HUBER TECHNOLOGY
WASTE WATER Solutions

HUBER Rotary Drum Fine Screen ROTAMAT® Ro2 / RPPS / STAR

Reliable and well-proven inlet screen for municipal sewage treatment plants and industrial wastewater and process water screening

– with integrated screenings press
– with integrated screenings washing
– more than 2000 installations worldwide

The challenge – Our solution

Both municipal wastewater treatment plants and industrial applications (for process and wastewater treatment) require mechanical treatment as a first treatment step to remove as much as possible of the floating, settling and suspended material.

The aim is to achieve the maximum separation efficiency under the prevailing hydraulic conditions. Operating reliability, efficiency and hygienic operation are important factors for a mechanical separation plant.

The HUBER Rotary Drum Fine Screen ROTAMAT® operation is based upon a unique system that allows combination of screening, washing, transport, compaction and dewatering in a single unit.

Depending on the screen bar spacing (0.5 - 6 mm) or perforation (1 - 6 mm) and screen size (screen basket diameter of up to 3000 mm), the throughput can be individually adjusted to specific site requirements.

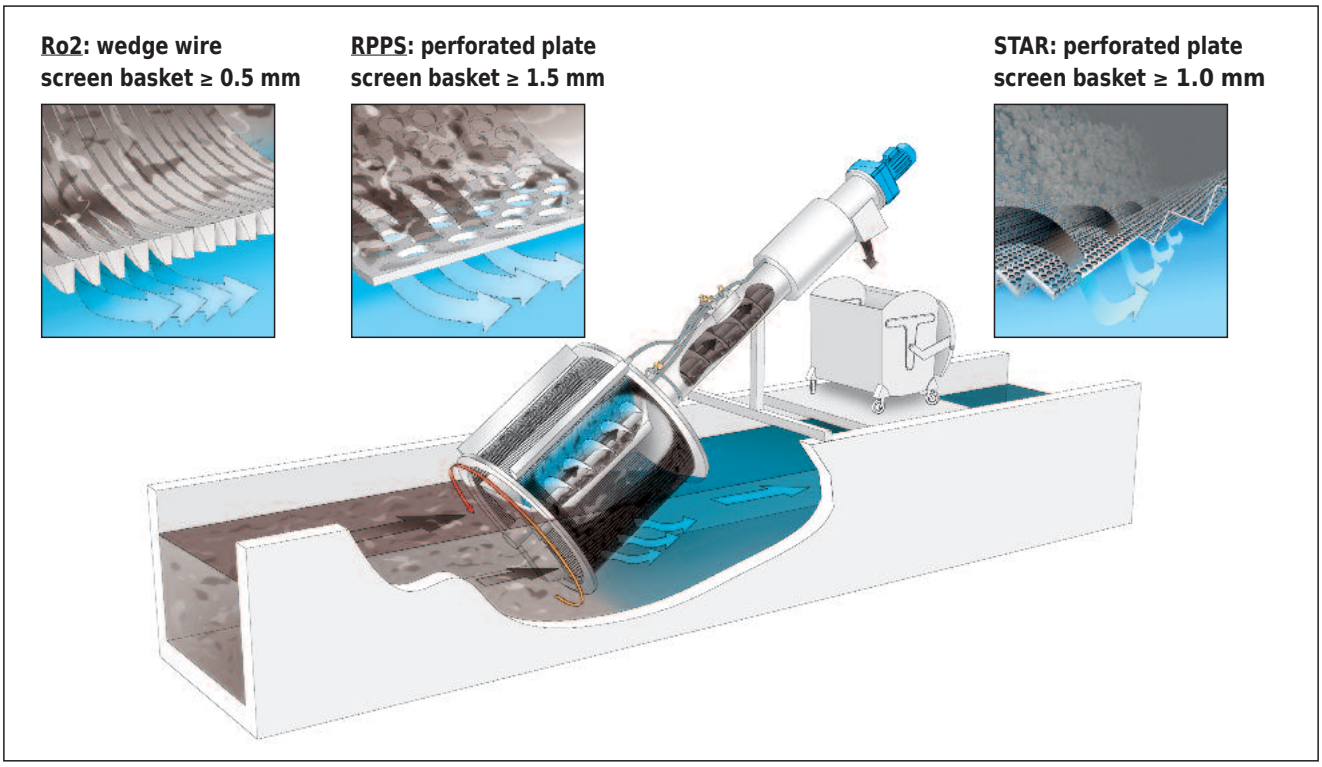
The HUBER Rotary Drum Fine Screen ROTAMAT® is completely made of stainless steel and acid treated in a pickling bath.

The screen can be installed either directly in the channel or in a separate tank.

