

## Speeding up productivity



When Södra Cell's pulp mill, Mörrums Bruk on the southern coast of Sweden, first went into production in 1962, it delivered 140,000 tons of pulp per year.



Today, after years of steady growth, Mörrums Bruk produces 420,000 tons of pulp annually, almost three times the amount the mill was originally designed for.

*Evidence was growing that Södra Cell Mörrum's workstations from the 1980s were expensive and difficult to maintain and unable to access third-party applications, which were barriers to productivity.*

*To solve these problems, management chose to upgrade to ABB's Operate<sup>IT</sup> Process Portal workstations, highly advanced workstations that enabled operators to access mission-critical information and make better decisions faster.*

*Process Portal's compatibility with the existing system also allowed Mörrum to reuse existing infrastructure and keep costs down.*



Magnus Andersson, control system manager, is satisfied with the work performed by ABB.

## **The customer's viewpoint**

*Magnus Andersson, control system manager at Södra Cell Mörrum:*

*“When we started out with this upgrade project we wanted to build on what we had. It was unthinkable not to retain all the money and competence that were invested in controllers, controller application, I/O, field wiring etc. Therefore the ability to replace the MasterViews with the Process Portals and keep everything “underneath” was a huge benefit for us. It also meant considerable lower risk for us.*

*We are expecting a lot from the integration of different information, such as P&I diagrams, CAD drawings and maintenance information. We have not seen the full realization of these benefits yet, but from what we have seen so far we know it will save us a lot of time, help us increase the uptime and in the end, the productivity.”*



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With growth of this speed coupled with a desire to increase productivity, Mörrum's management faced an important challenge: what changes in workplace systems could support the mill's growth objectives?

At the time of these considerations, the mill was using ABB MasterView stations, which had been installed between 1987-88 and had served the mill well for years. However, these systems were being surpassed by newer, more flexible ABB technology. The advanced age of the MasterView stations made it increasingly difficult to keep the stations up and running due to the rising costs and availability of spare parts and technical support.

#### **Top priority: increase productivity**

Due to their age and potential spare parts shortages, MasterView stations were unable to guarantee risk-free operation in the opinion

of management. And Mörrum wanted to avoid risk of shutdowns at any cost.

Second, management also understood the potential of operator stations to increase productivity. A lot of useful information was stored in different, stand-alone computers and paper files. Accessing relevant data, such as P&I diagrams, CAD drawings, process descriptions and so on, was often difficult and time consuming. Sometimes operators weren't certain they were using the latest information.

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Third, if Mörrum was to upgrade its workstations, the ability to retain their existing controllers, controller applications, field wiring and I/O was an absolute must, due to the huge investment it represented.

Fourth, to ensure high productivity, Mörrum needed to identify trends in a number of areas. The ability to do so would enable them to foresee problem areas and take the



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necessary steps to address them. In MasterView, the ability to trend more than a few objects are limited.

Finally, during the replacement of MasterView, Mörrum would not accept any production slow-downs. Since Mörrum needed to operate 24 hours a day throughout the year, any production problems would mean the loss of income. Especially problematic is the recovery boiler that could, in a worst-case scenario, result in an explosion and serious damage and personnel injury if not properly managed.

### **Meeting the challenges with a parallel solution**

A powerful solution to these challenges was ABB's Process Portal, a highly advanced and flexible workstations. ABB installed 17 dual screen Process Portal work-stations, supplementing Mörrum's existing six triple-screen MasterView 800/1 stations. ABB also offered a training program for both operators and system engineers.

"We envisioned that the new operator stations would have to be installed alongside the existing ones so that the old and new systems

could be used in parallel until all control displays were transferred and the operators were ready to make the switch," says Magnus Andersson, control system manager at Mörrum. "And we impressed on ABB that we would not tolerate any production slowdowns by the new system during this period".

To achieve this, the MasterView remained in place while the Process Portals were connected to the process. This was possible because Process Portal with AC 400 Connect was compatible with the existing MasterPiece and Advant Controller 450 controllers. This enabled the operators to supervise and control the process both via MasterView and Process Portal. It also secured a safe operation as well as a comfortable transition to the new workstation environment for the operators.

The upgrade also met one of Mörrum's key conditions: to retain all the existing controllers and controller applications, I/O and field wiring. This reuse of already paid infrastructure allowed Mörrum to cut costs as well as achieve a smooth transition to a new generation of system.

### **Starting with animation and dialog standard**

The implementation began with the development of the Mörrum animation and dialog standard. An important goal was keeping consistent and safe operation throughout all process sections. The Mörrum standard included, for example, work instructions and a style guide to ensure that operators would follow the same procedure in all situations and that all process presentations would have a standardized “look and feel”.

Using Process Portal graphic tool, new graphics were created of the existing displays to fit the new standards. The Mörrum engineers were impressed by the ease and speed with which a dynamic display could be created on screen – complete with animations and dialogs – by simply connecting them to the desired object.

Based on the belief that good training would pay-off in safe, fast and efficient operation, operators, system engineers, instrumentation engineers and production managers at the mill were all trained on the new system.

### **Process Portal offers information accessibility**

With Process Portal, Mörrum is already reaping a wide range of benefits. An immediate benefit is the relatively low cost of spare parts and support compared to the previous system.

Process Portal is also offering significant improvements in flexibility. The ability to quickly and easily access third-party applications, such as CAD and the intranet, as well as P&I diagrams and interlocking diagrams directly in the operator workplace, has enabled staff to make better and faster decisions.

For example, when an object signals an alarm the operator can go directly to the P&I diagram too see where the object is located and how it fits into the process. And once CAD drawings are integrated and stored on

Process Portal, operators will be able to pick up a drawing quickly and easily.

Also, the enterprise management system will be integrated with Process Portal so that the operators have immediate access to relevant process instructions for the different process sections. All this allows for much greater flexibility, control and, ultimately, cost savings.

### **Sharpened maintenance supervision**

Maintenance is critical in a mill like Mörrum, where the need to analyze performance of plant production and quality is critical to its success. At the moment, since the maintenance system is a separate system, new orders for items involve slow-moving administration and paperwork. With Process Portal, the expectation is that new orders will be electronic, dramatically speeding up the process.

Mörrum is now able to trend an unlimited number of objects. The ability to make comparisons over time is important when it comes to increasing uptime. It also enables them to foresee potential problems and address them before they occur.

Finally, Process Portal has the ability to provide access to all processes from screens anywhere in the plant – a feature ABB’s Hans Stenberg calls “globalization”. He says, “few suppliers can offer that”.

“The modernization at Mörrum is not finalized yet,” says Hans Stenberg, “But when it’s completed, we will be able to include more and more functions in the new upgrade. The new system will be a big step forward in efficiency, speed and flexibility.”

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