

Process expertise
for sustainable municipal
wastewater solutions



It's time to turn your waste into new business opportunities

Rising energy costs. Expensive labor. Growing populations. Is your wastewater plant prepared for all these challenges? Today, more than 50% of the world's population of seven billion live in cities – and the trend towards urbanization continues to rise. Imagine what this means for municipal wastewater and sludge treatment. Now add the increasingly stringent regulations and you will understand that what worked today may not work tomorrow.

In cities everywhere, there is an increasing need for efficient processing of wastewater and sludge. And just as regulatory standards are tightening up, municipal budgets are also coming under more pressure. To tackle these complex and conflicting challenges, you need a partner with the full perspective of your wastewater treatment needs, and an array of reliable solutions to solve them.

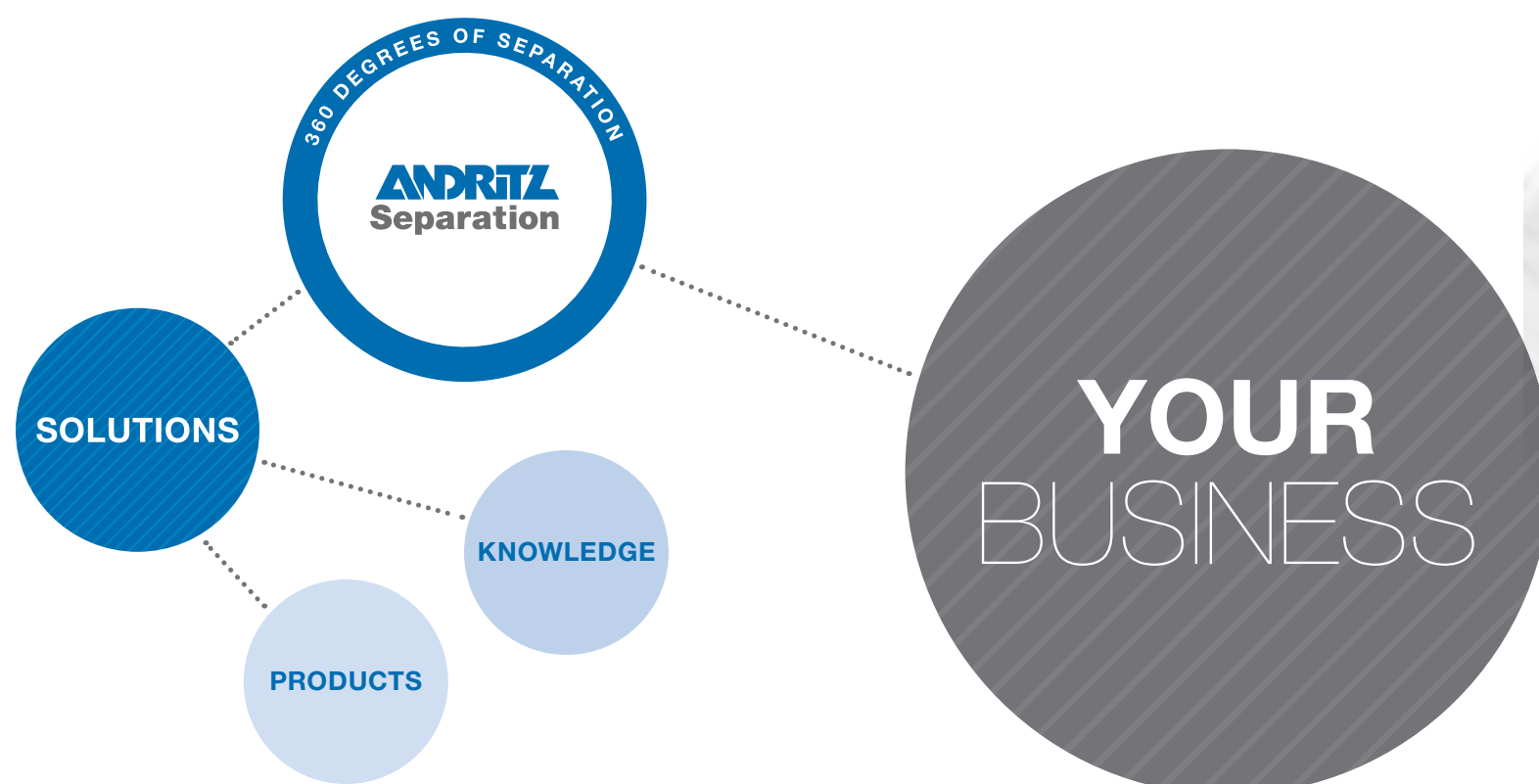
Full-line solutions for every global market

