MITSUBISHI ELECTRIC

Changes for the Better

AIR CONDITIONING SYSTEMS

SMART AIR SOLUTIONS

Perfectly Integrated for Your Business



IT Cooling
Fan Wall Unit

Water Cool Chiller
Water-Cooled Magnetic Levitation

Air Cool Chiller
Air-Cooled Magnetic Levitation

Air Cool Chiller
Modular Chiller E-Series

Index

	Page
1. Overview products	01
2. Modular Chiller	
2.1 Air Cooled Modular Chiller	02-13
2.2 Water Cooled Modular Chiller	14-19
3. Air Cooled Chiller	
3.1 Magetic Oil Free Chiller	20-23
3.2 Screw Chiller	25-33
4. Water Cooled Chiller	
4.1 Magetic Oil Free Chiller	34-45
4.2 Screw Chiller	46-54
4.3 Centrifugal Chiller	55-68
5. FAN COIL UNIT	
5.1 Ceiling Type - Horizontal	69-75
5.2 Ceiling Type - Silent	76-81
5.3 Ceiling Type - Silent DC Mototor	82-85
5.4 Duct Type	86-91
5.5 Cassette Type	92-98
5.6 Wall Mounted Type	99
5.7 Universal Type	100-105
6. AHU	106-118
7. IT Cooling	
7.1 Fanwall	119-123
7.2 Rack Cooler	124-130
7.3 Cool Blade	131-154
7.4 Free Cooling	155-156
7.5 PCCS	157-169

PRODUCT OVERVIEW

15 / 50 — 100 / 350 — 500 / 1750 — 1000 (RT) / 3500 (kW) — Cooling Capacity

Residence | Small store | Small office | Office building / School / Hospital | Shopping mall / High building

Scroll Chiller | Screw Chiller | Centrifugal Chiller

RAC | PAC | Maglev Chiller

Direct Expansion



Air-cooled Chiller



i-AQS-N



AQS-E



E-series



ERACS A/C



TECS2

Water-cooled Chiller



AQSW-H



E-series



FOCSWATER



CCS



TECS W/TWM

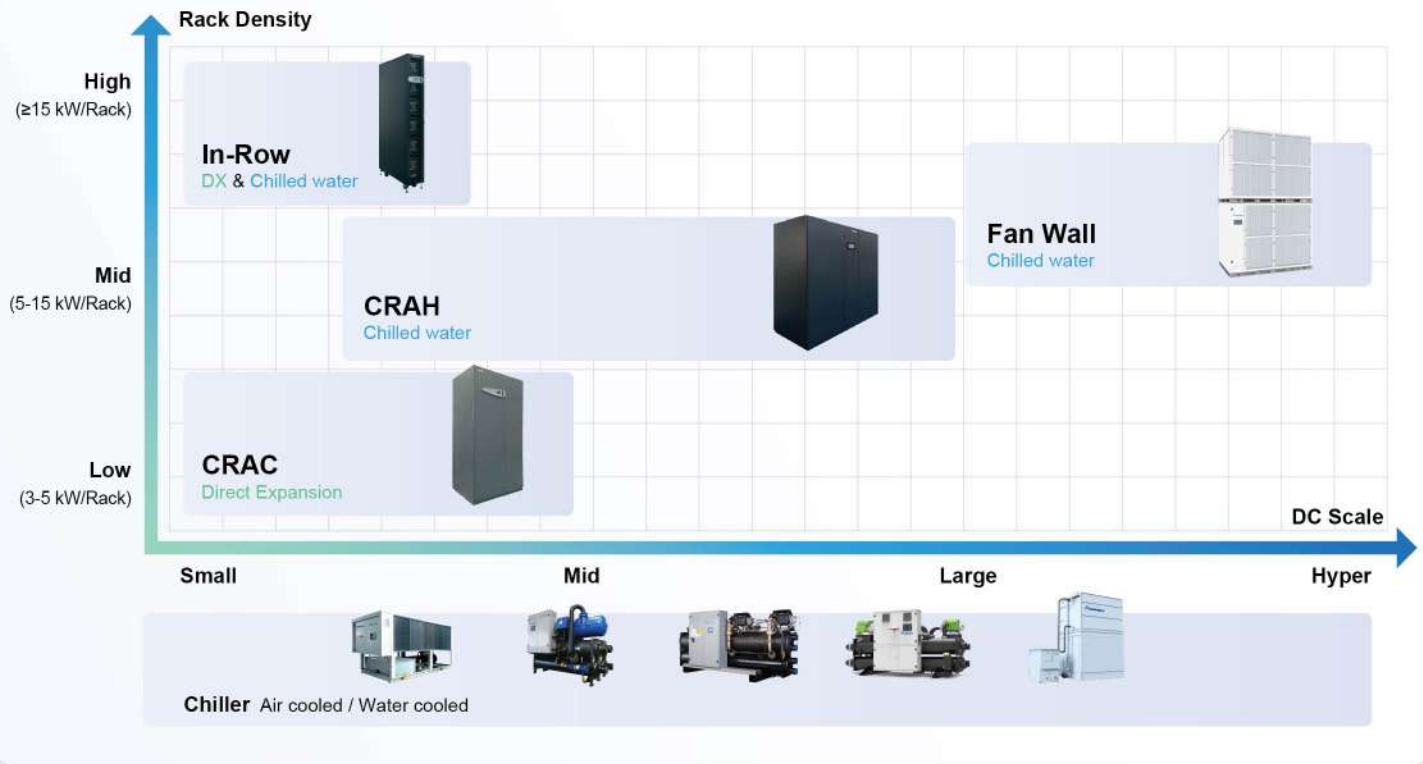
Air-side Terminal (Indoor unit)



FCU / AHU

500 — 2,000 — 10,000 — 20,000 m² — Total FL Area

IT COOLING



MODULAR CHILLER

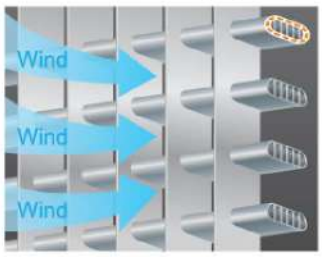
e-series



Freedom in function selection both in terms of form and size, which can be expanded up to 360 HP. It comes with a 100% inverter system, reducing the impact on the environment by using R32 refrigerant.

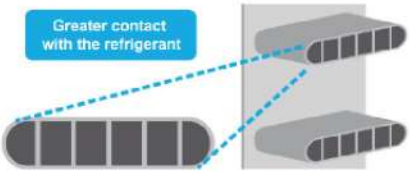
FLAT TUBE HEAT EXCHANGER





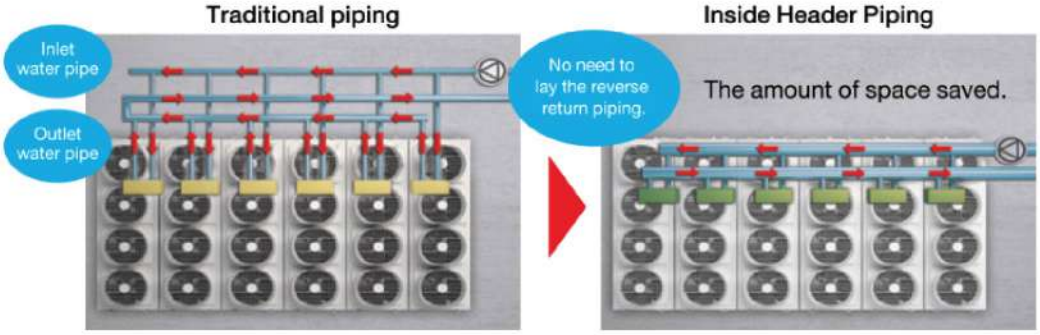
We have improved the heat exchanger from traditional copper pipes to a new specialized aluminum pipe to enhance operational efficiency and achieve a better energy saving rating as well.

Cross section of the flat tube

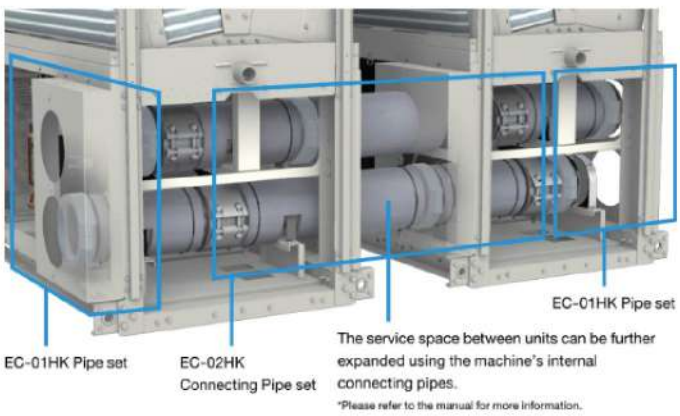


USES LESS SPACE WITH LOWER INSTALLATION COST

Reduce the use of equipment and installation space with the Inside Header (optional accessory) so that it can be installed in limited spaces. It can also eliminate the requirement of a reverse return piping layout because water pipes can be laid in a direct return style to save even more space.



