Innovative Products Worldwide
HUBER SE, headquartered in Berching, Germany, is globally active in the field of water, wastewater and sludge treatment.

At our headquarters in Berching, more than 700 employees develop and manufacture products, manage projects and develop system solutions for municipalities and industries. They all work towards improvement of water quality.

Founded more than 175 years ago, today Huber supports its customers through subsidiaries, offices or representatives by providing know-how and innovative products for water, wastewater and sludge treatment.

The family-owned company has a state-of-the-art factory where a wide range of machines and equipment for the international markets is manufactured. Our highly qualified employees use highly sophisticated manufacturing technologies.

To supply our customers with products of the highest quality, it was decided many years ago to make all products from stainless steel. Over the years extensive experience and expertise has been acquired in manufacturing stainless steel products for the water and wastewater industry.

As a result of the ongoing product improvement and our product innovation, we are able to offer a full range of products for the global water and wastewater markets.

This brochure provides a general overview of the Huber products and their applications.

You can find out more information about all products and applications on www.huber.de. If you wish to discuss your needs, please ask our experts for advice and support.
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Wastewater Screening

Screens for any application

Screening is indispensable as the first step of municipal and industrial wastewater treatment.

Debris must be removed in order to protect subsequent treatment processes from clogging and/or damage. Floating, settling and suspended solids are retained, depending on the bar spacing or perforation diameter, removed and finally discharged.

Based on the same ROTAMAT® principle “screening – washing – conveying – dewatering in a single unit” a family of ROTAMAT® screens has been developed and successfully introduced in the global market of wastewater treatment. In recent years the STEP SCREEN® and later the MAX® and LIQUID families have been added. We offer the perfect HUBER screen for:

➤ any installation condition
➤ any flow rate
➤ any spacing or perforation size
➤ any application

Coarse Screen

Fine Screen

Rolled perforated plate

Bent perforated plate

Mesh Screen
Wastewater Screening

Ultra-fine screens for new applications
Our development of extremely fine screens for the separation of very fine particles permits new wastewater treatment applications for screens.
Reliable separation of hair and fibrous material is necessary for efficient performance of membrane bioreactors.

Another application for ultra-fine screens is river and sea outfalls. Frequently, raw wastewater is only treated mechanically prior to being discharged to rivers or seas. Reduction of the COD/BOD loads from such outfalls is required for the protection of the receiving water bodies if their self-cleaning capacity is insufficient.

These ultra-fine screens are able to remove undegradable and degradable, inorganic and organic material at the same time. Improved environmental protection is achieved by application of this new technology at reasonable costs.
Chemical coagulation can temporarily be added to maintain the screening efficiency and high effluent quality even during peak loads. For many regions with insufficient wastewater treatment, if any at all, ultra-fine screening is a quick and affordable first step in the right direction.
➤➤➤ Wastewater Screening

HUBER Coarse Screen TrashMax®
➤ High-capacity screen rakes
➤ High operational safety due to efficient and reliable bar rack cleaning
➤ Reliable removal of even bulky coarse material
➤ Bar spacing > 20 mm

Robust screen for coarse material removal: HUBER Coarse Screen TrashMax®

HUBER Multi-Rake Bar Screen RakeMax®
➤ High screenings capacity
➤ Low head loss
➤ Low installation height above operating floor, even with deep channels
➤ Bar spacing ≥ 1 mm

HUBER Multi-Rake Bar Screen RakeMax® – robust design for reliable operation
Wastewater Screening

HUBER Multi-Rake Bar Screen RakeMax®-hf

➤ Combines the benefits of high screenings discharge capacity and low headloss
➤ Variable installation angle of bar rack and discharge unit
➤ Bar spacing ≥ 1 mm

The HUBER Multi-Rake Bar Screen RakeMax®-hf combines the benefits of high flexibility, low headloss and high screenings discharge capacity.

HUBER Belt Screen EscaMax®

➤ Excellent capture rate provided by two-dimensional screening elements
➤ Compact and robust design
➤ Easy to retrofit into existing channels
➤ For deep channels with high water levels
➤ Perforation diameter ≥ 3.5 mm

HUBER Belt Screen EscaMax® – versatile headworks screen
Wastewater Screening

HUBER Fine Screen ROTAMAT® Ro1

➤ Screening, conveying, washing, dewatering and compaction in a single unit
➤ With integrated screenings press
➤ With integrated screenings washing (IRGA)
➤ Positive screen cleaning with rotating rake
➤ Bar spacing ≥ 6 mm

HUBER Rotary Drum Fine Screen ROTAMAT® Ro2 / RPPS

➤ Screening, conveying, washing, dewatering and compaction in a single unit
➤ With integrated screenings press
➤ With integrated screenings washing (IRGA)
➤ Rotating screen basket with wedge wire or perforated plate
Wastewater Screening

HUBER Perforated Plate Screen ROTAMAT® STAR

- Removal of hair and fibres to protect downstream membrane filtration plants
- Screenings removal, transport, washing, dewatering and compaction
- Increased throughput capacity due to the increased surface area provided by the folded perforated plate
- Very high separation efficiency
- Perforated plate 1 / 1.5 / 2 mm

HUBER Perforated Plate Screen ROTAMAT® STAR protecting downstream membrane filtration systems

HUBER Micro Strainer ROTAMAT® Ro9

- Screening, conveying, washing, dewatering and compaction in a single unit
- With integrated screenings press
- With integrated screenings washing (IRGA)
- XL-version with longer screen basket and for higher flow and water level applications
- Economy version Ro9 Ec without washing and compaction
- Wedge wire spacing: 0.5 – 6 mm
- Perforations: 1 - 6 mm

HUBER Micro Strainer ROTAMAT® Ro9 – the low-cost screen for small flows
Wastewater Screening

HUBER Fine Screen STEP SCREEN® SSF

➤ Efficient removal and lifting of screenings
➤ High separation efficiency
➤ Easy to retrofit into existing channels with no or minimal modification required.
➤ Lifting of screenings from channel floor
➤ 3 or 6 mm spacing

HUBER Fine Screen STEP SCREEN® SSV

➤ For deep channels and high discharge
➤ Space-saving installation with steep 75° inclination
➤ For high flow and low head loss
➤ Lifting of screenings from channel floor
➤ 3 or 6 mm spacing
Wastewater Screening

HUBER Sludge Acceptance Plant ROTAMAT® Ro3

- With the robust Fine Screen ROTAMAT® Ro1 or Micro Strainer ROTAMAT® Ro9
- With integrated screenings press
- With integrated screenings washing (IRGA)
- Optional with integrated grit trap (compact version ROTAMAT® Ro3.3)

HUBER Sludge Acceptance Plant ROTAMAT® Ro3.3, well-proven in hundreds of installations worldwide

HUBER Screw Conveyor ROTAMAT® Ro8 / Ro8 T

- Custom design and fabrication
- With conveyor tube (Ro8) or trough (Ro8 T)
- Completely encapsulated, odour-free plant

HUBER Screw Conveyor ROTAMAT® Ro8 / Ro8 T for all types of media to be conveyed and for any installation situation
Wastewater Screening

HUBER Membrane Screen ROTAMAT® RoMem Pro

- Removal of hair and fibres upstream of membrane filtration plants
- COD and BOD removal prior to river or sea outfall applications
- Safe screenings transport due to additional suction
- Ideal for installation in existing channels
- Screening, compaction, dewatering and transport in one unit
- Mesh 0.75 mm

HUBER Membrane Screen ROTAMAT® RoMem Pro especially designed for the removal of hair and fibres

