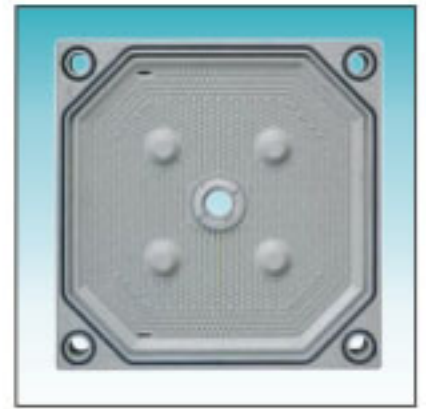
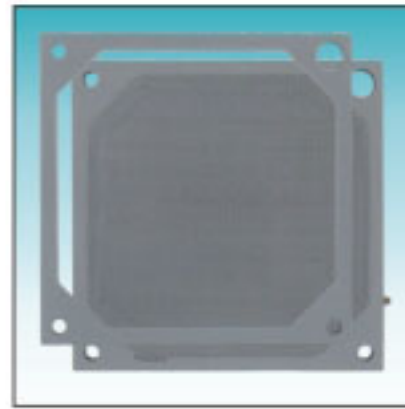
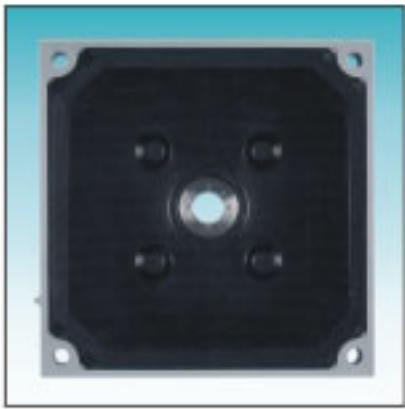


# A Leader in Filtration Technology



CAPITALIZE YOUR TRUST WITH US FOR FILTRATION

 **PANAMA**  
ENGINEERING COMPANY

## PROFILE

PANAMA ENGINEERING COMPANY hails from 'NMP" group one of the oldest and largest manufacturer of Filter Presses in India . The group started its activities in the late 1960s with manufacture of wooden filter plates & frames for chemicals and allied industries. In 1975 the group had an engineering workshop for manufacturing filter press structure and then gradually moved on to polypropylene plates & frames and Automatic filter presses. Today group enjoys best reputation for their quality products.

M/S. PANAMA ENGINEERING COMPANY has over the years maintained high standard of quality and workmanship for which 'NMP' group is known all these years. The company is equipped with the most modern manufacturing facilities like Engineering workshop, Plastic moulding unit for manufacture of Polypropylene chamber conventional filter presses, Polypropylene plates, C.I. & S.S. presses. The company has highly skilled and experienced workforce to understand the exact requirement of customers from varied industries such as Dyes, Chemicals, Ceramics, Viscose, Foods, Pharmaceutical, Minerals & Effluent / De-waters applications, At PANAMA ENGINEERING COMPANY our engineers constantly evaluate difficulties that customers face during the filtration and arrive of new solutions, improvising on Filter Press design and suggesting how to get most efficient filtration in the shortest possible time. Thus at PANAMA ENGINEERING COMPANY the constant interaction with our valued customers is continues process. In terms of quality control we follow stringent procedures right from A to Z. No wonder we have almost zero complain from any of our customer, since last few years.

Our products need minimum maintenance and last long.

for any query please contact us.

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**A one from the  
oldest and largest  
manufacturer of  
Filter Presses  
in India.**



**The customer  
service is not  
a cliché but  
essential part of  
our philosophy.**



**Capacity  
to undertake  
any large order for  
Filter Presses and  
deliver them within  
stipulated schedule.**



## BASIC DESCRIPTION OF FILTER PRESS

Filter presses is basically a device to separate solid from liquid under pressure and consisting of two fixed head pieces and a moveable pressure piece with chambers formed by plates and frames or recessed chamber plates in between the fixed head piece and the movable. Pressure piece is operated by a mechanical or a hydraulic closing device.










