

ACU-SCREEN Selection Criteria:

Design Data:

Screen Overflow Capacity (Qd): _____ (indicate L/s, cfs, gpm, etc...)
 Maximum Head (H) at Qd: _____ (indicate ft or m)
 Existing Structure: _____ (yes/no)
 Overflow Weir Elevation: _____ Overflow Weir Length: _____
 Maximum Upstream Water Level (Max USWL): _____
 Preferred number of Screening Modules: _____

Preferred Drive Option:

Water Wheel (WW) Driven: _____ (Minimum Required Vertical Downstream Clearance 24" [600 mm])
 Hydraulic Power Unit (HPU) Driven: _____
 Electric Motor (EM) Driven: _____
 Note: Options other than water wheel driven will require a control panel with water level sensor.

Control Panel (Required for HPU Driven Screen):

Enclosure Type: _____ (NEMA 12, 4 or 4X)
 CP Location: _____ (Non-hazardous, Ex-Proof, etc...)
 Panel Voltage Requirements: _____ (VAC, ph, 60 Hz)
 Hydraulic Pump Motor Voltage: _____ (VAC, ph, 60 Hz)
 Distance between HPU and ACU-SCREEN: _____
 Space required for the control panel enclosure is approximately: 24" x 36" x 16" (w x h x d) for up to 2 modules
 30" x 48" x 16" (w x h x d) for up to 4 modules

Standard Hydraulic Power Unit Components: -High Oil Pressure, Low Oil Level and High Oil Temperature Alarms & Corresponding Gauges; -Breather Cap; -Uses biodegradable hydraulic oil (water pollution class 1); -Manual or Automatic operation; -Automatic reversal in case of blockage

Control Panel (Required for EM Driven Screen):

Enclosure Type: _____ (NEMA 12, 4 or 4X)
 Panel Voltage Requirements: _____ (VAC, ph, 60 Hz)
 Screen Motor Voltage: _____ (VAC, ph, 60 Hz)
 Control Panel Location: _____ (Non-hazardous, Ex-Proof, etc...)
 Space required for the control panel enclosure is approximately :24" x 24" x 10" (w x h x d)

Control Panel Options:

Upstream Water Level Sensor Type: _____ (Float or Ultrasonic)
 Menu-driven display with relevant operating data: _____ (yes/no)
 Dry contacts for remote monitoring: _____ (yes/no)
 Length of Hydraulic Hoses Required: _____ (ft or m)
 Installation Assistance Required: _____ (yes/no)
 Start-Up Required: _____ (yes/no)
 Personnel Training Required: _____ (yes/no)

ACU-SCREEN Fine Slotted Overflow Screen

The
Clear
Solution



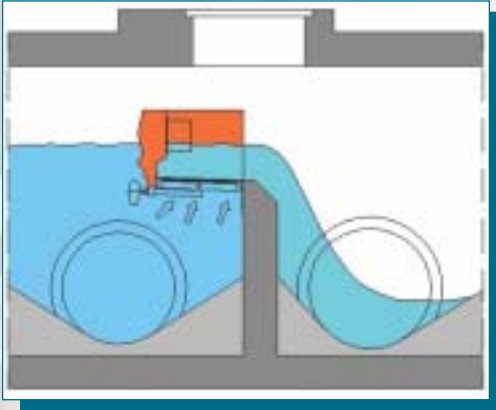
Application

Stormwater discharge systems and combined sewer overflows (CSO) are the weak points in sewer systems, usually at the expense of water pollution prevention. They are entry points through which urban pollutants reach the receiving stream. In the past, there were frequently no adequate preventive measures available or in place. Today however, there are legal requirements in many areas for the retention of floating and suspended matter in stormwater and combined sewer overflow systems. The **ACU-SCREEN** economically provides effective receiving stream protection. It is designed to be installed over stormwater discharge sills, settling tank overflow weirs, CSO weirs, flood discharge systems, etc... Its modular design makes it suitable for any type of overflow system and is easily retro-fitted to existing structures

The **ACU-SCREEN** design is based on a special stainless steel screening surface, with slotted screen openings of 3/16" x 1" and a total free area of 50 %, achieving the highest possible degree of solids retention while minimizing the head loss.

