

# RP03 RPZ Backflow Valve Stainless Valve Only/Assembly

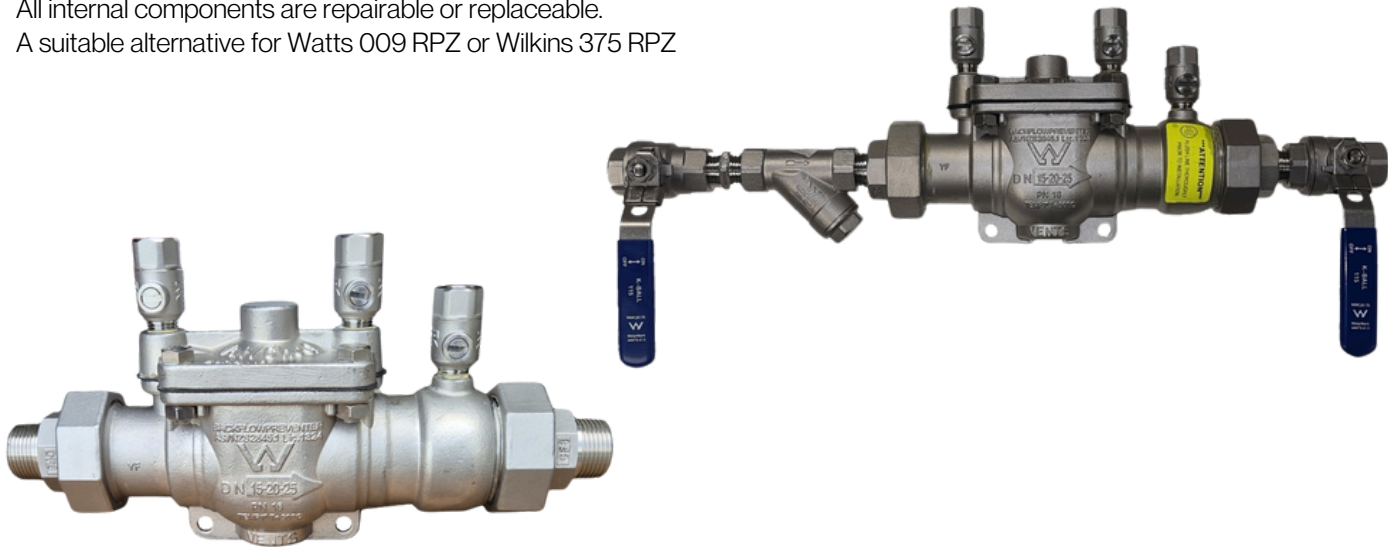
SPEC SHEET

PRODUCT CODE: As below

## KEY FEATURES

RP03 have proven to be top of the class for high hazard backflow preventer RPZ applications in NZ. The reduced pressure zone valve is perfect for both indoor and outdoor applications in NZ.

- 304L stainless construction ideal for New Zealand environment and salt spray conditions
- 16 bar pressure rated
- Lightweight, compact design.
- In-line and on-site serviceable.
- No special tools are required for servicing.
- Approved for hot water service up to 90c.
- Maintenance friendly with one seal kit suitable for six valves.
- Designed and manufactured under AS/NZS 2845.1.
- Straight through flow path for maximum flow coefficient.
- Top entry allows all parts to be accessed easily.
- Stainless steel main valve and internals for superior corrosion resistance.
- Fully restrained check valve assemblies for unrivalled safety.
- Every valve is bench-tested and tracked with a unique serial number.
- All internal components are repairable or replaceable.
- A suitable alternative for Watts 009 RPZ or Wilkins 375 RPZ



| Size                                                | 15mm    | 20mm    | 25mm    | 32mm    | 40mm    | 50mm    |
|-----------------------------------------------------|---------|---------|---------|---------|---------|---------|
| RP03 RPZ Backflow S/Steel Threaded Unit Only        | 2022966 | 2044139 | 2018606 | 2005016 | 2037975 | 2007514 |
| RP03 RPZ Backflow Valve Assembly Stainless Threaded | 2014840 | 2029030 | 2010334 | 2003750 | 2034532 | 2001237 |



