



# FLOTTWEG AC-SEPARATORS





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# APPLICATIONS

## **Flottweg AC-Separators for Highly Efficient Clarification and Separation**

Disc stack centrifuges are high-speed centrifuges for the mechanical separation and clarification of mixtures comprising solids and liquids.

Due to their special design, disc stack centrifuges work at a very high rotation speed. As a result, the centrifugal acceleration (g-force) generated by a disc stack centrifuge is extremely powerful. Moreover, the discs included provide a large clarifying area. Thus, it is possible to separate ultrafine solid particles from a liquid and to separate liquid mixtures in an efficient way.

### **Therefore Flottweg**

Due to the high acceleration forces and the resulting high mechanical strain, disc stack centrifuges generally require regular maintenance intervals. This is where the Flottweg disc stack centrifuge plays out its strengths in full. Thanks to its compact and robust design, the bowl can quickly and easily be dismantled and re-assembled for maintenance work. Thanks to a reduced number of wear parts and seals, operation costs are reduced, maintenance is simplified, and the availability of the machine is increased.

An outstanding feature of our AC (automatic cleaning) separators is the Soft Shot® discharge system. Compared to other systems, the Soft Shot® makes hardly any noise. The separated solids are ejected silently and in a material-friendly manner. This hydraulic system also offers a large number of options for adjustment to allow the machine to be adapted optimally to your process, increasing your product yields.

Our Flottweg separators are developed and manufactured entirely at our production facility in Vilsbiburg, Germany. Our disc stack centrifuges win customers all over the world with excellent quality, feature highest standards of workmanship, and are extremely maintenance-friendly. Thanks to our wide product portfolio consisting of disc stack centrifuges, decanter centrifuges, and belt presses, we can offer the right separation equipment for any application and process.





## Applications

- Beverages
- Fats
- Oils
- Biofuels
- Chemistry
- Biotechnology
- Industry/Mineral Oils

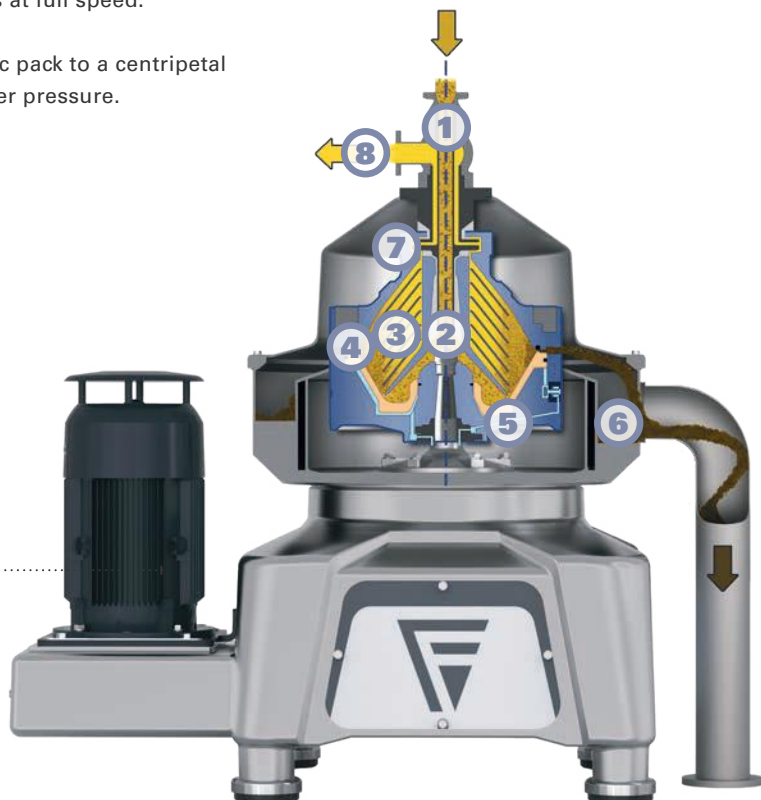


# HOW THE CLARIFIER WORKS

## Clarification: Two-Phase Separation (Solid-Liquid)

Flottweg Clarifiers separate solids from liquids thus enabling high efficient clarification.

