

Stendal:

NEVER STANDING STILL

Unless it's a newly-built mill, it's rare for a SPECTRUM article to cover diverse process areas from the woodyard to the recovery island to the fiberline. And yet, this article will do exactly that, because ANDRITZ is involved throughout Mercer International's Stendal mill in Germany.



It was during our visit to the mill in March 2016 that Zellstoff Stendal hit a production milestone – seven million tonnes of pulp. Significant progress, considering it took 735 production days to reach the first million tonnes, but only 553 days to make the last million.

Adolf Koppensteiner was Mill Manager at Mercer International's other German pulp mill, Zellstoff Rosenthal, before he became Managing Director at Stendal in 2013. He immediately went to work spearheading a program to establish "world class" mill availability by 2018. He explains, "It is a continuous improvement program. A mill is never totally up to date. If you stand still, you go backwards."

In 2014, Stendal set a new annual production record of 672,000 tonnes of NBSK. It's current environmental permit is for a maximum of 675,000 t/a. In 2015, production reached 1,912 t/d – also a new record. Koppensteiner describes the progress as "huge steps forward".

ANDRITZ has been a technology and service provider for Stendal since the mill started up in 2004, delivering the major chemical recovery systems for the mill – evaporators, recovery boiler, and recausticizing equipment. That relationship has continued, with ANDRITZ providing technical services, rebuilds, upgrades, and

modernizations to help keep the mill updated and efficient.

Knife skills

Starting in the woodyard, ANDRITZ has been busy rolling out its PartnerChip concept. PartnerChip (from ANDRITZ Iggesund Tools) combines technology, expertise, and high-quality chipper knife replacement to improve efficiency and profitability of the chipping operation. In Stendal's case, ANDRITZ performs chipper knife replacements (the well-known TurnKnife system) and has installed a ScanChip analyzer in the line.

Steffan Ratzlow, Stendal's Fiberline Manager, explains, "The more homogenous our chips are, the better our cooking plant performs. But the longer the knives are in place, the more problems we had with homogeneity. It used to be that knife changes were difficult and risky."

With TurnKnife, knife changes are much easier and safer, leading to higher uptime and better chip quality. To determine the optimum time for knife changes and to verify consistent chip quality, the ScanChip analyzer is a real asset. "ScanChip can quickly analyze a larger sample of chips than the previous scanner we had," says Ratzlow. "It is good. I have no complaints."





▲ The ANDRITZ ScanChip analyzer monitors chip quality and helps the mill determine the optimum time for chipper knife changes. Josef Ertl, ANDRITZ Product Manager (right), pours chips into the analyzer as Steffan Ratzlow, Zellstoff Stendal's Fiberline Manager, looks on.



▲ The Diagonal Screens that ANDRITZ tailored for Zellstoff Stendal's batch digesters minimize production losses and reduce downtime.

The next goal, Ratzlow adds, is "more intensive cooperation so that we can couple ANDRITZ's on-site services with research and development to find new solutions."

Continuous thinking about batch

An example of combining on-site expertise with R&D can be found in the steps taken to improve the availability and productivity of Stendal's 10 batch digesters. Even though the units were supplied by another company, the technical specialists at ANDRITZ thought that Stendal might benefit from installing a tailored version of the Diagonal Screen that is so popular in ANDRITZ continuous digesters.

Walter Scholz-Sommerbauer, ANDRITZ Key Account Manager for Stendal, explains that Diagonal Screens are often installed in digesters running over-design or with plugging issues. "This screen design increases circulation and extraction flows because of the unique contour of the slots and the significantly larger open area compared to a perforated round-hole screen," he says. "The Diagonal Screen keeps fibers and chips from entering the slots. We believed that Stendal could use our design, tailored for their batch digesters, to minimize production losses and reduce downtime for acid washing, maintenance, etc."

Dirk Würsig, Mechanical Maintenance Engineer on Stendal's fiberline, says, "It is my understanding this is a completely new screen development for batch digesters that ANDRITZ tailored for our operation here."

An interesting aspect of this contract was the financial side. Instead of charging a fixed price for the equipment, ANDRITZ agreed to a price-plus-performance bonus structure. Koppensteiner says, "We are prepared to pay a fair price for a fair result. This way, it is a win-win situation that rewards both partners for improvements. We are doing the project together."

Wash press renewal

Having ANDRITZ improve performance of equipment from other OEMs extends to other parts of the fiberline, too. Stendal wanted a pair of new rolls for their wash press to replace the older ones, which could then be reconditioned to serve as replacements for the next worn pair.

Instead of immediately contacting the OEM, Stendal decided to look into ANDRITZ's expertise in this area. The main problem was the surface damage on the rolls caused by some mechanical characteristics of the wash press. Harald Fichtl, Production

“ This way, it is a win-win situation that rewards both partners for improvements. ”

Adolf Koppensteiner
Managing Director, Zellstoff Stendal





▲ Standing in front of the wash presses, Dirk Würsig, Mechanical Maintenance Engineer at Zellstoff Stendal (left), discusses fiberline upgrades with Walter Scholz-Sommerbauer, Key Account Manager for ANDRITZ.



▲ To remove bottlenecks and upgrade the evaporation plant, ANDRITZ delivered new equipment on a tight deadline. The 20% increase in evaporation capacity also allows the recovery boiler to burn higher solids black liquor.

Manager, says that Stendal wanted to address the problem of roll surface damage and he was aware that ANDRITZ had experience with its own wash press, including the technology to achieve durable and long-lasting rolls. As Gerhard Wulf, Technical Manager at Stendal, puts it, “ANDRITZ presented a design with more robust construction which we believe will solve the problem.” ANDRITZ delivered the new rolls in time for the April 2016 shutdown.