The plates are covered with filter cloths which serve as gaskets at the sealing rims and filter media in the areas of the recessed square surface. With the filter press closed, a number of cavities are formed in which the slurry to be filtered is pumped.



The filter press is fed through the inlet flange mounted at the head piece under pressure. The filtrate is either drained along a channel system formed by appropriate cored holes in the plate or through individual taps at each of the plates. When the filter cavities have been filled with the remaining solids, the amount of filtrate decreases up to predetermined stage. This may be followed by washing. Washing should be continued till the sample of wash water indicate that all mother liquor has been removed. The discharge of the solids is released by opening the closing device and by moving the pressure piece and plates. Distance of the opening corresponds to the opening stroke of the closing device and pressure piece.

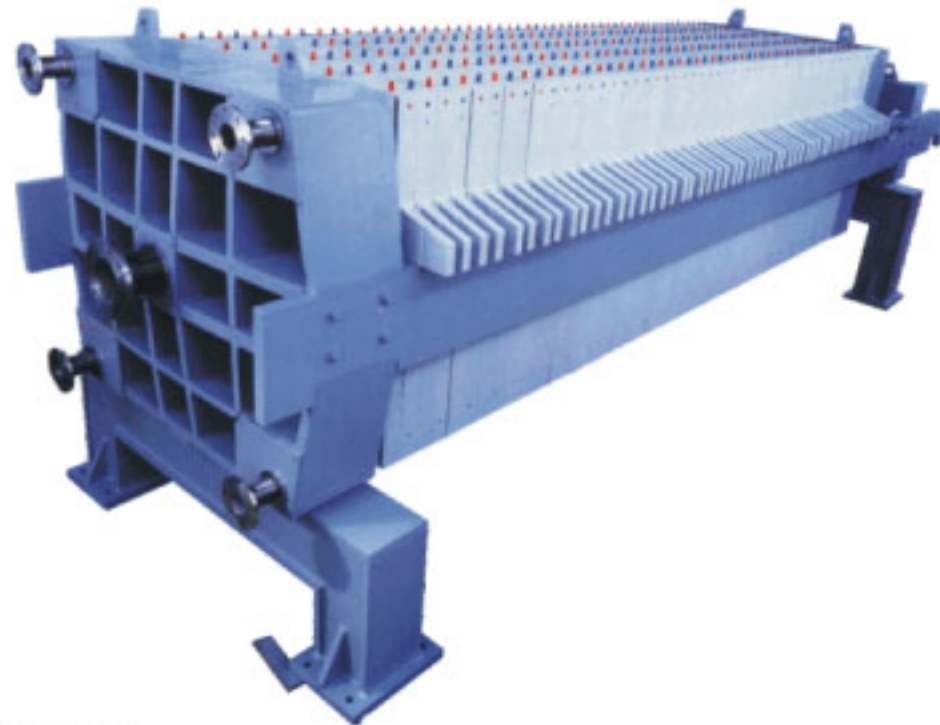
Compared to other filtering equipments, the filter press holds more solids and have more filtering area with washing conveniences. The principle of all filter presses is basses on the fact that the pressure which is necessary for filtration is evenly distributed.

## APPLICATION

- |                       |   |   |   |
|-----------------------|---|---|---|
| 1. DYESTUFF           | - | Pigments, Dyestuffs and Intermediates.  |  |
| 2. DYES & CHEMICALS   | - | Organic & Inorganic chemicals, Activated clay, Silica, Pesticides, Starch.                  |  |
| 3. CERAMIC & CLAY     | - | De-watering of kaolin clay, Porcelain insulators and ceramic bulk.                          |  |
| 4. VISCOSE            | - | Viscose, Staple fiber, Acrylic fiber.   |  |
| 5. FOOD               | - | Production of soup, Sugar, Vegetable oil, Edible oil, Paler oil, Fruit juice, Distilleries. |  |
| 6. MINERALS           | - | Filtration of corrosive metallic salt solution e.g. Nickle, Copper, Lead, Cobalt.           |  |
| 7. PHARMACUTICAL      | - | Antibiotic, Syrup, Bulk drugs and Intermediates.  |  |
| 8. EFFLUENT TREATMENT | - | Environment protection.   |  |
| 9. TEXTILE INDUSTRIES | - | Textile and process house waste.  |  |



## RANGE OF FILTER PRESSES



### RECESSED PLATE FILTER PRESS

In the recessed type of press the recess is formed by a raised rim which stands above the drainage surface and the thickness of cake formed is therefore twice the depth of the recess of individual plates. The slurry to be filtered is normally fed into the filter press through a central hole that feeds each chamber the same time. The solids are retained within the recessed hollow chamber and the filtrate passes through the media into an internal manifold or away through drain cocks or directional bibs.

