

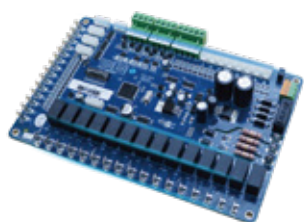
Modular Air Cooled Chiller /Heat Pump

- Module Combination
- Stable and Reliable
- Intelligent Control



PCB Board

The low-temperature modular PCB board is developed under the collaboration of HOLTOP, and supplier of compressor /electronic valve /controller, which is featured by advanced control logic, stable operation, and multi-protection, to guarantee the performance of the whole system.



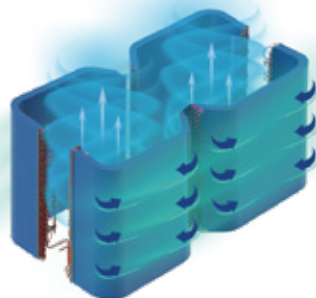
Fan and Motor

The fan is with large air volume and low noise level, and the motor is with strong torque and high efficiency. Both are allowing the unit to operate at high efficiency and low noise.



Air-Side Heat Exchanger

The circling heat exchanger creates a uniform air distribution to get the optimal heat emission.



Compressor

With the help of the world-class EVI (Enhanced Vapor Injection) compressor, the heating performance at low-temperature working conditions increases over 18%.



Electronic Expansion Valve

Precise refrigerant flow control is available from a 480-step electronic expansion valve, to keep the unit running at the most efficient level.



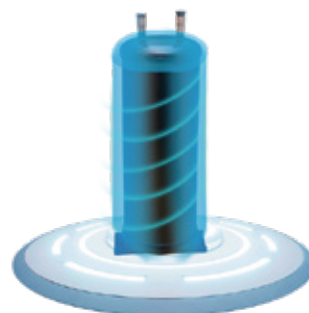
Water-Side Heat Exchanger

The water-side heat exchanger is adopted with the new helical baffles technology of shell & tube heat exchanger, which helps increase 10% of the heat exchange efficiency.



Liquid Storage Tank

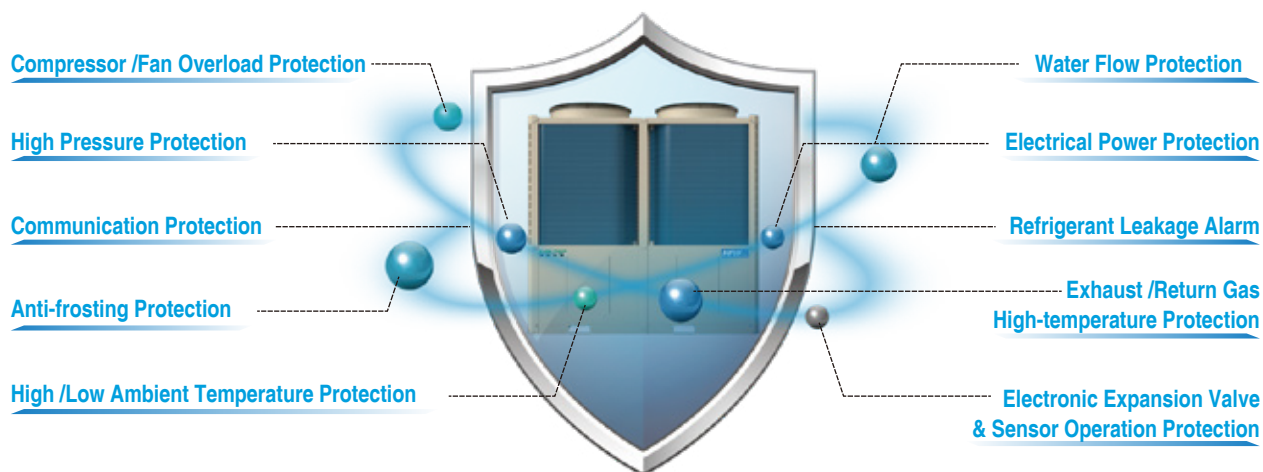
HOLTOP uses a large-volume and low-resistance liquid storage tank, to make the system operation reliable.



