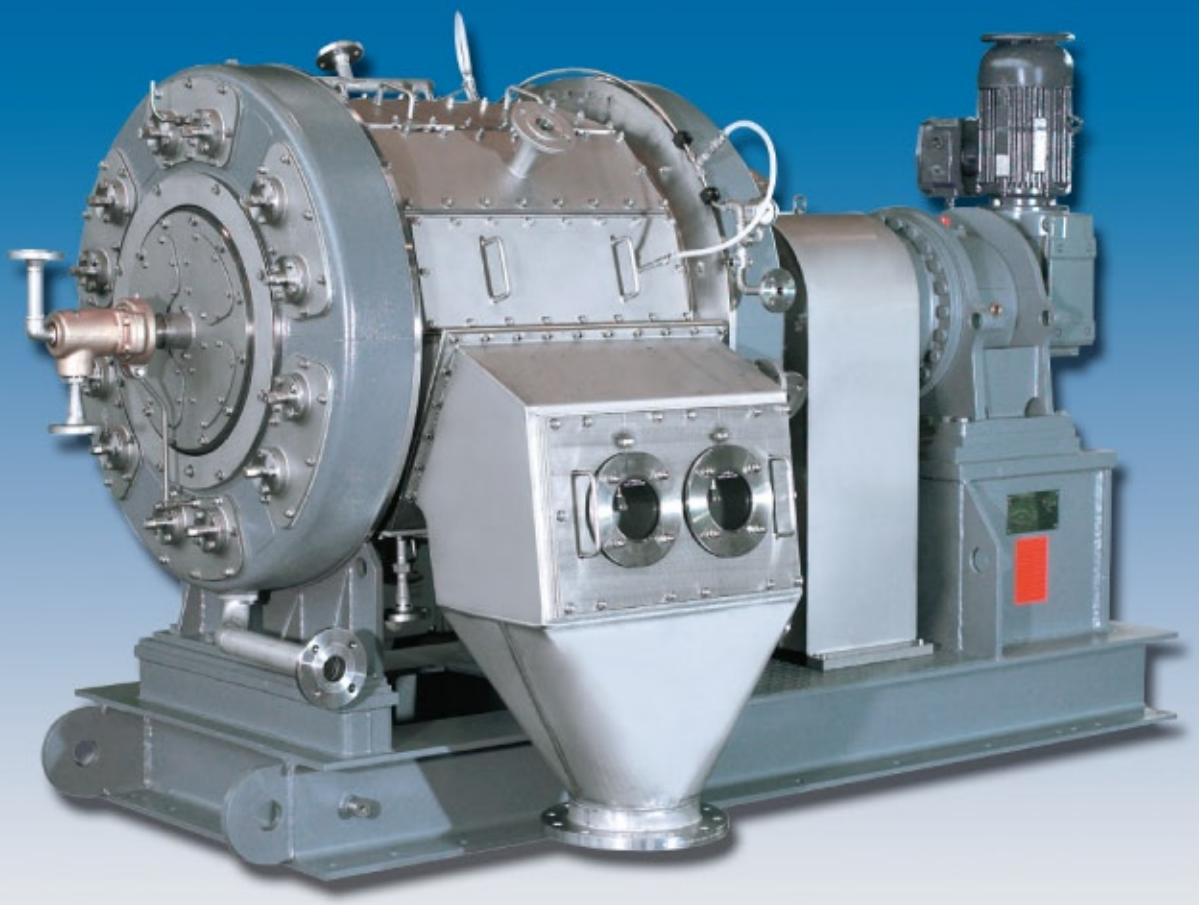


BHS Rotary Pressure Filter

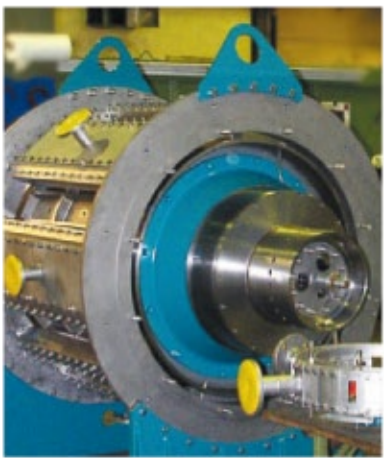
Solid-liquid separation –
recovery of solids and filtrates.