INSTALLATION EXAMPLE OF A BUILT-IN COMBINED MODULE

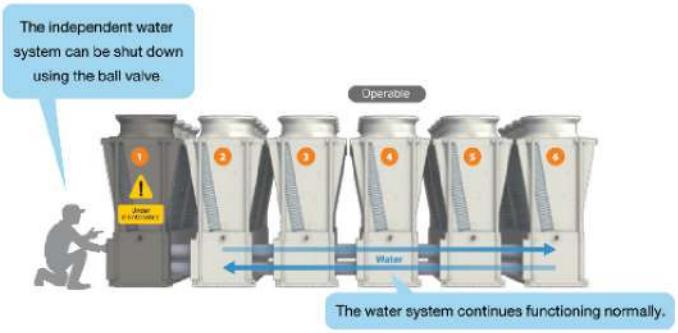


Use optional docking kits to connect units for easy installation.

Advantages of built-in combined pipes

It can reduce the pipe laying area and number of connections, simplifying the construction, and shortening the construction time.

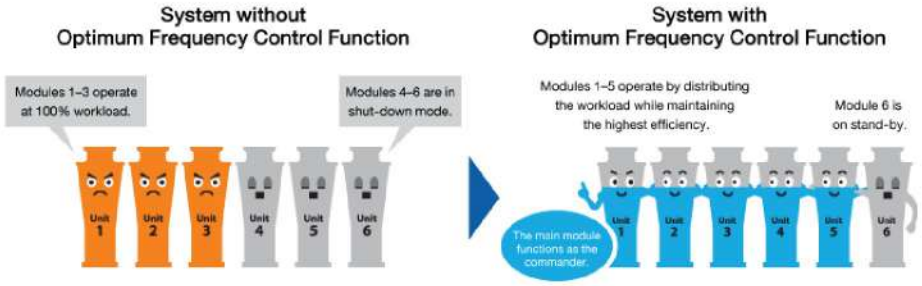
EASY TO MAINTAIN



The maintenance of the module is hassle-free. If maintenance or reparation is required, simply open the Ball Value of that module for reparation while other modules in the system continue functioning normally.

IN LOW SEASON CONDITION

With Optimum Frequency Control, the system is able to calculate operating conditions that maintain the highest COP (energy efficiency) values, so that the system can be as energy efficient as possible during operation.



E Series Line up

30HP 90kW module



EACV-P900YAL(-N)(-BS)
EACV-P900YAF(-N)(-BS)

50HP 150kW module



EACV-M1500YCL(-N)(-BS)

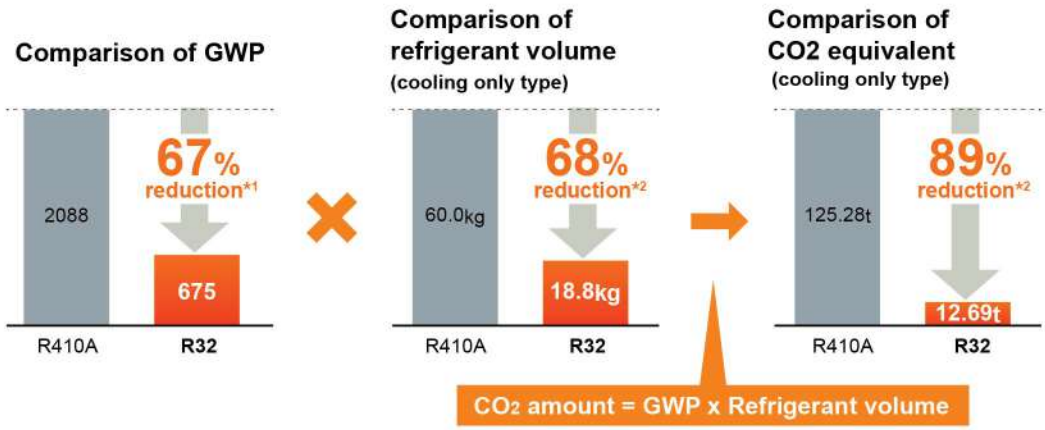
60HP 180kW module



EACV-M1800YCL(-N)(-BS)

REDUCED IMPACT ON THE ENVIRONMENT BY USING R32 REFRIGERANT

Compared to R410A, the refrigerant used in conventional models, R32 has a one-third lower GWP. The use of the R32-compatible compressor and flat tube heat exchanger allows for an approximately 68% reduction in refrigerant volume and approximately 89% reduction in CO2 equivalent in cooling only models.



*1 Source: IPCC 4th Assessment Report, global warming potential (GWP) 100-year value. Comparison of 2088 (R410A) and 675 (R32) based on Regulation(EU) No517/2014.
*2 Source: R410A EACV-P1500/1800YBL, R32 EACV-M1500/1800YCL

HIGH EFFICIENCY

Eurovent efficiency class Rank A achieved

Model		
M1500 (50HP)	EER	3.28*1
	COP	3.47*2

Model		
M1500 (50HP)	SEER	5.52*1
	SCOP (Low)	3.31*1
M1800 (60HP)	SEER	5.36*1
	SCOP (Low)	3.31*1

RATED EFFICIENCY

Improved major components achieve high energy saving performance. The 50 HP model has a high EER rating corresponding to energy saving class A.

*1 Under normal cooling conditions at outdoor temp 35°DB/24°WB(95°FDB/75.2°FWB) outlet water temp 7°C(44.6°F) inlet water temp 12°C(53.6°F). Pump input is included in cooling capacity and power input based on EN14511.
*2 Under normal heating conditions at outdoor temp 7°DB/6°WB(44.6°FDB/42.8°FWB) outlet water temp 45°C(113°F) inlet water temp 40°C(104°F). Pump input is included in heating capacity and power input based on EN14511.

SEASONAL EFFICIENCY

Seasonal efficiency is improved in both 50HP and 60HP units.

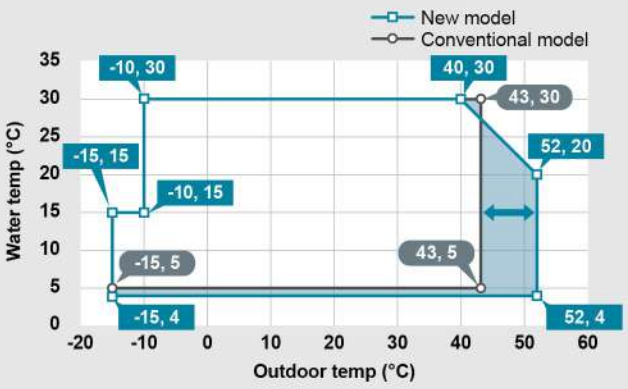
*1 The values are calculated in accordance with EN14511.



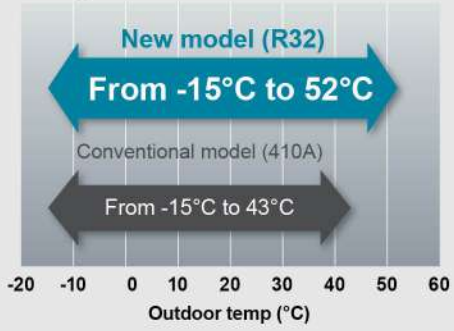
OPERABLE IN COOLING MODE AT ANINTAKE AIR TEMPERATURE OF UP TO 52°C.

Cooling

The use of the flat tube heat exchanger has made it possible to increase the maximum intake air temperature from 43°C to 52°C in cooling mode, extending the cooling performance of the units in intense heat and in collective installation.

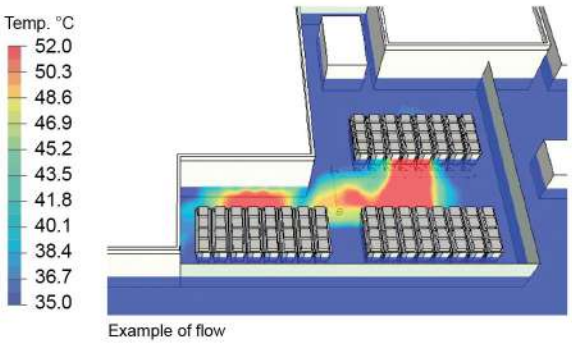


Operable intake air temperature range in cooling mode



In built-up areas with a high density of buildings, wind may be blocked, causing an accumulation of warm air in the vicinity of the unit. The new model is guaranteed up to 52°C, so operation remains stable even in such situations.

*The figure shows an installation example. Actual conditions vary. Units must be adequately spaced to ensure optimum performance.

