



BIOMASS SYSTEMS

Material handling solutions
for biomass plants

ANDRITZ

BIOMASS HANDLING SYSTEM

Vattenfall Uppsala, Sweden
Start-up: 2021



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Perfectly fitting solutions for biomass power processes

ANDRITZ is a leading global supplier of proven biomass processing solutions for the renewable energy sector.

All types of biomass – including wood chips, bark, sawdust, pellets, straw, agro-biomass, and forest residues – can be effectively processed into the required form and particle size. ANDRITZ offers a comprehensive range of process machinery for fuel receiving, storage, screening, size reduction, and boiler/gasifier feeding. Our advanced systems also ensure efficient handling and processing of stringy and difficult-to-handle

materials such as eucalyptus and acacia bark, optimizing their use as renewable energy sources. In addition, ANDRITZ provides efficient and reliable ash handling systems to maintain optimal boiler or gasifier performance, along with comprehensive services that ensure your equipment operates at peak efficiency throughout its entire life cycle.



ANDRITZ's biomass handling solutions cover the entire value chain from raw material intake to energy conversion. We offer complete systems or individual equipment tailored to specific needs, with proven technologies for:

- Biomass receiving and conveying – unloading and transport systems
- Screening and sizing – consistent particle size
- Crushing and pressing – for fibrous materials like bark
- Thermal drying – moisture reduction for better energy value
- Storage and reclaiming – silos and reclaimers for fuel availability

ANDRITZ brings decades of experience in managing large-scale mill projects, with a strong focus on delivering complex solutions reliably and efficiently.

Our project teams excel in strategic planning, stakeholder coordination, risk mitigation, and full life cycle execution – ensuring seamless integration of engineering, procurement, and construction phases while meeting demanding performance and HSE standards.





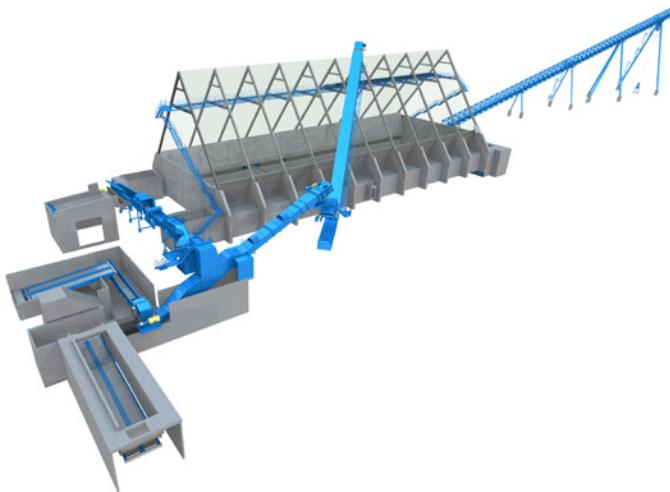
ANDRITZ – delivering cutting-edge solutions for biomass plants, supported by decades of proven industry expertise.

Comprehensive technology for biomass

ANDRITZ delivers comprehensive solutions for biomass processing, covering every stage from receiving and material preparation to storage and automation.

ANDRITZ biofuel receiving systems are designed to accommodate various delivery methods, ensuring smooth unloading and initial handling. Cleaning and screening solutions remove contaminants and oversized particles, while integrated sampling ensures consistent fuel quality. For size reduction, ANDRITZ provides robust crushing and chipping equipment tailored to different

biomass types, including fibrous materials like bark. Conveying systems – ranging from belt and chain conveyors to screw conveyors – enable seamless transport across processing stages. Biofuel storage solutions, including silos and reclaimers, ensure steady fuel availability and dust control.



