

**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**

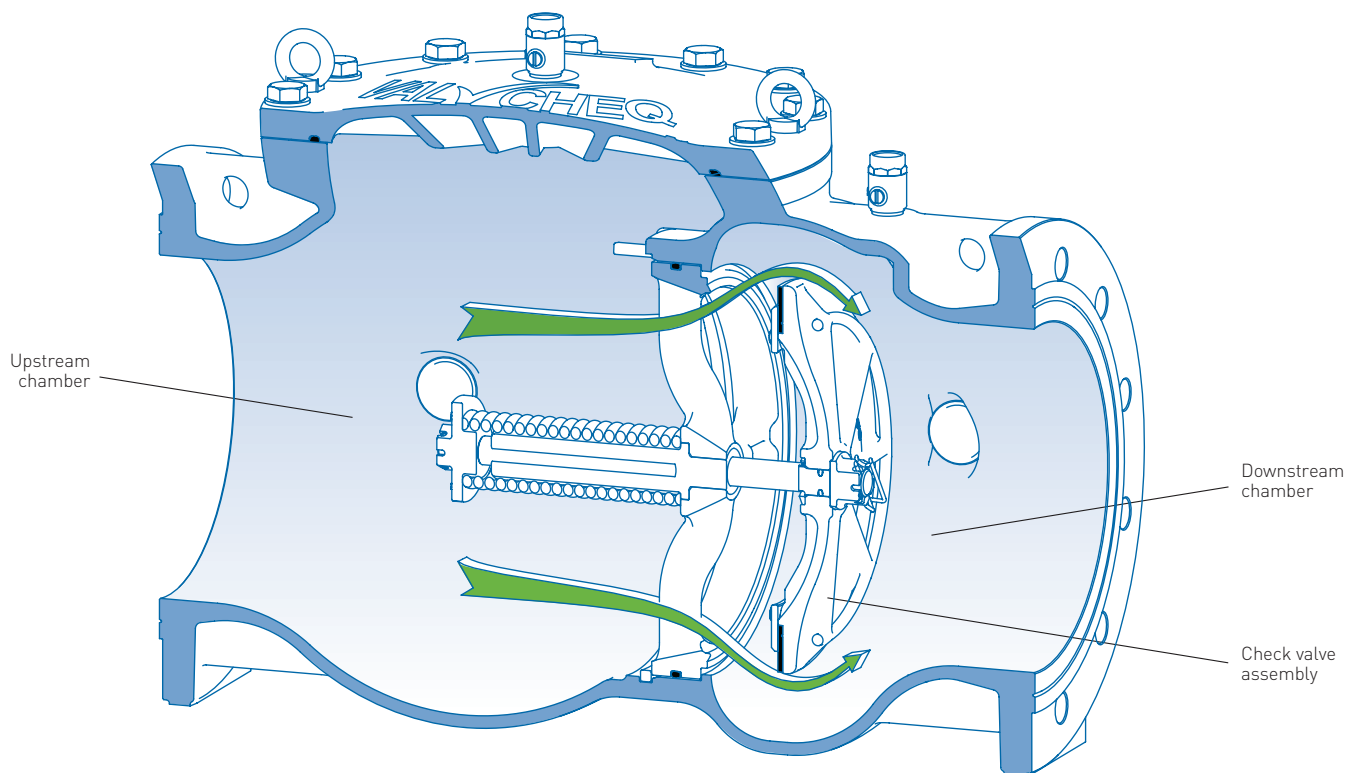
The SC03 provides low hazard protection from both backsiphonage and backpressure of the potable water supply in fire system applications.

**TECHNICAL DATA**

Size range: DN 200 - 300  
 Temperature rating: 1°C to 60°C  
 Working pressure: PN16  
 End connections: Flanged AS 2129  
 Flanged AS 4087  
 Roll grooved AS 2638  
 Alternative flange drillings may be available on request

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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

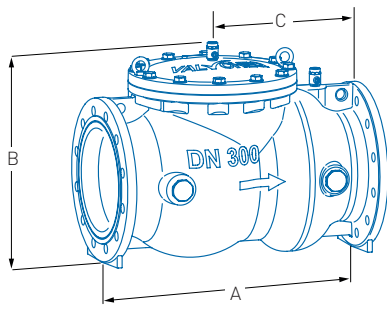
(Premises pressure is greater than supply pressure)  
Water pressure in system pipe work and spring pressure force the check valve assembly closed.