HUBER Drum Screen RoMesh®

- RoMesh® for fine, defined separation sizes
- Removal of hair, fibres and suspended solids
- Reduction of COD/BOD from river and sea outfalls
- Further improved performance after precipitation and flocculation
- Mesh 0.2 - 1.0 mm
- Perforations 2 - 6 mm

HUBER Drum Screen RoMesh® screen for the removal of fine and finest particles
Wastewater Screening

HUBER Drum Screen LIQUID

- Removal of hair and fibres to protect downstream membrane filtration plants
- COD and BOD removal prior to river or sea outfall applications
- Reduced load on the biological treatment system of sewage treatment plants without preliminary treatment
- Removal of algae from surface waters
- Available screen basket covers: wedge wire, perforated plate or mesh size 0.2 - 3 mm

HUBER Perforated Plate Screen ROTAMAT® STAR liquid

- Removal of hair and fibres to protect downstream membrane filtration plants
- Increased throughput capacity due to the increased surface area provided by the folded perforated plate
- Optimum operating reliability due to screenings transport by gravity (launder channel)
- External screenings treatment, e.g. in a HUBER Wash Press WAP® liquid, or alternatively combined treatment with sewage sludge
- Perforation 1 / 1.5 / 2 mm
Due to increased requirements on the effluent quality of wastewater treatment plants – both for direct and indirect discharge – the operators of municipal and industrial plants are forced to implement additional treatment steps to ensure the required effluent standards are met. The HUBER Sandfilter CONTIFLOW® and HUBER Disc Filter RoDisc® are cost-effective solutions to meeting effluent standards in various applications.

Sandfiltration
The HUBER Sandfilter CONTIFLOW® is a deep-bed type upflow filter that provides continuous filter bed cleaning without the need to backwash and interrupt the filtration process for cleaning. The CONTIFLOW® is available in a stainless steel tank or optionally in a concrete tank. Its modular design ensures the optimal treatment of any throughput.

The Sandfilter is also used as a reactor for nutrient reduction:

Chemical phosphorus elimination through precipitation
Precipitants, such as iron or aluminium salts, can be dosed directly into the filter inflow and transform the phosphorus compounds contained therein into undissolved phosphates. These are retained in the sand bed and discharged along with the wash water.

Biological nitrogen reduction through denitrification
Upgrading of sewage treatment plants is a major field of application of post-denitrification in the Sandfilter. Due to the growth of biomass on the surfaces of the sand grains the nitrates contained within the inflow are converted into gaseous nitrogen.

Disc Filter
The HUBER Disc Filter RoDisc® is a gravity-flow filtration system and consists of up to 35 vertical discs which are connected by a horizontal shaft. Up to 65% of the disc surface is submerged in the filtrate. The wastewater to be treated flows through the filter discs from inside to outside. The HUBER Disc Filter RoDisc® is frequently utilised for the separation of fine suspended material from biologically treated wastewater within municipal and industrial applications, especially if secondary clarifiers work insufficiently because they are too small or the settling behaviour of the activated sludge is poor for example.

Typical fields of application of RoDisc® units:
- Retention of filterable solids from the secondary clarifier effluent
- Reduction of micropollutants in combination with powdered active carbon (PAC)
- Preliminary filtration in drinking water recovery from surface waters and in UV disinfection applications
Filtration and Micro-Screening

HUBER Disc Filter RoDisc®

➤ Micro screen for reliable removal of fine suspended solids
➤ Removal of powdered active carbon to reduce trace substances and micropollutants
➤ Reduction of filterable solids and COD/BOD/P concentrations in the WWTP effluent
➤ Gravity flow system with low head loss
➤ Can reduce wastewater fees
➤ For flows up to 2000 m³/h and mesh sizes as small as 2 µm

HUBER Disc Filter RoDisc® with up to 35 discs in one unit

HUBER Sandfilter CONTIFLOW®

➤ Extensive reduction of nutrients through phosphorus elimination and denitrification
➤ Removal of powdered active carbon to reduce micropollutants
➤ Modular design for easy adaptation to any flow rate
➤ No need for wash water tanks, wash pumps and complicated backwashing systems
➤ High operating reliability through constantly high filtrate quality

HUBER Sandfilter CONTIFLOW®, stainless steel design
The first step in wastewater treatment is normally the removal of solids from the wastewater flow by means of screens. The removed screenings contain household waste, faecal matter, toilet paper and mineral solids. The screenings volume depends, not only on the separation size of the screen, but also on the type of sewer system.

The solids content of municipal screenings varies between 18 % and 25 %, depending on the type of screen. Approximately 90 % of the solids are volatile (organic).

Due to their very high water content, their heterogeneous composition and unaesthetic appearance screenings must be treated before they can be disposed of.

The best method of screenings treatment is washing and compaction with a wash press. Fecal matter and other organic materials are removed and returned into the wastewater flow.

As a result, a good wash press increases the BOD₅ load to the biological treatment process by about 6 %.

After washing, the screenings are compacted to reduce the water content and increase the solids concentration.

Dewatering is improved by the removal of organic materials during washing. A good washpress can achieve a weight and volume reduction of up to 80 %.

A wash press reduces the mass and volume of the screenings and consequently the disposal costs.
Screenings Treatment

HUBER Wash Press WAP®

- Suitable for any application
- Up to 45% solids content
- Up to 12 m³/h feed capacity
- Completely made of stainless steel

HUBER Wash Press WAP® installed behind a HUBER Fine Screen STEP SCREEN®

HUBER Wash Press WAP® HP

- With high pressure zone
- Controlled hydraulic pressure
- Up to 55% solids content
- Very robust design
- Low wear due to use of hardened steel materials
- Ideal for secondary dewatering

HUBER Wash Press WAP® HP: Pressure regulation guarantees continuously high solids content
Screenings Treatment

HUBER Wash Press WAP® SL

➤ Turbulent washing action
➤ Optimal washing results
➤ High BOD₃ return
➤ Washed screenings quality: < 20 mg BOD₃ / g DR
➤ Optimally suitable for launder channel feed
➤ Up to 50 % solids content

HUBER Screenings Wash Press WAP® SL HP

➤ Combination of super-launder and high-pressure compaction
➤ Up to 60 % solids content
➤ Up to 85 % weight reduction
➤ Increased thermal value
➤ Up to 75 % disposal cost reduction
Screenings Treatment

HUBER Wash Press WAP® liquid

- Wash press for dewatering/compacting very fine screenings
- Removable perforated bottom for optimal maintenance
- Screenings dewatering results up to 35% DR
- For optimal dewatering of e.g. liquid screenings from a HUBER Drum Screen LIQUID

HUBER Wash Press WAP® liquid in tank for dewatering/compacting very fine screenings

HUBER Wash Press Launder WAP® L for launder channel operation

- Screenings wash press for increased dewatering with launder channel feeding system
- Up to 45% solids content
- Up to 12 m³/h feed capacity
- Individually adaptable discharge situations due to flexible launder channel arrangement
- Up to 40 m launder channel length

HUBER Wash Press WAP® L with launder channel feeding system: Redundant operation and optimal screenings dewatering
Grit Separation

For reasons of operating reliability of wastewater treatment plants it is necessary to separate the grit transported with the wastewater and other mineral materials from the digestable organic material. In combined sewer systems, approximately 60 l of grit can be removed from 1000 m³ of wastewater.

Separation of grit, gravel and other mineral matter is required to increase the reliability of wastewater treatment plant operation. Good grit separation prevents operational problems, such as grit sedimentation in aeration tanks and digestors, reduces wear of equipment, such as pumps or sludge dewatering centrifuges, and avoids clogging of sludge hoppers and sludge lines.