SCAN HERE TO  
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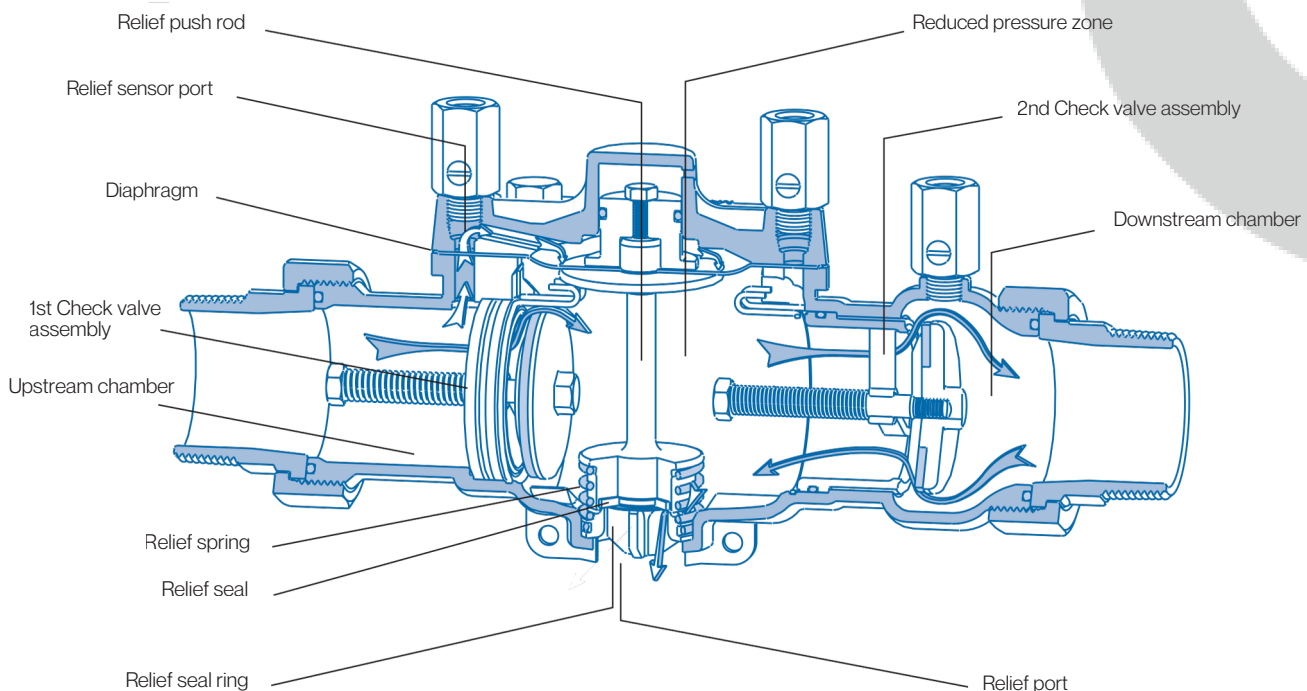
# RP03 RPZ Backflow Valve Stainless Valve Only/Assembly

SPEC SHEET

## KEY FEATURES CONTINUED

### VALVCHEQ BACKFLOW PREVENTERS

FIGURE RP03



#### PRINCIPLE OF OPERATION

Reduced pressure zone device consists of two independently acting non-return valves in series. They are arranged to be force-loaded in the closed position. A relief valve is positioned between them and is designed to be pressure energized to vent to atmosphere when the pressure differential across the upstream non-return valve reduces to 14 kPa.

