HUBER TECHNOLOGY
WASTE WATER Solutions

STEPSCREEN®
Fine Bar Screen

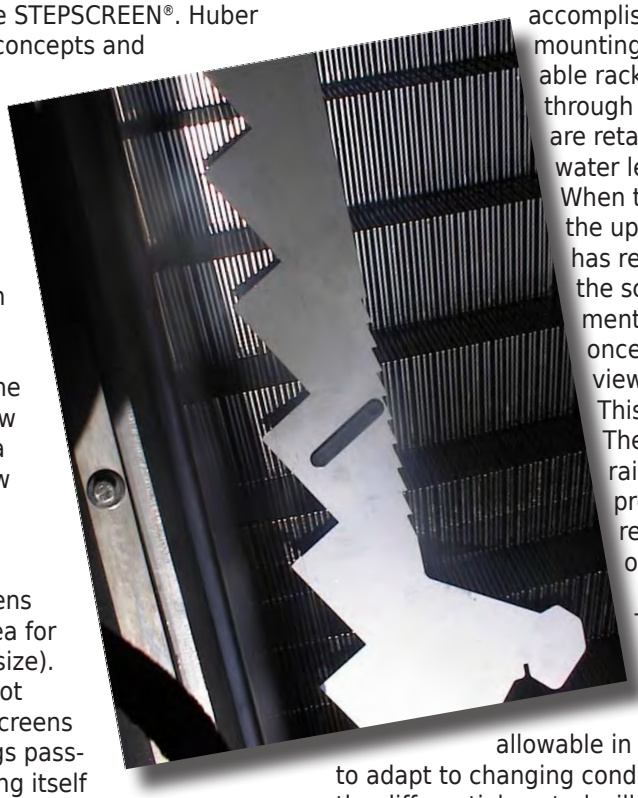
STEPSCREEN® fine bar screens combine several benefits:

- Low headloss design allows for finer screen selection
- Screenings mat improves screenings capture rate
- Fully covered for effective odor control
- Pivot capability allows ease of access

The original STEPSCREEN®

Huber Technology, through its subsidiary Huber-Hydropress, is the inventor of the STEPSCREEN® concept. This design was unveiled in the early 1980's to much acclaim and was readily adopted into the designs of well over 3,000 facilities worldwide since the STEPSCREEN® introduction.

It is precisely because of this experience and innovation that Huber Technology is driven to provide forward thinking designs such as the SSV 75° incline STEPSCREEN®. Huber is holder of patents regarding key concepts and innovations on all models of the STEPSCREEN®.



Background

Commonly, you will find in a wastewater treatment plant's headworks either a bar type screen or a perforated type screen. The bar screen uses a series of bars arranged in a rack that is placed in the influent to capture debris in the flow stream. Perforated screens place a porous type plate screen in the flow stream.

Bar screens have lower headloss compared to perforated plate screens because it has the largest open area for the same defined opening (or slot size). This is largely due to the vertical slot running the length of screen. Bar screens have an increased risk of screenings passing through due to material orienting itself vertically along the slot. It is for this reason that a bar screen is called a one dimensional screen.

As processes downstream become more sensitive to bypassed screenings, there becomes an increasing need to capture finer screenings. The perforated plate accomplishes a higher percentage of screenings capture as a result of eliminating the vertical slot and replacing it with a perforated opening. This creates a two dimensional screen. A two dimensional type screen has a significantly higher headloss due to a lower open area for similar sized openings.

What is a STEPSCREEN®?

The STEPSCREEN® provides the potential to benefit from both types of screens. By the unique design of the thin profile lamina making up the bar rack, the STEPSCREEN® accomplishes screening with the lowest headloss of any screen typically employed in a headworks design. By virtue of the stair shape of the lamina and differential based control, a screenings mat is allowed to form. This in effect bridges the vertical slot to create a pseudo two dimensional screen.

Flexible and innovative design

Like with any type of screen, once screenings have been captured on the media, it will need to be removed. Typically this is accomplished by either a moving rake or moving the media in front of a stationary cleaning device, such as a spray bar and revolving brush.

