# WaStop®
# Check Valve System

Technical Guide SW 28

WaStop® is a unique patented check valve that helps to protect against flooding and reduces odours.

03.22 | STORMWATER | SW28 WAPRO WASTOP

### Applications

- Stormwater discharge
- Waste and surface water
- Odour control
- Basement flooding
- Pump stations
- Wetlands

### Product Attributes

- Provides flood and odour protection
- Very low head loss
- Quick installation into new and existing drains or chambers
- Low maintenance and low operation costs
- The unique pulsating flow prevents blockages

### Approvals/Standards

- US Patent No. 6,810,914 PCT/SE00/02524
- 80-200 mm models are CE approved

### Quality

- ISO 9001:2008 Quality Management Standard
- ISO 14001:2015 Environmental Management

***We are the supply partner of choice for New Zealand's stormwater management and treatment solutions.***

# Climate change and rising sea levels are affecting us all. Through the innovation of the WaStop® Inline Check Valve, Wapro have prevented thousands of floods worldwide.

In order to protect against flooding, Wapro have engineered the WaStop® inline check valve to ensure the lowest possible opening pressure whilst maintaining the best possible seal against backflow. This, combined with the lowest headloss available, gives the most efficient flow conditions, ensuring the fastest evacuation of water. An essential quality of check valves used to protect people and property. WaStop® protects.

## Advantages of WaStop®

- Easy installation saving on construction
- No moving parts - virtually maintenance-free costs
- Models to suit pipes 75-2400 mm
- Superior construction materials
- Stops liquids, gases, odours, insects and small animals
- Lowest headloss amongst inline check valves
- Stops backflow effectively even in low flow events
- Low life-cycle cost

## Applications

Wapro know that any solution for flood prevention or odour control needs to function simply and effectively. That's why, when they invented the WaStop® inline check valve in 2000, they had one thought in mind; instant automatic protection. Working on differential pressure, the WaStop® functions autonomously, without human interaction, electricity or constant maintenance.

To invent the best inline check valve on the market the Wapro engineers went one step further. They also thought about the different parts of the process and who would be affected by the design of the valve. With function the priority, their engineers developed a valve that works in stormwater, sewer, and odour applications, and ensured coverage of a wide range of existing pipe sizes to enable retro-fitting with ease. The WaStop® valves cover all sizes of pipes, all shapes, from 75mm-2400mm.

