

**INTELLIGENT
PROCESS SOLUTIONS**
FILTRATION. DRYING.
MIXING. REACTING.



TRANSFORMING
MATERIALS INTO VALUE

PROCESS TECHNOLOGY

Your solution provider for a wide range of industries



Pharmaceuticals



Chemicals



Food & feed



Battery materials



Power generation

BHS-Sonthofen with its Business Unit "Process Technology" is one of the world's leading suppliers of components and systems for the solid-liquid separation, drying, mixing, and reaction processes. Our customers are from the chemical, pharmaceutical, power plant technology, and food and feed industries. We increase process efficiency through innovation to generate long-term added value.

Global

We are present for our customers world wide, with multiple subsidiary companies and international sales distribution partners.

Process

We have been developing and optimizing processes for more than 65 years. With experience gained in more than 3,500 projects, we find the right process solution for our customers.

Experts

We provide process expertise to assist our customers from the initial feasibility study through to implementation of the most suitable process equipment.

 [Learn more](#)

 [www.bhs-sonthofen.com/
process-technology](http://www.bhs-sonthofen.com/process-technology)

OUR EXPERTISE

From individual machines to turn-key-systems - 100% competence in every detail



FILTRATION



DRYING



MIXING



REACTING

MAXIMUM PROCESS EFFICIENCY

Our mission: Transforming materials into value

We help companies in the process industry to increase and improve production worldwide: When it comes to filtration, drying, mixing, and reacting, we leverage our process technology expertise to modify basic materials in order to generate added value to our customers.

Our portfolio

BHS offers standalone and integrated system solutions for mechanical, thermal, and chemical engineering applications tailor-made to your specific individual needs. We draw on our experience in developing complete systems, expertise in system integration, and extensive technology portfolio to achieve maximum process efficiency.

Advantages

- ✓ Individual and efficient customer solutions
- ✓ Products offering lasting efficiency
- ✓ Comprehensive expertise
- ✓ Global references
- ✓ Global service

WIDE RANGE OF PROCESS STEPS

Maximum process efficiency through customer-specific solutions

Mechanical processes	Thermal processes	Chemical processes
Wetting	Crystallization	Calcination
Coating	Cooling	Carbonization
Thickening	Sterilization	Neutralization
Dehumidification	Stripping	Pyrolysis
Extraction	Drying	Reacting
Solid-liquid separation	Evaporation	Saponification
Granulation		
Homogenization		
Clarification		
Cake filtration		
Cake washing		
Mixing		
Pre-coating		

Filtration

Cake filtration is what we do. We provide advice and assist you in a wide range of separation projects. Your process is always the focus of our attention. We study each individual process step and then find the right filtration solution for you.

Mixing

We have intimate knowledge of all aspects of mixing, which allows us to deliver the results you require in terms of homogeneity and product characteristics – even in highly complex mixing tasks.

