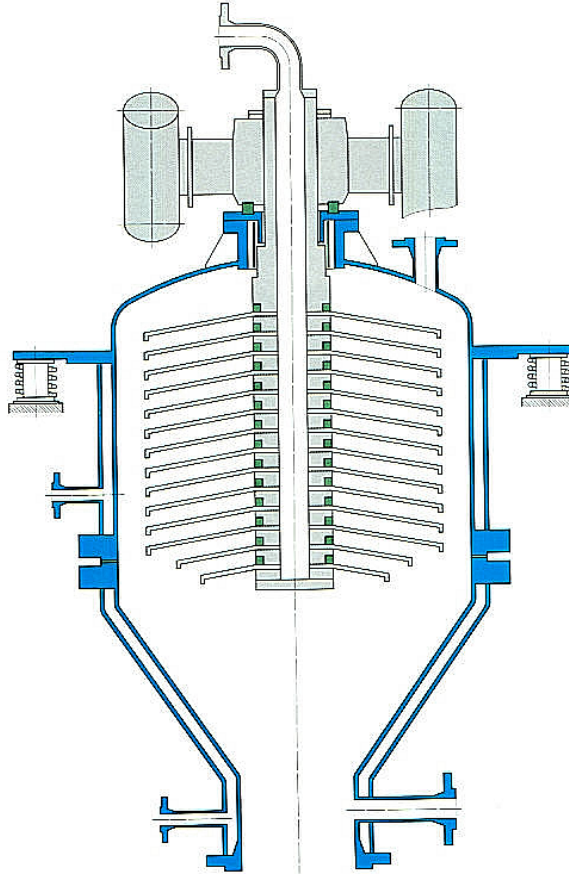

BHS Pressure Plate Filter Technology



Applications

Liquid Clarification

Effluent Treatment

Catalyst Recovery

Product Recovery

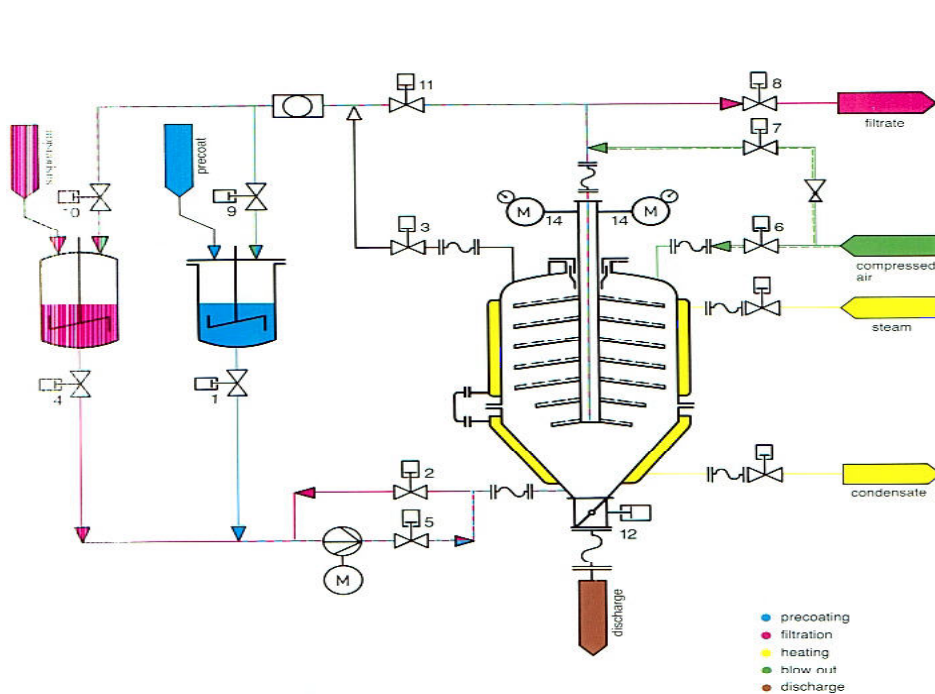
Activated Carbon Adsorption

Low Solids Concentration Streams

Hazardous Materials

BHS-Pressure Plate Filter...

Operation



The example above shows a typical operation involving pre-coated filter plates.

Pre-coat Application

A suspension containing the filter aide material is fed to the TDF. The solid filter aide forms a cake on the filter cloth. The liquid is forced through the filter medium and is removed via the filtrate outlet piping at the center of the shaft.

Filling

Suspension is fed to the system either on a re-circulation loop or on a 'once through' basis. Particles in the slurry will be trapped in pre-coat cake while the liquid will be forced through. A period of turbid flow may be experienced with very fine particles. The filtrate would normally be recycled until clear filtrate is obtained.

