

Industrial^{IT} for Papermaking ABB brings increased quality control to Hallsta Pappersbruk with consistent color tone.

To convert production to high quality book paper on the PM12 paper machine, a number of improvements were required in its QCS. “Upgrades were necessary to avoid having an outdated system and to measure and control color tone in a more effective manner,” says Hannele Arvonen, site manager at Hallsta Pappersbruk.

Swedish paper mill Hallsta Pappersbruk, part of the Holmen Group’s Holmen Paper division has produced paper at Hallstavik, Sweden, since 1915. The mill’s production was chiefly newsprint until 1990, when it shifted to magazine paper. Over the years, Hallsta Pappersbruk has been modernized through recurring major investments.

“At the beginning of 2008, we started a project to create a completely new structure for the mill,” says Hallsta Pappersbruk site manager Hannele Arvonen. “Production on PM12 was converted to book paper.”

Hallsta Pappersbruk needed to keep up with the increasingly stringent demands from its book paper customers for color and paper consistency. The mill asked ABB to upgrade their existing ABB Quality Control System (QCS) so they could improve color measurement and produce the high quality products their customers needed.



The new project encompassed the three production lines and touched all parts of the mill. The upgrade focused on increasing quality both in the mill’s processes and paper.

ABB installed a QCS on the mill’s PM12 that enables the control and regulation of quality parameters such as surface weight, moisture content, thickness, ash content and color tone. The new system provides the product quality that the mill’s customers needed.

“The QCS is important for being able to maintain high and consistent quality, and it also helps us to conserve raw materials. Printing houses that buy book paper always have very stringent demands. The paper must have the exact same thickness and the exact same tone; the books would otherwise be uneven and with ribboned edges.” says Arvonen.

The new ABB QCS includes a proving frame with sensors, along with software for regulation of actuators and communication with the mill's production system. ABB's newest QCS Network Platform can handle up to eight sensors that can be connected to all ABB QCSs produced from 1996 to 2009, and that provides open communication with other systems. Assuring high quality

The Hallsta Pappersbruk mill has three paper machines in three production lines with a combined capacity of 700,000 tons. The mill produces wood-containing printing paper for books, advertisements and supplements.

The mill has used ABB's QCSs to achieve increased quality since the 1980s. The new QCS consists of a proving frame placed at the end of the paper machine's paper conveyor that is equipped with sensors to continually measure quality parameters, such as the paper's surface weight, moisture content and ash content. The measurement values from the sensors are used to automatically or manually regulate the process to achieve exact quality standards.

The mill added a QCS to their PM12 in 1988 and the system had been upgraded once previously. To produce the high quality paper they needed, mill executives knew they had to make several improvements to the QCS.

"Upgrades were necessary to avoid having an outdated system and to measure and control color tone in a more effective manner," says Arvonon.

"PM12's proving frame now has five sensors that measure surface weight, moisture content, thickness, ash content and color tone. Ash content and color tone are new measurement values. They aren't needed for newspaper print, but are crucial for book paper," says ABB sales representative Håkan Österh. Controlling color tone

During the upgrade in the autumn of 2008, ABB developed a more advanced tone regulation and color tone calibration function – based on an innovative suggestion from Hallsta Pappersbruk – that included an additional color tone sensor at the machine's wet end.

"We wanted to be able to regulate the addition of the color additives that provide the desired tone for the book paper more precisely," says Tore Sjöberg, sub-project manager at the Hallsta Pappersbruk mill. The additional color sensor is situated in the paper machine's flow box and monitors the tone of the wet pulp. The value provides information at an early stage regarding the tone the paper will have, and it is calibrated with the tone measurement value from the proving frame at the end of the paper machine.

Sjöberg says that in the event of a stoppage, the mill can regulate the tone of the pulp much better, which reduces the amount of rejected paper and conserves both raw materials and energy. "Having to run incorrectly toned pulp through the entire paper machine before a fault can be corrected is unnecessarily wasteful," Sjöberg observes.

In the control room next to the PM 12, the operator reads the color tone value from the QCS and checks that quality is maintained. Each minute, 16,000 liters of pulp arrive at PM12; each minute, 4 milliliters of red additive and 13 milliliters of blue additive drop into the pulp before it goes out on the twin wire. At the other end of PM12, 1,250 meters of light beige paper are rolled each minute, ready for delivery to printing houses.

"Being able to upgrade the QCS instead of buying a new system was cost effective and we now have a long-lasting and ultramodern system that provides us with better conditions for maintaining consistent and high quality," says Sjöberg.

For more information, please contact:

ABB AB
Pulp & Paper
SE-721 59 Västerås
Sweden
Phone: +46 (0) 21 32 50 00
www.abb.se/massa&papper

The Industrial^{IT} wordmark and all above-mentioned product names in the form XXXXX^{IT} are registered or pending trademarks of ABB.
© 2009 by ABB Inc.