BELT FILTER PRESSES

TEFSA

TÉCNICAS DE FILTRACIÓN S.A.

Introduction

TEFSA Belt Filter Presses have been designed and developed by our engineers for over 30 years. We have had a significant influence on the market over this time thanks to our modern and innovative technology, our cost effective solutions to customer problems and the excellent outcomes that we deliver to our customers. Over 2,000 units have been delivered in more than 1,000 municipal waste water treatment plants and industrial waste plants.

In order to meet our customers' requirements, **four main models** have been developed for waste water applications: **BS, OS, OSC and MS series.** There are slight performance differences such as the de-watering of fibrous materials, sewage and industrial sludge, inorganic pulp material, inorganic pigments, catalysts, resins, etc. Further special models are available for special applications or for maximum yield achivements (FP, KS and BSPP series).

The operating principle of the belt press is centred around the cake being squeezed between two belts under tension. The applied pressure on the sludge increases gradually as the belts pass through a series of rollers of decreasing diameters. This also produces a shearing effect on the cake that favours the liquid phase evacuation.

TEFSA Belt Filter Presses are used in conjunction with polyelectrolyte and flocculants. The fact that sludges react to flocculants makes it possible to press the sludge between belts to obtain a dry solid and a clear filtrate.

TEFSA belt filter presses have the following characteristics:

- **They are automatic and continuous.** They are designed to operate without assistance from operators.
- **They have low investment and operating costs.**
- **Low energy consumption.** Even when operating on a continuous basis, the drive motors have very low power requirements.
- **All the models available in our range can be supplied** with different belt widths in order to comply with the capacity requirements of each case.
- **TEFSA belt filter presses are robust and compact in construction.** Our designs and constructions have been engineered in order to perform under continuous operating conditions without interruptions. They can be specially adapted when a small foot print is required in relation to the designated capacity.

Process Separation Steps

1 FLOCCULATION

Most sludges require the addition of organic polyelectrolytes in order to achieve the correct flocculation and an initial separation of the mix.

2 FEEDING

The flocculated suspension is spread homogeneously over the feed area so that the complete surface of the belt is utilised.

3 GRAVITY / PREDEHYDRATION

The first filtration stage is carried out on the predewatering zone where a good part of the filtrate is drained by gravity through the belt. TEFSA belt presses have a long predewatering zone where the sludge is also flipped over to improve de-watering efficiency.

4 FILTRATION

The filtration starts to take place in the wedge zone with a gradual pressure increase and loses a further 50% of volume. This is in preparation for it to pass through the perforated drums and rollers of decreasing diameters in the shearing zone.

5 COMPACTION AND DRAINAGE

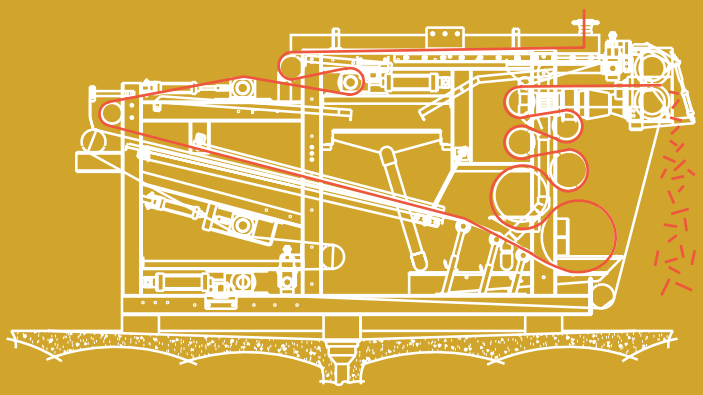
The final compaction and pressing of the cake is achieved where the transmitted pressure and the shearing forces reach maximum values.

