Westfalia®
WAREHOUSE SYSTEMS & TECHNOLOGIES

CASE STUDY

SINNACK BACK-SPEZIALITÄTEN GMBH

Modernization of an automated high-bay warehouse for 2,557 pallets after 20 years of reliable operation

Established in 1899, the baking specialist Sinnack Backspezialitäten GmbH & Co. KG has kept its family company charm as it developed from a one-man bakery to an industrial-scale baking operation. In 1995, the head office in the town of Bocholt was completely rebuilt; in 1994, a production site was opened in Drossdorf (Sachsen-Anhalt). One of the largest baked goods producers in Europe, Sinnack delivers millions of freshly baked rolls, ciabattas, baguettes, wraps and snack rolls to leading retailers every day. Sinnack stands for best ingredients and high-quality standards such as IFS Food or the EU-Bio-Logo organic label governed by the EU Organic Regulation. Since 1999, an automated Westfalia Satellite® storage system has been ensuring smooth intralogistics in Bocholt. The warehouse (16 m high, 22 m wide, 32 m long) has 2,557 storage spaces on seven levels and can be cooled down to -28 °C. Up to 75 Euro pallets per hour pass through the warehouse in double-cycle operation around the clock. Westfalia has brought the warehouse up to date with the latest technology and safety standards.

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Project information

- Baked goods
- Bocholt
- 1999
- 2,557 storage spaces
- 1 storage and retrieval machine
- Satellite® storage system
- Pallet (EURO)
- 7 levels

CHALLENGE

The risk of obsolete and no longer available components failing and an automated storage system coming to a standstill increases on average after 10 to 15 years of continuous operation. Discontinuation of components for which spare parts are no longer available causes extended shutdowns and severely disrupts operations, leading to higher costs and delays in delivery. A modern, state-of-the-art, warehouse can ensure safer operation with regard to staff, investments, and customer satisfaction.

As the Sinnack warehouse has been in constant operation since it was first built in 1999, comprehensive modernization was urgently necessary. In addition to heavily used wear parts, an up-to-date Programmable Logic Controller (PLC), modern drive technology and personnel protection technology are crucial to meet all safety requirements and to use the system in a trouble-free and energy-efficient manner.

PROJECT GOALS

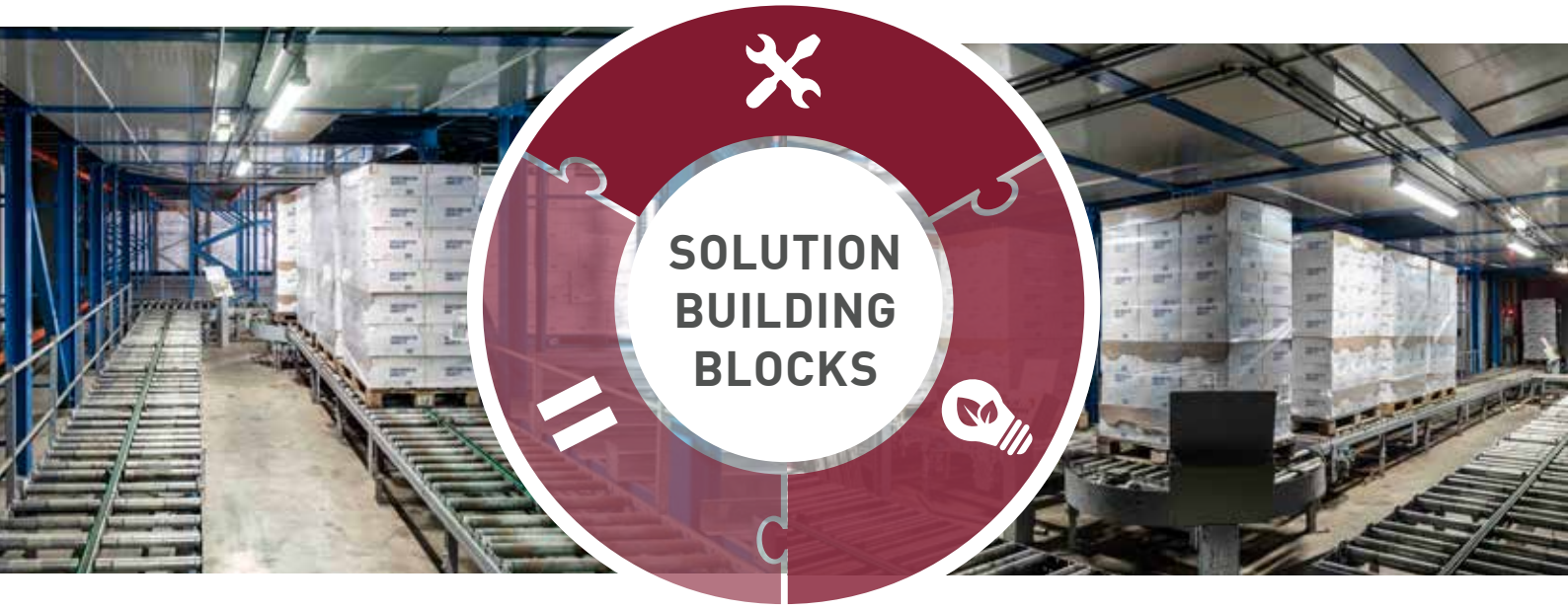
- Higher resistance to faults through use of up-to-date components and availability of components for future operations
- Trouble-free ongoing operation ensuring warehouse operation and punctual shipping to customers for years to come
- Higher energy efficiency for resource-efficient and sustainable production
- Fast modernization with minimal interruption of operations
- Comprehensive, holistic modernization of the entire electromechanical system. All components are designed for use as frozen storage at up to -28°C.
- Maximum precision of system and maximum protection against personal damage

