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**EFFECTIVE SOLUTIONS FOR DEWATERING**

**Beltpresses**



## EFFECTIVE SOLUTIONS FOR DEWATERING

Beltpresses are cost-effective, efficient solutions in dealing with large scales of sludge flows.

**Sismat** provides the following services for beltpress plants:

- Laboratory tests
- Pilot field plant applications
- Dewatering plant sizing and project preparation
- Selection of best-fit equipment
- Equipment manufacturing and delivery
- Plant assembly and operation

The systems, tailor-made for customer requirements, are provided as turnkey solutions.

The capacity and performance of beltpresses can be defined with regard to the below criteria:

- Belt width
- Applied pressure
- Number of drums
- Pre-dewatering section height



### Areas of Use

- Dewatering of water and wastewater treatment plant sludge
- Paper production
- Fruit juice production
- Wine production



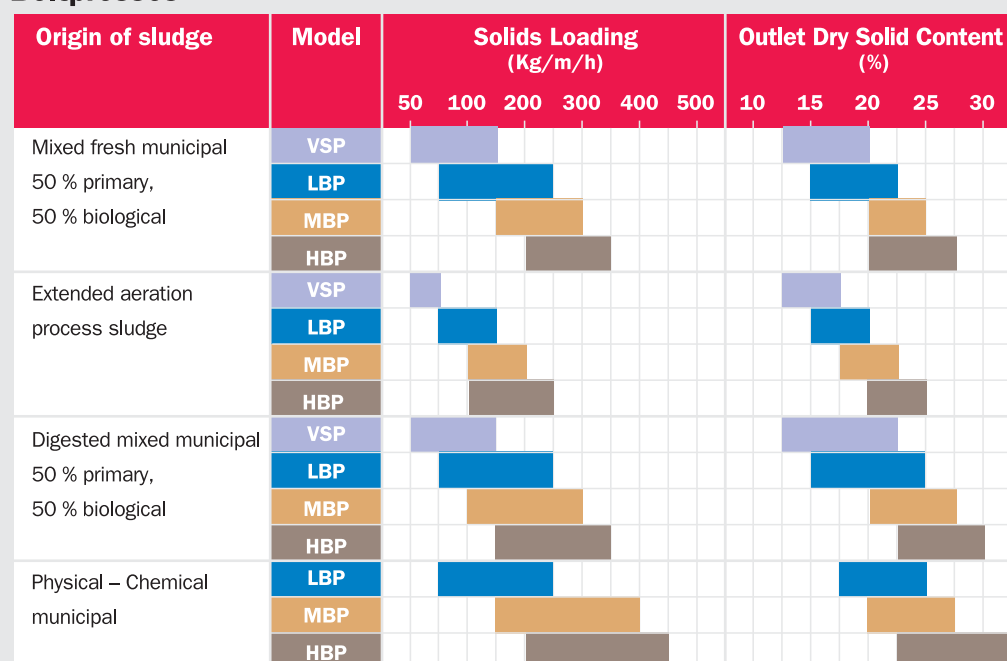
### Advantages

Beltpresses offer many advantages especially to large capacity treatment plants:

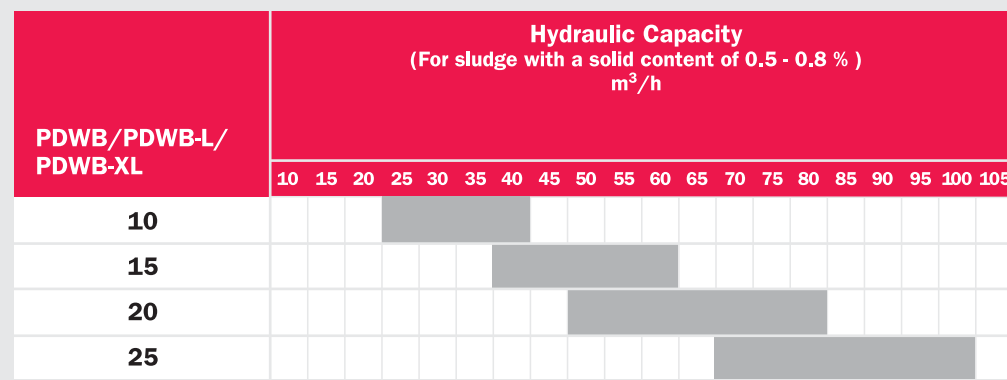
- Low labor requirement
- Continuous operation
- Subsequent to dewatering, considerable savings in transportation due to the sludge turning into an easily transportable cake
- Efficient usage of space
- Lower investment and operational costs
- Sturdy and durable construction which requires very little maintenance
- Clean filtrate output