### PLATE AND FRAME FILTER PRESS

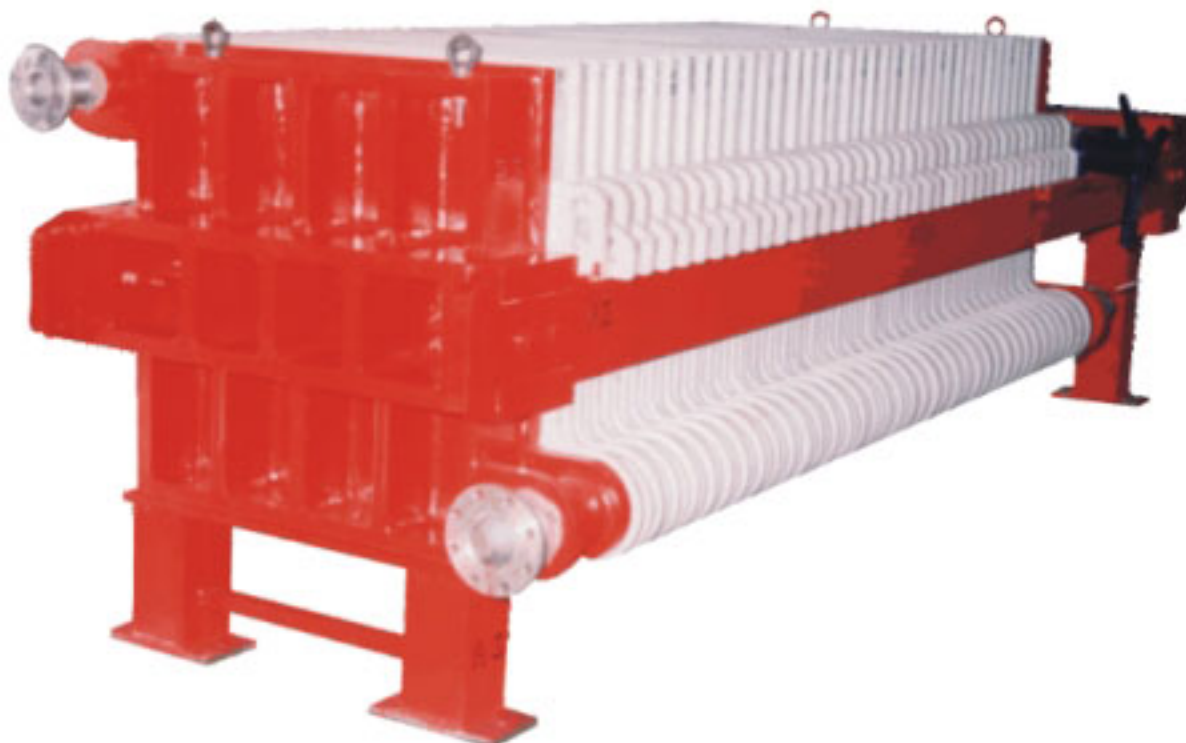
In the plate and frame type of press the chambers are formed by the use of a hollow frame which is placed between two plates whose rim or joint surfaces are nearly flush with their drainage surfaces. The slurry to be filtered is fed into the press through a manifold formed by parts in each plate and frame and delivered into each frame by suitable connecting ports. The solids are retained within the media into a collection manifold by way of additional ports in the plates or through drain cocks or directional bibs.

### MEMBRANE PLATE FILTER PRESS

The membrane systems has proved to be useful in certain applications, typical of which filtration of dyes, pigments and yeast slurries. Further information given here on page 6.

