



A

# YOUR SEPARATION SPECIALIST

MINING AND MINERALS, FOOD,  
CHEMICALS, AND ENVIRONMENT

**ANDRITZ**

ENGINEERED SUCCESS

# Sustainable growth through smarter separation solutions

In many of the world's most important industries, separation is vital to improve their products while reducing waste. Cities can save energy and conserve millions of cubic meters of water. Mining companies can efficiently boost throughput to meet fast-changing global demands. And chemical manufacturers can optimize their processes for absolute product purity. When it comes to the separation technologies and services that maximize the value of your most precious resources, no one has broader capabilities than ANDRITZ.

ANDRITZ is the world's leading separation specialist, with the deepest knowledge, broadest technical resources, and most comprehensive service solutions. For more than 150 years, we have helped our customers respond to the world's environmental, energy-resource, health, and nutrition challenges by leveraging our extensive knowledge to create, develop, implement, and service innovative separation solutions. By solving these fundamental challenges, we create lasting value and drive growth across every industry we serve.



# Industries we serve



MINING &  
MINERALS



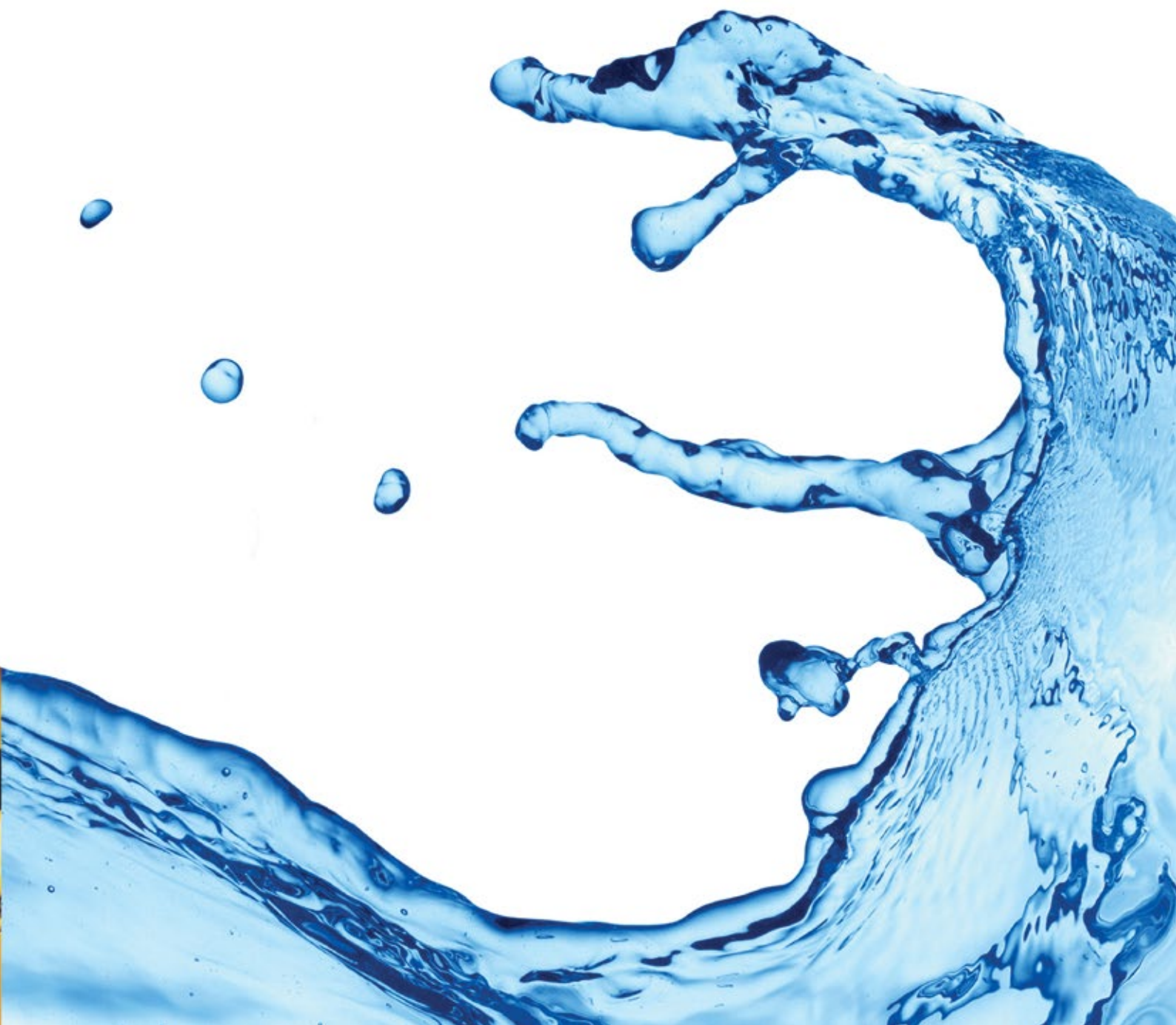
FOOD



ENVIRONMENT



CHEMICALS





## Your trusted partner

For more than 150 years, we have specialized in the development of key separation technologies and expertise. To continuously expand our portfolio, ANDRITZ has acquired well-known global brands including Bird, KHD Humboldt Wedag, Netzsch Filtration, Royal GMF Gouda, and more.

