ENHANCING SUSTAINABILITY BY PROVIDING A WIDE RANGE OF RECYCLING OPTIONS

ANDRITZ sludge drying systems

ANDRITZ

Paddle, belt, fluid bed, or drum? ATEX/NFPA, Class A, or low-grade waste heat? Whatever your preferences and requirements, ANDRITZ offers the industry's widest range of safe and efficient drying solutions – all tried and proven in the world's largest and most complex plants.

Comprehensive drying solutions from a single source

Choosing from one of the world's most comprehensive product portfolios in drying technologies grants you the flexibility to select the right single dryer or a complete turnkey solution optimized to your requirements, including all components, services, and electrical and automation systems.

To ensure that you have the driest final product at the lowest cost, we provide a customized solution tailored to nearly any heating source or downstream application. The result is a complete process solution together with any test run optimizations or ancillary technologies you may need, all from a single source. Based on experience from hundreds of installations worldwide, we can help you minimize your disposal costs to profitably produce an equally wide range of dried sludge products. This could mean turning out Class A biosolids for fertilizer products, alternative fuels for power plants or cement plants, or dried sludge for a variety of mono-combustion and co-combustion applications.

OPTIMIZED DRYING SOLUTIONS FOR MULTIPLE RECYCLING OPTIONS

After screening, dewatering, thickening, and dewatering steps, a drying phase is required for valorization. ANDRITZ's industry-leading range of drying solutions makes it possible to tailor the right process technology for any demand. Depending on your local market conditions and desired dried sludge product, we can advise on the most efficient and best value-for-money solution for your needs.

Meeting your needs with our broad range of thermal drying systems

Different methods of utilization require different preparation and treatment. ANDRITZ offers the right solutions for various processes and uses.

ANDRITZ already offers the widest range of dewatering equipment on the market. After this key step in sludge treatment, the drying phase is often recommended to enhance the properties of the sludge. With its four solutions (paddle dryer, belt dryer, fluid bed dryer, and drum dryer), ANDRITZ provides global customers with systems that are 100% compliant with ATEX and NFPA. With such thermal solutions, ANDRITZ also achieves full drying to >90% DS, producing a final product in Class A, suitable for agriculture as a fertilizer.

Type of sludge handled with our dryer systems (reduction of sludge volume)

Specifications	Wet	Dewatered	Dried	Combustion
Weight	1,000 kg	160 kg	44 kg	22 kg
Dry solids	4%	25%	approx. 90%	100%
Organics in dry solids	40-80%	40-80%	40-80%	0%

CONTINUOUS DEWATERING

Decanter centrifuge

Belt press

Screw press

Filter press

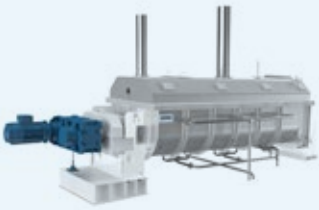
HEAT SOURCE
(natural gas, biogas, diesel, waste heat, heat carrier: thermal oil, steam, hot water)

FEED SYSTEM

DRYING

Combustion

EcoFluid (incineration)



Paddle dryer

- 200–5,000 kg/h water evaporation per unit
- Smallest footprint and compact plant design
- Low exhaust gas volume
- Optional heat recovery from the dryer with temperature level of approx. 80°C

Belt dryer

- 700-6,000 kg/h water evaporation per unit
- <5% dust content in final product
- Low-grade waste heat as heating medium
- Add-back system offers high operating reliability and product quality

Fluid bed dryer

- 2,000–15,000 kg/h water evaporation per unit
- Fully automated operation
- Operation in oxygen-reduced atmosphere
- High flexibility in dealing with changing sludge qualities

Drum dryer

- 3,000–15,000 kg/h water evaporation per unit
- Exceptional product quality for applications in agriculture
- Add-back system offers high operating reliability

Keeping heat transfer simple with the ANDRITZ Gouda paddle dryer

Paddle dryers are used to dry dewatered sludge in a continuous, indirect heat transfer process.

The ANDRITZ Gouda paddle dryer is built to handle products with the utmost care – a machine with a lot to offer for most materials. The continuous, indirect heat transfer setup within the paddle dryer's state-of-the-art interior produces a quality product with incredible efficiency – and a minimum of maintenance.

Saturated steam or hot oil are perfect for drying or heating. The hollow design of the paddle shafts means that the entire interior surface acts as one large heat exchanger. Controlled agitation by the rotating shafts with paddles delivers superb product-to-surface interaction for optimum heat transfer.

SIMPLE, CONVINCING AND SUCCESSFUL TECHNOLOGY

The ANDRITZ Gouda paddle dryer is designed for a long, continuous life cycle and manufactured with sophisticated welding procedures so that it can withstand high temperatures as well as heavy-duty and corrosive products.

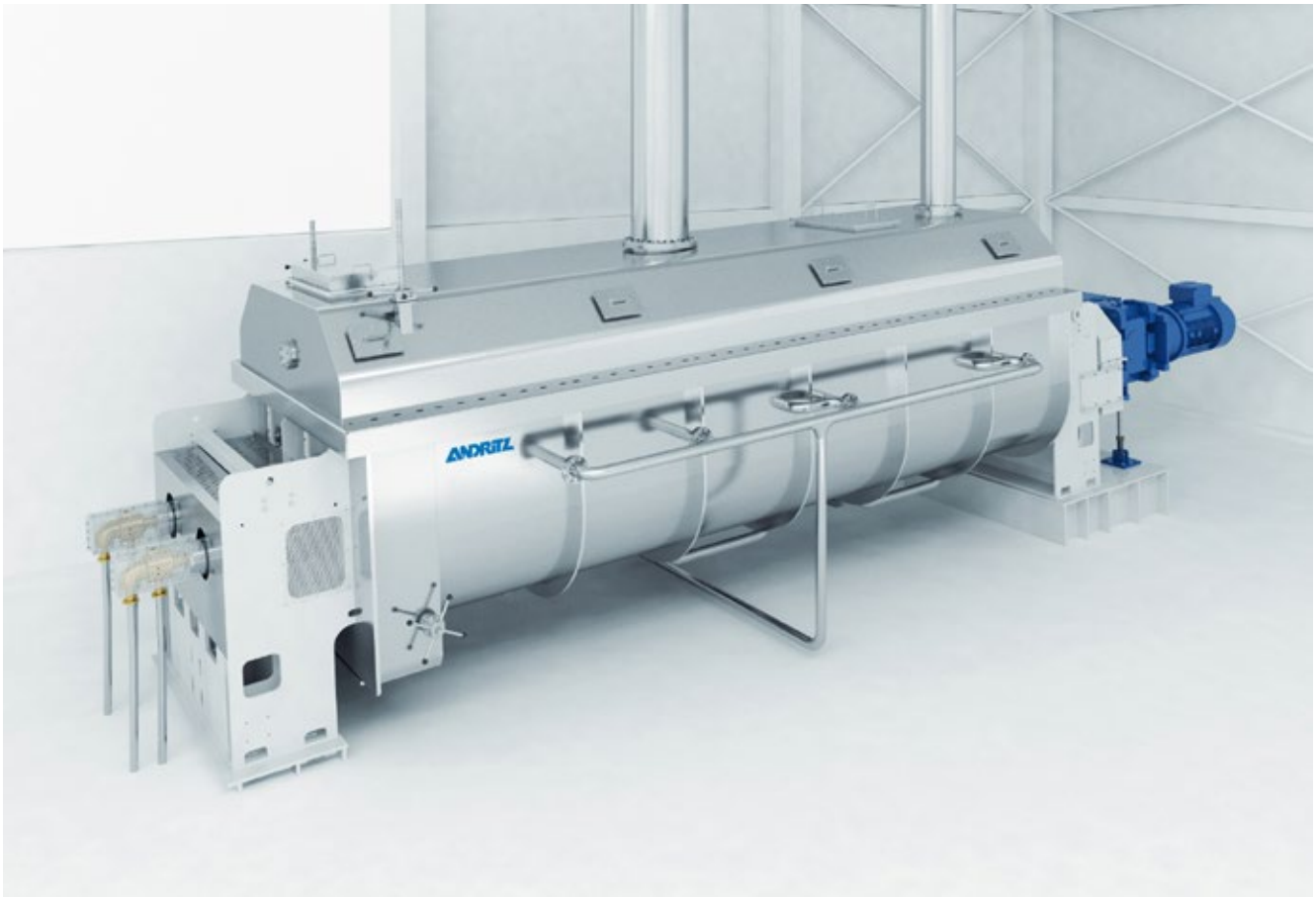
To protect the crucial, heat-exchanging paddle surface against heavily abrasive products, a wear-resistant, hard-face coating can be applied. HVOF is a high-velocity spraying process to create protective, anti-abrasive layers. ANDRITZ Gouda introduced the HVOF technology years ago and still is the only manufacturer of paddle dryers to use this proven, best-in-class coating technique.

