



HUBER

Belt Thickener DrainBelt

Thickening of municipal and industrial sludges

- ▶ very low polymer consumption
- ▶ high throughput capacity
- ▶ reliable operation

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The purpose of sewage sludge thickening

Sewage sludge, particularly secondary sludge, is characterised by low solids concentrations and therefore big volumes. Good sludge thickening is required as a prerequisite for the efficient further treatment of sewage sludge, for example in digesters, and is also necessary where liquid sewage sludge is transported to further treatment steps or utilisation.

The following criteria are decisive for the selection of the thickening process:

- ▶ efficiency
- ▶ performance
- ▶ reliability

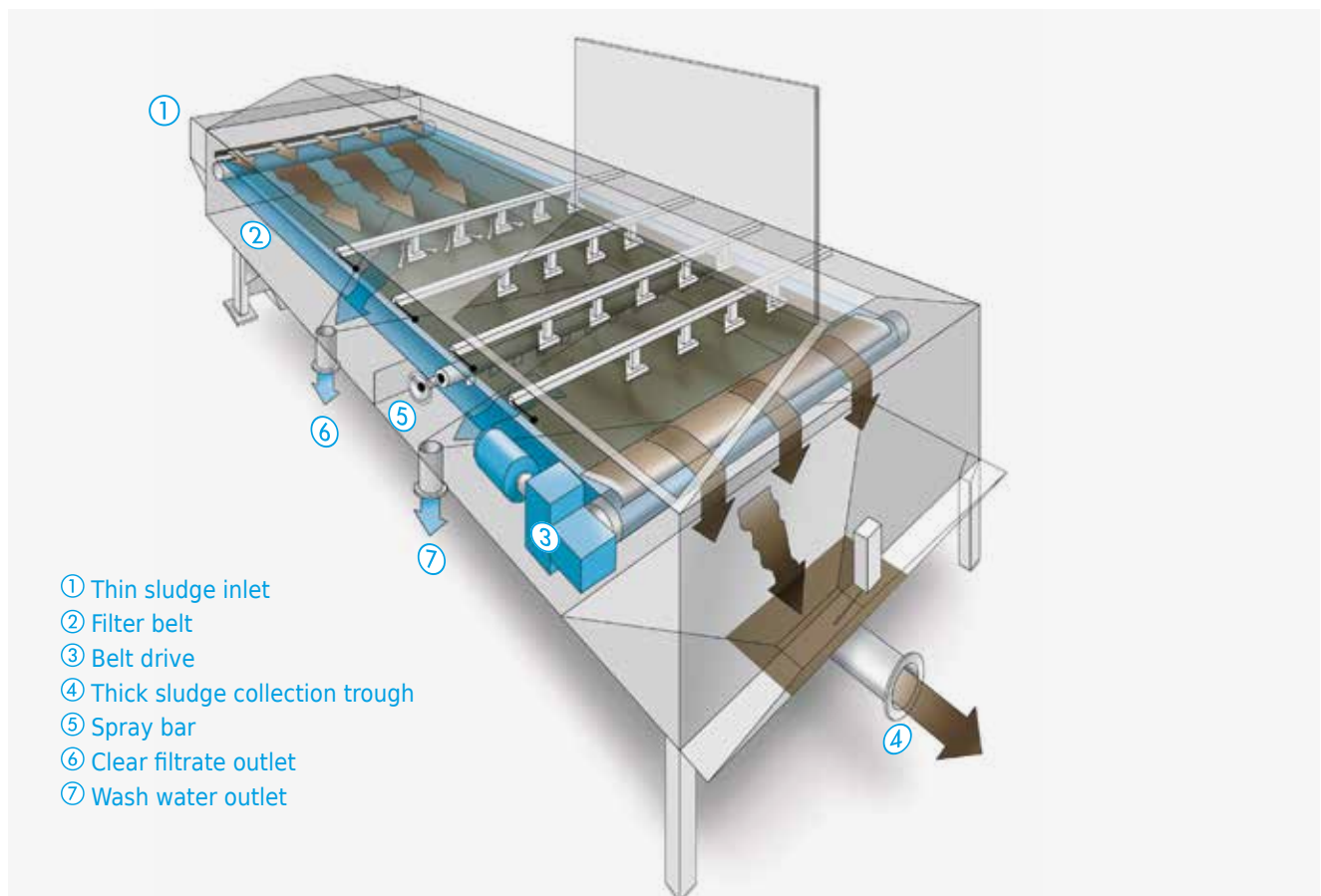


Mobile containerised demo unit.