Design and function:

HUBER Rotary Drum Fine Screen ROTAMAT® units are either installed directly into the channels, or are supplied as tank-mounted units, with an inclination of 35°. The wastewater flows into the open end of the inclined screen basket and then through the screen. Floating and suspended materials are retained by the screen basket. Blinding of the screen surface generates an additional filtering effect so that solids can be retained that are smaller than the bar spacing or perforation.

The basket starts to rotate when a certain upstream water level is exceeded due to screen surface blinding. The rotating screen drum lifts the screenings and drops them into the centrally arranged trough. Screenings removal from the drum is supported by a scraper brush and a spray nozzle bar. A screw conveyor in the trough rotates with the drum and transports the screenings through a closed and inclined pipe. The conveying screw transports, dewaters and compacts the screenings, without any odour nuisance, and discharges them into the customer's container or a subsequent conveying unit.



Compared to one-dimensional wedge wire screens (left picture), the two-dimensional screening element of the HUBER Rotary Drum Fine Screen ROTAMAT® RPPS (picture in the middle) achieves a significantly higher separation efficiency.

Due to its star-shaped screen drum the HUBER Rotary Drum Fine Screen ROTAMAT® STAR (right picture) has a by about 30% larger screening surface, with the same small nominal diameter and with the result of significantly increased hydraulic throughput capacity.

Integrated Screenings Washing System IRGA

To optimise the treatment process an integrated screenings washing system IRGA can be provided. It improves the carbon/nitrogen ratio of the pretreated wastewater. In addition, the IRGA reduces the costs of screenings disposal.

The HUBER ROTAMAT® principle allows for integration of the screenings washing system directly in the trough and/or the lower end of the rising pipe. As the soluble matter is separated from the inert material, faeces are virtually completely washed out which leads to a significant weight reduction.

- Optimal cost/performance ratio
- Easy retrofit
- Minimised disposal costs
- Improved operating and hygienic conditions
- Virtually complete washout of faeces
- Weight reduction by approx. 50 %
- Dewatering performance of up to 40 % DS

The dewatering performance can be increased to more than 45 % DR by adding a **high pressure unit (HP)** to the integrated screenings washing system IRGA. This combination guarantees the maximum dewatering performance and reduces disposal and operating costs.

HUBER Rotary Drum Fine Screen ROTAMAT® with integrated screenings washing IRGA

Advantages of the HUBER Rotary Drum Fine Screen ROTAMAT® Ro2 / RPPS / STAR

a) Low headloss – High separation efficiency

Due to the drum's shape and 35° installation the screen area is much larger than that of a vertical or steeply inclined screen, which results in a low headloss, high separation efficiency and maximum throughput.

b) Completely made of stainless steel

The machine is completely made of stainless steel and pickled in an acid bath which eliminates corrosion and thus reduces maintenance.

c) No by-passing

The entire flow enters the screen drum through its open front end and can only leave the drum through its screen area. This prevents plant overflow and guarantees that the screenings are always retained within the screen drum.

d) Several functions combined in one system

The ROTAMAT® Screens perform the functions of screenings removal, transport, washing, dewatering and compaction in a single space-saving unit. An additional bagging unit guarantees operation of the entire system without odour nuisance.

e) Outdoor installation

For frost-proof outdoor installation, the HUBER Rotary Drum Fine Screen ROTAMAT® can be supplied with a heating wire and thermal insulation.

f) Retrofitting

The design of the ROTAMAT® Screens allows for later modification so that the systems can be adapted to changing requirements. The heating and/or integrated screenings washing can be retrofitted. The bar spacing can also be reduced to meet more stringent requirements.

g) Low maintenance

No lubrication. Regular checking and visual inspection are sufficient.

