

4-Pipe Air Cooled Modular Heat Pump



ALL INVERTER

DAIKIN

Overview

Modern buildings have multiple functions and zoned systems, leading to varying cooling and heating needs in different areas. Even in the same space, there might be a need for both cooling and heating simultaneously.

To address this challenge, Daikin uses its 40+ years of experience in air-cooled heat pump technology to launch the 4-Pipe air cooled modular heat pump.

Comprehensive
building application



Hospital application



Swimming pool application

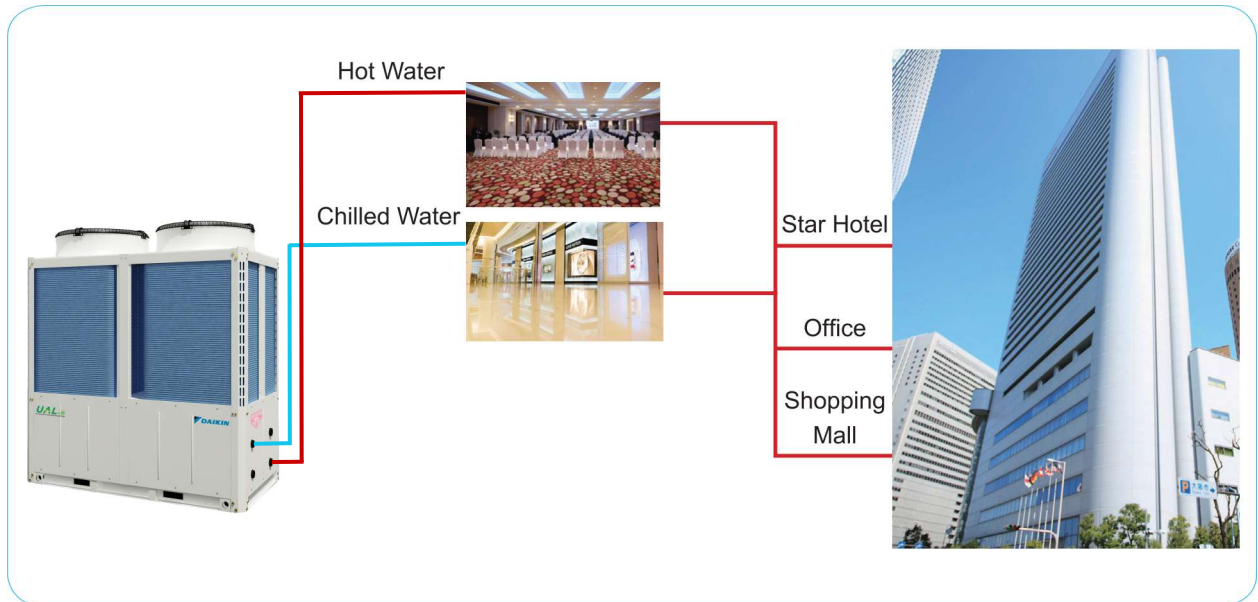


Other applications

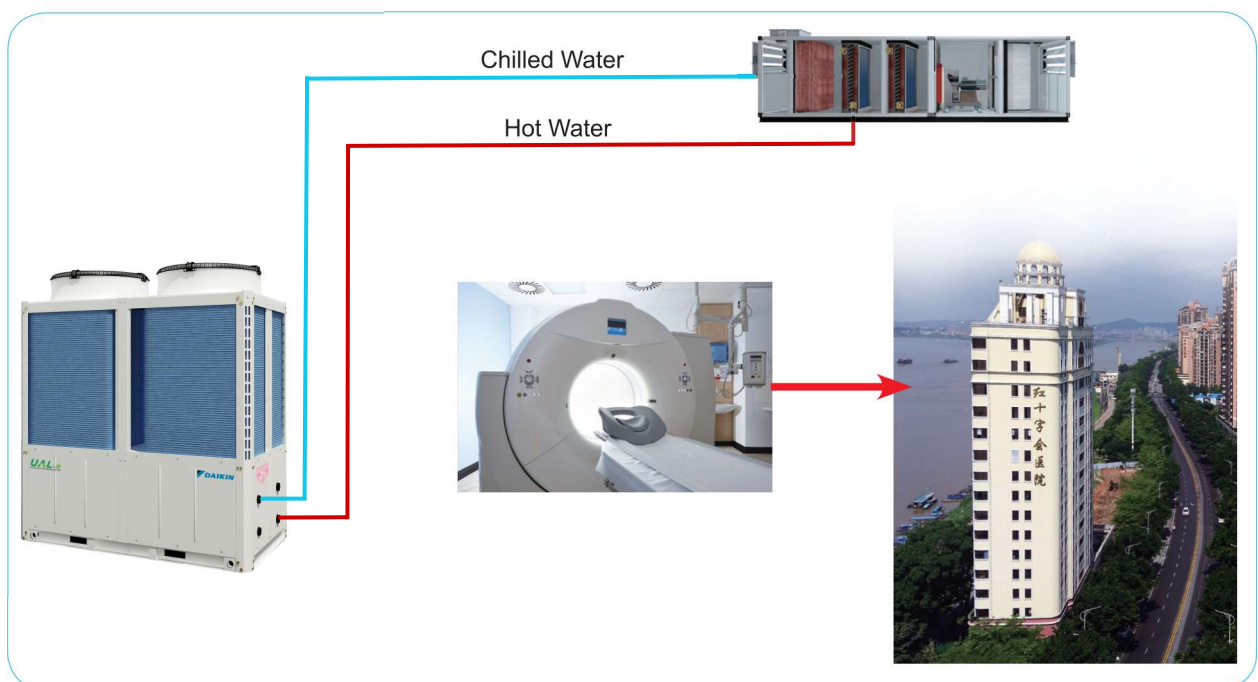


Application Locations

- Comprehensive building application: Due to functional division, large comprehensive buildings are usually designed as podium building business district, tower office area and high-rise advanced hotel. In the business district: cooling is required all the year round due to the high crowd density and high heating load. Outside of office area: cooling required in summer and heating required in winter. Advanced hotel, adopting the 4-pipe terminal units to implement cooling in summer and heating in winter; customers have different cooling and heating demands in transition seasons.