BHS
SONTHOFEN

BHS-Sonthofen

Innovative
and competent.

The BHS plant in Sonthofen. For centuries a driving force behind the economic and technological development of the Allgäu.



Tradition at BHS-Sonthofen goes back to the year 1563. In those days, the site of the factory was used for smelting iron ore from the surrounding area. The pig iron that was produced went to the local nail smiths and armourers. The 19th century then saw the advent of mechanical engineering. Numerous patents from that time bear witness to the company's long-standing tradition of technical inventiveness, earning it a place among the market's best. Filtration systems for separating solids and liquids have been in production for over 50 years.

Today, BHS-Sonthofen is an independent, medium-sized hi-tech company with activities all over the globe. It has extensive experience in using filtration systems for reliably and rationally separating suspensions of all types. The BHS product range comprises several different filter types, providing the appropriate solution to any problem definition. The BHS rotary pressure filter has been in use for several decades in over 600 applications world-wide to the tremendous satisfaction of its operators.

Applications and benefits

The BHS Rotary Pressure Filter is installed for a wide range of uses and applications.

Dyes and pigments
Most dyes and pigments are extremely difficult to filter. High throughputs, good washing results and excellent residual moisture levels are achieved in a continuous process under gentle pressure with thin cakes.

Phtalocyanine pigments, nacreous pigments, silicate pigments, aniline dyes, anthraquinone dyes

Dyes & pigments

Bulk and final pharmaceutical products
In general, these products require good washing and dewatering in fully contained systems.
The filters are designed to satisfy GMP requirements.

Fully synthetic and semi-synthetic antibiotics and antibiotic salts, herbal agents, extracts

Bulk & final pharmaceutical products

Plastics
Fine and coarse-particle polymers and crystals can be washed and dewatered with optimum results.
High-performance filters are capable of achieving throughput rates as high as 100 t/h.

Polyolefins, aromatic acids, acrylic resins, melamine resins

Plastics

Agricultural, speciality and fine chemicals
The rotary pressure filter meets the stringent requirements for workplace safety and containment of toxic products.

Insecticides, fungicides, molluscides, herbicides

Agricultural, speciality & fine chemicals

Foodstuffs
Fragile substances undergo gentle treatment without crystal destruction and avoiding contact with air.

Edible fats, stearins, amino acids, synthetic proteins, lecithins, plant extracts, vitamins

Foodstuffs

Cellulose products
Even the most difficult-to-process products are filtered, washed and dewatered in the specified temperature range, without the problem of gel formation.

Methyl cellulose, CMC, cellulose derivatives, microcellulose and starch chemicals

Cellulose products

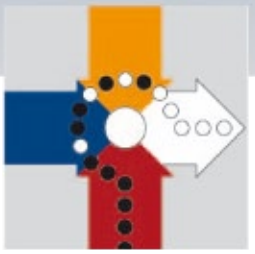
Inorganic and organic chemicals
Many other products are also processed on rotary pressure filters. These include

vulcanising additives, sodium hydrosulphite, carbonates, anthraquinone and derivatives, phenyls, amines, paraffins, urea adducts, raw materials for detergents

Inorganic & organic chemicals

BHS Rotary Pressure Filter

A continuous-operating filter for the most stringent requirements.



Filtrating, Washing, Extraction, Steaming and Blowing

A cake is filtered continuously under pressure onto a filter drum and treated in specific, pressure-segmented zones, e.g. washing, extraction, steaming and blowing. In this context, the solid, the filtrate or both can be recovered.