### Under backsiphonage conditions

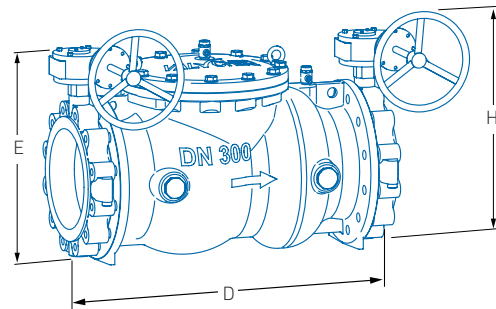
(Negative supply pressure in mains supply)  
Water pressure in the upstream chamber before the check valve assembly will dissipate and the check valve assembly will close under spring pressure.

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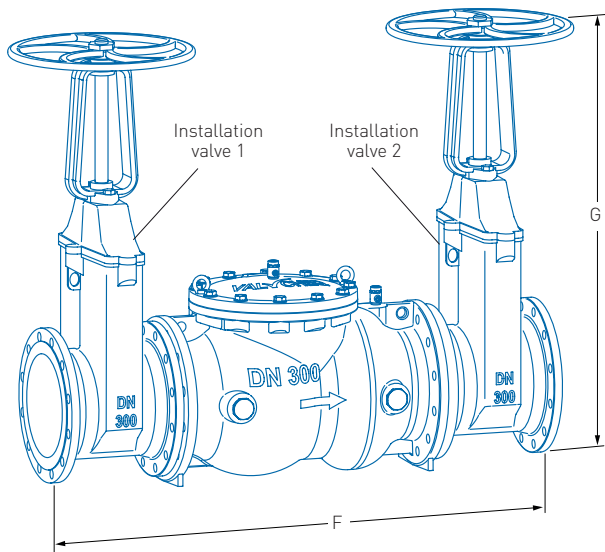
FIGURE SC03



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



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



**Note:** Resilient seated gate (RSVG) valve arrangement illustrated.

## DIMENSIONS (mm)

Valve size											Mass (kg)		
DN	A	B	C	D	E	F	G	H		VO	BFV FS	RSGV FS	
200	615	473	389	735	487	1202	930	637		122	182	42	
250	750	562	454	886	562	1413	1200	712		180	264	57	
300	820	633	513	976	622	1535	1390	772		242	360	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.

Butterfly valve actuators come standard on valve sizes DN 200 - 300.

Lockable actuators available on request.

VO = Mass of valve only.

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

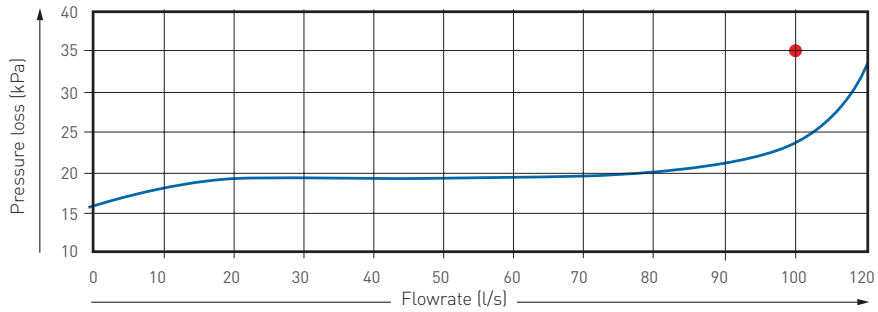
G/OP = Mass of complete arrangement with gear actuated butterfly valves.

