



APPROVED FIELD TEST PROCEDURES

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DOUBLE CHECK VALVE ASSEMBLY (DCVA) DIRECTION OF FLOW TEST WITH A VERTICAL SITE TUBE

Notify Customer that water will be off temporarily.
Verify backflow assembly to be tested.
Observe area around the backflow preventer for leaks, damage or foreign matter.
Flush all Test Cocks (TC) starting with TC 1

Check Valve 1

Attach vertical sight tube hose to TC 2

Install short tube to TC 3

Close shutoff valve 2

Open TC 2 to fill vertical sight tube - close TC 2

Open TC 3 to fill short tube - close TC 3

Close Shutoff Valve 1

Open TC 3 to relieve disc compression

Open TC 2

While holding the bottom of the vertical sight tube level with the water level in the short downstream sight tube for two minutes, if the water holds at or above the 28" mark:

Record Check Valve 1 "Closed Tight".

If water level falls below the 28" mark on your vertical tube,

Record Check Valve 1 "Leaked" and proceed to next step.

Check Valve 2

Close TC 2 and TC 3

Move short tube from TC 3 to TC 4

Move vertical sight tube hose from TC 2 to TC 3

Open Shutoff 1 - open TC 3 to fill sight tube - close TC 3

Open TC 4 to fill short tube - close TC 4

Close Shutoff 1

Open TC 4 to relieve disc compression

Open TC 3

While holding the bottom of the vertical sight tube level with the water level in the short downstream sight tube for two minutes, if the water holds at or above the 28" mark:

Record Check Valve 2 "Closed Tight".

If water level falls below the 28" mark on your vertical tube,

Record Check Valve 2 "Leaked".

Final

Close TC's - remove brass fittings, vertical sight tube hose and short tube.

Open Customer's hose bib to flush any potential debris from line. Open shutoff 1, open shutoff.

Close Customer's hose bib.

DOUBLE CHECK VALVE ASSEMBLY (DCVA) DIRECTION OF FLOW TEST WITH A 3-VALVE DIFFERENTIAL PRESSURE GAUGE

Notify Customer that water will be off temporarily.
Verify backflow assembly to be tested.
Observe area around the backflow preventer for leaks, damage or foreign matter.
Flush all Test Cocks (TC) starting with TC 1

Check Valve 1

Install short tube on TC 3
Attach high hose to TC 2
Open TC 3 to fill short tube - close TC 3
Open TC 2 slowly - open high "A" and vent "C" to expel air from gauge and BFP
Close vent "C"
Close shutoff 2 - close shutoff 1
Open TC 3 - TC 2 must remain open
While holding gauge diaphragm and the open end of the low hose (if attached to the gauge) level with the water level in the short downstream sight tube, observe gauge.
If gauge needle holds at 1.0 psi or greater at the water level in the short downstream tube for 2 minutes:
Record Check Valve 1 "Closed Tight".
If gauge needle drops below 1.0 psi at the water level in the short downstream sight tube:
Record Check Valve 1 "Leaked" and proceed with next step.

Check Valve 2

Close TC 2 and TC 3
Move short tube from TC 3 to TC 4
Move high hose from TC 2 to TC 3 - open shutoff 1
Open TC 4 to fill short tube - close TC 4
Open TC 3 slowly - open vent "C" to expel air from gauge and BFP
Close vent "C"
Close shutoff 1
Open TC 4 - TC 3 must remain open
While holding gauge diaphragm and the open end of the low hose (if attached to the gauge) level with the water level in the short downstream sight tube, observe gauge.
If gauge needle holds 1.0 psi or greater at the water level in the short downstream tube for 2 minutes:
Record Check Valve 2 "Closed Tight".
If gauge needle drops below 1.0 psi at the water level in the short downstream sight tube:
Record Check Valve 2 "Leaked".

Final

Close TC's - remove high hose and brass fittings.
Open Customer's hose bib to flush any potential debris from line.
Open shutoff 1, open shutoff 2.
Close Customer's hose bib.