ANDRITZ SEPARATION has been providing smart solutions for solid/liquid separation for 150 years. Today, these cover the entire wastewater and sludge treatment process, from screening and thickening to dewatering and drying. Small or large cities, green-field or brownfield, we've supplied innovative solutions to municipalities on every continent and in every regulatory environment.

Tackling the world's biggest challenges

In Singapore, this means replacing six outdated sewage works with three massive new wastewater treatment plants, including constructing the largest drying plant in the world to date. With five lines, each capable of evaporating 11 tons of water per hour, the first new plant is now 100% sustainable, with dryers running entirely on biogas produced by sludge digestion.

Whatever the scale of your operations, our ambition is the same: to provide efficient, reliable and safe wastewater treatment solutions that are less costly to install, operate and maintain while meeting the strictest local requirements. And as part of a global organization with professionals in 40 countries, we have the experience, financial strength, and technical resources to deliver exactly that.



**BIG
IDEAS**

**YOUR
NEEDS**

**YOUR
BUSINESS**



Meeting tomorrow's wastewater challenges requires a bigger perspective

With 150 years of experience in the liquid/solid separation business, ANDRITZ SEPARATION is well positioned to provide solutions for any type of separation, drying, or automation challenge. In fact, we deliver more wastewater treatment technologies to this sector than any other supplier, ensuring that you always get the right solution.

In-depth process know-how

It's all part of a comprehensive approach that we call 360 degrees of separation. Rather than pushing a particular technology, we start by applying extensive in-house knowledge to analyzing your process requirements. Through in-depth consulting and testing, we identify which of our three thickening, four dewatering, and four drying systems will deliver the best results. Then we provide the optimal screening and ancillaries to maximize it all. Collectively, this depth of experience amounts to more than 10,000 wastewater references, including more than 350 new municipal installations every year.

Global leader in sludge treatment

For many, we're known as the go-to experts in sludge treatment and thermal drying. From screens with a peak flow of 400 MLD for Changi, Singapore, to extremely efficient centrifuges with capture rates of 95% in Ashford, UK, we've also provided more than 30 capital cities across the globe with innovative, reliable solutions. As the only supplier with four thermal drying technologies and automation solutions in-house, it's no surprise that we have supplied more than 170 successful thermal drying systems worldwide.