THE PROCESS

The dewatered sludge is fed in at one end of the paddle dryer without any pre-treatment and conveyed by gravity to the machine outlet due to the slight downward angle of the trough. During the long residence time of the product in the machine, plug flow is maintained and provides uniform product quality. An overflow weir ensures that the product height is always the same, while the evaporated vapor leaves the dryer through the exhaust outlet in the cover to reach the condenser. The small and compact vapor condenser offers the option of heat recovery at a high temperature level, and the absence of air during the drying process results in safe operation due to the low oxygen content. Finally, the dried material is discharged to a cooling screw conveyor and cooled to a temperature of <50°C.

YOUR BENEFITS

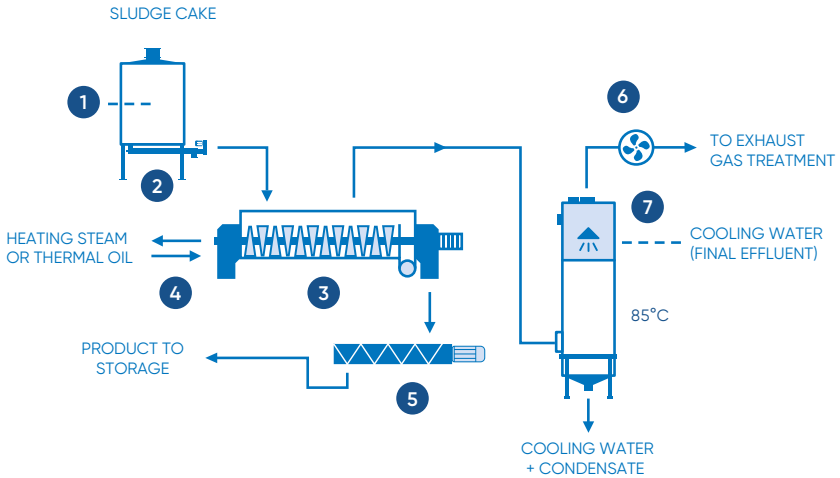
- A once-through drying technology that avoids back-mixing
- No gas loop system is required, resulting in low fan capacity for exhaust gas discharge
- Small off-gas treatment facility due to the low flow of excess gas
- Waste heat from the condenser at a high temperature level >80°C.
- Compact design



