



ANDRITZ
Separation

MINING & MINERALS
Power for the challenge

Global partnership for local solutions

ANDRITZ SEPARATION is the leading global supplier of state-of-the-art separation technologies and services.

ANDRITZ SEPARATION is part of the international technology group ANDRITZ – a globally leading supplier of plants, equipment, and services for solid-liquid separation in the municipal and industrial sectors, hydropower stations, the pulp and paper industry, the steel industry and the production of animal feed and biomass pellets. ANDRITZ operates over 180 production sites, service and sales companies all around the world with a staff of approximately 17,000 employees.

Experience drives innovation

With looking back at more than 150 years of experience in the separation industry and with more than 2,000 new references per year, ANDRITZ SEPARATION continuously extends its expertise while staying close to customers. This leads to frequent innovations and product developments, based on proven technologies.

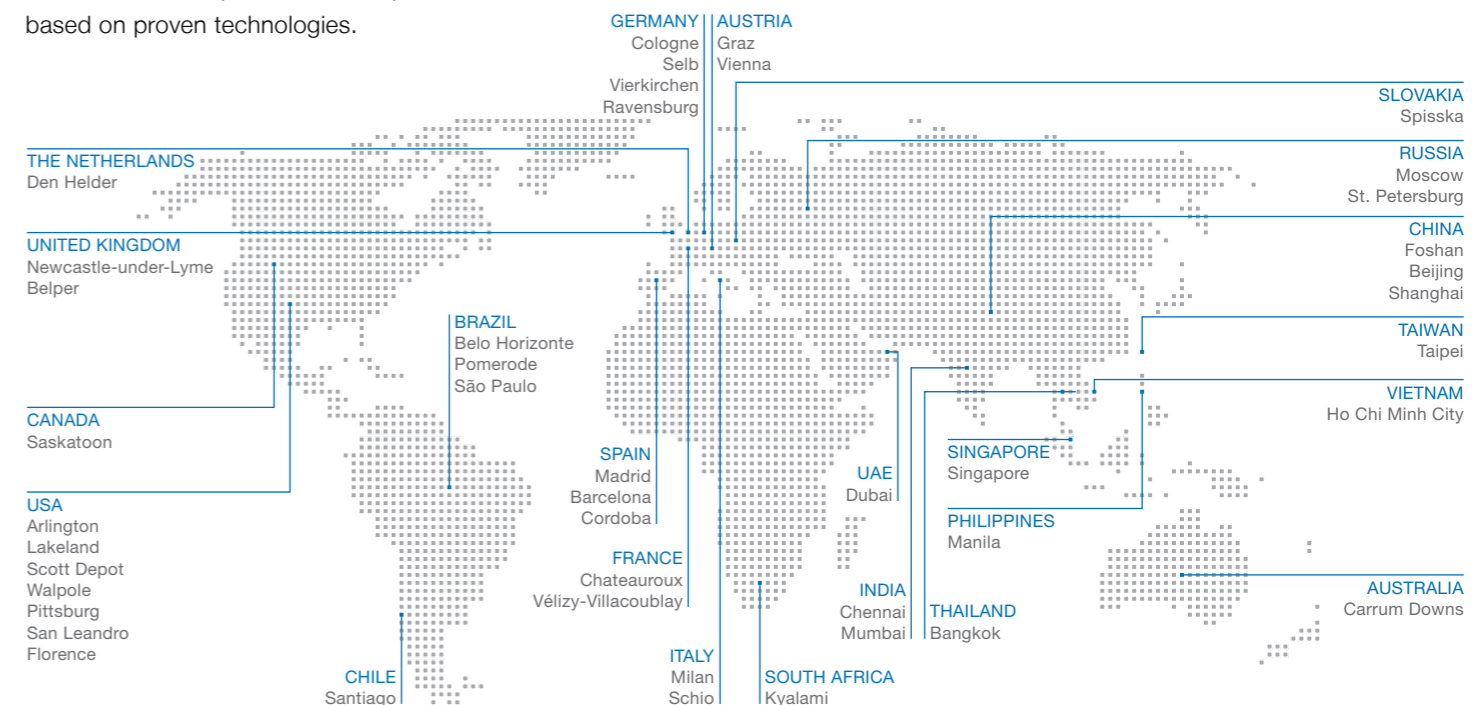
Portfolio for various customer requirements

ANDRITZ SEPARATION offers the most comprehensive portfolio of separation equipment and solutions for a broad range of applications in various industries. As one of few suppliers, ANDRITZ SEPARATION also provides thermal treatment systems in addition to mechanical solid-liquid separation equipment. So the best solution for all individual customer requirements can be offered - whether it is related to a mining and minerals plant, a chemical or pharmaceutical production process or a dewatering system for any other industry or municipality.

