

# Air-Based Freezing System

## Super Low Temperature Refrigerated Warehouse

*Creating the -60°C environment based on the ultimate natural refrigerant, "air" .*

**Quality:** A high degree of freshness of stored goods is maintained because the temperature fluctuation is low with no defrosting in the warehouse and the air flow is so little that the draft is imperceptible.

**Operation:** No leakage issue exists because no synthetic refrigerants are used.

**Energy efficiency:** The cooling load within the warehouse is significantly reduced with no heat from fans or defrosting.

**Leakage:** An epoch-making freezing system that has no leakage of the refrigerant without compromising high quality maintenance.



No. 2 Refrigerated Warehouse



Air-Based Freezing System

Place: Fukazawa Reizo K.K. Head Office. No.2 Refrigerated Warehouse  
Location: 860 Dobara, Yaizu City, Shizuoka Pref., Japan  
Capacity: 8,000 t  
Facility: -60°C super low temperature refrigerated warehouse (tuna and bonito)  
Equipment: Air-based freezing system

### «Energy-saving»

○Energy consumption reduction (34% compared to the historical level)  
1,115,063 kWh/year

### «CO2 emission reduction»

○CO2 emission reduction 559 tCO2/year  
(Breakdown)

▪ Energy-source CO2 reduction: 380 tCO2/year  
\*Electricity 0.341 kgCO2/kWh

▪ Refrigerant leakage CO2 reduction: 179 tCO2/year

\*Calculated on the assumption that the GWPs of R-22 and R-23 are 1,780 and 14,800, respectively and that the refrigerant charge is 90 kg and the leakage rate is 12%.



Inside the Refrigerated Warehouse

This project was funded by NEDO in FY 2008 as a project to assist business operators with energy use rationalization.