- 01** The product to be clarified enters the interior of the bowl through a stationary inlet pipe and is gently accelerated by the distributor to the bowl speed.
- 02** Big solid particles are immediately separated in the centrifugal field.
- 03** The disc stack in the bowl causes the product stream to be divided up into many thin layers, creating a large clarifying area. The solids are separated from the liquid within the disc stack.
- 04** The high centrifugal force makes the solids that are separated out collect in the solids chamber of the bowl.
- 05** A hydraulic system operates the sliding piston and
- 06** periodically ejects the separated solids at full speed.
- 07** The clarified liquid flows out of the disc pack to a centripetal
- 08** pump which discharges the liquid under pressure.

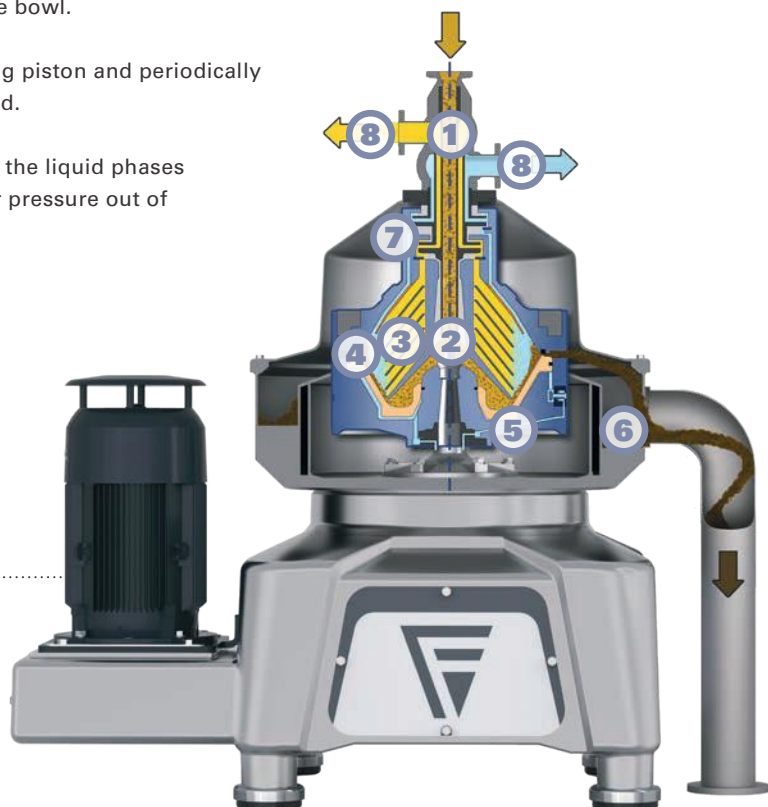


# HOW THE PURIFIER WORKS

## Purification: Three-Phase Separation (Liquid-Liquid-Solid)

A purifier enables the separation of liquid mixtures with different densities and solids at the same time.

- 01** In a purifier (three-phase disc stack centrifuge), the product to be separated enters the inside of the bowl through a stationary feed pipe and is gently accelerated by the distributor to the bowl speed.
- 02**
- 03** Big solid particles are immediately separated in the centrifugal field. The disc pack in the bowl causes the product stream to be divided up into many thin layers, creating a large clarifying area. The liquid mixture is separated in a light and heavy liquid phase within the disc stack. At the same time, the fine solids are separated.
- 04** The high centrifugal force makes the solids that are separated out collect in the solids chamber of the bowl.
- 05** A hydraulic system operates the sliding piston and periodically
- 06** ejects the separated solids at full speed.
- 07** A double centripetal pump discharges the liquid phases
- 08** separated with centrifugal force under pressure out of the bowl of the disc stack centrifuge.



