Westfalia®
WAREHOUSE SYSTEMS & **TECHNOLOGIES**

CASE STUDY

BRAUEREI LOCHER AG SWITZERLAND

Automated warehouse logistics with high throughput and complex material flows in the smallest of spaces

Locher craft brewery in Appenzell offers 28 beer specialties, including chestnut, honey, and rice beer, and the trend is upward. Westfalia is meeting the variety and individual order picking demanded by the market with an automated storage system with high throughput and complex material flows in the smallest of spaces. It bundles all of the intralogistics for cans, disposable and returnable bottles, kegs, packaging materials, trading goods and brewery promotional items.
The Savanna.NET® warehouse execution system from intralogistics specialist Westfalia controls the space-saving solution for seven percent of Swiss beer production using new IT infrastructure from Wortmann AG. The Appenzell-based brewery delivers more than 250,000 hectoliters of the roughly 3.7 million hectoliters supplied from Switzerland each year on time – also thanks to Westfalia.

Project information

- Beverages
- Appenzell, Switzerland
- 2017
- 7,003 storage spaces
- 3 storage and retrieval machines
- Satellite® storage system
- Pallet (Euro, INDU, ORBIS)
- 9 levels
- 130 m (length), 22 m (height)
- Savanna.NET®

CHALLENGE

The beer market is becoming more varied. For the largest independent brewery in eastern Switzerland, in family ownership for five generations, the next development step was the expansion of storage capacity and automation of warehouse logistics for empty containers and multiple bottling lines as well as for trading goods, packaging and promotional materials. In the course of this project, order picking was also to be digitalized, eliminating physical order picking notes.

Space is precious, especially in Switzerland. The additional, automated storage capacity was to be achieved within an existing facility covering just 1,500 sqm. Euro and industrial pallets can weigh up to one ton, while the ORBIS pallets can each be loaded up to 2.45 m high with 2,500 cans. Ideal conditions for Westfalia's Satellite® load handling device.

PROJECT GOALS

- Bundling intralogistics, including the handling of empty containers, production lines, trading goods, packaging materials, brewery promotional materials and order picking there of
- Integration of a constantly growing product range
- Integration of disposable, returnable and filling lines for kegs
- Reduction in throughput time for bottling, increased filling capacity
- Paperless "person-to-goods" order picking, reduced administrative burden, less risk of errors and accidents
- Automated storage system on 1,500 sqm in a narrow space in an existing facility

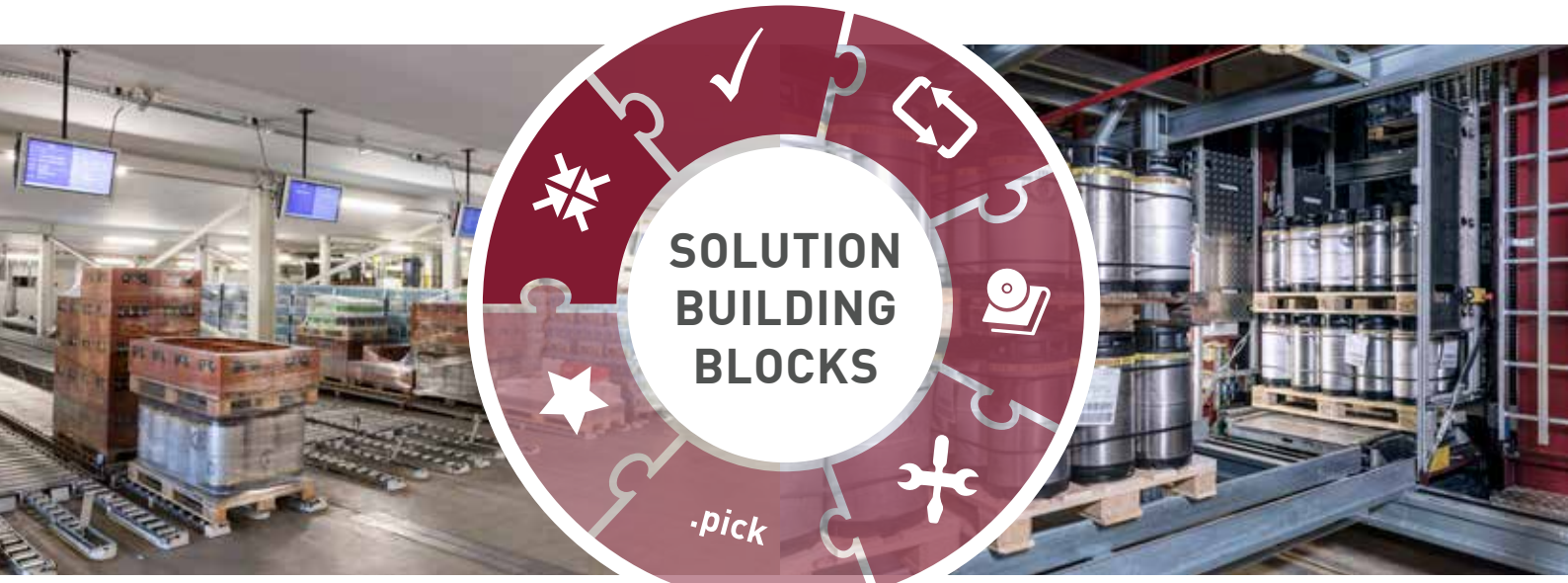
SOLUTIONS

As a general contractor, Westfalia designed, planned and implemented an automated storage system in a silo design for cans, disposable and returnable bottles, kegs, packaging material, trading goods and brewery promotional items with 7,003 shelf spaces over nine levels, tailored specifically to the brewery's available space and budget. For maximum throughput, everything is transported on Euro or industrial pallets weighing up to a ton. Underneath there are also ORBIS pallets loaded up to 2.45 m high.