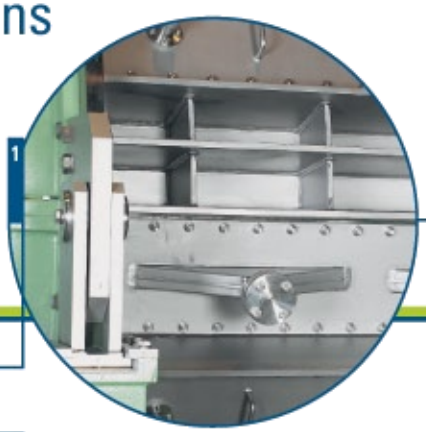
The rotary pressure filter is used for virtually all filterable suspensions that are produced continuously or in batches. Its full containment design is particularly suitable for the filtration of solvents and for products that need to be separated in contained systems, whether for reasons of toxicity or workplace and environmental safety.

As a **high-performance filter** the BHS rotary pressure filter is ideal for separating granular crystalline, easy-to-filter products and, at differential pressures of up to 6 bar (90 psig), yields up to 100 tons of solids per hour (100 t/h).

As an **EC processor** (easy clean), the rotary pressure filter offers all the advantages of a contained, continuous filter. At the same time, you can open the housing to gain access to all of the internal parts and the filter drum for batch to batch and campaign to campaign cleaning to eliminate cross-contamination.

Specifically designed for your applications

A filter engineered exactly to your separation activities.

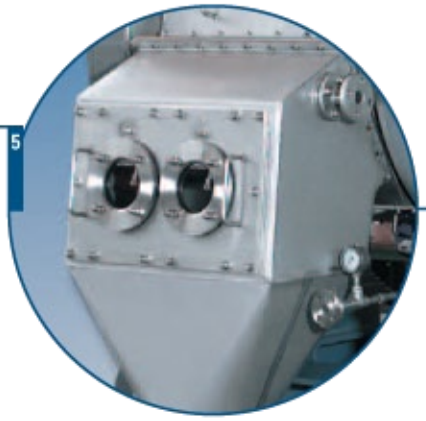


1 Housing

3 Drum

4 Control Head

5 Cake Discharge Hopper



1 Housing
The housing is divided up into filter cells to which the slurry, wash liquids or gases are pressure-fed. Normal working pressure is up to 3 bar (45 psig) or 6 bar (90 psig) in the case of high-performance filters.

3 Drum
The drum surface is divided by separating ledges and drum rings into individual filter cells that take up the filter cake. These cells accommodate the cell inserts that are covered with the filter medium and secured to the drum. Cake thickness can normally be set to between 6 and 24 mm, and can be varied by inserting spacers beneath the inserts; larger cake thicknesses up to 150 mm are possible in specific cases. The drum can be equipped with a double jacket for heating or for cooling.

5 Cake discharge hopper and cloth cleaning
The cake is discharged in a non-pressurised zone of the filter. It is assisted by a back-blow of air, steam or nitrogen. An optional automatic scraper can also be incorporated. If required, this zone is provided with a gas-tight hood. Once the cake has been discharged, the filter cloth is cleaned either continuously or as required.