SYSTEMS FOR BIOMASS, INCLUDING:

- Biofuel receiving
- Cleaning
- Sampling
- Crushing
- Screening
- Conveyors
- Biofuel storage systems
- Automation

CONVEYOR SYSTEMS

Typical conveying capacity
range: 50–1,000m³/h



Reliable technology for biomass fuel feeding

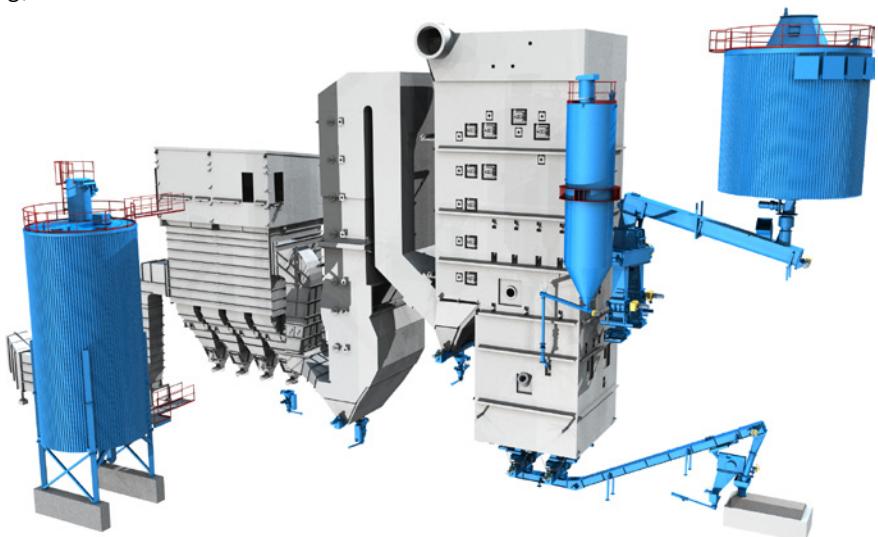
ANDRITZ offers robust and well-proven biomass fuel feeding technologies designed to ensure efficient, continuous, and uniform delivery of biomass to boilers and gasifiers.

ANDRITZ offers advanced biomass fuel feeding systems designed to ensure consistent, efficient, and safe delivery of biomass to boilers and gasifiers. Depending on the boiler's capacity and configuration, fuel can be fed from multiple points to ensure even distribution and maintain thermal balance across the combustion chamber. In addition to biomass feeding, ANDRITZ also

supplies equipment for feeding bed material – such as sand or other inert media – into fluidized bed reactors and boilers. These systems are designed for precise dosing, robust handling of abrasive materials, and reliable operation under demanding process conditions.

SYSTEMS FOR FUEL FEEDING:

- Fuel silos
- Reclaimers
- Conveyors
- Equalizing bins
- Rotary valves
- Bed material handling systems

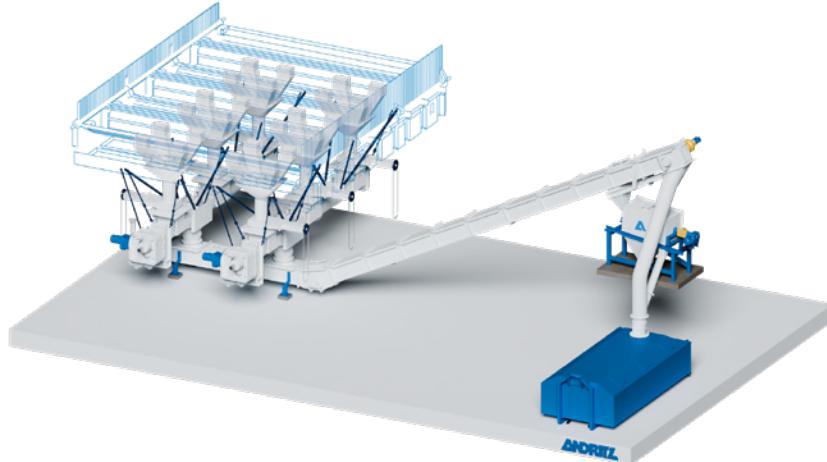


Bottom and fly ash handling systems

ANDRITZ provides comprehensive ash handling solutions for biomass power plants, ensuring safe, efficient, and reliable removal of both bottom ash and fly ash generated during combustion. These systems are designed to handle the high temperatures and abrasive nature of biomass ash while maintaining high uptime and operational safety.

For bottom ash, ANDRITZ provides cooling screws, chain conveyors, and ash screens that facilitate sand recycling and safe discharge into containers. Fly ash handling includes cooling screws, pneumatic conveying systems, intermediate silos, and both dry and wet

discharge options, depending on plant requirements. Additionally, sand separation and recycling systems enhance resource efficiency and reduce waste. These ash handling technologies are scalable to different plant sizes and fuel types.



