

**World's largest electric turbo chiller installed in
Yokohama's Minato Mirai 21 District, surpassing
the equipment installed the previous year**

CO₂ Emission Reduction of
approximately **1,350 Tons** annually

In order to meet continually increasing demand for air conditioning and heating in Yokohama's high-demand Minato Mirai 21 District, MM 21 DHC ordered the world's largest (5,000 refrigeration ton capacity) electric turbo chiller, a machine for chilling water, in August 2009. With the delivery and installation of the equipment complete, operation will commence on Monday, June 1, 2010.

The 5,000 refrigeration tons capacity is equivalent to 5,000 households of air conditioning power, more than the electric turbo chiller equipment installed the previous year in June 2008 (which also boasted a world-class capacity of 4,000 refrigeration tons), making it currently the most powerful machine of its type in the world.

The equipment **not only uses hydrochlorofluorocarbon (HFC-134a), which does not adversely affect the ozone layer, but also achieves high energy efficiency rates that exceed those of conventional machines. THE NEW EQUIPMENT WILL REDUCE CO₂ EMISSIONS BY 13% COMPARED TO CONVENTIONAL MODELS, AND AN ESTIMATED ANNUAL REDUCTION OF APPROXIMATELY 1,350 TONS OF CO₂ EMISSIONS WILL BE ACHIEVED WHEN OPERATED AT 2,200 HOURS ANNUALLY AS PLANNED.**

District heating and cooling operations share a centralized heating and cooling system locally, eliminating the need for installing individual units in separate buildings, and generally have an energy efficiency rate of about 14% compared to separately installed air conditioning units. In addition, the introduction of highly efficient electric turbo chiller equipment further advances MM 21 DHC's approach to environmental issues, continued from the previous year.

(Reference material)

Comparison of the equipment installed this time, equipment installed last year, and pre-existing installed equipment

	Equipment installed this time	Equipment installed last year	Pre-existing installed equipment
Refrigeration capacity	5,000 refrigeration tons (17,581 kW)	4,000 refrigeration tons (14,065 kW)	3,000 refrigeration tons (10,549 kW)
Rated wattage (main motor)	3,082 kW	2,501 kW	2,150 kW
COP (Coefficient of performance)*	5.70	5.62	4.91
Refrigerant	HFC134a	HFC134a	HCFC123
Year installed	2009	2008	1997

* COP is an abbreviation for Coefficient of Performance: the higher the value, the higher the energy efficiency.

$COP = \text{refrigeration capacity (kW)} / \text{wattage consumed (kW)}$

All figures calculated based on MM 21 DHC's actual usage conditions (chilled water: entrance 13 °C, exit 6 °C, coolant water: entrance 32° C, exit, 40 °C)



Photo: The new 5,000-refrigeration-ton electric turbo chiller