CALEFFI Hydronic Solutions

www.caleffi.com

FlowShield™ DC
Double check backflow prevention assembly

3049 Series

1015 B64.5 LOW LEAD

Product Page

Function

The 3049 FlowShield DC is a testable double check backflow prevention assembly. The assembly is designed to prevent the backflow of non-health hazard (pollution) substances into the potable water supply. It features two independently acting check valves in series, providing redundancy in the event of a check failure. The assembly is testable in-line to verify check valve performance and proper operation. If a check valve is found to be failing, the internal components are replaceable. The assembly includes handles that can be installed in different orientations to suit various installation requirements.

The 3049 Series is certified to meet the requirements of ASSE 1015 and CSA B64.5 performance standards. The assembly was tested and certified to the requirements NSF/ANSI/CAN 61 and NSF/ANSI/CAN 372. Meets the “lead free” requirement of Section 1417 of the Safe Drinking Water Act (SDWA). This product has a weighted average lead content of less than 0.25% for its wetted surfaces contacted with consumable water. The assembly is cUPC certified and approved for installation throughout the United States and Canada in accordance with local plumbing codes and regulations.

Product range

3049 Series FlowShield DC	size: ½”, ¾”, 1”, 1 ¼”, 1 ½”, 2” NPT female

Certifications and Compliances

1) Listed and certified by ASSE to Standard 1015.
2) Listed and certified by CSA to Standard B64.5.
3) NSF/ANSI/CAN 61 compliant, certified by ICC-ES.
4) NSF/ANSI/CAN 372 compliant, certified by ICC-ES.
5) US and Canadian plumbing code compliant, certified by IAPMO.

SAFETY INSTRUCTION / *CONSIGNE DE SÉCURITÉ*

This safety alert symbol will be used in this manual to draw attention to safety related **instructions. When used, the safety alert symbol means ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED! FAILURE TO FOLLOW THESE INSTRUCTIONS MAY RESULT IN A SAFETY HAZARD**.

Ce symbole d'avertissement servira dans ce manuel à attirer l'attention sur la sécurité concernant instructions. Lorsqu'il est utilisé, ce symbole signifie ***ATTENTION ! DEVENEZ ALERTE ! VOTRE SÉCURITÉ EST EN JEU ! NE PAS SUIVRE CES INSTRUCTIONS PEUT PROVOQUER UN RISQUE DE SECURITE***.

WARNING: This product can expose you to chemicals including lead, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more nformation go to www.P65Warnings.ca.gov.

AVERTISSEMENT: Ce produit peut vous exposer à des produits chimiques comme le plomb, qui est connu dans l'État de Californie pour causer le cancer, dommages à la naissance ou autre. Pour plus d'informations rendez-vous www.P65Warnings.ca.gov.

WARNING: Caleffi shall not be liable for damages resulting from stress corrosion, misapplication or misuse of it's products.

AVERTISSEMENT: Caleffi ne sera pas responsable des dommages résultant de la corrosion sous tension, d'une mauvaise application ou d'une mauvaise utilisation de ses produits.

CAUTION: All work must be performed by qualified personnel trained in the proper application, installation, and maintenance of systems in accordance with all applicable codes and ordinances.

ATTENTION: Tous les travaux doivent être effectués par du personnel qualifié formé à la bonne application, installation et maintenance des systèmes conformément aux codes et règlements locaux.

CAUTION: If the backflow preventer is not installed, commissioned and maintained properly, according to the instructions contained in this manual, it may not operate correctly and may endanger the user.

ATTENTION: Si Disconnecteur n'est pas installé, mis en service et entretenu correctement, selon les instructions contenues dans ce manuel, il peut ne pas fonctionner correctement et peut mettre en danger l'utilisateur.

CAUTION: Make sure that all the connecting pipework is water tight.

ATTENTION: S'assurer que tous les raccordements sont étanches.