Improving safety in all stages

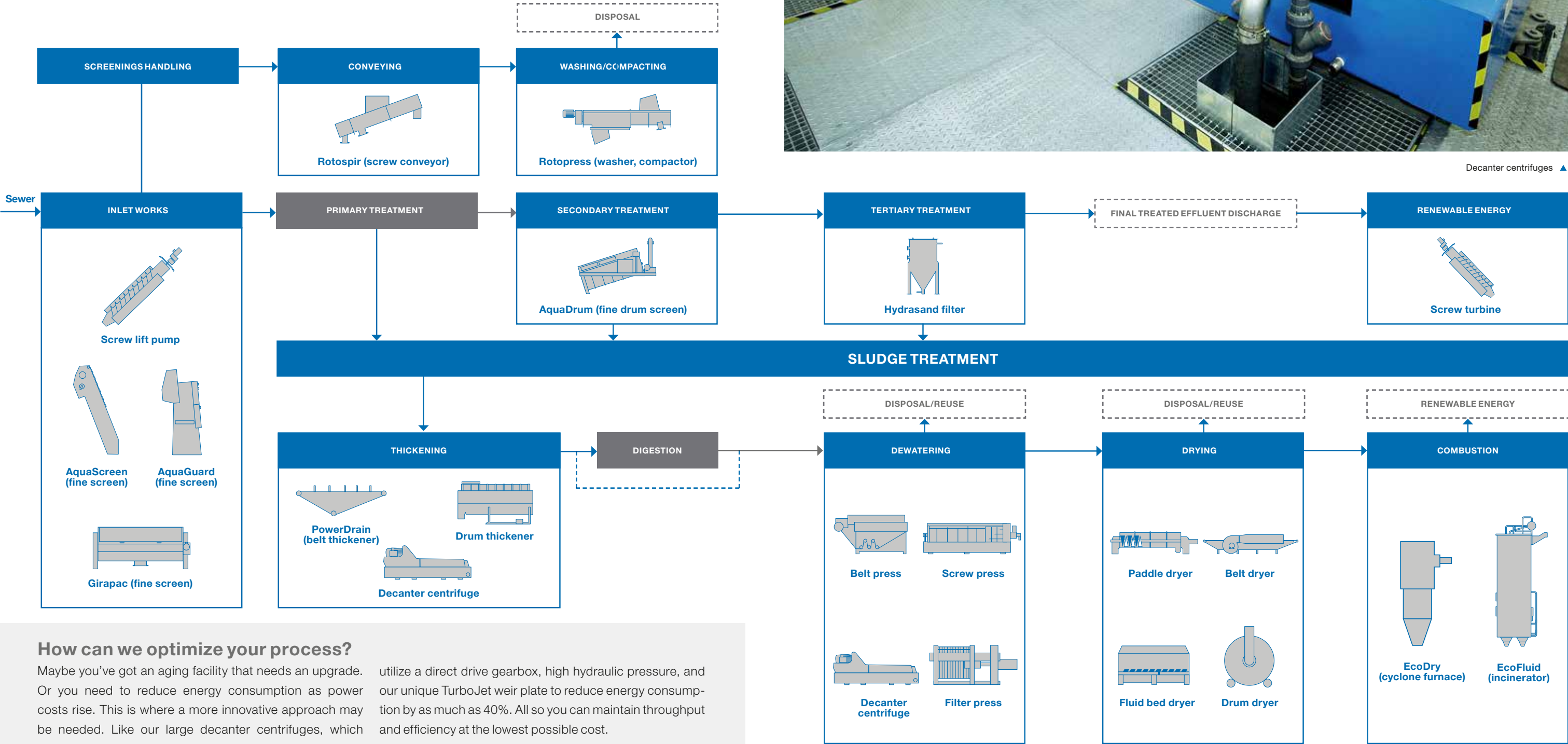
Many of our customers today are keen to meet increasingly stringent waterworks safety requirements. This is where our total approach to safety in terms of design, protection, and more come into play. For example, all of our new drying systems are ATEX/NFPA compliant to protect staff who are working in potentially hazardous or explosive atmospheres. We also provide safety upgrades for existing drying plants to meet the new regulations.

Your investment is our commitment

Given the scale of investment and the lifecycles encountered in wastewater treatment, we remain committed to delivering the lowest total cost of ownership for your plant. This includes ongoing R&D partnerships, upgrades and process optimization, as well as full-service contracts for the entire lifespan of your equipment. Our aim is to keep your plant on the cutting edge by deploying the full strengths of our global organization.

Where we fit into your plant

Screening, thickening, dewatering, drying, or combustion. Wherever there's a separation challenge, we provide a complete system solution to solve it, backed up with process knowledge and in-house automation expertise to make the most of your investment.



How can we optimize your process?