### VISCOSE FILTER PRESS

P. P. Plate and frame, specially designed for the filtration of Viscose, Acrylic fibre, Staples fibre, etc.



36" x 38" P.P. Plate and Frame.

## AUTOMATIC FILTER PRESSES

In conventional filter presses the entire filtration operation is mainly manual and sometime messy. There was thus always a need for automization in its working to cut operational cost of long run. PANAMA ENGINEERING COMPANY developed technology which can take care of most of the filter press operations.

M/s. PANAMA ENGINEERING offers following features in automatic filter presses with preset logic control (PLC).

- 1) Closing & opening of filter presses.
- 2) Starting & stopping of feed pump once the filtration is over or chambers are full.
- 3) The starting and stopping of wash pump of predetermined timings.
- 4) Airation of cake to start and stop.
- 5) Opening of press and removal of cake by plates shaking mechanism.
- 6) Again closing of filter press and starting of new filtration cycle.

M/s. PANAMA ENGINEERING is fully geared to study and understand your requirement for automatic filter presses and offer you a proper and most cost effective solution.



The smooth working of number of such automatic filter press supplied by us since last several years validate our skill and technology in this area.

### AVAILABLE SIZES

470 X 470 mm TO 1500 X 1500mm

### EXTRA ATTACHMENT AND OPTIONAL FEATURES

We offer Filter Press with P.P. or S.S. drip cum cake collection tray (bomb door) operated by Hydraulic cylinder OR PLC.

Filtrate Gutter. Trolley, Portly or Fully S.S. clodding on body, Conveyour Belt System.

We also offer Auto Plate Shifter Device, Plate Shaking Device with Can-Shaft attachment, PLC system, Auto Resetting System in Power Pack unit.

### MATERIAL OF CONSTRUCTION

Cast Iron (C.I.)

Mild Steel (M.S.)

Stainless Steel (S.S.)



## FULL RANGE OF FILTER PLATES

### FULL RANGE OF P. P. PLATES

Recessed Chamber Plate

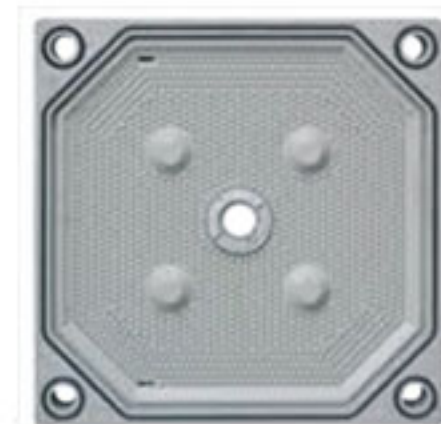
Gasketed Plate

Plate & Frame Type

Membrane and Mix-Pack

### DESIGN

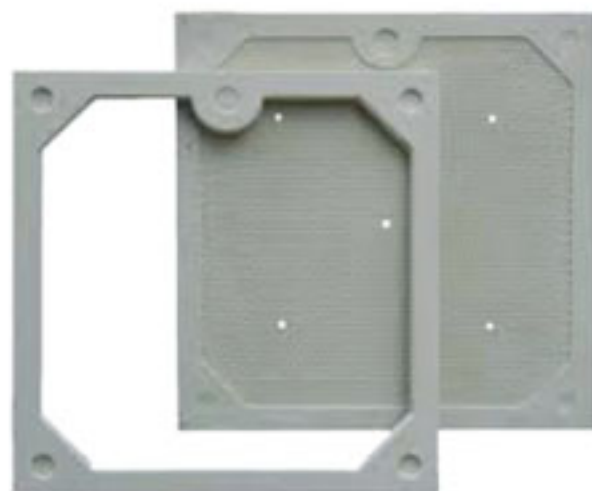
Centre Feed, Top Feed & Corner Feed. Suitable for 5 kg/cm<sup>2</sup> to 16 kg/cm<sup>2</sup>



### CHAMBER FILTER PLATES

The recess chamber filter elements are the most widely used for any filtration processes with normal dry solid filtration demands. They are available in both gasket and non-gasketed style, in sizes that ranges from 470mm to 1500mm. They are manufactured in polypropylene for superior corrosion resistance and long service life.

