

ENVIRONMENT
Powered by reliability

ANDRITZ SEPARATION equipment, systems, and services are provided by a network of more than 2,000 employees and agents in more than 40 locations worldwide. 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.

Global partnership for local solutions

ANDRITZ SEPARATION is one of the leading global suppliers 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.

Experience drives innovation

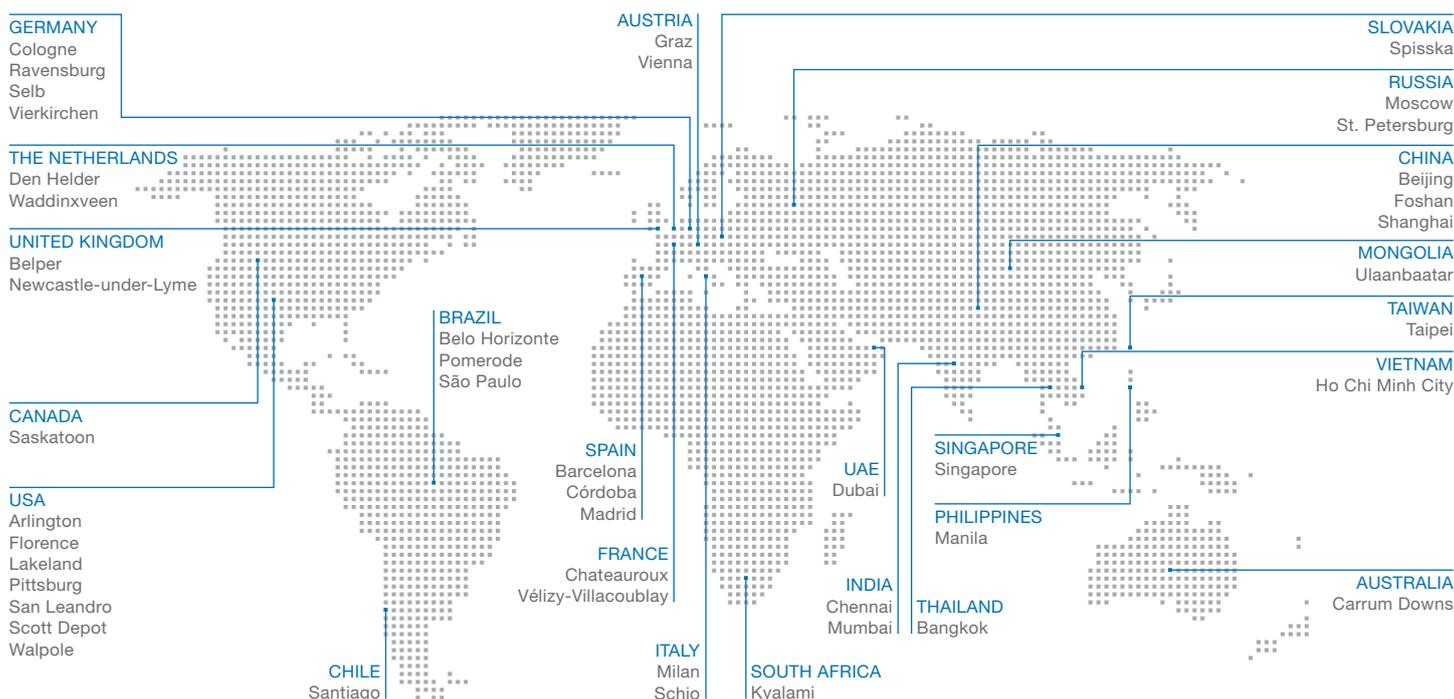
Looking back at more than 150 years of experience in the separation industry and with more than 2,000 new references per year, ANDRITZ SEPARATION continuously extends its expertise while staying close to customers. This leads to frequent innovations and product developments, based on proven technologies.

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 a 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, and 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.



Environment

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Today, more than seven billion people live on this planet. Water consumption over the past century has increased six-fold, most of which is used in food production. Over 90% of the water is used for this purpose and the demand for water is expected to increase by another 20% by 2030.

