



SEPARATION
**HIGH EFFICIENCY
SEPARATION**

2- AND 3-PHASE DISC
STACK SEPARATORS

ANDRITZ

ENGINEERED SUCCESS

For over 100 years, our mission has always been the same: to design separators that satisfy the needs of our customers. Each and every one of them faces specific challenges, which is why we constantly research and develop new, targeted, and customized solutions.



**TAILOR-MADE
SOLUTIONS**

**LOW
OWNERSHIP
COST**

**WIDE RANGE
OF CAPACITIES
FROM 500 TO
90,000 L/HR**

State-of-the-art separators to enhance your business

A TRUE CUSTOMER ORIENTATION

With ANDRITZ Separation, you are fully covered. Beginning with the analysis of your needs and process requirements, we provide you with comprehensive, targeted solutions, including specific consulting, technology, and service to improve the quality of your final product and thus make you more competitive. Working close to our customers, we constantly research and develop new features and new products. Innovations combined with our wide experience allow us to always deliver the right solution. We provide skid-mounted separators and plug-and-play solutions that are compact in size, equipped with all the necessary instruments and controls, and are easy to operate – all for your peace of mind. Mobile test units are also available to conduct tests on site and evaluate performance directly at your plant.

HIGHLY EFFICIENT SEPARATORS

ANDRITZ separators are designed for highly efficient solid/liquid and liquid/liquid separation. Our separators portfolio includes three design types: two-phase, three-phase, and nozzle. The two- and three-phase separators are available with solid bowl and hydraulic capacity from 500 to 20,000 l/h and as self-cleaning machines with hydraulic capacity from 500 to 90,000 l/h. Most of the models are also available in explosion-proof design. High-grade materials and manufacturing, low wear and tear, and easy operation and maintenance make them suitable for a wide range of applications in the food, beverages, environmental, chemical, pharmaceutical, and mining & minerals industries. And they fit perfectly into the production processes as required.

MAIN APPLICATIONS

- Dairy
- Beverages
- Oils and fats
- Nutraceuticals
- Pharmaceuticals and biotechnology
- Biofuels
- Mineral oils and metalworking fluids
- Chemical products
- Minerals classification and thickening
- Treatment of industrial waste streams



YOUR BENEFITS

- High separation efficiency
- Long lifetime thanks to the high-grade materials of construction
- Low wear and tear, reduced need for spare parts
- Greater reliability
- Ease of operation and maintenance
- Ease of installation and integration into new or existing process lines thanks to our plug-and-play solutions
- Fully automated, user-friendly process control
- Low operating costs with substantial cost savings

Two-phase separators

Two-phase separators are designed for the continuous clarification of liquids. It is applied in bacteria removal, solids load reduction, cells harvesting, and any other application where fine solids have to be separated from a liquid phase, either to recover a valuable substance or to remove and dispose of a waste product. Efficient separation and precisely controllable, automated solids discharge allow the best possible separation effect. Solids from 0.5 to 500 μm , depending on their nature, can be separated efficiently in two-phase separators.

OPERATING PRINCIPLES

- The product is fed under pressure through an enclosed pipe. The continuous separation process starts as soon as the product is introduced gently into the bowl, after flowing through the feed pipe and the distributor.
- The solids, subject to centrifugal acceleration, are forced towards the periphery of the bowl and accumulate in the solids chamber.
- In solids-retaining separators, the accumulated solids are removed manually at the end of the process.
- In self-cleaning separators, the solids are automatically ejected at pre-set intervals or by using sensors for the clarified product quality control.
- The liquid phase rises through the disc stack up to the centripetal pump that discharges it under pressure through an enclosed pipe.

MAIN APPLICATIONS

- Milk, whey, wine, juices clarification, tea and any other beverages
- Biomass and algae concentration
- Fermentation and proteic broth clarification
- Chemical's clarification

YOUR BENEFITS

- High separation efficiency
- Fully automated process
- Ease of operation and maintenance
- Greater reliability



Two-phase bowl



Two-phase separator



Three-phase separators

Three-phase separators are designed for the continuous separation of two immiscible liquids having different specific weights. Thanks to the action of the centrifugal force, the solids, if any, are also separated at the same time and ejected automatically at pre-set intervals whose length depends on the quantity of solids contained in the feed. Most of the models are available in either concentrator or purifier design, and the solids retaining option is also offered for some models.

OPERATING PRINCIPLES

- The product is fed under pressure through an enclosed pipe. The continuous separation process starts when the product is introduced gently into the bowl through the feed pipe and the distributor.
- It then flows through the rising channels, along which the two liquids are separated as a result of the action of the centrifugal force generated by the rotation of the bowl.
- The light phase is concentrated in the inner part of the bowl, while the heavy phase is forced towards the periphery.
- The centrifugal force causes the solids particles to separate from the liquids and accumulate in the solids holding space.
- In solid bowl separators, the solids accumulating in this way are removed manually at the end of the process.
- In self-cleaning separators, the solids are then ejected automatically at pre-set intervals.

- Both the light and heavy phases rise along their respective paths and reach the centripetal pumps. As a result of the centrifugal force generated by the rotation of the bowl, they are continuously discharged.

