

CASE STUDY

Reference Lotus's, Thailand:
Innovative material flow design with semi-automation in
Lotus's biggest piece-picking distribution center

Lotus's

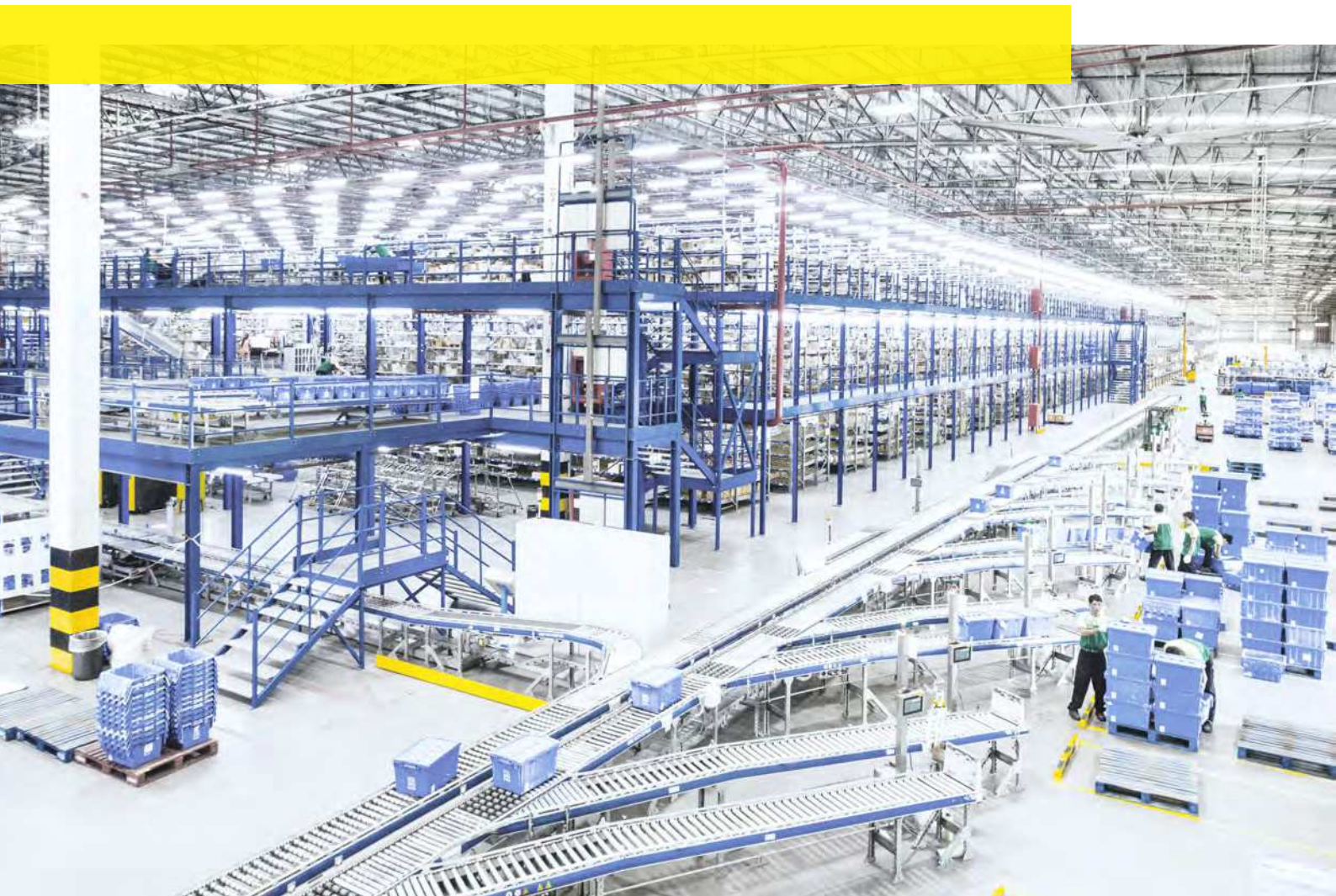
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HYPERMART GIANT STEPS UP ITS RETAIL OMNICHANNEL DISTRIBUTION TO CREATE BETTER SHOPPING EXPERIENCE FOR THEIR CUSTOMERS

Lotus's introduces partial warehouse automation strategies to enhance facility efficiency as it expects 5% year-on-year growth projection in the Thai grocery market.



Lotus's is the leading hypermarket in Thailand, which over the 26 years of development has grown more than 2,000 stores, spanning a total retail floor space of over 1.4 million square meters. Lotus's serves more than 15 million customers every week through both physical stores and an online platform.