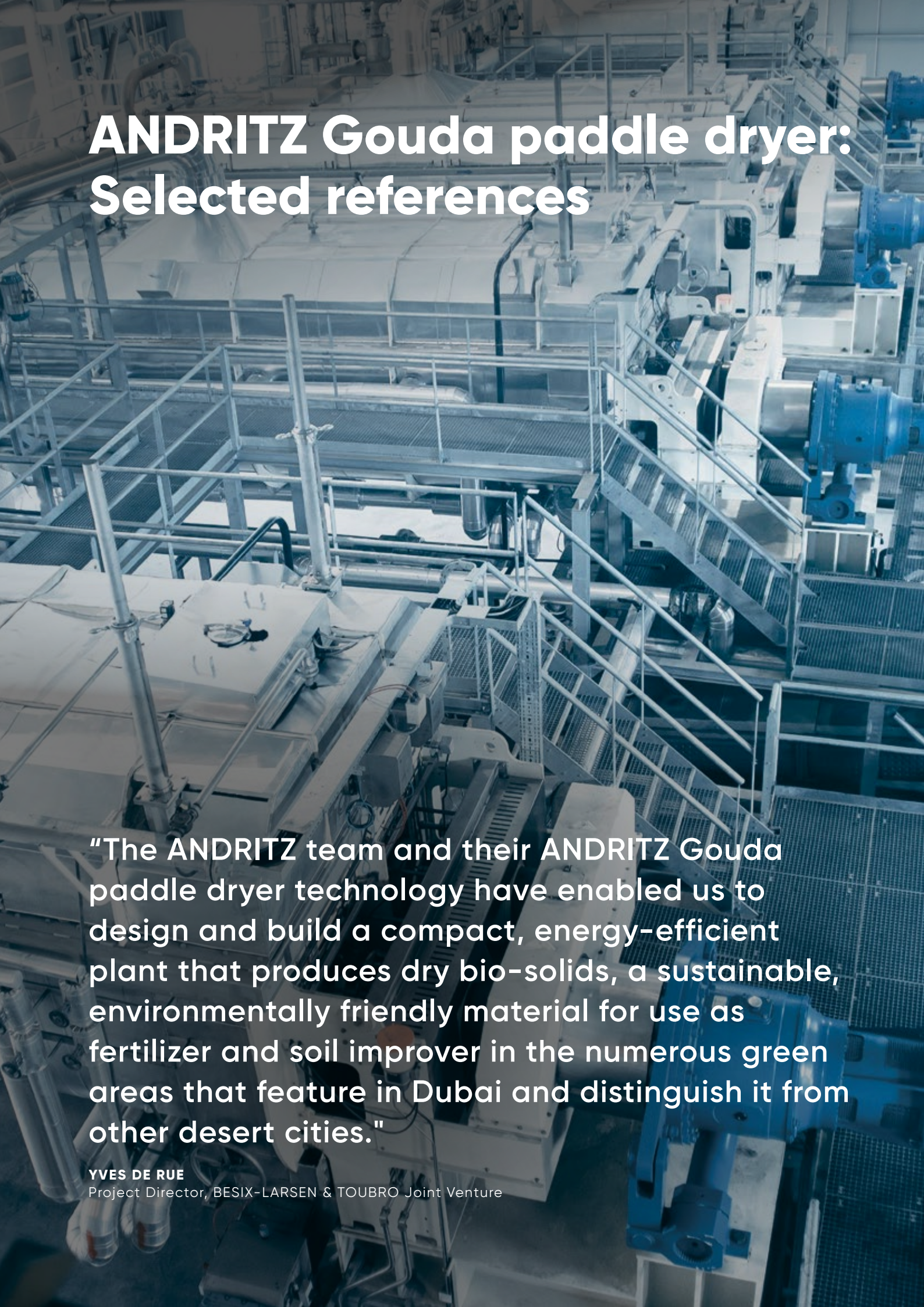
ANDRITZ Gouda paddle dryer

SLUDGE DRYING PROCESS WITH AN ANDRITZ GOUDA PADDLE DRYER

1. Wet sludge silo
2. Wet sludge pump
3. ANDRITZ Gouda paddle dryer
4. Steam or thermal oil supply
5. Product cooler
6. Exhaust gas fan
7. Condenser



ANDRITZ Gouda paddle dryer: Selected references



"The ANDRITZ team and their ANDRITZ Gouda paddle dryer technology have enabled us to design and build a compact, energy-efficient plant that produces dry bio-solids, a sustainable, environmentally friendly material for use as fertilizer and soil improver in the numerous green areas that feature in Dubai and distinguish it from other desert cities."

YVES DE RUE
Project Director, BESIX-LARSEN & TOUBRO Joint Venture

Fertilizer

JEBEL ALI, DUBAI

Model	17W300
Heat source	Thermal oil via biogas/diesel
Water evaporation	3 x 4,300 kg/hr
Operation start	2019

Cement

AMBARLI, TURKEY

Model	6 x 14W190
Heat source	Gas-fired thermal oil boilers
Water evaporation	6 x 3,000 kg/hr
Operation start	2013

SCHWENK, GERMANY

Model	17W300
Heat source	Thermal oil via waste heat
Water evaporation	2 x 5,700 kg/hr
Operation start	2016

Power plant

FIBRIA, BRAZIL

Model	17W300
Heat source	Steam
Water evaporation	1 x 4,000 kg/hr
Operation start	2017

Setting standards in terms of safety and simplicity with the ANDRITZ fluid bed dryer

ANDRITZ fluid bed dryer technology with direct sludge feeding is used to dry dewatered sewage sludge with a wide range of different properties.

Fluid bed dryers for drying dewatered sewage sludge operate with an indirect heat transfer and in a closed inert gas loop, resulting in energy-efficient and environmentally beneficial plant operation with small amounts of exhaust gas from the drying process.

SIMPLE, CONVINCING, AND SUCCESSFUL TECHNOLOGY

The fluid bed dryer is filled with dry granules. The granules then "float" (free floating) and are mixed thoroughly when the gas passes through the product layer. The dewatered sludge is fed into the fluidized bed of dried granules by pumps and cut into small pieces by a special device inside the dryer. These wet granules are mixed immediately with the granules from the fluid bed, which have already been dried.

The entire thermal heat required to evaporate the water is fed to the dryer via heat exchangers immersed in the fluid bed, i.e. without there being any direct contact between the heat transfer medium and the product. Due to the good heat and mass transfer conditions, the water contained in the sludge evaporates immediately and the particles are dried to >90% dry solids (DS). Granulation itself is spontaneous as a result of water evaporation and the particle movement in the dryer.

THE PROCESS

Due to the even temperature distribution at each point of the fluid bed dryer, the drying temperature of 85°C can be maintained easily by the sludge input for temperature adjustment. The mechanically dewatered sewage sludge is pumped directly to the fluidized bed dryer without any pre-mixing, structured by special distributors inside the dryer, mixed with granulate that has already been dried and then held in motion by the fluidizing gas. In the next step, the sewage sludge is dried to >90% dry substance at a temperature of 85°C in a very short time. The fluid bed dryer operates in an oxygen-reduced gas loop (0–3% oxygen by volume). A condenser removes the evaporated water from the system, and the evaporated water provides waste heat at a temperature of 60°C for further use. The final product is mainly granules, and an almost dust-free product can be obtained by adding a dust granulation step.

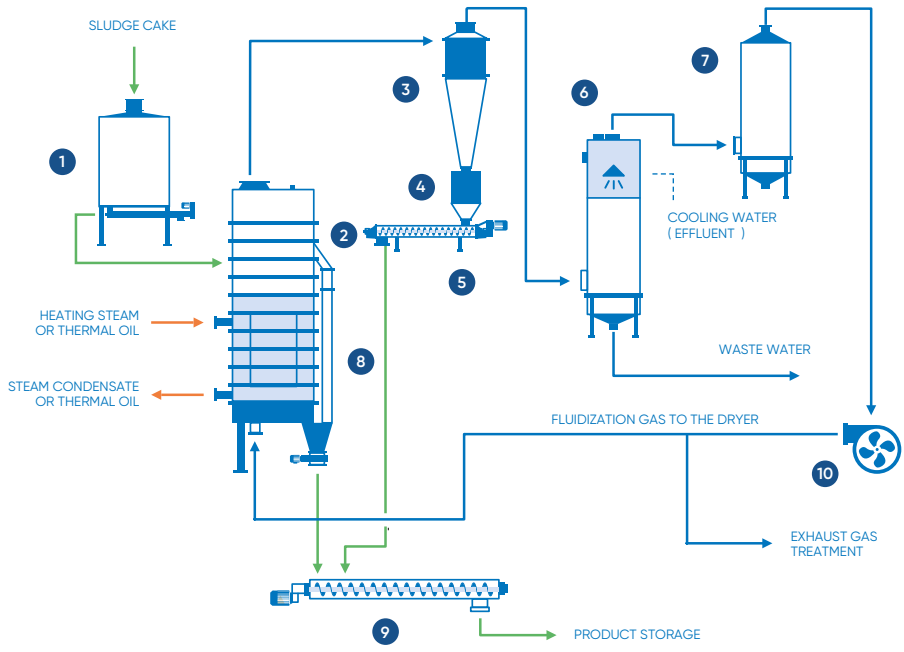
SEWAGE SLUDGE DRYING AT THE HIGHEST LEVEL OF SAFETY ENGINEERING

- Operations in oxygen-reduced gas conditions guaranteeing safe plant operation in all operating modes (start-up, shutdown, stationary, upset)
- These inert gas conditions are maintained from the dryer and product cooling to storage
- Sludge feed without backmixing of dry granulate offers substantial flexibility in adapting to different sludge qualities
- Automatic operation (no personnel present during the night and at weekends) is possible
- Gentle and efficient processing
- Low waste gas volume (<200 m3/h) due to closed design

ANDRITZ fluid bed dryer

SLUDGE DRYING PROCESS WITH AN ANDRITZ FLUID BED DRYER

1. Sludge silo
2. Feed pump
3. Cyclone
4. Dust collector
5. Screw conveyor
6. Condenser
7. Demister
8. Fluid bed dryer
9. Cooling screw conveyor
10. Fan



ANDRITZ fluid bed dryer: Selected references

"The Bailonggang expansion project will have an installed capacity of up to 3,000 tons of sludge per day. The plant is set to be the world's largest sludge incineration plant and will serve as a landmark among Chinese environmental projects.
The complete drying and incineration system features nine fluidized bed drying systems that operate as closed-loop systems, as well as other ANDRITZ technologies. One of the reasons for choosing fluidized bed drying technology was the impressive operational track record of other plants ordered by the same customer."