Expertise empowers partnership

ANDRITZ SEPARATION's expertise lies in innovating equipment and systems based on technical excellence, engineering know-how, commitment to high quality, and partnering with its customers. A complete range of state-of-the-art equipment - covering screens, centrifuges, separators as well as a wide range of filtering equipment, thickeners, thermal systems, and transportation systems - supports customers in optimizing the performance and efficiency in every step of their separation process. ANDRITZ SEPARATION is a long-term partner for customers across the whole plant lifecycle – from consulting to wear and spare parts, full-time technical support, upgrades, and process optimization. Anywhere, anytime.

ANDRITZ SEPARATION equipment, systems, and services are provided worldwide by a network of more than 2,000 employees and agents in more than 40 locations in 24 countries. To further improve the 24/7 availability, ANDRITZ SEPARATION continuously extends its local presence, establishing a wide network of service centers all over the world.



Mining & Minerals

Power for the challenge

For the mining and minerals industry ANDRITZ SEPARATION offers solutions designed to increase performance and profitability through excellence in solid-liquid separation, reliable partnership, and acceptance of any challenge.

Lifecycle partner for any challenge

As a separation specialist with a successful history in the mining and minerals industry for more than five decades, ANDRITZ SEPARATION is ideally equipped not only to supply and start up equipment and systems but also to support customers in maximizing process efficiency over the complete plant lifecycle.

Thousands of references are available showing best practices over long-term partnerships with customers in different segments of both the mining and minerals treatment industries all around the world. This makes ANDRITZ SEPARATION the right choice to solve any customer problem today and in the future. All challenges are addressed by project development and execution in close collaboration with the customer. Thus ANDRITZ SEPARATION stands for long-term reliability.

Most comprehensive separation portfolio for mining and minerals

From conveyors for material handling to centrifuges and various other filtration technologies for dewatering to thickeners for tailings treatment or drying systems – ANDRITZ SEPARATION offers the most comprehensive product range for the mining and minerals industry.

Leading pressure filtration technology is provided ranging from the latest vacuum technologies including belt, disc, and drum filtration, belt and filter presses to hyperbaric filtration. With centrifuge capacities of 450 tons per hour per unit, tilting pan filters with diameters up to 30 meters and hyperbaric filters for lowest residual moisture of 8 to 9%, ANDRITZ SEPARATION is ready to meet any challenge.



Optimized total cost of ownership

Solid-liquid separation is one of the most important steps in metallurgical mineralogical production processes in terms of profit by adding most value to the end product. ANDRITZ SEPARATION portfolio enables customers to reap maximum profit from their production by offering a portfolio optimizing total cost of ownership.

Excellent engineering capabilities, modular equipment, and state-of-the-art technologies of ANDRITZ SEPARATION have a major impact on production performance and quality and hence on maximizing the return on investment of customers' plants.

ANDRITZ SEPARATION solutions boost throughput by up to 50%, minimize operating costs by reducing power consumption, increasing water reuse or decreasing the size of tailing ponds significantly.



Separation to the finest

Coal is still one of the world's most important energy resources; roughly 40% of global electricity comes from coal. ANDRITZ SEPARATION offers an extensive portfolio of outstanding washing and handling processes, even for the finest coal particles.

Long-term expertise

For more than five decades ANDRITZ SEPARATION has developed equipment and solutions for the specific needs of the coal industry. The portfolio includes various small to large scale centrifuges, specifically designed filter presses, disc or drum vacuum filters, high efficiency hyperbaric filters, and tailor-made thickeners.

Long-term partnerships with customers, constant feedback loops between real-time operations and the ANDRITZ SEPARATION R&D department as well as highly qualified employees guarantee the most economic dewatering solutions for all kinds of separation and filtration in the coal industry.

Innovative solutions

To meet even the greatest demands within the coal beneficiation process, major efforts were put especially into the design and optimization of the Hyperbaric Disc Filter (HBF) for the filtration of particles below 200 µm. This made ANDRITZ SEPARATION the leading supplier of the most advanced fine coal technology globally.