CAUTION: When making the water connections, make sure that the backflow preventer connecting pipework is not mechanically over-stressed. Over time this could cause breakages, with consequent water losses which, in turn, could cause harm to property and/or people.

ATTENTION: Lorsque vous effectuez les raccordements d'eau, assurez-vous que la tuyauterie reliant disconnecteur n'est pas mécaniquement des overstressed. Au fil du temps, ceci pourrait causer des ruptures, avec pour conséquence des pertes en eau qui, à leur tour, peuvent causer des dommages à la propriété et/ou les gens.

CAUTION: Water temperatures higher than 100 °F can be dangerous. During the installation, commissioning and maintenance of the backflow preventer, take the necessary precautions to ensure that such temperatures do not endanger people.

ATTENTION: Les températures de l'eau supérieure à 100 °F peut être dangereux. Au cours de l'installation, mise en service et l'entretien de la disconnecteur, prendre les précautions nécessaires afin de s'assurer que de telles températures ne compromettent pas les gens.

CAUTION: In the case of highly aggressive water, arrangements must be made to treat the water before it enters the backflow preventer, in accordance with current legislation. Otherwise the valve may be damaged and will not operate correctly.

ATTENTION: Dans le cas de l'eau fortement agressifs, des dispositions doivent être prises pour traiter l'eau avant qu'elle ne pénètre dans le disconnecteur, conformément à la législation actuelle. Sinon la soupape pourrait être endommagée et ne fonctionnent pas correctement.

WARNING: The outer surface of the device, especially in polymer type components, must not come into contact with any chemical substance, either on purpose or accidentally. The system fluid and any chemical additives used within the water piping system – whether for washing or as protection – must be compatible with the materials used to make the device and with the function it performs.

AVERTISSEMENT: La surface extérieure de l'appareil, en particulier les composants de type polymère, ne doit pas entrer en contact avec des substances chimiques, que ce soit volontairement ou accidentellement. Le produit et les additifs chimiques utilisés dans les canalisations d'eau - que ce soit pour le lavage ou la protection - doivent être compatibles avec les matériaux utilisés pour la fabrication de l'appareil et avec la fonction qu'il remplit.

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Technical specifications

Materials

Body:	dezincification resistant low-lead* brass (EN12165 CW724R)
Access cover:	dezincification resistant low-lead* brass (EN12165 CW724R)
Seals:	peroxide-cured EPDM

Test Cocks

Body:	low-lead* bronze (C89833)
Ball:	stainless steel (AISI 304)
Bonnet and ball stem:	low-lead* brass (C46500)
Seals:	PTFE and NBR

Shut-off valves

Body:	dezincification resistant low-lead* brass (EN12165 CW724R)
Ball:	dezincification resistant low-lead* brass (EN12165 CW724R), chrome plated
Handle:	Aluminum

Check valves

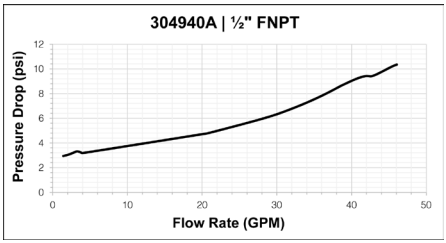
Body & Obturator:	size ½", ¾", 1": glass-reinforced thermoplastic (PPO / GF) size 1 ¼", 1 ½", 2": POM
Seals:	peroxide cured EPDM
Springs:	stainless steel (AISI 302)

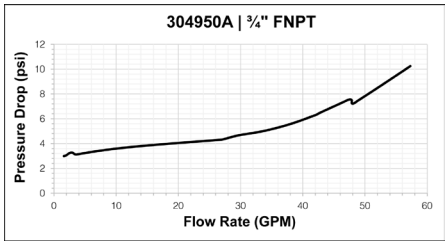
* Meets the “lead free” requirement of Section 1417 of the Safe Drinking Water Act (SDWA). This product has a weighted average lead content of less than 0.25% for its wetted surfaces contacted with consumable water.

