

BFR

Rubber Belt Filter

Continuous filtration of sedimenting media

BHS
SONTHOFEN

TRANSFORMING
MATERIALS
INTO VALUE



Headquarters of BHS-Sonthofen



TRANSFORMING MATERIALS INTO VALUE

BHS
SONTHOFEN



The company

BHS-Sonthofen, headquartered in Sonthofen, is an owner-operated group of companies in the field of machine and plant engineering. We offer technical solutions in the field of mechanical process engineering, with a focus on mixing, crushing, recycling and filtration. With over 300 employees and a number of subsidiaries, BHS-Sonthofen has a global presence.

Cake filtration

BHS has specialized in cake filtration for more than 50 years. We supply a broad range of pressure and vacuum filters for both batch and continuous operation. There is a diverse spectrum of implemented applications and we have accumulated a wealth of experience. A common feature of all BHS filters is that they work with a thin cake.

Filtration tests

BHS has a range of pilot and lab filters available for customer-specific filtration tests. These are available for rent; BHS will be happy to advise you on all application-related matters.

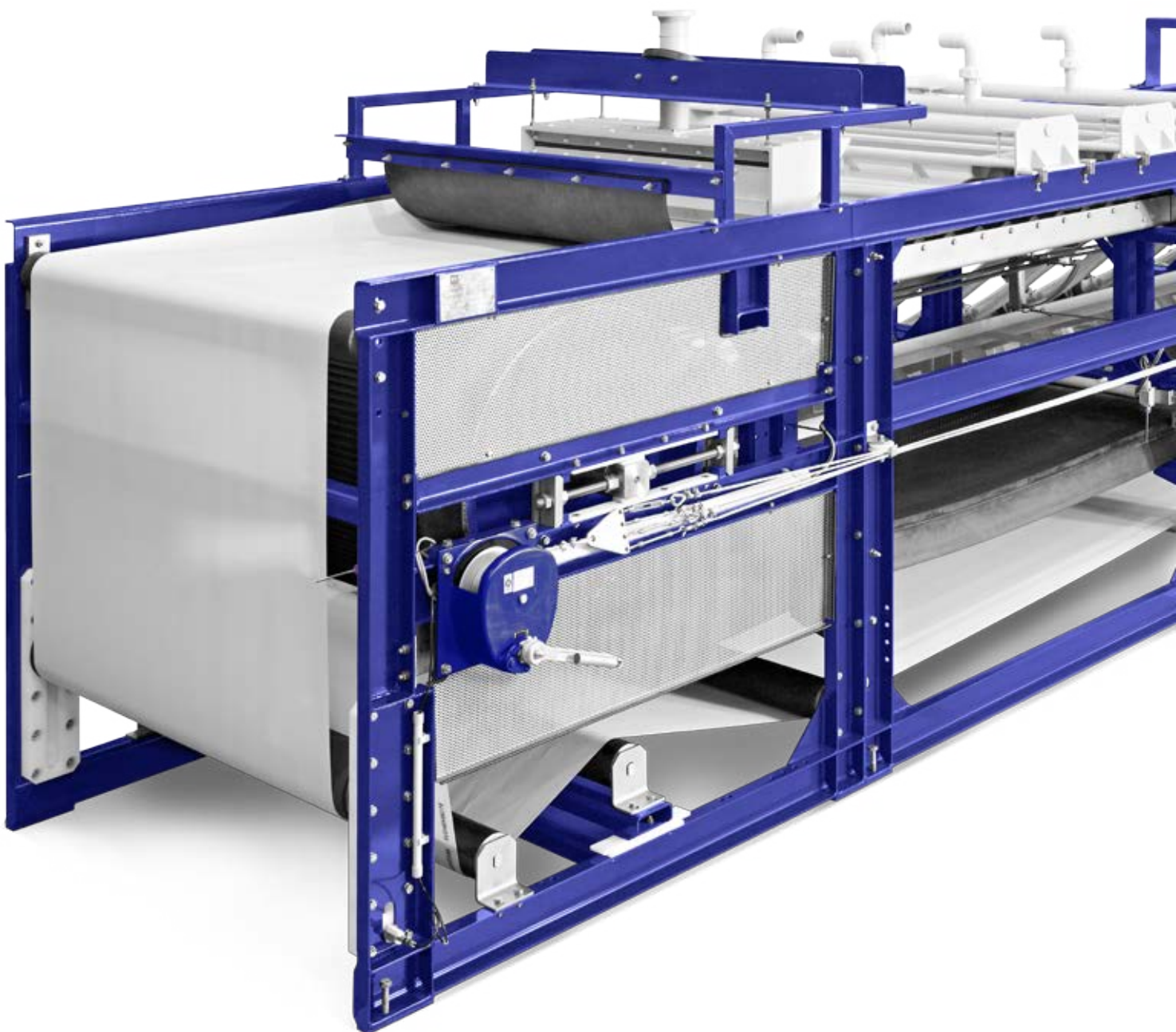
Worldwide service

BHS offers quick and reliable service worldwide with its technical customer support and a large stock of spare parts for all standard machine types and also for older machines.

www.bhs-sonthofen.com

BHS rubber belt filter