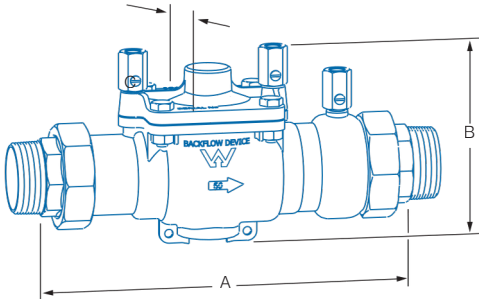
**Under normal dynamic flow conditions:** Water enters the up stream chamber before the 1st check valve assembly and flows up through the relief sensor port. When sufficient water pressure is achieved (minimum of 14 kPa) above the diaphragm. It will energize the relief push rod and relief spring, moving the relief seal onto the relief seal ring closing the relief port off from atmosphere. Once the relief port is closed, pressure builds up in the up stream chamber before the 1st check valve assembly. When this pressure is sufficient (minimum of 35 kPa) 1st check valve assembly will open allowing flow into and fill the reduced pressure zone. The 2nd check valve assembly will open after the reduced pressure zone is full and pressurized sufficiently (minimum 7 kPa) allowing flow through the down stream chamber.

**Under the condition of backpressure:** (Premises pressure is greater than supply pressure) Water pressure in down stream chamber and spring pressure force the 2nd check valve assembly closed. If the 2nd check valve assembly is fouled by debris in the open position, the backpressure energizes the diaphragm from below and with the aid of the relief spring pulls the push rod and relief seal up off the relief seal ring opening the relief port. This allows all liquid contained in the reduced pressure zone to be relieved to atmosphere. The relief port will continue to discharge until backpressure dissipates or 2nd check valve assembly is cleared of debris.

**Under the condition of backsiphonage:** (Negative/low pressure in mains supply) The 1st check valve assembly will close under spring pressure. Water pressure in up stream chamber before the 1st check valve assembly and relief sensor port will dissipate. This will result in the relief spring opening the relief port and allowing all liquid contained in the reduced pressure zone to be relieved to atmosphere.

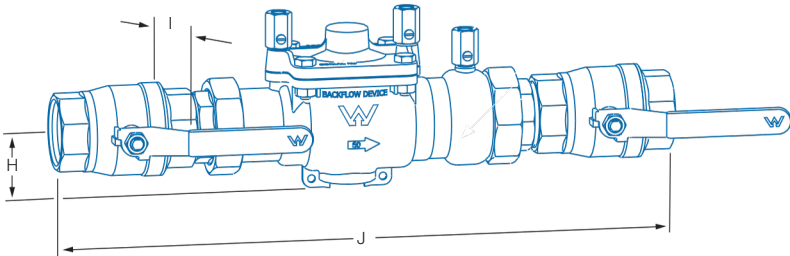
# RP03 RPZ Backflow Valve Stainless Valve Only/Assembly

KEY FEATURES CONTINUED

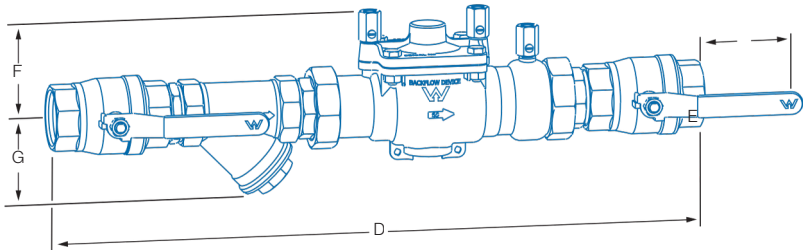


VALVCHEQ  
BACKFLOW  
PREVENTERS  
FIGURE RP03

NOTE: Valve only (VO) illustrated.



NOTE: Fire service (FS) arrangement illustrated.