While as much as possible of the mineral matter should be removed, as much organic matter as possible should remain in the wastewater. Testing of the grit capture rate is usually done with a grit particle size of 0.2 mm.

The most common grit separating systems in use are grit channels, circular grit traps and vortex grit traps. Grit is either separated by gravity sedimentation (grit channels) or centrifugal force (circular and vortex grit traps). Scrapers or screw conveyors are frequently used in grit channels for grit collection. Pumps, inclined screw conveyors or integrated grit classifying screws are used for grit removal.

Grit channels are normally provided with aeration to prevent sedimentation of volatile solids and reduce the organic content in the grit. In addition, aeration helps to float part of the fat, oil and grease. According to Kalbskopf, detention time is an important factor in the design of aerated grit channels. However, even the best aerated grit channel cannot prevent high organic contents in the removed grit slurry. Only a good grit washer can guarantee almost complete separation of organic material from grit and produce clean grit.
Grit Separation

HUBER Complete Plant ROTAMAT® Ro5

- Screen spacing / perforation from 0.5 mm to 10 mm
- Aerated grit chamber for reliable 90% capture of 0.20 mm - 0.25 mm grit particles
- For flows of up to 300 l/s
- Available as a dedicated longitudinal grit trap
- With integrated grit classifying screw
- Optional available with aeration and separate grease trap

HUBER Complete Plant ROTAMAT® Ro5 – complete mechanical wastewater treatment in a single and compact unit

HUBER Complete Plant ROTAMAT® Ro5 HD

- With a 0.5 - 10 mm screen
- Well-proven mechanical components
- High capture rate of 95% / 0.20 - 0.25 mm
- With aeration and optional grease trap
- Compact unit with small footprint
- For flows up to 150 l/s
- With integrated emergency by-pass

HUBER Complete Plant ROTAMAT® Ro5 HD with Hydro-Duct feeder – the compact wastewater treatment plant
Grit Separation

HUBER Coanda Complete Plant ROTAMAT® Ro5 C

➤ Fine screen, screenings washpress, grit trap and grit classifier in a single unit
➤ Enclosed and compact unit with small footprint
➤ Completely enclosed unit
➤ For flows of up to 25 l/s
➤ With integrated emergency overflow
➤ Ideal for small sewage treatment plants

Complete headworks in a single, enclosed and compact unit ideal for small plants

HUBER Complete Plant ROTAMAT® with integrated grit washing plant

➤ Complete mechanical wastewater pre-treatment in a single and compact unit
➤ Innovative grit washing
➤ Grit washer easy to integrate in all aerated complete plants
➤ Organics in washed grit < 3 % (loss on ignition)
➤ Low water consumption
➤ Reduced disposal costs
➤ Compact, space-saving unit

Grit washer integrated in the grit trap
Grit Separation

HUBER Circular Grit Trap HRSF

- Available with stainless steel tank or for installation into a concrete tank
- High grit capture rate due to rotating flow
- High grit separation of 95% / ≥ 0.20 mm
- Small footprint
- Optional grease trap
- For flows up to 140 l/s
- Optional integrated grit classifying screw

A pair of HUBER Circular Grit Trap HRSF systems

HUBER Vortex Grit Chamber VORMAX

- Installation in a concrete structure
- Reliable bull gear stirrer drive
- High grit capture rate due to controlled vortex generation
- For flows of up to 3000 l/s per unit
- Small footprint
- Inlet and outlet separated by 270° or 360° to provide for the maximum possible flow travel distance within the chamber
- Small pressure loss
- Grit removal by means of airlift or suction pump

HUBER Vortex Grit Chamber VORMAX
Grit Treatment

Grit from grit traps of wastewater treatment plants and grit from sewer and road cleaning are heavily contaminated with organic matter and debris. The high content of organic material, the wide volatile solids ratio of 10 to 80 %, is the reason why such grit slurries do not dewater well. The solids concentration remains somewhere between.

The common performance criteria for the quality of grit removal are: The capture rate of 0.2 mm diameter grit particles; and the volatile solids concentration of the removed grit. The end product of excellent grit treatment is a reusable product with a volatile solids ratio of less than 3 % and a water content of below 10 %. Such grit treatment not only reduces the volume and mass of the removed grit, but also the disposal costs. If the clean grit product is reused, e.g. for road bedding, costs for grit disposal could be avoided.

Treatment of grit from wastewater treatment plants

For the treatment of grit from grit traps on wastewater treatment plants, HUBER Coanda grit washers have proven to be the unrivalled best option. HUBER grit washers achieve an outstanding grit product containing below 3 % volatile solids. It is so clean that cost-effective disposal and beneficial use is easily possible, e.g. in civil engineering works.

Regulations requiring certain grit quality criteria, depending on the kind of its disposal and/or reuse, are coming into effect in more and more countries. So far, HUBER Coanda grit washers have easily met all such requirements and will most likely do so in the future, because they have defined the industry standards.
Treatment of grit from sewer flushing and road refuse

The characteristics of grit from sewer flushing and from gully and road cleaning can vary widely. Their treatment must be customized, depending on required capacity, input material composition, output material quality, etc. Main process steps are: storage and balancing with HUBER Grit Acceptance Tank, debris separation with HUBER Wash Drum, grit classifying and grit washing with HUBER Coanda Grit Washer. Where there is no wash water supply available, wash water treatment and recirculation is an option.

Based on their wide ranging experience and expertise, HUBER Engineers will design your customized grit treatment system for your specific needs.
Grit Treatment

HUBER Coanda Grit Classifier RoSF3

➤ High capture rate: 95 % of 0.20 mm grit size
➤ Low organic content due to air injection
➤ Up to 3 t/h capacity
➤ Hydraulic capacity up 25 l/s
➤ Shafted screw with maintenance-free bearing instead of wear bars

![HUBER Coanda Grit Classifier RoSF3](image1)

HUBER Coanda Grit Washer RoSF4

➤ High capture rate: 95 % of 0.20 mm
➤ Below 3 % volatile solids (organics) in grit product
➤ Will also process grit slurries from sewage treatment plants
➤ Up to 3 t/h capacity
➤ Hydraulic capacity up 25 l/s
➤ Shafted screw with maintenance-free bearing in place of wear bars
➤ More than 2000 reference installations
➤ Low grit disposal costs

![Innovative technology: HUBER Coanda Grit Washer RoSF4](image2)
Grit Treatment

HUBER Grit Acceptance System RoSF7

➤ Grit acceptance system suitable for
   – Sewer grit
   – Road refuse
   – Sink pit contents

➤ Nonclogging construction
➤ Different sizes available up to 25 m³ storage volume
➤ Variable coarse material separator
➤ No ponding of water inside the tank

Sturdy unit: external grit acceptance made easy

HUBER Wash Drum RoSF9

➤ Raw material feeding with horizontal or vertical screw
➤ Removal of coarse material (> 10 mm dia.) without wear
➤ Low loss of mineral solids due to spray nozzles on both sides
➤ High solids throughput capacity
➤ Suitable as sludge acceptance plant for most difficult septic sludge screening (HUBER Sludge Acceptance Plant RoFAS)

Washing of contaminated grit with the versatile HUBER Wash Drum RoSF9
Storm Water Treatment

Equipment and systems 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.
**Storm Water Treatment**

**HUBER Storm Screen ROTAMAT® RoK1**
- Automatically cleaned storm screen for combined and sanitary sewer overflows
- Excellent capture rate due to two-dimensional perforated plate design
- Continuous cleaning of the semi-circular perforated plate
- Minimum head loss due to installation at overflow weir invert height
- Easy retrofitting into existing structures