## Put our expertise to work for you

Every year, our specialists install more than 2,000 machines worldwide, including everything from the most reliable industry standards to the most advanced automation systems. This sheer depth of experience guarantees that you get the latest specialist expertise for any machine and any process, anywhere in the world.



## Did you know that we designed and built the world's largest municipal sludge drying plant in Singapore?

Currently capable of evaporating up to 55 tons of water per hour, it will soon be able to handle 2.4 million cubic meters of wastewater every day.

## Global strength close to you

At the heart of ANDRITZ Separation, there are more than 2,000 separation specialists located in 40 countries. Add to these approximately 250 ANDRITZ GROUP production sites, service, and sales companies, and you can rest assured that a local team is always available to support your individual needs.

## Solutions for any challenge

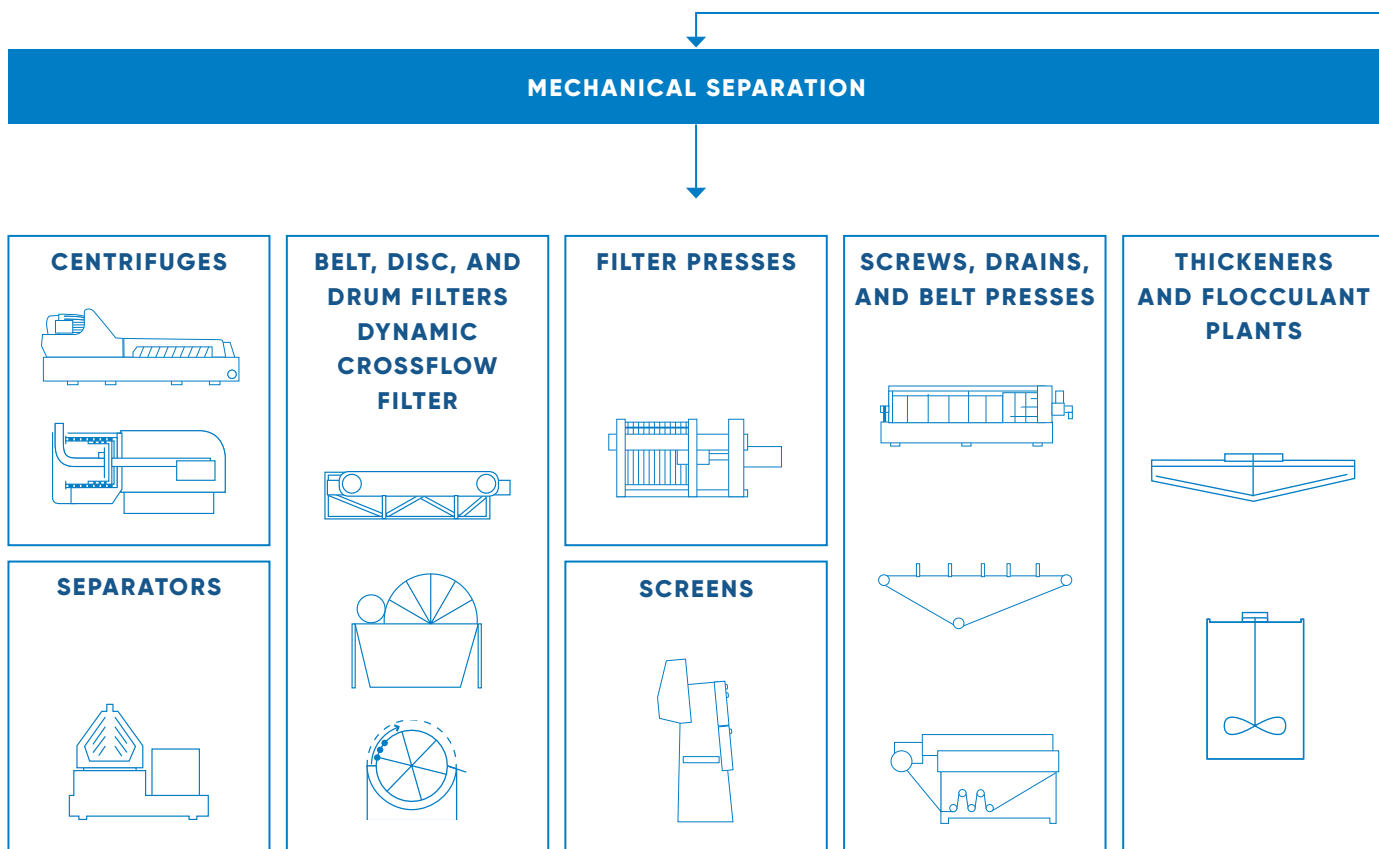
Thanks to our broad portfolio of mechanical and thermal separation technologies and services, we can always provide the optimal solution for your business. For more customized applications, our R&D and testing capabilities can be leveraged to deliver cutting-edge innovations, upgrades, and optimizations to help you make the most of the entire lifespan of your facilities.