Drying

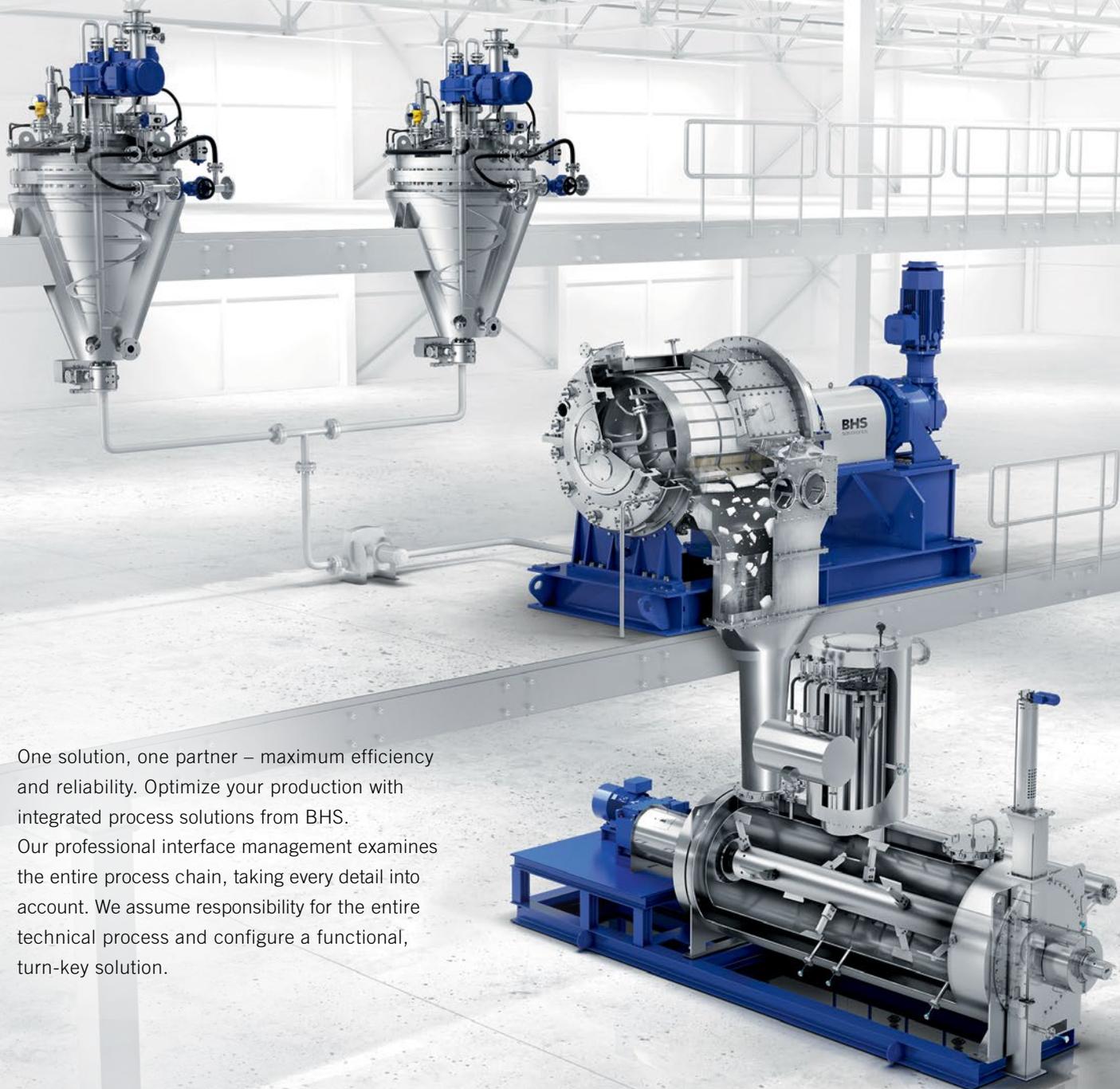
Our core competencies include drying, in particular contact drying and other heat treatment processes. We keep the product in constant movement to ensure high process efficiency, even at high temperatures.

Reacting

We have expertise in a number of chemical conversion processes. Our specialists have experience dealing with challenging reaction conditions and design the reactor system tailor-made to the application.

INTEGRATED PROCESSES

Filtration – Drying – Reacting



One solution, one partner – maximum efficiency and reliability. Optimize your production with integrated process solutions from BHS. Our professional interface management examines the entire process chain, taking every detail into account. We assume responsibility for the entire technical process and configure a functional, turn-key solution.

 Technology in detail

 [www.bhs-sonthofen.com/
integrated-solutions](http://www.bhs-sonthofen.com/integrated-solutions)

EFFICIENT FILTRATION

Highly versatile solid-liquid separation with cake formation



Advantages

- ✓ Low cake thickness
 - ✓ High throughput and capacity
 - ✓ Low utility consumption
 - ✓ Maximum operational reliability
 - ✓ Gentle processing of product
-

From a single filter to a complete filtration system: We choose just the right separation solution for the customer's specific processes from a large portfolio of pressure and vacuum filters.

