Food Beverages

Chamber and Membrane Filter Press

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Water Power ®

Water Power Technology Corp.

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Chamber and Membrane Filter Press - Clean System

Design

Filter Press are pressure filter in which a filter package formed by filter plates and filter frames or chamber plates is installed in a stand between a “fixed cover” and a “loose cover”. There elements are plane- parallel to each other and are pressed together by the fixed cover and the loose cover. The fixed cover is connected to the traverse via connecting and tie bars. Together they form the press stand. The filter package is pressed together by the a pressure unit which is incorporated in the traverse and acts on the loose cover.

Between the individual filter plates or chamber plates there are filter cloths which have an outward sealing function under the pressure applied. The unfiltrate is conveyed into the chambers via a pump. The filtrate passes through the filter medium, leaves the filter via internal or external outlet channels and is conveyed further according to its intended usage.

Filtration produces a filter cake, which can be washed if required.

In the membrance filter press every second plates is equipped with an inflatable membrance. After the end of the filtration process the membrance plates are pressurized with compressed air or water and forced against the cake. The cake is thus also drained mechanically and the process accelerated.

Benefits from the use of membrance plates:

- Higher yield, virtually no loss.
- Drier filter cake
- Filtration cycle shortened by appro.50%

Materials

The filter stand is made of nonrust stainless steel; painted steel is also available.

The filter plates are of polypropylene although other materials are also possible as required. The filter cloths are generally also made of polypropylene.

Application and options for use

Filter presses are used in all branches: foodstuffs and drinks, chemistry, pharmaceutical or in the environmental sector.

Filtration with filter aids

As filter aids kieselguhr or perlite are generally added to facilitate filtration.

Precoating

Before the star of actual filtration the filter cloth is coated with a layer of the filter aid. This prevents bleeding and protects the filter cloth from blockage. We recommend the doing unit for precoating and subsequent metered addition of the filter aid to ensure optimum mixing and dosing of necessary quantity of filter aids.

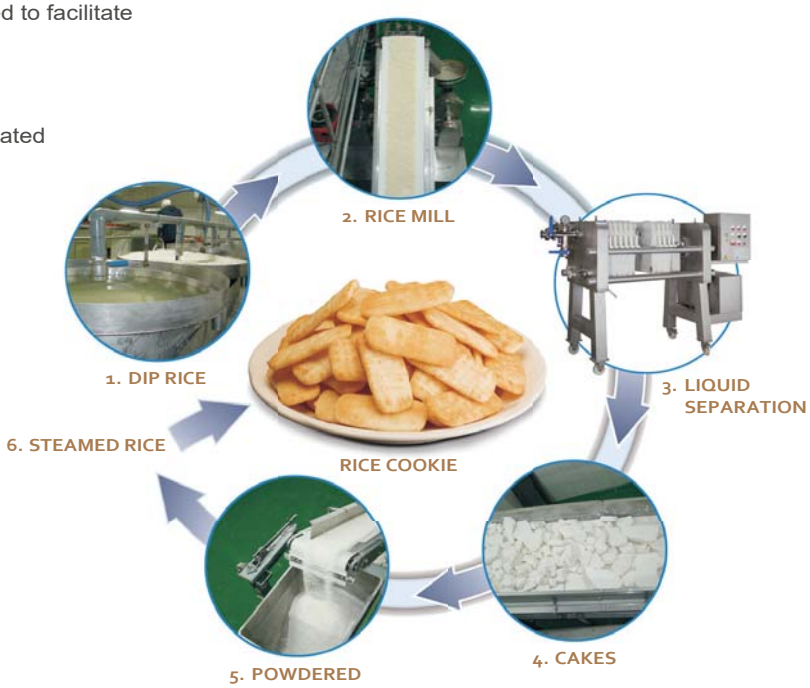
Clean System type

A hermetically sealed filter can be achieved using filter plates equipped with an O-ring rim seal.

The filter cloths have an all-round sealing bead and are attached within the plate.

The patented sealing bead is bead is designed so that no soiling can get behind the sealing bead.

Filters remain clean and aseptic on the outside.



Drainage of solid matter

In the case of products with a high solid matter content this is retained in the chambers of the filter until solid cake has formed.

Washing and drying of filter cake

Substances to be recovered or removed can be washed out from the previously drained solid matter by adding certain solvents. The plates and frames used for this purpose are equipped with special washing channels. The filter cake can be additionally dehydrated using membrance plates followed by compressed air blown through the filter cake.

