



JOHN FINLAY ENG.
& TECH.GROUP OF COMPANIES





ABOUT JOHN FINLAY

John Finlay Engineering & Technology Group of companies ("JFE") is a renowned mining services company headquartered in Brisbane, Australia. With over 50 years of experience and a workforce of more than 5000 employees, JFE has built a substantial presence and a strong customer base in Australia, China, and other Asian countries.

JFE is a leader in providing comprehensive services to coal preparation facilities in its operating regions. The company has been instrumental in the design, construction, equipment supply, and maintenance of over 125 mineral beneficiation plants of various scales.

Leveraging its extensive expertise in mining services, JFE aims to expand its reach to India, with a focus on:

- Enhancing the quality of mineral outputs
- Refining existing mineral preparation processes to reduce waste
- Boosting the overall competitiveness of the domestic mineral industry

This expansion strategy underscores JFE's commitment to advancing mining technologies and supporting the mineral industries in the regions it serves.

MANUFACTURING FACILITY

Our partner operates a state-of-the-art manufacturing area spanning 120,000 square meters, capable of assembling 160 complete filter press machines simultaneously and storing 1,000 ready-to-deliver filter presses.

The cornerstone of our operations is an unwavering dedication to innovation. The process equipment is the result of rigorous independent research and development, consistently pushing the boundaries of industry standards. What truly distinguishes our partner's facility is the seamless integration of advanced manufacturing technologies, sourced from the forefront of innovation in Australia.

The expansive manufacturing facilities, spread across this vast expanse, embody the essence of precision engineering. With independent property rights, the facility ensures that every facet of the production process aligns with the highest standards of quality and efficiency.

Embark on a journey where innovation, unwavering commitment, and state-of-the-art manufacturing converge to redefine industry norms. Experience the transformative difference as we reshape the future of equipment manufacturing, one pioneering technology at a time.

It covers an area of **83,200 square meters**, with **9 workshops** and a construction area of **60,200 square meters**.
Mainly produces: PP membrane filter plates and molds for various filter plates

Covering an area of **589,000 square meters**, with **15 workshops** and a total construction area of **452,000 square meters**
Main production: various parts and filter press assembly, filter cloth production line, new product development and production

It covers an area of **33,700 square meters**, with **5 workshops** and a total construction area of **24,300 square meters**.
Mainly produces: various export-oriented filter plates and high-temperature resistant filter plates.

Covering an area of **212,000 square meters**, with **2 workshops** and a total construction area of **154,800 square meters**
Main production: filter press accessories and customized products





The filter press final assembly workshop, covering an area of 120,000 square meters, is able to assemble 160 complete filter presses at the same time, and store 1,000 filter presses ready for delivery.



filter plate injection molding workshop (82 machines in total)



Filter plate manufacturing workshop



German Disha vertical sandblasting machine



high-precision mold manufacturing workshop (Mold processing center 57set)



A corner of Workshop 2 in Jingjin Plant Area 4 includes two Italian CNC laser pipe cutters, twelve gantry machining centers, thirty-six Neway vertical machining centers, a Taiwan Youjia hydraulic pipe fitting line, and twenty-two Japanese Mazak CNC lathes.



FILTER PRESS MACHINE INTRODUCTION:

A filter press machine is a piece of equipment used for the solid-liquid separation of slurry, which is a mixture of liquid and solid particles. The machine operates by applying pressure to the slurry, forcing the liquid through a filtering medium (such as cloth) while retaining the solid particles as a filter cake.



Here's a detailed explanation of its components and operation:

COMPONENTS:

1. **Frame:** The sturdy structure that holds the entire assembly together.
2. **Filter Plates:** Plates with filter cloths that form the chambers for the slurry. These plates are pressed together to form a series of cavities.
3. **Filter Cloth:** The medium through which the liquid passes while retaining solids. It covers the filter plates.
4. **Hydraulic System:** Used to move the filter plates and apply pressure.
5. **Feed Pump:** Pumps the slurry into the filter press.
6. **Drip Trays:** Collect the filtrate (the liquid that has passed through the filter cloth).

