



LET'S GO BEYOND™



## CXAJ/CGAJ Modular Air-Cooled Chiller (Heat Pump)

Unit 65KW/130KW

High efficiency model • Standard model



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TRANE  
TECHNOLOGIES

# Trane CXAJ/CGAJ

Modular Air-cooled Chiller (Heat Pump) Unit



## Benefits of the modular Air-Cooled (Heat Pump) Unit

### Widespread application

The air-cooled modular chiller is suitable for a widespread application in shopping malls, supermarkets, office buildings, cinemas, plants, hospitals, and so on.

### Simple system saves initial cost

Compared with conventional water-cooled chillers, modular chillers don't require cooling towers, water pumps, boilers and relevant pipelines that are necessary for ordinary chilled water system. It features a simple structure requiring no dedicated chiller plant, which greatly saves space and construction cost, thus significantly reducing total project investment.

### Modular design provides good expansibility

Modular chillers can be added or reduced according to the demand of project phase. The added modules share the same water system with the original system, ensuring a strong and convenient expansion capacity.

### Space saving with convenient transportation

Modules are small, light, therefore are convenient for transportation. With flexible assembly, the unit can be mounted on grounds, platforms or roofs.

### Multi-level capacities adjusting

Each module consists of multiple cooling systems. An integration of several modular chillers will achieve multi-level capacities adjusting, thus lowering energy consumption.



Chinese Patent

The product is granted with design patent.  
Patent No.: ZL 2012 3 0259487.7



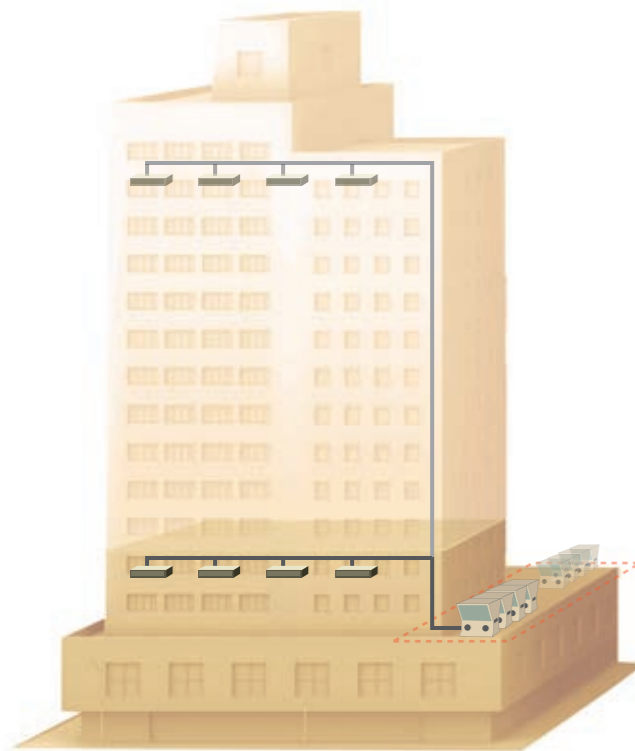
## Excellent performance of Trane modular chiller

- Up to 25 modules in single modular system, easier to expand system capacity
- Smooth air circulation, convenient installation & maintenance space
- R410A environmentally friendly refrigerant
- Light-weight structure design
- Y-shape reduces floor space
- Balanced system operation, defrost with non-stop running
- IPLV up to 3.90
- Intelligent control functions
- Wide operation range
- Cover design makes maintenance easier

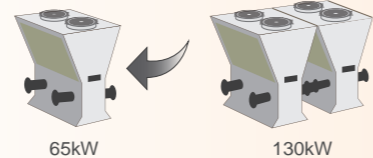
# Product features

## Up to 25 modules in single modular system, easier to expand system capacity

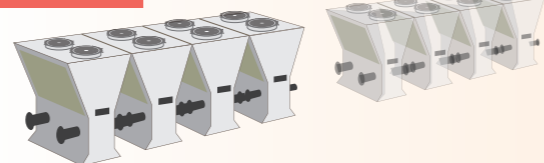
- Uniform appearance of different modules (65kW and 130kW) guarantees orderly installation on site.
- Up to 25 modules, with capacity of 3,250kW and applicable floor space of 30,000 m<sup>2</sup>.
- Module installation allows easy transportation as well as system expansion and staged investment.



Up to 25 units combination in multi-modules



Staged investment



\* Note: The data is for reference only. The actual applicable areas are subject to change as per different cities, climates and designs.

