PMI-Technology Sdn Bhd

YOUR SOLUTION PARTNER FOR SOLID/LIQUID FILTRATION TECHNOLOGY

# Filter Presses

*One of our manufacturing plants in Ipoh, Malaysia*

PMI was established in Malaysia in 1986, engaged in the manufacturing and distribution of filter presses primarily for the edible oil industry. As the company expanded, PMI provided technical support to customers in the region for palm oil processing as well as in other applications such as in environmental, food industry, chemicals, industrial minerals, mining and a wide range of other applications.

In the past few decades, the experience and expertise of PMI's management, engineers and skilled staff has grown the company's business significantly.

Pressure leaf filters were added to PMI's product range and the company further diversified into other industrial equipment used in the processing industry, including agitators and various industrial steel works such as pressure vessels and tanks.

Today, PMI has effectively established itself as a credible and reputable player in the solid liquid filtration business, specialising in three particular areas: Filtration Technology, Mixing Technology and Steel Works.

As a leading global manufacturer of filtration equipment, PMI supplies its worldwide clientele with top-quality innovative products and services. Together with its customers, PMI has successfully developed and provided efficient solutions to enhance their business operations, and provide effective solutions to increase productivity and efficiency.

With decades of sound experience behind us, we are well able to provide our clients with the best possible solutions in dealing with a wide range of filtration requirements as well as tailoring specific solutions to suit different applications.

The Filter Presses that we offer include:  Plate & Frame Filter Press,  Recessed Chamber Filter Press and Membrane Filter Press - and our latest innovation, the Quick Discharge Filter (QDF) design, which allows for extremely quick opening of the filter elements.

# PMI FILTER PRESSES

PMI Filter Presses are pressure filters for solid-liquid separation, and conform to international standards.

They consist of modular components, and the basic structure is provided with all the elements required for the fitting of any accessories. Thus, for each individual installation, the best combination can be chosen. The filter can also be adapted at any time to changed service conditions.

Our range comprises industrial sizes of 500, 630, 800, 1000, 1200, 1500, 1500/2000 and 2000 mm square plate size. Depending on the plate size and the required filter volume, the filter skeletons have round side bars or sectional. Even with a greater number of chambers, the skeletons are designed in such a way that the foundations are not subject to any transverse forces.

The Filter Presses are equipped with automatically-controlled hydraulic valves, which make it possible to use them in processes which are controlled by a process computer. Depending on the application, the valves can be activated pneumatically, electrically, hydraulically and/or manually. We also offer mechanical, manually-operated hydraulic or electro-hydraulic closing devices for different degrees of mechanisation.

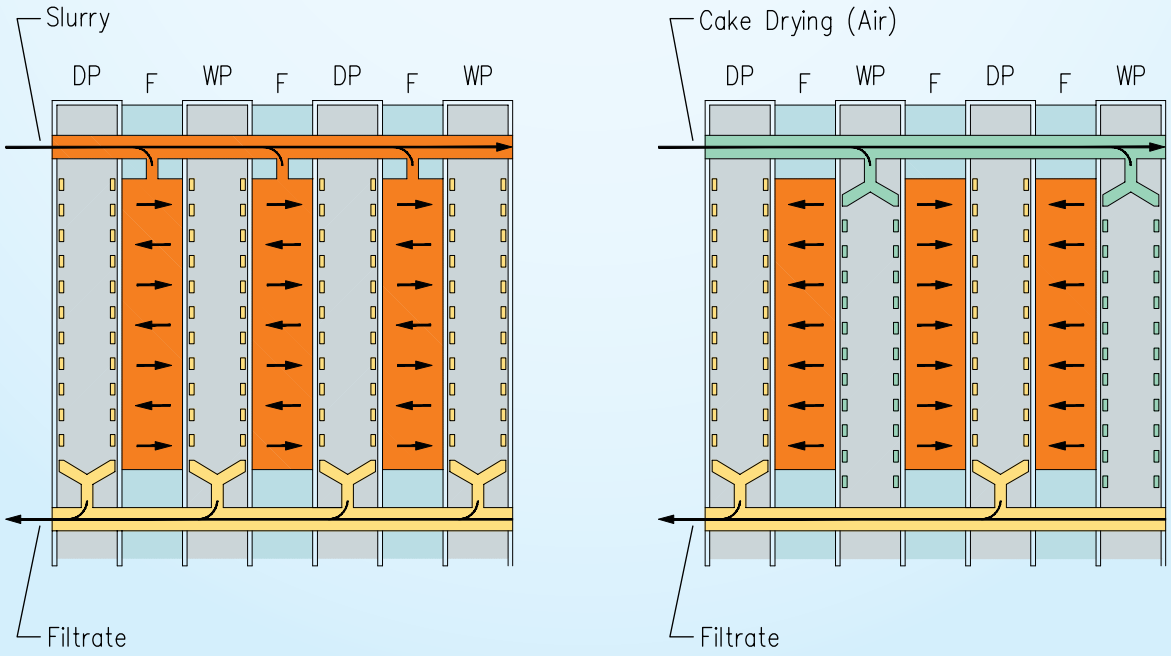
# PLATE AND FRAME FILTER PRESSES

PMI has had years of experience manufacturing the Plate and Frame Filter Presses with polypropylene plates. With the knowledge gained, we have developed our own cast silumin plates with or without cast-in heating or cooling coils.

