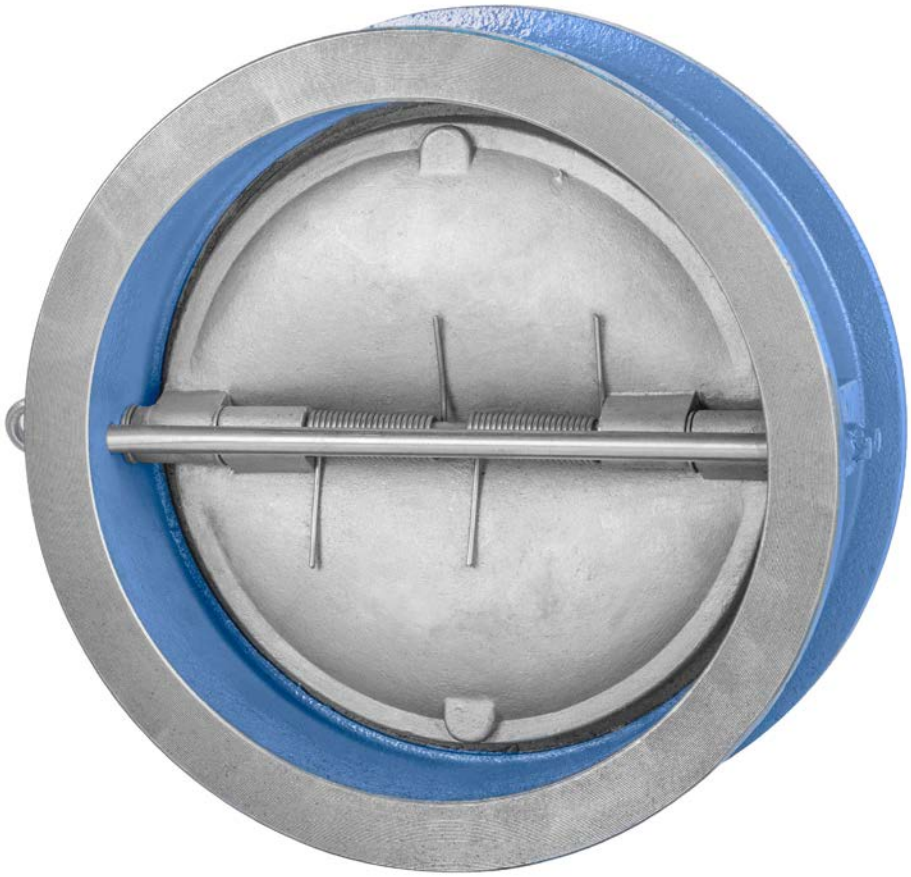
DeZURIK

APCO CDD-9000T DOUBLE DOOR CHECK VALVES



Instruction D12041
September 2015

DeZURIK | APCO | HILTON | WILLAMETTE

Instructions

These instructions provide installation, operation and maintenance information for APCO CDD-9000T Double Door Check Valves. They are for use by personnel who are responsible for installation, operation and maintenance of APCO CDD-9000T Double Door Check Valves.

Safety Messages

All safety messages in the instructions are flagged with an exclamation symbol and the word Caution, Warning or Danger. These messages indicate procedures that must be followed exactly to avoid equipment damage, personal injury or death. Safety label(s) on the product indicate hazards that can cause equipment damage, personal injury or death.

Safety label(s) on the product indicate hazards that can cause equipment damage, personal injury or death. If a safety label becomes difficult to see or read, or if a label has been removed, please contact DeZURIK for replacement label(s).

WARNING!

Personnel involved in the installation or maintenance of valves should be constantly alert to potential emission of pipeline material and take appropriate safety precautions. Always wear suitable protection when dealing with hazardous pipeline materials. Handle valves, which have been removed from service, with suitable protection for any potential pipeline material in the valve.

Inspection

Your APCO CDD-9000T Double Door Check Valve has been packaged to provide protection during shipment; however, it can be damaged in transport. Carefully inspect the unit for damage upon arrival and file a claim with the carrier if damage is apparent.