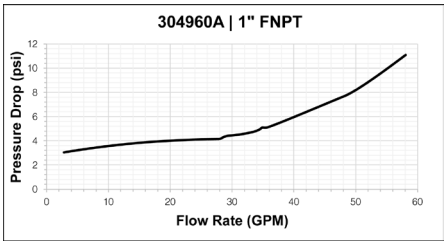
Performance

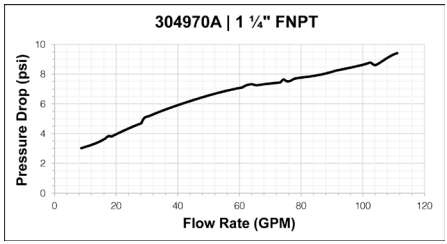
Suitable fluids:	potable water
Maximum working pressure:	175 psi (12 bar)
Maximum working temperature:	150 °F (65 °C)

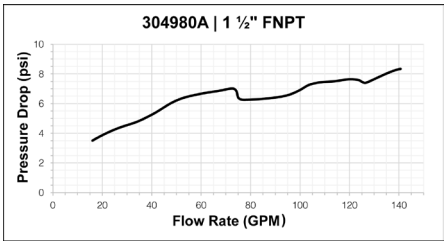
Hydraulic characteristics

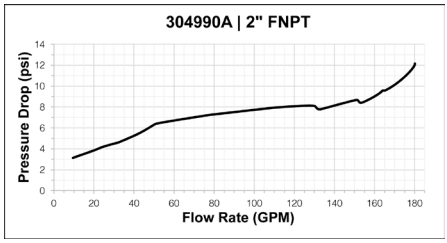




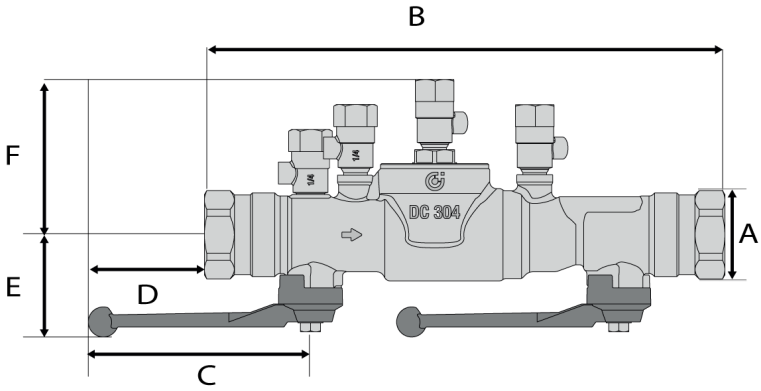








Dimensions



Code	A	B	C	D	E	F	Weight
304940A	½" FNPT	9 1/16"	4 3/8"	2 7/8"	2"	3 1/16"	3.8
304950A	¾" FNPT	9 1/16"	4 3/8"	2 7/8"	2"	3 1/16"	3.7
304960A	1" FNPT	10 1/4"	4 3/8"	2 1/4"	2"	3 1/16"	4
304970A	1 1/4" FNPT	13 3/8"	5 7/8"	3 3/4"	3 1/8"	3 1/2"	12.3
304980A	1 1/2" FNPT	13 3/8"	5 7/8"	3 3/4"	3 1/8"	3 1/2"	12.2
304990A	2" FNPT	14 1/8"	5 7/8"	3 3/8"	3 1/8"	3 1/2"	12.6

Installation instructions:

The installation of the 3049 series FlowShield DC should only be carried out by qualified personnel in accordance with local codes and regulations.

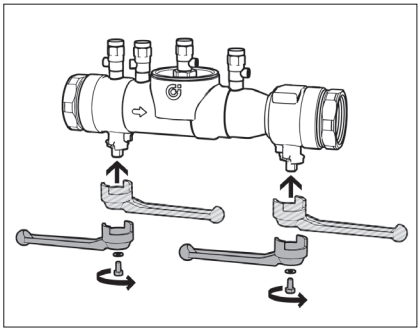
The 3049 series is approved for horizontal installations only.