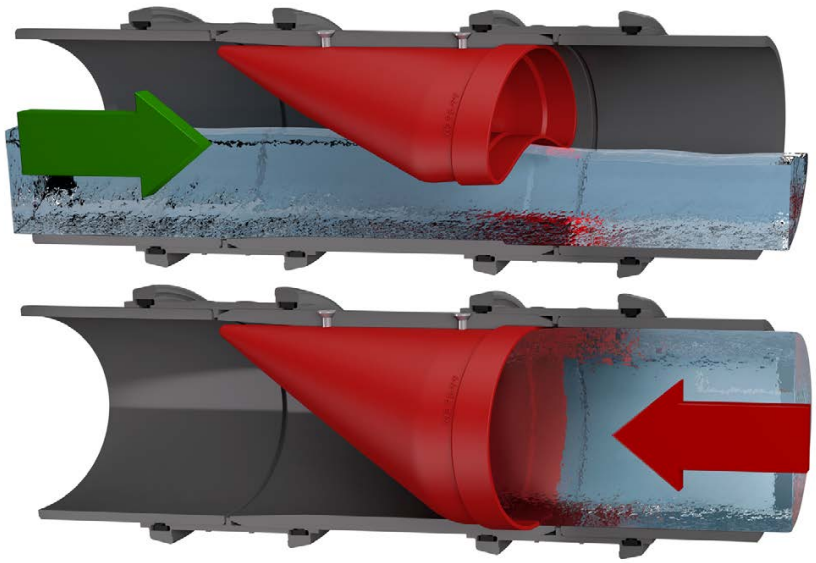


**FIG. 1** Valve opens with normal flow and closes with backflow

# BENEFITS OF SUPERIOR CONSTRUCTION

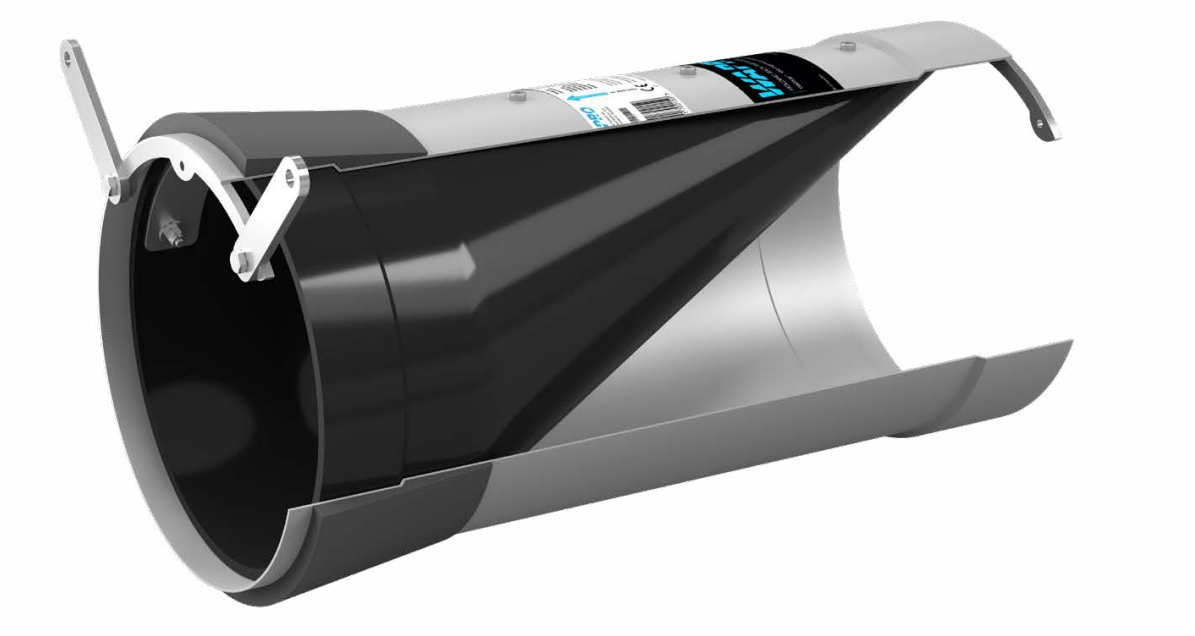
WaStop® check valves are designed to provide asset and property owners' peace of mind. Simply the most reliable, high quality inline check valve on the market.

## HOUSING & SEAL

- Thin stainless steel 316 housing
- Perfect function regardless of the existing pipe quality
- Peace of mind knowing the seal is 100% tight
- Low life-cycle cost
- Quick, easy installation
- Lower energy costs

## DOUBLE COLLARS

- Standard model can be used on pipe inlet or outlet
- One product for dual installation situations



## FIXATION MATERIAL

- Long life expectancy and low life-cycle cost with high quality materials
- Peace of mind - engineered product that exceeds expectations
- High quality fixation Tabs of Stainless Steel 316
- Adaptable fixings to suit multiple installation requirements

## MEMBRANE

- Protection even in low flow events
- Pulsating flow reducing sedimentation up and downstream
- Extremely low headloss
- Low maintenance costs
- Memory membrane - doesn't sag
- Silicon membrane in DN75 to DN200
- Polyurethane membrane in DN200+