DOUBLE CHECK VALVE ASSEMBLY (DCVA) DIRECTION OF FLOW TEST WITH A 5-VALVE DIFFERENTIAL PRESSURE GAUGE

Notify Customer that water will be off temporarily.
Verify backflow assembly to be tested.
Observe area around the backflow preventer for leaks, damage or foreign matter.
Flush all Test Cocks (TC) starting with TC 1

Check Valve 1

Install short tube on TC 3
Attach high hose to TC 2
Open TC 3 to fill short tube - close TC 3
Slowly open TC 2 - open high bleed to expel air from gauge and BFP - close high bleed
Close shutoff 2 - close shutoff 1,
Open TC 3, TC 2 must remain open
While holding gauge diaphragm and the open end of the low hose (if attached to the gauge) level with the water level in the short downstream sight tube, observe gauge.
If gauge needle reads 1.0 psi or greater for 2 minutes:
Record Check Valve 1 "Closed Tight".
If gauge needle drops below 1.0 psi at the water level in the short downstream tube:
Record Check Valve 1 "Leaked" and proceed to the next step.

Check Valve 2

Close TC 2 and TC 3
Move short tube from TC 3 to TC 4
Move high hose from TC 2 to TC 3 - open shutoff 1
Open TC 4 to fill short tube - close TC 4
Open TC 3 slowly - open high bleed to expel air from gauge and BFP - close high bleed
Close shutoff 1.
Open TC 4 - TC 3 must remain open
While holding gauge diaphragm and the open end of the low hose (if attached to the gauge) level with the water level in the short downstream sight tube, observe gauge.
If gauge needle holds 1.0 psi or greater at the water level in the short downstream tube for 2 minutes:
Record Check Valve 2 "Closed Tight".
If gauge needle drops below 1.0 psi at the water level in the short downstream tube:
Record Check Valve 2 "Leaked".

Final

Close TC's - remove high hose and brass fittings.
Open Customer's hose bib to flush any potential debris from line.
Open shutoff 1, open shutoff 2.
Close Customer's hose bib.

DOUBLE CHECK VALVE ASSEMBLY (DCVA) DIFFERENTIAL PRESSURE TEST WITH A 3-VALVE DIFFERENTIAL PRESSURE GAUGE

Notify Customer that water will be off temporarily
Verify backflow assembly to be tested
Observe area around the backflow preventer for leaks, damage or foreign matter
Flush all Test Cocks (TC) starting with TC 1

Check Valve 1

Close Shut Off 2
Close "A", "B", "C" on test kit
Connect high hose to TC 2- low hose to TC 3 - open TC 3 slowly
Open "C" then "B" to bleed air from low side thru vent hose
Slowly open TC 2 - partially open "A" to bleed air from high side thru vent hose
Close "A", then close "B"
Observe this apparent differential pressure to be at least 1.0 psi or greater
Record Check Valve 1 as "Closed Tight"
If the apparent differential pressure is below 1.0 psi
Record Check Valve 1 as "Leaked"

Check Valve 2

Close all test cocks
Move low hose to TC 4- move high hose to TC 3 - open TC 4 slowly
Open "C" then "B" to bleed air from low side thru vent hose
Slowly open TC 3 - partially open "A" to bleed air from high side thru vent hose
Close "A", then close "B"
Observe this apparent differential pressure to be at least 1.0 psi or greater
Record Check Valve 2 as "Closed Tight"
If the apparent differential pressure is below 1.0 psi
Record Check Valve 2 as "Leaked"

Final

Close TC's - remove both hoses and brass fittings
Open Customer's hose bib to flush any potential debris from line
Open shutoff 2
Close Customer's hose bib

DOUBLE CHECK VALVE ASSEMBLY (DCVA) DIFFERENTIAL PRESSURE TEST WITH A 5-VALVE DIFFERENTIAL PRESSURE GAUGE

Notify Customer that water will be off temporarily
Verify backflow assembly to be tested
Observe area around the backflow preventer for leaks, damage or foreign matter
Flush all Test Cocks (TC) starting with TC 1

Check Valve 1

Close Shut Off 2
Close all valves on test kit
Connect high hose to TC 2- connect low hose to TC 3 - open TC 3 slowly
Open low bleed to remove air from low side
Slowly open TC 2 - open high bleed to remove air from high side
Close high bleed, Close low bleed
Observe this apparent differential pressure to be at least 1.0 psi or greater
Record Check Valve 1 as "Closed Tight"
If the apparent differential pressure is below 1.0 psi
Record Check Valve 1 as "Leaked"

