

Dewatering technology

Machines for dewatering biomasses



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.

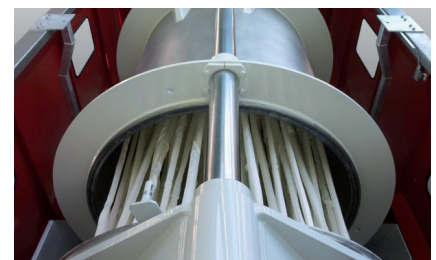
The reliability of Bucher presses in demanding applications and operations has set new standards. The team of experienced engineers and technicians works to meet the challenges of tomorrow for the benefit of our customers and our environment. The challenging expectations of our customers are the focus of our activities. Our employees have many years of experience in solid-liquid separation. This allows us to offer our customers exceptionally innovative solutions for dewatering.

Based on the further development of its robust press technology, Bucher Unipektin has expanded the limits of what was technically possible in dewatering of biosolids. Our plants are characterised by high performance and a long service life

with minimal maintenance. System design and construction are prepared and executed in a constructive dialogue together with planners and clients in an efficient and cost-saving way according to specific needs.

The pivotal point of biomass handling is mechanical dewatering. It guarantees resource-saving and energy-efficient treatment of biosolids.

Bucher Unipektin's HPS technology ensures energy-efficient thermal utilisation of the biomass as well as easy handling of the filter cake in agricultural recycling processes with the highest possible degree of mechanical dewatering.





BUCHER
unipektin

BUCHER
unipektin

PRAS-

BUCHER
unipektin

PROFFICO

PRZEWOŚNIK P1

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 dewatering properties of the biomass.

1 Filling

The press volume is filled up by using a pump.

2 Pressing

The press piston is moved forward reducing the press volume, forcing the liquid through the drainage elements.

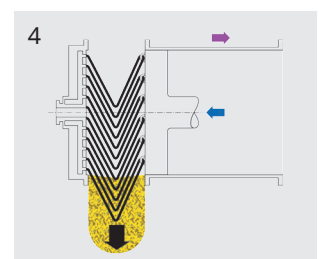
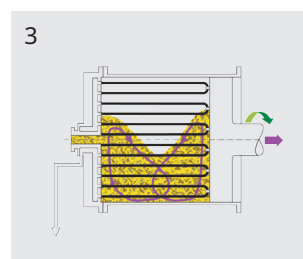
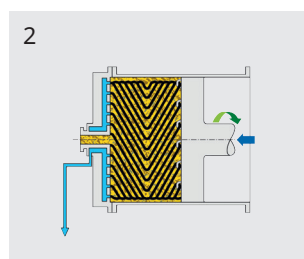
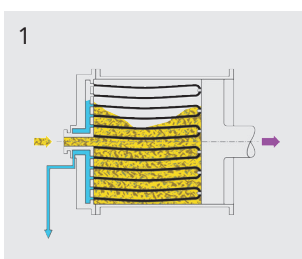
3 Loosening

The press piston is pulled back. The slow rotation of the cylinder and the movement of the drainage elements allow the filter cake to fragment into pieces. The vacuum created in the cylinder causes a backflow through the filter sleeves thus cleaning them. During the next pressing

phase, the crumbled filter cake effectively assists in the filtering. Process steps 1, 2 and 3 are repeated until a sufficient quantity of filter cake has formed 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 Emptying

After the pressing is complete, the press space casing is hydraulically opened, and the filter cake is discharged by the press piston.



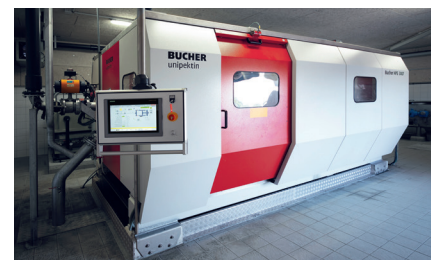
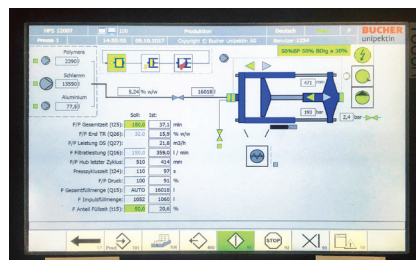
Safety through self-optimising control system

In order to achieve maximum filtration performance, the entire dewatering process is carried out by a comprehensive self-optimising process according to the operator's specifications.

The target value can be the degree of dewatering, the filtrate flow or the press time.