Lotus's is committed to providing great quality products at affordable prices through all channels. As infrastructure and urbanization advances continue to improve in Thailand, it provides opportunities for modern grocery retailers to grow.

To respond to the growing demands and the omnichannel consumer behavior, Lotus's too understood that distribution must match this new demand in a bid to reach individual customers anytime and anywhere.



"SSI SCHAEFER more than exceeded our expectations. They have allowed us to execute fast response to our customer demands. Effortlessly in picking processes – this, in turn, enables us to offer more SKUs with optimized stock and achieve error-free delivery for our customers."

Ekachai Phoosanabhongs

Distribution Director
Lotus's



Label adding at order start transactions and processes



Destacking: 800 bins per hour / machine



WAMAS® in direct communication with weight check stations

THE CHALLENGE

With eight distribution centers across Thailand, Lotus's facility in WangNoi is the biggest for piece-picking. SSI SCHAEFER developed a cost-efficient and flexible supply chain to help Lotus's meet the expectations of consumers today.



The distribution center in WangNoi is Lotus's biggest facility for piece-picking focusing on slower-moving groceries and general merchandise

As the business grows, so will the volume of Stock Keeping Units (SKUs) and delivery demands. Previously in a stocking approach for carton-picking of 4,000 - 5,000 SKUs, Lotus's now needed to manage the large SKU base of 15,000 with piece-picking. Lotus's main objective was to develop a more cost-efficient solution and introduce partial automation to handle orders more efficiently and enhance labor productivity.

The growing customer orders added a challenge of finding more warehouse space for higher pick-face locations. While many companies relocate and build a new warehouse, this was not an option. The existing warehouse needed to accommodate the highest potential pick locations, specifically for smaller, slower-moving items and on the same footprint.

Moving into a Partnership

The main goal of the WangNoi facility is to ensure a reliable logistics warehouse system software. Lotus's and SSI SCHAEFER get together into a design-thinking methodology that combines creativity and critical thinking in a Thai context.

Lotus's maintains and stores all master data and picking orders in the Oracle WMS. Lotus's and SSI SCHAEFER collaborated to integrate the SSI SCHAEFER WAMAS® directly into the Oracle environment without re-engineering into an entirely new WMS.

Aside from retrofitting the warehouse, Lotus's and SSI SCHAEFER needed to overcome the IT interface.



Selective pallet racking: independently accessible to each pallet location



Carton flow racks and long-span shelvings as the mezzanine support system

THE PROJECT GOALS

- Retrofit the existing 13,770 m² area to maximize pick density and space utilization
- Re-organize the approach of carton-picking to piece-picking storage
- Increase efficiency of order handling and labor performance through automated processes
- Automating non-value-added work processes in zone-specific areas
- Identifying order picking errors quickly
- Significant reduction of delivery times
- Integration of the WAMAS® software system into existing WMS Oracle



Carton flow racks at the ground floor are designed for faster-moving items and quicker replenishment

THE SOLUTION

Following Lotus's plans to leverage on technology and ramp-up the hypermarket distribution, SSI SCHAEFER intralogistics specialists created the recipe of flexible logistics concept: from the order start to picking stations and shipping sortation.

Receiving:

Inbound pallets will be recorded and placed into the Selective Pallet Racking. At the same time, the 3-tier Mezzanine provides higher storage density for more product lines and maximizes pick-face locations.

From the ground floor of the Mezzanine, the Carton Flow Racks are designed for the storage and picking of fast-moving items. This gravity-fed shelving system also improves item replenishment efficiency, where the items are restocked from the back, independently of picking.

Extended vertically into the second and third floors, the Long-span Shelvings are designed for the storage and picking of smaller, slower-moving items.

In addition, the Carton and Bin Conveyor System installation distributed over the floors assists in quicker picking processes and reduces walk time.



Carton and bin conveying system: avg. 28,900 bins throughput / day



Long-span shelvings caters for slower-moving items at the 2nd-3rd floor



Carton and bin conveying system in connection with picking stations at the 3rd floor

Order Start:

Customer orders are continuously sorted into multiple bins based on the order volume by the Oracle WMS. At the same time, the WAMAS® logistics software orders the Destacking machines to start and automatically allocates a sub-order to each bin. Here, the bins will be routed to its required conveyor pick stations for picking orders. With an average of 28,900 bins throughput per day, the Carton and Bin Conveying System connects key individual areas of the warehouse such as the picking zones and workstations to optimize the efficiency and productivity of these standalone processes.

