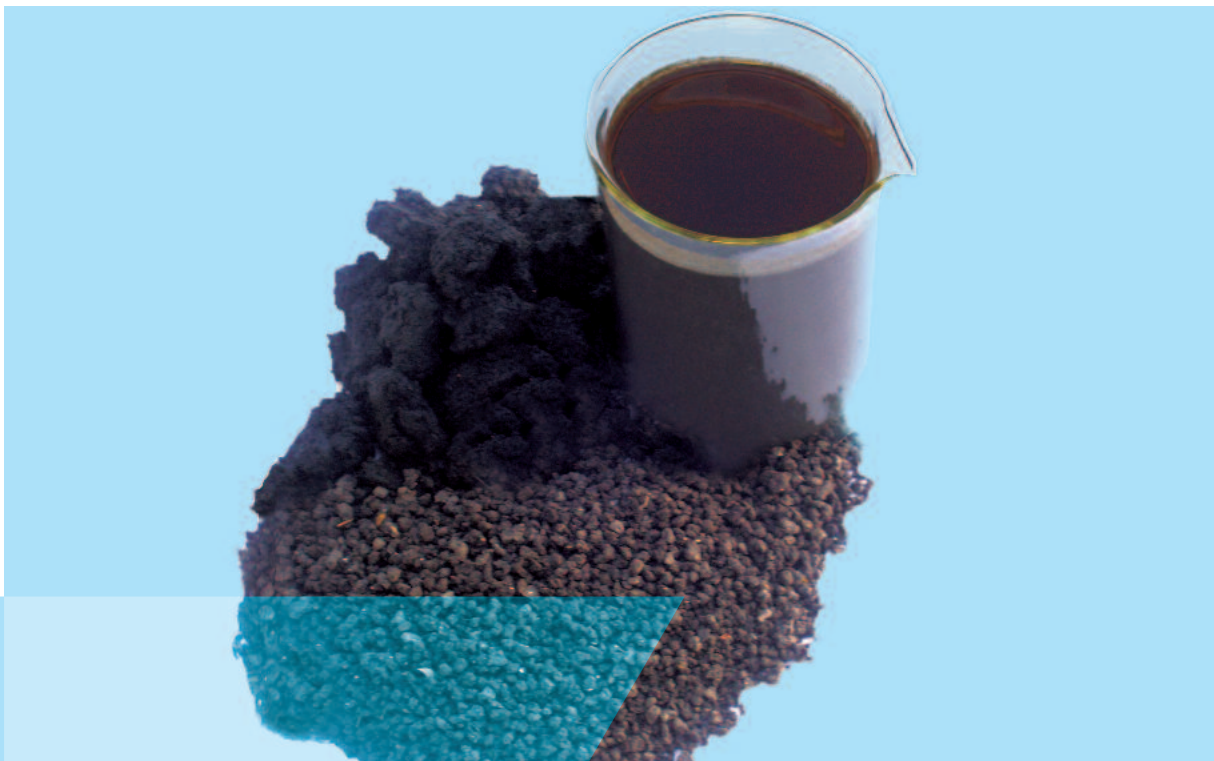


HUBER Sludge Treatment



Screening – Thickening – Disintegration –
Dewatering – Drying – Utilisation

... from one source

➤➤ Sludge treatment

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.