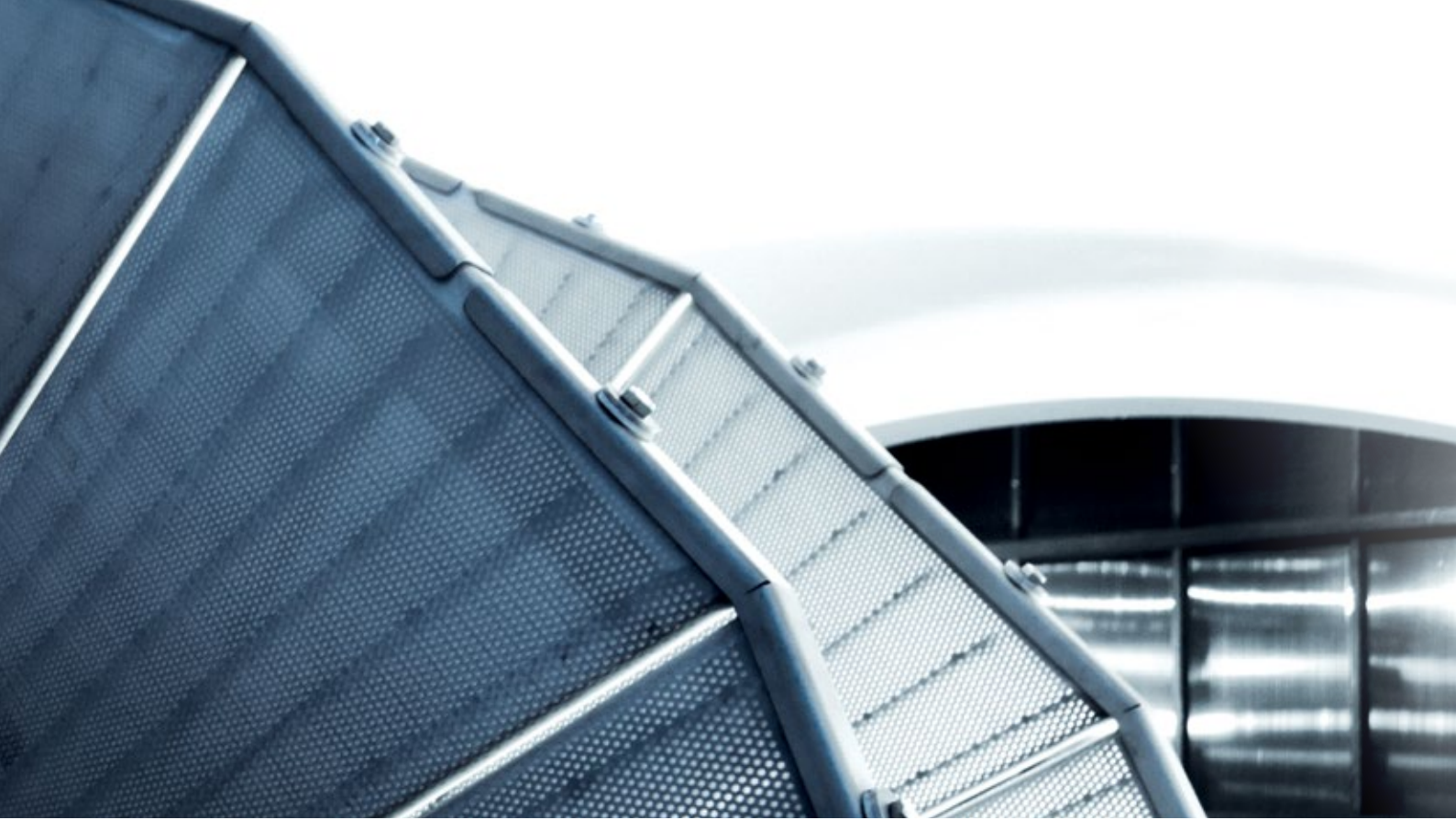
# The right solution for every separation challenge