The BHS rubber belt filter is a continuously operating, horizontal vacuum belt filter used for the quick and efficient separation of sedimenting solids from suspensions. It is characterized by its high throughput rates and robustness. Cake treatment with single or multi-stage washing is possible.



BFR 120 rubber belt filter

Robustness

The BHS rubber belt filter stands out for its robust design which is optimized for operational use. A stable, load-bearing design made of steel or stainless steel allows this system to be used even in rough environments. The BHS rubber belt filters are designed to achieve a long service life under high loads. This minimizes the maintenance and operating costs.

Easy maintenance

Thanks to the low number of installed individual components, rubber belt support provided by a roller table and the optimal accessibility of the vacuum box, the rubber belt filter is extremely wear-resistant and easy to maintain. Robust systems for belt support and belt tracking enable long operating times and reduced maintenance times.

High performance

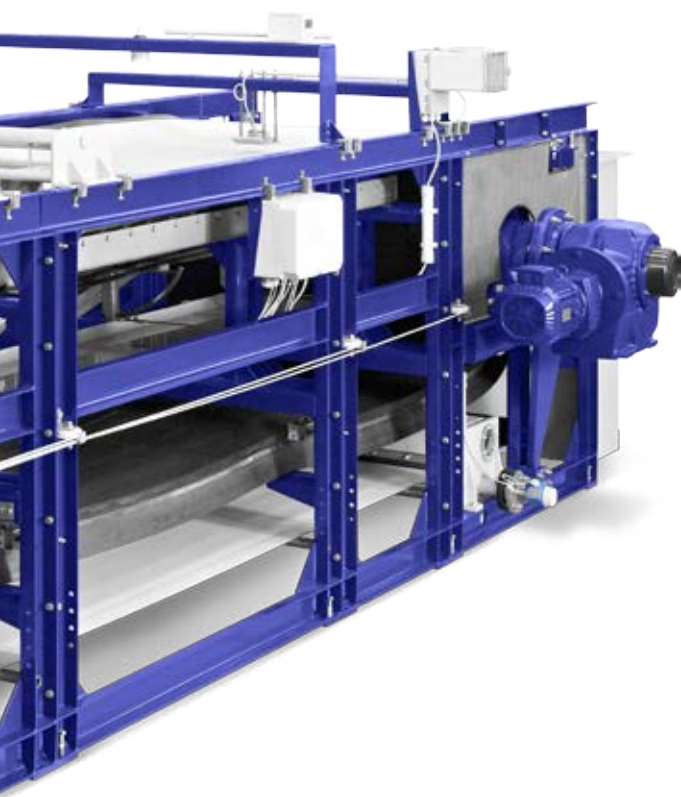
BHS rubber belt filters are designed for maximum filtration performance. Depending on the application, suspension performances of up to $15 \text{ m}^3/\text{m}^2/\text{h}$ are possible. A further cake treatment, such as single- or multi-stage cake washing, could also be considered. Filter areas of up to 162 m^2 per filter are possible.

