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Launch of Daikin Altherma for Apartment Buildings and Collective Housing Air-to-Water Heat Pump System for Heating, Cooling, and Domestic Hot Water in the European Market

Daikin Europe N.V. (Ostend, Kingdom of Belgium), a wholly owned subsidiary of Daikin Industries, Ltd., has developed the Daikin Altherma for Apartment Buildings and Collective Housing, an air-to-water heat pump system for heating and cooling, for the European market as part of its full-scale entry to the European heating market. Sales are slated to begin from July of this year.

From the perspective of energy conservation and prevention of global warming, a shift has recently been seen in the European heating market for detached houses from combustion-type hot water heaters to heat pump type hot water heaters. However, in the heating market for Apartment Buildings and Collective Housing, sales have remained largely unchanged due to a lack of installation space for outdoor units at each residence. Moreover, the need for cooling in the summer season has become greater in relation to increased air tightness and insulation found in buildings.

To provide for Apartment Buildings and Collective Housing where installation space is limited for outdoor units, Daikin Europe has developed Daikin Altherma for Apartment Buildings and Collective Housing to overcome the problem of limited space with a system that allows one outdoor unit to connect to a maximum of ten indoor units.

By employing a cascade refrigerating system^{※1} that uses two types of refrigerants, it is possible to supply hot water (maximum of 80°C) ranging from warm temperatures used in flooring heaters to high temperatures required by radiators. Furthermore, due to Daikin's unique heat recovery system, highly efficient operation can be performed simultaneously for heating, cooling, and domestic hot water.

Because of this, annual CO2 emissions can be reduced by approximately 60% of the emissions required for conventional combustion type boilers.

By developing products that match the various climates and lifestyles for each region of the world, Daikin Industries is accelerating the global expansion of energy-efficient heating and hot water heating systems and contributing to the protection of the environment.

【Product Features】

(1) Measures for a variety of hot water heating equipment

By employing a cascade refrigerating system, customers are free to select for each room a variety of hot water heating equipment from flooring heaters using warm water (35°C) to radiators using hot water (80°C).

(2) Automatic hot water supply function for cooling and exhaust heat recovery

In Europe where there is a high concentration of high-rise buildings, it is quite common for sunlight to penetrate room interior spaces by solar heat that is confined in building with high airtightness and thick insulation. This causes room temperatures to rise and create a cooling load even when the outside temperatures are not high. This situation is mitigated by chilled-water cooling operation (5-20°C) and corresponds to need for a type of cooling particular to Europe. Furthermore, by using hot water storage operation (maximum storage temperature of 75°C) that uses exhaust heat generated in the cooling operation, energy consumption at the time of hot water supply is largely reduced.

(3) Annual reduction in CO2 emissions of approximately 60%

Inverters for compressors and pumps can be precisely controlled according to heating load and hot water conditions to achieve an approximately 60%^{※2} reduction in annual CO2 emissions compared to conventional combustion type boilers.

【Lineup】

Product	Type	Capacity ^{※3}	No. of models
Daikin Altherma for Apartment Buildings and Collective Housing	Outdoor unit	22.4 kW-45.0 kW	5
	Indoor unit (with cooling function)	5.6 kW-9.0 kW	2
	Indoor unit (without cooling function)	5.6 kW-9.0 kW	2
	Storage tank unit	200 L-270 L	2

※1 **Cascade Refrigerating System (Refer to Fig. 2)**

This method uses the heat of two types of refrigerants that are heated by an intermediate heat exchanger built into the circuit. Refrigerant R410A is used in the outdoor unit as a heat source while refrigerant R134A is used to supply hot water.

※2 **Annual reduction in CO2 emissions of approximately 60%**

Calculation by this company was performed for apartment buildings (average floor space of 107 m²) in Belgium that have 22. A combination of hot water heaters and electric heating systems is assumed for the hot water heating and interior heating equipment.

※3 **Capacity**

Rated heating capacity (outside temperature=dry-bulb temperatures of 7°C /wet-bulb temperature of 6°C)

(Attached Reference Material)

Fig. 1 Exterior of Daikin Altherma for Apartment Buildings and Collective Housing

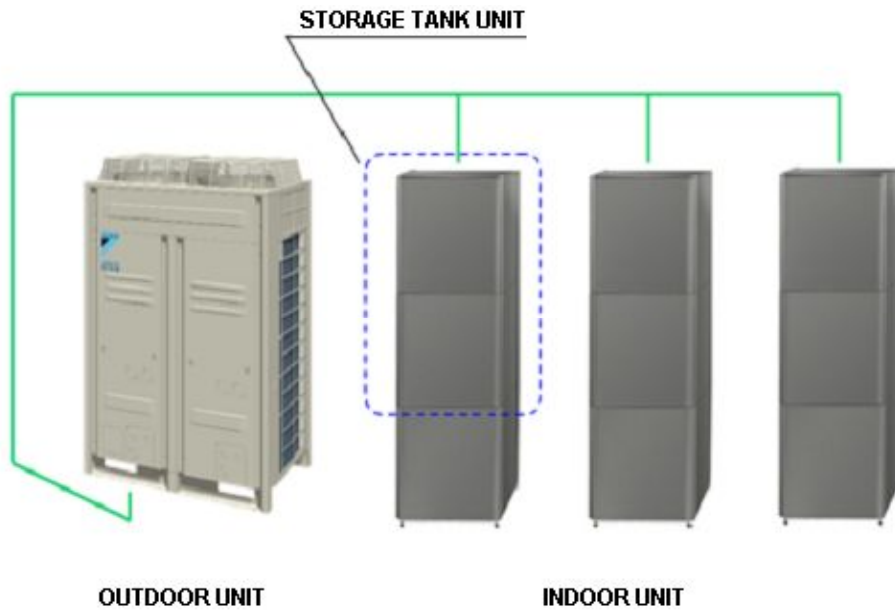


Fig.2. System Circuit Diagram of Daikin Altherma for Apartment Buildings and Collective Housing