NOTE: Complete (CO) assembly illustrated.

| DIMENSIONS (mm) |     |     |    |     |    |    |    |    |     |     | Mass (kg) |      |      |
|-----------------|-----|-----|----|-----|----|----|----|----|-----|-----|-----------|------|------|
| Valve size      |     |     |    |     |    |    |    |    |     |     |           |      |      |
| DN              | A   | B   | C  | D   | E  | F  | G  | H  | I   | J   | VO        | FS   | CO   |
| 15              | 233 | 131 | 68 | 432 | 65 | 86 | 40 | 45 | 80  | 353 | 2.8       | 3.1  | 3.6  |
| 20              | 233 | 131 | 68 | 462 | 65 | 86 | 48 | 45 | 92  | 369 | 2.8       | 3.3  | 4.0  |
| 25              | 233 | 131 | 68 | 512 | 68 | 86 | 56 | 45 | 96  | 395 | 2.8       | 4.1  | 4.9  |
| 32              | 312 | 160 | 98 | 638 | 72 | 99 | 64 | 61 | 125 | 508 | 6.3       | 8.0  | 9.7  |
| 40              | 312 | 160 | 98 | 658 | 87 | 99 | 73 | 61 | 131 | 524 | 6.3       | 8.5  | 10.4 |
| 50              | 312 | 160 | 98 | 734 | 97 | 99 | 89 | 61 | 143 | 565 | 6.3       | 10.2 | 12.7 |

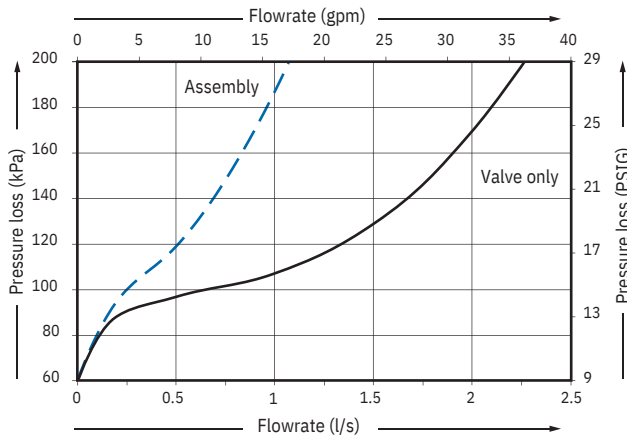
**Disclaimer** Assembly length may vary slightly from the detailed measurement due to ball valve and threaded fitting variances. Please contact FlowQuip

VO = Mass of valve only.  
 FS = Mass of fire service arrangement (no strainer).  
 CO = Mass of complete arrangement with ball valves.

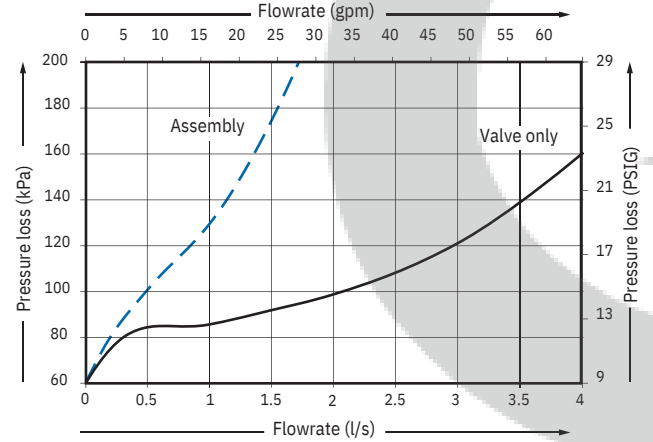
**VALVCHQ BACKFLOW  
PREVENTERS  
FIGURE RP03**

