

Copa® Raked Bar Screen



Mechanically Raked Combined Sewer Overflow (CSO) Screen

Key Features & Benefits:

- Stainless steel designs with Ultra High Molecular-Weight Polyethylene (UHMWPe) screen combs
- 4, 6, 8 and 10 mm bar spacing available
- Complete range up to 3,000 l/sec per screen
- Flexible modular designs (increased flow capacity)
- Ideal for shallow CSO installations

How We Create Value:

- Ideal for retrofit making cost savings in civil works
- Spare parts readily available (standardized components)
- Low energy requirements
- 100% utilization of screen



How it works

The Copa® Raked Bar Screen is ideally suited to both new and existing Combined Sewer Overflow (CSO) chambers where high frequency spills can be expected. Its modular design is ideal for retro-fit installations (requiring little or no civil work to the existing CSO chamber) and allows the unit to be assembled below ground through just a 600mm diameter manhole.

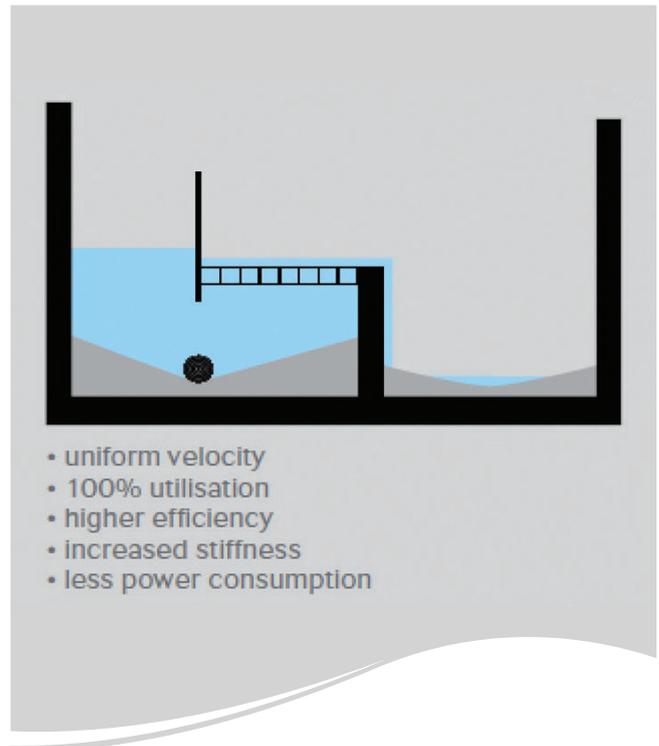
Screen modules are mounted horizontally along the storm discharge weir (again, making the system ideal for single-sided and double-sided retro-fit weir installations). Screen bars are set to the same level as the overflow weir. An ultrasonic control system monitors the upstream water level and signals the screen to start just before the water flows upward through the bars.

The UHMWPE combs move back and forth on a continuous basis to keep the screen face clear. Screenings are prevented from passing over the weir and are retained in the foul sewer for transportation to treatment.

Once the water level drops below the overflow weir level, the sensor will signal the screen to stop after a 'run on' period, ensuring that the screen is clear for the next overflow event. The screen control can also permit a 'maintenance run' for a set time if the screen has not operated for a specified time period.

All screens are operated remotely by a 1.1kw motor hydraulic power pack, which may be located up to 100m from the CSO chamber. Hydraulic connection is by 3/8" hydraulic hose. Longer distances between the screen and power pack can be achieved by increasing the hydraulic hose to 1/2" and 1" or increasing the size of the hydraulic power pack.

Flow rates from 50 to 3000 litres / second can be catered for by a single screen, although multiple units may be used to increase flow capacity.



Why Horizontal?

Our extensive research into CSO screens concludes that horizontal screens are far more efficient than their vertical counterparts.

In a vertical configuration, only the bottom section of the screen is used during periods of low flow, and flow velocity is significantly higher which can force debris through the bars. With a horizontal configuration the entire screen is used, no matter how high or low the flow. Flow velocity is kept to a minimum and the need for secondary weirs is eliminated, preventing grit and heavy solids from becoming trapped and so reducing the screen's efficiency.

