



FROM WOOD TO HIGH-QUALITY FIBER

Complete front-end technology
for fiberboard production

ANDRITZ

Complete front-end technology by ANDRITZ

ANDRITZ systems for fiberboard plants are based upon many years of experience in the design and manufacture of production machinery. Our systems process any species of wood or annual fibers, such as bagasse, bamboo, straw, and many more in most demanding industrial applications.

Our technology encompasses the raw material preparation processes, extending from the woodyard to pressurized refining, and includes all supplementary and auxiliary equipment. While our equipment has a modular design, it is custom-tailored to comply with individual customer requirements.

FIBERBOARD QUALITY BEGINS IN THE WOODYARD

The quality of raw material can be greatly enhanced by the chosen processing and storage during the front-end fiber preparation process. ANDRITZ is recognized as a leading global supplier of wood processing technology and processes: from receiving of logs through the subsequent processes of debarking, chipping, screening, storage, reclaiming and conveying. The ANDRITZ HHQ-chippers produce high-quality and homogeneous chips with optimized size for excellent board production at low energy consumption. Bark from debarking is normally processed in a biomass boiler to generate energy.

CHIP STORAGE

Efficient raw material storage ensures a continuous supply to the production line. Several technical solutions are available for first-in, first-out, fully automatic chip storage systems with reclaiming equipment – round silos, rectangular silos and open systems. Scraper chain conveyors, belt conveyors, bucket elevators, screw conveyors or other conveying elements link the single components, which are all designed to meet individual requirements.

CHIP WASHING

Our chip washing systems ensure uniformly clean chips and consistent quality in the end product. They not only remove foreign objects from the process (preventing damage to downstream production equipment), but also substantially reduce the silicate content in the



Installation of an ANDRITZ chip washing system

The horizontally fed HHQ-chipper ensures consistently good chip quality at high production rates.



ANDRITZ front-end system

- 1 Wood processing technology
- 2 Chip storage
- 3 Chip washing with wash water cleaning
- 4 Pressurized refining system
- 5 Waste water evaporation

raw material. This prolongs the life of the production equipment and enhances the cost efficiency of fiber preparation. Fiberboard with reduced silicate content creates a competitive advantage for fiberboard producers. To conserve precious resources, each chip washing system has an integrated and highly efficient method for recovering the wash water and reusing it in the process.

PRESSURIZED REFINING SYSTEM

The pressurized refining system is the centerpiece of the ANDRITZ front-end technology. Wood chips are pre-treated in an atmospheric pre-steaming bin to generate the best possible conditions in terms of temperature (up to 90°C) and moisture by keeping them as long as required in the pre-steaming bin. Different available discharge systems of the bin avoid bridging of the material and ensures stable feeding to the subsequent ANDRITZ plug screw feeder. When processing saw dust, wood shavings or annual plants, customized alternative discharge systems like the chip bin discharger would be used and could be installed before the plug screw feeder.



ANDRITZ plug screw feeder for highest dewatering efficiency, even for incoming raw materials with high moisture content

The ANDRITZ plug screw feeder, available up to a size of 28", transports and dewateres wood chips even at high inlet moisture as well as building up a pressure seal to allow proper further processing in the pressurized digester. High-quality wear parts and unique IIoT solutions for online wear monitoring reduce maintenance costs and downtimes significantly. Previous to high-consistency refining, wood chips or annual plants were further processed in a vertical or horizontal digester. Depending on the raw material properties, the retention time will be customized to the needs of the process. ANDRITZ has focused on continuous discharge over the complete production range to ensure highest fiber quality at lowest specific energy consumption by the refiner.

PRESSURIZED REFINER

The heart of the fiber preparation process is the pressurized refiner. It is sized to specific requirements to produce high-quality fiber with low energy consumption. Each ANDRITZ pressurized refining system is

designed to last. Top performance, high reliability, and excellent availability are hallmarks of the ANDRITZ high-consistency refiners, which ensure trouble-free operation and ease of maintenance, even in demanding applications, such as processing veneer chips, shavings, sawdust, and waste wood. The innovative "swing-door" design of our refiners makes it easy and quick to change refiner plates.

With the addition of the latest process control and plant instrumentation, our customers receive a complete, highly sophisticated front-end system, all from a single source. No matter what the capacity, our technology is designed to deliver top performance. ANDRITZ has designed and delivered the world's largest single-stage MDF pressurized refining system. Our decades of experience allow us to understand the processes well. That is why we are able to offer full-line solutions when needed.



