STOPA sheet metal storage system on two building levels

Since investing in a STOPA COMPACT II sheet metal storage system for large-format sheets, BBW Lasertechnik has been benefitting above all from a higher storage capacity and greater flexibility. There is also the promising option of being able to supply sheet metal processing machinery on two storeys.

Johann Bürger, co-founder of BBW Lasertechnik GmbH, in Prutting, Bavaria, who shares the management of this family-run company with his son Andreas, stands in front of the sheet metal storage system supplied by STOPA Anlagenbau GmbH from Achern-Gamshurst: “The system is about 10.8 metres high, 11 metres long and 5.6 metres wide, and extends over both storeys of our factory hall. STOPA installed this system with millimetre precision between walls, pillars and the access to the lower level that we use to link the ground floor intralogistically to the first floor.” Andreas Bürger shows some photos of the installation work: “The pre-assembled steelwork components and the storage and retrieval unit were lifted into the hall through the opened-up roof and through the opening of the upper storey floor with the aid of a mobile crane. We didn’t have a more economical alternative.”

The STOPA COMPACT II sheet metal storage system links two storeys intralogistically

The managing directors expect that the system, designed for large sheets, will result in higher storage capacity and flexibility, less damage to sheets, and less time being spent on searching for and handling material. In addition to that, the company has the option of linking up the laser equipment it uses in production to the storage system at any time. “Before investing in the STOPA COMPACT II, we worked with a storage system designed for smaller formats,” explains Johann Bürger. “The changeover to the large format has proved to be both practical and timely.”

Sheet metal storage system with added value

The STOPA COMPACT II at BBW Lasertechnik consists of four shelf towers, arranged in two rows and offering 208 storage locations. There are 100 flat pallets available as load carriers, each having a maximum useful area of 1525 x 3050 millimetres and being loadable with sheets with a weight of up to 3000 kilograms. Two key factors adding to the value of this storage system are a patented weighing facility with weighing cells integrated into the pallet running surface of the pulling beam, and the omission of hydraulics. This is a solution allowing the cycle time to be reduced by about 80 percent. In addition, there is a smart energy management system based on a concept with two efficient yet lightweight drive motors instead of one heavy motor, meaning a total weight reduction of around half a tonne. On top of that, the operator can also provide the regenerative energy from one drive to another drive as motor energy.

By compensation of tolerances, STOPA also achieves smoother running of the system pallets, improving process reliability. An advantage that ensures longer service life, fewer downtimes and less maintenance work.

Efficient processes

Employees unpack arriving sheet metal stacks on the unpacking table, which is installed in front of the system, designed for the large format (3000 x 1500 millimetres), and adjustable to match a wide range of wooden pallets and sheet metal formats using movable plungers. From there, a forklifter lifts up the depalletised sheet metal stack and sets it down on the incoming/outgoing goods station arranged alongside. The sheet metal stack can be precisely positioned on the empty system pallet using the scissor lift table, which is fitted with movable plungers and coordinate corner plungers. The scissor lift table is also equipped with a pneumatic cart / pallet locking system and with a light barrier for monitoring the maximum permissible loading height of 90 millimetres.

When the scissor lift table moves into the storage system after being released by the operator, the sturdy twin-mast storage and retrieval unit (SRU) pulls the pallet down and puts it into storage. The second station installed alongside on the ground floor is used only for outgoing goods. Instead of a scissor lift table, it is equipped with a fixed-height transport cart having the same technical features apart from lifting. The storage system supplies a TRUMPF TruLaser 5030 laser cutting machine. Sheets or semi-finished products are not returned to storage at BBW Lasertechnik.

By investing in a sheet metal storage system designed for large-format sheets, BBW Lasertechnik has more capacity and more

The operator works to the fixed-position storage principle with one loading height, utilising the available area and height to the full. The SRU attains speeds of 60 metres per minute during movement and 23 metres during lifting. The SRU's push/pull device, telescoping on both sides, manages 20 metres per minute.

Solution highlights

- more storage capacity
- higher flexibility
- high process reliability
- shorter cycle times
- smart energy management
- less damage

Longitudinal positioning is achieved using a digital travel measuring system, and height positioning using an absolute and load-independent digital travel measuring system that obviates the need to travel to a reference point. An optical data coupler permits contact-free and wear-free data transfer to the SRU, which is powered by an overhead bus bar.

The system components are controlled by a real-time soft PLC integrated into an industrial PC. Andreas Bürger leans against the ergonomic control console: "Operating the storage system is easy and doesn't require any major training." The industrial PC, which features a touch screen for operating the system and visualising its operating states is built into the console. This includes graphic representations of the storage system and of the SRU, continuous status displays in plain text, diagnostic functions, and recording of all messages and travel orders. The integrated RAID system enables operation to continue in the event of a hard disk failure. That increases the availability of the system. An uninterruptible power supply (UPS) prevents any data and program losses. Service by STOPA also includes remote diagnostics for the system control via VPN. STOPA's LVS-Basic warehouse management software, also used by BBW Lasertechnik, compares stocks with the ERP system of the operator overnight using a host interface. The data is managed in a database and automatically saved every day.

A decision with an eye on the future

The main focus in the wide range of laser material processing at BBW Lasertechnik is on pre-

cision laser cutting and laser welding. Also noteworthy are processing with ultra-short laser pulses, bending with six-axis stop, assembly production, and the overall package that extends from design and development to the end product.

The investment decision in favour of STOPA was also clinched by the price/performance ratio and the supplier pairing of STOPA and TRUMPF, which rules out interface problems thanks to the long years of shared experience of those two companies. Meeting all the promised deadlines can be attributed not least to planning in parallel of the building and of the storage system. Two-shift operation of the STOPA COMPACT II working with almost 100 percent availability was launched in December 2018. Johann Bürger is already thinking ahead: “Since the sheet metal store can be expanded at any time to keep pace with future developments, we’re looking at the option of integrating a third station into the top storey of the hall so that additional machinery can be linked up.”

Johann (left) and Andreas Bürger, the managing directors of BBW

Date: 16.10.2019

Author: Jürgen Warmbold

Press contact:
STOPA Anlagenbau GmbH
Industriestraße 12
D-77855 Achern-Gamshurst, Germany
Tel. +49 7841 704-0
E-mail: presse@stopa.com