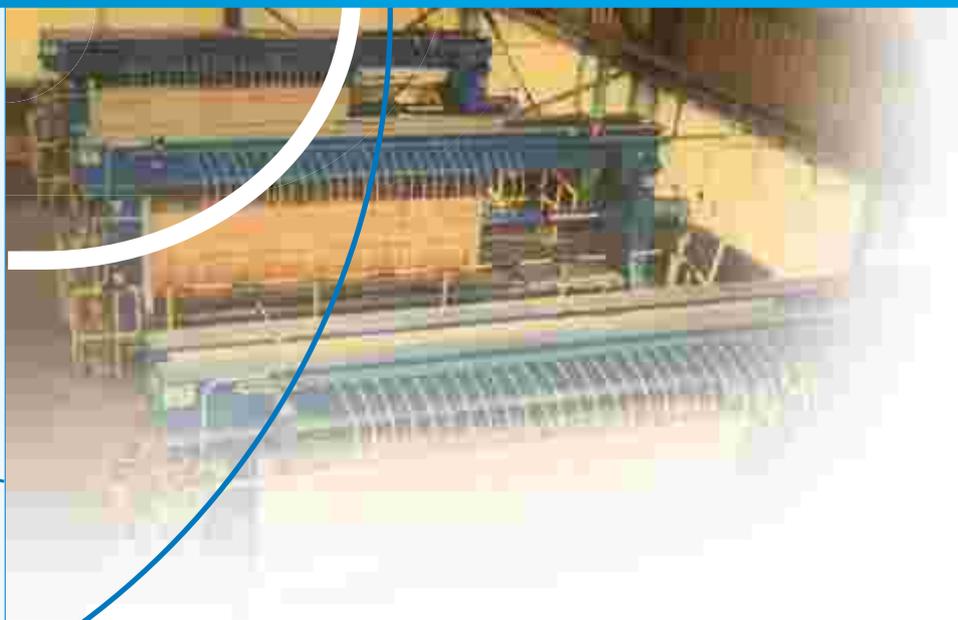


PRODUCTION PROGRAM



TEFSA

TÉCNICAS DE FILTRACIÓN S.A.



The roots of the TEFSA-Group, Técnicas de Filtración S.A., were established in 1974 with the idea to study and solve any project related to filtration and dehydration.

In this sense, TEFSA, Técnicas de Filtración S.A. has developed specialized projects for specific situations in these last 30 years. A broad fabrication program, being one of the main competitive advantages of the company, allows a selection of the optimal solution in each presented solid-liquid separation problem, offering the most adequate equipment with the most advanced technology and with the modern up dated design and construction.

The TEFSA Head Quarters, located in Esplugues de Llobregat, Barcelona, includes the offices and main work shop with over 8.000 m² area. From here TEFSA studies, designs, develops and manufactures the complete product range available in our program. The national offices and agents, as well as the international branches, agents and distributors, bring all products and services to over 50 countries, accounting over 9.000 references worldwide.

Based on the principle "Filtration is our World", TEFSA is proud to present the company and the Production Program in order to identify any needs or solution to a particular solid-liquid separation problem with the best equipment and services.





Index

- 4 FILTER PRESSES WITH OVERHEAD PLATE TRANSPORT SYSTEM
- 6 FILTER PRESSES WITH SIDEBAR PLATE TRANSPORT SYSTEM
- 8 BELT FILTER PRESSES
- 9 POLYELECTROLYTE PREPARATION UNITS
- 10 PRESSURE FILTERS: LEAF, CANDLE AND NUTSCH TYPES
- 12 VACUUM BELT FILTERS
- 13 VACCUM DRUM FILTERS
- 14 SELF CLEANING FILTERS
- 15 CARTIDGE, MESH AND BAG FILTERS
- 16 THICKENERS AND DRIVE HEADS
- 17 MOTORIZED AUTOMATIC ELEVATION GROUPS
- 18 AIR OPERATED DOUBLE DIAPHRAGM PUMPS
- 19 SERVICES, TECHNICAL ASSISTANCE, ENGINEERING AND RENTING EQUIPMENT

Filter Presses with overhead plate transport system

The TEFSA Filter Presses with Overhead Plate Transport System are highly effective systems within this type of equipment. The design is based on two frames supporting the overhead construction formed by two “I-shaped” beams, where the complete transport mechanisms are located, and from where the plate pack plates are suspended. During filtration the filter pack is closed by means of the pressure carried out by the piston through the corresponding hydraulic power pack.



