

WASTOP AND DEBRIS

WaStops pulsating flow minimizes the risk of debris and blockages in the pipe and valve.

To create the self-cleansing pulsating flow a certain amount of head pressure is required to open the WaStop. The WaStop remains open until the pressure drops below the closing pressure of the valve. This creates a pulsating flow which help keep pipes cleaner both upstream and downstream.

The opening and closing pressure is the pressure differential between the upstream and the downstream pressure. The closing pressure is greater than zero to ensure that the WaStop is always closed in the event of backpressure. No backpressure leakage occurs even in low pressure situations.

Some water is retained behind the valve to ensure that's any upstream debris remains soluble or fluidized which means that there is less risk of debris fastning to the bottom of the pipe.

When the upstream water elevation reaches the opening pressure of the WaStop, the valve will open allowing debris to be flushed out from the pipe. As the flow increases the membrane will open more and allow larger and floating items such as sticks and bottles to exit the pipe.

To determine the velocity through a WaStop DN1000 at the moment of opening:

With data from testing performed at Utah Water Research Laboratory:
 Volumetric Flow: 1121.66 GPM = 0.0708 m³/s
 Head pressure: 1.283 ft. = 0.391 m (the opening pressure)
 Estimated from images:
 Flow area WaStop at opening pressure = 0.035 m²
 Gives:
 Velocity though WaStop:

$$\text{Velocity} = \frac{\text{Flow (Volume)}}{\text{Area}}$$

$$v_{ws} = \frac{0.0708}{0.035} = 2 \left(\frac{\text{m}}{\text{s}} \right)$$

The velocity through a WaStop DN1000 at the moment of opening is ~2 m/s.



Fig. 1 WaStop DN1000

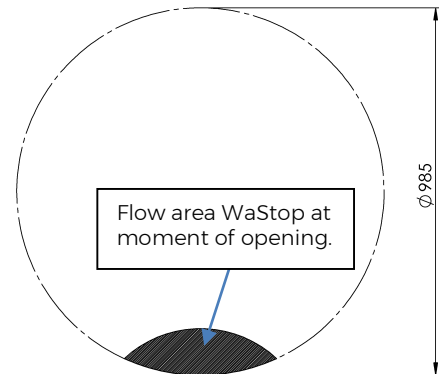


Fig. 2 Flow area WaStop

At the point of opening the WaStop DN1000 is open approximately 125mm x 410mm. Even with this flow there is sufficient area for bottles, cans, shoes and other items commonly found in storm and sewer drains to be flushed through. When the flow is higher the opening area is greater. Please refer to the headloss charts for more information.

Debris is able to exit the pipe through the WaStop, without compromising the seal. When closing the WaStop 'snaps' shut clearing out remaining debris and particles from the seat of the valve allowing a good seal. Should an item fasten on the way through the valve the membrane is flexible enough to create a seal if backpressure occurs. On the next pulsating flow cycle the item will be flushed through.

To see a demonstration of items being flushed through a WaStop with minimal head please download a film [here](#). The items in the film include:

- 1 jar lid
- One running shoe size 44,5
- 5 pens
- 500ml Plastic bottle
- One 330ml Coca Cola Zero can
- One sock
- Two squashed 330ml soft drink cans
- One towel

WaStop has been installed in 26 countries for 18 years and experience shows that blockages caused by debris is not an issue with WaStop inline check valves. In fact, many Councils rely on WaStop to reduce their maintenance costs and increase their peace of mind, knowing that WaStop will work.

Please contact your WaStop representative if you would like to talk to a current WaStop customer close to you.

Kind regards,

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