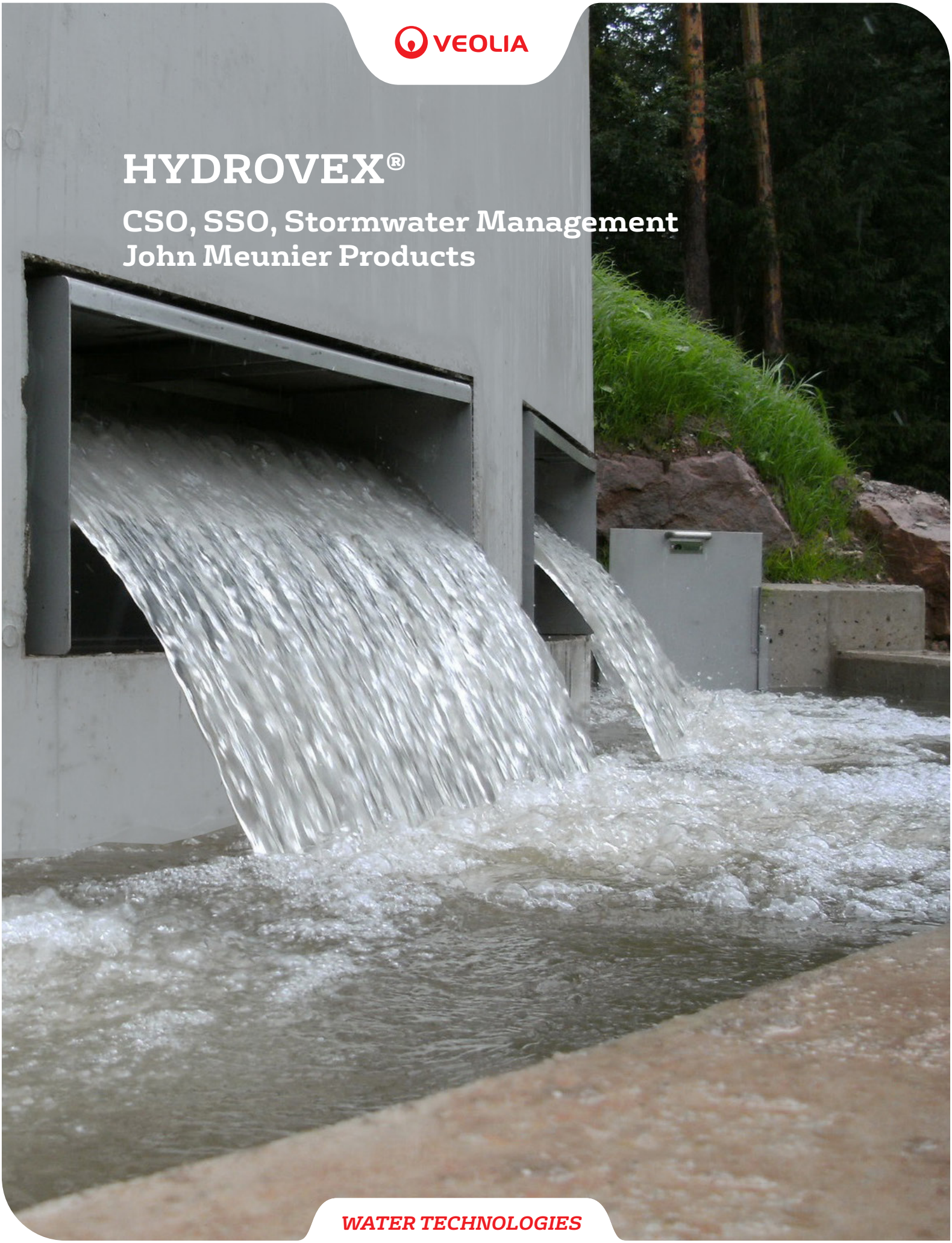
VEOLIA

HYDROVEX®

CSO, SSO, Stormwater Management
John Meunier Products



WATER TECHNOLOGIES

A LONG TRADITION IN EXCELLENCE

Veolia Water Technologies Canada has been serving North American municipalities and industries since 1948.

Veolia, through its HYDROVEX® product line, has developed a strong expertise in stormwater management, Combined Sewer Overflow (CSO) and Sanitary Sewer Overflow (SSO) pollution abatement.

The HYDROVEX® line of wet weather technologies offers a wide range of sustainable, efficient and high quality solutions, including:

> Flow control for stormwater runoff
> Flow control for combined and sanitary flows
> Level control in collection systems
> Floatables screening
> Off-line or in-line retention and treatment

TABLE OF CONTENTS

STORMWATER

Flow Control

Effective and efficient control of stormwater is vital to a successful urban drainage plan. During a storm event, surface runoff occurs due to impermeable surfaces such as roads, parking lots and roofs. All of this surface runoff eventually finds its way into the sewer system via manholes, catch basins or any other inlet structure. Left uncontrolled, large volumes of water would enter the sewer system instantaneously; resulting in a hydraulically surcharged system, high flow velocities and increased wear.

Source control of stormwater allows for a gradual release of the retained volume into the sewer over time. For a combined sewer system, this allows the treatment plant to effectively treat the entire volume while reducing the chance of a sewer overflow. For a separate sewer system, source control allows for ground infiltration, as well as reduces erosion on the receiving body of water

Veolia Water technologies Canada has developed a strong expertise in all aspects of stormwater management and urban drainage solutions.
The HYDROVEX® stormwater flow control solutions in this section are ideal for point source control and capable of handling a wide range of flow rates.

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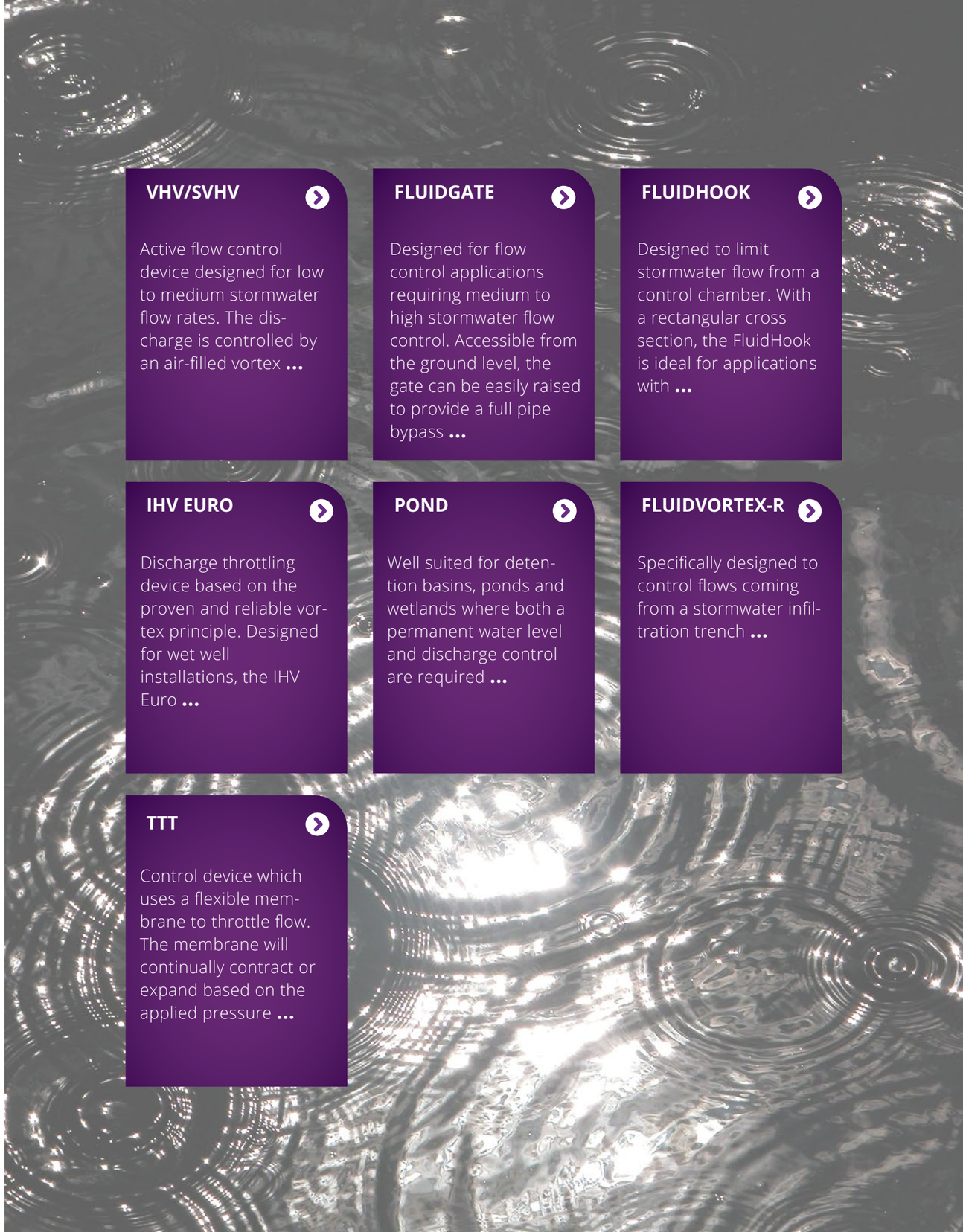


