

# Dehydris™ Twist

suez  
environnement

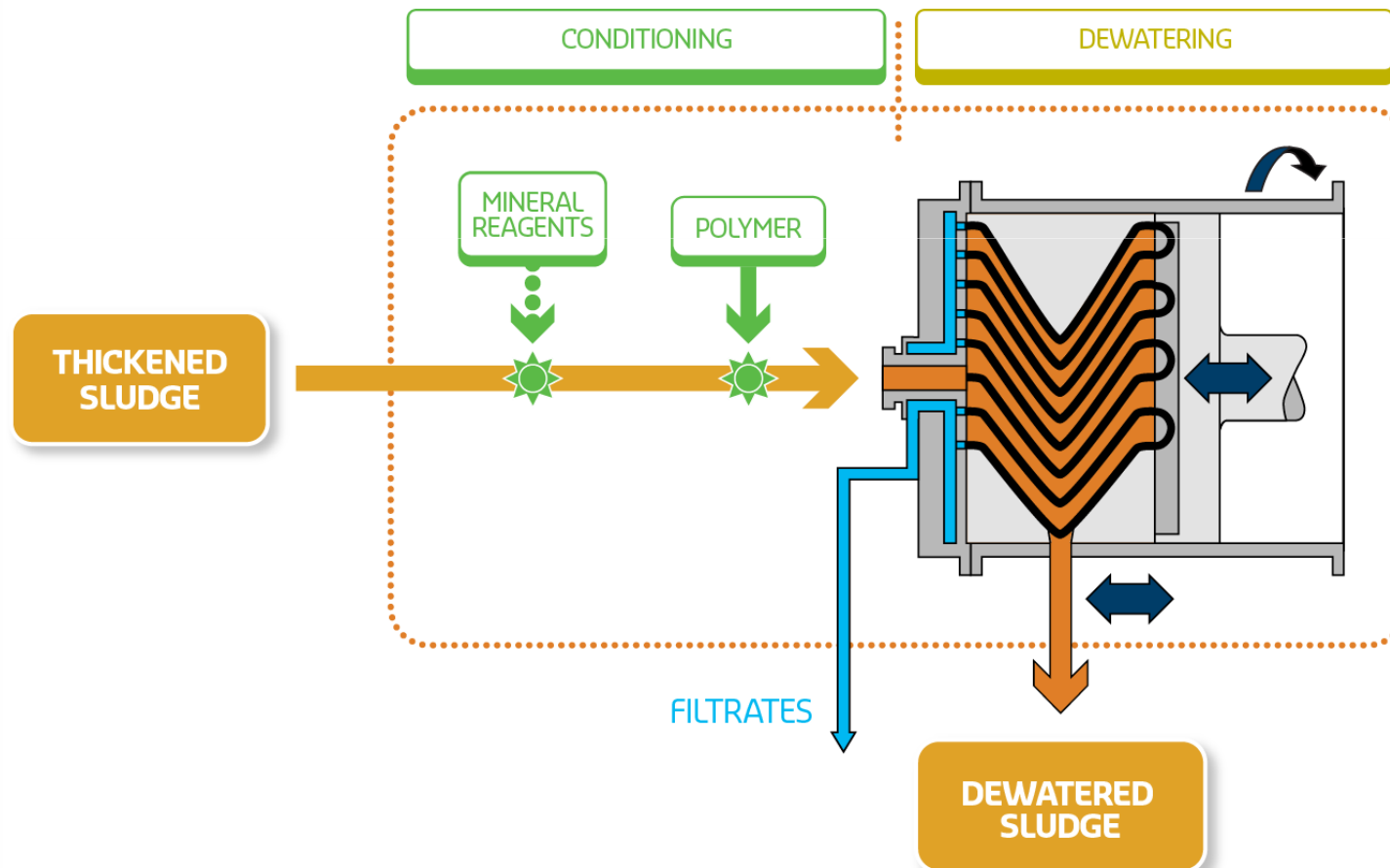
