



STOPA sheet metal store with customer-specific warehouse management system

Aesculap AG, which is headquartered in Tuttlingen, has invested in an automatic STOPA COMPACT sheet metal storage system together with a modified warehouse management system (WMS). The software's special features include, among other things, the management of special stocks and materials that require batch handling, the close-to-machine storage of certain sheets, a customised SAP-PDA-WMS interface for the transfer of order data to the WMS, as well as extensive reporting functions.

The automatic storage system started operation in late 2014 in the new Innovation Factory at Aesculap, a medical equipment manufacturer and the second largest division of B. Braun Melsungen AG. Thomas Philipp, Plant Manager in this intelligent factory, which has a workforce of approximately 500 employees, presents the project in Tuttlingen. "We manufacture separately on two floors. The ground floor houses the production facility for aluminium and stainless steel containers, as well as for storage trays in which medical products are kept during the sterilisation process. On the top floor, we manufacture compressed-air and wired motor systems for surgical interventions. During the planning of the Innovation Factory, in which we invested approximately 50 million euros, we placed special emphasis on structural and technical flexibility as well as energy efficiency. Thanks to the generously designed floor bearing loads, we use machines weighing up to 26 tonnes even on the top floor. In addition, the production and administrative areas can also be extended. At present, these cover a usable area of approximately 14,000 and 2,800 square metres, respectively.

Before investing in the automatic sheet metal storage system supplied by STOPA Anlagenbau GmbH in Achern-Gamshurst, Aesculap had stocked the raw material in

premises separated from the production facility, thus giving rise to considerable logistical effort and expense. "In view of this situation, we analysed our processes, drew up a requirements specification and compiled an extensive list of activities," says Joachim Bludau, Head of the Sheet Metal Segment in the Motors & Containers plant, who discovered his passion for sheet metal forming at an early age. "Our wish list included, for example, a controlled material flow, direct access capabilities to the raw material and greatly reduced non-productive times. However, our main requirement related to the customer-specific orientation of the warehouse management system."

Comprehensive modifications

Very extensive modifications were made to STOPA WMS-Extended, whose basic functions include stock and storage location management and the provisioning of the processing machines with material. Thus, on each input of sheets requiring batch handling, WMS-Extended checks whether the operator is storing the relevant sheets on the intended pallets. Before the start of the job, the system calculates the required quantity of raw materials. If the material present is not sufficient then the job is not started and the employee is informed of this. Storage and removal activities are initiated via SAP transport jobs, which the WMS checks for plausibility, while also checking the plausibility of the measured weight.

The other application-specific adaptations include the management of a consignment store, a separate leftover sheet store, as well as a store for locked stocks, which includes all newly stored materials up to the point at which they have been checked and approved. The WMS also makes it possible to store sheets which have the 'preferred machine' ID close to their place of processing. What is more, the software reserves storage areas for certain materials, provides PDA data and a range of lists, books all storage and removal operations and performs comprehensive reporting functions.

As the Project Manager for IT-related aspects, Nadine Weckenmann was responsible for the VPN connections to the processing machines and the WMS control mechanism. In addition to this, she coordinated the communication between the operator's SAP system and the pro-



STOPA adapted the warehouse management system to meet Aesculap's customer-specific

duction data acquisition system as well as between the connected laser cutting systems and WMS-Extended. Nadine Weckenmann emphasizes the exceptionally good cooperation during the preparatory phase. "During the period when STOPA modified the basic warehouse management system to meet our requirements, the cooperation between us was excellent. Before the contract was awarded, our team scoured the market, viewed reference systems and conducted workshops at STOPA and TRUMPF in order to meet our joint objectives on the basis of the requirements specification."

Space-saving turning devices

In parallel with the STOPA COMPACT, two new laser cutting systems were installed, and the VPN and the RCI interfaces from WMS-Extended to the TRUMPF machines were implemented. At the same time, production continued on existing machines in the old premises in order to avoid any interruptions to customer deliveries. The entire project was accompanied by Volker Huber, Head of the Sheet Separation Group, who has long and comprehen-

Highlights of the modified warehouse management system

In addition to the basic functions, the STOPA WMS-Extended warehouse management system that has been tailored to meet Aesculap's customer-specific needs, also offers:

- A check of the correct storage of every input of sheets requiring batch handling.
- Calculation of the required raw material quantities before each job is started.
- Plausibility checks, including the measured weight, on storage and removal operations.
- Management of a consignment store, a separate leftover sheet store, as well as of locked stocks, which include all newly stored materials up to the point at which they have been checked and approved.
- Storage close to the place of processing of sheets with the 'preferred machine' ID.

One of the manufacturer's technicians was present on site to support us." STOPA had first equipped the pallets with baseplates because Aesculap stores bands and metal