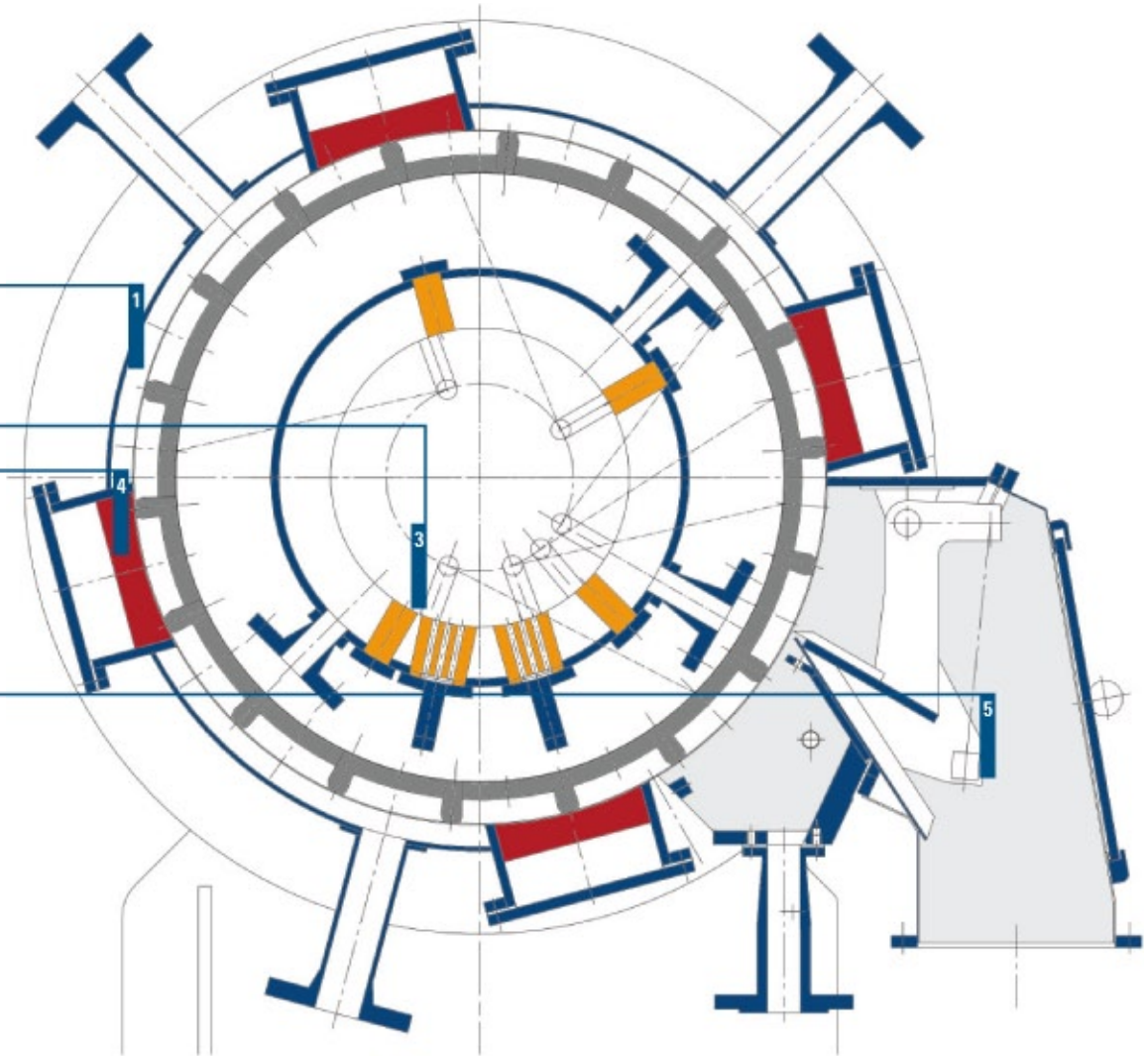
2 Separating elements (not illustr.)
Separating elements pneumatically pressed against the drum provide a pressure-tight seal between the individual working zones. The sealing effect is achieved by means of high-grade, chemical-resistant plastics, such as polyethylene or PEEK. The exchangeable sealing plates are mounted on dimensionally stable supports.

4 Control Head
The control head separates the filtrates and controls the back-blow for discharging the cake and cleaning the cloth. The control head consists of the rotating core with the filtrate tubes and a stationary ring. The stationary ring is divided up by exchangeable separating plugs which are matched to the zones of the housing.

6 Drive (not illustrated)
The filter is equipped with a variable-speed drive to allow for changing throughput rates and filtration properties. This drive consists of a reducing gear unit and a frequency-controlled drive motor.

The Rotary Pressure Filter in brief

The filter drum turns – at infinitely variable speed – concentrically in a pressure housing. The annular segment between drum and housing is sealed by specially designed stuffing boxes and divided into pressure-tight chambers by separating elements. The drum surface is made up of filter cells that are connected to the control head by filtrate pipes. The suspension is constantly fed into the filter cells under pressure. The cake collects in the filter cells and is passed to the subsequent cells as the drum turns.



