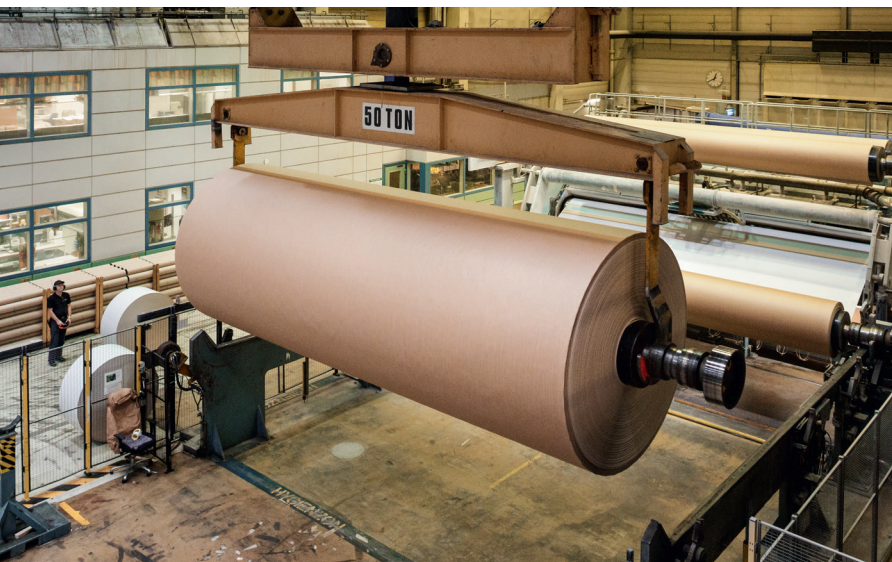


PULP AND PAPER | BILLERUDKORSNÄS | GÄVLE | SWEDEN

# Integrated winder control increases productivity and operator safety

## Rebuild of Board Reel Machine RM5



— RM5 winder machine, at BillerudKorsnäs, that has been upgraded with a new control system and drives from ABB in the last few years.

When signals emerged that certain spare parts for the control system for winder RM5 in Gävle would no longer be available, it was time for a rethink. The result was that in 2010, ABB was chosen to supply new systems for the drive system application and machine control – all based on the ABB Ability™ System 800xA.

ABB was by no means a random choice. The relationship between the Gävle mill and ABB goes back a long way when ABB among others supplied electrification to the first paper machine when the mill went into production in 1954.

### 2010 – Replacement of the machine control system and drive system application

“When the agreement on the scope of supply from ABB was finalized, we began by eliminating all unnecessary functions from the old system that were never used. Our systems engineers and ABB:s Pulp and Paper department in Västerås then developed an interface that was based on the specific needs of the winder operators instead. This meant, for instance, that signals and alarms were now brought together in one single place, which was all visualized with clear images,” says Lars Eriksson, Project Manager at BillerudKorsnäs.

The BillerudKorsnäs production facility in Gävle is a pulp and board mill with two paperboard machines, three continuous digesters and two recovery boilers. They produce liquid packaging board for around 200 million individual portion packs a day.

Integrating all the functions into the 800xA-system for all control and monitoring of the winder has also made troubleshooting far simpler.

“When something goes wrong, hundreds of sensors trigger an alarm. As we now have everything in the same system, it is easy to identify where the problem has arisen, you just have to check in the log which sensor triggered the alarm first,” says Lars Eriksson.

Installation of the machine’s new control system has also meant that operator safety could be upgraded and new functions integrated into the 800xA-system. Following a careful risk assessment, RM5 was fitted with new perimeter security, new doors and light beams. This means, for example, that the machine slows to a safe crawl speed of 10 meters per minute or stops altogether before a person can enter areas classified as safety zones.

Another advantage is that the order planning system now controls the cutter positioning fully automatically and ensures that the 50-ton reels are cut to the dimensions ordered by customers.



Lars Eriksson, Project Manager at BillerudKorsnäs.



Axel Björling, RM5 operator at BillerudKorsnäs, thinks that the new ABB system makes a big difference, and much easier to work with than their old system.

“All this combined means that we have been able to increase availability and efficiency. When we can run continuously and safely, this also manifests itself in increased productivity.”

#### **2016 – replacement of machine and drive equipment**

All drives for the winder, five in total, were replaced in 2016. As when the control system was replaced in 2010, the work was done in one week during the annual maintenance stop. BillerudKorsnäs now switched the power supply to the reel machine from DC to AC.

Replacing the control system also offered big advantages in terms of winder automation. All information is now available in one single user-friendly and clear system that also includes safety functions. Replacing the drives added further benefits.

“One unexpected effect was that the machine is now quieter and with far less vibrations from the motors. Something that is much appreciated by our machine operators. What’s more, the new ABB motors deliver greater energy efficiency, but we had already expected that,” Eriksson says.

At BillerudKorsnäs in Gävle they also view the long-standing, common history with ABB as a clear advantage when the mill needs upgrading.

