

Double Check Valve Medium Hazard Backflow Prevention Device

3049 series

Installation, commissioning and servicing instructions



General

The double check valve should be used on medium hazard risk areas to prevent contaminated water from flowing back into the mains supply. The backflow preventer is installed between the mains supply and the first outlet, as close to the meter as possible at the property boundary, creating a safety zone which prevents the water within the property from coming into contact with the mains supply.

This valve is approved to AS/NZS 2845.1



Australian
Standard

AS2845.1 LIC. 1764
Standards Australia

Product Range

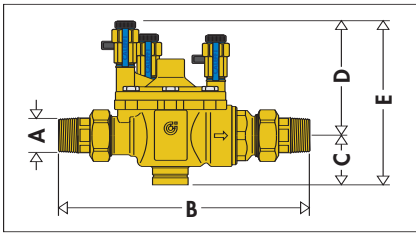
Item code 304950:

size 3/4"

Technical specifications

Materials:- body and cover:	- dezincification resistant alloy CR	EN 12165 CW602N
	- check valve stem and springs	stainless steel
	- diaphragm and seals:	NBR
	- O-ring seals:	EPDM
Medium:		drinking water
Nominal pressure:		PN 10
Maximum working temperature:		65°C
Pressure tapping points:		upstream, intermediate, downstream
Connections:		3/4" M with union

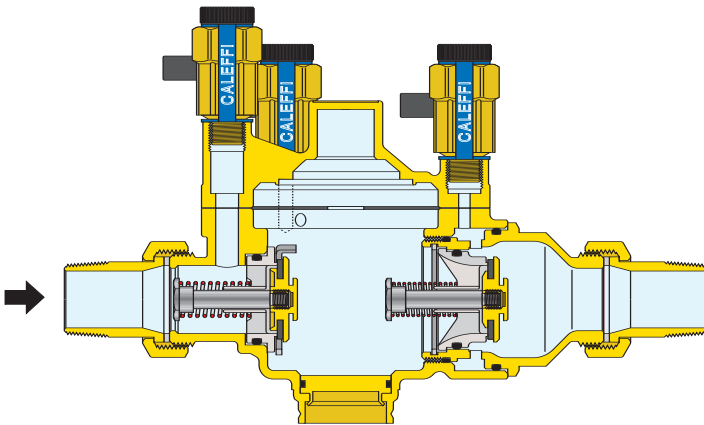
Dimensions



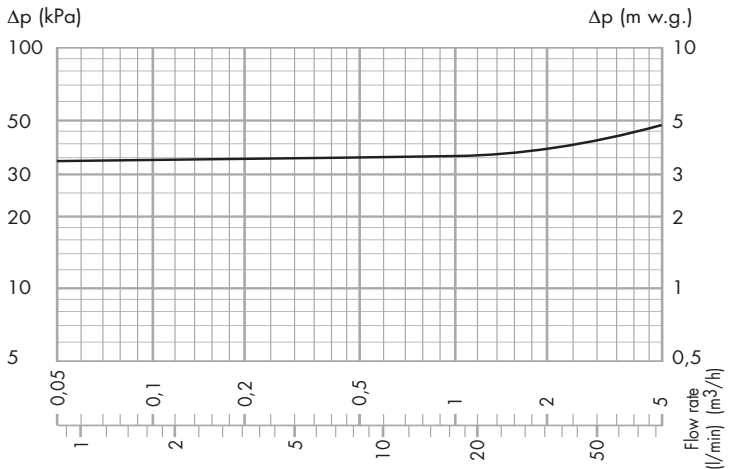
Code	A	B	C	D	E
304950	3/4"	226,5	44,5	103	147,5

Operation

The double check valve consists of two independently acting spring-loaded check valves. During normal operating conditions, the two check valves are in the open position, supplying water downstream. Each check is designed to maintain a minimum of 7 kPa across the valve during normal operation. If the downstream pressure increases above the supply pressure, or there is a reduction in the supply pressure, then both checks will close to prevent backflow.