## Installation Options

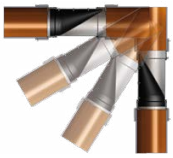


**FIG. 2** Inline installation

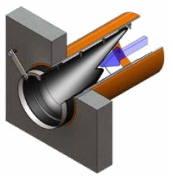


**FIG. 3** Wingwall or manhole installation

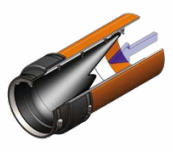


**FIG. 4** Outfall installation

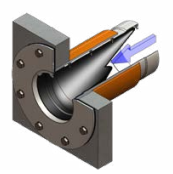


**FIG. 5** Flange installation
(can be an inlet or outlet end)

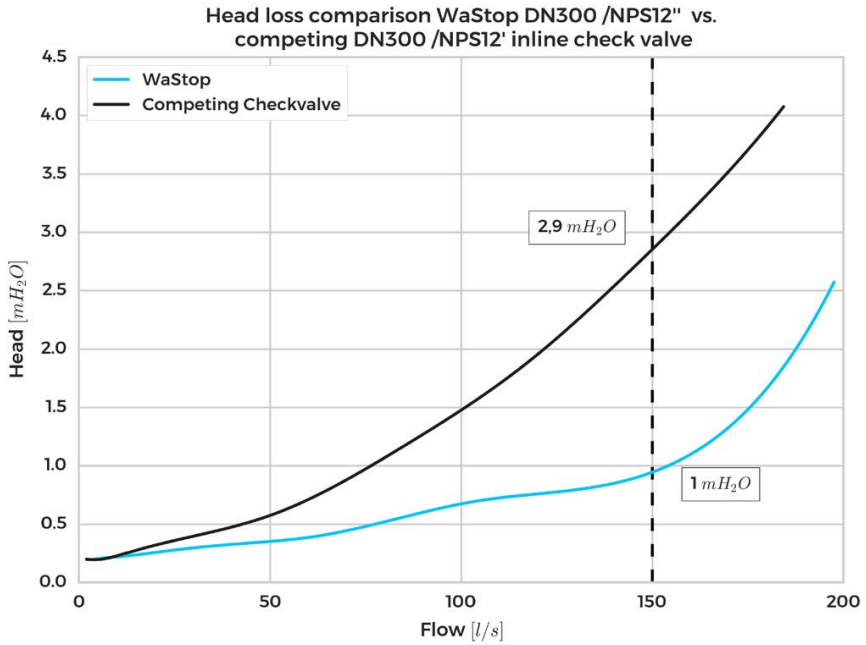
## SikaSwell® S-2 Additional Sealant

The SikaSwell® S-2 is a polyurethane hydrophilic swellable sealant which swells in contact with water to seal construction joints and penetrations in concrete. This can be used to take up any gap between the WaStop Check Valve seal and the pipe.

**Note:** *Refer to our website for videos of the different installation methods available.*

## LOW HEAD LOSS IS ESSENTIAL

Comparing head loss data is difficult as the test procedure is rarely presented. However, the test results shown below were conducted in the same facility with the same reference points and are therefore comparable. The test result shows that the WaStop® has 65% lower head loss than a competing inline check valve at a flow of 150l/s. Both valves were tested in the same open air scenario.



# WaStop® Standard Product Range

WaStop® check valves are manufactured in EN 1.4401/AISI 316 stainless steel, PVC or PE. Valves can be adapted to suit a variety of different internal pipe diameters or external flanges. Please contact us with details of your special application.