Vessel Emptying

After the desired cake resistance is achieved, the contents of the vessel can be blown back to the feed tank, or the residual volume can be reduced using the Heel Filtration System.

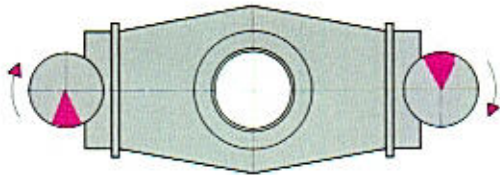
Washing

As a result of the stable cake formation that is inherent with the horizontal plate design, effective cake washing with a liquid solvent or with steam.

Cake dewatering

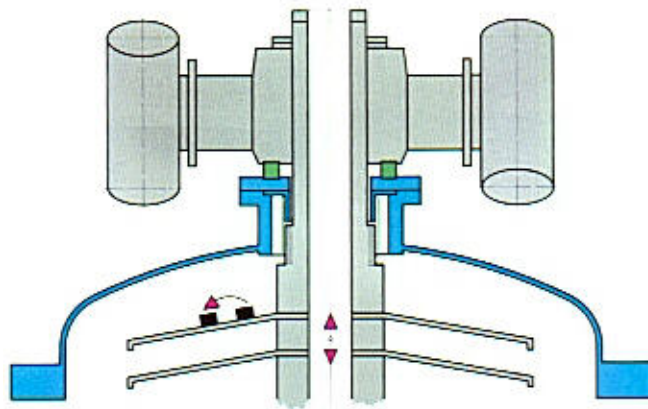
The cake can be de-watered by pressurizing the vessel with air or nitrogen. This gas will push liquid in the cake capillaries through the plate.

Cake Discharge



Motors with unbalanced masses (180° out of phase) are mounted on the main shaft outside of the vessel.

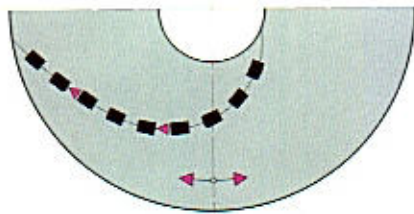
The movement of the motors results in a 1-3 mm movement of the plates both vertically and rotationally about the shaft axis.



Note that the vessel is isolated from the vibration and no energy is transmitted to the vessel or external equipment.

The static shaft seals ensure low maintenance costs and better containment for hazardous materials.

The movement of the plates and the slight angle on the plate surface causes the solids to move to plate edge. At the edge, the solids will simply drop under gravity.



Very wet, pasty, or even thixotropic cakes can be discharged without sticking to the vessel walls.

Gas assist through the filtrate pipe can also be employed

Clean-In-Place

The discharge cycle is run and water/solvent is either circulated or held in the vessel. The discharge cycle creates a turbulent mixture in the vessel for cleaning of the tank and filter media. Steaming is also possible.



Specialists in Thin Cake Filtration Technology

BHS Pressure Plate Filter... Advantages

- Horizontal Plate Design** Mounting the filter plates horizontally ensures that stable cakes can be built. This enables pre-coating of the filter medium with activated carbon or diatomaceous earth if necessary.
- Automatic Solids Discharge** Significant labor savings with an automatic cake discharge and the elimination of operator exposures to VOC emissions.
- Vibrating Discharge** Most pressure plate filters employ a centrifugal solids discharge system. Spinning the plates at high speed often causes the cake to stick to the vessel walls and transmits large dynamic forces to the vessel and surrounding equipment. The BHS unique vibrating discharge system ensures effective solids discharge, while avoiding these problems. Gas assist can also be employed for cake discharge
- No Mechanical Seals** The vibrating discharge system, eliminates the need for rotating or mechanical seals. Therefore, the potential for leaks and mechanical failure is eliminated.
- Flexibility** The BHS Pressure Plate Filter is easily cleaned; including automatic CIP systems and can cope with a wide variety of applications. With filtration area ranging from 0.1m² to 45m², almost any flow rate or batch size can be accommodated.

BHS Pressure Plate Filter Rental Filter

Machine: TDF 400/60/6

Specifications:

400 mm OD plates (5 filter plates + 1 heel filtrate plate)

0.575 m² of filter area + 0.115 m² for heel filter area

Total Area = 0.70 m²

Maximum cake thickness is 60 mm

Filling Volume: 25 gallons

Materials:

All wetted parts are 1.4571 (316 Ti) Stainless Steel

Filter Media to be stainless steel or synthetic

Design:

Full skid mounted unit on legs (3 x 3 x 5 feet tall)

Two 0.25 HP vibrator motors for cake discharge.

Jacket: 260 degrees C; 90 psig

Vessel: 260 Degrees C; 150 psig

