Coal Dewatering Centrifuge

- Coarse Coal
- Fine Coal
- Ultrafine Coal
- Coal Tailing

Dewatering Treatment

2020/05/25
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2. Horizontal Vibratory Centrifuge (Coarse Coal)
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Coal, as an important energy source, is widely used in the world. As an international brand coal washing centrifuge manufacturer, GN is committed to providing high-quality solid-liquid separation solutions for the wet coal preparation industry. GN Coal Dewatering Centrifuge series products can meet the dewatering demand in various stages of the coal washing process. GN high-quality products and professional services make the products sold to more than 60 countries and regions in the world. Over the years, GN has grown steadily, and has established branches in Houston, USA and office in Russia. Welcome to GN factory for inspection and negotiation. We can choose the appropriate model and configuration of coal dewatering centrifuge according to clients’ different requirements.
In the coal preparation process, according to the difference in coal particle size and physical properties in different processes, the desired treatment effects are different; therefore different coal dewatering centrifuges are needed to get the best performance.

### Coal Dewatering Centrifuge

#### Centrifuge Type Applicable Material

<table>
<thead>
<tr>
<th>Material Type</th>
<th>Coarse Coal</th>
<th>Fine Coal</th>
<th>Ultrafine Coal</th>
<th>Coal Tailing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coal Particle Size (mm)</td>
<td>0.5-50</td>
<td>0.5-3</td>
<td>0.15-0.5</td>
<td>0-0.15</td>
</tr>
<tr>
<td>Horizontal Vibratory Centrifuge</td>
<td></td>
<td>√</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Horizontal Screen Scroll Centrifuge</td>
<td></td>
<td></td>
<td>√</td>
<td></td>
</tr>
<tr>
<td>Screen Bowl Decanter Centrifuge</td>
<td></td>
<td></td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>Solid Bowl Decanter Centrifuge</td>
<td></td>
<td></td>
<td></td>
<td>√</td>
</tr>
</tbody>
</table>

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GN Horizontal Vibratory Centrifuge for Coarse Coal is used for dewatering of coarse coal in coal washing plants, and well-applied coal particle range is 0.5-5mm. The Horizontal Vibratory Centrifuge combines vibration and centrifugal force to realize high efficient dewatering performance of coarse coal particles. GN Horizontal Vibratory Centrifuge for Coarse Coal is a serialized product with the diameters of the screen basket varying from 1000mm to 1600mm, which meets the processing capacity demand from 80t/h to 350t/h. After dewatering process by GN Horizontal Vibratory Centrifuge, the surface moisture on the coal is 5%-9%.
Horizontal Vibratory Centrifuge

