

Siemens

# Robots take over production supply

Due to growing business demands in recent years at the Siemens combination engineering plant in Chemnitz (WKC), capacity at the previous production warehouse was reached in 2018. In light of this, plans were made to install an automated order fulfilment system to optimise the use of the existing warehouse space. Siemens WKC commissioned STILL Intralogistics Consultancy to plan and design the system. The result is the reorganisation of the shelving warehouse, which was previously manually operated, with the installation of a cube storage system from AutoStore® and the implementation of a platform system including automated conveyor technology for cardboard packages.



**Sector:** Technology group

**Company:** Siemens AG is a leading international technology group with around 293,000 employees worldwide.

The combination engineering plant Chemnitz (WKC) develops and manufactures customer-specific electrical equipment for mechanical and plant engineering.

**Challenge:** Optimise density of the available warehouse space during ongoing operations.

**Solution:** Data collection and analysis, and creation of a comprehensive warehouse design by STILL Intralogistics Consultancy. Reorganisation of the formerly manually operated shelving warehouse, installation and implementation of a platform system, including automated conveyor technology by STILL as well as a cube storage system from AutoStore® by sister company DEMATIC.

The Siemens combination engineering plant in Chemnitz (WKC) has a long tradition in switchgear construction for machine tools as well as in a variety of sectors in general mechanical and plant engineering. This also includes projects in the logistics and automotive sector. The range of services covers the full spectrum from applications engineering via material logistics and assembly of electrical equipment through to inspection and precommissioning. The plant is planning for more than 1,270,000 material items per year for switchgear production. Each year, 46,000 switchgears and various special assemblies as well as electronic equipment are manufactured and delivered to customers worldwide. Due to the increased demands, the reorganisation of all warehouse operations resulted in a collaboration with STILL in the form of intralogistics consulting.

## Reorganisation of warehouse operations

The former manual warehouse was no longer sufficient to meet current demand. Both the handling of the small parts load carriers (SLC) and the structure of the pallet storage areas as well as the warehouse operation as a whole needed a more efficient design. Likewise, the picking frequency per person needed to be increased per person and hour. The new warehouse systems including conveyor technology also needed to be accommodated in the existing buildings over the same floor space without interrupting ongoing operations.



**"We worked with the team from STILL Intralogistics Consultancy to redesign the warehouse in relation to capacity and handling performance."**

Carsten Sambo, Head of Inbound Logistics WKC, Siemens AG

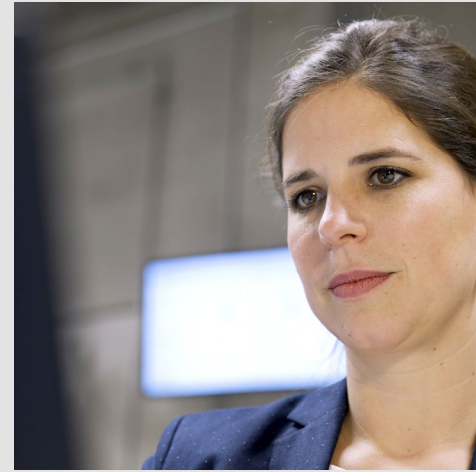


The Siemens combination engineering plant Chemnitz (WKC) is planning for 1,270,000 item positions per year. This means 46,000 switchgears and various special assemblies are manufactured and delivered to customers worldwide.



In the first phase, various systems were assessed and compared using Key Performance Indicators (KPIs) on the required throughput and the warehouse space available in relation to the capacity of the materials to be stored.

STILL's warehouse planning software was used to create and present to us various layout variants, both in 2D and 3D.



## Successful consulting project

In the consulting phase, Siemens WKC worked with STILL to develop various concepts for the new intralogistics solution.

Carsten Sambo, Head of Inbound Logistics at Siemens WKC and project manager: "Working with STILL Intralogistics Consultancy, we defined the storage and transport requirements based on the analysis of the item and order structure, which allowed us to redesign the warehouse in relation to capacity and handling performance. Various layouts, both in 2D and 3D, were drafted and presented to us using STILL's warehouse planning software."

STILL Intralogistics Consultancy was involved in the project right from the start. Marina Hein, Head of STILL Intralogistics Consultancy, explains further: "From the outset, requirements for a future warehouse are usually far from being finalised. This is where we came in to support Siemens WKC with our consultancy. From producing detailed requirement definitions to comparing several rough concepts through to detailed planning of the entire system."



