

The official News Letter of the AJM Environmental Services Group of Companies

Innovative equipment for screening, grit and sludge handling at Sewage Treatment Plants

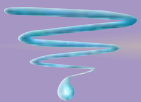


*This special edition of **Liquidity** is dedicated to HUBER Technology Products. Inside there is a brief overview of their most innovative products as well as profiles on some of their installations overseas. The focus is on equipment that is new and innovative for the Australian Market and offers process advantages to water authorities and operators of sewage, industrial and potable water treatment plants.*

HUBER Technology are the world leaders in the field of wastewater screening, grit treatment and sludge handling. The product range covers a unique range of innovative products, developed by HUBER over the last two decades.

The equipment has been designed to achieve highest level of performance with very attractive life cycle costs. All products are in stainless steel construction. HUBER have now manufactured in excess of 11,000 machines for the world market.

AJM are HUBER's exclusive representative for the Australian Market. AJM will be pleased to provide proposals and technical specifications for any the products in HUBER's range. In addition, AJM can provide full turnkey projects including process, mechanical and electrical design, installation and commissioning.



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High Efficiency Fine Screening

In recent times, there has been a move towards the use of finer screens for the pre-treatment of waste water and sewage. Typically in Australia, 6mm step type screens are used in most inlet works, be it a retrofit or new plant.

The step type screen offers many advantages, such as ease of retrofitting and high hydraulic capacity.

HUBER offer a comprehensive range of fine screens, which include Step Screen®, Drum Screens, Spiral Screens and HUBER's unique range of Rotamat® Screens. Screen apertures range from 0.25mm to 10mm.

The Rotamat® Screens represent a new generation of screens for the Australian Market. The screens utilise wedge wire and perforated plate as the separation medium. The Screens are available with apertures ranging from 0.5 - 3mm.

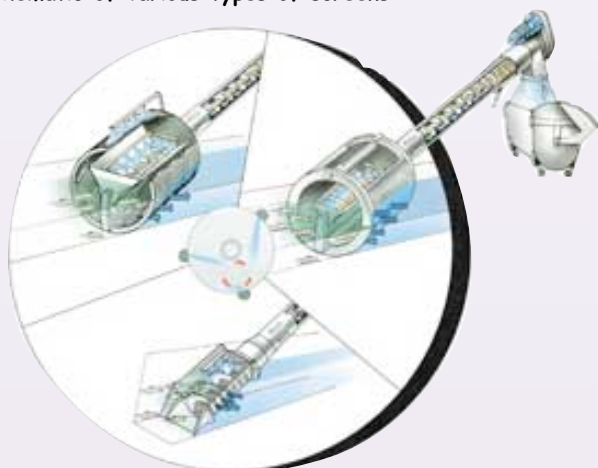
Operation of the screens is based on headloss control, which limits the operation to less than 2 hours per day. The high screening area, channel configuration and low velocity in front of screen allows for low headlosses and very high screening efficiencies.

Contact AJM for advice on the most appropriate screen for your application.

Range of HUBER screens and capacities

Model	Screen Type	Capacity (L/s)	Aperture
Ro1	Cylindrical	0 - 4000	6.0 - 10.0
Ro2	Wedge Wire	0 - 3000	0.5 - 3.0
RPPS	Perforations	0 - 3000	3.0 - 6.0
HRS	Square Mesh	0 - 1000	0.25 - 1.0
SSF	Step Screen®	0 - 3500	3.0 - 6.0
Ro9	Spiral Screen	0 - 100	1.0 - 6.0
Ro13	Drum Screen	0 - 600	0.5 - 6.0

