



APCO CSC-300 WAFER & CSC-600 GLOBE STYLE SILENT CHECK VALVES



CSC-600 Globe Style



CSC-300 Wafer Style

Instruction **D12010**
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DeZURIK

APCO CSC-300 Wafer & CSC-600 Globe Style Silent Check Valves

Instructions

These instructions provide installation, operation and maintenance information for APCO CSC Silent Check Valves. They are for use by personnel who are responsible for installation, operation and maintenance of APCO CSC Silent 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 CSC Silent 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 silent check valve consists of a valve body, a stainless steel seat, plug and spring. The center guided, spring loaded valve plug moves away from the valve-seat to allow flow in the forward direction, and returns quickly to valve-seat when upstream flow is stopped, preventing backflow and water hammer caused by reverse flow.

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 CSC Silent Check Valve may be installed in a horizontal or vertical position (with the flow upward).

- Before installation, remove foreign material such as weld spatter, oil, grease, and dirt from the pipeline.
- A “Full Face” Flange and a “Full Face” flange gasket must be used for the Silent Check Valve installation. The “Full Face” flange is necessary to hold the valve seat firmly during operation. See Table A for maximum flange ID. The “Full Face” flange gasket is necessary to seal potential leak path located between the valve body and valve seat. Flexible couplings should not be used with Silent Check Valves.

Table A: Mating Flange ID

Valve Size	Maximum Mating Flange ID	Valve Size	Maximum Mating Flange ID
3”	3-3/8”	16”	16-1/2”
4”	4-3/4”	18”	18-3/4”
5”	5-1/2”	20”	20-5/8”
6”	6-1/2”	24”	24-3/4”
8”	8-1/2”	30”	29-1/2”
10”	10-3/4”	36”	36”
12”	12-7/8”	42”	42”
14”	14-3/4”		

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Silent Check Valves

Installation *(Continued)*

- 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.

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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.

Disassembly Procedure

See Figure 1 and Figure 2 for part identification.



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.

1. Relieve the pressure in the pipeline.
2. Remove valve from line.
3. Lay valve down with inlet face upward.
4. Remove seat retaining screws (7) which hold seat retaining ball (6) in place.
5. Rapidly push down and release plug (3) a few times to shake loose seat retaining ball from ball groove and knock out seat (2).
6. Remove plug (3), spring (4), and bushing (5) from body (1).

Assembly Procedure

1. Replace bushing (5), spring (4), plug (3), and seat (2) in body (1).
2. Hold seat (2) flush with flange face while screwing in seat retaining screws (7).
3. With seat (2) securely held in place, install valve in line making sure the flow arrow on the body is pointing in the direction of flow.

Note: Full face gasket on the inlet side of the valve (Seat side) must be used to completely cover the gap between the seat and the body to provide a leak-free and pressure tight joint.

Operation

The Silent check valve is designed to open at approximately $\frac{1}{4}$ to $\frac{1}{2}$ PSI (2-3 KPA), which means when a pump is shut down a Silent Check valve will completely close while there is still positive head on the inlet side of approximately $\frac{1}{2}$ Psi (3 KPA). Because of this, reverse flow, which is a major cause of water hammer, never gets a chance to start.