Flexibility in production

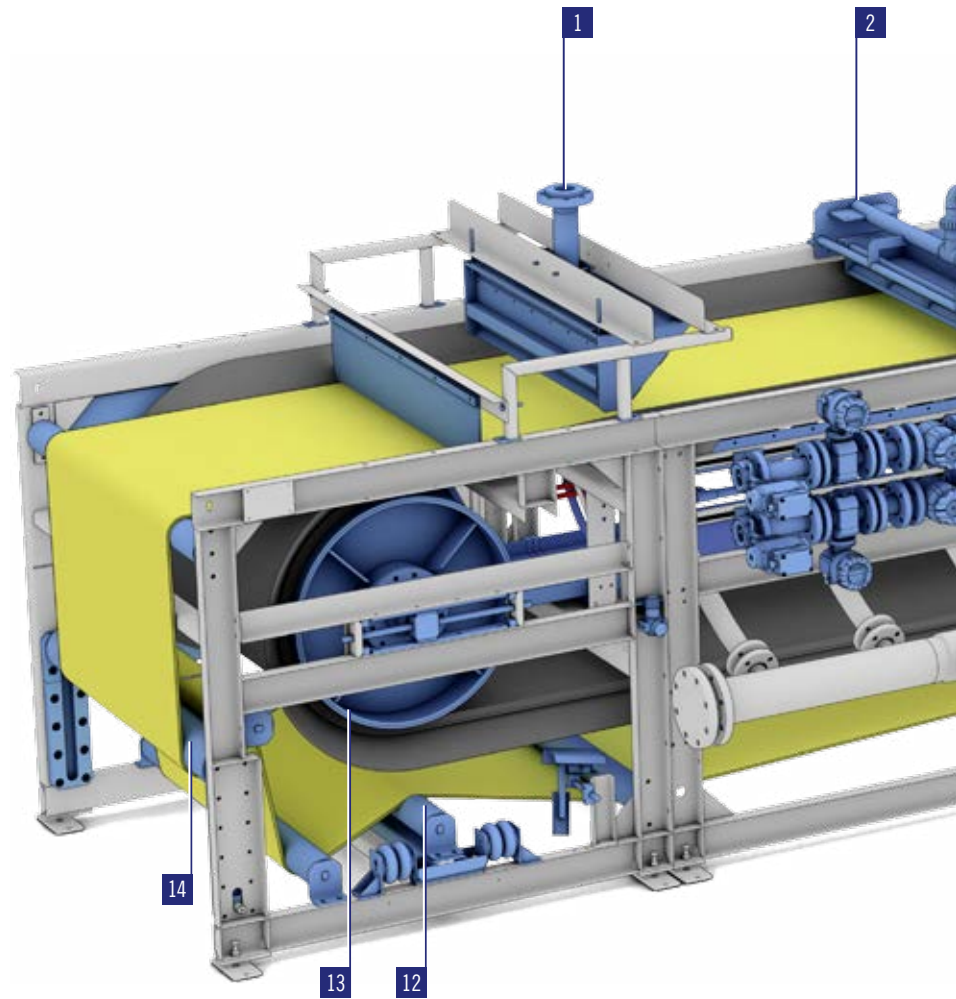
Using tried-and-tested measuring devices and controllers to measure the cake thickness and belt speed, the filter can be adjusted to specific requirements in terms of production output. Downtimes due to conversion or adaptation are eliminated.

Customer-specific designs

Various materials are available for the design of the rubber belt, the supporting structure and the components to complete the package. In combination with various plastics for the filter cloth and vacuum box, the rubber belt filter can be used in a variety of application areas. Accessories such as the vacuum station, the blower, the filtrate station or the pre-thickening station allow for configuration as a complete system, perfectly adapted to the individual applications.