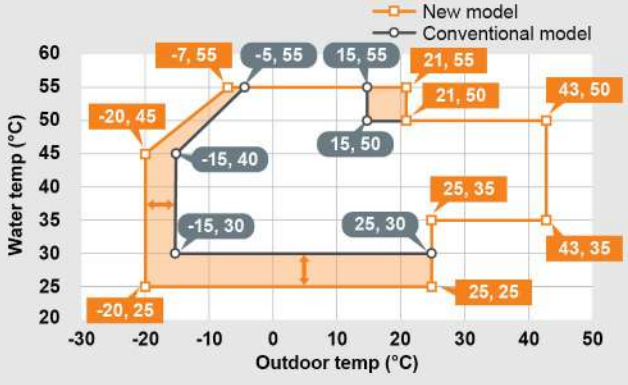


Example of flow

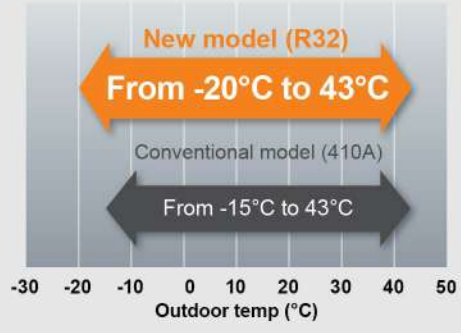
OPERABLE IN HEATING MODE AT AN INTAKE AIR TEMPERATURE OF DOWN TO -20°C.

Heating

The new model has a greater heating capacity range due to the flat tube heat exchanger and the suction chamber injection mechanism of the compressor. It is operable at the minimum intake air temperature of -20°C and the minimum outlet water temperature of 25°C. The new model is suitable for use in manufacturing lines requiring heating throughout the year.



Operable intake air temperature range in heating mode



*The function to protect the units is triggered when the units are operated at a temperature outside the operating temperature range listed above. When this happens, the units will either be operated in the capacity-save mode or come to a stop and will be unable to supply water at the target temperature. Also, the units may be operated in the capacity-save mode at the start of heating operation (while warming up) due to the protection function.

HIGH FUNCTIONALITY OF MODULAR CHILLERS



- **Up to six units can be connected to each group.**
- **Optimum frequency control is performed based on the system load.**
- **Operation is rotated to even out the operation time among units.**
- **Units not undergoing maintenance are operable while other units are being maintained.**

More energy-efficient

OPTIMUM FREQUENCY CONTROL FOR GREATER ENERGY SAVING

A maximum of six units is connectable to each group to increase the capacity of the system. The optimum number of units is put in operation by using a unique automatic frequency control function to achieve maximum efficiency based on the system load demand.

IN LOW LOAD OPERATION

Without optimum frequency control

Normal system efficiency

Units 1 to 3 operate at 100%.



Units 4, 5, and 6 stay in Thermo-OFF.

With optimum frequency control

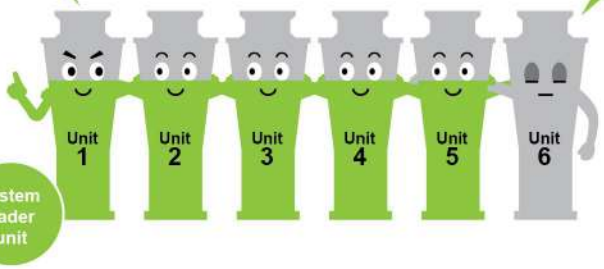
High system efficiency

Based on the total frequency of all connected units, the system leader unit decides how many units should go into operation to achieve optimal efficiency.

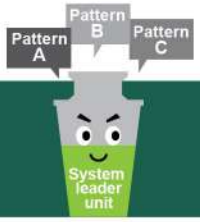
Units 1 to 5 go into operation

Operates in accordance with the command sent from the system leader unit.

Unit 6 stands by until the next command is received.



No need for metering devices to perform optimum frequency control.



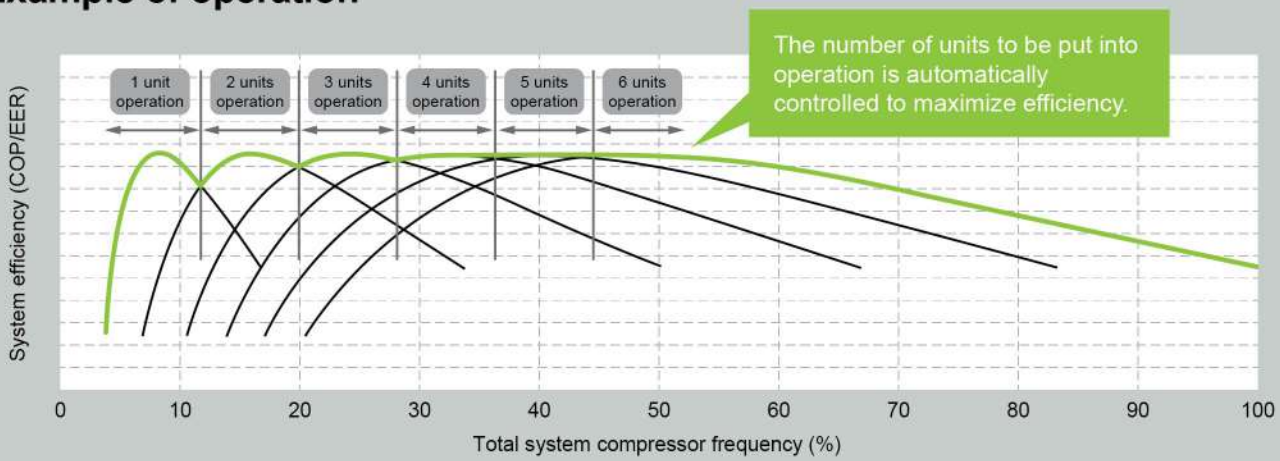
1 Based on the total frequency of all units, the system leader unit calculates the number of units to be operated to maximize efficiency.

2 The system leader unit sends a command to each unit to go into operation or remain stopped.

3 Each unit controls the water temperature in accordance with the command sent from the system leader unit.

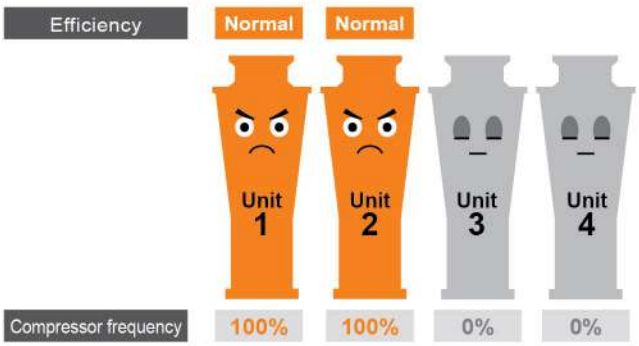
*Dip switch setting is required to use this

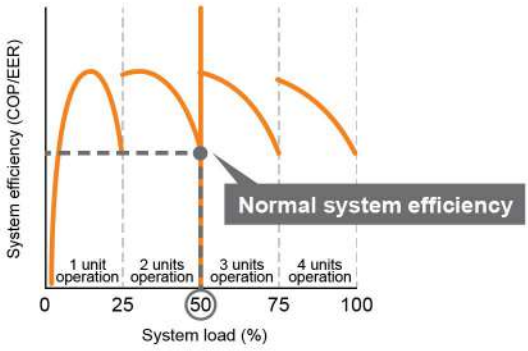
Example of operation



WHEN THE OVERALL SYSTEM LOAD IS 50%

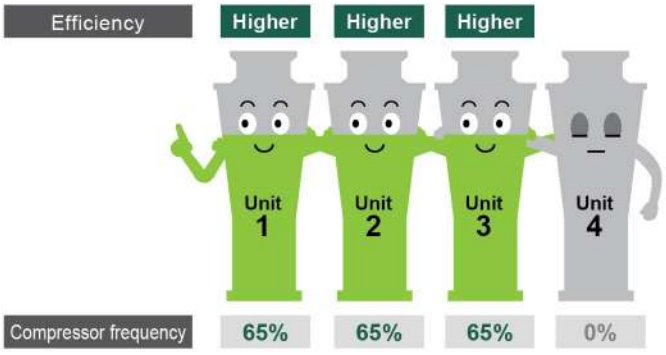
Without optimum frequency control

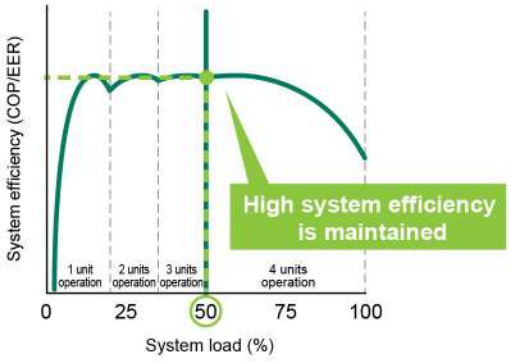




Without optimum frequency control, it is only possible to turn the unit on or off, and compressor frequency cannot be adjusted according to the required capacity.

With optimum frequency control





Each unit has inverter compressors, and the operating frequency and the number of units to be operated are controlled to maximize the operational efficiency of each unit based on the total system compressor frequency for the entire group. This function improves system efficiency when operating at low to medium loads.

More reliable operation

ROTATION OPERATION AND EASY MAINTENANCE

Module chiller systems have an advantage of being able to operate the units in rotation, so the operating time of each unit is controled to be equalized. They also have an additional advantage: only the ones being serviced need to be stopped while others are kept in operation during maintenance. The capacity of the backup units can also be suppressed.

