

CASE STUDY

Reference YCH Group, Singapore:
Fully automated end-to-end supply chain
management facility for high-density
capacity and rapid throughput

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SSI SCHÄFER

LEADING HOMEGROWN LOGISTICS GIANT STRENGTHENS SUPPLY CHAIN NETWORK IN ASIA WITH FULLY AUTOMATED FACILITY

SINGAPORE'S HOMEGROWN LOGISTICS HUB IN THE HEART OF JURONG INNOVATION DISTRICT

Founded in 1955, YCH Group is Singapore's largest homegrown Supply Chain Management partner to many brands across the Asia-Pacific region. With logistics hubs located in over 100 key cities, YCH Group employs cutting-edge technologies and other value-added services to support the different industry clusters in every step of the fulfillment journey.



Watch the fully automated rack clad facility in action.
https://youtu.be/c_ijuK_WHMQ



In the ramp-up warehouse, material flow starts with pallet conveyors



Goods-in information recorded directly into WAMAS®



Pallet stacking for continuous automatic process chains

Ensures optimal internal material flow – discover more information about pallet conveyors here.
https://pages.ssi-schaefer.com/en-sg/y-ch-group_pallet-conveying

Set to be Asia's nexus for supply chain excellence in innovation and productivity; Supply Chain City™, YCH Group headquarters and warehouse facility in Jurong Innovation District, will reinforce Singapore's position as a regional logistics hub that connects Asia to the world.



It's not just about hardware. It's also about the co-mingling, the cohesion and the fusion between our logistics systems. That is the reason why we've selected SSI SCHAEFER because we are looking at their technology that can plan with us.

Dr. Robert Yap
Executive Chairman at YCH Group

THE CHALLENGE

In the latest collaboration, YCH Group and SSI SCHAEFER undertook an intensive effort to understand and transform key barriers, such as the relatively high cost of labor and the small labor pool, into innovation that will shape the future of supply chain management.

Strengthening a supply chain's network to ensure business continuity and security is one of the key focuses for a global logistics hub. The network must be resilient to adversities, without compromising the inventory flow efficiency. With clientele from across Asia, YCH Group's main objective was to improve their customers' experience and the confidence in their end-to-end supply chain solutions.

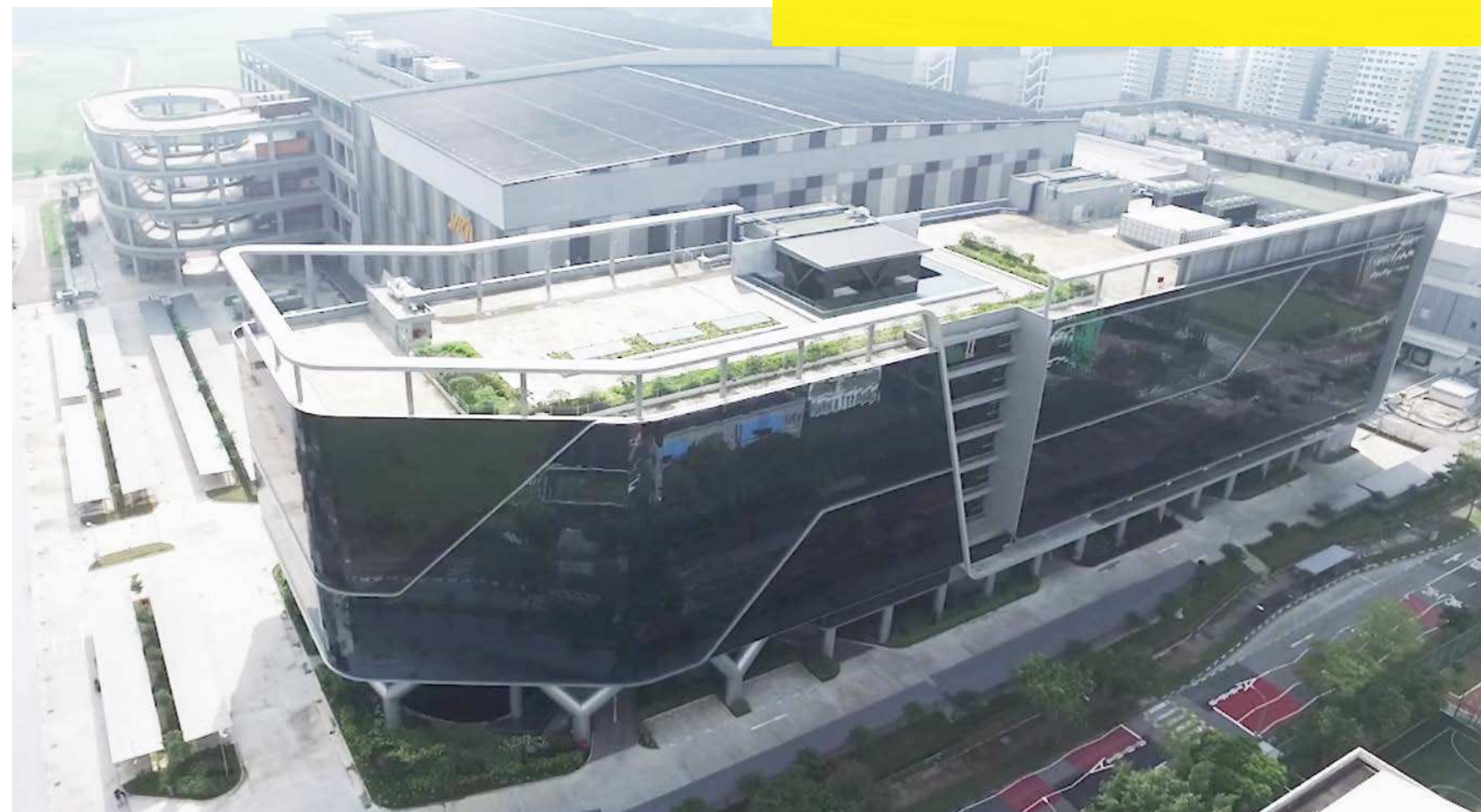
In a densely populated city like Singapore, labor and land scarcity are challenges that sometimes make logistics business expansions difficult. Situated in the western region of Singapore, the area was undergoing compulsory land acquisition by the government for rapid transit development¹. This resulted in lesser floor area for expansion and heavier investment for YCH Group.