1 | Candle and pressure plate filters – batch pressure filters

- For suspensions with a low content (<1%) of very fine solids
- Production of a clear filtrate or a catalyst
- Fully automatic operation

2 | Indexing belt filters and rubber belt filters – vacuum belt filters

- For suspensions that are easy to moderately difficult to filter
- Indexing belt filter: Allows various post-treatment processes (washing, steaming, pressing, etc.) in fine chemical applications
- Rubber belt filter: Preferred choice for basic chemical processes with a very high throughput rate

3 | Rotary pressure filters – continuous pressure filters

- Implementation of multiple individual process steps (washing, steaming, etc.)
- High throughput capacity even with fine solids
- Meets the highest washout requirements for solids



 Technology in detail

 [www.bhs-sonthofen.com/
efficient-filtration](http://www.bhs-sonthofen.com/efficient-filtration)

DYNAMIC DRYING

High drying capacity with lower energy consumption



Advantages

- ✓ Adjustable process parameters
 - ✓ Short drying times
 - ✓ Uniform temperature and drying profiles
 - ✓ Operation under vacuum and high pressure
 - ✓ Process temperatures up to 650°C
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Our vacuum dryers feature short drying times and low energy consumption. The dynamic drying process ensures uniform temperature and moisture distribution in the product chamber. The processing temperature can be reduced by operating under vacuum.

1 | Horizontal dryer

- Shape and pitch of the paddles can be adjusted to the specific product, guaranteeing optimal heat transfer between product and vessel wall
- Small wall to paddle clearance and optional scrapers, for efficient drying, even with highly viscous products
- Designs featuring cantilevered bearing and a large front door make inspection and cleaning simple

2 | Vertical dryer

- Gentle helical mixing principle ensures short process times with maximum product protection
- Optional fully heated agitator further reduces drying times
- Ideal solution for applications that require absolute product purity achieved using a seal positioned outside the product chamber



 Technology in detail

 [www.bhs-sonthofen.com/
dynamic-drying](http://www.bhs-sonthofen.com/dynamic-drying)



HOMOGENEOUS MIXING

Optimal mixing quality with short mixing times



Advantages

- ✓ Excellent mixing quality
 - ✓ Gentle processing of product
 - ✓ Fast, low-residue emptying
 - ✓ Easy to clean
 - ✓ Consistently reproducible product quality
-

From gentle to highly turbulent mixing processes, our various mixing technologies let you obtain consistently homogeneous mixing results.

1 | Horizontal mixers

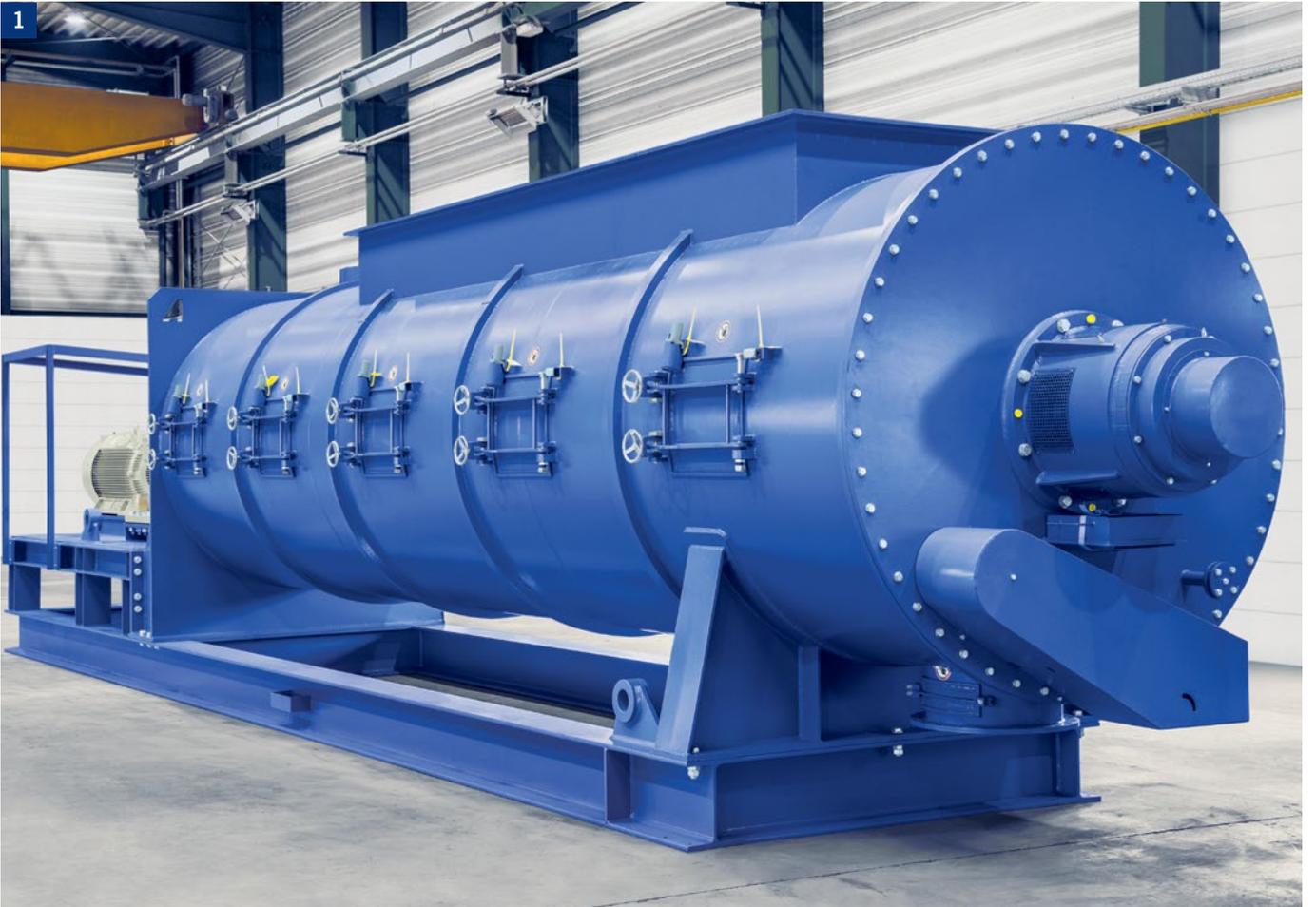
- Intensive mixing process, batch or continuous operation
- Additional operations such as agglomeration, granulation, and coating can be easily performed in one machine

