Test Facility for Development and Evaluation of Heat Pumps in Industrial and Commercial Use

Background

Heat pumps are attracting attention both in and outside Japan as an effective technology to promote energy conservation and reduce CO_2 emissions. Much research and development is carried out to improve efficiency, to use low-GWP (global warming potential) refrigerants, and to expand applications to a wide variety of thermal demand.
With this facility, we aim to develop and evaluate highly efficient, compact, and low-priced heat pumps using low-GWP refrigerants in industrial and commercial use.

Outline

The facility is able to evaluate heat pumps such as industrial steam generating heat pumps, industrial hot air generating heat pumps, turbo chillers, etc. under various operating conditions with parameters of heat source/sink, air temperature & humidity, heat source water temperature, steam temperature and so on.

Specifications

[1] Specification of Tested Heat Pumps
(1) Industrial Hot Water Generating Heat Pump
Heating Capacity: Max. 600 kW, Output Water Temperature: Max. 90℃
(2) Industrial Steam Generating Heat Pump
Heating Capacity: Max. 600 kW, Output Steam Temperature: Max. 200℃
(3) Industrial Hot Air Generating Heat Pump
Heating Capacity: Max. 200 kW, Output Air Temperature: Max. 200℃
(4) Turbo Chiller
Cooling Capacity: Max. 2,100 kW
(5) Air Source Chiller
Cooling/Heating Capacity: Max. 350 kW
[2] Conditions of Temperature and Humidity
Heat Source/Sink Air Temperature & Humidity: -20 to 50℃, 30 to 90%
Heat Source/Chilled Water Temperature, Heated/Cooling Water Temperature: 10 to 90℃
[3] Inner Size of Air Temperature and Humidity Control Room
W8m × D14m × H5m

[Location and date of installation]

Yokosuka area / June, 2013

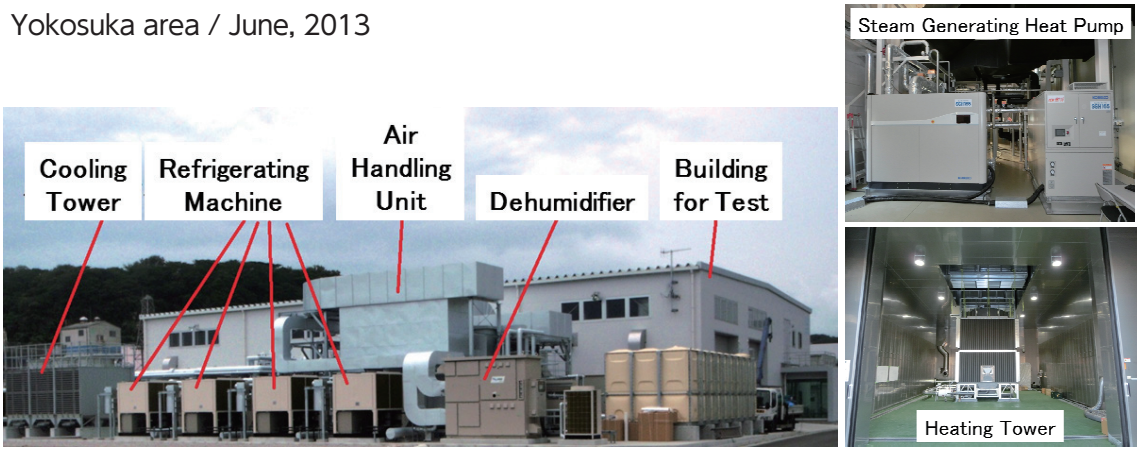

Photo 1: External view of the test facility and tested machines

Left: Test Facility, Upper Right: Steam Generating Heat Pump (SGH165), Lower Right: Heating Tower