**TABLE 1** **Stainless Steel**

| **Item Code** | **DN** (mm) | **Fits pipe ID (min-max)** | **A** (mm) | **L** (mm) |
|---|---|---|---|---|
| VCWR0100SS | 100 | 98-102 | 97 | 210 |
| VCWR0105SS | 110 | 102-105 | 100 | 215 |
| VCWR0150SS | 150 | 147-151 | 145 | 300 |
| VCWR0190SS | 200 | 182-193 | 181 | 385 |
| VCWR0200SS | 200 | 192-203 | 191 | 395 |
| VCWR0225SS | 225 | 216-235 | 215 | 450 |
| VCWR0235SS | 250 | 232-250 | 230 | 480 |
| VCWR0250SS | 250 | 242-260 | 240 | 495 |
| VCWR0300SS | 300 | 292-310 | 283 | 600 |
| VCWR0350SS | 350 | 340-352 | 340 | 700 |
| VCWR0375SS | 375 | 370-382 | 370 | 745 |
| VCWR0400SS | 400 | 392-406 | 390 | 750 |
| VCWR0450SS | 450 | 444-460 | 443 | 840 |
| VCWR0500SS | 500 | 492-504 | 490 | 900 |
| VCWR0525SS** | 525 | 492-530 | 490 | 900 |
| VCWR0600SS | 600 | 588-604 | 587 | 1200 |
| VCWR0675SS* | 675 | 670-675 | 690/670 | 1300 |
| VCWR0700SS | 700 | 692-708 | 690 | 1300 |
| VCWR0750SS | 750 | 750-770 | 750 | 1400 |
| VCWR0800SS | 800 | 792-810 | 790 | 1500 |
| VCWR0825SS** | 825 | 792-830 | 790 | 1500 |
| VCWR0900SS | 900 | 887-915 | 885 | 1700 |
| VCWR1050SS | 1050 | 1040 | 1040 | 2000 |

***Note:*** *Please refer to Fig. 6*
**Special design – no rear shoulder.*
*** Special design - thicker seal*

**TABLE 2** **Stainless Steel – Flanged**

| **Code** | **DN** (mm) | **L** (mm) | **OD1** (mm) | **OD2** (mm) | **OD-f** (mm) | **Bolt circle diam** (mm) | **Bolts Required** |
|---|---|---|---|---|---|---|---|
| VCWR1000SSFL | 1000 | 1800 | 955 | 985 | 1190 | 1140 | 14 x M17 |
| VCWR1050SSFL | 1040 | 2000 | 1010 | 1040 | 1320 | 1245 | 16 x M17 |
| VCWR1200SSFL | 1200 | 2250 | 1155 | 1185 | 1430 | 1380 | 14 x M17 |
| VCWR1400SSFL | 1400 | 2600 | 1349 | 1385 | 1660 | 1610 | 14 x M17 |
| VCWR1500SSFL | 1500 | 2800 | 1441 | 1485 | 1760 | 1710 | 14 x M17 |
| VCWR1600SSFL | 1600 | 3000 | 1541 | 1585 | 1900 | 1840 | 18 x M19 |
| VCWR1800SSFL | 1800 | 3100 | 1737 | 1785 | 2040 | 2100 | 18 x M19 |

***Note:*** *Please refer to Fig. 7*
*Valves to suit pipes up to 2400mm are also available upon request*

**TABLE 3** **PVC**

| **Code** | **DN** (mm) | **OD** (mm) | **L** (mm) |
|---|---|---|---|
| VCWR0075PVC | 75 | 75 | 130 |
| VCWR0100PVC | 110 | 110 | 210 |
| VCWR0150PVC | 160 | 160 | 310 |
| VCWR0200PVC | 200 | 200 | 400 |

***Note:*** *Please refer to Fig. 8*

**TABLE 4** **PE Inline Type**

| **Code** | **DN** (mm) | **OD** (mm) | **L** (mm) |
|---|---|---|---|
| VCWR0250PE | 250 | 250 | 480 |
| VCWR0315PE | 315 | 315 | 600 |

***Note:*** *Please refer to Fig. 8*

**TABLE 5** **PE Insert Type**

| **Code** | **DN** (mm) | **OD1** (mm) | **OD2** (mm) | **L** (mm) |
|---|---|---|---|---|
| VCWR0250PE.INT | 250 | 250 | 236 | 480 |
| VCWR0315PE.INT | 315 | 315 | 295 | 600 |