Gasketed filter plates allow less chance of leakage than non-gasketed type of plate due to an o-ring seal around the Chamber and the filtrate pots.



### PLATE AND FRAME

Plates and Frames are made of light, hygienic, chemical resistance polypropylene. They are easy to handle and practically maintenance free. Plates and frames are uniquely suited for basic filtration processes. They have been proven reliable and efficient in chemical processes, the beverage industries, biochemical and pharmaceutical industries. The sizes are from 470 mm to 1500 mm. Special design for Viscose, Acrylic fiber & Staples fiber of size 500 x 500 mm, 800 x 800 mm & 920 x 980 mm.

### MEMBRANE PLATES

PANAMA ENGINEERING is pleased to offer you Membrane plates, the latest advancement in solid liquid separation. The unique advantages of Membrane plates over conventional chamber or recessed plates are

- 1) Reduction in filtration, washing and discharge times.
- 2) Reduction of wash liquid consumption due to more homogenous cake.
- 3) More drier cake.
- 4) Better product quality (filter cake) as more solubles are squeezed out.
- 5) Drier cake means saving in energy cost.
- 6) Less moisture content in cake means disposal of cake becomes easier.
- 7) The drying of cake by compressed air may not be necessary.
- 8) Increased uniformity of de-watering and washing of filter cake.

What is Membrane plates ?

The membrane is moulded from special elastomer and one such membrane is usually either side of the body plate which is of Polypropylene. Membrane plates made from replaceable Membrane of EPDM and food grade elastomer also can be provided. Air or water at high pressure sometime upto 16 kg. cm<sup>2</sup> is passed between the core plate and membrane causing Membranes to inflate thereby squeezing the cake. The Filter Press can have all the membrane plates or combination of membrane plates and PP Recessed plates (Mix-Pack). The second option (mix pack) is most economical as it saves capital cost.





# FILTRATION AREA & VOLUME CHART

## Chamber Filter Plate Data

Size	Cake Thickness							
	Filtration Area Mtr. <sup>2</sup>				Chamber Volume Ltrs			
	25 mm	32 mm	40 mm	50 mm	25 mm	32 mm	40 mm	50 mm
470 mm	0.32	0.34	0.26	---	3.6	4.7	5.9	---
500 mm	0.36	0.38	0.41	---	4.1	5.4	6.8	---
610 mm	0.54	0.58	0.61	---	5.9	8.1	10.7	---
762 mm	---	---	---	1.10	---	---	20.2	25.3
800 mm	0.96	1.00	1.04	---	11.3	14.7	18.6	---
915 mm	1.32	1.33	1.35	1.37	16.9	21.6	27.0	33.8
1000 mm	1.56	1.60	1.64	1.70	18.5	24.2	30.8	39.1
1100 mm	1.86	1.95	2.01	2.07	22.6	28.2	34.9	42.9
1200 mm	2.23	2.30	2.38	2.48	24.6	32.6	41.8	50.4
1300 mm	2.62	2.69	2.77	2.87	29.3	38.8	50.1	63.4
1500 mm	3.57	3.65	3.74	3.85	41.3	54.1	68.7	87.3

## Filter Plate and Frame Data

Size	Cake Thickness							
	Filtration Area Mtr. <sup>2</sup>				Chamber Volume Ltrs			
	25 mm	32 mm	40 mm	50 mm	25 mm	32 mm	40 mm	50 mm
470 mm	0.25	0.25	0.25	0.25	6.3	8.0	10.0	12.5
610 mm	0.48	0.48	0.48	0.48	12.1	15.5	19.4	24.2
915 mm	1.19	1.19	1.19	1.19	14.9	19.1	23.8	29.8
1000 mm	1.91	1.91	1.91	1.91	24.6	31.5	39.4	49.3
1200 mm	2.28	2.28	2.28	2.28	28.5	36.5	45.6	57.0
1500 mm (56")	2.62	2.62	2.62	2.62	32.9	42.1	52.6	65.7

