



## VALVCHEQ BACKFLOW PREVENTERS

FIGURE SC03

Testable single check valve for low hazard rated applications  
Flanged and roll grooved connections



### FEATURES

- Short body length to allow the replacement of conventional non-testable check valves.
- Supplied with lifting lugs to assist with installation.
- Compact simple design.
- In-line and on-site serviceable.
- No special tools required for servicing.
- Designed and manufactured in accordance with requirements of AS/NZS 2845.1.
- FBE coated to AS/NZS 4158.
- Straight through flow path for maximum flow co-efficient.
- Top entry allows all parts to be accessed easily.
- Stainless steel internals for superior corrosion resistance.
- Fully restrained check valve assemblies for unrivalled safety.
- Each valve is factory bench tested and tracked with unique serial number.
- All internal components are repairable or replaceable.
- All internal and external bolting is stainless steel.
- Installations can be vertical and horizontal.
- Conforms to the testing requirements of AS/NZS 2845.3.
- Anti-tamper test taps provided as standard.
- Assembly can be supplied with lockable isolating valves.

### GENERAL APPLICATION

The SC03 provides low hazard protection from both backsiphonage and backpressure of the potable water supply in fire system applications.

### TECHNICAL DATA

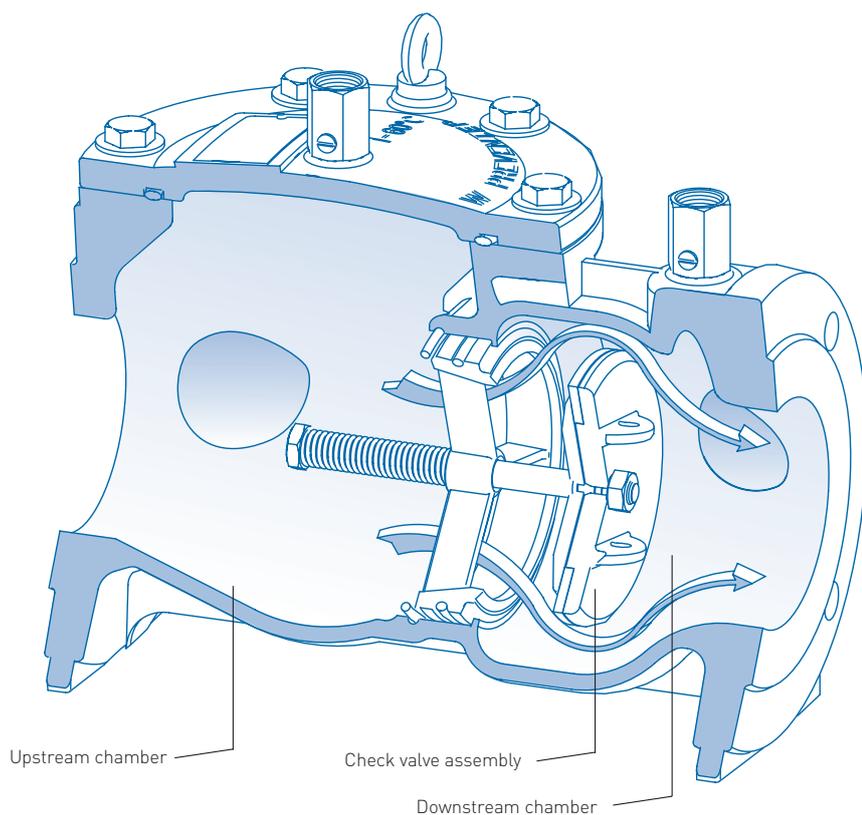
Size range: DN 80 - 150  
Temperature rating: 1°C to 60°C  
Working pressure: PN16  
End connections: Flanged AS 4087  
Flanged AS 2129  
Roll grooved AS 2638  
Alternative flange drillings may be available on request



AS/NZS 2845.1 Lic WMKA 1324  
SAI Global

# VALVCEO BACKFLOW PREVENTERS

FIGURE SC03



## PRINCIPLE OF OPERATION

### Under dynamic flow conditions

Pressure builds up in the upstream chamber before the check valve assembly. When pressure is sufficient (minimum of 7 kPa) check valve assembly will open allowing flow into the system pipe work.

### Under backpressure conditions

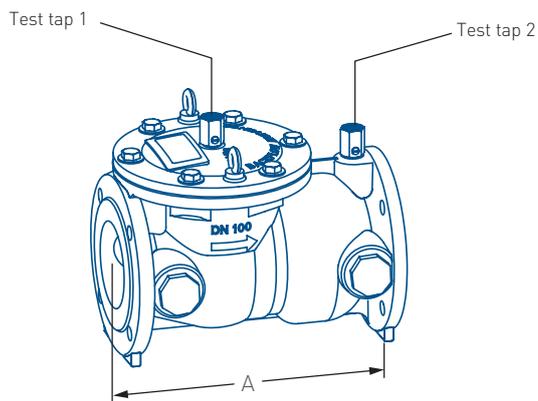
(Premises pressure is greater than supply pressure)  
Water pressure in system pipe work and spring pressure force the check valve assembly closed.