VHV/SVHV

Active flow control device designed for low to medium stormwater flow rates. The discharge is controlled by an air-filled vortex ...

FLUIDGATE

Designed for flow control applications requiring medium to high stormwater flow control. Accessible from the ground level, the gate can be easily raised to provide a full pipe bypass ...

FLUIDHOOK

Designed to limit stormwater flow from a control chamber. With a rectangular cross section, the FluidHook is ideal for applications with ...

IHV EURO

Discharge throttling device based on the proven and reliable vortex principle. Designed for wet well installations, the IHV Euro ...

POND

Well suited for detention basins, ponds and wetlands where both a permanent water level and discharge control are required ...

FLUIDVORTEX-R

Specifically designed to control flows coming from a stormwater infiltration trench ...

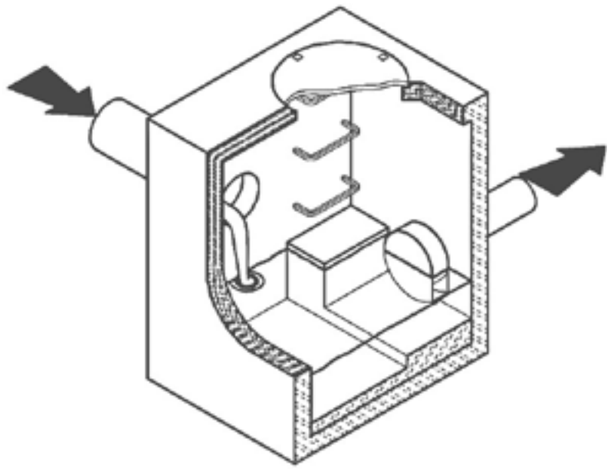
TTT

Control device which uses a flexible membrane to throttle flow. The membrane will continually contract or expand based on the applied pressure ...

1

VHV/SVHV
Vertical Vortex Flow Regulator

The HYDROVEX® VHV/SVHV is an active flow control device designed for low to medium stormwater flow rates. The discharge is controlled by an air-filled vortex which reduces the effective passage area without physically reducing the outlet orifice size. As a result, the VHV outlet orifice is typically 4-6 times larger than orifice plate sized for the same flow. The large inlet/outlet openings allow debris through, greatly reducing the chances of blockage.



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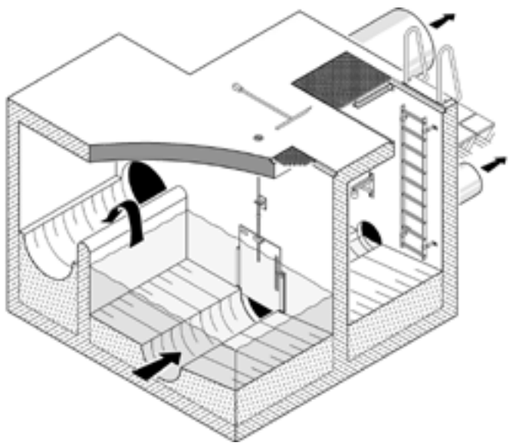
2

FLUIDGATE
Control Valve

The HYDROVEX® FluidGate is designed for flow control applications requiring medium to high stormwater flow control. Accessible from the ground level, the gate can be easily raised to provide a full pipe bypass should an obstruction occur during a storm event. Two types of operators are available, a nylon coated stainless steel pull cord (type ST) or a non-rising stainless steel threaded rod (type S). The design prevents full closure of the gate, ensuring proper flow control The FluidGate can be installed in a circular manhole or a rectangular catch basin. Adjustment to the design flow rate possible post installation by changing the height of the opening.



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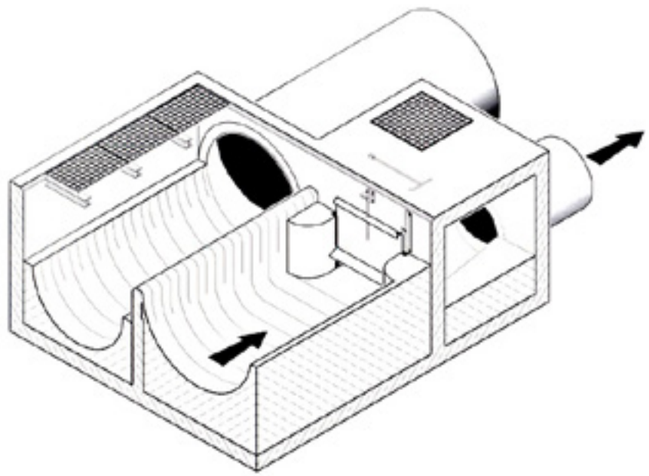
3

FLUIDHOOK
Control Gate Valve

The HYDROVEX® FluidHook is designed to limit stormwater flow from a control chamber. With a rectangular cross section, the FluidHook is ideal for applications with medium to high stormwater flows and shallow design heads. The FluidHook is designed to be installed on a flat wall, and is supplied with a non-rising operating rod. Adjustment to the design flow rate possible post installation by changing the height of the opening.



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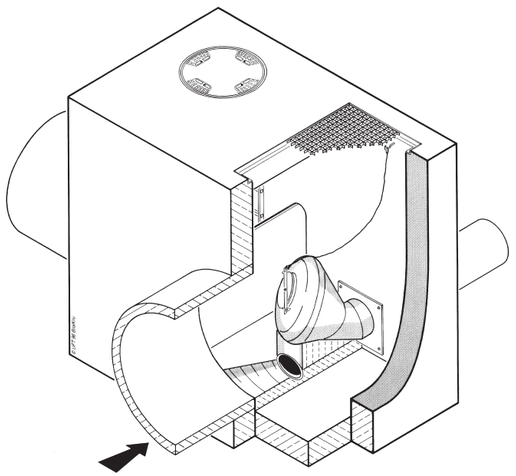
4

IHV EURO

Vortex Flow Regulator

The HYDROVEX® IHV EURO is a discharge throttling device based on the proven and reliable vortex principle. Designed for wet well installations, the IHV Euro is particularly adapted for medium to large flows. Large inlet and outlet orifices result in reduced chances of blockage and low headloss through the unit. Maintenance access cover can be removed from the operating floor using a pull cable to provide an emergency bypass.