Hyperbaric filters are the first choice whenever highest solids throughput, lowest residual moisture, and clear filtration are required. Compared to conventional vacuum filters, hyperbaric filter performance data shows a production output that is up to twice as high.



◀ Hyperbaric disc filter ▼

Efficiency and cost reduction

State-of-the-art coal beneficiation plants are becoming more and more complex in order to increase yield, improve product quality, and to minimize water consumption and environmental impact. ANDRITZ SEPARATION contributes to these customer needs in a variety of ways.

- Lab simulations in advance anticipate the individual conditions of the specific application and optimize process quality and hence cost efficiency.
- Specifically designed equipment and systems for the coal industry guarantee highest throughput per unit and continuous operations.
- Advanced technologies enable the implementation of closed circuit solutions which reduce emissions, water consumption, or the volume of the tailings, each directly saving costs.
- As one of the benefits of the HBF solutions, low moisture leads to significant savings in transportation costs. Additionally, HBF helps to save thermal drying costs or is even an efficient alternative to it. The outstanding effectiveness of HBF systems extends the lifetime of tailing ponds, or even better, makes landfill possible instead of utilizing tailing ponds.
- Robust and maintenance-friendly equipment ensures cost optimization over the whole lifecycle of a coal beneficiation plant.

In other words: ANDRITZ SEPARATION helps to save costs and increase profit by optimizing process and product quality, enabling water and energy reuse, and by minimizing emissions.



Expertise in high capacity

Iron ore is more integral to the global economy than any other commodity, except oil. Since most deposits of highly concentrated iron ore are already depleted, this major raw material to produce steel is in ever greater demand to be extracted and processed. ANDRITZ SEPARATION provides high volume throughput equipment by minimizing total cost of ownership.

Industry-specific solutions for high throughputs and sustainable profitability

ANDRITZ SEPARATION offers solutions especially designed for profitable high throughputs in the filtration process of an iron ore beneficiation plant.

Generating metallic iron typically from magnetite, hematite or siderite means that different material parameters have to be considered during the beneficiation process. Specific mining filter presses for high capacity and the latest vacuum filter technology for disc, drum or horizontal belt filters are precisely designed to meet these needs. Thickeners up to a diameter of 100 meters complement the portfolio.

Optimized filtration for pelletizing

In addition to the standard equipment for vacuum filtration ANDRITZ SEPARATION provides mining-specific filter presses and hyperbaric filtration. This type of equipment easily meets requirements, even for finest iron ore used for handling in pellet production, where a residual moisture content of 8 to 9% in the base material is a must.