### Under backsiphonage conditions

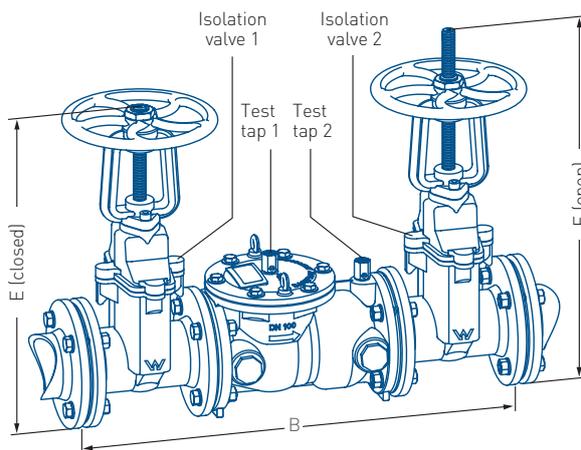
(Negative supply pressure in mains supply)  
Water pressure in the upstream chamber before the check valve assembly will dissipate and the check valve assembly will close under spring pressure.

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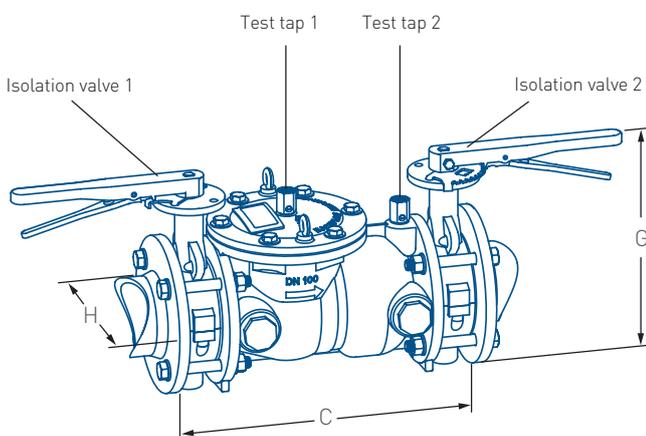
FIGURE SC03



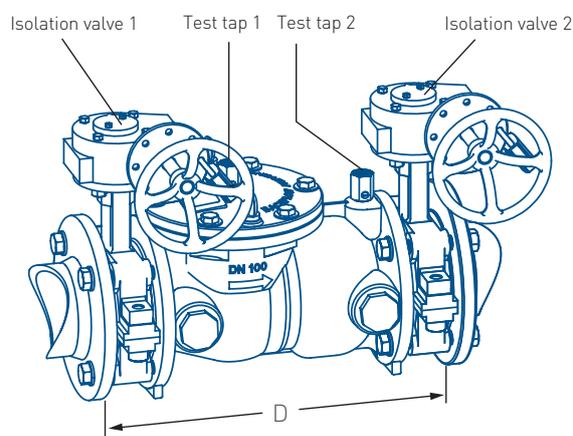
**Note:** valve only (VO) illustrated.



**Note:** resilient seated gate (RSGV) valve arrangement illustrated.



**Note:** butterfly valve (BFV) arrangement illustrated.



**Note:** gear op butterfly (G/OP) arrangement illustrated.

## DIMENSIONS (mm)

Valve size				Mass (kg)			
DN	A	B	C/D	VO	RSGV	BFV	G/OP
80	400	815	492	19	84	31	42
100	420	885	525	31	115	50	60
150	500	1040	612	68	178	92	103

## NOTE

Dimensions are nominal to  $\pm 1$  mm

Butterfly valve actuators change from handles to gear operators on valve sizes DN 150 and above.

Gear operation actuators available on request for butterfly valve arrangement.

Lockable actuators available on request.

VO = Mass of valve only.

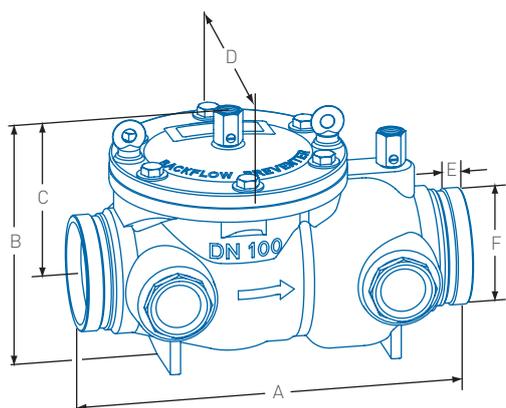
RSGV = Mass of complete arrangement with resilient seated gate valves.