Depending on requirements, washing, extraction, steaming and drying can take place in one or several stages. As the cells are completely filled, wash liquids or gases are introduced and single-phase displacement flow is ensured through the cake. In the non-pressurised discharge zone – which can be provided with a gas-tight hood if required – the cake is discharged by back-blowing and a moving scraper (optional). Once this has taken place, the filter cloth can be washed. Generally, the filter cloth wash liquid is reused as cake wash liquid to eliminate solids loss. The mother liquor and wash liquids pass through the cells and through the filtrate pipe system to the control head where the individual filtrates are separated and drained.

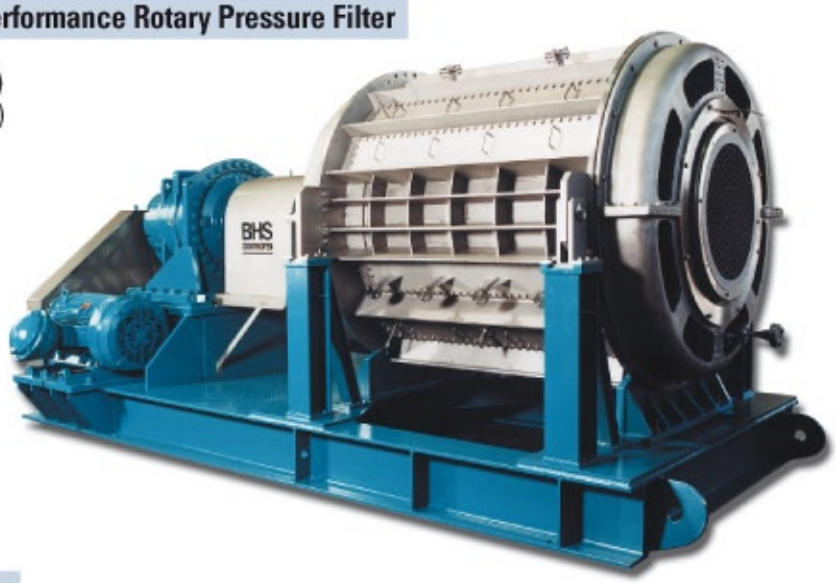
The BHS Rotary Pressure Filter and its variations

The BHS Rotary Pressure Filter
is designed for your application.

We can offer the right solution for your specific requirement.

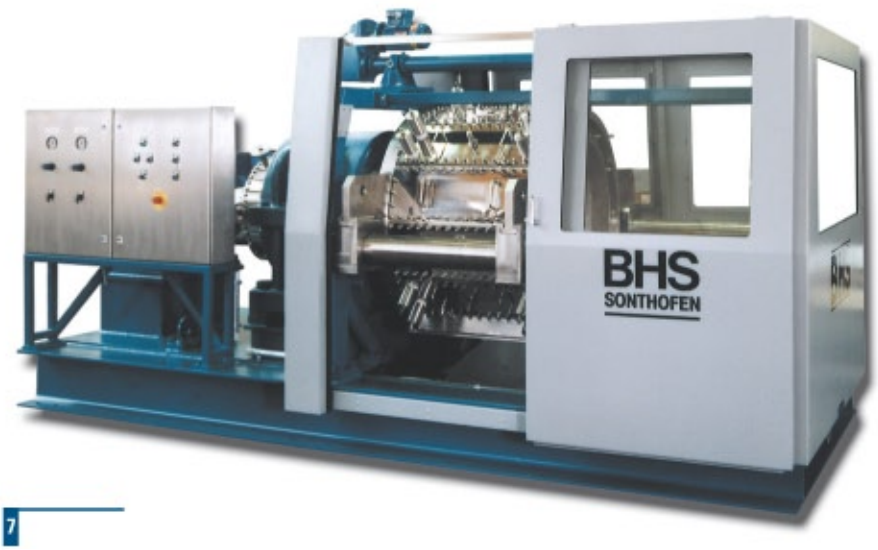
High throughput rates: **BHS High-Performance Rotary Pressure Filter**

- cake thickness up to 150 mm (6 inches)
- operating pressure up to 6 bar (90 psig)
- speed up to 100 rpm
- central drive
- precision drum control with antifriction bearings



