

ROTAMAT® RoMem Ultra-fine Center Feed Drum Screen



- High screenings capture efficiency
- Removal of fibrous material and hair
- Protection of membrane bioreactors

➤ Applications

- For the protection of membrane bioreactors (MBR) from fibrous and hairy materials
- For improved operation and reduced maintenance of MBR systems
- For removal of solids, COD and BOD from storm water overflows (CSO and SSO)
- For load reduction of secondary, biological wastewater treatment systems
- Fast and easily implementable low-cost treatment for significant pollution reduction at sea or river outfalls in developing countries
- Further improved removal of solids, COD, BOD and phosphorus after chemical precipitation and flocculation

➤ Function

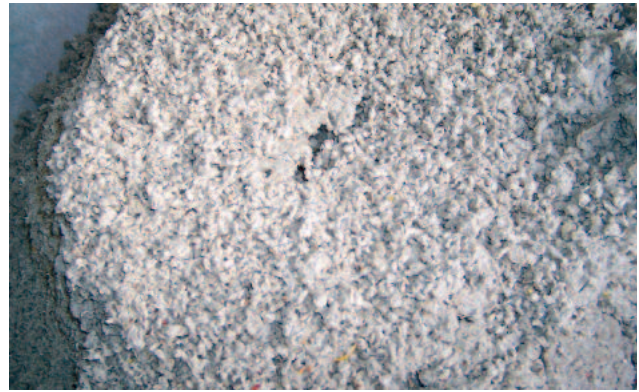
RoMem Screens are typically installed in channels with an inclination of about 35 degrees. Another option is their installation in a tank.

Wastewater flows from the channel or upstream end of the tank into the open front of a cylindrical screen basket. The basket is provided with a fine mesh, which is typically 1 mm square. The wastewater flows through the screen into the downstream end of the channel or tank. Solids, including hair and fibers, are retained on the inner surface of the screen.

The wet surface of the inclined screen basket is larger than the wet cross sectional area of the channel as a result. RoMem screens have a high flow capacity and a moderate head loss. The largest RoMem screen has a flow capacity of up to 22 MGD (3,500 m³/h).

As solids are retained on the screen basket's inner surface, the screen becomes gradually blinded and its head loss increases. Cleaning of the screen is controlled through the head loss, i.e. the water level difference between the upstream and downstream side of the channel.

When a cleaning cycle is triggered, the screen basket begins to rotate and blinded screen surface moves out of the water on one side, while clean screen surface is immersed on the opposite side. The screen surface is washed near its top position where nozzles spray wash water through its mesh, from the outside in. If the RoMem is provided with a fine enough mesh, its own effluent can be used as spray water.