BFV = Mass of complete arrangement with butterfly valves.

G/OP = Mass of complete arrangement with gear actuated butterfly valves.

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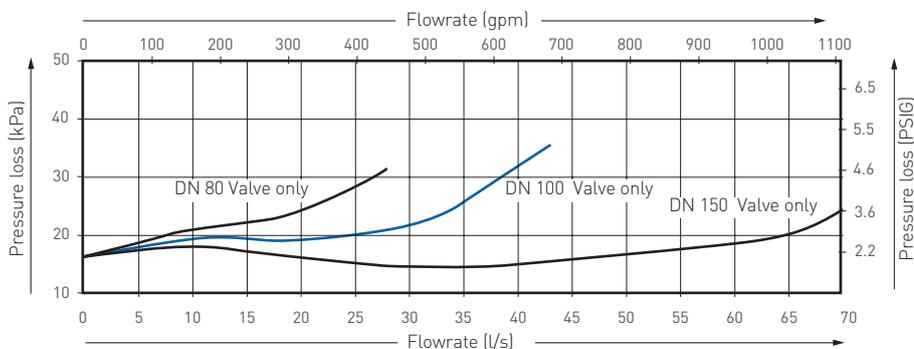
**Note:** valve only (VO) illustrated.

## DIMENSIONS (mm)

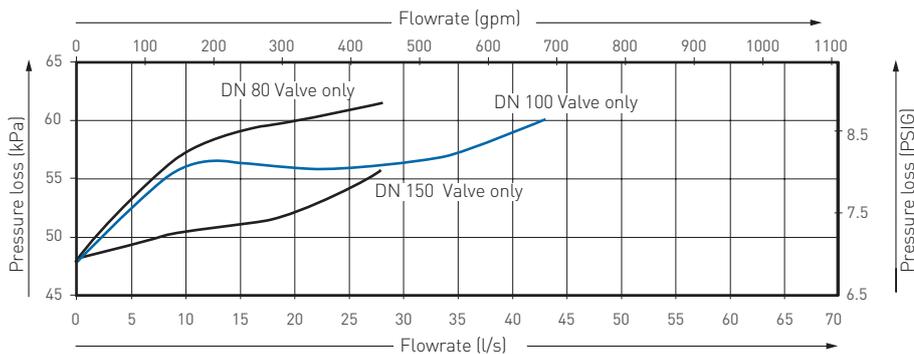
Valve size							Mass
DN	A	B	C	D	E	F	(kg)
100	380	252	165	230	15.9	114.3	23
150	450	350	220	300	15.9	168.3	46

## TYPICAL FLOW CHARACTERISTIC GRAPHS

### 16 kPa standard spring configuration DN 80 - 100 - 150



### 50 kPa optional spring configuration DN 80 - 100 - 150



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## FIGURE SC03

### SELECTION GUIDE

Example:	100	SC03	C	FS	BF
<b>Valve size (DN)</b>					
<b>Figure no.</b>					
<b>End connections</b>					
<b>C</b>	Flanged AS 4087				
<b>E</b>	Flanged AS 2129				
<b>R/G</b>	Roll grooved AS 2638				
	Alternative flange drillings may be available on request				
<b>Assembly</b>					
<b>VO</b>	Valve only				
<b>FS</b>	Fire service (supplied without strainer)				
<b>Isolation</b>					
<b>BF</b>	Butterfly valves				
<b>BF G/Op</b>	Butterfly valves gear actuated				
<b>BF G/Op L</b>	Butterfly valves gear actuated lockable				
<b>RSGV</b>	Resilient seating gate valves				

### NOTE

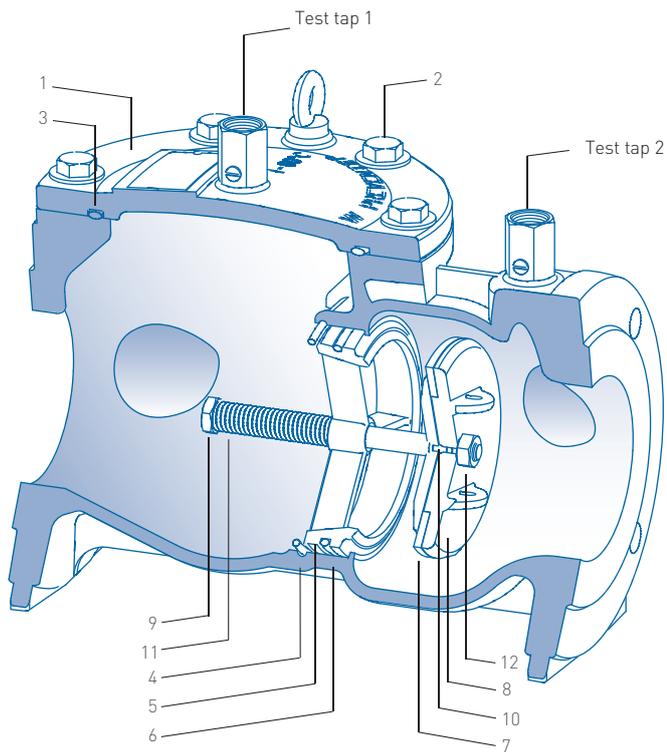
All Emerson isolation valves come with the provision for locking.

