

## Double Check Valve

Models DCVE 3/4" – 2"

## Installation Instructions



Flomatic Corporation

### Basic Installation Instructions:



**CAUTION: Installation of Double Check Valves must be performed by qualified, licensed personnel. Faulty installation could result in an improperly functioning assembly.**

**NOTE: CHECK WITH GOVERNING AUTHORITIES FOR LOCAL INSTALLATION REQUIREMENTS.**

The installer should be sure the proper assembly has been selected for the particular installation.

The Flomatic Model DCVE Double Check Valves are for use on potable water lines where a health hazard would not exist in the event of a backflow situation.

Proper performance is dependent upon following these installation instructions and prevailing governmental and industry standards and codes. Failure to do so, according to Flomatic Corporation's limited Warranty "releases Flomatic Corporation of any liability that it might otherwise have with respect to that assembly". Such failure could also result in an improperly functioning assembly.

Damage to the assembly could result wherever water hammer and/or water thermal expansion could create excessive line pressure. Where this could occur, shock arrestors and/or pressure relief valves should be installed downstream of the assembly.

1. Before installing a Model DCVE Double Check Valve, flush the lines thoroughly to remove all debris, chips and other foreign matter. If required a strainer should be placed upstream of the Double Check Valve. **CAUTION: Do not use a strainer in seldom used emergency water lines such as fire lines.**
2. Provide adequate space around the installed unit so that the testcocks will be accessible for testing and servicing.
3. Always consult local codes for installation methods, approvals and guidelines.

### Outdoor Installation

Model DCVE Double Check Valve may be installed outdoors only if the assembly is protected against any freezing conditions. Exposure to freezing conditions will result in improper function or damage to the assembly. The installation location must be kept above 32° F. All the basic installation instructions apply.

### Indoor Installation

Indoor installation is preferred in areas that are subject to freezing conditions. All the basic installation instructions apply to such installations.

### Parallel Installation

Where uninterrupted service from a single meter connection must be maintained, two or more Double Check Valves may be connected in parallel. All the basic installation instructions apply to a parallel installation. Be sure to allow adequate room between the units for testing and repair.

### Placing the Assembly in Service

After the installation of a Model DCVE unit has been completed, place the unit in service as follows:

1. Start with both shut-off valves closed. Slowly open the inlet shut-off valve until the backflow preventer is completely pressurized.
2. After the assembly has been pressurized, vent all trapped air by slightly opening each of the four testcocks.
3. Slowly open the downstream shut-off valve. The Model DCVE Double Check Valve is now in service.
4. After the backflow preventer has been properly installed, test the assembly (see Test Procedures). If the assembly fails the test, remove the first and second check valves and thoroughly flush the assembly. Clean rubber seats of all debris and place unit back in service.

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## MAINTENANCE INSTRUCTIONS

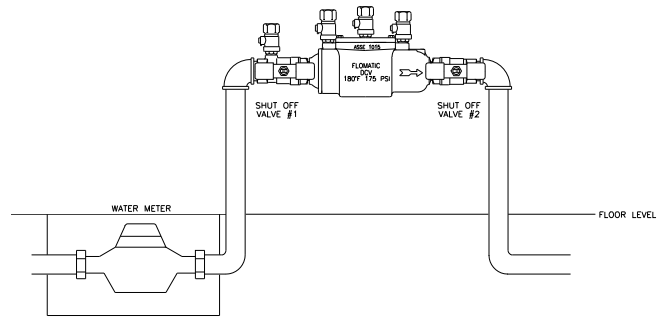
### 1. GENERAL

- A. Clean all parts thoroughly with water after disassembly.
- B. Carefully inspect silicone discs, and o-rings for damage.
- C. Test unit after reassembly for proper operation.

### 2. SERVICING CHECK VALVES

- A. Close inlet and outlet shut-off valves.
- B. Open No. 2, 3, and 4 test cocks to release pressure from valve.
- C. Remove the cover bolts valve cover.
- D. Remove check valve spring clip and check valve assembly.
- E. Inspect check valve seat and o-ring for debris and damage.
- F. To remove silicone disc, unscrew check valve stem from disc holder.
- G. Remove disc retainer and disc from the disc holder and inspect for cuts or embedded debris.
- H. The silicone disc may be inverted if the reverse side is undamaged.
- I. Inspect the valve cavity and seat area for damage and debris.
- J. Reverse the above procedures to reinstall the check valve assemblies.

