

# Model Sahara Belt Filter Press

Designed for Mineral Tailings and Coal Refuse

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Industry Leader in Design and Manufacture of Filtration Equipment

# Model Sahara Belt Filter Press

## A Workhorse Built for Heavy Duty Applications

**Model Sahara Belt Press** was designed for abrasive, heavy high density mineral materials at high influent concentrations at operating cake thickness as thick as  $\frac{3}{4}$ " at very high tonnages. These characteristics are significantly more difficult than the most other belt press applications.



### Design Features

**Feed Distributor:** Paddle wheel assisted, to provide high feed solids capability, over-flow weir configuration provides full belt-width distribution and uniform thickness. Improves dewatering performance and cloth and roll coating life.

**Large Area Gravity Zone:** Gravity zone effective length of 12 ft provides large filtration area to adequately thicken slurry and avoid cake extrusion at first Pressure Roll.

**Spiral Wedge:** Applies increasing cake pressure over the entire length for effective expressing of filtrate with improved resistance to cake extrusion.

**Filtrate Collection Pans:** Filtrate pans are provided under gravity, wedge and pressure zones to keep dirty filtrate from falling on filter belts that can then deposit abrasive particles on rolls and other components, thereby decreasing abrasion and wear.

**Hydraulic Power System:** Hydraulic cylinders activate tracking and tensioning rolls. System is closed to dirty environment and self lubricating. Control manifold allows operator to easily make proper adjustment.

**Overall Layout:** Eliminates need for stairs and platforms, as operation is at ground level and cake discharge is 7ft off ground, more than adequate for discharge conveyor.

**Roll Coating:** Roll Coating: 25 mil thick flame sprayed nylon coating on roll shell, roll end plate and journal up to insertion into the bearing. On very difficult abrasive applications a vulcanized  $\frac{1}{4}$ " thick rubber coating is applied.

**Split Case Bearings:** Triple tech seals with solid cast end cap bearing housing provides excellent protection of the bearing in the wet, often hosed down environment of most minerals operations.

**Heavy Duty Tubular Frame:** Eliminates ledges and corners that accumulate process chemicals. Frame is easier to keep clean and corrosion free. Very ridged construction.

**Proportional Tracking:** Heavy duty paddles track edge of belt and proportionally activate a pivoting tracking roll to keep filter belt centered on unit.

**System Control Panel:** Controls provided to link operation of feed pump, polymer, wash pump, belt press and conveyors for total system operation.

# Unique Features and How They Work

## High Solids Feed

**Box:** A six rubber blade adjustable speed paddle wheel assembly pushes the slurry over the outlet weir. This spreads the slurry very uniformly across the full belt width.



**Collection Pans:** Pans under all gravity, wedge and pressure section rolls eliminate dirty filtrate falling on filter cloth.



## Split Case Bearings:

Bearings have no end cap, eliminating potential for process fluids getting into the bearing.

## Heavy Duty Tubular Frame:

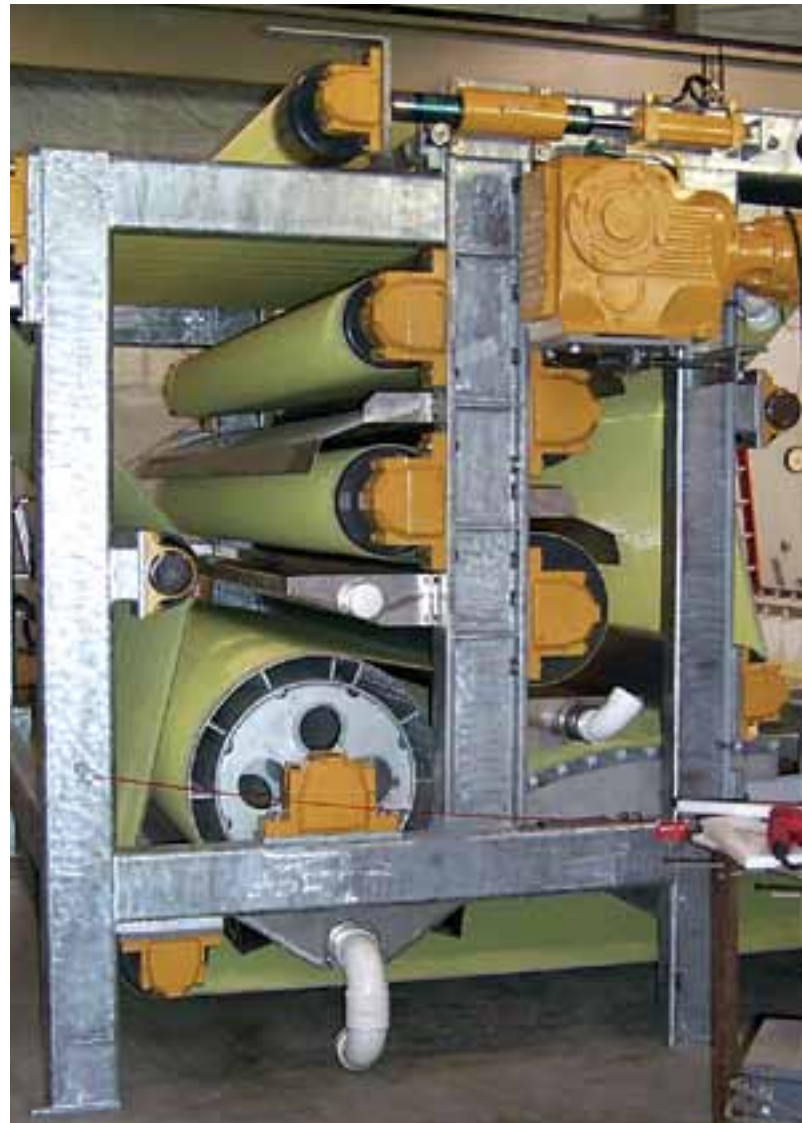
The frame is constructed from tubular steel eliminating ledges and corners where process fluids can accumulate. Easier to keep clean and free of corrosion.

