

## Narrowing the gap in Lucca

Italian producer Cartiere Modesto Cardella is first to install a new gap former for packaging grades from ANDRITZ. The investment positions Cardella well as the market demand for lightweight corrugating medium increases.



*"When market demand starts to increase for under 100 g/m<sup>2</sup> basis weight medium, we'll be ready to cater to it."*

Modesto Cardella, Managing Director and Member of the Board

From left: Mario Bernasconi of ANDRITZ, Mario Cardella, Chairman of Cartiere Modesto Cardella and his son Modesto, Managing Director.



A brand new gap former has been fitted on PM4 at Cartiere Modesto Cardella's San Pietro a Vico (Lucca) mill in Italy. The technology from ANDRITZ promises to upgrade the performance of the entire line. "With this new installation, we now have more than one iron in the fire," says Modesto Cardella, a member of the company's executive board. "When market demand starts to increase for under 100 g/m<sup>2</sup> basis weight medium, we'll be ready to cater to it."

One part of this story began in March, 2008 when Cardella commissioned ANDRITZ PULP & PAPER to supply a new two-layer PrimeFlow TW headbox with PrimeProfiler F consistency profiling and a PrimeForm TW gap former. ANDRITZ also modified the pickup suction roll framework and did the basic engineering for the approach flow and whitewater systems.

But, according to Mario Cardella, Chairman of the mill's board and Modesto's father,

the story actually began in 1977, the year PM4 was built. "In the mid-1990's, PM4 was no longer able to deliver the formation and profile the market required for top-quality paper," Mario says. "So, in 1995 we renovated the machine, which also set the stage for future investments." Today, PM4 has a design speed of 1,200 m/min and a wire width of 3.18 m. Containerboard with a 90–170 g/m<sup>2</sup> basis weight range is produced from 100% recycled fiber.

"It is not our style," says Modesto, "to routinely make changes to our equipment, but rather to focus on projects that will last for years to come. That is why we made the investment in the PrimeForm TW gap former."

### A question of lightness

The strategy behind the investment is to enable the Lucca papermaker to meet the demands of a newer European market trend – basis weights below 100 g/m<sup>2</sup>. In a

gap former, the jet generated by the headbox is directed into the narrowing gap between two forming fabrics. Water is removed in both directions, which tends to produce a sheet in which the fines content and appearance of the two sides is very similar. Because the sheet becomes "set" very rapidly within a gap former, the uniformity of the jet from the headbox is critical.

"The installation of a two-layer headbox and the gap former is a big step that permits PM4 to manufacture paper in a style unusual for us," Modesto says. "On our smaller PM3 machine, we will continue to produce a product consistent with the standard requirements of the Italian market. So with the two machines, we are ready to supply virtually any type of demand."

### Careful consideration

Once the strategy and goals were set internally, Cardella needed to decide which machine manufacturer to work with. The

choice was ANDRITZ. "For us it was an opportunity, because it permitted us to establish a special relationship with the supplier," Modesto explains. "We knew that it would be ANDRITZ's first installation on packaging grades. We knew this project would get their focused attention and utmost commitment. Of course, we already knew of their expertise and product quality, and these things also swayed our decision. But it was not merely a technical choice."

Since this was a new product, ANDRITZ performed comprehensive pilot trials to prove the roll-shoe forming technology – the PrimeForm TW.

### Made to measure

This project was developed by Cardella and ANDRITZ together. "Their technology adapted perfectly to our requirements," Modesto says. "The machine had to fit into an existing space that was rather low and tight. There were also constraints due to the controls that had to be taken into account. The gap former was therefore tailor-made on the basis of these requirements."

"The positive aspect is that we now have access points on the line that we did not have before," Modesto continues. "The



*"A positive environment was created from the very start."*

Christoph Draxler, Start-up Engineer from ANDRITZ

quality and the design of the equipment are world-class, especially as far as the auxiliaries and the drive side arrangement are concerned."

For example, the main water runoff channels are leaning against the cantilever and therefore move together with the machine. This solution came from ANDRITZ's gap former for tissue machines, but has shown itself to be extremely useful for the Lucca paper mill as well. "It was not easy to overcome all the design and space challenges, but with the team of well-trained engineers, there were no real difficulties."

### Start up and go!

According to Modesto, results were forthcoming from the first day. "We were able to produce paper right away from the start-up on January 28. We had some initial problems with the press settings, but a few hours later, we were able to start production. From then on, everything went smoothly."

"For our part," says Christoph Draxler, the ANDRITZ Start-up Engineer, "we can say that a positive environment was established, from the start, from the management down to the machine operators. It was a little surprising how quickly the machine achieved stable running condition."

