

# Storm King® Overflow

Advanced CSO Treatment

An advanced vortex separator with a **self-cleansing, non-powered, screen**.

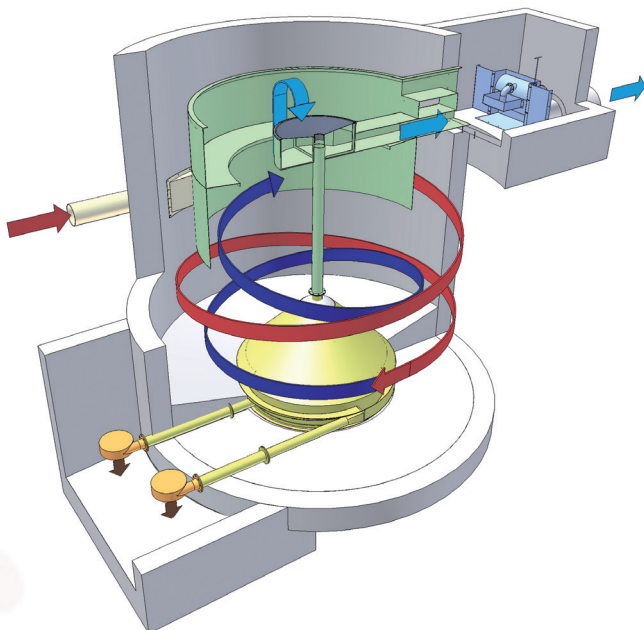
## Product Profile

The Storm King® Overflow Screen is an advanced hydrodynamic vortex separator with an integral unique, non-powered, self-cleansing screen. The system 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.

## Advantages

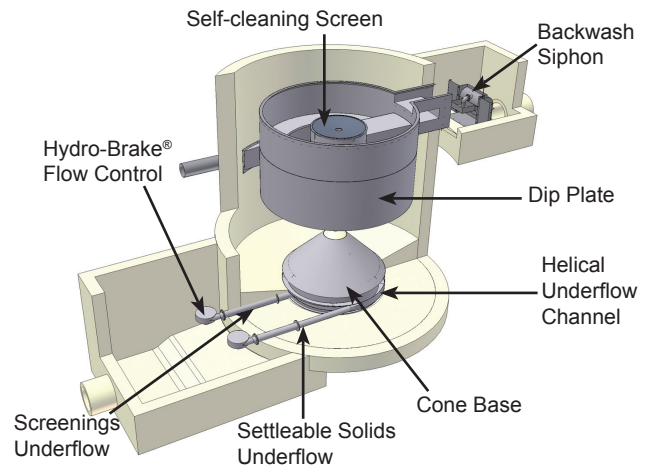
- No moving parts or power requirement.
- Self-activating and self-cleansing.
- Low headloss.
- 100% removal of 6 mm in 2 direction solids including floatables, gross solids and neutrally buoyant material.
- Removes up to 95% of grit and sediments.
- Small footprint.
- Low capital and life cycle costs.
- Minimal maintenance.

## How it Works



## Applications

- New and retrofit CSO facilities.
- Screening system can be retrofitted to existing Storm King® Overflows.
- Remote treatment sites.
- Floatables control for CSOs and collection systems.
- Mixing for disinfection.
- Primary treatment equivalency.



Flow is introduced tangentially into the side of the Storm King® causing the contents to rotate slowly about the vertical axis.

The flow spirals down the perimeter allowing solids to settle out. This process is aided by rotary forces, shear forces and drag forces at the boundary layer on the wall and base of the vessel (red arrow).

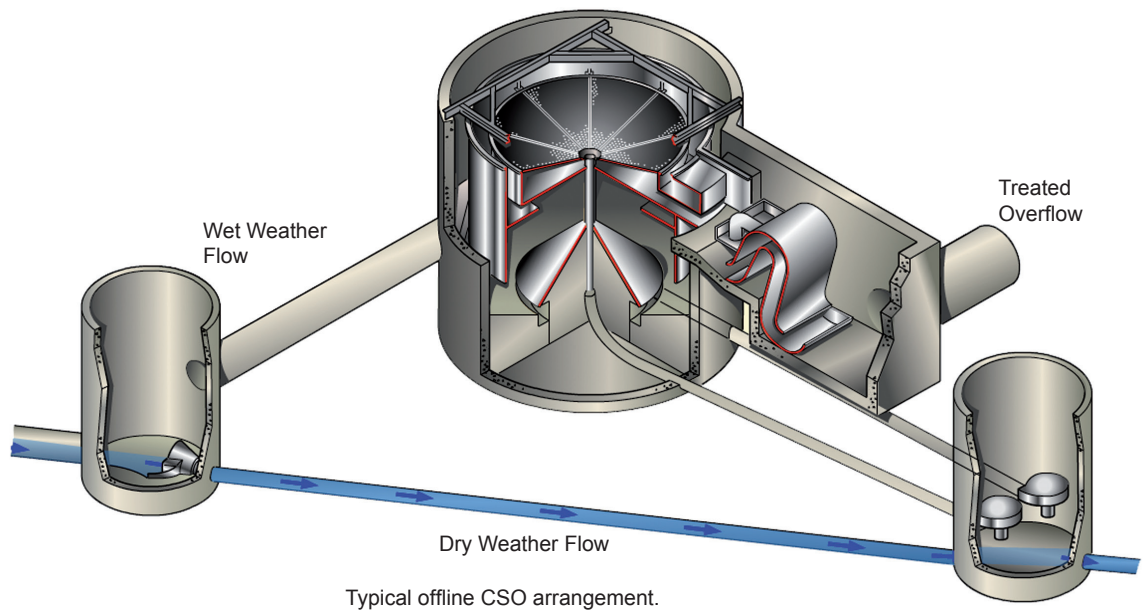
The internal components direct the main flow away from the perimeter and back up the middle of the vessel as a broad spiralling column, rotating at a slower velocity than the outer downward flow. By the time the flow reaches the top of the vessel, it is virtually free of settleable solids and is discharged to the outlet channel. Prior to discharge, the overflow passes through the self-cleaning screen (dark blue arrow).

The self-cleaning screen captures all floatables and neutrally buoyant material down to 6mm. The air regulated siphon provides an effective backwash mechanism to prevent the screen from blinding (light blue arrow).

The collected solids and floatables are then discharged by gravity or pumped out from the base of the unit to the Continuation flow to the treatment works (brown arrow).

## Design Requirements

- Flow rates.
- Spill frequency.
- Chamber details.
- Hydraulic conditions.



## Maintenance

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

Once the device has been brought on-line, it should be visually inspected after the first two spill events. After the initial inspection, visual inspection of the equipment should be carried out twice a year.

The system should be checked for blockages, the screen panels checked for accumulation of solids and the joint checked for leaks. If present, accumulated solids, oils and grease should be removed by hosing down.



Dynamic backwashing system in operation.



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