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5

POND

Vertical Vortex Flow Regulator

Based on the vortex principle, the HYDROVEX® Pond is well suited for detention basins, ponds and wetlands where both a permanent water level and discharge control are required. Additionally, the Pond is well suited for multi staged flow control designs, which require control based on different storm intensities and water levels.

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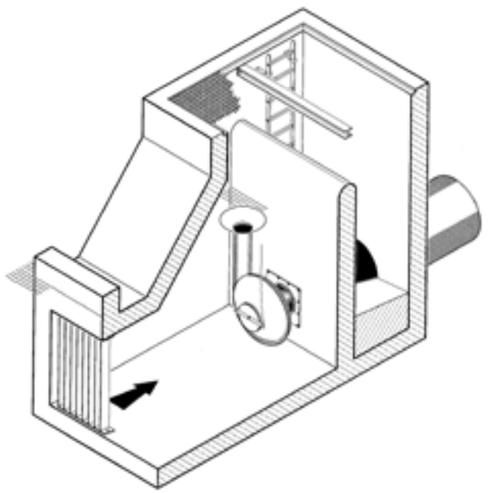

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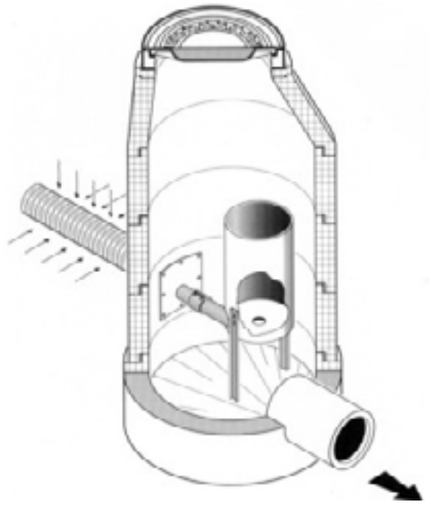
FLUIDVORTEX-R

Vortex Regulator

The HYDROVEX® FluidVortex-R is specifically designed to control flows coming from a stormwater infiltration trench. The top of the unit acts like an emergency overflow weir once the maximum storage volume in the trench is reached.



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Brochure available soon.

Please contact us for more information.

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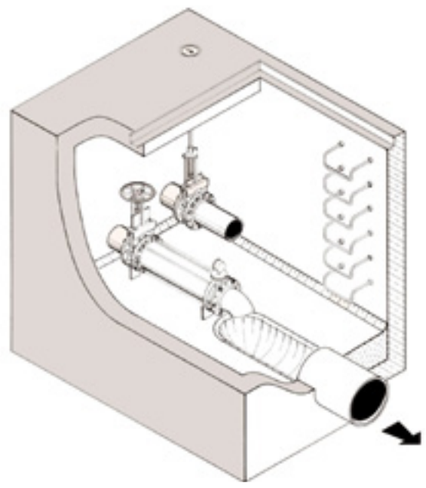
TTT
Membrane Regulator

The HYDROVEX® TTT is a control device which uses a flexible membrane to throttle flow. The membrane will continually contract or expand based on the applied pressure (Bernoulli effect), resulting in a varying open area and a constant discharge out of the retention basin regardless of upstream water level. The TTT can be designed for either a wet well or dry chamber installation.



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COMBINED & SANITARY SEWER

Flow Control

The primary purpose of a collection system is to divert and convey sanitary and combined sewage. Precise and reliable flow control is of utmost importance during a storm event, as it protects the treatment plant from hydraulic peaks. Additionally, properly conveying and diverting flow reduces the frequency of sewer overflows by using the available capacity in the collection system as in-line storage.

Veolia Water Technologies Canada offers a large portfolio of sustainable wet weather technologies. The products in this section have been specifically designed to convey and divert flow in collection systems.

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IHV

Vortex throttle designed to limit flows in combined and sanitary sewers, as well as storm overflow and retention basins ...

IHV EURO

Discharge throttling device based on the proven and reliable vortex principle. Designed for wet well installations, the IHV Euro is particularly adapted for medium to large flows ...

TURBO

Self-regulating flow control device based on the vortex principle, which maintains a constant discharge independent of upstream water pressure ...

FLUIDMOON

Self-adjusting knife gate regulating device ideal for small flow control applications ...

FLUIDCASCA

Float piloted sluice gate which can be used to maximize in-line storage capacity of sloped sewer lines ...

TIPPER

Flow measuring device for applications requiring the precise measurement of very low and infrequent flows ...

HHV-E

Programmable flow control unit which uses a pressure transducer, motorized valve assembly and a control panel to provide a constant flow independent of upstream water pressure ...

FLUIDMID

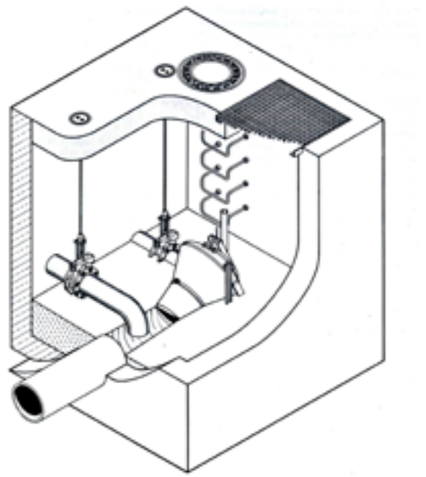
Monitoring and flow control system, combining a magnetic flowmeter, a motorized valve assembly and a control panel ...

8

IHV/HHV

Vortex Flow Regulator

The HYDROVEX® IHV is a vortex throttle designed to limit flows in combined and sanitary sewers, as well as storm overflow and retention basins. Designed for dry pit installations, the IHV is specially adapted for precise control of medium to large flow rates. Large inlet and outlet orifices, resulting from the central air-filled vortex, allow for minimal head loss during dry weather flows and reduced chances of blockage during wet weather flows. Requiring no auxiliary energy or moving parts to operate, the IHV provides years of reliable service.



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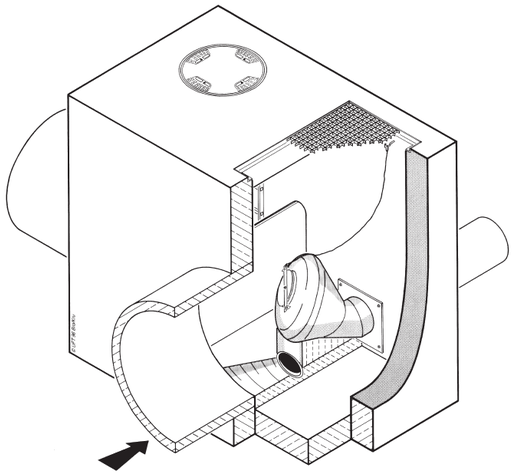
IHV EURO

Vortex Flow Regulator

The HYDROVEX® IHV EURO is a discharge throttling device based on the proven and reliable vortex principle. Designed for wet well installations, the IHV Euro is particularly adapted for medium to large flows. Large inlet and outlet orifices result in reduced chances of blockage and low headloss through the unit. Maintenance access cover can be removed from the operating floor using a pull cable to provide an emergency bypass.