## Capacity Utilization

### Beltpresses



### Pre-Dewatering Belt



The above capacities are only average values. Sismat must be consulted when selecting the equipment.

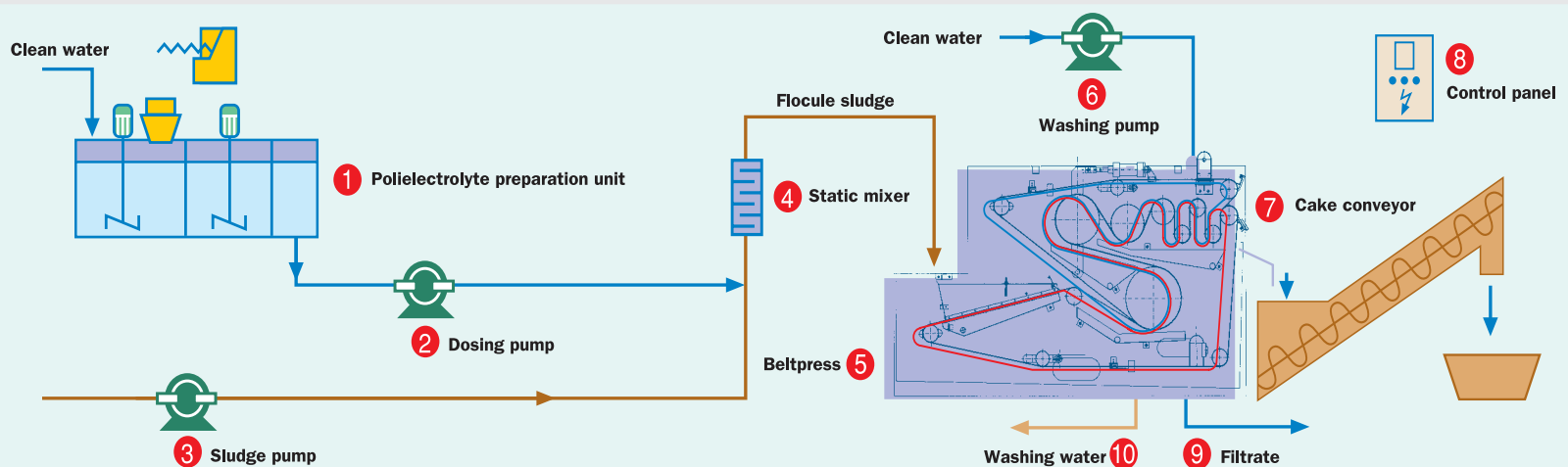
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# EFFECTIVE SOLUTIONS FOR DEWATERING



## Parts of Beltpresses

- **Pre-dewatering:** The flocculated sludge leaves a considerable portion of its water content without any effect.
- **Cake thickness adjustment (MBP and HBP series):** The cake thickness is adjusted prior to squeezing to allow it to spread homogenously in the pressure zone without overflowing between drums.
- **Low-pressure dewatering:** A low level of pressure is applied to the sludge by large diameter, perforated drums for a long period.
- **High-pressure dewatering:** The drum diameters decrease gradually as the discharge section is approached, thus applying higher pressure for shorter periods to the sludge and reducing its water content.
- **Belt washing:** An automated self-cleaning process that increases efficiency, takes place using the nozzles. The cleaning of automated self-cleaning nozzles can be started by an operator at determined time intervals, or by additional time control automation.
- **Cake transportation:** The cake can be transported using containers or a conveyor system.



