Up-Flo® Filter

High-rate stormwater filtration with higher loading rates and longer media life.

Product Profile

The Up-Flo® Filter is a multi-stage stormwater treatment system that combines pretreatment with fluidized bed filtration technology for superior filtration rates and media longevity. The Up-Flo® Filter optimizes the balance between high treatment performance and total cost of ownership. While the high-rate, small footprint system saves on upfront construction costs, the long maintenance cycle and economical maintenance process make it a more affordable filtration device to own.

Components

1. Inlet grate (pictured) or Inlet Pipe (not shown)
2. Precast Filtration Chamber
3. Filter Module (see Fig.2, reverse)
4. 4mm Screening
5. Bypass Hood/Siphon
6. Outlet Module
7. Drain Down
8. Pollutant Storage Sump

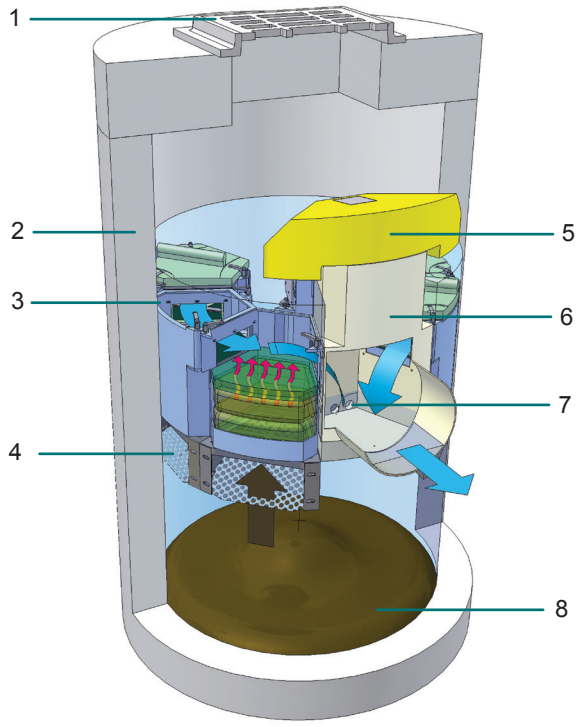

Fig.1 The Up-Flo® Filter includes sedimentation, screening and filtration in a single device.

Applications

- Removal of sediment, nutrients and metals from stormwater runoff
- Source control for redevelopment or new construction
- Treatment downstream of Water Quality Volume detention systems
- High traffic, high pollutant sites such as maintenance yards, parking lots and roads
- Protection for groundwater recharge systems
- LEED® construction projects

Advantages

- Sedimentation, screening and filtration in one structure
- Upflow fluidized bed technology prevents clogging of filter media
- Drain down initiates a backwash to recharge media between events
- Includes an integral high flow bypass and trap for oils and trash
- Engineered media requires minimal head at high filtration rates
- Economical media bag replacement process requires neither heavy lifting equipment nor purchase of entirely new cartridge

How it Works

Stormwater flows into the chamber where pretreatment occurs as sediment settles out in the sump. Oil and floatables rise to the surface of the water. Flow is directed up through the angled screen to remove neutrally buoyant debris before entering the Filter Modules (Fig.1, brown arrow).

Filtration occurs as the water flows up through the fluidized media bed within the Filter Modules (see Fig.2, reverse). Treated water flows to the Outlet Module and is discharged from the outlet pipe (blue arrow). During peak storm intensities, excess flows are siphoned through the Bypass Hood, which also acts as a floatables baffle preventing the escape of oil and floatable trash.

After a storm event, the patented draindown feature allows the water level in the chamber to drop below the filter media, keeping the media dry between storms. The drain down creates a light backwashing effect to wash captured pollutants off the surface of the filter bag, helping to prevent blinding and prolonging media life. Draining the water from the media prevents media degradation and reduces the weight of the filter bags for easier removal during maintenance.

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Filter Module Components

Filtration occurs as water flows up through the fluidized media bed within the Filter Modules. Each Filter Module contains flow distributing media to evenly spread the flow across the entire surface of the media bed. The fluidized media bed consists of two filter bags containing an engineered media mix designed to optimize pollutant removal (Fig.2).