OPERATION:

1. **Filling:** The feed pump injects the slurry into the filter press. The slurry fills the chambers formed by the filter plates.
2. **Filtration:** Under pressure, the liquid (filtrate) passes through the filter cloth and exits the press, while the solids are retained and accumulate on the cloth, forming a filter cake.
3. **Pressing:** Additional pressure can be applied using hydraulic systems to squeeze out more liquid, further dewatering the filter cake.
4. **Cake Discharge:** Once the filtration cycle is complete and the desired level of dewatering is achieved, the filter plates are separated, and the filter cake is discharged. The cake can be removed manually or automatically.

APPLICATIONS IN THE MINING SECTOR:

Tailings Management: Filter presses are used to dewater tailings, reducing their volume and making them easier to handle and store.

Concentrate Recovery: They help recover valuable minerals from slurry by producing a dry cake with low residual moisture, which is essential for further processing or sale.

ADVANTAGES:

Efficient Solid-Liquid Separation: High recovery rate of solids with low residual moisture.

Reduced Disposal Costs: Minimizes the volume of waste material.

Water Recycling: Clean filtrate can be reused in the process, conserving water.

SPECIFIC USE IN MINERAL MINING:

In mineral mining, filter presses handle the by-products of production. John Finlay machines, for example, dewater waste fines, recover them, and clean water, effectively eliminating tailing ponds. These machines can also achieve very low residual moisture in the filter cake, which is critical for concentrate recovery. Additionally, they handle materials containing heavy metals such as arsenic, lead, cadmium, chromium, iron, manganese, aluminium, and nickel, making them versatile for various mining applications.

TYPES OF FILTER PRESSE

Several types of filter presses are available, each with unique benefits and drawbacks. The most common types of filter presses are:

Plate and Frame Filter Press: This is the most traditional type of filter press, which uses a series of plates and frames to separate solids from liquids. The plates are stacked together, and the frames are popular to hold the plates in place. The water flows through the plates, and the impurities are collected on the surface of the plates.

MEMBRANE FILTER PRESS:

This type of filter press uses a membrane instead of plates and frames. The membrane is made of a thin layer of material that allows water to pass through but blocks impurities. The membrane filter press is more efficient than the plate and frame filter press, as it can remove impurities of a smaller size. The membrane filter press is similar to the plate and frame filter press, but it uses a thin, flexible membrane instead of plates and frames. Which filters out the solids. The membrane filter press is popular in applications where high purity is required, such as in the production of pharmaceuticals.



CARTRIDGE FILTER PRESS:

Additionally, the cartridge filter press is a compact and efficient filter press machine that uses a cartridge-type filter element. The cartridge is made up of a series of pleats that are packed together. The liquid to be filtered is passed through the cartridge, which removes the solids. The cartridge filter press is popular in applications where space limiting, such as in laboratories or pilot plants. The candle filter press is a type of filter press machine that uses a cylindrical filter element, similar to a candle. The filter element is a series of pleats that are packed together, and the liquid to be filtered is passed through the filter element. Which removes the solids. The candle filter press plays an important role in applications where high purity is required, such as in the production of food and beverages.



AUTOMATIC FILTER PRESS:

The automatic filter press is a modern filter press machine that is equipped with automated controls and systems. It can perform various functions, such as filtering, washing, and discharging, automatically and efficiently.

The automatic filter press is popular in large-scale industrial applications that require high productivity and low maintenance.

FILTER PRESS WORKING PRINCIPLE:

The filter press working principle is based on the concept of pressure filtration. The device consists of a series of vertically arranged filters, which are separated by a distance of several millimetres.

The filters are made up of a porous material, such as a cloth or paper, and are designed to allow the liquid to pass through while retaining the solid particles.

The filtration process begins when the liquid is pumped into the filter press and distributed evenly across the surface of the filters. The solid particles in the liquid settle on the surface of the filters, forming a filter cake.

The pressure is then applied to the filter cake by a hydraulic system, which presses the cake against the filters, causing the liquid to pass through the pores of the filters and exit the device.

The filter press working principle is based on the principle of resistance. The resistance to the flow of liquid through the filters is increased by the presence of the solid particles. Which creates a pressure drop across the filter cake. This pressure drop is proportional to the resistance and is used to separate the liquid from the solid.