The gap former parameters are currently being optimized on PM4, but already the machine is producing a 100 g/m<sup>2</sup> sheet at speeds above 800 m/min and is being ramped up toward its maximum design speed of 1,200 m/min. "Very definitely over and above our expectations," Modesto reports. "We are very satisfied."

"Little by little, we are discovering the characteristics of the machine," says Andrea Moretti, Manager of the San Pietro a Vico mill. "One month after start-up we are performing paper tests in cooperation with ANDRITZ. We are intent on discovering all the nuances that the gap former is contributing to our production process. Thus far, we have seen that when we are running under stable operating conditions, we achieve the very best mechanical paper properties



*"We achieve the very best mechanical paper properties and excellent uniformity."*

Andrea Moretti, Mill Manager



▲ The PrimeForm TW is smoothing production because PM4 is now less affected by variations in the furnish or by operator actions.

and excellent uniformity. Before the gap former, there were considerable variations. Still, it is a bit too early to talk about performance levels."

#### More to explore

The *PrimeForm TW* is smoothing production of the entire line because there are less parameters to be kept under critical control. Mario Cardella explains: "The whole line is more stable in that it is less sensitive to fluctuations of whatever enters the machine. With the web being built by centrifugal force – and centripetal force in the first section – the machine is less affected by variations in the furnish or by operator actions. Even though we have not yet assessed all the improvements the gap former will enable us to achieve, we know, for example, that there has been no increase in power consumption. This development is very promising, but we will only be able to talk about real energy savings once we have maximized the use of all the various instruments."

#### Exchanging ideas

The Lucca installation has turned out to be a great training experience for the supplier as well. "There has been an exchange of information helpful to both parties," Modesto says. "We were very demanding, often forwarding detailed requests, and ANDRITZ backed us up all the way. They did not just

supply the machinery. They were anxious to understand our requirements and offer ways to improve the installation. For our part, we contributed all the details relating to paper management, production, and maintenance, and their engineers translated all this information into a useful product."

The human aspect of such installations can never be taken for granted. "Working with their engineers was stimulating," Modesto says. "We very much appreciated the determination which distinguishes the Austrian character, because results proved the validity of their approach. Over all, we managed to blend together our Mediterranean temperament and their Central European character."

"Working with ANDRITZ was a positive experience from all points of view," says Moretti. "We were also pleased with the technical training received by our personnel."

What would Cartiere Modesto Cardella do differently if it could turn the clock back? "Nothing," concludes Modesto Cardella. "We are more than satisfied with our experience and are very pleased to have had the chance to work on this project together."

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## PAPER FOR CORRUGATING SINCE 1946