2 | Vertical mixers

- Gentle mixing of delicate materials using the helical mixing principle
- Complete discharge in case of frequent product changes

3 | Ring layer mixers

- High tip speeds up to 50 m/s
- Agglomerate-free mixing in the high-turbulence ring layer



 Technology in detail

 [www.bhs-sonthofen.com/
homogenous-mixing](http://www.bhs-sonthofen.com/homogenous-mixing)

CONTROLLED REACTION

Fast activation under uniform process conditions



Advantages

- ✓ Adjustable reaction conditions
 - ✓ High-pressure processes up to 40 bar
 - ✓ Temperature resistant up to 650°C
 - ✓ Special steels for aggressive products
 - ✓ Several process steps in one machine
-

We design our reactors to deal optimally with the required reaction conditions. Whether they involve high pressures or temperatures, aggressive products, or challenging process phases, they can reliably handle even the most challenging tasks.

1 | Vertical reactors

- Ideal for high pressure or low vacuum applications
- Seals are placed outside the product chamber; size of seal can be chosen for ultra-high performance
- Low maintenance and cleaning costs due to vertical design with minimal dead space

2 | Horizontal reactors

- Precise control of reaction parameters
- High-intensity product mixing ensures uniform reaction conditions throughout the product chamber
- Compact design through optimal utilization of heat transfer surfaces



COMPREHENSIVE PRODUCT PORTFOLIO

For leading-edge productivity

Products	Operating mode	Machine size/throughput	Pressure range	Temperature range
Autopress	Batch	0.2–5 m ²	≤ 6 bar	-20–150°C
Candle filter	Batch	0.3–150 m ²	≤ 10 bar	-40–250°C
Pressure plate filter	Batch	0.3–45 m ²	≤ 6 bar	-20–250°C
Belt filter	Continuous	0.1–90 m ²	≤ -0.7 bar	-20–90°C
Rubber belt filter	Continuous	1.0–150 m ²	≤ -0.6 bar	0–120°C
Rotary pressure filter	Continuous	0.1–8.6 m ²	≤ 6 bar	-20–160°C
Horizontal mixer	Batch	0.1–80 m ³	Atmospheric	-40–650°C
	Continuous	0.1–2,000 m ³ /h	Atmospheric	-40–650°C
Ring layer mixer	Continuous	0.5–100 m ³ /h	Atmospheric	-20–160°C
Vertical mixer	Batch	0.1–80 m ³	Atmospheric	-40–650°C
Horizontal dryer	Batch	0.1–60 m ³	-1–40 bar	-40–650°C
	Continuous	0.1–100 m ³ /h	-1–40 bar	-40–650°C
Vertical dryer	Batch	0.1–80 m ³	-1–40 bar	-40–650°C
Horizontal reactor	Batch	0.1–100 m ³	-1–40 bar	-40–650°C
	Continuous	0.1–100 m ³ /h	-1–40 bar	-40–650°C
Vertical reactor	Batch	0.1–80 m ³	-1–40 bar	-40–650°C