Check Valve 2

Close all test cocks
Move low hose to TC 4- high hose to TC 3 - open TC 4 slowly
Open low bleed to remove air from low side
Slowly open TC 3 - open high bleed to remove air from high side
Close high bleed, Close low bleed
Observe this apparent differential pressure to be at least 1.0 psi or greater
Record Check Valve 2 as "Closed Tight"
If the apparent differential pressure is below 1.0 psi
Record Check Valve 2 as "Leaked"

Final

Close all TC's - remove both hoses and brass fittings
Open Customer's hose bib to flush any potential debris from line
Open shutoff 2
Close Customer's hose bib

PRESSURE VACUUM BREAKER (PVB) DIRECTION OF FLOW TEST WITH A 3-VALVE DIFFERENTIAL PRESSURE GAUGE

Notify Customer that water will be off temporarily.
Verify backflow assembly to be tested.
Observe area around the backflow preventer for leaks, damage or foreign matter.
Flush all Test Cocks (TC) starting with TC 1

Prep

Remove canopy
Install fittings

Air Inlet Valve

Attach high hose to TC 2
Open TC 2 very slowly
Open "A" and vent "C" to expel air from gauge and PVB
(Expelled water can be used to clean air-inlet area.)
Close vent "C" - close shutoff 2 - close shutoff 1
With gauge diaphragm and the open end of the low hose (if attached to the gauge)
level with TC 2 and/or the area between the check and air-inlet valve.
Place finger on top of inlet valve, very slowly open vent "C" until gauge needle
begins to fall.
Observe gauge needle the moment you feel the air-inlet valve open,
Record this numerical value in air-inlet section of the report form.
(Reading must be 1.0 psi or greater.)
If the air-inlet valve fails to open or opens at value lower than 1.0 psi:
Record the Air-inlet as "Did Not Open" and continue
Close vent "C"

Check Valve

Close TC 2-remove high hose from TC 2 - open shutoff 1
Attach high hose to TC 1 - open TC 1 very slowly
Open vent "C" to expel air from gauge and PVB.
High "A" is already open from the air-inlet test
Close vent "C" - close shutoff 1
Open TC 2
With gauge diaphragm and the open end of the low hose (if attached to the gauge)
level with TC 2 and/or the area between the check and air-inlet valve.
Observe when water stops running from TC 2
Record the numerical value the check valve held tight.
(Reading must be 1.0 psi or greater.)
If the gauge needle fails to hold at or above 1.0 psi,
Record the Check Valve as leaked.

Final

Close both TC's, Remove all equipment
Replace canopy, Open shutoff 1
Slowly open shutoff 2

PRESSURE VACUUM BREAKER (PVB) DIRECTION OF FLOW TEST WITH A 5-VALVE DIFFERENTIAL PRESSURE GAUGE

Notify Customer that water will be off temporarily.
Verify backflow assembly to be tested.
Observe area around the backflow preventer for leaks, damage or foreign matter.
Flush all Test Cocks (TC) starting with TC 1

Prep

Remove canopy
Flush TC's
Install fittings

Air Inlet Valve

Attach high hose to TC 2
Open TC 2 very slowly
Open high bleed valve to expel air from gauge and PVB
(Expelled water can be used to clean air-inlet area.)
Close high bleed valve - close shutoff 2 - close shutoff 1
While holding gauge diaphragm and the open end of the low hose (if attached to the gauge) level with TC 2 and/or the area between the check and air-inlet valve, Place finger on top of inlet valve and very slowly open the high bleed valve until gauge needle begins to drop.
Observe gauge needle the moment you feel the air-inlet valve open,
Record the numerical value on air-inlet section of the report form.
(Reading must be 1.0 psi or greater.)
If the air-inlet valve fails to open or opens at value lower than 1.0 psi,
Record the Air-inlet as "Did Not Open" and continue
Close high bleed valve

Check Valve

Close TC 2-remove high hose from TC 2 - open shutoff 1
Attach high hose to TC 1 - open TC 1 very slowly
Open high bleed valve to expel air from gauge and PVB
Close high bleed valve - close shutoff 1
Open TC 2
With gauge diaphragm and the open end of the low hose (if attached to the gauge) level with TC 2 and/or the area between the check and air-inlet valve.
Observe when water stops running from TC 2
Record the numerical value the check valve held tight.
(Reading must be 1.0 psi or greater.)
If the gauge needle fails to hold at or above 1.0 psi,
Record the Check Valve as leaked.