The Plate and Frame Filter Presses can be adapted to widely differing practical applications by varying the size, the frame thickness and the filter volume. Filter elements are either made of paper, cardboard or technical textile. These elements are hung over the filter plates to enable quick-changing of the filter elements.

Our Plate and Frame Filter Presses are also available in explosion-proof design.

## Plate and Frame – Closed Design



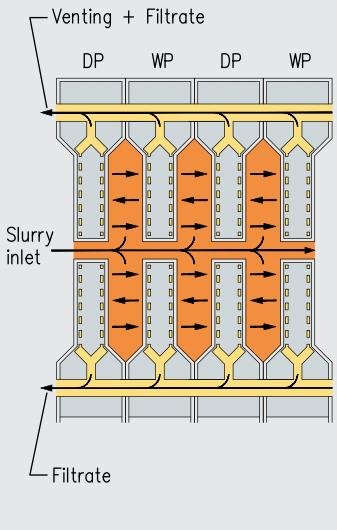
# RECESSED PLATE FILTER PRESSES

PMI Recessed Plate Filter Presses can be used in a wide range of applications due to the numerous variations in the set of filter plates. A great number of combinations are possible depending on size, chamber depth, filtration area and filter volume, resulting in optimum filter lay-outs for any application.

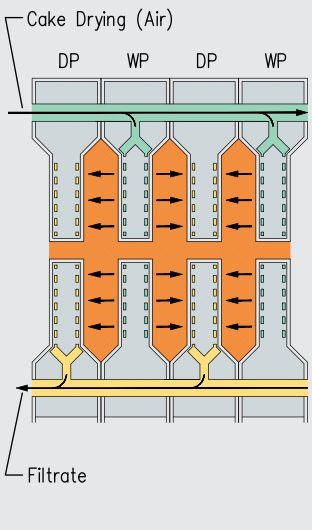
The installation of our plate shifting system, together with our automatic filter cloth cleaning system is an important feature for the use of Recessed Plate Filter Presses in automated process operations.

Either over-hung filter cloths which are fixed on the slurry inlet, or put-through cloths are used.

