

# Rotary Mesh Screen RoDisc®



Strainer for removal of fine suspended solids:

- from primary or secondary clarifier effluents
- from surface water influents
- from industrial wastewater or process water

## ► Applications

The Rotary Mesh Screen RoDisc® is used for the removal of fine suspended solids, hair and fibers from large liquid flows.

### **Straining of secondary clarifier effluents**

Effluents of clarifiers have high suspended solids concentrations when the activated sludge does not settle well. This problem is made worse by hydraulic overloading. Suspended solids concentrations are often 3 to 4 times higher during or after storm events.

Increased suspended solids concentrations also mean increased BOD, COD, nitrogen and phosphorus concentrations, deteriorating the water quality of receiving water bodies. Effluent disinfection, particularly by UV radiation, can be impaired by elevated concentrations of suspended solids. The same applies for membrane systems for advanced wastewater treatment and reuse.

Such problems are easily and quickly solved by installation of a rotary mesh screen. A suspended solids concentration below 5 ppm (mg/l) is thus reliably maintained.

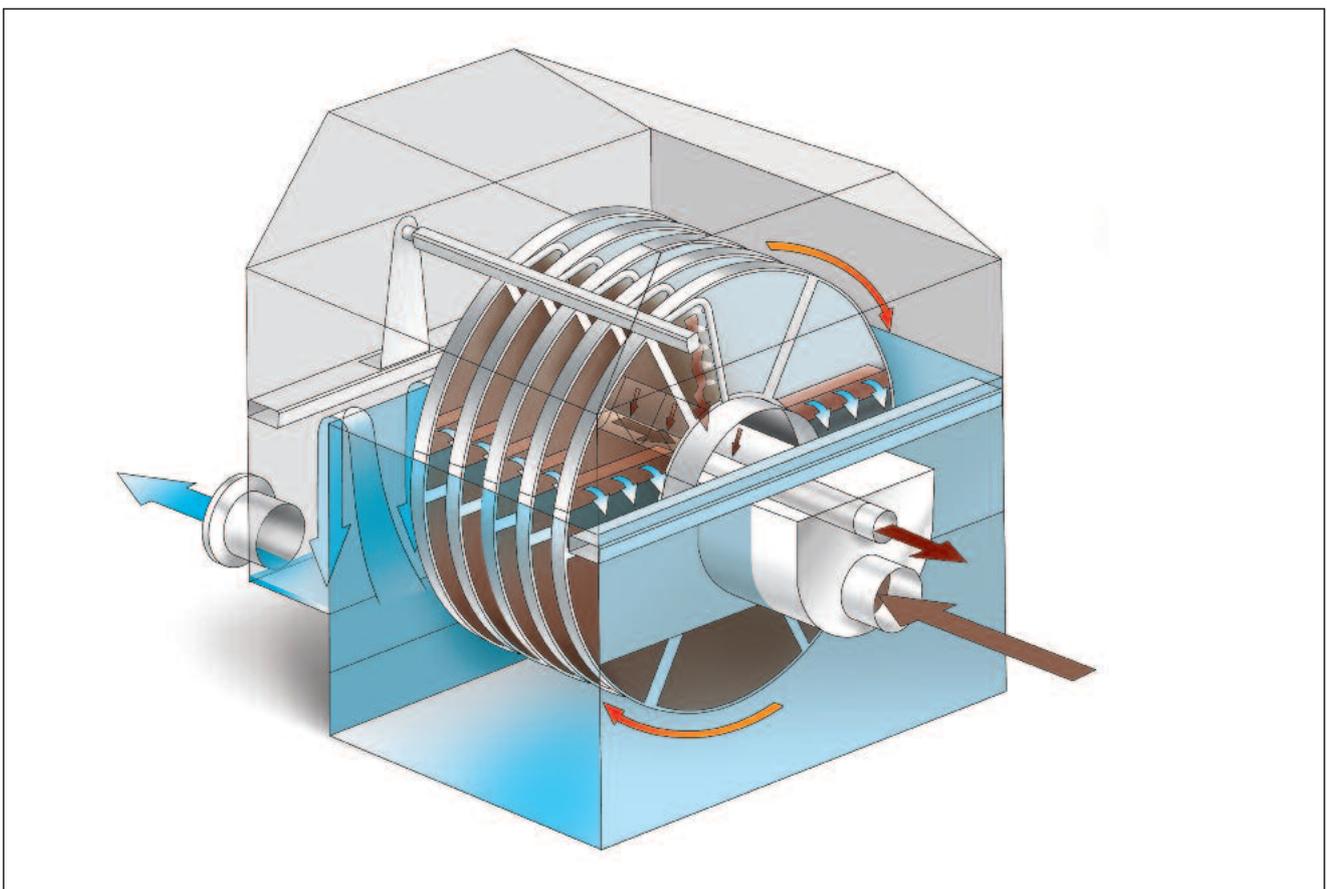
### **Ultra-fine screening of primary clarifier effluents**

Wastewater treatment in developing countries is usually limited to mechanical treatment. Installation of ultra-fine mesh screens is an affordable means for further pollution reduction, where biological treatment is too expensive. The performance of ultra-fine mesh screens can be further improved by chemical pre-treatment: precipitation, coagulation and flocculation transform dissolved pollutants and colloidal particles into removable larger particles or flocs.