# VALVCEQ BACKFLOW PREVENTERS

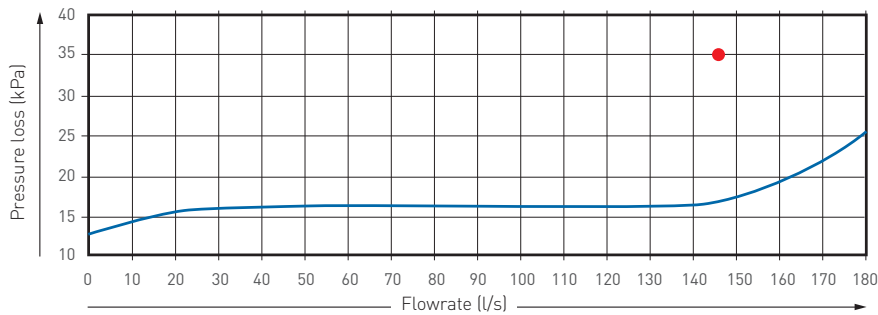
FIGURE SC03

## TYPICAL FLOW CHARACTERISTIC GRAPHS

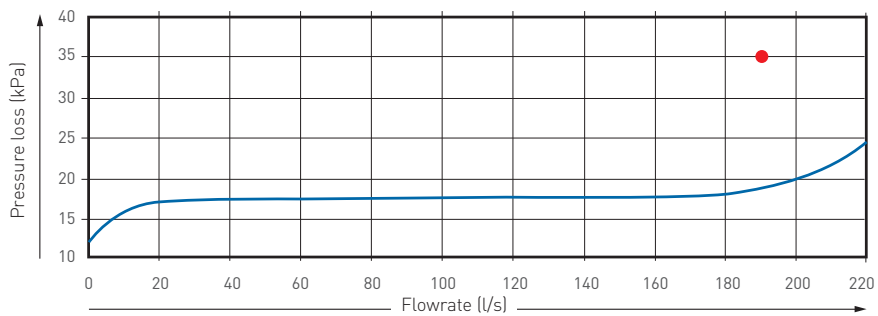
DN 200 SCVT03 Rated flow and pressure loss



DN 250 SCVT03 Rated flow and pressure loss



DN 300 SCVT03 Rated flow and pressure loss



- DN 200 - 300 SC03
- STD AS/NZS 2845.1

# VALVCEQ BACKFLOW PREVENTERS

## FIGURE SC03

### SELECTION GUIDE

Example:	200	SC03	E	FS	BF
<b>Valve size (DN)</b>					
<b>Figure no.</b>					
<b>End connections</b>					
<b>E</b>	Flanged AS 2129				
<b>C</b>	Flanged AS 4087				
<b>R/G</b>	Roll grooved AS 2368 Alternative drilling 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

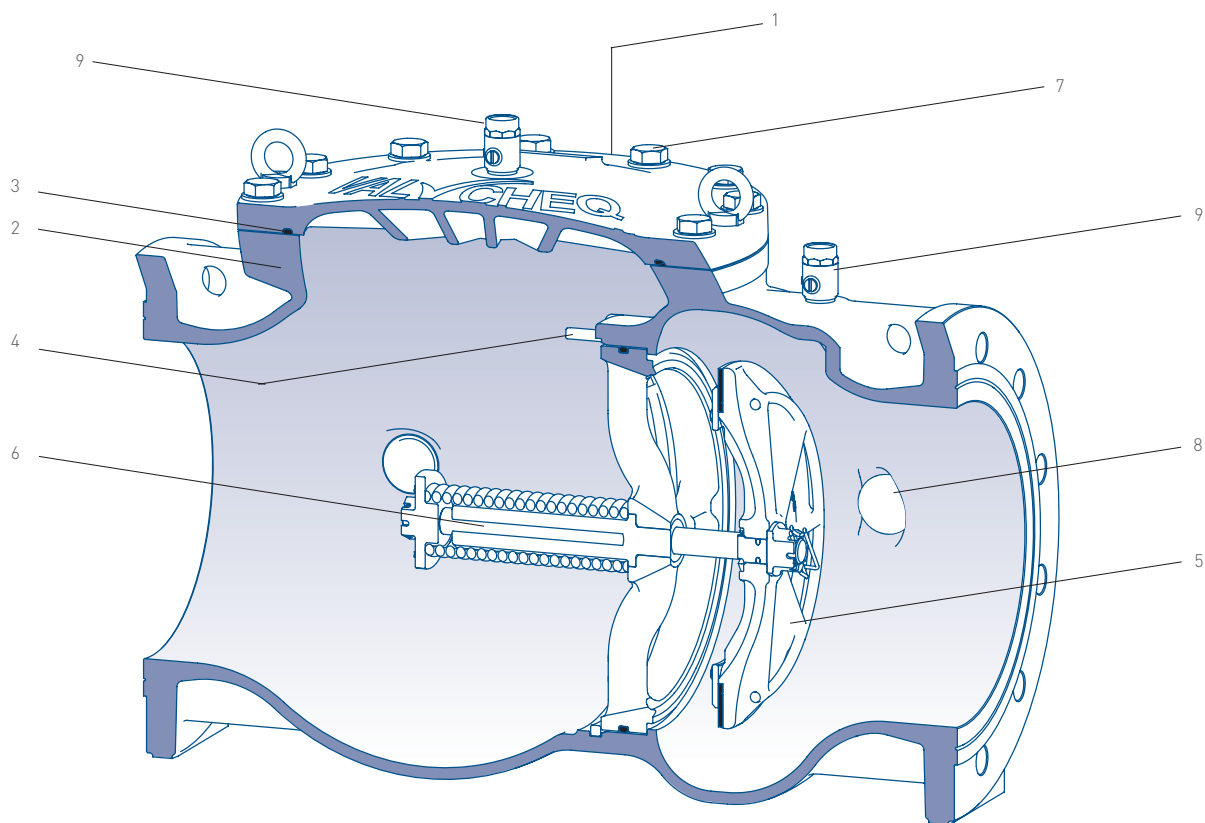
All Emerson isolation valves come with the provision for locking.  
Butterfly valve actuators come standard on valve sizes DN 200 - 300.