Parts

Recommended spare parts are listed on the assembly drawing. These parts should be stocked to minimize downtime. Order parts from your local DeZURIK sales representative, or directly from DeZURIK. When ordering parts please choose from the following:

If the valve has a DeZURIK APCO nameplate please include the 7-digit part number and 4-digit revision number (example: 9999999R000) located on the data plate attached to the valve assembly. Also include the part name, the assembly drawing number, the balloon number and the quantity stated on the assembly drawing.

If there isn't any nameplate visible on the valve, please include Valve Model number, the part name, and item number from the assembly drawing. You may contact your local DeZURIK APCO Representative to help you identify your valve.

DeZURIK Service

DeZURIK service personnel are available to maintain and repair all DeZURIK products. DeZURIK also offers customized training programs and consultation services.

For more information, contact your local DeZURIK sales representative or visit our website at www.dezurik.com.

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Description

A Double Door Check Valve consists of a valve body, torsion spring loaded hinged doors, and a resilient seat compression molded to valve body. The spring loaded doors move away from the valve seat to allow flow in the forward direction, and return to valve seat when upstream flow is stopped.

Handling and Storage

Lifting the valve improperly may damage it. Do not fasten lifting devices through the seat opening in the body. Lift the valve with slings, chains or cables fastened around the valve body, or fastened to bolts or rods through bolt holes in the flanges.

If installation will be delayed, place valve indoors in secure, weather tight storage. If temporary outside storage is unavoidable, make sure a vermin proof rain cover (water shedding tarp, etc.) is secured around/over the equipment to keep off rain and mud. Skid and set the assembly on a flat, solid, and well drained surface for protection from ground moisture, runoff and pooled rain water.

Installation

The APCO CDD-9000T Double Door Check Valve may be installed in a horizontal or vertical position (with the flow upward). Valve supports are not needed. **The Valve must be installed with the hinge pin in the vertical position for horizontal flow applications.**

- Before installation, remove foreign material such as weld spatter, oil, grease, and dirt from the pipeline.
- Prepare pipe ends and install valves in accordance with the pipe manufacture's instructions for the joint used.

CAUTION!

Do not deflect the pipe-valve joint. Minimize bending stresses in the valve end connection with pipe loading.

If excessive seat leakage occurs during start-up, recheck the installation and eliminate any distortion to the valve body.

- Ensure the valve and pipeline flanges are concentric to ensure proper flange sealing and seat leakage control.
- Tighten the flange bolts or studs in a crisscross pattern and minimum of four stages.

Fusion/Powder Coated Valves

CAUTION!

Valves with fusion/powder coated exterior paint require flat washers to be installed under the flange nuts when installing the valve to the pipeline flange to prevent the paint from cracking or chipping.

Maintenance

It is suggested that these valves, which do not require routine scheduled maintenance, be included as part of the normal facility equipment inspections for any malfunction while under normal usage conditions. A malfunction of the valve will be apparent by the leakage of the media. In some installations where there is a high head, a moderate "slam" of the Double Doors will be normal.

WARNING!

These valves may open or close without warning due to flow changes from pumps starting and stopping. Servicing these valves while the pipeline is under pressure can cause personal injury or equipment damage.

Relieve pipeline pressure and lockout the pumps before servicing the valve.

Disassembly Procedure

See Figure 1 for part identification.

Instructions for valves using pin retainers

1. Relieve the pressure in the pipeline.
2. Remove valve from line.
3. Remove pin retainers (7).
4. Remove stop pin (6) from body (1).
5. Depress spring or springs (4) to free hinge pin (5) and push hinge pin out of the body (1) while holding the spring firmly, since it is preloaded and may snap out.
6. Remove spring or springs (4), doors (2).

Instructions for valves using caps

1. Relieve the pressure in the pipeline.
2. Remove valve from line.
3. Loosen cap (9) set screws.
4. Pinch caps (9) inward and withdraw caps, hinge pin (5) and stop pin (6), spring (4), and doors (2).

Assembly Procedure

See Figure 1 for part identification.