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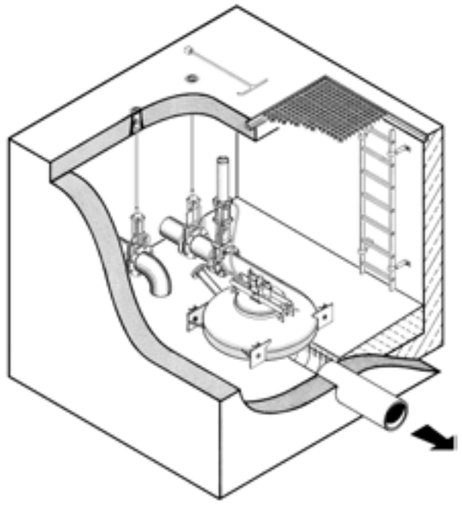
TURBO
Flow Regulator

The HYDROVEX® Turbo is self-regulating flow control device based on the vortex principle, which maintains a constant discharge independent of upstream water pressure. A turbine situated inside the unit reacts to changing upstream head and activates a hydraulically activated gate mounted on the inlet pipe of the regulator. The design of the system also provides high passive security in case of failure, as the vortex will continue to throttle flow. Ideal for applications requiring small to medium flow control, the Turbo does not require electricity to operate.



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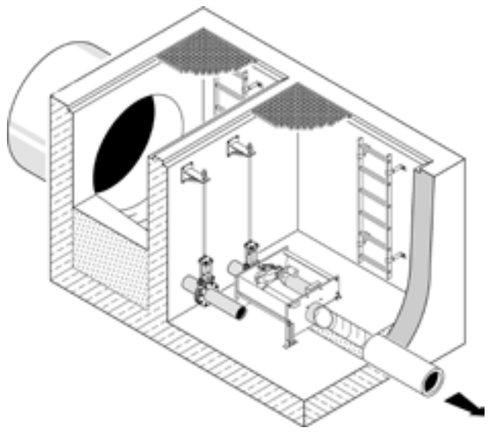
FLUIDMOON

Knife Gate Regulator

The HYDROVEX® FluidMoon is a self-adjusting knife gate regulating device ideal for small flow control applications. The unit is purely hydraulic and operates well in applications where there is no slope or in existing sites. Maintains a constant discharge under varying upstream water pressure.



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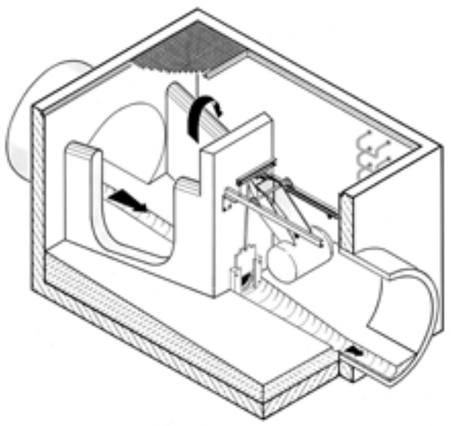
FLUIDCASCA

Cascading Float Gate Valve

The HYDROVEX® FluidCasca is a float piloted sluice gate which can be used to maximize in-line storage capacity of sloped sewer lines. The FluidCasca can also be used as an open/close gate for stormwater retention ponds.



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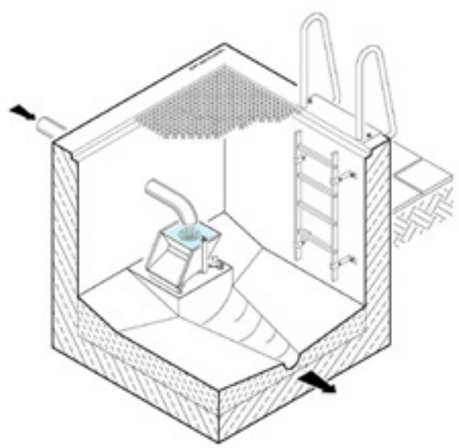
TIPPER
Flow Measuring Device

The HYDROVEX® Tipper is a flow measuring device for applications requiring the precise measurement of very low and infrequent flows. Equipped with a two compartment reservoir, each compartment will fill up and tip due to the shifting center of gravity. As the unit tips, the second compartment begins to fill. Every tip is recorded by a mechanical counter.



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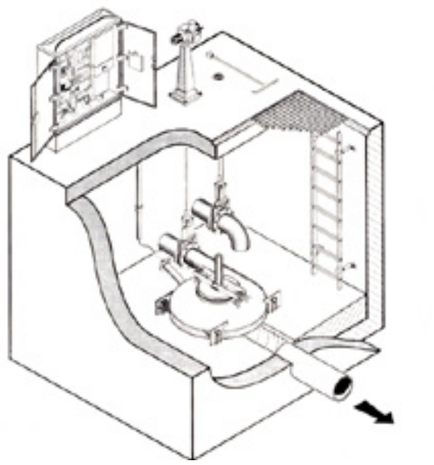
HHV-E

Vortex Driven Regulator

The HYDROVEX® HHV-E is a programmable flow control unit which uses a pressure transducer, motorized valve assembly and a control panel to provide a constant flow independent of upstream water pressure. The vortex valve offers a high passive security and will continue to throttle the flow in case of power failure. The HHV-E is ideal for applications with small to medium flow rates and is equipped with remote control capabilities.



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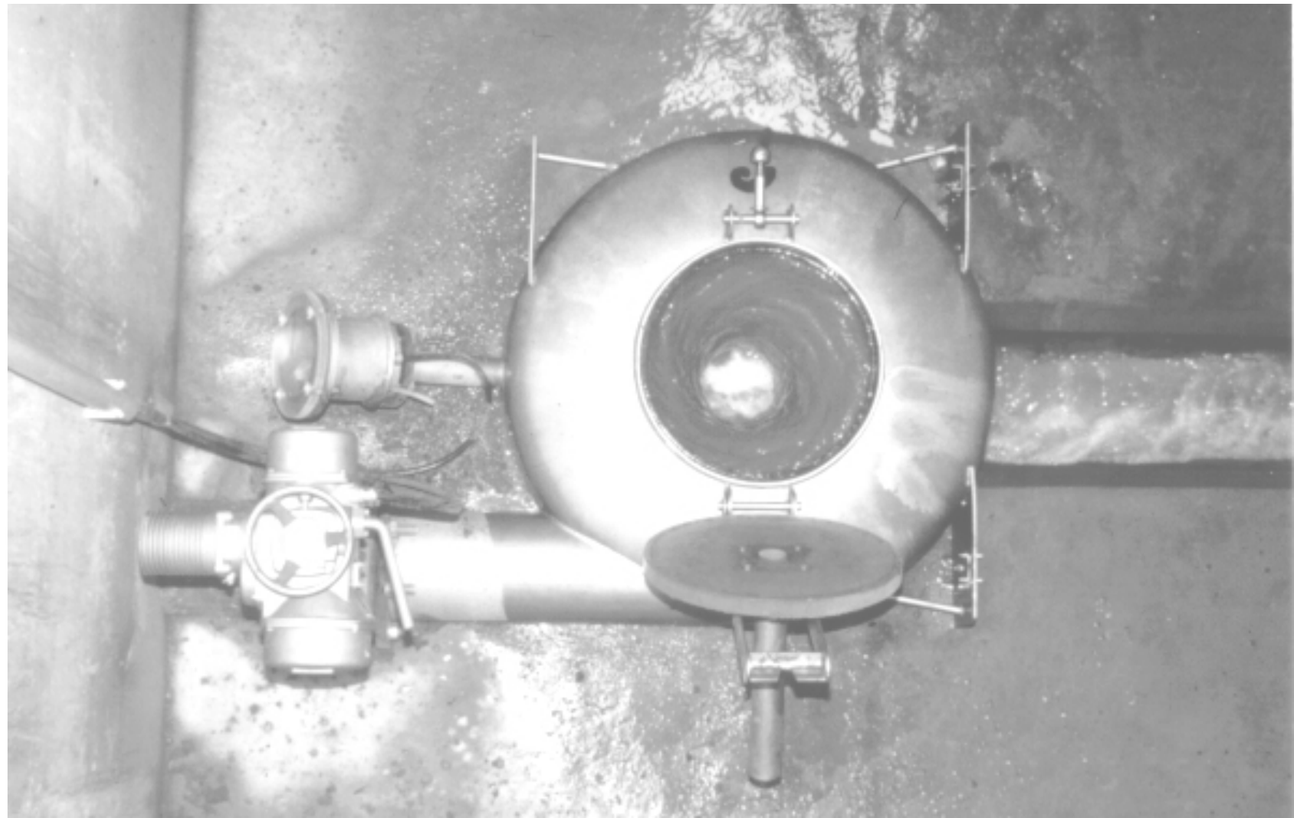

