

Plugging into the bright future of biofuels



BELIŠĆE MOVES AHEAD



PM 3 churns out up to 95,000 tonnes/yr of containerboard

By JUSTIN TOLAND, Contributing Editor, PPI

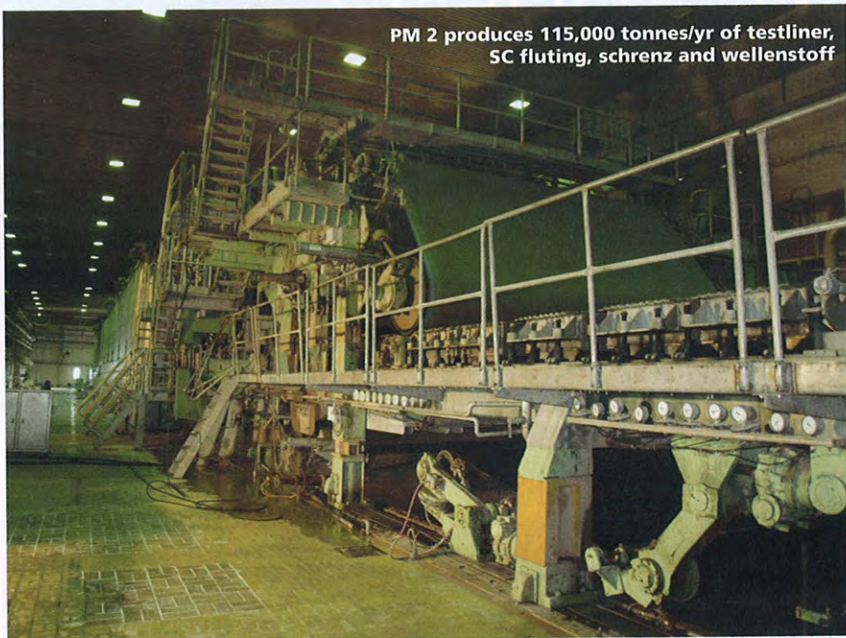
The Croatian mill continues to improve its offering

Founded in 1884, the Belišće mill in Slavonia, eastern Croatia, has put the difficult times of the early 1990s well and truly behind it. Today, Belišće produces 210,000 tonnes/yr of containerboard on two units, plus 35,000 tonnes/yr of packaging products. The 115,000 tonne/yr PM 2 (built in 1974) makes testliner (1-4), SC fluting, schrenz and wellenstoff, while its smaller, newer partner, PM 3 (installed in 1983), churns out up to 95,000 tonnes/yr of the latter three grades. Incidentally, PM 1, which started up in 1961, was shutdown in 1994 and later sold to India.

An integrated mill, Belišće has its own woodyard, two semi-chemical (sulphite) pulp mills for internal use, as well as chemicals, power and water treatment plants (the latter also treats municipal wastewater).

The road to recovery from the dark days of the Balkans Conflict (during which the paper plant itself came under attack on occasion) has been slow but steady. In 1998, the International Finance Corporation (IFC), took a 20% stake in the mill, loaning Belišće \$41 million to enable a revamp of the two remaining paper machines. "It makes more sense to modernize and rehabilitate plants that have been damaged during the war, rather than constructing new ones," the IFC's investment officer, Ole Sand, told *PPI* at the time.

The IFC's money was invested in a number of improvements to the two machines: PM 2 was given a new shoe press and size presses for starch application were installed on both units to enable them to produce wellenstoff; a starch kitchen was also added for the same purpose. The stock preparation line was rebuilt, both dryer hoods were replaced and their ventilation



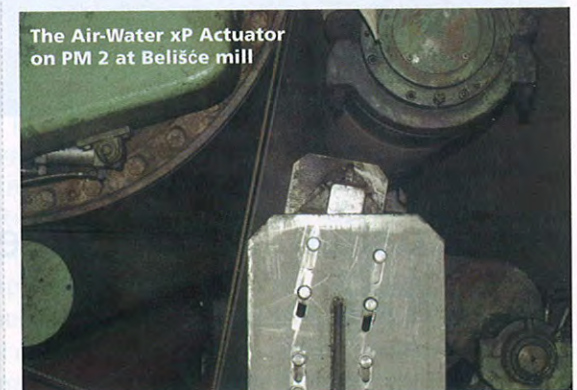
PM 2 produces 115,000 tonnes/yr of testliner, SC fluting, schrenz and wellenstoff

systems were upgraded. Some other sections were also rebuilt, such as the top and bottom layer headbox of PM 2 and waste handling of PM 2 and PM 3. New drives for shoe press and size press were added to the electrical drive section. Automation was also upgraded - a new distributed control system (DCS) for stock preparation, PM 2 and part of PM 3, and a new quality control system (QCS) for PM 3. The modifications improved quality and also boosted output by a combined 45,000 tonnes/yr.

