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Reference Report



Comprehensive digitalisation:
Shop floor and detailed planning at
a new level of efficiency

Machine and plant manufacturer BHS Corrugated
relies on cronetwork MES

Shop floor and APS at a new level of efficiency

Corrugated board - a sustainable packaging product that we all come into contact with on a regular basis, but few of us have ever thought about how it is produced. Not so BHS Corrugated Maschinen- und Anlagenbau GmbH, the leading solution provider in the corrugated board industry, which has been designing corrugators for more than 60 years. The company relies on a comprehensive digitalisation strategy to implement its innovative corrugators, some of which are up to 200 m long!

If you visit BHS Corrugated, your first stop is the tranquil community of Weiherhammer with its 3,900 inhabitants. The futuristic and impressive headquarters of the machine and plant manufacturer, which specialises in the corrugated cardboard industry, is located on the edge of the Bavarian town and directly by the pond. With almost 3,200 employees at the Weiherhammer site and at more than 20 other international locations, BHS Corrugated sees itself as a lifecycle partner with a comprehensive range of products and services covering all aspects of development, production, installation and maintenance with innovative service solutions in the areas of corrugating rolls, individual machines and complete corrugators, Industry 4.0, logistics

“The creation of new, customised services and solutions using no-code technology has opened many doors for us. Today, we build cockpits that replicate and digitalise day-to-day operations on the shop floor and beyond.”

Janik Auburger, Specialist Cost Controlling at BHS Corrugated

and, in future, the integration of digital printing into the corrugator. The innovative company has been pursuing a comprehensive digitalisation strategy for many years. Corrugated 4.0 aims to optimise process parameters and improve automation levels and production efficiency. cronetwork MES plays a central role in this.

HOLISTIC INTEGRATION - INTERNATIONAL ROLLOUT

BHS Corrugated pursued a holistic approach when introducing cronetwork MES in 2018, which has resulted in the rollout at four production sites to date (Germany, Czech Republic, Turkey, China). Since then, various versions of cronetwork detailed scheduling APS, plant & machine data

collection, personnel time and attendance and the innovative PIDO & portal technology have been used there.

Janik Auburger, Specialist Cost Controlling, manages the MES programme at BHS Corrugated globally. He describes the situation as follows: “We use the system in mechanical parts production, corrugating roll production and also in assembly. All of our products - we’re talking about more than 20,000 article numbers here - are manufactured with the help of cronetwork MES.” When asked about the special features of the digitalisation measures, Auburger names three highlights: “The detailed planning APS tool has helped us to optimise our production planning and significantly shorten the planning processes thanks to powerful automation. In addition, the PIDO & portal technology helps us to realise the so-called “terminal hub” for our workers. Last but not least, we have realised highly integrative interfaces to SAP including the HCM module (Human Capital Management) and to our tool management tool.”

SHOP FLOOR DIGITALISATION: SINGLE POINT OF CONTACT

With over 600 users, including more than 500 directly on the shop floor, BHS Corrugated focussed on a high level of usability for its employees right from the start. The result of these efforts is called “Terminal Hub” and is fully mapped via cronetwork MES. “Our employees should be able to concentrate on their tasks on the machines or in assembly and not have to deal with different systems. The MES terminal also needs to be simple and intuitive to use. The fewer clicks and buttons for messages, entries and information retrieval, the better,” says Janik Auburger, describing the requirements for the system.

This refers to the terminals on the production systems. These are based on portal technology from Industrie Informatik, which enables Auburger, among other things, to individually design and, if necessary, adapt user interfaces without programming effort simply by parameterisation and, in some cases, drag & drop. So-called PIDOs obtain and visualise the data and information from the MES and from external systems such as SAP or the aforementioned tool management software. “Whereas our workers used to have to jump to external systems for maintenance messages or to enter parameters for quality control, they can now do this quickly and centrally at the cronetwork terminal. This saves time and requires far less expertise,” says Auburger, who also notes that the solution for recording quality data (FQS) was obtained as a ready-made solution from the new Industrie Informatik Solution Store. Positive effects were achieved, particularly in the area of maintenance and tool management, by connecting the exis-

Cover page A look at flow assembly
1 Janik Auburger, Specialist Cost Controlling
2 Lifecycle building at BHS Corrugated Maschinen- und Anlagenbau GmbH in Weiherhammer



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ting maintenance software via a web service. Workers can see at a glance whether the correct tool is set up on the machine for the current or subsequent job and whether the necessary measurements have already been taken. The relevant clamping plans can also be called up as documents directly on the terminal. Last but not least, the clear and always up-to-date view of order lists, including the current processing status, is used as a source of information in a wide variety of departments and company levels.