***Note:*** *Please refer to Fig. 9*

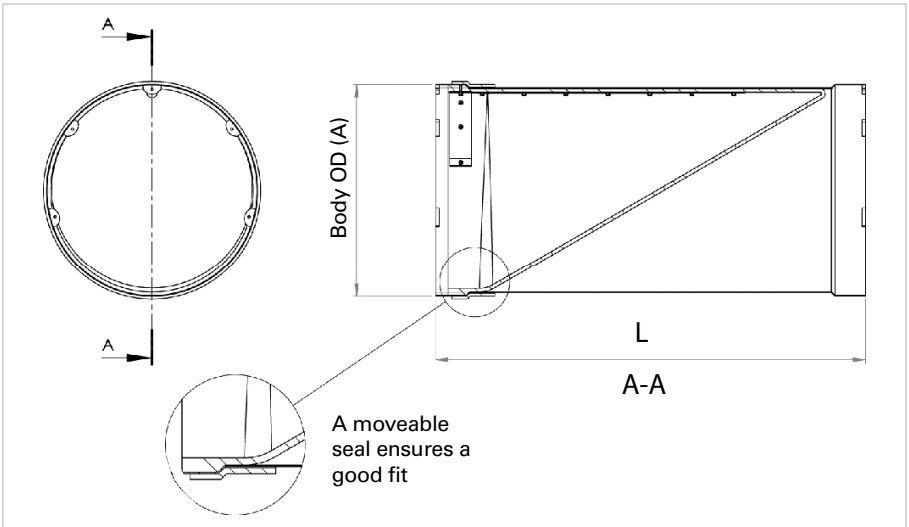



**FIG. 6** SS version side section and seal detail

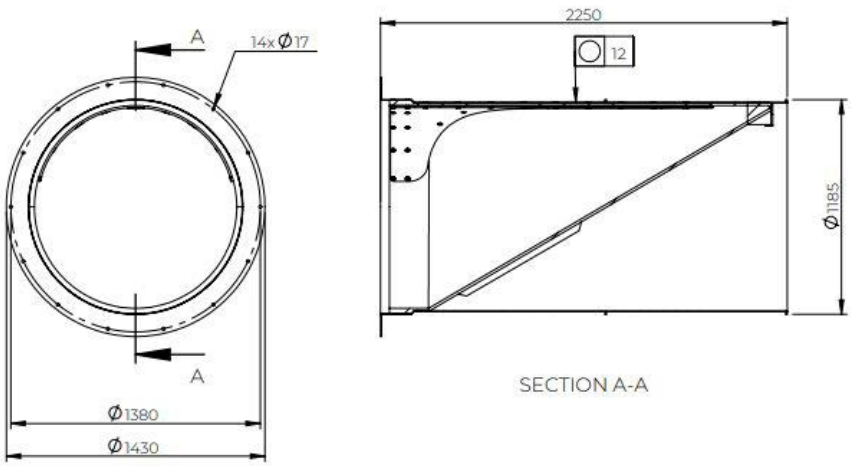



**FIG. 7** SS Flanged version side section

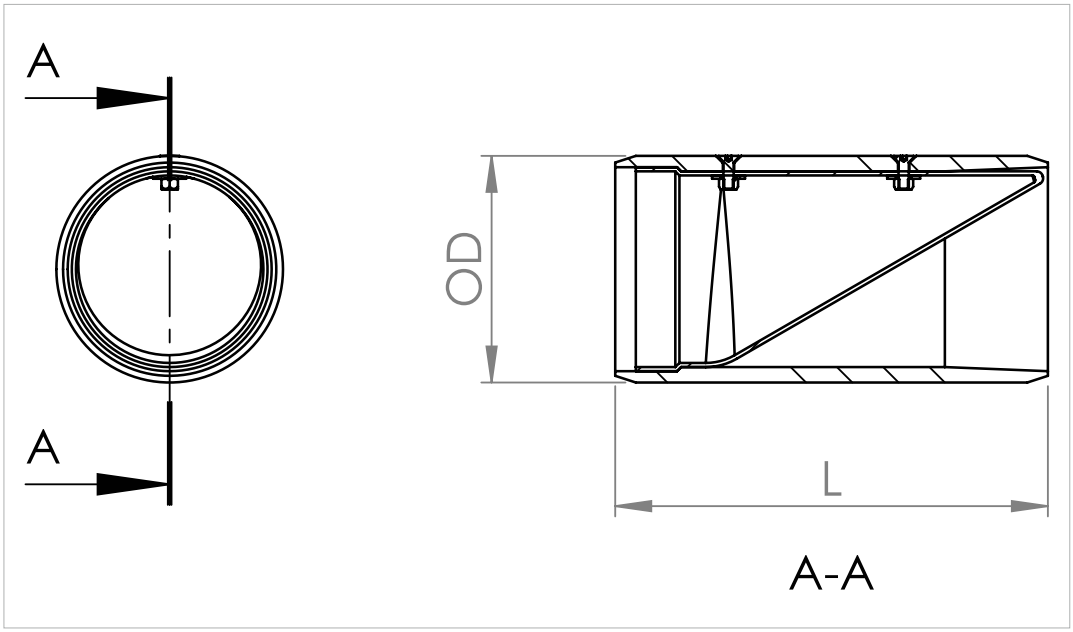



**FIG. 8** PE/PVC inline type side section

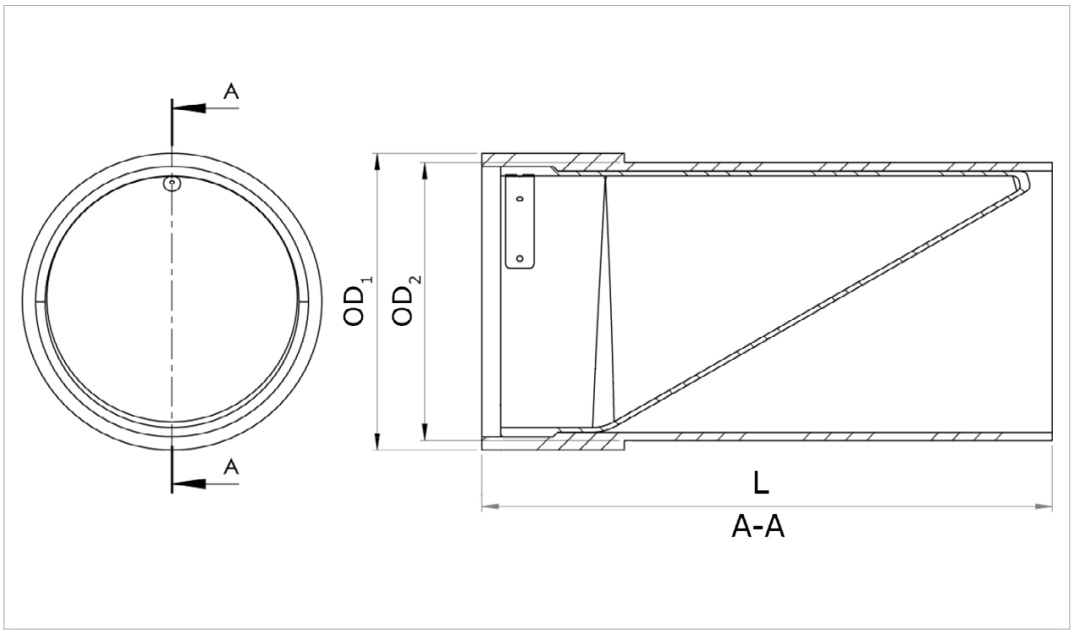



**FIG. 9** PE insert type side section

FIG. 10 DN900 Valve in DN1350 pipe, Porirua

FIG. 13 DN600 – Te Puru Boat Ramp, Thames

FIG. 11 DN600 - Custom designed valve inside manhole at Sulphur Beach, Northcote

FIG. 14 DN600 – Cochrane St, Thames

FIG. 12 DN1200 & DN600 – Avon River Estuary, Christchurch

FIG. 15 DN600 – Madills Farm, Auckland