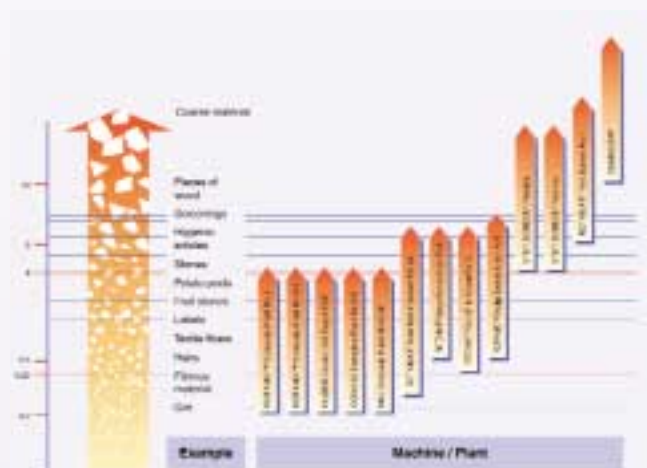
Schematic of various types of screens



Ro2/0.5mm screen installed at a STP in Sth Africa



Screen selection chart



CASE STUDY

Schwandorf WWTP

The Schwandorf plant utilises 2 x Rotamat® Wedge Section Screens with 3mm aperture for the screening of raw sewage.

The screenings are treated in a HUBER Ro4 Double Screw Wash Press. The Double Wash Press allows for intensive washing of screenings and produces a very clean and dry product. Dry solids content of 40% is achieved with 95% organic removal.

The Ro4 Wash Press allows for rigorous washing of the screenings. The dual screws allow for a longer residence time of screenings contact with wash water.

Grit Washing - Reuse or Landfill of Grit

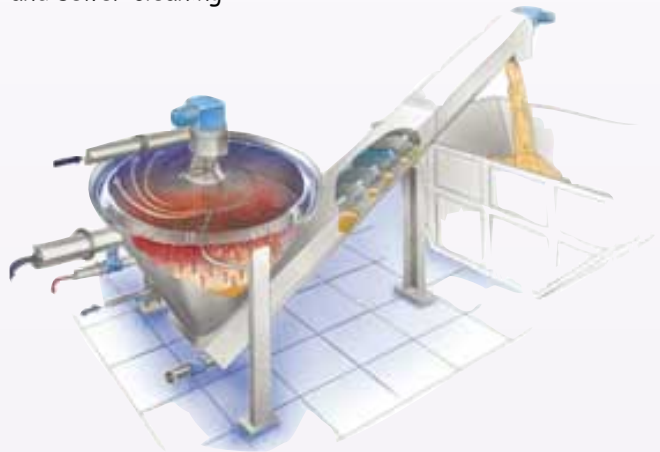
The HUBER Coanda RoSF4 process is a grit washing and dewatering system. Recovery of organics is possible to the point where the dewatered grit contains less than 3% organics and over 85% dry solids. This enables the reuse of grit in the construction industry or greatly reduces landfill costs due to the reduced organic content. The machine is proven in over 700 installations worldwide. The results are most impressive, the final grit product does not resemble grit as we normally know it!

HUBER developed the product in the early 1990's when European legislation on landfill disposal tightened. The main difference between this system and others is the patented feeding device and design



of the settling trough. A defined flow pattern is set up in the settling trough via the Coanda Feeder and slow speed stirrer. Counter current wash water washes the grit and is discharged via an electric valve at set intervals. Discharge of the grit is controlled via the level in the bottom of the settling trough, which is regulated via a hydrostatic probe. This reduces operation of the screw and increases the life of the screw. The entire machine is in stainless steel construction.

The process can be extended to include a feed bunker and coarse screen. This process allows the treatment of grit generated from sweeping, pump well cleaning and sewer cleaning



C A S E S T U D Y

Bayreuth WWTP - Germany

The Bayreuth plant is a complete biological nutrient removal plant with pre-treatment consisting of HUBER equipment for screening and grit treatment.

The raw sewage is screened using deep channel SSV Step Screens® with 3mm aperture. The SSV consists of a unique stepping action and blade design, enabling the installation of the screen at 70 degrees. The SSV range contains discharge heights of up to 6500mm. Screenings are macerated and washed in the WAP/SL Wash Press, producing a product that contains less than 5% residual organics and 40% w/w solids.

Grit removed from the longitudinal grit traps is washed and dewatered in a RoSF4 Grit Washer. The grit contains less than 3% residual organics and 90% dry solids. The final grit is disposed in a landfill or can even be reused.

The use of the two staged agitated wash presses and grit washer allows for the washing of screenings and grit with

The Bayreuth WWTP comprises

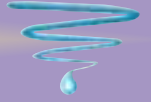
- HUBER SSV Step Screen® Vertical (2 units)
- HUBER Ro8T Transfer Conveyors (4 units)
- HUBER WAP/SL Wash Press with organics maceration (2 units)
- HUBER RoSF4 Grit Washing Plant
- HUBER RoSF5 Complete Grit Treatment Process (2 systems)
- HUBER Ro3 Sludge Acceptance Plant

the return of organics to the waste water stream.