RELIABLE OPERATION

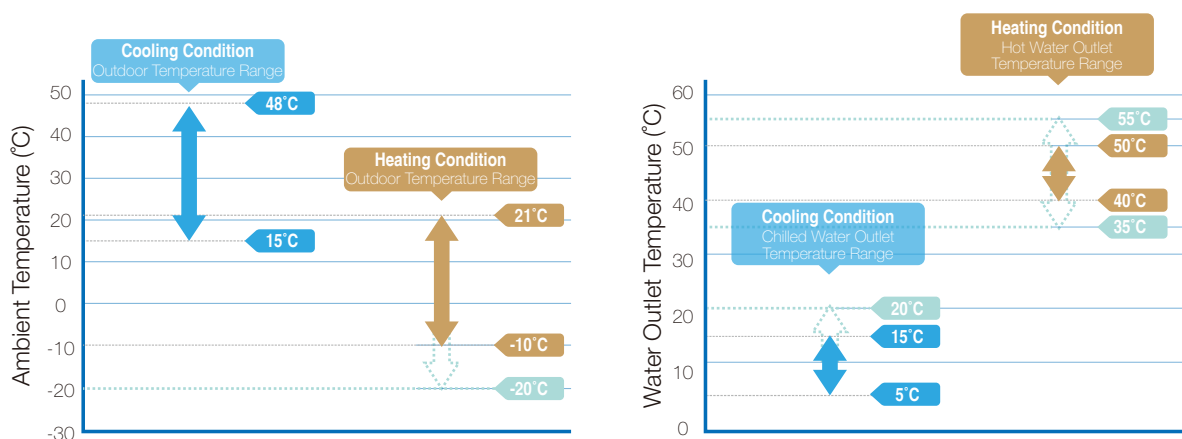
Integrated Protection

Designing more than 10 safety protection functions, which can ensure unit and the system operation in all-round protection. The unit can be controlled through a multi-variable monitoring system to ensure the unit with stable and efficient operation.



Wide Temperature Range of Application

Unit is suitable for operation in a wide outdoor temperature range, from -20°C ~ 48°C .



Note: The solid colour marks are the operating range of normal temperature type equipment. The dotted line marks are the extended operating range of low-temperature type equipment.

Full Redundancy Operation

A single unit is designed with multiple compressors. When one of the compressors fails, the rest of the compressors in the system can still operate normally without affecting the operation of the whole system.



MODULAR COMBINATION

The chiller adopts modular combination design and does not need to set the master or sub-master unit. Each combination is able to connect a maximum of 16 units, even they are made of different models, to meet the variable demands of different buildings.



Steps Starting

Starting all units in steps, in order to lower the starting current, reduce the shock to power grid, and avoid affecting the security of other electrical equipment.



Flexible Application

Investment

Extra units can be added into combination at any time, convenient for multiple stages of investment.

Transportation

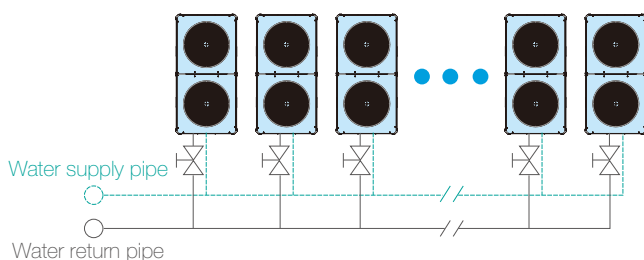
The size of each unit is compact. It can be transported individually, does not need a crane at the project site, saving transportation cost.

Installation

It does not need machine room or cooled water system, only somewhere with good ventilation. The water pipes are designed on side of the unit, which can be easy for chilled water pipe connection and save installation space.

System

At the water circulating system, besides the standard use of the constant flow system, it is optional to use the primary pump with a variable flow system, and the variable speed control cabinet is optional to select.



Smart Defrosting System

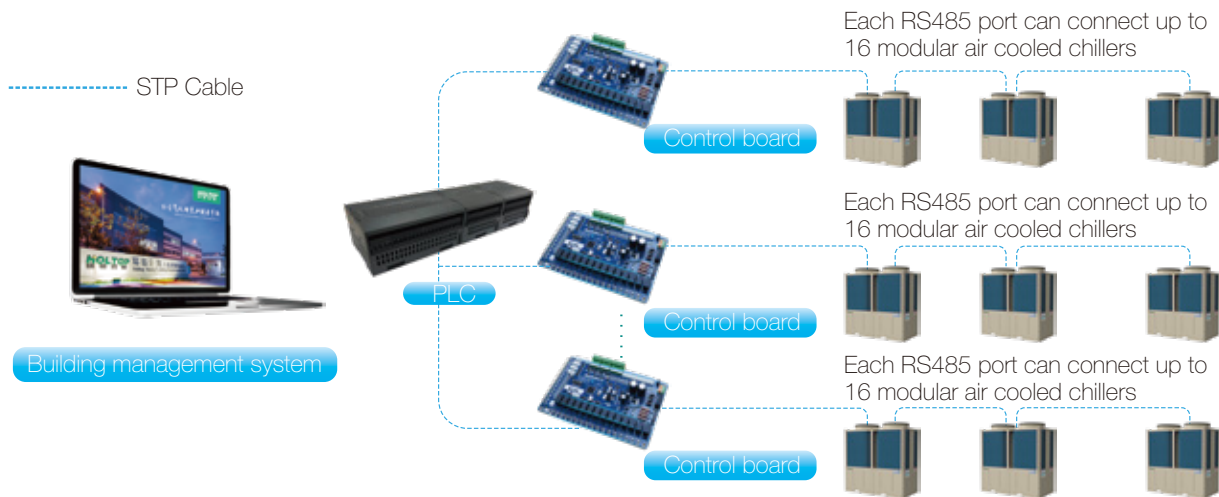
By sensing with the multi-variables system to have accurate judgement on the situation of frosting, the unit itself can be able to choose the best time to enter or exit defrosting, to avoid insufficient defrosting or over defrosting. In a duplex system, the units can achieve alternate defrosting. When heating under extreme low-temperature conditions, setting manual defrosting for better performance.