**HUBER Storm Screen ROTAMAT® RoK2**
- Automatically cleaned storm screen for combined and sanitary sewer overflows
- Excellent capture rate due to two-dimensional perforated plate design
- Continuous cleaning of the semi-circular perforated plate
- Retention of all screenings on the foul water side
- A perfect solution for discharges with limited upstream head requirements
- Suitable for combining with water retention elements
Storm Water Treatment

Screening with innovative discharged flow volume measurement

- Flow measurement downstream of storm screen
- Recording of all relevant data of overflow events
- Monitoring of overflow events by regulators
- Collecting information that is relevant for operation, service and maintenance of overflow structures

ROTAMAT® Storm Screen RoK 2 combined with discharged flow volume measurement

HUBER Pumping Stations Screen ROTAMAT® RoK4

- Screening, vertical lifting, washing and compaction in a single and compact unit
- Prevents blocking of pumps and sewers
- Screenings dewatering and compaction
- Integrated bottom step to prevent sedimentation
- Easy retrofitting into existing structures
- Can be easily removed for maintenance above ground level

HUBER Pumping Stations Screen RoK4 with heating for outdoor installation
Heating and Cooling with Wastewater

Energy recovery from wastewater
Right below the ground, in sewers, is a hidden and seldom used source of energy: our wastewater. Generally the temperature of sewage is in the range of 12 to 20 °C. Even during winter the wastewater temperature never drops below 10 °C, or only for a few days. This makes wastewater an excellent heat source for the operation of heat pumps.

Utilisation of wastewater as a heat source is especially suitable to be applied in large buildings, such as nursing homes, hospitals, schools or swimming baths. It is also possible to recover heat from the effluent of sewage treatment plants and use it e.g. for sludge drying.

As a link between the wastewater and heat pump, a heat exchanger is required to extract the heat energy contained within the wastewater. The heat exchanger transfers the thermal energy from the wastewater to the heat pump. The innovative HUBER ThermWin® system which has been developed especially for such applications uses the HUBER RoWin Heat Exchanger. The specific feature of this system is that actual heat extraction from the wastewater takes place above ground and not in the sewer. All system components are easily accessible and easy to maintain. For the exchange of heat directly in the sewer we have developed the HUBER TubeWin Heat Exchanger so that we can offer a suitable heat exchanger for any application.

Functional principle of the HUBER ThermWin®:
A partial flow of the wastewater streaming through the sewer is passed through a screen to remove the coarse material from the wastewater flow. Preceding screening of the wastewater is necessary to prevent blocking of the heat exchanger. The prescreened wastewater is lifted and flows by gravity through the above ground installed heat exchanger, the cooled wastewater flows back to the sewer taking along the separated screenings. Heating of the secondary circuit, which is coupled with the heat pump, takes place inside the heat exchanger. The heat pump lifts the temperature to the requested level.

For applications with contaminated media the HUBER Heat Exchanger RoWin can be used. This type of heat exchanger has been developed especially for such applications and excels with its superior heat transfer capacity and automatic preventive cleaning of the heat exchanger surfaces. Up to 80% of the useful heat can be recovered from the wastewater and utilized economically.
The HUBER ThermWin® system offers the following important advantages:

- Efficient use of a regenerative energy source
- Cost-effective, ecological system
- Fast implementation and utilisation of a rarely used resource
- Reduction of CO₂ emissions
- Decoupling from fossil fuel use
- Permanently available heat potential
- Long-term safe, renewable energy source
- Independence of sewer geometry
- Easy maintenance of all components
- Simple but efficient control strategy
- Cooling and heating with one single plant

Schematic diagram of heat recovery from raw sewage by means of an above ground installed heat exchanger

1. Sewer
2. Wastewater shaft with screen and delivery pump
3. HUBER Heat Exchanger RoWin
4. Heat pump
Heating and Cooling with Wastewater

HUBER Heat Exchanger RoWin

- Compact, odour-tight plant
- Continuous maximum heat transfer capacity
- Automatic cleaning of the heat exchanger surfaces
- Fully automatic operation
- Continuously stable hydraulic conditions
- Unsusceptible to floating and coarse material
- Automatic removal of sediments
- Minimum maintenance requirements
- Various possible applications in both the municipal and industrial field
- Modular design, system options available
- Very small footprint with maximum heat exchanger surface
Heating and Cooling with Wastewater

HUBER Heat Exchanger RoWin B

- Can be installed directly in the wastewater flow
- No additional floor space required
- Ideal utilisation of the WWTP effluent
- Continuous operation of the complete system
- Variable height and width
- Low maintenance requirements
- Minimized wear
- No negative impact on sewers and wastewater treatment plants
- All year round, season-independent solar sewage sludge drying
- Fast utilisation of a rarely used resource

HUBER Heat Exchanger TubeWin

- Installation on the sewer bottom
- Flat, robust heat exchanger
- Modular design
- Low pressure loss
- Minimised sewer cross section narrowing
- Suitable for > DN 1000
Sewage sludge is continuously generated on municipal and industrial wastewater treatment plants during the process of organic pollutant degradation. In the past years, the annual volume of municipal sewage exceeded 10 million tons dry substance in Europe alone, and the trend continues upward. Due to the very different rates of connection in the individual countries, with e.g. a rate of virtually 100 % in the EU member states, and therefore regionally very different sewage sludge volumes it is only understandable that there are controversial approaches as regards sludge disposal ways.

In some countries, due to new legislation and eco-political consideration, some disposal methods have been prohibited or at least restricted, such as landfilling of sewage sludge. For many states the recovery of materials contained within sewage sludge still plays an important role. This applies to both landscaping and sludge spreading on agricultural land.

The fertilization effect of sewage sludge and especially its phosphorus content is normally sufficient to cover the nutrients demand of typical agricultural land. On the other hand, there are a lot of countries where the agricultural application of sewage sludge is met with much scepticism due to its potential heavy metal pollution and content of organic pollutants, such as PFT. In these countries there has been a clear trend towards concepts for thermal sewage sludge treatment for some years already, partly combined with the approach to recover the phosphorus contained within sewage sludge. Against this political and economic background it is understandable that the sewage sludge disposal issue can be discussed quite controversially. Even if there is no generally accepted concept for future sewage sludge disposal existing presently, adequate sludge pre-treatment is required with all concepts described above.

A major pre-treatment step is to reduce the water content of the sludge. Sewage sludge generated on wastewater treatment plants typically shows a DS between 1 and 5% depending on where exactly it is generated. The average DS content of digested sludge is 45 %. This means that one cubic metre of digested sewage sludge contains 950 l, which would permanently have to be transported without prior dewatering.

The major benefits of dewatering and drying are weight and volume reduction and the increased thermal value.

Consequently, the process chain that allows for later thermal utilisation of dried sewage sludge comprises the steps of prior screening, thickening and drying.

**Screening – thickening – dewatering – drying – utilisation – all from one source**
Sludge Treatment

**Sludge screening:**
- Coarse material separator
- Sludge screen

**Sludge thickening:**
- Disc thickener
- Belt thickener
- Screw thickener

**Sludge dewatering:**
- Screw press
- Belt filter press

**Sludge drying:**
- Solar dryer
- Belt dryer

**Thermal sludge utilisation**
- sludge2energy

**Dezentralized septic sludge treatment**
- Sludge dewatering
- Filtrate treatment
Mechanical sludge treatment primarily comprises the processes of sludge screening, thickening and dewatering.

**Sludge screening**
Sludge screening is a mechanical treatment stage that primarily achieves homogenisation and separation of foreign matter and ensures therefore undisturbed further treatment of the sludge, irrespective of the subsequent treatment methods applied. Operating problems, such as clogging of pipelines, pumps, heat exchangers or downstream filtration units, tressing on stirrers and aeration plants, scum in settling and sludge tanks as well as damage in downstream drying units, can reliably be prevented by using HUBER sludge screens.