With the world's most comprehensive portfolio of separation technologies and services, ANDRITZ is well positioned to provide the right solution for any type of mechanical or thermal separation challenge. It all starts with your specific process requirements and ends with a system that gives you the best results – day in and day out, for decades to come.

ANDRITZ is proud to be the OEM of a wide range of trusted technology brands, including: 3Sys Technologies, Bird, Delkor Capital Equipment (Pty) Ltd., Escher Wyss, Frautech, Guinard Centrifugation, KHD Humboldt


Wedag, Krauss-Maffei centrifuges, dryers, and filters, Lenser, Netzsch Filtration, Rittershaus & Blecher, Royal GMF Gouda, Sprout Bauer, and Vandebroek.






**THERMAL SEPARATION**

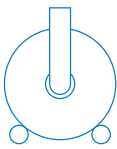
**PADDLE DRYERS**



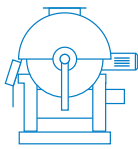
**STEAM PEELERS**




**DRUM DRYERS**



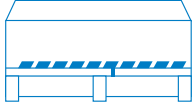
**DRUM FLAKERS**



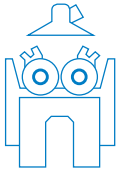
**BELT DRYERS**



**FLUID BED DRYERS**



**DRUM DRYERS**



**DISC PASTILLATORS**







# A world of separation solutions

If we've learned one thing serving customers in all industries across the globe, it's that no two separation processes are exactly alike. This is why we've devoted more than a century to ensuring that we can offer the best solution for any application, product, or process.

How can we be certain to deliver the right solution for you? Starting with your specific challenges, we run comprehensive tests based on your product, application, and process conditions. By analyzing these tests together with you and backing up the results with an array of proven references, we can always ensure the optimal solution to meet your unique performance demands.

To date, we've delivered tens of thousands of installations worldwide, including everything from standard to customized thermal and mechanical separation solutions. And while we're proud of our technologies, we're even more passionate about the results our specialists have helped to achieve. Like saving millions of cubic meters of water per year

in one of the world's harshest deserts. Or helping a family vineyard dramatically increase both its yield and profitability. Or supplying millions of people with environmentally safe and efficient wastewater treatment solutions.

Each of these achievements is a result of close collaboration, consulting, and dialogue with our customers. A combination of ambitious goals, deep process knowledge, and the world's most experienced separation specialists. Whatever your ambitions may be, we can tailor our solutions to help you achieve them.

**"To save and reuse as much water as possible, we needed both the right technology and a close collaboration partner. ANDRITZ Separation gave us both, working as one team with our engineers to install a superior solution on time and on budget."**

**BAASANDORJ TSOGOO**

Senior Vice President, Energie Resources, Mongolia



Need to boost ore throughput? Improve your separation of precious minerals? Whatever your mineral processing needs, we help you reduce operating costs and improve quality.



## MINING & MINERALS

We have earned a reputation among many leading mining and mineral processors for providing the world's highest-capacity dewatering technologies, with the lowest possible operating costs. For others, it's a matter of minimizing wastewater from tailings in remote deserts or ensuring the ideal residual moisture for their final products. Whatever the challenge, our wide range of solutions for potash, coal, tailings, metal mining, and more ensures that we can always meet your requirements.