**NOTE: Check valves can only be installed in one configuration, they are not reversible.**

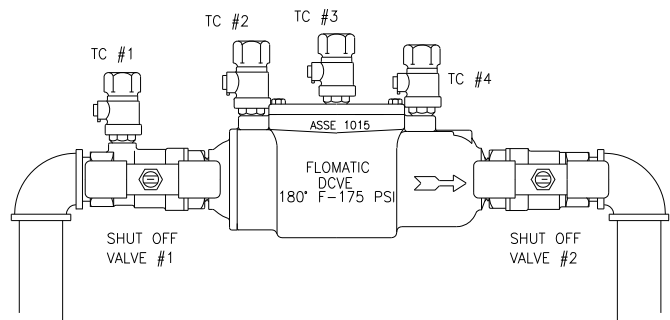
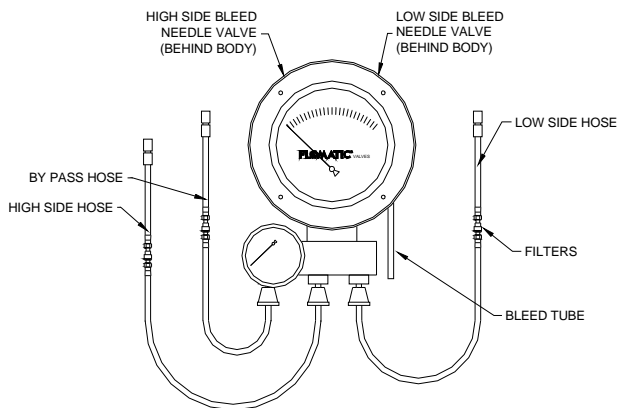


## TEST PROCEDURES – Refer to local codes and prevailing test methods.

### Method #1 – Two-hose method

#### EQUIPMENT REQUIRED:

Fittings (if required) and Test Kit



### TEST #1

**PURPOSE:** To determine the static pressure drop across check valve No. 1

**REQUIREMENT:** The 1<sup>st</sup> check valve must have a minimum of 1.0 psi in the direction of flow.

1. Flush testcocks and install fittings (if needed)
2. Make sure By-pass, High & Low Bleed valves are open
3. Attach high side hose to testcock No.3
4. Attach low side hose to testcock No.3
5. Close Shutoff Valves 1 and 2
6. Slowly open testcock No 2 then No 3
7. Close High Side Bleed
8. Close Low Side Bleed
9. Record the value of CV1 (MUST be 1.0 psi or greater)
10. Close testcocks, open Shutoff Valve #1 and remove test equipment

### TEST #2

**PURPOSE:** Test No.2 check flow thru the 2<sup>nd</sup> check valve.

**REQUIREMENT:** The 2<sup>nd</sup> check valve must have a minimum of 1.0 psi in the direction of flow.

1. Moving fittings to testcocks 3 & 4 (if needed)
2. Make sure By-pass, High & Low Side valves are open.
3. Attach High Side hose to testcock No.3
4. Attach Low Side hose to testcock No.4
5. Close Shutoff Valve #1
6. Slowly open testcock No.3. and No. 4
7. Close High Side Bleed.
8. Close Low Side Bleed..
9. Record the value of CV2 (MUST be 1.0 psi or greater)