Instructions for valves using pin retainers

1. Clean all ports with a suitable solvent. Trichloroethylene is recommended, particularly for resilient seated valves.
2. Position doors (2) in body (1), aligning pin holes in the doors with holes in the body.
3. Partially install hinge pin (5). Lateral movement of doors after assembly should not exceed 3/32" in sizes 2 - 12" (50 – 300 mm) and 5/32" for sizes 14" (350 mm) and above.
4. Wind up spring or springs (4) one-half turn to obtain initial torsion and install spring with the spring arms flat on the doors (2). Do not unwind spring as this will change spring torque and also limit the opening of the doors. Complete insertion of hinge pin (5).
5. Install stop pin (6) into body (1).
6. Install pin retainers (7) using suitable thread sealant to insure a positive seal.

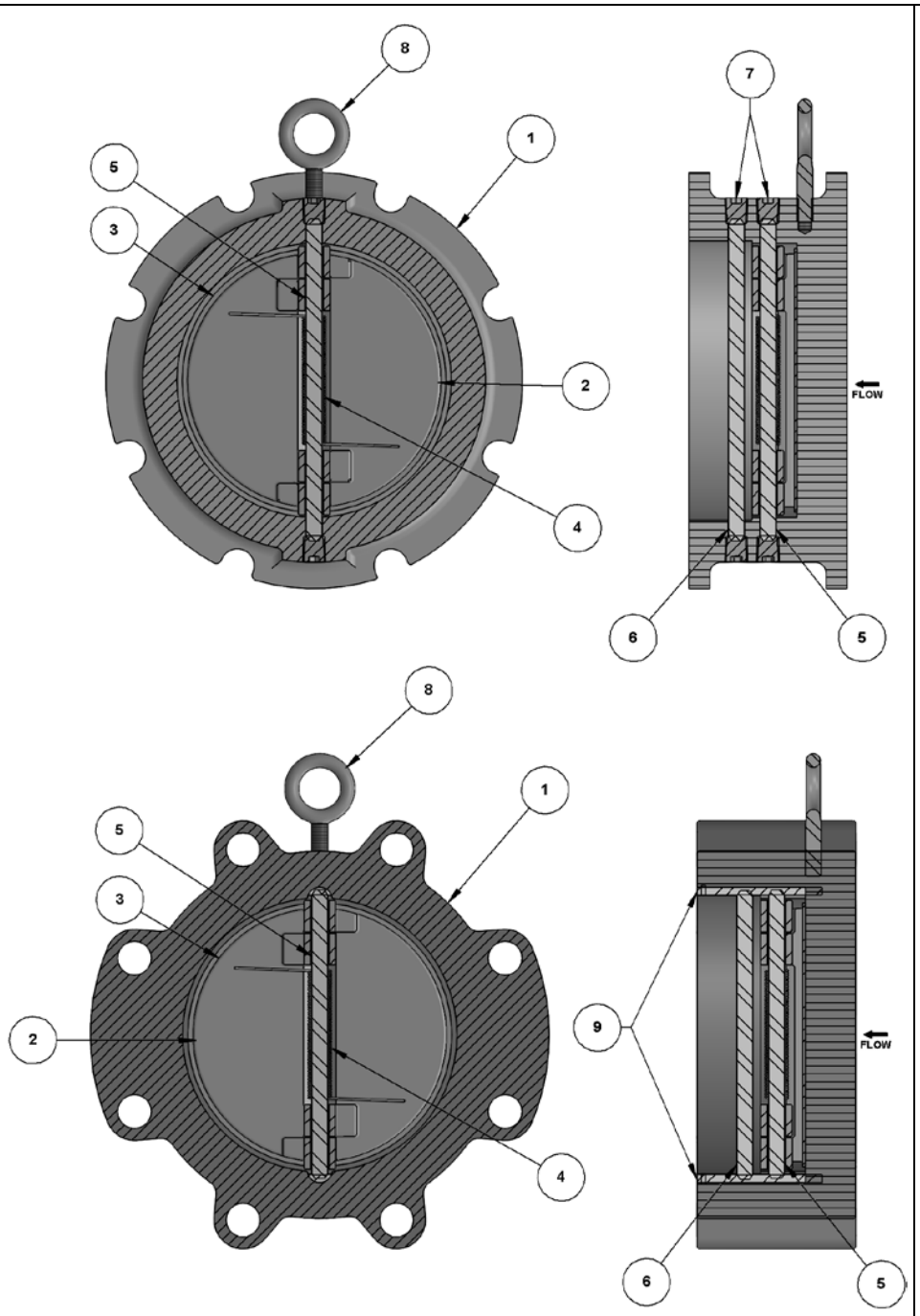
Instructions for valves using caps

1. Clean all ports with a suitable solvent. Trichloroethylene is recommended, particularly for resilient seated valves.
2. Position doors (2) together so pin holes in doors are aligned.
3. Slide hinge pin (5) through first pair of door pin holes.
4. Wind up spring or springs (4) one-half turn to obtain initial torsion and install spring with the spring arms flat on the doors (2). Do not unwind spring as this will change spring torque and also limit the opening of the doors.
5. Slide hinge pin (5) fully through spring (4) and second pair of door (2) pin holes.
6. Position hinge pin (5) in holes of upper and lower caps (9) at end farthest from end cap flange.
7. Position stop pin in holes of upper and lower caps (9) closest to end cap flange.
8. Position caps (9) next to upper and lower cap grooves in valve body (1) and slide doors (2), spring (4), pins (5 and 6) and caps (9) fully into place in valve body (1).
9. Tighten caps set screws.

Operation

The Double Door Check Valve is held closed by the legs of a torsion spring. Flow from the pump causes the Double Door Check Valve to open. Conversely, when the pump is stopped, flow decay occurs and at a point near zero velocity, the force from the legs of the torsion spring instantly closes the Double Door Check valve for non-slam shut-off.

Drawings



NO	DESCRIPTION
1	Body
2	Door
3	Seat
4	Spring
5	Hinge Pin
6	Stop Pin
7	Pin Retainer (NPT Plug)
8	Lifting Eye Bolt*
9	Cap

* Lifting Eye Bolt is used on 10” and larger Ductile Iron valves, and on 8” and larger Carbon Steel and Stainless Steel valves.

Figure 1 – CDD-9000T Double Door Check Valve (Wafer and Lugged versions)

Troubleshooting

Condition	Possible Cause	Corrective Action