GMP



EAC

YOUR ONE-STOP PROVIDER

Plant engineering services from the BHS process portfolio

Plant engineering services from A to Z

BHS supplies complete systems for filtration, drying, mixing, and reaction processes. We are available as your professional partner throughout the project. It is your benefit to have a designated contact person and a small number of contact points. Our experts create a project based on your specific design and documentation requirements and implement it from start to finish. Defined tasks and special tools ensure that the project is completed efficiently.

 [Learn more](#)

 [www.bhs-sonthofen.com/
process-plants](http://www.bhs-sonthofen.com/process-plants)

Efficient systems that provide process reliability

Take advantage of a tailor-made, well-designed integrated system. The individual components are optimized for the process and matched to perfection. The system is produced as modular units to make transportation and on-site installation a snap. Standardized skids ensure a consistent, reliable process and fast delivery. The result is an efficient system that offers process reliability.



THE PERFECT PROCESS STARTS IN SMALL-SCALE

From technical concept to plant-size realization

At BHS, testing is the foundation for designing an efficient production machine. Understanding the key process parameters at the beginning, results in the best solution for each application. In addition to the testing services we provide our highly-regarded pocket leaf filter and other laboratory/pilot systems. These are in use at numerous production companies, commercial laboratories and research institutions around the world.

Instruments for vacuum and pressure tests

A wide range of laboratory and pilot units are available at our company sites in Sonthofen, Herrsching, Charlotte, Shanghai, and Hyderabad. Tests are conducted by our team of experts either at the customer's site or in our own facilities, depending on the material.

Overview of testing options

- Horizontal and vertical pilot systems (batch or continuous)
- Heating temperature up to 650°C
- Pressure up to 18.6 bar abs
- Dust-free handling
- Pocket leaf filter for small batches and initial testing
- Pilot systems for vacuum and pressure filtration
- Filter cloth analyses

Advantages

- ✓ Testing carried out on lab and pilot scale batches
- ✓ Clear, comprehensible test documentation
- ✓ Reliable scale-up based on high-quality test data
- ✓ Improvements to process made during active production
- ✓ Development and evaluation of alternative processes

 [Learn more](#)

 [www.bhs-sonthofen.com/
process-development](http://www.bhs-sonthofen.com/process-development)



KEEP RUNNING LONGER

Original spare parts and expert service

Reliable operation without unwanted disruptions is a key criterion for a system to deliver added value. As a manufacturer, we offer not only reliable equipment, but have also developed a spare parts and service program that provides you with full peace of mind at all times.

BHS original spare parts – wide assortment of components in stock

Even small parts can have a big impact if they fail. BHS ORIGINAL PARTS meet the highest standards in terms of quality and are designed to work seamlessly with our machines and systems. Take advantage of the speedy delivery of 10,000+ spare parts available in stock and reduce your down-times to a minimum.

Become a contract customer – enjoy the advantages this brings

Are you looking for service and support that meets your specific needs? Our LONG-LIFE service program not only extends the service life of your equipment, but also reduces operating costs and keeps your machinery budget in check. This means that both the operational safety and reliability of your machinery remain at the highest level.

 [Learn more](#)

 www.bhs-sonthofen.com/pt-service



BHS
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ORIGINAL PARTS

 BHS ORIGINAL PARTS Hotline

Our service team would be glad to assist you.

