A shoe made-to-measure

ANDRITZ retrofitted the PM6 paper machine at VPK's Oudegem mill in Belgium with a new press section, featuring the *Prime*Press Trix. The heart of the new press section is a shoe press that accelerates dewatering, considerably lowering the cost of production. A speed increase and a more optimized trim width were also part of the benefits package.

These were exciting times for the production team at VPK Packaging Group's board mill in the Belgian village of Oudegem.

PM6 had been giving the mill problems: web breaks and faults due to the press section was causing downtime and waste. After months of preparation and precise planning with the project team from ANDRITZ Küsters, the mill was finally ready for a much-needed retrofit of the machine.

The planning ensured that the machine downtime was kept to the absolute minimum. The *Prime*Press Trix, with a shoe press acting as the third nip, would replace the existing press section. It was going to be a tight fit, as the available space on the machine was very confined, so precision was most definitely required.

Everything ran like clockwork. Despite the confined space, PM6 was back up and running again in only four weeks.

Higher speed, lower costs

This began a new era for VPK Oudegem, according to Rutger Dierickx, VPK's Project Manager, and Alexis Zenner, Project Engineer. Not only were they pleased with the project execution itself, but initial results are most encouraging.

Downtime coming from web faults or breaks attributable to the new press section was reduced to zero. The machine's speed increased from 600 to 650 m/min. Even better, the web width increased to 4.8 meters – a critical 50 mm increase that now makes it possible to produce the most important paper sizes without any trim waste.

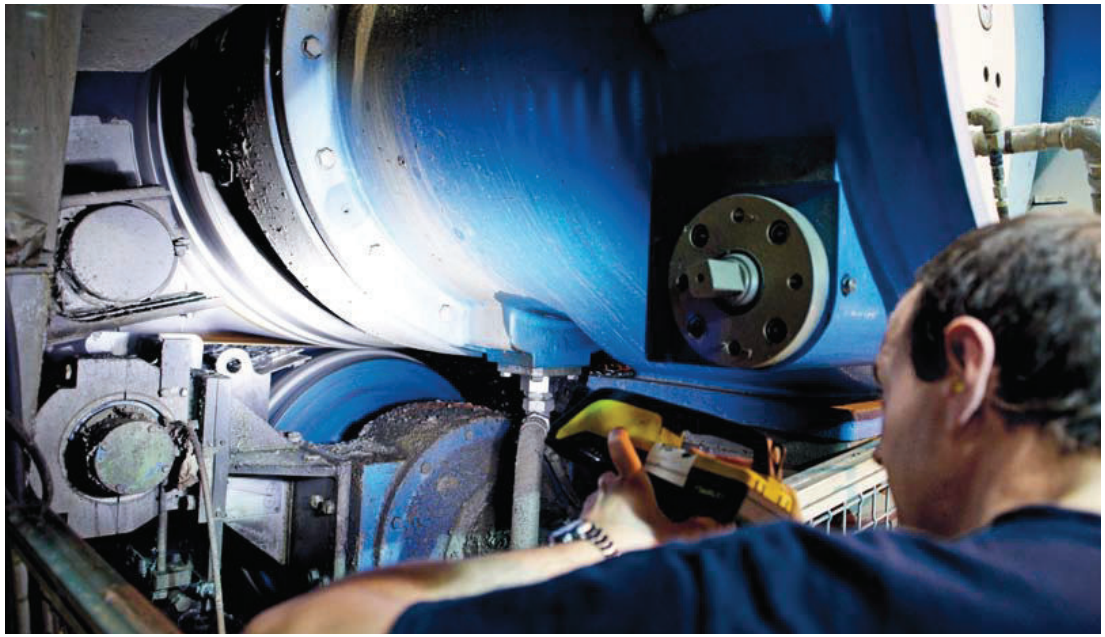
PM6, installed in 1976 and rebuilt several times, produces 150,000 t/a of corrugating medium and testliner with basis weights from 105 to 215 gsm. The machine's output is mostly targeted for companies within VPK Packaging Group, one of the leading packaging board producers in Western Europe. But there are also deliveries to external customers where VPK can cater to their specific requirements.