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# BELTPRESS SERIES PRE-DEWATERING BELT



Pre-dewatering belts can be used either before the belt press, or separately as a sludge thickener.

Especially in plants that treat nitrogen and phosphorus, they may be preferred as a mechanical condenser as the sludge stand-by time is shorter.





### Advantages

- When used on top of the belt press it does not occupy extra space.
- Compared with other mechanical thickening equipments, they have low polymer and energy consumption.
- Depending on capacity requirement, drums can be added to increase belt length.
- Effective contact between the sludge and the belt level is provided with the pillow blocks, leading to maximum efficiency.
- The number and spacing of the pillow blocks are determined depending on sludge characteristics.



### Characteristics of sludge thickeners

MODEL	Unit	PDWB				PDWB-L				PDWB-XL			
		10	15	20	25	10	15	20	25	10	15	20	25
Belt width	m	1	1.5	2	2.5	1	1.5	2	2.5	1	1.5	2	2.5
Width	m	1.32	1.82	2.32	2.82	1.32	1.82	2.32	2.82	1.32	1.82	2.32	2.82
Length	m	3.5				4.5				5.5			
Height	m					1.3							
Filtration size	kg	2.6				3.6				4.6			
Motor power	kW					0.75							
Belt speed	m/min					3.7 - 10.9							
Washing water requirement	m <sup>3</sup> /h	3.5	5.5	7	9	3.5	5.5	7	9	3.5	5.5	7	9
	bar					6							
Air requirement	lt/min					50							
	bar					6							
Belt tension						Mechanical							
Belt alignment						Pneumatic							
Sludge scraping						Mechanical							
Belt protection						With Proximity Limit Sensor							
Washing nozzles						Self-cleaning							

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## BELTPRESS SERIES

## VSP SERIES



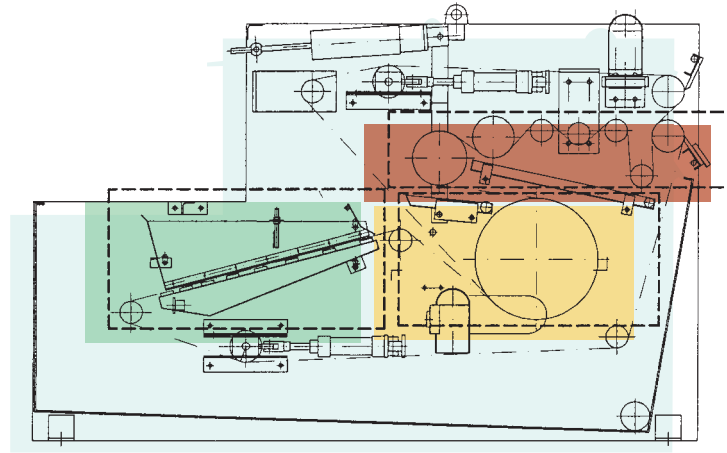
VSP model belt presses are generally preferred as an alternative to filter presses in small and medium scale biological wastewater plants. They serve as the most economical sludge dewatering solutions.

The equipment's closed structure provides a clean operation environment.

With **VSP series** belt presses, dewatering takes place in three steps:

- Pre-dewatering
- Low-pressure squeezing
- High-pressure squeezing

- **Ön susuzlaştırma kademesi**  
*Pre-dewatering step*
- **Düşük basınçla sıkıştırma kademesi**  
*Low-pressure squeezing step*
- **Yüksek basınçla sıkıştırma kademesi**  
*High-pressure squeezing step*



MODEL	Unit	VSP 10
Belt width	mm	1000
Width	mm	1675
Length	mm	1500
Height	mm	1300
Empty weight	kg	2060
Motor power	kW	0.75
Belt speed	m/min	1.31 – 3.95
Washing water requirement	m <sup>3</sup> /h	7
	bar	6
Air requirement	lt/min	100
	bar	6
Belt tension		Mechanic
Belt alignment		Pneumatic
Sludge scraping		Mechanic
Belt protection		With Proximity Limit Sensor
Washing nozzles		Self-cleaning
Perforated drums	unit	1
Squeezing drums	unit	6