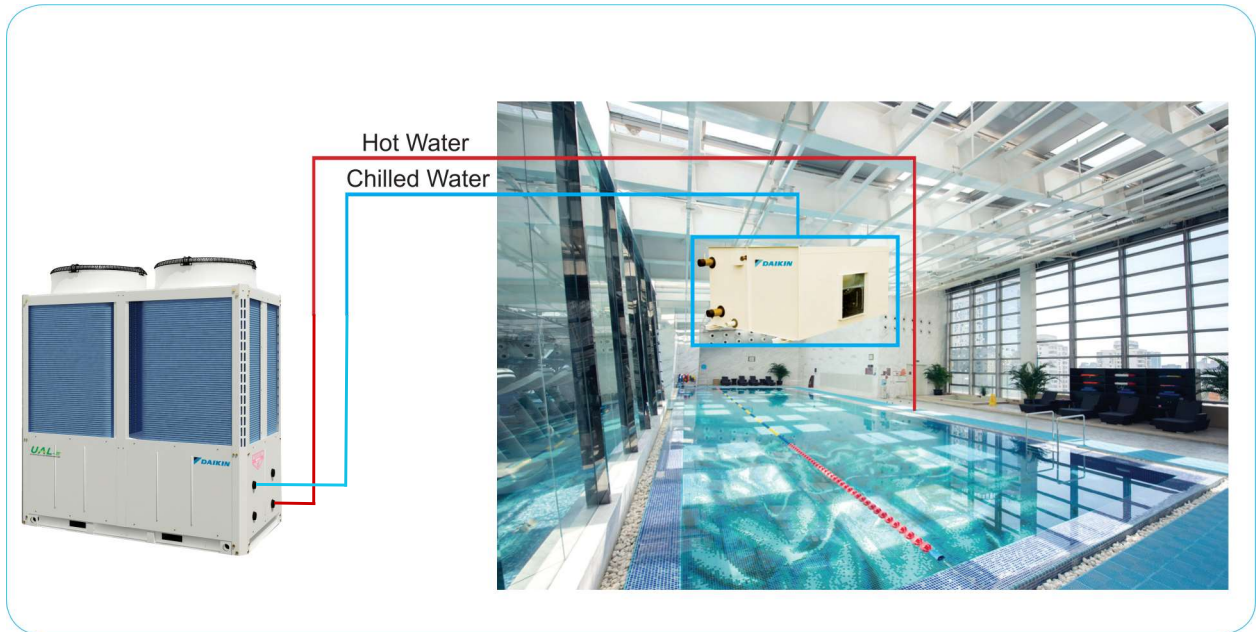


- Hospital application: The hospital complex comprises numerous functional areas. For the operation room, ICU and other areas with accurate temperature and humidity control requirements: usually adopt 4-pipe AHU terminal with cooling coil and heating coil, and simultaneous cooling and heating is needed to realize accurate control on temperature and humidity.

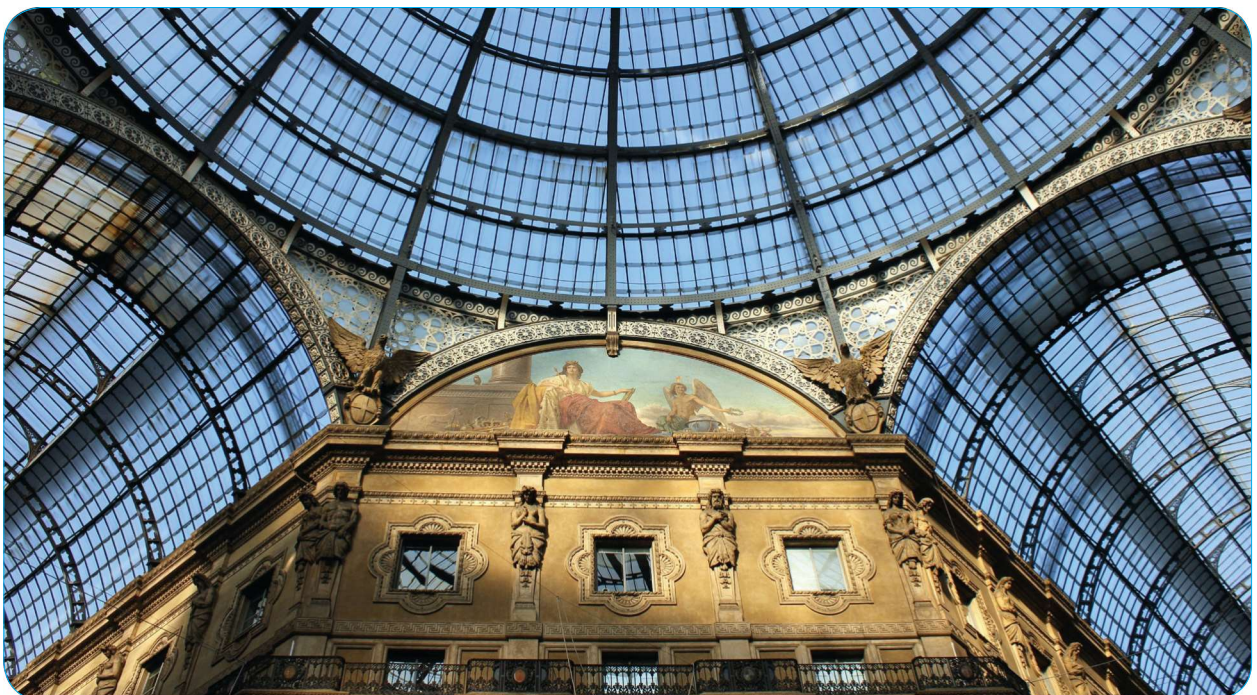


Application Locations

- Swimming pool application: The indoor swimming pool with a high indoor moisture load requires cooling and dehumidification throughout the year; the water temperature of swimming pool needs to be kept constant by heating all the year round. Meanwhile, the indoor audience's stand and office area require cooling in summer and transition seasons, and air conditioning heating is needed in winter.