MRS. XU YAN
Project Manager Engineering and Sales, ANDRITZ Fliessbettsysteme GmbH

Mono sludge incineration

SHIDONGKOU, CHINA

Model	FDS 700
Heat source	Steam
Water evaporation	1 x 4,700 kg/hr
Operation start	2019

BAILONGGANG PHASE 2, CHINA

Model	9 x FDS 960
Heat source	Steam
Water evaporation	9 x 9,600 kg/hr
Operation start	2019

Cement utilization

ATAKÖY, ISTANBUL, TURKEY

Model	FDS 1200
Heat source	Thermal oil
Water evaporation	2 x 6,770 kg/hr
Operation start	2020

BERNE, SWITZERLAND

Model	1 x FDS 570
Heat source	Steam
Water evaporation	1 x 3,430 kg/hr
Operation start	2015

The ANDRITZ belt dryer, ideal for making use of waste heat

The ANDRITZ belt dryer is a low-temperature dryer with a closed circulating air loop that makes efficient use of waste heat.

The ANDRITZ belt drying system (BDS) belongs to a new dryer generation in a special stainless steel construction using a simplified back-mixing system for structuring of dewatered sludge.

SIMPLE, CONVINCING, AND SUCCESSFUL TECHNOLOGY

The main mechanical parts, such as the feed module, belt drive and rolls, the belt support and guiding system as well as the discharge system are integrated into the steel casing structure as pre-assembled modules. The mixer and the conveying screws are mounted on the longitudinal side of the dryer. On the opposite longitudinal side of the dryer, the fans and the heat supply system (heat exchanger or combustion chamber) are situated on the outside of the steel casing. This layout concept offers optimal conditions for easy inspection and maintenance.

THE PROCESS

The ANDRITZ belt drying system granulates the dewatered sludge in a mixer with product that has already been dried. The moist granulate produced here is distributed evenly over the belt in the dryer by a specially designed feed module. This even layer of material on the belt creates optimum conditions for even distribution of the drying air and optimal heat and material transfer conditions during drying. The layer of material on the belt forms a filter medium for the air flowing onto the granulate layer from above and thus prevents entrainment of dust. Waste heat is used to heat the drying air via heat exchanger or the drying air is heated by flue gas coming from the in-duct burner integrated into the drying air loop system. The heated drying air flows at a temperature of <130°C through the product layer from top to bottom and absorbs the moisture it contains. To achieve the best possible thermal efficiency, the dryer has a high circulating air rate, i.e. a large part of the drying air is recycled by fans to the dryer and re-heated to the drying temperature.

An exhaust air fan discharges a part of the drying air to the condenser. After cooling and condensation of the evaporated water, some of the discharged air is recirculated to the dryer. The rest of the extracted air is discharged by an exhaust gas fan, thus keeping the main components of the dryer under vacuum in order to minimize dust and odorous emissions. The dried material is cooled in a separate belt cooler.

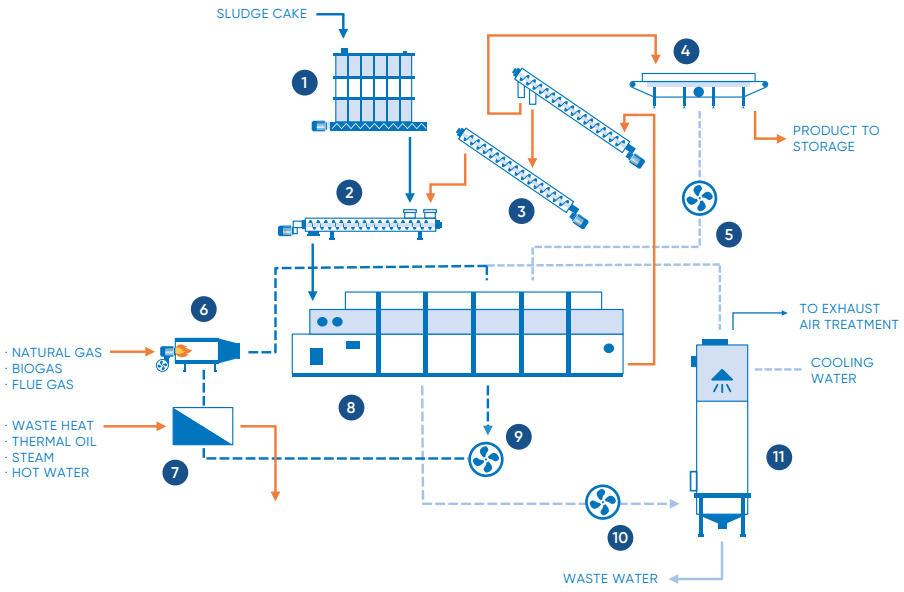
BELT DRYER WITH SIMPLIFIED BACK-MIXING

- Flexible to feed in sludge with different properties
- Even distribution of the pre-granulated mixture across the belt
- Deals easily with impurities in the dewatered sludge
- Low drying temperature ensures careful drying of the product
- Results in high and even dryness of the final product
- High flexibility to integrate thermal energy from different sources, especially low-grade waste energy
- Modular structure and simple design

ANDRITZ belt dryer

SLUDGE DRYING PROCESS WITH AN ANDRITZ BELT DRYER

1. Sludge silo
2. Mixer
3. Conveyor
4. Belt cooler
5. Cooling air fan
6. Burner furnace
7. Heat exhanger
8. Belt dryer
9. Circulation air fan
10. Exhaust air fan
11. Condenser



ANDRITZ belt dryer: Selected references

"We approached ANDRITZ with very strict cost and product quality requirements. We especially appreciate their ability to modify their technology to meet our needs within such a short delivery time."

TADEUSZ KRĘŻELEWSKI
President Krevox Enviromental Center, Warsaw, Poland

Fertilizer

AL MADINAH, BAHRAIN

Model	BDS 25
Heat source	Natural gas/diesel
Water evaporation	1 x 2,400 kg/hr
Operation start	2018

GRESILLONS, FRANCE

Model	BDS RD 40
Heat source	Natural/biogas
Water evaporation	3 x 4,000 kg/hr
Operation start	2013

Cement

SCHWENK, GERMANY

Model	BDS 70
Heat source	Waste heat
Water evaporation	1 x 7,800 kg/hr
Operation start	2005

TORUN, POLAND

Model	BDS 25
Heat source	Natural gas
Water evaporation	2,600 kg/hr
Operation start	2013

Drying and granulating in a single step with the ANDRITZ drum dryer

The ANDRITZ drum dryer provides high water evaporation capacities and high final product quality.

