## COMPARISON OF DEHYDRATORS

<table>
<thead>
<tr>
<th>Type</th>
<th>Multi-Disc Screw Press Dehydrators</th>
<th>Multi-Disc Dehydrators</th>
<th>Belt Press Dehydrators</th>
<th>Centrifugal Dehydrators</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Type of Dehydration</td>
<td>Gravity Filtration/Compression by Volume Reduction</td>
<td>Gravity Filtration/Compressed Dehydration</td>
<td>Gravity Filtration/Compressed Dehydration</td>
<td>Centrifugal Dehydration</td>
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<td></td>
<td>Pitches of the screw blade gradually reduce towards the cake outlet. Dehydration is performed by the gravity filtration and the compression applied to the flocculated sludge.</td>
<td>A number of filtering rollers, each of which consists of multiple metal and resin discs, are placed in two rows of top and bottom. The flocculated sludge is brought towards the cake outlet by the rotation of the rollers and is dehydrated by the compression. (similar to the human bowel movement)</td>
<td>Flocculated sludge is transported between two sheets of filter cloths, and it is dehydrated by the cloth’s tensile force generated by the rollers.</td>
<td>It is the equipment that flocculated sludge is brought to a bowl which rotates in a high speed, and the sludge is dehydrated by the difference of specific gravity and the centrifugal effect.</td>
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<tr>
<td>2. Construction and appearance</td>
<td><img src="image1.png" alt="Image" /></td>
<td><img src="image2.png" alt="Image" /></td>
<td><img src="image3.png" alt="Image" /></td>
<td><img src="image4.png" alt="Image" /></td>
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</tbody>
</table>
Continuous operation is possible.

The dehydrator is designed to be free from clogging and to operate at a lower power, unattended continuous operation is possible.

Peripheral equipment like sludge service tank are built in the unit, so that it is easy to install. A common submersible pump can be used for the feeding of sludge.

• Since the dehydrator is designed to be free from clogging, unattended continuous operation is possible.
• It is compact, but it is necessary to provide a sludge service tank and a coagulant supply facility. A pump having a quantitative nature, like a screw pump, will be necessary for the feeding of the sludge.
• It is possible to handle wider range of sludge concentrations, from 0.5 to 5.0%. There is a sludge that can be treated by this equipment, even if its concentration is below 1.0%.
• The dehydrator can stably treat the sludge that has a high concentration of oil.
• It can handle the sludge that contains a large amount of foreign substances.
• It requires a small amount of wash-water (Treated water can be used). A high-pressure wash-water pump is not necessary.
• Increasing the number of dehydration unit (dehydration part) is possible, and this will solve future increase of the load and will avoid the danger caused by an unforeseen accident.
• It is easy to mount a deodorant device.
• Easy to prepare a countermeasure against malodor (semi-closed body).

Since it is the equipment utilizing high rotating speed, it is possible to obtain lower water content sludge cake.

It is compact, but it is necessary to provide a sludge service tank and a coagulant supply facility, and reaction tank, etc. A pump having a quantitative nature, like a screw pump, will be necessary for feeding the sludge.

In order to keep the dehydration efficiency, a large quantity of wash-water is needed. Periodical replacement of the filter cloth is also needed.

For the deodorant means, it is necessary to cover whole part of the equipment, which can be a large-scale work.

Continuous operation is possible.

The dehydrator can be applied to a variety of sludge but is not suitable for the sludge containing oil.

Depending on the property of the sludge, this equipment may be able to treat it with only one type of inorganic coagulant.

It is necessary to provide peripheral equipment such as sludge service tank, coagulant supply facility, and reaction tank, etc. A pump having a quantitative nature, like a screw pump, will be necessary for feeding the sludge.

It is required to keep the sludge concentration over 1.0%, and if a change in concentration occurs, filter cloth may get clogged.

In order to keep the dehydration efficiency, a large quantity of wash-water is needed. Periodical replacement of the filter cloth is also needed.

Continuous operation is possible.

Though continuous operation is possible, its dehydration efficiency will greatly drop when the sludge concentration changes. It is necessary to pay attention to keep the property of sludge in a stable condition.

In the routine check, professional techniques like adjustment of the filter cloth and the scraper.

Washing of the filter cloth is required every time after operation. The volume of wash-water is not a little so that treatment of the used water must be considered.

The filter cloth must be replaced as a consumable part. Replacement of the cloth will need a professional technician.

As the construction is rather complicated, a longer time will be required for the maintenance.

Experienced person will be needed for the management of the equipment. Inspection 2 to 3 times a week will be required.

Continuous operation is possible.

Though continuous operation is possible, its dehydration efficiency will greatly drop when the sludge concentration changes. It is necessary to pay attention to keep the property of sludge in a stable condition.

As the rotary parts rotate in a high speed, repair fee including the spare parts such as, screw, bearings, and sealing parts will cost high.

It is necessary to take countermeasures against vibration and noise, and such system must be maintained always in a good condition.