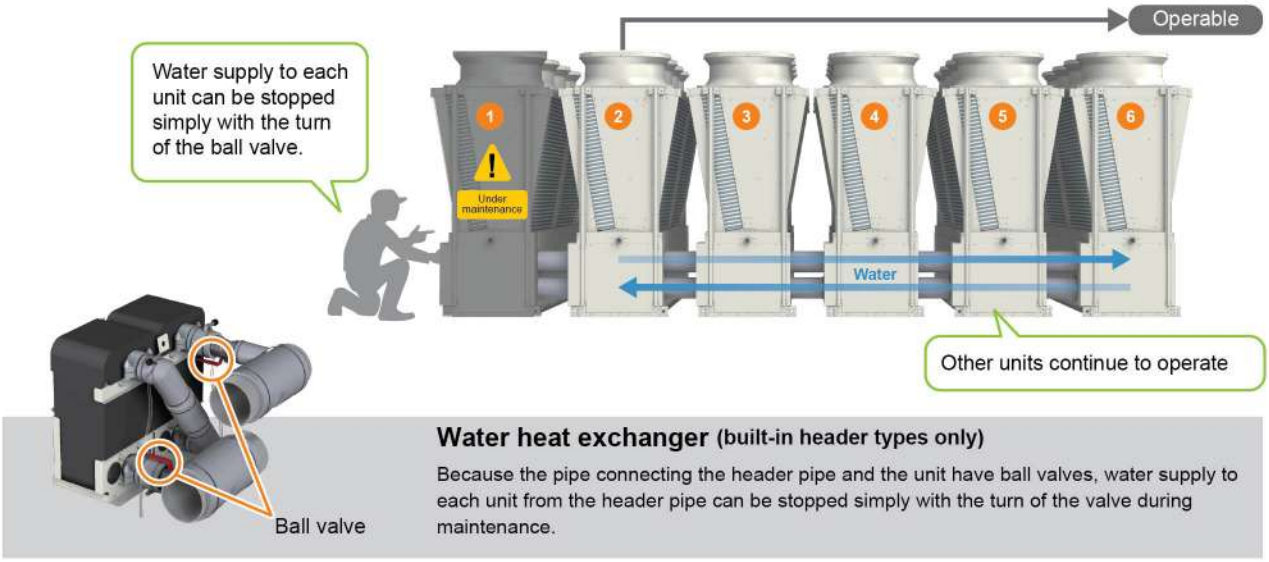
ROTATION OPERATION

When multiple units are installed, the operating time of each unit in the same system is controled to be equalized according to the load of the whole system.



EASY MAINTENANCE

With the module chiller system, even if one unit is under maintenance, the other units can continue to operate.

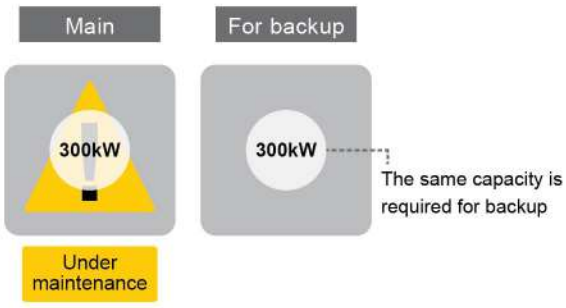


Water heat exchanger (built-in header types only)

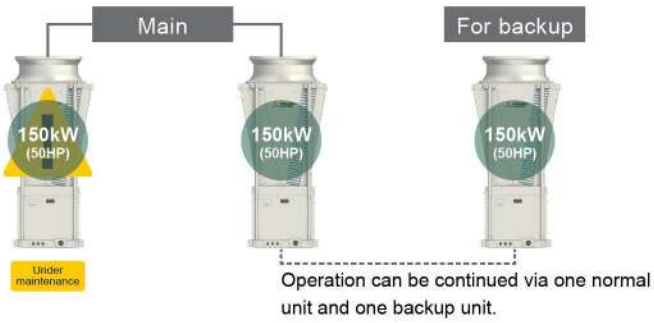
Because the pipe connecting the header pipe and the unit have ball valves, water supply to each unit from the header pipe can be stopped simply with the turn of the valve during maintenance.

When a non-modular chiller is used as the main 300kW unit, as in the below example, the same capacity would also be required as a backup. However, when e-series modular chillers are used, two units can still operate even if one unit is under maintenance. This reduces the backup capacity requirement.

Non-modular chiller

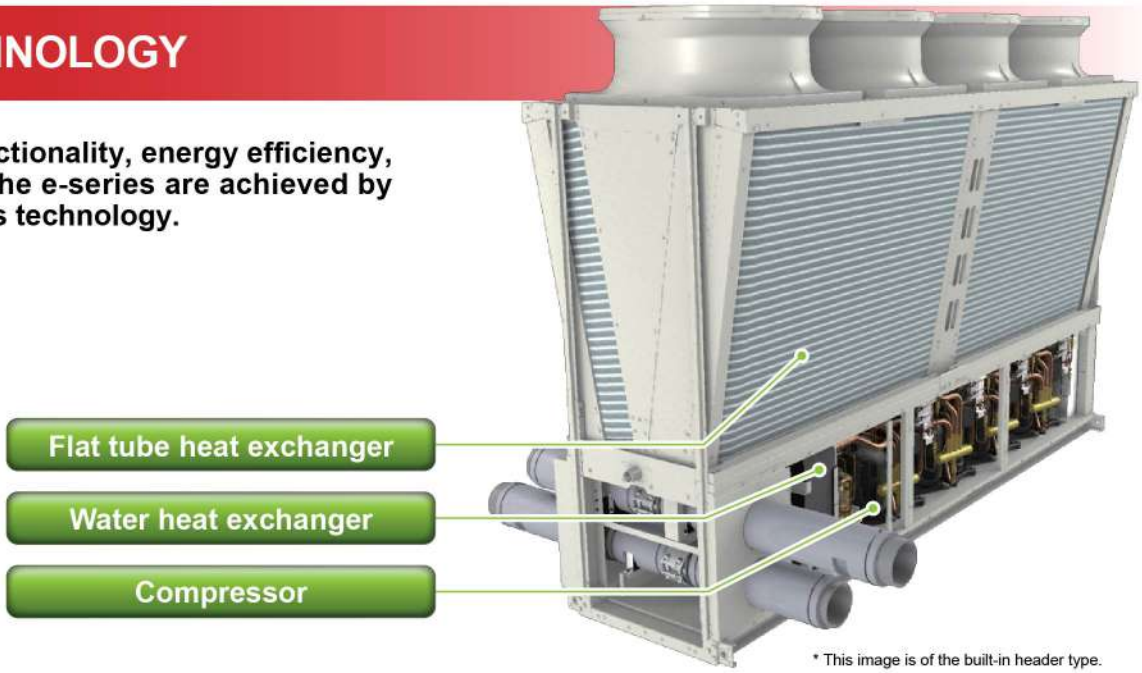


Mitsubishi Electric's e-series modular chiller



KEY TECHNOLOGY

The high-grade functionality, energy efficiency, and endurance of the e-series are achieved by Mitsubishi Electric's technology.



* This image is of the built-in header type.

FLAT TUBE HEAT EXCHANGER

Flat tubes are sub-divided into smaller fins to increase the contact area with the refrigerant, resulting in greater heat-exchanging efficiency. The cooling only models and the heat pump models have fins that are shaped differently to increase the overall heat-exchange efficiency of each model, resulting in reduced refrigerant volume, greater operating range, and higher operation

Conventional model (R410A)

Heat pump unit/Cooling only unit



Round copper pipe

New model (R32)

Heat pump unit



Flat HFT aluminum tube

Cooling only model



Flat PFC aluminum tube

• **Fin image**



COOLING ONLY

Parallel flow condenser

The heat pump and cooling only models adopt different fins in consideration of the influence of drain water clogging during heating. The heat pump model uses a horizontal flat tube and the cooling only model uses a parallel flow condenser.
The shape of the corrugated fin used in the cooling only model increases the contact area with air and the amount of heat exchange in cooling operation.

EASY CONTROL

The water temperature in each module can be controlled by using local remote controller PAR-W31MAA or by using centralized controller AE-C400E-X. The control method can be selected at the request of each customer.



Remote controller PAR-W31MAA



Centralized controller AE-C400E-X

EXTERNAL SIGNAL INPUT

Basic operations, such as operation command, mode switching and water temperature setting, can be performed by inputting external signals directly to the unit.

* Optional products, such as remote controllers, are not always required.



• Major functions

Input	ON/OFF Cooling/Heating Snow/Normal Demand Target water temperature
Output	Operation command Operation mode Error
Control function (function of chiller)	Control of number of units Control to prevent simultaneous defrosting

REMOTE CONTROLLER

Basic operations, such as ON/OFF, mode switching, water temperature setting and schedule setting, can be performed by connecting a remote controller.