The two RoSF5 Complete Grit Treatment Processes accept tanker loads that contain grit from road sweeping, pumps station cleaning and sewer cleaning. Up to 100 t/day of grit slurry is processed. The RoSF5 system is in heavy duty construction to meet the challenge of grit slurry treatment. Bayreuth is one of fifty (50) plants operating worldwide. Even partially dewatered grit streams can be treated in the RoSF5 process.

The Bayreuth plant represents a modern facility for the treatment of screenings and grit. The plant has the facility to treat tankered grit slurry streams as well as septic sludge.

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Treating Tankered Septic Sludges

The Sludge Acceptance Plant is a packaged screening and grit removal system designed to treat septic sludge. The system is fed directly from the tanker. By using a Sludge Acceptance Plant, the discharge can be fed directly to digestion processes, bypassing the inlet works and avoiding damage to the plant's inlet. The system also offers the advantage of allowing the monitoring of discharge volumes. HUBER have extensive experience in the field of treating septic sludge, with over 600 installations worldwide.

The Sludge Acceptance Plant is fitted with a manifold that contains an actuated valve and flow meter. Each tanker discharge volume is recorded by the AJM Control System. A pin code system is used to identify each waste disposal contractor prior to actuation of the system. Totalised volumes for each contractor are recorded on the touch screen, enabling authorities to monitor the amount of the sludge discharged to the plant from each contractor.

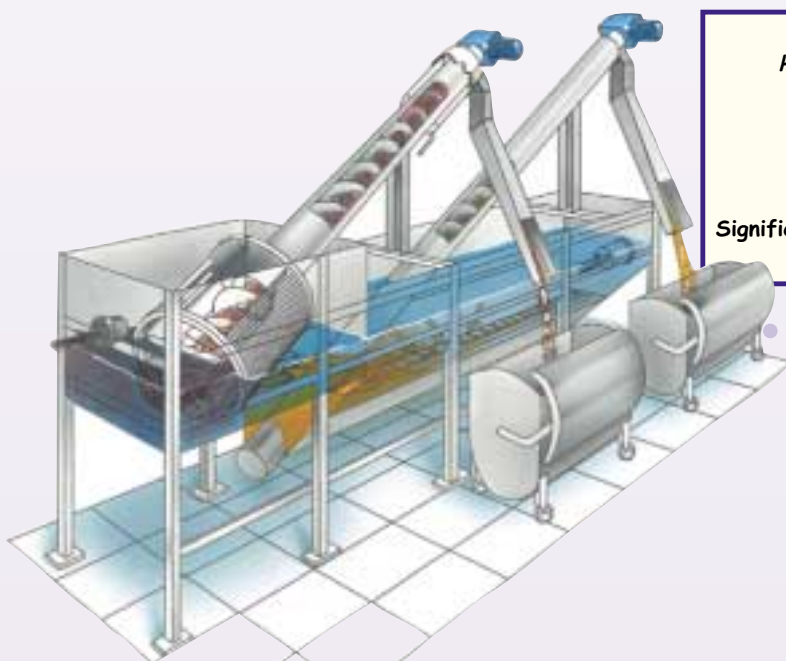
The system is designed to treat sludge from 10,000L and 20,000L tankers.

For the complete treatment of septic sludge, the HUBER Complete Septic Treatment Process can be utilised. Once pre-treatment occurs in the sludge acceptance plant, the sludge is pumped to an intermediate storage tank. From here, the sludge is dewatered in the HUBER Rotary Dewatering



Press. The dewatering press produces a cake of 35% w/w solids. The filtrate is then treated in a conventional biological process.

Examples of plants that utilise this process is Kuching, Malaysia and Celje in Slovenia.



HUBER Complete Septic Treatment Process

Up to 90% COD reduction

UP to 30% Nitrogen reduction

Up to 80% Phosphate reduction

Significant reduction in the size of the biological plant

SPARE PARTS

Please note that all HUBER and Hydropress - HUBER spare parts are now available from AJM Environmental Services.