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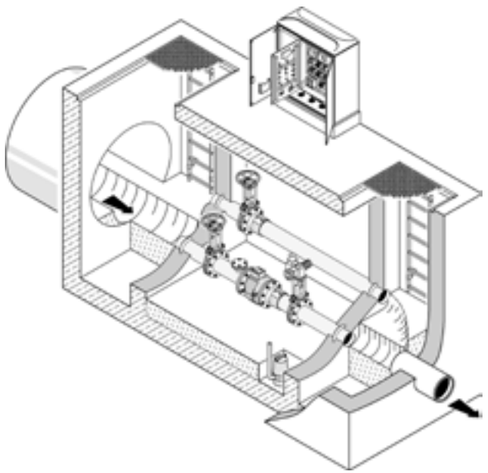
FLUIDMID

Flow Monitoring & Regulating Station

The HYDROVEX® FluidMID is a monitoring and flow control system, combining a magnetic flowmeter, a motorized valve assembly and a control panel which offers a constant flow independent of upstream water pressure. The programmable controller can monitor and record a variety of additional water quality parameters. The FluidMID is ideal for real time control (RTC) applications where the flow set point needs to be changed based on the downstream hydraulic capacity.



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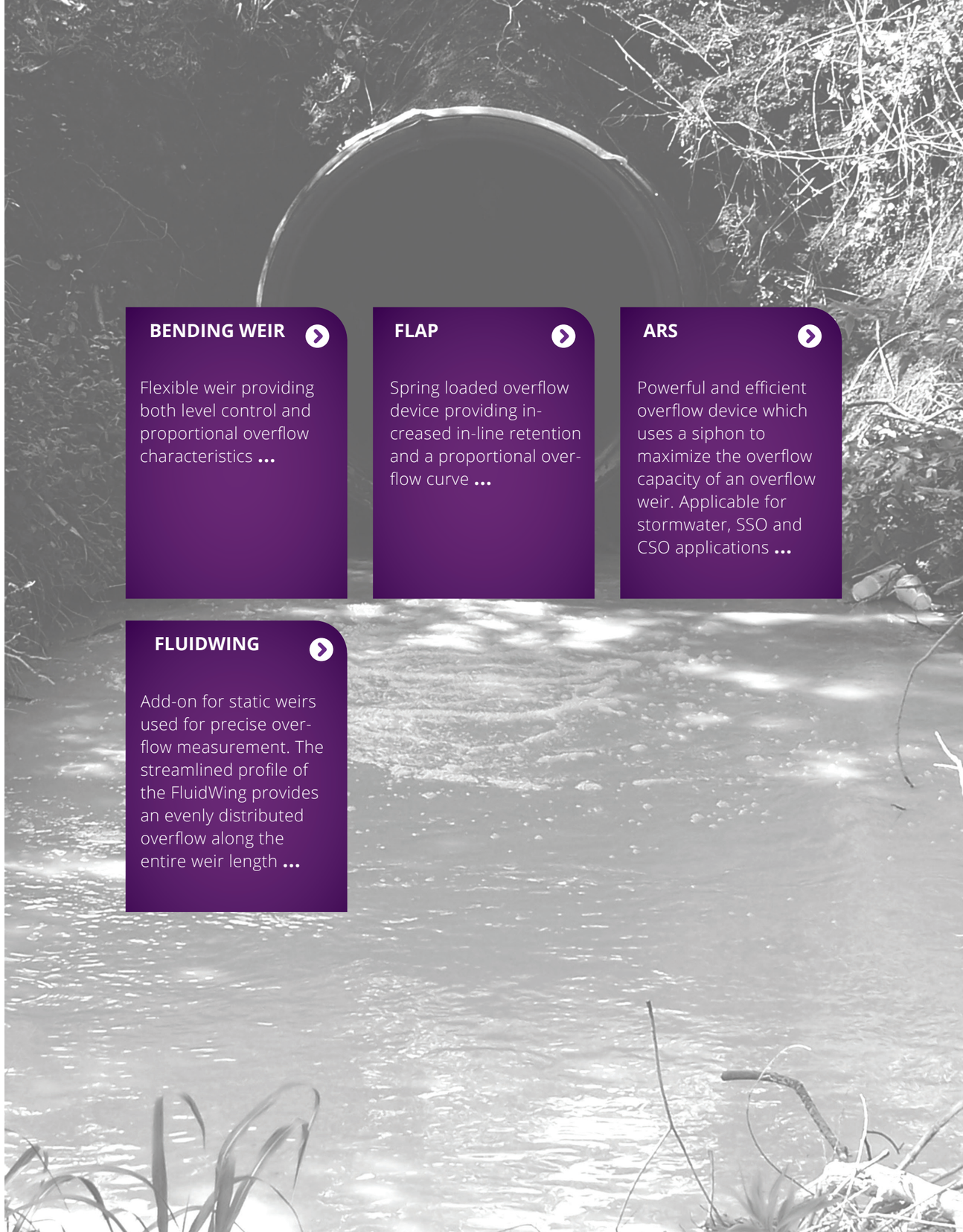
LEVEL CONTROL

The hydraulic design of a sewer network typically requires a compromise between maximizing in-line retention and minimizing flood risks. Static overflow weirs are typically used to relieve the collection system during a wet weather event. In an attempt to maximize in-line retention volume, long static weirs and correspondingly large overflow structures are often required. The HYDROVEX® proportional overflow devices described in this section provide both dynamic level control and efficient overflow capacity simultaneously, resulting in increasing in-line retention while eliminating the need for long static weirs.



BENDING WEIR

Flexible weir providing both level control and proportional overflow characteristics ...

FLAP

Spring loaded overflow device providing increased in-line retention and a proportional overflow curve ...

ARS

Powerful and efficient overflow device which uses a siphon to maximize the overflow capacity of an overflow weir. Applicable for stormwater, SSO and CSO applications ...

FLUIDWING

Add-on for static weirs used for precise overflow measurement. The streamlined profile of the FluidWing provides an evenly distributed overflow along the entire weir length ...

