"THIS IS RARE"

In Spectrum, we often have the privilege of reporting on new technological breakthroughs. But in this article about upgrading BM1 at PJSC Kyiv Cardboard and Paper Mill in Ukraine, that is not so much the focus. The new shoe press and calender from ANDRITZ have brought gains, true, but what was arguably most interesting in this case was...

The upgraded press section on BM1 has a new geometry and increased capacity, with a new ANDRITZ PrimePress X shoe press in the original second position.

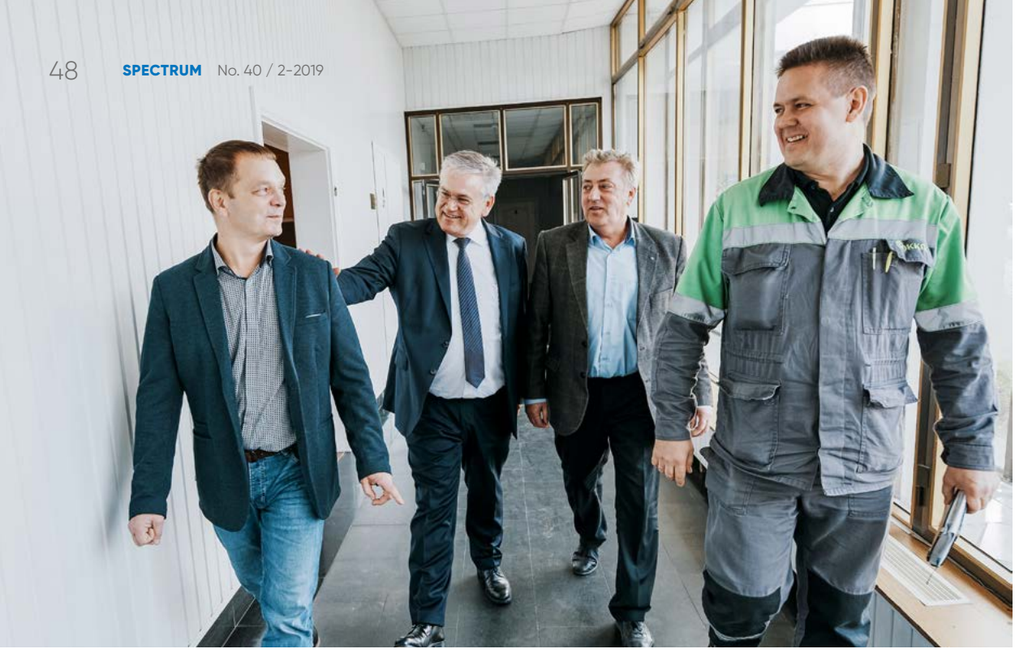
"We didn't need guarantee runs."

So says Aleksandr Yakovina, Quality Director at the mill, where he started working on BM1 three decades ago.

In this case, we are talking about a 37-year-old machine, one of four identical board lines built during the Soviet era - two in Russia, and two in Ukraine. With a working width of 4.2 m, BM1 produces white-top liner and white-lined chipboard (GD2 & GD3) in a basis-weight range of 125–420 gsm, combining with the mill's BM2 to turn out up to 240,000 tonnes per year of packaging paper and board. The mill sells these in almost 30 countries in Central and Eastern Europe, Asia and Latin America, with customers including Unilever, Nestle, and McDonald's.

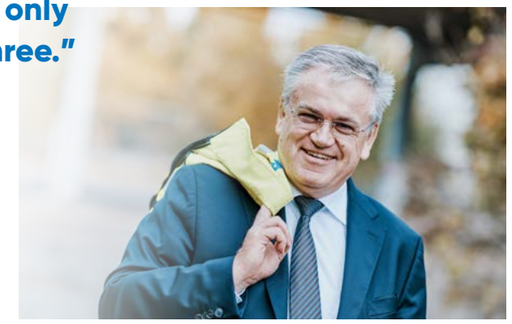
PROBLEMS SOLVED

Yakovina explains, "We are trying to continue modernizing step by step to reflect market requirements, e.g., BM1 is starting to produce lots of products in low grammages (150-200 gsm) for flexographic printing." In this respect, the upgrade to the press section in early 2019, as Yakovina says, "has improved all of the low grammages, as well as enabling us to make lighter-weight grades in the 150-180 gsm range."