Trusted partner for process solutions

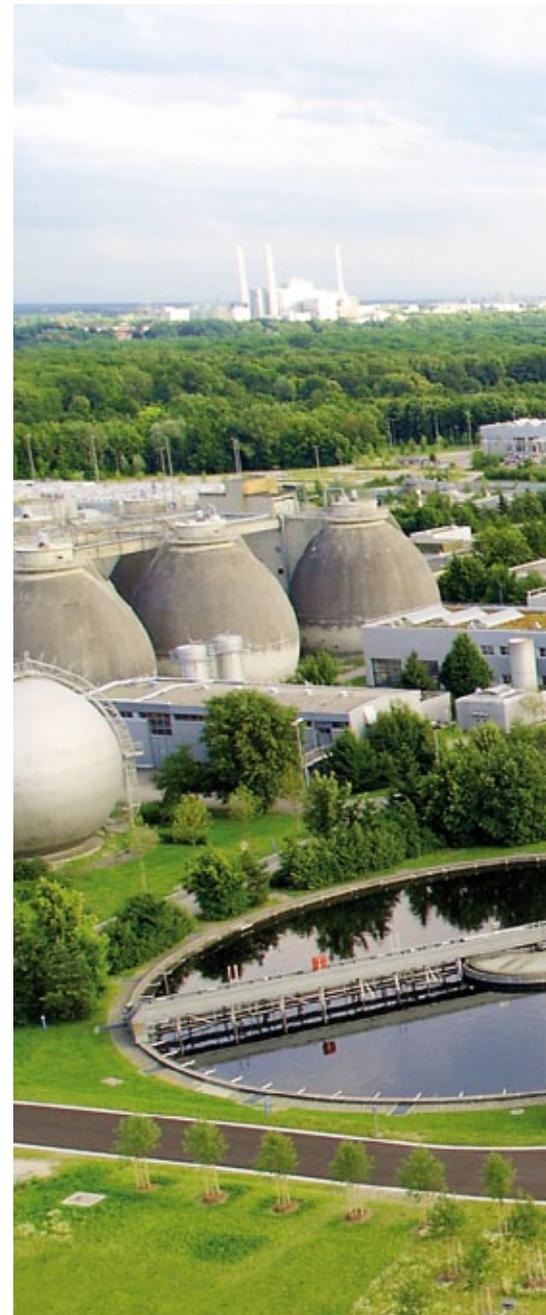
Increasing scarcity of groundwater reserves, rising demand for food, progressive urbanization – three factors which move water supply and water recycling increasingly into the limelight. Almost everywhere in the world, governments have started to regulate the use of water and to set clear requirements regarding its purification. This applies particularly to industrial use. A large share of the water volume used in modern production facilities – around 5% of the total water consumption – is used in closed circuits or is thoroughly purified before being discharged into the municipal system.

With increasing water consumption, the need for modern processing and disposal technology is on the rise. This is not only about water purification, but also about handling residual and waste materials derived from this process. Specifically for this purpose, ANDRITZ SEPARATION offers a comprehensive range of innovative systems and solutions, which are tailored to fit the respective need and situation on site. For more than 50 years, our partners from municipalities and industry have placed their trust in ANDRITZ SEPARATION when reverting to filter and dryer systems, centrifuges and presses, as well as the consulting and service offers.

Alternative energy

Where more drinking water and wastewater are being processed, used, and purified, the need for energy increases as a consequence. The sewage sludge generated in the process could be part of the solution. Very often this contains organic matter which can be used as an energy carrier and for the installation's energy supply. The EcoDry technology developed by ANDRITZ SEPARATION is an example of such a process. Sewage sludge is increasingly finding more takers. In the cement industry for example, sewage sludge already represents about 10% of the secondary fuels used. Similar developments can also be observed in other energy-intensive industries, such as in electricity generation and papermaking: The market for alternative energy carriers is expanding.