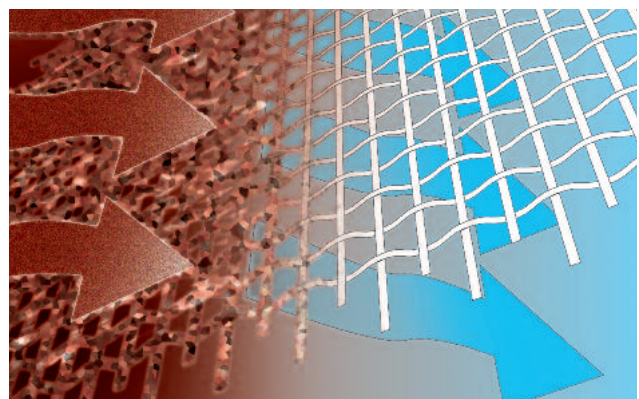


Hair and fiber are retained and removed with a 1 mm square mesh

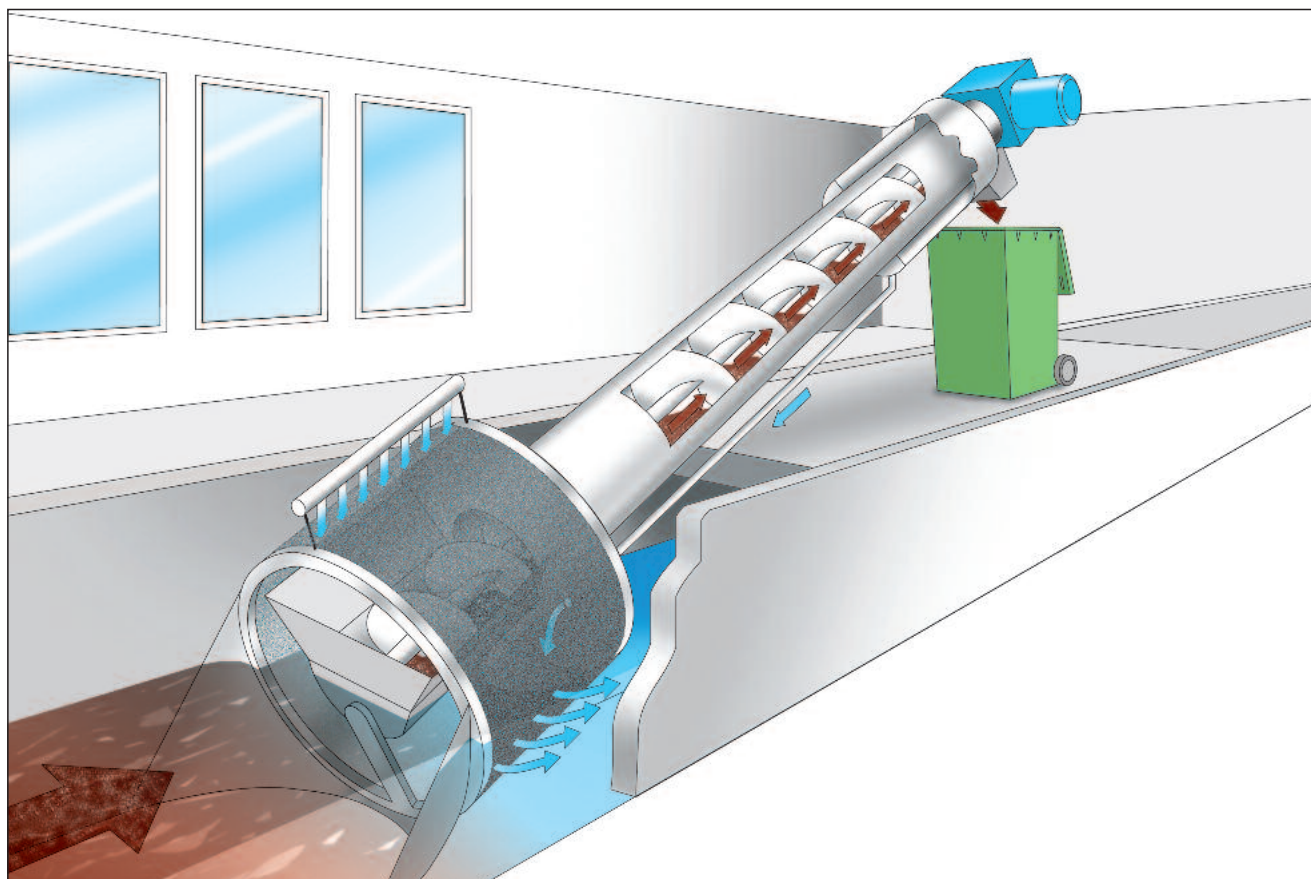
In addition, to guarantee complete removal of all solids and to prevent screen scaling and fouling, the mesh screen is periodically cleansed with a high-pressure jet. Standard settings are two high-pressure wash cycles per day with a water pressure of 1,740 psi (12 MPa).

The solids are washed from the screen into a trough, which is provided at the central axis of the screen basket.

A shafted screw moves the screenings through an auger tube wherein the screenings are dewatered and compacted, before they are discharged at the upper end of the auger tube.



Optimal solids removal with a square mesh



Schematic diagram of a ROTAMAT® RoMem Ultra-fine Screen

►► Features

- Channel installation with a 35 degree inclination
- Center feed, rotating cylindrical screen basket
- Screen basket diameter from 31 to 120 inch (0.78 to 3.0 m)
- Square mesh made of stainless steel
- Screen washing with spray bar plus periodic high-pressure jet scouring
- Compact screen with integrated screenings conveying, dewatering and compaction.
- Enclosed unit for odor control
- Available in channel or tank mounted design
- Optional frost protection for outdoor installation
- Made of stainless steel and pickled in an acid bath for perfect finishing and corrosion protection

►► Benefits

- Removal of hair and fiber upstream of membrane bioreactor systems (MBR)
- Improved operation and reduced maintenance of downstream MBR systems
- High hydraulic capacity and low head loss
- Center feed drum prevents by-passing or carry-over of screenings
- Periodic high-pressure jet scouring prevents screen scaling and fouling



Example of an in-channel installation with protective cover.



View of the internal drum. A center feed drum design provides the best solution for protection of MBR.



Example of an installation incorporating the use of a self contained tank and cover.



The RoMem utilizes a polyurethane drum seal. This is critical for proper sealing to assure bypass protection.

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Subject to technical modification
0,0 / 1 – 5.2011 – 5.2011

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