## Membrane Filter Plate Data

Size	Cake Thickness							
	Filtration Area Mtr. <sup>2</sup>				Chamber Volume Ltrs			
	25 mm	32 mm	40 mm	50 mm	25 mm	32 mm	40 mm	50 mm
470 mm	0.28	0.28	0.28	0.28	2.4	3.32	3.88	4.61
630 mm	0.54	0.54	0.54	0.54	6.1	7.4	9.0	10.9
800 mm	0.98	0.98	0.98	0.98	10.4	12.4	14.9	17.8
1000 mm	1.56	1.56	1.56	1.56	17.5	21.6	26.4	32.2
1200 mm	2.29	2.29	2.29	2.29	26.3	32.6	40.1	49.1
1300 mm	2.74	2.74	2.74	2.74	31.6	39.4	48.6	59.7
1500 mm	3.65	3.65	3.65	3.65	42.9	53.8	66.5	82.0
1.5x2.0 mtr.	4.78	4.78	4.78	4.78	53.6	67.0	82.7	101.8

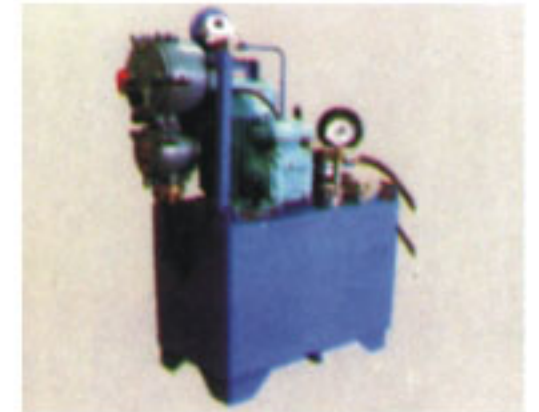
## ACCESSORIES

### 1. Hydraulic cylinder



Double Acting chrome-plated.  
Pressure-upto 325 Kg./Cm<sup>2</sup>  
Stroke-150 to 800 mm and  
on request upto 3000 mm  
Capacity-10 Tons to 300 Tons

### 2. Power Pack



Power Pack consists of high pressure radial plunger pump. Hand operated Directional Control Valve. Solenoid Valve, Pilot operated check valve, Relief valve, Oil Filter, Pressure guage, Electric Motor. Working Pressure : upto 325 Kg/Cm<sup>2</sup>  
Design for Flame - proof & Non-flame proof area.

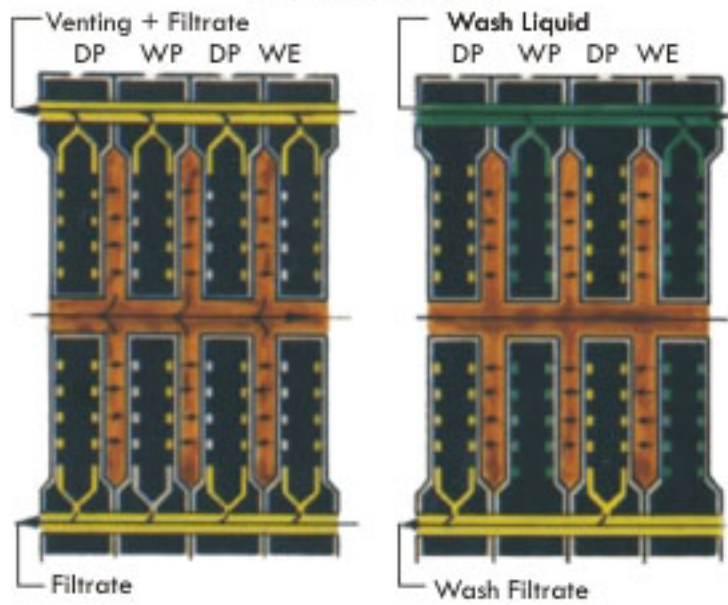
3. PANAMA Products provides a wide variety of accessories to meet filtration needs :



- P.P. spigot and lever type
- spigot
- P.P. cloth cap & pins
- P.P. Handles, Nozzles
- Gasket
- Filter cloth