MAIN APPLICATIONS

- Milk skimming
- Milk bacteria clarification
- Cream concentration
- Coconut water and virgin coconut oil processing
- Edible oil purification
- Mineral oil and metalworking fluids processing

YOUR BENEFITS

- High separation efficiency
- Fully automated process
- Ease of operation and maintenance
- Greater reliability



Three-phase bowl



Three-phase separator

Nozzle separators

Nozzle separators are designed for solid/liquid separation in solids concentration/thickening and solids classification. They are basically two-phase separators with continuously discharge of solids. Nozzle separators are used in production when the product fed in has a high concentration of suspended solids. These separators have several fields of application, both in the food and non-food industries. As an example, nozzle separators are used to classify and thicken suspension particles in the mining industry and to concentrate soft cheese and yogurt in the dairy sector.

OPERATING PRINCIPLES

- The continuous separation process starts when the product is introduced gently into the bowl through the feed pipe and the distributor.
- The solids are subjected to centrifugal force and forced towards the periphery of the bowl, accumulating in the area that holds the solids.
- The clarified product rises through the disc stack up to the centripetal pump that discharges it through an enclosed pipe.
- The concentrated solids are discharged automatically and continuously through the nozzles.
- The product is fed under pressure

MAIN APPLICATIONS

- Calcium carbonate thickening and classification
- Soft cheese and yogurt concentration
- Industrial minerals classification and thickening
- Palm Oil
- Starch

YOUR BENEFITS

- High separation efficiency
- Fully automated



Nozzle bowl



Nozzle separator



Intelligence for machine and process control

Metris addIQ control systems

With Metris addIQ, you get a well-proven, intelligent control solution for industrial processes and machines. Our solid/liquid separation specialists use their in-depth expertise to provide scalable solutions that are individually tailored to regional and application requirements. Whether you're automating new equipment or upgrading to extend the lifecycle of existing systems, we find the ideal solution for you.



Your full-service provider

With ANDRITZ Separation, you gain access to one of the world's largest OEM manufacturers for solid/liquid separation systems, including such well-known brands as 3Sys Technologies, Bird, Delkor Capital Equipment (Pty) Ltd., Escher Wyss dryers, Frautech, Guinard Centrifugation, KHD Humboldt Wedag, Krauss-Maffei centrifuges, dryers, and filters, Lenser, Netzsch Filtration, Rittershaus & Blecher, Royal GMF Gouda, Sprout Bauer, and Vandenbroek. Whether you need spare parts, rentals, local service, repairs, upgrades, or modernization of your equipment,

ANDRITZ Separation is your true full-service provider. From initial consulting through to service agreements, process optimization, and training programs, we are always looking for ways to minimize downtime and increase predictability in operations while raising your overall production efficiency. Wherever you operate, our network of 550 service specialists and global service centers ensures we'll always be there to support you for many life cycles to come. Let's sit down and see how we could take your operations to the next level.



LOCAL SUPPORT



REPAIRS & UPGRADES



SECOND-HAND & RENTALS



TRAINING



OEM SPARE PARTS



SERVICE AGREEMENTS



PROCESS OPTIMIZATION



LAB AND ON-SITE TESTS





WHAT'S YOUR SEPARATION CHALLENGE?

ANDRITZ Separation is the world's leading separation specialist with the broadest technology portfolio and more than 2,000 specialists in 40 countries. For more than 150 years, we have been a driving force in the evolution of separation solutions and services for industries ranging from environment to food, chemicals, and mining & minerals. As the OEM for many of the world's leading brands, we have the solutions and services to transform your business to meet tomorrow's changing demands – wherever you are and whatever your separation challenge. **Ask your separation specialist!**

AFRICA

ANDRITZ Delkor (Pty) Ltd.
p: +27 11 012 7300
separation.za@andritz.com

EUROPE

ANDRITZ Frautech S.R.L.
p: +39 0445 575 695
separation.it@andritz.com

ASIA

ANDRITZ Singapore Pte. Ltd.
p: +65 6512 1800
separation.sg@andritz.com

NORTH AMERICA

ANDRITZ Separation Inc.
p: +1 817 465 5611
separation.us@andritz.com

AUSTRALIA

ANDRITZ Pty. Ltd.
p: +61 3 8773 4888
separation.au@andritz.com

SOUTH AMERICA

ANDRITZ Separation Ltda.
p: +55 47 3387 9100
separation.bra@andritz.com

CHINA

ANDRITZ (China) Ltd.
p: +86 757 8258 6802
separation.cn@andritz.com

ANDRITZ.COM/SEPARATION



All data, information, statements, photographs, and graphic illustrations in this leaflet are without any obligation and raise no liabilities to or form part of any sales contracts of ANDRITZ AG or any affiliates for equipment and/or systems referred to herein. © ANDRITZ AG 2018. All rights reserved. No part of this copyrighted work may be reproduced, modified, or distributed in any form or by any means, or stored in any database or retrieval system, without the prior written permission of ANDRITZ AG or its affiliates. Any such unauthorized use for any purpose is a violation of the relevant copyright laws. ANDRITZ AG, Stattegger Strasse 18, 8045 Graz, Austria. State of the art separators 1.0/02.2018 EN