

CASE STUDY

Reference ORCA Cold Chain Solutions, Taguig:
Fully automated cold storage facility for the
Food and Beverage Industry

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SSI SCHAEFER

BECAUSE FRESHNESS MATTERS

With 7641 islands, the Philippines is one of the largest archipelagos in the world, however the city - Manila is often wedged solid with the traffic gridlocks, causing traffic nightmares to many who uses roads as their mode of transportation.

A SUB-ZERO STORAGE IN THE HEART OF METRO MANILA

Founded in 2017, ORCA Cold Chain Solutions (ORCA) is a subsidiary of ISOC Holdings, a corporation with interests in construction, real estate, and telecommunications in the Philippines. ORCA, the food infrastructure arm of ISOC Holdings, focuses on providing temperature-controlled logistics, warehousing, and other value-added services to support many market sectors in maintaining the quality of their products under the tropical weather.



Food products are carried by forklifts to the infeed conveyor



Profile checking and In-feed conveyors

Food products loaded onto the pallets for shrink-wrap and tagging

To operate nationally, fast-food chains, importers, exporters, and the cold chain logistics providers in the Philippines often have to access different regional territorial sections spread over thousands of islands. Their race to keep their products fresh inspire ORCA Cold Chain Storage (ORCA) to invest in the country's first smart warehouse.



ORCA currently owns three facilities in Metro Manila: Alabang, Taguig, and the currently being built Caloocan. The ORCA Taguig facility is strategically located in the heart of Manila and near ports and industrial zones for easy access to different regional territorial sections. With a vision of uplifting the Filipino community by ensuring food safety and availability in the Philippines, ORCA's endeavor to turn that vision into reality was no simple feat. Together with SSI SCHAEFER, the plan to build a modern high-bay

warehouse designed with a fully automated storage-retrieval system infrastructure to manage its warehouse operations was put into place. The ORCA Taguig facility launched in February 2020 was awarded a Pioneer status by the Philippine Bureau of Investments for being the first fully automated cold chain facility in the Philippines. The facility's frozen storage has a capacity of nearly 20,000 pallet locations and covers approximately 1 hectare in footprint.



The 282 meters long conveying system connecting to key individual areas of the warehouse



“Food safety and security.

This is the mission that drives ORCA Cold Chain Solutions.

As the very first fully automated Cold Chain Solutions provider in the Philippines, ORCA is the first and only company to invest this heavily on what we call food infrastructure. With SSI SCHAEFER, we were able to make this grand vision a reality. As a sales head, we saw how customers gravitated to our brand because of the promise of automation. We also experienced firsthand of how the market perceives the value that innovation can bring. ORCA is indeed the only one of its kind in our country and together, we hope to create more of these world-class solutions for our nation.”

Agnes Degala
VP of Sales & Operations
ORCA Cold Chain Solutions



CHALLENGES FOR A FROZEN FACILITY

In the Philippines, the myriad number of fast food chains, retailers & wholesalers (imports and exports), and agriculture companies rely on modern warehouses such as the ORCA's Taguig facility to transport their products in a temperature-controlled environment. This way, they can upkeep, prolong and maintain the freshness of their inventories from the warehouses to the customers.

Operating in a seismic zone and experiencing close to 20 typhoons each year in the Philippines, the ORCA 45-meter-high facility was built with a rack-clad designed structure concept. The infrastructure was carefully designed to prevent destruction against wind and seismic activities. The SSI SCHAEFER's rack-clad designed needs to be able to withstand not just the vigorous horizontal motion and vertical forces, but also the global or local collapse mechanisms. By fully optimizing every inch of the building without building extra columns and structures to support the racks and cranes, this ground infrastructure is bolstered to move up to 4,800 pallets in one day.



Pallets are transferred from a -18°C environment to the automated high-bay warehouse via conveyors

PROJECT GOALS

- Deliver outstanding customer service through quality end-to-end cold chain solutions
- Optimize costs and increase efficiency through the automation of specific workloads
- Minimize human intervention to ensure the integrity of all goods
- Increase accountability and traceability of goods coming in and out of the facility
- Establishment of a fully automated cold storage facility in the Philippines



Ergonomic goods-to-person shipping station area

THE ROAD TO THE UNPRECEDENTED FEAT

The new ORCA cold storage facility sports a 45-meter-high rack clad structure and its SSI Exyz automated storage-retrieval machines. The four SSI Exyz storage-retrieval machines (SRM) operate simultaneously in between the racks and are unhindered by the sub-zero temperatures.

Operations Process

The process starts when the food items are unloaded from the trucks and loaded onto the pallets for shrink-wrap and tagging using QR codes and bar codes for traceability and real-time monitoring. This will also ensure that the pallets arrive at the correct pallet position in the right zone.



Tagging of pallets using QR codes for real-time monitoring

Storage between -18°C to -25°C with Zero to Minimal Human Intervention

The transferring area is kept at a controlled temperature of -18°C, from manual processing to a fully-automated process, the pallets are transported via a 282-meter-long conveying system with weighing sensors and profile checks. Moving at a steady speed of 0.3 m/sec, the pallets are automatically assigned to the respective zones without the use of pallet trucks and vehicles. While in the rack clad facility, the temperature is controlled at -25°C to prevent the formation of moisture, this guarantees the freshness of the food products. With zero human intervention, it minimizes error and prevents contamination.



