

CASE STUDY

BEST WOOD SCHNEIDER® GMBH – EBERHARDZELL

**Greater capacity, reduced forklift traffic:
Higher market flexibility through
automated high-bay warehouse**

The company best wood SCHNEIDER® GmbH distributes all types of wood products and wood fiber insulation materials for modern timber and passive house construction across Europe. Glued laminated Timber, solid structural timber, glulam, cross-laminated timber, and timber box elements, wood-fiber insulation materials, and wood pellets are produced in an energy-efficient manner. With an automated high-bay warehouse

by Westfalia, the family-run company can respond confidently to the rising demand for insulation boards made of wood fiber. The storage system is economical and space-saving, creating high storage capacity for around 7,130 load units of various formats, allowing deliveries to be made at short notice and on time, and reducing forklift traffic, energy consumption, and the risk of accidents.

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Project information

-  Timber products
-  Eberhardzell, Germany
-  2012
-  Minimum 7,056 storage spaces
-  1 storage and retrieval machine
-  Satellite® storage system
-  Pallet
-  11 levels
-  115 m, 24.5 m, 23.0 m (LxWxH)
-  Savanna.NET®





CHALLENGE

There is an increasing demand for processed and refined products made of wood and wood fiber insulating material for modern, environmentally friendly timber construction. In addition, the industry is faced with worldwide wood supply bottlenecks and a global construction boom. Regional suppliers are often unable to meet this demand. Automation of warehouses usually requires high investments and highly customized solutions. The company best wood

SCHNEIDER® GmbH produces its wood fiber insulation boards in many different formats. The storage system has to handle these products simultaneously and fill the available storage channels in a space-saving way. There is also a heavy burden on the load units. The warehouse must both accommodate production capacities – including for staggered orders – as well as provide goods ordered on the same day and at short notice for shipment the following day.



PROJECT GOALS

- > Sufficient storage capacity for a minimum quantity level to serve even short-term customer orders
- > Flexible production capacity for staggered orders
- > Designed for multiple formats and growing product range
- > Designed for heavy load units
- > Reduction of throughput time
- > Reduction of forklift traffic to minimize energy consumption.
- > Economical solution with high reliability and moderate modernization expenditure



SOLUTION

Appointed by the wood processing works as a general contractor, Westfalia designed, planned, and implemented a storage system for wood fiber insulation boards that is a perfect fit both in terms of space and economic requirements, measuring 115 m (L) x 24.5 m (W) x 23.0 m (H). Two blocks with 81 channels spread over 11 levels provide space for at least 7,056 load units that have a depth of 0.8 to 2.6 meters and - on levels 1 to 10 - a height of up to 1.4 meters and up to 2 meters on level 11. Capacity increases when there are smaller load units, with the system being designed for multiple formats.

COOPERATION – THE VOICE OF THE CUSTOMER

“The overall package was just right for us and was the most cost-efficient offering,” emphasizes Tobias Karnik. “What is important for us as a timber processor is a rounded-off complete package with harmonized components, high system and software flexibility, and 24/7 software and PLC support. Westfalia has in-house capabilities to cover all the necessary know-how; that was really crucial to us!”

“The automated high-bay warehouse is an important element of our expansion concept. We rely on this sustainable storage system, the good cooperation, and the system support from Westfalia just as we do on timber as a sustainable construction material,” says Carmen Schneider, authorized signatory of best wood SCHNEIDER® GmbH.



SOLUTION BUILDING BLOCKS



SEAMLESS INTERFACE AND PRODUCTION BUFFER

The palletized wood fiber insulation boards that are identified via RFID come directly from production to the upper floor, where they are checked. The system filters out deficient load units for manual correction via a conveyor technology loop. These load units are subsequently checked again and passed to the high-bay warehouse storage and retrieval machine (SRM). Production can be staggered and run at full speed independently of orders. The warehouse serves as a buffer for finished goods until they are shipped.



COMPACT STORAGE OF HEAVY LOADS

Thanks to the Satellite® load handling device developed by Westfalia, load units weighing up to 1.3 tons can be stored in a highly compact setup that conserves materials and pallets. The chain Satellite® disengages from the SRM, travels into the at least four storage spaces deep (depending on the load unit format) channels on both sides and stores and retrieves the goods based on the last in first out principle.



WAREHOUSE PROFILES GENTLE ON MATERIAL AND PALLETS

The Satellite® shuttle trolleys move on special Satellite® rails within the compartments. 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.