“ABB understands our business. We don’t need to explain that much. ABB sees what we need almost before we have opened our mouths,” a laughing Eriksson says. “I appreciate the fact that we are on the same wavelength and always have been.”

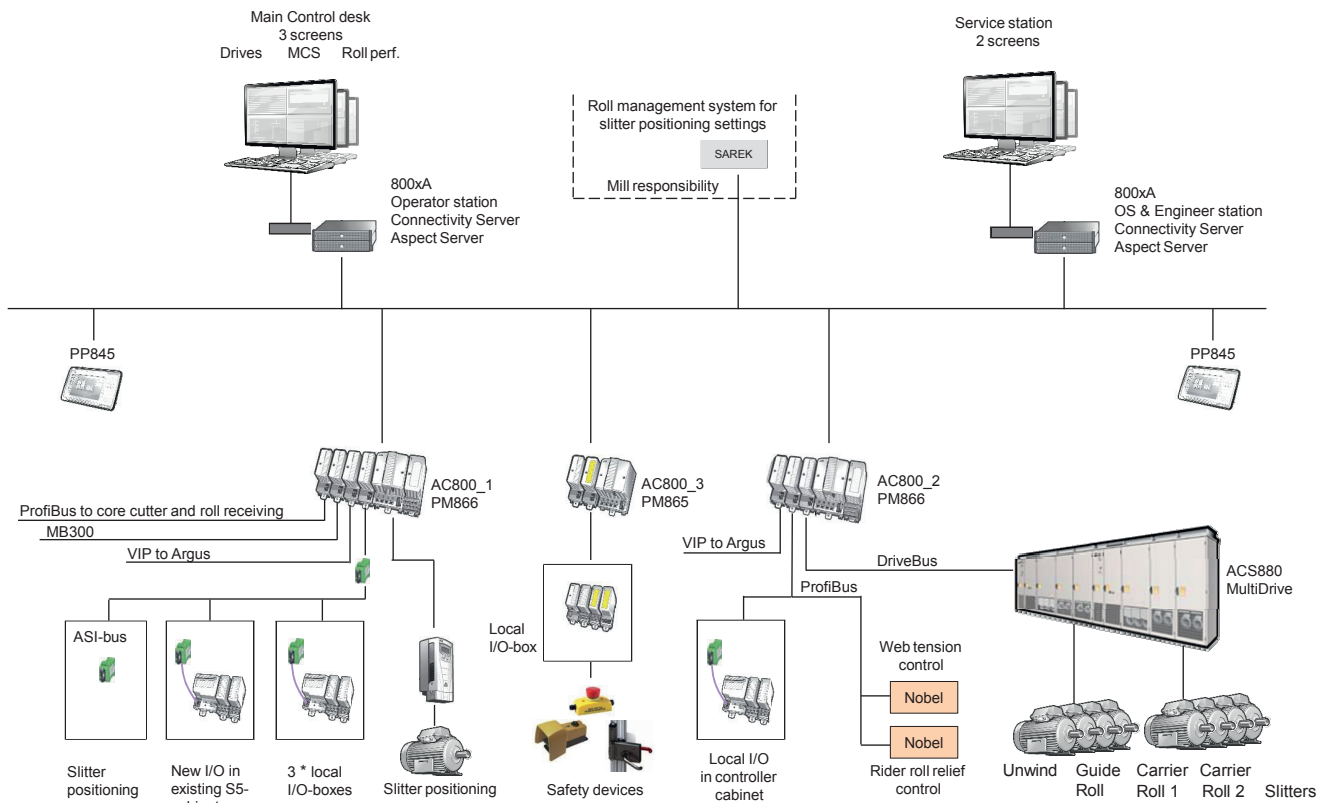
On a final note, he highlights another advantage – the ABB service department in Storvik (Sweden).

“RM5 is a business critical machine for us that has to perform with the highest possible availability, 24/7, 365 days a year. Even just a short stop of a few hours can cost hundreds of thousands of kronor in lost production. The new control systems and drives have enabled us to significantly increase availability and having the ABB service department in nearby Storvik gives us a sense of security if anything unforeseen were still to occur,” adds Lars Eriksson.

#### **About RM5**

- **Type of winder:** Double drum
- **Manufacturer:** Valmet, 1985
- **Capacity board line 5:** approx. 370,000 tons p.a.

## Machine control – system configuration at Korsnäs Gävle Wi5



### Before rebuilding

- **Operator interface:** Multiple
- **Control System:** Separate systems for sectional drives, machine control, automation, slitter positioning and safety.
- **Slitter positioning:** Automatic
- **Drive System:** Tyrak L DC Convertor
- **Motors:** ABB DC motors LAN and LAB

### After rebuilding

- **Operator interface:** Common, ABB Ability™ System 800xA
- **Control system:** 800xA, common system for sectional drives, machine control, automation, cutter setting and safety.
- **Cutter setting:** Automatic, linked to order planning system
- **Drive system:** ACS880
- **Motors:** AC process motors M3BP and HXR

