



EFFICIENT CHEMICAL RECOVERY AND GREEN ENERGY

ANDRITZ HERB RECOVERY BOILERS

ANDRITZ

ENGINEERED SUCCESS

Chemical recovery with maximum energy production



The HERB recovery boiler at Suzano, Trés Lagoas, Brazil, is the largest in Latin America and the second largest in the world.

The cost of energy and the reliability of its supply in the future are causing pulp producers to re-evaluate every capital investment being considered. The equipment purchased must not only perform its process function efficiently, but also contribute to energy self-sufficiency.

Nowhere is this more important than in the chemical recovery island, specifically the recovery boiler. At one time, the recovery boiler was selected primarily for its ability to recover chemicals efficiently from the fiberline. Energy production was only a secondary benefit. Now, the surplus energy generated from the black liquor stream in a modern ANDRITZ HERB™ recovery boiler provides a major economic benefit by either reducing costs for purchased power or by creating surplus green energy that can be sold to the grid for additional revenue.

ANDRITZ is an acknowledged leader in energy-efficient chemical recovery systems. In addition to recovering and recycling cooking chemicals, ANDRITZ chemical recovery technologies produce clean condensates and steam for mill processes and energy production. The portfolio includes complete recovery islands: evaporation plants with condensate stripping and methanol

liquefaction, gasifiers, HERB recovery boilers, biomass power boilers, chloride removal systems, and odorous gas handling systems.

These systems are in operation at mills around the world. ANDRITZ HERB units are helping pulp producers be energy self-sufficient and increase their steam and electricity surplus to provide biomass-based energy for public networks.

ANDRITZ HERB recovery boiler at SCA Östrand (5,000 tds/d), Timrå, Sweden.



HERB technology – highest availability

RECOVERY BOILER ADVANCED CONTROL EXPERT (ACE)

This product is a member of the ANDRITZ ACE™ control products family, which works in concert with a mill's Distributed Control System (DCS) to optimize operation of the recovery boiler. As with all ACE products, the Recovery Boiler Advanced Control Expert (RecBo ACE) has ANDRITZ process and equipment expertise built in, combined with predictive models and advanced process control. RecBo ACE has two modules: Sootblowing ACE and Combustion ACE. Sootblowing ACE manages the sootblowing based on dynamic sequence control. Combustion ACE is a proven control system that maximizes reduction, combustion capacity, and electricity production and reduces operator workload.

METRIS – FORESEE DIGITALLY

The **Decision Support Wall (DSW)** brings advanced process information to plant personnel via video wall. DSW integrates video from the process to the measured process values. Traffic light colors inform operators on the process status. If there is an alert, DSW automatically displays detailed information on the video wall. DSW can also be used for remote support from ANDRITZ personnel, and it can provide Key Performance Indicators for the plant management.

The **Hanging Heat-Transfer Surface Weight Indicator (HEWI)** at the recovery boiler, produces detailed information on heat surface fouling and delivers this information to operators via DSW or automation system (DCS). Weight information can also be used in other systems, e.g. in Advanced Sootblowing ACE or Advanced Combustion ACE.

BENEFITS

- High availability, reliable and safe operation.
- Improved energy self-sufficiency.
- Potential to generate surplus green energy for sale.
- Less CO₂ emissions per unit of electricity produced.
- Low emissions that meet the strictest environmental standards.

INCREASING THE POWER-TO-HEAT RATIO

The combination of high dry solids from the black liquor, sophisticated HERB process solutions, and high main steam values are determining factors in creating a net energy surplus for a pulp mill. As one of the pioneers, ANDRITZ has led the industry in gaining a higher power-to-heat ratio from the recovery process and has several substantial ongoing research programs to further maximize the power-to-heat ratio.

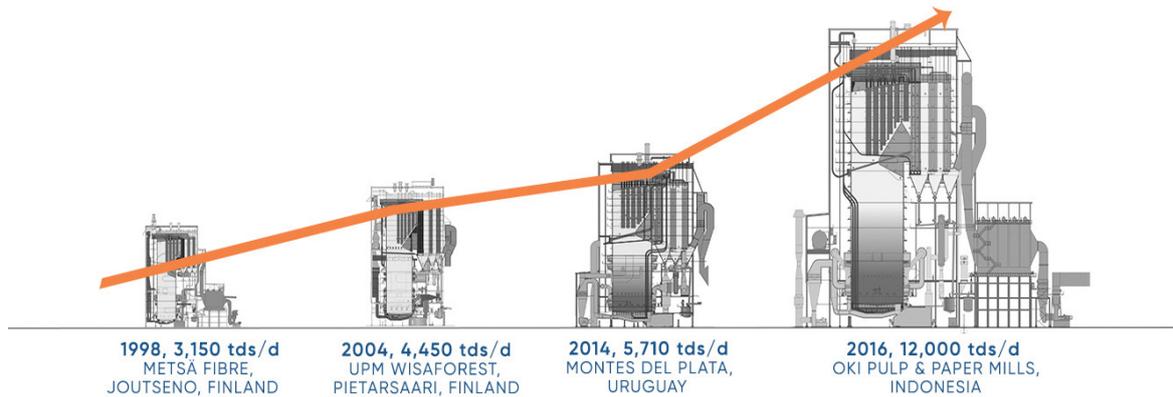
The **Smart Spout** cleaning system can operate independently 24/7, 365 days a year, performing the obviously unpleasant and time-consuming task of cleaning smelt spouts. The system includes an automation interface to the control room of the plant. The cleaning result is then displayed on the DSW via the process cameras installed.

The **Water Leakage Advisor (WLA)** is an operator advisory tool that enhances the safety of the operating personnel and of the recovery boiler and prevents the risk of equipment failures with a damaging effect. Undetected leaks in the recovery boiler may result in expensive consequences for the plant owner and have a serious impact on the environment. The WLA uses advanced process analytics and special sensors to detect leakages in the recovery boiler. If there is a suspected leak, the WLA advises the operator(s) on what safe steps to take next according to specific decision criteria.

The **Char Bed Monitoring and Diagnostic System** provides important information on the recovery boiler's char bed characteristics, such as bed height, location, and movements, to operators via DSW or the automation system (DCS). The information can also be used in other systems, e.g. in Advanced Combustion ACE.

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DELIVERY HIGHLIGHTS AND CAPACITY DEVELOPMENT



Customer	Start-up	Capacity, tds/d	Steam temperature, °C	Steam pressure, bar
OKI Pulp & Paper Mills, Indonesia	2016	12,000	515	110
Suzano Três Lagoas, Brazil	2017	8,250	485	85
Chenming Meilun, China	2018	6,700	515	105
Mondi Swiecie, Poland	2015	2,300	515	110
Sun Paper, Laos	2018	2,200	480	96
Daio Paper, Japan	2020	1,330	515	90
Smurfit Kappa Nettingsdorf, Austria	2020	972	480	81
KR Pulp & Paper, India	2020	700	460	64
Naini Paper, India	2020	550	465	64
Kuantum Paper, India	2020	500	465	67

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