**Spiral Wedge:** The problem with most wedge layouts is the top belt doesn't apply pressure to the cake until 2/3 of the way through the zone.



The support bars of the model Sahara are fabricated in a spiral curve layout that forces the top and bottom belts together placing pressure on the cake all the way through the zone.

**Vertical Pressure Zone:** The rolls in the pressure zone are arranged in a vertical configuration so that filtrate expressed at each roll drips from the tangent point into a diversion pan; eliminating rewetting of the cake. The first roll is perforated to enhance expression of filtrate.



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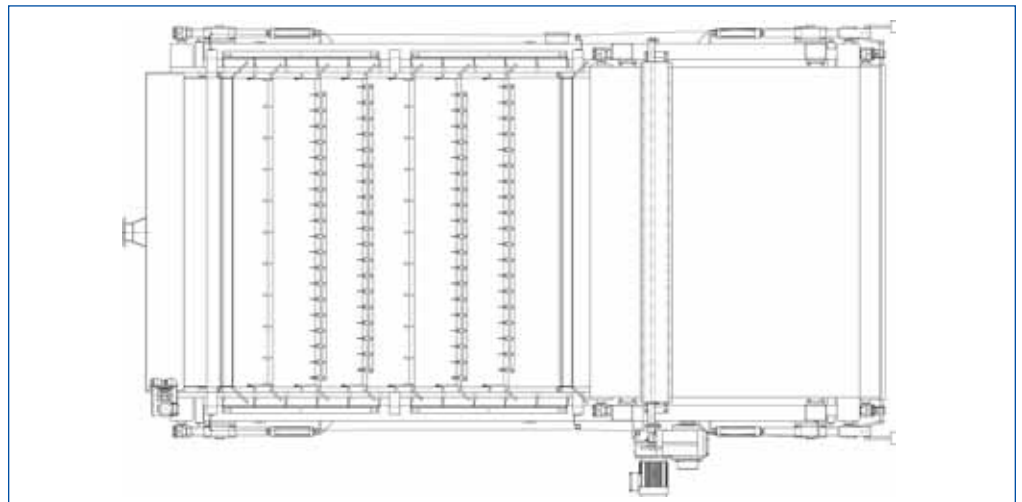
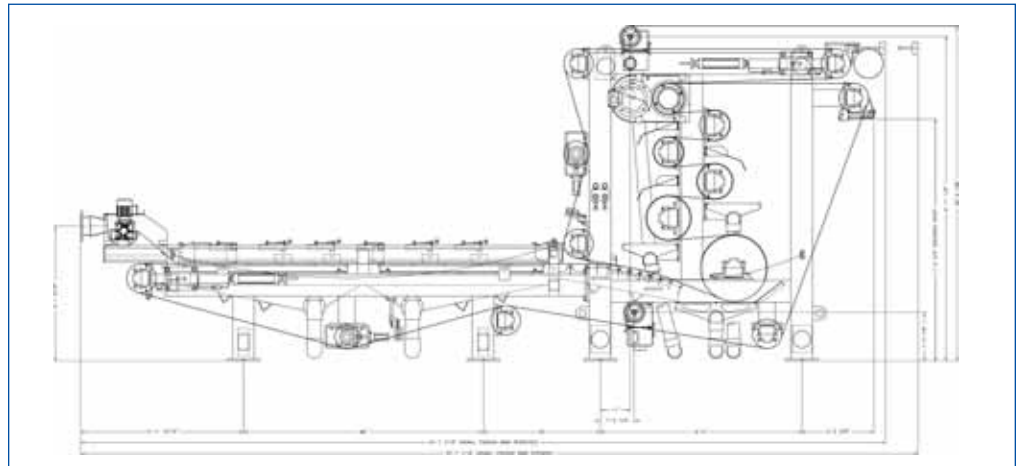
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**Left-Right Proportional Tracking:** A paddle activated proportional control belt tracking system continuously centers the belts. **Flame Sprayed Nylon Coating:** Nylon coating over entire roll including roll end and journals eliminating corrosion. **System Control Panel:** Control over all accessory equipment.

**Dimensions:** The model Sahara is available in belt widths of 1, 2 and 3 meters.



### Typical Performance Results

Mineral Type	Feed Consistency wt %	Solid Loading lbs/hr, m	Cake Dryness wt %	Polymer Dosage lbs/ton
<b>Coal Refuse</b>				
30% - 325 Mesh, 50%	30 to 35	12 to 15	67 to 73	.7 to 1
Ash, Primarily Sandstone dilution				
50% - 325 Mesh, 35% Ash	25 to 30	9 to 11	62 to 67	1 to 2
High levels of Clay 70% - 325 Mesh, 70% Ash	18 to 25	5 to 7	60 to 65	3 to 5
<b>Mineral Tailings:</b>				
20% - 325 Mesh	35 to 45	11 to 16	68 to 75	.5 to .7
50% - 325 Mesh	32 to 38	9 to 12	65 to 72	.7 to 1
80% - 325 Mesh	26 to 32	5 to 7	60 to 65	1 to 2