Maybe you've got an aging facility that needs an upgrade. Or you need to reduce energy consumption as power costs rise. This is where a more innovative approach may be needed. Like our large decanter centrifuges, which utilize a direct drive gearbox, high hydraulic pressure, and our unique TurboJet weir plate to reduce energy consumption by as much as 40%. All so you can maintain throughput and efficiency at the lowest possible cost.

99%

CAPTURE RATE
WITH AQUADrum
SCREENS

Cost-effective screening

High capture and removal rates
with lowest head loss

In our view, there is no such thing as just a “screen”. It’s always part of a larger solution involving other equipment that can be critical to the downstream efficiency of your plant. Naturally, the removal of all solids as efficiently and effectively as possible is the goal. But you also want to avoid excessive head loss, maintain velocity flow, and avoid a lot of expensive pumping.

Whether you require screens for a village-sized installation with just 1,000 inhabitants, or for a city of more than one million, we have screens for wastewater treatment plants of all sizes. With capture rates of 99%, ANDRITZ screens have a long-standing reputation as some of the most efficient in the industry. It might be a robust, two-dimensional fine screen to minimize head loss, or

a high-strength, self-cleaning panel to ensure easy, hands-free maintenance. Whatever the specific challenge, you have nearly a dozen screening technologies to choose from. All so you can meet the strictest regulatory standards and maintenance requirements, while letting gravity do the dirty work.

