

HYDROVEX® FluidScreen
Oscillating Static Screen
CSO, SSO, Stormwater Management

WATER TECHNOLOGIES

HYDROVEX® Fluidscreen Oscillating Static Screen

Application

The discharge of aesthetic pollutants is the most visible sign of a CSO event to the general public. Floatables abatement is one of the Nine Minimum Controls, as identified by the US EPA.

One of the solutions to this type of problem is the installation of screens either at the overflow point or close to the discharge. However, the use of mechanical bar screens is often too expensive or too complicated from an operation stand point. Furthermore, the important investment required by the installation and maintenance of large mechanical units is precluded by

the fact that some sites are operated very infrequently. Finally, the use of static welded bar racks usually provides little help as the screen surface clogs very quickly during an overflow event. This can be overcome by using a large bar spacing; however the removal efficiency will be greatly reduced. The HYDROVEX® FluidScreen is a compromise solution to all these contradictory conditions.



Figure 1: HYDROVEX® FluidScreen installation with floatables baffle

Operation

The HYDROVEX® FluidScreen bars are assembled in sections or modules using treaded rods and spacers. Each bar screen section is suspended to either a floatables baffle or directly to the ceiling using hooks, and assembled side by side to cover the full width of the overflow weir. The rods are assembled so they will be located higher than the maximum water level at all times, preventing premature obstruction of the unit.

During an overflow event, the bar screen will retain floatables and debris, and the upstream water level will face a resistance proportional to the weight of the bars. As clogging increases, the screen sections

will begin to swing due to an increase in hydrostatic pressure acting on the screen. This creates a clear area for the water to pass underneath the screen and avoids flooding of the system upstream. Floatables located near the surface of the water, will continue to be retained by the screen. The HYDROVEX® FluidScreen can be rotated approximately 45°.

The HYDROVEX® FluidScreen should be manually cleaned following every major overflow event. This can be accomplished using a broom or a hose. The screen sections can be dismantled easily from the supports for additional maintenance and handling.

Advantages

- No external energy required
- Very large screening surface
- Easy installation using ceiling supports or on a floatables baffle
- Bar spacing can be easily modified after installation
- Screen opens automatically under emergency conditions
- Easy manual cleaning of the screen surface
- Robust corrosion resistant construction (hot dip galvanized, stainless steel or hard anodized aluminum)

Selection

To select the appropriate HYDROVEX® FluidScreen model, the oscillating height 45° (maximum swing) must be equal or larger to the head above the weir at design flow (b_{min}) (Figure 2).

Model	Bar Length (L) mm [in]	Oscillating Height (h) (45°) mm [in]	Headloss* mm [in]	
			Steel	Aluminum
FS-500	397 [15 5/8]	91 [3 5/8]	275 [10 13/16]	87 [3 7/16]
FS-600	500 [19 5/8]	118 [4 5/8]	188 [7 7/16]	57 [2 1/4]
FS-700	604 [23 3/4]	145 [5 3/4]	155 [6 1/8]	46 [1 13/16]
FS-800	707 [27 7/8]	172 [6 3/4]	137 [5 3/8]	39 [1 9/16]
FS-900	811 [31 7/8]	198 [7 3/4]	126 [5]	36 [1 7/16]
FS-1000	91 [436]	225 [8 7/8]	118 [4 5/8]	33 [1 5/16]
FS-1100	101 [840]	252 [9 7/8]	113 [4 7/16]	31 [1 1/4]
FS-1200	1121 [44 1/8]	279 [11]	109 [4 5/16]	30 [1 3/16]
FS-1300	1225 [48 1/4]	305 [12]	106 [4 3/16]	29 [1 1/8]
FS-1400	1128 [52 1/4]	332 [13 1/8]	103 [4 1/16]	28 [1 1/8]
FS-1500	1432 [56 3/8]	359 [14 1/8]	101 [4]	27 [1 1/16]
FS-1600	1535 [60 1/2]	386 [15 1/4]	99 [3 7/8]	25 [1]
FS-1700	1639 [64 1/2]	412 [16 1/4]	98 [3 7/8]	25 [1]
FS-1800	1742 [68 1/2]	440 [17 3/8]	96 [3 3/4]	25 [1]
FS-1900	1846 [72 5/8]	466 [18 3/8]	96 [3 3/4]	25 [1]
FS-2000	1949 [3/4]	493 [19 7/16]	96 [3 3/4]	25 [1]

* For bar spacing $S = 25\text{mm}$ [1in]

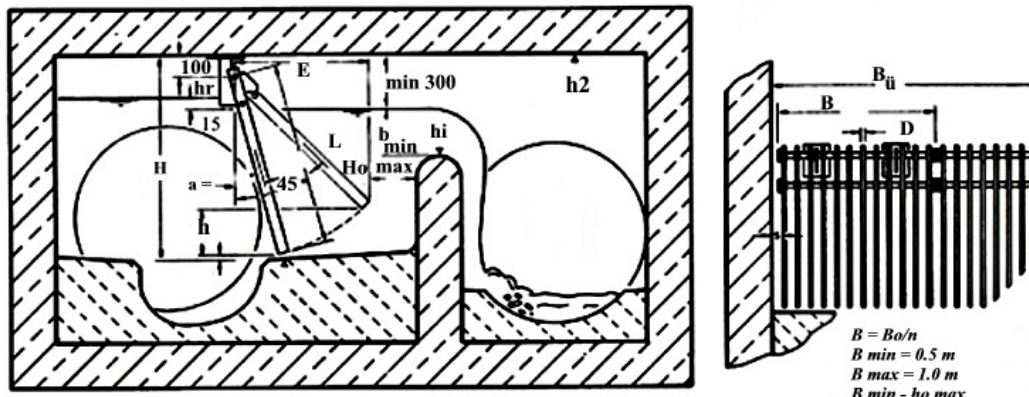


Figure 2 : Installation details

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