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Silent Check Valves

Drawings

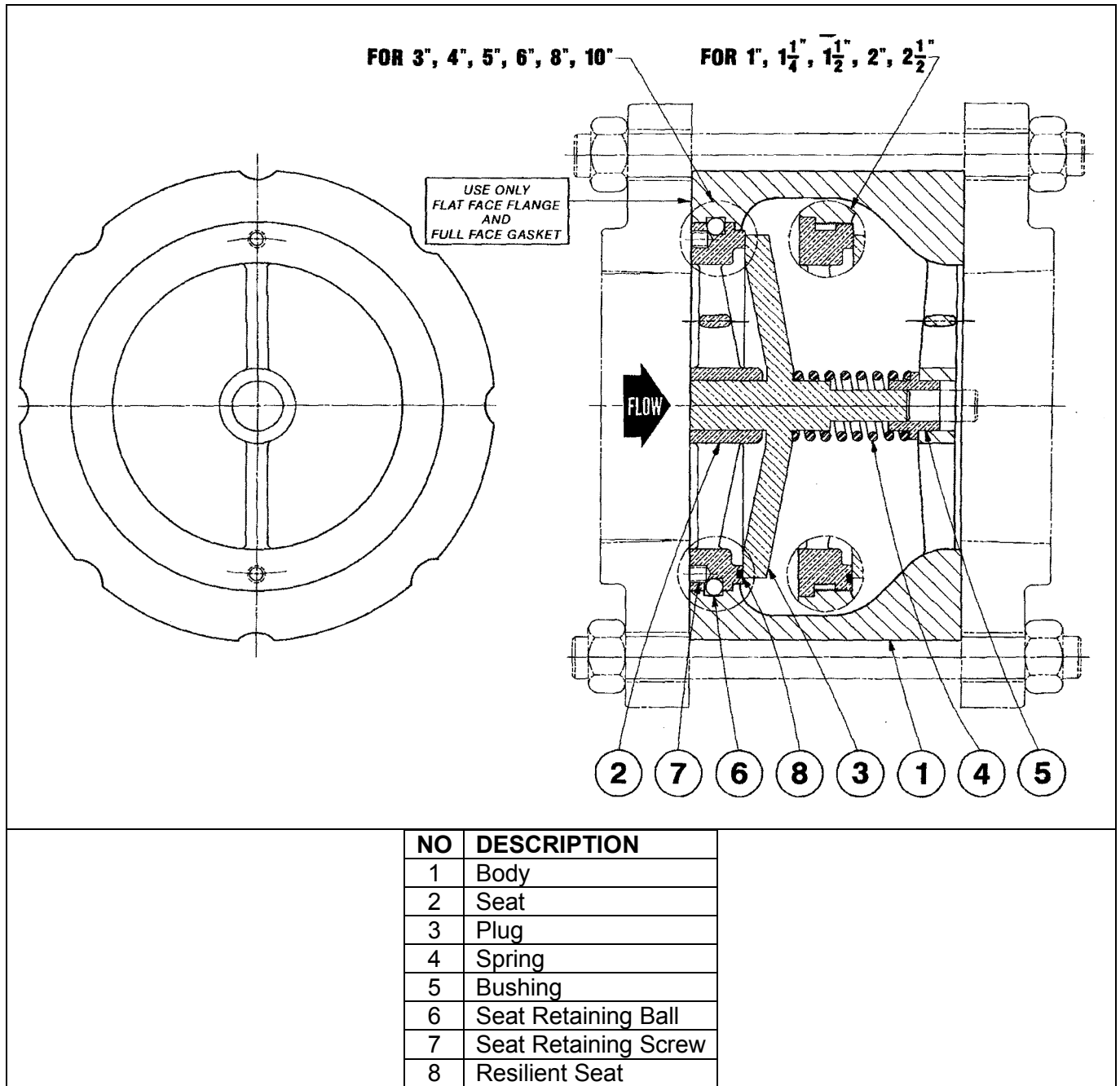


Figure 1 – CSC-300 Wafer Style Silent Check Valve

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APCO CSC-300 Wafer & CSC-600 Globe Style Silent Check Valves

Drawings (Continued)