Easy Cleaning: **BHS EC Processor**

- automated opening of filter housing
- automatic cleaning of entire product compartment
- maximum accessibility to filter cells and interior housing



Technical Data: **standard filter**

type	filter area m²	drum Ø m	dimensions l x w x h	weight kg
T	0,12	0,50	1,0x0,9x1,6	900
K3	0,54	0,75	2,0x1,9x1,8	3.300
K6	1,08	0,75	2,3x1,9x1,8	3.700
A6	1,44	1,00	2,5x2,1x2,2	5.900
A9	2,16	1,00	2,7x2,3x2,2	7.300
A12	2,88	1,00	3,3x2,4x2,5	8.500
B9	3,20	1,50	3,1x2,9x3,2	11.500
B12	4,32	1,50	3,7x3,0x3,2	14.000
B16	5,76	1,50	4,0x3,0x3,2	17.500
C16	7,68	2,00	4,3x3,4x4,0	23.500

Dimensions and weights are subject to technical development. We reserve the right to alter these without notice. Dimensions and weights are rounded and only approx. figures.

Operational Details

A continuous rotary pressure filter. Particularly well suited to filtering hazardous or toxic solids and solvents

Filtration

Cake Formation

Filtrate Separation

The filtration process

The slurry flows into the filter cells and through the filter medium. The particles are retained on the filter medium and form a filter cake of uniform structure and density.

During filtration, the filter cake is slightly pre-compressed and passes with the cells of the rotating drum into the downstream washing zone without breakthrough of gas.

The slurry, washing medium and filtrates are perfectly separated by means of separating elements (on the drum) and separating plugs (on the control head).

Cake Washing

Cake Treatment

Counter-Current Flow

The washing cycle

The slightly pre-compressed filter cake of uniform structure and pore density can be washed in one or several stages. The design of the rotary pressure filter permits displacement washing with minimal use of washing media.

The washing agents are distributed through outlets across the entire width of the filter. The filtrates are discharged via the control head and (depending on the washing stages selected) are separated and, if necessary, returned to the filter.

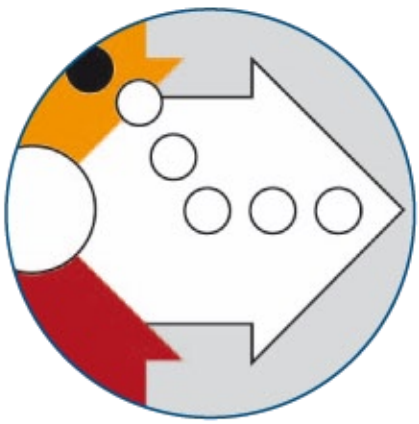
Cake Dewatering
Drying
Steaming

The drying phase
In the final phase, the filter cake is dewatered. This normally takes place while the cake is being blown dry. This can be done with air, nitrogen or other gases, at low, ambient or high temperatures.

It is possible to use steam as the filter cake treatment fluid or for assisting the dewatering or drying process.

Sufficiently large cross sections in the control head ensure that filtration can take place without hold-up.

Cake Discharge
Back-Blowing
Filter Cloth Cleaning



Cake discharge
Easy and complete cake discharge is essential for fully automatic filter operation and long life of the filter fabrics.

In the BHS rotary pressure filter, the filter cake falls away under its own weight. If adhesive tension prevents the cake from being discharged completely, this process is assisted pneumatically by a back-blow of air or gas or mechanically by a scraper.

The filter medium is cleaned in the downstream rinsing chamber. Cleaning agents can be used at pressures of up to 25 bar, with the possibility of blowing the filter fabrics clear from the reverse direction.

BHS-Sonthofen – the experts in filtration, cake washing and drying operations.

We can solve your difficult filtration problems early in the project phase. In order to determine the BHS Rotary Pressure Filter best suited to your application, BHS conducts special trials in our testing facility – with your actual slurry.

We work with you to develop a concept for the overall system, including flow diagrams for each filtration process, engineering and programming for all of the process sequences.

Challenge us today to meet your project objectives!

Other Products:

Pressure Plate Filters

Candle Filters

Autopress

Belt Filters

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