



**CHAMPIONVALVESINC.**

**MODEL CVR and CV  
WAFER CHECK VALVE  
RETAINERLESS DESIGN**

**APPLICATION AND OPERATION**

The Champion Valves, Inc. ("CVI") Wafer Check valve is a self-operating check valve designed to prevent the backflow of gas or liquid media. Initial opening of the Wafer Check's discs begins when the upstream pressure exceeds the downstream pressure and the effective torque of the spring. This pressure is called the "cracking" pressure. Once the Wafer Check's discs open, flow velocity determines the position and stability of the discs.

If the flow velocity upstream of the Wafer Check decreases and/or stops, the springs force the discs to a closed position. Ideally, the discs will be fully closed just prior to flow reversal, thus alleviating the potential for water hammer.

**LIMITATIONS AND PRECAUTIONS**

Wafer Check valves are not recommended for the following service conditions.

- Pulsating flows
- Service condition requiring a "Full Port" opening
- Installation directly to a butterfly valve or other piping accessory that may interfere with the opening or closing of Wafer Check's discs
- Vertical Flow **DOWN** without prior Factory Approval

The following precautions should be taken to insure long service life of Wafer Check valves.

- Accurate sizing of Wafer Checks is crucial to ensure an acceptable pressure drop and a long service life.
- Flow velocities should be in the following ranges:

MEDIA	FLOW RATE
Liquid	3 to 11 feet/second
	.91 to 3.35 m/second
Gas	20 to 250 feet/second
	6.1 to 76.2 m/second



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- A minimum of 5 (five) pipe diameters should be maintained between the Wafer Check and likely causes of turbulence (i.e. pump discharge, reducers, elbows, and tees, etc.).

### **INSTALLATION**

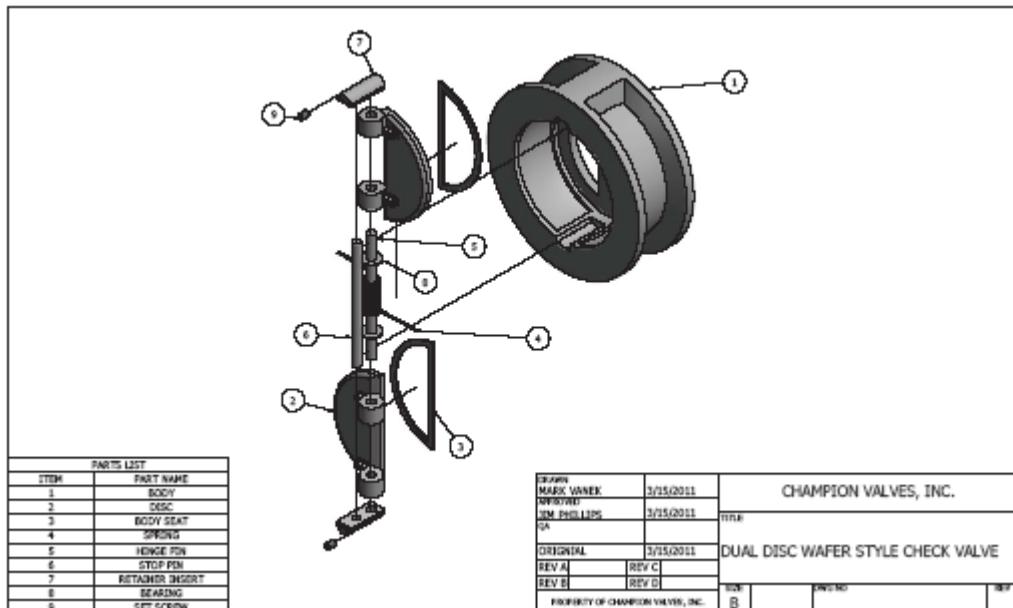
1. Remove the valve from carton or packing skid.
2. The protective rust proof coating on the internal parts of steel or cast iron valves should be removed by brushing out with any standard petroleum solvent (Varsol, Kerosene), and air dried. Insure internal parts operate freely.
3. Stainless Steel or Bronze valves need only to be wiped clean and installed.
4. In horizontal flow installation, the hinge pin must be vertical.
5. Insert the valve between two companion flanges of the same series as the valve and place gaskets on flange faces. The arrow on the valve or name plate indicating direction of flow should coincide with line flow. Install studs through companion flanges and tighten, using standard industry practice.
6. In liquid service we recommend valve be installed at least five (5) pipe diameters downstream from a pump discharge and/or other pipe fittings for maximum service life.