Features:

- The **ACU-SCREEN** is constructed entirely of stainless steel 316 ensuring reliable trouble free operation.
- Self adjusting brush provides automatic cleaning of screening surface in both directions.
- The **ACU-SCREEN** cleaning system may be driven by a water wheel (requiring no external energy) or by an electrohydraulic drive, depending on site constraints.
- Slotted screening surface ensures the retention of all solids greater than 3/16".
- Design of cleaning system mechanism ensures that moving parts are never submerged.
- Modular design allows for installation over virtually any overflow weir type and size.
- Easy to retrofit into existing structures.
- May be installed in the vertical or diagonal position when the preferred horizontal arrangement is not possible due to site constraints.



Operating diagram for the **ACU-SCREEN** with electro-hydraulic drive.

Operation

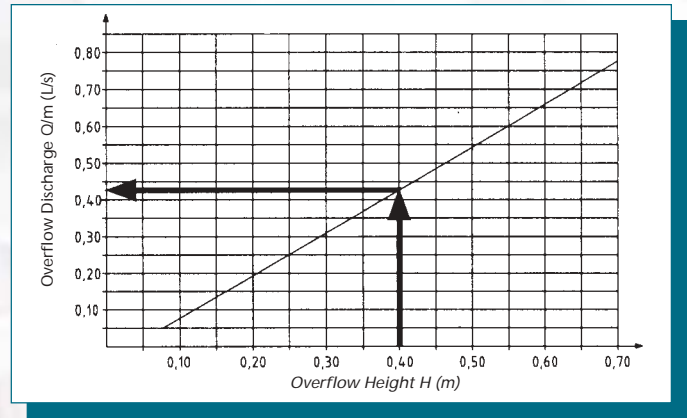
The **ACU-SCREEN** screening surface is made up of a series of 3/16"x1" slots and has a clear opening of 50%. During an overflow event, the solids retained by the screen are continuously cleaned by the back and forth movement of the cleaning brush. The preferred installation is horizontal, however it may also be installed vertically or diagonally to satisfy any existing structural constraints.

The **ACU-SCREEN** can be driven without the need for external energy as the cleaning mechanism may be powered by the proven principle of the water wheel. The water wheel powers a gear drive which converts this energy into an oscillatory motion. A weighted, self-adjusting brush, attached to the guide carriage, is driven back and forth across the screening surface, pushing all retained solids into storage areas, found at either end of the screen modules. Because the screen is continuously brushed clean, clogging of the screening surface cannot occur. The retained solids are discharged into the sewage stream at the end of an overflow event and carried to the sewage treatment plant for removal.

The **ACU-SCREEN** may also be equipped with an electro-hydraulic drive (where site constraints warrant), whose electronic components are located well outside the overflow structure. Only biodegradable hydraulic oils are used.

The **ACU-SCREEN** may be installed in combination with an **ACU-BEND** bending weir to maximize the use of all available upstream in-situ storage and to minimize the frequency of an overflow event.

Represented locally by:



Example:

Determining the required screening surface length (standard screen width of 0.70 m).

Design overflow discharge $Q = 1500 \text{ L/s (53 cfs)}$
 Maximum overflow height $H = 0.40 \text{ m (16")}$

From selection diagram:

Flow per meter (Q/m) of overflow length is 430 L/s

\Rightarrow Screen Length (l) = $Q \div Q/m = 1500 / 430 = 3.49 \text{ m}$

Selected: Min. screen module length (l) 3.50 m (11.5')



ACU-SCREEN in stormwater overflow basin.

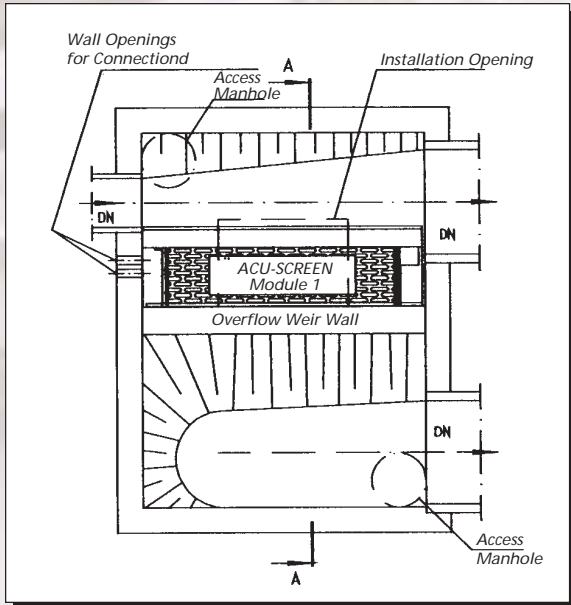


ACU-SCREEN with **ACU-BEND** combination.