"Normally, it takes six or seven months to acceptance. Here it only took three."

GEORG-MICHAEL SAUTTER
Senior Sales Director
Paper & Board, ANDRITZ



(Left to right) Aleksandr Kravchenko, Georg-Michael Sautter, Aleksandr Yakovina, and Vitaly Solovyov

What is perhaps most remarkable about Yakovina's claim that guarantee runs were unnecessary is that this was not an easy project.

According to Aleksandr Kravchenko, the mill's Chief Technical Officer, "It was a tough start-up." The mill planned a 21-day shutdown for the project (from last paper to first paper), with three of those days set aside for the start-up. As Yakovina explains, "There are problems to be solved in every start-up" and, in this case, that meant "we eliminated some threading issues in the press section and into the dryers."

Georg-Michael Sautter, Senior Director Sales, Paper & Board, ANDRITZ, says, "What I remember most was that during the installation we had meetings every morning and the team leader came to me calmly, gave me a notebook and pen, and said 'Write that down [Sautter's recommendations] and I will communicate it to our specialists.' Every morning, we solved some issues."

Indeed, Yakovina confirms, "We solved all of the problems and started up on schedule." And, the machine achieved the contracted values for dryness, bulk, and smoothness right away.

YOU'VE GOT TO HAVE FAITH

Georg-Michael points out, "Normally, it takes six or seven months to acceptance." In this case, the more than 30-year industry expert explains, "It only took three." All of which brings us back to Yakovina saying there was no need for guarantee runs. He explains why, "We saw that all the contract values were being achieved in normal operation, so we didn't need to do a warranty test run. This is rare." Vitaly Solovyov, Chief of Cardboard Production at Kyiv, adds, "This depends on the supplier's experience."

And the Kyiv team had seen plenty of evidence of ANDRITZ's experience. Before going ahead with this upgrade, they visited one of the identical BMs (at Naberezhnye Chelny in Russia - twice), as well as Reno di Medici in Arnsberg, Germany and the Iggesund mill in Workington, UK (see Spectrum 2/2016).

IT'S COMPLICATED

That led to the green light for this several million Euro project, and while there may not have been any world firsts involved, that is not to say that there were no points of technological interest. Sautter notes, "The press section wasn't simple. Look at the space and the height. Plus, we used bigger rolls and new sheet-feeding technology - the project was a real challenge. The tough part is that you're going into an existing plant – you have to take account of all the parts that are already there. It's much harder than building it new."

This part of the upgrade involved ANDRITZ moving the existing 1982 press from the second to a newly-created third position, while installing a new ANDRITZ *Prime*Press X shoe press in the original second position, between the two original presses. The special shoe design delivers gentle dewatering and preserves bulk, while reducing steam consumption and cleaning time. Besides that, "The shoe press has some unique features," explains Sautter, which include "a patented solution that doesn't cause belt wear, so the belt doesn't need to be moved to prevent wear." But the key point of this upgrade was reduced energy consumption, and steam use in BM1's rebuilt press section is now down by 20%. The upgrade was future-orientated, as Yakovina points out, "This is the first step in a whole modernization concept. The aim was to reduce energy consumption and we succeeded. Now, if we raise the capacity of the machine in the future, we will need to use less energy."

On that subject, the press section upgrade has increased the potential capacity of that part of the machine to 800 m/min, and the next bottleneck is the 7-stage mould cylinder former section, which is currently maxed out at 450 m/min. The