Valve leaks excessively from one side of the doors to the other.	Obstruction caught between doors and seat.	Remove obstruction.
	Seat is worn or damaged.	Repair or replace seat.
Valve slams	Springs may be broken.	Replace springs.
Valve won't open	Improper installation.	Flow arrow on valve body should be pointing in direction of flow.
Valve leaks at flange joint.	Loose flange bolting.	Tighten flange bolting.
	Blown flange gasket.	Replace flange gasket.
	Misalignment or damage to field piping and supports.	Adjust misalignment or repair piping or supports.
	Damaged flange face(s) or improper flange connections.	Repair flange, replace valve body or adjust flange connections.

Guarantee

Products, auxiliaries and parts thereof of DeZURIK, Inc. manufacture are warranted to the original purchaser for a period of twenty-four (24) months from date of shipment from factory, against defective workmanship and material, but only if properly installed, operated and serviced in accordance with DeZURIK, Inc. recommendations. Repair or replacement, at our option, for items of DeZURIK, Inc. manufacture will be made free of charge, (FOB) our facility with removal, transportation and installation at your cost, if proved to be defective within such time, and this is your sole remedy with respect to such products. Equipment or parts manufactured by others but furnished by DeZURIK, Inc. will be repaired or replaced, but only to the extent provided in and honored by the original manufacturers warranty to DeZURIK, Inc., in each case subject to the limitations contained therein. No claim for transportation, labor or special or consequential damages or any other loss, cost or damage shall be allowed. You shall be solely responsible for determining suitability for use and in no event shall DeZURIK, Inc. be liable in this respect. DeZURIK, Inc. does not guarantee resistance to corrosion, erosion, abrasion or other sources of failure, nor does DeZURIK, Inc. guarantee a minimum length of service. Your failure to give written notice to us of any alleged defect under this warranty within twenty (20) days of its discovery, or attempts by someone other than DeZURIK, Inc. or its authorized representatives to remedy the alleged defects therein, or failure to return product or parts for repair or replacement as herein provided, or failure to install and operate said products and parts according to instructions furnished by DeZURIK, Inc., or misuse, modification, abuse or alteration of such product, accident, fire, flood or other Act of God, or failure to pay entire contract price when due shall be a waiver by you of all rights under this warranty.

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