Final

Close both TC's, Remove all equipment
Replace canopy, Open shutoff 1
Slowly open shutoff 2

REDUCED PRESSURE PRINCIPLE ASSEMBLY (RP) DIFFERENTIAL PRESSURE TEST WITH A 3-VALVE DIFFERENTIAL PRESSURE GAUGE

Notify Customer that water will be off temporarily.
Verify backflow assembly to be tested.
Observe area around the backflow preventer for leaks, damage or foreign matter.

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Test 1-Check Valve 1 Apparent Differential Pressure

Close shutoff 2 - flush all TC's correctly (open 4, 3, 2, 1 - close 1, 2, 3, 4)
Close "A", "B", "C" on test kit
High hose to TC 2- low hose to TC 3 - open TC 3 slowly
Open "C" then "B" to bleed air from low side thru vent hose
Slowly open TC 2 - partially open "A" to bleed air from high side thru vent hose
Close "A", "B", then "C"
Observe this apparent differential pressure to be at least 5.0 psi or greater.
Record Check Valve 1 as "Closed tight"
If the apparent differential pressure is below 5.0 psi
Record Check Valve 1 as "Leaked"

Test 2-Relief Valve Opening

With hand under relief valve vent
Open "A" – Slowly open "B" only until gauge needle begins to drop - leave "B" in that position.
Observe the instant water is vented – (Value must be 2.0 psi or greater.)
Record This Numerical Value as the Relief Valve Differential Pressure
Close "B"

Note: If gauge needle drops only slightly and relief valve fails to open, or opening "B" more than "slightly" is needed to cause the needle to drop, then shutoff 2 is probably leaking.

Test #3-Check Valve 2 Closed tight Against Backpressure

Vent hose to TC 4 - open "C"
Bleed air from vent hose by loosening hose connection at TC 4; re-tighten hose connection at TC 4
Reset gauge to a static condition by loosening low hose at TC 3; re-tighten low hose connection at TC 3
Open TC 4 (gauge needle may fall slightly due to disc compression).

Note: If gauge needle falls and the RV opens, Check Valve 2 may not be leaking at all. Disc compression may have caused Check Valve 2 to compress, decreasing the differential pressure in the "zone". To verify, reset gauge to a static condition by loosening low hose at TC 3; re-tighten low hose connection at TC 3.

If gauge needle remains steady and water does not drip from the relief valve, then
Record Check Valve 2 as "Closed tight"
If the gauge needle falls and the relief valve opens:
Record Check Valve 2 as "Leaked"

**REDUCED PRESSURE PRINCIPLE ASSEMBLY (RP)
DIFFERENTIAL PRESSURE TEST WITH A
3-VALVE DIFFERENTIAL PRESSURE GAUGE**

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Test 4 - Check the condition of Shutoff 2

To positively verify the condition of shutoff 2, with "A" and "C" still open, close TC 2.

If shutoff 2 is leaking, gauge needle will fall to 0.0 psi, but the relief valve will not open. If gauge needle rises, then shutoff 2 is leaking and there is backpressure in the Customers system. Be prepared to close vent by-pass valve.

Record the condition of Shutoff Valve 2.

Test 5 - Differential Pressure of Check Valve 1

Open TC 2 - close TC 4-close "A" - disconnect vent hose from TC 4 (vent hose no longer used)

Open "B" to bleed air thru vent hose (This releases disc compression and resets gauge to static.) Close "B"

Observe the differential pressure to be at least 5.0 psi or greater

Record This Numerical Value as the "Differential Pressure of Check Valve 1"

Test 6 - Differential Pressure of Check Valve 2

Close TC 2 and TC 3

High hose to TC 3 - low hose to TC 4

Open "A" and "B" to bleed any residual pressure thru vent hose ("C" is already open from test #3 above.)

