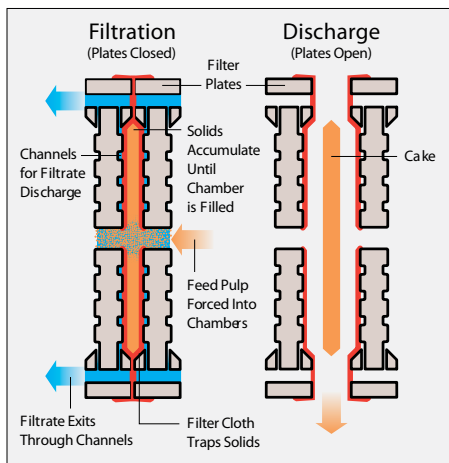


One Source

# EIMCO AFP IV Filter Press



# Automatic Filter Presses



**FLSmith brings extensive experience to your process needs and can help determine the most cost-effective filter press for your application. Our trained sales engineers are ready to help you with equipment sizing and selection, without compromising quality or dependability.**

**This brochure will provide you with general information about our products to help you better understand the options that are available for your solid/liquid separation needs.**



## An Introduction to Filter Presses

Filter presses separate liquids and solids by forcing the liquid fraction of a feed slurry through a permeable filter cloth. The separation takes place in chambers formed between the recessed faces of plates, which have been clamped together in a rugged steel frame.

The molded filter plates are formed with corrugated drainage surfaces in the chamber recesses and ports for slurry feed and filtrate drainage. Each face is covered with a filter cloth and the plates are clamped together using a hydraulic ram. Slurry is pumped in under high pressure, filling the chambers with solids and pushing liquid out through the filter cloth. When no more solids can be forced into chambers, the feed pumps are turned off and compressed air is used to remove interstitial water from pores in the filter cake. When the desired residual moisture content has been achieved, the filter is opened, cake is removed and the procedure is repeated.

Additions to the basic filtration cycle include the removal of residual slurry from the feed channel with compressed air and/or water, an air purge of filtrate drain channels, and cake washing to remove soluble impurities. Very high solids can be achieved in cakes of low permeability through the use of filter plates lined with optional elastomer membranes. After the basic filtration cycle has been completed, these membranes are inflated with pressurized air or liquid, squeezing additional moisture from the filter cake.

## AFP IV™ Automatic Filter Press

The AFP IV™ Automated Filter design provides a simple, rugged and reliable solution to the special problems associated with solid-liquid separation processes. These filters not only provide high throughput and efficient solids capture, but they also operate continuously, automatically, in harsh environments, and can handle abrasive or corrosive slurries. When coupled with simple systems and our operating philosophies, operating costs are maintained at the lowest levels in the industry.

The heavy-duty design of our filter presses has been specially adapted for minerals service with several features designed to enhance their performance in these and other applications.

### Benefits

- Positive, fully automatic cake discharge
- Easier operation and maintenance accessibility
- Lower maintenance costs and higher performance
- Proven design

### Features

- Push Closure-Cylinder(s) mounted at centerline of press
- Rolling cross head for plate stacks longer than 50 chambers
- Automatic cloth washing apparatus
- Widespread Beams
- Drip Trays - Activated trays for liquid containment
- Plate Variety - Recessed, and membrane designs
- Filter Media - Variety of materials and weave patterns
- Press Control Packages - Automatic wash, squeeze, discharge. Process control and DCS communication is available

### Cloth Shaker Assists Cake Discharge

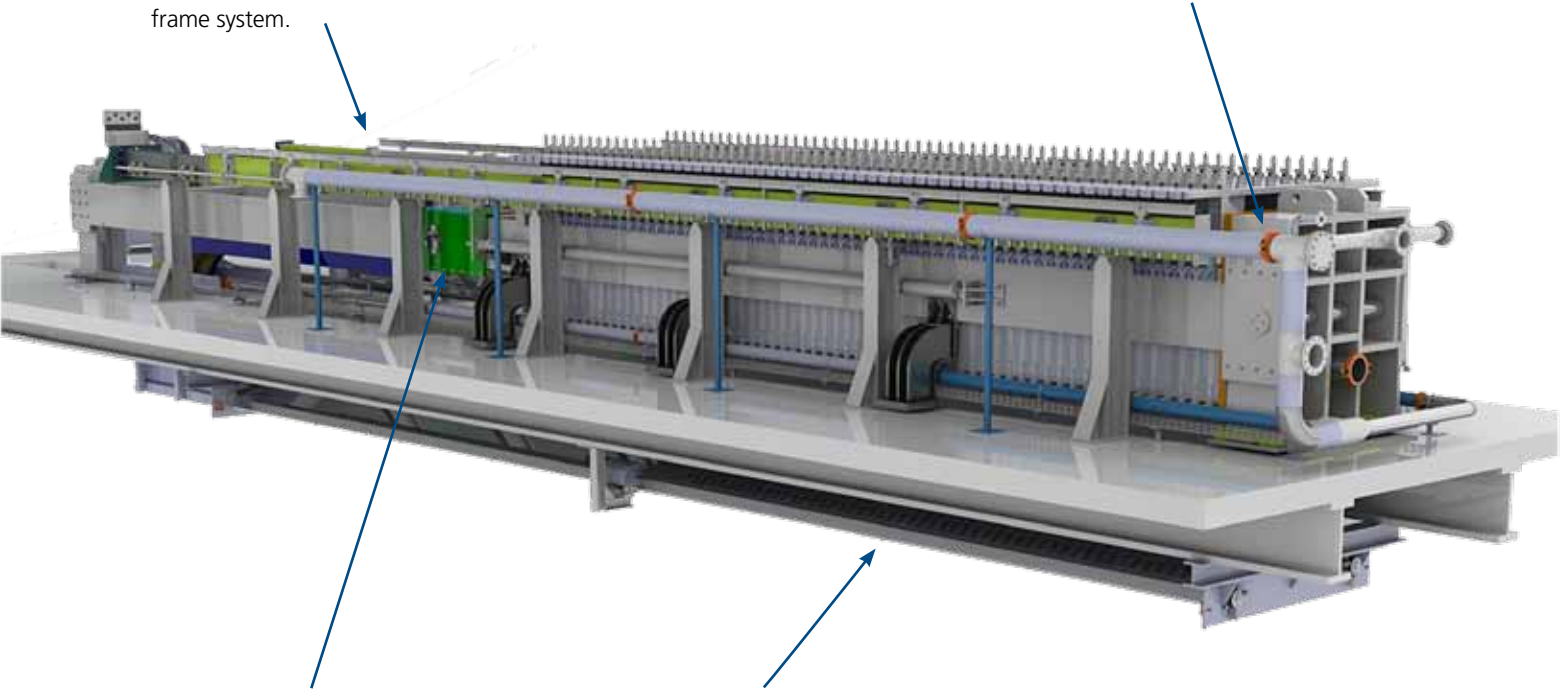
Vibratory discharge assist is provided by a hydraulically actuated cloth shaker that transmits a vibration directly to the filter cloths when one or more chambers fail to empty completely. To minimize the effects of vibration on other system components, the shaker mechanism is supported on a separate frame system.