While relocating the facility, YCH Group took the opportunity to tap into new technologies to transform the supply chain network and stay ahead of its competitors. In line with Singapore's productivity initiative "Smart Logistics"², YCH Group partnered with SSI SCHAEFER to refurbish the headquarters and adapt the warehouse footprint through a new and fully automated turnkey solution.

PROJECT GOALS

- Provision of a 10,080 m² storage area for over 66,000 pallet storage locations
- Establishing an integrated solution with ramp-up warehouse and automated storage and retrieval system
- Maximizing footprint and increasing product availability and accuracy
- Enhancing customer experience and relationship by implementing a lean automated workflow and high throughput
- Visualization of system processes with the WAMAS[®] logistics software for accountability and traceability of goods
- Preventive services of the system for maximum and long-term performance capacity and permanent system availability

Source: ¹Business Times, Enterprise SG
²IDA Singapore



Fusionaris™: A fusion between automated storage and retrieval system and ramp-up integrated solution

THE SOLUTION

YCH Group embarked on the development of a new rack-clad automated storage and retrieval system (ASRS) facility structure with SSI SCHAEFER – as part of its future-proof strategies to ensure the highest efficiency and reliability in performance.



Maximum energy and cost efficiency in pallet handling – discover more information about the SSI Exyz here.

https://pages.ssi-schaefer.com/en-sg/ych-group_ssi-eyxz

Single-mast, double-deep automated storage-retrieval machines

Fusionaris™: A Revolutionary Feat in Engineering and Building Construction

Fusionaris™, a brainchild of YCH Group, is located in the heart of Supply Chain City™. Combining SSI SCHAEFER's rack-clad designed technology and automated solutions, the 50-metre high ASRS facility is integrated with five floors of ramp-up warehousing.

The 10,080 m² high-bay warehouse boasts a capacity of over 66,000 pallet storage locations and is equipped with 18 energy-efficient SSI Exyz storage-retrieval machines (SRMs) to simultaneously store and retrieve 450 pallets per hour.

A Seamless Material Flow

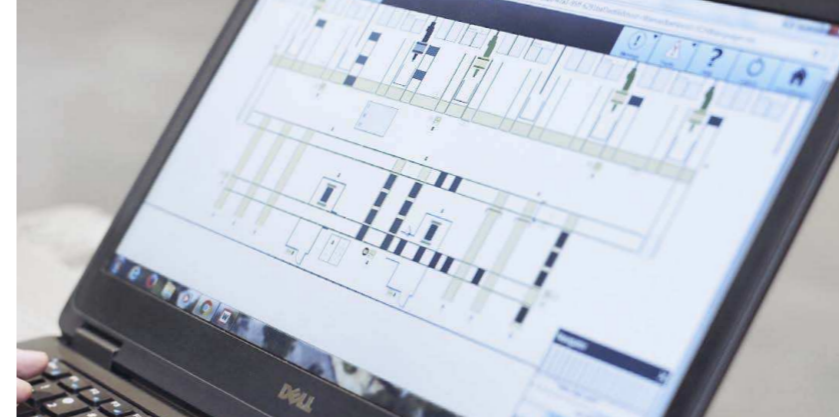
In the pursuit to harmonize the material flow between operating staff and robotics, all five floors of the distribution center, including the SSI Exyz SRMs, are capable to handle a total load of 21.6 tonnes and give access to more than 100 loading bays. From inbound to outbound cargos, the pallet conveying system,