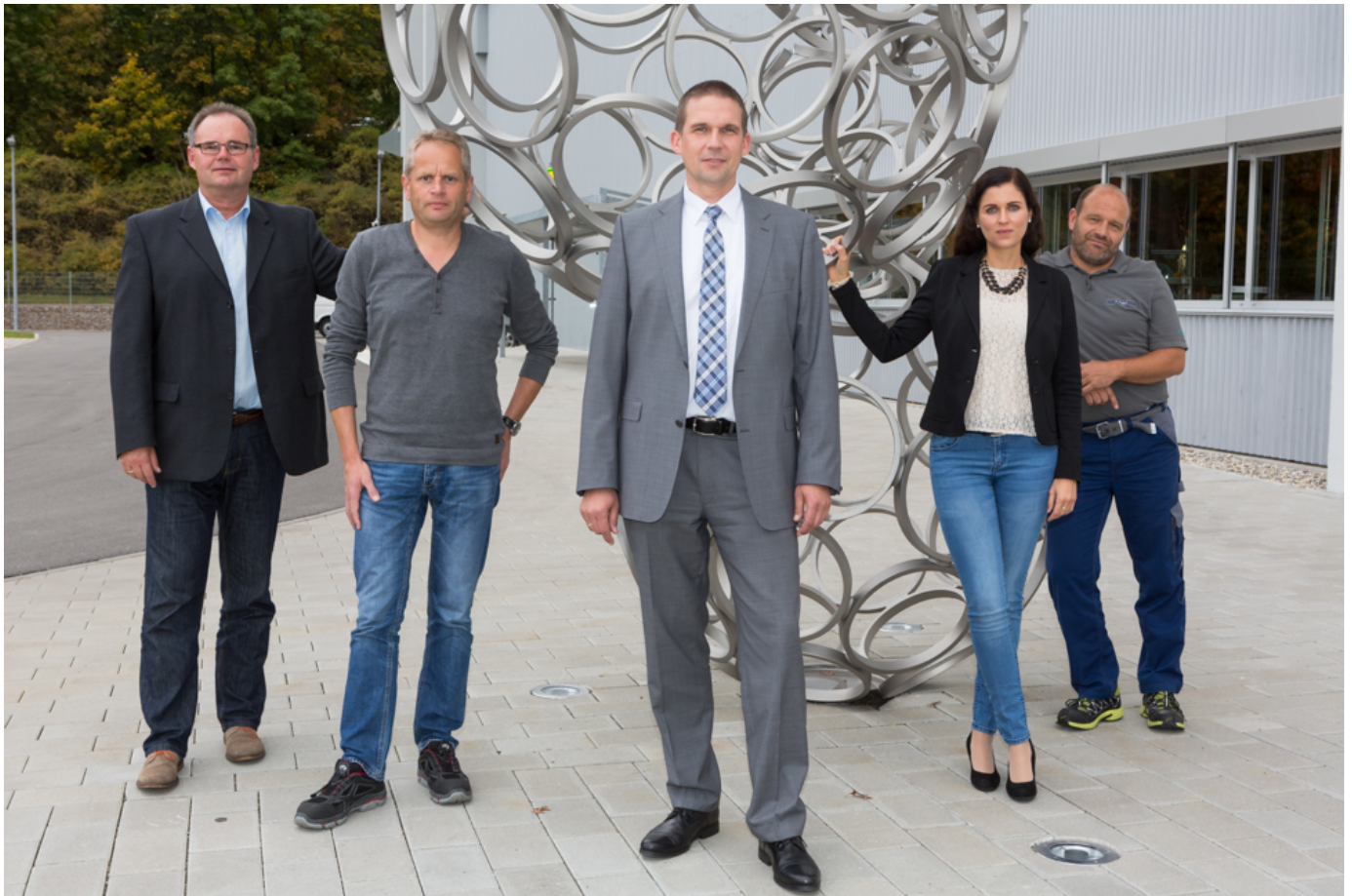


Aesculap has invested in an automatic sheet metal storage system with a modified warehouse management system

sive experience of sheet metal processing at Aesculap, ranging from stamping through to laser cutting. In the future, Huber will support the system in the role of WMS administrator. The workflows were designed jointly by the team before being implemented by STOPA in the WMS. "We entered all 410 system pallets into storage and calibrated them ourselves over a period of several weeks.

strips alongside its 150 different materials.

STOPA also contributed other ideas to the project relating to the removal and provisioning of materials for stamping-laser processing. These included integrating the transport carts used at the stations and equipping them with turning devices. Without this technology, there would have been



Thomas Philipp, Plant Manager of the Aesculap Innovation Factory (centre), is proud of his team, which includes (from left to right) Joachim Bludau, Head of the Sheet Metal Segment in the Motors & Containers plant, Gerald Reischmann, Production Planner in the Sheet Forming department, Nadine Weckenmann, Project Manager for IT-related aspects and Volker Huber, Head of the Sheet Separation Group

no other choice but to install the systems transversally to the store. This would have meant there being less space available for the machines, with the result that Aesculap would have had to set up some systems in a second row and put up with the resulting longer transport paths. The software solution for the leftover sheet store, in which the sheets stand upright in a rack, is also interesting. Gerald Reischmann, Production Planner in the Sheet Forming department, demonstrates the advantages of the solution. "When the operator taps on the touchscreen, the WMS shows them the location at which a leftover sheet suitable for the job is present in the store. In such cases, the operator can choose between the leftover sheet and a new sheet from the storage system."

Design and equipment from a single source

Aesculap had a number of reasons for deciding to install the 42-metre long, 8-metre high, 4.7-metre wide automatic storage system with its 685 storage locations. In addition to the advantages mentioned above, these include the possibilities for removing material in accordance

with the FIFO principle, a high level of user friendliness that ensures excellent occupational safety, ongoing inventory control, stock level reporting and harmonisation with the SAP system and, ultimately, outstanding economic efficiency. Independently of this, an SAP-PDA-WMS interface, which transfers data from the production plan to the machines and the WMS, ensures reliable communication between the SAP system and WMS-Extended. Due to their many years of experience, there are also no interface problems between the two suppliers: STOPA and TRUMPF. In addition, it has been possible to chain together multiple machines, some of which are equipped with automatic air jet and suction technology or lubrication and stamping-laser technology. Bludau consider the fact that STOPA constructed and developed the storage system entirely on its own to be particularly noteworthy. In addition to its outstanding expertise, STOPA also guarantees a rapid spare parts supply over a period of many years. Joachim Bludau also points to another reason for the success of the project: "STOPA fulfilled every agreement and also addressed issues that arose subsequently."

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