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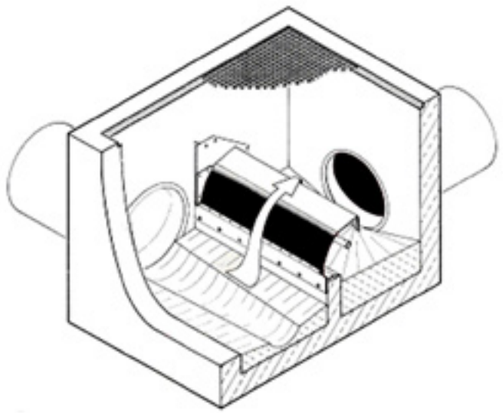
BW
Bending Weir

The HYDROVEX® Bending Weir is a flexible weir providing both level control and proportional overflow characteristics. The unit remains at rest until the water level in the collection system reaches the edge of the unit. At this point the unit will bend forward and begin overflowing. As the overflow rate increases, the Bending Weir will continue to bend further, resulting in a very small increase in water level. The BW is typically, is 2 to 5 times shorter than a traditional static weir rate and head. The unit operates without the need of counterweights, pulleys, cables or electricity.



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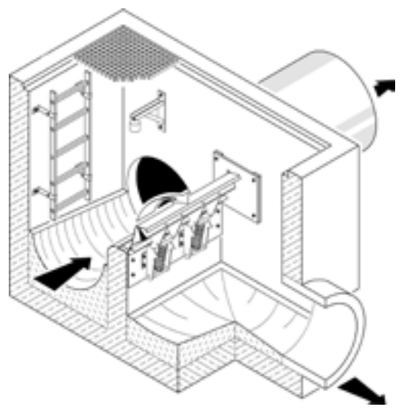
FLAP
Spring-Loaded Weir

The HYDROVEX® Flap is a spring loaded overflow device providing increased in-line retention and a proportional overflow curve. The unit remains at rest until the water level in the collection system reaches the edge of the unit. At this point the unit will bend forward and begin overflowing. As the overflow rate increases, the Flap will continue to bend further, resulting in a very small increase in water level. The Flap is typically 4 to 10 times shorter than a traditional static weir for a similar overflow rate and head. The unit operates without counterweights, pulleys, cables or electricity, and can be installed in existing overflow structures.



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ARS
Air Regulated Siphon

The HYDROVEX® ARS is a powerful and efficient overflow device which uses a siphon to maximize the overflow capacity of an overflow weir. Applicable for stormwater, SSO and CSO applications, the ARS is typically 8 to 15 times than a traditional static weir for a similar overflow rate and design head. Greatly minimizes the required overflow structure size, thus reducing the cost of civil works.

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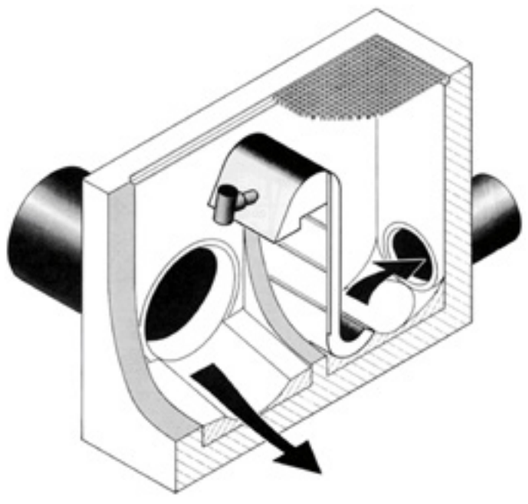

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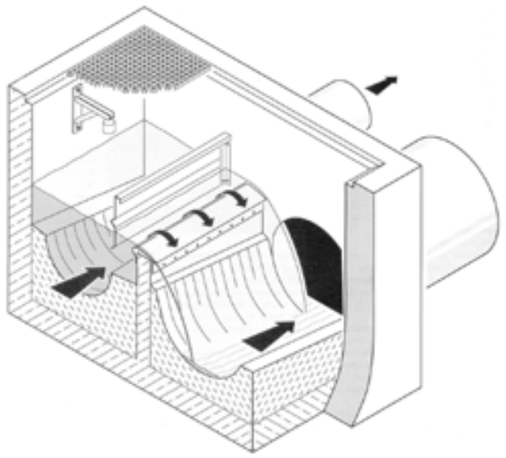
FLUIDWING

Overflow Weir Profile

The HYDROVEX® FluidWing is an add-on for static weirs used for precise overflow measurement. The streamlined profile of the FluidWing provides an evenly distributed overflow along the entire weir length, allowing measurement even under extremely low heads. The unit can be supplied with an underflow baffle to retain floatables.



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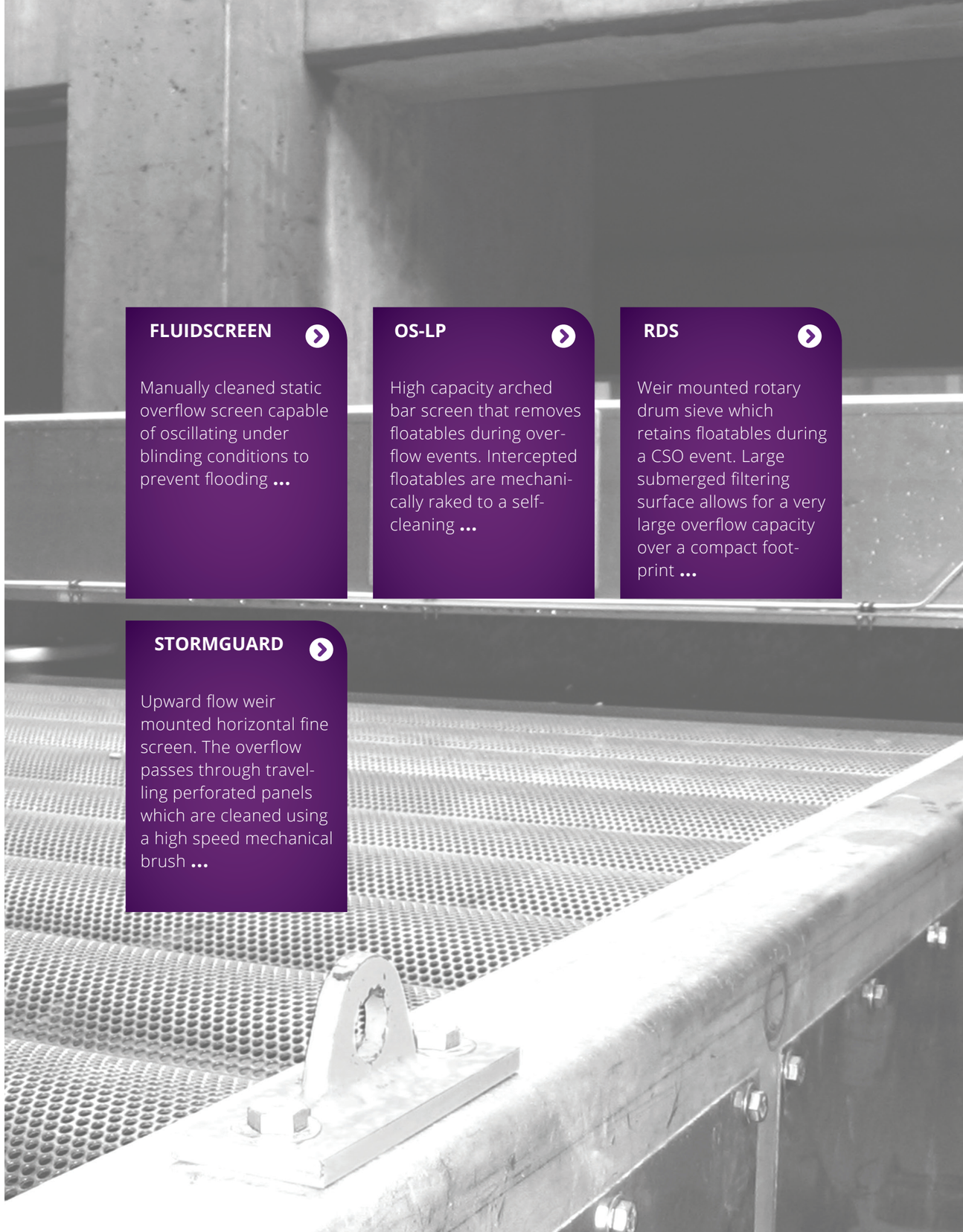
OVERFLOW SCREENING