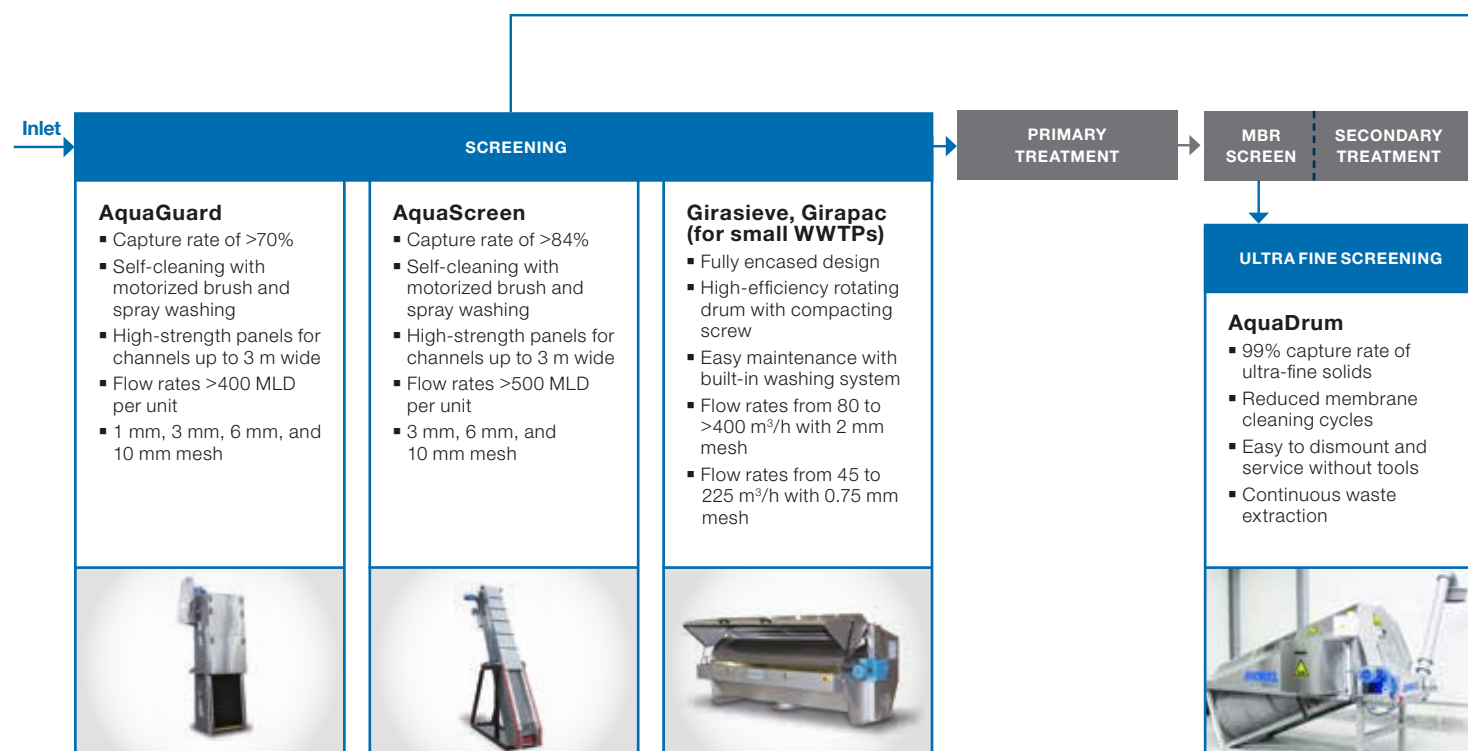
>5,000

SCREENS SOLD
SINCE 1980

2D

FINE SCREENS

*ANDRITZ AquaDrum,
with 1 mm diameter apertures,
achieved an impressive average
screenings capture rate of
99% at the National Screen
Evaluation Facility in the UK,
the country’s leading screen
testing facility.*



>7%

DS CONTENT
FOR SAS SLUDGE

>96%

SOLIDS
CAPTURE RATE

>300

m²/h
FLOW RATES
FOR SAS

High-efficiency thickening

More solids, less water – in no time!

Ask yourself a simple question: How efficient is your removal of free water in the sludge thickening phase? Do you have optimum gravity thickening of primary sludge? Could you reduce the need for expensive flocculants in secondary sludge to zero? Or close to zero?

These are the types of challenges our turnkey solutions for sludge thickening are designed to solve. Our solutions include everything from the basic machine supply and process design to test work and consulting.

Our overall aim is to supply the fastest, most efficient thickening technology with the most effective water recovery. And our in-depth experience ensures that we can provide you with the right technologies, systems, and process support to make sure this happens.

In Florence, Italy, for instance, innovations like our D-scroll technology have helped to eliminate polymer costs with far lower G-force. In Peru, it has boosted treated wastewater output to more than one cubic meter per second. Compared with conventional technologies, decisive cost-saving factors include the lowest power and polymer consumption, producing thickened sludge with high dry solids content of more than 7%.

“We needed to significantly reduce operating costs and expand capacity. ANDRITZ’s breadth of technology enabled us to do this while cutting polymer costs alone by more than 40,000 EUR per year.”

SIMONE CAFFAZ
PLANTS TECHNICAL MANAGER
IN PUBLIACQUA
FIRENZE PUBLIACQUA S.P.A.

FEED AND FLOCCULATION

Feed pumps, mixers, dosing systems

As a turnkey provider, we also offer the full range of equipment for feeding and flocculation systems that are required for an efficient thickening process.

THICKENING

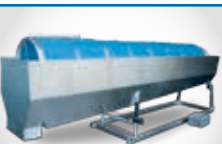
Belt thickener

- Flow rates up to 180 m³/h for SAS
- Outlet solids >7% DS
- Polymer consumption <5 kg/t for SAS
- Lower power consumption



Drum thickener

- Flow rates up to 90 m³/h for SAS
- Flow rates up to 100 m³/h for primary sludge
- Outlet solids >7% DS
- Solids capture >96%



Decanter centrifuge

- High flow rates of >150 m³/h without polymer
- Flow rates >300 m³/h with polymer
- Outlet solids >4% DS
- Automated control of flow and outlet solids



TRANSPORT TO
DIGESTION OR
DEWATERING

UP TO
30%
POWER SAVINGS
WITH TURBOJET

>99%
CAPTURE RATE

>35%
DS FOR PRIMARY
SLUDGE

Dewatering on another level

A smarter path to high dry solids

The massive reduction in water in the dewatering phase – from typically 5% to 25% solids in just minutes – is a daunting task. Energy costs can soar. Reliability is essential. And flocculant costs can spin out of control. Whether you're targeting a high cake solids content, trouble-free operations, lower operational cost – or all three – we offer a range of dewatering technologies that can be tailored to your specific needs.