The ANDRITZ drum drying system is the technology with the longest history in sewage sludge drying. Our DDS is the product of more than 40 years' experience. Reference plants located all over the world prove their versatility and reliability.

SIMPLE, CONVINCING, AND SUCCESSFUL TECHNOLOGY

The triple-pass drum consists of three cylinders with a common axis that fit inside one another. As the drum turns slowly, the sludge moves forward in the air stream, from the inner to the middle cylinder and finally into the outer cylinder. During this process, the granulate will also roll, and this movement contributes towards the formation of stable, spherical granulate. As the material passes through the three cylinders, it is lifted by blades positioned along the cylinder's inner walls and then drops downwards through the warm gas stream under the force of gravity.

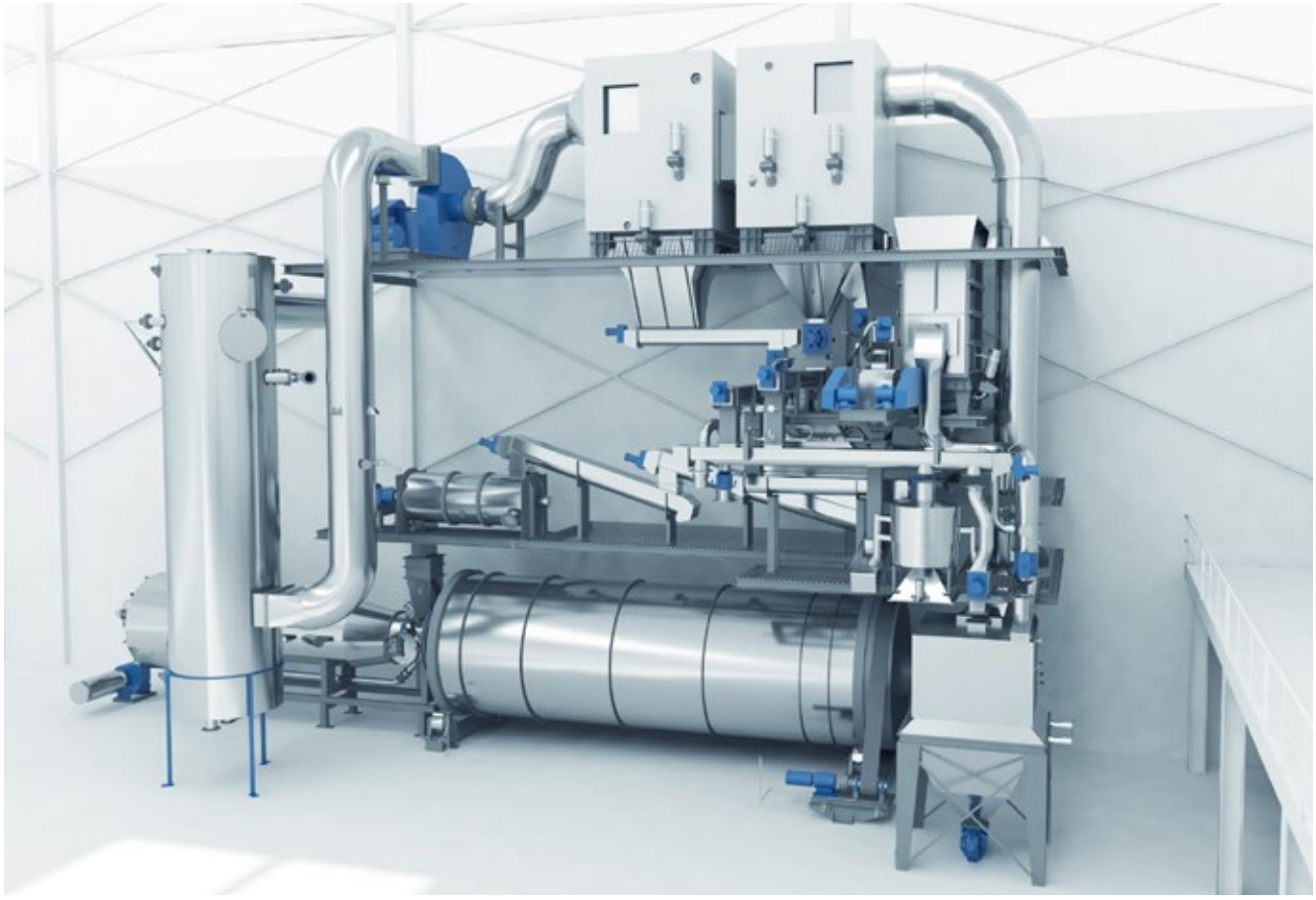
THE PROCESS

Dewatered sewage sludge is mixed together with material that has already been dried (add-back process). The hot gas flowing through the drum carries the pre-granulated sewage sludge along with it, and water contained in the sludge is evaporated at the same time. In the slowly rotating triple-pass drum, which is made up of concentric cylinders, the product is shaped into round granulate due to the constant rolling movement.

The dried material leaves the drum dryer at a temperature of approx. 90°C and is separated from the gas flow in a pre-separator and multi-cyclone.
In order to structure the dewatered sludge, the fines return to the mixer together with part of the granulate. The final product is a largely dust-free, dry granulate with 92–95% DS. It is stable, easy to store and dose and shows excellent handling properties. The drum dryer is integrated into a gas loop that is heated by hot gases coming from the combustion of natural or biogas. A scrubber is used to condense the evaporated water, while the main part of the cooled gas returns to the combustion chamber and is mixed with the hot combustion gases to an inlet temperature of 400–600°C.