Utilizing the stair shaped lamina bars that have been used to capture the screenings to form the mat, the STEPSCREEN® accomplishes removal of screenings by mounting every other lamina on a movable rack. While the wastewater flows through the screen, the solids contained are retained by the moveable lamina. The water level in front of the screen rises. When the water level differential between the upstream and downstream level has reached a predetermined set-point, the screen starts its cleaning movement. The moveable lamina travels once along a small circular path when viewed from the side of the machine. This would be described as one step. The screenings mat is then uniformly raised one step. As result of this approach, the STEPSCREEN® does not require the use of a rake, spray bar, or brush to remove screenings.

The engineer and operator can use the STEPSCREEN® automatic control to take advantage of the maximum available differential allowable in the plant design and put it to work to adapt to changing conditions of the plant. At high flows, the differential control will operate the stepping more frequently, thus using the lower headloss of the cleaned lamina at just enough open area to accomplish proper flow through the screen. As the flow rate drops so does the stepping action and the screenings mat is retained.

Where is it used?

The STEPSCREEN® concept offers the flexibility to use the attributes of both a one dimensional (bar type) and two dimensional (perforated type) screen. As a result, the STEPSCREEN® has the highest screenings capture rate of any bar type screen and the lowest design headloss of any type of deep channel headworks screen available.

The STEPSCREEN® should not be expected to achieve the same levels of screenings capture rates as that of a true two dimensional screen. The STEPSCREEN® represents the ideal choice when the application calls for a smaller opening screen and increased screenings capture rate but face limitations on hydraulics that discourage the use of two dimensional type screens.

STEPSCREEN® Model SSV

The Model SSV STEPSCREEN® is designed for angles ranging from 70° to 75°. Screen is constructed of full bath passivated stainless steel to provide maximum design life. Unit can be pivoted out of the channel for most models*. The drive mechanism utilizes a patented link drive system to assure positive control of oscillating step rack and the ability to move screenings mat intact. Screen is available in either 6 mm or 3 mm slot openings. Units are covered for reliable odor control.

SSV Features

- Patented lamina design allows for steep angle design.
- Steep angle allows for deeper installations then standard STEPSCREEN® designs.
- High hydraulic throughputs. Excellent for retrofits.
- Capable of handling high screenings loads.
- Discharge heights up to 22’
- Channel widths up to 6.5’
- Grit Toe Flush Bar standard.
- Continuous and constant bar spacing during screen rotation.
- Available in 304 or 316 stainless steel.

STEPSCREEN® Model SSF

The Model SSF STEPSCREEN® is designed for angles ranging from 40° to 53°. Screen is constructed of full bath passivated stainless steel. Unit can be pivoted out of the channel for most models*. The drive mechanism utilizes a patented link drive system to assure positive control of oscillating step rack and the ability to move screenings mat intact. Screen is available in either 6 mm or 3 mm slot openings. Units are covered for reliable odor control.

SSF Features

- High hydraulic throughputs. Excellent for retrofits.
- Capable of handling high screenings loads.
- Discharge heights up to 11.5’
- Channel widths up to 6.5’
- Continuous and constant bar spacing during screen rotation.
- Available in 304 or 316 stainless steel.

SSF-HF Features

Simple cost effective design.

Open toe design increases flow capacity.

SSF-HE Features

Grit Toe Flush Bar standard

* Confirm with Huber if layout will accommodate pivoting

Combine these technologies to create a single source responsibility.

WAP / WAP-SL Washpress

The Huber Technology WAP and WAP-SL washpress is designed to accept contaminated debris, rags, screenings and organics from headworks screens. Screenings are washed, compacted, and conveyed for disposal.

- Screenings capacity up to 420 ft3/h
- Volume and weight reduction saves hauling and tipping fees
- Returns fecal matter to wastewater flow
- Fully enclosed – no odor nuisance
- WAP/SL features additional impeller for increased performance.
- Full bath passivated stainless steel construction

ROTAMAT® Ro8t Screw Conveyor

When a washpress cannot be located immediately behind a headworks screen, Huber Technology manufactures the ROTAMAT® Screw Conveyor Ro 8t auger conveyor that can be used to transport the captured screenings to where the machine is located.

The ROTAMAT® Screw Conveyor Ro 8t with its sturdy design and corrosion-free stainless steel components has plastic bearing liners that are fixed inside the trough. The equal distribution of the screw force over a defined cross-section minimizes bearing shell wear and reduces maintenance costs.

ROTAMAT® Screw Conveyor Ro 8t auger is available in shafted and shaftless designs.

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Subject to technical modification
11-6-12 TRG

HUBER STEPSCREEN® Fine barscreen