HUBER TECHNOLOGY
WASTE WATER Solutions

HUBER
Disc Filter RoDisc®

- Retention of suspended solids from the secondary clarifier effluent
- Reduction of phosphorus by upstream precipitation
- Preliminary filtration in drinking water generation from surface waters and in UV disinfection applications

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Function

High hydraulic loads, insufficient tank depth and poor settling properties are the most common causes for the insufficient secondary clarifier performance. It may even reach the stage where the minimum requirements for a reliable solids retention can no longer be complied with. Overflow of flocks increases COD, BOD and phosphorus loads in the effluent and receiving watercourse with the result of higher wastewater fees.

Downstream micro screening offers an efficient and quickly implementable option for separating fine suspended materials. Combined with precipitation and flocculation phosphorus can be reduced to a very low concentration. This prevents eutrophication with algae and water plants in the water.

Solution

Our HUBER Disc Filter RoDisc® is a micro screening system. The machine consists of up to 35 vertically arranged discs connected by a horizontal shaft. Up to 65 % of the disc surface is submerged.

Each disc consists of 12 plastic segments. The segments are covered on both sides with mesh fabric that has been secured by a thermal process around the edges. Each segment can be exchanged individually in case the mesh should be damaged. Common fabric separation limits are usually between approx. 10 and 50 µm.

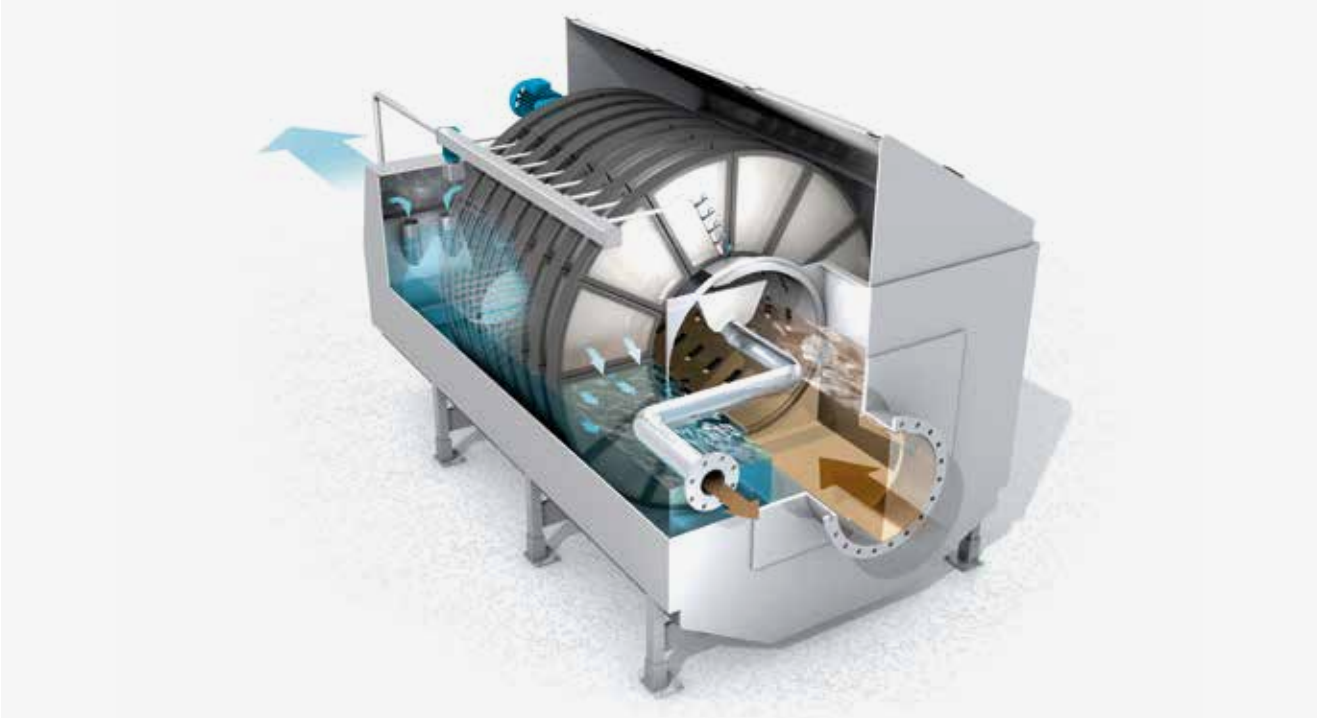
Due to its small space requirement and modular design the HUBER Disc Filter RoDisc® can be tailored to suit any specific site requirements.

