



FLOTTWEG OSE THICKENING CENTRIFUGES

Optimizing the Digestion Process
in Waste Water Treatment Plants



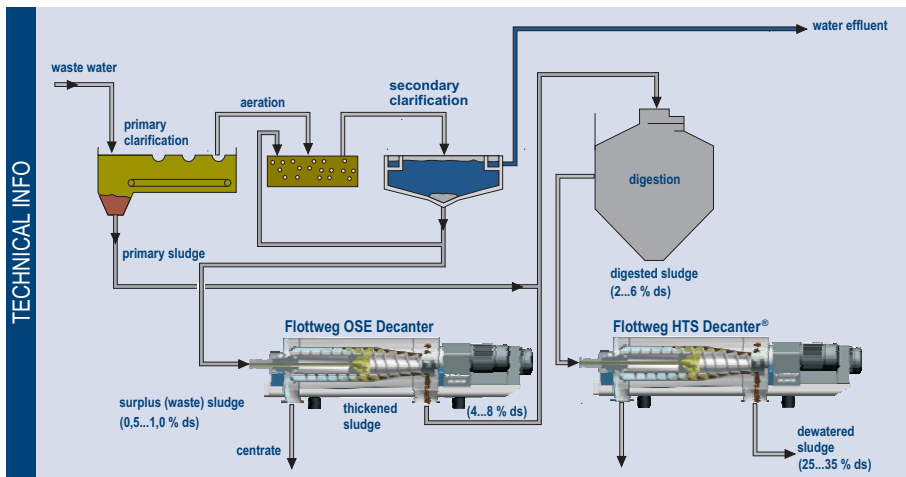
THE FLOTTWEG C SERIES – OSE THICKENING CENTRIFUGE

Efficient Centrifuge Technology for Use in Pre-Digestion Thickening

The decomposition process in a wastewater treatment facility continually generates waste sludge. The removed sludge is called surplus sludge. It is subsequently pumped into a digester. To make optimum use of the volume in the digester, the surplus sludge is usually thickened to 5 to 8 percent dry solids, depending on the pump capacity and thickening technology used.

Customer benefits of Flottweg OSE Decanters

- Highest biogas yield by controlled thickened sludge concentration
- Lowest operating costs due to reduced/eliminated flocculant needs and optimized energy usage
- Additional 20 % energy savings by using the Flottweg Recuvane® System
- Maximum availability thanks to the maintenance friendly, easy access design of the C series
- No health hazards for plant staff (enclosed system prevents aerosol pollution, odors, and contamination)
- Automatic 24/7 hour operation, with scheduled start/stop possible
- Small footprint allows replacement of other technology with no construction needed



Thickening and dewatering process

To maximize biogas yield, Flottweg OSE Thickening Centrifuges permit the constant, smooth feeding of the digester, using solid regulation in the thickened sludge. A set point of 6 percent, for example, can be maintained constantly and automatically via thickened sludge feedback control loop, resulting in an efficient and stable digestion process.

OSE Decanters are specifically adapted to the thickening of sludge. They feature significantly better separation qualities than other decanter centrifuges.

OSE Decanters operate at a very low main speed, lowering electrical power consumption. On top of that the Flottweg Recuvane® System reduces power demand by another 20 %. Together with a very low

polymer consumption of 2-4 lbs/ton (1-2 kg/ton) of dry solids, operating costs are at a minimum. Even polymer-free operation is achievable.

The Flottweg OSE Decanter supports optimum digestion and gas yield while simultaneously using as little space as possible and reducing operating costs. In comparison with other means of thickening sludge, there is no system with comparable advantages!

