Electrostatic High Tension Roll Separator (400dia.)

Overview
The Mineral Technologies Carrara HTR 400 offers the most advanced electrostatic separator on the market. The 400mm diameter roll along with the electrode design delivers separation efficiencies not previously seen. This affords the best opportunity for maximising throughput, grade and recovery in plant operations. With some feedstock’s a two stage Carrara HTR 400 offers superior performance to 3 stage machines currently on the market.

PRODUCTION 2000mm x 400mm Dia.

Features
- 2000mm long separation rolls to maximise throughput capability.
- 400mm diameter separation rolls afford lower centrifugal forces and extended time in the separation zone giving more opportunity for discrete separation.
- Separation rollers are dynamically balanced and fitted with individual geared motors (1.5kW drives mounted externally) each horizontal pair of rolls are independently speed-controlled.
- Independently adjustable corona and lightweight secondary electrode providing improved separation of coarse non-conductors and fine conductors.
- Robust electrode design provides long service life and allows flexible setup to suit any applications.
- Dual brass separation roll brushing on each separation stage.
- Adjustable splitter design which accommodates middling, non-conductor or conductor retreat without chute changes.
- Positive and robust splitter locking mechanism with positioning scale for accurate setup of parallel separators.
- Ability to set splitter for super non-conductor product stream (ultra clean non-conductors).
- Individual separation module inspection doors for operator convenience and reduction of heat loss during on-line inspection.
- Operator protection guarding to IP20 behind inspection doors for enhanced operator safety.
- Local control station incorporating E/Stop with an additional E/Stop at the rear of the separator.
- Discharge launder c/w conductor, mids & non-conductor outlets.
- Fully enclosed separator for containment of dust, with provision for dust extraction system connection (by others).
- Labyrinth sealed bearings for extended life.
- Fluted feedroll with geared motor (0.37kW) Variable frequency drive for precise feed control and automated operation or
- Electro / Pneumatic feed gate control systems in conjunction with calibrated feed slides for feed rate control.

Image opposite depicts a production HTR 2x3x2000x400dia.
Control Panel
- Incorporating 40kv 15mA Glassman HT Power Supply (positive or negative)
- Emergency Stop, Local Main Isolator, Fault Reset and Remote / Local Selector
- HT termination point for plant connection
- Integration with plant PLC systems available
- Power supply 240v 50hz

Options Available
- Electrode – Glassless and Glass Composite
- Discharge Launders – Standard and Integrated Sampling

Applications
Separation of dry granular materials with differing electrical conductivities, eg: mineral sands, hard rock ilmenite and rutile, cassiterite, tantalite, wolframite, iron ore.
Design Data and Configuration Details

<table>
<thead>
<tr>
<th>Dimension</th>
<th>2 x 3 (6 Roll)</th>
<th>2 x 2 (4 Roll)</th>
<th>1 x 3 (3 Roll)</th>
<th>1 x 2 (2 Roll)</th>
</tr>
</thead>
<tbody>
<tr>
<td>“A” Height (mm)</td>
<td>3450</td>
<td>2550</td>
<td>3450</td>
<td>2280</td>
</tr>
<tr>
<td>“B” Width (mm)</td>
<td>1500</td>
<td>1500</td>
<td>910</td>
<td>910</td>
</tr>
<tr>
<td>“C” Length (mm)</td>
<td>3050</td>
<td>3050</td>
<td>2950</td>
<td>3950</td>
</tr>
<tr>
<td>“D” Height below floor (mm)</td>
<td>1050</td>
<td>1050</td>
<td>1050</td>
<td>1050</td>
</tr>
</tbody>
</table>

Outlet Connection: 50NB Pipe (2 x Conductor, 2 x Mids, 2 x Non-Conductor) with product sampling

50NB Pipe (1 x Conductor, 1 x Mids, 1 x Non-Conductor) with product sampling

Feed Connection “X”: 2 x 65NB table D Flanges

Dust Connection “Y”: 1 x 65NB table D Flanges (Available for connection at either end of Separator)

Control Panel Size: 800mm x 1800mm x 400mm

Control Panel Weight (kg): 125

High Tension Power Supply: 15mA, 15mA, 7.5mA, 7.5mA

Power Consumption (kW): 10, 7, 5.5, 4

Note: Mineral Technologies reserves the right to alter specifications without prior notice. For Certified Drawings suitable for Engineering Design purposes please refer to Mineral Technologies.
Laboratory 1 x 1 x 300mm x 400mm Dia. Separator

Features

- 400mm diameter separation roll affording lower centrifugal forces and extended time in the separation zone giving more opportunity for discrete separation.
- 300mm long x 400mm dia. separation roll dynamically balanced and fitted with variable frequency geared-motor drive
- Heated separation roll with thermostatic control to simulate plant conditions and ensure separation at the correct temperature Labyrinth sealed veering system as per production machine
- Heat feed bin with thermostatic control to ensure mineral retains correct separation temperature
- Chromed separation roll supplied as standard to prevent corrosion of surface (a burnished steel roll is available as an option)
- Independent adjustment of corona electrode position
- Separately mounted high-performance secondary separation plate with independent adjustment controls in all planes for precise positioning and optimisation of separation
- Single brass non-conductor wiper brush easily removable for cleaning
- Three adjustable splitters giving 4 product streams to assist in assessing separation performance
- Ability to set splitter for a super non-conductor product stream (ultra clean non-conductors)
- Drain free product chute comprising 4 outlets: Conductors, two (2) Middlings, and Non-Conductors
- Feed roll with geared motor and variable frequency drive for precise feed rate setting. Feed rate is directly proportional to roll speed for rapid adjustment

Integral HT Control Panel

- Incorporating 40kv 1.8mA Glassman power supply with kV adjustment [negative as standard, positive available at client's request]
- Local main isolator
- Heating controls for feed bin and separation roll
- Digital readouts for kV, mA, rpm and temperature
- HT Power supply 240v 50hz

Design Data

<table>
<thead>
<tr>
<th>Capacity</th>
<th>Up to 450 kg/h</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moisture Content</td>
<td>Dry, Free-Flowing</td>
</tr>
<tr>
<td>Size Range</td>
<td>40 to 800 microns</td>
</tr>
<tr>
<td>Feed Temperature</td>
<td>Up to 120°C</td>
</tr>
<tr>
<td>Separator Dimensions (mm)</td>
<td>1400 wide x 900 deep x 2000 high</td>
</tr>
<tr>
<td>Separator Weight</td>
<td>420</td>
</tr>
<tr>
<td>Power Consumption (kW)</td>
<td>0.8</td>
</tr>
</tbody>
</table>