Degrémont



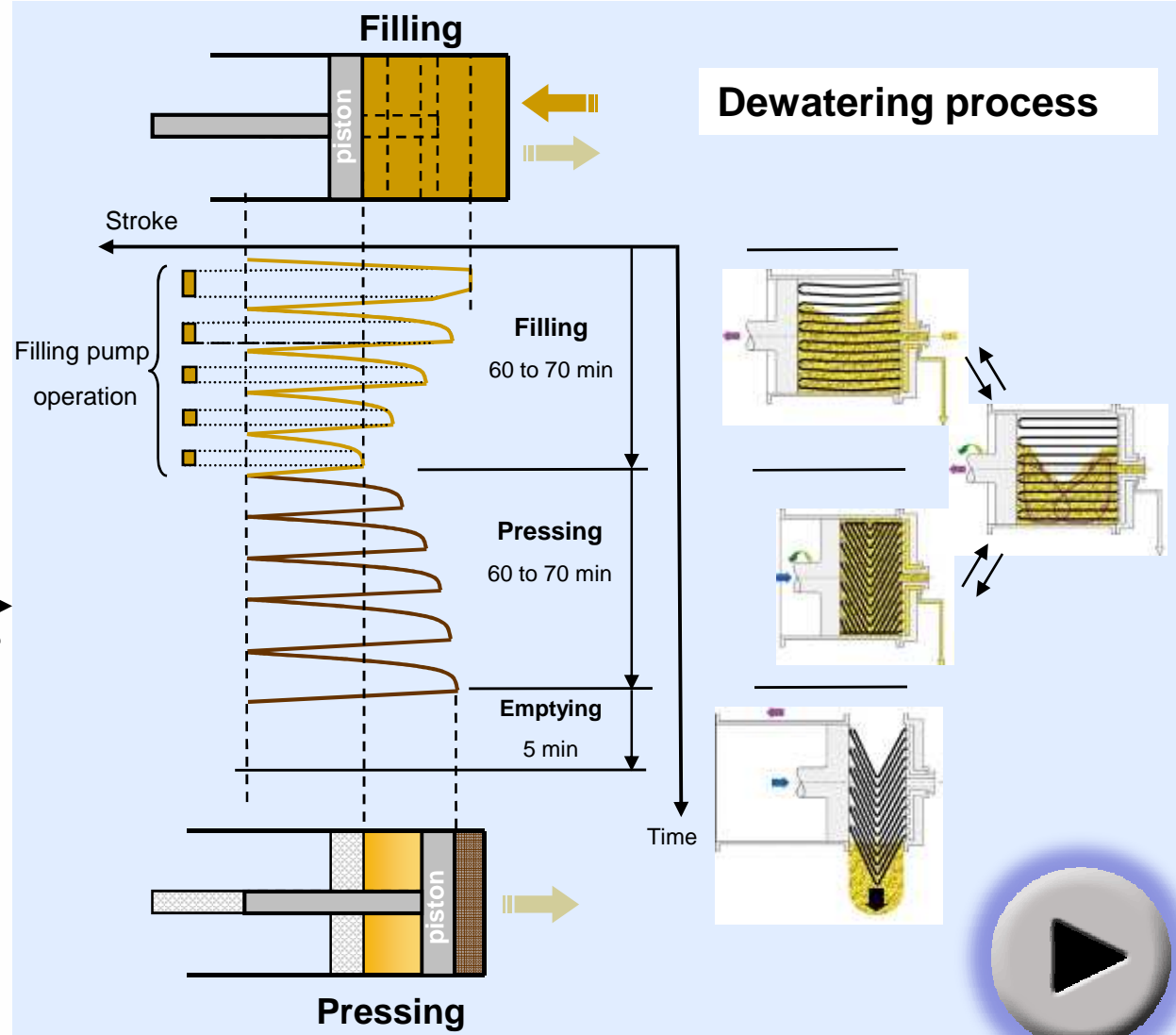
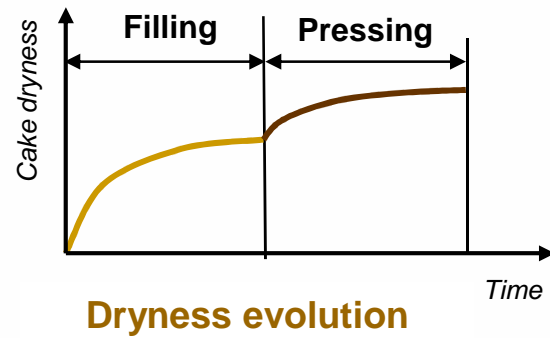