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## BELTPRESS SERIES

## LBP SERIES

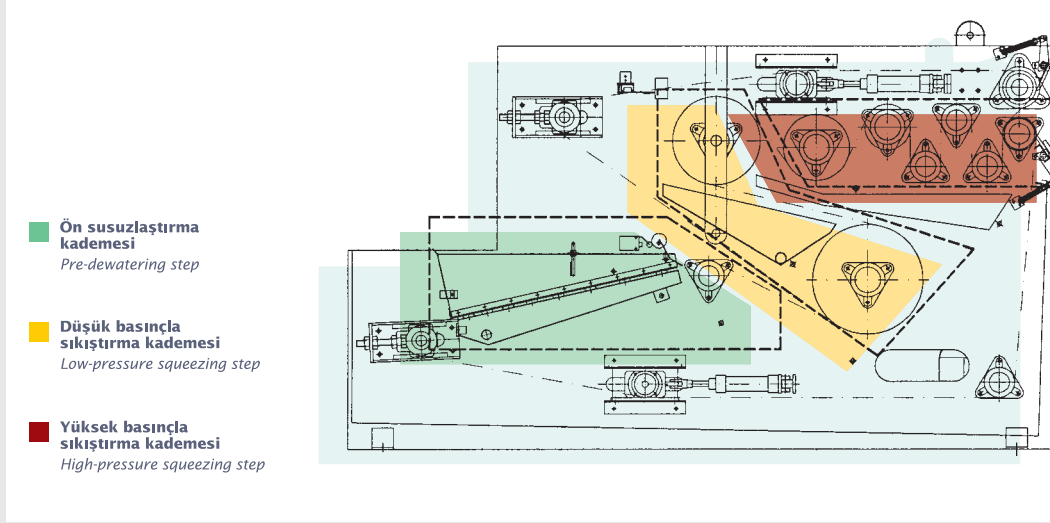


They are utilized in biological and chemical wastewater treatment plants. The closed structure prevents the splatter of sludge and filtrate water as well as ensuring operational security.

In **LBP series** beltpresses, dewatering takes place in three steps:

- Pre-dewatering
- Low-pressure squeezing
- High-pressure squeezing

Based on different positioning of drums, two different alternatives can be offered for the pre-dewatering section.



MODEL	unit	LBP 10	LBP 15
Belt width	mm	1000	1500
Width	mm	1746	2246
Length	mm	2600	2600
Height	mm	1500	1500
Empty weight	kg	1700	2000
Motor power	kW	1.1	1.5
Belt speed	m/min	1 – 3,3	1 – 3,3
Washing water requirement	m <sup>3</sup> /h	7	11
	bar	6	6
Air requirement	lt/min	100	100
	bar	6	6
Belt tension		Pneumatic	Pneumatic
Belt alignment		Pneumatic	Pneumatic
Sludge scraping		Pneumatic	Pneumatic
Belt protection		With Proximity Limit Sensor	With Proximity Limit Sensor
Washing nozzles		Self-cleaning	Self-cleaning
Perforated drums	unit	2	2
Squeezing drums	unit	5	5