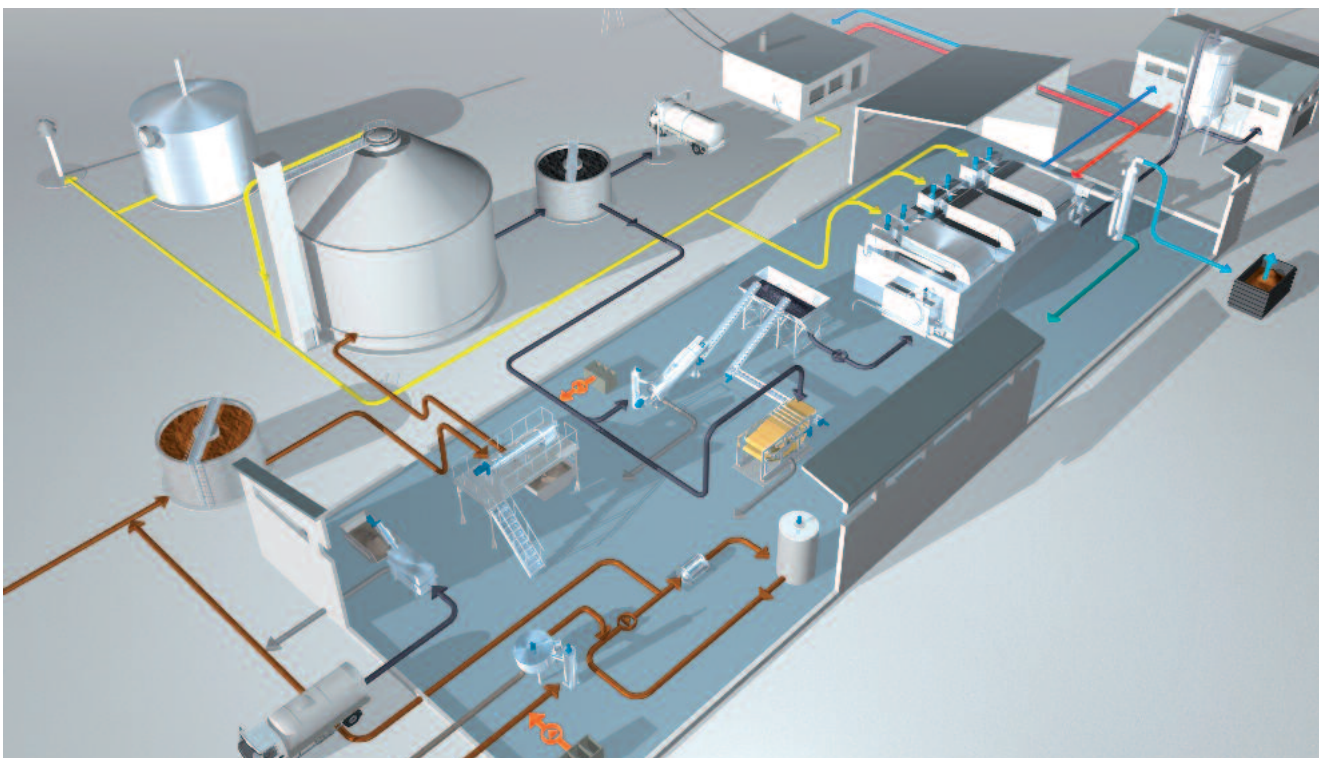
The fertilization effect of sewage sludge and especially its phosphorus content is normally sufficient to cover the nutrients demand of typical agricultural land. On the other hand, there are a lot of countries where the agricultural application of sewage sludge is met with much scepticism due to its 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 4 %. This means that one cubic metre of digested sewage sludge contains 960 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 screening / process water filtration

STRAINPRESS® Sludgecleaner

Continuous foreign material separation under pressure

- No washwater needed
- Suitable for in-line installation
- With pneumatically regulated pressure cone
- Completely made of stainless steel



STRAINPRESS® – Continuous pressurised foreign material separation

ROTAMAT® Sludge Acceptance Plant Ro 3

An ultra-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 ROTAMAT® Sludge Acceptance Plant

➤➤ Sludge thickening

ROTAMAT® Disc Thickener RoS 2S

- Throughput capacity up to 40 m³/h
- Two sizes available
- Simple principle of operation
- Minimised operator attendance
- High operational reliability
- Compact, totally enclosed design
- Accessible for full inspection
- Adjustable for varying degrees of thickening
- Minimum wash water consumption
- Low wash water pressure of only 3 bar
- Low solids load in filtrate



Unique sludge thickener ROTAMAT® Disc Thickener RoS 2S

ROTAMAT® Rotary Screw Thickener RoS 2

- Throughput capacity up to 110 m³/h
- Two sizes available
- High solids capacity
- Totally enclosed, odour-free design
- Completely made of stainless steel
- Low wash water consumption
- Low energy consumption



ROTAMAT® Screw Thickener RoS 2 – exceptionally robust thickener

HUBER Drum Thickener RoSD

Mechanical high-capacity thickener

- Throughput capacity up to 120 m³/h
- Very high thickening results
- Excellent cost/performance ratio
- Totally enclosed design
- Fully automatic operation
- Low energy consumption