PAR-W31MAA



• Major functions

Operation/setting	ON/OFF Cooling/Heating/HeatingECO/Anti-freeze Snow/Normal Demand Scheduled operation (daily/weekly) Target temperature
Display	Operation mode Current water temperature Target temperature Error code
Control function (function of chiller body)	Control of number of units Control to prevent simultaneous defrosting

System configuration



PAR-W31MAA



PAR-W31MAA

CENTRALIZED CONTROLLER*

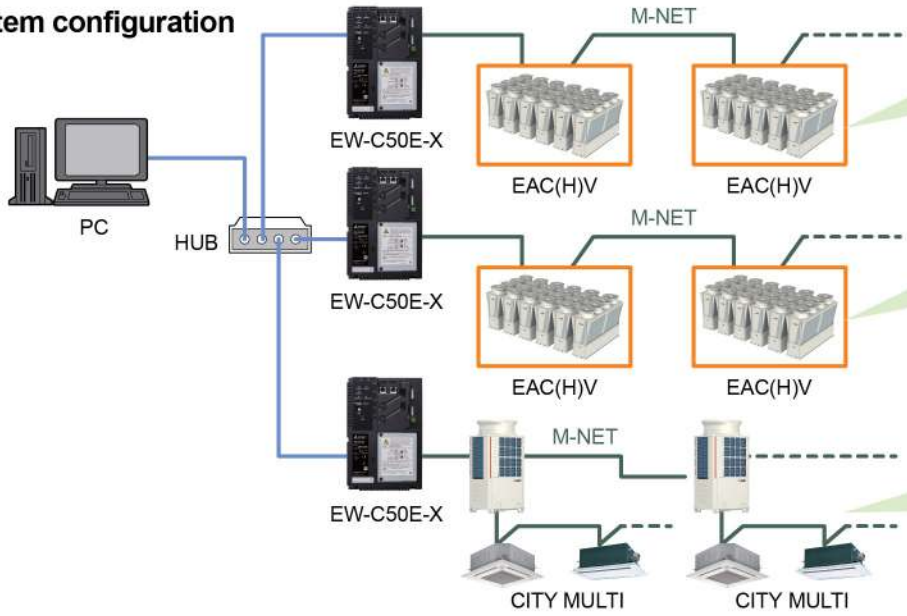
The e-series units are connectable to the AE-C400E-X that centrally controls up to 24 units or 24 systems connected via M-NET.
By using EW-C50E-X, the maximum number of connectable units can be further increased.
The use of AE-C400E-X enables various operation settings and integrated control of the e-series and CITY MULTI.

*AE-C400E-X with software Ver.7.80 or later can be connected.



AE-C400E-X

• System configuration



Connectable to a maximum of 24 units or 24 systems

By connecting an EW-C50E-X to the system, up to another 24 units or 24 systems can be added.

*A maximum of three EW-C50E-X are connectable to each AE-C400E-X.

The e-series units and CITY MULTI can be collectively controlled.

• Major functions

Operation/ setting	ON/OFF Cooling/Heating/Heating ECO/Anti-freeze Snow/Normal Scheduled operation (daily/weekly/annual) Target temperature Local control disabled (ON/OFF, operation mode, target temperature)

Display	WEB browser connected Operation mode Current water temperature Error code Outdoor temperature
Control function (function of chiller body)	Control of number of units Control to prevent simultaneous defrosting

BACnet® connection function NEW

Connectable to a central monitoring device via AE-C400E-X using BACnet®

* BACnet® is a registered trademark of ASHRAE in the United States of America.
* BACnet® can be connected to AE-C400E-X with software Ver.7.90 or later.

Setting	
ON/OFF	Cooling/Heating/Heating ECO/Anti-freeze
Snow/Normal	Local control disabled (ON/OFF, operation mode, target temperature)
Target water temperature	

Display		
ON/OFF	Cooling/Heating/Heating ECO/Anti-freeze	Communication error
Snow/Normal	Local control disabled (ON/OFF, operation mode, target temperature)	Individual unit error
Inlet/outlet water temperature	Collective error	

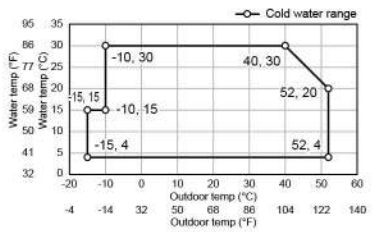
Standard	50HP	EACV-M1500YCL	60HP EACV-M1800YCL
Anti-corrosion	50HP	EACV-M1500YCL-BS	60HP EACV-M1800YCL-BS
Built-in header	50HP	EACV-M1500YCL-N	60HP EACV-M1800YCL-N
Anti-corrosion / Built-in header	50HP	EACV-M1500YCL-N-BS	60HP EACV-M1800YCL-N-BS

Cooling only

Model			EACV-M1500YCL(-N)(-BS)	EACV-M1800YCL(-N)(-BS)
Power source			3-phase 4-wire 380-400-415V 50/60Hz	
Cooling capacity *1		kW	150.00	180.00
		kcal/h	129,000	154,800
		BTU/h	511,800	614,160
	Power input	kW	44.73	57.02
	EER		3.35	3.16
	IPLV *4		6.42	6.31
	Water flow rate	m^3/h	25.8	31.0
Cooling capacity (EN14511) *2		kW	149.18	178.80
		kcal/h	128,295	153,768
		BTU/h	509,002	610,066
	Power input	kW	45.55	58.22
	EER		3.28	3.07
	Eurovent efficiency class		A	B
	SEER		5.52	5.36
	Water flow rate	m^3/h	25.8	31.0
Current input	Cooling current 380-400-415V *1	A	76 - 72 - 69	96 - 91 - 88
	Maximum current	A	120	
Water pressure drop *1		kPa	55	78
Temp range	Cooling	°C	Outlet water 4~30 *5	
		°F	Outlet water 39.2~86 *5	
	Outdoor	°C	-15~52 *5	
		°F	5~125.6 *5	
Circulating water volume range		m^3/h	12.9~43.0	
Sound pressure level (measured in anechoic room) at 1m *1		dB (A)	65	67
Sound power level (measured in anechoic room) *1		dB (A)	83	85
Diameter of water pipe (Standard piping)	Inlet	mm (in)	65A (2 1/2B) housing type joint	
	Outlet	mm (in)	65A (2 1/2B) housing type joint	
Diameter of water pipe (Inside header piping)	Inlet	mm (in)	150A (6B) housing type joint	
	Outlet	mm (in)	150A (6B) housing type joint	
External finish			Polyester powder coating steel plate	
External dimension HxWxD		mm	2350 x 3400 x 1080	
Net weight	Standard piping	kg (lbs)	1039 (2291)	
	Inside header piping	kg (lbs)	1067 (2352)	
Design pressure	R32	MPa	4.15	
	Water	MPa	1.0	
Heat exchanger	Water side		Stainless steel plate and copper brazing	
	Air side		Salt-resistant corrugated fin & aluminium micro channel	
Compressor	Type		Inverter scroll hermetic compressor	
	Maker		MITSUBISHI ELECTRIC CORPORATION	
	Starting method		Inverter	
	Quantity		4	
	Motor output	kW	11.5 x 4	
	Lubricant		MEL46EH	
Fan	Air flow rate	m^3/min	270 x 4	
		L/s	4500 x 4	
		cfm	9534 x 4	
	Type, Quantity		Propeller fan x 4	
	Starting method		Inverter	
	Motor output	kW	0.92 x 4	
	External static press.	Pa	20	
Protection	High pressure protection		High pres.Sensor & High pres.Switch at 4.15MPa (601psi)	
	Inverter circuit		Over-heat protection, Over current protection	
	Compressor		Over-heat protection	
Refrigerant	Type x charge		R32 x 4.7 (kg) x 4 *3	
	Control		LEV	

*1 Under normal cooling conditions at outdoor temp 35°C DB / 24°C WB (95°F DB / 75.2°F WB) outlet water temp 7°C (44.6°F) inlet water temp 12°C (53.6°F). Pump input is not included in cooling capacity and power input.
*2 Under normal cooling conditions at outdoor temp 35°C DB / 24°C WB (95°F DB / 75.2°F WB) outlet water temp 7°C (44.6°F) inlet water temp 12°C (53.6°F). Pump input is included in cooling capacity and power input based on EN14511.
*3 Amount of factory-charged refrigerant is 3 (kg) x 4. Please add the refrigerant at the field.
*4 IPLV is calculated in accordance with AHRI 550-590.
*Please don't use the steel material for the water piping.
*Please always make water circulate, or pull the circulation water out completely when not in use.
*Please do not use groundwater or well water directly.
*The water circuit must be closed circuit.
*Due to continuous improvement, the above specifications may be subject to change without notice.
*This model is not equipped with a pump.
*5

Unit converter
kcal/h = kW x 860
BTU/h = kW x 3,412
lbs = kg/0.4536
cfm = m^3/min x 35.31



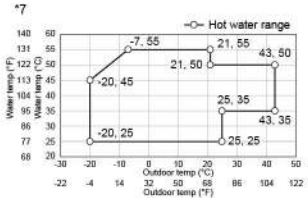
Standard	50HP	EAHV-M1500YCL	60HP EAHV-M1800YCL
Anti-corrosion	50HP	EAHV-M1500YCL-BS	60HP EAHV-M1800YCL-BS
Built-in header	50HP	EAHV-M1500YCL-N	60HP EAHV-M1800YCL-N
Anti-corrosion + Built-in header	50HP	EAHV-M1500YCL-N-BS	60HP EAHV-M1800YCL-N-BS