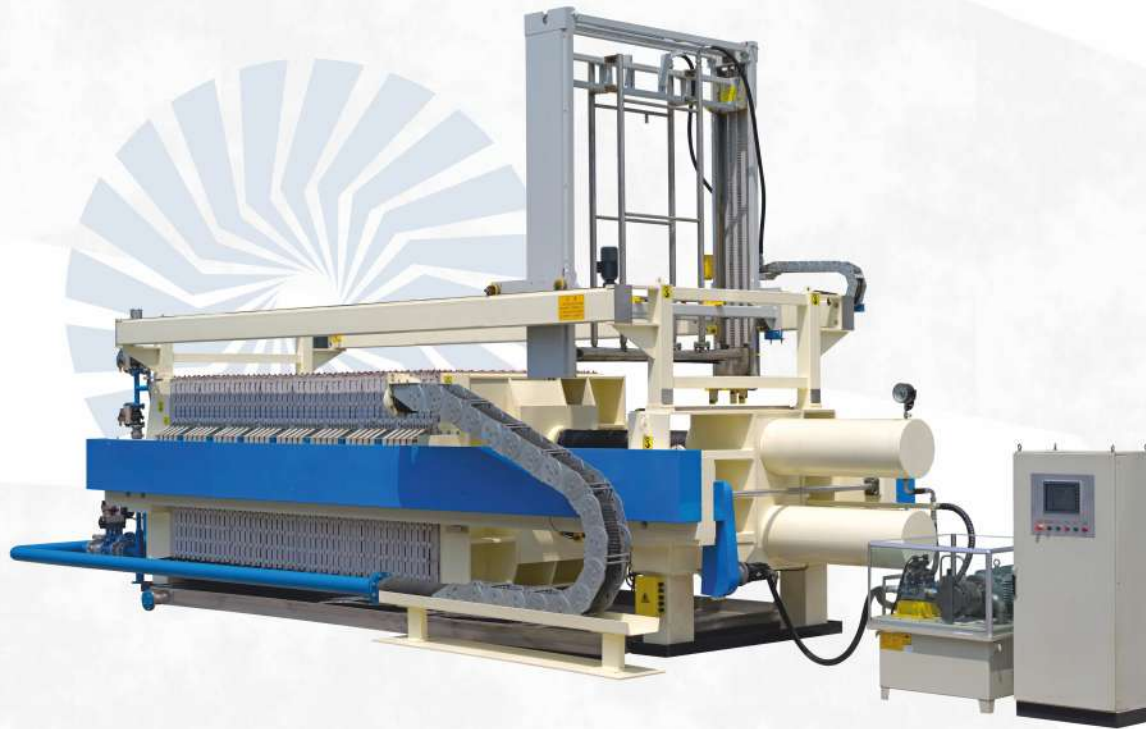
FILTRATION PROCESS:

The filtration process of a filter press can be divided into three stages:

Pre-treatment: In this stage, the liquid is pumped into the filter press and distributed evenly across the surface of the filters. The solid particles in the liquid settle on the surface of the filters, forming a filter cake.

Filtration: In this stage, the pressure is applied to the filter cake by the hydraulic system, causing the liquid to pass through the pores of the filters and exit the device. The solid particles are retained on the surface of the filters, forming a filter cake.

Post-treatment: In this stage, the filter cake is removed from the filters, and the liquid is collected in a container. The filter cake can be further treated, such as by washing or drying, to remove any remaining impurities.



FILTER PRESSES: AUTOMATIC CLOTH WASHING

The automatic cloth washing feature is an advanced technology integrated into PLC-based auto filter presses. This mechanism enhances productivity by reducing cleaning time and extending the lifespan of filter cloths through efficient in-place cleaning.

Key Features:

Increased Productivity: Minimizes downtime with efficient, in-place cloth cleaning.
Extended Cloth Lifespan: Reduces wear and tear, prolonging the operational life of filter cloths.

Fully Automated Operation: Integrated with PLC control for seamless, synchronized operation.

Complete System Solution: Includes pump, motor valve, tank, and accessories for easy installation.

PLC-BASED AUTO FILTER PRESS

In recent years, the operation of filter presses has evolved towards automation. Our fully automatic filter presses include:

Auto Hydraulic System: Ensures efficient and consistent pressure application.