HUBER Drum Thickener RoSD for high throughputs

HUBER Drainbelt DB

- Throughput capacity up to 100 m³/h
- Four sizes available
- Low polymer consumption
- Minimum operating costs
- Exceptionally high thickening results
- Variable belt speed
- Low energy consumption



HUBER Drainbelt – worldwide well-proven thickener

➤➤ Sludge dewatering

HUBER Bogenpress BS

Belt filter press

- Throughput 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-optimised design



The HUBER Bogenpress can be combined with the Drainbelt unit to further increase capacity

ROTAMAT® Screw Press RoS 3

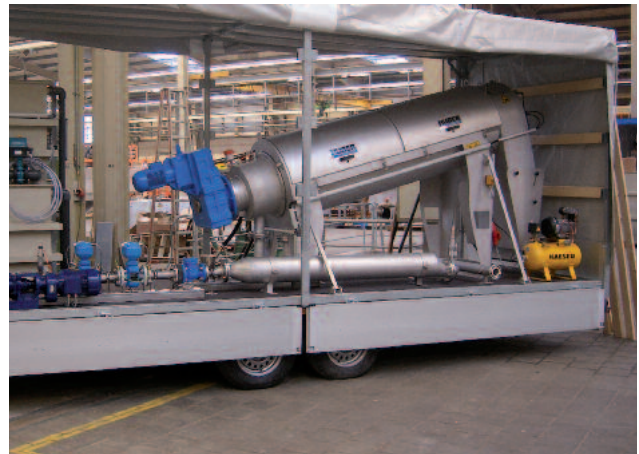
- Throughput capacity up to 500 kg_{DR}/h
- Two sizes available
- Very robust design
- Especially suitable for industrial sludges
- Proven in hundreds of installations
- Virtually noiseless operation



*ROTAMAT® Screw Press RoS 3
Specific power consumption < 0.01 kW/kg_{DR}*

ROTAMAT® Screw Press RoS 3Q

- Throughput capacity up to 500 kg_{DR}/h
- Three sizes available
- High dewatering efficiency
- Low energy consumption
- Easy to operate
- Compact, enclosed design
- Optional mobile units



ROTAMAT® Screw Press RoS 3Q – superior operational reliability

➤➤ Sludge drying

HUBER Solar Active Dryer SRT

- Suitable even for small sludge volumes
- Sturdy design, simple technical process
- Low primary energy consumption
- Constant sludge bed due to continuous sludge feeding
- Excellent sludge aeration through a special sludge turning system
- Modular design providing for the option of fully automatic sludge feeding and removal



Dewatered sewage sludge becomes dry granulate with the HUBER SRT system

HUBER Belt Dryer BT^{plus}

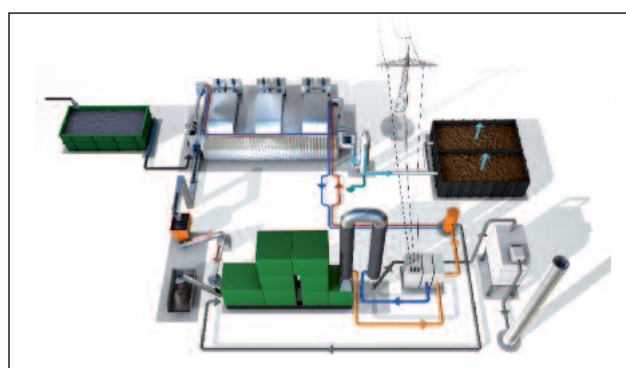
- Best available belt drying technology
- Utilisation of site-specific exhaust heat
- Simple design, easy maintenance
- Versatile biomass dryer
- Conforms to ATEX regulations
- Low maintenance requirements



HUBER Belt Dryer BT^{plus} for sludge drying up to > 90 % DS

HUBER sludge2energy system for sewage sludge utilisation

- Decentralised thermal utilisation of sewage sludge
- Energy-autarkic concept of drying and incineration
- Long-term disposal safety and cost control
- Optional phosphorus recovery from sewage sludge ash
- Supported under the EU's environmental program LIFE



Innovative concept of decentralised sludge utilisation by generation and use of thermal and electrical energy

HUBER SE

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HUBER Sludge Treatment