Before Installation:

1) Verify that the valve is appropriate for the degree of hazard present and meets the hazard protection requirements established by the local authority having jurisdiction.
2) Verify that system pressure, temperature, and flow conditions are within the specifications of the double check valve assembly.
3) Ensure the assembly will be installed in an accessible location suitable for future testing, maintenance, and service.
4) Flush the piping system thoroughly to remove sediment or debris that may interfere with valve operation.
5) Consult local codes and regulations to confirm that minimum clearance requirements are met at the installation location.
6) This assembly is intended for indoor use only. For outdoor installations, the device must be protected from freezing conditions and direct exposure to the elements.

Installing shut-off valve handles:

The 3049 FlowShield DC includes two shutoff valve handles that can be mounted in either orientation to accommodate the flow direction or improve assembly access. Handles, nuts, and screws are packaged separately in the box. Refer to the diagram below for installation instructions. The stem of the shut-off valve fits into the handle to assist with installation.



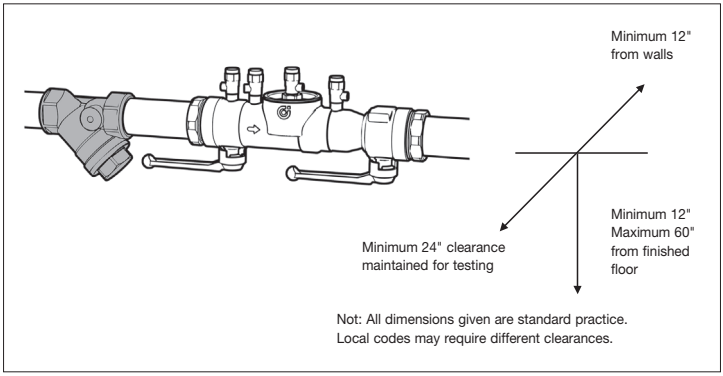
Installation recommendations:

1) Install the assembly in accordance with the flow direction arrow marked on the valve body.
2) A strainer may be installed upstream of the assembly to protect internal components from debris.
3) For applications where continuous service is required, install two assemblies in a parallel configuration to allow shut-off and maintenance of either device without system interruption.

Bringing the device into service:

1) Slowly pressurize the assembly by gradually opening the upstream shut-off valve.
2) Once the assembly is fully pressurized, open the downstream shut-off valve to restore water service to the now protected system.
3) Test the assembly according to the procedure outlined in this instruction sheet or as required by the local authority having jurisdiction.
4) If the assembly fails the test, proceed to the maintenance section of this instruction for corrective action.

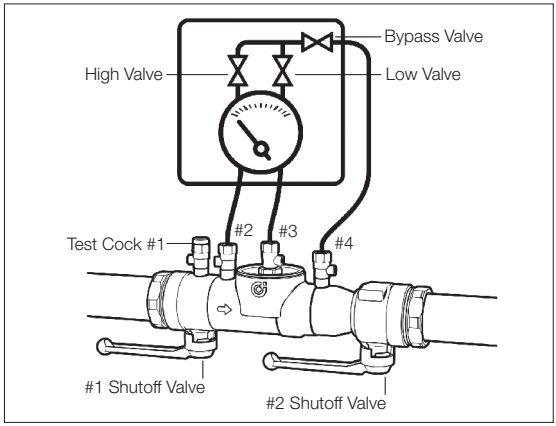
Installation diagram



Testing Procedure, using 3 valve test gauge kit

Equipment required:

1) Differential pressure field test kit, gauge with a minimum 0-15 PSID range
2) Including:
   a) ¼" flare connections
   b) ¼" flare hoses
   c) ¼" MNPT x ¼" SAE flare fittings to screw into test cocks



1) Install ¼" MNPT x ¼" SAE flare adapters into test cocks #2, #3, and #4.
2) Flush all test cocks, starting with #4. With #4 trickling, open and close test cock #1, then test cock #2, then test cock #3, and then close test cock #4.