This filter press design optimises the following aspects:

INDIVIDUAL AND AUTOMATIC PLATE TRANSPORT, AVOIDING THE PERSONAL ASSISTANCE OF THE OPERATOR IN ORDER TO MOVE THE PLATES DURING THE CAKE DISCHARGE PROCESS.

PERFECT AND PARALLEL PLATE MOVEMENT DURING TRANSPORT, FREE OF PENDULUM AND SIDE DEVIATIONS.

MAXIMUM PLATE TRANSPORT MECHANISMS SIMPLIFICATION, PLACED AND PROTECTED WITHIN THE CLEANEST AREA OF THE FILTERPRESS (IN BETWEEN THE UPPER OVERHEAD BEAMS) PERFECTLY SEPARATED FROM THE DISCHARGE AREA.

LACK OF PHYSICAL MECHANISMS ON THE SIDE AND OPERATION AREA OF THE FILTER PRESS, IMPLYING A FREE SPACE FOR OPERATION, MAINTENANCE, FILTER CLOTH REPLACEMENT, AND OTHER INSPECTION AND OPERATION REQUIREMENTS

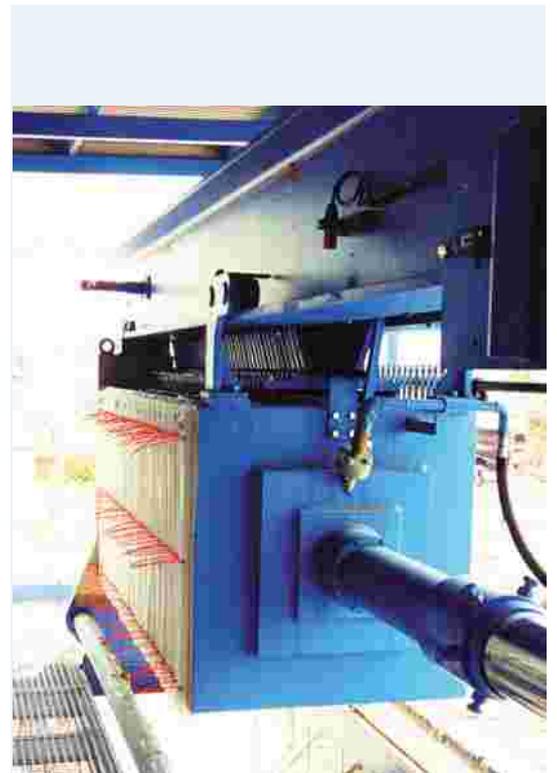
Filter Presses with overhead plate transport system



TEFSA has developed two systems in the range of the Overhead Filter Presses: the PEH and the PSEH.

The PEH model is used in the applications with a high solids production requirement. The system is based in a double transport chain with transport hooks which slide over the plate carriages. Each transport hook hauls a plate within the continuous movement of this system, achieving a smooth and fast transport time of the entire plate pack. The PEH mechanism guarantees this fast transport process «plate by plate» by means of the interlocking system.

The PSEH model has a transport system based on the cable and carriage type, transporting the plates individually from one side to the other within the opening space.



The standard TEFSA overhead automatic filter presses program range from plate size 630 x 630 mm up to 2.000 x 2.000 mm, with a maximum capacity of 175 plates operating up to 16 bar pressure. Special constructions outside these standards are available as well for specialized cases.

Filters Presses with Sidebar Plate System



TEFSA designs and manufactures filter presses with the Sidebar Plate Transport System to be mainly applied to smaller solids production cases. A broad line of sizes, models and automatization levels are available in order to cover all market necessities. In this sense TEFSA manufactures units from plate size 300 x 300 mm up to 1.500 x 1.500 mm, with a plate capacity according needs and operating as well up to 16 bar as standard construction.