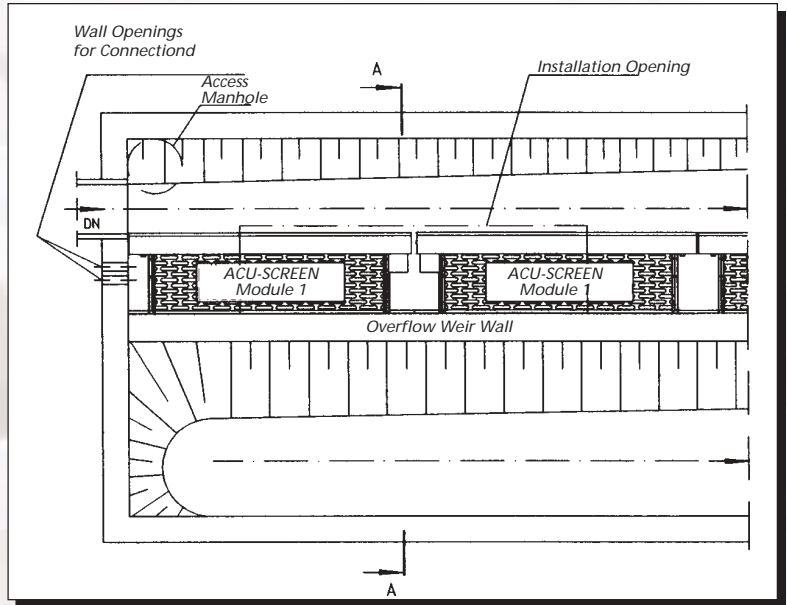
Detailed installation drawings will be prepared by GWMS for specific project application

Sample Installations for the ACU-SCREEN

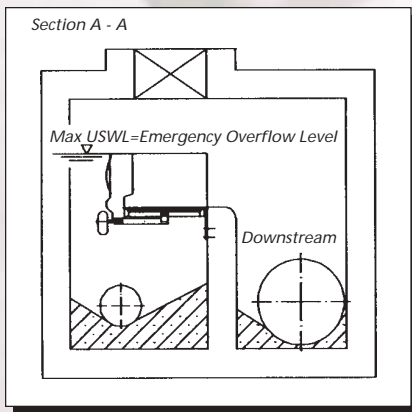
Horizontal Arrangement
With one module



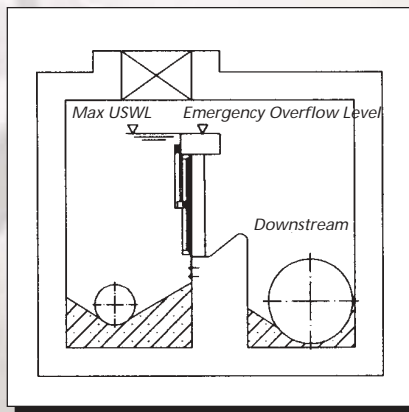
Horizontal arrangement
with 2 or more modules



Horizontal arrangement



Vertical arrangement



Horizontal arrangement
(water wheel driven)

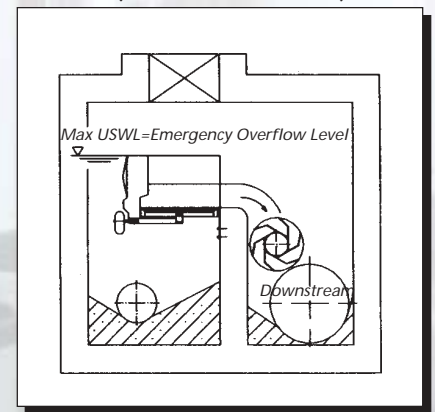
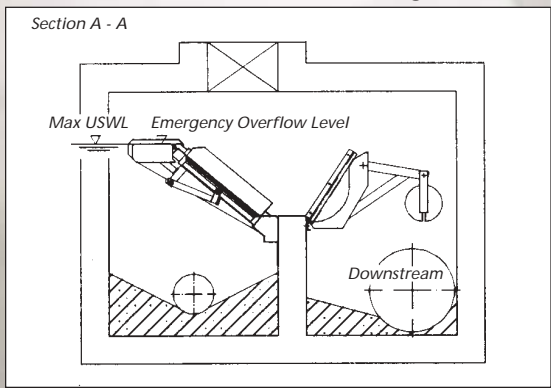


Diagram arrangement in combination
with an ACU-BEND overflow bending weir H



Vertical arrangement with auxiliary sill and
screened material storage chamber