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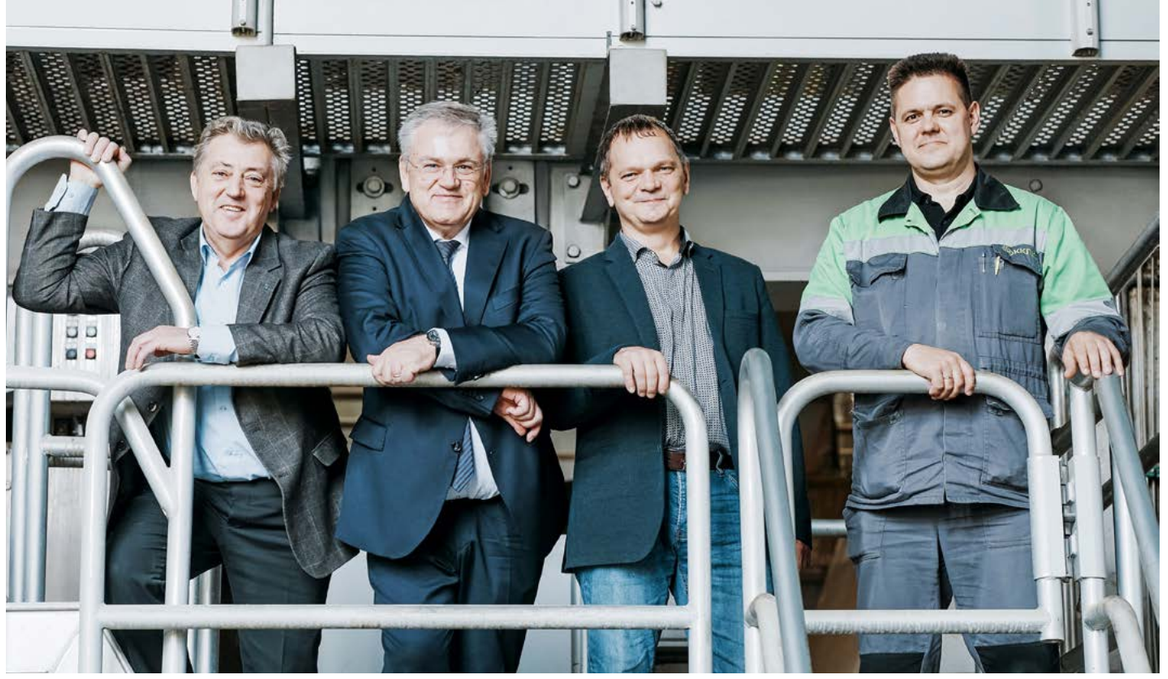
BM1 and BM2 together produce up to 240,000 tonnes of packaging paper and board per year.



The new *Prime*Cal Hard hard-nip calender from ANDRITZ achieved the agreed smoothness parameters soon after start-up.

short-term aim is to install an 8th vacuum former, so the machine will be able to run less mass per former, and therefore raise the running speed. This is expected in February 2020. The mill then plans to rebuild the whole wire section into a four-drinier section in a later investment.

In contrast to all the planned and completed changes in the wet end, the Soviet-designed dryer section will not be re-designed. It uses 95 cast-steel cylinders arranged in 8 groups, with 93 drying and 2 cooling. Although these have all been running since the mill's start-up in 1982, there are no plans to replace these – as Sautter explains, "Steel cylinders can last for over a century." However, the steam and condensate system will likely be upgraded at some stage in the future.

CALENDER DATE

In the calender section, ANDRITZ installed a new *Prime*Cal Hard hard-nip calender to provide a consistent CD caliper profile, bulk control, and a smoother surface finish. Yakovina explains that the resulting consistent board geometry is key for flexographic printing. And the 200°C calender also had a target of delivering roughness in a range of 2.5-3 pps (Parker Print Surf), especially on low grammages. Sautter says, "There was nothing unusual in the calender, but we delivered it, installed it, it ran and it achieved its smoothness targets – it worked."

Also part of the upgrade by ANDRITZ was an extension of the automation system on BM1. Although Sautter admits this is a normal part of any major upgrade, Yakovina adds that in this case, it "helped us to achieve stable quality."

HISTORY LESSONS

Besides the techno-industrial aspects of this project, both ANDRITZ and the Kyiv mill's team seem very focused on people.

Yakovina says, "The most interesting thing for me was when ANDRITZ told us its history during the negotiations. I like very much that ANDRITZ honours its history. For example, if you go to different departments, ANDRITZ seems to keep hold of all of its knowledge and pass it on to new people from generation to generation." Which is key, as Yakovina continues, "An important factor is to have the appropriate technical personnel to solve technical problems. I have worked on many modernizations and, frankly, there is no company or project that doesn't have some sort of issue. The question is, how do they communicate and help us solve it? If problems arise, ANDRITZ doesn't leave us alone; they give us advice. Every time there is good communication. In the end, everyone was satisfied."

Solovyov adds, "All of the preparatory work and project realization was good, with a high-level quality of work and experienced people. If there were any questions, they got solved very fast. It's not difficult when everyone is experienced."

CONTACT
Georg-Michael Sautter
georg-michael.sautter@andritz.com

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