Waste
Wood chips
Biosolids
Organic

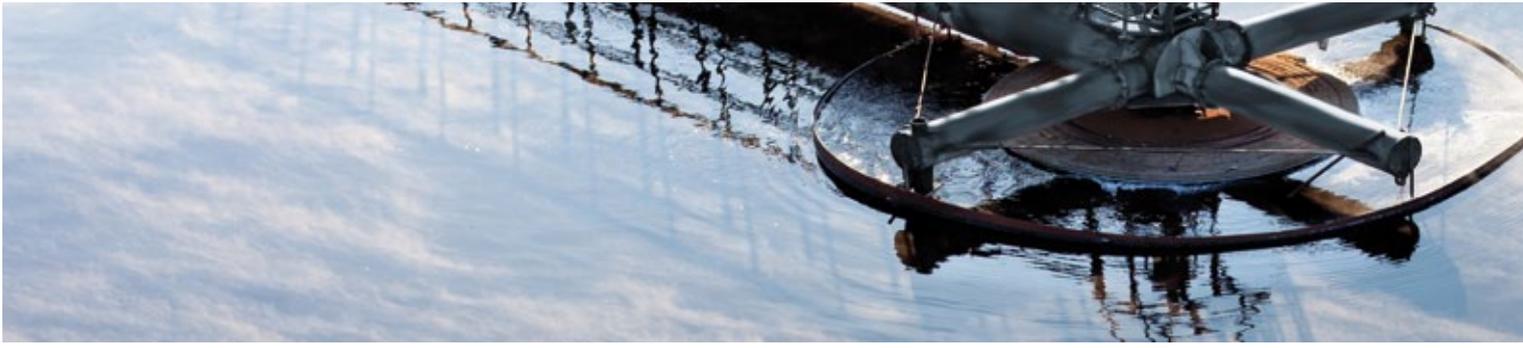


Manure
Stewater
Sewage sludge
C waste
Polluted water
Biomass
Potable water
Water
Fermentation residues
Digestate
Saw dust



Reliable lifecycle partner

As a separation specialist with dedicated service and decades of experience in environmental processes, ANDRITZ SEPARATION equipment and systems are designed for ease of operation and maintenance, maximized separation performance, to reduce energy consumption, while minimizing operating costs. In-house process engineers have a deep understanding of the needs of municipal and industrial customers and support them in optimizing process efficiency and plant operation over the complete lifecycle. ANDRITZ SEPARATION is a reliable and trusted partner for various applications in water, wastewater, and waste treatment all around the world.



Performance guaranteed by experience

There is a wide range of challenges in municipal drinking water and wastewater treatment: Whereas in developing countries the focus is often on setting up a base structure for drinking water and wastewater, in industrialized countries water quality, efficiency, and recycling of residual matter play the greater role.

Drying of sewage sludge which also pays dividends

Drying sewage sludge significantly increases the calorific value, making it efficient for thermal use. The ensuing incineration takes place under controlled conditions and remains CO₂-neutral. Drying also provides up to an 80% volume reduction, reducing transportation and handling cost, which provides lower cost of ownership.

Energy re-use on the rise

With the continuous rise of primary energy costs, co-firing with secondary fuels is finding more interest with the energy-intensive industries. Power plants, cement

producers, steel, and aluminum plants have discovered co-firing with sewage sludge. In addition, the discussion of possible soil contamination through fertilizer use contributes to the increase in thermal recovery. For municipalities, in their role as suppliers, it is vital to be able to offer a continuous supply at a controlled quality.

The optimum solution for every case

Rural community or densely populated area? Which properties must the sewage sludge as secondary fuel possess to be used by the buyer? Is energy or waste heat from other processes available for de-

watering or drying? How much surface is available at the site? Which climatic conditions (duration of sunshine) need to be considered? On the basis of these factors, the experts from ANDRITZ SEPARATION analyze material and process, conduct trials on their own pilot plants, and develop the most efficient solution (total cost of ownership).



Centrifuges ▼



Aqua-Guard ▼

MUNICIPAL APPLICATIONS

Optimized total cost of ownership

ANDRITZ SEPARATION has been conducting an optimization program across its wide range of equipment for many years; upgrading components, employing fewer parts, and introducing new and advanced materials.

Conventional drying or EcoDry?

Regardless of the technological solution, the complete ANDRITZ SEPARATION product range is constantly reviewed and developed further with regard to innovation and optimization potential. In this way, experts in thermal treatment always ensure that the optimum and highest quality solution can be installed at the location in question. More than 10,000 installations worldwide are impressive proof of this fact.

- Conventional drying for high throughput volumes (>10,000 t/a) and comparatively low production costs
- EcoDry for combined drying and incineration solutions (energy source for the drying process)



Drum dryer ▶



All wastewater deserves the right solution

Industrial manufacturing processes generate specific wastewater and residual material flows. Their systematic and efficient processing reduces water consumption, conserves raw materials, provides marketable residues, and leads to a marked gain in efficiency (total cost of ownership).

Versatile solutions for different types of wastewater

Organic or non-organic, greasy or oily, corrosive or abrasive, high or low solids – this content has to be recycled back into the process or discharged into the municipal sewage system? In the treatment of industrial wastewater, ANDRITZ SEPARATION provides expertise for each market-specific requirement and characteristic through a wealth of references and a multitude of de-

veloped innovative and proven solutions. One of the most important challenges, however, is automation. In the food industry, in mining, in power generation, as well as in the steel and the paper industry, the ANDRITZ GROUP, a group of technology companies, possesses extensive processing competence and can therefore provide automated systems and equipment from a most comprehensive product range.