# THE FLOTTWEG SOFT SHOT® SYSTEM

## Precise, Silent and Economic

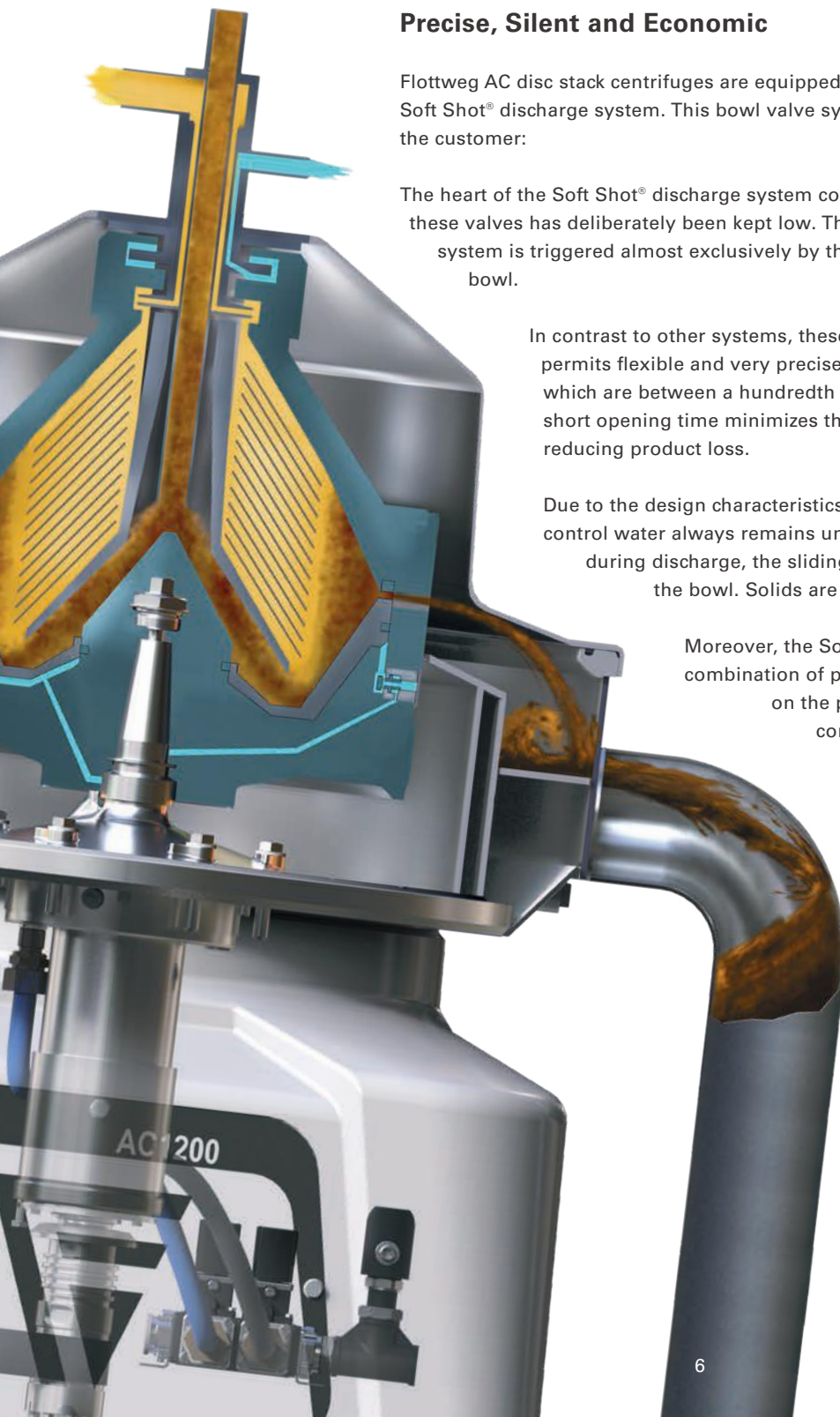
Flottweg AC disc stack centrifuges are equipped as a standard with the hydraulic Soft Shot® discharge system. This bowl valve system offers various advantages for the customer:

The heart of the Soft Shot® discharge system consists of two bowl valves. The mass of these valves has deliberately been kept low. Thus system inertia is reduced and the system is triggered almost exclusively by the operation water pressure inside the bowl.

In contrast to other systems, these valves work at a very high speed. This permits flexible and very precise adjustment of the bowl opening times, which are between a hundredth and several tenths of a second. This short opening time minimizes the product content in the ejected solids, reducing product loss.

Due to the design characteristics of the Soft Shot® System, part of the control water always remains under the sliding piston. Therefore, during discharge, the sliding piston does not hit the bottom part of the bowl. Solids are discharged softly and silently.

Moreover, the Soft Shot® discharge system allows any combination of partial and total discharges. Depending on the products to be processed and the consistency of the solids, adjusting the discharge method ensures optimum operation.



# THE FEATURES AT A GLANCE

## The Heart of the Centrifuge



### Flottweg Hydrohermetic

(optional, e.g. series 420 for the brewing industry)

- Formation of a sealing water ring with deaerated water
- Oxygen pick-up is efficiently avoided
- No additional CO<sub>2</sub> blanketing required
- No mechanical wear (compared to mechanical seals)



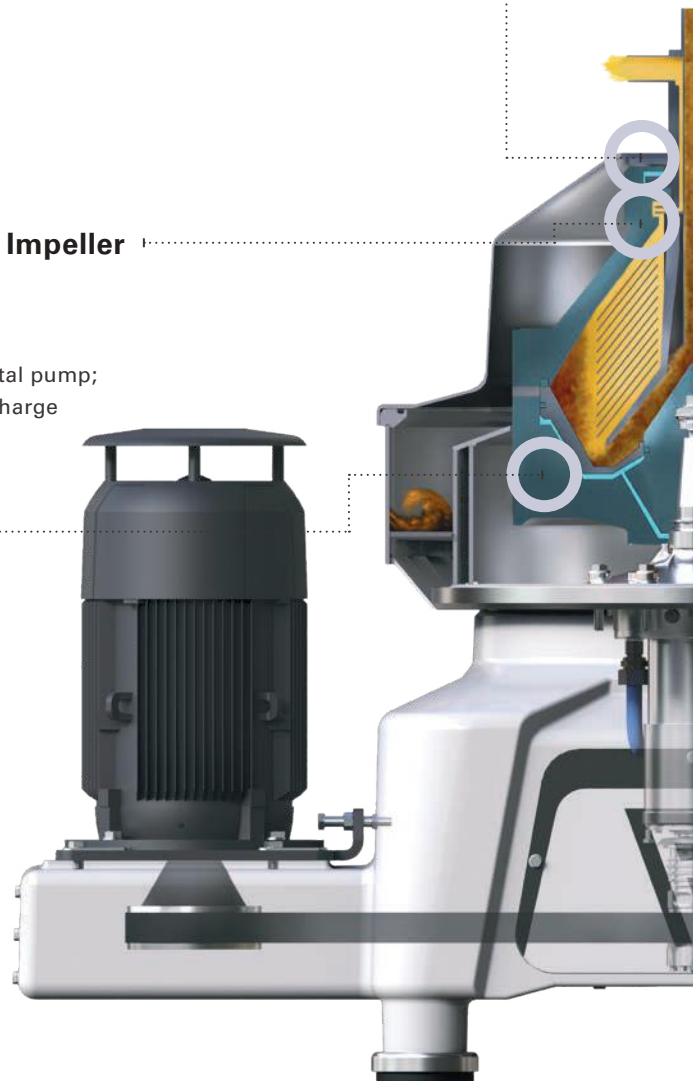
### Discharge of the Clarified Liquid Using an Impeller