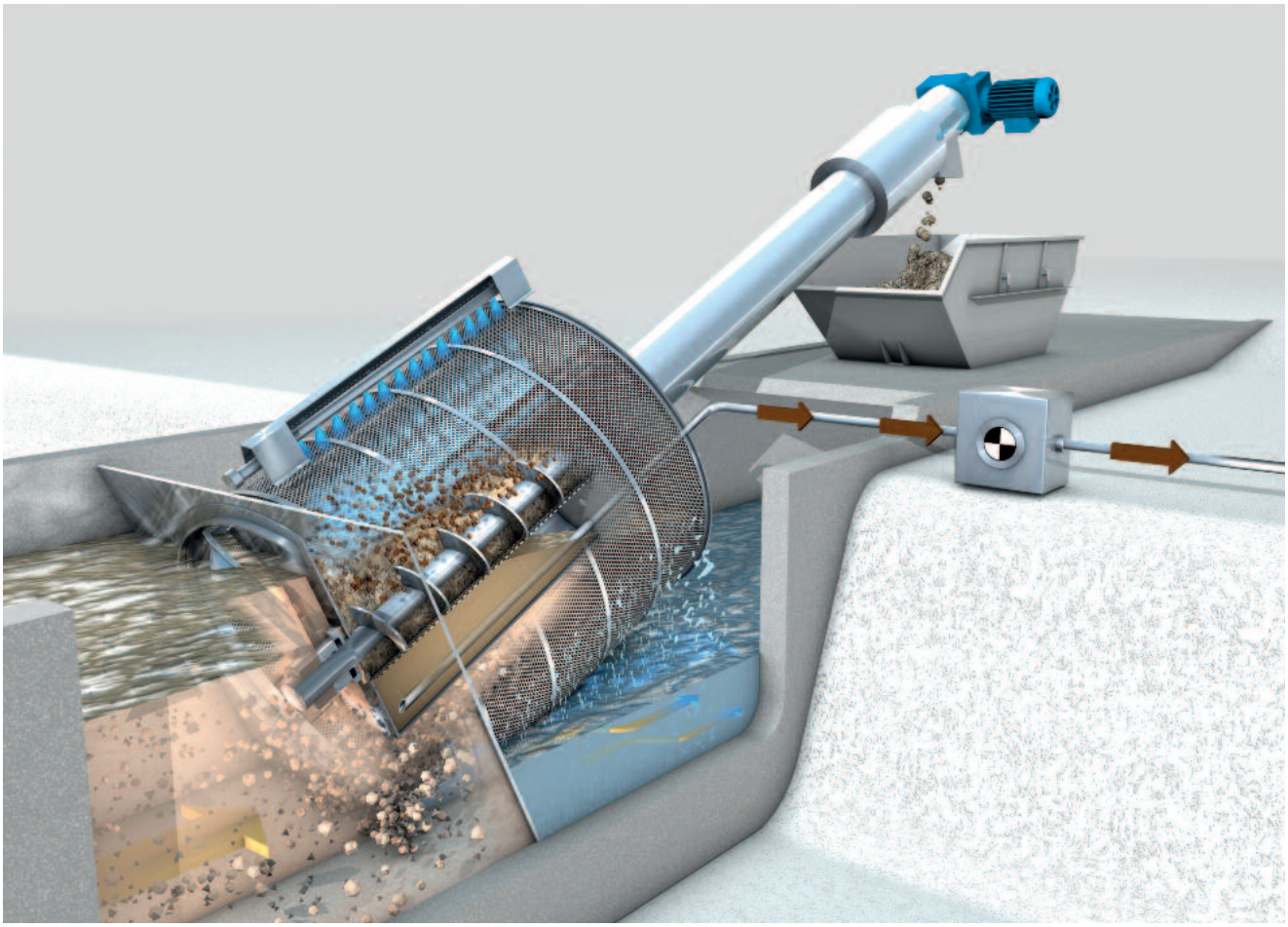
HUBER Rotary Drum Fine Screen ROTAMAT® PRO

The special design of the HUBER Rotary Drum Fine Screen ROTAMAT® PRO series isolates the water level in the trough from the water levels upstream and downstream of the screen. This is achieved with a closed system below the perforated plate of the trough. The liquid phase is removed from the closed system by a suction pump which pumps the the flow back to upstream of the machine. The solids are washed, compacted and discharged by a conveying screw. This operation method permits continuous screen operation with a constant water level upstream of the machine. Continuous system operation significantly increases throughput capacity.

The PRO system can even be applied with high downstream water levels. As backup of water into the trough is impossible, screenings discharge via the removal screw can reliably be ensured.

The user's benefits

- Decoupled water levels
- Increased throughput capacity due to continuously/constantly high water levels
- Reliable operation even with high backwater levels
- Especially suitable for pump applications
- Easy to retrofit into any type of HUBER Rotary Drum Fine Screen ROTAMAT®
- Perforation: 1 – 6 mm, rolled design or folded basket design ('Star' design)
- Screen basket diameter: 780 – 3000 mm
- Application: for mechanical screening and to protect downstream membrane systems

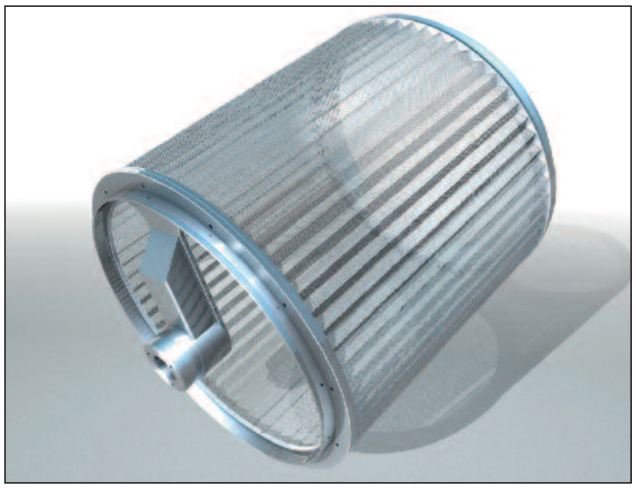


HUBER Rotary Drum Fine Screen ROTAMAT® PRO design, the liquid phase in the trough is pumped off.