For the largest plants, reliable, high-volume dewatering is an absolute necessity. More than just trustworthy equipment, they demand a partner that can deliver world-class performance for the entire life of the contract – sometimes 30 years or more. In the case of Scottish Power, this meant optimizing and installing twelve state-of-the-art centrifuges, each with a capacity of 3,000 kg/h of dry solids. One decade and 20 million tons of processed sludge later, the plant is still going strong, and new energy-efficient upgrades are just now being reviewed.

This is only one of hundreds of examples, but one that illustrates the lengths we go to in guaranteeing decades of reliable dewatering operations. Whether it's providing a flexible range of systems, reducing energy and flocculant costs to a bare minimum, or developing new innovative solutions to meet your needs.

DISPOSAL/REUSE

FEED AND FLOCCULATION

Feed pumps, mixers, dosing systems

As a turnkey provider, we also offer the full range of equipment for feeding and flocculation systems that are required for an efficient dewatering process.

DEWATERING

Belt press

- Lowest investment cost
- Flow rate >45 m³/h for digested sludge
- Greater than 25% cake solids for digested sludge
- Polymer consumption <6 kg/t



Screw press

- Low energy consumption
- Flow rates >20 m³/h
- Solids load >800 kg DS/h
- Totally enclosed design for odor control
- Outlet solids >25% DS for digested sludge



Centrifuge

- Fully automated and unattended operation
- Capture rate >95%
- Flow rate >120 m³/h for digested sludge
- Outlet solids >27% DS for digested sludge



Filter press

- >99% capture rate
- Outlet solids >35% DS for primary sludge
- Polymer consumption <5 kg/t digested sludge
- Optional fully automatic cloth washing
- Patented scraping device for fully automatic operation



TurboJet weir plate ►

“Our twelve D7LL decanter centrifuges have been in non-stop operation for a full 70,000 hours – with reliable service over a number of years – and all thanks to an excellent partnership with ANDRITZ.”

**SCOTTISH POWER
DALDOWIE, SCOTLAND**

Cut your electricity bill by up to 30%

Already successfully in operation, TurboJet is a next-generation weir plate that reduces a centrifuge's absorbed power by up to 30%. The exact amount of power you can save will depend on your flow rate, pond depth, and bowl speed. TurboJet can be fitted to ANDRITZ SEPARATION decanters (ANDRITZ, Bird, KHD, Guinard, etc.) and can also be retrofitted to nearly all other brands of decanters.

100%
CLASS A
FINAL PRODUCT

>95%
AVAILABILITY

>170
THERMAL DRYING
SYSTEMS INSTALLED

>9,000,000
TONS OF SLUDGE
TREATED ANNUALLY
WITH ANDRITZ
SYSTEMS

World leader in municipal sludge drying

4 solutions, 100% ATEX/NFPA compliant

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

The industry's broadest portfolio

With more than 170 references in drying of municipal sludge, it's no wonder we offer so many ways to provide the driest final product at the lowest cost. For many new customers, the surprising fact is that all of them are also ATEX/NFPA compliant. And that a customized solution is available to suit nearly any heating source or downstream application. The choice is yours.