Features

• High recovery and low crushing rate for the coarse coal, with low power consumption per ton.
• International famous brand vibration motor with convenient and easy amplitude adjustment
• Wear-resistant lining for the inlet and outlet to reduced wearing to the equipment
• All the wear-resistant parts are made of high wear-resistant materials to extend the service life
• Main bearing adopts international famous brands such as SKF, FAG or NSK
• Few wear parts and low maintenance cost
• Horizontal installation taking up small area and easy to assemble & disassemble
• Large processing capacity, and high upper limit of feed size
• High reliability, smooth operation, and low noise
## Horizontal Vibratory Centrifuge
### Technical Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>GNVC-1000</th>
<th>GNVC-1100</th>
<th>GNVC-1200</th>
<th>GNVC-1300</th>
<th>GNVC-1400</th>
<th>GNVC-1500</th>
<th>GNVC-1650</th>
</tr>
</thead>
<tbody>
<tr>
<td>Screen Basket Diameter</td>
<td>1000mm</td>
<td>1100mm</td>
<td>1200mm</td>
<td>1300mm</td>
<td>1400mm</td>
<td>1500mm</td>
<td>1650mm</td>
</tr>
<tr>
<td>Screen Angel</td>
<td>13°</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>15°</td>
</tr>
<tr>
<td>Screen Opening</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.5mm</td>
</tr>
<tr>
<td>Capacity</td>
<td>80t/h</td>
<td>120t/h</td>
<td>160t/h</td>
<td>200t/h</td>
<td>250t/h</td>
<td>300t/h</td>
<td>350t/h</td>
</tr>
<tr>
<td>Speed</td>
<td>350RPM</td>
<td>330RPM</td>
<td>320RPM</td>
<td>310RPM</td>
<td>300RPM</td>
<td>290RPM</td>
<td>280RPM</td>
</tr>
<tr>
<td>Main Motor Power</td>
<td>22KW</td>
<td>30KW</td>
<td>30KW</td>
<td>37KW</td>
<td>45KW</td>
<td>55KW</td>
<td>75KW</td>
</tr>
<tr>
<td>Vibrators</td>
<td>2x3KW</td>
<td>2x4.98KW</td>
<td>2x4.98KW</td>
<td>2x5.67KW</td>
<td>2x5.67KW</td>
<td>2x8.6KW</td>
<td>2x8.6KW</td>
</tr>
<tr>
<td>Feeding Particle Size</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Feeding Surface Moisture</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>&lt;30%</td>
</tr>
<tr>
<td>Product Surface Moisture</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5-9%</td>
</tr>
</tbody>
</table>
Horizontal Screen Scroll Centrifuge

Fine Coal Dewatering

GN Horizontal Screen Scroll Centrifuge for Fine Coal is used for fine coal dewatering in coal washing plant, and well-applied coal particle range is 0-3mm. The fine coal with water in this particle range is also called coarse slime. GN Horizontal Screen Scroll Centrifuge can remove the moisture in the fine coal or coarse slime by a high centrifugal force, and the coarse slime is discharged due to the differential speed between the scraper and the screen basket. GN Horizontal Screen Scroll Centrifuge adopts horizontal installation design to replace the traditional vertical scraper discharge centrifuge. The advantages are as following of that the replacement of wear parts can be realized in the horizontal direction, the height of the workshop is greatly reduced, the failure rate is lower, and the stability is better, which is the development trend of coarse slime dewatering equipment at home and abroad. GN Horizontal Screen Scroll Centrifuge for Fine Coal is a serialized product; the screen basket diameter is from 900mm to 1200mm, which meets the processing capacity demand from 30 tons/h to 120 tons/h. After dewatering by GN Horizontal Screen Scroll Centrifuge, the surface moisture of coarse slime is about 12-16%.
Horizontal Screen Scroll Centrifuge

Features

• Horizontal installation, low factory height requirements, easy for maintenance
• All the wear-resistant parts are made of high wear-resistant materials to extend the service life
• Main bearing adopts international famous brands such as SKF, FAG or NSK
• High separation factor, strong dewatering ability for coarse slime
• High reliability, stable operation and low noise
• The opening diameter of the screen basket can be customized to meet the dewatering requirements of different slime
## Horizontal Screen Scroll Centrifuge

### Technical Specifications

<table>
<thead>
<tr>
<th></th>
<th>GNSCC-900</th>
<th>GNSCC-1000</th>
<th>GNSCC-1200</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Model</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Feeding Particle Size</strong></td>
<td>0-3mm</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Screen Opening</strong></td>
<td>0.25/0.35/0.5mm</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Feeding Moisture</strong></td>
<td>&lt; 30%</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Capacity</strong></td>
<td>30 ~ 50 t/h</td>
<td>40 ~ 60 t/h</td>
<td>60 ~ 120 t/h</td>
</tr>
<tr>
<td><strong>Product Surface Moisture</strong></td>
<td>12 ~ 16 %</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Main Motor Power</strong></td>
<td>55kw</td>
<td>75kw</td>
<td>75kw</td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td>4000kg</td>
<td>4500kg</td>
<td>5500kg</td>
</tr>
</tbody>
</table>

