

Hydro-Jet[®] Screen *Non-powered CSO Screening System*

Award winning non-powered, self-cleansing screening technology.

Applications

- Floatables control for CSOs and collection systems.
- New CSO facilities.
- CSO retrofits.
- Remote treatment sites.
- Floatables control for CSOs and collection systems.

Advantages

- No moving parts or power requirement.
- Self-activating.
- Self-cleansing.
- Low headloss.
- Removal of all material greater than 6 mm in two directions.
- Small footprint.
- Low capital and life cycle costs.
- Minimal maintenance.

The Hydro-Jet[®] Screen is a self-activating, self-cleansing, CSO screening system with no moving parts and no power requirements. A compact device with high hydraulic throughput, the Hydro-Jet[®] Screen is perfectly suited for small to medium size CSO sites.



How it Works

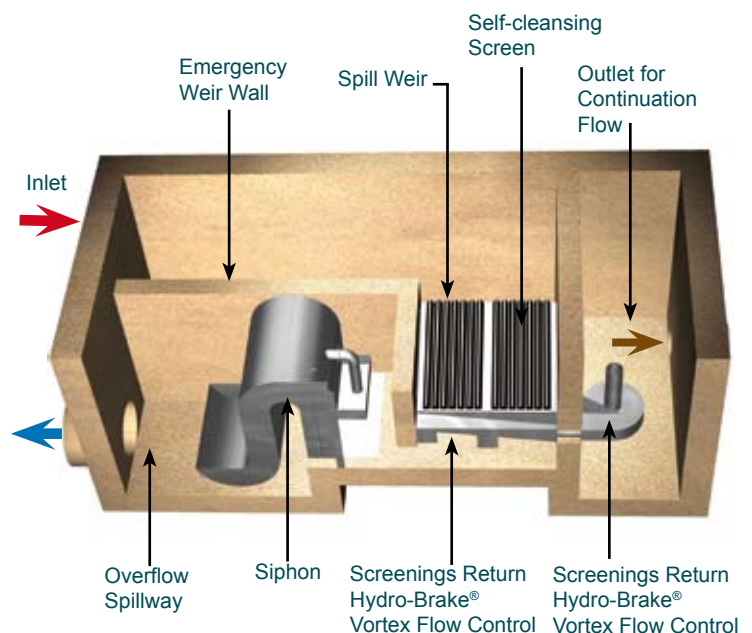
Dry weather flows pass through the Hydro-Jet[®] Screen chamber (red arrow) via the dry weather channel and continue downstream to a treatment plant (brown arrow).

During wet weather events, the flow increases as runoff drains into the combined sewer system. The water level in the dry weather flow channel rises as the Hydro-Brake[®] Flow Control limits the flow passed through the continuation flow outlet.

Water in the dry weather flow channel rises until it spills over the weir wall and flows down through the angled self-cleansing screen.

As the water level under the screen rises to the crest of the siphon the pocket of air trapped between the water surface and the screen creates a backwash mechanism. Debris is lifted off the screen and carried down the screenings channel, which is returned to the continuation flow (brown arrow).

The siphon breaks, discharging the screened effluent (blue arrow) to the receiving water body while drawing down the water level in the overflow spillway.



Maintenance

The Hydro-Jet® Screen design incorporates a hydraulically operated siphon that regulates the self-cleansing dynamic backwashing system.

The Hydro-Jet® Screen should be visually inspected after the first two spill events and twice a year thereafter.

After a spill event the screen should be at least 50% clear of debris. If excessive debris is observed, downstream surcharge is likely. The screen should be hosed down and steps should be taken to reduce the top water level in the downstream sewer network.



Design

The Hydro-Jet® Screen is typically designed for a loading rate of 200 l/s/m². Other parameters include:

- Design inflow rate.
- Design pass on flow to treatment.
- Design spill flow.
- Design maximum top water level in main channel.
- Maximum acceptable top water level in screenings return chamber.
- Maximum acceptable top water level in siphon discharge chamber.

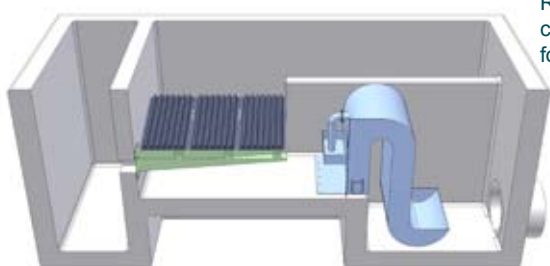
Flow Control

The screenings return Hydro-Brake® Vortex Flow Control is an integral part of the Hydro-Jet® Screen system. It is essential to restrict the amount of flow that is returned to the collection system.

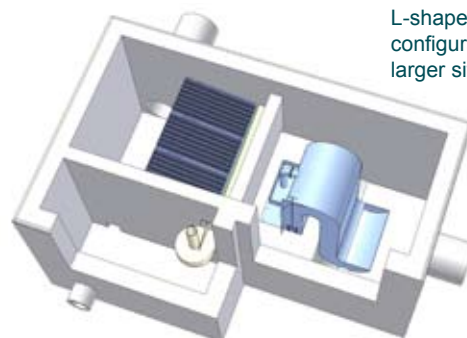
A 150 mm outlet diameter is the minimum recommended size unit for use on foul and combined sewer systems. The average flow rate through the screenings return Hydro-Brake® Flow Control is in the order of 7.5 l/s.

In some instances there may be scope to increase the size of the screenings return Hydro-Brake® Flow control depending on the spill flow size and continuation flow rate into the downstream sewer.

Configurations



Rectangular configuration for small sites.



L-shaped configuration for larger sites.

Design Chart

Model	Number of Screening Panels	Treatment Flow Rates (l/s)
Regular	1-3	0 - 450
L-Shaped	>3	>450

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