From old to new **in nine days**

◂ Two of the newly reconditioned headboxes on Gernsbach's KM2 machine.

Even though headboxes are designed to work in demanding environments, their performance will degrade over the years as heat, chemicals, moisture, and vibration take their toll. A total reconditioning of a pair of headboxes on a board machine in only nine days – from de-install to re-install – sounds like a mill manager's daydream. But it was a reality at Mayr-Melnhof's Gernsbach mill in Germany.

The Mayr-Melnhof Group is regarded as a world leader in the production of coated cartonboard made from recycled fiber. It also has a growing position in virgin fiber-based board and is the leading manufacturer of folded boxboard in Europe.

The Gernsbach mill in Baden-Württemberg has been involved in the production of cartonboard since 1951. The grades produced at Gernsbach are characterized by consistently high quality and are in demand for food and non-food packaging.

Gernsbach's KM2 machine produces white-lined chipboard in the 240–260 gsm range from 100% recycled fiber. The fiber source is mostly from Germany. KM2, which has four fourdrinier formers, has a width of 3.3 m.

Headboxes exhausted

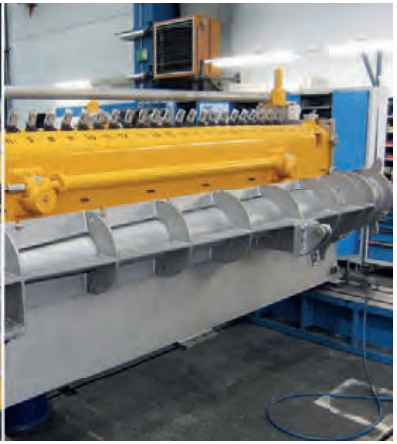
According to Carmine Nagel, Gernsbach's Technical Manager, in 2010 it was deemed that the four headboxes on KM2 were "worn out" and reaching the end of their productive lives. "Everything has to be precise in a headbox," Nagel says. "The most obvious points of wear that we could see were the headbox tables and the bottom layer base frames, which were corroded. This wear in the headbox tables can lead to formation problems, sheet breaks, and other quality problems. The corrosion in the base frames presented a potential safety problem or an unplanned full stop of the machine."

◂ Carmine Nagel (left), Gernsbach's Technical Manager, with Johannes Kraxner, ANDRITZ Product Manager for Paper Machine Services.

◂ Nagel and Kraxner with one of the four reconditioned headboxes. In addition to safe and stable production for future years, the headbox reconditioning improved the quality of the sheet by enabling better CD moisture profile control.

▾ Headbox (before reconditioning).

▾ Headbox (after reconditioning).



Chemicals play a role

The headboxes were from the early 1990's. According to Johannes Kraxner, ANDRITZ's Product Manager for Paper Machine Services, the standards and materials used in headboxes in 1990 were quite different than for today. "Some of the chemicals used today have a negative effect on a headbox built 23 years ago," Kraxner explains. "The protective coating on the metal gets dissolved or abraded, which fuels corrosion."

"We know that these components have a certain lifespan," Nagel says. "New standard headboxes are larger than ours, so replacement was not really an option for us. It would have involved re-designing or ordering custom-sized headboxes, which would have been very costly. ANDRITZ proposed a plan to recondition our existing headboxes in two phases, which was a perfect and smart solution."

Reputation and relationships matter

"Our decision to go with ANDRITZ was based on reputation, experience, and their detailed plan on how they would approach the project," Nagel says. "This gave us confidence that they knew exactly what they were doing."

Nagel adds that he had never worked with ANDRITZ before in his over 30 years in the industry, and this was an important project for him. "The headbox is, of course, a critical part of our machine. Of course I knew ANDRITZ's reputation, but I had never worked with them. But my first impression of the ANDRITZ people was very positive, which is important also when building relationships."

Detailed planning, speedy execution

It was decided to perform the reconditioning in two phases: two headboxes in December 2010 and two headboxes in December 2011. The agreed upon downtime for each service was nine days. It sounds like a short time – but is it?

"It most certainly is," says Kraxner of ANDRITZ. "This could only be accomplished with detailed planning followed by precise execution. There was no margin for error."

ANDRITZ's work began with supervising the removal of the headboxes from the machine and transporting them some 600 km to the workshop in Graz, Austria in the winter time. "This sounds very normal, but we knew it would be a challenge," Kraxner explains. "Our schedule was based on removing the bottom layer headbox without having to dismantle the complete wire section for the filler layer. There was such a narrow space to work that we had to design a special lifting tool.

"When you recondition any equipment, you never know what conditions you will find when dismantling and disassembling the equipment," Kraxner says. "We sent two specialists from ANDRITZ to supervise the Gernsbach team who did the actual dismantling."

Technicians and machinists were ready for the arrival of the headboxes in Graz. They moved quickly into action to completely disassemble the headboxes, sandblast and paint all the steel parts, clean the stainless steel and bronze parts with a ceramic blast, plane and grind the bottom and top slice lips, and exchange all the gearboxes used for adjusting the profile.

The machinists also manufactured new headbox tables and produced new base frames for the bottom layer headboxes to replace the corroded ones. After assembling and adjusting all components, the "new" headboxes trucked back to Germany and installed back into KM2.

Nagel sent a recent retiree and one of his best people to Graz to inspect the work by ANDRITZ. "He was there when the headboxes arrived and gave me daily updates," Nagel says. "He was very impressed with how ANDRITZ operated its workshop and how people worked night and day on the reconditioning."

Amazing start-up

"We stopped our machine for nine days and we were producing saleable product right after day nine," Nagel says. "This was the challenge we presented to ANDRITZ, and what they agreed to contractually. But there is a difference between seeing a commitment on paper and actually watching it happen.

"Thanks to the reconditioning, safe and stable production is ensured for many years. And, with the rebuilt headboxes, we have been able to improve quality by increasing our cross direction moisture profile control."

"All is good!"

"During the second reconditioning in 2011 we were conducting a very large rebuild of our coating section," Nagel says. "Based on our good experience with the first phase of the project, I knew I did not have to worry about phase two. I heard only positive feedback from my colleagues about the ANDRITZ headbox service, so I focused on the coating rebuild. I was confident that my partners at ANDRITZ would deliver on time.

"This project with ANDRITZ was truly a success story," Nagel summarizes. "We planned a small celebration dinner once the reconditioned headboxes were started up. The table was reserved. The headboxes were up and running so perfectly, producing good product within 15 minutes that we all went to the restaurant early. We enjoyed the meal, returned to check on the headboxes, and they have been running flawlessly ever since. All is good!"

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