Design and function of the HUBER Belt Thickener DrainBelt

Polymer is added to the thin sludge and the sludge conditioned in a flocculation reactor prior to being distributed evenly over the full width of the continuously travelling filter belt. The water filtered through the belt filter cloth drains off into collection troughs whilst the solids are retained on the filter belt. Chicanes furrow the sludge to facilitate drainage and support the production of a concentrated sludge cake. The initial thin sludge volume

is reduced by approx. 85 %. The sludge cake is discharged into a collection trough from where it is removed by an eccentric screw pump for example. A spray bar cleans the filter belt while it travels back.



The user's benefits

Efficiency

- ▶ Sludge volume reduction up to > 85%
- ▶ Typical thickening results > 6% DR
- ▶ Minimised polymer consumption, normally only 2 – 3 g effective substance/kg DM
- ▶ Low energy consumption
- ▶ Belt filter cleaning with filtrate water as spray water

High performance

- ▶ Large active filter surface
- ▶ Very long thickening zone
- ▶ Increased filtration results through repeated sludge restacking
- ▶ Increased thickening results due to a ramp installed to decelerate the sludge prior to being discharged
- ▶ Selectable filter cloth options to meet specific requirements
- ▶ High specific throughput capacity up to 45m³/h per metre of filter belt width

Reliable technology

- ▶ Long filter cloth life due to the slow filter belt velocity of < 20 m/min
- ▶ Minimised wear of the plastic chicanes
- ▶ Encased thickener suitable for the treatment of strong-smelling sludge, protecting operators against harmful spray water aerosols
- ▶ Big inspection openings to facilitate maintenance
- ▶ Easy to operate and maintain



HUBER Belt Thickener DrainBelt for up to 100 m³/h thin sludge.



Thickening of dairy sludge.



HUBER Belt Thickener DrainBelt for 60 m³ thin sludge per hour.

Special applications

Thickening of critical sludges

The HUBER Belt Thickener DrainBelt is especially designed for sludges with poor settling properties:

- ▶ Minimised coagulant consumption due to efficient distribution
- ▶ Constant thickening result due to the long sludge residence time on the filter belt
- ▶ Increased thickening results due to a ramp installed to decelerate the sludge prior to being discharged
- ▶ A variety of filter belt qualities to meet specific requirements

Efficient use of water

Filtrate water can be used as spray water to wash the filter belt:

- ▶ No need for external wash water
- ▶ Reduced operating costs
- ▶ Saves water resources
- ▶ Hydraulic load reduction

The polluted water from filter belt washing is collected separately, it can be mixed with the fed thin sludge and recycled through the HUBER Belt Thickener DrainBelt.

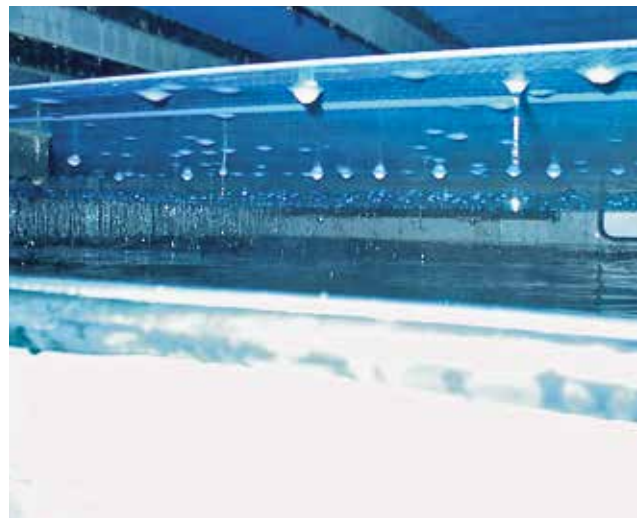
- ▶ Separation degree increase up to 99%
- ▶ Minimised return load to WWTP
- ▶ Reduced hidden operating costs

Thickener Sizes

Size	Belt width [mm]	Throughput capacity [m ³ /h]
0.5	500	23
1.0	1000	45
1.5	1500	68
2.0	2000	90



Chicanes furrow the sludge to facilitate drainage and support the production of a concentrated sludge cake.



View into the filtrate chamber.



Belt washing with filtrate water as spray water.

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