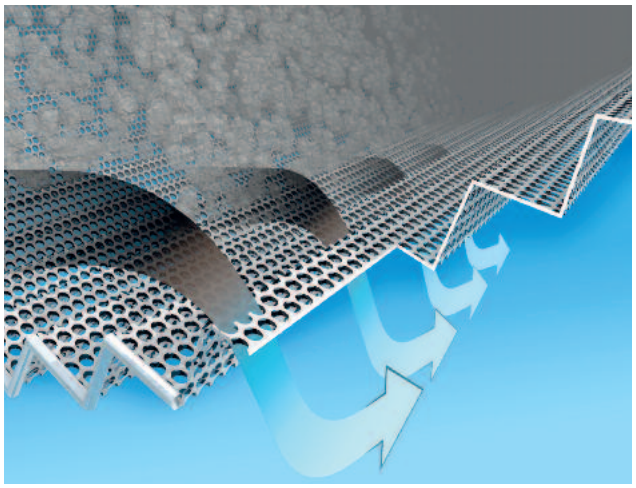
HUBER Perforated Plate Screen ROTAMAT® STAR

The HUBER Perforated Plate Screen ROTAMAT® STAR is especially designed for fine apertures. Its design is based on the well-proven ROTAMAT® principle: screenings separation, washing, transport, and compaction in one unit. To improve screen throughput capacity, the RPPS-Star screen has a star-shaped screen basket with a zig-zag folded surface. The star-shaped folded plate of the HUBER Perforated Plate Screen ROTAMAT® STAR provides an increased free screen surface and an approximately 30% increase in throughput capacity with the same nominal diameter. The STAR design combines the benefits of maximum free screen surface and very high separation efficiency. This efficiency-improving innovative development permits for optimal and economical system dimensioning, it is space-saving and reduces civil costs.

HUBER Perforated Plate Screen ROTAMAT® STAR units are preferably used with perforations of 1 / 1.5 / 2 mm for installation on municipal and industrial wastewater treatment plants. The screens are also applied to protect downstream membrane systems. They can be installed in the mechanical treatment stage or downstream of grit traps. Special PRO design screens are available for applications where an additional increase in throughput capacity is required.



Schematic drawing of a HUBER Perforated Plate Screen ROTAMAT® STAR with folded screen basket surface



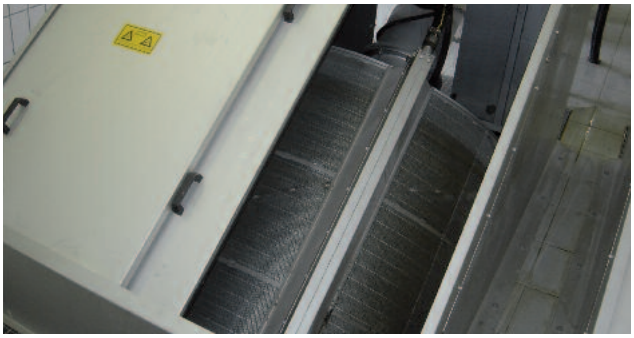
Significant increase in hydraulic throughput capacity (approx. 30%) due to the folded screen basket design

The user's benefits

- Removal of hair and fibres to protect downstream membrane filtration plants
- Fine screening of large wastewater volumes in a gravity line with low headloss
- Approximately 30% increase in throughput due to the zig-zag folded screen basket
- Very high separation efficiency
- Perforation: 1 / 1.5 / 2 mm
- Suitable for installation into existing channels or for tank installatin
- Sturdy design, low maintenance requirements
- Screen basket diameter: 780 – 3000 mm

HUBER Perforated Plate Screen ROTAMAT® STAR, 2600 mm diameter, 1 mm perforation

A few examples from thousands of installations



HUBER Rotary Drum Fine Screen ROTAMAT® installed in the channel with a movable stainless steel cover, size 600 to 3000

Individually adapted installation with lateral screenings discharge directly into a container

Tank-mounted HUBER Rotary Drum Fine Screen ROTAMAT®...

... from size 600 to size 2400

3 ROTAMAT® STAR units size 1000 with 1.5 mm perforation protecting the downstream membrane plant

ROTAMAT® STAR screen basket, 2600 mm diameter, 1 mm perforation, acid-treated in a pickling bath and passivated

Screen sizes

Screen basket diameter:	600 - 3000 mm	Bar spacing:	0.5 - 6 mm
Installation angle:	35°	Perforation:	1 - 6 mm

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