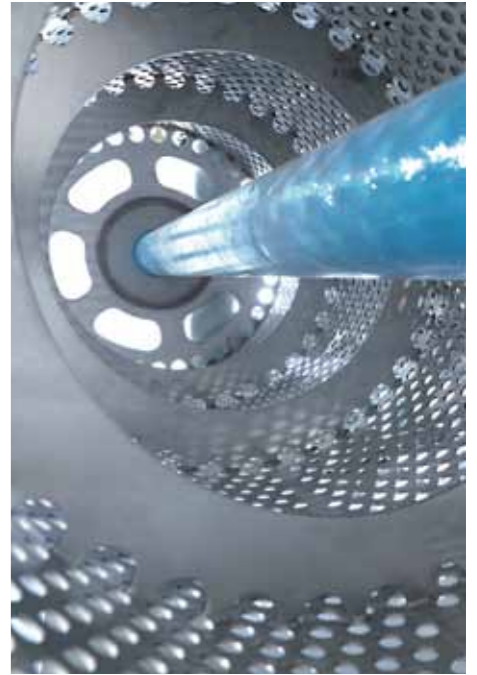
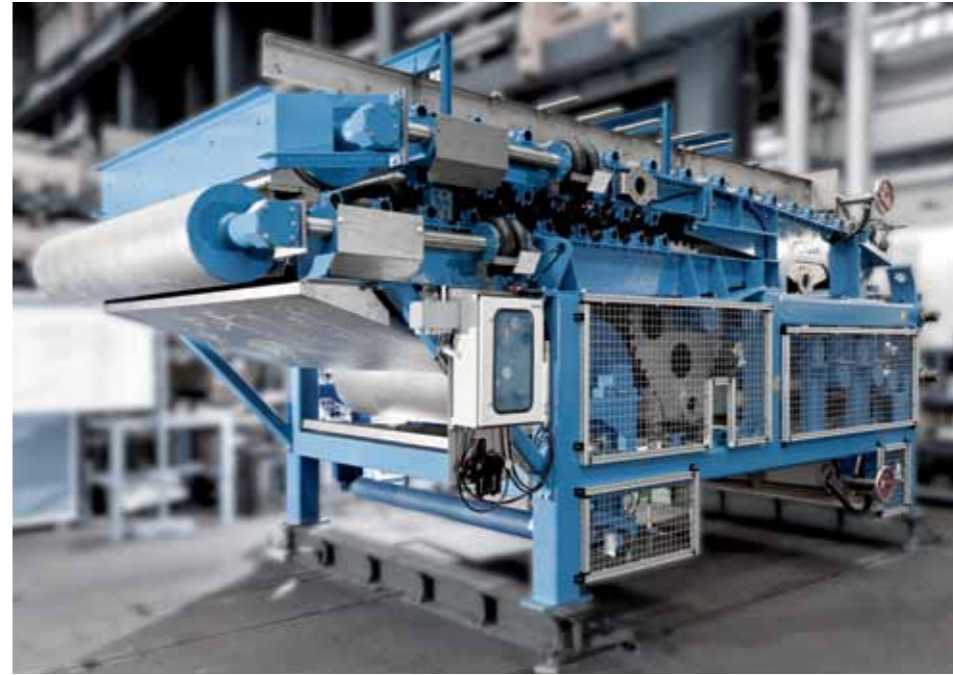
Moreover, ANDRITZ SEPARATION hyperbaric filtration technology allows continuous processing up to 500 tons per hour per unit. This is up to five times as much capacity as vacuum disc filters can handle, depending on the feed material. At the same time this high pressure procedure results in a lower degree of moisture.

Total cost of ownership cut by half

Modular design for easy maintenance and application-specific systems in general, combined with ANDRITZ SEPARATION hyperbaric filtration lead to a tremendous reduction in operating costs - by up to 50%, mainly derived from the reduction in filter cloth consumption. In specific cases, even a separate thermal drying unit becomes redundant when using hyperbaric filtration.

Dewatering of tailings by filter or belt presses or by hyperbaric filtration helps save pond capacity and at the same time guarantees compliance with legal (environmental) restrictions. In addition the higher percentage of water reuse plays a major role in sustainably decreasing costs.

▼ Heavy-duty belt press ►



POTASH

Competence counts

For the potash industry, ANDRITZ SEPARATION is market and technology leader for brine refinery processing, providing the widest and most comprehensive range of equipment and systems. Potash is essential for the worldwide food industry and bio-fuel production, with demand soaring for effective fertilizers in the coming years.

Perfect selection of equipment thanks to broad portfolio

ANDRITZ SEPARATION offers a complete range of mechanical separation equipment and thermal drying systems, including various centrifuges, thickeners, specific filters, filter presses, and fluidized bed dryers. Profound expertise in brine refining makes ANDRITZ SEPARATION the best choice: complete systems for the flotation process, hot and cold leach crystallization, and specific knowledge of requirements guarantee best results.

Innovative process solutions

Nowadays the former process philosophy of always applying the same separation principle to different process steps has become redundant. Instead of generally employing thickeners followed by vacuum filters, ANDRITZ SEPARATION splits the process and hence the slurry separates into a coarse and a fine fraction. This fractional dewatering leads to a significantly lower moisture content in the product compared to combined dewatering. This massively reduces energy consumption while increasing the rate of recovery through reduced loss of brine.

▼ Screen bowl decanter ►



Highest level of efficiency

State-of-the-art, energy-efficient equipment and systems allow sustainable profitability throughout the lifecycle of brine refinery plants.

ANDRITZ SEPARATION conical screen bowl centrifuges, for example, provide higher throughput and smoother operation while handling fluctuating feed solids concentration, thereby reducing power consumption by approximately 15% compared to traditional units.

The design of ANDRITZ SEPARATION pusher centrifuges – with a patented feed system – leads to a longer retention time and up to 30% higher capacity. This permits lower speeds while maintaining the same degree of moisture.





Innovation partner for dewatering challenges

Converting bauxite to alumina involves numerous dewatering process steps. ANDRITZ SEPARATION offers a complete portfolio of innovative filtering and thickening solutions for all these process steps.