### KEY APPLICATION AREAS



Potash



Coal



Tailings



Metal mining



# How do you transform a desert coal mine into an award-winning oasis?



The Ukhaa Khudag coal mine lies in one of the harshest climate zones on the planet: the southern Gobi desert. In winter, its pipelines and coal tailings dams would freeze. In summer, much of its water would evaporate. Faced with these extreme conditions, the mine needed the most robust equipment available to conserve and reuse water from its tailings.

## **HIGH PERFORMANCE IN HARSH CONDITIONS**

Eight ANDRITZ Separation belt presses, including everything from flocculants to conveyor belts, were commissioned to solve the mine's challenges. Despite the immense logistic obstacles of the remote location, all deliveries were executed on schedule.

## **CONSERVING WATER, IMPROVING UPTIME**

Thanks to its increased process water recovery, the new plant now achieves water savings of up to 3.12 million cubic meters per year, along with a

15% reduction in downtime, amounting to at least 1,000 additional hours of operation per year.

## **AWARD-WINNING RESULTS**

Ultimately, it all came down to choosing the most economical solution with the best technical performance – an achievement confirmed when the project was awarded the prize for Best Technology of 2013 in the Mining Journal Awards.

Want to get more from less? Purer products? Better taste? With more than 100 years' experience in the food industry, serving everyone from multinationals to smaller family operations, we can promise you one thing: your goals come first.



Cheese or chocolate. Palm oil or wine. Presses, centrifuges, filters, screens, or drying systems. The applications may vary, but the need for reliable, efficient, and hygienic ways to improve product quality remains the same. This is why hundreds of food and beverage customers – from the largest multinationals to the smallest family companies – have turned to ANDRITZ Separation for approximately 2,000 separators and 1,000 filter presses, as well as more than 500 units for baby food production alone.