Design and function

The HUBER Disc Filter RoDisc® is a gravity-flow filtration system. For this purpose, the water is initially fed to the horizontal shaft and flows from there through openings into the disc-shaped screen elements. The wastewater to be treated flows through the discs from inside to outside. The discs initially remain in rest position during micro screening. The solids are retained on the inner disc surfaces, which leads to gradual blinding of the mesh, resulting in an increasing pressure differential. An overflow weir ensure that the water level in the tank remains virtually constant. The upstream water level rises as the blinding process progresses. Cleaning of the screen elements starts automatically once a defined water level has been reached.

The screen mesh is cleaned by nozzle strips. In the opposite direction to the filtration flow, i.e. from the outside to the inside, the fabric is cleaned by the high-pressure water jet while the discs are rotating slowly. The filtrate in the machine's tank is used for back-washing, which means that no fresh water is required. The spray water and the solids contained are collected in a trough and discharged axially from the machine. Solids separation is not interrupted during cleaning.

Disc-shaped screen element with a mesh size under 20 µm.



Applications

Filtration of biologically treated wastewater
The HUBER Disc Filter RoDisc® is frequently used for the separation of fine suspended material from biologically treated wastewater within municipal and industrial applications. This is particularly the case if secondary clarification is not working well, e.g. because secondary clarification tanks are too small or the activated sludge is difficult to settle. The effluent from our disc filter is significantly and reliably below the set limit values for filterable substances. Furthermore, it achieves a further, significant reduction of phosphorus concentrations.

RoDisc use in the drinking water sector
Especially in the drinking water sector, machine technology is subject to particularly high demands. The highest quality standards for the materials used and traceability of the supply chains are essential here. Cleanliness and hygiene must be ensured throughout drinking water applications, from manufacturing of the machine technology to commissioning.

Drinking water can be obtained from surface water, springs or shore filtrate water. The key task here is to remove mussels, their larvae, algae or the very fine sludge from the water. For this purpose, HUBER provides a reliable product solution with the RoDisc.

Filtration to protect or increase the effectiveness of downstream cleaning procedures

A virtually solids-free flow is a prerequisite for effective and efficient as well as trouble and maintenance free operation of some subsequent treatment steps, such as UV disinfection, GAC filtration and membrane filtration significantly reduce the concentration of suspended material. Our micro screens

Treatment of water and wastewater in industries
Advanced wastewater treatment at source is required due to more stringent legislation concerning direct or indirect wastewater discharge. Wastewater recycling also requires the removal of solids. Service and process water must be as free of solids as possible.

Special use cases include:

- Wastewater within paper and pulp industry
- Wastewater within plastic processing industries
- Treatment of service and process water, closing water loops (e.g. in food and chemical industry)
- Removal of microplastics

Activated sludge flocs sometimes are insufficiently retained by the secondary clarifier.

The user’s benefits

- Very high hydraulic capacity on a small footprint
- Gravity system with low head loss, no lifting of wastewater required
- Significant reduction of filterable solids, COD, BOD, phosphorus
- Effluent standards are reliably met. Reduced wastewater discharge charges
- Form-locked and chemical-resistant thermal fixation of the mesh
- No external water supply required as filtrate is used for cleaning
- For installation within a stainless steel tank or in customer’s concrete tank
- Continuous micro screening even during backwashing
- Simple individual filter element replacement without the need for lifting equipment

28 HUBER Disc Filter RoDisc® units with 24 discs each treating about 8.5 m³ wastewater per second.

4 HUBER Disc Filter RoDisc® with 18 discs in stainless steel container.

Technical data

- 2230 mm and 2700 mm disc diameter
- Throughput up to 2800 m³/h per machine
- Up to 35 filter discs per machine
- Mesh sizes of approx. 10 –100 µm possible
- Fabric quality: PET, stainless steel, plastics suitable for drinking water

Backwashing of filter discs with filtrate – no external wash water required.

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Subject to technical modification | 0,1 / 11 – 2.2024 – 4.2005