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**MODEL CVR**

**ASSEMBLY AND DISASSEMBLY**



**NOTE: EYE PROTECTION IS RECOMMENDED WHEN DISASSEMBLING AND ASSEMBLING WAFER CHECK VALVES.**

**DISASSEMBLY**

Disassembly and assembly of the Wafer Check valve is moderately simple using a hammer, allen-wrench, bronze round nose punch and Locktite thread sealant and the following instructions:

Please use caution when removing the stop or hinge shaft. Preset spring(s) may cause serious injury when tension is released.

1. Lay the body down with downstream side facing upward.



2. Remove retainer insert set screws with allen head wrench.
3. Place two 4" x 4" boards on the flanges directly opposite of each other.
4. Carefully, without changing the distance between the two boards, set them on a hard surface.
5. Turn valve body and set the valve body on the two boards over so that the upstream side is facing upward. Make sure that the discs hang down without any interference with the boards.
6. Remove the discs from the valve by placing a brass round nose punch on the left disc's hinge and gently tap on the punch with a hammer. Alternate this process between the left and right discs' hinge until the discs fall free from the valve body.
7. Mark the retainer insert and valve body to insure the inserts are replaced in the same side of the valve body.
8. Remove the retainer inserts from the hinge and stop pins.
9. While maintaining pressure on spring with hand, remove the hinge pin from the discs' hinge lugs, and spring. Release spring.

## **ASSEMBLY**

1. Lay the body down with downstream side facing upward.
2. Lay the discs on a hard surface with disc seating surface facing downward and the disc hinge lugs together.
3. Slide hinge pin through the disc's hinge lugs
4. Rotate the forward spring leg clockwise, with spring legs pointing downward.
5. Place wound spring between the discs on the center post
6. While maintaining pressure on spring with hand, insert hinge pin through the remaining spring(s), discs' hinge lugs, and thrust bushing. Release spring.
7. Attach the retainer inserts to the hinge and stop pin.
8. Insert discs assembly into valve body and alternately, tap the retainer inserts into the valve body.
9. Move the valve to a position so that the hinge pin is vertical.
10. Open and close the discs to make sure there is no interference between the elastomer seat and discs' movement.
11. If there is interference on valves with a Teflon or elastomer seat, lower the Teflon or elastomer seat height evenly using 300 grit sandpaper, and follow the assembly instructions.
12. Apply Locktite thread sealant to retainer set screw and screw retainer insert set screw into valve body.



## MODEL CV

### ASSEMBLY AND DISASSEMBLY



**NOTE: EYE PROTECTION IS RECOMMENDED WHEN ASSEMBLING AND DISASSEMBLING WAFER CHECK VALVES.**

Disassembly and assembly of the Wafer Check valve is moderately simple using an open end wrench, Teflon tape or media compatible thread sealant and the following instructions:

#### DISASSEMBLY

1. Lay the body down with downstream side facing upward.
2. Remove the NPT retainer plugs from the valve body
3. Remove the stop pin.
4. While maintaining pressure on spring with hand, remove hinge pin through the remaining spring(s), discs' hinge lugs, and thrust bushing. Release spring.
5. Remove the spring(s) and discs.

#### ASSEMBLY

1. Lay the body down with downstream side facing upward.
2. Lay the discs inside the body, sealing surface down, with the disc hinge lugs together.
3. Place thrust bushings between the body and outer disc lug.
4. Rotate the forward spring leg clockwise, with spring legs pointing downward.
5. Place wound spring(s) between the discs on the center post
6. While maintaining pressure on spring(s) with hand, insert hinge shaft through the body, thrust bushing, discs' hinge lugs, and spring(s). Release spring(s).
7. Wrap retainer(s) and body pipe plugs with 6 rounds of Teflon tape. Screw retainer(s) into body and tighten.
8. Move hinge shaft to insure that it is free from binding on retainers.



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**CHAMPION VALVES, INC. BONDS AND VULCANIZES THE ORIGINAL ELASTOMER SEAT TO THE VALVE BODY. CHAMPION VALVES DOES NOT RECOMMEND THAT THE ELASTOMER SEAT BE REPLACED, EXCEPT BY CHAMPION VALVES. CHAMPION VALVES DOES NOT WARRANT NOR SHALL CHAMPION VALVES, INC. BE LIABLE FOR SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES.**

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