



HUBER

Complete Plant ROTAMAT® Ro5

The original

- ▶ Well-proven mechanical pre-treatment components
- ▶ With aerated or optionally unaerated grit channel
- ▶ Grit trap designed accordance with international standards
- ▶ Separate grease trap with semi-automatic grease removal (optional)
- ▶ Integrated grit washing (optional)

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The situation

For reasons of operational safety the first step of sewage treatment works is generally mechanical wastewater pre-treatment including:

- ▶ Fine screening (1)
- ▶ Screenings treatment (2)
- ▶ Grit separation (3)
- ▶ Grit discharge (4)
- ▶ Separation and removal of fat and grease (5)
- ▶ Integrated grit washing (6)

Complete wastewater pre-treatment prevents operational problems, such as blockages, wear, or silting. We developed and supplied our first HUBER Complete Plant ROTAMAT® Ro5 during the 1980s. Since then hundreds of consulting engineers and operators have selected and installed our Complete Plants because of their reliable operation and low maintenance. Planning and installation of our HUBER Complete Plant ROTAMAT® Ro5 units is not only quick and easy, but also saves considerable construction costs. In fact, they are even acknowledged as state of the art in the 4th edition of DWA's Handbook for mechanical wastewater treatment.

Design and function

1. Fine screening

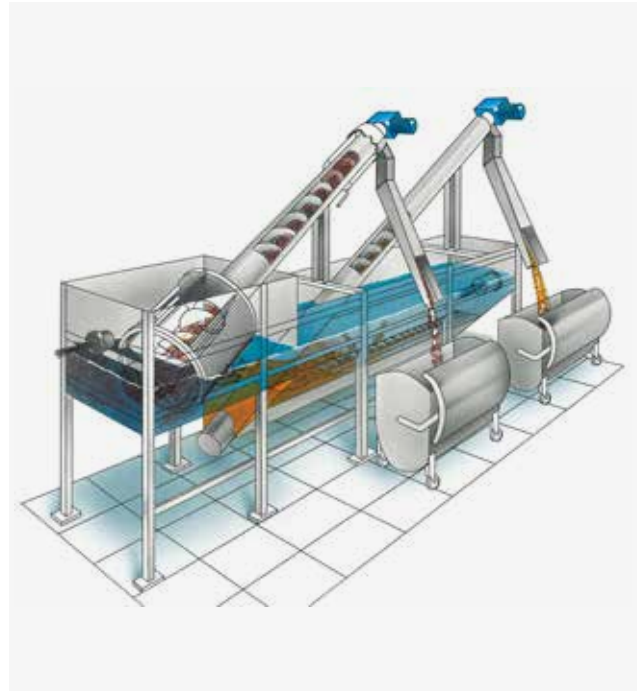
Depending on the specific conditions and data, such as peak flow, screenings load and grit load, one of the following HUBER screens is selected:

- ▶ HUBER Fine Screen ROTAMAT® Ro1
Bar spacing 6 or 10 mm
- ▶ HUBER Rotary Drum Fine Screen ROTAMAT® Ro2
Bar spacing 1 – 6 mm
- ▶ HUBER Micro Strainer ROTAMAT® Ro9
Bar spacing 1 – 6 mm
- ▶ HUBER Multi-Rake Bar Screen RakeMax®
Bar spacing 2 – 10 mm
- ▶ HUBER Belt Screen Esca Max®
Perforation 3.5 – 10 mm
- ▶ HUBER Fine Screen STEPSCREEN® SSF
Slot width 3 or 6 mm

Other separation sizes can be supplied on demand. Separate brochures are available for all of these machines.



Well-proven wastewater fine screen: HUBER Rotary Drum Fine Screen ROTAMAT® Ro2.



View of a HUBER Complete Plant ROTAMAT® Ro5 as shown in the DWA Handbook.

2. Screenings treatment

The HUBER screens Fine Screen ROTAMAT® Ro1, Rotary Drum Fine Screen ROTAMAT® Ro2 and Micro Strainer ROTAMAT® Ro9 include a screenings press and therefore do not require an additional wash press.

- ▶ Screenings washing with IRGA (optional)
- ▶ Dewatering and compaction in integrated screenings press

Solids concentration of screenings: up to 45% DS.

HUBER Fine Screen STEP SCREEN® SSF, HUBER Belt Screen EscaMax®

- ▶ A separate HUBER Wash Press WAP® is usually installed behind these HUBER screens.

