

Power Drain

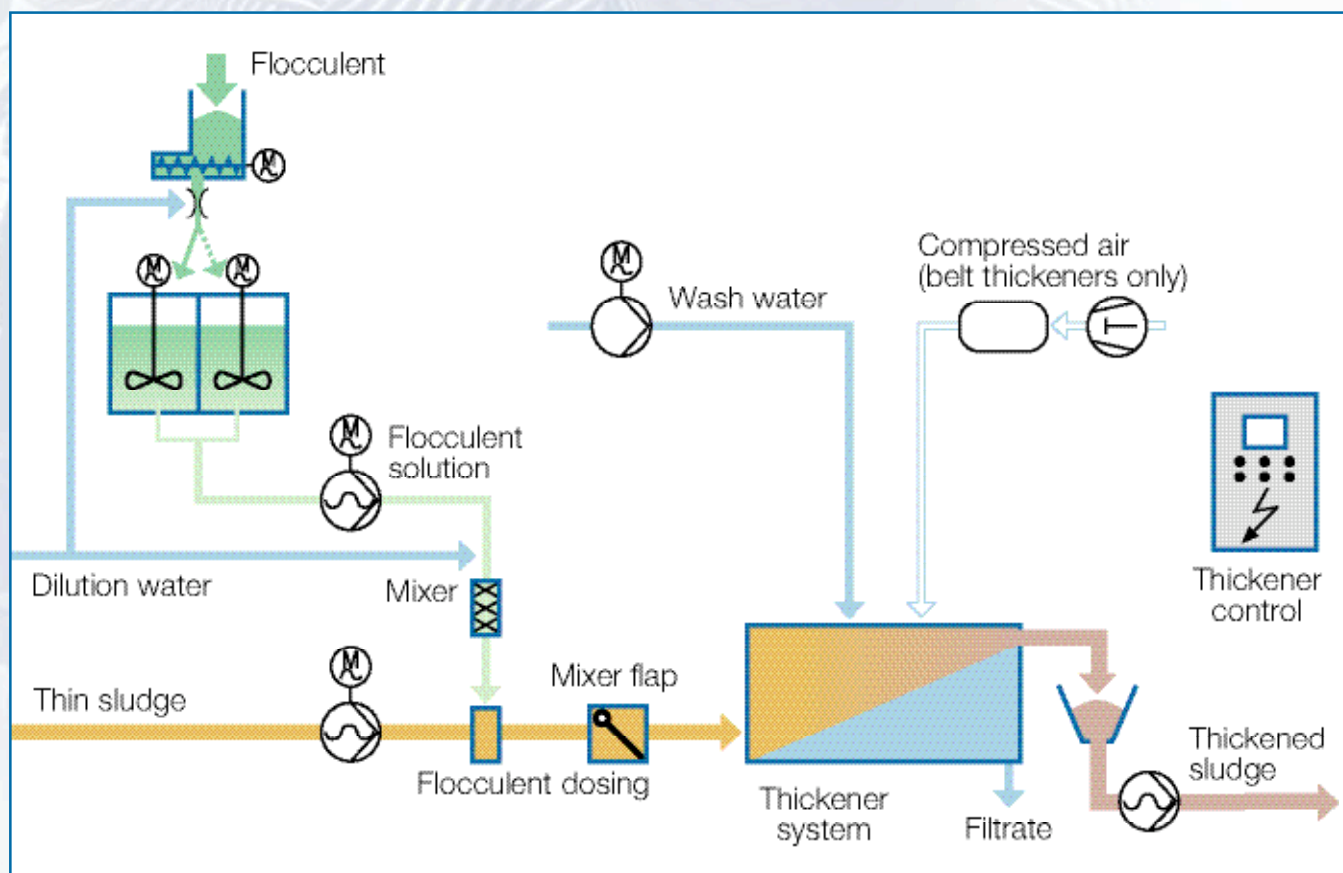
Gravity belt thickeners

SEPARATION TECHNOLOGIES

ANDRITZ

ANDRITZ has been an expert in sludge treatment for more than thirty years and offers solutions for thickening as well as dewatering: PowerDrain, PowerPress, filterpress, decanter centrifuge.

PowerDrain belt thickeners work as heavy-duty thickeners, with high belt speeds and thin sludge layers. Specially designed chicanes as well as very large open area under the belt optimize the draining effect.



Operating principle

The sludge is first flocculated in the feed pipe and then goes through an upstream static flocculator, which improves formation of flocks.

The gravity separation occurs in the gravity zone, where most of the liquid between the suspended solids flows off. The first part of the gravity dewatering zone serves as sludge feed and allows a uniform distribution over the entire working width of the belt filter by a spreader plate.

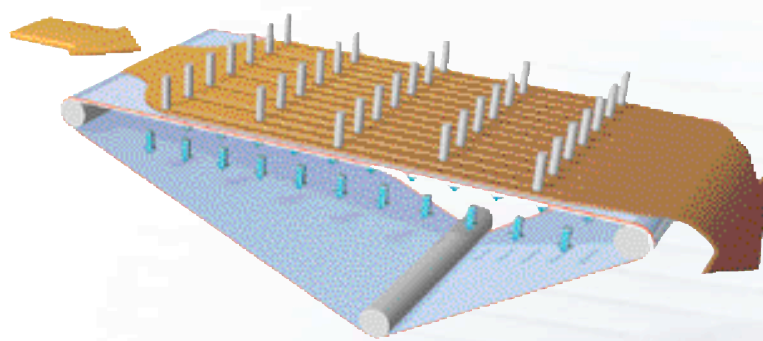
The gravity belt thickener is equipped with two, three or four rows of baffles which compact, rearrange and deflect the sludge.

