

# FLOTTWEG NOZZLE SEPARATOR

Energy-saving, maintenance-optimized and powerful



 **Flottweg**

Engineered For Your Success



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# APPLICATIONS

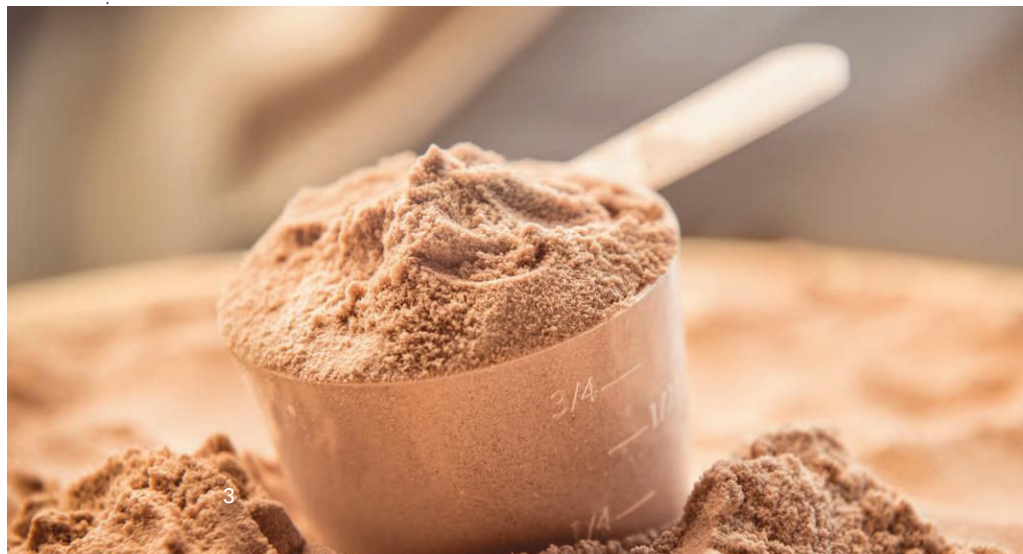
## **Starch is Our Strength**

Starch can be used in various ways – in the food industry as a binding or thickening agent in the production of pastries, soups or dips, in the paper and corrugated paper industry as well as in the chemical, pharmaceutical, and cosmetic industry.

In the starch industry in particular, maximum clarification or separation with high quantities of solids is required. Our nozzle separators are used here.

Our nozzle separators have a large clarification area and can handle high amounts of solids due to continuous solids discharge.





# ENERGY-SAVING, MAINTENANCE-OPTIMIZED AND POWERFUL



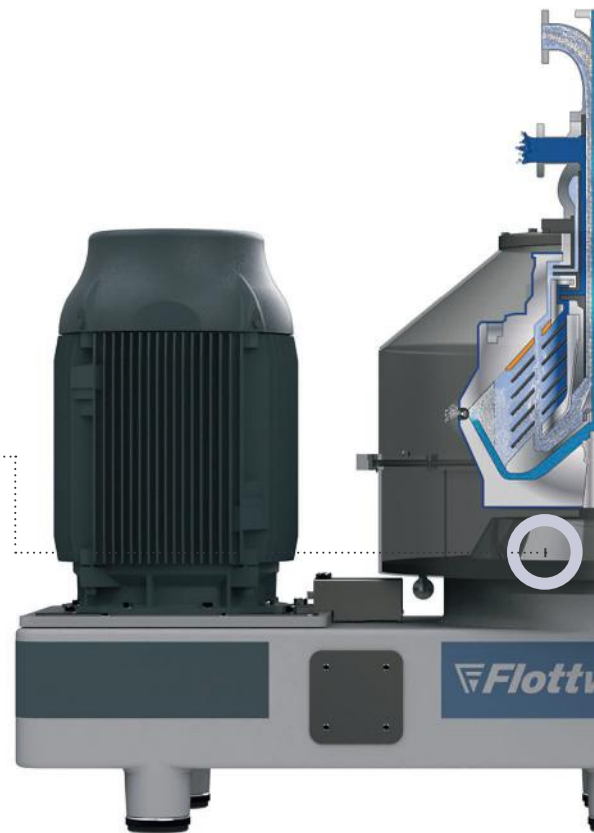
## Flottweg Nozzle Separators in 2- or 3-Phase Configuration

Our Flottweg nozzle separators are available in two basic configurations: a 2-phase configuration to separate solids from liquids and a 3-phase configuration to separate solids from liquids and simultaneously fractionate different particle sizes. In this way, the Flottweg nozzle separators can be adapted to existing production processes.