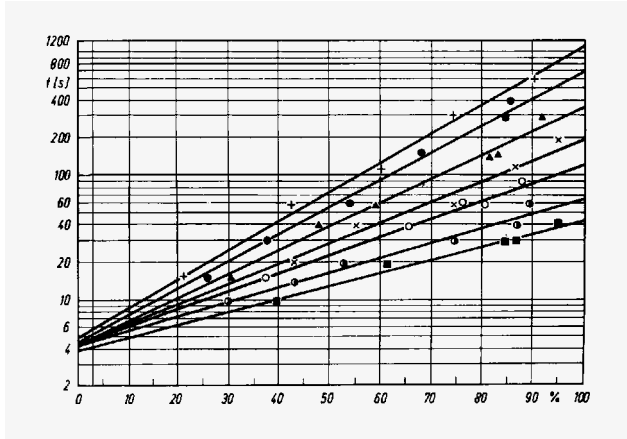
Solids concentration of screenings, depending on the WAP® type used: up to 50% DS.



Washed and compacted screenings – the ideal fuel.

3. Grit separation

The grit channels of the HUBER Complete Plant ROTAMAT® Ro5 units are designed in accordance with international standards or the customer's specific requirements. The grit channels are available as aerated or optionally unaerated units. The selection of the grit channel type (aerated or unaerated) depends on various criteria, such as the storm/dry weather flow ratio or whether further grit treatment systems are planned.



Settled grit depending on its residence time within the grit channel. Source: ATV handbook, mechanical wastewater treatment, 4th edition, 1997, page 111.

4. Grit removal and discharge

The settled grit is collected from the bottom of the grit channel with a horizontal grit screw. An inclined grit screw conveys, agitates and dewateres the collected grit. The classified grit slides from the upper end of the inclined screw into a HUBER Coanda Grit Washer RoSF4 T. Optionally, the material can be pumped to the grit washer.



Classifying screw with subsequent HUBER Coanda Grit Washer RoSF4 T.

5. Grease separation and removal (optional)

Separation of fats and grease is only available when used with aerated grit channels. The grease is collected in a separate chamber with the partition between the grit trap chamber and grease chamber consisting of a slotted scum board. The flow generated within the grit trap

chamber by the aeration system transports the grease through the slotted scum board into the grease chamber. In contrast to many competitors, the floating fats and oils are skimmed off the water surface with a paddle scraper that is slowly pulled with a stainless steel rope. The paddle is shaped so that it removes virtually all floating matter from the grease trap. Anaerobic degradation of fat and grease, and there-with odor nuisance, is thus prevented.



Paddle scraper for grease removal from the grease trap. According to the principle of a longitudinal grit removal scraper the grease paddle pushes the floating fat and grease into the pump sump.

6. Optional integrated grit washing

In this case the horizontal grit conveyor transports the separated grit fractions directly into a grit washer which is integrated at the Complete Plant outlet.

Due to a defined introduction of upwardly directed service water the grit situated within the lower part of the grit washer is fluidised within the flow enabling the lighter organic particles to be separated from the dense grit particles. The separation of the lighter organic particles from the dense grit particles is supported by a rabble rake. After removal of the organic material the clean grit is automatically removed by a classifying screw, statically dewatered and discharged into a container.



Complete Plant with integrated Grit Washer.

The benefits

- ▶ Dependable, complete and compact headwork unit performing the following process steps:
 - ▶ Fine screening
 - ▶ Screenings washing (optional)
 - ▶ Screenings dewatering
 - ▶ Grit separation
 - ▶ Grit dewatering
 - ▶ Grit trap aeration (optional)
 - ▶ Grease separation and removal (optional)
 - ▶ Optional integrated grit washing
- ▶ Removal efficiency in accordance with international standards (DWA) with Q_{max} : 90% of 75 mesh grit (particle diameter 0.2 – 0.25 mm) (confirmed by the University of Erlangen)
- ▶ Throughput capacity up to 300 l/s (1,080 m³/h)
- ▶ Separate grease chamber with automatic grease removal (optional)
- ▶ Completely encased unit, no odor nuisance
- ▶ Frost protection for outdoor installation (optional)
- ▶ Above-ground or underground installation
- ▶ More than 2,500 installations
- ▶ Completely made of stainless steel (including the screws)



Integrated grit washing at the end of the HUBER Complete Plant ROTAMAT® Ro5.



Odour-encased screenings discharge from the HUBER Complete Plant ROTAMAT® Ro5.



Intensive washing of screenings in a WAP® SL subsequent to a HUBER Complete Plant ROTAMAT® Ro5.



Underground, redundant HUBER Complete Plant ROTAMAT® Ro5.