## Y-shape design achieves seamless module connection, saving more installation space

Trane's new CXAJ/CGAJ modular chiller adopts Y-shape design, which is granted with appearance patent.

- The design achieves seamless connection at length direction, saving the service space between modules. More than 30% floor space is reduced comparing with conventional design.
- The design simplifies water piping, saves installation space, and effectively reduces system pressure drop, which further reduces pump consumption.

For example, the three-module unit saves 30% of floor space.

**New Y-shape unit:**  
Length \* width:  
2,145mm x 1,000mm  
Floor space: 2.145 m<sup>2</sup>

**Floor space of Y-shape unit: 6.44m<sup>2</sup>**

Reduced water piping to save installation space

**Previous type:**  
Length \* width:  
2,170mm x 1,000mm  
Floor space: 2.17 m<sup>2</sup>

**Floor space of old type: 9.11m<sup>2</sup>**

Service space: 0.6m

## Light-weight unit reduces the foundation load

CXAJ/CGAJ module unit adopts light-weight design (Minimum weight per unit:700kg), reducing the foundation load.

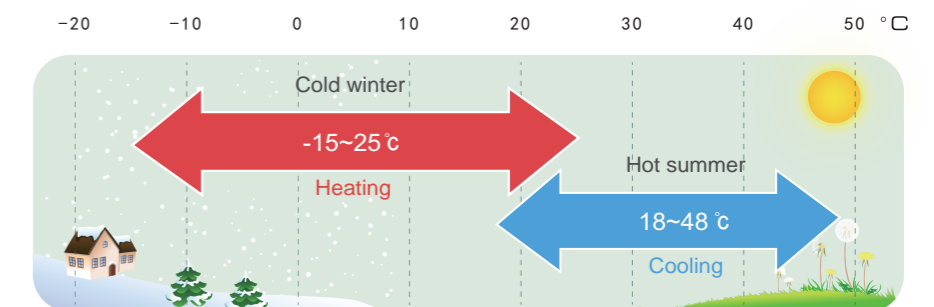
**New Y-shape 65kW unit: 730kg**

50kg is declined for each module.

**Common design model 65kW unit: 780kg**

## Wide operation range can meet air-conditioning requirements in different regions

CXAJ/CGAJ module unit is capable of cooling operation under an ambient temperature range of 18~48 °C and heating operation under that of -15~25°C, which can meet the demand for comfort air conditioning design in different regions.





# Reliable support for stable operation

## Balanced compressor operation

CXAJ/CGAJ system can monitor compressors status in each module timely via modular controller and adjust each compressor running time to balance and allocate compressors intelligently, thus prolonging service life.



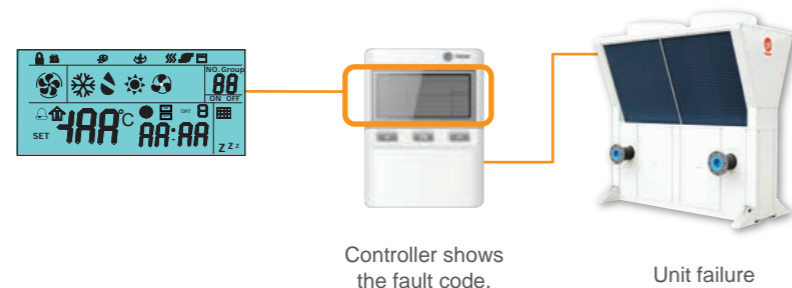
## Back-up operation will be activated in case of failure

Single CXAJ/CGAJ module contains more than two compressors and refrigerating circuits. In case of failure of one compressor, other compressors will switch to emergency operation.