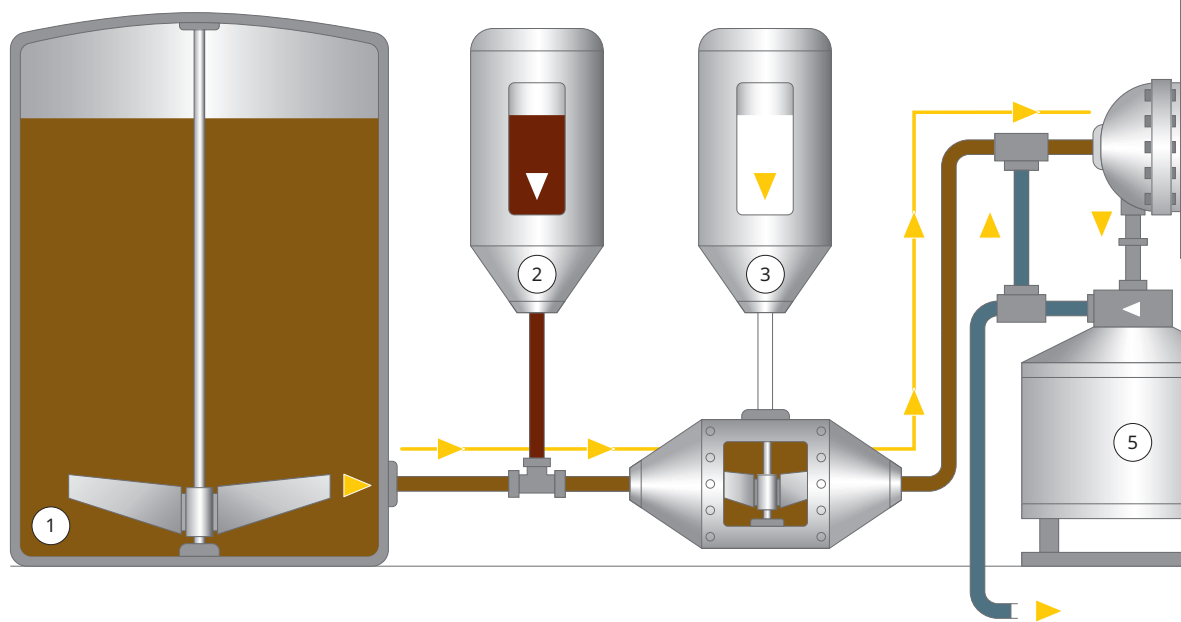
The press is operated via a user-friendly graphical user interface with process visualisation. A data acquisition module provides relevant process and production data.

The high level of automation combined with the self-optimising controls guarantee maximum operational safety and performance with minimal operator input.

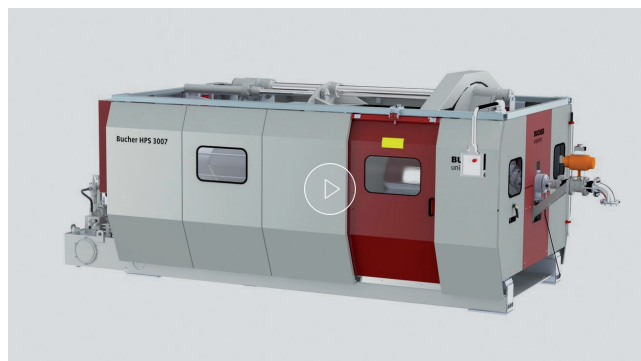
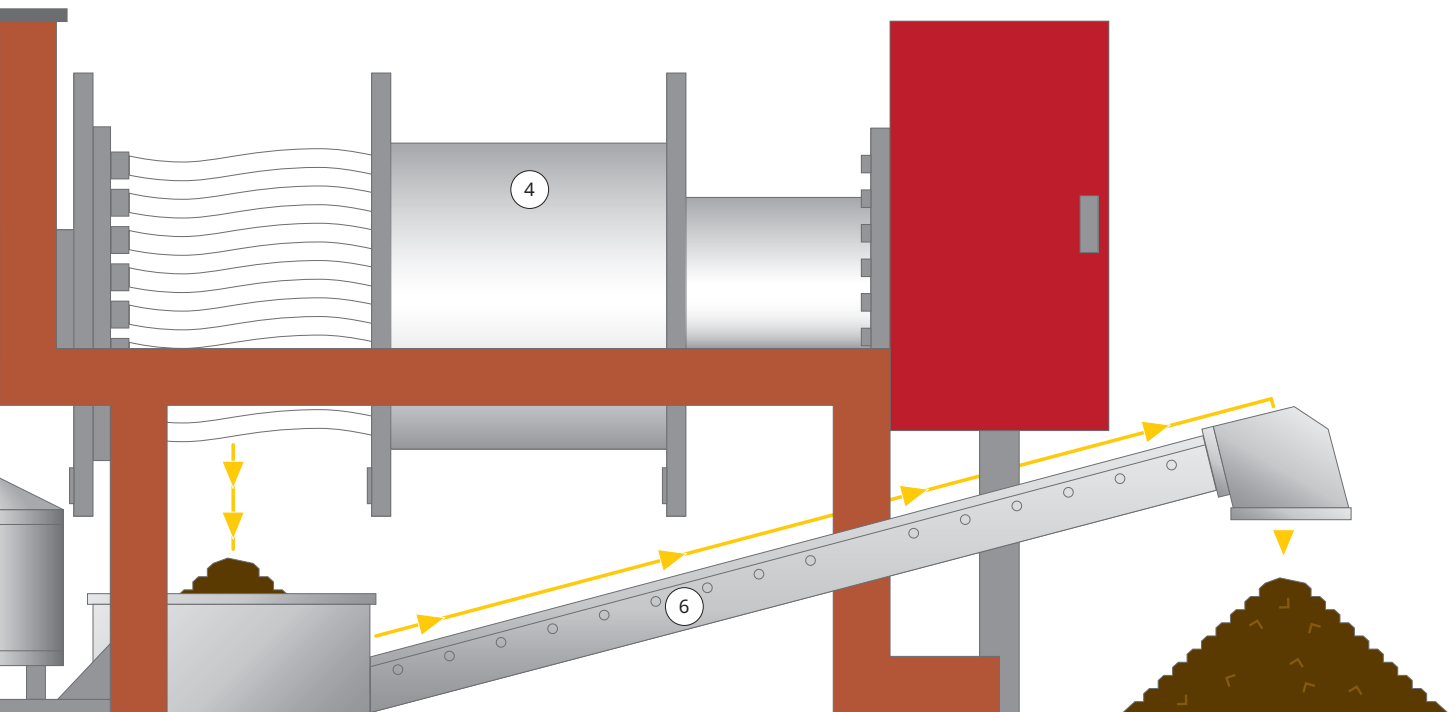