- Other applications which have accurate temperature and humidity requirements: For the indoor environment of places such as museum, archives and art gallery with relatively high temperature and humidity requirements, the AHU terminal air supply equipment of 4-pipe system is used to implement cooling and dehumidification through the built-in cooling coil and reheating through the heating coil.



Gallery

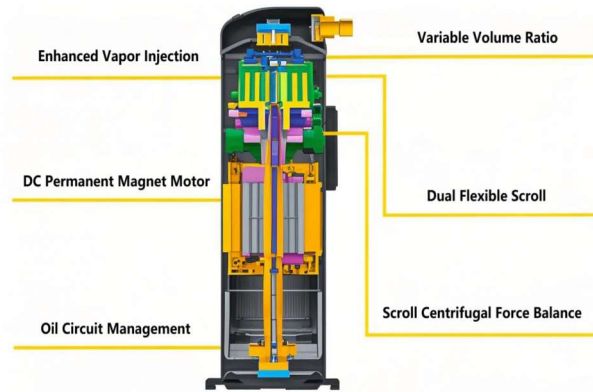
Features

■ Efficient and energy-saving

The energy-saving system design incorporates high-efficiency components, including inverter compressors and inverter fans, to achieve superior operational efficiency for the entire unit.

◆ Advanced inverter EVI compressor

The latest inverter 4-pipe air-cooled heat pump uses an asymmetric scroll compressor and next-gen inverter drive for high efficiency, stability, durability, and quiet operation. Its smart system adjusts output in real-time to match loads, ensuring optimal energy efficiency at all times.



◆ Inverter fan

Adopting inverter speed-adjustable motor, achieving lower power consumption and ultra-quiet operation.



◆ BPHE

The stainless steel brazed plate heat exchanger uses the new forcible cross convection technology to achieve higher efficiency and smaller size.



◆ EXV

480-steps electronic expansion valve achieves accurately control of throttling.



◆ Copper-Aluminum HE

Inner grooved copper tubes and louver fin enlarge heat exchange area and improve efficiency.



■ Proprietary Technology for precise temperature control

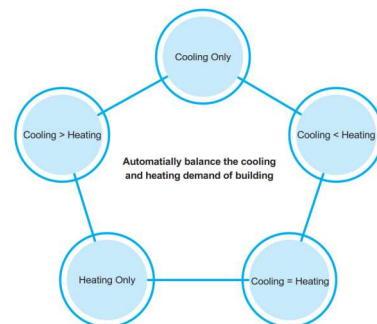
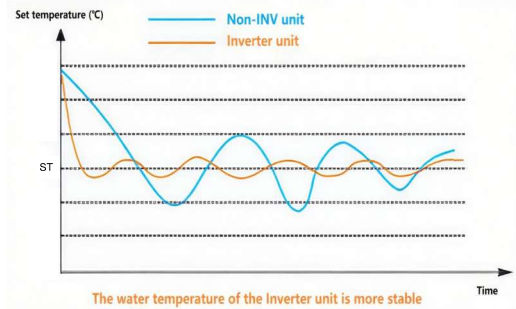
During load imbalance, Daikin's units can switch operating modes without stopping the compressor, while other brands' units require compressor shutdown for mode transition. This enables Daikin's units to significantly reduce switching time, respond more rapidly to load changes, and minimize water temperature fluctuations.

■ More stable water temperature and higher user comfort

The unit's stepless regulation enables precise chilled/hot water temperature control, ensuring stable output and meeting stringent dehumidification/heating demands for applications requiring tight temperature-humidity control.

■ Flexible cooling and heating output

The unit employs adaptive cooling/heating balancing technology, automatically adjusting to building load demands in real time. Paired with inverter compressors and fans, it enables stepless modulation for seamless, on-demand output—delivering superior comfort through precise, responsive climate control.