### Final Steps

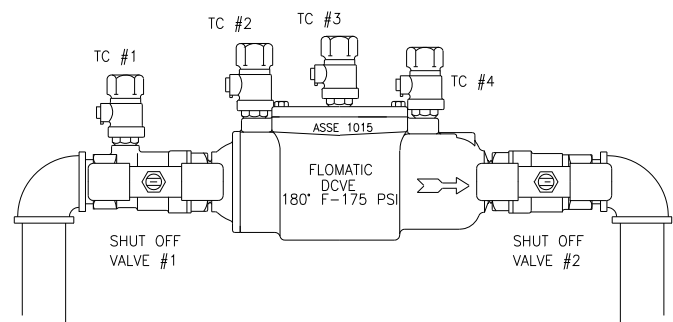
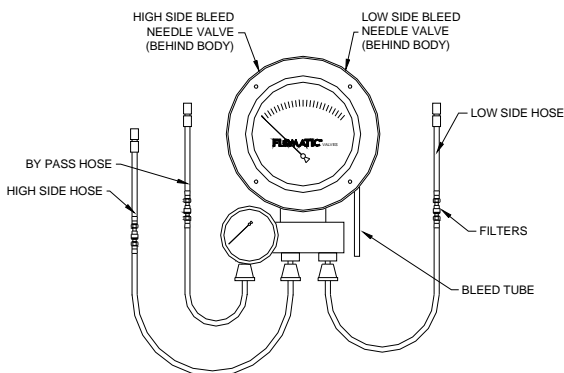
1. Close testcocks.
2. Open shut off valve #1
3. Open shut off valve #2 slowly
4. Remove test equipment and fittings – open valve on test kit.

### Method #2 – Single-hose method

EQUIPMENT REQUIRED:

Fittings (if required) and Test Kit

**Note:** For both of the following tests the test kit differential pressure gauge must be held at the same level as the 3<sup>d</sup> testcock (high point). Be sure that hoses not being used are also kept at this level.



### TEST #1

**PURPOSE:** Test No.1 check flow thru the 1<sup>st</sup> check valve.

**REQUIREMENT:** The 1<sup>st</sup> check valve must have a minimum of 1.0 psi in the direction of flow.

1. Flush testcocks and install fittings (if needed)
2. Install sight tube on testcock #3
3. Install bleed valve on testcock #2
4. Attach high side hose to bleed valve.
5. Open testcock #2.
6. Bled air from gage by opening high side needle valve then close.
7. Open testcock #3 to fill tube then close testcock #3.
8. Close Shutoff valve #2 (make sure center of gage is at the level of the water in sight glass) then #1
9. Open testcock #3.
10. Gage reading = gage stabilizes and water stops running out of testcock #3.
11. Close testcock #2 & #3
12. Open shutoff valve #1.
13. Record value of CV1 (MUST be 1.0 psi or greater)

### TEST #2

**PURPOSE:** Test No.1 check flow thru the 2<sup>nd</sup> check valve.

**REQUIREMENT:** The 2<sup>nd</sup> check valve must have a minimum of 1.0 psi in the direction of flow.

1. Move sight tube from testcock #3 to testcock #4
2. Move bleed valve and high side hose from testcock #2 to testcock #3 .
3. Open testcock #3.
4. Open high side bleed – bleed air from gauge
5. Close high side bleed.
6. Open testcock #4 to fill tube
7. Close testcock #4 (make sure center of gage is at the level of the water in sight glass)
8. Close shut off valve #1
9. Open testcock #4.
10. Gage reading = gage stabilizes and water stops running out of testcock #4.
11. Record value of CV2 (MUST be 1.0 psi or greater)

### Final Steps

1. Close testcocks.
2. Open shut off valve #1
3. Open shut off valve #2 slowly
4. Remove test equipment and fittings – open valve on test kit.

### TROUBLE SHOOTING GUIDE

Symptom	Cause	Solution
1. Check valve fails to hold 1.0 PSID minimum	a. Debris on check disc sealing surface  b. Leaking gate  c. Damaged seat disc or seat o-ring  d. Damaged guide holding check open  e. Weak or broken spring	a. Disassemble and clean  b. Disassemble and clean or repair  c. Disassemble and replace  d. Disassemble and clean or repair  e. Disassemble and replace
2. Chatter during flow conditions	a. Worn, damaged or defective guide or undersized assembly	a. Disassemble and repair or replace guide or replace with large assembly
3. Low flow passing through valve	a. Low supply pressure  b. Gate valves not fully open  c. Installed backwards	a. Use pressure gauge to verify pressure  b. Turn handle counterclockwise  c. Re-install with flow arrow pointing in direction of flow

**3 Year Limited Warranty:** Flomatic valves are guaranteed against defects of materials or workmanship when used for the services recommended. If in any recommended service, a defect develops due to material or workmanship, and the assembly is returned, freight prepaid, to Flomatic Corporation within 36 months from the date of purchase, it will be repaired or replaced free of charge. Flomatics' liability shall be limited to our agreement to repair or replace the valve only.