Körber Supply Chain

Automated Storage and Retrieval Systems

Lian Hock: Optimising storage space with an Automated Warehouse

Körber established an optimised storage facility for storing goods and set up an automated system for managing the inventory, thereby reducing the cost of logistics for Lian Hock.

The Customer

Lian Hock is a home-grown hardware shop in Singapore. It was established in 1975 and initially served as a hardware supplier to the construction and shipping industry. Today, it has evolved into one of the largest hardware suppliers to multiple verticals in Singapore, with customer convenience being the centre of all business strategies. Lian Hock has been serving its customers through retail and online stores, with a diverse line of offerings and products to choose from.

Körber was awarded the contract for this specific project, owing to the company's strategic solutions, which targeted the present problems to provide solutions that aligned with future goals.

At a glance

Project goals

- Optimise space for goods storage
- Establish an error-free system of inventory
- Minimise the cost of logistics and product storage without the need to engage external warehousing service
- Reduce damages by minimising human labour involved

Solution

- Established 2 units of aisle switching cranes and miniload stacker cranes each
- Handling of RFID tagged pallets
- Provided Warehouse Management System (WMS)

Results

- Improved inventory traceability
- Integration of automated warehouse and retail floor space in one building enables an efficient operation
- Reduced transportation cost for delivery

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LIAN HOCK HARDWARE

Challenges

The immense growth in business resulted in Lian Hock planning their business expansion. They decided to combine their retail and warehousing operations within one building for land space optimisation along with increasing efficiency of operations.

In addition, the manual recording of inventories and lack of labour for manual monitoring led to inaccurate recordings. High piling costs and product damages were some of the pertinent problems faced by Lian Hock. Added to this was the challenge in accessibility to labour when operating a manual warehouse.

All these factors combined, led to a discrepancy in the inventory. The company was looking for more than a set of immediate solutions, it wanted to establish a system that will function well in the long run.

Solution

Lian Hock is a wholesaler of tools and hardware, dealing in products of all types and sizes to be stored. We analysed the product profiles and the operation flow and proposed a solution of two automated storage systems under one roof. The first automated storage system is a pallet ASRS, that could be utilised for the storage of bulky items and palletised goods. The second automated storage system is a bin ASRS that is used to store small and loose products. Lian Hock allocated a compartment on the second storey to establish the bin ASRS and with the pallet ASRS located on the ground floor.

Due to the high cost of land ownership in Singapore, both the systems were efficiently designed to optimize the use of vertical (air) space in the warehouse. Körber installed 4 aisles of double deep configuration racking with 2 units of aisle switching cranes. This solution not only minimised the capital investment, but also simplified the conveyor network connecting the aisles. A Körber Warehouse Management System was integrated with the customer's ERP system to manage the inventory and operational processes.

Results

The integration of the automated system with the retail floor space in one building enabled an efficient operation environment, with reduced cost of delivery for logistics. Körber provided a WMS suite which led to an enhanced inventory traceability and optimisation of operation processes. Stacker Cranes, being one of the key components of an ASRS warehouse tend to contribute significantly to the investment cost. The deployment of aisle switching cranes helps to minimise the investment cost by enabling multiple aisles to be serviced by one crane. In the event of a crane failure, the other stacker crane can still store and retrieve goods from the other aisles, thereby establishing a high level of system redundancy. When it comes to safety, the stacker system is designed according to European Standards to ensure safe operation.

"Based on their past references of large scale projects, along with the time and effort spent on working with the design and architect team, assured us of Körber's effective implementation to finalise a suitable solution for our logistics need. The high cost of land ownership in Singapore compelled us to take a look into integrating retail and warehousing operations into one facility. Körber experience enabled us to achieve a seamless integration of different subsystems under one roof to support different business needs."

Mr. Koh Chuan Poh

Managing Director, Lian Hock Hardware

Facts and Figures

Storage density
Single Deep or double Deep

Height
10 mH to 20 mH

Load type
Totes or palletized goods

Load capacity
Up to 1500 kg

Travelling speed
Up to 3.0 m/s

Lifting Speed
Up to 1 m/s

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