## Automatic failure alarm

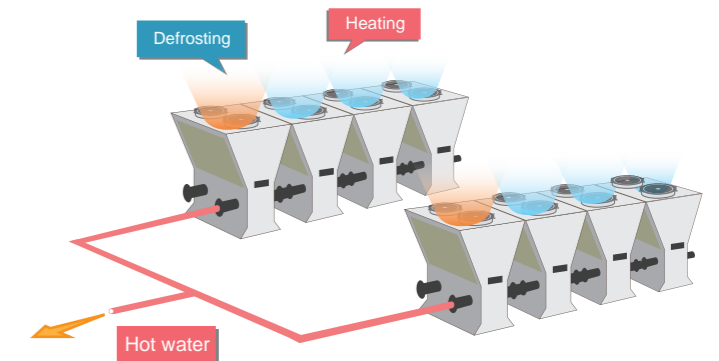
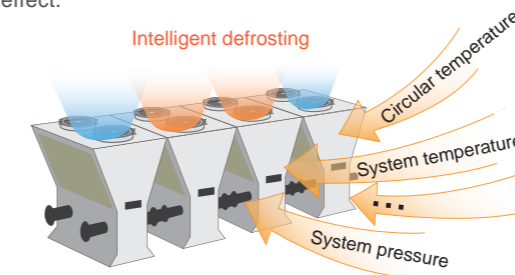
With automatic failure alarm, the fault code will be indicated on the screen of the controller in case of any failure, enabling operators to conduct trouble shooting timely.



## Continuous heating and defrosting with non-stop running in winter

Under heating mode in winter, the air-cooled heat pump will encounter frost due to the moisture in the air at a low temperature. Trane's intelligent defrosting function can select the appropriate defrosting time automatically as per the operating conditions to guarantee continuous indoor heating effect.

When modular connected, the master controller will calculate and balance the defrosting time of each module automatically. The defrosting operations in any modules will not impact the normal working of the others, so as to guarantee the continuous heating in winter.



## Multi protection



- Power protection
- Low water flow protection
- Compressor overloading protection
- Fan overloading protection
- High exhausting pressure protection
- High exhausting temperature protection
- Low delivery water temperature protection
- Low suction pressure protection
- High delivery water temperature protection

## Efficient scroll compressor

- The tandem scroll compressor (high efficient model) greatly improves the efficiency under partial loads.
- The compressor is standard with heating belt on crank case, keeping the lubricating oil effective in cold winter.



## Electronic expansion valve

Featuring high accuracy of adjustment and rapid movement, the electronic expansion valve can adapt to any sudden change of the refrigerant flow, especially at low temperature. Comparing with the thermal expansion valve, it may better react to superheat conditions for accurate and rapid adjustment.



## Separator

It avoids liquid shock caused by liquid refrigerant into compressor.



## Dry filter

It avoids filth or ice blockage caused by impurities or moisture in the refrigerating circuit.



## Efficient shell-tube heat exchanger

Thanks to the shell-tube heat exchanger design, the pressure drop inside is lower, and the system energy consumption and risks of filth or ice blockage will thus be reduced.



## Accumulator

It stores extra refrigerant based on the demands of different conditions needs to keep stable operation of the system.

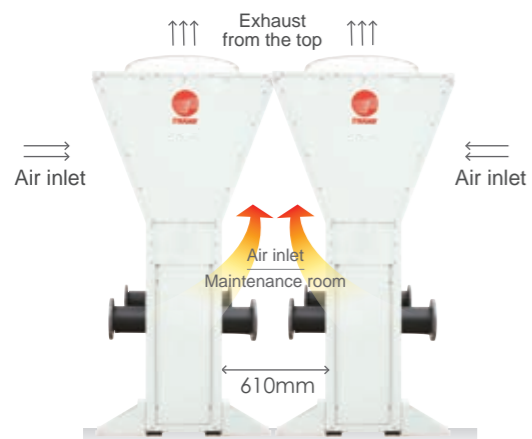




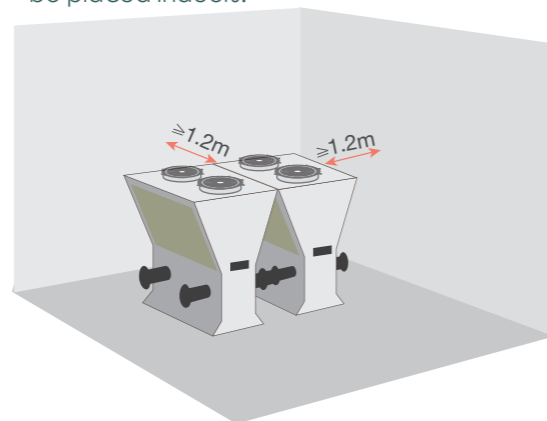
# Installation guideline

## Installation space

• Y-shaped design with seamless module connection can keep air circulation on a smaller floor space. 610mm space at the bottom conduces to the smooth maintenance.