The system totaling 130 m in length and the new high-bay warehouse reaching almost 22 m high was integrated seamlessly into the existing manual intralogistics on about 1,500 sqm – the only manual processes are now pallet infeed, order picking for mixed pallets and truck loading.

COOPERATION – THE VOICE OF THE CUSTOMER

"Cooperation with Westfalia was good at all times", says Sepp Koch. "It helped that we were always dealing with the same contact persons. This meant that mechanical as well as technical problems were quickly resolved."



COMPACT AND SPACE-SAVING

High-density storage systems can be extended upwards, creating flexibility and reducing the amount of space needed. The silo-style high-bay warehouse is self-supporting. The use of the satellite® technology further minimizes the space required to three aisles, each with one storage and retrieval machine (SRM). There are six storage blocks available in the warehouse. Here, the three 21.7 m high storage and retrieval machines with chain Satellite® perform the storage and retrieval of pallets with a storage depth of up to five pallets per rack channel; in all, a total ten pallets would be possible. The Satellite® shuttle trolleys move within the compartments on special Satellite® rails. As they can reach particularly far from the SRM, storage depth is significantly increased. Pallets are stored on the rails in a more stable and careful manner than before, thus increasing system availability. This is ideal for high volumes and loads.

DYNAMIC AND RELIABLE

This new era in Locher's history involves the interplay of hundreds of conveyor units, a high-performance transfer car serving the production lines, one transfer car each at the truck supply lines and the order picking lanes, two vertical conveyors and three 21.7 m high SRMs. The system has been designed to provide years of reliability through regular maintenance carried out by the Westfalia Service Department and an on-site spare part package.

PALLET SUPPLY AND REMOVAL IN THE CONVEYOR LOOP

Empty containers are fed in via a total of three storage lines in the block warehouse and trading goods or filled containers for order picking via a separate line. Pallets with empty containers and rejected goods are also fed in there. At the feeding station, the identification point can be served via monitor and each container and empty pallet without bar code can be assigned. A conveyor loop between the high-bay warehouse and production lines coordinates the non-stop supply and removal of pallets.

TRANSFER CARS AND SAVANNA.NET® COMBINED

A central transfer car with two pallet spaces shuttles between the loop and storage lines of the disposable, returnable and filling lines for kegs. It supplies these with empty containers and transports filled containers back to the conveyor loop in front of the high-bay warehouse. Free spaces to the left and right of the transfer car aisle have been equipped with storage locations for quickly supplying the production lines with further empty containers. The keg line on the first floor is connected to the transfer car via a conveyor line with vertical conveyors.

FAILSAFE THANKS TO MAINTENANCE AND SOFTWARE

Every 18 months, the high-performance transfer car is replaced as a precaution during one of the three annual maintenance visits. The modular Warehouse Execution System (WES) Savanna.NET® also ensures efficiency and low wear. It avoids empty runs by bundling pallets moving in the same direction. "We programmed Savanna® to use the routes covered by the transfer car in a highly efficient manner," explains Stephan Kleine Hörstkamp, software developer at Westfalia. Westfalia supplied all of the hardware for the warehouse management software and order picking control system via its corporate group.

HIGHLY DYNAMIC MANUAL ORDER PICKING

The warehouse management software already reserves full pallets in the warehouse for the shipping zone, with available full pallets being moved to the order picking zone on the first floor. Lifting carriages with terminals are available to operators to reconfigure pallets at the order picking level. Savanna.NET® automatically fills empty spaces. Lifting carriages with terminals are available to operators to reconfigure pallets at the order picking level. The "person-to-goods" order picking approach saves time, reduces the distances that have to be covered and removes the burden on staff. Picked goods are transported to the warehouse or directly to the shipping zone. In the shipping zone, a transfer car and ten gravity roller conveyors for 170 pallets supply the five truck terminals.

INCREASED FILLING CAPACITY, REDUCED ACCIDENT RISK AND ADMINISTRATIVE BURDEN

"Through automation, we have reduced throughput time in bottle filling and increased our weekly filling capacity," explained Sepp Koch of Brauerei Locher AG, the project contact there. "We are reducing the risk of staff accidents, as the conveyor technology means there is less movement of forklifts and other material handling equipment. And using Savanna.NET® for our order picking operations has allowed us to eliminate paper order picking notes. We process all orders on the mobile order picking terminals and have reduced the administrative burden and order picking errors."

Conclusion

"The brewery has extended its filling facilities with returnable bottles and kegs and linked up shipping logistics, including trading goods, in a new location," explained René Giger, the sales representative responsible for Locher at Westfalia. "Increased demand can be met thanks to the especially high capacity and throughput of the entire system of 212 pallets per hour.

Even in the event of production stops or a filling outage, the shipping and order picking operations could still continue. In short, with the exception of mixed pallet order picking, Westfalia automated all of the intralogistics, from manual pallet infeed through to allocation for truck loading."