## Recessed plate Filter – Closed Design

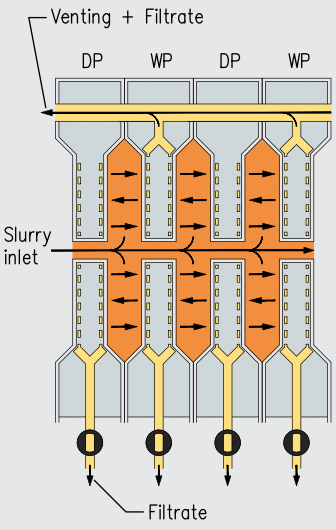



FILTRATION

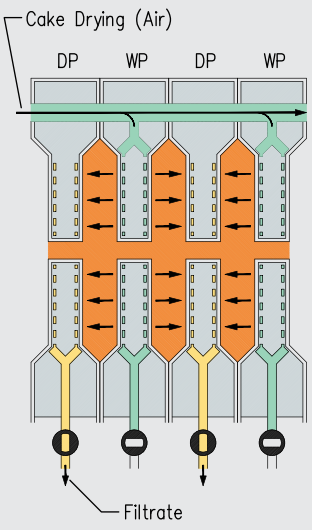



CAKE DRYING

## Recessed plate Filter – Open Design




FILTRATION



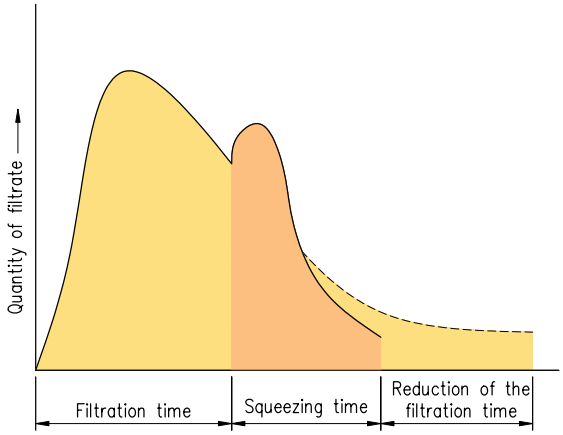

CAKE DRYING

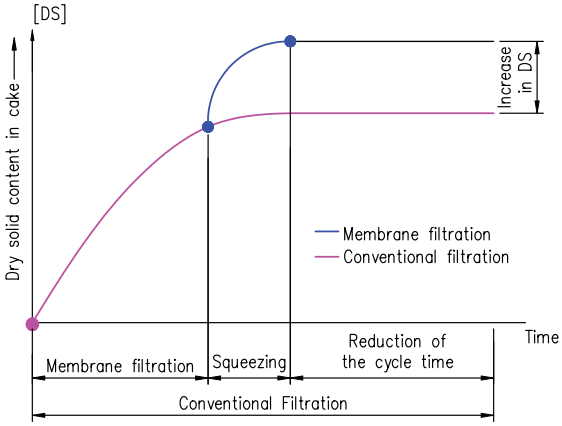
# MEMBRANE FILTER PRESS

PMI Membrane Filter Presses have been developed from the technology of Recessed Plate Filter Presses. The plates are provided with a flexible filter face on both sides made of elastomer or polymer.

The dewatering of the filter cake is achieved by initiating these filter faces. The pressure medium used is either compressed air or liquid.

## Feeding and Filtration Characteristics Compared with Conventional Filter Presses



Due to the squeezing effect, our Membrane Filter Presses offer the following additional advantages:

## REDUCTION in:

- filtration, washing and discharge times
- wash liquid consumption, due to a more homogenous filter cake structure
- the residual moisture of the filter cake

## IMPROVEMENT in:

- flexibility for varying product compositions
- product purity (filter cake) by reduction of the percentage of solubles
- cake release and automatic cake discharge out of the filter press
- uniformity of dewatering and washing of the filter cake

## SAVINGS in:

- time and cost for downstream thermal drying processes
- cost for transport and storage by reduction of the cake volume and increase of the solids concentration
- use of compressed air consumption as blow drying is minimised
- use of low pressure feeding pumps instead of more expensive high pressure pumps

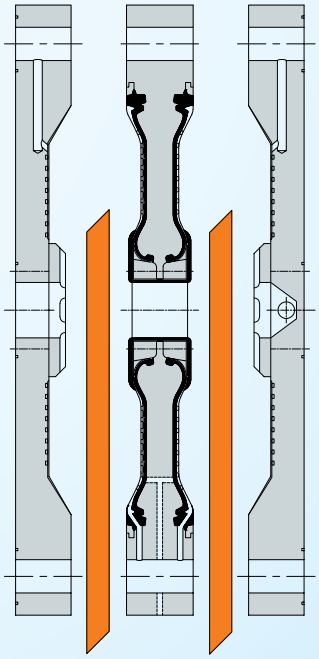
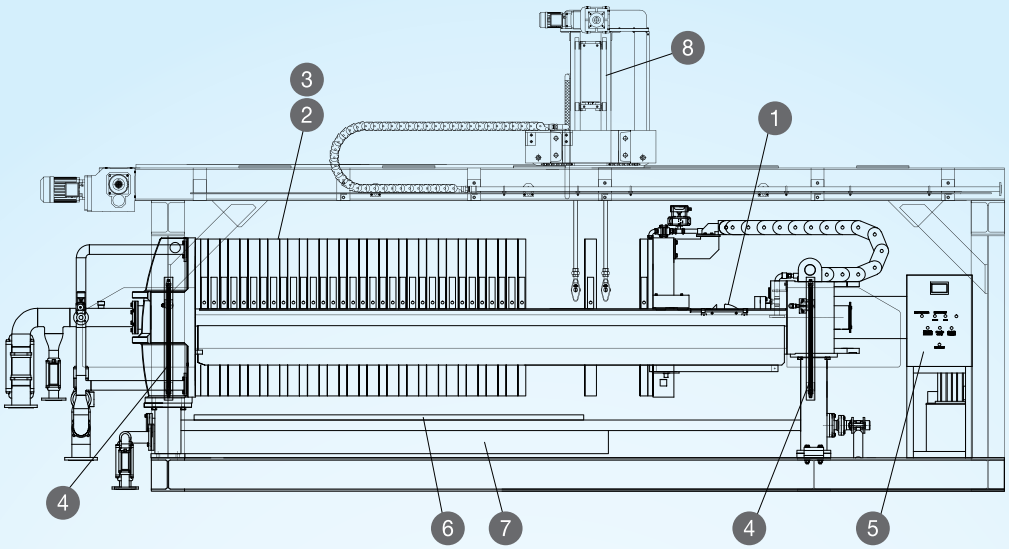