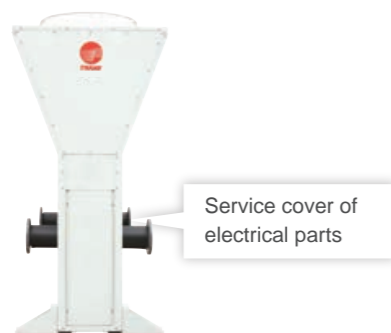


• It is suggested to put the unit at a place with good heat dissipation and at least 1.2m away from the wall. Please refer to the installation manual if the unit needs to be placed indoors.



## Easy maintenance

The special design of the frame and cover keeps the major parts and control panel, inside, which can protect the damage arising from external environment and reduce the operation noise. Meanwhile, the maintenance of the unit is also very simple and convenient.



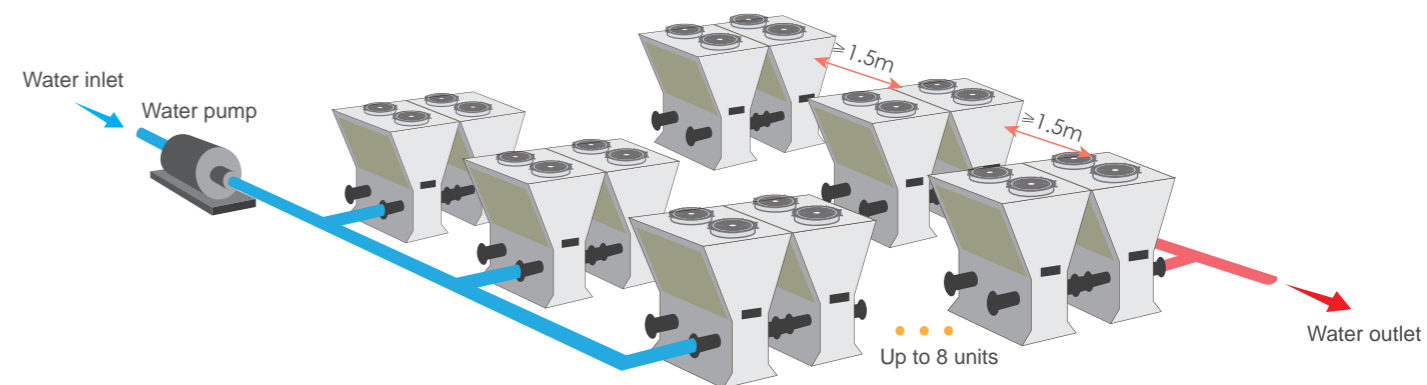
Service cover of electrical parts



Service cover of refrigerating parts

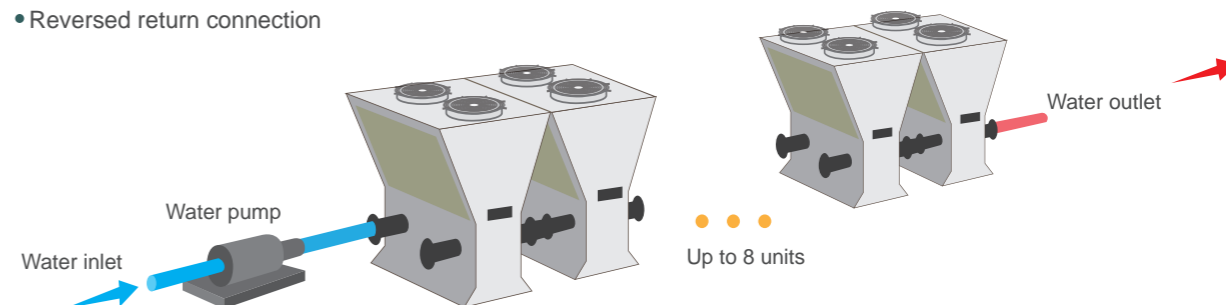
## Multi modules (Reversed return connection)

- Up to 8 units in single module.
- Only reversed return connection is allowed.