Flow curve



Installation

The installation of backflow preventers should only be carried out by qualified personnel and in accordance with current legislation.

The double check valve is installed after an upstream isolation valve and a strainer, as well as an isolation valve downstream of the valve.

Note: strainers are not installed on fire services. Check with local authorities.

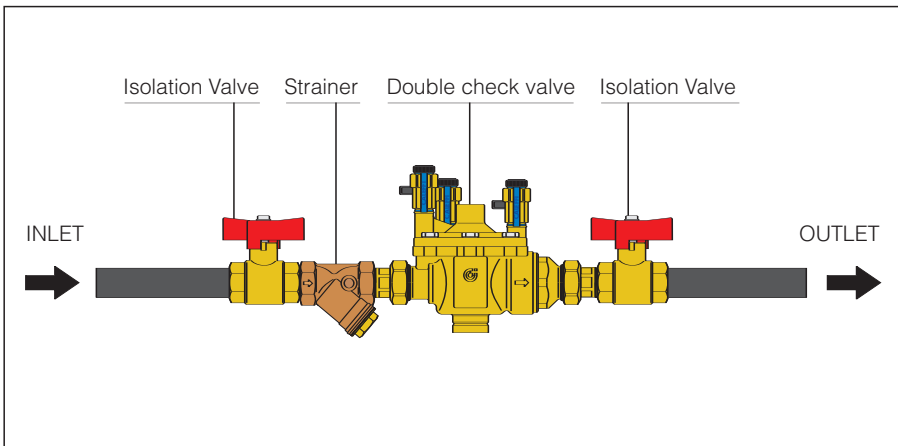
Choose an accessible location for installation. The device can be installed in a horizontal or vertical position (flow up), and paying attention to the direction of flow.

Installation in a pit requires adequate clearances, drainage and other considerations for future maintenance.

If the device is installed in frost prone areas, make sure proper measures are taken to ensure the backflow assembly is enclosed to avoid freezing conditions.

Provision should be made to minimise water hammer and excessive pressure. If required, install a Caleffi pressure reducing valve upstream of the double check valve to make certain pressure does not exceed the valves' maximum pressure rating.

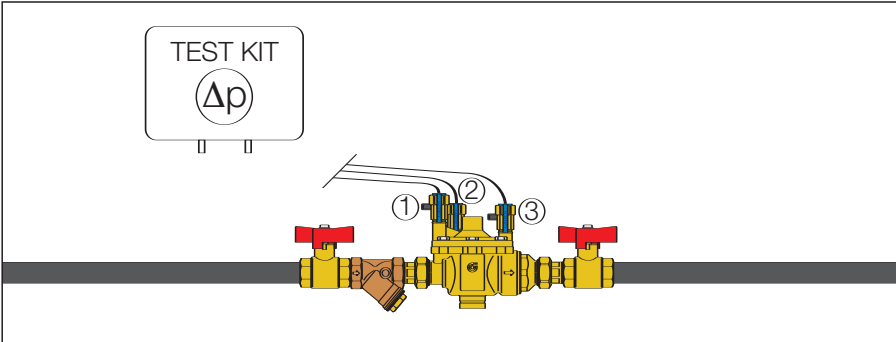
All pipework should be thoroughly flushed to remove foreign matter prior to installation.



Maintenance

The double check valve is a device which ensures the safety of domestic water supplies and it must be inspected periodically. If the device experiences inadequate test readings, it is often associated with a build-up of foreign particles or debris on the seat of one of the check valves. Also, inspect for damage on the sealing lip on the seat as a deep scratch or dent can affect the sealing ability of the valve and check readings.

Test procedure



All valves must be open or close slowly to avoid any water hammer damaging the connected equipments.