**TYPICAL FLOW CHARACTERISTIC GRAPHS**

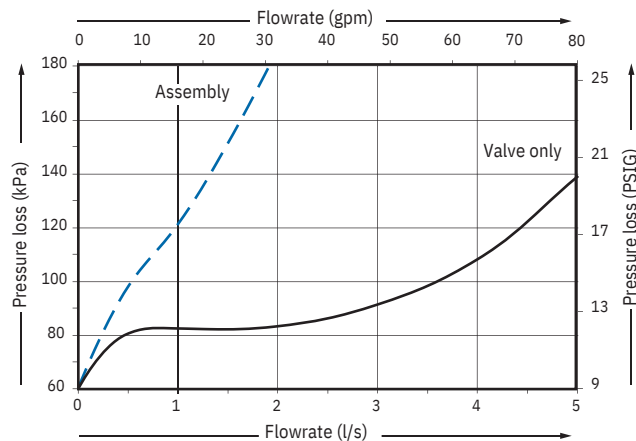
**D1N5 m15m v avlavleves**



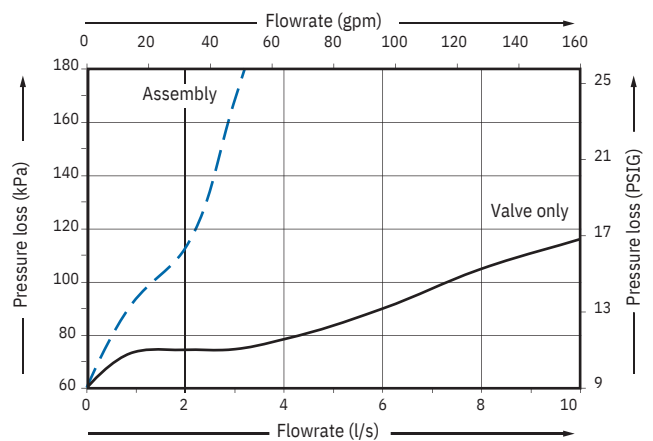
**D2N0m 20m v vaallveess**



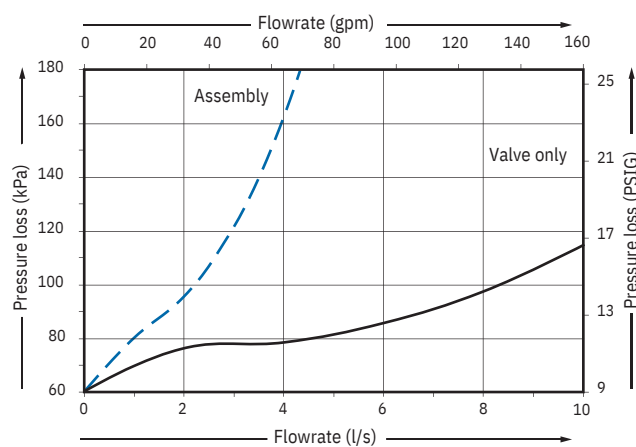
**D25Nm 2m5 v vaallveess**



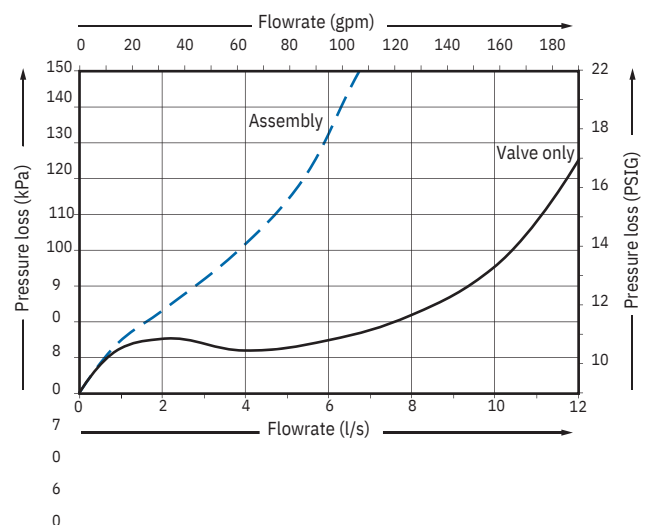
**D3N2m 3m2 v vaallveess**



**D4N0m 40m v vaallveess**



**5D0Nm 5m0 vvaallveess**



**NOTE**

- Complete valve assembly
- Valve only

## VALVCHEQ BACKFLOW PREVENTERS

## FIGURE RP03

## SELECTION GUIDE

| Example:        | 50                                                                 | RP03 | BSP | CO |
|-----------------|--------------------------------------------------------------------|------|-----|----|
| Valve size (DN) |                                                                    |      |     |    |
| Figure no.      |                                                                    |      |     |    |