6 DISCHARGE

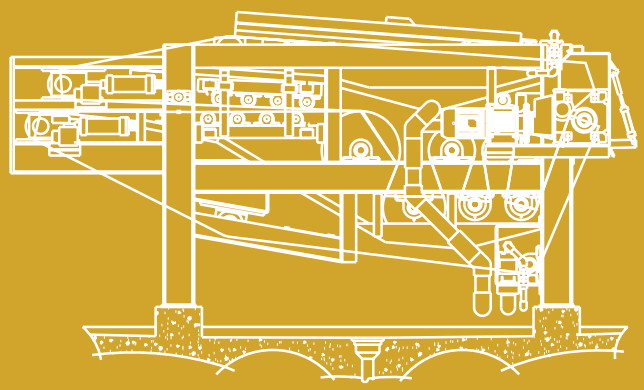
The de-watered solids are discharged by separating the upper and lower belts and placing the doctor blades adjacent to the belt and pneumatically adjusting the belt, preventing any cake remaining on the surface of the belt.

7 BELT CLEANING

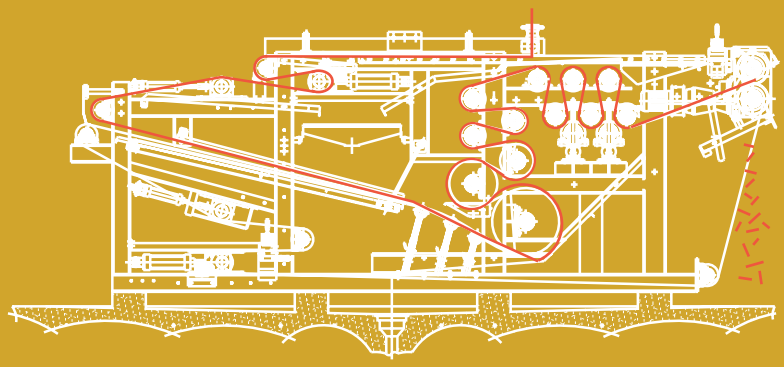
A continuous twin belt washing system is included in all presses for both upper and lower belts in order to obtain a clean belt at the feeding zone and filtration stages.



BS SERIES



OS SERIES



BSPP SERIES

BS SERIES (high pressure)

The BS belt filter press is a versatile and high capacity unit and gives the best de-watering posible. It can be supplied in special construcions as in the case of the KS closed model. The modular design allows the adaptations such as the addition of gravity belt thickening decks and post-pressing systems in order to meet the most demanding conditions.

Available belt widths: 0,5 to 3,0 meter for a capacity between 2 to 35 m^3/h.

BSPP SERIES (high pressure)

The BSPP belt filter press has the same construction and characteristics as the BS model but with an increased filtration area of 20% through the addition of a post-pressing module with six additional rollers. Depending on the application, two pressure rollers supported by pneumatic cylinders will increase the pressure on the area. The BSPP model gives a higher output and lower cake residual moisture.

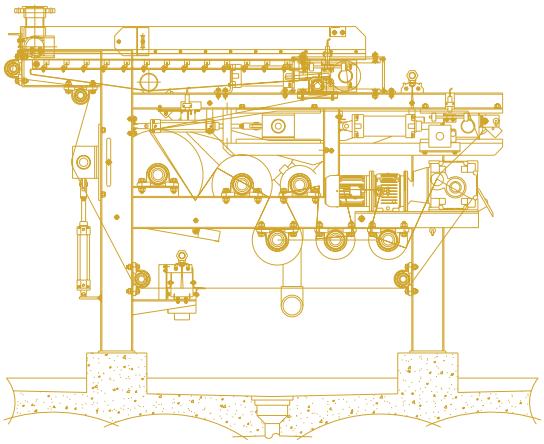
Available belt widths: 1,5 to 3,0 meter for a capacity between 10 to 35 m^3/h.