### TROUBLESHOOTING GUIDE

Symptom	Cause	Remedy
First check valve not holding tight (reading approaches zero without holding)	<ol style="list-style-type: none"> <li>1. Debris fouling the check valve seal</li> <li>2. Check valve seal damaged or perished</li> <li>3. Check valve O-ring damaged</li> <li>4. Check valve stem O-ring damaged</li> <li>5. Check valve seal ring damaged</li> </ol>	<ol style="list-style-type: none"> <li>1. Inspect, clean, reverse or replace check seal</li> <li>2. Inspect and replace check valve seal</li> <li>3. Inspect and replace O-ring</li> <li>4. Inspect and replace O-ring</li> <li>5. Replace first check valve assembly</li> </ol>
Check valve holding below 7 kPa	<ol style="list-style-type: none"> <li>1. Debris fouling the check valve seal</li> <li>2. Check valve seal damaged</li> <li>3. Check valve spring memory loss or damaged</li> <li>4. Check valve stem O-ring damaged</li> </ol>	<ol style="list-style-type: none"> <li>1. Inspect, clean, reverse or replace check seal</li> <li>2. Inspect and replace check valve seal</li> <li>3. Replace first check valve assembly</li> <li>4. Check valve stem O-ring damaged</li> </ol>

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FIGURE SC03



## PARTS LIST

No.	Description
1	Cover plate
2	Cover plate bolts
3	Cover plate O-ring
4	Check valve circlip
5	Check valve seal ring
6	Check valve O-ring
7	Check valve seal
8	Check valve disc
9	Check valve stem
10	Check valve stem O-ring
11	Check valve spring
12	Check valve retaining nut

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### Complete safety and maintenance instructions for testable single check valve

#### MAINTENANCE AND TESTING REQUIREMENTS

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Test after initial installation and annually for the life of the valve or service. Maintain in a working order and inspect for operational function at intervals not exceeding twelve months. The functions are to be carried out by authorized licensed backflow testers.

#### DISASSEMBLY INSTRUCTIONS

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As described in the safety precautions, slowly close isolation valves and the open test taps 1 and 2 to exhaust line pressure. Remove cover plate bolts (2) and washers. Remove cover plate (1) and cover plate O-ring (3). With a screwdriver remove check valve assembly circlip (4) utilizing cavity recess in the body casting.

#### NOTE

Please take care and do not chip FBE coating with screwdriver.

To remove check valve assembly pull check valve stem/spring (9 and 11) out and then upwards through the top entry of the valve.

Check valve assembly, please use the following steps to access check valve seal (7). Using two spanners, fit one spanner to the check valve stem head (9) and the other to the check valve retaining nut (12), turn check valve retaining nut anti-clockwise and remove.

Remove check valve disc (8), to expose the check valve seal (7) for servicing or replacement.

#### NOTE

When reassembling:

- Clean and lubricate all O-rings.
- Check valve seal (7) must be clean, free of any greases, moisture and debris to ensure a positive seal.

#### SAFETY PRECAUTIONS

*In every instance of installation or removal from the pipeline, ensure the line is not pressurized and any hazardous liquid is drained away. Slowly close both isolating valves and then open test taps 1 and 2 to exhaust line pressure.*

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### FIGURE SC03

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#### Recommended specifications for testable single check valve



- Main valve shall be manufactured in accordance with AS/NZS 2845.1.
- Main valve shall be constructed from ductile iron and FBE coated to AS/NZS 4158.
- All internals shall be constructed from stainless steel and to have a pressure rating of PN16 and a temperature rating of 60°C.
- Main valve body shall not form part of the wetted check valve sealing area or mechanism.
- All internal components and elastomer seals shall be accessible through a top entry point of the main valve to allow inline maintenance.
- Valve test points shall also be fitted with BSPT threads to allow testing to AS/NZS 2845.3.
- Main valve to have flanged connections in accordance with AS 4087 or AS 2129 or roll grooved ends to AS 2638.

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