Features

■ Reliable

◆ Inverter startup

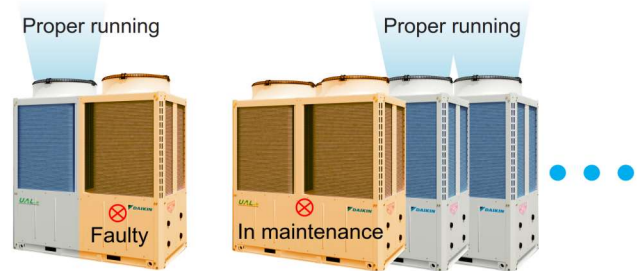
The unit's inverter-based startup system gently activates components in stages to prevent power surges and uses smooth motor control to avoid high initial currents, keeping voltage stable and ensuring seamless grid compatibility during operation.



◆ Double backup

Each system in the unit has the standby function of each other. Failure of one system does not affect the normal operation of the other system.

The system can operate normally even one or one unit breakdown due to multiple compressors design and modular combination.



■ Flexible

Thanks to the modular design, the master and slave units do not need to be differentiated when modules are combined, thereby facilitating the installation. Each module combination allows a maximum of 16 units, which can meet the load requirements in different building.



◆ Decrease initial investment pressure

The unit can be expanded conveniently, which is conducive to phased investment.

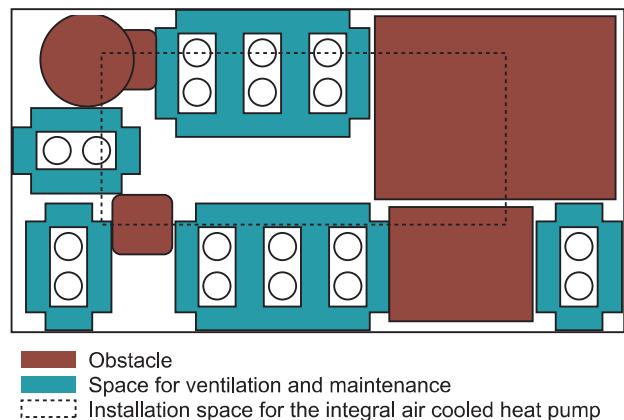
◆ Easy transportation and save cost

The unit is small in size and can be transported without the aid of large lifting equipment.

◆ Flexible and easy installation

Only a well-ventilated place is needed for the installation. No dedicated equipment room and cooling water system are required.

The air cooled modular unit is also suitable for irregular installation space (taking 585 kW unit as an example)