OS SERIES (mid pressure)

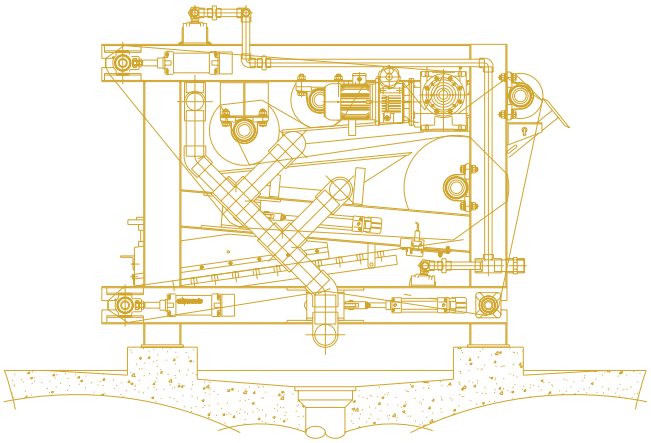
The BS belt filter press has been developed in order to handle inorganic sludges as well as for broad use in the industrial area with more stable types of sludges. The OS model operates at lower pressures in relation to the BS and BSPP models as the de-watering areas are somewhat shorter and has fewer rollers.

Available belt widths: 0,5 to 3,0 meter for a capacity between 2 to 30 m^3/h. Special widths of 0,8 and 1,2 also available.

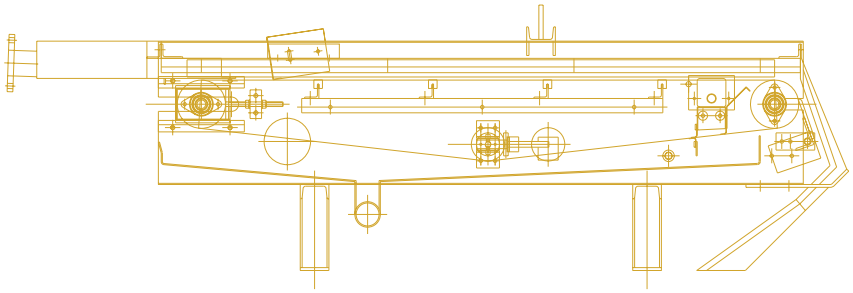
TEFSA Belt Press Models



OSC SERIES



MS SERIES



PDH SERIES

OSC SERIES (mid pressure compact)

The OSC belt filter press has been specially developed to satisfy the following three basic demands: small capacities to de-water, equipment with compact dimensions, and good quality equipment at reduced investment costs. This mid pressure unit with rigid frame includes all characteristics and materials as in the previously mentioned models and include the automatic control devices.

Available belt widths: 0,5 to 2,0 meter for a capacity between 2 to 15 m^3/h.

MS SERIES (low pressure)

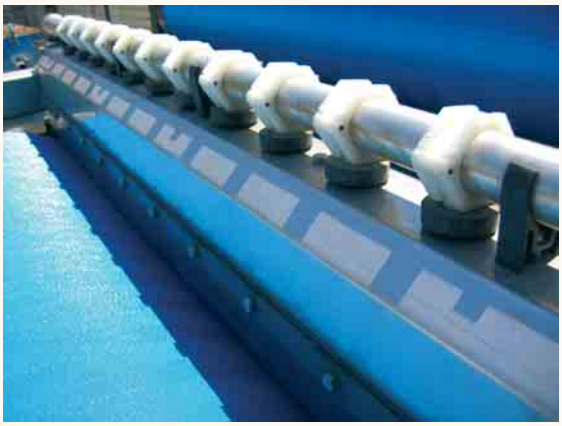
The MS belt filter press has been developed to suit low capacity requirements such as small sewage plants or as mobile units within a plant or for service purposes. This low pressure unit with rigid frame includes characteristics and materials as in the higher pressure series and includes the automatic control devices; the attraction being its excellent investment level.

Available belt widths: 0,5 to 1,0 meter for a capacity between 1 to 10 m^3/h.