DRUM DRYERS ARE STURDY, STABLE AND RELIABLE

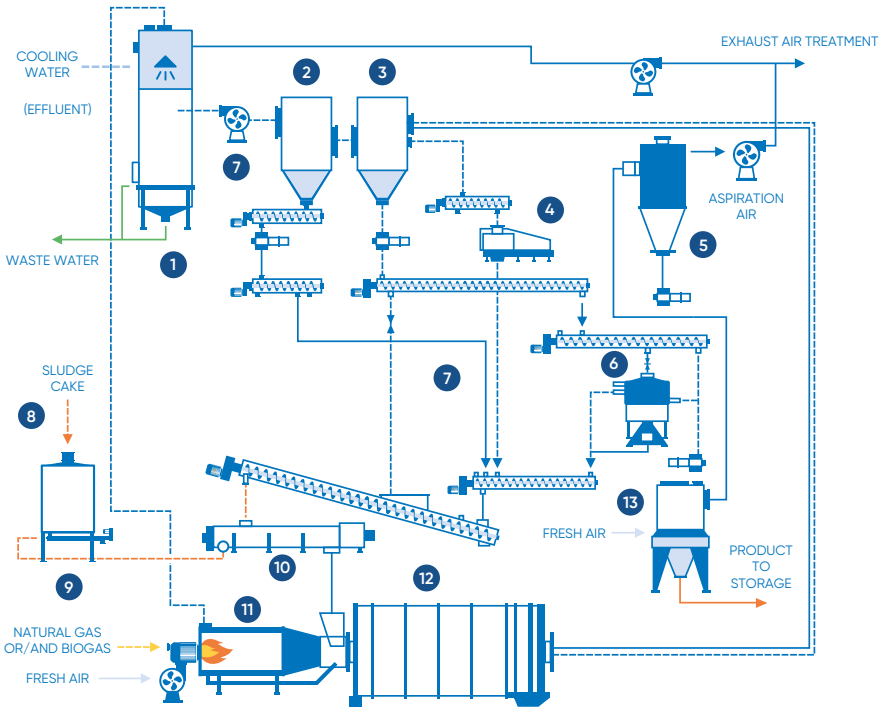
- Low energy consumption due to special drum design and closed gas loop
- Low-odor operations due to partial vacuum in the drying system
- Long plant service life by using sturdy plant components, short conveying routes, and compact design
- The final product is dried evenly right through and hygienized, hence making it particularly suitable for use in agriculture (as fertilizer)

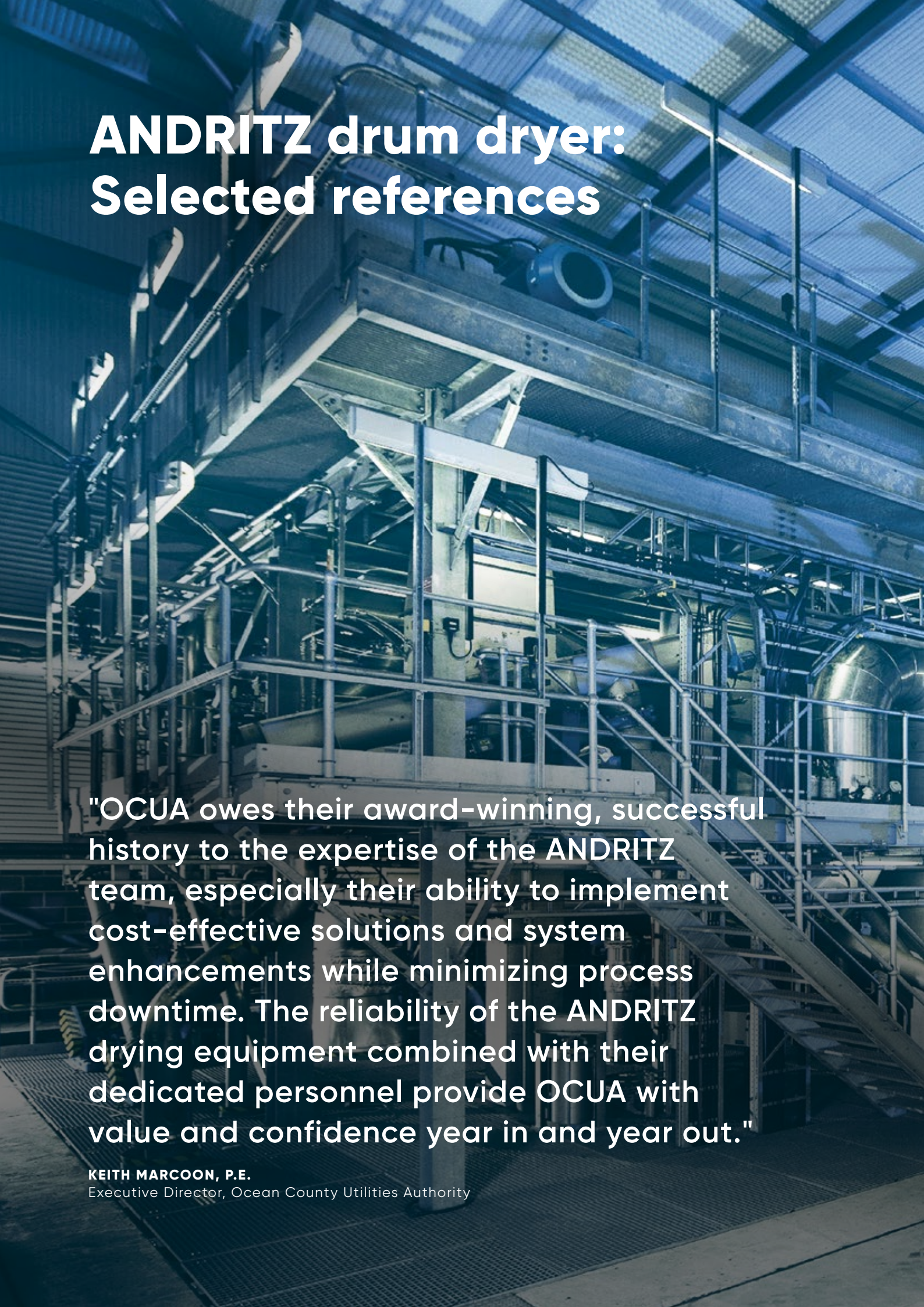


ANDRITZ drum dryer

SLUDGE DRYING PROCESS WITH AN ANDRITZ DRUM DRYER

1. Condenser
2. Multi-cyclone
3. Pre-separator
4. Crusher
5. Aspiration filter
6. Sieve
7. Fan
8. Sludge silo
9. Sludge pump
10. Mixer
11. Furnace
12. Drum dryer
13. Product cooler





ANDRITZ drum dryer: Selected references

"OCUA owes their award-winning, successful history to the expertise of the ANDRITZ team, especially their ability to implement cost-effective solutions and system enhancements while minimizing process downtime. The reliability of the ANDRITZ drying equipment combined with their dedicated personnel provide OCUA with value and confidence year in and year out."

KEITH MARCOON, P.E.
Executive Director, Ocean County Utilities Authority

Fertilizer

PHILADELPHIA, USA

Model	2 x DDS-120
Heat source	Biogas, natural gas
Water evaporation	12,000 kg/hr
Operation start	2012

NASHVILLE, USA

Model	2 x DDS-80
Heat source	Biogas, natural gas
Water evaporation	8,000 kg/hr
Operation start	2008

BRIGHTON, UK

Model	**1 x** DDS 50
Heat source	Biogas, natural gas
Water evaporation	5,000 kg/hr
Operation start	2011

Mono sludge incineration

VALENTON, FRANCE

Model	3 x DDS 70
Heat source	Biogas, natural gas
Water evaporation	7,000 kg/hr
Operation start	2005

Cement

SCHWENK, GERMANY

Model	1 x DDS 180
Heat source	Waste heat
Water evaporation	14,300 kg/hr
Operation start	2018

DALDOWIE, UK

Model	6 x DDS 40
Heat source	Natural gas
Water evaporation	4,800 kg/hr
Operation start	2002

Count on our expertise to best support your project!