From waste to renewable energy

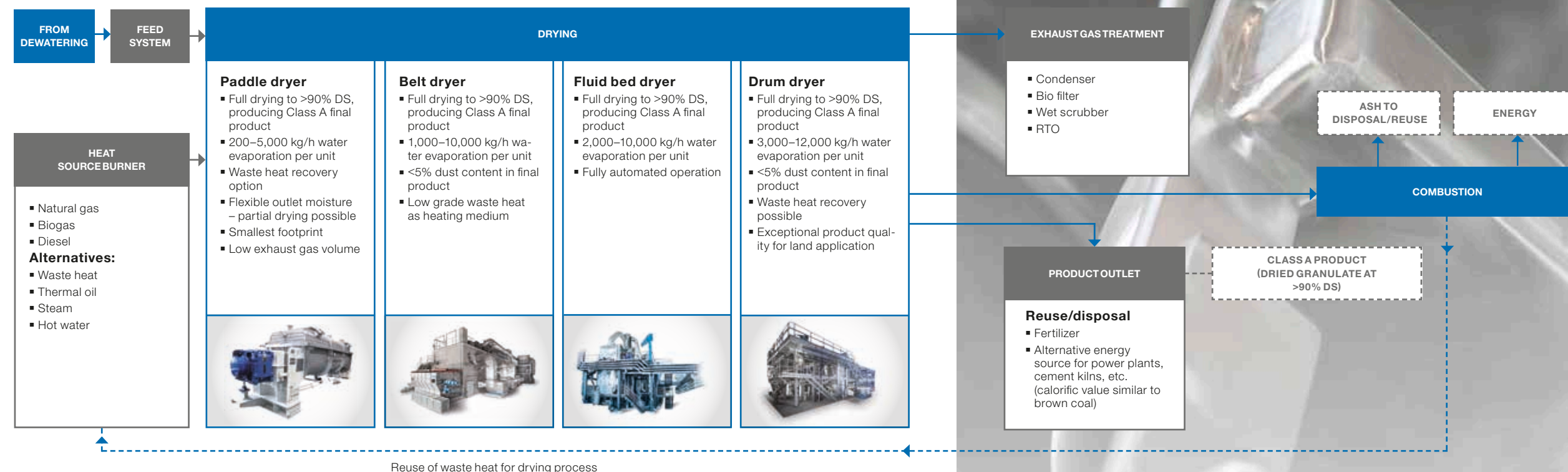
To reduce cost of ownership, we provide an equally wide range of ways to conserve energy and minimize environmental impact. For some, this means capturing low-grade waste heat to power

a belt drying system. For others it's all about producing Class A biosolids for profitable fertilizer products, or, in a recent project in Shanghai, dramatically reducing the volume of sewage sludge disposal to meet new regulatory demands. In Istanbul, the result was a fully automated paddle drying plant with the highest efficiency and lowest possible emissions.

Whether it's a single dryer or a full turnkey solution, we support you with all the test runs optimization, and technology needed to make the most of your waste streams – every step of the way.

"We clean two million cubic meters of sewage every day. ANDRITZ's drying system, fueled by digester gas, has helped us achieve substantially higher throughput at lower costs - all while meeting our requirements for environmental sustainability."

**BAILONGGANG,
SHANGHAI, CHINA**



Solving the world's municipal wastewater challenges

Over the years, we've built up a 10,000-strong reference list from all over the world. From developing to developed countries; smaller plants to some of the world's largest, our breadth of experience is extensive. Here are a few examples:

QUEENSLAND, AUSTRALIA – Queensland Urban Utilities

Challenge

To improve the extremely poor capture capacity of an inlet works with eight 15 mm mechanically raked bar screens. The aim of the screen replacement was to install a highly efficient, reliable, and low-maintenance screening system with 11,600 L/s hydraulic capacity.

Solution

Eight in-channel, travelling belt, perforated panel Aquascreens, together with field instrumentation and associated engineering.

Result

With safety and reliability as top priorities, Queensland Urban Utilities needed a close and experienced collaboration partner. From conceptual and technical design support to supply, on-site delivery, site inspections, testing, and commissioning, ANDRITZ SEPARATION not only met these needs, but exceeded expectations every step of the way.



BRIGHTON, UK – Southern Water

Challenge

To serve 300,000 Brighton area residents with a complete solution capable of handling 95 MLD of wastewater and treating it to full European Directive standards. The plant, including anaerobic digestion, dewatering, and sludge drying, would include a massive 16,000 m² green roof – the largest of its kind in the UK. It would also need to produce renewable energy.