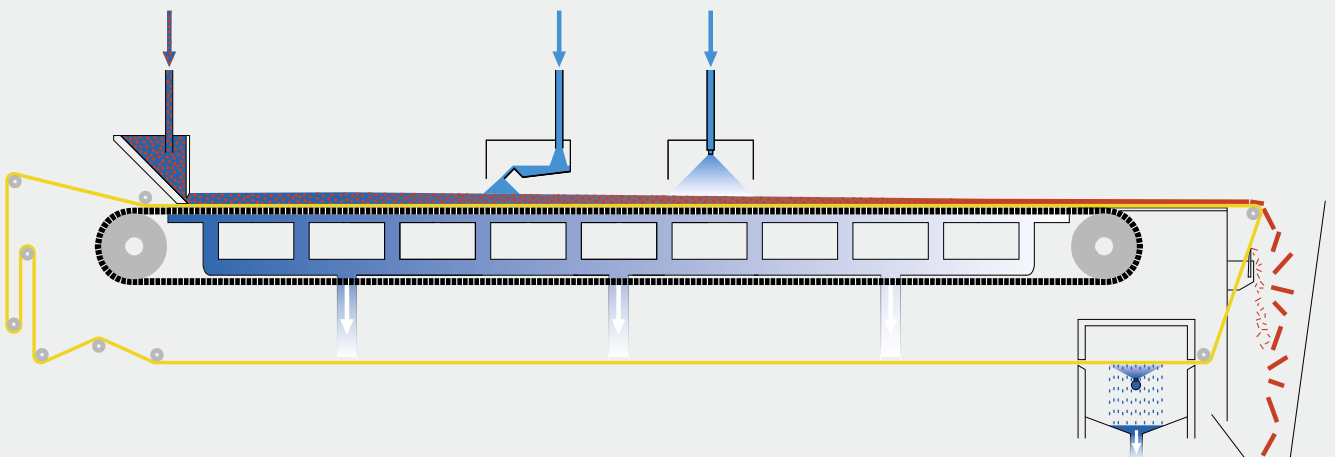
- 1 Suspension feed
- 2 Cake washing
- 3 Roller table
- 4 Wearing belt
- 5 Vacuum box
- 6 Rubber belt
- 7 Filter cloth
- 8 Cake discharge & scraper
- 9 Drive roller
- 10 Cloth washing
- 11 Collecting pipe
- 12 Belt tracking- 13 Feed roller
- 14 Cloth tensioner

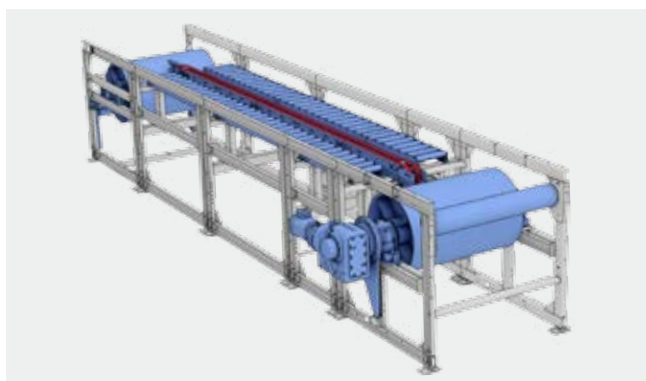
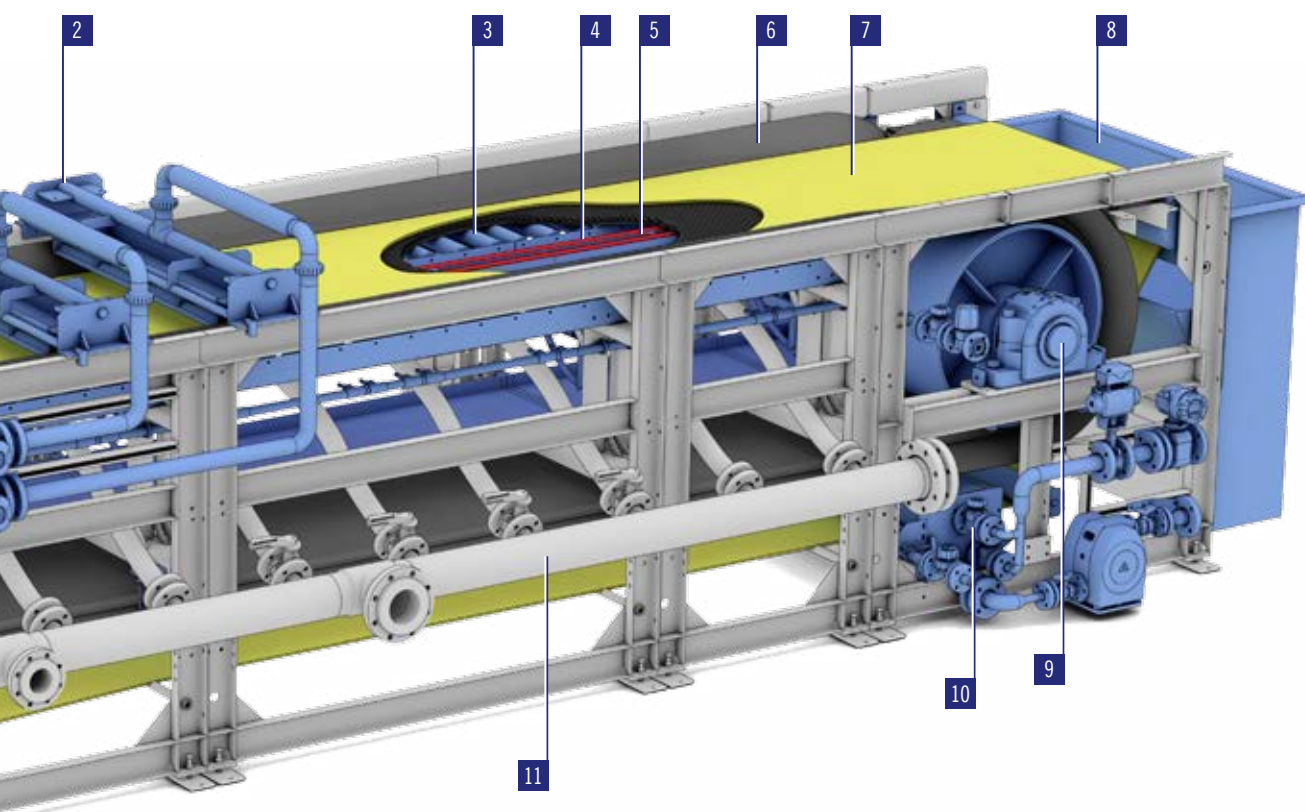