### The compact-spindle drive

- Reduced current during acceleration and quick acceleration to the operation speed
- Flexible adaptation to the requirements of the product to be processed thanks to a simple and variable control system for the bowl speed and smooth operation
- Reduced power demand and reduced mechanical stress on the system
- Standard drive motors, i.e. high availability
- Drive concept for reduced wear due to a contact-free sealing concept for high availability
- Easy maintenance thanks to a modular construction, which allows for simple replacement of the compact spindle.





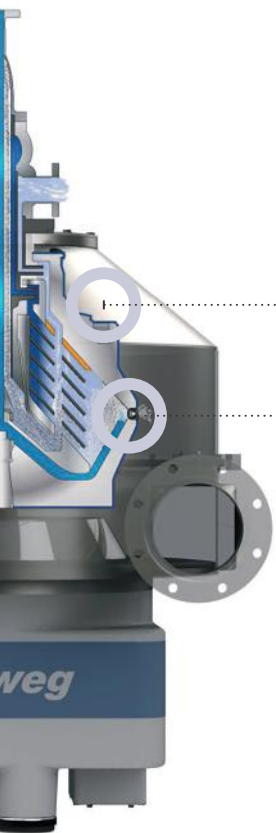
### The Bowl

- Bowl with innovative interior design for optimum running smoothness and hygienic requirements
- Optionally, the bowl can be equipped with a washing device that is designed as a contact-free and maintenance-free system.
- Optionally, it is possible to recycle the concentrate to obtain a higher concentration in order to compensate for product fluctuations and to stabilize the process.
- The entire bowl can be mounted or demounted as it is a compact assembly group for easy maintenance.



### The Nozzles

- Quick and easy replacement of the nozzles makes it possible to optimally adapt the system to the product to be processed.
- Nozzles with different diameters are available for an optimal adaption to the process.
- The nozzles are protected against wear using inserts of hard metal for a long lifetime.
- The innovative alignment of the nozzles assures maximum energy recovery during the solids discharge.



# HOW THE FLOTTWEG NOZZLE SEPARATOR WORKS

01

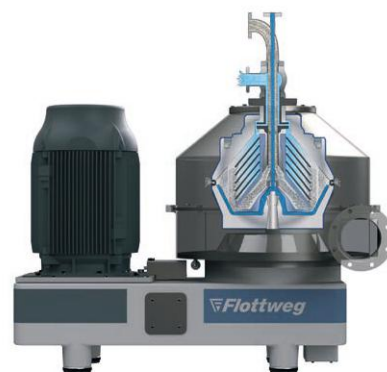
**Flottweg nozzle separators (2- and 3-phase nozzle separators)** are used for the continuous separation of solids from liquids and ensure highly efficient clarification or separation. The product to be clarified or separated flows via a stationary inlet pipe into the inside of the bowl and is gently accelerated to operating speed by the distributor.

02

**In the 2-phase nozzle separator**, large solid particles are separated directly in the centrifugal field of the 2-phase nozzle separator. Finer solids are separated when flowing through the disk stack. The solid particles collect in the bowl's outer solids chambers. From there, they are continuously discharged via the nozzles. The clarified liquid flows from the disk stack and is discharged under pressure by an impeller.

03

**With 3-phase nozzle separators**, larger solid particles are separated as they flow through the disk stack and are directed to the edge of the bowl as a result of the high centrifugal force. There, they collect in the bowl's outer solids chambers and are continuously discharged through the nozzles. The remaining product flow is divided into a fraction and a clarified phase. Solids with a smaller particle size form the fraction, which is discharged under pressure. The remaining liquid flows through the disk stack, creating a nearly clear clarified phase. This is also discharged under pressure via an additional impeller.