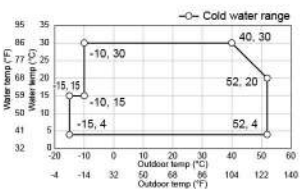
Heat pump

Model			EAHV-M1500YCL(-N)(-BS)	EAHV-M1800YCL(-N)(-BS)
Power source			3-phase 4-wire 380-400-415V 50/60Hz	
Cooling capacity *1		kW	150.00	180.00
		kcal/h	129,000	154,800
		BTU/h	511,800	614,160
	Power input	kW	44.73	57.02
	EER		3.35	3.16
	IPLV *6		6.42	6.31
	Water flow rate	m^3/h	25.8	31.0
Cooling capacity (EN14511) *2		kW	149.18	178.80
		kcal/h	128,295	153,768
		BTU/h	509,002	610,066
	Power input	kW	45.55	58.22
	EER		3.28	3.07
	Eurovent efficiency class		A	B
	SEER		5.52	5.36
	Water flow rate	m^3/h	25.8	31.0
Heating capacity *3		kW	150.00	180.00
		kcal/h	129,000	154,800
		BTU/h	511,800	614,160
	Power input	kW	42.61	53.09
	COP		3.52	3.39
	Water flow rate	m^3/h	25.8	31.0
Heating capacity (EN14511) *4		kW	150.82	181.20
		kcal/h	129,705	155,832
		BTU/h	514,598	618,254
	Power input	kW	43.43	54.29
	COP		3.47	3.34
	SCOP Low temp. application/ Medium temp. application		3.31 / 2.88	
	Water flow rate	m^3/h	25.8	31.0
Current input	Cooling current 380-400-415V *1	A	76 - 72 - 69	96 - 91 - 88
	Heating current 380-400-415V *3	A	72 - 68 - 66	90 - 85 - 82
	Maximum current	A	120	
Water pressure drop *1		kPa	55	78
Temp range	Cooling	°C	Outlet water 4~30 *7	
		°F	Outlet water 39.2~86 *7	
	Heating	°C	Outlet water 25~55 *7	
		°F	Outlet water 77~131 *7	
	Outdoor (Cooling)	°C	-15~52 *7	
		°F	5~125.6 *7	
	Outdoor (Heating)	°C	-20~43 *7	
		°F	-4~109.4 *7	
Circulating water volume range		m^3/h	12.9~43.0	
Sound pressure level (measured in anechoic room) at 1m *1		dB (A)	65	67
Sound power level (measured in anechoic room) *1		dB (A)	83	85
Diameter of water pipe (Standard piping)	Inlet	mm (in)	65A (2 1/2B) housing type joint	
	Outlet	mm (in)	65A (2 1/2B) housing type joint	
Diameter of water pipe (Inside header piping)	Inlet	mm (in)	150A (6B) housing type joint	
	Outlet	mm (in)	150A (6B) housing type joint	
External finish			Polyester powder coating steel plate	
External dimension HxWxD		mm	2350 x 3400 x 1080	
Net weight	Standard piping	kg (lbs)	1280 (2822)	
	Inside header piping	kg (lbs)	1307 (2881)	
Design pressure	R32	MPa	4.15	
	Water	MPa	1.0	
Heat exchanger	Water side		Stainless steel plate and copper brazing	
	Air side		Salt-resistant cross fin & aluminium tube	
Compressor	Type		Inverter scroll hermetic compressor	
	Maker		MITSUBISHI ELECTRIC CORPORATION	
	Starting method		Inverter	
	Quantity		4	
	Motor output	kW	11.5 x 4	
	Lubricant		MEL46EH	
Fan	Air flow rate	m^3/min	270 x 4	
		L/s	4500 x 4	
		cfm	9534 x 4	
	Type, Quantity		Propeller fan x 4	
	Starting method		Inverter	
	Motor output	kW	0.92 x 4	
	External static press.	Pa	20	
Protection	High pressure protection		High pres.Sensor & High pres.Switch at 4.15MPa (601psi)	
	Inverter circuit		Over-heat protection, Over current protection	
	Compressor		Over-heat protection	
Refrigerant	Type x charge		R32 x 11.5 (kg) x 4 *5	
	Control		LEV	

*1 Under normal cooling conditions at outdoor temp 35°C DB / 24°C WB (95°F DB / 75.2°F WB) outlet water temp 7°C (44.6°F) inlet water temp 12°C (53.6°F). Pump input is not included in cooling capacity and power input.
*2 Under normal cooling conditions at outdoor temp 35°C DB / 24°C WB (95°F DB / 75.2°F WB) outlet water temp 7°C (44.6°F) inlet water temp 12°C (53.6°F). Pump input is included in cooling capacity and power input based on EN14511.
*3 Under normal heating conditions at outdoor temp 7°C DB / 6°C WB (44.6°F DB / 42.8°F WB) outlet water temp 45°C (113°F) inlet water temp 40°C (104°F). Pump input is not included in heating capacity and power input.
*4 Under normal heating conditions at outdoor temp 7°C DB / 6°C WB (44.6°F DB / 42.8°F WB) outlet water temp 45°C (113°F) inlet water temp 40°C (104°F). Pump input is included in heating capacity and power input based on EN14511.
*5 Amount of factory-charged refrigerant is 3 (kg) x 4. Please add the refrigerant at the field.
*6 IPLV is calculated in accordance with AHRI 550-590.
*Please don't use the steel material for the water piping.
*Please always make water circulate, or pull the circulation water out completely when not in use.
*Please do not use groundwater or well water directly.
*The water circuit must be closed circuit.
*Due to continuous improvement, the above specifications may be subject to change without notice.
*This model is not equipped with a pump.

*7





WATER-COOLED MODULAR CHILLER

ERCV-M900YA



Easy Installation and Highly Efficient Operation

- Its compactness contributes to easy carry-in with an elevator.
- The use of low GWP refrigerant R32 achieves reduced impact on the environment.
- The internal elements can be pulled out improving the ease of maintenance.
- The unit can accomplish highly efficient operations (EER: 5.05/SEER: 7.66).

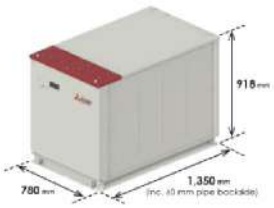
COMPACTNESS & EASY INSTALLATION

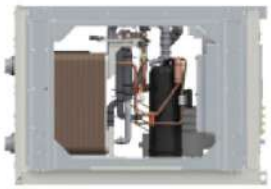


Thanks to its compact chassis, elevator carry-in is achievable, resulting in an easy installation and shorter construction period.

*Use an elevator that fulfills at least 800 mm for its door and 1,350 mm for its depth.
*A unit can be carried in through a 800 mm wide machine room door.

▲ Carried in easily with an elevator*
*By an elevator for more than 11 people





▲ Side view of the structure

LOW GWP REFRIGERANT R32

Compared to R410A, the refrigerant that has been generally used for chilling units, R32 has a one-third lower GWP of 675*. Moreover, since R32 is a high-density refrigerant, the refrigerant volume required for a unit is smaller than R410A. The amount of CO2 emission is calculated based on GWP x refrigerant volume, so the use of R32 has a reduced impact on the environment.

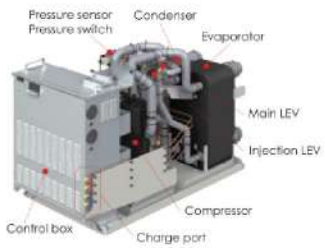
* Source: IPCC 4th Assessment Report, global warming potential (GWP) 100-year value.



EASY MAINTENANCE

Thanks to the openable and drawable internal structure, this unit provides easy access to each component. When you only want to access the control box, drawing all the components out is unnecessary because it is openable to the front.

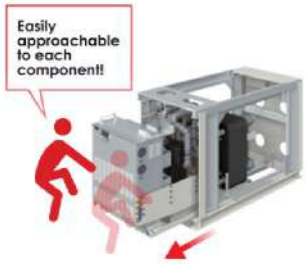
INTERNAL COMPONENTS



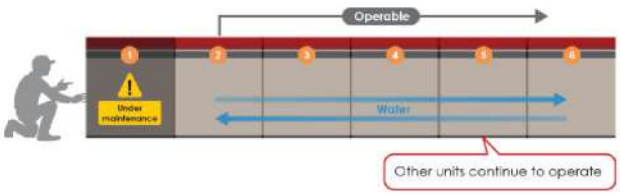
OPENABLE STRUCTURE



DRAWABLE STRUCTURE



* Please make sure to have enough people and use ropes to draw the internal components out.



With the module chiller system, even if one unit is under maintenance, the other units can continue to operate.

HIGH EFFICIENCY

Both rated and seasonal efficiency are high thanks to our original configuration. Moreover, since this inverter-driven chiller is able to operate at a partial load, higher efficiency is achievable which a fixed-speed system cannot reach.

