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 biomass. The patented technology of Bucher hydraulic presses has been put to use in over 2000 systems worldwide. The reliability of Bucher presses in demanding applications and use has set new standards.

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

Our employees have a high level of training and many years of experience in solids-liquids separation. This allows us to offer our customers 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 are slowly rotated.
High performance through proven methods

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

1) The press space is filled up using a pump.

2) The press piston is moved forward reducing the press space 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 pieces 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 that is developed through the frequent pressing and loosening.

4) When pressing is complete the press space casing is hydraulically opened and the fragmented filter cake 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 both chemically untreated as well as denatured sludge.

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 with a high dry substance content and sufficiently high organic content (LOI > 30%).

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!
Bucher Unipektin is always there for you!

This is no empty promise! A high level of professional commitment in the interest of the customer is a matter of course for our staff.

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

In addition to commissioning systems supplied by us, our service includes training of operating personnel and execution of servicing work. Furthermore, our central parts warehouse and fast worldwide delivery of wearing and replacement parts guarantees continuing reliable operation.
Bucher Specials  Machinery for the wine and non-alcoholic beverages production, environmental technology, trading company for tractors and specialised agricultural machinery.

Bucher Municipal  Compact and truck-mounted sweepers, airport sweepers, snow blowers, spreaders, refuse collection vehicles and multipurpose vehicles.

Bucher Hydraulics  Custom made, hydraulic drive and control technology for vehicles and machines.

Kuhn Group  Farm machinery for hay and silage, feed preparation, soil preparation, seeding and fertilisation technology and plant care.

Emhart Glass  Glass forming and inspection machines, systems and control devices for the container glass industry.