### 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

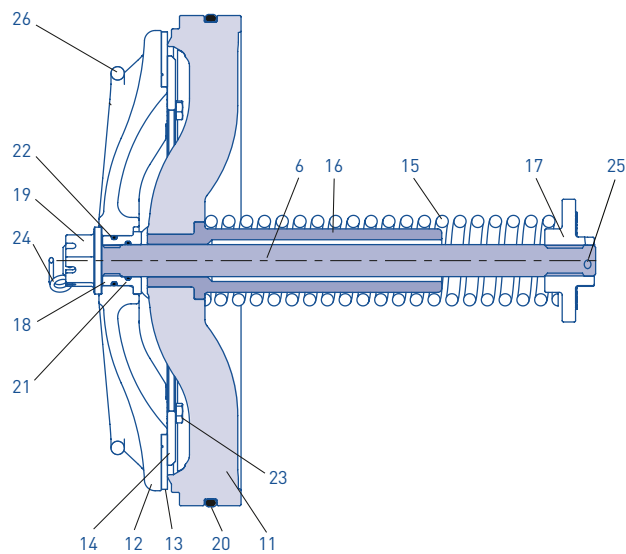


## PARTS LIST

No.	Description
1	Top cover
2	Body
3	Top cover O-ring
4	Check valve circlip
5	Check assembly
6	Check valve stem
7	Top cover bolts
8	Plug
9	Test taps

## VALVE CHECK ASSEMBLY

No.	Description (check assembly)
11	Check seal ring
12	Check disc
13	Check seal
14	Check seal retainer
15	Down stream check spring
16	Check stem bush
17	Check stem retainer
18	Check disc retainer hub
19	Check disc retainer nut
20	Check seal O-ring
21	Check stem O-ring
22	Check hub O-ring
23	Bolt
24	Diaper pin
25	Solid pin
26	Check disc grip ring



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## FIGURE SC03

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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 safety precautions, slowly close isolation valves and open test taps (9) to exhaust line pressure. Remove top cover bolts (7) and washers. Remove top cover (1) and top cover O-ring (3).

#### WARNING

*Upstream chamber will be full of water. Either work in water or scoop out water to an acceptable level.*

To remove check valve circlip (4) utilize prongs, squeeze together and pull out the circlip. To remove check valve assembly (5) pull check valve stem (6) out and then up bring the check assembly through the top entry of the valve.

#### WARNING

*Check assemblies are of the following at weights: DN 200 15 kg, DN 250 22 kg and DN 300 32 kg. Please take the necessary actions to maintain a safe work practice during these procedures.*

#### CAUTION

1. *High spring loads are present.*
2. *Never remove (17) check spring retainer, (18) check disc retainer hub and (25) solid pin.*

Check valve assembly remove diaper pin (24) from check disc retaining nut (19). Fit spanner to check stem retaining nut (17) and to check disc retaining nut (19) turn retaining nut (19) anti-clock wise and remove. Take hold of check disc grip ring (26) and pull away from check stem (6) so both are disengaged from each other. Turn over so check disc grip ring (26) is facing downwards and fit spanner to check seal retainer bolts (23) and remove check seal retainer (14) to expose check seal (13) for servicing or replacement.

#### NOTE

When assembly takes place:

- Correctly line up holes in check disc retaining nut (19) and check stem (6) to allow securing of diaper pin (24).
- Lubricate all O-rings with approved lubricants.
- Check seal (13) must be clean, free of any greases, moisture and debris up assembly for 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 (9) 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 2835.3.
- Main valve to have flanged connections in accordance with AS 2129 or AS 4087 or roll groove ends to AS 2638.

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