| End connections |                                                                    |      |     |    |
| BSP             | Screwed AS 1722                                                    |      |     |    |
|                 | Alternative threads may be available on request                    |      |     |    |
| Assembly        |                                                                    |      |     |    |
| VO              | Valve only                                                         |      |     |    |
| CO              | Complete arrangement with stainless steel ball valves and strainer |      |     |    |
| FS              | Fire service (no strainer)                                         |      |     |    |

## NOTE:

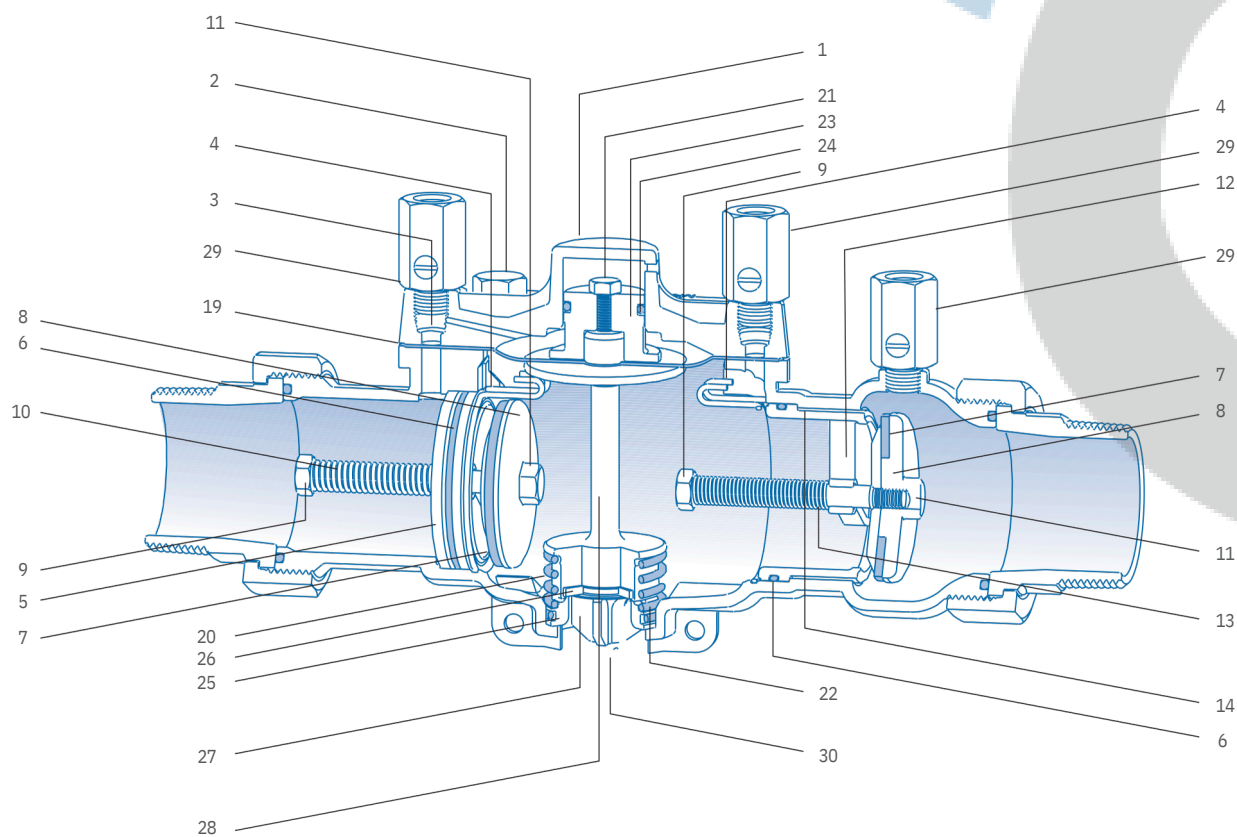
All Emerson isolation valves come with the provision for locking.