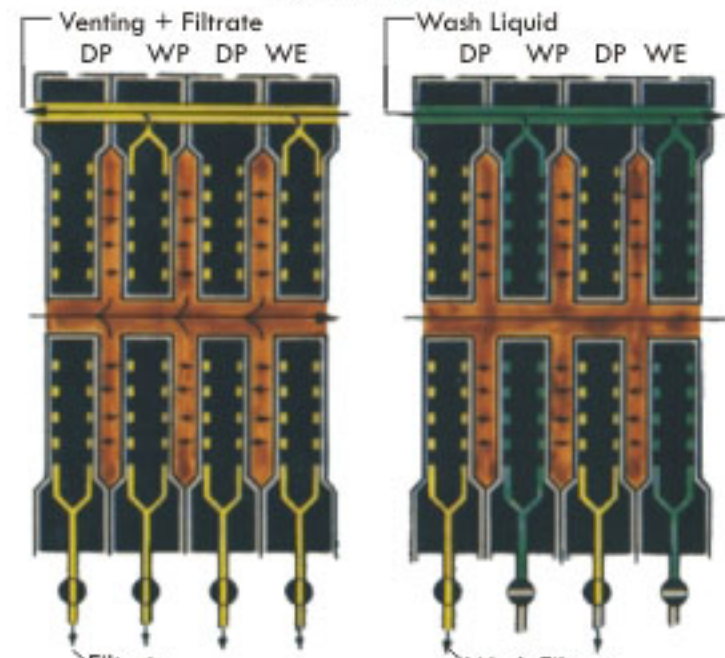
**CLOSED DESIGN**



FILTRATION

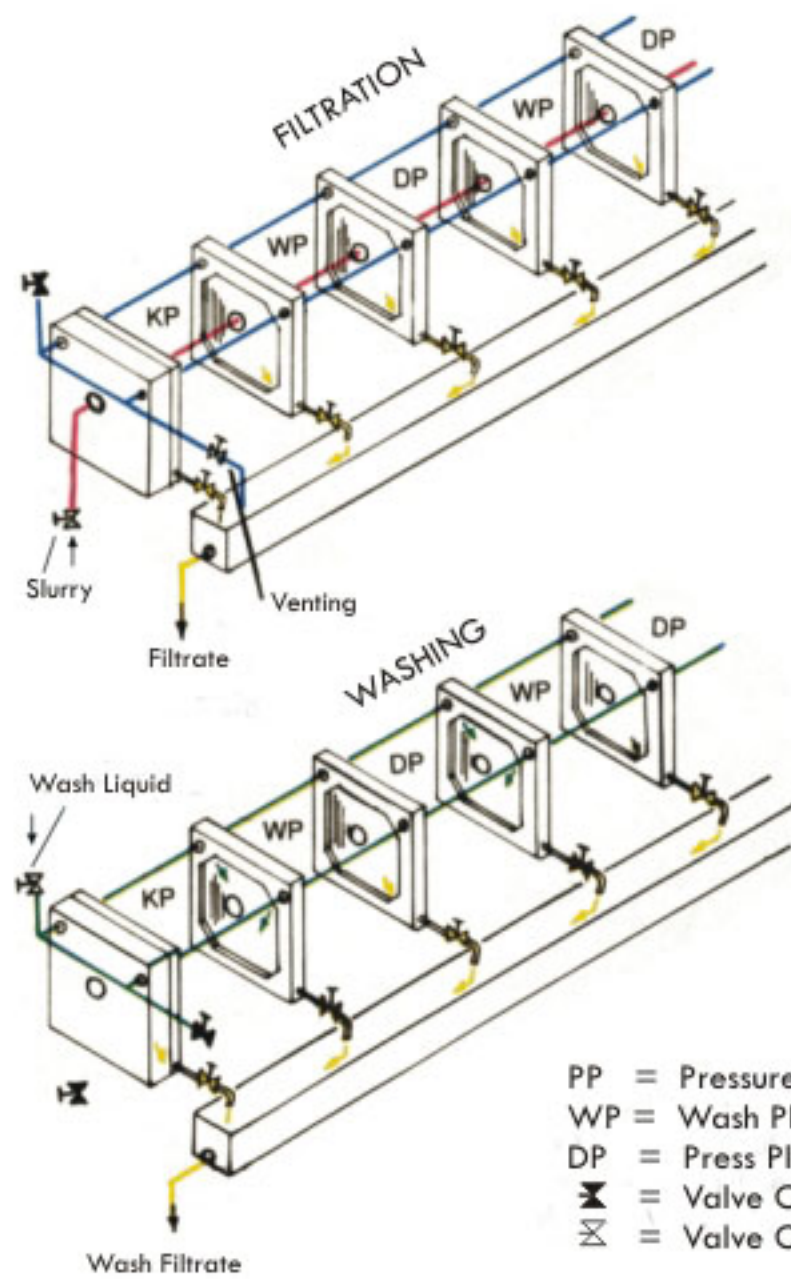
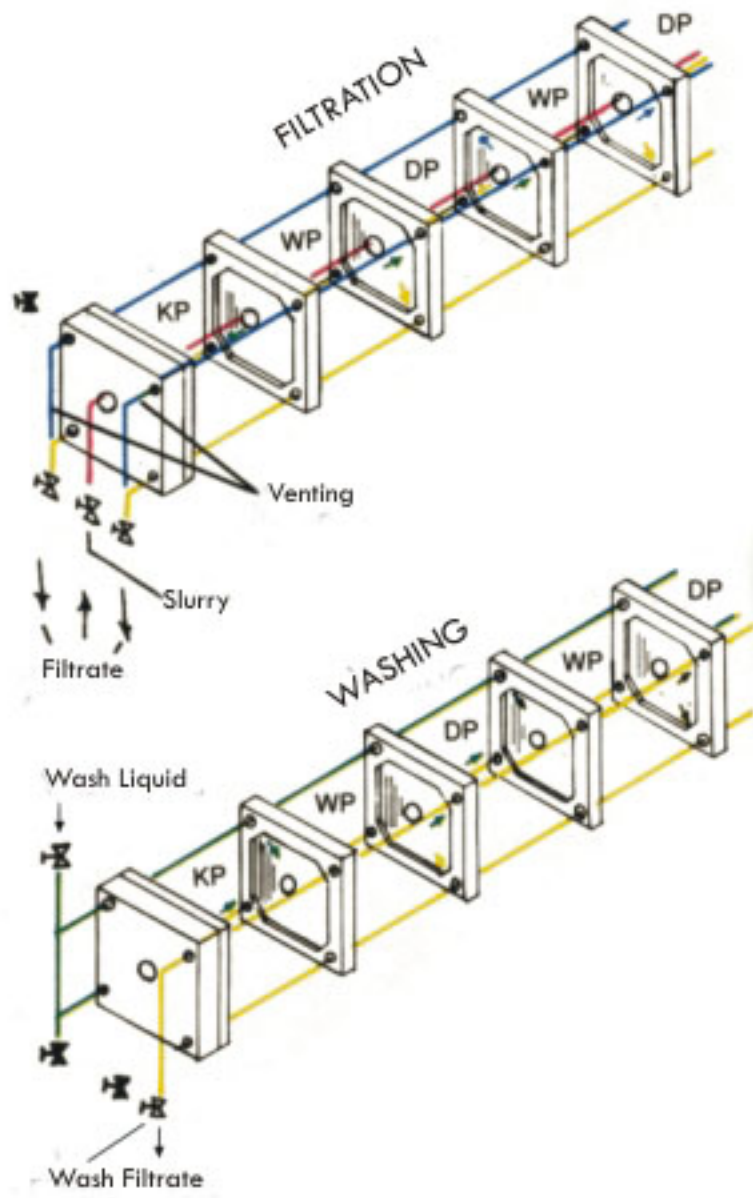
WASHING

**OPEN DESIGN**



FILTRATION

WASHING



- PP = Pressure Plate
- WP = Wash Plate
- DP = Press Plate
- ⊗ = Valve Closed
- ⊘ = Valve Open

**panama**  
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