#### KEY APPLICATION AREAS



Dairy



Vegetable oil



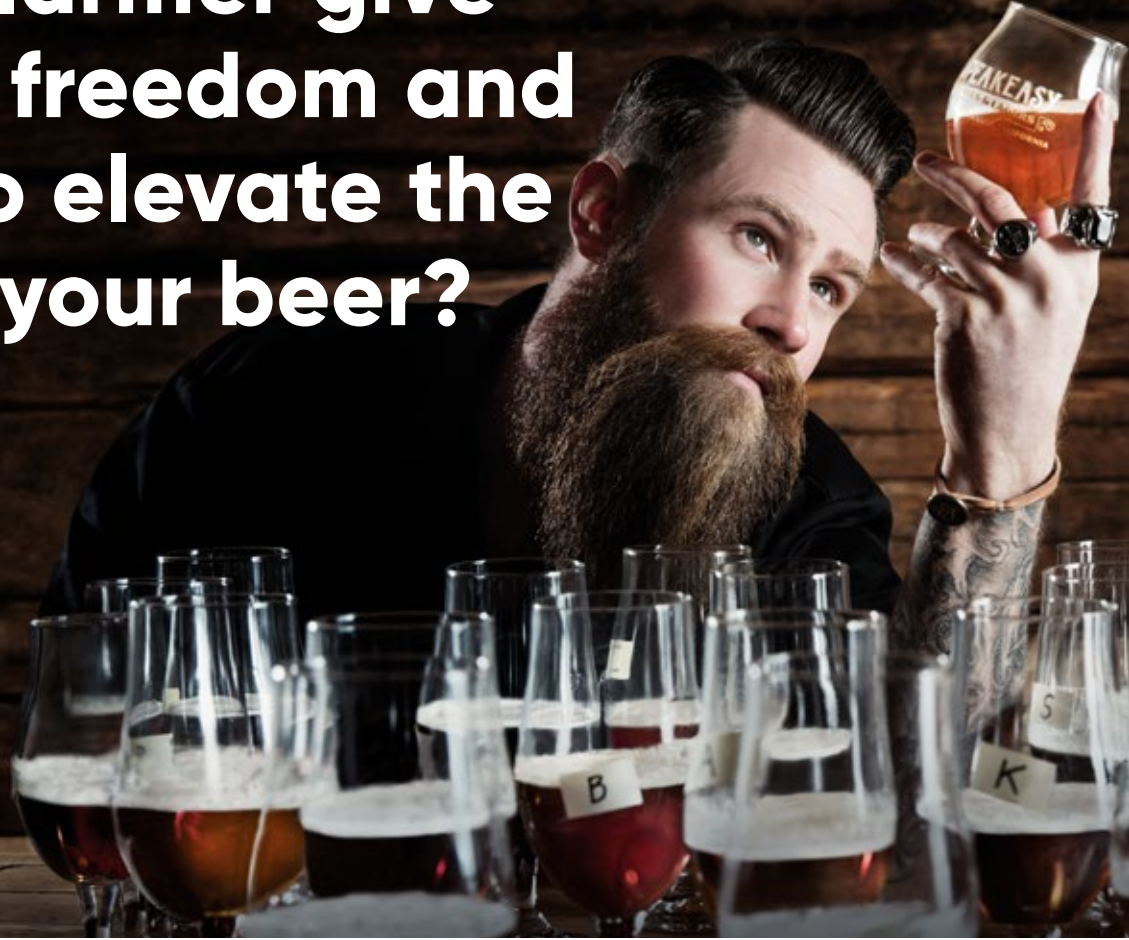
Beverage



Baby food



# Can a clarifier give you the freedom and flavor to elevate the craft in your beer?



The craft beer movement is fueled by flavor, aroma, and creative freedom. But for the brewers at San Francisco's Speakeasy Ales & Lagers, long filtration times and high loss were a constant drain on the joys of their craft.

The solution? A uniquely efficient and easy-to-use ANDRITZ Separation beer clarifier skid to replace the brewery's problematic filter requiring filter powder.

The result? A range of beers with better flavor and fuller aroma, produced with half as much labor for clarification, and a seven percent average boost in yield. It's just one of the ways our expertise helps countless brewers to reach new heights in craftsmanship, every day.

Are you looking to boost output for growing markets?  
Need to lower operating costs with an automation  
system that's ahead of the curve? How can you  
ensure your next product innovation is error-free?  
And how will you guarantee 24/7 production?



## CHEMICALS

In terms of product purity and plant safety, chemical manufacturers are among our most demanding customers. These strict process requirements and specific chemical characteristics drive our technology selections to give you the optimal filters, presses, centrifuges, decanters, purifiers, concentrators, drying/cooling, and automation systems for your needs. Need a more tailored solution? Our own test and pilot facilities are available to help.

### KEY APPLICATION AREAS



Agrochemicals  
and fertilizers



Petrochemicals  
and polymers



Soda ash and  
technical salts



# Can a chemical filtering technology really help feed a nation of 252,000,000 people?



Fertilizer is crucial to ensuring reliable food supplies for more than a quarter billion people in Indonesia. So when the country's state fertilizer producer approached us with their goal of making the nation self-sufficient in fertilizer production, we responded.

Burdened by outdated technology and struggling to meet the production demands of a large and growing population, our customer required a superior technology. With the help of two ANDRITZ tilting pan filters, the plant made dramatic improvements in yield,

energy efficiency, and total cost of ownership. As a result, they are now on target to produce 200,000 tons of phosphoric acid per year – enough to support the country's entire agricultural sector.

Challenging municipal budgets. Water shortages. A need for renewable energy. Today, there's simply no room for waste. Getting the most efficient separation is essential, not just to profitability, but also to ensuring sustainable growth.



## ENVIRONMENT

Based on our process expertise, we have successfully delivered more than 10,000 references in the environment sector and are adding as many as 500 new references per year. Our industry-leading portfolio includes four dewatering, three thickening, and four drying technologies, as well as screening and ancillary solutions. So whatever your specific needs, we can always supply the best solutions for municipal and industrial wastewater, potable water, biomass, and organic waste applications.

### KEY APPLICATION AREAS



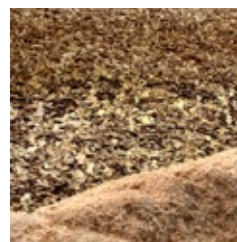
Industrial wastewater



Municipal wastewater



Potable water



Biomass production



Organic waste



# One of Europe's largest wastewater plants handles two million challenges a day. What are yours?



In Ambarli, Turkey, more than two million people depend on the capabilities of just one wastewater treatment plant. But as strict new environmental regulations came into effect, the city's outdated facilities became unsustainable.

To meet new demands, the facility would need to treat 400,000 cubic meters of sewage per day within a very compact building. Technologies, costs, and energy consumption would all be subject to highly stringent regulations.