The STRAINPRESS® is a horizontal, pipe-shaped coarse material separator. The coarse material is separated continuously under pressure and periodical cleaning of the screening zone by backwashing is thereby not required.

**Sludge thickening**
With regard to economical further treatment and disposal of sewage sludge, it is necessary to reduce the sludge volumes produced in the course of the wastewater treatment process. The volume reduction is achieved by separation of parts of the sludge liquor at different points in the sludge treatment process chain. The main field of application of thickening systems is volume reduction of primary and excess sludge prior to stabilisation. In addition to common sludge thickening systems, e.g. belt and drum thickeners, HUBER offers also its optimized own developments, such as screw and disc thickeners. The selection of the most suitable technology for individual applications depends on project-specific parameters, such as throughput capacity or operating and investment costs, but also on other criteria, such as operating reliability, flexibility and process complexity.

**Sludge dewatering**
Sludge produced in municipal and industrial wastewater treatment plants requires dewatering prior to further treatment or utilisation. In view of increasing sludge disposal costs it has become necessary to concentrate the sludge to a high solids content. HUBER offers for this purpose commonly known systems for continuous sludge dewatering, e.g. belt filter presses, but has also developed a machine for smaller and medium-sized wastewater treatment plants, the HUBER Screw Press. It is this wide range of products combined with many years of experience that enables HUBER to select the best suited technology for each individual application.
Mechanical Sludge Treatment

HUBER Sludgecleaner STRAINPRESS®

- Throughput capacity up to 100 m³/h
- Continuous coarse material separation under pressure
- No washwater needed
- Suitable for pressure-fed pipelines (in-line installation)
- With pneumatically regulated pressure cone
- Completely made of stainless steel

HUBER Sludgecleaner STRAINPRESS® – continuous pressurised coarse material separation

HUBER Sludge Acceptance Plant ROTAMAT® Ro3.1

- A fine screen in a tank
- Low head loss
- High capture rate
- Robust design
- Optional outdoor installation
- Hundreds of installations
- 6 mm bar spacing

Outdoor installation of a HUBER Sludge Acceptance Plant ROTAMAT® Ro3.1 for sludge screening
HUBER Disc Thickener S-DISC

➤ Feed capacity up to 40 m³/h
➤ Two sizes available
➤ Simple operation principle
➤ Minimized operator attendance
➤ High operating reliability
➤ Compact, enclosed design
➤ Accessible for full inspection
➤ Variable thickening degree
➤ Minimized wash water demand
➤ Only 3 bar wash water pressure
➤ Low filtrate load
➤ Wear-resistant stainless steel filter
➤ No lubrication points
➤ Virtually noiseless operation
➤ Specific power consumption < 0.02 kWh/m³
➤ Hundreds of installations worldwide

Unique thickener: HUBER Disc Thickener S-DISC

Installation of two units in parallel for WWTP sizes of up to 200,000 PE
Mechanical Sludge Treatment

HUBER Rotary Screw Thickener S-DRUM

➤ Feed capacity up to 110 m³/h
➤ Two sizes available
➤ High solids capacity
➤ Enclosed design to eliminate odour nuisance
➤ Completely made of stainless steel
➤ Low wash water demand
➤ Low energy consumption

Extremely sturdy:
HUBER Rotary Screw Thickener S-DRUM

HUBER Belt Thickener DrainBelt

➤ Feed capacity up to 100 m³/h
➤ Four sizes available
➤ Low polymer consumption
➤ Minimum operating costs
➤ Extremely high degree of separation
➤ Variable belt speeds
➤ Low energy consumption

HUBER Belt Thickener DrainBelt – applications worldwide
Mechanical Sludge Treatment

**HUBER Bogenpress B-PRESS**

Belt filter press
- Feed capacity up to 1000 kg$_{DR}$/h
- Three sizes available
- Versatile sludge press
- High efficiency
  (low polymer and power consumption)
- High capacity (due to extended pre-dewatering zone)
- Application-optimized design

The HUBER Bogenpress B-PRESS can be combined with the HUBER Belt Thickener DrainBelt unit to further increase capacity.

**HUBER Screw Press S-PRESS**

- Feed capacity up to 500 kg$_{DR}$/h
- Two sizes available
- Extremely sturdy design
- Especially suitable for industrial sludges
- Well-proven in hundreds of installations
- Virtually noiseless operation

HUBER Screw Press S-PRESS:
Specific power consumption $< 0.01$ kWh/kg$_{DR}$
Mechanical Sludge Treatment

HUBER Screw Press Q-PRESS®

- Feed capacity up to 500 kgDR/h
- Four sizes available
- High dewatering performance
- Low energy demand
- Easy operation
- Compact, enclosed design
- Optional mobile units

Two HUBER Screw Press Q-PRESS® units installed in parallel

HUBER Screw Press Q-PRESS®, mobile demo unit

- Original scale demo unit
- Complete with dosing station, pumps, mixer, etc.
- Customer support from HUBER service experts available
- Reliably predictable throughput, dewatering results, polymer consumption

HUBER Screw Press Q-PRESS® – mobile unit for on-site testing
Sewage sludge disposal is becoming an increasing problem, landfilling was prohibited in 2005. Spreading sludge on agricultural land is in dispute and also its use for landscaping is no long-term solution. As all these methods cannot guarantee the reliable removal of contaminants from the material cycle, thermal utilisation remains as best possible alternative.

Sewage sludge consists of more than 95% water that requires transport, disposal or further processing. If the water content is reduced to 10% or less, costs can be reduced significantly. But a lot of energy is required for drying. The energy demand of available drying systems varies, as well as their operation and end product quality. Which system is suitable for the individual sewage treatment plant needs to be clarified for each specific case. HUBER has the suitable drying method with optimal usage of energy for any application.

**Solar sewage sludge drying**

The basic principle is sewage sludge drying inside a greenhouse. This solution allows for continuous system operation so that the sludge bed in the greenhouse remains constant. Due to the special features of the sludge turning assembly, particularly the backmixing function, an open-pored and slightly wet sludge bed is generated that causes neither odour problems nor unnecessary dust loading.

The sludge is fed manually, with a wheel loader for example, or automatically by means of special conveying units, directly from the dewatering system. The dried sludge can be stored in a ground deposit at the end of the drying hall or mechanically transported directly to a loading station.

The HUBER Sludge Turner SOLSTICE® is the heart of the HUBER SRT drying system. It consists of a rotating double shovel which is used for two different motion sequences. The sludge turning function ensures mixing, breaking up, aeration and transport of the sludge. The second function is the transport of sludge in the turner shovel, i.e. the sludge turner takes up some sludge at a defined point and transports it inside its shovel to another point. This ensures that dry sludge is back-mixed into wet sludge and sludge feeding and removal can take place at the same gable side of the hall.

The HUBER SRT system is not only suitable for pure solar drying but also ideal to be combined with a high performance floor heating or hot air blower. Optimized with such a heating, the SRT system can be used for all year round, season-independent solar sewage sludge drying. This eliminates the need for storage facilities for wet sludge and saves the floor space required for solar drying without additional heating as solar drying alone is unable to dry wet sludge during winter.
Belt drying

The excellent product quality and reliability of the HUBER belt dryer are the results of a special sludge pelletising technology. The HUBER Belt Dryer BT operates as a two-belt dryer at medium temperatures. The dryer is able to produce a dust-free granulate with a dry substance in excess of 90%. Optimal usage of energy and combination of different energy sources ensures an economical dryer operation. This is an experience HUBER has made for more than 10 years, since the company started to commit itself to sludge drying solutions.

