

# Stromsdal links business goals to the production floor

BY MARK WILLIAMSSON AND HANNU LASANDER

The specialty coated board manufacturer with complex, multiple production paths uses Metso Automation's metsoDNA MES Manufacturing Execution System to link customer orders to actual production floor logistics. Order tracking, production scheduling and trim optimization lead to better customer communications, timely and accurate order fulfillment, and waste reduction in the mill. On-time deliveries are up significantly; trim losses are down 1% so far.

"We believe in the idea of a specialized, flexible niche-dedicated business." That excerpt from Stromsdal Oyj's web site aptly describes the core business philosophy of this independent coated board producer, located in Juankoski, Finland. This single-mill operation supplies 70,000 tonnes per year of high-end coated board for superior quality printing and packaging applications. About 97% of the production is exported.

But providing specialized, responsive service and on-time delivery to a multitude of off-shore clients is a challenging task. To meet these diverse customer needs, the Juankoski mill's board machine, off-machine coating line, winding and sheeting operations are inherently very flexible. Conversely, the production paths are necessarily very complex. Ninety percent of production is sheeted in three lines; the rest is shipped as wound rolls.

## Followed step-by-step, managed hour-by-hour

To satisfy client expectations, to en-

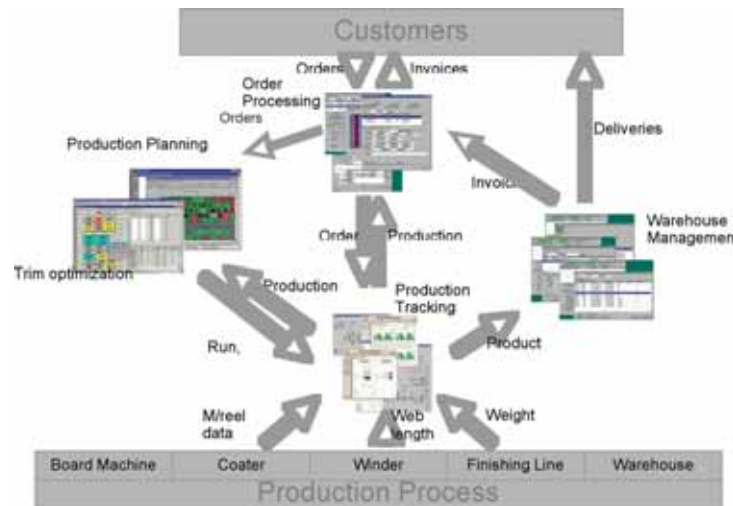


Juankoski mill supplies 70,000 tonnes per year of high-end coated board for superior quality printing and packaging applications. About 97% of the production is exported.



According to Mika Venäläinen, Production Planning Engineer, the order sizes can vary from 1 tonne to 1,000 tonnes.

Stromsdal is an independent coated board producer, located in Juankoski, Finland.



The MES system links customer ordering information with real production floor information.

sure timely and accurate deliveries and to manage internal waste and production costs, the status of product flowing through that complex process must be followed closely step-by-step and managed hour-by-hour. The inbuilt complexity of the production and converting processes must be made easy to manage and, for a flexible, niche business like Stromsdal's, there must be a strong link between the order desk and the production floor.

To get accurate information about current production flows and to solidify the link between customer order management and daily operations, the mill invested in Metso Automation's metsoDNA MES. MES stands for Manufacturing Execution System. The system was commissioned during the summer of 2003. The project nicknamed "Milla" combines customer order processing, production planning, trim optimization, and ware-

house management software modules. The 50-workstation system is used by customer service representatives, production planners, production managers and mill floor operators on the board machine, off-machine coater, sheeting and wrapping operations, and in the warehouse. Fifty to sixty people use the system on a daily basis. The production workers jobs are made easier and more accurate since there is no more paperwork required for production tracking.

Label printers and bar code readers document the overall product flow and individual orders at key production stages. The system keeps track of sources of shrinkage, such as quality, splicing and trim losses. Lift truck terminals with bar code readers identify the stored and shipped product.

### Integrating business and production management

Regarding the purchase decision, **Aarno Laukkanen**, Financial Director, says, "Our basic needs were to provide new and better methods of customer service and to improve ▶



The mill has transformed customer order and quality information into a highly accurate and traceable format through product labeling and bar coding.

▶ profitability. We had to replace an older system, but of course the pay-back had to be there through improved production efficiency. To do this, we wanted to provide our employees with modern production management tools.”

**Matti Heilimo**, Information Technology Manager and Project Manager for “Milla”, describes how MES satisfied the need for mill-floor information. “The previous information system was mainly a delivery and invoicing system with no base (production level) information. The production reporting was manual. Now, the Metso MES system is a very big change for us. The greatest change is the integration of production floor information.” Laukkanen adds his thoughts about the integration of information: “We wanted our business intelligence in one system,” he says. The MES system also links to the financial management system and exchanges information daily.

According to Heilimo, the capability of the production planning software to address the complex-

ity of the mill’s production flows was an important technical issue which influenced their decision to purchase the MES system. The S-Plan software handles both roll and sheeted production. “We chose the Metso product because of the production planning capability. Most systems are only made for roll production,” he says.

This production planning capability is particularly important where the capacities of the base board machine and the finishing and converting operations are different. This can lead to buildup of unfinished inventory, production bottlenecks and order delays.

In Juankoski, the board machine capacity is higher than the sheet cutter. The off-machine coater has excess capacity, so reels purchased outside the mill can be coated. This production must be tracked as well. All told, it’s a complex job for a production planner.