Solid/liquid separation

Each industrial site has to treat its wastewater – even if it does not possess its own treatment plant – and performs phase separation, thereby decreasing pollution levels in order to comply with discharge limits or to decrease the WWTP size. In some applications, the solid phase can be reutilized as fertilizer or even be recycled back into the production process. This phase separation process is applicable to mineral as well as organic streams. ANDRITZ SEPARATION has developed technologies in a complete package requiring no further investments and with no environmental impact because no chemicals are used.

Water treatment

Besides the recovery of raw materials, reducing water consumption has become a major aspect of many applications. In order to reduce the amount of water consumed, ANDRITZ SEPARATION can provide solutions based on the unique design of screens, continuous sand filtration technologies, belt filters, centrifuges, and separators so that the water can be recycled. Based on extensive knowledge and thousands of references worldwide, there

Filter press ▼



INDUSTRIAL APPLICATIONS

is not only a wide variety of technologies available, but also complete process solutions in order to optimize customers' process efficiency.

Sludge management

The sewage sludge produced in organic production processes is suitable in many cases for use as secondary fuel to generate steam or electricity for on-site production or for supplying to buyers from energy-intensive industries. Here, the waste heat from many processes can be used to dewater or dry the sewage sludge. Today, there are already large installations that process both their own sewage sludge as well as municipal sewage sludge to generate secondary fuel, for instance pellets. These can be used to satisfy on-site requirements or offered as a separate product on the fuel market.

Established competence

In addition to plant engineering experience in a wide range of industrial sectors, the integration of renowned brands guarantees the highest degree of availability, reliability, and efficiency (total cost of ownership). Filters, centrifuges, dryers, and presses are

based either on in-house developmental work or have become part of ANDRITZ SEPARATION through systematic acquisition, like the equipment from Guinard, Delkor, KHD, KMPT, Netzsch Filtration, Rittershaus & Blecher, Contec Decanter, 3Sys Technologies, TCW, VA Tech Wabag

Fliessbettsysteme, and Bird & Humboldt. This unique expertise makes ANDRITZ SEPARATION the only player in the market providing all dewatering technologies from a single source, thereby offering its customers the optimum choice.

▼ Separator





Green path to renewable energy

The growing importance of renewable energy is driven by two factors: While costs for fossil fuels are exploding, the CO₂ balance of many processes and the trade with CO₂ certificates call for rethinking when using renewable raw materials.

Key factor “calorific value”

The efficiency of biomass power plants is determined by the ratio between biomass input and the quantity of energy produced. Here, the key factor is the calorific value. The drying process significantly increases the calorific value of the biomass. Typically, the dried material is pelletized, briquetted, gasified, or incinerated. Further, by reducing the water content, storage and transportation fees can be drastically reduced – by up to 50% depending on the material.

Optimized operational costs thanks to innovative concepts

ANDRITZ SEPARATION experience with diverse drying applications provides us with a unique foundation for continuous innovation and development of the drying and biomass processes. At present, the largest installations achieve throughput rates of up to 25 t/h and belt widths of up to 8 m. Through innovative, closed circuit air circulation systems, up to 15% of the required heat volume can be saved.

Fertilizer from biogas production

When producing biogas from organic and household waste, the organic share of the material is converted into gas by way of an anaerobic process. The remaining residual matter is usually in the form of sludge. Centrifuges from ANDRITZ SEPARATION can turn this into high-value compost. The latest development is the D-type centrifuge, which makes the use of polymers in this process unnecessary to a large extent. This reduces the operating costs by up to 25%.