- 1) Connect the pressure taps of the device to pressure measuring instrument in such a way to be able to measure the Δp across the check valves
- 2) Close the downstream isolation valves
- 3) *Test of the first check valve*
Connect taps 1 and 2
Open the connected test taps and purge any air using the test kit. Leave the pressure to stabilise and read the differential pressure across the check valve.
If higher than 7 kPa, the valve is close tight, if less than 7 kPa, the valve is leaking and must be serviced.
- 4) *Test of the second check valve*
Connect taps 2 and 3
Open the connected test taps and purge any air using the test kit. Leave the pressure to stabilise and read the differential pressure across the check valve.
If higher than 7 kPa, the valve is close tight, if less than 7 kPa, the valve is leaking and must be serviced.
- 5) *Test of the downstream isolation valve*
Close the upstream isolation valve. With taps 1 and 2 closed, open tap 3 and verify if there is continuous flow from it. If yes, the valve is leaking and it is to be serviced because it can impair all tests.
- 6) Close all taps, disconnect the test kit and re-open the isolation valves. This restores the device to operating conditions.

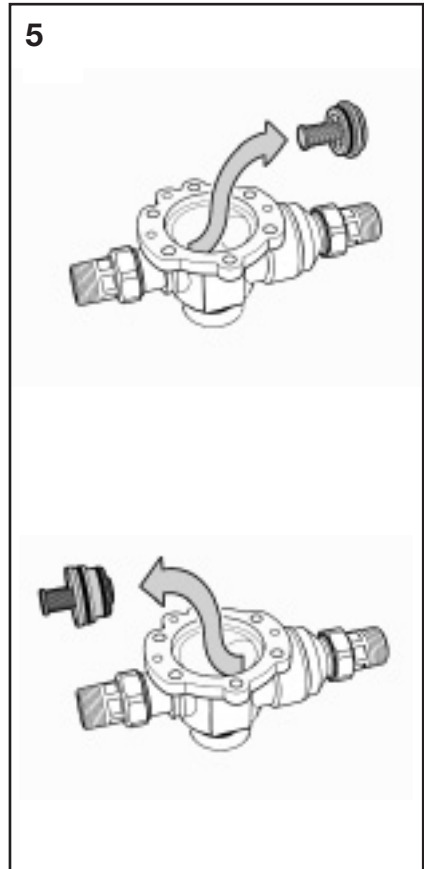
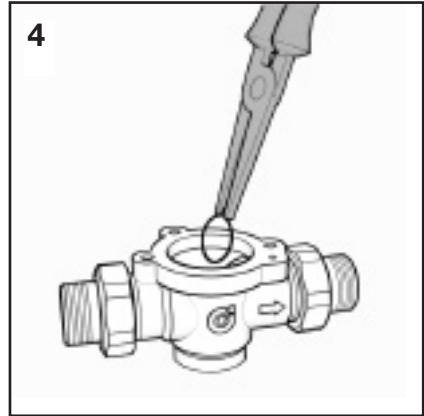
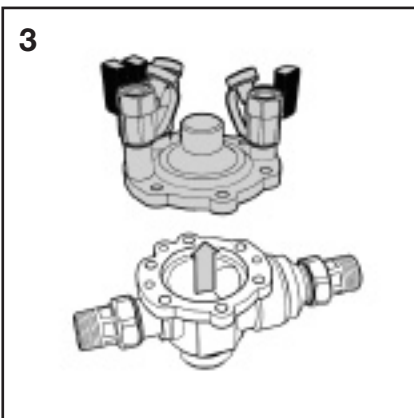
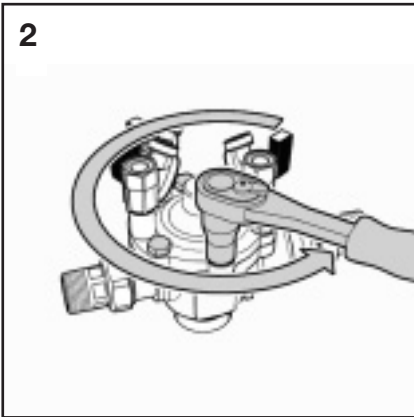
Trouble shooting guide