The thickened cake is lifted off from the belt and evacuated by an abrasion resistant scraper. A dismantling system allows an access for cleaning.

The filtrate is collected in a closed tray mounted inside the frame and discharged on the drive side.

The belt is cleaned by a spray system, equipped with flat jet nozzles removing remaining particles from the belt.

A cleaning brush is offered as an option. It is manually driven by a wheel that cleans the nozzles while the PowerDrain is in operation.



Driving, tightening and tracking of the belt

The belt is made of polyester (endless belt with coated clip).

PDM 1000

The belt is driven by a moto-variator connected directly to a rubber coated roller.

Tightening is adjustable manually (screw + bolt).

A mechanical tracking system avoids uncontrolled deviations of the belt.

A pneumatic tracking system is offered as an option for the PDM 2000.

PDL, PDXL

The belt is driven by a moto-variator connected directly to a roller. The speed is adjusted by a frequency inverter via a potentiometer.

A swiveling regulating roller prevents the belt from running off centre due to a pneumatic system (belt tracking device with 2 air-spring bellows controlling the movement of the regulating roll,

automatic control unit which regulates the amount of air in the air-spring bellows, position sensor which transmits the position of the belt to the control unit).

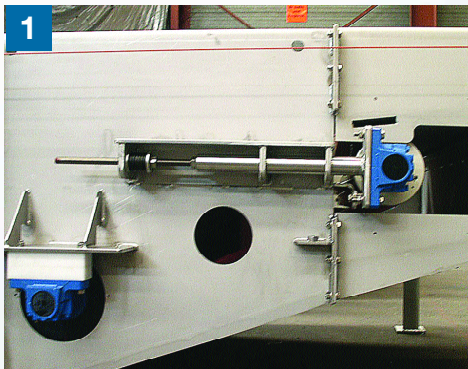
Inductive switches stop the Power-Drain in case of a problem in order to avoid any damage to the belt.

Construction

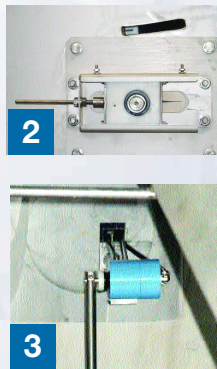
The frame is made of stainless steel.

The rollers are protected against corrosion by a rubber coating (drive and correction) or Rilsan (tightening roller).

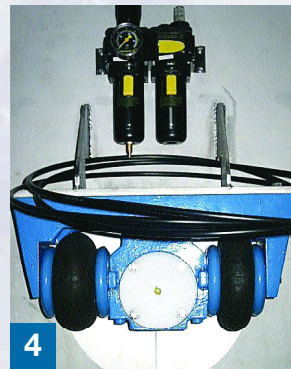
We offer as an option a **removable cover** (in accordance with EU directive) allowing a fast access to the various elements of the PowerDrain as well as the possible connection to an air extraction piping.



1 Screw + bolt tightening system (PDM)



2 Screw + bolt tightening system (PDL-PDXL)



3 Position sensor for belt tracking

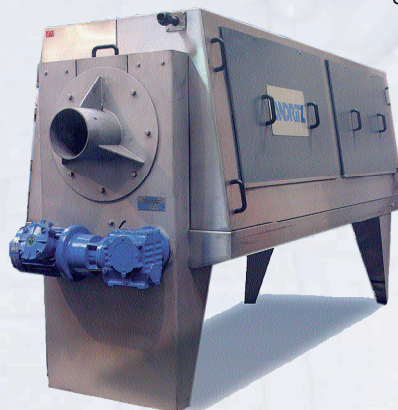


4 Air spring bellows (pneumatic system)

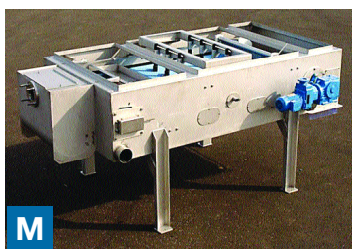
5 Raws of baffles for sludge draining and distribution

Drum Thickeners

- Dynamic drum thickener, completely enclosed and very compact (small foot print).
Throughput up to 60 m³/h.



Models



M

PowerDrain M

Compact version for low throughput. Combines ideally with PowerPress G and PowerPress E belt presses. Throughput up to 40 m³/h.



L

PowerDrain L

Belt thickener for the medium throughput range. Throughput up to 60 m³/h.



XL

PowerDrain XL

The highest capacity belt thickener with an exceptionally long filtration zone (6m). Throughput up to 180 m³/h.

Technical data (extract)

Type	Belt width	Length	Width	Height	Weight	Motor	Washing water at 8 bars	Compressed Air	
	mm	mm	mm	mm	kg	kW	m ³ /hr	m ³ /hr	Bar
PDM 1000	1000	3000	1770	1400	765	0,55	2	N/A	
PDM 2000	2000	3540	2590	1630	1640	0,55	4	Option	
PDL 2000	2000	4495	2590	1630	2320	1,1	3,8	0,5	6
PDXL 2000	2000	7080	2666	1630	2870	1,1	3,8	0,5	6
PDXL 3000	3000	7080	3666	1630	3660	2,2	5,7	0,5	6

NB : the wash flow should be multiplied by 1.5 with the washing spray ramp with brush for nozzle cleaning option.

The PowerDrain can be combined with a PowerPress for low-concentrated sludge dewatering.

Main applications

Thickening of municipal or industrial waste water sludge.

- thickening only in small WWTP
- thickening before anaerobic digestion
- dewatering with PowerPress (combined system)
- thickening before filter press...

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