

**HYDROVEX® IHV**  
**VORTEX FLOW REGULATOR**  
*CSO, SSO, Stormwater Management*

**WATER TECHNOLOGIES**

# HYDROVEX® IHV Vortex Flow Regulator

## Application

Precise and reliable flow control in collection systems is of utmost importance to be able to properly divert and convey storm water, sanitary and combined sewage. Flow control solutions with large cross sections are vital to avoid blockage due to debris and sediments found in the sewers. Precise flow throttling is also required during a storm event to protect the treatment plant from large flow surges. Many flow control devices use moving gates and parts to accomplish this; however these devices are prone to continuous blockage and increased maintenance.

The HYDROVEX® IHV Vortex Flow Regulator is a vortex throttle designed to limit flows from storm overflows, retention basins, combined and sanitary sewers. By using the proven and reliable vortex technology, the HYDROVEX® IHV Vortex Flow Regulator controls flow without moving parts or external energy.

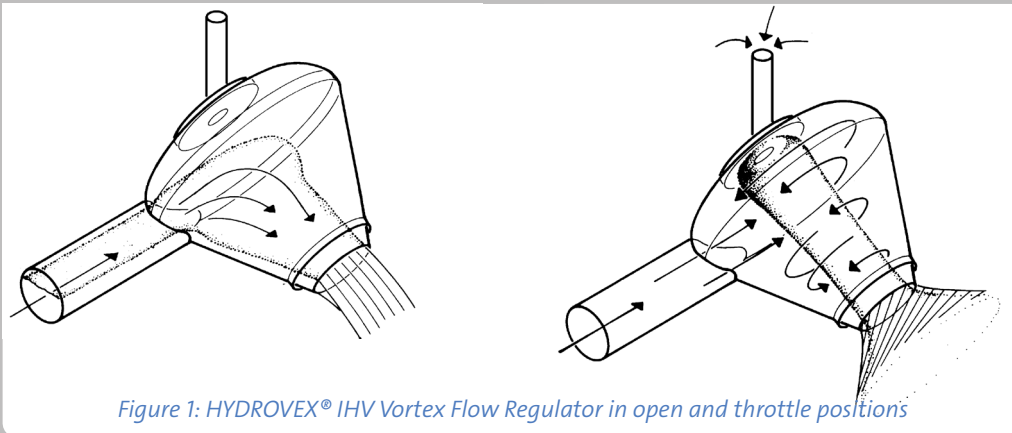
## Operation

The HYDROVEX® IHV Vortex Flow Regulator has a rigid housing with no moving parts. Water enters the regulator housing tangentially through the inlet pipe and exits through the outlet orifice. During dry time conditions, the regulator presents practically no resistance to the incoming flow because of the large cross sections.

As flow increases, tangential velocities in the regulator increase and eventually lead to the creation of an air-

filled vortex core. The latter obstructs most of the outlet orifice without physically reducing its size. As a result, the HYDROVEX® IHV now becomes an ideal throttle.

The discharge from a HYDROVEX® IHV Vortex Flow Regulator is equivalent to an orifice 4-6 times smaller due to the air-filled vortex core. This allows the vortex regulator to have much larger openings, greatly reducing the likelihood of blockage.



## Advantages

The HYDROVEX® IHV Vortex Flow Regulator has many advantages which are mostly due to its simple design. Some of these advantages include:

- No moving parts
- No external energy required
- High resistance to wear
- Large inlet/outlet openings
- Corrosion resistant stainless steel construction
- Precise throttling ( $\pm 5\%$ )
- Small head loss during dry weather flow
- Flow rate adjustment possible after installation
- Simple and easy installation

# Flow Characteristics

The HYDROVEX® IHV Vortex Flow Regulator has an “S” shaped flow curve. The lower portion of the curve is representative of dry weather flow when the flow is governed by the outlet orifice of the regulator. The steeper top portion of the curve is representative of vortex flow.

Flow characteristics of the HYDROVEX® IHV Vortex Flow Regulators are the product of the pressure on the inlet side and the following parameters:

- inlet diameter (DN)
- housing or body diameter
- inclination angle (0°, 11°, 30°, 45° or 60°)
- outlet diameter (DO)

HYDROVEX® IHV Vortex Flow Regulators are manufactured with standard nominal inlet diameters (DN) ranging from 100 to 1,000 mm (4” to 40”). Based on the above parameters, there are several hundred possible configurations for these regulators. The HYDROVEX® IHV family of vortex flow regulators covers a very large flow range with high accuracy ( $\pm 5\%$ ).

# Installation

HYDROVEX® IHV Vortex Flow Regulators are designed to be installed in a dry chamber. Dry chamber installations are preferred as they provide easier access for maintenance and inspection. A clearance of 600 mm (24”) is recommended around the regulator and by-pass pipe. A minimum clearance below the outlet of the regulator must also be foreseen during design. The HYDROVEX® IHV Vortex Flow Regulator is shipped factory calibrated and ready for installation.

If a wet well installation is preferred, please refer to the HYDROVEX® IHV EURO Vortex Flow Regulator product brochure.

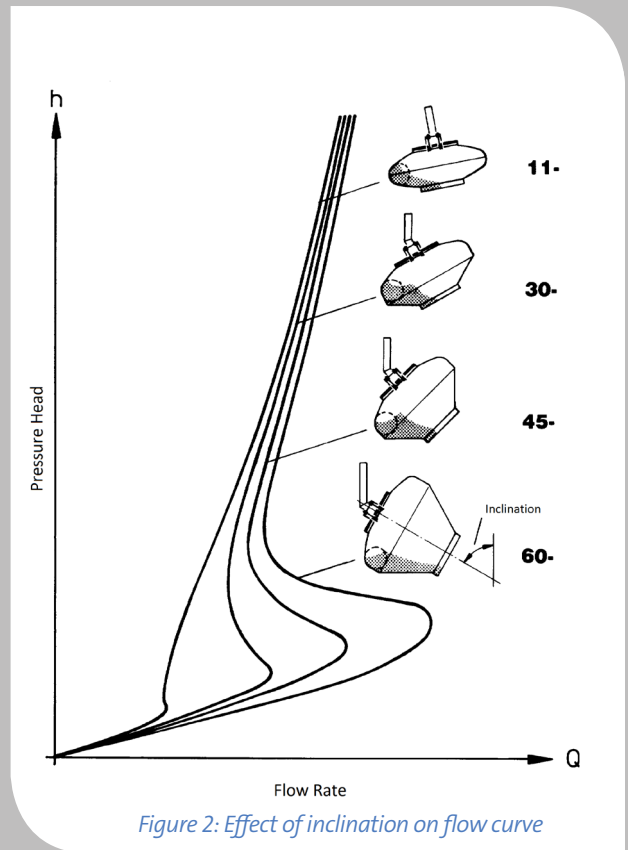


Figure 3: HYDROVEX® IHV Typical Installation

# Resourcing the world

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