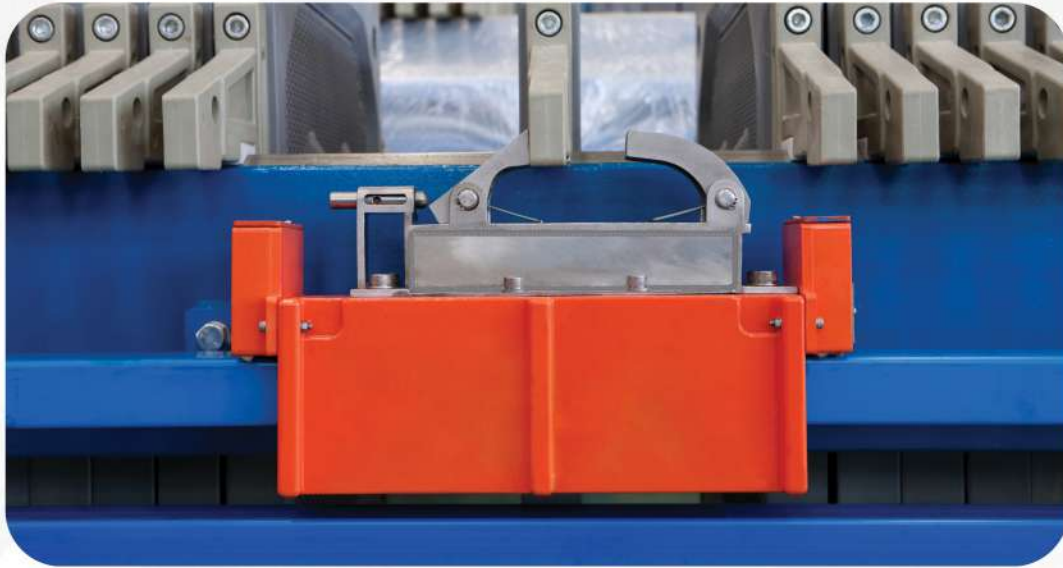
Auto Plate Shifting Mechanism: Facilitates smooth and quick plate movement for uninterrupted operation.

Auto Drippage Collection System (Bomb-Door): Keeps the shop floor clean and reduces waste, crucial for filtrate/liquid recovery.

All mechanisms are interlocked and pre-programmed in a PLC to ensure smooth, manpower-free operation.

These sub-components are controlled through a PLC-operated system via HMI or SCADA workstations, ensuring consistent cycle times and eliminating operator dependency.





SEMI-AUTOMATIC FILTER PRESS

Semi-automatic filter presses automate the shifting of plates using a shifter mechanism. Other components, including the bomb door, hydraulic cylinder, and moving plate, are also powered through a centralized system.

Key Features:

Automatic Plate Shifting Mechanism:

Streamlines the plate shifting process for efficient operations.

Automatic Plate Shaking Mechanism:

Ensures effective cleaning by shaking off residual materials from the filter plates.



MEMBRANE FILTER PRESS

The membrane filter press functions by filling the chambers with slurry at a low feed pressure to form the cake. Subsequently, the membrane plates are inflated by a high-pressure water pump to compress the cake, which increases the solid content and enhances liquid recovery.

Key Features:

High Solid Content: Achieves a higher concentration of solids within the cake.

Enhanced Liquid Recovery: Maximizes the extraction of liquids from the slurry.



SPECIFICATIONS

Model	XAZGF/1000-U		
Filter plate dimensions (mm)	1000		
Number of chambers (chamber)	30	40	50
Filtration area (m ²)	46	61	77
Filtration volume (L)	690	920	1150
Length L (mm)	5250	5850	6550
Width W (mm)	1630		
Height H (mm)	1600		
Weight (Kg)	6300	7150	8000

indicates reference value.

The filtration volume is calculated by multiplying the number of chambers by the volume per filter plate.

The filtration volume may vary according to the type of processing

The specifications and dimensions are subject to change without notice.

Model	XAZGF/1250-U		
Filter plate dimensions (mm)	1250		
Number of chambers (chamber)	40	50	60
Filtration area (m ²)	96	120	144
Filtration volume (L)	1440	1800	2160
Length L (mm)	6230	6930	7630
Width W (mm)	1910		
Height H (mm)	1900		
Weight (Kg)	9350	10400	11400

indicates reference value.

The filtration volume is calculated by multiplying the number of chambers by the volume per filter plate.

The filtration volume may vary according to the type of processing

The specifications and dimensions are subject to change without notice.