MORE STEPS TO BETTER PAPER

Since 1998, upgrades have been "step-by-step," notes Beliŝe's head of measuring and control engineering, Ivan Ratkovic. Several improvements were made in 2006 and 2007, at a total cost of EUR 4 million. "We tried to do various projects around the same time to increase quality and output," he explains. Steam and condensate systems from Kadant Johnson were added to PM 2 and PM 3, while the Finnish company, EVG, and Slovenia's Tip95 worked together to improve web stabilization in the dryer section. Beliŝe also invested in a Bellmer winder on PM 2, while new ventilation systems were installed in the PM 3 machine hall.

Last but not least, ABB was contracted to supply a



The Air-Water xP Actuator on PM 2 at Beliŝe mill

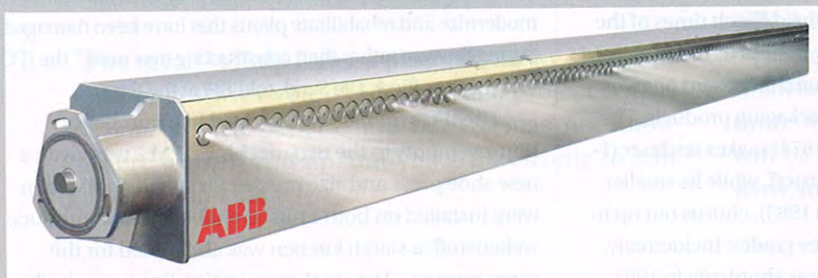


Ivan Ratkovic (right) and ABB's Pierantonio Cabrini

Air-Water xP Actuator

The Air-Water xP Actuator is designed to be more robust and much less susceptible to plugging than needle valve or solenoid flow control arrangements. According to ABB, there is very little maintenance, and reliability is significantly improved by eliminating the requirement for electronics in the hot and humid environment associated with re-moisturizing actuators. Performance is ensured even if the water supply is less than optimum, it adds. Other benefits the supplier cites include:

- 80% reduction in profile variability and improved reel building
- Precise, continuous flow control without electronics
- Pressure balanced flow control maintains predictable flow impervious to wear, build-up or water pressure variations
- Precise, homogeneous, droplet size delivers excellent sheet absorption
- Minimum zone-to-zone interaction eliminates air-induced streaks
- Common air and water headers eliminate tubing and piping in the actuator beam for simplified maintenance.



package of improvements, comprising a new distributed control system (DCS) for PM 3, an upgrade of the scanning platform on PM 2 from Measurement Platform 2 to SmartPlatform, as well as Air-Water xP Actuators on both machines to improve the moisture profile (see box).

Ratkovic explains that Belišće had some doubts about the ABB water spray offering until a team from the mill paid a reference visit to a mill in France and saw the technology in action. "They had a good experience and we saw it working, we saw the 2-sigma reduction. The reference visit really made up our minds," he recalls.

The Air-Water xP Actuators were installed by a team from ABB Dundalk in Ireland and commissioned by a team from ABB Sesto San Giovanni in Italy in November 2006. There are 60 actuators on PM 3 and 69 on PM 2. In each case they are 75 mm apart. The spacing was chosen based on process model estimates for the performance of actuators spaced at 75 mm and 100 mm respectively (see Figures 1 and 2).

In trial runs with the new technology, ABB met its guaranteed performance values. Installation of the Air-Water xP Actuators has seen the number of customer complaints about CD moisture profile fall to zero.

"Everything fell into place very quickly," says Ratkovic. "The performance improvement was almost immediately visible. It was very easy, very quick - I was surprised by that," he adds.

NEW STAKEHOLDERS, FUTURE PLANS

Belišće's clients are mainly located in central and eastern Europe (Croatia, Slovenia, Italy, Germany, Serbia, Hungary, Bulgaria, Greece etc), "It depends on the market situation," notes Ratkovic.

In May 2008, Duropack acquired a 24.7% stake in the company (including the IFC's 20% stake). The Austrian-based packaging firm, part of Constantia Group, sees a good fit between Belišće's operations and its own, and expects significant synergy effects resulting from this cooperation.

In the meantime, for the Croatian mill the improvement drive goes on. In May 2009, one of Belišće's two steam boilers was reconstructed to improve energy efficiency. Plans are also in place to upgrade to AC drives on PM 2, increasing its speed. However, this work has been postponed because of the downturn. **PPI**



Belišće Group has its own recovered paper collection businesses in Croatia and Serbia



Woodchips are also used as furnish

Belišće Group

Belišće mill (and village) were both founded in the late nineteenth century by Hungarian businessman, S.H. Gutmann. Prior to World War II, his eponymous company was one of the largest producers of oak logs in Europe, before moving into paper production in the 1960s.

Since 1991, the Belišće Group has expanded its operations beyond Croatia's borders and today, in addition to 35,000 tonnes/yr of corrugating capacity at the Belišće mill, it has one converting company in Slovenia (Valkarton - 50,000 tonnes/yr), one in the Macedonian capital, Skopje (Komuna - 18,000 tonnes/yr), as well as Bilokalnik in the Croatian town of Koprivnica (18,000 tonnes/yr).

The group also owns Unijapapir, the Zagreb-based waste paper collection company, and its Serbian equivalent, Inos Papir Servis in Belgrade. The Belišće Group portfolio is completed by a mechanical and chemical wood processing plant, an electrical equipment and parts plant, and maintenance, power plant and transport departments.



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