INTELLIGENT CONTROL

PLC Control System

The PLC control system combines the simplicity and convenience of the wired control system and the advantages of centralized group control system to achieve group centralized control. One PLC control system can manage 1 to 8 groups. Each group can control 1 to 16 pieces of modular chillers. The system can control up to 128 modular chillers. The control system also delivers various features such as group mode switching, temperature adjustment, on/off control, etc to adopt numerous applications.



Intelligent Combination Control Function

Terminal interlock control

Chillers start/stop are according to terminal unit (AHU, FCU etc) status to achieve fully automatic operation.

Chilled water pump interlock control

Intelligent control water pump start/stop. Avoid the harm caused by the asynchronous between water pump and terminal unit (AHU, FCU etc).

Fault alarm output

The control system can be connected to sound, light and other prompts to remind the user when the unit fails.

Remote switch control

Unit start/stop can control by the remote switch.

System auxiliary heat source interlock control

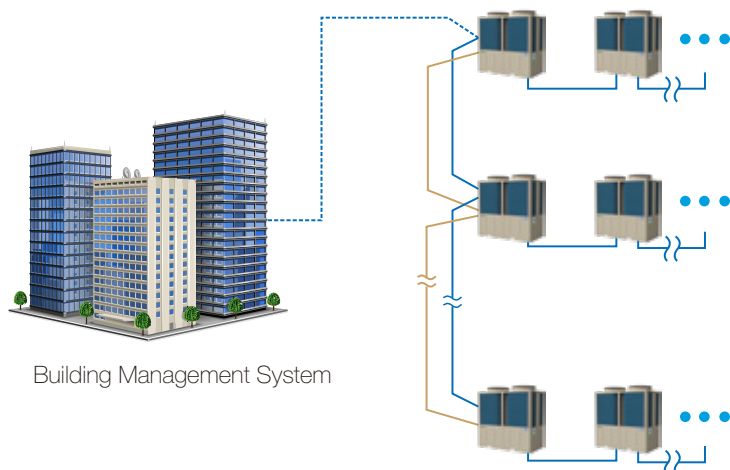
The starting conditions of the auxiliary heat source are determined by the multi-variable system. Intelligently control the auxiliary heat source start/stop.

Running status output

The system can provide unit operation status' signal access, allow users to receive the unit's real-time start/stop status.

Free Access to Building Management System

Standard RS485 building communication interface comes with open access to standard ModBus communication protocol. The device can be easily connected to the building control system (BAS) for centralized control, easy to achieve intelligent control, avoid unnecessary energy waste, and save air-conditioning operating costs.



PRODUCT PARAMETERS

Model/Specification		HFW-65HA1	HFW-65HA1-L	HFW-130HA1	HFW-130HA1-L
		Normal temperature type	Low temperature type	Normal temperature type	Low temperature type
Nominal cooling capacity (KW)		65	63	130	130
Nominal heating capacity (KW)		71	71	142	141
Cooling	Rated total input power (KW)	19.5	18.7	39	37.7
Heating	Rated total input power (KW)	21	19.5	42	38.8
Nominal low temperature cooling capacity (KW)		/	52	/	100
Total nominal low temperature heating input power (KW)		/	18.6	/	37
Voltage		380V/3N~/50Hz			
Refrigerant		R410A			
Throttle parts		Electronic expansion valve			
Compressor	Type	Hermetic scroll			
	Qty	2			
Fan	Type	Axial low noise fan			
	Power (kw)	0.9*2		1.5*2	
Air side heat exchanger	Airflow (m³/h)	14000*2		19500*2	
	Type	High-efficient finned heat exchange			
Water side heat exchanger	Nominal water flow (m³/h)	11.5	11.5	22.5	22.5
	Type	High-efficient shell&tube heat exchanger			
Water pressure drop (kPa)		30		40	
Water inlet/outlet connection pipe		DN50		DN65	
Dimension W*H*D (mm)		1810*960*2350		2011*1100*2300	
Net weight (kg)		580	600	1000	1050

- **Nominal cooling condition:** water flow rate: 0.172m³/(h·kw); outlet temperature 7°C; Ambient temperature 35°C.
- **Nominal heating condition:** water flow rate: 0.172m³/(h·kw); outlet temperature 45°C; Ambient DB/WB temperature: 7°C/6°C.
- **Nominal low temperature heating condition:** water flow rate: 0.172m³/(h·kw); outlet temperature 41°C; Ambient DB/WB temperature: -12°C/-14°C.
- Water pipe for modular chiller combination should be fabricated and installed at project site, not provided by factory. Pipe diameter and construction should conform to design standards.
- Module units can be combined on the basis of the same or different model according to needs for specific project. The number of combined units ranges from 1 to 16 pcs. The above table is the parameters of a single unit.
- Control accessories need to be ordered separately. Control accessories include wire controller, instruction manual, controller connection cable and other accessories.

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