Filters Presses with Sidebar Plate System



Maintaining the philosophy of Sidebar Plate Transport System, TEFSA offers the possibility to operate the plate transport as manual (HPL, HPLE) or as automatic (EHC, EHR, EHPT), and to fit the filter press with a manual hydraulic group (HPL) or with an electrohydraulic group (HPLE, EHC, EHR, EHPT) with the opening a closing processes controled through a power and control panel of our own construction.



Belt filter presses



The TEFSA Belt Filter Presses have covered and satisfied a broad range of applications with excellent and efficient results. Units with a clear economic advantage in relation to other dehydration systems, have a clear potential alternative for defined applications and situations.

This filtration system is specially adapted to the sludge dehydration process with a previous flocculation stage. In a first stage the sludge conditioning is given before entering the belt press inlet zone, followed after the feeding process in the belt press by the sludge prethickening or gravity area, sludge concentration area, and sludge pressing area with a thickened product, where increasing shearing forces are applied dehydrating the sludge up to maximum dryness rates.



The modern TEFSA Belt Filter Press is available in different models and executions, classified by pressure ranges, by belt widths (from 0,5 to 3,0 meter), by construction material, and by operation levels. This broad range of possibilities allows to satisfy any technical or process requirement in the market



Polyelectrolyte Preparations Units



TEFSA has developed a broad range of Polymer Preparation / Make Up Units, the TEFLOC line, in order to cover the market necessities and adopt the supplies to any production process. The modern design of the system and integrated elements allows a fast solution preparation minimizing the related consumption.

The TEFLOC units include a specialized design on the screw feeding system fitted with a motorreductor, with guarantees on a perfect and controled flocculant dosing process. The polymer mixing with the water flow is carried out with extreme care in order to avoid all clogging possibilities.

The TEFSA Production Program covers Manual TEFLOC Preparation Units specially designed for small capacities requirements where the solution is prepared and stored in a single tank, and Automatic TEFLOC Preparation Units where the preparation process is continuous and fully automatized in executions of one, two, or three tanks. All units are manufactured in different sizes and construction materials.



Pressure Filters: Leaf, Candle and Nutsch Types

The TEFSA Production Program includes the design and fabrication of Pressure Leaf Filters and Pressure Candle Filters.

In the Pressure Leaf Filters, the filter area is the surface aggregate of a set of leaves (filter plates) placed vertically and in parallel inside the vessel; the leaves are supported on a common and single drainage collector. The Pressure Candle Filters are fitted with specially designed round formed elements following the same filtration process as the leaf system.

The fabrication of these units in the TEFSA workshop allows to adjust the particular design and execution according the exact requirements of the customers. All Pressure Filters are available in multiple models, sizes, construction materials and finishing levels. Each option has the possibility to include a «wet discharge» or a «dry discharge» system. The wet discharge system evacuates and purges the filtered solid in a humid sludge form by means of a countercurrent effluent flow or spraying system, and the dry discharge system evacuates the solids in a as dry as possible form by means of a shaking system and after emptying the tank and drying the cake.



Pressure Filters: Leaf, Candle and Nutsch Types



The Pressure Single Plate Filter or Pressure Nutsch Filter, consists in a cylindrical reactor where the filtration process is carried out on the cloth or filter paper placed on the bottom of the tank.



Being the filter of closed and watertight execution, it is commonly used for the treatment and filtration of dangerous liquids and/or of high value, achieving a complete liquid squeezing and operating by batches with absolute nonexistent product loss.

Vacuum Belt Filters



The TEFSA Vacuum Belt Filters are specially designed for the solid-liquid separation processes where, besides the filtration stage, an exhaustive cake washing process is of highly importance. The main characteristics of this type of equipment can be described as following:

Exceptional distinctive qualities in the cake washing process implying a minimum washing fluid. Gravity feeding system which implies a homogeneous cake formation, able to achieve up to 100 mm thickness. Frame construction by modules which allows the alternative to adjust the filter size and design to any process. Diverse operations such as separation, washing, pressing and drying are accomplished in one single filter.