Specification

■ General data

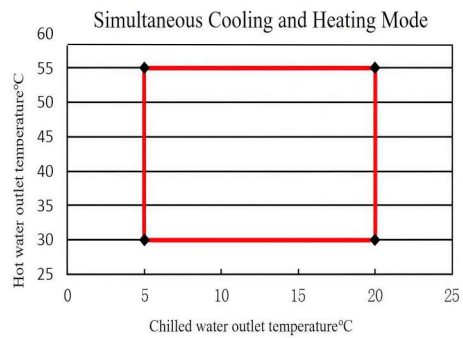
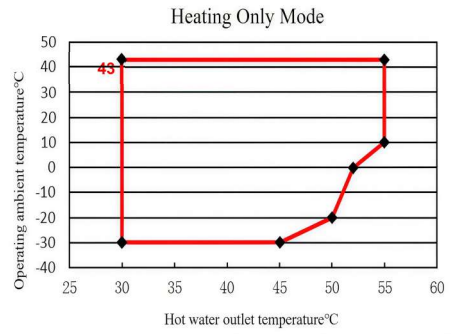
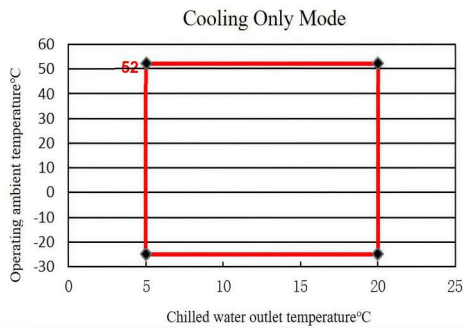
Model			UAL450ER5SQ
Wired controller kit			UAL-A16E-01
Cooling mode	Nominal cooling capacity	kW	130
	Cooling power input	kW	38.8
	Cooling EER	-	3.35
	IPLV	-	5.60
	Water flow rate	m ³ /h	22.36
	WPD	kPa	28
Heating mode	Nominal heating capacity	kW	140
	Heating power input	kW	41.2
	Heating COP	-	3.40
	Water flow rate	m ³ /h	24.08
	WPD	kPa	46
Simultaneous Cooling and Heating mode	Nominal cooling capacity	kW	133
	Nominal heating capacity	kW	169
	Power input	kW	36.8
	ICOP	-	8.21
	Water flow rate of A/C water side	m ³ /h	22.88
	WPD of A/C water side	kPa	29
	Water flow rate of hot water side	m ³ /h	29.07
WPD of hot water side	kPa	66	
Refrigerant type		-	R410A
Refrigerant full charge		kg	18*2
Power Supply		-	380-415/3N~/50Hz/60Hz
Water connection size	A/C water side	-	RC2-1/2
	Hot water side	-	RC2-1/2
Compressor	Type	-	Inverter EVI Scroll
	Quantity	-	2
Fan Motor	Type	-	Inverter Axial Flow
	Quantity	-	2
	Input power	kW	1.8*2
	Air volume	m ³ /h	21000*2
Unit dimensions (LxWxH)		mm	2100×1100×2300
Net weight		kg	975
Operating weight		kg	995

NOTES:

- 1) NOMINAL COOLING CONDITION: LWT 7°C ,WATER FLOW 0.172M³/(H·KW), AMBIENT TEMPERATURE 35°C .
- 2) NOMINAL HEATING CONDITION: LWT 45°C ,WATER FLOW 0.172M³/(H·KW), AMBIENT TEMPERATURE 7°C DRY BULB & 6°C WET BULB.
- 3) NOMINAL CONDITION OF SIMULTANEOUS COOLING AND HEATING: CHILLED WATER INLET AND OUTLET TEMPERATURE OF 12°C/7°C, HEATING INLET/OUTLET TEMPERATURE OF 40°C/45 °C.
- 4) ABOVE PERFORMANCE DATA IS TESTED UNDER 380V, 50HZ.
- 5) STANDARD UNIT ACCESSORIES INCLUDE WATER FILTER, SLAVE UNIT COMMUNICATION CABLE (5M).
- 6) CONTROLLER KIT INCLUDES WIRED CONTROLLER, CONTROLLER CABLE (40M) , CHILLED WATER OUTLET TEMPERATURE SENSOR WIRE (20M) AND HOT WATER OUTLET TEMPERATURE SENSOR WIRE (20M). THE CONTROLLER KIT NEEDS TO BE PURCHASED SEPARATELY.
- 7) THE CHILLERS ARE DEFAULT SET LWT CONTROL.
- 8) ANY REQUIREMENT FOR LWT BELOW 5°C , PLEASE CONSULT DAIKIN.
- 9) ALL SPECIFICATIONS ARE SUBJECTED TO CHANGE BY THE MANUFACTURER WITHOUT PRIOR NOTICE.