Solution

Two D6LX dewatering centrifuges and one DDS 50 drum dryer, including a state-of-the-art PLC and SCADA control system.

Result

The Brighton plant, the sixth in a series of installations, now runs in excess of 98% availability, producing Class A granulate at 100% ATEX/NFPA conformity. In addition to its proven performance and reliability, the solution was chosen for its particularly high quality granulate, which is recycled as fertilizer in accordance with strict local regulations.



CHANGI, SINGAPORE – Public Utilities Board of Singapore

Challenge

Design, supply and install the world's largest drying plant, serving a new water treatment facility initially sized to treat 800,000 cubic meters of water per day.

Solution

Five lines of DDS 110 drum dryers, each line capable of evaporating up to eleven tons of water per hour.

Result

The first stage of the drying plant has met all of its targets, including throughput, efficiency, and high treatment standards. Using the biogas created in the digestion process, the dryers are also completely self-sufficient in terms of thermal energy. Further plans are now in place to expand the treatment facility's capacity in stages up to a full 2.4 million cubic meters of water per day.



OCEAN COUNTY, NEW JERSEY – Ocean County Utilities Authority

Challenge

Turn municipal waste from 600,000 local residents into thousands of tons per year of one of the market's most sought-after fertilizer pellets.

Solution

Three 2 m belt filter presses, two DDS 40 drum drying systems, and a 24-hour fertilizer plant, operated and maintained by ANDRITZ SEPARATION.

Result

Turning away from ocean dumping and landfilling of sludge, OCUA now sells some 8,500 tons annually of OCEANGRO® fertilizer pellets. Starting with three wastewater treatment plants, with a combined total flow of 80 MLD, the OCEANGRO® program has since won accolades including the Wave Award from the New Jersey Association of Environmental Authorities, and first place in the U.S. EPA National Clean Water Act Recognition Awards.



Put 150 years of OEM experience to work

Need to optimize your process? Boost availability? Ensure non-stop productivity? When you work with ANDRITZ SEPARATION, you gain access to one of the world's largest OEM manufacturers for solid/liquid separation. Put our in-depth knowledge of separation equipment and processing to work for you.

Vast experience through large installed base

With an installed global base of more than 55,000 solid/liquid separation solutions and systems, you can imagine that we take service seriously. Wherever these customers are located, we work very closely with them to maximize uptime and boost efficiency.

Well-known OEM brands

Some customers know us as the people with ANDRITZ SEPARATION on our overalls. Others have come to understand that we are the OEM behind former brand names like Netzsch Filtration, 3Sys Technologies, Bird, KHD Humboldt Wedag, Rittershaus & Blecher, Guinard, Lenser, KMPT, Escher Wyss, Royal GMF Gouda, Frautech, and Sprout Bauer, companies who all have been acquired by ANDRITZ. But frankly, we are capable of servicing and supplying spare parts for nearly all brands of solid/liquid separation equipment on the market.

Local support backed by global expertise

Our service philosophy is simple: One phone call, one contact person, one dedicated team that speaks your language and knows your equipment and process. This is not an empty promise. It is backed by a network of 550 service specialists for solid/liquid separation equipment and systems as well as service centers all around the world.

A true full-service provider

Whether you need spare parts, rentals, local service, repairs, upgrades, or modernization of your equipment, ANDRITZ SEPARATION is a 360-degree service partner. From initial consulting through to service agreements, plant optimization, automation, and training programs, we are always looking for ways to minimize downtime and increase predictability in operations while raising your overall production efficiency. In short, we've got you covered.



Local support

Responsive local service centers and field service technicians



OEM spare parts

Wear and spare parts from OEMs or in OEM quality in local inventories



Repairs & upgrades

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



Service agreements

Preventive maintenance, from contracts for spare parts, maintenance, inspections, and repairs to upgrades and operation



Second-hand and rentals

Certified second-hand and rental machines



Automation

Automation tools to improve processes and plants, both technically and economically



Training

Operator training and tailored seminars for operating and maintenance personnel



ENVIRONMENT

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