Thermal utilisation with sludge2energy

The energy self-sufficient sludge2energy system for sewage sludge utilisation is based on the combination of a medium temperature dryer and subsequent incineration in a fluidized bed furnace.

Sustainable waste management is achieved through decentralized sewage sludge utilisation and energy recovery directly on the sewage treatment plant. The generated heat is used for sludge drying. Through energy self-sufficient sludge drying and incineration the sludge disposal volume is minimized to approximately 10%. The ash residue is an ideal source for later phosphorus recovery.
Thermal Sludge Treatment

HUBER Solar Active Dryer SRT

The HUBER Solar Active Dryer SRT is a technically simple, ecological drying system with the HUBER Sludge Turner SOLSTICE® for sludge spreading, granulation and transport in a greenhouse construction.

- Suitable even for small sludge volumes from 1,000 t/a
- Sturdy design, well-proven technology, simple technical process
- Low primary energy consumption
- True backmixing of sludge for a perfect drying bed without any odour or dust
- Maximum flexibility of sludge feeding and removal, even on the same hall gable side if requested
- Modular design providing for the option of fully automatic sludge feeding and removal
- Optional use of exhaust heat to support solar drying

Dewatered sewage sludge becomes dry granulate with the SRT system

HUBER Sludge Turner SOLSTICE® for maximum sludge mixing and turning efficiency
Thermal Sludge Treatment

HUBER Belt Dryer BT

➤ Sludge throughput up to 6 t/h per line
➤ Water evaporation up to 4 t/h per line
➤ Low-dust high-efficiency drying
➤ Small exhaust air mass flow
➤ Utilisation of site-specific exhaust heat
➤ Conforms to ATEX regulations
➤ Automatic operation over 24 hours per day
➤ Thermal energy demand 0.8 - 0.85 kWh/kg_{water}
➤ Electrical energy demand 0.03 - 0.15 kWh/kg_{water}

HUBER Belt Dryer BT for sewage sludge drying up to > 90 % DS

sludge2energy – sewage sludge utilisation

➤ Decentralised thermal utilisation of sewage sludge
➤ Energy self-sufficient concept of drying and incineration
➤ Long-term disposal safety and cost control
➤ Optional phosphorus recovery from sewage sludge ash
➤ State-of-the-art flue gas cleaning

Innovative concept of decentralised sludge utilisation by generation and use of thermal and electrical energy
Membrane Technology / MBR / Wastewater Reuse

Membrane bioreactors for any throughput

Inexpensive wastewater disinfection
Wastewater treatment in municipal and industrial plants can require large areas, big tanks, expensive odour control equipment. Where freight and loads vary widely, the performance of the treatment processes is often poor.

All these factors result in heavy impacts in the form of contamination of our environment, very limited possibilities of water reuse, and also high construction, operation and maintenance costs.

Membrane Bio-Reactors (MBR) need by up to 70% less volume which results in construction cost savings. MBRs have an improved performance. Clarifiers are eliminated and therefore the problems that scum or sludge could overflow from a clarifier. Existing structures can be retrofitted and their performance increased. Existing primary and secondary clarifiers can be modified and used for example for storage or redundancy.

The effluent of MBR systems complies with all current standards. The effluent does not contain bacteria and other germs. It can be used as service water or for irrigation. Even a MBR permeate of drinking water quality can be achieved by adding further treatment stages.
For more than 15 years HUBER has been heavily involved in membrane technology for municipal and industrial wastewater treatment. More recently, membrane bioreactors (MBRs) have increasingly been used also for decentralized "green building" solutions.

In the meantime we have continuously improved the design of our products, we have optimized their performance and adapted manufacturing to the increasing demand in the market. We offer single filtration units but, if requested, we also provide modern MBR overall solutions including flexible overall service packages.

We provide all our membrane units with top-quality ultra-filtration membranes and therefore combine best effluent quality with low cleaning and maintenance costs and long life. Compared to hollow fibre membranes they also have the advantage that no plaiting can occur and a 3 mm perforated screen is sufficient as wastewater pre-treatment system.

HUBER VRM® units excel with their high capacity (up to 250 m³/h per unit) and above-average high packing density. A special feature of these membrane units is their rotation that allows sequential but high-intensity air scouring of their membrane surfaces. The specific scouring air flow is as low as 150 l/m²h because the scouring air is supplied by air tubes to the VRM’s central axis. Furthermore, the air can be blown in at only half the depth required otherwise. We achieve improved scouring of the membrane surface, with comparatively low power consumption and infrequent chemical cleaning.

The produced permeate from all our membrane filtration systems is hygienically safe, odourless and free of particles. The permeate quality meets all presently applicable standards and can be reused as service water for various purposes (irrigation, toilet flushing, cleaning, cooling, etc.).
Membrane Technology / MBR / Wastewater Reuse

HUBER Membrane Filtration VRM®

➤ Unique, rotating filtration unit with centrally introduced scouring air
➤ More than 50% less scouring air required compared to static systems (150 l/m²h)
➤ Lowest energy consumption of all MBR filtration units on the market (< 0.1 kWh/m³ permeate)
➤ Well-proven ultrafiltration membranes of robust, high-quality membrane laminate
➤ Several system sizes with up to 9,200 m² filter surface area for very high throughputs (up to 250 m³/h per unit)
➤ Minimum space requirements and maximum footprint due to very high packing density
➤ Reliable retention of all solids, bacteria and germs – the ideal pre-treatment for reverse osmosis applications
➤ Reuse of the treated effluent as service water
➤ Effluent in compliance with the presently applicable discharge standards (e.g. European Directive for Bathing Water, US Title 22
➤ Ideal for municipal and industrial wastewater treatment and "green building" applications
Membrane Technology / MBR / Wastewater Reuse

HUBER Membrane Filtration BioMem®

- The complete solution for wastewater treatment up to 3000 PE
- Can be tailored to suit any specific site requirements (e.g. seasonal operation)
- High flexibility due to modular design providing for various system options
- Reuse of the treated effluent as service water on site
- Meets all applicable effluent standards (e.g. European Directive for Bathing Water, US Title 22)
- Ideal for municipal and industrial wastewater treatment and "green building" applications

HUBER Compact MBR system smartMBR

- Turnkey membrane systems ready for use
- User-friendly plug-and-play complete solution
- Ideal for various types of "green building" applications (e.g. hotels, dormitories, office buildings)
- Compact, unique, visually attractive plant design
- Standardised MBR system available in four different sizes (20-75 m³/d)
- For indoor and outdoor installation
- Well-proven in numerous application examples
Large building complexes, such as hotels, shopping malls, office or residential high-rise buildings, need high amounts of energy, heat and water. The provision of these resources costs money and pollutes the environment. Besides, warm and energy-rich wastewater is produced and frequently discharged untreated and unused to the sewer or environment. In view of the climate change the utilisation of the wastewater flow as energy and heat source has increasingly become a topic for consideration. Concepts for the reuse of service water recovered from wastewater can be realized by using innovative membrane systems. Stormwater utilisation completes the range of possibilities that save resources. Economically beneficial concepts and solutions need to be developed that take into account the entire range of treatment and recovery technologies. Such concepts need to be incorporated already in the building planning phase. HUBER SE has developed such innovative concepts and solutions and is able to offer the suitable solution for any application.
HUBER Solutions for Water Reuse and Heat Recovery

