

Completely Joined to the Host Computer System

Böllhoff Uses ALS as a Uniform Global MES for Injection Molding and Metalworking

The Wilhelm Böllhoff GmbH & Co. KG employs Arburg's ALS host computer system as a uniform MES at locations all over the world. Not only all their injection molding machines are networked with information technology via ALS, but hundreds of machines and turnkey systems for metalworking and assembly, as well. Some 3000 injection molds are also managed. This generates transparency in everything from order planning and process optimization to maintenance.

We were looking for a Manufacturing Execution System with which we could plan and monitor our processes better." That is how Jens Placke, IT Projects, Processes, and Consulting at Böllhoff, responds when asked why the company selected Arburg's host computer system in 2012. And Placke gives even more reasons: "ALS scored with its short implementation time and readily adaptable integration into the existing IT landscape. This enabled us to switch over quickly from our old PDA system, and the development of interfaces to ERP was trouble-free."

The first step involved networking the Arburg injection molding machines (type: Allrounder) with Böllhoff's main location in Bielefeld, Germany (Fig. 1). Just a year later, the company was using ALS for its third party injection molding machines, too. In 2016, the metalworking division was added, and materials supply in China in 2018. "Today, around 400 machines and devices are globally connected via ALS at national and international sites," Placke stated.

About 22% of this network is currently dedicated to injection molding machines. The majority are metalworking machines for turning, punching, cold forming, and wire winding, as well as assembly machines. Devices for quality control, as well as for recording energy data and mold status, are also connected. Thus, Böllhoff is a company that makes very wide use of ALS.



The process status of every machine can be viewed via the ALS terminal © Böllhoff

The host computer system serves to comprehensively document and evaluate production data, for example, to present the key figures of each individual machine or turnkey system (overall system effectiveness, overall equipment effectiveness, OEE). Moreover, ALS helps optimize the logistics processes for providing materials to the assembly machines, as well as the central material supply for the injection molding machines.

Central networking takes place via the ALS server. The Allrounder injection molding machines, other machines and equipment, and ALS clients are directly

connected to it, as well as ALS mobiles for mobile access. To connect third party machines, ALS offers a variety of interfaces. The metalworking machines (Figs. 2 and 3), for example, network via the Arburg I/O (digital signals).

Numerous Interfaces for Third Party Machines

Added to this is an interface to the central ERP system. Every year, it exchanges the data from some 15,000 production orders, some 3000 of which can be assigned to the plastics sector. Mainly

metalworking is done at the main location in Bielefeld, Germany, for instance, and in Sonnenwalde, Germany. In China, injection molding is done on Arburg machines, in Austria with third party machines. This year, the host computer system was rolled out in the USA, as well, and France is planned for 2021. Brazil is a further candidate. Böllhoff has 300 registered users worldwide, of whom approximately two thirds work in plastics conversion. Besides about 600 Allrounders, more than twenty third party injection molding machines are used for this. More than 350 ALS terminals are available for a comprehensive overview in real time. About 40 of them visualize the plastics sector, the remaining 316 are installed in metal operations.

Customer-Oriented Development of the Host Computer System

"Arburg and Böllhoff have a longstanding partnership that advances both sides," explains production manager Nikita »



Fig. 1. Böllhoff connects to 400 machines and devices worldwide with ALS. The share of all injection molding machines (Arburg and other manufacturers) is about 22% © Böllhoff



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Company Profile

The Böllhoff Group is a global partner for 360° joining technology with assembly and logistics solutions. The family-run company, now in its fourth generation, has, in its own words, stood for innovative power and customer proximity since 1877 and implements the specific requirements of its customers in all industries for custom-fit connections. In 2019, Böllhoff's total of more than 3000 employees at its headquarters in Bielefeld and in worldwide locations achieved sales of approximately EUR 638 million.

Their wide assortment ranges from standard screws according to DIN and ISO specifications to special fasteners, such as the Helicoil, all the way to assembly systems. Numerous services related joining technology round out the portfolio: from joint testing in the accredited laboratory, to technical support for customers, including economical delivery of their fastening elements.

➤ www.boellhoff.com

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Service

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Fig. 2. Connection of a metalworking machine to the ALS system © Böllhoff

Kroll. "It was important for us, for example, to depict the degree of utilization in detail and in tune with our requirements. To this end, Arburg picked up on our suggestions and developed their ALS accordingly." Böllhoff sites are not the only ones to profit from the new functions – all ALS customers do.

One particular case involved integrating two attributes – machine utilization rate and expected rejects – into the ERP interface. Both values have direct influence on the duration of a production order and the amount of rejects on the materials requirement. Teardown time is displayed based on data from the ERP system. ALS calculates the utilization on the basis of target cycle time cyclically and by comparing target quantities with the actual ones. The data determined this way enable even more precise advance planning in production.

Energy Measurement and Preventive Maintenance

Another current topic among injection molders is energy management. Here Böllhoff employs ALS-supported multi-function measuring devices (manufacturer: econ solutions, GmbH of Munich,

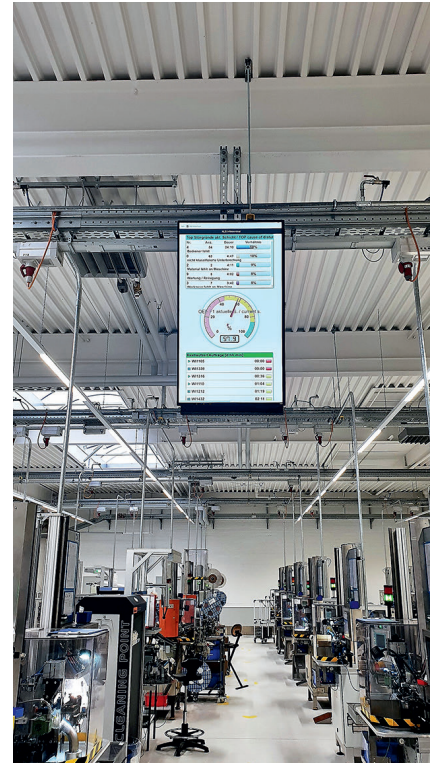


Fig. 3. A surveillance monitor in metal production © Böllhoff

Germany. The recorded values for electric energy consumption (in kWh) can be evaluated in order related and article related reports.

Above and beyond production planning and data evaluation, ALS can also be used for preventive maintenance. For example, approximately 3000 injection molds are managed by ALS. As soon as a mold is mounted in or dismantled from an injection molding machine, the components are registered or deregistered by ALS. This enables us to protocol cycles, draw conclusions regarding core wear, or monitor specific maintenance and life cycles.

Higher Availability and Production Efficiency

In closing, production manager Kroll observes: "Arburg's central MES brings us great advantages when it comes to analyzing and documenting process data from our entire production in detail. We can plan production optimally and create customized reports.

Above and beyond this, ALS increases transparency, availability, and production efficiency in all areas of production." ■