Our solution was a new sludge drying plant with six ANDRITZ Gouda paddle dryers, each with a capacity of 100 tons of sludge cake per day. By converting biogas into electricity, the fully automated plant is able to achieve every one of its performance requirements, while ensuring an optimal energy balance for decades to come.

# Worldwide service and support for non-stop productivity

Our installed base of more than 55,000 separation solutions and systems means we take service extremely seriously. Whether it's consulting, process optimization, repairs, upgrades, spare and wear parts, operator training, or service agreements, we work closely with all of our customers to ensure a lifetime of efficiency and reliability.

## A TRUE FULL-SERVICE PROVIDER

Many of our customers know us as the OEM behind world-renowned brands like Bird, Netzsch Filtration, Royal GMF Gouda, and more – all of whom were acquired by the ANDRITZ GROUP over the years. But few realize that we can service and supply spare and wear parts for nearly all brands of separation equipment and systems on the market. For customers with complex operations involving many processes and various technologies, the value of having one partner with the full range of process expertise is self-evident.



### LOCAL SUPPORT

Responsive local service centers and field service technicians



### REPAIRS & UPGRADES

Optimization of machine and process performance, repair work, retrofitting, and modernization



### SECOND-HAND & RENTALS

Certified second-hand and rental machines



### TRAINING

Operator training and tailored seminars for operating and maintenance personnel



# If a centrifuge works in theory, why make it bulletproof?

Chemical manufacturing can push the limits of even the most advanced materials. For one producer in the Netherlands, not even high-grade titanium could resist the corrosion caused by rising temperatures and highly concentrated hydrochloric acid in their decanter centrifuge.

Our solution was to develop an entirely new corrosion-proof casing in Fiberglass Reinforced Plastic. The solution was not only cost-efficient, but was proven at a firing range to withstand projectiles at more than six times the speed of any potential part coming from the centrifuge.

The result was an innovative new material application, along with 100 hours of reduced annual downtime.



#### OEM SPARE PARTS

Filter cloths, spare and wear parts from OEMs or with OEM level quality, all readily available



#### SERVICE AGREEMENTS

Preventive maintenance, contracts for spare parts, maintenance, inspections, repairs, upgrades, operation, and equipment monitoring



#### PROCESS OPTIMIZATION

Automation tools and process expertise to boost your profit



#### LAB AND ON-SITE TESTS

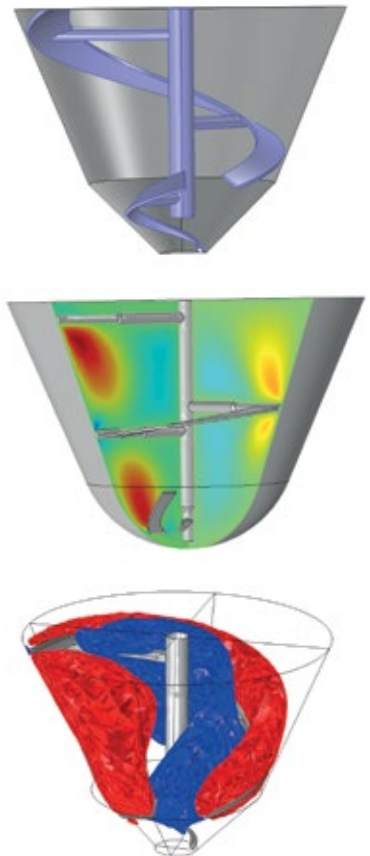
Lab and testing capabilities for process optimization and machine upgrades

# Our innovations, your lasting advantage

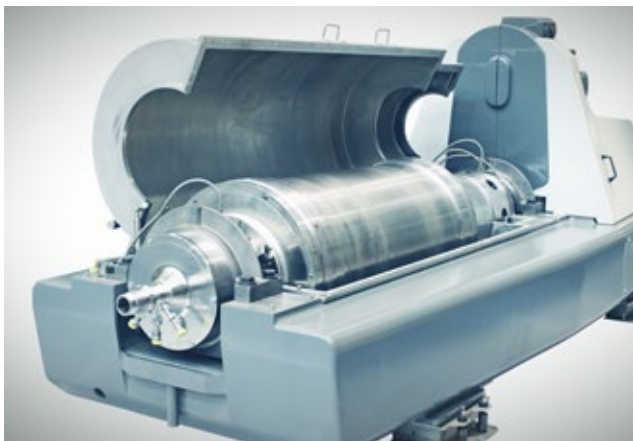
Energy costs. Environmental impact. Throughput. Efficiency. For all of our customers, the pressure to outperform the competition and meet new regulations is relentless. This is why we devote a significant portion of revenues every year to continuous research and development in all aspects of separation.