Attach the test kit:

Note: It is critical that the centerline of the test gauge is in line with the centerline of the assembly while testing, or the readings could be falsely high or low!

1) Close the high and low valves on the test gauge. Open the bypass valve.
2) Attach the high side hose from the gauge to test cock #2.
3) Attach the low side hose from the gauge to test cock #3.
4) Open test cock #2. Open the high side valve on the gauge, then close once all air has been bled.
5) Open test cock #3. Open the low side valve on the gauge, then close once all air has been bled.
6) Attach the bypass hose to test cock #4. Open the low valve on the test gauge.
7) Loosen the bypass hose at test cock #4, bleed all air, then tighten.
8) Close low valve on the gauge.
9) Open the high valve on the gauge.

Test #1: Testing the tightness of #2 shutoff valve

1) Slowly close #2 shutoff valve, to avoid water hammer.
2) Open test cock #4.
3) Close test cock #2. Pause to allow gauge to stabilize.
4) If differential gauge remains steady, record #2 shutoff as tight.

Test #2: Testing the tightness of check valve #1

1) Close test cock #4.
2) Close high side valve.
3) Remove bypass hose from test cock #4.
4) Open test cock #2.
5) Open low side valve, causing differential gauge reading to rise, then close.
6) Record gauge value. If differential gauge reading holds steady at 1 PSID or above, record check valve #1 as tight.

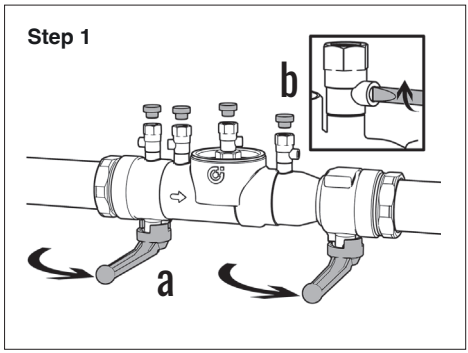
Test #3: Testing the tightness of check valve #2

1) Close test cock #2 and #3.
2) Remove the high and low hoses from the assembly.
3) Attach the high side hose to test cock #3.
4) Attach the low side hose to test cock #4.
5) Open test cock #3. Open high side valve, then close once air has been bled.
6) Open test cock #4. Open low side valve, then close once air has been bled.
7) Record the gauge value. If the reading is above 1 PSID, record #2 check as tight.

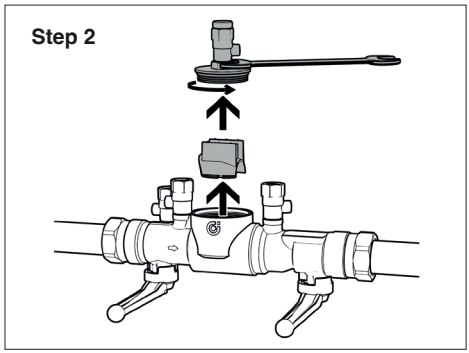
If either check valve #1 or #2 test gives a PSID result below 1 PSID, this indicates a failure. The faulty check must be inspected, serviced, or replaced. All tests must be run again after any modifications to the assembly, until a passing test is performed.

<u>Restore the system:</u>

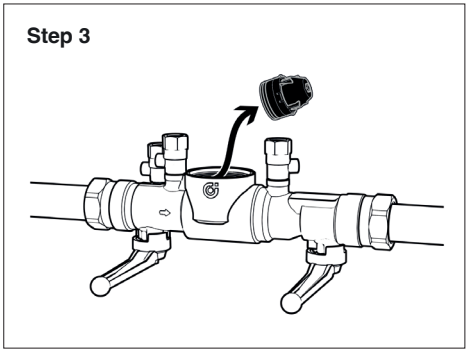
1) Close all test cocks.
2) Remove all hoses.
3) Open all valves on test kit, to drain water.
4) Open shutoff #2 to resume service to the system.



