Success Story

GRASS

Ideas for Greenfield Sites

G*GRASS

kardexmlog

At a glance

Location
Hohenems (Vorarlberg/Austria)

Application
The GRASS Group specializes in movement systems for furniture. Four external warehouses were to be consolidated into a single new logistics center.

Solution
A high-bay warehouse with approximately 38,800 pallet storage spaces, fully automated truck unloading, goods-to-person picking, a picking buffer, and two goods issue buffers.

Effective Consolidation

A fully automated high-bay warehouse centralizes global logistics and ensures simplified, ergonomic, and accelerated processes.

The GRASS Group is a globally active group of companies, serving the furniture industry as a development partner and supplier specializing in movement systems. The portfolio includes drawer and slide systems alongside hinge and flap systems. The company, founded in 1947, is based in Höchst (Vorarlberg, Austria) and employs 1,800 people at 19 locations. It has more than 200 sales partners in 60 countries.

To simplify ordering processes and to reduce the delivery times for customers worldwide, the finished goods logistics of all the company's European production plants were centralized at a new location in Vorarlberg, Austria. Previously, the orders were handled at four external warehouses, increasing process complexity.

High **level of automation**

4 external warehouses consolidated

Shortened delivery times worldwide

Ideas for optimal planning

When constructing the new logistics center in Hohenems, the GRASS Group exercised great care in systematically creating the optimal conditions for efficient, ergonomic, and safe processes.

Smooth sliding drawers and elegantly closing cabinet doors: Using clever hinges, pull-outs, and flap systems, modern furniture is an important component of high-comfort living. The Austrian GRASS Group is among the leading specialists in this field.

Growing demand worldwide and the desire to consolidate its existing processes prompted the Group to take action. As early as 2016, GRASS GmbH, part of the Würth Group, acquired a 52,000-square-meter site in Hohenems to build a state-of-the-art logistics center. An ideas competition was launched to find the best concept, attracting designs from eight intralogistics systems providers.

Long-term partnership of equals

The winner of the ideas competition organized by the GRASS Group was Kardex Mlog. One of the factors in Kardex Mlog's favor was the positive reports from other projects carried out previously within the Würth Group. "We were also very impressed by the commitment of the Kardex employees and, above all, by the thorough planning with numerous great ideas for highly efficient processes," says project leader Jürgen Moritsch. As well as that, the client was looking for a provider "with whom we could establish a long-term partnership of equals with a view to subsequent projects."

The distribution center, with its approximately 38,800 pallet storage spaces, was commissioned on June 1, 2020. It is the largest logistics construction project completed in the Austrian state of Vorarlberg. The investment by GRASS totaled 70 million euros.

11 stacker cranes of type Kardex MSingle B 1000/34-ET

2 goods issue buffers of type Kardex MSequence with
2 stacker cranes of type Kardex MTwin

1 replenishment buffer of type Kardex MSequence with
1 stacker crane of type Kardex MSingle A

Retrieval of up to 1,500 pallets per day

Features and background

The new logistics center at the GRASS Group features a high level of automation and carefully designed processes.

Unloading of trucks at the goods receipt area and the subsequent placement in storage of approximately 800 pallets per day runs fully automatically – and the system can handle five different pallet types. The pallets are delivered as part of in-plant transport directly from the surrounding production locations of the GRASS Group. The company's semi-trailer trucks have special trailers where the truck bed has a conveying system sunk into the floor. When a truck docks, the mobile conveying system connects with the stationary conveying system and unloading begins – the pallets roll off the truck as if by magic. Within three minutes, the trailer is empty and the truck can continue its journey. Another advantage of this rapid unloading is that the pallets received are available more quickly for the customers.

Each pallet is allocated a QR code, which is read automatically on the way into the eleven-aisle, high-bay warehouse and compared with the data in the merchandise information system. Information contained in the barcode includes the pallet type. Based on this information, the software determines where in the high-bay warehouse to find a storage space.