chain conveyors, roller conveyors, right-angled decks and turntables provide an optimal material handling process, including the palletizing and de-palletizing robots installed to support the handling of empty pallets.

Safety as an Integral Part of all Operations

The new building puts together European engineering and the European and International safety standards that meet or surpass the local regulations. Dedicated to safety in every aspect of the operations, the SRMs are equipped with independent dual-motor drives that improve traction.

The brakes of the devices are designed to offer additional security for the rails which comply with the EN 528 safety standards. In addition, fire safety measures such as the sprinkler system, fire protection gates, wall panels and roofing were specially designed to enhance the safety of the building.



WAMAS® logistics software provides live updates of the material flow within the facility



Learn more on the topic WAMAS® logistics software.

https://pages.ssi-schaefer.com/en-sg/ych-group_wamas

RESULT

Holistic View of Fulfillment Performance Indicators

YCH Group relies on the WAMAS® warehouse management system from SSI SCHAEFER to gain a holistic and transparent view of the whole fulfillment operations and material flow processes. WAMAS® combines all intralogistics components, including

YCH Group's WMS, into one intelligent system. Moreover, having a real-time tracking of goods allows YCH Group to reassure their customers with accurate reporting, higher efficiency as well as safe and comprehensive warehouse management.

Looking ahead

In addition to the safety inspections, further preventive maintenance activities were implemented to ensure permanent availability of the system.

The predictive services include rack inspections, maintenance, system monitoring and training of our employees.

THE RESULT

The fully automated processes enable YCH Group to deliver higher value-added logistics services for customized end-to-end solutions to companies. Furthermore, the visibility of the material flow strengthens the collaboration and communication between every stakeholder in the supply chain,

including the warehouse. By combining the latest technologies, equipment, and innovative solutions, the YCH Group can continue to set new standards for supply chain excellence from the leading logistics hub in Singapore and beyond.



Seamless integration of SSI Exyz SRMs, conveying systems and software

We need a very strong partner who can help us ensure that all instructed movements of the crane are carried out correctly – instantaneous and no errors at all. 100% accuracy.

Dr. Robert Yap
Executive Chairman at YCH Group

FACTS AND FIGURES

System Key Figures

| | |
|-------------------------|-----------------------|
| Warehouse area | 65,000 m ² |
| High-bay warehouse area | 10,080 m ² |
| Pallets per day | 900 per day |
| Working hours per day | 16 |
| Shifts per day | 2 |

Scope of Supply and Services by SSI SCHAEFER

Planning, implementation, and services

| | |
|----------------|---|
| Concept design | - A turnkey solution for a rack-clad designed building - WAMAS® 5.4 integration into the Host system |
| Services | Preventive Services: - maintenance - safety inspection - rack inspection - system monitoring and training for employees |

High-bay warehouse

| | |
|--------------------------------------|---|
| L x W x H | 80 m x 126 m x 50 m |
| Storage locations | 66,624 |
| Number of storage-retrieval machines | 18 SSI Exyz |
| Load handling device | Single-mast, double-deep |
| Technical performance rate | Total throughput: - 450 pallets in/hour - 450 pallets out/hour Ground floor: 18 cranes for 150 double cycles / hour 2nd to 4th floor: 6 cranes for 100 double cycles/hour on each floor |

Conveying system

| | |
|-------------------------|---|
| Pallet conveying system | Approx. 1,273 m |
| Components | Chain conveyors and roller conveyors, right-angle decks, turntables |

Handling system

| | |
|----------------------------------|---------------------------------------|
| Palletizing/depalletizing robots | - 1 palletizing - 1 de-palletizing |
|----------------------------------|---------------------------------------|

Software

| | |
|--------------------|------------|
| Logistics Software | WAMAS® 5.4 |
|--------------------|------------|



Case study:
How YCH Group refurbished its supply chain from the leading logistics hub, Singapore and beyond.

https://pages.ssi-schaefer.com/en-sg/ych-group_case-study



Learn more about SSI SCHAEFER high-bay warehouses here.

https://pages.ssi-schaefer.com/en-sg/ych-group_high-bay-warehouse



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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