## TROUBLESHOOTING

| Symptom                                                                          | Cause                                                                                                                                                                                                              | Remedy                                                                                                                                                                 |
|----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| First check valve not holding tight<br>(reading approaches zero without holding) | 1. Debris fouling the check valve seal<br>2. Check valve seal damaged or perished<br>3. Check valve O-ring damaged<br>4. Check valve seal ring damaged                                                             | 1. Inspect, clean, reverse or replace check seal<br>2. Inspect and replace check valve seal<br>3. Inspect and replace O-ring<br>4. Replace first check valve assembly  |
| First check valve drops below 35 kPa<br>and remains steady                       | 1. Debris fouling the check valve seal<br>2. Check valve seal damaged or perished<br>3. Check valve spring memory loss or damaged                                                                                  | 1. Inspect, clean, reverse or replace check seal<br>2. Inspect and replace check valve seal<br>3. Replace first check valve assembly                                   |
| Continuous discharge from relief port                                            | 1. Debris fouling 1st check valve seal (static flow)<br>2. Debris fouling relief valve seal<br>3. Relief seal guide O-ring damaged<br>4. Diaphragm damaged<br>5. Debris fouling 2nd check valve seal (static flow) | 1. Clean check valve seal<br>2. Clean relief valve seal<br>3. Replace O-ring<br>4. Replace diaphragm<br>5. Clean check valve seal                                      |
| Second check valve not holding tight                                             | 1. Debris fouling the check valve seal<br>2. Check valve seal damaged or perished<br>3. Check valve O-ring damaged<br>5. Check valve seal ring damaged                                                             | 1. Inspect, clean, reverse or replace check seal<br>2. Inspect and replace check valve seal<br>3. Inspect and replace O-ring<br>5. Replace second check valve assembly |
| Relief port not opening before 14 kPa                                            | 1. Diaphragm damaged<br>2. Relief spring memory loss                                                                                                                                                               | 1. Replace diaphragm<br>2. Replace spring                                                                                                                              |
| Discharge from inspection port in top cover                                      | 1. Debris fouling relief valve guide O-ring<br>2. Damaged relief valve guide O-ring                                                                                                                                | 1. Inspect and clean O-ring<br>2. Replace O-ring                                                                                                                       |

## VALVCHEQ BACKFLOW PREVENTERS

FIGURE RP03



## PARTS LIST

| No. | Description                  | No. | Description                                |
|-----|------------------------------|-----|--------------------------------------------|
| 1   | Cover plate                  | 14  | Second check valve extended body seal ring |
| 2   | Cover plate bolts            | 19  | Relief valve diaphragm                     |
| 3   | Relief sensor port           | 20  | Relief valve spring                        |
| 4   | Check valve circlip          | 21  | Relief valve top guide bolt                |
| 5   | 1st check valve seal ring    | 22  | Relief valve seal guide O-ring             |
| 6   | Check valve O-ring           | 23  | Relief valve guide                         |
| 7   | Check valve seal             | 24  | Relief valve guide O-ring                  |
| 8   | Check valve disc             | 25  | Relief valve seal ring                     |
| 9   | Check valve stem             | 26  | Relief valve seal                          |
| 10  | First check valve spring     | 27  | Relief valve seal retainer                 |
| 11  | Check valve retaining nut    | 28  | Relief valve push rod                      |
| 12  | Second check valve seal ring | 29  | Test taps                                  |
| 13  | Second check valve spring    | 30  | Relief port                                |

## VALVCHEQ BACKFLOW PREVENTERS

## FIGURE RP03

**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 (29) to drain relief port.*

**Complete safety and maintenance instructions for high hazard devices****MAINTENANCE AND TESTING REQUIREMENTS**

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 Main valve**

1. As per safety precautions slowly close isolation valves and the open test taps (29) to drain relief port
2. Remove cover plate bolts (2).
3. Remove cover plate (1), relief assembly consisting of relief valve top guide bolt (21), relief valve guide (23), relief valve diaphragm (19), relief valve push rod (28), relief valve seal (26), relief valve seal retainer (27) and relief valve spring (20) may pull out as one piece connected to top cover.
4. Separate cover plate (1) from relief assembly.