RATED EFFICIENCY

SEER 5.05

*Under normal cooling conditions at the evaporation side water inlet temp 12°C (53.6°F) outlet temp 7°C (44.6°F) and at the condensation side water inlet temp 30°C (86°F) outlet temp 35°C (95°F).

Pump input is included in cooling capacity and power input.

COP 4.61

*Under normal heating conditions at the condensation side water inlet temp 40°C (104°F) outlet temp 45°C (113°F) and at the evaporation side water inlet temp 10°C (50°F) outlet temp 7°C (44.6°F).

Pump input is included in heating capacity and power input.

SEASONAL EFFICIENCY

SEER 7.66

*Under normal cooling conditions at the evaporation side water inlet temp 12°C (53.6°F) outlet temp 7°C (44.6°F) and at the condensation side water inlet temp 30°C (86°F) outlet temp 35°C (95°F).

Pump input is included in cooling capacity and power input based on EN14511.

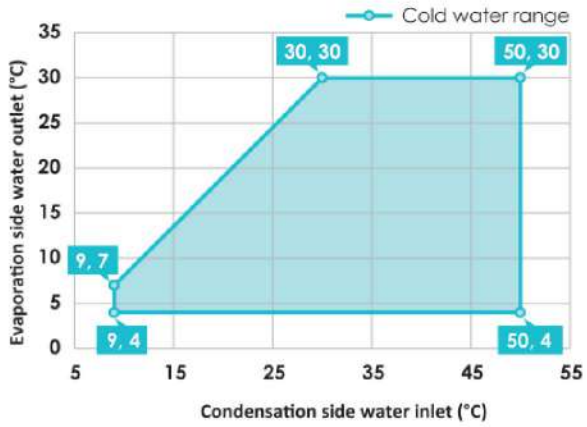
SCOP (ต่ำ) 7.10

*Under normal heating conditions at the condensation side water inlet temp 40°C (104°F) outlet temp 45°C (113°F) and at the evaporation side water inlet temp 10°C (50°F) outlet temp [redacted]

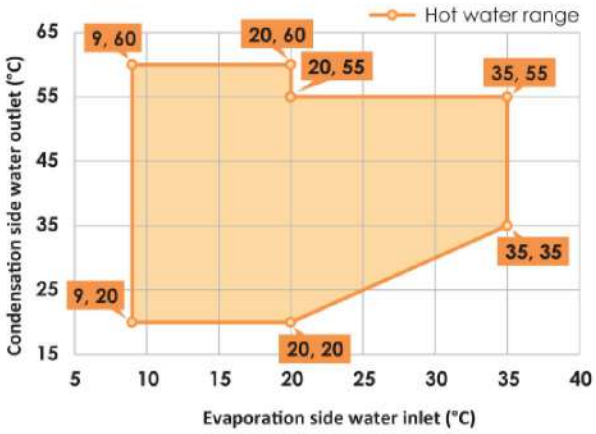
Pump input is inclu[redacted]capacity and power input based on EN14511.

WATER TEMPERATURE RANGE

COOLING OPERATION



HEATING OPERATION



* Please refer to p.19 for the water temperature range of the double stack style in the heating operation.
* Please set the DipSW when switching the cooling/heating mode accordingly (the default factory setting is the cooling mode).

Water-Cooled Modular Chiller Line up



ERCV-M900YA

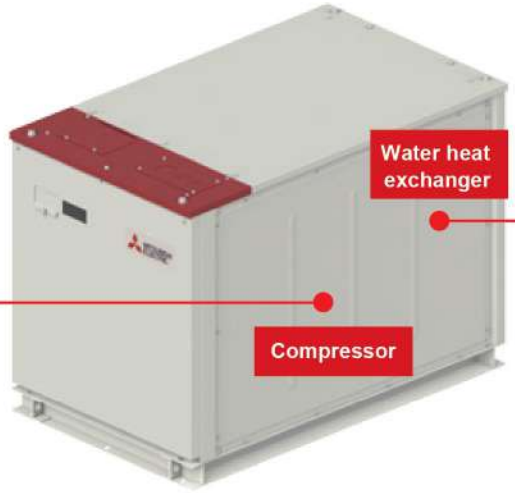
KEY TECHNOLOGY

COMPRESSOR

INVERTER-DRIVEN

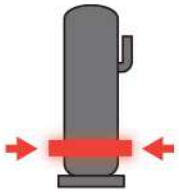


Each unit has two high-efficiency R32-compatible inverter compressors developed by Mitsubishi Electric. The inverter compressor automatically controls the compressor frequency based on the fluctuating load, helping to achieve higher seasonal efficiency compared to a standard fixed-speed system.



IH *(induction heating)* warmer

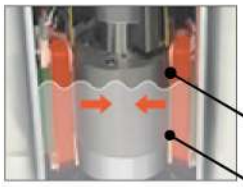
CASE HEATER



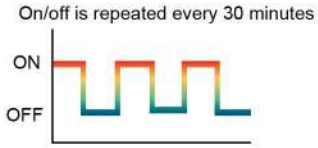
Heated from the outside with a heater

IH warmer

Heated by energizing the motor



Operation while the air conditioner is stopped



As same as the conventional air-cooled e-series, IH (induction heating) warmer is adopted to prevent refrigerant stagnation while the unit is stopped. The IH warmer suppresses standby power more than a belt case heater, which is wrapped around the compressor shell surface to heat the compressor constantly.

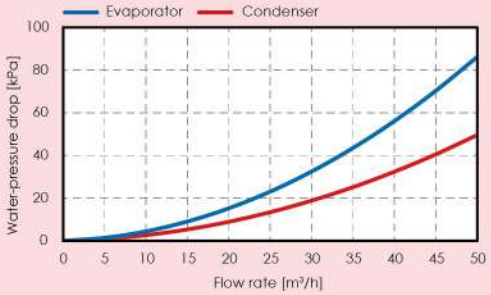
Utilizing the magnetic property of the iron motor core, the motor is energized for 30 minutes after the operation is stopped at the low voltage level. Since this energization repeats every 30 minutes, standby power consumption, therefore, is lower than a belt case heater that heats the compressor constantly.

WATER HEAT EXCHANGER

WATER HEAT EXCHANGER HEAD LOSS

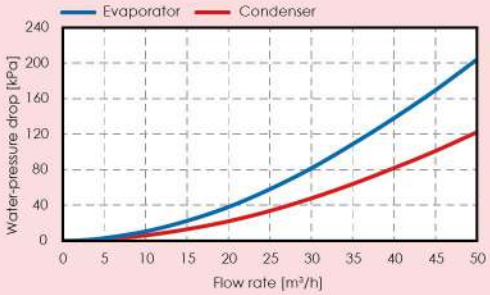
ERCV-M900YA

Evaporation/Condensation heat exchanger head loss



ERCV-M900YA×2

Evaporation/Condensation heat exchanger head loss





The water circuits increase the efficiency of heat exchange, which contributes to higher system efficiency.

EASY CONTROL



Remote controller PAR-W31MAA

The water temperature in each module is easily controllable by connecting to the local remote controller PAR-W31MAA or to the centralized controller, depending on the customers' requests.

EXTERNAL SIGNAL OUTPUT

The external signal input from the on-site control panel can control basic operations, such as operation command and the water temperature settings.

*Optional products, such as remote controllers, are not always required.

Major functions

Input	ON/OFF Cooling/Heating/Cooling ECO/Heating ECO/ Anti-freeze Demand Target water temperature
Output	Operation command Operation mode Error
Control function	Control of the number of units

On-site control panel



REMOTE CONTROLLER

The remote controller can control basic operations, such as ON/OFF, water temperature settings, and schedule settings.

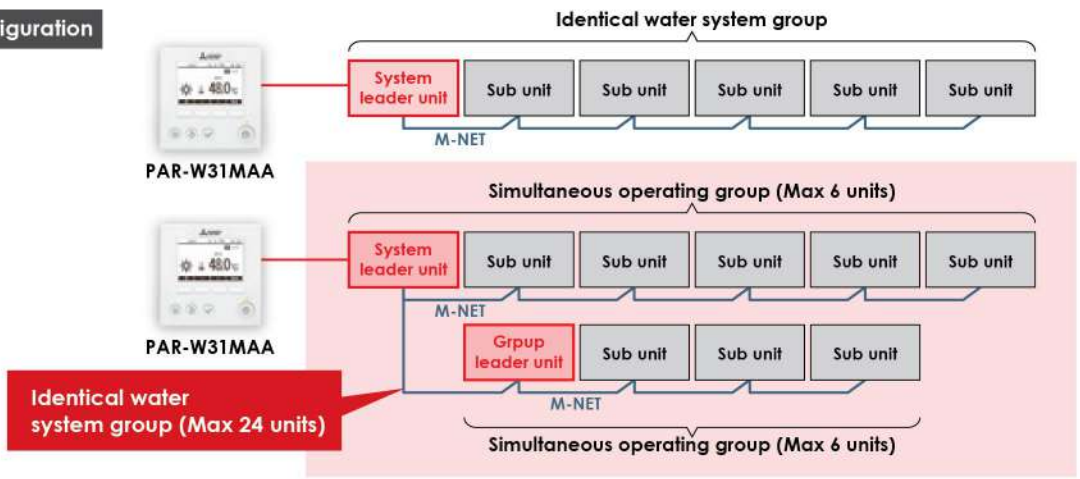
Major functions

Input	ON/OFF Cooling/Heating/HeatingECO/Anti-freeze Demand Scheduled operation (daily/weekly) Target water temperature
Output	Operation mode Current water temperature Target temperature Error code
Control function	Control of the number of units