EFFICIENT STORAGE

Thanks to this technology, only one 23 meters high storage and retrieval machine and one storage aisle are required to serve a high number of storage locations. In addition to conveyor tracks and turntables, the conveyor technology includes three traversing cars. Due to the lower number of vehicles, this highly compact storage method saves service costs and reduces the amount of space required. Compared to systems with additional aisles and stacker cranes, the lower base load in this case (fewer devices in standby) also results in energy savings. Compact warehouses can be planned for height. If necessary, the existing warehouse can be extended in length or in width by extending the storage channels.



DYNAMIC AND DESIGNED FOR MANY FORMATS

The throughput of storage systems varies depending on the requirements. The aim is to achieve the most cost-efficient solution. In this case, the system allows storage of 60 and retrieval of 40 pallets per hour. In order to smoothly transport the two-runner or three-runner pallets in four different depths ranging from 0.8 to 2.6 meters, the conveyor track elements are seamlessly “interlaced” in this custom-made version. During the conveyor process, turntables split apart and interlock.



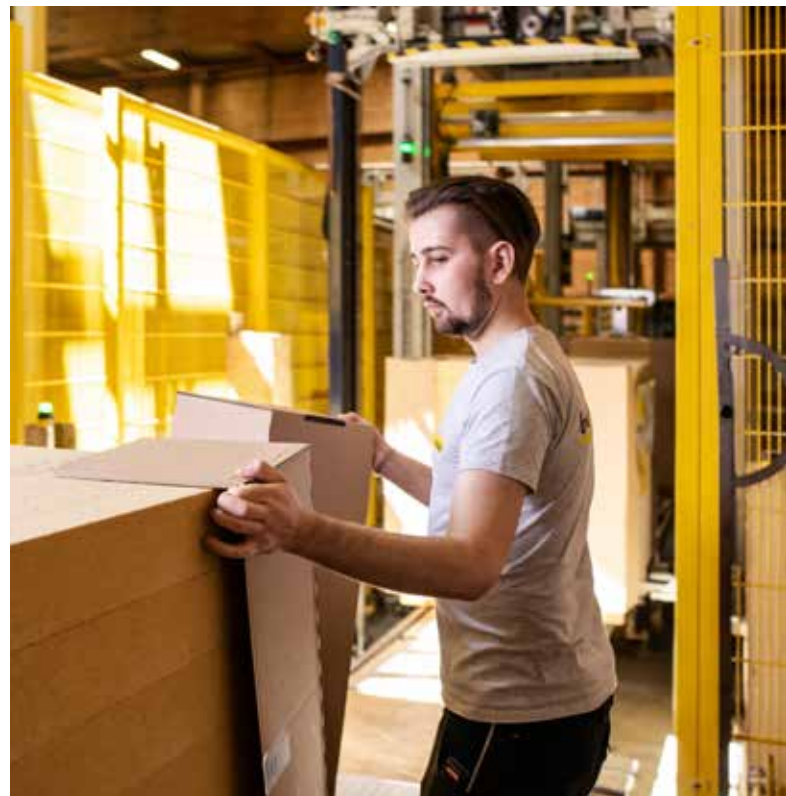
A SOFTWARE FOR WAREHOUSE MANAGEMENT AND MATERIAL FLOW CONTROL

Westfalia’s Savanna.NET® Warehouse Execution System has written into its code particularly route-efficient and resource-saving storage and retrieval, optimized single-variety occupancy of storage channels for direct access to goods, contour checks, discarding of damaged load units, and advance transfer to provisioning channels for quick and truck-specific retrieval. The software combines material flow control and warehouse management functionalities and allows modular scalability in line with the future-open storage system.



REDUCTION OF THROUGHPUT TIME, FORKLIFT TRAFFIC, ENERGY CONSUMPTION, AND RISK OF ACCIDENT

Automation reduces the storage throughput time of insulation boards as well as the delivery times. Automated storage and retrieval is energy efficient and reduces forklift traffic. In turn, this minimizes the risk of errors in the shipping process as well as the risk of accidents. Truck tours are prepared overnight without the need for additional personnel, even for orders placed at short notice the day before.



Conclusion

“We operate the storage system around the clock. The wood fiber insulation boards go directly from production to the high-bay warehouse,” explains Tobias Karnik. “They are stored according to the dynamic storage principle, depending on the available space, and are sorted in single-variety channels. The pallets are identified via RFID.

The system retrieves the pallets on a trip-by-trip basis, bundling and providing them for each truck. With the automated high-bay warehouse, we have gained capacity and reduced forklift traffic.”