Vacuum Drum Filters



The TEFSA Vacuum Drum Filters are continuous filtration units, based on a drum partially submerged in a trough equipped with an agitator. The vacuum is given from the inner side of the drum. The continuous rotation of the drum allows the unit to filter the product, wash the cake, dry the cake and discharge the cake without interruption necessities, only adjusting the rotation speed to the characteristics of the product.

The cake discharge process is given by making use of the own rotation of the drum, having different methods always according the product and process type (scraper discharge, roller discharge, string discharge, precoat discharge or belt discharge).



Self Cleaning Filters

The Self Cleaning Filters have been designed to be able to operate in an extensive variation of applications. The broad construction material options, besides the self cleaning process advantages, gives it huge possibilities in diverse applications, such as resins, varnishes, process waters and even operating as security filters or polishing filters for finished products.

This type of filter is installed in line in order to have the fluid crossing the filter element from outside to inside, remaining the solids on the outer surface of the element. The cleaning process takes place without interrupting the inlet flow, consisting of the rotation process of the cylindrical element which is equipped with two longitudinal scrapers supported on the element.

The separated solids by the rotation process of the element, are accumulated in the bottom of the tank where the evacuation takes place on a periodic basis. This evacuation can be manual or automatic.



Cartridge, Mesh and Bag Filters



The TEFSA Cartridge Filters, Mesh Filters and Bag Filters, have a simple and solid construction suitable for a very broad range of applications.

Available in multiple sizes and materials, the versatility of the product applies to all industries and products. In this sense, the main body of these units is available in cast iron, carbon steel, stainless steel, bronze and polypropylene.

The Mesh Filters can be supplied in two executions: Single Type and Duplex Type.

The Duplex Type execution operates both units in parallel form, giving the opportunity to have one under operation and one on stand by for cleaning purposes, having full guarantees for a continuous operation.



The TEFSA Production Program includes the LASMERT Thickeners, available on the market with different executions and sizes ranging with diameters from 5 to 50 meter. The complete assembly consists of a main tank, manufactured with prefabricated concrete panels or in steel welded plates, a feeding cylinder which deprives the possible inlet turbulences, and a drive head which acts and controls the correct operation of the internal mechanisms in the tank. TEFSA manufactures two different mechanisms driving groups to couple to the thickening tanks:

- The Type C: the diametral bridge assembled over the tank supports the relevant mechanisms, the cylinder and the feeding channel.
- The Type CP: designed with a central column where the driving system is supported. The bridge is in radial form, allowing an easy access to the drive.



Motorized Automatic Elevation Groups

The thickening grade regulation and the related mechanisms protection are controled by means of the Electronic Loading Cell Device. This mechanism registers the torque carried out by the racking arms by hauling the thickened sludge, sending the signal to activate the Mechanisms Elevation System when needed and a signal for the right sludge evacuation from the tank.

TEFSA designs powerfull Drive Heads for each of the driving systems, listed mainly as two types:

- In Suspension: used in the Type C Thickeners, where there is no central support column. Consisting of a strong wormwheel reductor group, being the wheel supported on a ball bearing periferic track, and the worm supported on thrust bearings. The assembly operates submerged in an oil bath.
- In Support: used in the Type CP Thickeners where the drive is supported on the central column in the tank, suitable for bigger diameters. Depending on the exact size the unit will be fitted with one or two motor groups, with hydraulic or mechanical balancing system.





Production Program



TÉCNICAS DE FILTRACIÓN S.A.

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



MEDIOS FILTRANTES, S.A.

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



ecologia tecnica s.a.

GAS WASHING AND ASPIRATION SCRUBBERS
ODOR REMOVAL SYSTEMS
NON CORROSIVE VENTILATION
PLASTIC WORKS (PVC, PP, GRF AND MIXED)
LAMELLAR DECANTERS / DIFFUSERS
BIOLOGICAL FILLINGS
SCRAPERS / GRATINGS / RAILINGS

POLYELECTROLYTES
POLYMER PREPARATION UNITS

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