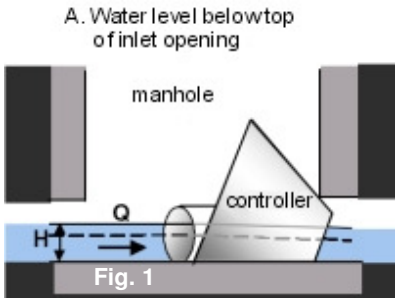
The Science of Flow Regulators

The Flow Curve

Mosbaek flow regulators are designed to keep their head-discharge curves as steep as possible, and customers are provided with a suitable product based on their values for maximum head and required flow. Mosbaek's large selection of flow regulators are designed to address almost every conceivable control need and scenario, and are unique to each customer's specifications.

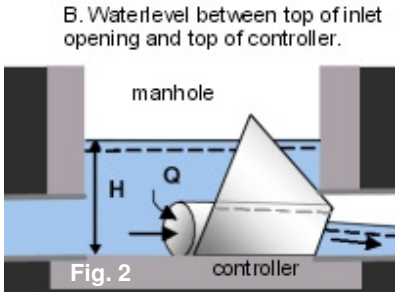
The head-discharge curves are considerably steeper than those of throttle pipes or gates.



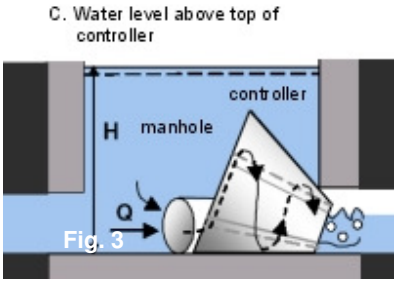
The Basic Functions of the Cyclone Flow Regulator

When the normal, smaller water flow - the flow typically found during dry weather flow - passes into the sewage pipe, the water surface is below the top of the controller inlet opening, and there is virtually no resistance to the flow (Fig. 1).

When it starts raining the feed flow increases and the water level in front of the regulator increases. When the water's surface is above the top of the regulator's intake opening, but is still below the top of the controller vortex chamber, air is trapped inside the vortex chamber, and the flow's cross section is reduced. This increased resistance limits the water's flow through the regulator (Fig. 2).



When the water's surface in front of the flow regulator rises above the top of the vortex chamber, the head will make the water in the regulator rotate. The trapped air forms a core in the vortex valve and the flow's cross section is heavily reduced at the outlet. The result is a considerable pressure loss, as intended (Fig. 3).



After the rain stops the feed flow decreases. The water level in the structure eventually falls below the top of the vortex chamber and the dropping pressure causes the rotation to stop. Air is drawn into the vortex chamber - with some delay - hence the hysteresis in the head-discharge curve (Fig. 4).

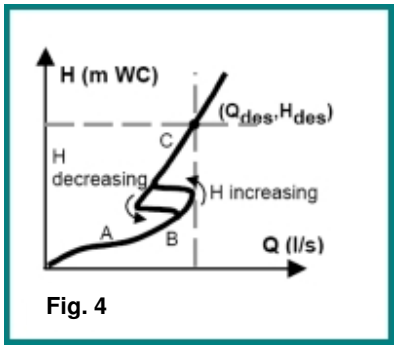


Fig. 4

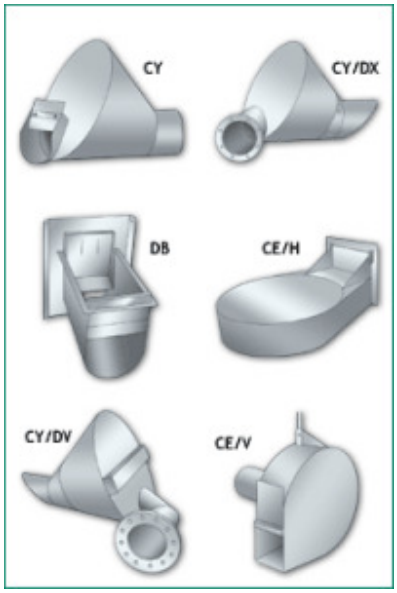
The pressure change also produces a sudden increase in the flow through the regulator, which has the added benefit of flushing out any sediment that may have collected in the upstream pipe system. See the characteristic “bump” on the head-discharge curve (Fig. 4).

Mosbaek Designs Options

Given its expertise in the science of flow regulation, Mosbaek has created a variety of flow regulators suitable for any large or small stormwater or combined sewage management need.

While the cyclone flow regulator is ideal for larger applications, Mosbaek has a series of centrifugal regulators ideal for smaller flows:

- horizontal valves (CEH) for combined sewage
- vertical valves (CEV) for stormwater



Mosbaek’s **DB Orifice Plate Regulators** (DB) are used for situations where large flows are being managed, but there is insufficient space for placing a cyclone flow regulator.

To learn more about the wide array of Mosbaek products and services, please contact:

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