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Screen Bowl Decanter Centrifuge

Ultra fine Coal Dewatering

GN Coal Dewatering Screen Bowl Decanter Centrifuge is used for dewatering of ultrafine coal in coal washing plant, and well-applied coal particle range is usually 0-0.5mm. The Coal Dewatering Screen Bowl Decanter Centrifuge is with screw propeller inside the bowl. Its straight bowl section is closed type and similar to Decanter Centrifuge, and the cone bowl section has mesh holes on it. GN Coal Dewatering Screen Bowl Decanter Centrifuge adopts the principle of "centrifugal sedimentation" and "centrifugal filtration" to carry out solid-liquid separation. Ultrafine coal slurry enters the centrifuge through the feed pipe, and goes through two stages of centrifugal sedimentation and centrifugal filtration, with the help of centrifugal force, finally comes out three products, Dewatered Coal, Filtered Water and Centrifugal Water. The filtered water can be re-entered into the centrifuge as circulating material. GN Coal Dewatering Screen Bowl Decanter Centrifuge is a serialized product; there are 5 models with bowl diameter from 900mm to 1600mm, and processing capacity from 10 tons/h to 100 tons/h. The surface moisture of ultrafine coal is about 14~24% after dewatering by GN Coal Dewatering Screen Bowl Decanter Centrifuge.
Screen Bowl Decanter Centrifuge

Features

• Wide Applicability: suitable for dewatering of flotation clean coal, medium coal, tail coal, primary slime, cyclone underflow and pipeline coal terminal
• Dual dewatering function of centrifugal sedimentation and centrifugal filtration, large processing capacity, low moisture after slime dewatering
• The supporting structure of bowl and screw main body of GN Screen Bowl Decanter Centrifuge is compact, easy to disassemble and install, and runs smoothly
• The filter section of the centrifuge bowl applies high-aluminum ceramic screen mesh, long service life
• The periphery of centrifuge screw is protected by ceramic slices, long service life
• The centrifuge applies automatic circulating oil lubrication system
• The electrical control system of the whole machine is advanced and reliable, with good electromechanical protection measures, including over torque, over oil pressure, over current, etc.
Screen Bowl Decanter Centrifuge

Technical Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>SBC900×1800</th>
<th>SBC1100×2600</th>
<th>SBC1200×2000</th>
<th>SBC1400×2000</th>
<th>SBC1600×2400</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bowl Diameter</td>
<td>900mm</td>
<td>1100mm</td>
<td>1200mm</td>
<td>1400mm</td>
<td>1600mm</td>
</tr>
<tr>
<td>Bowl Length</td>
<td>1800mm</td>
<td>2600mm</td>
<td>2000mm</td>
<td>2000mm</td>
<td>2400mm</td>
</tr>
<tr>
<td>Bowl Speed</td>
<td>900 rpm</td>
<td>800 rpm</td>
<td>700 rpm</td>
<td>650 rpm</td>
<td>600 rpm</td>
</tr>
<tr>
<td>Feeding Particle Size</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Capacity</td>
<td>10 ~ 20 t/h</td>
<td>25 ~ 40 t/h</td>
<td>30 ~ 40 t/h</td>
<td>40 ~ 70 t/h</td>
<td>80 ~ 100 t/h</td>
</tr>
<tr>
<td>Feeding Concentration</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Product Surface Moisture</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Motor Power</td>
<td>110 kw</td>
<td>160 kw</td>
<td>185 kw</td>
<td>200 kw</td>
<td>280 kw</td>
</tr>
<tr>
<td>Weight</td>
<td>12500 kg</td>
<td>18500 kg</td>
<td>17500 kg</td>
<td>18000 kg</td>
<td>20000 kg</td>
</tr>
</tbody>
</table>

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Screen Bowl Decanter Centrifuge