Close "A", then "B"

Open TC 4 - open "B" to bleed air on low side thru vent hose

Open TC 3 - open "A" to bleed air on high side thru vent hose - close "A" first, then "B"

Observe the differential pressure to be at least 1.0 psi or greater

Record this numerical value as the "Differential Pressure of Check Valve 2"

Final

Close all TC's.

Remove all fittings and hoses.

Open Customer's hose bib.

Open shutoff 2 slowly to restore system supply.

Close Customer's hose bib.

REDUCED PRESSURE PRINCIPLE ASSEMBLY (RP) DIFFERENTIAL PRESSURE TEST WITH A 5-VALVE DIFFERENTIAL PRESSURE GAUGE

Notify Customer that water will be off temporarily.
Verify backflow assembly to be tested.
Observe area around the backflow preventer for leaks, damage or foreign matter.

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Test 1 – Check Valve 1 Apparent Differential Pressure

Close shutoff 2 – flush all TC's in this order (open 4, 3, 2, 1 – close 1, 2, 3, 4)

Attach high hose to TC 2 – low hose to TC 3

Slowly open TC 3, then open low bleed valve

Slowly open TC 2, then open high bleed valve

Close high bleed valve, close low bleed valve

If the apparent differential pressure is at least 5.0 psi or greater,

Record Check Valve 1 as “Closed tight”

If the apparent differential pressure is below 5.0 psi

Record Check Valve 1 as “Leaked”

Test 2 – Relief Valve Opening

With your hand under the relief valve vent

Open high control valve 1 full turn

Slowly open low control valve until needle on gauge begins to drop (no more than ¼ turn)

Observe the instant water is vented

Note: If gauge needle drops only slightly and relief valve fails to open, or opening low control valve more than 1/4 turn is needed to cause the needle to drop, then shutoff 2 is probably leaking.

Record reading as the Relief Valve Differential Pressure

(Value must be at least 2.0 psi or greater.)

Close low control valve, the high control can remain open for the remainder of the test.

Test 3 – Check Valve 2 Closed Tight Against Backpressure

Slightly open by-pass/vent valve – attach by-pass/vent hose to TC 4

Close by-pass/vent valve – open TC 4

Reset gauge by opening low bleed valve to pin gauge – close low bleed valve

Open by-pass (vent) valve 1 turn (gauge may decrease slightly due to disc compression).

Note: If gauge needle falls and the RV opens, check valve 2 may not be leaking at all. Disc compression may have caused check valve 2 to compress, decreasing the differential pressure in the “zone”. To verify, reset gauge by opening then closing low bleed valve.

If gauge needle holds steady, and water does not drip from relief valve vent, then

Record Check Valve 2 closed tight

REDUCED PRESSURE PRINCIPLE ASSEMBLY (RP)
DIFFERENTIAL PRESSURE TEST WITH A
5-VALVE DIFFERENTIAL PRESSURE GAUGE

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Test 4 – To Verify Condition of Shutoff 2

To positively verify the condition of shutoff 2, with vent valve still open, close TC 2.

Note: If shutoff 2 is leaking, the gauge will fall to 0.0 psi, but the relief valve will not open. If gauge needle rises, then shutoff 2 is leaking and there is backpressure in the Customers system. If shutoff 2 is leaking, values for the RV and both check valves are inaccurate. Be prepared to close vent by-pass control valve.

Record the condition of Shutoff Valve 2.

Test 5 – Differential Pressure of Check Valve 1

Open TC 2

Reset gauge to relieve disc compression by opening low bleed valve

Close low bleed valve

Observe gauge

Record reading as the Differential Pressure of Check Valve 1

(Reading must be 5.0 psi or greater)

Test 6 – Differential Pressure of Check Valve 2

Close all TC's – close by-pass/vent valve

Remove by-pass/vent hose from TC 4 (by-pass hose is no longer used)

Move low hose to TC 4 – move high hose to TC 3

Open TC 4, open low bleed valve – Open TC 3, open high bleed valve

Close high bleed valve first, then slowly close low bleed valve

Observe the gauge

Record the reading as the Differential Pressure of Check Valve 2

(Reading must be 1.0 psi or greater)

Final

Close all TC's

Remove all hoses and fittings

Open Customer's hose bib

Open shutoff slowly to restore system supply

Close Customer's hose bib