Model	Filtrate area (m^2)	Plate size (mm)	Plate thickness T (mm)	Quantity N	Capacity (Liter/cycle)
SF300	0.13×(N-1)	300	50	N	1.35×(N-1)
SF500	0.36×(N-1)	500	50	N	4.28×(N-1)
SF630	0.55×(N-1)	630	50	N	7.40×(N-1)
SF800	0.91×(N-1)	800	60	N	15×(N-1)
SF1000	1.56×(N-1)	1000	60	N	25×(N-1)

1.The filter plates and filter clothes are made of high-pressure- and heat-resistant materials.
2.A hygienic-class connector is used.

Depth filter sheets

Model	Filtrate area (m^2)	Plate size (mm)	Plate thickness T (mm)	Quantity N
AF200	0.03×(N-1)	200	10	N
AF400	0.125×(N-1)	400	10	N

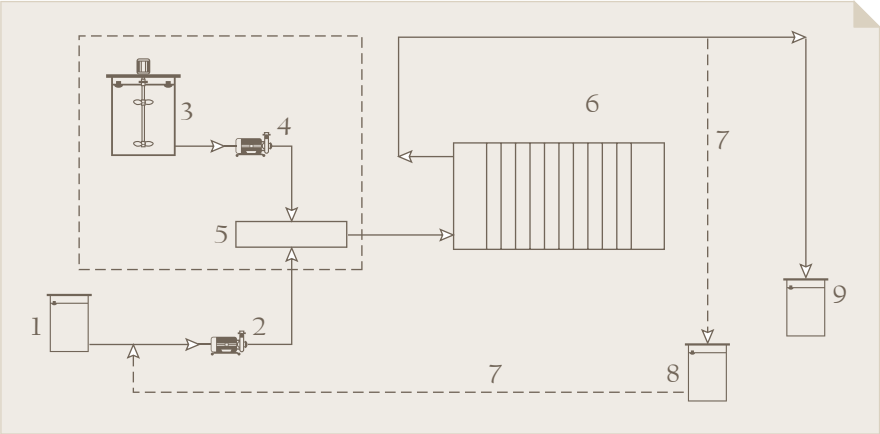
Applications

The broad variety of available porosities allow for their use in wide range of applications.
Porosity grades are available from coarse over fine to germ reducing and germ removing filtration (sterile filtration)
Examples of industries:

- Biotech
- Beverage
- Cosmetics
- Enzymes
- Fine chemicals
- Herbal or other natural extracts
- Inks, paints and glue
- Pharmaceutical intermediates
- Process water
- Solvents

Dosing Unit

The kieselguhr dosing unit from Filter guarantees uniform mixing and precise adjustment for dosing of the filter aid.Dosing Unit



1. Unfiltrate
2. Feeding pump
3. Mixing pump
4. Dosing pump
5. Mixing tube
6. Pre-coating filter
7. Re-circulation for pre-coating
8. Vessel
9. Filtrate

The main benefits of kieselguhr filtration

- High filtrate capacity even with problematic turbidity
- Polish filtrate
- Cost saving with filter beds.

Design

A mobile stand supports the dosing and mixing vessel including a hinged lid and an agitator with geared motor and an infinitely variable doing pump designed as a piston diaphragm pump with an upstream diaphragm. The agitator gear unit with a magnetic rotary field drive allows the vessel to be opened and filled operation.

The mixing vessel and all supporting parts and parts coming into contact with product are made of stainless steel.

Larger systems available on request, including as stationary versions.

Mode of operation

Depending on the size of the doing vessel, the appropriate quantity of kieselguhr is prepared with liquid to be filtered in the agitator vessel. The adjustable doing pump delivers the batch of flow of kieselguhr to the mixing tube, which is used to convey the flow of liquid to the filter.

Adjustment of the dosing pump capacity depends on the degree of turbidity of the product to be filtered and/or the volume of the precoated filter.

The doing unit is connected in the inlet between the pump and filter (see diagram). Operting at a high capacity at the start of filtration, the dosing pump ensures fast build-up of the precoat in the kieselguhr filter, with the filter initially being run in the cycle. As soon as the run-off becomes clear, the system switches to the filtrate vessel, and the capacity of the dosing pump can be reduced.

Model	Filtration	Doing capacity	Vessel Volume	Vessel(DxH)mm	Dimensions
DS250	20-40 hl/h	0-190 l/h	80 l	480x500	1070x610x1300 mm
DS500	40-80 hl/h	0-360 l/h	170 l	630x600	1310x780x1320 mm
DS750	80-180 hl/h	0-360 l/h	380 l	700x1000	1270x720x1200 mm

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