

# HUBER Sewerage Program



Machines and system solutions for stormwater treatment and sewer system management

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## ►► Combined and Storm Water Treatment

### **Innovative technology and solutions for combined and separate sewer systems**

An important part of our efforts to protect the environment in general, and our water resources in particular, is treatment of storm water and of overflows from combined sewer systems. The quality of many rivers, lakes and seas has significantly improved following the upgrading of old and construction of new wastewater treatment plants. However, despite all these efforts and investment, there is still considerable pollution of our water bodies caused by combined and sanitary sewer overflows (CSOs and SSOs) during storm events. For the purpose of specific environmental protection appropriate measures will have to be taken in future to minimize these problems.

### **Screens for sewer overflows**

HUBER screens are used to retain debris and other coarse solids within the sewer systems and to prevent them from overflowing into receiving water bodies during storm events. We have a variety of screens suitable for application at sewer overflows. For such applications bar screens and perforated plate screens can be selected. We offer screens that are installed upstream of, on top, or downstream of overflow weirs. The optimally suited screen is selected depending on the required or desired capture rate, flow requirement and structural conditions. Our global presence and experience allows our experts to propose the best solution to any problem.

### **Storm water retention in sewer systems**

Another HUBER focus are intelligent and efficient systems for controlled storm water retention in sewer systems. In order to save investment and operating costs, it is essential to utilize the existing sewer volumes more effectively for storm water retention by controlling the water levels within the system. In many cases, with such an intelligent approach, construction of additional retention tanks can be avoided. Pollution by unavoidable storm water overflows can be minimized by installation of storm screens.

### **Discharged flow volume measurement**

Monitoring the utilisation of storm water retention tanks and of overflows becomes ever more important to allow optimising the use of retention volumes and minimizing overflow occurrence and flows. It is essential to be able to measure discharged storm water flows and volumes. In the past this has not been possible where a storm screen was installed. This is now possible with our equipment.

➤ Examples of problematic situations in combined and stormwater sewers



*Sewers without equipment for discharge volume measurement*



*Stormwater overflow structures without a preceding fine screen ...*



*... resulting in unnecessary water pollution*

## ➤ Combined and stormwater treatment



HUBER Storm Screen ROTAMAT® RoK1 installed **behind** the overflow sill

### **Product specification:**

The HUBER Storm Screen ROTAMAT® RoK1 is an automatically cleaned screen for stormwater and combined water treatment and is horizontally installed directly behind the overflow sill at overfall weir level. A screw is mounted on a half cylinder of perforated plate (standard perforation: 6 mm). Wear-resistant brushes on the screw flights clean the perforated plate.

The screen is driven by a submersible, ex-protected IP 68 motor.

