

ICCC 2024

8th IIR International Conference on Sustainability and the Cold Chain

9th – 11th June, 2024

Tokyo, Japan

TECHNICAL TOUR DETAILS

Japan Society of Refrigerating and Air Conditioning Engineers

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Course A (Tour capacity: 20 persons)

HOHSUI Corporation, -60°C Storage Warehouse in Toyosu Fisheries Market

HOHSUI CORPORATION, Cold storage and Seafood wholesale.
Since merging with Chuo Reito Co., Ltd. in 2008, it has developed business multidirectionally such as frozen/chilled storage business that aims further better distribution at lower temperature or wholesale of seafood raw materials, retail support or food manufacturing and sales.

Storage Capacity and Refrigeration Equipment

Capacity: Total 23,823TR

F4(-60°C)	3,178TR	: 4 Pascal-Air Packages
F1(-25°C)	16,666TR	: 5 Newton(NH ₃ /CO ₂) Packages
C1(-13°C)	675TR	
C3(+3°C)	1,067TR	

Note: Refrigerants are all natural refrigerants.(NH₃,CO₂,Air)

Air Refrigeration Package *PascalAir*



NH₃/CO₂ Refrigeration Package

NewTon



Course B (Tour capacity: 40 persons)

Keihin Logistic Center, Yamate Reizo Co., Ltd.

Yamate Reizo Corporation operates five logistics centers in Tokyo Bay Area, supporting the cold supply chain in Tokyo metropolitan Area. The Keihin Logistic Center is one of their refrigerated warehouses, with the storage capacity of 77,574 m³. In 2024, they upgraded all refrigeration units from R22 to CO₂ transcritical booster systems with heat recovery. To prevent the condensation in low temperature loading room, desiccant dehumidification system using waste heat has been installed. Additionally, water spray defrosting system using waste heat was used. Energy saving of 25 % can be expected compared to R22 refrigeration system. In the technical tour, participants will have the opportunity to observe CO₂ refrigeration units and desiccant dehumidification system.



Course C (Tour capacity: 30 persons)

Training Vessel of Tokyo University of Marine Science and Technology “Shin-yo Maru”

In this course, participants will tour the training vessel “Shin-yo Maru” moored at Toyomi Fisheries Pier. Shin-yo Maru IV which entered service in 2016, is an on-the-job ocean-going training facility for the next-generation of undergraduate and graduate students. As highly-trained experts being educated with the modern knowledge and skill in fisheries including trawling, squid jigging and long-line tuna fishing, as well as the qualification in marine-work experts, students will assume an important role in the future of fisheries and the oceans not only of Japan but of the world.

As the ocean-going research facility, Shin-yo Maru IV is equipped with up-to-date instruments with advanced capabilities, e.g. underwater structure survey using 2-D seismic reflection profiling system, the application of an autonomous underwater vehicle, and precise seafloor survey using acoustics.

Being so well equipped, she is capable of conducting leading studies on the oceans including scientific investigations on resources and marine life.

Shin-yo Maru IV has a simple, electric-powered propulsion system with a combination of a three-phase induction motor and a controllable pitch propeller (CPP) having a reduction gear with a clutch. In the interests of the redundancy of the ship, a 2-engine 2-propeller shaft system, in which two devices are installed, is adopted.

Three main generators installed in the engine room can be used as the power source for both propulsion and general use on board the ship. Power management and generator eco-mode functions, which automatically control the number of generators at work, are available for the efficient operation of the generators.

<https://www.ooc.kaiyodai.ac.jp/ooc/data/applicationform/Shinyo2016.pdf>



推進電動機
Propulsion motor



主発電装置
Main generator set

Course D (Tour capacity: 30 persons)

Saito Laboratory, School of Fundamental Science and Engineering, Waseda University.

Saito Lab. conducts a wide range of R&D in the field of the refrigeration, air-conditioning and heat pump systems.

For example, we pay attention to the basic research on heat transfer enhancement, frost formation, and refrigerant distribution, and the applied research on the next generation actual dynamic performance evaluation method of the refrigeration & air-conditioning system that is expected to become ISO standards in the near future.

In addition, a big national project is underway for the cold chain. Especially we construct a convenience store in the campus whose surrounding environment is controlled artificially. This store includes showcases and air-conditioner and so on, and has the energy management system to optimize whole energy use of the store..

The Lab. tour will include a visit to these facilities.

<https://www.saito.mech.waseda.ac.jp/?lang=en>

<https://www.waseda.jp/inst/sees/en>



Next generation dynamic performance evaluation facility



Heat transfer & void fraction measurement system