Screw press ▼



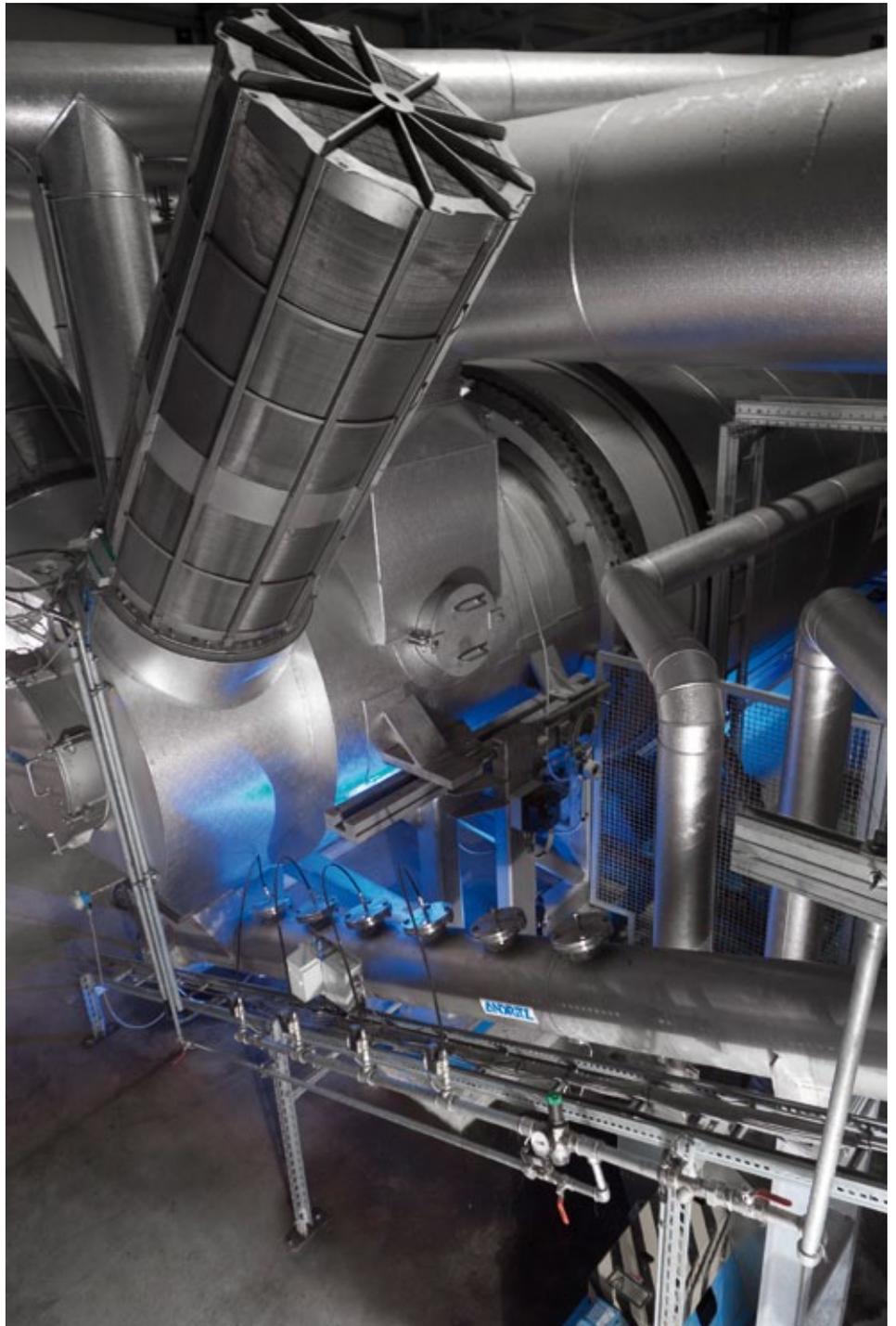
Belt dryer ▼



BIOMASS & ORGANIC WASTE

Higher co-firing through torrefaction

The technology for torrefaction developed by ANDRITZ SEPARATION turns biomass into an industrially usable secondary fuel with markedly increased and stable calorific value. The torrefaction process significantly increases energy density of the biomass, allowing greater use in energy-intensive processes, such as cement, steel, or power production. In most applications, co-firing is limited to 20% with untreated biomass. This ratio can be increased up to 50% with torrefied materials, allowing considerable savings in the primary energy used.



Torrefaction reactor ▶

Extensive portfolio of equipment and systems

ANDRITZ SEPARATION offers solutions for water processing, sewage sludge, and biomass treatment from one single source. Decades of experience in many different industries and with the processes in large and small communities all over the world make ANDRITZ SEPARATION the ideal partner for reliable and efficient solutions.



Hydrasieve



Girapac



Aqua-Guard



Aqua-Screen

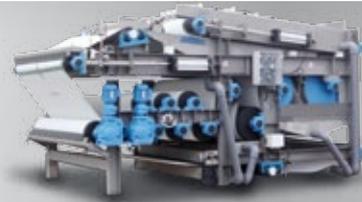
Decanter centrifuge



Separator



Filter press



Belt filter press

ANDRITZ SEPARATION is a supplier of systems and equipment, a planning partner and a consultant for plant expansions or plant retrofitting, including the necessary automation process. Right away in the planning stage the individual factors are given the same consideration as the available material, which is specifically tested. This way a plant is erected which is uncompromising in its efficiency (total cost of ownership) and reliability. During the entire lifecycle of the plant, ANDRITZ SEPARATION will remain present as partner for service, extension, and optimization.

