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## **HERMA**

### KÖHL FEATURES

- High-bay warehouse with special safety devices
- Stacker cranes in customized design
- Conveyor technology
- Mechanical assembly
- E-Installation
- Warehouse Management System
- Automation and Visualization
- Interfaces to sprinkler & fire alarm system
- Safety engineering
- Commissioning

## Fully automated high-bay warehouse for HERMA

Products up to 4.5 tons require a safe and robust storage and handling solution.

HERMA is Europe's leading manufacturer of self-adhesive technology and has built a second production site in Filderstadt. Here KÖHL Maschinenbau implemented a fully automated high-bay warehouse designed for the storage and transport of paper rolls weighing up to 4.5 tonnes. The dimensions of the load and the lack of a load carrier required special safety installations in the high-bay warehouse and product-specific designed stacker cranes. In addition, the Warehouse Management System and material flow software was configured according to specific customer requirements.

With this project, KÖHL Maschinenbau once again demonstrated its professional „all from one source“ concept. From planning to commissioning, a target- and time-oriented implementation of all interacting trades was carried out: for a future-proof, reliable intra-logistics system.





### Roof supporting high-bay warehouse

The high-bay warehouse consisting 13 levels and 4 aisles has a loading capacity of approximately 1,760 paper rolls.

### Safety devices

The weight, the size of the paper rolls to be stored as well as the lack of a load carrier require special securing constructions in the high-bay warehouse in addition to extremely robust supports.

The following security features were installed in the high-bay warehouse:

- Roll-away guard
- Fall through protection for smaller rolls
- Telescoping safety device for the statically supporting parts in the warehouse

### Storage & transport goods

The stored goods include paper rolls in raw material version as well as coated jumbo rolls with a maximum weight of 4.5 tons and different diameters and lengths. For the identification and traceability of the rolls, they are provided with a label that is either captured by a plain character (manually) or by a bar-code (automatically).

### RBG's with special equipment

The dimensions of the stored goods also required special attention in the design of the stacker cranes:

- Product-specific telescopic forks
- Mobile maintenance baskets
- Capacity for up to 4 people

In addition, high-speed doors and muting systems were installed at the AGV transfer points for safety reasons. Plausibility checks at each stacker crane transfer point ensure that only intact paper rolls are stored.







# MATERIAL FLOW

## Robust & tailor-made



### Conveyor system to the high-bay warehouse

KÖHL Maschinenbau has designed, implemented and installed a robust and modern conveyor system that is designed to fit the product-specific requirements.

This also included the tailor-made configuration of special components such as the gripper system for the paper roll.



## DRIVERLESS TRANSPORT SYSTEM



■ Removal from the conveyor line



■ Entrance to storage lane



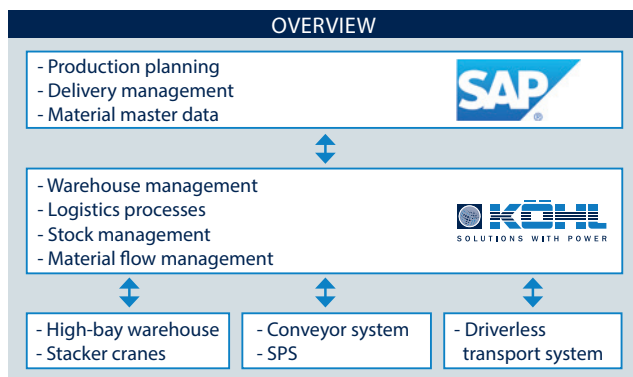
■ Handover to stacker crane





## Warehouse Management System

The Warehouse Management System (WMS) coordinates the logistical flow of goods and manages the warehouse stock for the business processes organized in SAP.



### The business processes include:

#### ■ Receipt of goods

At the goods-in area, the delivered rolls are scanned by automatic barcode scanners and compared with those from SAP. For quality control, additional images of the roll are recorded. The WMS then instructs a driverless transport vehicle to pick up the roll from the goods-in area for storage.

#### ■ Production processes

Punctual just-in-time delivery of raw materials and semi-finished goods to the production facilities is extremely important for efficient production. From the SAP production orders, the WMS calculates the expected demand for rolls and, based on quality specifications, selects the appropriate

ate rolls from the available warehouse stock. These are then transported to buffer locations so that they can be delivered to the production machines on time. Finished goods are announced via SAP and fully automated put into storage.

For the transports, the WMS coordinates the connected conveyor system elements such as the storage and retrieval stacker cranes, the driverless transport system (AGV) and the conveyor system of the goods-in area.

### The coordination tasks include:

- Ordering the stacker cranes and the AGVs
- Monitoring of the transfer between conveyor system, vehicles and stacker cranes on 2 levels
- Error management for further transport in case of malfunctions

A modern Web 2.0 browser interface is available to operate the WMS.



### ■ Exempel: User Interface

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