# AN EFFICIENT SOLUTION

## Developed with Our Customers and for Our Customers

Flottweg nozzle separators enable the separation of solids from liquids and assure a highly efficient clarification or separation. This is why our separation technology experts have developed the Flottweg nozzle separator in collaboration with our customers.





## Centrifugal Acceleration

- The actual g-forces in the nozzle separator are up to 9000 x g.
- The high g-force enables an efficient clarification or separation.

## Master Saver

- Maximum energy saving thanks to an innovative bowl design
- Optimized flow pattern inside the machine
- Consistently optimized weight of the rotation components

## Perfect Hygienic Design

- Construction in compliance with the principles of hygienic design
- Deposit-free solids discharge
- Product wetted parts made of high-quality stainless steel
- Easy integration into CIP processes

## Intelligent Design

- Closed-loop lubrication system reduces wear
- Contact-free sealing concept
- Carbide wear protection for long nozzle life
- Belt drive for high machine availability
- Quick assembly or disassembly of the compact-spindle drive resulting in reduced costs for service and maintenance





# 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.

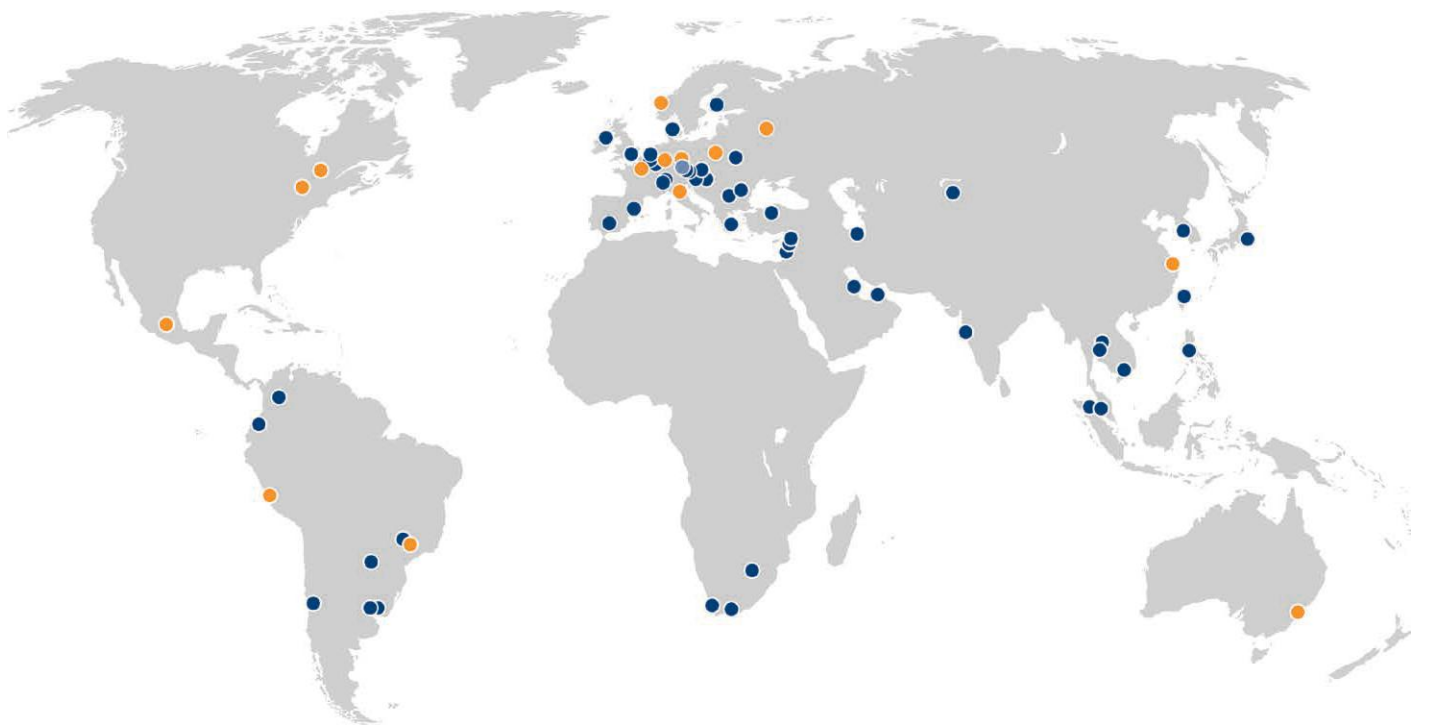
We not only strive to provide excellence when selecting and dimensioning our systems, but we are ready to assist you also afterward, whenever you need us – in more than 100 countries worldwide and 24/7.

