

Shotton Paper improves quality data and paper traceability with new system from ABB

Shotton Paper Company plc, a member of the UPM-Kymmene Group, decided during 1997 to automate the handling of data within the mill, from the generation of schedules from customer orders, through the manufacturing process to the shipment of finished products.

After exhaustive investigations, Shotton Paper chose ABB Automation to supply a system to meet their objectives based on the AutoProd family of software. AutoProd consists of three main modules: AutoProd QMS is a Quality Management System; AutoProd PTS is a Production Tracking and Reporting System; and AutoProd PPS is a Production Planning System.

Bryan Phillips, Shotton Paper's Project Manager comments: "There were several main reasons for ABB being awarded the contract. They were able to supply a fully functional system that met the specification better than any other supplier, plus we liked their modular approach to software. Additionally, ABB are able to provide on-going site support, while the ABB project team showed a very positive can-do, will-do attitude during the pre-order period. The AutoProd system also opens up a new dimension in information technology. There is less paperwork and less uncertainty, the system is easy to use and understand and the graphics are of an extremely high quality."

AutoProd is a fully integrated Manufacturing Execution System that covers all major areas of production at the mill. It provides a tool set that supports distributed client/server computing environments. The system for Shotton Paper runs on dual Hewlett Packard servers, so that one can take over full functionality in case of a server failure. It utilises a UNIX operating system with an ORACLE relational database.



Users interface the system from PCs running Windows NT, connected via the Mill's Ethernet network using the TCP/IP protocol.

The Quality Management System – AutoProd QMS (replaced an existing Labsam system at Shotton Paper) is designed around the requirement for paper mills to produce a variety of grades for a range of customers, each of whom will have their own unique requirements. It can cope with entities such as grade runs, cross direction (CD) profiles, process samples and lab tests for jumbo reels and customer rolls.

At Shotton Paper, data is read from the on-line gauging systems on PM1 (non ABB) and PM2 (ABB AccuRay and ULMA), laboratory devices (Elrepho and Paper Lab) and from the Distributed Control System. This enables mill

personnel to view the quality of each jumbo reel and customer roll produced and to take appropriate actions quickly if quality starts to deteriorate. Neil Partridge, Laboratory Superintendent comments, "The system is able to provide a very detailed and highly specific scientific response to customers' concerns on issues such as grammage and brightness."

The Product Tracking System – AutoProd PTS, which replaced the existing Packman system, records each jumbo reel and customer roll transaction from the paper machines to the warehouse. Jumbo reels are registered coming off the paper machines and tracking devices are interfaced to the system to monitor the movement of these reels to the winders, thereby giving accurate traceability of all paper rolls.

"There are also time savings at the winder" comments Andrew Holt, Finishing and Warehouse Superintendent. "The operators are automatically informed of the parent reel loaded on the winder, along with optimised trim schedules available for each winder. The concept of traceability continues from the winders through the wraplines, rewinders and guillotines. Bar codes on each roll allow for easy identification at every stage of the process."

The system interfaces to PLCs at each of the major finishing end processes to control and trace the flow of rolls through the mill. At the wraplines, each roll is checked for dimensional accuracy against the information stored for that order and labels applied as required.

The Production Planning System – AutoProd PPS (previously a manual operation) allows for the scheduling of customer orders to the two paper machines. This can be done continuously, providing much greater flexibility to adjust manufacturing to meet changing circumstances. At the same time, grade changes and delivery costs are minimised. Craig Binns, Production Planner comments, "Our decision making has become more accurate and better



organised. There is now much less room for error and we are able to provide a more effective response to customers asking for last minute production changes."

The new ABB system also records material losses and downtime at various process stations and produces consolidated production and efficiency reports on demand. Mill managers can easily identify production bottlenecks and other sources of problems throughout the mill.

The installed system has sufficient disk space to store information on every jumbo reel and customer roll for a period of two years. It allows mill personnel to direct the forward flow of products in a more effective and efficient manner and to use the historical database to review each step in the production process.

The ABB system at Shotton Paper Mill was installed during the first half of 1998. Rollout was accomplished in two phases – Production Planning and Quality Management were installed first, followed by the Product Tracking System.

"Since its successful start up, ABB's AutoProd System has delivered many benefits for Shotton Paper, concludes Bryan Phillips. "These include improved production tracking, comprehensive quality management and streamlined scheduling in all areas of the mill's operation."

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