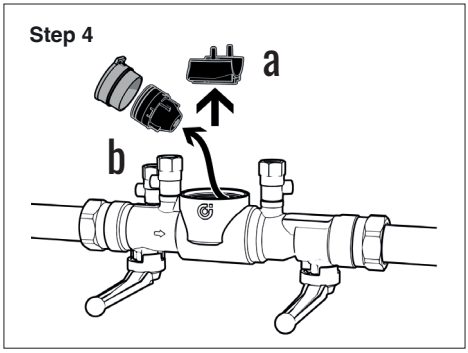
a. Turn shutoff valves to isolate the assembly.
b. After removing the plugs, open test cocks #2, #3, #4 to relieve assembly pressure.



Remove the access cover with an adjustable wrench and remove the top plastic spacer.



Remove check valve #1, using appropriate pliers.



a. Remove bottom plastic spacer.
b. Remove check valve #2 using appropriate pliers.
Note: for 1 ¼" and larger models, check valve #2 retaining adapter is not removable.

Step 5

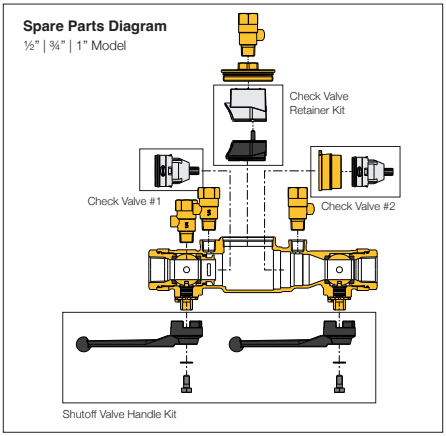
Inspect the internal components for damage and replace if necessary.

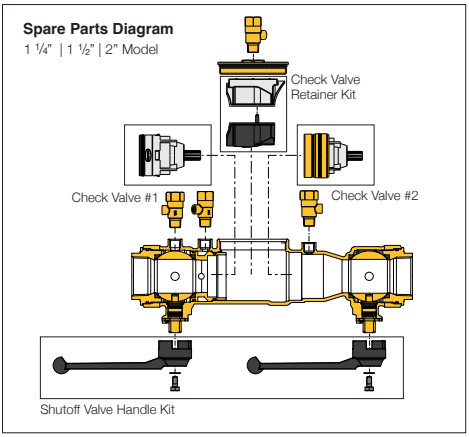
To reassemble the device, repeat the disassembly procedure in reverse order. inserting the internal components in this order: check valve #2, bottom plastic spacer, check valve #1, top plastic spacer.

When inserting check valve #2, ensure that the o-ring is positioned properly on the check valve retaining adapter.

When inserting the plastic spacers, ensure that the flow direction arrows on the components match the flow direction of the assembly.

Reattach the access cover, close test cocks #2, #3, #4 and open shutoff valves to bring the assembly back into service.





Spare parts list

Model	Size	Complete Rebuild Kit	Check Valve #1	Check Valve #2	Check Valve Retainer Kit	Shutoff Valve Handle Kit	Test Cock
304940A	½" FNPT	NA11630	F0002563	F0002564	F0002565	F0002566	F0001901
304950A	¾" FNPT	NA11630	F0002563	F0002564	F0002565	F0002566	F0001901
304960A	1" FNPT	NA11630	F0002563	F0002564	F0002565	F0002566	F0001901
304970A	1¼" FNPT	NA11633	F0002571	F0002570	F0002569	F0002568	F0001901
304980A	1½" FNPT	NA11633	F0002571	F0002570	F0002569	F0002568	F0001901
304990A	2" FNPT	NA11633	F0002571	F0002570	F0002569	F0002568	F0001901

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Laissez ce manuel à la disposition de l'utilisateur.

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