Model		XAZGF/1500-U		
Filter plate dimensions	(mm)	1500		
Number of chambers	(chamber)	80	100	110
Filtration area	(m ²)	275	344	378
Filtration volume	(L)	4120	5160	5670
Length L	(mm)	9990	11490	12290
Width W	(mm)	2350	2800	
Height H	(mm)	2150		
Weight	(Kg)	20700	24000	25300

indicates reference value.

The filtration volume is calculated by multiplying the number of chambers by the volume per filter plate.

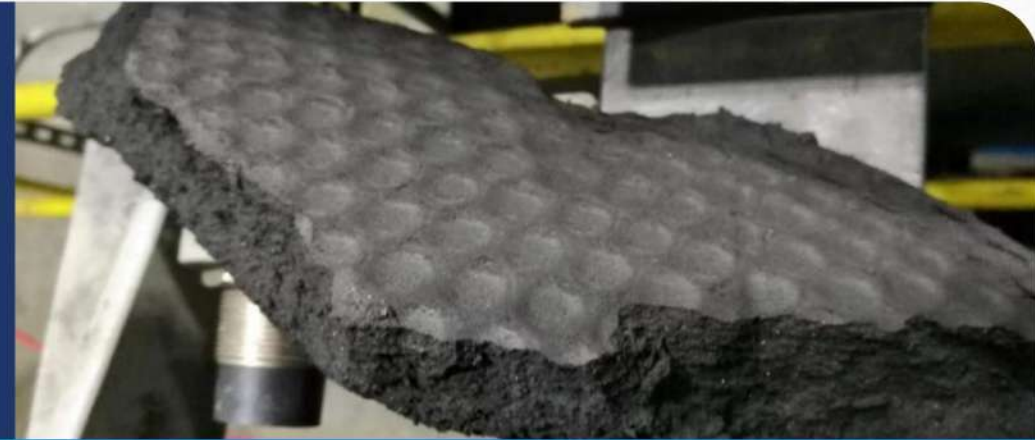
The filtration volume may vary according to the type of processing

The specifications and dimensions are subject to change without notice.



Filtration: In this stage, the pressure is applied to the filter cake by the hydraulic system, causing the liquid to pass through the pores of the filters and exit the device. The solid particles are retained on the surface of the filters, forming a filter cake.

Post-treatment: In this stage, the filter cake is removed from the filters, and the liquid is collected in a container. The filter cake can be further treated, such as by washing or drying, to remove any remaining impurities.



Advantages Of Filter Press: The filter press has several advantages over other filtration methods, such as centrifugation and sedimentation. One of the main advantages is its ability to separate solids from liquids with high efficiency and purity. The filter press can also be used to separate particles of different sizes and types, making it a versatile tool in various industries. Additionally, the filter press is easy to operate and maintain, making it a cost-effective solution for solid-liquid separation.

Conclusion: In conclusion, the filter press is a versatile tool used in various industries for solid-liquid separation. The device works by applying pressure to a filter cake. Which is formed by the solid particles in the liquid, to separate the liquid from the solid. Additionally, the filtration process of a filter press can be divided into three stages: pre-treatment, filtration, and post-treatment. The filter press has several advantages over other filtration methods. Such as centrifugation and sedimentation, including its high efficiency and purity, ability to separate particles of different sizes and types, and ease of operation and maintenance.

We manufacture & supply more than **10,000 Filter press** across the globe.

MINING:

In the mining sector, filter presses are essential for tailings management and concentrate recovery. Coal mines, in particular, face the challenge of disposing of uneconomic material, a by-product of coal production. John Finlay machines excel in dewatering waste fines suspended in water, recovering these fines, purifying water, and eliminating the need for tailing ponds.