Specification

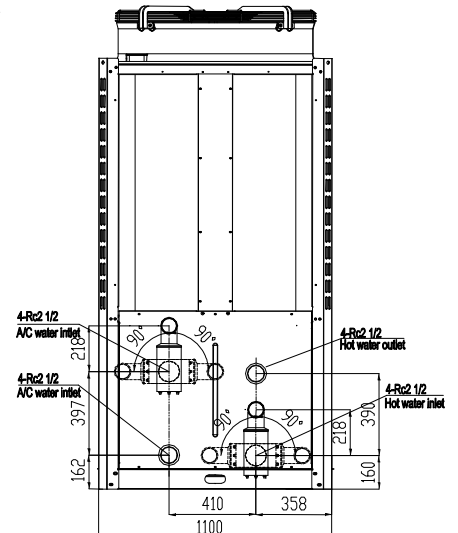
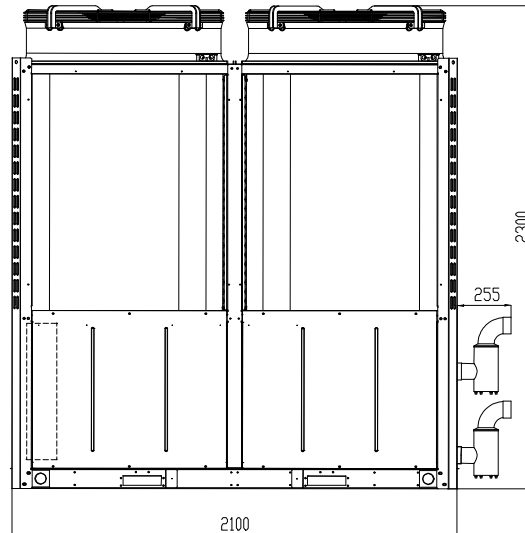
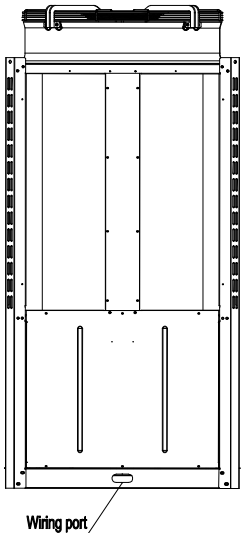
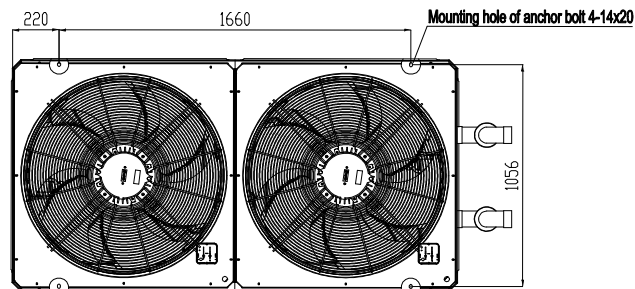
Operating Range



NOTES:

1) IN SIMULTANEOUS COOLING AND HEATING MODE, DUE TO THE LIMITATION OF OPERATING AMBIENT TEMPERATURE ON THE MAXIMUM HOT WATER OUTLET TEMPERATURE, THE HOT WATER OUTLET TEMPERATURE OF THE SYSTEM SHOULD REFER TO THE OPERATING RANGE OF HEATING-ONLY MODE.

Unit dimension



unit:mm

Warning

- Daikin Industries, Ltd.'s products are manufactured for export to numerous countries throughout the world. Daikin Industries, Ltd. does not have control over which products are exported to and used in a particular country. Prior to purchase, please therefore confirm with your local authorized importer, distributor and/or retailer whether this product conforms to the applicable standards, and is suitable for use, in the region where the product will be used. This statement does not purport to exclude, restrict or modify the application of any local legislation.
- Ask a qualified installer or contractor to install this product. Do not try to install the product yourself. Improper installation can result in water or refrigerant leakage, electrical shock, fire or explosion.
- Use only those parts and accessories supplied or specified by Daikin. Ask a qualified installer or contractor to install those parts and accessories. Use of unauthorized parts and accessories or improper installation of parts and accessories can result in water or refrigerant leakage, electrical shock, fire or explosion.
- Read the User's Manual carefully before using this product. The User's Manual provides important safety instructions and warnings. Be sure to follow these instructions and warnings.

If you have any enquiries, please contact your local importer, distributor and/or retailer.

Cautions on product corrosion

1. The units should not be installed in areas where corrosive gases, such as acid gas or alkaline gas, are produced.
2. If the unit is to be installed close to the sea shore, direct exposure to the sea breeze should be avoided. If you need to install the unit close to the sea shore, contact your local distributor.

Dealer**DAIKIN INDUSTRIES, LTD.**

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