Functional description

An endless filter cloth with a continuous movement serves as the filter medium. A rubber belt is used to support the filter medium. The rubber belt is provided with milled grooves for filtrate discharge. It runs on a roller table and on wearing and sealing belts over a stationary vacuum box, where the filtrates are collected and discharged.

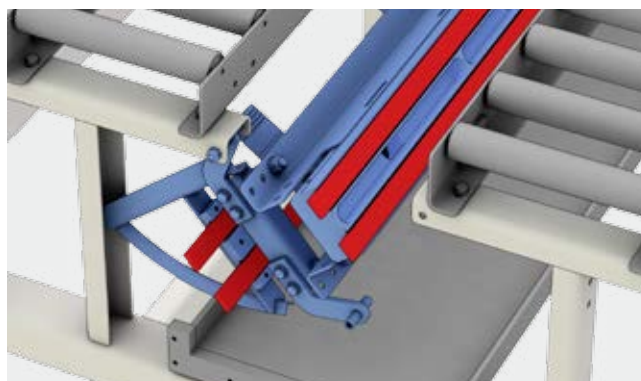
The filter cake builds up on the cloth. The filter cake can undergo further treatment by washing (co-current or counter-current), steaming, extraction or vacuum drying. The wash filtrates can be recovered individually from each process step and further processed. The rubber belt filter discharges the filter cake at the discharge roller. A mechanical scraper system can be provided for support. The cloth is cleaned as the cloth travels back on the return side of the filter.





Roller table

Using the roller table eliminates the use of consumables such as compressed air or water. Tried-and-tested roller systems support and guide the rubber belt. This system offers high reliability with low maintenance requirements.



Vacuum box with wearing belt

There is a vacuum box under the filter which connects the vacuum to the rubber belt and thus to the filter cloth. Wearing belts with a sealing water supply enable optimal protection against atmospheric conditions. The vacuum box can have a plastic or stainless steel design. Easy accessibility and decreased need for sealing water are ensured.

