



## *Semi Plug-In System in Singapore*

### *Waterloop SPI Solution for one of Singapore's largest retailers*

Sheng Siong, one of Singapore's largest supermarket chains, has been committed to creating sustainable value since its founding in 1985. Sustainability is embedded in its business strategy, focusing on quality products, competitive pricing, and environmental responsibility.

As part of its ongoing green initiatives, Sheng Siong sought to improve its refrigeration systems. The existing remote HFC system is often energy-intensive. It also requires a large amount of refrigerant, which has a high global warming potential (GWP) and is prone to high leakage rates, exacerbating both environmental and operational concerns.

Additionally, the supermarket aims to reduce its environmental footprint by moving away from these high-GWP refrigerants in anticipation of stricter sustainability regulations. Beyond cost and environmental concerns, Sheng Siong also prioritizes operational reliability, as system failures could disrupt fresh food storage and impact customer experience.

Sheng Siong has chosen a SPI system—an advanced refrigeration solution that delivers high performance with a significantly lower carbon footprint.

#### *\_Year of installation*

2025

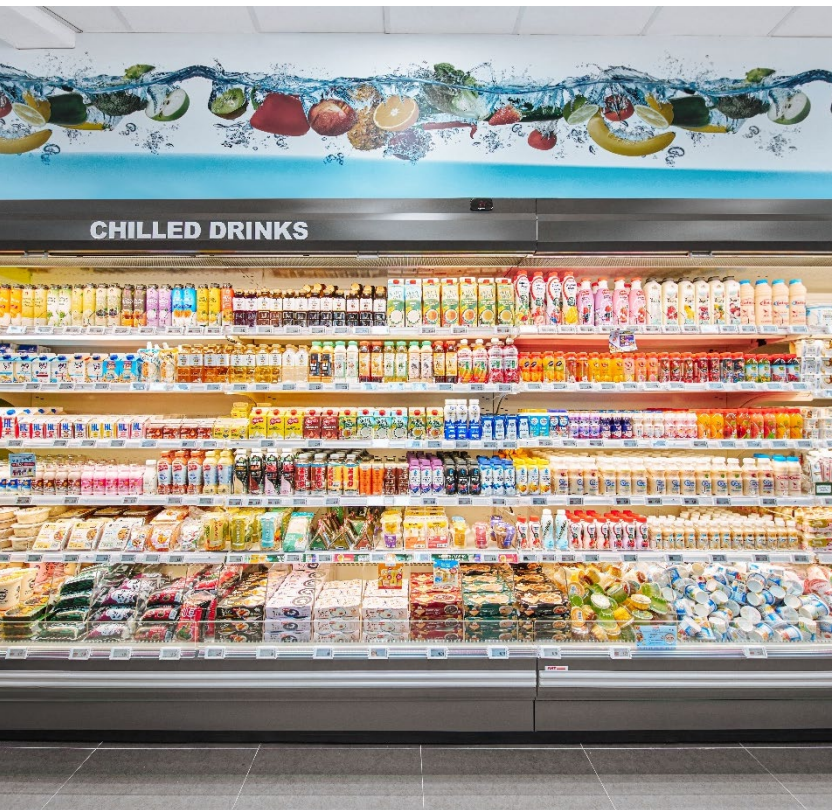
#### *\_Installed System*

- \_VENTO SPI 250
- \_VENTO SPI 375
- \_VENTO SPI 187
- \_Dry Cooler
- \_Pump Station

#### *\_Project requirements*

Install a reliable and energy efficient commercial refrigeration system with low GWP.





This solution is a water loop system (semi plug-in) that further optimizes energy efficiency while maintaining flexibility in how refrigerated units are deployed and operated. This transition marks a major step toward greener operations, enhancing both energy efficiency and sustainability.

The installation was executed in collaboration with Hub's Engineering Pte Ltd, AHT's CoolPoint partner, which played a critical role in project management, installation, commissioning, service, maintenance, and aftermarket support. Hub's expertise ensured a seamless integration of AHT's technology into Sheng Siong's store infrastructure, enabling a smooth transition with minimal operational disruption.

Implementing AHT's SPI system brings multiple advantages to Sheng Siong's operations. By transitioning to R290 refrigerant in a water loop system, the supermarket significantly reduces its environmental impact, aligning with its long-term sustainability commitments. This shift lowers greenhouse gas emissions, with the total refrigerant charge in the entire system being less than 10kg in a store. It is estimated that CO<sub>2</sub> equivalent emissions can be reduced by about 99%. By switching to our R290 waterloop system, Sheng Siong can reduce its CO<sub>2</sub> equivalent greenhouse gas emissions by more than 3,300 tons for just one store.

In addition to its eco-friendly benefits, the new refrigeration system enhances operational efficiency. The Semi Plug-in design optimizes energy consumption, leading to noticeable reductions in electricity costs. Furthermore, the self-contained refrigeration circuits within the system prevent full-store refrigeration failures, ensuring product integrity and uninterrupted service.

Outside the store, waste heat is rejected through 2 sets of dry coolers equipped with EC fans to allow variable speed operation and optimize energy utilization throughout the day. The 2 circuits are also equipped with 2 sets of pumps per circuit to provide redundancy and operational reliability.



*Approx. 99% of  
reduction of CO<sub>2</sub>e  
= 3,300 tons*



The installation process was swift and efficient, allowing Sheng Siong to continue operations with minimal disruption. With this successful implementation, the company now has a scalable and future-proof refrigeration solution, setting a new benchmark for sustainable supermarket operations in Singapore.

**AHT PLUS**  
SEMI PLUG-IN  
a member of **DAIKIN** group



### Industry Impact & Future Outlook

By becoming the first supermarket in Singapore to adopt the VENTO G SPI system, Sheng Siong is setting a new industry standard for eco-friendly refrigeration. This initiative not only strengthens its position as a market leader in sustainability but also serves as a model for other retailers looking to integrate environmentally responsible cooling technologies.

With sustainability deeply embedded in its governance framework, Sheng Siong's transition to R290 refrigeration is a testament to its long-term commitment to balancing business growth, environmental responsibility, and operational excellence.