- **Clarifier:** Discharge of the clarified liquid under pressure; foaming is avoided
- **Purifier:** Discharge of the liquid phases with a double centripetal pump; optional combination of single centripetal pump and free discharge



### Material of the Bowl

- All product wetted parts are CIP capable
- High quality surfaces of the product-wetted parts for efficient CIP
- Automatic flushing programs for efficient CIP
- Seals available with FDA certification and conformity
- Industry super duplex stainless steel for more resistance against chlorides







### The Flottweg Soft Shot® System

- Accurate partial or total discharges in any combination for maximum product yield
- Material-friendly, silent, nearly inaudible solids discharge
- Discharge times can be precisely adjusted, thus highest yields



### The Bowl of the Disc Stack Centrifuge

- Maintenance friendly thanks to the compact and robust design
- Easy mounting and dismantling; complete modules
- Reduced operating costs due to a reduced number of components and seals
- Quality "Made in Germany"
- Efficient separation of the solids and maximum separation efficiency when separating two liquids thanks to the optimized flow conditions within the bowl



# THE FEATURES AT A GLANCE

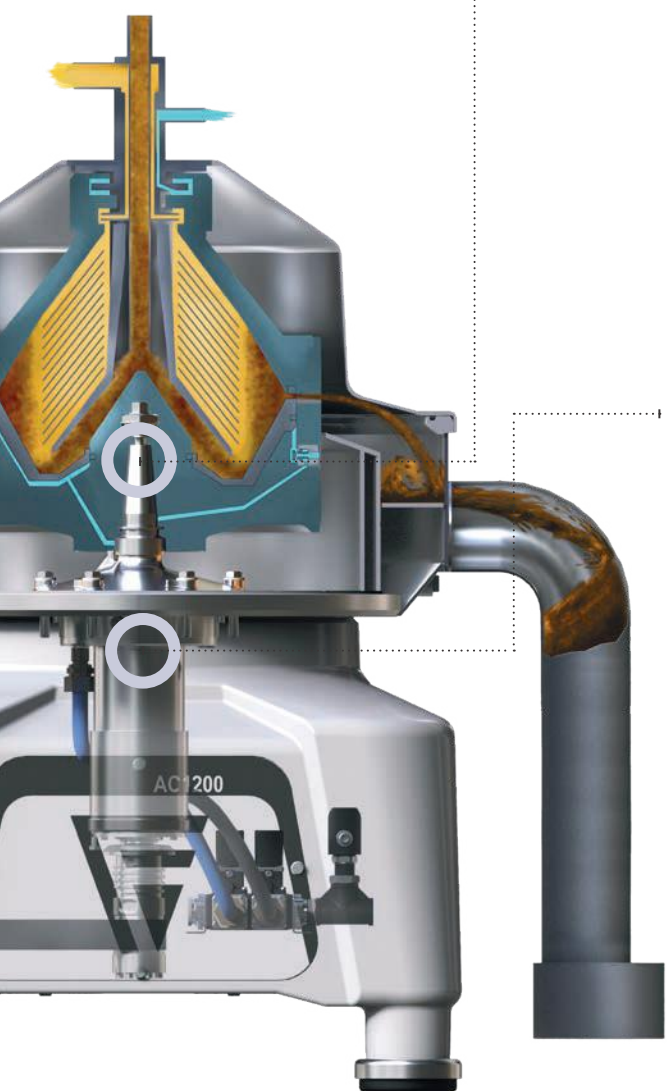
## The Drive System



### The Flottweg Belt Drive

- Power is transmitted using a frequency inverter controlled drive motor via a flat belt
- Easy and robust construction resulting in reduced vibrations and smooth running
- Easy maintenance, low wear, thus high availability
- Flexible adaptation to product requirements thanks to easy and variable adjustment of the bowl speed
- Reduced starting current, operation speed is quickly achieved
- Quick and gentle re-acceleration after solids discharge