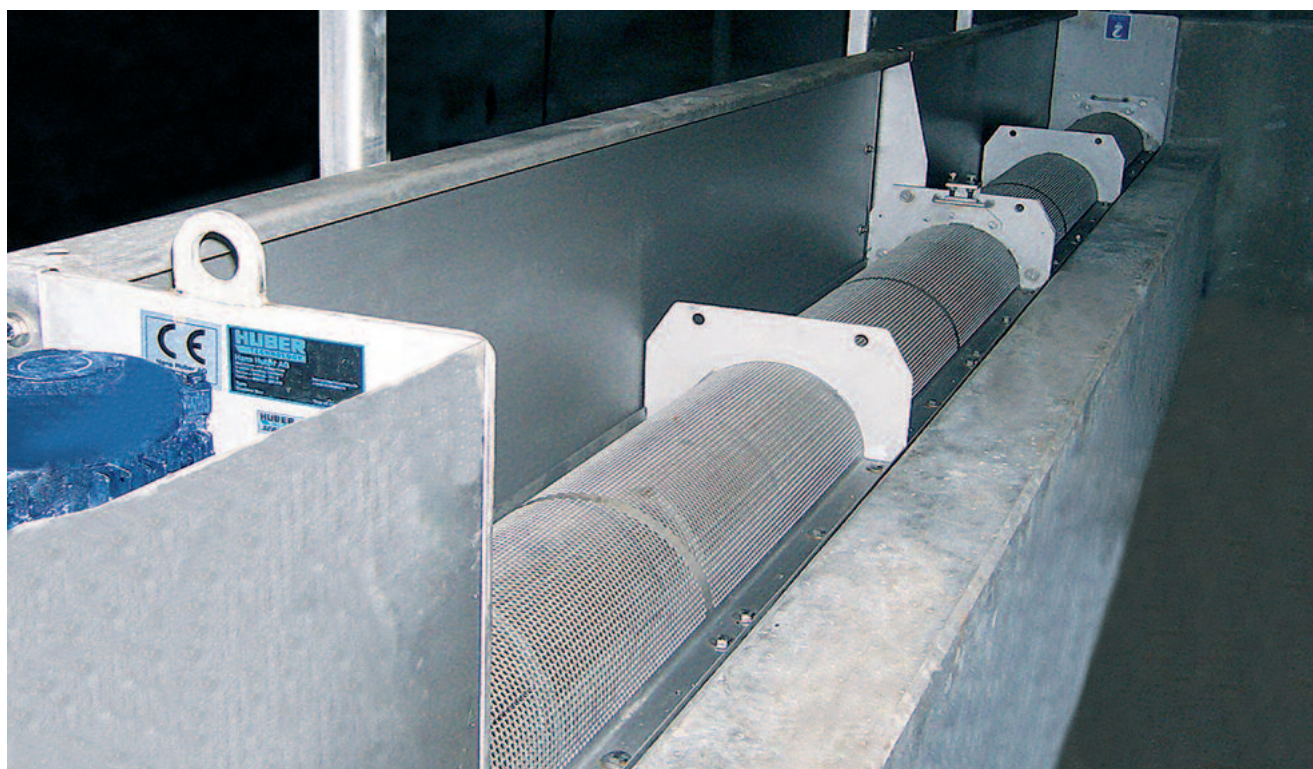
During wet weather events, the flow streams through the screen from the top down and the solids are retained on the screening surface and then transported to the screenings discharge unit by the rotating screw. Simultaneously the strainer section is cleaned by means of the wear resistant brush secured to the outside flights of the rotating screw.

As standard the screenings are returned to the channel and thus the sewage treatment plant inlet. However there is also the possibility of transporting the screenings to further disposal by means of a screw conveyor. During storm conditions the machine is automatically started and then works fully automatically.

### **The user's benefits:**

- Optimal solids retention by means of two-dimensional screening
- Low hydraulic resistance due to installation at spillway height
- The perfect solution for discharges with limited upstream head possibilities
- Especially suitable as a preliminary stage for protection of soil filter retention plants
- For problem-free retrofitting into existing structures
- Availability of completely submerging the screen
- Especially suitable for long-term use in the wastewater sector as completely made of stainless steel and acid treated in a pickling bath

## ►► Combined and stormwater treatment



HUBER Storm Screen ROTAMAT® RoK2 installed **in front of** the overflow sill

### **Product specification:**

Also the HUBER Storm Screen ROTAMAT® RoK2 is an automatically cleaned screen for stormwater and combined water treatment but is installed directly in front of the overflow sill. Again, a screw is mounted on a half cylinder of perforated plate (standard perforation: 6 mm). Wear-resistant brushes on the screw flights clean the perforated plate. The screen is driven by a submersible, ex-protected IP 68 motor.

During wet weather events, the flow streams through the screen from the bottom up and the solids are retained on the screening surface and then transported to the screenings discharge unit by the rotating screw. Simultaneously the strainer section is permanently cleaned to ensure the maximum possible screen throughput is achieved. As standard the screenings remain in the tank or are transported with the wastewater flow to the sewage treatment plant. During storm conditions the machine is automatically started and then works fully automatically.

### **The user's benefits:**

- Optimal solids retention by means of two-dimensional screening
- The perfect solution for discharges with limited upstream head possibilities
- As a standard the screenings remain on the polluted water side
- Especially suitable as a preliminary stage for protection of soil filter retention plants
- No downstream impact on the screen efficiency
- For problem-free retrofitting into existing structures
- Availability of completely submerging the screen
- Especially suitable for long-term use in the wastewater sector as completely made of stainless steel and acid treated in a pickling bath

## ➤ Combined and stormwater treatment



Outdoor installation of a HUBER Pumping Stations Screen ROTAMAT® RoK4

### **Product specification:**

The compact vertical HUBER Pumping Stations Screen ROTAMAT® RoK4 is an automatically cleaned screen that combines screening, transport and compaction in a single unit. The screen consists of a vertical screen basket and a shafted auger in a vertical tube.