SSI Exyz stores and retrieves pallets



Profile checking and In-feed conveyors



Monitors the inbound and outbound goods using WAMAS®

SOLUTION

Seamless Integration into the Overall Solution using IT

The conveying system is connected to the SSI Exyz SRM. This lifting carriage with telescopic forks carries the pallets into their respective locations within three minutes, processing up to 4800 pallets per day.

Subdivided into different zones of heterogeneous products, the facility uses technology to apply its "First Expiry, First Out" (FEFO) principle. To efficiently

track the expiration date of each pallet, ORCA uses the proprietary logistics software, WAMAS® to combine all of the intralogistics components into one smart system. By integrating with the WMS, the complete system provides a live update of the inventories, monitors the inbound and outbound goods process, providing 100% traceability to all movements within the facility. This way, all the older stocks will not be left in the facility past their expiry, preventing wastage for the customers.

Highest Possible System Availability

Part of ORCA's goal to deliver outstanding customer service through quality end-to-end cold chain solutions starts from the SSI Resident Maintenance. The SSI SCHAEFER technicians are base in the ORCA facility, when possible faults and bottlenecks can be identified at an early stage and rectified without delay, it reduces the downtime while enabling ORCA to also significantly lessen the workload.



"From the very beginning, the vision for ORCA was to be a world-class gamechanger. That is why we chose to work with SSI SCHAEFER in order to bring to the Philippines for the first time, this type of innovation and automation.

What we have built together with SSI SCHAEFER is the first of its kind in the Philippines, the first fully automated high-bay storage cold chain facility. Our food supply chain has more obstacles than most, we are also more prone to earthquakes and typhoons, with the COVID-19 pandemic, this put even more stress into our food supply chain. That is why in ORCA, we have built a system selecting only the best suppliers. With SSI SCHAEFER, we are assured that our 14-storey high facility can withstand earthquakes and typhoons. Electricity in the Philippines is also very expensive and with SSI SCHAEFER's unique technology, we are able to save electricity and maintain our sustainability values.

Yerik Cosiquien
President & CEO
ORCA Cold Chain Solutions



FACTS AND FIGURES

System Key Figures

Rack Clad Facility Floor Area	8,000 sq. m.
Pallets per day	4,800 per day
SKU	500
Working hours / day	24/6 Operations
Shifts / day	2 Shifts

Scope of Supply and Services by SSI SCHAEFER

Automated Storage and Retrieval System	
AS/RS	SSI Exyz storage-retrieval machines
Pallet Locations	19,840 Pallet Locations
Conveyor Systems	
Conveyor Length	282 meters
Software	
Logistics Software	WAMAS® Warehouse Management System



Tagged and palletized food products to the infeed 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**

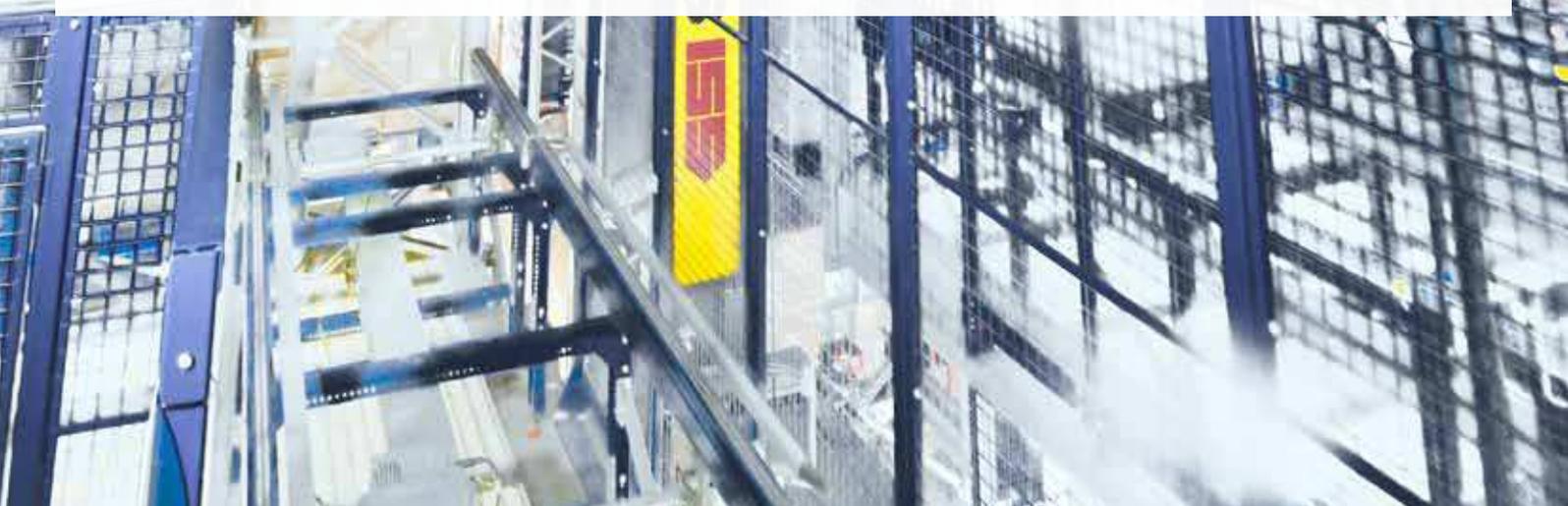
Thanks to our worldwide Customer Service & Support network, SSI SCHAEFER ensures smooth operation of your system, both during and after installation.

- **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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