Please contact our spare parts department on:

Ph: 02 9542 2366 or

Email: spareparts@ajmenviro.com.au

l i q u i d i t y

High Efficiency Sludge Thickening

The thickening of primary and secondary sludge prior to digestion can greatly increase the efficiency of digestion processes as well as maximize their capacity.

The HUBER product range covers a comprehensive range of sludge thickeners for the thickening of primary, secondary and mixed sludges. The products can also be used for the thickening of sludge produced from back wash clarification in potable water treatment plants.

The Rotary Screw Thickener and Disc Thickener represent a unique and cost effective method for the thickening of sludge. The technologies are compact and rely on intermittent washing, which greatly reduces operation and maintenance costs, resulting in low life-cycle costs. The machines are totally enclosed in a stainless steel main case, which contains aerosols and spray waters as well as minimize odour emissions. This enables outdoor installation.

The Disc Thickeners were launched by HUBER in 2001 and have been designed for smaller municipal and industrial plants. These are a unique development.

The selection of the final thickener is dependent upon the flow rate, desired thickened sludge concentration and installation requirements.



Type	Model	Capacity (m3/h)	Thickened Sludge %
Rotary Screw Thickener	RoS2	10 - 90	4 - 6
Disc Thickener	RoS2S	10 - 20	4 - 6
Gravity Belt Thickener	DB	10 - 150	3 - 5

C A S E S T U D Y

Beilngries WWTP

The plant is based on a continuous biological nutrient removal process. Raw sewerage is screened in a Rotamat® Wedge Section Screen with 3mm aperture. The discharge consists of an integrated washing compartment.

Grit drawn from the longitudinal grit trap is fed via gravity to the RoSF4 Grit Washer. Grit is washed to produce a clean dry product. The organic wash water stream is directed back to waste water stream for treatment in the biological process.

Waste activated sludge drawn from the secondary clarifiers is thickened in a RoS2S Disc Thickener. The Disc Thickener treats up to 20 m3/h of waste activated sludge and produces a thickened sludge with a concentration of 5 - 5.5% w/w solids. The footprint of the building is much smaller than other types of thickeners.

The Rotary Disc Thickener represents new innovative

technology for the thickening of sludge in a much more compact format. The system is totally enclosed in a stainless steel main case, which contains aerosols and odour. The main case can be connected to plant odour control systems.

Since its invention by HUBER in 2001, over fifty (50) plants have been installed worldwide, mostly in waste activated sludge thickening applications. The unit has also been used on industrial waste and brewery sludges.



Enhancing the performance of your digester

Strainpress[®] is a sludge screen that has been developed to screen primary and secondary sludge to protect sludge handling facilities and digesters. The unit is commonly fitted to the primary sludge line prior to digestion. As the unit is pressurized, Strainpress[®] is installed under a closed pipe system without the



need for secondary pumping. The removal of these impurities greatly improves the performance of digesters, with a significant reduction in maintenance costs and increased yield in gas production.

The unit is very effective in removing fine hairs and fibres, even if the inlet works have fine screens installed. Installations have shown high removal rates of fibres/hairs from plants containing fine screens such as step type, rotary and perforated band screens.

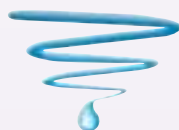
Strainpress[®] consists of a perforated screen with internal screw. The discharge is regulated via a

pneumatically operated restriction cone. The cone is controlled via the power consumption of the screw drive. This allows for complete automatic operation of the system, even if the feed solids varies, the machine is self adjusting.

Strainpress[®] has been proven in over 700 installations worldwide and has been used successfully on primary sludge, waste activated sludge, mixed sludges and scum skimmings.

Capacities range from 10 - 70 m³/h of sludge (depending on sludge type). The unit can handle concentrations of up to 6% w/w solids.

Every plant with primary sedimentation should be fitted with one!



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Other AJM Products

AJM also specialise in the area of solid liquid separation for industrial and municipal applications. AJM has designed and developed a comprehensive range of Dissolved Air Flotation systems, Clarifiers, Thickeners, Belt Filter Presses, Plate Filter Presses, Oil Separators, Polymer Makeup Systems, Batch Treatment Systems and chemical dosing, storage and handling equipment.



AJM offers complete design construct and installation packages
Please contact our offices or visit our web site for further info