# Dehydris™ Twist workshop

*The boosted dewatering workshop with  
BUCHER piston press  
Dehydris™ Twist*

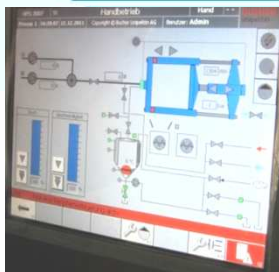
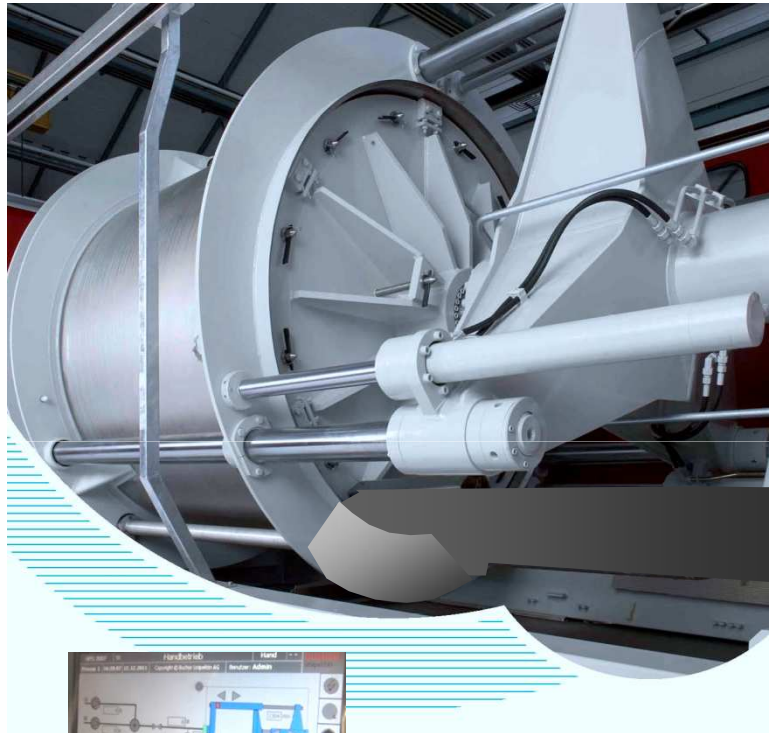


## Piston press BUCHER



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### Overview



Command  
touch panel



semi rigid drains





# BUCHER press : range of machines

	HPS 3007	HPS 6007	HPS 7507	HPS 12007
Volume (L)	3,412	6,161	7,700	13,300
Empty mass (kg)	14,500	18,500	19,800	28,000
Processing capacity (kg TS.h <sup>-1</sup> )	120 to 200	250 to 400	300 to 500	540 to 800
WWTP biological sludge (kPE)	25 to 50	40 to 90	75 to 120	100 to 190
Power implementation (kW)	17	28	28	48



**BUCHER piston press pilot HPS 207 :**

- Active volume = 200 L
- 2 to 3 m<sup>3</sup> of thickened sludge for representative tests





# Dehydris™ Twist : pilot tests 1/2

## Waste water treatment sludges

Type of sludge (France location)	Conditioning	Dewatering machines (on plant or pilot) Dryness (%)		Dehydris™ Twist Dryness (%)	Dehydris™ Twist gain
Extended aeration sludge Plant : Elancourt	Polymer(11 kgAM/tDS)	Centrifuge	17 ± 1 point	22 ± 1 point	+5 points
	FeCl <sub>3</sub> (6 %/DS) + polymer	Chamber filter press pilot	21 ± 1 point (polymer:16 kg AM/tDS)	26 ± 1 point (polymer: 5 kg AM/tDS)	+5 points
Extended aeration sludge Plant : Meulan les Mureaux	FeCl <sub>3</sub> (11%/DS) + quick lime (30%/DS)	Chamber filter press	35 ± 2 points	47 ± 2 points	+12 points
	FeCl <sub>3</sub> (10%/DS) + polymer (11kgAM/tDS)		not used	33 ± 1 point	-
Primary+biological sludge Plan : Strasbourg	Polymer	Centrifuge	27 ± 1 point	33 ± 1 point (Al <sub>2</sub> O <sub>3</sub> :1.5% /DS)	+6 points
	FeCl <sub>3</sub> (6 %/DS)+ polymer (7 kgAM/tDS)	Membrane filter press pilot	36 ± 2 points	37 ± 2 points	+1 point