Flue gas desulfurization

Large quantities of gypsum are formed during flue gas desulfurization by wet scrubbing. To ensure high-quality gypsum, the quality specifications for chlorides and residual moisture must be reliably met. The BHS rubber belt filters have been a well-proven solution in this application for many years. Due to integrated washing and drying zones, the required quality is continuously met so that the gypsum can be easily marketed or processed.



Mining products, ore, metals

Wet mechanical separation procedures are often used in the processing of ore or industrial minerals. The BHS rubber belt filters are a well-proven solution for this application. The rubber belt filters are characterized by outstanding reliability, minimized consumption of utilities and high throughput rates. Thanks to a wide range of options, the filter can be specially configured to meet specific requirements. The filter is designed for easy assembly, allowing cost-effective transportation even to remote locations and installation on site.



Fly ash

Fly ash is either immediately disposed of or treated for use as a bonding agent in the building materials industry. BHS supplies systems for both disposal and treatment. The BHS rubber belt filters are well-proven solutions for treatment of fly ash, especially ash from waste incineration plants. They enable cake washing and dewatering for further processing of fly ash.



Filtrate separator station

Filtrate separator stations are used for the separation of gaseous and liquid media. The filtrates are pumped out of the separators using appropriate pumps or are barometrically drained. The gas is conveyed to the vacuum pump unit through a common manifold.



Vacuum pump unit

An optionally available vacuum pump unit can be used to generate the vacuum for the rubber belt filter. This creates the vacuum pressure required for the rubber belt filter to operate correctly. For complete systems, liquid ring pumps are normally used for this purpose.



Hydrocyclone station for pre-thickening

The hydrocyclone station is used to pre-thicken the suspension, which is then fed to the rubber belt filter.