Floatables control is one of the Nine Minimum Controls required by the USEPA (United States Environmental Protection Agency) for CSO policy compliance. One of the most efficient and reliable methods to capture floatables during an overflow event is the installation of an overflow screen. Veolia Water Technologies Canada has a complete line of proven and reliable overflow screens.



FLUIDSCREEN

Manually cleaned static overflow screen capable of oscillating under blinding conditions to prevent flooding ...

OS-LP

High capacity arched bar screen that removes floatables during overflow events. Intercepted floatables are mechanically raked to a self-cleaning ...

RDS

Weir mounted rotary drum sieve which retains floatables during a CSO event. Large submerged filtering surface allows for a very large overflow capacity over a compact footprint ...

STORMGUARD

Upward flow weir mounted horizontal fine screen. The overflow passes through travelling perforated panels which are cleaned using a high speed mechanical brush ...

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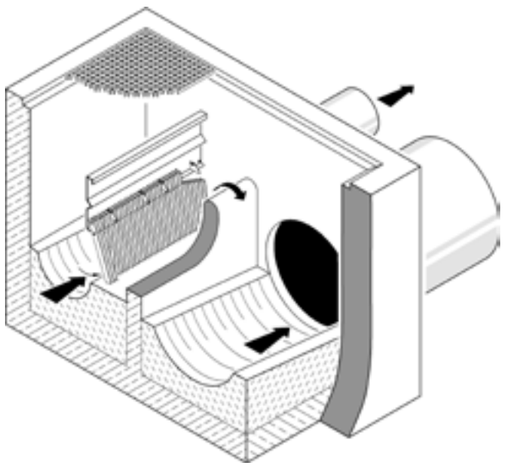
FLUIDSCREEN

Oscillating Static Screen

The HYDROVEX® FluidScreen is a manually cleaned static overflow screen capable of oscillating under blinding conditions to prevent flooding. Head loss remains constant under blinding due to the oscillating effect. No external energy required to activate screen.



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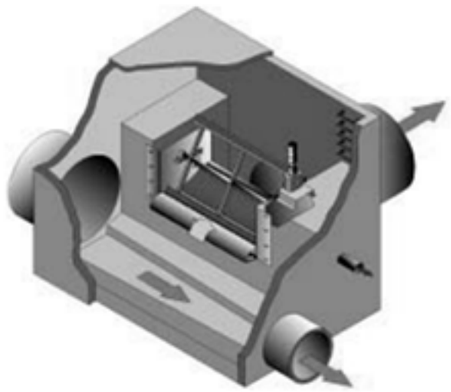
OS-LP

Low Profile Overflow Screen

The OS-LP is high capacity arched bar screen that removes floatables during overflow events. Intercepted floatables are mechanically raked to a self-cleaning trough located behind the unit, and reintroduced into the collection system downstream of the overflow site. Includes a profiled weir for increased hydraulic performance.



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Video

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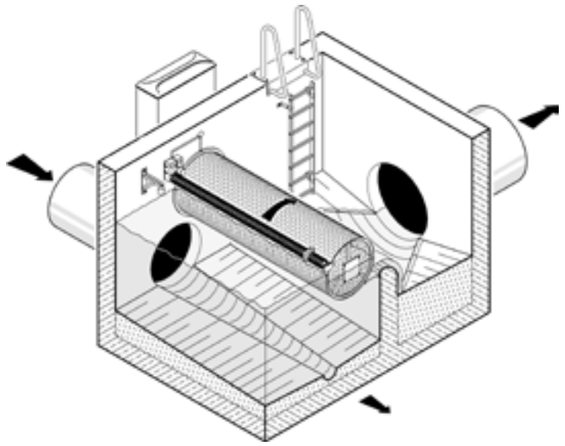
RDS

Rotary Drum Sieve

The HYDROVEX® RDS is a weir mounted rotary drum sieve which retains floatables during a CSO event. Large submerged filtering surface allows for a very large overflow capacity over a compact footprint. High speed brush located above the water level cleans drum surface and keeps solids in the main channel, eliminating the need for solids handling.



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STORMGUARD

Overflow Screen

The StromGuard™ is an upward flow weir mounted horizontal fine screen. The overflow passes through travelling perforated panels which are cleaned using a high speed mechanical brush located above the water level. Screenings are retained in the foul flow allowing them to be treated at the WWTP.

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Video

STORAGE & TREATMENT

Retention and preliminary treatment of raw sewage, whether in-line or off-line, is one of the objectives of any wet weather management program. This can be accomplished using equalization tanks, clarifiers or vortex separators to store excess water during wet weather events.

FLUIDSEP

Vortex separator designed to remove solids and debris during wet weather events. Sediments are cocentrated towards the center of the unit and settle to the bottom of the tank ...

CLARI

Optimizes the hydraulics of an emergency clarifier tank by controlling the overflow discharge rate ...

SFT

Designed to clean sediments, grit and debris from the bottom of a retention basin following an overflow event using one flush ...

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FLUIDSEP

Vortex Separator

The HYDROVEX® FluidSep is a vortex separator designed to remove solids and debris during wet weather events. Sediments are concentrated towards the center of the unit and settle to the bottom of the tank where they are sent to the treatment plant via the underdrain. Water overflowing out of the top of the unit flows through a central baffle which further captures floatables. Minor events can be fully intercepted and contained inside the unit volume without overflowing. The FluidSep does not require external energy to operate and has no moving parts.

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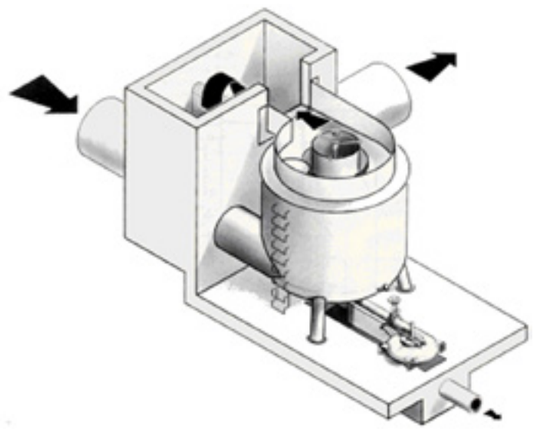

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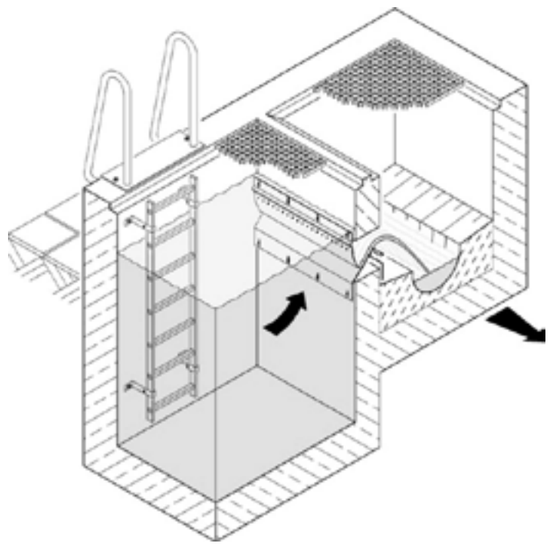
CLARI

Self Regulating Outlet Slit

The HYDROVEX® Clari optimizes the hydraulics of an emergency clarifier tank by controlling the overflow discharge rate. As a result, quiescent settling conditions are promoted, maintaining the settling of suspended solids even under emergency overflow conditions.