### The Compact Spindle

- The spindle unit can be mounted/dismantled as one complete component.
- The bearings are pre-mounted on the spindle.
- Easy accessibility, thus easy replacement of the bushings is possible



### The Lubrication System of the Disc Stack Centrifuge

- Lubrication of the spindle ball bearing takes place via a closed lubrication circuit.
- Accurate and complete lubrication at any time, independent of the rotational speed for a long lifetime of the bowl bearing
- High availability and safety due to automatic control of lubrication
- Reduced quantity of grease
- Autonomous system for optimized lubrication



# INERT GAS PURGING

If centrifuges are used to process products whose vapors together with oxygen may form a flammable mixture, there is a risk of explosion. Consequently, inert gas purging systems are used to prevent the exit of vapors into the atmosphere (contamination) as well as to avoid the entry of air into the system (explosion).

Flottweg offers centrifuges including an inert gas purging concept which is perfectly adapted to the requirements of these applications and in compliance with the highest safety standards.



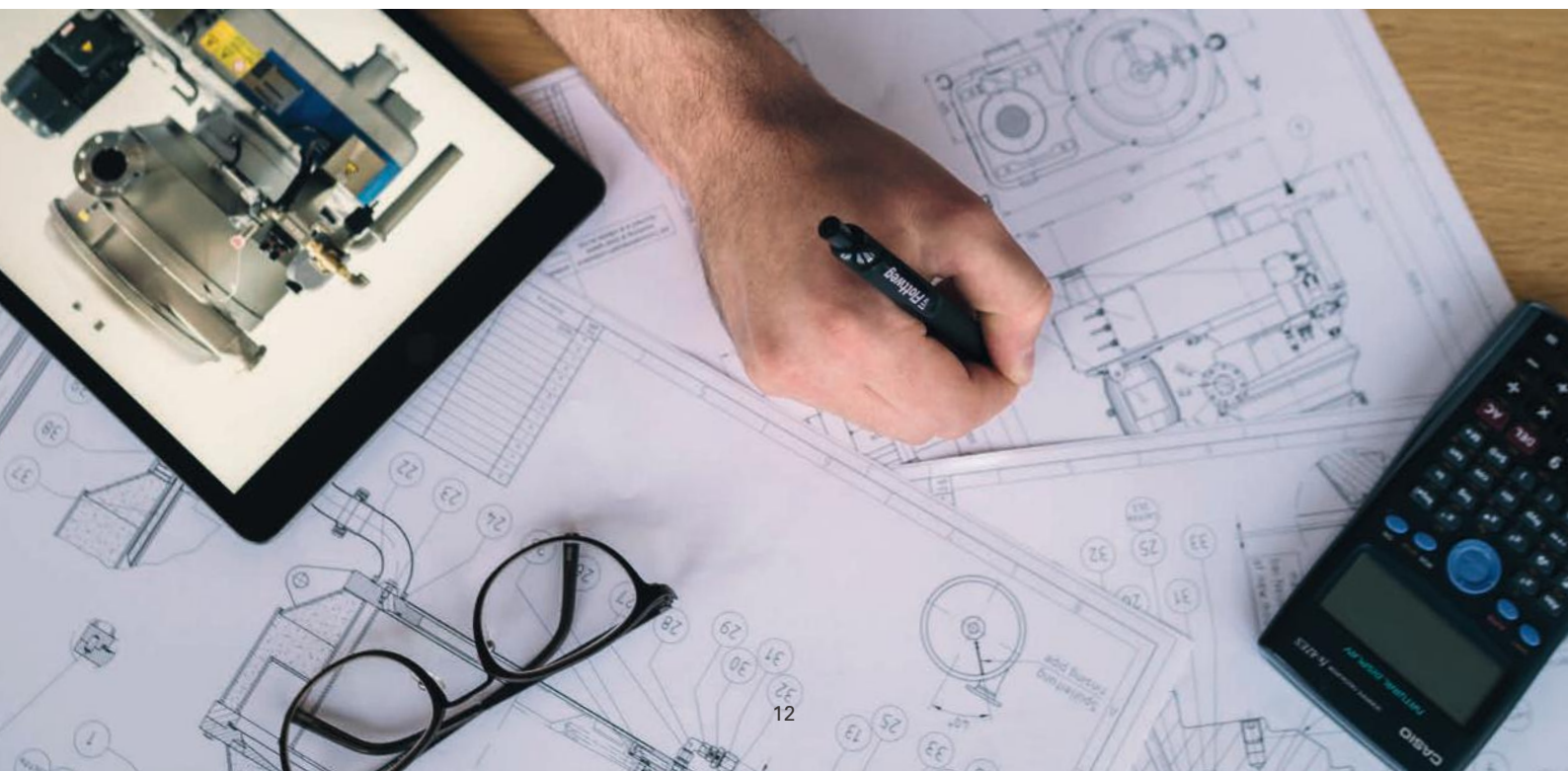
# EXPERTS IN PROCESS ENGINEERING

## Every Process Is Different

The various parameters have a significant influence on separation efficiency. Knowing these parameters means increasing the efficiency and yield of your separation process.

We support our customers along the entire process chain from R&D raw material analyses to approval tests. Flottweg offers all necessary methods for analyzing your products and evaluating new potential. Our worldwide locations and networks ensure support and service for our customers.

With the help of our experience and testing capability we develop made-to-measure solutions to meet your individual requirements.





# FLOTTWEG QUALITY AND SERVICE



## Guaranteed Flottweg Quality

Typical “Made in Germany” quality: We have a very clear idea about quality and do not make any compromises here. Often, our customers have to deal with aggressive substances contained in wastewater. That is why we only use rustproof and acid-resistant materials for wetted parts.

Our optimally equipped machines will withstand your demands permanently – in extreme cases 24/7.

Our strict quality controls (DIN ISO 9001:2015) as well as the ability to track all critical components provide additional product safety.



## Our Service – Always Available for You!

Almost 1100 employees located globally throughout our network of more than 60 sales and service points are ready to assist you.