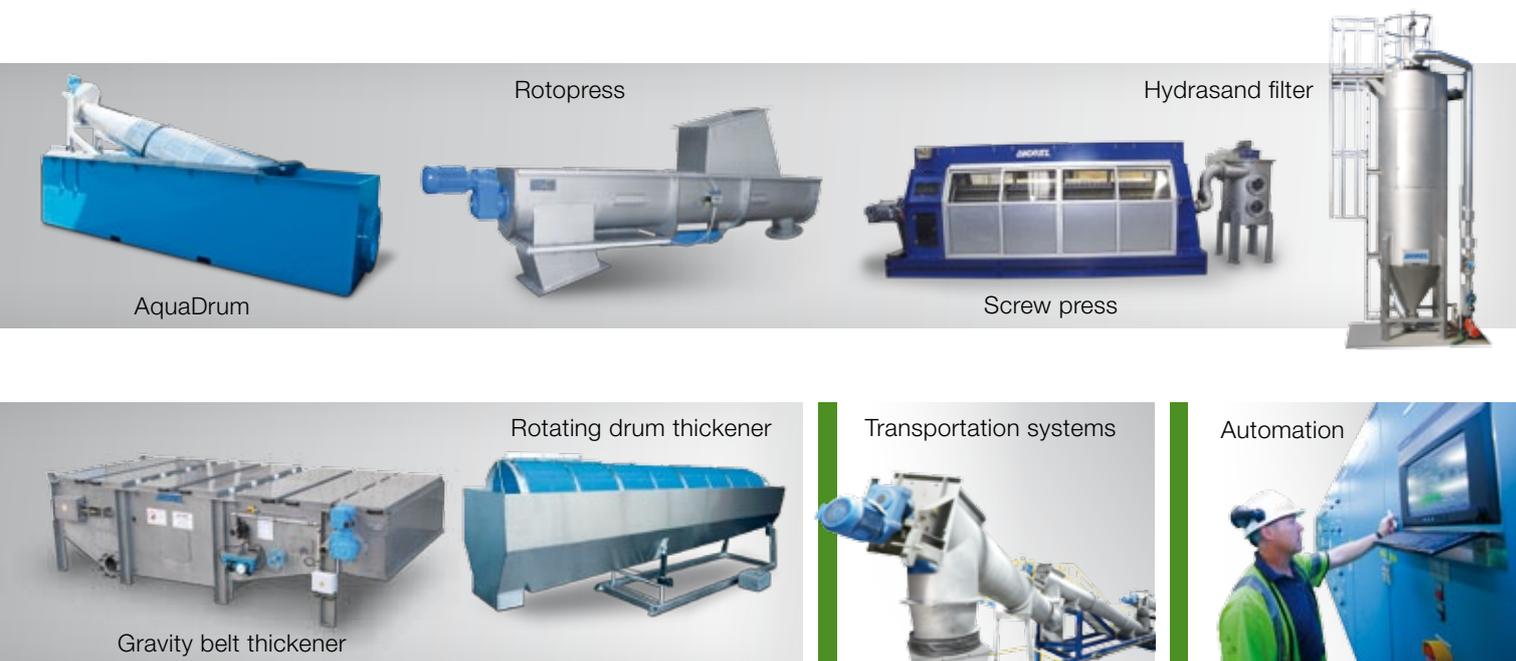
Belt drying system

Gouda Paddle dryer



Leading in solid/liquid separation

ANDRITZ SEPARATION has a comprehensive offer for state-of-the-art products in the areas of filtration, dewatering, and thickening with different types of machinery such as thickeners, centrifuges, screw presses, disc filters, belt presses, and filter presses.



Experts in thermal systems

Drying of sewage sludge or biomass yields better results than the mere reduction of water content, volume, and mass. ANDRITZ SEPARATION offers drying systems in the basic concepts belt, drum, and fluidized bed, which cover almost all industrial and municipal drying processes.



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 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 enhance the lifetime of wear parts in abrasive applications.

Upgrades and process optimization for maximum efficiency

ANDRITZ SEPARATION supports customers in optimizing performance, not only of 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 supplier, 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
Floculant systems
Centrifuges
Disc filters
Drum filters
Filter presses
Transportation systems

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