

PROCESS FILTRATION / SEPARATION

Filter Press for Mining & Minerals Applications

Industry: Mining & Minerals

Goals: Filtration to recover, refine and process metals & minerals

Project Overview:

During the mining and refining of metals & minerals such as gold, nickel, copper, selenium etc, concentrated slurries are produced which must be dewatered, washed and further processed to produce a pure product for sale or use as a raw material. Processes such as Merrill Crowe, Bayer Alumina Process and electro-winning, produce pure slurries as well as waste streams that are filtered and dewatered for the recovery of the various components. Filter Presses have the ability to handle very heavy solids loadings and wash filter cakes in place for recovery & purification. They are flexible and easy to operate. They are available in corrosion resistant designs and can be fully automated with various feed / wash / cake squeeze options.

Critical Issues:

Remove metals, precious metals & minerals to a discrete level and further wash, treat and / or squeeze the resulting filter cake, as the process dictates.

Vision for Solution:

- Low pressure (100) or high pressure (225) PSI designs
- Choice of standard recessed, caulked & gasketed or membrane squeeze plates for dewatering optimization
- Precoat to ensure sub-micron filtration
- Wash filter cake for complete solution recovery & cake purification
- Special filter cloth selection

Typical Project Scope:

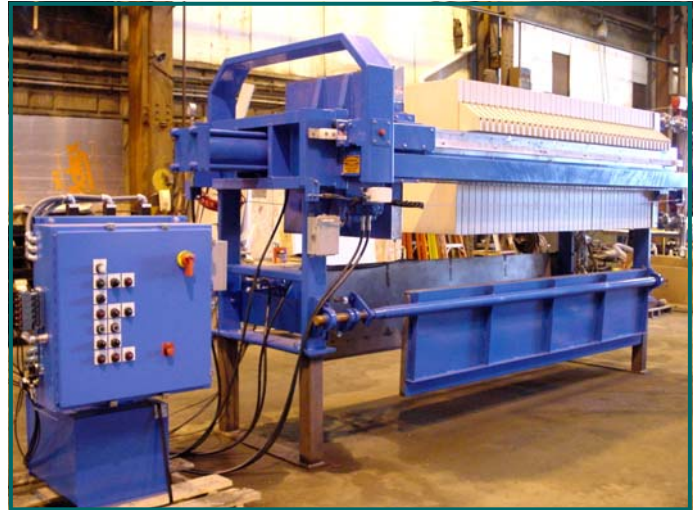
Complete system design
Fabrication / integration
Commissioning & start-up
Detailed design engineering

General Equipment Description:

Equalization & Feed Tanks
PLC Controls & Automation
Precoat Systems
Membrane Squeeze Systems
Filter Press Systems with drip trays, piping, plate shifters etc

Special Features:

- Corrosion resistant coatings
- Wide range of filter cloth media
- Choice of filter plate design & materials
- Membrane plate squeeze to optimize wash



Technical Data:

Application - Process concentrated acidic or alkaline slurries bearing metals & minerals for recovery & refining of metals and recovery of valuable solution.

Equipment - Filter Press, either low (100) or high (225) PSI pressure design. Polypropylene, Polypropylene/FRP or KYNAR® filter plates in standard recessed, caulked & gasketed or membrane squeeze design, manual or automated, accessory systems such as precoat, cake wash or water squeeze.

Materials of Construction - Steel frame with various corrosion resistant coatings, Polypropylene, Polypropylene/FRP or KYNAR® filter plates, numerous cloth selections such as polypropylene, polyester, TYVEK®, cotton, nylon, RYTON® etc.

Filtration Data:

Flow Rate ----- 0.1 GPM/sq.ft. to 1.0 GPM/sq.ft.
Suspended Solids - Metals, Precious Metals, Minerals or Inert Insolubles
Cycle Length ----- 1 hour to 24 hours
Squeeze ----- Water squeeze on membrane filter plates @ 100 or 225 psi
Precoat ----- DE, Perlite or cellulose