



## **PACIFIC PRESS CO.**

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# **General Specification 1200mm Recessed Plate Filter Press Capacity 60.0 thru 150.0 Cubic Feet**

## **1.0 General Specifications:**

Model:	P12L (H) Series
Plate size:	1,225 mm x 1,225 mm (48.25" x 48.25")
Capacity:	1.31 cu. ft. (37.1 cu. m.) per plate (100 psig)
Filtration surface area:	26.66 sq. ft. (2.48 cu. m.) (100 psig)
Cake thickness:	32 mm (1-1/4 inch)
Pressure rating:	100 psig (7 bar) or 225 psig (15 bar)
Filter Plates:	Polypropylene recessed chamber
Weight of filter plate:	109 lbs. (49.7 kg.) 100 psig 129 lbs. (58.3 kg.) 225 psig
Filter Cloth:	Polypropylene twill weave

## **2.0 Introduction:**

All filter presses are provided for solids dewatering. The five components that make up a filter press assembly are: Frame Assembly, Filter Plate Pack, Air Purge Piping System, Hydraulic System and the Controls.

## **3.0 Structural Frame:**

The structural frame assembly consists of a fixed head end, movable follower, tail end assembly and sidebar rails. The frame shall be adequate to support its own weight, the weight of the filter plates and the entire assembly completely filled with sludge and pressurized for dewatering. The maximum operating pressure is 100 psig (225psig).

1. **Fixed Head End:** The fixed end shall be a solid carbon steel solid plate capable of sustaining all strains and stresses during operation. The structural steel front face is machined flat to locate the front drainage plate. There are machined notches in both sides of the head weldment, which allow for a precision fit of the sidebars. The fixed plate shall have a center feed connection and four filtrate discharge connections. All piping nipples are threaded directly into the attached polypropylene head plate.



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**3.0 Structural Frame (cont'd):**

2. Tail End: The tail assembly shall be constructed out of solid carbon steel plate with a gusseted design to provide adequate distribution of static loads. The tail section is the mounting base for the hydraulic cylinder(s). There are machined notches in both sides of the tail weldment, which allows for a precision fit of the sidebars. The tail section also incorporates a space for the hydraulic cylinder, which is bolted to the tail section weldment. The tail weldment is welded to the tail section. The entire hydraulic assembly, including pump and reservoir are located in the Parker Electric Hydraulic Pack.
3. Follower: The follower shall be constructed of carbon steel with a solid plate design built to withstand system operating pressure. The follower shall be hung from the side rails by high density slides. The cylinder is attached to the follower. The front and rear face of the follower shall be machined flat to ensure parallel surfaces for the plate pack to close with.
4. Siderails: The dual sidebar rails shall be supported at each end between the head and tail sections. The fixed stands shall be furnished with bases of sufficient area to provide acceptable load distribution to the filter press foundation. Each siderail is capped with a polished 304 Stainless Steel rail cover. This allows the filter pack to move easily on the siderail surface.



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**4.0 Hydraulic Closure:**

The filter press shall have an electric hydraulic automatic closure. This closure will maintain the sealing pressure required for operation up to the maximum pressure rating. The hydraulic closure will provide a constant pressure throughout the dewatering cycle to compensate for any pressure or temperature fluctuations that may expand or contract the filter plates.

1. Hydraulic Cylinder: The 8" hydraulic cylinder(s), mounted in the tail section, provides the closure force to seal the filter plates (Two required for 225 psig). The hydraulic cylinder is enclosed within the Tail Frame. All hydraulic fittings, piping and supports are provided for connection to the high pressure Parker Electric Hydraulic Pack.
2. Hydraulic Pressurization Unit: The hydraulic fittings, piping, tank, pump and relief valve are assembled in the Parker Electric Hydraulic Pack. All hydraulic components, on the pressurization side, are rated for 3,600 psig maximum operating pressure. The hydraulic unit shall include the hydraulic pump, and all necessary components to pressurize the cylinders. The pump will provide a minimum hydraulic pressure of 3,100 psig on filter press closure.

**5.0 Controls operation:**

A control panel switch initiates control of the cylinder movement open and closed. The hydraulic pump is operated by electric power.

**6.0 Filter Plates:**

The filter plates shall be recessed chamber gasketed or non-gasketed design (depending on which is selected). The plates will operate and provide a seal up to 100 (225) psig (176° F max). The filter plates are to be of a one-piece molded construction, with replaceable bolt-on handles. Each plate shall have a 4 inch diameter, centrally located, sludge feed opening and four 2 inch corner filtrate discharge openings, located in the four plate corners. The plates are of the "washing" configuration, such that the air purge inlet enters at top right side of the cake chamber and exits the adjacent plate on the bottom left side of the chamber.



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**7.0 Filter Cloths:**

One set of Multifilament polypropylene filter cloths are included with each filter press. The cloths are constructed of a twill weave with a 3-5 CFM rating. Each cloth shall have a cloth center barrel neck connector. Gasketed filter cloths shall be installed in grooves machined in the filter plates. Non-gasketed filter cloths shall cover the entire plate on both sides. The strength of the cloth is durable under normal operation and will withstand power washing and acid cleaning.

**8.0 Air Purge Piping:**

Piping and valves necessary for all phases of the filtration and air purge cycles shall be provided for the filter press. The standard air purge/discharge header piping is configured to accommodate a precoat cycle. Each discharge outlet coming from the head section has an isolation valve (four total). This arrangement allows the two bottom outlets to be closed off for proper precoat procedures. A separate air purge valve allows the flow of air to be turned on and off as necessary. Also included is the feed (inlet) valve. This configuration allows the air purge to be fed through the corner outlet (upper right) of the press and discharge (lower left) out the bottom. Discharge piping and valves are standardly constructed of Schedule 80 PVC (100 psig) and are available in other materials. In addition, the valves are to be Tru-Union type ball valves, and can be manual or automatically operated.

**9.0 Utilities:**

The following are the utilities' requirements for the filter press:

1. Air Purge Requirement: 2.5 CFM per cubic foot of filter press' capacity.
2. Hydraulic Operation: 15 amps at 460 v.
3. Process pump (if supplied): 100 to 120 CFM at 100 psig.



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**10.0 Accessories:**

The following accessories are available for the Model P12L (H) series of presses are:

1. Semi-Automatic Plate Shifter
2. Filter Feed Pump
3. Automatic Pump Control
4. Sludge Carts
5. Platforms
6. Bombay Doors
7. Conveyers

Please see the applicable specification for the accessory desired.

**11.0 Application Information:**

The following application information is required to allow proper sizing of the filter press and the selection of materials for press fabrication:

1. Batch size, days to process and number of cycles per day.
2. Flow Rate expected.
3. Pressure and temperature.
4. Slurry contents.
5. Slurry specific gravity.
6. Percent solids by weight. .
7. Slurry pH.
8. Density of cake or dry solids.
9. Per cent moisture desired in cake.
10. Is precoat or bodyfeed required?