The wastewater flows through an inflow chamber and then through the perforated plate screen basket which removes the screenings fully automatically. Within the vertically installed screen basket the flights of the screw are equipped with wear-resistant brushes for effective cleaning of the screen. As the screenings are gradually elevated by the auger, they are dewatered by gravity drainage. A screenings compaction zone is located above the auger. Water is pressed out of the screenings through perforations in the vertical tube. The compacted screenings are discharged through a chute into a container or endless bagger thus eliminating odour nuisance. The filtrate drains off by gravity or may be lifted by pump.

### **The user's benefits:**

- Compact automatic screening, lifting and compaction in a single unit
- Optimal solids retention by means of two-dimensional screening (perforated plate)
- Prevention of clogging and tressing in the pumping station
- Easy to install into existing structures
- Integrated bottom step to prevent sedimentation in the inlet sewer
- Optional frost-protected unit for outdoor operation
- Availability of completely submerging the screen

## ➤ System solutions for combined and stormwater treatment



Stormwater screening combined with overflow measurement: HUBER Storm Screen ROTAMAT® RoK2 with gauging weir

### Product specification:

In the event of heavy rainfalls large amounts of combined water may pass into the receiving water course via overflow discharge structures or stormwater overflow tanks. Frequently, there is no screening plant installed with the consequence that the discharged water contains floating and coarse material. In addition, the discharged overflow is frequently not measured and with the omission of measuring equipment will mean a significant loss of critical information relating to the operating behaviour of the storage and overflow structure. The innovative combination of the HUBER Storm Screen ROTAMAT® RoK2 and a subsequent gauging weir can avoid such unfavourable conditions.

The HUBER Storm Screen ROTAMAT® RoK2 is an automatically cleaned screen for stormwater and combined water treatment which is installed directly in front of the overflow sill. The flow streams through the screen from the bottom up and the solids are retained on the screening surface. Whilst the wastewater flows then over the subsequent gauging weir, the overflow is measured and evaluated by a fully automatic measuring and evaluation unit.

### The user's benefits

- The calculated discharge volumes expected can be compared with the actually obtained measuring data.
- Co-ordination of critical information regarding servicing, operation and maintenance of stormwater tanks
- Detection of unfavourable operating conditions (such as backwater, influence of flood water, etc.)
- Obtain valid results and figures with regard to the operating behaviour of storage and overflow structures
- Increase in optimisation of WWTP inflow and combined surplus flow
- Reduction of the load on receiving watercourses due to improved calculations based on the data obtained by means of the measuring equipment
- Reduction of cost for combined overflows

➤ Installation examples of machines and systems for combined and stormwater treatment in sewers



*HUBER Storm Screen ROTAMAT® RoK2 installed at the overflow of a stormwater retention tank*



*HUBER Pumping Stations Screen ROTAMAT® RoK4 screen flanged directly onto the incoming sewer to protect downstream pumps against coarse material*



*HUBER Storm Screen ROTAMAT® RoK1 installed at an angle of 60° to save horizontal space*



*HUBER Storm Screen ROTAMAT® RoK1 units installed on both sides of the WWTP inlet for increased throughput*





*Above-ground disposal of the dewatered screenings from a HUBER Pumping Stations Screen ROTAMAT® RoK4*



*HUBER Pumping Stations Screen ROTAMAT® RoK4 in operation in the inlet channel of a WWTP*



*HUBER Storm Screen ROTAMAT® RoK2 with discharge flow measurement during storm events*

➤ Installation examples of machines and systems for combined and stormwater treatment in sewers



*HUBER Storm Screen ROTAMAT® RoK1 for overflow screening at the WWTP inlet*



*HUBER Storm Screen ROTAMAT® RoK1 installed at a stormwater overflow tank*

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