SOLUTION

In March 2022, Westfalia modernized the warehouse extensively and made it fit for the next years by replacing all obsolete components with new ones. In early April, the warehouse resumed its operation after a short business interruption. In the event that a service incident occurs, spare parts are available and can be quickly replaced. After just 11 days of modernization works and a downtime of only 5 days, the system now transports the 500 kg load units even more energy-efficiently. Once the load units have been fed into the system and checked, the conveyor system transfers them to an aisle and onto an approx. 15 meters high chain Satellite® storage and retrieval machine (SRM) which positions the load units into the storage channels crosswise and in a highly dense manner. With efficient use of each trip, load units are stored, transferred, and retrieved according to parameters such as article number, storage date, best-before date, or customer number.

COOPERATION – THE VOICE OF THE CUSTOMER

"The entire process was flawless – from planning via ordering through to implementation. Westfalia has been a reliable partner to us for many years," says Andre Rösing, head of the central technical service.



COMPLETE RETROFIT

Westfalia replaced the existing Siemens S5 SPS with a new generation Siemens S7 SPS and also replaced the control cabinet including all components, the entire safety technology such as the safety light barriers at the storage and retrieval lanes, and the safety switches at the access doors in order to comply with all applicable standards. In addition, two geared motors each in the carriage and hoist unit were replaced with state-of-the-art models, as were the shafts, drive wheels, chains, and chain guides, which are subject to greater wear. The sensor technology was also brought up to date. System precision is ensured by two new lasers for travel distance measuring in the carriage; one laser for hoist distance measuring in the hoist unit; speed monitoring in the carriage and hoist unit; and an infrared data light barrier for data transmission to the warehouse management system. The state-of-the-art precision shelf positioning system on the load handling device helps ensure gentle handling of materials and, thanks to millimeter-precise positioning, contributes to long-term use of pallets and precise, damage-free, transport of load units.

NEW LEVEL OF ENERGY EFFICIENCY

In addition to operational safety of staff and smooth warehouse operation, the general technological overhaul has resulted in improved energy efficiency. At Sinnack, intralogistics is a major building block of increasingly resource-efficient and sustainable production. Energy consumption already low in a multi-deep storage system with maximum space utilization and only one storage and retrieval machine is further reduced through use of the SEW MOVIAXIS® servo multi-axis amplifier. The axles of the storage and retrieval machine now move in coordination with each other: The energy generated in one axle when lowering the load or during braking is made available to the other axle.

II MINIMUM DOWNTIME

The experienced Westfalia team has meticulously planned and thereby significantly shortened the modernization effort. Already during the preparation weekend, the hoist unit was mechanically modernized, chains and chain deflectors were replaced. This early start means that the automation department and the electricians worked hand in hand. This was followed by the replacement of the control cabinet, control panel, and geared motors including mechanic units such as shafts and bearings. While the electricians put into operation the control cabinet, the mechanics replaced all components such as limit switches, lasers, or data light barriers. Then the storage and retrieval machine was commissioned. Operations were interrupted for only five days; the Satellite® storage system was modernized in eleven days, followed by four days of plant monitoring to optimize the system. No unforeseen costs were incurred; all plant data of the client were available.

Conclusion

Looking forward, the warehouse of Sinnack Backspezialitäten GmbH & Co. KG will once again be operating at the highest level of safety and efficiency for the next years, contributing to the company's sustainability. In the event of a potential service call, repairs can be done quickly, i.e., with minimal interruption of operations.

"All these challenges were resolved through modernization. In the course of the modernization, the warehouse was optimally integrated with our equally modernized virtual environment," says Andre Rösing.