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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 nozzle 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).



- – Headquarters
- – Subsidiary
- – Representative office

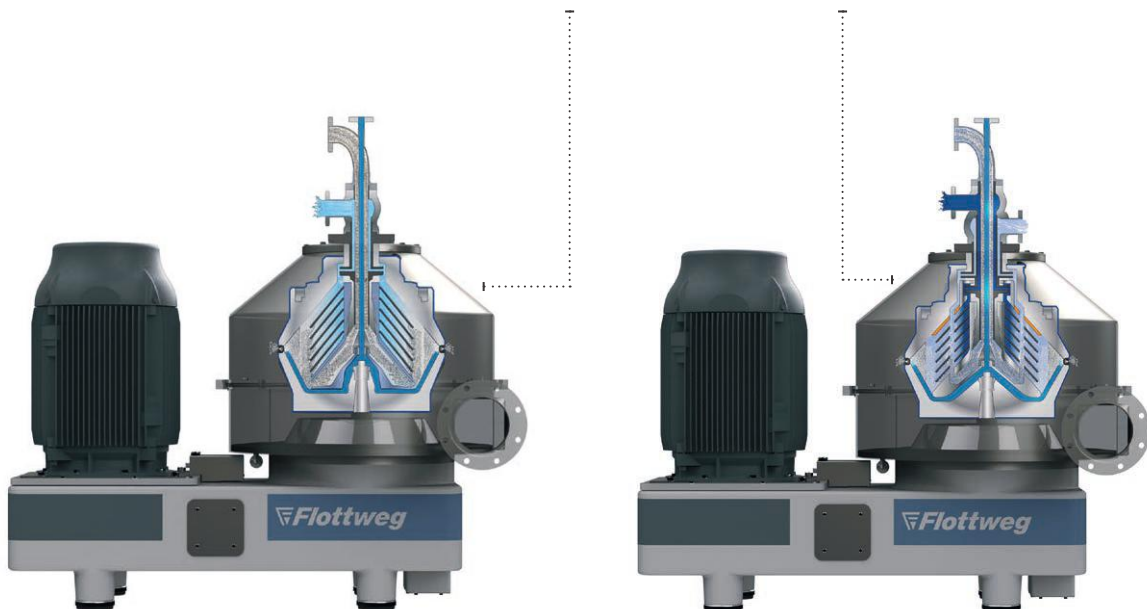


# TECHNICAL DATA

Technical data of the Flottweg nozzle separator\*

	FDS2000-210	FDS2000-231
<b>Configuration</b>	Overflow via centripetal pump	Over and midflow via centripetal pump
<b>Bowl volume</b>	60 l	60 l
<b>Nozzles</b>	12	12
<b>Eq. clarification area</b>	110,000 – 195,000 m <sup>2</sup>	65,000 – 110,000 m <sup>2</sup>
<b>G-force</b>	max. 9000 x g	max. 9000 x g
<b>Bowl speed</b>	max. 5200 rpm	max. 5200 rpm
<b>Motor</b>	75 – 110 kW	90 – 110 kW
<b>Max. flow rate</b>	approx. 160 m <sup>3</sup> /h	approx. 160 m <sup>3</sup> /h

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





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