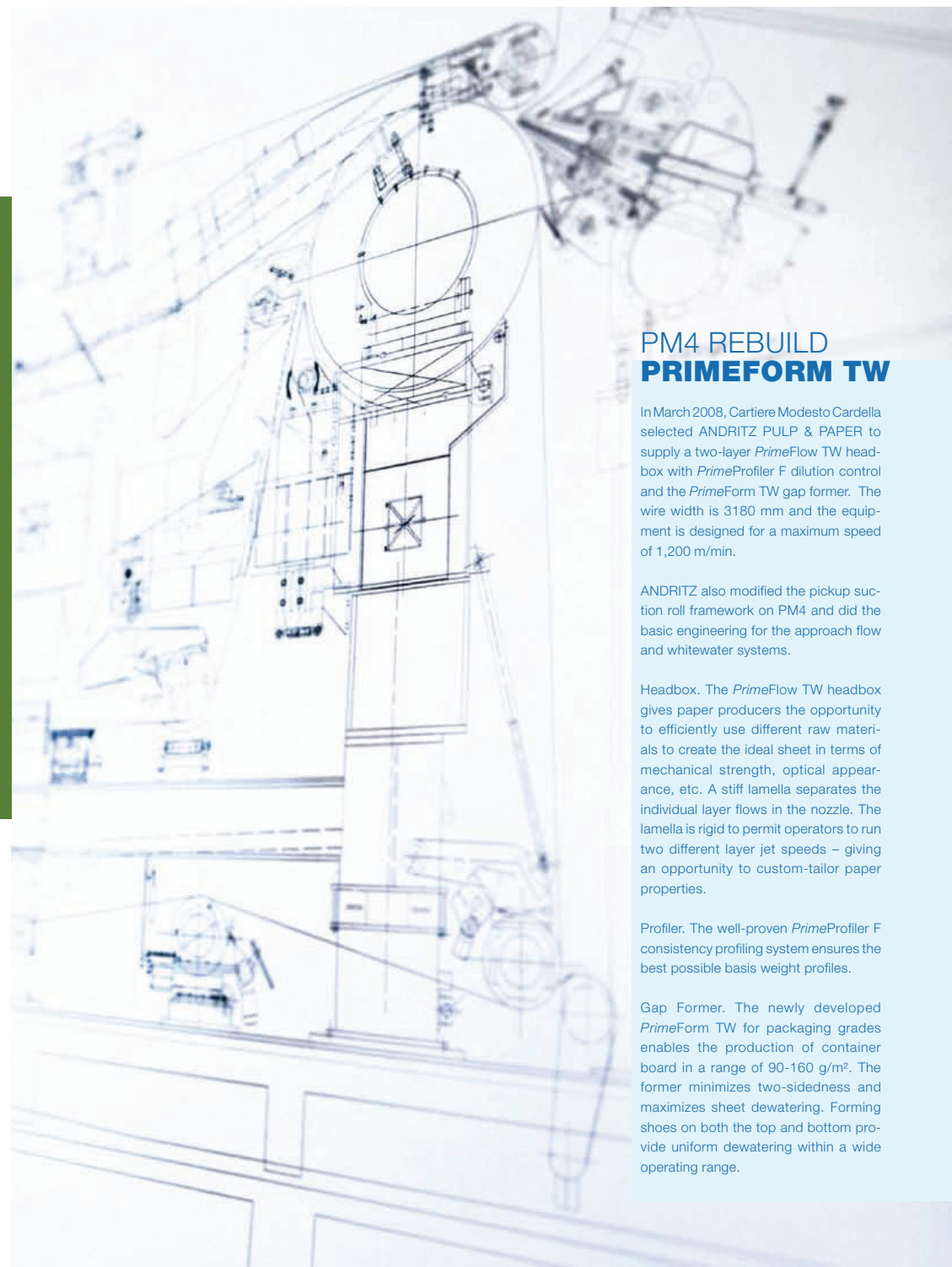
Cartiere Modesto Cardella was the brainchild of four Italian brothers – Francesco, Modesto, Pasquale, and Giovan Bernardo. In 1946, they opened the mill at San Pietro a Vico (Lucca). In 1953, Modesto became the sole owner and began implementing an investment strategy which continues to distinguish the firm.

In 1966, after Modesto died, his son Mario took over, carrying on his father's work and continuing to reinvest profits. In 1977, the new PM4 was installed. In 1995, both production lines were revamped.

Today, Mario is Chairman of the Board and has been joined by his children Modesto, Rosaria, and Cristiana, all of whom are board members.

The mill produces paper for corrugating machines, with a total potential capacity of 170,000 t/a. PM3 has a working width from 2.5 to 2.55 m and the width of the newer PM4 is 2.65 to 2.8 m. About 80% of sales stays in Italy, while the remainder goes primarily to the Mediterranean Basin.

Cartiere Modesto Cardella's strategy is to meet the demands of a European market trend toward basis weights below 100 g/m<sup>2</sup> on PM4 while still continuing to meet the Italian market requirements on PM3. The new gap former from ANDRITZ helps support this strategy. Furnish is 100% recycle. ▼



## PM4 REBUILD PRIMEFORM TW

In March 2008, Cartiere Modesto Cardella selected ANDRITZ PULP & PAPER to supply a two-layer *PrimeFlow TW* headbox with *PrimeProfiler F* dilution control and the *PrimeForm TW* gap former. The wire width is 3180 mm and the equipment is designed for a maximum speed of 1,200 m/min.

ANDRITZ also modified the pickup suction roll framework on PM4 and did the basic engineering for the approach flow and whitewater systems.

**Headbox.** The *PrimeFlow TW* headbox gives paper producers the opportunity to efficiently use different raw materials to create the ideal sheet in terms of mechanical strength, optical appearance, etc. A stiff lamella separates the individual layer flows in the nozzle. The lamella is rigid to permit operators to run two different layer jet speeds – giving an opportunity to custom-tailor paper properties.

**Profiler.** The well-proven *PrimeProfiler F* consistency profiling system ensures the best possible basis weight profiles.

**Gap Former.** The newly developed *PrimeForm TW* for packaging grades enables the production of container board in a range of 90-160 g/m<sup>2</sup>. The former minimizes two-sidedness and maximizes sheet dewatering. Forming shoes on both the top and bottom provide uniform dewatering within a wide operating range.