### **Micro-screening of industrial wastewater**

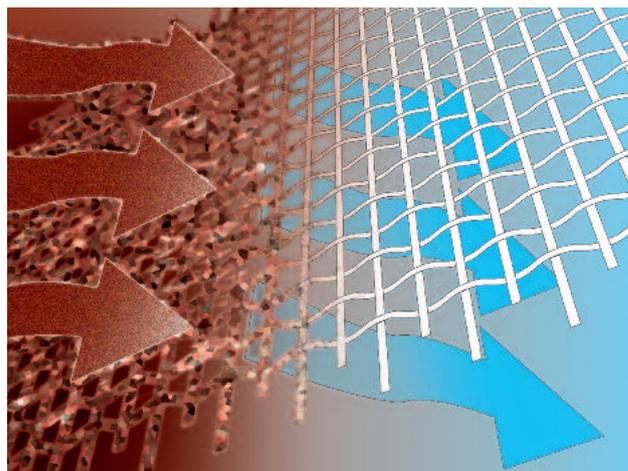
Wastewater from industrial processes is often loaded with high concentrations of fine suspended solids or fibrous materials. Ultra-fine screening can, with or without chemical pre-treatment, be the separation method of choice.

The removed solids are not waste often, but valuable product that can either be recycled or used otherwise, e.g. as a fertilizer, for soil remediation, or as an input material for other industrial processes.



Examples of industries where ultra-fine screens have successfully used:

- Food
- Beverage
- Pharmaceutical
- Chemical
- Plastics
- Pulp and paper
- Building materials



*Fine mesh, woven from stainless steel wires, combines strength and durability with excellent separation performance*

## ➤➤ Features

A maximum of 30 vertical discs are supported by a horizontal shaft. The discs are installed in a filtrate tank. The discs have a diameter of 7' (2.1 m). About 60 % of the disc surface is submerged in the filtrate.

Each disc is made of 6 screen segments that are easy to remove and replace.

The water flows through axially into the screen. It drains by gravity through the discs, from the inside out, into the filtrate tank. The tank is provided with an effluent overflow weir. The weir maintains a constant water level in the tank, independent of the flow.

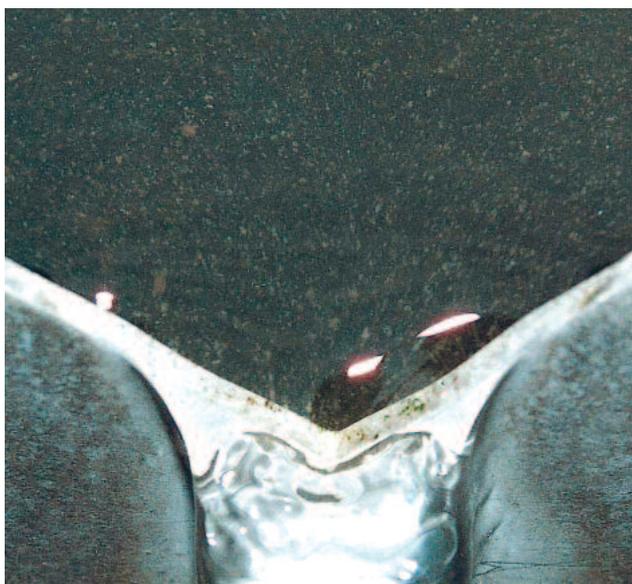
The mesh screen gradually blinds as it retains more and more solids. Head loss increases, the water level within the screen rises. At a certain level a back-wash cycle begins: the discs rotate through high-pressure wash water jets. Spray bars with a series of spray nozzles are installed in gaps between the discs, reaching from their perimeter to the shaft. Wash water is sprayed through the mesh from outside in to remove attached solids. The solids are flushed into a trough, provided inside the screen above its shaft, and flow axially out of the screen.

Only a small portion of the filtrate is needed as wash water. A back-wash cycle ends when the water level within the screen has dropped below a certain height. Filtration continues during the entire back-wash cycle.

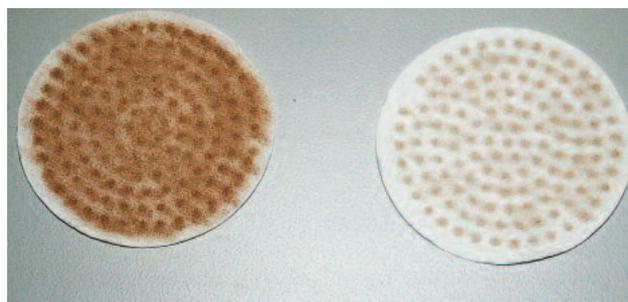
The screen motor is located above the water and easily accessible.

## ►► Benefits

- Flow capacity of up to 10 MGD (1,500 m<sup>3</sup>/h) per unit
- Continuous gravity flow with moderate head loss
- Mesh size from 10 to 100 micron
- Filtrate with < 5 ppm (mg/l) TSS
- Reliable, self-cleansing operation
- Wash water is only a small portion of the filtrate
- Supplied in a fully enclosed stainless steel tank, or for installation in a concrete tank
- Low maintenance, easy replacement of individual screen segments
- Made of stainless steel for long life
- Pickled in an acid bath for perfect finishing and corrosion protection



*Secondary clarifier effluent with high suspended solids concentration*



*Comparison of influent (left) and effluent (right):  
Suspended solids on a glass fiber filter according to  
international standards*

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