Sludge dewatering

Press for Less...
Innovative dewatering technology

Bucher Unipektin is one of the world’s leading manufacturers of machines and systems for efficient solid-liquid separation of biosolids. The patented technology of Bucher hydraulic presses has been implemented in over 2000 installations worldwide. The reliability of Bucher presses in demanding applications and use has set new standards.

Bucher Unipektin team of experienced engineers and technicians work to meet the challenges of tomorrow for the benefit of our customers and our environment. The challenging expectations of our customers are the focus of our activities.

Our employees in addition to a high level of training also have many years of experience in solids-liquids separation. This allows us to offer our customers exceptionally innovative solutions for dewatering.

Based on this experience and with further development of its robust press technology, Bucher Unipektin has expanded the boundaries of what has to date been technically possible in dewatering of sludge.

Systems delivered by Bucher Unipektin are characterised by a high level of performance and long service life with minimal maintenance.

System design and construction is prepared and executed in a constructive dialogue together with planners and clients efficiently and in a cost-saving way according to specific needs.

Proven and robust, Bucher presses offer decisive advantages:

- High degree of dewatering
- Low disposal and drying costs
- Reliable process and system control
- Self-optimizing process operation
- Continuous operation without supervision
- Minimal labour costs
- Low maintenance costs
Dewatering to the limit

Bucher presses provide the superior technology for processing municipal and industrial sludge to yield filter cake with the lowest possible moisture content. Using common additives, sludge may be mechanically dewatered to the limit that is technically possible.

The high performance levels of the Bucher press have been demonstrated in comparative trials with other dewatering technologies. Dry substance (DS) values of up to 50% W/W have been achieved.

The Bucher press is a hydraulically driven cylinder-piston system. All wetted metal surfaces are stainless steel. The end of the cylinder and the piston are connected with flexible drainage elements. The drainage elements consist of a flexible polyurethane core fitted with a woven polypropylene filter sleeve. The complete cylinder and piston assembly is slowly rotated.
High performance through proven methods

A complete pressing cycle consists of a filling, pressing and an automatic emptying phase. A complete cycle takes 70 - 120 minutes depending on the drainage characteristics of the sludge.

1) The press volume is filled up by using a pump.

2) The press piston is moved forward reducing the press volume forcing the liquid through the drainage elements into the filtrate collection chamber at the end of the cylinder.

3) The press piston is pulled back. The slow rotation of the cylinder and movement of the drainage elements allows the filter cake to fragment into pieces. The vacuum created in the cylinder causes a back flow through the filter sleeves thus cleaning them. During the next pressing phase the filter cake effectively assist in the filtering.

The process steps 1, 2 and 3 are repeated until a sufficient quantity of filter cake has developed in the press space. The actual pressing phase follows by alternating process steps 2 and 3 until the desired degree of dewatering is achieved.

The high degree of dewatering is due to the short flow path of the liquid to the filter elements through frequent pressing and loosening.

4) When pressing is complete the press space casing is hydraulically opened and the filter cake is discharged by the press piston.
Operation safety through self-optimizing controls

Maximum dewatering performance is achieved with self-optimising controls. The operator may select the degree of dewatering or the pressing time.

The press is operated from a user-friendly operator interface with process visualisation. The relevant process data is displayed.

The high level of automation combined with the self-optimising controls guarantee maximum operational safety and performance with a minimum of operator input.
### Maximal dewatering results in minimal disposal costs

The drainage characteristics of a sludge depend largely on its composition. The maximum dry substance (DS) achievable through mechanical methods is determined primarily by the content of extra-cellular polymer substances (EPS). The bound water can only be removed by denaturing before mechanical dewatering or by thermal drying.

With the Bucher press, the maximum possible dry substance content is achieved for all kinds of sludge conditioning.

Since the costs for sludge transport and handling are proportional to the weight of the dewatered filter cake, the disposal costs are reduced through the use of the Bucher press.

A further economic and ecological advantage is the energy surplus created in the thermal utilisation of sludge dewatered by a Bucher press.

With the Bucher press, you attain the maximum dewatering and thus achieve the best possible results in dry substance content and heating value of the dewatered filter cake.

**Challenge us and our demonstration system!**

<table>
<thead>
<tr>
<th>Thin sludge 2 ≤ DS ≤ 6%</th>
<th>Thermal drying</th>
<th>Mechanical dewatering</th>
</tr>
</thead>
<tbody>
<tr>
<td>DS = 100%</td>
<td>Loss in drying = 55%</td>
<td>Organic Mineral H₂O</td>
</tr>
<tr>
<td>DS = 45%</td>
<td>Loss in drying = 65%</td>
<td>Organic Mineral H₂O</td>
</tr>
<tr>
<td>DS = 35%</td>
<td>Loss in drying = 75%</td>
<td>Organic Mineral H₂O</td>
</tr>
</tbody>
</table>

H₂O on organic

Organic Mineral
Bucher Unipektin is always there for you!

A high level of professional commitment in the interest of the customer is a matter of course for our staff.

After-sales support is an important basis for a long-term and sustained partnership. All orders, whether for individual system components, complete dewatering systems or for replacement parts are processed with care according our ISO 9001:2000 certification.

In addition to commissioning services supplied by us, our service includes training of operating personnel and execution of servicing work. Furthermore, our central parts warehouse and fast world-wide delivery of wear and spare parts guarantees continuing reliable operation.