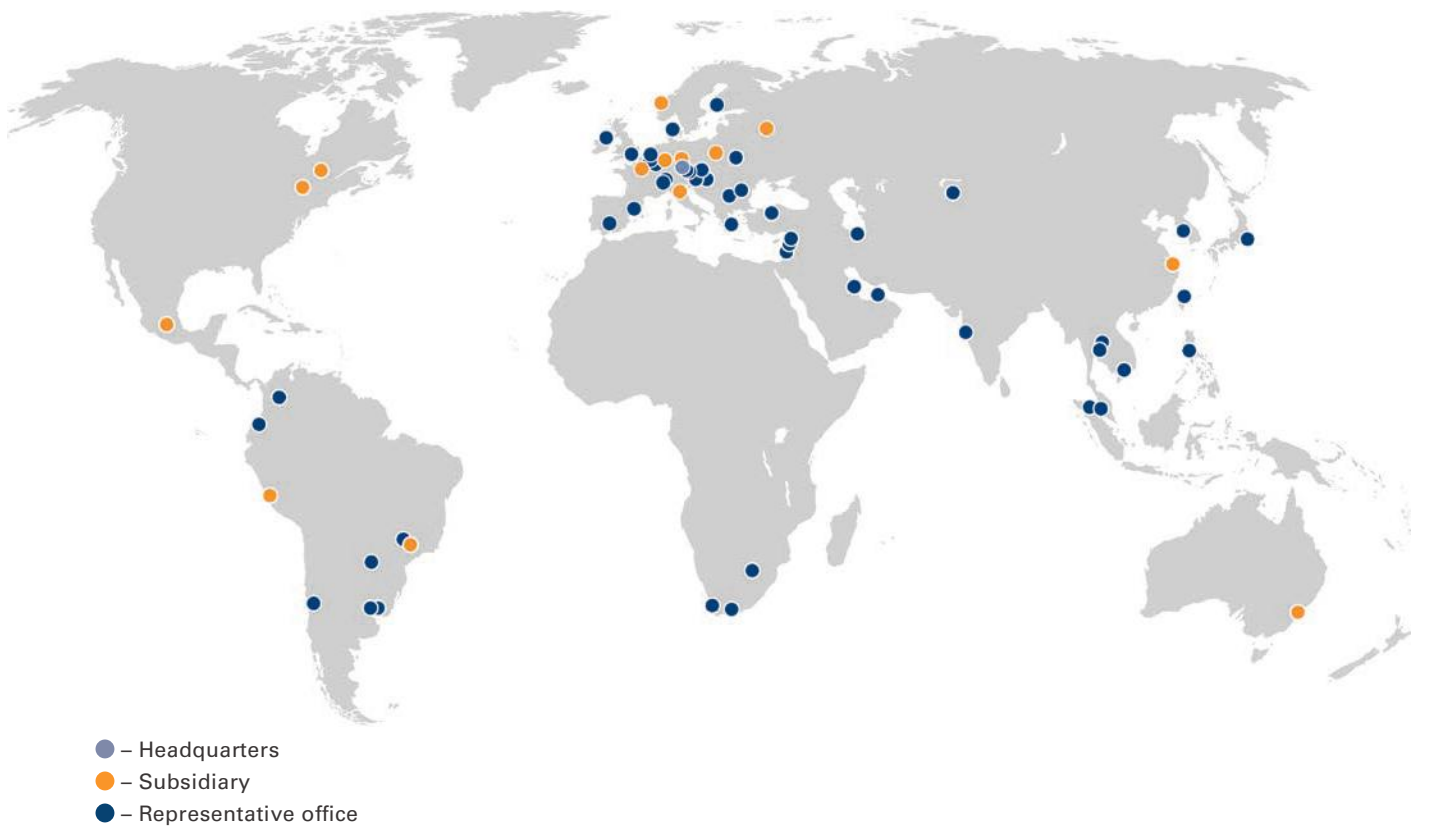
We not only strive to provide excellence when selecting and dimensioning our systems, but we are ready to assist you also afterward, whenever you need us – in more than 100 countries worldwide and 24/7.

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## Any questions? Then don't hesitate to contact us!

We will show you how you can save costs and energy when using the Flottweg AC-separator series. Together with our experts, we'll discover your precise optimization potential.

For more information, please visit our website: [www.flottweg.com](http://www.flottweg.com).





# TECHNICAL DATA

## Technical data of the Flottweg AC-separator\*

Model	AC1000	AC1200	AC1500	AC1700	AC2000	AC2500
<b>G-force</b>	max. 12,000 x g	max. 11,000 x g	max. 10,400 x g	max. 10,850 x g	max. 9000 x g	max. 9000 x g
<b>Rotational speed</b>	max. 9300 U/min	max. 7800 U/min	max. 6800 U/min	max. 6800 U/min	max. 5700 U/min	max. 5200 U/min
<b>Motor</b>	5,5 kW	7,5 - 11 kW	15 - 22 kW	18,5 - 22 kW	30 - 37 kW	55 - 75 kW
<b>Hydraulic capacity</b>	10,000 l/h	17,000 l/h	22,000 l/h	28,000 l/h	45,000 l/h	85,000 l/h

\* The listed figures are guidelines only. Actual capacity depends on the individual characteristics of the product.  
Subject to technical changes







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