<i>Symptom: Check valve not holding tight (reading approaches zero without holding)</i>	
Cause	Remedy
1. Debris fouling the check valve seal	Inspect, clean or replace check
2. Check seal damaged or perished	Inspect and replace check
3. Check seal plate o-ring damaged	Inspect and replace o-ring
<i>Symptom: Check valve holding below 7 kPa</i>	
Cause	Remedy
1. Debris fouling the check valve seal	Inspect, clean or replace check
2. Check seal damaged	Inspect and replace check
3. Check valve spring memory loss/damaged	Replace check valve assembly

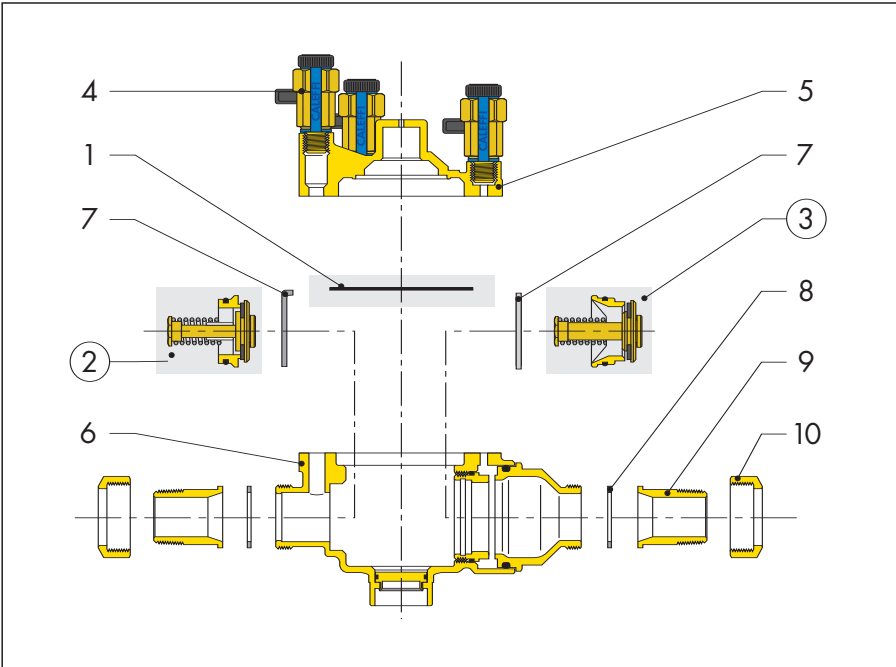
Inspection/Disassembly procedure

1. Slowly close isolation valves and open test caps to exhaust line pressure.
2. Remove cover bolts
3. Remove cover plate and diaphragm.
4. Squeeze together and pull out check assembly clip.
5. Remove check assembly through the top of the valve.
6. Fit new check assembly.

NOTE: ensure check valves are correctly returned to their original location. (2nd check valve assembly has the longer body). Lubricate all o-rings and ensure that check valve seal is free of grease and debris for positive seal.



Exploded diagram / Spare parts



- | | |
|--|----------------------------|
| 1. Diaphragm | 5. Inspection cover |
| 2. Upstream check valve
(code xxxxx) | 6. Body |
| 3. Downstream check valve
(code xxxxx) | 7. Split ring |
| 4. Test cock | 8. Gasket |
| | 9. Tailpiece |
| | 10. Nut |

Inspection equipment

The equipment for periodical inspections on the backflow valves includes:

Upstream pressure gauge
Downstream pressure gauge
Differential pressure gauge

The equipment includes the flexible hoses and fittings required as well as various accessories which can be used for dismantling the valves. This equipment is supplied in an appropriate tool case.





Safety

The backflow prevention device must be installed by a licensed plumber in accordance with regulations and relevant local authorities.

If the double check valve 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.

Make sure that all the connecting pipework is water tight.

When making the water connections, make sure that the valve assembly is not mechanically overstressed. Over time this could cause breakages, with consequent water losses which, in turn, could cause harm to property and/or people.

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

Leave this operating manual with the user

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