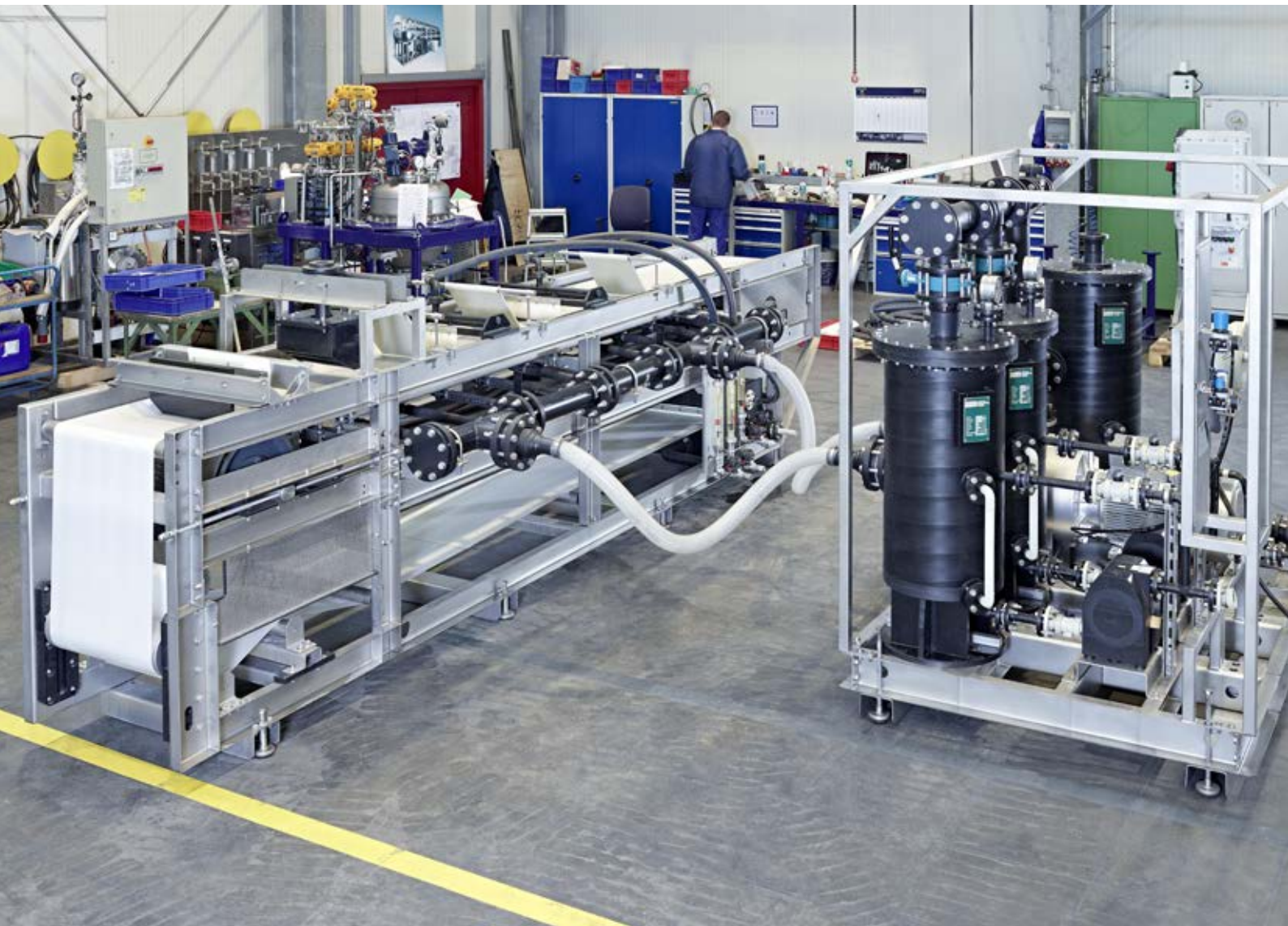
Tests give certainty

We perform initial tests with our pocket leaf filters. These tests can be performed quickly and easily at your location or in our well-equipped laboratories worldwide. Basic data can thus be obtained about the filterability of a suspension and the general design of a production filter.

For more extensive tests, even spanning several weeks, we can rent out pilot and lab filters for all BHS filter types. Filters made of different materials are also available. If necessary, the filters can be equipped to meet specific customer requirements.

These filters can be used to examine filter behavior methodically and reliably. Machine parameters can be varied and alternative materials can be explored. The test results provide a sound basis for the layout of a production machine and for determining the ideal mode of operation. Your investment decision is thus placed on a secure footing.

Pilot rubber belt filter plant of type BFR 042 with 0,9 m² filter area



Performance data, dimensions and weights

Type	Active filter width	Active filter length	Active filter area	Motor power	Dimensions			Weight
					Length	Width	Height	
BFR 120	1,050 mm	6 - 10 m	6 - 11 m ²	up to 11 kW	9.5 - 13.5 m	2.2 m	2.3 m	3 - 10 t
BFR 160	1,450 mm	8 - 14 m	12 - 20 m ²	up to 15 kW	11.5 - 17,5 m	2.6 m	2.3 m	4 - 15 t
BFR 200	1,850 mm	10 - 18 m	18 - 33 m ²	up to 18.5 kW	13.5 - 21.5 m	3 m	2.3 m	6 - 20 t
BFR 240	2,250 mm	10 - 22 m	22 - 50 m ²	up to 22 kW	13.5 - 25.5 m	3.5 m	2.3 m	8 - 25 t
BFR 320	3,050 mm	15 - 30 m	46 - 92 m ²	up to 45 kW	20 - 35 m	4.4 m	2.5 m	10 - 30 t
BFR 420	4,050 mm	15 - 40 m	61 - 162 m ²	up to 75 kW	20 - 45 m	5.4 m	2.5 m	12 - 40 t

All specifications apply to the standard design.
 Technical data for customized designs may differ from the specified data.
 All technical data may change due to development.
 Subject to modification without notice.


Process criteria

Mode of operation	continuous
Operating pressure	vacuum
Operating temperature	up to 90 °C
Solids content (suspension)	up to 60 % (weight)
Cake thickness	up to 80 mm
Particle size	10 - 500 µm
Filtration capacity – suspension	up to 15 m ³ /m ² /h
Filtration capacity – dry solid	up to 5.000 kg/m ² /h
Active filter area	6 - 162 m ²

BHS FIELDS OF COMPETENCE



MIXING
TECHNOLOGY



CRUSHING
TECHNOLOGY



RECYCLING
TECHNOLOGY



FILTRATION
TECHNOLOGY