Complete solid-liquid separation offering

The Bayer process includes numerous dewatering process steps – from dewatering of bauxite, to filtering before precipitation, red mud treatment, and to seed and product filtration. To address these dewatering solution requirements ANDRITZ SEPARATION offers a complete portfolio of innovative vacuum and pressure filtering technologies, including disc and drum as well as hyperbaric filters, plus state-of-the-art thickening solutions.

Innovative solutions for optimized process efficiency

Key to dewatering success in alumina production is to achieve maximum throughput, while at the same time minimizing residual moisture levels and optimizing total cost of ownership.

ANDRITZ SEPARATION has translated these customer requirements into innovations:

- Application of the vacuum drum filter for product filtering can handle large throughputs of up to 400 tons per hour per unit while minimal residual moisture levels of 3 to 5% are achieved. Additionally, maintenance-friendliness ensures cost optimization over the whole lifecycle.
- Investment in space for hydrate filtering buildings can be minimized by operating ANDRITZ SEPARATION vacuum disc filters which feature an optimized ratio of filter surface to required machine space of six.



▲ Vacuum disc filter

Solutions for maximum performance

For the extraction of copper, zinc, gold, and other valuable or precious materials ANDRITZ SEPARATION provides latest dewatering technologies designed for high capacity, efficient production rates, and maximum recovery of dissolved metals.

Lifecycle partnership

More than 5 decades of experience in the non-ferrous industry and expertise proven by references around the world make ANDRITZ SEPARATION the ideal partner to supply dewatering solutions over the complete plant lifecycle. The latest filtration and thickening solutions are provided combined with joint project development and a comprehensive service portfolio.

Innovation drives performance

ANDRITZ SEPARATION solutions are designed to achieve highest production rates and to handle large throughputs without compromising efficiency. The large horizontal vacuum belt filters with a filter surface of up to 200 sqm ensure a high level of throughput and extraction efficiency while optimizing energy and water consumption by applying counter-current washing. For all counter-current decantation plants the new and efficient inter-stage mixing and dilution system for CCD circuits helps to reduce investment in space, and consequently operating costs. The innovative paste thickener design provides savings in water recovery and tailing pond disposal.



▲ CCD Thickener

Full service and know-how boost customer profitability

ANDRITZ SEPARATION's service philosophy is characterized by a complete range of innovative service products and services for all brands of separation equipment and thermal drying systems solving any customer challenge coupled with availability at any time and reliable local support for the long term.

Comprehensive service offering

ANDRITZ SEPARATION's broad range of equipment and systems comes with comprehensive lifecycle services which are designed to answer any customer challenge - be it strategic, in the daily operation or an emergency. Wear and spare part offers are combined with on-call service and local emergency support provided by strategically positioned service centers supporting customers 24 hours per day, 7 days per week, and 52 weeks per year. Process optimization, remote monitoring, and operator training optimize customers' workflow and the outcome of the production process. This makes ANDRITZ SEPARATION the ideal service partner over the complete plant lifecycle.



Wear and spare parts and on-site repairs for smooth operation

Whether customers run batch or continuous production, the smooth operation of all separation equipment is ensured by ANDRITZ SEPARATION service technicians providing individual and responsive support anytime and around the world. Additionally, continuous innovation and improvement of global service products enhances the lifetime of wear parts in abrasive applications.

Upgrades and process optimization for maximum efficiency

ANDRITZ SEPARATION supports customers in optimizing the performance of not only individual equipment but also of complete processes. The best solution often lies in improving existing equipment and systems by upgrades and optimizing processes based on process audits, thereby minimizing operating costs. As a technology company ANDRITZ SEPARATION continuously develops upgrades for mechanical design and automation of all separation equipment enhancing the productivity, safety, and capacity of plants as well as the quality of end products while also reducing power consumption.

Service contracts for sustainable success

Excellent and reliable services over the lifecycle of equipment and systems help customers achieve best results in terms of total cost of ownership. Preventive maintenance, remote monitoring, and inspections ensure that the production processes run trouble-free and in a predictable manner. As a reliable partner for many decades, ANDRITZ SEPARATION offers full-service contracts for its complete service portfolio.

Screens Thermal systems
Belt filters Thickeners
Flocculant systems **Centrifuges**
Drum filters Disc filters
Filter presses Transportation systems

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