### Twenty-two different product routes

**Mika Venäläinen** Production Plan-

ning Engineer, describes the complexity and dynamic nature of the production planning task and the opportunities for improving efficiency and order timeliness: “We have 22 different product routes and very different order sizes, from 1 tonne to 1,000 tonnes. And, plans can be changed often.”

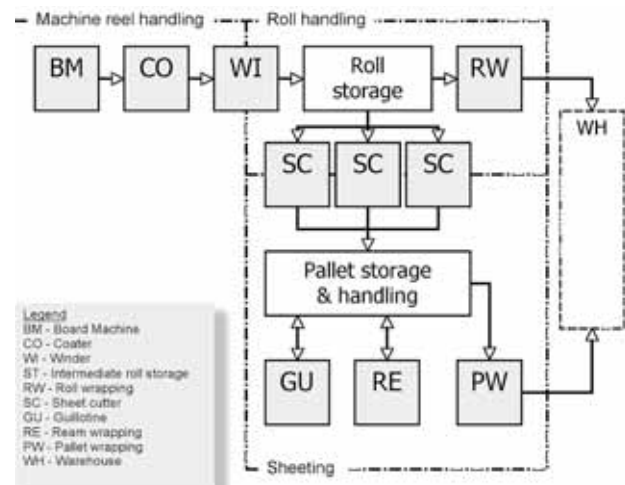
That complexity presents an opportunity, however. “There are many chances to reduce waste or

improve delivery times,” he says

The S-Plan production planning module and the X-trim trim optimization modules are visual, interactive tools for helping production planners to achieve the optimum delivery times and the lowest trim waste.

Venäläinen explains that often the best solution is a compromise between delivery times and low waste.

### There are 22 different production paths in the Stromsdal mill.



Production planning can be compared to a big jigsaw puzzle with variable-sized pieces. S-Plan helps to evaluate customer order specifications and delivery times, and fits orders into the right slots, taking into account the production capacity and availability of the board machine, coater, winder and sheeters.

The system schedules around planned machine maintenance. It re-balances the schedule after unplanned shutdowns or long web breaks. Unfinished inventory is tracked, and high inventory levels generate a warning that a production bottleneck is occurring.

### Timely deliveries, reduced waste

The X-trim trim optimization module generates possible winder slit-

ting and sheet trimming patterns and calculates the trim waste for various slitting and cutting scenarios. Venäläinen says their goal is to reduce trim waste to under 5%.

After the initial familiarization and training period, the production operators, including the older workers, are enthusiastic system users. **Olli-Pekka Hartikainen**, Finishing Department Manager, reports on the impact of MES in his department: "We can rely on the information and the order status. The whole order from the beginning to the warehouse can be followed. The production planning can avoid bottlenecks. We can see weeks ahead the requirements for the sheet cutters," he says.

Heilimo comments on the improvement in delivery times since



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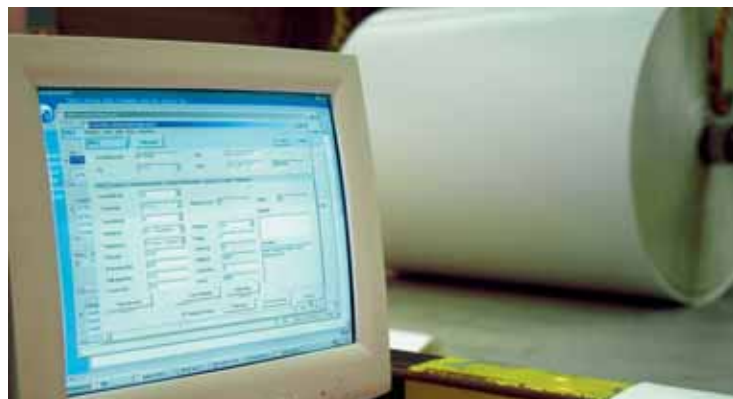
The mill has transformed customer order and quality information into a highly accurate and traceable format through product labeling and bar coding. Also, by improving the certainty of information, Stromsdal's sales coordinators can now rely on the production status information to give customers definitive answers.

Laukkanen says, "Our customer service people have much more information on their hands. Before this system, they had to ask a lot of people in production. They can track orders and maybe speed them up, if required. With this information available, we have only one contact person for the customer."

"Also, we have much better control of production. We know what is happening and where, and if there is a danger of being late," he adds.



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The inbuilt complexity of the production and converting processes must be made easy to manage.

the MES system installation: "Before the system, the ready-for-delivery production was about 80% to 85% on time. Now it is about 95% on time."

The trim waste numbers before the system installation were hard to define because of a lack of information. Venäläinen has been following the numbers from startup and estimates trim losses have been reduced by about 1%, from 7% to 6%. "That is what we hoped for. I am sure we can find more," he says.

### Accurate customer information

By accurate production tracking, over-run sheeted production can be identified and entered into the warehouse inventory. These order run "tail-ends" are a normal part of a sheeting operation, since board machine production is run slightly longer just to make sure there is no shortfall in the main order.

Now, with production tracking, the sales coordinators know what's in the warehouse and can match customer requirements to inventory. There is a better possibility that over-run production can be sold at a good price.

### Flexibility leads to change

Hartikainen, says that the open and continuing development of the system specifications was an important issue for the mill: "Flexibility was important. In a complex process, there are always some questions about special features. We and Metso had to devote time to the specifications. We were able to affect the development of the system," he says.

Laukkanen adds, "Within the sheeting business you must have flexible solutions. We expect to build on our investment for several years by adding more features and then reaping the benefits. We expect Metso will bring in their best experience so it can be done better." ■

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