PDH SERIES (belt predewaterting tables)

The gravity belt thickeners are independent units from the belt presses which can be installed and integrated on top of the belt presses when the inlet solids concentration is too low, or they can be used as stand-alone thickeners for particular applications. In all cases the unit has been provided with its own independent belt, drive and belt guide system, tensioning and washing systems.

Available belt widths: 0,5 to 3,0 meter and belt lengths of 1,0 to 6,0 meter for a capacity between 2 to 150 m^3/h.



BELT WASHING SYSTEM

The belt washing system is individual to each belt. Each belt press is fitted with two systems which consist of a group of specially designed nozzles which act on the dirty belt continuously, removing all particles which are trapped in the belt or on the belt surface. This ensures a clean belt after every washing cycle and in preparation for a new feed cycle.

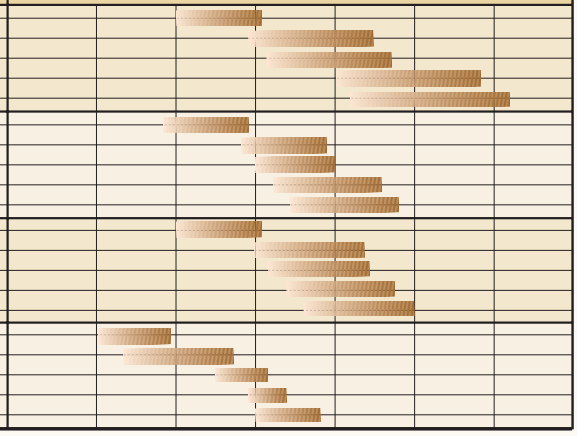
BELT TENSIONING SYSTEM

The belt tensioning system is controlled and adjusted by means of the tensioning rollers fitted to each belt press. These are actuated by pneumatic cylinders and regulated by pneumatic pressure. The compensating shafts, racks and pinions guarantee that the two tensioning rollers are completely parallel in order to optimize the de-watering processes.

BELT GUIDING SYSTEM

The belt guiding or tracking system is controlled by means of a sensor placed next to belt which controls the exact position at all times. In the case of belt displacement, the sensors actuate the control valve which will deliver compressed air to the control cylinder on the required side. The control cylinder moves to an angle proportional to the belt displacement, returning the belt automatically to the correct alignment.

TYPE OF SLUDGE **Waste Water Treatment Plants**	**BELT PRESS MODEL**	**DRYNESS RANGE (%)**
Primary sludge (Physico-Chemical)	MS OSC OS BS BSPPP	
Masic load,....		
Mixed Sludge (primary & secondary)	MS OSC OS BS BSPPP	
Masic load,....		
Digested sludge (anaerobic treatment)	MS OSC OS BS BSPPP	
Masic load,....		
Extended Aeration Sludge (aerobic treatment)	MS OSC OS BS BSPPP	
Masic load,....		



QMS-Quality Management Systems

REGISTERED FIRM
ISO 9001

NR. ESP 8738 - 28/04/04

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FILTER PRESSES
BELT FILTER PRESSES
VACUUM BELT AND VACUUM DRUM FILTERS
PRESSURE LEAF AND PRESSURE CANDLE FILTERS
THERMAL SLUDGE DRYING

COMERCIAL LASMERT S.A.

THICKENERS / DECANTERS
SLUDGE CONDITIONERS
PNEUMATIC AND DOSING PUMPS
HEAT EXCHANGERS

MF

MEDIOS FILTRANTES, S.A.

FILTER PRESS FILTER CLOTHS
BELT PRESS BELTS
SELF CLEANING FILTERS
BAG FILTERS
CARTRIDGE FILTERS
PAPER FILTERS
BASKET FILTERS
PLATES

ECOTEC

e c o l o g i a t e c n i c a s.a.

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ODOR REMOVAL SYSTEMS
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PLASTIC WORKS (PVC,PP,GRF AND MIXED)
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CODALSA

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