**Relief assembly**

1. To access relief valve diaphragm (19), remove relief valve top guide bolt (21) from relief valve guide (23), by screwing a coverplate bolt (2) for 15 mm - 25 mm or M8 x 30 bolt for 32 mm - 50 mm into thread provided on top of relief valve guide (23) to separate guide (23) from relief valve push rod (28).
2. To access relief valve seal (26), separate relief valve spring (20) from relief valve push rod (28).
3. Turn relief valve seal retainer (27) anti-clock wise and remove from relief valve push rod (28).
4. To access relief valve seal guide O-ring (22), push relief valve seal ring (25) through from underneath relief port.

**Check valve assemblies**

1. Utilizing both sets of circlip prongs, squeeze together and pull out 1st and 2nd check valve assembly circlips (4).
2. To remove 2nd check valve assembly pull check valve stem (9) out then up, bringing the check assembly through the top entry of the valve.
3. To remove 1st check valve assembly, block relief sensor port (3) and slowly crack open inlet isolating valve allowing the water pressure to push the check valve assembly into the intermediate chamber. Shut off inlet isolating valve and remove check assembly through the top entry of the valve.
4. Both check valve assemblies are mechanically the same, so the same procedure can be used for both assemblies. Fit spanners to the check valve stem head (9) and to the check valve retaining nut (11) then turn check disc anti-clockwise and remove.
5. Remove check valve disc (8) to exposes check valve seal (7) for servicing or replacement.

**NOTE:**

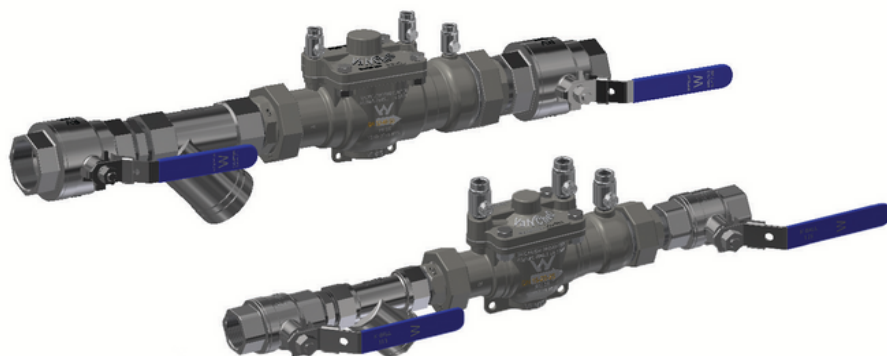
When reassembling:

- Lubricate all O-rings.
- 2nd check valve assembly has the extended body.
- Check valve seal (7) and diaphragm (19) must be clean, free of any greases, moisture and debris upon assembly.



**VALVCHEQ BACKFLOW PREVENTERS****FIGURE RP03**

**Specifications for reduce pressure zone device suitable for high and medium hazard rated applications**



- Valve shall be manufactured and approved to AS/NZS 2845.1.
- The assembly shall be connected with the “ring and tail” to allow easy removal or replacement of the device in accordance with AS/NZS 3500.
- Complete assembly including main valve and internals shall be of stainless steel construction and to have pressure rating of PN16 and a temperature rating of 90°C.
- All internal parts and elastomers are to be accessible through a top entry point of the main valve to allow inline maintenance.
- Valve shall also be fitted with test points with BSPT threads to allow testing to AS/NZS 2845.3.
- The assembly is fitted with locking mechanism to provide adequate security as standard.