## BELTPRESS SERIES

## MBP SERIES



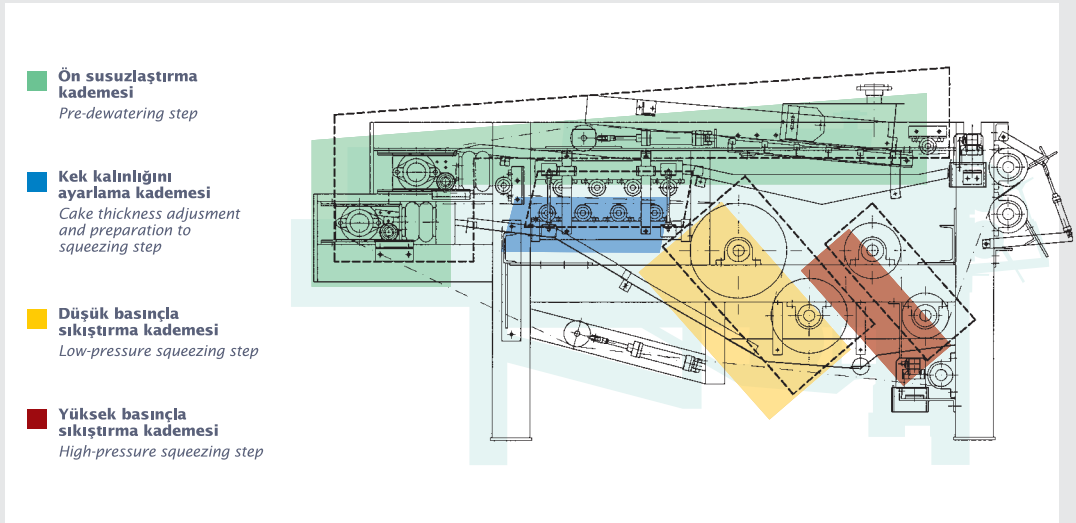
They are used in dewatering sludge with inorganic content such as those from lime-soda softening, treatment of wastewaters in ceramics industry, coal recycling, and DeSOx.

In **MBP series** beltpresses, dewatering takes place in four steps:

- Pre-dewatering
- Cake thickness adjustment and preparation for squeezing
- Low-pressure squeezing
- High-pressure squeezing

These systems have a strong construction. The frame is manufactured with an open structure to allow easy access and intervention. It can be modified with the addition of a lid that can easily be dismantled.

For increased capacity, the belt length can be extended with the addition of drums. As a result, a cake output with higher solid content can be obtained.



MODEL	Unit	MBP 10	MBP 15	MBP 20	MBP 25
Belt width	mm	1000	1500	2000	2500
Width	mm	1800	2300	2800	3300
Length	mm	4020	4020	4020	4020
Height	mm	1900	1900	1900	1900
Empty weight	kg	4200	4800	6555	7850
Motor power	kW	1.1	1.5	2.2	2.2
Belt speed	m/min	1 – 4	1 – 4	1 – 4	1 – 4
Washing water requirement	m <sup>3</sup> /h	7	11	14	18
	bar	6	6	6	6
Air requirement	lt/min	100	100	100	100
	bar	6	6	6	6
Belt tension		Pneumatic	Pneumatic	Pneumatic	Pneumatic
Belt alignment		Pneumatic	Pneumatic	Pneumatic	Pneumatic
Sludge scraping		Pneumatic	Pneumatic	Pneumatic	Pneumatic
Belt protection		With Proximity Limit Sensor	With Proximity Limit Sensor	With Proximity Limit Sensor	With Proximity Limit Sensor
Washing nozzles		Self-cleaning	Self-cleaning	Self-cleaning	Self-cleaning
Cake thickness adjustment drum	unit	8	8	8	8
Perforated drums	unit	2	2	2	2
Squeezing drums	unit	2	2	2	2

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## BELTPRESS SERIES HBP SERIES