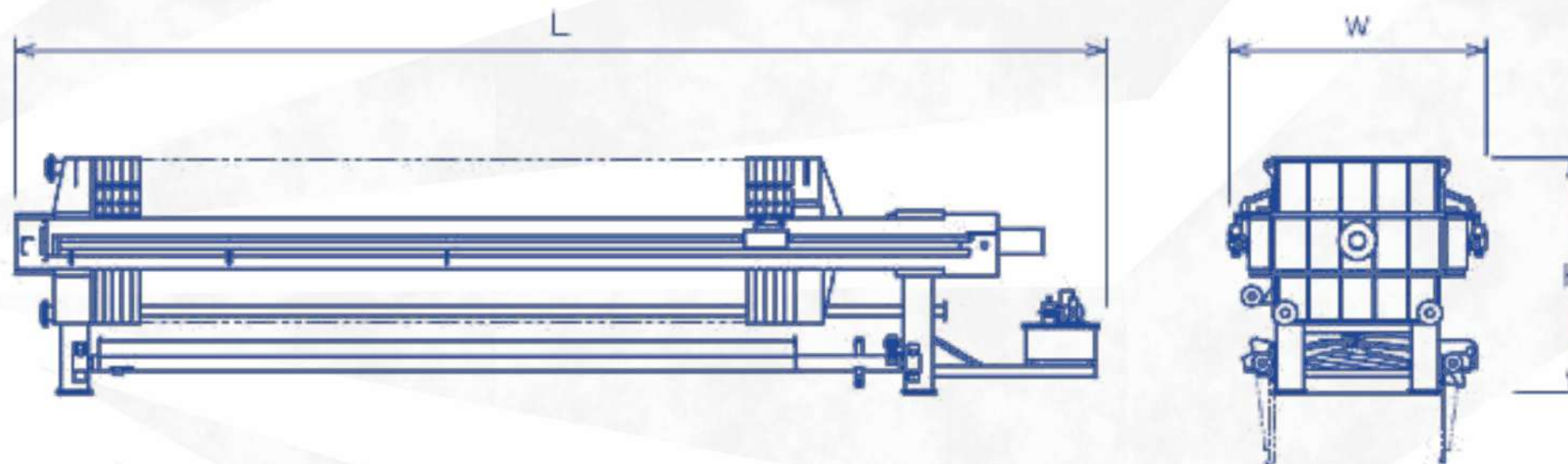
John Finlay filter presses are also highly effective in concentrate recovery. For this purpose, the resulting filter cake must have a very low residual moisture content, typically around 6-7%. John Finlay achieves this with the use of membrane plates that apply additional pressure and a core blow accessory that further dries the cakes. Processed materials such as rocks, coal, and clay often contain a range of heavy metals, including arsenic, lead, cadmium, chromium, iron, manganese, aluminium, and nickel.

SMART FULLY AUTOMATIC CONTROL SYSTEM

The Pressure Filter is controlled by a system consisting of a PLC connected to a PC screen, built in a well-sealed and well insulated cabinet. All control logics are implemented in the PLC. On the PC monitor the filter operator can follow and control the filter operation and information such as settings, statistics and alarms.

HIGH UNIT CAPACITY

By installing the Pressure Filter on load cells connected to the PLC a multitude of data become available. The weighing system provides accurate production information, and can be used to optimise the filtration and drying steps in the filter cycle.





Program controlled Filter Press with extendable cloth mechanism.

