Storm King®

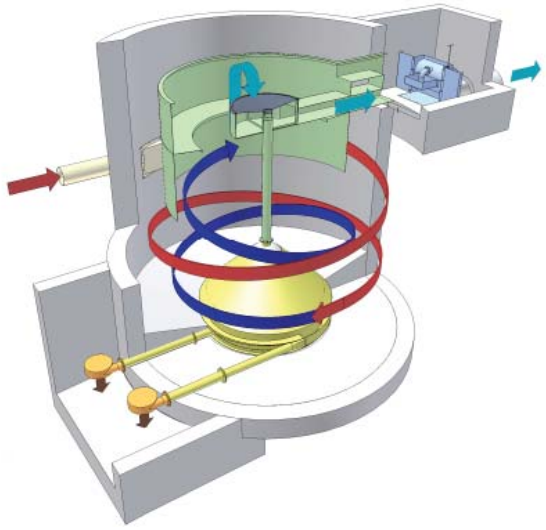
Sedimentation, screening and disinfection exceeds primary treatment standards.

APPLICATIONS

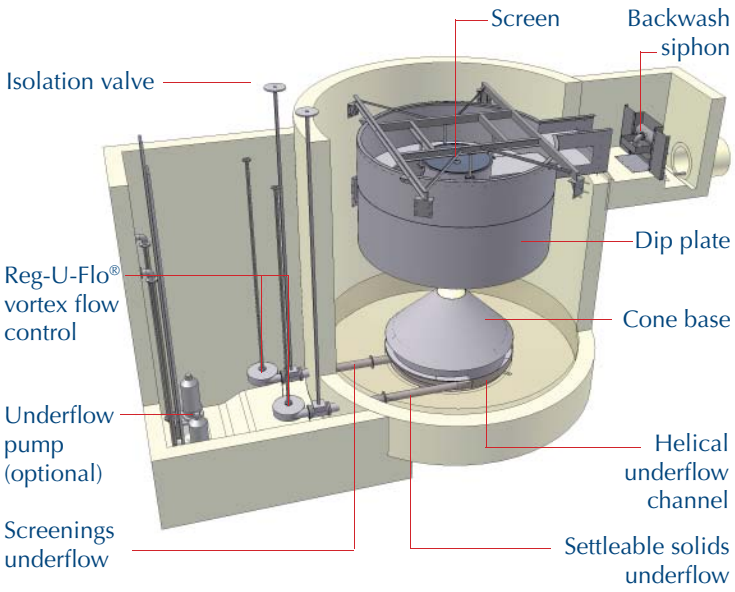
- Floatables control, primary treatment equivalency and disinfection of CSOs and SSOs
- Upgrades to existing CSO facilities
- New satellite CSO facilities
- Treatment of excess wet-weather flows at WWTPs
- Stormwater treatment at centralized wet weather treatment plants

ADVANTAGES

- Effluent meets and exceeds primary treatment equivalency for BOD & TSS removal
- Vortex chamber can be used for disinfection
- Screening down to 4mm for debris, floatables, gross solids & neutrally buoyant material
- Save up to 50% on CSO project costs
- No moving parts
- No external power source needed
- Low system headloss
- Minimal maintenance needed



The **Storm King** is a vortex separation chamber with the option to incorporate unique, non-powered, self-cleansing Swirl-Cleanse screening technology. The **Storm King** is ideal for satellite treatment at overflow sites and has been shown to save municipalities up to 50% on overall project costs when compared to conventional solutions.



HOW IT WORKS

Flow is introduced into the **Storm King** via a tangentially positioned inlet causing a rotational flow path around the dip plate.

The flow spirals down the wall of the chamber as solids settle out by gravitational and rotational forces (red arrow).

Settleable solids collect in the base as the center cone directs flow up and around the center shaft into the inside of the dip plate cylinder (dark blue arrow). The upward flow rotates at a slower velocity than the outer downward flow. The resulting "shear" zone scrubs out the finer particles.

The flow passes down through the Swirl-Cleanse screen which captures all floatables and neutrally buoyant material greater than 4mm in diameter. The air regulated siphon provides an effective backwash mechanism to prevent the screen from blinding. Screened effluent is discharged into a receiving waterway (light blue arrow).

The collected screenings and settleable solids are pumped or gravity fed from the base of the unit to the sewage treatment plant continuation flow (brown arrow).

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Maintenance

The **Storm King**® screen design incorporates a hydraulically operated siphon that regulates the self-cleansing dynamic backwashing system.

Once the device has been brought on-line, the **Storm King** and Swirl-Cleanse screen should be visually inspected after the first two spill events. After the initial inspections, visual inspection of the equipment should be carried out twice a year, or as deemed appropriate for the location.

Sizing & Design

The **Storm King** can be used for various applications, including:

Primary Treatment Equivalency

The **Storm King** removes as high as 90% TSS and up to 85% BOD when sized for primary treatment equivalency.

Floatables Control

The **Storm King** enhances treatment by coupling vortex separation with self-cleansing non-powered screening technology.

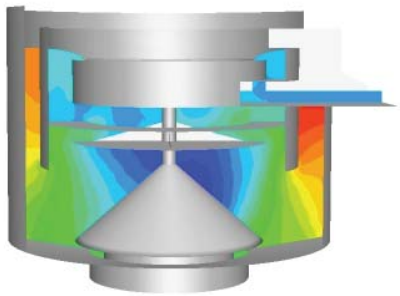
Mixing for Disinfection

Computational Fluid Dynamics (CFD) analysis and field trials have shown that the **Storm King** is an effective mixing chamber, requiring 3 minutes* of contact time for disinfection.

**Typical contact time required for chemical disinfection in a conventional chamber is 15 minutes.*

Design Requirements

- Wet weather flow rates
- Spill frequency
- Site details
- Pollutant characteristics



CFD simulation showing predicted fecal coliform kills in Storm King® (survival color coded: Red is alive and blue is dead).

For more information please call our office toll free at 800.848.2706
or inquire at www.hydro-international.biz.

This information is subject to change without notice.

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