Picking Process:

Lotus's relies on the conveyors and WAMAS® for optimal order picking processes. After the pickers have completed the picking jobs, the bins are deposited back into the conveyor pick stations to be transported to the following conveyor pick stations or directly into the sortation area for shipment processing. To prevent bin bottleneck, WAMAS® will route the bins to the subsequent conveyor pick stations and re-route the bins back at a later stage.

Another key feature is the ability to re-route the bins back for further investigation should the picking job is incomplete. To achieve quality outbounds with low error rates, the weight check station is a simple yet highly effective solution for identifying errors. This also eliminates the need for manual final checking stage. Bins that exceeded the specified tolerance weight range will be diverted to an error station for rectification.

Shipping Station:

With 12 lanes at the shipping station area, the shipping operators remove the bins from the conveyor and palletized the bins together for loading onto their delivery trucks.



Curve belt conveyor

THE RESULT

The solutions developed for Lotus's improves not only the space utilization of the warehouse. It also empowers their employees and performance edge with automation. The system delivers capabilities to meet the end-customer satisfaction

levels by optimizing order processing speed and accuracy. Combining both automation and worker augmentation solutions, Lotus's can continue to focus on its plans in business growth.



973 meters of carton and bin conveying system connecting to key individual areas of the warehouse

About Lotus's:

Lotus's (formerly Tesco Lotus) started from the Lotus Supercenter chain in 1994 by the Charoen Pokphand (CP) Group with the first store opening in Seacon Square. In 1998, Lotus Supercenter was rebranded as Tesco Lotus under the management of Tesco Group, United Kingdom. Over the past two decades, Lotus's has made significant investments to serve the business growth and expansion in Thailand. Today, Lotus's operates a network of more than 2,000 stores in five formats: Hypermarket, Express, Talad, and Extra.



This facility will highlight the latest warehouse automation technology to optimise the workforce for greater flexibility and service excellence, and to increase the productivity and efficiency of our business.

Ekachai Phoosanabhongs
 Distribution Director
 Lotus's



Ergonomic goods-to-person shipping station area

FACTS AND FIGURES

Scope of Supply and Services by SSI SCHAEFER

| Planning, implementation, and services | |
|--|--|
| Concept design | - Retrofitting of the warehouse as the general contractor - WAMAS® C integration to the Host system |
| Services | Yearly service level contract and spare parts service |
| Footprint | 13,770m ² |
| SKUs | Maximum 15,000 |
| Turnover | - 700 – 800 orders / day - 700,000 – 900,000 pieces / day |
| Working hours | 17 hours / day |
| Shifts | 3 shifts / day |
| Picking peaks | Seasonal |
| Storage | |
| L x W x H | 60 m x 60 m x 10 m |
| Pallet racks | Interlock 600 selective pallet racking 5,962 pallet locations |
| Pick module | |
| L x W x H Mezzanine (3-tier) | 110 m x 42 m x 10 m |
| Carton flow racks (ground floor) | KDR live storage shelving system 6,768 lanes |
| Long span shelving (2nd and 3rd floor) | 12,564 compartments |
| Conveying | |
| Carton and bin conveying system | 973 meters |
| Components | Curve belt, conveyor belt diverter, roller switch diverter, 5 weight check stations |
| Handling | SSI Document Handling - 3 Label adding SSI Bin Handling - 3 Destacking |
| Technical performance | - avg 28,900 bins throughput / day |
| Software | |
| Logistics software | WAMAS® Conveyor |





SIX REASONS FOR CHOOSING SSI SCHAEFER

- **Stability**

As a financially independent family business, SSI SCHAEFER is committed to long-term solutions. You can trust that our team of experts will be there for you today, tomorrow and in years to come.

- **Efficiency**

SSI SCHAEFER solutions are scalable and able to grow with your business. You can always upgrade or retrofit.

- **Quality**

As a systems specialist and original equipment manufacturer, SSI SCHAEFER provides tailor-made and high-quality solutions from a single source, specifically designed to meet your challenges.

- **Reliability**

Thanks to our worldwide Customer Service & Support network, SSI SCHAEFER ensures smooth operation of your system, both during and after installation.

- **Know-how**

SSI SCHAEFER solutions are always up-to-date with the latest technological standards and can be easily integrated into an existing (IT) landscape.

- **Internationality**

As a global organization, SSI SCHAEFER has local offices worldwide. With over 70 operative subsidiaries, our team of experts speak your language.



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