Belt Filter Press
Sludge Dewatering
**Belt Filter Press - Advantages**

Thickening and Dewatering Operations in a single unit

Two Distinct Sections:

- **Gravity Section:** Acts as a thickening unit by gravity separation of solids & water and concentrates the sludge.
- **Pressure Section:** Acts as a dewatering unit by sandwiching and squeezing the sludge between the two sets of belts and subjecting the sludge to increasing pressure as the belt moves to discharges point.

Continuous Operation

- Substantial energy saving vis-a-vis other dewatering technologies.
- Slow Speed machine, hence less wear & tear and low maintenance cost.

**Key Features**

- Large floc box minimizes turbulence on fragile solids for reduced polymer consumption.
- Floating plow design automatically maintains contact with the belt without wearing the belts.
- Long plows provide rolling action for higher hydraulic capacities.
- Wedge angle is adjustable from one side of the machine during operation.
- Doctor blade pivots and locks away from discharge roll for easy cleaning and maintenance.
- Belt support system provides continuous support of the belt seam for reduced wear.
- Encapsulated bearing with seals reduce lubrication requirements.
- Automatic Hydraulic tracking system prevents avoidable belt wear from creeping or wrinkling.
- Hydraulic Tensioning system maintains belt tension at a constant preset level to ensure effective dewatering under varying process conditions.

**System Description**

Main components of Belt Filter Press Dewatering System

- **Sludge Feed System:** Delivers sludge to inlet box of Belt filter Press. Typically comprises of feed pumps and piping up to inlet of Belt Filter Press. Incorporates an on-line static mixer for thorough mixing of sludge and polymer.
- **Polymer Dosing System:** Doses polymer solution on-line upstream of Static mixer. Typically comprises of polymer solution preparation tank with agitator, dosing pump(s) and piping up to dosing point.
- **Belt Wash Water System (Optional):** Delivers washwater at the required flow rate and pressure to the wash water headers of Belt Filter Press. Typically comprises of a water source, wash water pumps and piping.
- **Dewatered Sludge Collection System:** Serves to collect dewatered cake from Belt Filter Press. Typically comprises of a Discharge Chute / Belt Conveyor and a Collection trolley.
- **Filtrate collection and disposal system:** Returns the filtrate back to plant headworks, generally by gravity.

**Typical Flow Diagram**

*Belt Filter Press Dewatering System*
**Inlet Cum Distribution Box**

The conditioned solids are gently distributed across the belt width through a distribution box, provided with an agitator mixer for uniform distribution with minimum turbulence, thus avoiding breaking up fragile flocs with minimum polymer consumption. For solids with higher solids concentrations, a steel levelling dam ensures solids are spread evenly across the entire belt width for maximum capacity.

**Gravity Section**

A series of plows in the gravity section furrow and roll the distributed solids which opens up drainage channels on the belt, releasing the filtrate. Handles provided on the frame, allow each row of plows to be lifted from either side of the press for easy cleaning.

**Wedge Section**

The solids then travel down a chute into an adjustable wedge section where a mild pressure is applied to the solids and the solids are sandwiched between the two pressure belts. The rate of increasing pressure in the wedge section is adjustable from one side of the press for precise process control.

**Pressure Section**

Next, the solids are carried around a series of S-turns. The pressure roll diameter gradually decreases as the solids pass through the pressure section, so that higher and higher shear forces are applied to the solids.

**Electrical Controls**

The Belt filter Press is provided with a control panel suitable for Auto/Manual operation with provision for interlocking with sludge feed pumps, polymer dosing pumps, belt wash pumps etc. The panel contains variable frequency drive for belt speed variation to suit varying process conditions & still providing dewatered solids consistently.

**Doctor Blades**

Non-abrasive doctor blades remove dewatered cake from the belts as it exits the pressure section. Handles allow for safe locking of the doctor blades away from the discharge roll for easy cleaning.

**Belt Washing**

The belts pass through a high-pressure spray wash and are then ready to receive more solids. The wash headers are provided high capacity V-jet nozzles for pressurized belt wash water supply.

**Hydraulic Power Pack**

The Belt Filter Press is provided with a dedicated Hydraulic power pack unit for powering the Hydraulic tracking and tensioning of the belt.

**Applications**

- Physical / Chemical / Biological sludge
- Metals & Minerals
- Pulp & Paper
- Steel
- Coal
  and many others...
For more details, please contact

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*All Dimensions are in millimeters*