Reference Report

MES software cronetwork at Worthington Cylinders

Decision competence and transparency in production with cronetwork

Worthington Cylinders

Decision competence with cronetwork

Worthington Cylinders GmbH in Kienberg (Austria) has been setting worldwide standards for 80 years in the production of seamless steel bottles. For the transition from the old manual scheduling board to an integrated detailed planning system, the company chose Industrie Informatik and the solution cronetwork.

As a subsidiary of the Worthington Industries Group, Worthington Cylinders in Austria employs 330 and is one of the most popular employers in the region. 600,000 seamless pipe and block bottles for industrial gas, medicine and the food industry, CNG, fire extinguishing systems, respiratory air, rescue equipment, etc. are produced in a continuous production line. The company delivers a broad range of bottles to 70 nations worldwide.

> *"Detailed planning and scheduling is our basis for moving toward paperless production. this enables us to initiate a number of subsequent projects."*
>
> *Thomas König, MBA, project und process management, Worthington Cylinders*

Safety, quality and productivity serve as the mantra of the successful metal processor. At all levels, the company continuously takes measures to deliver safe products in top quality and to react quickly and flexibly.

INITIAL SITUATION

In their IT area, the company sought to resolve its last large weakness in the overall information flow, for planning was still done manually with a combination of Microsoft® Access and paper. "Our planning quality was okay due to the know-how and longevity of the planners at the company, but the planning process was very wasteful. Feedbacks were entered once daily on the planning paper, which involved much effort and did not achieve the desired up-to-date data," explains Thomas König, MES project manager at Worthington, regarding the problem. Integrated detailed planning was intended to resolve existing media inconsistencies and reduce the effort for data reconciliation and data maintenance. An important requirement for the solution was flexibility in the interfaces for the integration in their ERP solution SIS and in the internally developed application for plant data collection (PDC).

CHALLENGE FOR DETAILED PLANNING

The highly automated, linked production with production stages from the forming processes to the tempering, cold treatment and painting, on to quality assurance proved to be a challenge to planning. 2500 bottles per day are produced to order in 3 and 4 shifts per day. To minimize setup times and produce as efficiently as possible, matching orders are combined in a batch production and in stored in a warehouse. Scheduling is highly automated. Strategies are defined for sequencing or pre-empting the orders. According to five relevant setup criteria, scheduling occurs hierarchically at the bottleneck (first all with the same diameter, among these optimization by floor form, within these optimization by wall thickness, etc.). The planner intervenes manually only for fine tuning at the bottleneck machines. Scheduling of subsequent processes in the linked production line is automatic.

Production occurs in a line; therefore the system must ensure that the sequence of the operations at a machine is not changed. This is realized via a clever scheduling strategy.

CRONETWORK IMPLEMENTATION

"For us, detailed planning is the basis for moving toward paperless production. Detailed planning enables us to initiate a number of successor projects," emphasizes Thomas König regarding the importance of the project for Worthington. The decision on a detailed planning system was accordingly sensitive. After a stringent evaluation process, in the summer of 2011 Worthington chose the MES vendor Industrie Informatik and the solution cronetwork. "We were convinced not only by the product features and the impressive international reference list, but also by the profound know-how and the personal commitment of Industrie Informatik all the way to the management level. In the implementation phase the flexibility of the cronetwork interface was fully exhausted and the collaboration of individual teams was exemplary," concludes Thomas König in a very positives resume.

1 TThomas König, head of MES project at Worthington Cylinders
2 annual production of 600.000 seamless pipe and block bottles in assembly line production
3 customers in in 70 nations worldwide

BENEFITS: STORAGE OF PLANNING FACTORS, EXTENDED PLANNING HORIZON, TRANSPARENT VISUALIZATION

In mid-2012 cronetwork scheduling board went operative and is today the core tool in a transparent and optimized production control system with a holistic overview of production processes and resources. "A significant benefit is the definition of additional planning factors such as setup matrices, shutdown days, shift patterns and break times; these are automatically accommodated in detailed scheduling. Vacations and scheduled shutdowns such as repairs can easily be added in cronetwork and no longer need to be handled manually," reports Martin Emsenhuber, project team member and Six Sigma employee at Worthington. Another benefit is the uniform foundation provided by the planning calendar, in which even order-related data such as cycle times are incorporated. Now the knowledge that previously only the planners had (and only on a monthly basis) is in the software. "Our planning horizon has been extended and the data are available to us all." Very important aspects are the transparency for everyone involved in production and the visualization of scheduling: Retooling, such as a major change of diameter, is depicted in color based on classification. Thus the tool and die foreman no longer needs to ask questions, and both the shift foreman and the production manager are informed.