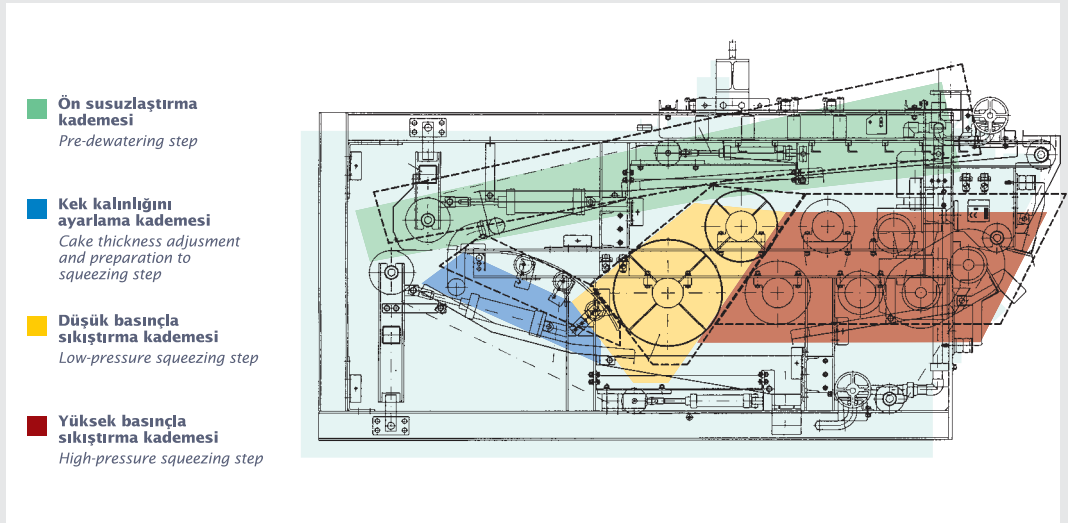
They are utilized in the dewatering of sludge from large scale biological and chemical wastewater treatment plants. They yield a cake with a solid content 3-6 % higher than the cakes obtained from the other beltpress series. They are highly preferred especially in cases where the solid content of the output cake will be increased by the addition of lime, as they lower lime consumption.

In **HBP series** beltpresses, dewatering takes place in four steps:

- Pre-dewatering
- Cake thickness adjustment and preparation for squeezing
- Low-pressure squeezing
- High-pressure squeezing

If required, the openings on the sides of the belt press frame can be closed with the addition of standard units. The pillow blocks utilized in the pre-dewatering section ensure the continuous mixing of the sludge leading to the easy release of its free water.

In HBP model belt presses, a perforated plate with an adjustable inclination angle helps to adjust cake thickness in preparation for squeezing. For increased capacity, the belt length can be extended with the addition of drums. In these models, a cake output with higher solid content can be obtained.



MODEL	Unit	HBP 10	HBP 15	HBP 20	HBP 25
Belt width	mm	1000	1500	2000	2500
Width	mm	1900	2400	2900	3400
Length	mm	4020	4020	4020	4020
Height	mm	1920	1920	1920	1920
Empty weight	kg	3550	4600	5650	6700
Motor power	kW	3	3	3	3
Belt speed	m/min	1.8 – 5.6	1.8 – 5.6	1.8 – 5.6	1.8 – 5.6
Washing water requirement	m <sup>3</sup> /h	7	11	14	18
	bar	6	6	6	6
Air requirement	lt/min	125	125	125	125
	bar	10	10	10	10
Belt tension		Pneumatic	Pneumatic	Pneumatic	Pneumatic
Belt alignment		Pneumatic	Pneumatic	Pneumatic	Pneumatic
Sludge scraping		Pneumatic	Pneumatic	Pneumatic	Pneumatic
Belt protection		With Proximity Limit Sensor	With Proximity Limit Sensor	With Proximity Limit Sensor	With Proximity Limit Sensor
Washing nozzles		Manually cleaned	Manually cleaned	Manually cleaned	Manually cleaned
Perforated drums	unit	2	2	2	2
Squeezing drums	unit	5	5	5	5

### PRE-TREATMENT EQUIPMENT

- Screens
- Screening Compactor
- Grit Classifier

### TREATMENT EQUIPMENT

- Screw Pump
- Surface Aerators
- Scrapers
- Thickeners
- Flow Control Devices

### DEWATERING EQUIPMENT

- Pre-dewatering Belt
- Beltpresses
- Filterpresses
- Chemical Preparation and Dosing Units

### PACKAGE TYPE BIOLOGICAL TREATMENT PLANT

- BIOPAK

### FILTRATION UNITS

- Pressure Sand Filter
- Ion Exchanger
- Activated Carbon Filter

### OTHERS

- Screw Conveyor
- Belt Conveyor
- Double Shaft Mixer
- Container Station
- Oil and Grease Separators

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