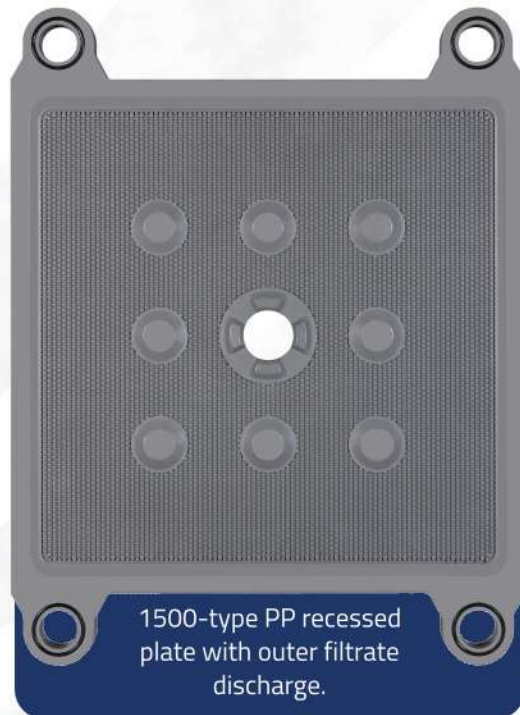


FILTER

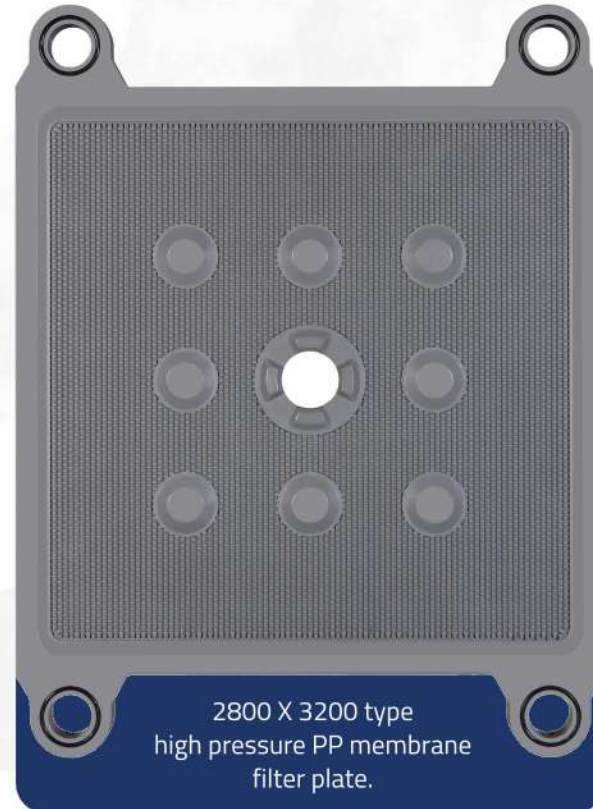
plate is the core part of the filter press. Different materials, models and qualities of filter plate will have different affects on the filtration performance of the whole machine. Its feeding hole, filtering point distribution (filtering channel) and water discharging channels have different designs according to different materials. Jingjin filter plate adopts imported TPE elastomer and high intensity PP to make the filter plate not only has the flexibility of the rubber plate, but also has the tenacity and rigidity of the polypropylene plate, ensuring the airtightness of the filter plate during the progress of pressing. All technical indicators of Jingjin filter plate strictly comply with EU standard. The maximum membrane inflation pressure of Jingjin high pressure PP membrane filter plates can be up to 10Mpa, representing the most advanced level around the world.



Intelligent Over Beam Filter Press



1500-type PP recessed plate with outer filtrate discharge.



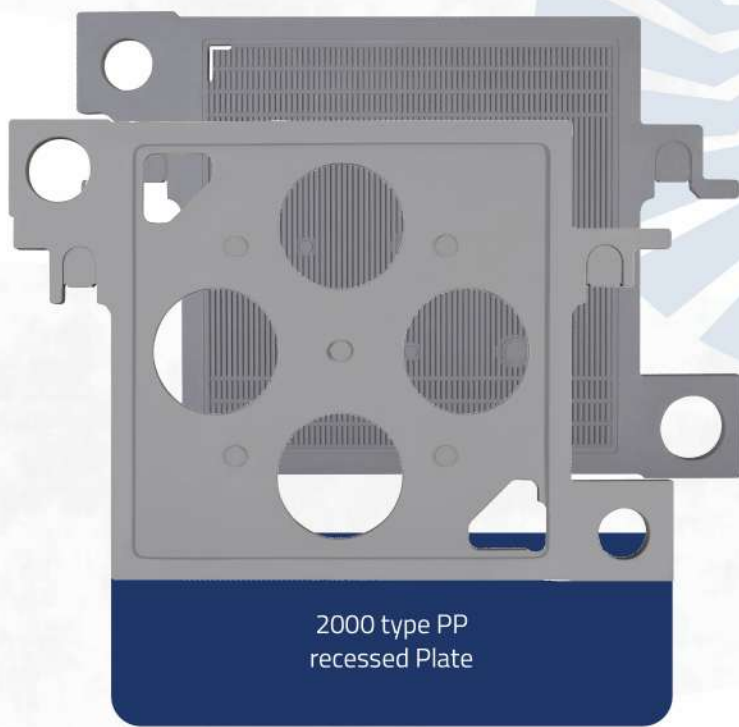
2800 X 3200 type high pressure PP membrane filter plate.



Special Filter Plate for efficient & quick filter press.

FILTER PLATE SERIES

The filter plate is the core part of the filter press. Different materials, models, and qualities of filter plates have different effects on the filtration performance of the whole machine, its feeding hole, filtering point distribution (filtering channel), and water discharging channels have different designs according to other materials. "John Finlay" fiber plate adopts imported TPE elastomer and high-intensity PP to make the filter plate have not only the flexibility of the rubber plate but also the tenacity and rigidity of the polypropylene plate, ensuring the airtightness of the filter plate during the progress of pressing. All technical indicators of the John Finlay filter plate strictly comply with EU standards. The maximum membrane inflation pressure of "John Finlay" high-pressure PP membrane filter plates can be up to 4.0Mpa, representing the most advanced level worldwide.