HUBER Greywater Treatment System GreyUse®

- HUBER GeyUse® Plant for greywater treatment with HUBER membrane technology
- Crystal-clear, bacteria-free, germ-free effluent
- Perfectly suitable to be reused (for toilet flushing, air conditioning systems, washing machines, irrigation).
- At least 50% water savings
- Discharge of treatment residues into the sewer

Solution 1: HUBER Greywater Treatment System GreyUse®

Total wastewater flow treatment

- Total wastewater flow treatment with HUBER membrane technology
- Crystal-clear, bacteria-free, germ-free effluent
- Perfectly suitable to be reused (for toilet flushing, air conditioning systems, washing machines, irrigation).
- Reuse of the complete treated wastewater flow
- Independence of sewer system
- Drastic reduction of fresh water consumption

Solution 2: Total wastewater flow treatment
HUBER Solutions for Water Reuse and Heat Recovery

Heat and cold from wastewater: HUBER Heat Exchanger RoWin

➤ Recovery of heat inside the house
➤ High system efficiency due to high wastewater temperatures
➤ Reduced heat losses in the building
➤ CO₂ reduction
➤ Low-maintenance process with HUBER RoWin Heat Exchanger

Solution 3: Recovery of heat and cold from wastewater: HUBER Heat Exchanger RoWin

Heat and cold from sewers: HUBER ThermWin®

➤ By-pass solution, no equipment installed inside the sewer
➤ Suitable to be used for both heating and cooling
➤ CO₂ reduction
➤ Low-maintenance process

Solution 4: Recovery of heat and cold from sewers: HUBER ThermWin®
HUBER Solutions for Water Reuse and Heat Recovery

Heat and cold from wastewater: HUBER Heat Exchanger TubeWin

➤ Wastewater utilisation with a heat exchanger element installed inside the sewer
➤ Suitable to be used for both heating and cooling
➤ CO₂ reduction
➤ Low-maintenance process
➤ Designed to be used also with low water levels
➤ Modular design

Solution 5: Heat and cold from wastewater - HUBER Heat Exchanger TubeWin

HUBER offers complete solutions for the treatment and reuse of grey wastewater and the total wastewater flow by means of innovative membrane technology.

HUBER is leading with technically mature and low maintenance plants and systems for solutions of cooling and heating with wastewater.
Industrial Wastewater Treatment

You earn your money with the production and sales of your products or generation of energy, e.g. biomass energy. Although the treatment of production wastewater and sludges is not your core business, ecological awareness is part of your business philosophy.

You are therefore looking for a partner who is able to develop and implement in collaboration with you economically reasonable wastewater, disposal and energy recovery concepts.

**We understand your needs!**

HUBER SE is one of only a handful of suppliers worldwide who supply the complete range of equipment for wastewater and process water treatment as well as technology for sludge treatment and reuse of energy and heat. We are able to generate complete processes with our HUBER machines and plants, in other words: we offer complete systems and assume the process engineering responsibility for these systems.

However, wastewater treatment alone is not enough. The next step to take is ‘Close The Loop!’.
The treatment of clarified wastewater to high quality service water for production processes saves expensive potable water and avoids wastewater.

Our philosophy of leaving no resource unused also includes production sludge. Sludge treatment and utilisation is an aspect to be taken into account with any holistic approach. This should not only include cost-effective disposal of sludge but also its energetic utilisation.

So you see, there is a variety of approaches for converting a costly wastewater project into a profitable water treatment and sludge utilisation project.

Our industry team who are specialists, having acquired their specific knowledge in a variety of successful projects, will be pleased to support you with their expertise.

**Let us work together with you to develop your projects!**
HUBER Dissolved Air Flotation Plant HDF

- Throughput capacity up to 400 m³/h
- Pre-treatment with highly efficient chemical stage
- Compact design, small footprint
- Easy-to-operate yet very effective saturation system as standard
- Project-specific selection and design of the saturation system if required
- Efficient, gentle mixing of the air bubbles into the wastewater flow
- Defined tank flow due to the optimal design of the blending and feeder construction in the flotation tank

- Large effective clarifier area due to the lamella separator
- Available in different stainless steel qualities
- Pickled in an acid bath for perfect finishing and corrosion protection
Industrial Wastewater Treatment

**Beverage industry:**
- Breweries
- Malt factories
- Mineral water industry
- Fruit juice industry

**Processes**
- Screening
- Filtration
- Membrane bio-reactors
- Sludge treatment

**Slaughterhouses / meat processing:**
- Cattle, pigs, poultry
- Ready-to-eat products

**Processes**
- Coarse screening > 6 mm
- Fine screening > 1 mm
- Dissolved air flotation
- Filtration
- Paunch manure press
- Screening of wash water from cattle truck washing
- Membrane bioreactor
- Sludge treatment
Industrial Wastewater Treatment

Food industry:
➤ Candy industry
➤ Delicatessen / salads
➤ Bakeries

Processes
➤ Screening
➤ Dissolved air flotation
➤ Filtration
➤ Membrane bio-reactor
➤ Sludge treatment

Disc Thickener for volume reduction of process sludge and bio-sludge

Fruit and vegetable processing:
➤ Fruit juice concentrating
➤ Canning industry
➤ Potato processing

Processes
➤ Screening with grit trap
➤ Filtration
➤ Membrane bio-reactor
➤ Sludge treatment

Pre-screening and grit removal combined in one unit
Industrial Wastewater Treatment

Fish industry
➤ Fish meal production
➤ Slaughtering and processing
➤ Deep freezing and packing industries

Processes
➤ Screening
➤ Dissolved air flotation
➤ Membrane bio-reactor
➤ Sludge treatment

Dairies:
➤ Milk
➤ Cheese
➤ Butter
➤ Yoghurt

Processes
➤ Screening
➤ Grit/grease removal
➤ Dissolved air flotation
➤ Membrane bio-reactor
➤ Sludge treatment
Industrial Wastewater Treatment

**Wood and paper industry:**
- Waste paper recycling
- Pulp mills
- Paper manufacturing
- Fresh water conditioning

**Processes**
- Coarse material and grit separation, sedimentation
- Fibre recovery, process water treatment
- Filtration of suspended matter
- Dissolved air flotation
- Membrane bioreactor
- Sludge treatment

**Grit treatment:**
- Grit from road sweepings
- Grit from grit traps
- Grit from sewer flushing:
  - Rain water
  - Polluted water

**Processes**
- Grit receiving stations
- Coarse material separation
- Grit classification and washing
- Complete washwater treatment and recycling

*Sludge dewatering and treatment of process water from fibreboard production*

*Sewer grit and road refuse treatment system*
Industrial Wastewater Treatment

(Bio-)waste treatment
➤ Biological waste treatment
➤ Mechanical-biological residual waste processing
➤ Hazardous waste treatment
➤ Landfill leachate

Processes
➤ Liquid waste receiving station
➤ Coarse material and grit separation
➤ Thickening and dewatering of digested organic waste
➤ Process water treatment
➤ Wastewater treatment in MBR
➤ Sludge treatment

Textile and leather industry
➤ Tanneries
➤ Laundries
➤ Textile finishing
➤ Textile processing

Processes
➤ Wastewater screening
➤ Grit separation
➤ Process water treatment
➤ Wastewater treatment with MBR
➤ Sludge treatment

Coarse material separation from fermentation residues at an organic waste fermentation plant

Wastewater pre-treatment and sludge dewatering in a tannery
Industrial Wastewater Treatment

Chemical industry
- Pharmaceutical industry
- Refineries
- Chemical industry

Processes
- Cooling and fresh water treatment
- Process water treatment
- Wastewater treatment with MBR
- Sludge treatment

Solutions in the fields of

Plastic material recycling
- Wash water treatment
- Sludge treatment

Automobile industry
- Cooling and fresh water treatment
- Wastewater pre-treatment
- Process water treatment
- Sludge treatment

Primary and construction industry
- Treatment of water from construction sites
- Wash water treatment
- Sludge treatment

Marine applications
- Wastewater screening

Power plants
- Cooling water screening
- Sludge treatment

Iron and steel industry
- Cooling water screening
- Process water treatment

Metal processing industry
- Process water treatment
- Sludge treatment

Dewatering of sludge from mineral oil processing
Stainless Steel Equipment

HUBER stainless steel products are ideal for water and wastewater treatment applications – whether municipal or industrial. It is the material complying with the strictest requirements:

➤ Unparalleled life
➤ Optimal corrosion protection after passivation by pickling in an acid bath
➤ Standardisation saves costs and simplifies design
➤ Excellent hygienic characteristics for health and safety

It is our objective to offer perfect products to our customers. Our well-trained and highly motivated employees manufacture our products in our state-of-the-art stainless-steel only factory to guarantee consistently high product quality. We have the philosophy that a high degree of vertical manufacturing integration is in the best interests of our customers.