### Programmable Logic Control Allows Automated Operation

Various levels of automation can be achieved using PLC controller resident in the filter control panel. Customized instrument and control packages are available for integration with existing systems.

### Low Pressure, High Volume Flood Wash Cleans Plates and Media Between Cycles

Two wash headers run along the upper edges of the plate stack with nozzles positioned to completely wash every plate face and filter cloth. Thorough washing helps prevent media blinding and reduces abrasive wear on sealing surfaces. More advanced systems are also available.



### Cylinder Crosshead Slashed Cycle Times

To reduce the time required for plate shifting and cake discharge, our minerals filters utilize a long-stroke cylinder-driven crosshead to open and close the plate stack. Two short-stroke closing cylinders are mounted in a rolling carriage, which spans the filter sidebars. A hydraulically actuated chain drive or long-stroke cylinder moves the crosshead and linked plates quickly between open and closed positions. With the crosshead fully retracted, a uniform gap is opened between each plate, allowing all chambers to empty. The crosshead then returns the plates to filtration position where locking cylinders anchor the carriage. Closing pressure is applied to the plate stack and slurry feed resumed.

### Drip Trays Prevent Rewetting of Discharged Cake

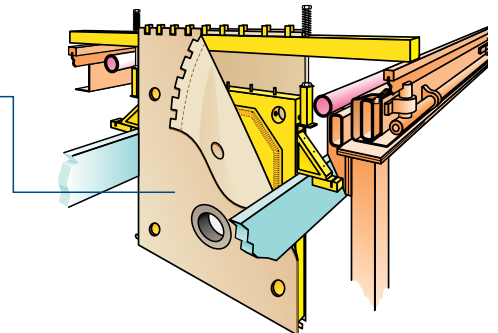
Hydraulically operated drip trays located beneath the filter prevent filtrate leakage and cloth wash water from rewetting previously discharged cake. Both single slope and gable designs are available.

### All Hydraulic Operation

Power for plate shifting, crosshead locking, filter closing, drip tray operation and cloth shaking is supplied from a single electrically driven hydraulic power unit. A filter-mounted manifold contains all required valves, switches, and gauges for hydraulic control.

### Quick Media Change-Out

Filter plates and media support frames are designed for unobstructed lift out using a light-duty, overhead crane or lifting frame. Cloths are then changed offline while the filter continues to operate. Media cloths attach with a quick release rod and clip arrangement for fast, simple exchange.



# Filtration Solutions

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## FLSmidth and Shriver Filter Presses

Shriver has been a leading influence in the design and application of filter presses since before the turn of the century, having installed over 30,000 filter presses. FLSmidth has incorporated that expertise into its product lines providing state-of-the-art filter press technology, including efficient and almost maintenance free automatic features that will achieve rugged and dependable performance for your individual applications. FLSmidth's filter presses are designed with recessed or membrane/recess plates to produce minimum cake moisture. Filter plates are available in 1200, 1500, and 2000 mm square sizes.

Our filter presses are operating in locations around the world in countries such as Australia, Brazil, Canada, Kazakhstan, Mexico, Peru, Philippines, South Africa, United States, Uzbekistan and Zimbabwe.

## Mineral Processing Technology Center

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## FLSmidth Designs and Builds Turnkey Liquid-Solid Separation Facilities

As a broad line supplier of separation equipment for minerals processing with comprehensive expertise in liquid-solid separation, FLSmidth can often provide the best capital economy and process performance when its equipment is supplied as part of a complete system. In addition to primary equipment supply, FLSmidth offers a wide range of design, construction and start-up services, including:

- Flowsheet development
- Auxiliary equipment selection and supply (pumps, valves, conditioning chemical preparation and feed systems)

- Piping & instrumentation drawings
- Control system strategy & design
- Architectural design support
- Customized design and packaging for international delivery & operation
- Specialized tankage design & construction
- Complete construction management services
- Preparation of operating documentation
- Plant start-up & training services

## Minerals Filter Sizes and Capacities

Model	1200	1500	2000
Number of Chambers (Increments of 2)	10-40	24-120	50-120
Filtration Area (M <sup>2</sup> )	23-91	95-473	360-864
Chamber Volume (M <sup>3</sup> )	0.5-2.0	2.16-10.8	8.5-20.4