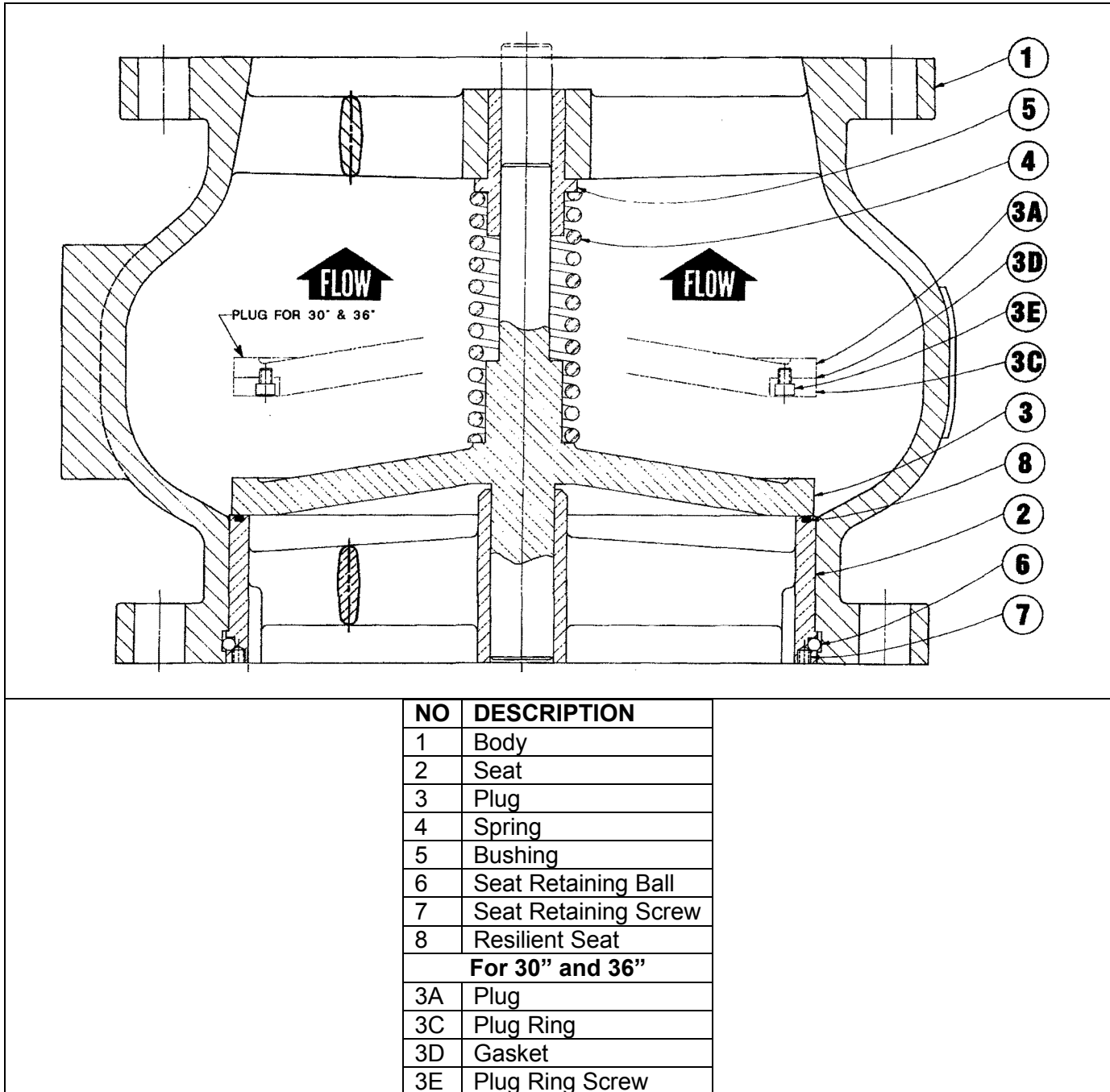


Figure 2 – CSC-600 Globe Style Silent Check Valve

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Troubleshooting

Condition	Possible Cause	Corrective Action
Valve will not close.	Plug stem may be worn and may have come out of the guide.	Replace Plug.
Valve leaks excessively from one side of the disc to the other.	“Full Face” Flange or “Full Face” gasket NOT used.	Install valve using a “Full Face” flange and gasket.
	Foreign matter or mineral deposits may be caught between plug and seat.	Remove foreign matter or deposits.
	Seat is worn or damaged.	Repair or replace seat ring.
Valve chatters.	Spring is too heavy.	Install lighter spring.
Valve slams.	Spring is too light.	Install heavier spring.
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.
	Miss-alignment or damage to field piping and supports.	Adjust miss-alignment 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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Sales and Service

For information about our worldwide locations, approvals, certifications and local representative:

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