Sludge drying in Scotland with ANDRITZ drum dryers

PLANT DESIGN	**DESIGN SUPPORT:** 3D ENGINEERING, MECHANICAL, CIVIL, ELECTRICAL DRAWINGS, DOCUMENTATION
PLANT CONSTRUCTION	**MECHANICAL SAVINGS, ELECTRICAL SAVINGS:** OPTIMAL NUMBER OF DRYERS, CORRECT SIZING OF INSTALLATION
PLANT OPERATION	**OTHER SAVINGS:** ENERGY SAVING, MAINTENANCE SAVINGS, EXTENDED ASSET LIFE, HIGH RELIABILITY

Prevent the unexpected – tailored services for drying plants

Whether it's a belt, drum, paddle, or fluid bed drying plant, there's a tailored process or control solution that can reduce operating costs and improve performance, safety, and product quality at your dryer. At ANDRITZ, we have the expertise to appraise your process, support or execute R&D projects, and modernize your automation. 150 years of experience in solid/liquid separation is proof of our exceptional process know-how, which in turn means optimal engineering. Everything you need from a single source, provided by our local specialists!

OPTIMAL EFFICIENCY IN PLANT OPERATIONS

- Process performance studies in order to identify and evaluate potential for optimizing your process: We start by determining all of the existing parameters, such as throughput, consumption figures, feed rates, and product quality, on site or in our labs.
- On-site process performance audits for a thorough inspection of the thermal equipment, including assessment of the dryer's KPIs, such as throughput, evaporation rate, and consumption quality.
- Mechanical audits to evaluate the functioning and condition of mechanical equipment and provide a thorough, written report including recommendations for operation, maintenance, spare parts, and repair work.
- Electrical and automation audits to check the functioning and condition of selected electrical equipment, instrumentation and measuring devices, and also to evaluate the functioning of safety-related instruments and sensors.
- Safety audits to assess all key aspects of the process as well as checking the hardware and software.

CONTROL SYSTEM UPGRADES

The goal of any operator is to maximize availability, capacity, and quality while minimizing costs. By installing automation equipment from ANDRITZ, you can reduce downtime with features like predictive analysis, allowing you to optimize availability and take appropriate preventive action. Capacity and quality are easy to control and enhance with customizable systems – the Metris addIQ control system is based on the latest PLC and HMI technologies and has an integrated fail-safe system.

The upgrade can be carried out in several steps to accommodate your production schedule. It is platform-independent (Siemens, Rockwell, etc.), and existing technology can be incorporated or replaced as needed. Huge delivery scope from a single source: ANDRITZ supplies engineering, hardware, software, and equipment, as well as safety concept evaluation.

SUPERIOR LIFETIME PERFORMANCE

To bring your plant up to date, ANDRITZ can rebuild all models and makes of thermal equipment, from drum to belt, paddle, and fluid bed dryers. ANDRITZ is your full-service provider when it comes to ensuring that your drying plant is fit for future challenges – for decades to come. The services provided include repair work, modernization, supply of spare and wear parts, as well as second-hand equipment and rentals combined with various upgrade products, such as the air humidity control system upgrade for greater process stability and lower operating costs.

KNOW-HOW FOR OPERATING AND MAINTENANCE STAFF

Even with the world's best equipment, there's always room to improve performance, reduce downtime, and enhance safety. With specialized training from the OEM specialists at ANDRITZ, we're here to provide all the know-how you need to get more out of your machines. We offer individual on-site training for operators, as well as classroom training for groups at our service academy in Den Helder, Netherlands, depending on your individual training needs.

RELIABLE AND COST-EFFICIENT PLANT OPERATIONS

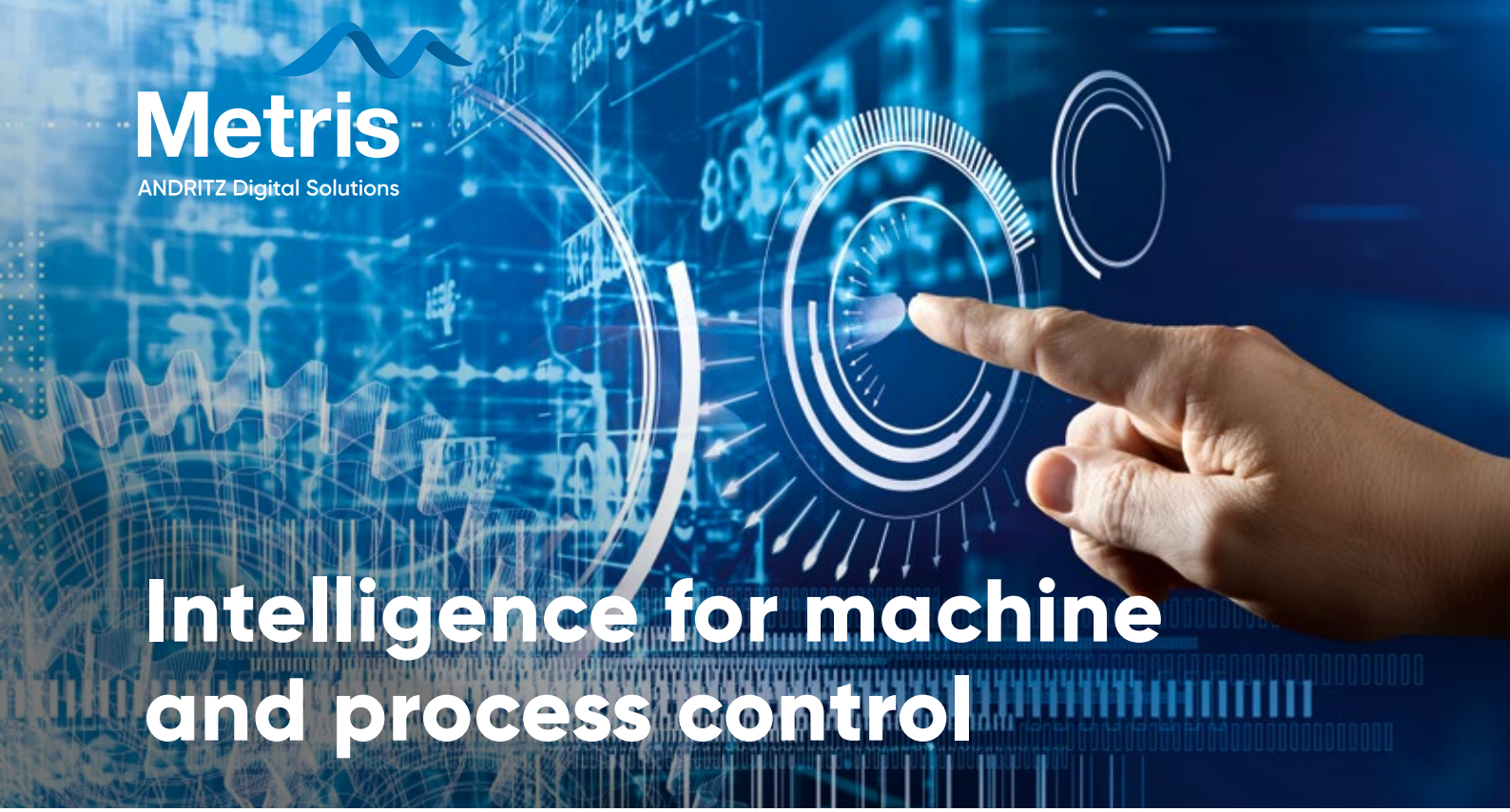
Keeping your business profitable can be more than just a full-time job. That's why we at ANDRITZ take care of all your maintenance requirements by offering service and maintenance contracts for all your specific needs: Whether you only want a spare part list with prices, or perhaps a consignment stock for spare and wear parts, or if you want ANDRITZ to operate your entire plant, we have the service and maintenance contract that fits your requirements best.