**"We provided consultancy to assist Siemens WKC. From defining the requirements in detail to comparing several rough concepts through to planning the entire system in detail."**

Marina Hein, Head of STILL Intralogistics Consultancy

In the first phase, STILL assessed and compared various systems using Key Performance Indicators (KPIs) on the required throughput and the warehouse space available with regard to the capacity of the materials to be stored. Both manual and automated systems were compared as part of this process. "After that, we worked with the customer to choose the ideal system and then, in the second phase, worked through all the systematic requirements in detail," explains Marina Hein.





AutoStore® ensures optimal capacity utilisation for the warehouse. The containers are stored closely together and on top of each other.

Underneath the AutoStore grid, there are two transfer cells through which the BINs are conveyed to the system for storage.

Each day, there are requests for over 5000 different order picking positions.

The result is a well-rounded overall concept, consisting of an optimal combination of racking systems with the appropriate industrial trucks, automation solutions including conveyor technology, and precise mapping of the software requirements.

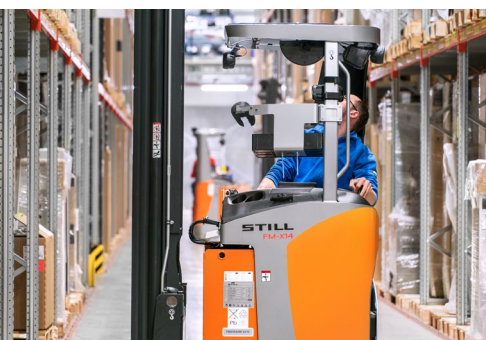
## Future of automated warehousing

The detailed planning phase includes the automation of the small parts warehouse using an AutoStore® system. "We have already had good experiences with the warehouse system in the Siemens Bad Neustadt plant (EWN)," says Carsten Sambo from Siemens WKC.

Thanks to its wealth of experience with AutoStore® implementations, Dematic was eventually selected as system integrator to install the automated conveyor technology at Siemens WKC. The 2100-m² platform system for the conveyor technology and the racking system for 12,000 pallet bays with the appropriate industrial trucks were supplied by STILL. When integrating the AutoStore® into the existing WKC software landscape, a previously existing solution was used: namely, the ASIS (AutoStore® Integration Service) software from the Siemens plant in Bad Neustadt.

## Optimal goods flow in the warehouse

In the new warehouse, the goods flow starts with incoming goods in the form of pallets and cardboard packages. The palletized goods are stored in the racking system using FM-X reach trucks. The packaged goods are placed directly on the telescopic belt and transported to the storage platform via vertical conveyor (goods-to-person principle). Once received, the goods are unpacked, checked and booked into the AutoStore® containers (BINs). The BINs are then transported to the AutoStore® system via the conveyor line and automatically stored.







Up to 45,000 SLC containers with over 24,000 different material numbers can be stored in the AutoStore® system.

When a request is received from production, the order picking process starts and the goods are sent to internal logistics. The materials are then made available to production using lean methods.

### **Maximum storage capacity thanks to AutoStore®**

Up to 45,000 SLC containers with over 24,000 different material numbers can be stored in the AutoStore® system. In comparison to the previous manual system, up to four times more stock can now be stored than conventional warehouse systems. As a result, the Siemens WKC was able to achieve an order picking rate of 75 items retrieved per hour and employee after just a short introductory phase. The previous manual shelving warehouse was only able to achieve a rate of 30 items. The AutoStore® system aims to optimise this performance by a further 15 percent at least. AutoStore® is the optimal solution for storing and picking the SLC containers and achieving maximum capacity utilisation in the small parts warehouse. The special feature of this cube storage system is a self-supporting aluminium grid, with a modular structure that enables containers to be stacked closely next to and on top of each other.

Carsten Sambo explains: "In the AutoStore® we have over 5000 requests per day for various picking positions." In order to be able to access the required goods quickly in the mornings, we programmed a forecast function for retrieval, and transfer during the night shift. Demand for the following day is checked overnight. The materials identified are relocated from the lowest levels of the AutoStore® system to the upper area of the grid. "This ensures that the required containers can be accessed quickly at the start of the morning shift."





**And action!** Reorganisation of a manually operated shelving warehouse at Siemens WKC: from analysis to planning through to a high-density warehouse.

## Summary

The concept for the new intralogistics process was developed in close cooperation with all participants from Siemens WKC and the two consulting and sales team from STILL and Dematic. Carsten Sambo draws the following conclusion: "With this new warehouse, we are well equipped for the future. This is because the scalability of the warehouse solution was already taken into account at the planning stage. The objectives of increasing the storage and order picking capacities, as well as making the handling and warehouse operations as a whole more efficient were met in full."

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