PRIME REBUILD

Furnish is 100% recovered fiber (packaging materials and mixed office waste). Some of the fiber comes from other processes inside the mill and the rest is purchased.

Frequent downtime

As there were frequent stops in recent years due to the age of the old press section, VPK Oudegem knew that a rebuild was going to be the solution. They commissioned ANDRITZ Küsters to design and build a new press section that could be integrated into the existing machine. Additional requirements were to overhaul and reuse parts of the old unit, as well as increase the machine's speed.



Alexis Zenner of VPK inspects the first nip between the press roll and suction press roll of the *Prime*Press Trix. ▼

"ANDRITZ was quick to respond to our needs and even our special requests."
Rutger Dierickx, Project Manager, VPK Oudegem

"They were very thorough in explaining the design and installation to us."
Alexis Zenner, Project Engineer, VPK Oudegem

At ANDRITZ Küsters' facility in Krefeld, Germany, the very first *Prime*Press Trix was built for this project. The unit has four press rolls arranged to form three press nips for dewatering. In addition, pressing felts run through the press nips with the paper web and absorb water. The third press nip is formed by a shoe press. After the third press nip, the paper web continues along the smooth surface of the central roll and is transferred to the dryers. The web is guided through the press section with no free draw, eliminating the risk of breaks. Not only are breaks eliminated, but much more water can be extracted without applying greater pressure on the sheet, so bulk is preserved.

As a result, the dryness of the sheet was increased from 50 to 52.5% leaving the press section. This allowed an increase in machine speed as well as energy savings because the subsequent drying process has now been shortened substantially.

Accepting the challenge

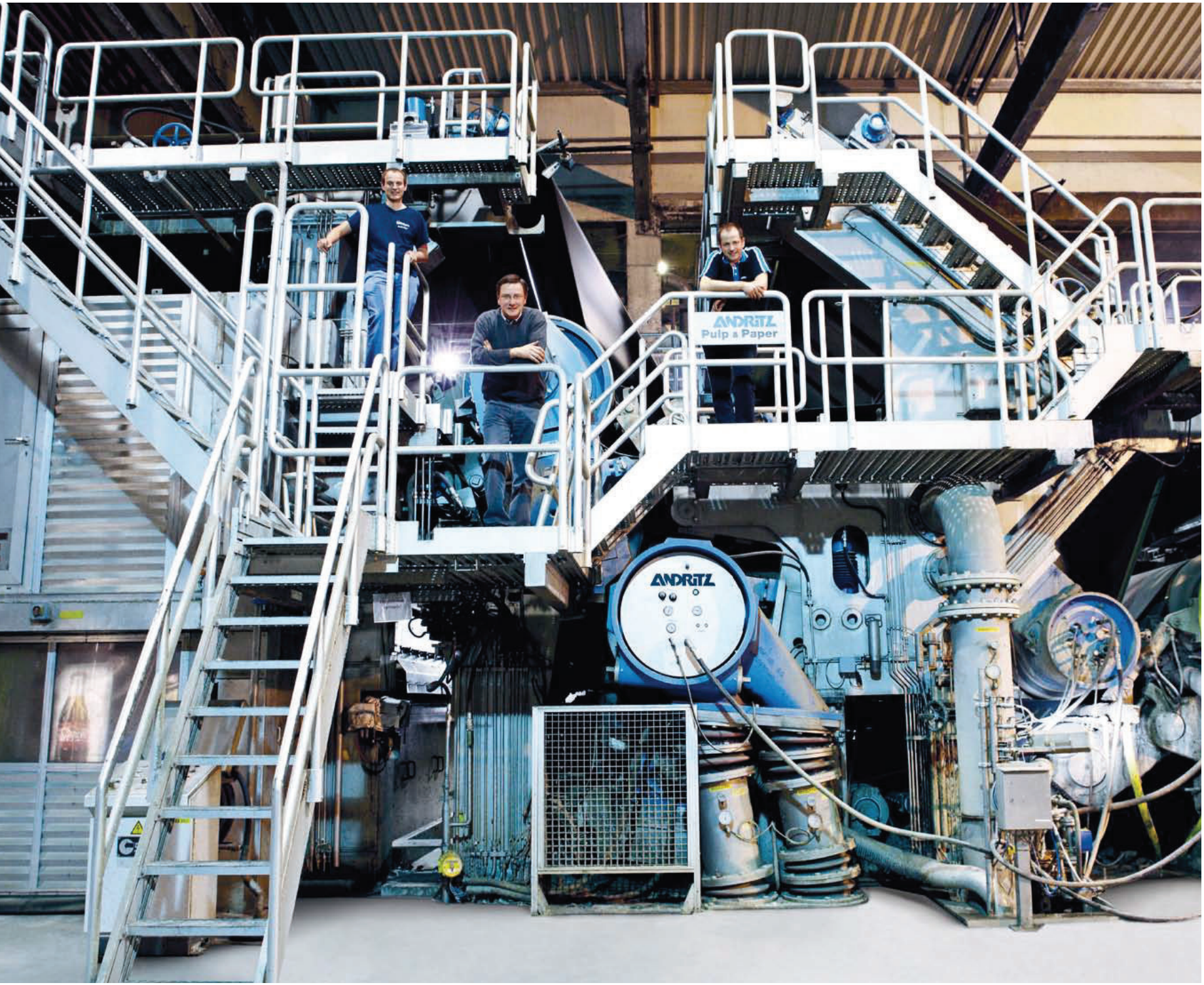
Like all projects, the press section rebuild for Oudegem had its unique challenges for both partners. VPK had to make significant changes to the basic structure of the machine room, even the foundation.

