



Specializing in Thin-Cake Filtration, Cake Washing & Drying Technologies

Test in the BHS Laboratory* or at Your Plant for the Optimum Process Technology

..... Process Solutions in a Pocket

First Step

Solid-liquid separation, cake washing and drying are integral components of a processing scheme to produce a chemical or pharmaceutical product or for fluid clarification and recovery. Each of these steps must be optimized to meet a specific requirement. Complicating this work is the number of competing technologies and options that can be employed to accomplish these steps such as nutsche filters, centrifuges, belt filters, filter presses, pressure plate filters and others.

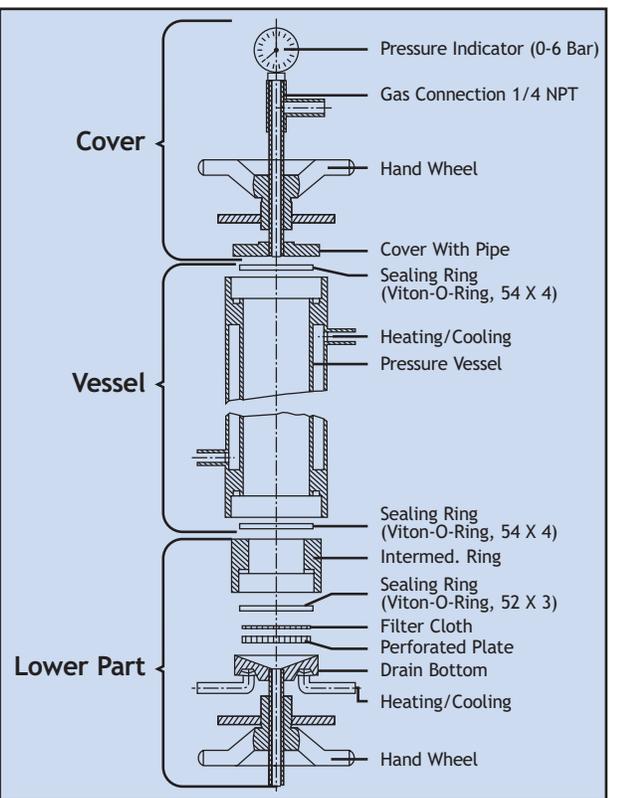
BHS-Filtration Inc. specializes in thin-cake technologies for solid-liquid separation, cake washing and drying. To determine the optimum process technology, the first step is bench-top testing either in the BHS laboratory or at your plant. The BHS Pocket-Leaf Filter (PLF) is the first choice to begin the analysis.

Pressure or Vacuum Filtration:
The first optimization is the cake depth versus the filtration rate. A premeasured amount of slurry is added from the top. Pressure or vacuum filtration begins and the amount of filtrate versus time is recorded. Other parameters that are varied sequentially include cake depth, filtration pressure or vacuum and filter media. Cake depths vary between 5 mm and 25 mm.

Displacement Washing:
Displacement washing is performed after the filtration step is completed. A measured amount of wash liquid is added carefully in a predetermined wash ratio so as not to disturb the cake. Once again, pressure and time are measured. One or more wash tests can be conducted with the same or different wash liquids.

Cake pressing:
Several of the BHS technologies can uniquely perform cake pressing or squeezing. The PLF can simulate this pressing procedure, with a "pressing plug". The pressing plug is actuated by gas pressure and squeezes the cake onto filter media. This can be accomplished before, after or during washing and drying.

Drying:
Product drying in the pocket-leaf filter is tested by blowing



BHS Pocket-Leaf Filter (PLF)



Photo of the PLF-400 and internals

* Filtration and Process Studies



Dual Pocket-Leaf Filters for testing of sequential process operations

ambient-temperature or hot gas through the cake or via vacuum. The pressure is kept constant and gas throughput is measured vs. time. After a preselected drying time, the cake is removed, and the cake depth and weight is determined, and analyzed for moisture content.

Results & Analysis:

BHS process engineers then analyze the data to recommend one of the

BHS technologies. BHS examines your operation including whether its batch or continuous as well as other site-specific requirements.

Next Step

Based upon the pocket-leaf tests and recommendations, pilot-scale tests can be conducted. Below is a description of the BHS rental units for on-site tests.

BHS Rental Technologies for On-Site Pilot Tests for Thin-Cake Filtration, Washing and Drying Operations

Technology	Filter Area*	Description**
Continuous Operations		
FEST Rotary Pressure Filter	0.12 m ²	Automatic, electric operation, manual controls
Vacuum Belt Filter	0.3 m ²	Automatic, pneumatic operation and controls
Batch Operations		
AUTOPRESS	0.2 - 1.0 m ²	Automatic, hydraulic operation, Allen Bradley Panel Mate PLC control system
Low Solids (1% & lower) for Production, Fluid Clarification & Recovery Operations		
Candle Filter	1.0 m ²	Automatic, pneumatic controls, cake discharge by gas pulse***
Pressure Plate Filter	1.0 m ²	Automatic, cake discharge by vibrating filter plates***

* Larger rental units are available; contact BHS for details
 ** BHS can complete the rental units with process valves, pumps and instrumentation
 *** Units can be pre-coated with activated carbon or filter aid

Contact BHS-Filtration Inc. for rental as well as lease-purchase arrangements. BHS provides single source solutions for your difficult solid-liquid separation, cake washing and drying process operations.



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**Technical Data:
 BHS Pocket-Leaf Filter, PLF-400**

Filter Area: . . .20 cm²
 Filling Volume: .400 ml
Vessel Design
 Pressure:90 psig to full vacuum
Jacket Design
 Temperature: . .150 degrees C
Material of Construction: . .316 Ti stainless steel, Hastelloy or Polypropylene
Dimensions: . . .18 inches long
Weight:5 pounds
 PLF models are available in 250, 400 and 1000 ml volumes.