Our machines process any species of wood (in the form of wood chips, sawdust, shavings, etc.) or annual plants, such as bagasse, bamboo, straw, and many more.



ANDRITZ TCP high-consistency refiner with innovative swing-door design

WASTE WATER EVAPORATION

With the ANDRITZ waste water treatment system, up to 98% of the effluent can be recovered as hot, high-quality condensate, which can be used for process steam generation. The concentrated effluent stream can be incinerated in the power boiler.

The ANDRITZ system consists of:

- Buffer tanks for effluent, condensate and cleaning chemicals
- Suspended solids and fiber removal prior to evaporation using decanting centrifuges
- Main evaporation in electrically powered Mechanical Vapor Recompression (MVR) unit
- Final concentration using a small amount of steam in a special type of forced circulation evaporation unit
- Process steam generation from the evaporator condensate
- Possible further treatment of evaporator condensate to meet excess condensate discharge limits



Complete waste water evaporation system by ANDRITZ

Top quality: from engineering to responsive service

Our capabilities for the MDF, particleboard and OSB industries include project planning, engineering, design, installation, and after-sales services to ensure that each customer's vision becomes a reality.



ANDRITZ high-consistency refiners: TCP and ANDRITZ S2070 refiner



ANDRITZ'S CAPABILITIES AT A GLANCE:

WOODYARD

Log handling, drum debarking, RotaBarker debarking, log cleaning, chippers, bark processing, shredding

CHIP STORAGE

Receiving pockets for purchased chips, disc screens, chip conveying equipment, storage with different discharge systems, chip screening

CHIP WASHING

Pre-steaming systems, chip washers, chip pumps, chip dewatering, cleaning and processing systems for wash water

PRESSURIZED REFINING

Pre-heating systems, plug screw feeders, digesters, digester discharge systems, refiner feed screws, refiners, blow valves, fiber diverter valves

WASTE WATER EVAPORATION

Complete evaporation system to recover waste water for further use as process steam

FROM PLANT ENGINEERING TO START-UP

Complete electrical equipment and instrumentation for the entire scope of supply, erection work and start-up, as well as technical production support

COMPREHENSIVE SERVICE

Plant efficiency, energy audits, upgrades, modernization, refiner plates, chipper knives, replacements, rebuilds, field services, training, and plant maintenance for machines from virtually any OEM

Our specialists have the experience and expertise to handle any project – be it a new installation or the modernization of an existing production line. We are at home around the world as our international network is linked electronically to our technical centers and manufacturing facilities.

FOCUS ON R&D

For development work and trials, we have our own research facility and pilot plant in the USA. We work closely with prestigious laboratories and universities to conduct individual research projects and actively invest in R&D and product development in close cooperation with our customers. We are proud of our excellent references worldwide, showing our customers' preference for ANDRITZ fiber preparation systems.

COMPREHENSIVE SERVICE FOR SUSTAINED PLANT PERFORMANCE

Complementing your own maintenance professionals, ANDRITZ service specialists provide the specific expertise needed to obtain the best performance from your

production equipment – from start-up and throughout its long productive life. By maintaining close communication, we can help anticipate future needs or respond quickly to a customer's request.

In addition to the traditional services – ranging from spare parts, field service and technical support to maintenance – ANDRITZ provides assistance with high-value services such as efficiency and energy audits, contracts for periodic maintenance, and other activities as needed. We offer a prompt and reliable delivery service for top-quality spare parts through our service centers and warehouses around the world. Machine rebuilds and upgrades of existing equipment from virtually any OEM are conducted in our certified facilities. In addition, ANDRITZ supplies the most efficient, durable, and performance-driven refiner plate technology in the world. Our specialists can provide support at any time to recommend the most suitable plate pattern for any special raw material or raw material mix.





DISCOVER OUR FULL-RANGE PORTFOLIO FROM FIBER PROCESSING TO PAPERMAKING

An outstanding paper product requires outstanding production – matched with the particular needs of raw material and final product. Discover the full-range portfolio from ANDRITZ: Excellent stock preparation that allows best fiber development according to furnish and with economical use of resources. *PrimeLine* paper machines that are a synonym for producing top-quality tissue, paper, and board grades. Complete lines or single units, upgrades, and modernizations. Contact us and benefit from your individual package in papermaking technology.

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