NO-CODE TECHNOLOGY

PIDO & Portal technology has a special significance for Janik Auburger: "We recognised its potential right from the start. The creation of new, customised services and solutions using no-code technology has opened many doors for us. We are now also building user PIDOs, for example. This means that we can not only obtain data, but also use it to deliver information back to cronetwork and other systems. Today, we are building cockpits that replicate and digitalise daily activities on the shop floor and beyond. Hardly a working day goes by without us using it to create new services or queries." At BHS Corrugated, the majority of new requirements can be met without external help. According to Auburger, a certain basic understanding of databases is sufficient; programming knowledge is definitely not necessary.

However, the use cases are not limited to the shop floor. Administration and management also benefit from the new data quality and information processing. Those responsible can, for example, take a look at the current status of their machinery or track order lists from any location. Thanks to cronetwork MES, everyone in the team has the same level of information. "In the past, if there was a problem in production, we had to look for the cause, hold discussions and draw our conclusions more or less based on this. This was time-consuming and did not always lead to reliable results. Today, cronetwork MES provides absolutely reliable information on machine statuses, repairs, faults, etc.," Auburger continues. Above all, however, the company benefits from APS detailed planning at the organisational level.

95 % AUTOMATIC DETAILED PRODUCTION PLANNING

What at first glance sounds like an embellished figure is, according to BHS Corrugated, a reality and brings enormous efficiency benefits for the company. Over the years, the daily planning work has been very time-consuming. Setting and scheduling production strategies took more than an hour every day. So the company looked into the possibility of automatic detailed planning based on ready-made macros in cronetwork MES and quickly recognised the many advantages. "We have an interface to SAP HCM, which supplies the current status of available employees to the MES in the morning. The scheduling board is then automatically opened, reset and scheduled with the knowledge of the available workers," says Auburger. Each employee was previously assigned to a machine. The

combination of this information results in a machine capacity and the knowledge of whether the machines can be run in three or even four shifts, for example. The company has access to a total of 39 planning strategies, which can be automatically planned step by step using macros. This ultimately reduces manual effort by up to 95%, but this is not the only added value of APS detailed planning.

A core product at BHS Corrugated, the so-called corrugated roll, is produced with a lead time of several weeks. A total of 14 production orders have to interlock smoothly. Janik Auburger: "Although SAP knows the components required for production and could also create a production network from them, the comprehensive functionalities relating to automated network creation and the visualisation options in cronetwork convinced us and so we also rely on the MES here."

CONCLUSION

When BHS Corrugated chose cronetwork MES and thus Industrie Informatik over around 10 other providers in 2018, the reasons were multi-layered. On the one hand, the company was impressed by the performance of the SAP interface, including comprehensive integration of the HCM module. On the other hand, the detailed planning APS convinced them with its functionalities, especially in the area of multi-resource planning. Last but not least, the handling of adaptations on the part of Industrie Informatik was a decisive criterion. Be it the guaranteed release capability, which is highly relevant with more than 1,500 customised PIDOs created by BHS Corrugated, or the "community concept", which also allows further developments to be used by other Industrie Informatik customers in one of the subsequent release cycles. The independent customisability of the software has also proven to be a major advantage and efficiency boost for BHS Corrugated.

Janik Auburger concludes: "cronetwork MES has a high priority in our company and has developed into the leading tool on the shop floor. In addition, Industrie Informatik is a reliable partner that realises the few requirements that we cannot implement independently in an uncomplicated and reliable manner and responds to problems with fast and precise help."

Products: Solution provider for the corrugated board industry: corrugating rolls, individual machines, complete corrugators, industry 4.0, logistics

Employees: approx. 3.200

cronetwork modules: plant data collection, machine data collection, detailed scheduling (APS), time & attendance, transports, PIDO, portal, gateway, SAP connector



Additional information online at:

www.bhs-world.com

www.industrieminformatik.com



Detailed scheduling :: scheduling board :: APS :: order network formation :: optimizer

PDC :: plant data collection :: in-process quality control :: traceability :: transport

MDC :: machine data collection :: process data collection

T&A :: time and attendance :: personnel scheduling

BI :: reports :: PIDO & portal :: KPI :: predictive analytics

cronetworld :: 360° manufacturing platform :: realtime integration



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