Ergonomically optimized picking stations

Each picking station has its own control screen. The ergonomic concept applies throughout the entire material flow and begins with the goods receipt.

If there are any discrepancies, the relevant pallets are automatically diverted to a NOK route (NOK = "Not OK"), where they are manually assessed and corrected. All other pallets are transported directly via a conveyor to the entry point to the high-bay warehouse, where they are received by one of the 11 stacker cranes of type Kardex MSingle B 1000/34-ET and placed on one of the 22 racking levels. The one-piece stacker cranes are manufactured by Kardex Mlog at the company's headquarters in Neuenstadt am Kocher. They are 34 meters high and have a capacity of 40 double cycles per hour.

Layer-by-layer access

75 percent of the pallets stored here leave the warehouse as full pallets. The remaining 25 percent serve as source pallets for goods-to-person picking, which takes place at two ergonomically optimized picking stations. These stations are located on a platform and supplied with the source pallets from the ground floor via eight scissor lift tables. The picking personnel can access the source pallets at the optimal height for each layer and use vacuum lifters to place the packages on the target pallets. Each workstation is equipped with touch-sensitive safety mats to safeguard the operators during the automatic moving of the source and target pallets. Whenever a picker is in the danger zone, the scissor lift tables are switched off. Empty pallets are provided automatically via pallet trucks and shuttle carriages. The weight of the pallets is recorded via an integrated scale. Each empty pallet is assigned a unique pallet ID.

The picking stations are located on a platform that is supplied with the source pallets from the ground floor via eight scissor lift tables.

Minimized error rates

Also, each picking station has a control screen and permanently assigned mobile data capture devices. The devices are connected at each station and across the entire work area, and they communicate as a unit with the conveying technology. The monitors provide visual guidance to the user and offer a multi-media overview. In real-time, the user receives detailed information on the current picking operation and the user's worklist.

This user-friendly system has made it possible to reduce the training time for new pickers by 80 percent. And that's not all: "We have managed to reduce the already-low error rate by a further 70 percent, and this is now in the per-thousand range," says Jürgen Moritsch. Automatic weight control of the target pallets is another factor contributing to the excellent quality of the picking operation.

70%
less errors

Visual
user guidance

80%
shorter training time

Three buffer storage facilities for secure processes

The logistics center also features three buffer storage facilities of type Kardex MSequence for the replenishment and goods issue areas.

Transport of the source pallets to and from the picking stations is via roller conveyors, which are part of the comprehensive conveying technology. The pallets come either directly from the high-bay warehouse or from a replenishment buffer of type Kardex MSequence with a capacity of 82 pallets. The 12-meter-high replenishment rack is located immediately behind one of the two picking stations and is served fully automatically by a stacker crane of type Kardex MSingle A. The throughput performance is 43 double cycles per hour.

Two additional buffer storage facilities of type Kardex MSequence, with a total capacity of 420 pallets, have been installed in the goods issue area. Two stacker cranes of type Kardex MTwin S are deployed here. They deliver a throughput of approximately 54 double cycles per hour with double-deep storage and retrieval, and they pre-sequence the planned routes. The retrieval of up to 1,500 pallets daily is carried out per the “heaviest items first” principle to optimize the subsequent loading process. Thanks to the two goods issue buffers, each truck can be fully loaded and dispatched in 45 minutes.

The preregistered drivers are given a pager when they arrive at the logistics center, which informs them about the start of the loading process and the assigned loading bay. Typically, up to 80 pallets per truck load is moved from the high-bay warehouse to the goods issue buffer two hours in advance, giving GRASS the flexibility to act quickly if the driver turns up earlier than scheduled.

Summary

With a range of good ideas and detailed planning, Kardex Mlog worked together with GRASS GmbH to construct a highly efficient and employee-friendly logistics center. With the largely automated material flow, the ergonomic picking process, and the three integrated buffer storage facilities, it was possible to reduce the personnel requirement to 17 employees. At the same time, the quality and the speed of delivery were improved, and all workflows can now be tracked with full transparency.