HOW WORTHINGTON BENEFITS FROM CRONETWORK

:: employees with decision authorization: instead of simply reacting as before, now employees plan ahead themselves, providing material just in time
:: reduced effort for data synchronization and data management
:: simulations and planning scenarios toward optimization of throughput times, meeting deadlines, etc.
:: better look-ahead planning for custom orders
:: basis toward paperless production

"We prefer to orient ourselves to the maximum that is possible, not the average," confides Thomas König one of the success factors of Worthington. "We have our scheduling premises, but now we can simulate the effects if things ran 10% better," adds Martin Emsenhuber. cronetwork enables simulations and planning scenarios in relation to the optimization of throughput times, adherence to delivery schedules, etc. Significant influences are resource and material availability, setup operations, custom work, splitting of orders, and consideration of production buffers.

The overall work flow is generally more in harmony. The information benefit from cronetwork takes effect, e.g., immediately upon material management, where we definitely save travel time and paper pushing. This relieves stress on the responsible employees, who, instead of only reacting as previously, now can manage material and provide it just in time.

Likewise custom work that occurs with individual orders and for which temporary personnel must be hired situationally, can now be planned better and anticipatorily. "We save expensive overtime or weekend rates," Thomas König explains in a series of examples of concrete improvements since the transition to cronetwork. Another example of improved efficiency due to precise and transparent planning is on-time handling of trucks or customers for certain types of bottles.

USABILITY IS A HIGHLIGHT IN DAILY PRACTICE

The user friendliness of cronetwork is a boon in daily scheduling. "What we particularly like in scheduling board is the retrospect, which enables the planner even months later to view completed orders in the info control panel in order to see when the order actually ran. Searching for orders is generally very fast and easy, and the options of classification and filtering, views, and freely configurable bars with variably definable information scope are solved very practically. The combination of list form and bar chart was missing before cronetwork and was a decisive point for the project in general. Complemented by a snapshot of production from PDC, we now have all components for control and planning in an overview," says König. In addition, the reports and evaluations are continuously transitioned to cronetwork production info. This lets managers and foremen invoke the current scheduling situation via the info control panel. This leads to clear and comprehensible information transfer and enables extensive transparency in production.

CRONETWORK AS BASIS FOR SUBSEQUENT INTERNAL PROJECTS

"With cronetwork scheduling board we have closed a huge gap in our digital information flow," summarizes König regarding the move from manual planning to the integrated scheduling board and control panel by Industrie Informatik. "cronetwork also provided the impetus for breaking away from long-time habits and started a change process. It is an important building block for our vision of paperless production."

Products: industrial gas cylinders, medicine and food industry, CNG, fire extinguishing systems, respiratory air, rescue equipment, etc.
Employees: 330 employees in Austria, more than 10,000 worldwide
cronetwork modules: scheduling board, info control panel, business intelligence

Worthington Cylinders GmbH in Gaming is part of the multinational concern Worthington Industries based in Columbus, Ohio.

Scheduling Board 📅

Graphic scheduling for your production: live, fast and flexible

Plant Data ☰

Low feedback effort for a real-time view & traceability

Machine Data ⚙

Correct data & information automatically

Time & Attendance ⏰

Clear employee administration and flexible scheduling

Business Intelligence ◔

Analyses & evaluations with real-time information

Mobile Applications 📱

Enter and evaluate data from any location

Technology ⛁

Benefits for software owners and users

cronetwork MES:
The data hub for the Smart Factory

cronetwork MES：智能工厂的数据中心

cronetwork®
reliably productive

industrie informatik