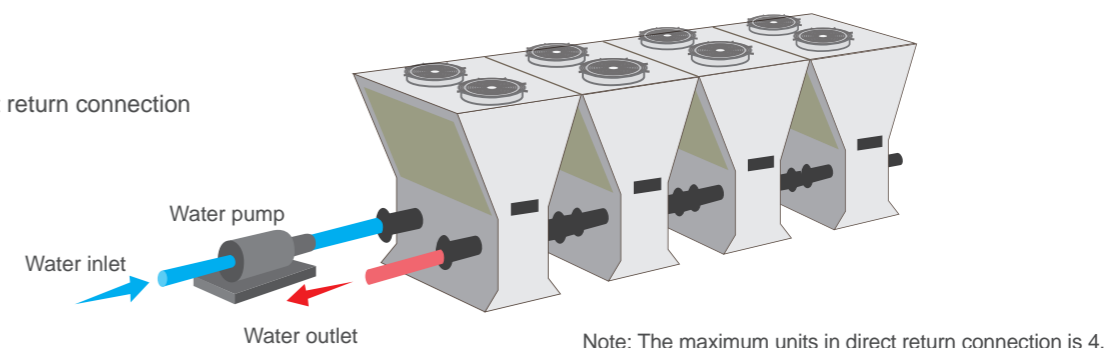
## Single module: Can connect up to 8 units

- Reversed return connection



Note: For multi modules, up to 8 units in single module. Direct return connection is not allowed.

- Direct return connection



Note: The maximum units in direct return connection is 4.



# Control and unit parameters

A centralized control of up to 25 units can be achieved.  
Up to 25 units can be centrally controlled by one modular controller

Trane's modular controller is applicable to single unit or multi-modules combination for centralized control.

### Features

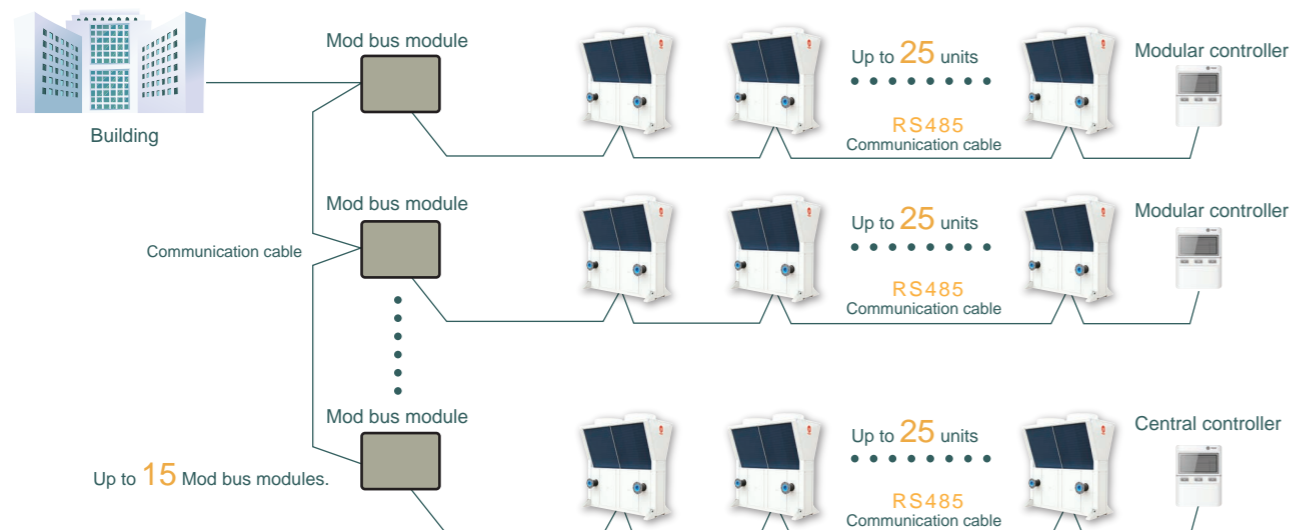
- 50x100mm LCD display and 15 buttons, convenient operation interface.
- RS485 port provides standard Mod Bus communication protocol to control system in buildings.

### Functions

- Rapid query (Automatic browsing and manual query)
- Software monitoring
- Keyboard locking to avoid mis-operation
- Display of unit failure

- Defrosting
- Compressor power-on
- Keyboard lock
- Temperature display
- Alarm
- Temperature setting
- Temperature/ fault code
- Timing setting
- Clock setting
- Electric heating
- Anti-freezing
- Water pump
- Unit No.
- Operating mode (Heating and refrigeration)
- Schedule setting
- Week
- Sleeping
- Clock /timing
- Keyboard: each digit button has a second function. E.g. the button "6" can adjust the hour.

## Building management system (BMS)



The unit can be connected to the building management (System BMS) by the standard Mod Bus communication protocol, which can support up to 375 units.