SYSTEMS FOR ASH HANDLING:

- Bottom ash cooling screws
- Ash conveyors
- Bottom ash screen
- Ash containers
- Fly ash cooling screws
- Pneumatic conveying systems
- Fly ash silos
- Dry and wet discharging systems



Biomass handling solutions for gasification

ANDRITZ provides gasifiers and comprehensive biomass handling systems for efficient and reliable gasification processes in industrial energy applications.

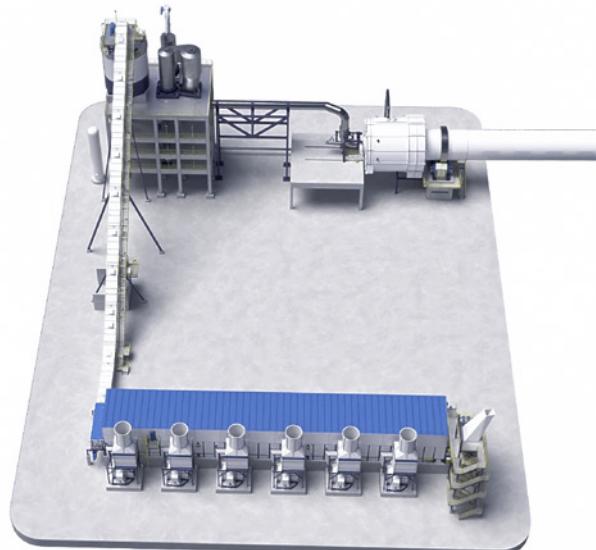
ANDRITZ biomass handling solutions are designed to manage a wide range of biomass feedstocks – including wood chips, bark, forest residues, and pellets – with precision and consistency, ensuring optimal fuel preparation and delivery to the gasifier.

ANDRITZ gasifiers and biomass handling systems allow seamless integration with various gasification technologies and industrial setups such as lime kilns and

combined heat and power plants. Features such as fuel screening, drying with recovered waste heat, and precision-controlled feeding actively enhance gasifier stability and maximize energy conversion efficiency. By ensuring consistent fuel quality and optimal process conditions, ANDRITZ biomass handling solutions deliver dependable performance, operational agility, and measurable cost savings for gasification processes.

SYSTEMS FOR GASIFICATION:

- Biomass handling
- Gasifiers
- Belt dryers



SYSTEMS FOR BIOMASS HANDLING FOR GASIFICATION:

- Fuel silos
- Reclaimers
- Conveyors
- Equalizing bins
- Rotary valves
- Bed material handling systems
- Bottom ash handling systems



Powering biomass plants with service expertise and the latest innovations

With decades of experience in wood processing and a strong global presence, ANDRITZ Wood Processing Service delivers high-quality products and tailored service solutions for biomass power plants. Our deep industry knowledge is backed by local expertise, ensuring that every customer receives personalized support and reliable service.

From high quality spare and wear parts to advanced biomass handling technologies, our solutions are designed to optimize performance and maximize efficiency.

We offer flexible service contracts, expert shutdown services, and a customer-oriented approach that puts your operational needs first.

PARTS & COMPONENTS

- Spare parts and wear parts
- Wear part rebuilds and upgrades
- Extreme wear resistant (EWR) wear parts for maximized lifetime

SERVICES AND UPGRADES

- Service inspections and field service
- Shutdown planning and shutdown works
- Mechanical and process upgrades and modernizations
- Service agreements
- Mechanical and process support, development and training
- SYNERGY™ long-term, tailor-made service agreements designed to improve mill performance by combining process expertise, equipment knowledge, and continuous support
- Consignment stock for spare and wear parts



Partner with ANDRITZ – where
technology meets reliability in
biomass wood processing





EFFICIENT SOLUTIONS FOR RENEWABLE ENERGY

ANDRITZ is a global supplier of proven biomass processing solutions for the renewable energy industry, offering a comprehensive scope of process machinery from biomass receiving to boiler silo feeding and boiler ash handling.

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