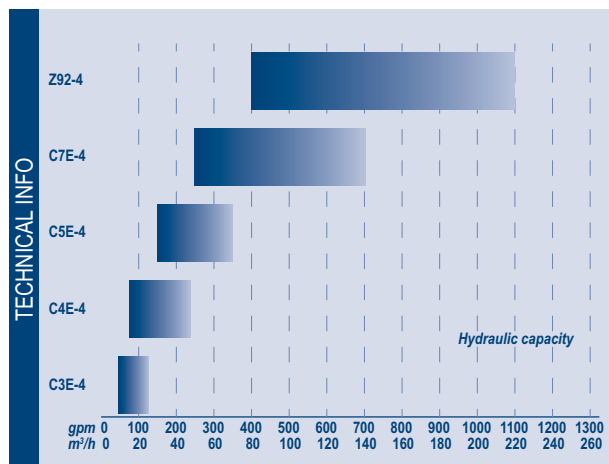
Flottweg OSE Thickening Centrifuge Installation in Hamburg, Germany



FLOTTWEG TECHNOLOGY AND YOUR BENEFIT AT A GLANCE

Efficient Thickening Independent of Plant Size

Flottweg OSE Thickening Centrifuges are well proven in big cities such as Hamburg, Duisburg/Oberhausen or Berlin. Contrary to popular belief, surplus sludge thickening via decanter centrifuges is an option to be considered for small plants as well.



The perfect centrifuge for your size of system

When comparing different thickening technology one concern is operating cost vs. investment cost. Small one shift operations usually do not consider centrifuges because of their higher investment costs. Yet it can be clearly shown that the annualized cost is not higher than the savings from low polymer consumption. A key benefit is an optimized digestion process and a hazard free work environment for the plant staff.

Sewage treatment plants have another option to further reduce investment costs. Most Flottweg OSE Thickening Centrifuges can be run in a polymer-free thickening operation saving the purchase and maintenance costs of the polymer preparation unit and totally eliminating polymer consumption.



Differential Speed

There is a differential speed between the decanter bowl and the decanter scroll (created by the Simp Drive® Gear). This differential speed determines the solid retention time in the bowl.

Flottweg OSE Decaners adjust the differential speed, automatically matching the load condition in the machine.

Customer benefits

- Constant adjustment of retention time
- Control of thickened sludge concentration
- Optimum thickening in a wide range of fluctuating feed conditions



Recuvane®

The Recuvane® System significantly lowers operating costs of Flottweg OSE Decaners by reducing the energy consumption.

Customer Benefits

- Energy consumption reduced by 20 %
- Pond depth easily adjustable

RETURN ON INVESTMENT (ROI) CALCULATION BASED ON ONE SHIFT AND CONTINUOUS OPERATION*				
	Flottweg OSE Decanter	Belt thickener	Flottweg OSE Decanter	Belt thickener
Throughput	175 gpm / 40 m³/h	175 gpm / 40 m³/h	175 gpm / 40 m³/h	175 gpm / 40 m³/h
Daily runtime	8 h (single shift)	8 h (single shift)	24 h	24 h
Invest & maintenance costs	US\$ 250,000 / € 185,000	US\$ 150,000 / € 110,000	US\$ 250,000 / € 185,000	US\$ 150,000 / € 110,000
Annualized cost				
Invest & maintenance	US\$ 18,300 / € 13,500	US\$ 11,800 / € 8,700	US\$ 18,300 / € 13,500	US\$ 11,800 / € 8,700
Polymer and water consumption	US\$ 1,100 / € 800	US\$ 8,600 / € 6,350	US\$ 3,200 / € 2,400	US\$ 25,700 / € 19,000
Energy consumption	US\$ 1,600 / € 1,200	US\$ 800 / € 600	US\$ 4,800 / € 3,600	US\$ 2,400 / € 1,800
Total annual costs	US\$ 21,000 / € 15,500	US\$ 21,200 / € 15,650	US\$ 26,300 / € 19,500	US\$ 39,900 / € 29,500
Annual savings	US\$ -200 / € -150		US\$ -13,600 / € -10,000	

* This calculation is to be understood as an example and guideline. The calculation depends on various influencing factors. Please do not hesitate to contact us in terms of your individual calculation.

Flottweg Separation Technology – Engineered For Your Success



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