## Unit parameters

### Standard model

Model: CXAJ/CGAJ*****N		CXAJ065	CXAJ130	CGAJ065	CGAJ130	
Cooling	Rated Cooling Capacity	kW	65	130	65	130
	Rated Input Power	kW	21.6	43.2	21.6	43.2
	Rated Operating Current	A	42.0	81.0	42.0	81.0
Heating	Rated Heating Capacity	kW	67	137	-	-
	Rated Input Power	kW	21.0	41.0	-	-
	Rated Operating Current	A	41.5	74.0	-	-
Max. Operating	Max. Input Power	kW	29.2	60.0	29.2	60.0
	Max. Current	A	55.0	120.0	55.0	120.0
Compressor	Category		Hermetic scroll			
	Quantity	Pieces	2			
	Rated Cooling Power	kW	10.1	20.0	10.1	20.0
	Rated Cooling Current	A	19.2	38.0	19.2	38.0
	Rated Heating Power	kW	9.5	19.0	-	-
Refrigerant	Category		R410A			
	Charge	kg	13	12.5*2	13	12.5*2
Water Side	Category of Heat Exchanger		High-efficiency shell-tube heat exchanger			
	Rated Water Flow	CMH	11.2	22.4	11.2	22.4
	Water Pressure Drop	kPa	60	70	60	70
Air side	Connections	mm	DN125			
	Category of Heat Exchanger		High-efficiency fin-coil heat exchanger			
	Fan Quantity	Pieces	2			
	Rated Input Power of Fan	kW	0.75	1.50	0.75	1.50
	Rated Current of Fan	A	2.10	3.96	2.10	3.96
Unit	Air Flow	CMH	12000	20000	12000	20000
	IPLV		3.60	3.40	3.60	3.40
	Power Supply	V/PH/Hz	380/3N~/50			
	Noise	dB(A)	69	70	69	70
Dimension	Net Weight	kg	710	1050	710	1050
	Operating Weight	kg	780	1150	780	1150
	Length	mm	2145	2400	2145	2400
	Width	mm	1000	1200	1000	1200
	Height	mm	2155	2380	2155	2380

### High efficiency model

Model: CXAJ/CGAJ*****H		CXAJ065	CXAJ130	CGAJ065	CGAJ130	
Cooling	Rated Cooling Capacity	kW	65	130	65	130
	Rated Input Power	kW	21.0	40.9	21.0	40.9
	Rated Operating Current	A	40.5	78.0	40.5	78.0
Heating	Rated Heating Capacity	kW	67	137	-	-
	Rated Input Power	kW	21.5	40.0	-	-
	Rated Operating Current	A	41.0	71.0	-	-
Max. Operating	Max. Input Power	kW	29.2	57.2	29.2	57.2
	Max. Current	A	55.0	98.2	55.0	98.2
Compressor	Category		Hermetic scroll			
	Quantity	Pieces	2	4	2	4
	Rated Cooling Power	kW	9.2			
	Rated Cooling Current	A	18.0			
	Rated Heating Power	kW	9.1	-	-	-
Refrigerant	Category		R410A			
	Charge	kg	15	15*2	15	15*2
Water Side	Category of Heat Exchanger		High-efficiency shell-tube heat exchanger			
	Rated Water Flow	CMH	11.2	22.4	11.2	22.4
	Water Pressure Drop	kPa	60	70	60	70
Air side	Connections	mm	DN125			
	Category of Heat Exchanger		High-efficiency fin-coil heat exchanger			
	Fan Quantity	Pieces	2			
	Rated Input Power of Fan	kW	0.75	1.50	0.75	1.50
	Rated Current of Fan	A	2.10	3.96	2.10	3.96
Unit	Air Flow	CMH	12000	20000	12000	20000
	IPLV		3.85	3.90	3.85	3.90
	Power Supply	V/PH/Hz	380/3N~/50			
	Noise	dB(A)	69	70	69	70
Dimension	Net Weight	kg	730	1150	730	1150
	Operating Weight	kg	800	1250	800	1250
	Length	mm	2145	2400	2145	2400
	Width	mm	1000	1200	1000	1200
	Height	mm	2155	2380	2155	2380

1. The cooling capacity is measured at the condition of water inlet at 12°C, water outlet at 7°C and air inlet at 35°C of ambient temperature.

2. The heating capacity is measured at the condition of water inlet at 40°C, water outlet at 45°C and air inlet at 7°C of dry-bulb temperature and 6°C of wet-bulb temperature.

3. Executive standard: CXAJ/CGAJ 065/ 130unit GB/T18430.1 – 2007