# Dehydris™ Twist : pilot tests 2/2

## Drinking water sludges

Type of raw water (France location)	Conditioning	Dewatering machines (on plant or pilot) Dryness (%)		Dehydris™ Twist Dryness (%)	Dehydris™ Twist gain
Raw water : river Seine, downstream Paris Plant : Suresnes - Mont Valérien	Slaked lime (30% /DS)	Membrane filter press	46 ± 1 point	47 ± 1 point	+ 1 point
	Polymer (8 KgAM /tDS)		N/A	41 ± 1 point	-
Raw water : downstream dam Plant : Avranches	Slaked lime (20% /DS)	Chamber filter press	29 ± 2 points	Not tested	-
	Polymer (8 KgAM/tDS)		N/A	48 ± 2 points	-
Raw water : river Seine, upstream Paris Plant : Morsang sur Seine	Slaked lime (20% /DS)	Membrane filter press	35 ± 2 points	42 ± 2 points	+ 7 points
	Polymer (7 KgAM/tDS)		N/A	38 ± 2 points	-





# Dehydris™ Twist : full scale test

## MORSANG sur SEINE DWPP :

Experiment with HPS 3007 piston press

- Results:

- Mass load > 200 kg DS.h<sup>-1</sup>
- Dryness of the cake: 38 to 40%
- Polymer dosage  $5 \pm 1$  kg AM / t DS
- Capture rate: > 99%
- Structure of the sludge



Dewatered sludge structure



Dehydris Twist™



Filter press  
on site

5,000 L chamber filter press and HPS 3007



## Filter press :

- 4 cycles per 8 h corresponding to 6 t DM (operators present during sludge discharge)

Dehydris™ Twist can process :

- **1.6 t DM i.e. 20%** of total sludge during the same period or
- **60%** of the global sludge production on a 24 h period

	conditioning	cake dryness	<i>Dehydris™ Twist gain</i>
Chamber filter press	slaked lime	30 - 35%	≈ + 10%
<b>Dehydris™ Twist</b>	polymer	38 - 40%	
	slaked lime	40 - 43%	



# Dehydris™ Twist : Partnership

- **Partnership agreement** between Degrémont and the Swiss company Bucher Unipektin (june 2011)



**BUCHER**  
unipektin







# Bucher and Degremont's references

Lot of references in food industries with the same technology (2000 presses in fruit juice production).

References for municipal digested sludge, in Sweden :

- Käppala 700 000 EH (8000 T DS/year)

• in Germany :

- Radolfzell 80 000 EH
- Lingen 195 000 EH
- Saarlouis 85 000 EH
- Voerde 30 000 EH
- Rödental 35 000 EH

• in Switzerland:

- Zwillikon 40 000 EH



*KAPPALA (4 presses)*



*LINGEN (2 presses)*



*Morsang / Seine (1 press)*

## **First Degremont's references :**

- Morsang sur Seine France (DW sludges) : HPS 3007
- Chateaubourg France (DW sludges) : HPS 3007
- Weyersheim France (WWT sludges) : HPS3007



# Dehydris™ Twist : Conclusion

## → High dryness

- **The best** technology to achieve the highest dryness by mechanical means
- **Gain in OPEX** (storage, transport,..)
- **Easier to reach autothermal level** before incineration

→ **100% automatic operation** without operating staff

→ **Increased productivity**, sizing up possible 8000 h /year





# Technical interesting couplings

- **Dehydris™ Twist** + Thermylis® (incinération)
  - To boost the dryness and achieve auto thermal level
- **Dehydris™ Twist** + Digelis™ Turbo (boosted digestion)
  - To produce sanitized sludge
  - To boost the dryness upwards thermal drying (> 40% TS) and decrease disposal cost
- **Dehydris™ Twist** + Evaporis™ LT (low temperature thermal drying)
  - To improve the dryness and reduce the size of the dryer
- **Dehydris™ Twist** + Heliantis™ (solar drying)
  - To boost the dryness and decrease the global greenhouses footprint



Muchas gracias por su atención