ANDRITZ faced the challenge of how to precisely measure the old press section while it was in operation. Patiently waiting for brief breaks in production, the engineers made the measurements and calculations so that the new press could be inserted with a perfect fit. In addition, the bearing assembly of the conventional roll in the combi-press and its pick-up press roll had to be dismounted, shipped to ANDRITZ's workshop in Graz, Austria, and rebuilt before being returned to Oudegem.

"Timing and scheduling were the biggest challenge," says Ralf Doerkes, the ANDRITZ Design Engineer in charge of the project. "Also, the installation of the *Prime* Press Trix was a very tight fit."

Dierickx and Zenner describe the preparation and implementation as one of the most exciting in their career. "The excellent cooperation with ANDRITZ was a great help to us," Dierickx says. "They were quick to respond to our needs and even our special requests."

"And they were very thorough in explaining the design and installation so that we knew it down to the last detail," Zenner adds.



*PRIME*PRESS TRIX

The *Prime*Press Trix has four press rolls arranged to form three press nips for dewatering. Dewatering is enhanced by pressing felts that run through the press nips with the paper and absorb the water. The water is removed from the pressing felts by suction boxes.

The third press nip is formed by a shoe press, the heart of the *Prime*Press Trix. The shoe press consists of a pressing shoe and a revolving pressing belt. The shoe is pressed hydraulically against the central roll and forms an approximately 300 mm long press nip that dewaters the paper web while preserving its bulk. After the third press nip, the paper web continues along the smooth surface of the central roll and is transferred to the dryers.

The advantage of this arrangement is that the paper web is guided through the press section on a firm surface (felts or roll surfaces) with no free draw, eliminating the risk of web breaks. The only free draw occurs at the transition between press section and dryers. The length of this draw is minimal.

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◂ Alexis Zenner, Project Engineer (left), Rutger Dierickx, Project Manager at VPK (middle), and Ralf Doerkes from ANDRITZ Küsters.