

Half-high hybrid former brings precision to Količevo

Within a span of 10 months, ANDRITZ developed, designed, and delivered a new three-layer fourdrinier wet section with a new type of hybrid former for PM3 at Količevo Karton. The most prominent feature of the new hybrid former *PrimeForm HB*: it is incredibly small (half as tall as a conventional former) and has only three rolls. As part of the project at Količevo, ANDRITZ also rebuilt the complete wet end.

“First to market gets the business. That explains our tight time schedule.”

Rado Kunavar
Technical Manager, Količevo Karton

(Left to right): Barbara Freyler, ANDRITZ Project Manager; Rado Kunavar, Technical Manager at Količevo Karton; and Wilhelm Mausser, ANDRITZ Head of Design Development, in front of the rebuilt wet end. ▼



PM3, the machine to be rebuilt, was installed in 1979 by ANDRITZ. It has a trim width of 4.5 m and had eight vacuum formers for grades ranging from 210 up to 500 g/m². Before the rebuild it was producing testliner – a useful commodity grade with small growth potential.

On the other hand, Količevo's PM2 is producing KROMOPAK folding boxboard – a virgin fiber-based grade with a three-layered coating. KROMOPAK is what Mayr-Melnhof calls a “GC2” paperboard – a surface pigment coated folding boxboard. It is in high demand for packaging perfumes, pharmaceuticals, cigarettes, consumer goods, and foods (due to its virgin fiber content). “The advantage to our KROMOPAK is its high smoothness,” says Kunavar. “It has excellent printing properties with intense color rendering.”



Everyone knew it from the beginning: the designers, the engineers, the customer, and the project team. *This was going to be a major challenge.*

The task was to install a new wet end on PM3 at this Slovenian mill and incorporate a new-design hybrid former – in only 10 months. This is another practical example of when people at ANDRITZ say, “We accept the challenge!”

In the end, they made it: quick, short, and precise. According to Barbara Freyler, ANDRITZ Project Manager, the contract was signed in February 2011. On the 29th

of December, two days before the contract deadline, the machine started up.

“Not a bad Christmas present,” says Rado Kunavar, Technical Manager at Količevo Karton. “For me it was the largest project I have been responsible for in this company. It was great to have ANDRITZ as our partner. The cooperation was excellent. I actually expected much more stress!”

A demand for GC2

The Količevo mill has been in existence since 1924 and was acquired by Mayr-Melnhof Karton of Austria in 1998. Mayr-Melnhof is the world leader in recycled coated board.



"We finished two days before the deadline. It was a nice Christmas present for the mill."

Barbara Freyler
ANDRITZ Project Manager



▲ The task was to completely rebuild the wet end on Količevo's PM3 – including a new design hybrid former so it could produce a premium grade of board – in only 10 months from design to start-up.

With the demand for GC2 growing fast, Kunavar says that the mill decided to rebuild PM3 to produce these grades. "The first to market gets the business, so we wanted to do it quickly," he says explaining the time schedule. "That is why we turned to ANDRITZ."

Rethinking the former

To produce the required quality for GC2, the conventional vacuum formers on PM3 would have to be replaced by a fourdrinier wet section. According to Freyler, adding a hybrid former was the right solution since it would enable a higher level of dewatering.

"It turns out that Količevo's timing was right," Freyler says. "We had an active development program to rethink the design of hybrid formers on retrofits of fourdrinier ma-

chines. In addition to boosting dewatering capacity, our designers were working on solutions to improve the sheet quality – with symmetrical dewatering to improve the two-sidedness of the sheet, more equal Z-direction distribution of fines and fillers, and improved formation."

But there was only one problem. The machine hall at the mill was not tall enough for ANDRITZ's conventional hybrid former. *Next challenge: cut the height of the former in half.*

Problem solved. ANDRITZ engineers developed a completely new type of hybrid former, the *PrimeForm HB*, to meet the requirements at Količevo. "Our thinking is that there are probably other installations that will have this same space limitation so it would be a good idea to have this design," Wilhelm Mausser, ANDRITZ Head of Design Development says.

The PrimeForm HB

The *PrimeForm HB* on PM3 is now one of the smallest in the world. But in this case, small is mighty in that it performs precisely to specifications, according to Kunavar.

"In terms of dewatering, the incoming consistency of 1.5-2.5% is increased to 6-13% coming out of the former," he says. "We are seeing a much improved formation index and the paper tests show very good burst, crush, and bond strength."



▲ To produce KROMOPAK, the conventional vacuum formers on PM3 had to be replaced by a fourdrinier wet section. Adding the new *PrimeForm HB* hybrid former on the filler layer enabled the correct level of dewatering and improved formation.

The former has three rolls which can be adjusted on-the-fly and a design where each foil can be loaded individually to tailor the pressure pulses exactly to production requirements. The foils are ceramic. Tests have shown the ceramic foils to be superior in terms of wear-resistance, surface finish, and forming fabric life.

It is a very clean-running unit. There are enclosed doctor pans. Maintenance is easy because the top forming unit can be lifted up. There is direct access to all the ceramic foil covers and the skimmer channel.

Wet end improvements

The existing cylinder mold formers on PM3 were replaced with a three-layer fourdrinier (*PrimeForm SW*) which included three new *PrimeFlow SW* headboxes. A dilution control system was installed for the filler layer. The *PrimeForm HB* is utilized for the filler layer dewatering. The existing press section was upgraded with a pick-up roll to allow a closed web run to the press section.

ANDRITZ succeeded in executing the wet end rebuild, thanks to precise planning, in only 26 days. "On December 29th at exactly 8.15 pm we put paper on the reel," Kunavar says. "Forty minutes later the first reel turn-up occurred without a sheet break. It truly was a masterful job of planning and execution."

"We reduced the time on-site by pre-erecting the complete wet end equipment at our workshop in Graz," says Freyler. "The team from Količevo drove to Graz for final inspec-



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tion. Then we transported the equipment to the mill to erect it on-site."

Unfortunately, the last step occurred right at Christmas time. "We had a short holiday," Freyler and Kunavar say. "Work stopped for Christmas Eve, but on the 25th of December, we were back working at the mill."

"ANDRITZ has been very flexible and open-minded during this whole project," Kunavar says. "The project has met all our expectations."

The rebuilt machine is now producing GC2 grades at a speed of about 460 m/min, which is the same speed as before the rebuild. "We have not speeded up yet because we want to fine-tune the sheet," he says. "But our aim is to ramp up to 800 m/min in the near future."

Količevo is finding a ready market for its KROMOPAK from PM3. The standard product is a high-quality blue-white board with 38 g/m² woodfree top and bottom and a 100 g/m² filler layer. The top is triple-coated and the bottom is coated once. The machine is also producing a new product (Excellent Top) which is a yellow-white board using a 50/50 mix of hardwood and softwood pulps for the top and bottom and the same filler layer.

Količevo produces KROMOPAK – what Mayr-Melnhof calls a "GC2" paperboard. It is a surface pigment coated folding boxboard with three layers of coating on the top ply. It is in high demand for packaging perfumes, pharmaceuticals, cigarettes, consumer goods, and foods. ▼