The bars of the horizontal screen are orientated vertically, making them stronger than the horizontal bars of the vertical screen which (particularly on longer screens) tend to sag. It is possible to walk on top of the horizontal screen's bars, making access to the installation simpler and more convenient.

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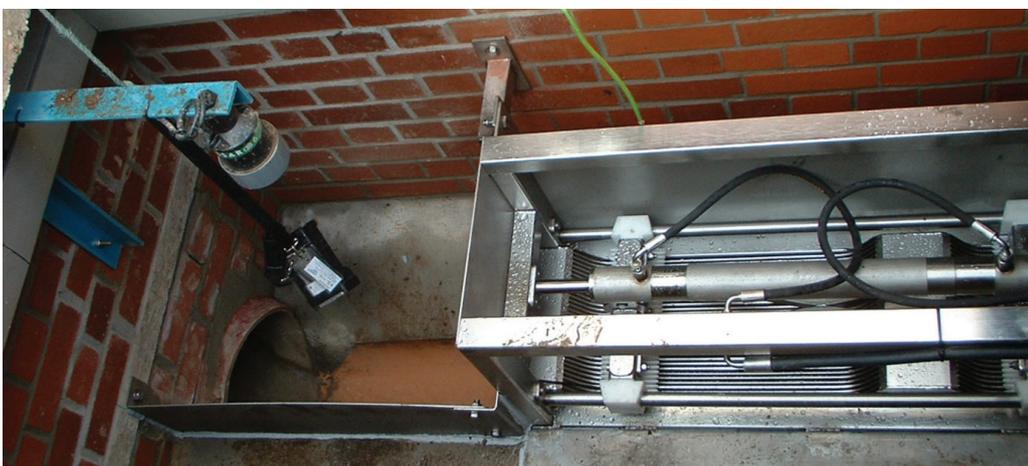


Key Features & Benefits:

- Can pass through a 600mm diameter manhole for below ground installations
- Flexible and robust modular design
- Hydraulic power pack and control system installed remotely, outside any confined space area
- Single-sided weir installation requiring little or no work to existing CSO chambers
- Double-sided weir installations for reduced head-loss, reducing upstream hydraulic load
- Maximum flow through a single modular unit is 3000 l/sec
- Multiple units can be used together to increase flow capacity
- Up to 5 modules linked together can be controlled from a single hydraulic power pack unit
- 4mm RBS gives 6 mm 2D equivalence
- Screen can be designed to be removable from ground level if required
- Vegetable based hydraulic fluid

Key Features & Benefits:

- No need for large or multiple access covers, making significant cost savings
- The simple Frame structure houses drive mechanism, screen bars and rake mechanism
- Can be delivered in sections or in modular form for ease of transportation and rapid installation
- Easily maintained without risk of damage to the bar profile
- Can be manufactured within a prefabricated chamber for quicker site installation
- Bi-directional control via timed operated solenoid switch
- Flow capacity from 500 – 700 litres per second per m²
- Half module sections are also available
- Power pack motor rating (all models) 1.1kW
- 304L and 316L stainless steel designs
- All maintenance carried out from top/ clean water side



Maintenance

The Copa® Raked Bar Screen has few maintenance requirements. All maintenance may be carried out from the top / clean water side of the screen. Both the guide rods and comb drive unit are easily removed for inspection or replacement. It is not necessary to remove the main framework or screening bars for normal maintenance, but should this be required, each module may be split from its partners and removed individually.

Vegetable based hydraulic fluid may be changed from within the remote control kiosk, eliminating the need to enter any confined spaces around the screen. Oil changes are required on an annual basis.

Periodic visual inspections are recommended to ensure that there is no fouling or damage caused by debris during extreme storm conditions.

Our Expertise

Acquiring and developing innovative, engineered solutions, Jacopa is now a market leader in stormwater management technologies. Today we supply not only simple Copasac® screens, but also the highly efficient Copa® Raked Bar Screen and non-powered storm overflow screening such as the Copa® Cyclone and Crosswave Screens. Our wastewater treatment systems ensure the protection and improvement of inland and coastal waters now and in the future for generations to come.