 **+49 8321 6099-531**

 **service@bhs-sonthofen.com**

Mon.–Thu. 7 a.m.–5:30 p.m. (CET)

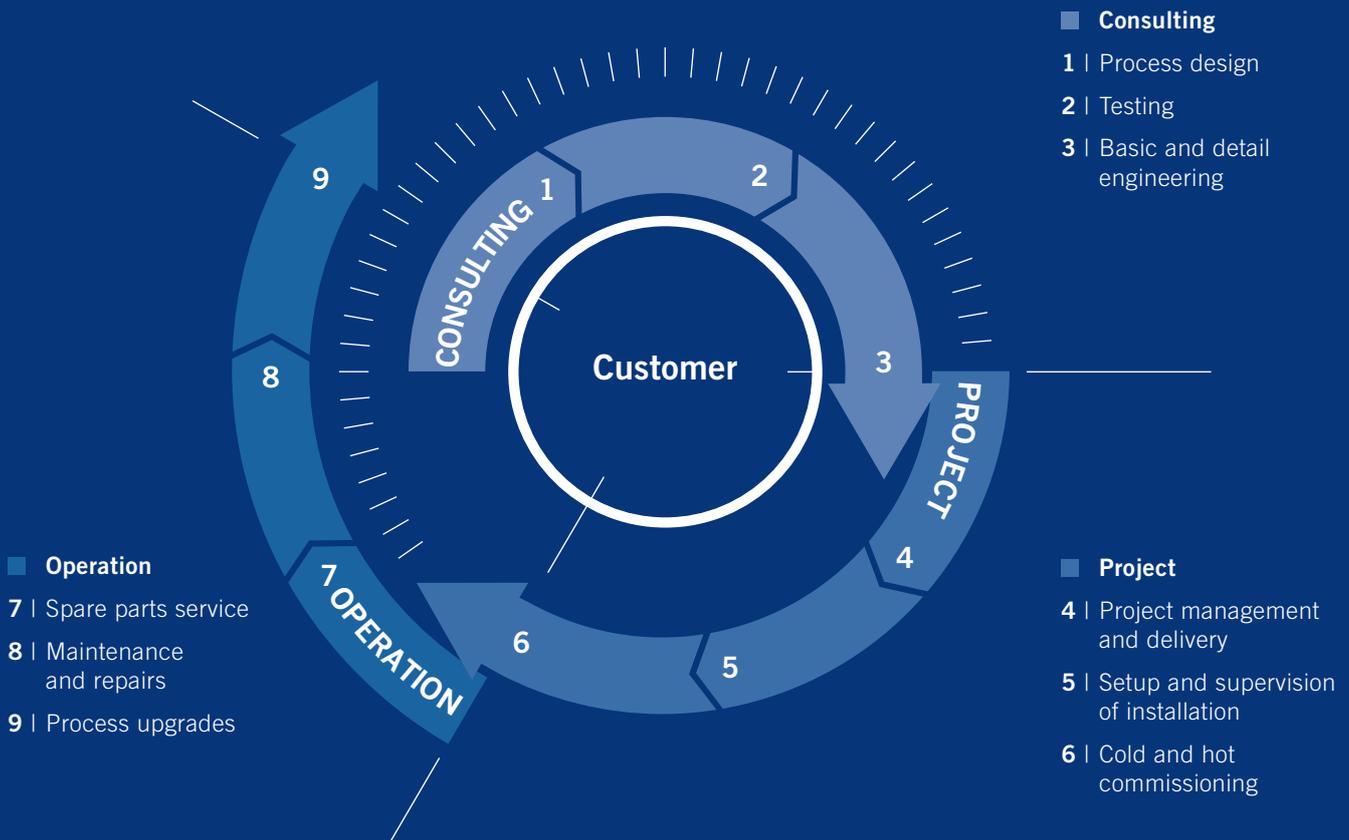
Fri. 7 a.m.–3:30 p.m. (CET)



WE'RE THERE FOR YOU EVEN BEYOND THE PROJECT DURATION

Customer satisfaction is one of our top goals

Speed, reliability and professionalism are key factors in achieving efficient production processes throughout the life cycle of your technical solution. Take advantage of our comprehensive range of top-quality consulting and further services to achieve maximum system availability.





Learn more

[www.bhs-sonthofen.com/
pt-worldwide](http://www.bhs-sonthofen.com/pt-worldwide)