SCAN THIS QR CODE
to learn more about
your dryer upgrade

Your full-service provider

With ANDRITZ, 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, Dedert, Delkor Capital Equipment (Pty) Ltd., Escher Wyss dryers, Guinard Centrifugation, KHD Humboldt Wedag, Krauss-Maffei centrifuges, dryers, and filters, LENSER Filtration, Netzsch Filtration, REINEVELD centrifuges, 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 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



Intelligence for machine and process control

With Metris addIQ control systems, intelligent control for processes and machines is at your disposal. Specialists in automation for solid/liquid separation technologies use their in-depth expertise to provide scalable solutions that are individually tailored to regional and application requirements, regardless of whether it's automation for new equipment or upgrades to extend the lifecycle of existing systems.

POWERFUL PROCESS CONTROL AT YOUR FINGERTIPS

Metris addIQ control systems cover all levels of automation, from basic automation with different Metris addIQ packages through upgrades and process optimization solutions. Optimized systems, reduced maintenance effort, and preventive service for machines and plants are delivered from a single source and always individually tailored to your business demands. Metris addIQ control systems are part of the ANDRITZ brand for digital IIoT (Industrial Internet of Things) solutions.

Whichever drying solution meets your requirements, ANDRITZ is able to provide complete systems for control, instrumentation and integration of your facility. To ensure a seamless operator experience, this often extends into upstream and downstream processes, including digestion, dewatering, and dewatered cake storage as well as interfaces with plant-wide control systems (DCS).

END-TO-END AUTOMATION ON ANY SCALE

One recent project that illustrates the advantages of our wide range of control and automation capabilities is a new biosolids management facility in Hamilton, Ontario. As part of the project, an ANDRITZ drum drying process helps to convert 60,000 wet tons of biosolids annually into biomass pellets for slow-release organic fertilizer or as a renewable fuel substitute for coal-burning plants.
In addition to the fully integrated biosolids drying line, this solution was based on the Metris addIQ Prime system, and the customer has already planned implementation of the next level of automation - Metris addIQ Monitoring.

YOUR BENEFITS

- Tailored turnkey systems to improve plants or machines
- State-of-the-art automation technologies and digitalization for best-in-class performance
- Reduced gaps in many production process steps because machinery is automated
- Reduced downtimes and optimized productivity with predictive analysis

Automation for drying systems – the ANDRITZ scope of supply

ELECTRICAL ENGINEERING
- Power supply and distribution
- Motors and drives, MCC

ENGINEERING
- Basic
- Detailed
- Installation engineering

AUTOMATION
- Machine control system
- Distributed control system
- Industrial network structures
- Digital image processing

SIMULATION
- Machine and process

INSTALLATION
- Installation supervision

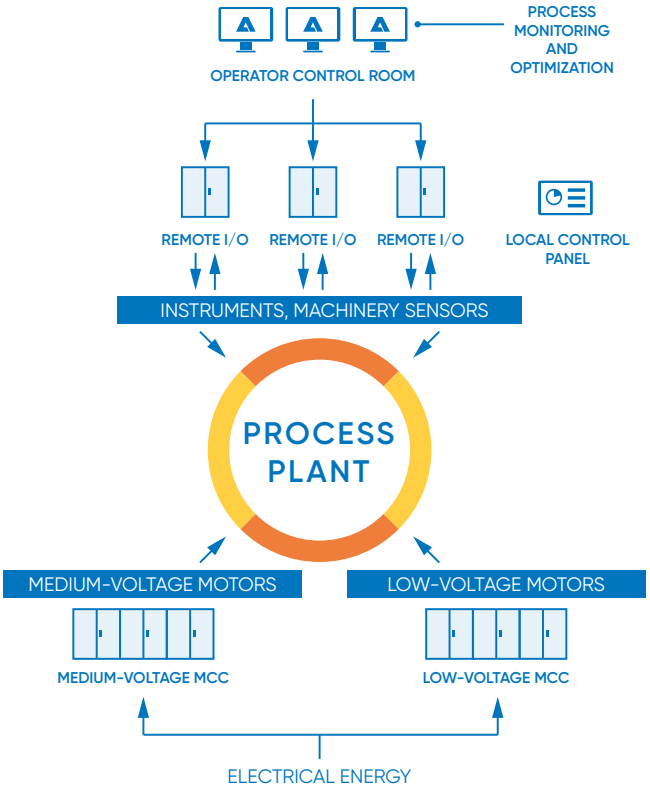
START-UP
- Start-up supervision

TRAINING
- Flexible training in a computer-assisted learning environment

OPTIMIZATION (METRIS addIQ OPTIMIZING)
- Seek out ways to save money, and stabilize and increase production by the equipment

TREND ANALYSIS AND DATA COLLECTION (METRIS addIQ MONITORING)
- Monitor the health status of your machine 24/7 from anywhere in the world

REMOTE DIAGNOSTICS (METRIS addIQ CONNECT)
- Your system links up with the ANDRITZ environment
- Remote support for fast interaction



Energy flow from main power inlet to complete process optimization – everything from a single source

TECHNICAL SUPPORT AND PROCESS EXPERTISE CLOSE TO YOU

Thanks to our decades of experience in industry-leading drying solutions, all ANDRITZ customers can confidently rely on the world's strongest network of sludge drying automation specialists. From greenfield consultation and process design to automation upgrades and local service, we continue to tailor our solutions and provide daily support for hundreds of sludge drying facilities worldwide - whether your operations demand electrical engineering, machine or process simulations, personnel training, or ongoing optimization.

Contact our automation specialists today to find out how we can help improve your process performance

A WORLD OF SEPARATION SOLUTIONS

ANDRITZ provides mechanical and thermal solid/liquid separation technologies, complemented by comprehensive services, automation, and digitalization solutions for the chemicals, environment, food and beverage, as well as mining and minerals industries. Our customized, innovative solutions focus on minimizing resource consumption and maximizing process efficiency, thus making a substantial contribution towards sustainable environmental protection. With over 150 years of experience and more than 2,700 separation specialists around the globe, we are a driving force in the evolution of separation solutions – enabling industries to meet tomorrow's demands responsibly. **ANDRITZ. FOR GROWTH THAT MATTERS.**

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