Your specialist for maximum dewatering

Schematic
illustration of
a process line



- 1 Storage tank of biosolids
- 2 Coagulant dosing (optional)
- 3 Flocculant dosing and active mixer
- 4 HPS press
- 5 CIP tank
- 6 Conveying system for the filter cake



3D animation of the process flow

Use the adjacent QR code to view an explanatory video which provides a 3D animation of the entire process.

Minimal disposal costs by maximum dewatering

Dewatering is currently facing several challenges which are already being covered by the Bucher press.

Thanks to a low energy process and the new hydraulic design, the effective energy requirement for dewatering with HPS technology is in the range of 20 to 50 kWh/t dry residue depending on the type of biosolids, which is by far the best achievable energy to dryness ratio.

Thanks to the filtration process used in connection with sewage biosolids conditioning, the backflow load of the filtrate by solids is reduced to a minimum. This significantly simplifies the filtrate post-treatment. This is especially true for the recovery of primary resources (P, N, etc.).

Comparing the technologies, it can be seen that the Bucher press achieves significantly higher dry matter than conventional processes. The better the dewaterability of a sewage biomass, the greater the difference to other processes.

The HPS technology can achieve autothermal levels for almost all types of biosolids. This allows direct thermal valorisation of HPS dewatered biomasses without the implementation of a cost and energy intensive thermal treatment. As a result, the best possible energy balance in biosolids treatment can be achieved.



Energy and sustainability

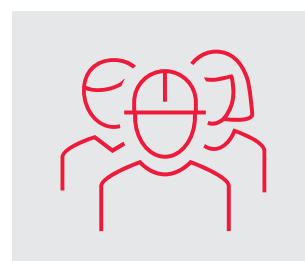
In coordination with Bucher Industries, we base our sustainability strategy on four pillars: customers, employees, environment, compliance.

Bucher Industries' corporate strategy has been geared towards the long term for over 200 years and forms the basis for our success. The Group develops and manufactures products that are technologically, economically and ecologically convincing. Through the sustainability strategy, which rests on four thematic pillars, long-term orientation is lived and continued in the core business of Bucher Industries. The sustainability strategy incorporates environmental, social and governance considerations. Within these, we consider eleven topics to be material for us. We have defined corresponding ambitions, set key indicators and, where meaningful and possible, quantitative targets.

With the annual report we have moved to combined reporting that provides information on finance, environment, social affairs and ethics. Using facts and figures as well as stories, the report shows how Bucher Industries implements its sustainability strategy. The report is written in accordance with the standards of the Global Reporting Initiative.

Integrated management system

Health, safety and environmental protection are fully integrated into our business processes and contribute to value creation. We are certified according to ISO 9001, ISO 14001 und ISO 45001.



Service: we take care of your needs

Our services are based on many years of technical expertise and practical experience and range from customer advice engineering, plant construction, assembly and installation to commissioning.

Quality

All orders are processed with the same care, whether for individual plant components, complete processing lines or spare parts. Our plants are characterised by high availability and long service life with minimal maintenance.

Innovation

With the development of the HP system, Bucher Unipektin has succeeded in revolutionising the press technology in a sustainable way. Today, an entire team of experienced development engineers is working on the press technology of tomorrow – for the benefit of our customers!

Worldwide service

In order to guarantee optimally functioning systems to our customers, our commissioning engineers will intensively train and instruct your operating personnel on site. The support team in our customer service and after-sales department consists of experienced professionals. Our central spare parts warehouse guarantees a long-term availability of spare parts as well as fast and reliable delivery worldwide. For a personal consultation of our services and service packages, please contact our customer service. Further information can be found on our website.





bucherunipektin.com

Bucher Unipektin AG
Murzlenstrasse 80
8166 Niederweningen, Switzerland
T +41 44 857 23 00
info@bucherunipektin.com