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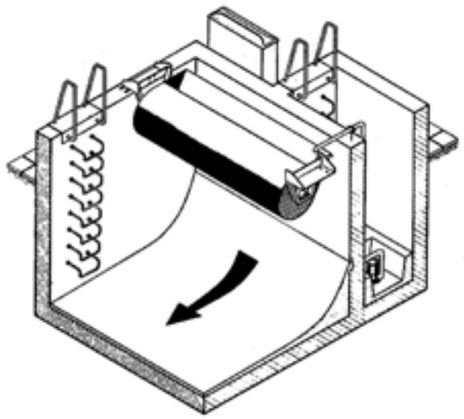
SFT
Sediment Flusher

The HYDROVEX® SFT is designed to clean sediments, grit and debris from the bottom of a retention basin following an overflow event using one flush. When filled with water, the SFT will tip and release its entire content. The resulting high velocity wave flushes the sediments to a sump at the end of the tank. Multiple units can be installed in parallel in wide retention basins.



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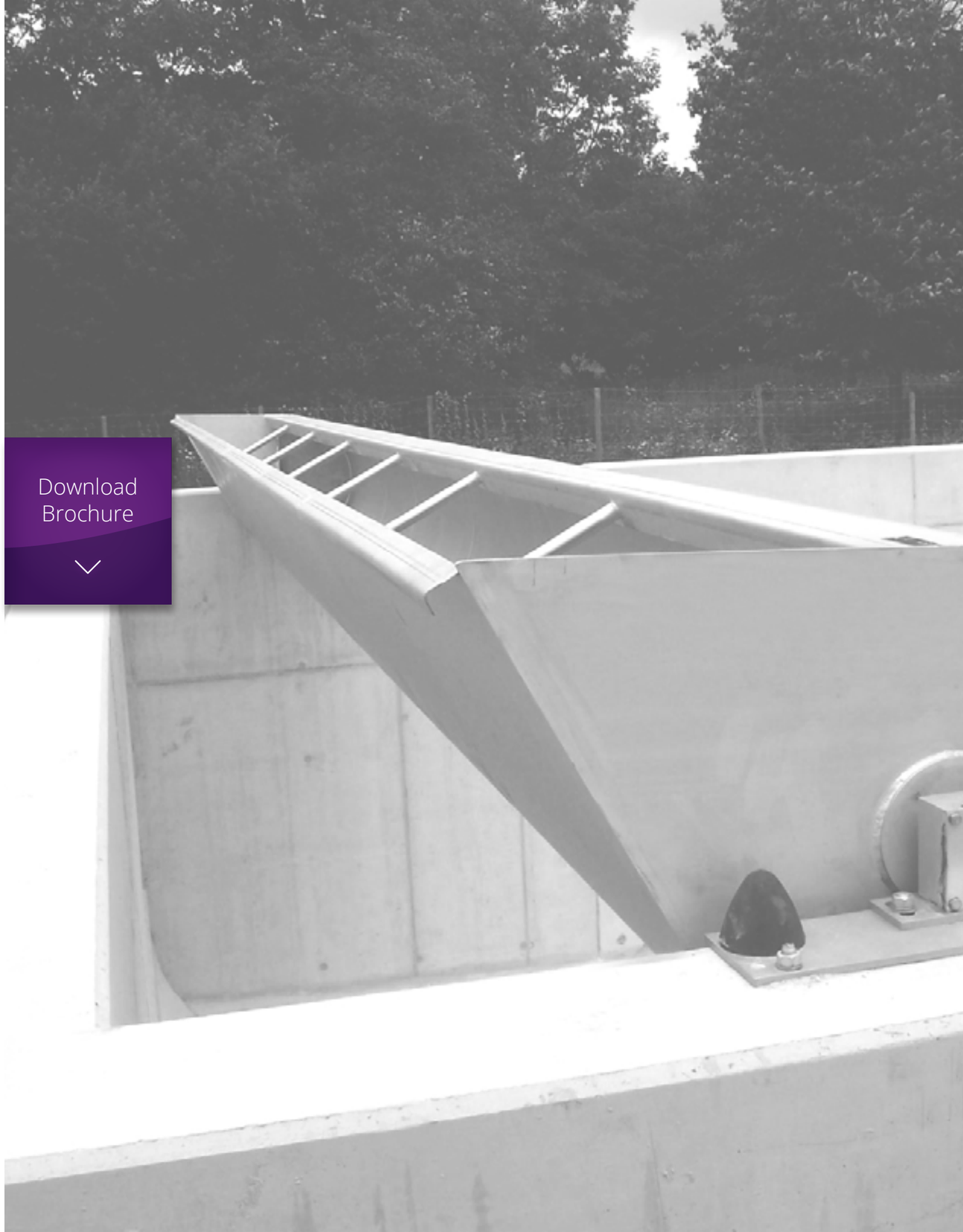

CHECK VALVES

Check valves are designed to prevent flooding and surcharging of the sewer system caused by high downstream water levels. As a result, overloading of the sewage treatment plant is avoided and energy costs for pumping systems and sewage treatment are reduced.

CCV

Membrane check valve with no housing used in stormwater and sewage applications. The flexible rubber lid offers a tight, drip free solution with low resistance in the flow direction ...

LCV

Membrane check valve used on overflow weirs subject to backflow conditions. The flexible rubber lid offers a tight, drip free solution and lower headloss as compared to traditional rigid lid check valves ...

FLUIDPEND

A rigid, rectangular flap used as a backflow prevention device for overflow weirs subject to high back pressures and large flows ...

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CCV
Check Valve

The HYDROVEX® CCV is a membrane check valve with no housing used in stormwater and sewage applications. The flexible rubber lid offers a tight, drip free solution with low resistance in the flow direction, resulting in lower headloss compared to traditional rigid lid check valves. The CCV can also be used as a flow control device.

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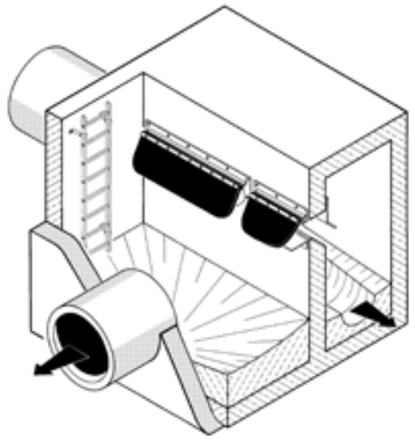
LCV
Check Valve

The HYDROVEX® LCV is a membrane check valve used on overflow weirs subject to backflow conditions. The flexible rubber lid offers a tight, drip free solution and lower headloss as compared to traditional rigid lid check valves. The LCV can also be used as a flow control device.



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