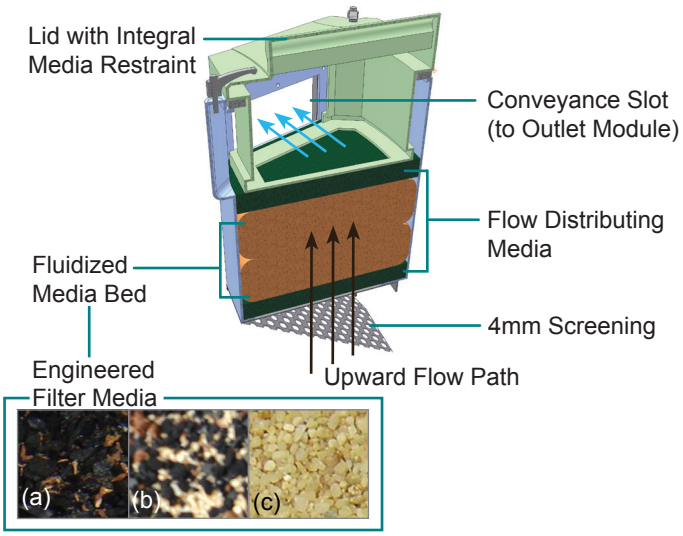

Fig.2 Up-Flo® Filter Module Components with the option of various engineered media mixes, including (a) CPZ™ Mix for TSS, Nutrients, Metals and Organics removal, (b) CPS™ Mix, the cold climate alternative to CPZ™ Mix, and (c) Hydro Filter Sand for TSS, Particle-bound Nutrients, and Metals removal.

Maintenance

The Up-Flo® Filter was specifically designed to have a long media life and low-cost maintenance requirements.

Maintenance is simple with easy access to the sump and replaceable media packs. A vactor truck is used to remove sediment and debris from the sump (Fig.3a).

The spent media packs weigh less than 50lbs and are light enough to be manually replaced (Fig.3b). Unlike other filter systems whose media cartridges weigh upwards of 250lbs, no specialized heavy lifting equipment is necessary to maintain the Up-Flo® Filter, resulting in a lower cost of ownership.

Watch video of a real maintenance event on YouTube:
http://www.youtube.com/HydroInternationalTV

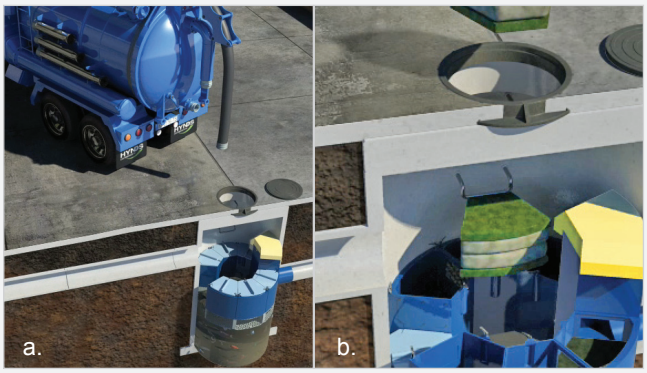

Fig.3 (a) Sediment is removed with a standard vactor truck (b) Media bags are replaced manually with no heavy lifting equipment required.

Sizing & Design

The modular design of the Up-Flo® Filter ensures that project specific treatment goals are easily met. Intended for intercepting pollutants at the source, its modular components are standardized for 4-ft diameter manholes or custom fit into precast vaults having 4-ft diameter rings of 1 to 6 filter modules.

Each Filter Module has a maximum filtration rate of 20-25 gpm (1.26 - 1.58 L/s) depending on the media type and the peak water elevation (operating head). A standard 4-ft (1.2m) manhole system with 1 to 6 Filter Modules treats up to 150 gpm (9.5 L/s). Standard parameters are shown at right (Fig.4) and below (Table 1).

Table 1. Standard design parameters of the Up-Flo® Filter.

	Up-Flo® Design Parameter	Dimension	
A	Diameter	4-ft	1.2m
B	Height	7.5-ft	2.29m
C	Sump Depth	3.0-ft	0.91m
D	Inlet / Outlet Drop	0.8-ft	0.24m
E	Maximum Pipe Diameter	15-in	375mm
F	Operating Head	2.5-ft	0.76m

Contact Hydro International for site-specific sizing requirements.

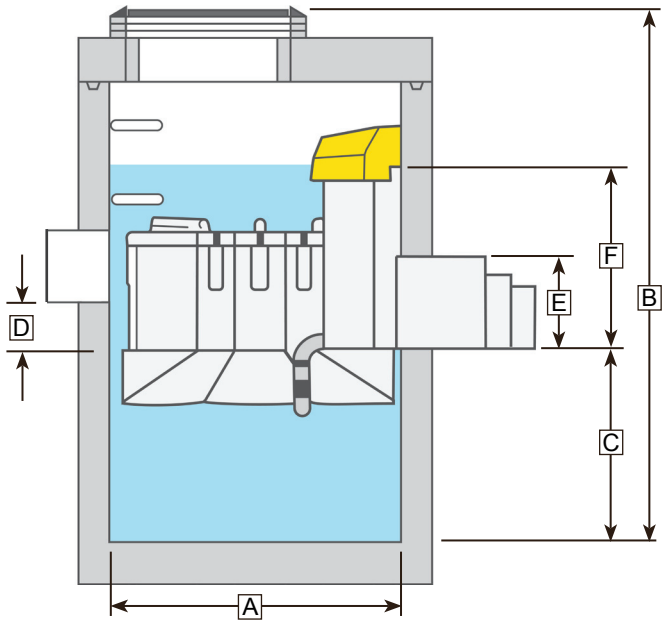

Fig.4 Key dimensions of the Up-Flo® Filter.

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