Factory Picture
It is difficult to separate the ultrafine coal particles less than 150 microns by using conventional dewatering equipment. However, with the high-speed rotation speed, the separation factor of GN solid bowl decanter centrifuge can reach high up to 3000 G, which can dewater the ultrafine coal tailing. In addition, GN decanter centrifuge is also widely used in the solid-liquid separation of other minerals or tailings dewatering. The solid bowl decanter centrifuge in coal preparation industry usually adopts more advanced wear-resistant technology to extend the service life of solid bowl decanter centrifuge in mineral separation. Compared with the filter press, GN solid bowl decanter centrifuge is small footprint, more convenient to use and maintain, with fewer wearing parts and lower operating cost.
# Solid Bowl Decanter Centrifuge

## Technical Specifications

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Bowl Diameter</td>
<td>360 mm (14 Inch)</td>
<td>450 mm (18 Inch)</td>
<td>550 mm (22 Inch)</td>
<td>650 mm (25.6 Inch)</td>
<td>760 mm (30 Inch)</td>
</tr>
<tr>
<td>Bowl Length</td>
<td>1512 mm (59.5 Inch)</td>
<td>1890 mm (74.5 Inch)</td>
<td>2310 mm (91 Inch)</td>
<td>2730 mm (82 Inch)</td>
<td>3328 mm (131 Inch)</td>
</tr>
<tr>
<td>Approximate Capacity</td>
<td>10-15m3/h</td>
<td>20-30m3/h</td>
<td>40-50m3/h</td>
<td>60-80m3/h</td>
<td>100-120m3/h</td>
</tr>
<tr>
<td>Max. Speed (RPM)</td>
<td>3900</td>
<td>3500</td>
<td>3150</td>
<td>2900</td>
<td>2650</td>
</tr>
<tr>
<td>Product Surface Moisture</td>
<td>&lt;30%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bowl L/D Ratio</td>
<td>4.2</td>
<td>4.2</td>
<td>4.2</td>
<td>4.2</td>
<td>4.4</td>
</tr>
<tr>
<td>Drive/Control Type</td>
<td>VFD+PLC+ HMI</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bowl Material</td>
<td>SS2304/SS316/SS2205 Centrifugal Casting</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Screw Wear-resisting Protection</td>
<td>Tungsten carbide plate protection / wear resistant coating protection</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The capacity is only for reference, and varies under different working conditions.
Solid Bowl Decanter Centrifuge

Coal Tailing Dewatering

Site Application Video:

Solid Bowl Decanter Centrifuge

Features

- Bowl material made from Duplex Stainless steel 2304 by centrifugal casting, which is better than SS304 and SS316.
- Solids discharge port protected by tungsten carbide inserts, anti-abrasion for longer life.
- The adjustable effluent ports provide for fast precise pond depth configuration.
- Pneumatic spring assist the opening of the centrifuge cover and give more safety.
- Tungsten carbide alloy plow/scrapper provide fully protection for the bowl solids discharge end.
Solid Bowl Decanter Centrifuge

Features

- Conveyor Wear Surface: Tungsten carbide tiles. The life is much longer than hard surface. And all tiles is interchangeable for easy maintenance.

- Mud distribution port on the conveyor is protected by tungsten carbide alloy inserts for anti-abrasion when processing heavy mud.

- Stainless steel conveyor heat treatment to over 1000 C degree for better strength. And opening on the conveyor to increase the capacity of the centrifuge.

- Two motors mounted on one end, parallel and at equal elevation for smallest footprint and maximum accessibility.

- The bearings of the centrifuge are SKF premium bearings.
GN Facilities

No. 1 Factory: Headquarter Office

No. 2 Factory: Centrifuge & Pump Manufacture
GN Facilities
Centrifuge Workshop
GN Facilities
Fabrication & Coating

- Laser Cutting
- Plasma cutting
- Ball Blasting and Paint
- Welding
- Powder Coating
- Warehouse & Stock

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