*Illustration of the cake discharge step*




## ACCESSORIES AND OPTIONAL EQUIPMENT

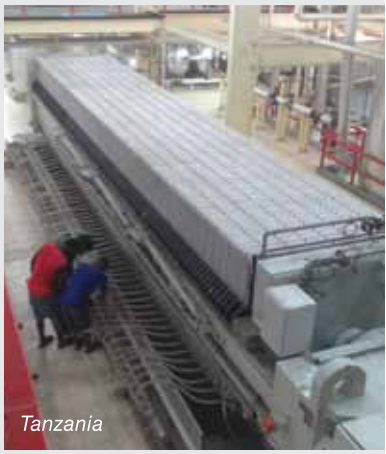
| | |
|---|---|
| 1 **Plate Shifting Device** | Hydro-mechanical shifting of the filter elements by the pair of articulated carriers, which are fixed to two endless chains and which grip the last filter element, displace it towards those already shifted and automatically release it. An interlocking system ensures that the filter elements are shifted one after the other. Alternatively, the Snatch and Latch plate opening system can be adapted to the filter to open the plates in a continuous sequence for non-sticky filter cakes. |
| 2 **Set of Filter Plates** | The parallel recessed filter plates or plates and frames respectively are available in a wide range of materials. The filter plates are designed as pressure or wash plates, with open or closed filtrate discharge. Membrane recessed filter plates are used whenever a lower residual moisture and good washing of the filter cake are required. |
| 3 **Filter Cloths** | Filter cloths are available as simple cloths, straddle cloths, put-through cloths and overhung cloths made of synthetic fibre materials such as polypropylene, polyester, polyamide and a wide range of other synthetic materials. |
| 4 **Safety Light Curtains** | Added to the standard lanyard switch, this automatic device increases the safety, as movement of the plates during opening, closing and plate shifting is stopped immediately the light curtain is interrupted. |
| 5 **Electric Control** | The control of the filter press, the process valves and other accessory devices is alternatively ensured by programmable logic electronic controls, permanently linked electronic controls or relay controls. |
| 6 **Auto Drip Tray** | The slightly inclined drip plates are arranged below the set of plates and guide filtrate leakages into the collecting chute. For cake discharge, they are swiveled downwards and thus form an opening for the cakes which fall out of the chambers. During opening and closing of the filter press, the swivel plates are moved automatically by means of a hydraulic system. |
| 7 **Filtrate Collecting Chute** | This chute serves to collect and guide the filtrate which comes out of individual outlets, when it is necessary to make a visual inspection of the filtrate to check clarity. Combined with swivel plates, the filtrate collecting chute also serves to collect filtrate leakages. |
| 8 **Hydro-Mechanical Filter Cloth Cleaning** | Fully automatic with pressure water unit and spray device, this is integrated into the filter control. The spray pipes are fed by a high-pressure pump and can be shifted vertically and laterally. |

# PMI FILTER PRESSES UNDER PRODUCTION


*PMI Plant 4 in Ipoh*

*Brake, Germany*

*Xiamen, China*



*Tanzania*

PMI develops and builds Filter Presses for customers all over the world.

# FILTER ELEMENTS

PMI Filter Presses are universal in application because of the numerous variations in the set of filter plates. These are made of a variety of materials – polypropylene, cast iron, cast silumin or other cast metal with cast-in heating or cooling coils, closed or open design, as wash and press plates with differing port arrangement, with or without stay bosses.



*Our trademark FILTEX cloths*

Generally, filter cloths are made of synthetic fibres such as polypropylene, polyester, polyamide, PBT and other synthetic materials. These filter cloths can also be made with anti-static properties. The common weaves are in plain, twill and sateen.

# VARIOUS FILTER PARTS

*Frontal piping in stainless steel*

*Continuous plate opening with straddle cloth*

*Hydraulically-operated automatic drip pan*

*Photo electric light curtains and lanyard switch*

*Filter cake chute and hopper*

*High pressure squeeze and filter cloth wash pump*

## PMI offers a wide range of products under its three core business segments:

### Filtration

Filter Presses, Pressure Leaf Filters, Reverse Pulse Filters, Cartridge Filters, Bag Filters, Nutsch Filters, Centri Filters, Tilting Filters, Level Leaf Filters

### Mixing

Agitators, Static Mixers

### Steel Works

Pressure Vessels, Tanks and Silos, Columns, Towers, Dryers, Shell & Tube Heat Exchangers, Condensors, Heaters, Coolers, Reboilers, and General Steel Fabrication & Site Erection Works

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