To prevent any cross-contamination of our stainless steel products with carbon steel rust and dust, we use only stainless steel in our factory. Our machinery and manufacturing processes are specifically designed for the material stainless steel. Every stainless steel product, before it leaves our factory, is passivated by full submergence in an acid (pickling) bath for perfect surface finishing and corrosion protection.

Potable water is a most important resource that should be available for all people in sufficient quantity and quality. We offer the highest quality products for the treatment of drinking water.

Drinking water must be pure, i.e. clear and free of pathogens, odour and colour. To comply with these requirements certain standards have to be met during collection, treatment and distribution of the drinking water.

Many waterworks, however, do not meet these standards and are a danger to our health and environment. It is important to identify such risks as early as possible to prevent further damage.

We have developed systems for waterworks that prevent contamination of drinking water, such as special air filtering systems.

As the water level in drinking water reservoirs changes, air is drawn in and out. If the air entering the reservoir contains particles, micro-organisms like germs, spores, pollen or fungi, the drinking water becomes contaminated. Our air filter systems, with integrated filter media, retain dust and other fine particles and therefore prevent contamination and health hazards.
All HUBER products are made of stainless steel and exceed the latest standards and quality requirements. If stainless steel products are manufactured and treated according to best practice, they will provide excellent performance for many, many years of use.
Stainless Steel Equipment

**Manhole equipment**
- Round and rectangular stainless steel manhole covers
- Easy to handle, no maintenance
- Safety steps and ladders for any application

*HUBER manhole cover*

**Doors and gates**
- Safe access to drinking water structures
- For any application, water tight up to a pressure of 30 m water depth
- Attack-proof in accordance with DIN V EN V 1627

*Pressure door, pressure-tight up to a water gauge of 30 m*
Stainless Steel Equipment

Pipe fittings

➤ High quality due to pre-fabrication
➤ Even the most complicated fittings can be manufactured
➤ Smooth and hard stainless steel surface preventing contamination with germs

*Stainless steel pipelines of highest quality*

Wall ducts

➤ High quality sealing against liquids and vermin
➤ Allows pipe retrofitting
➤ Allows axial pipe movement
➤ Direct flanging option

*Flush with the wall*
Stainless Steel Equipment

Railings, ladders, walkways

➤ Safety on all ways
➤ Customised for specific applications
➤ Pickled in an acid bath for perfect finishing and corrosion protection

Clarifier equipment

➤ For new and existing clarifiers
➤ Corrosion-resistant and maintenance-free
➤ High efficiency due to individually optimised inlet and outlet systems
➤ Installation and service
Stainless Steel Equipment

Hygienic conditions in drinking water reservoirs

➤ Prevents contamination of drinking water during storage and distribution
➤ Clean air = clean water
➤ Pathogen retaining filters

HUBER air filter for clean drinking water

Elevated water reservoirs

➤ Complete equipment for drinking water reservoirs
➤ Prevention of unauthorised access in compliance with international security standards

Drinking water reservoir with HUBER equipment
Global Service

Superior technology systems require optimal operation if you want to make use of all economic advantages in the long run and to the full extent. HUBER Service provides support in product operation with a comprehensive package of services to ensure the customer gets back the expected return on investment:

**Maximum performance and plant availability at minimum operating costs.**

One team, one goal: competent service for optimum equipment operation – worldwide

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**Frost & Sullivan North American Customer Service Leadership Award for HUBER USA service team**

Founded in New York in 1961, Frost & Sullivan are today a renowned market research consultancy. More than 1,800 employees in more than 40 countries around the world work for Frost & Sullivan to analyse branches, markets and their development, and the industrial enterprises which are active in these markets – constantly on the search for best-in-class companies.

In 2013, both municipal authorities and industrial enterprises selected HUBER Technology Service as an outstanding example for best customer service in the North American solid / liquid separation technology market.
Global Service

HUBER Installation and Commissioning Service
Rely on our qualified service staff for installation and commissioning! Their expertise and extensive knowledge ensures the best start for your new HUBER product.

HUBER Installation and Commissioning Service

HUBER Spare Parts Service
Our service team in Germany is available with advice and support in the selection of the best original spares and wear parts for your machine. A large stock holding guarantees high availability of essential spare parts for your HUBER product wherever in the world.

HUBER Spare Parts Service
Global Service

HUBER Repair Service
Prompt and expert repairs minimise expensive down time.
The highly flexible HUBER service team with their professional competence provides everything required to allow for perfect equipment operation, whether on site or in the HUBER factory.

HUBER Maintenance Service
Preventative maintenance is without doubt more economical than reactive maintenance!
We offer a wide range of customised service packages, for all markets and industries to ensure maximum performance is achieved in terms of operating reliability and costs.
Global Service

HUBER Optimisation Service

Optimally customised machines guarantee a constantly high performance at low operating costs. The operating conditions of plants frequently change significantly in the course of time without being noticed. The analysis of operating hours, cycle times, consumption of energy and consumables, degree of wear, etc., often leads to the result that a significantly improved plant efficiency can be achieved through equipment optimisation. We provide and guarantee this service with our HUBER product optimisation service.

HUBER Condition Monitoring Service

The HUBER Operation Control System (HOC) can be retrofitted into new or existing machines and plants. Via a temporary online connection the system sends all relevant operating data of each machine to the globally accessible HOC portal where they are stored in our own computer centre. Intelligent routines are used to evaluate the data. If the system detects any deviation from the tolerances set as standard our service engineers are notified. The tolerances are individually adjustable. If the service engineers identify any deviation, they immediately notify the customer and suggest measures to take.
Global Service

HUBER Service for products from other manufacturers

One contact person for all requests: HUBER Service.

We offer an extensive and professional service for products from other manufacturers, comprising spares, repair and equipment optimisation. A clear logistic and economical benefit for our customers!

HUBER Consultancy Service International

Our service consultants visit you on site to provide maximum support, including valuable information about optimal service measures and reliable operation at reduced operating costs.

HUBER Consultancy Service International
Global Service

HUBER Refurbishing Service

It may often be more cost effective to refurbish an existing plant than build a new one. Our service specialists provide detailed technical analysis on site, including an economic evaluation and offer customised solutions. The ideal implementation of the selected solution on site will be guaranteed by our qualified service technicians.

HUBER Refurbishing Service

HUBER Training Service

A well-briefed operating staff is a prerequisite for ideal and economical plant operation. Whether you want to improve the knowledge of your staff, or train new employees, we offer tailor-made workshops both on site or in our local HUBER service centre.

HUBER Training Service