2000 type PP
recessed Plate

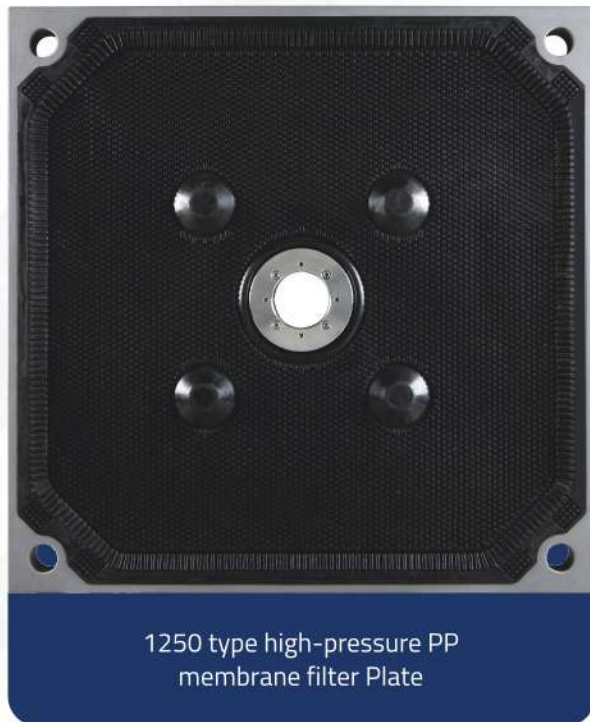


2000-type PP recessed Plate
with Filter Cloth



2000-type PP recessed Plate
with Filter Cloth

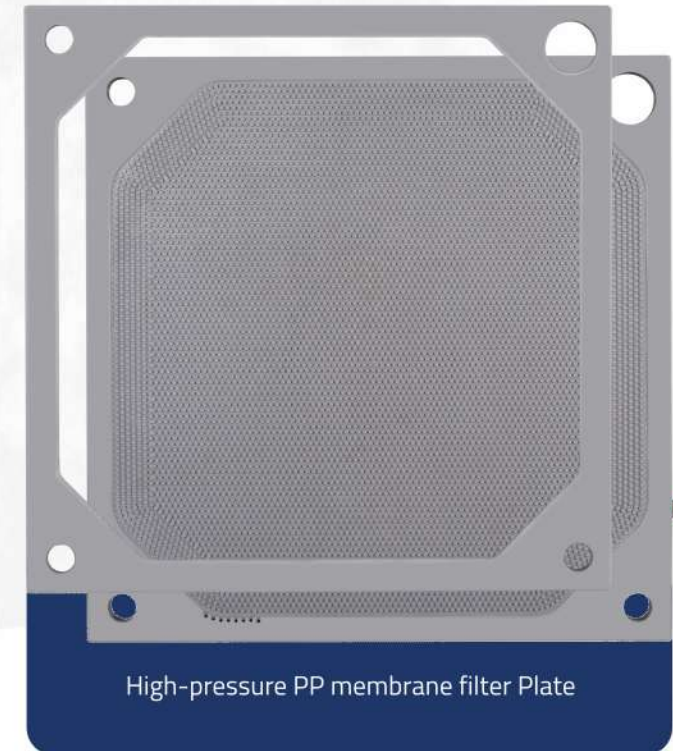




1250 type high-pressure PP
membrane filter Plate



PP Frame Filter Plate



High-pressure PP membrane filter Plate

FILTER PLATE SERIES

The filter plate is the heart of the filter press, with its material, model, and quality greatly affecting the machine's filtration performance. The design of feeding holes, filtering channels, and water discharge channels varies based on the material used. Our fiber plates, crafted from imported TPE elastomer and high-strength PP, offer the flexibility of rubber and the toughness of polypropylene, ensuring airtightness during pressing. Adhering to EU standards, these high-pressure PP membrane filter plates can endure a maximum membrane inflation pressure of 4.0Mpa, representing cutting-edge technology worldwide.



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