## SMART SOLUTIONS FOR FUTURE DEMANDS

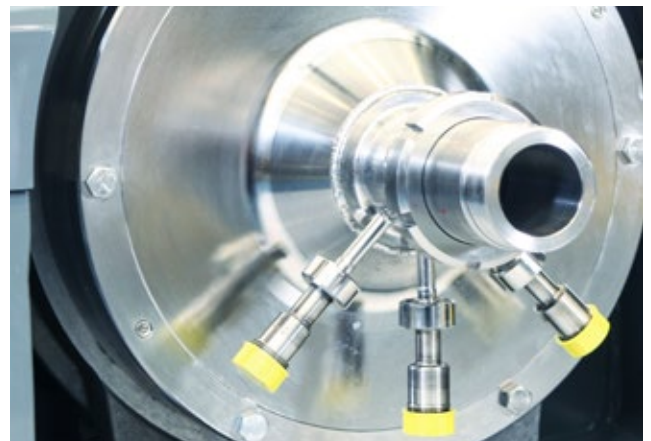
How will changing markets affect your future production needs? And which industry trends point to new opportunities to better serve your customers? Our R&D labs throughout the globe are at your disposal to explore new possibilities, applications, and product developments. At these labs, we are constantly pushing the limits of efficiency and performance in everything from centrifuges, separators, dryers, screens, belt and filter presses, drains, disc and drum filters, to thickeners and flocculant systems. In fact, ANDRITZ Separation reinvests a significant percentage of its total sales in R&D to ensure that all of our customers have access to the latest technological advances.



CFD analysis of a helix dryer



Next generation ANDRITZ decanter





## Creating the world's most versatile platforms

Our recent redesign of all A-, D-, and F-series decanter centrifuges is a perfect example of our process of customer-centric innovation. First, we gathered detailed input from all application managers and sales organizations to systematically address the full array of application requirements. To reduce absorbed and installed power, we updated the design with new direct-drive gearboxes. To improve control, operation, and maintenance, we carefully tested and refined all aspects of man-machine interaction. Finally, a new modular design emerged, making it possible to combine a range of features such as centripetal pumps, cover seals, CIP equipment, and more – all tailored for specific customer applications. The result is a common decanter platform with the versatility to adapt to your needs.

# What's your biggest challenge?

**Are you looking to boost efficiency? Save resources and energy? Or simply improve your end products? Whatever your challenge, more than 2,000 separation specialists at ANDRITZ are on hand to put our experience, financial strength, and technical resources to work for you.**

Every day, hundreds of our separation specialists are hard at work consulting, upgrading, designing, installing, automating, and servicing the world's leading separation solutions. From brownfield to greenfield projects, family operations to large-scale facilities, we're constantly applying the latest knowledge and R&D to improve all types of applications around the world.

At ANDRITZ, we see every new challenge as a welcome opportunity. Sometimes it involves designing and installing the world's largest municipal wastewater drying plant or the industry's highest-capacity hyperbaric disc filter for iron ore processing. But more often than not, it's about working in close collaboration with our customers to optimize complete processes and innovate new solutions that lead to significant productivity gains. Whether it's supplying the right spare parts, reducing wear, or cutting equipment footprints, even the smallest improvements can make a noticeable impact on your bottom line.

Wherever you're located and whatever your industry, our 150-year track record and our global team of separation specialists are available to ensure reliable, efficient operations for your plant's entire lifecycle. How can we help solve your biggest separation challenges? Contact your separation specialist today or find out more at [ANDRITZ.COM/SEPARATION](https://www.andritz.com/separation).





**“Even the smallest design changes can have a massive impact on energy savings. It’s thrilling to make a difference on a global scale.”**

**IVAN HOLZER**



**“Safety and reliability are the top priorities for every solution we deliver.”**

**MONSERRAT AMEZCUA**



**“Our product development is truly responsive to changing needs. With the data from customer test runs, we can quickly adapt our designs to real-world production requirements.”**

**STEFAN PETER**





## 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!**

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