Evaporation “win-win”

ANDRITZ’s biggest upgrade project so far has been the expansion of the mill’s evaporation plant. The new equipment installed by ANDRITZ included a new evaporator vessel, three preheaters, a new surface condenser, a flash tank, a vacuum pump, and major vapor ducts.

According to Tapio Lintunen, Senior Project Manager for ANDRITZ, the technical challenge was to reconfigure the system – which was operating significantly above design capacity. “Where there were previously eight evaporator bodies arranged in six effects, we designed a nine-body system with a new unit as the new sixth effect.”

Fichtl explains, “The old plant was a bottleneck, even though we were running it at about 120% of design capacity.” In addition to eliminating the bottleneck, the recovery boiler can now burn higher solids. A 20% increase in evaporation capacity also means reuse of more condensate and less COD into the River Elbe. “It’s a win-win for the environment, the government, and the company,” Koppensteiner adds.

Lintunen notes that an interesting – and challenging – part of this project was in the timing.

Not only was the delivery deadline tight (six months from order to installation), the start-up had to occur during two short shutdowns at the mill (12 days in April and two days in October 2015). “All of the tie-ins and connections to existing equipment had to be completed during the two-day shut in October,” he says.

Adding to the drama, shipment of the new surface condenser, which had to be installed during the April shutdown, was delayed by a car crash and fire on the highway. This

Harald Fichtl, Zellstoff Stendal Production Manager ▶





▲ Ronald Zierau, Project Manager for Zellstoff Stendal (left), walks through the upgraded evaporation plant with Tapio Lintunen, ANDRITZ Senior Project Manager.



▲ Patrick Ludwig, Production Engineer for Zellstoff Stendal (left), discusses improved performance of the ANDRITZ CD Filter (white liquor filter) after the upgrade with Walter Scholz-Sommerbauer, ANDRITZ Key Account Manager.

resulted in the condenser arriving 36 hours late. But as Lintunen explains, “Stendal was very cooperative and helped us a lot. They contacted authorities to speed our journey. We were able to complete the installation on time.”

October 2015 was also eventful as the timing was tight. “The mill gave us 14 extra hours, so with careful hourly planning we were able to start work early and end on time.”

“Timing was a key factor,” says Stendal’s Project Manager Ronald Zierau. “There

were 175 tie-ins involved. “We did all the tie-in work we could in April knowing that the October shut would be very short. We had very good cooperation with ANDRITZ and the subcontractors.”

With the reconfigured evaporation plant up and running, Fichtl says, “We have had no losses since the project started up. It was a very smooth start-up.”

Wulf, says that it was not just about having the right equipment, but that ANDRITZ support was also a key factor. “We do not have

a large projects department,” he says. “Our people do projects alongside their normal jobs. The support we get from ANDRITZ helps us. Both the equipment and the team were right.”

Upgrade in white liquor filtration

ANDRITZ also upgraded the CD filter in the white liquor plant, making it possible to use 12 discs instead of the current 10, which Fichtl confirms will happen. The upgrade also moved the location of the suction head outside the unit. “This makes maintenance much easier and we don’t have to take downtime,” says Patrick Ludwig, Production Engineer at Stendal. “The installation of the upgrade was very professional. It was necessary to do it within a very specific time window and it went without a hitch. I am happy with the performance of the CD filter.”

Raising high-performance even higher

According to Jan Peter Daum, Stendal’s Recovery Manager, their recovery boiler is operating stably, with no fouling or plugging, and with the lowest residual oxygen content in the world for any boiler running at high load – 25 tds/d/m² – without exceeding environmental regulations. In addition to delivering

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Gerhard Wulf
Technical Manager at Zellstoff Stendal





▲ In addition to delivering the recovery boiler when the mill was built, ANDRITZ has remained involved by providing services to improve the boiler's performance even further without major upgrades. Examining systems in the boiler are (l to r): Jan Peter Daum, Recovery Manager at Zellstoff Stendal; Pertti Immonen, ANDRITZ Service Engineer; and P. Raymann of Zellstoff Stendal.



▲ Zellstoff Stendal has a continuous improvement program to establish world-class availability. As Adolf Koppensteiner puts it, "If you stand still, you go backwards."

the boiler, ANDRITZ has remained involved by providing smelt pumping services and small repairs or small upgrades.

Even with a high-performing 4,150 tds/d boiler, Stendal recently entered into a six-year contract with ANDRITZ to improve performance further without major upgrades. ANDRITZ will continue to provide the smelt pumping service, but will add shutdown inspections and audits with ANDRITZ specialists. As Daum puts it: "This is extreme micro-tuning. We want a long-term partnership so both sides have security and can set performance goals. Our task, together, is to take the existing plant and get the best out of it, without making big investments. With ANDRITZ, we are analyzing what potential the recovery boiler might still have. We only know our own mill and boiler. ANDRITZ knows how other mills around the world operate their boilers and have solved specific problems."

As Scholz-Sommerbauer says, his company's aim is to "plan more proactively and give us a deeper understanding of our customer's needs so we can apply the best ANDRITZ technologies."

Koppensteiner points out that while such a long-term contract may be unusual, "It is normal if you are satisfied with your partner, and if your partner can give you something extra. We are certain that we can still improve our relationship, which will lead to more progress."

A chance to learn

Summing up the relationship between Zellstoff Stendal and ANDRITZ, Jean-Marie Staron, Stendal's Director of Central Purchasing,

says "We have been learning from each other and getting closer. ANDRITZ is very professional, reliable, and trustworthy. It's a good partnership."

The final word goes to Koppensteiner. From ANDRITZ, he says "We get support in critical situations, but also in projects. ANDRITZ for us is a partner where we have a chance to learn."

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