PAR-W31MAA



System configuration



SPECIFICATIONS

Model			ERCV-M900YA	
Capacity change mode			Capacity priority	Efficiency priority
Power source			3-phase 4-wire 380-400-415V 50/60Hz	
Cooling capacity *1		kW	90.00	45.00
		kcal/h	77,400	38,700
		BTU/h	307,080	153,540
	Power input	kW	17.47	8.22
	EER		5.15	5.47
	IPLV *5		8.18	–
	Evaporation side water flow rate	m^3/h	15.5	7.7
	Condensation side water flow rate	m^3/h	17.9	8.9
Cooling capacity (EN14511) *2		kW	89.83	44.95
		kcal/h	77,254	38,657
		BTU/h	306,500	153,369
	Power input	kW	17.80	8.31
	EER		5.05	5.41
	SEER		7.66	–
	ηsc	%	303.4	–
	Evaporation side water flow rate	m^3/h	15.5	7.7
	Condensation side water flow rate	m^3/h	17.9	8.9
Heating capacity *3		kW	90.00	45.00
		kcal/h	77,400	38,700
		BTU/h	307,080	153,540
	Power input	kW	19.07	9.40
	COP		4.72	4.79
	Condensation side water flow rate	m^3/h	15.5	7.7
	Evaporation side water flow rate	m^3/h	21.5	10.7
Heating capacity (EN14511) *4		kW	90.12	45.03
		kcal/h	77,503	38,726
		BTU/h	307,489	153,642
	Power input	kW	19.53	9.52
	COP		4.61	4.73
	SCOP Low/Medium		7.10/4.86	–
	ηsh Low/Medium	%	281.0/191.0	–
	Condensation side water flow rate	m^3/h	15.5	7.7
	Evaporation side water flow rate	m^3/h	21.5	10.7
Current input	Cooling current 380-400-415V *1	A	29 - 27 - 26	13 - 13 - 12
	Heating current 380-400-415V *3	A	31 - 30 - 29	15 - 15 - 14
	Maximum current	A	60	
Water pressure drop *1	Evaporation side	kPa	10	3
	Condensation side	kPa	7	2
Temperarure range (Cooling) *7	Evaporation side water outlet	°C	4~30	
	Condensation side water inlet	°C	9~50	
Temperarure range (Heating) *8,*9	Condensation side water outlet	°C	20~60 *6	20~55
	Evaporation side water inlet	°C	9~35	
Circulating water volume range	Evaporation side	m^3/h	7.7~25.8	
	Condensation side	m^3/h	4.5~30.0 *10	
Sound pressure level (measured in anechoic room) at 1m *1		dB (A)	53	48
Sound power level (measured in anechoic room) *1		dB (A)	72	66
Diameter of water pipe (Cooling exchanger side)	Inlet	mm (in)	65A (2 1/2B) housing type joint	
	Outlet	mm (in)	65A (2 1/2B) housing type joint	
Diameter of water pipe (Heating exchanger side)	Inlet	mm (in)	65A (2 1/2B) housing type joint	
	Outlet	mm (in)	65A (2 1/2B) housing type joint	
External finish			Polyester powder coating steel plate	
External dimension HxWxD		mm	918 x 780 x 1350	
Net weight		kg (lbs)	430 (948)	
Design pressure	R32	MPa	4.15	
	Water	MPa	1.0	
Heat exchanger	Evaporation side		Stainless steel plate and copper brazing	
	Condensation side		Stainless steel plate and copper brazing	
Compressor	Type		Inverter scroll hermetic compressor	
	Maker		MITSUBISHI ELECTRIC CORPORATION	
	Starting method		Inverter	
	Quantity		2	
	Motor output	kW	8.3 x 2	
	Lubricant		MEL46EH	
Protection	High pressure protection		High pressure Switch at 4.15MPa (601psi)	
	Inverter circuit		Over-heat protection, Over current protection	
	Compressor		Over-heat protection	
Refrigerant	Type x charge		R32 x 5.2 (kg) x 2	
	Control		LEV	

*1 Under normal cooling conditions at evaporation side water inlet temp 12°C outlet temp 7°C
codensation side water inlet temp 30°C outlet temp 35°C. Pump input is not included in cooling capacity and power input.
*2 Under normal cooling conditions at evaporation side water inlet temp 12°C outlet temp 7°C
condensation side water inlet temp 30°C outlet temp 35°C. Pump input is included in cooling capacity and power input based on EN14511.
*3 Under normal heating conditions at condensation side water inlet temp 40°C outlet temp 45°C
evaporation side water inlet temp 10°C outlet temp 7°C. Pump input is not included in cooling capacity and power input.
*4 Under normal heating conditions at condensation side water inlet temp 40°C outlet temp 45°C
evaporation side water inlet temp 10°C outlet temp 7°C. Pump input is included in cooling capacity and power input based on EN14511.
*5 IPLV is calculated in accordance with AHRI 551-591.
*6 When using in condensation side water outlet is more than 55°C, please adjust the condensation inlet water temperature to 50°C or less.

- Please don't use the steel material for the water piping.
- Please always make water circulate, or pull the circulation water out completely when not in use.
- Please do not use groundwater or well water in direct.
- The water circuit must be closed circuit.
- Due to continuous improvement, the above specifications may be subject to change without notice.
- This model doesn't equip with a pump.

SPECIFICATIONS

Model			ERCV-M900YA×2	
Capacity change mode			Capacity priority	Efficiency priority
Power source			3-phase 4-wire 380-400-415V 50/60Hz	
Cooling capacity *1		kW	180.00	90.00
		kcal/h	154,800	77,400
		BTU/h	614,160	307,080
	Power input	kW	33.07	15.24
	EER		5.44	5.91
	Evaporation side water flow rate	m^3/h	31.0	15.5
	Condensation side water flow rate	m^3/h	35.9	17.5
Cooling capacity (EN14511) *2		kW	178.71	89.66
		kcal/h	153,691	77,108
		BTU/h	609,759	305,920
	Power input	kW	35.54	15.87
	EER		5.03	5.65
	Evaporation side water flow rate	m^3/h	31.0	15.5
	Condensation side water flow rate	m^3/h	35.9	17.5
Heating capacity *3		kW	180.00	90.00
		kcal/h	154,800	77,400
		BTU/h	614,160	307,080
	Power input	kW	37.22	18.39
	COP		4.84	4.89
	Condensation side water flow rate	m^3/h	31.0	15.5
	Evaporation side water flow rate	m^3/h	42.7	21.7
Heating capacity (EN14511) *4		kW	180.87	90.23
		kcal/h	155,548	77,598
		BTU/h	617,128	307,865
	Power input	kW	40.90	19.26
	COP		4.42	4.68
	Condensation side water flow rate	m^3/h	31.0	15.5
	Evaporation side water flow rate	m^3/h	42.7	21.7
Current input	Cooling current 380-400-415V *1	A	54 - 51 - 49	25 - 24 - 23
	Heating current 380-400-415V *3	A	61 - 58 - 56	30 - 29 - 28
	Maximum current	A	120	
Water pressure drop *1	Evaporation side	kPa	85	25
	Condensation side	kPa	66	18
Temperature range (Cooling) *5	Evaporation side water outlet	°C	4~30	
	Condensation side water inlet	°C	9~50	
Temperature range (Heating) *6	Condensation side water outlet	°C	20~55	
	Evaporation side water inlet	°C	9~35	
Circulating water volume range	Evaporation side	m^3/h	15.4~50.0	
	Condensation side	m^3/h	9.04~50.0 *7	
Sound pressure level (measured in anechoic room) at 1m *1		dB (A)	56	51
Sound power level (measured in anechoic room) *1		dB (A)	75	69
Diameter of water pipe (Cooling exchanger side)	Inlet	mm (in)	65A (2 1/2B) housing type joint	
	Outlet	mm (in)	65A (2 1/2B) housing type joint	
Diameter of water pipe (Heating exchanger side)	Inlet	mm (in)	65A (2 1/2B) housing type joint	
	Outlet	mm (in)	65A (2 1/2B) housing type joint	
External finish			Polyester powder coating steel plate	
External dimension HxWxD		mm	1836 x 780 x 1350	
Net weight		kg (lbs)	863 (1903)	
Design pressure	R32	MPa	4.15	
	Water	MPa	1.0	
Heat exchanger	Evaporation side		Stainless steel plate and copper brazing	
	Condensation side		Stainless steel plate and copper brazing	
Compressor	Type		Inverter scroll hermetic compressor	
	Maker		MITSUBISHI ELECTRIC CORPORATION	
	Starting method		Inverter	
	Quantity		4	
	Motor output	kW	8.3 x 4	
	Lubricant		MEL46EH	
Protection	High pressure protection		High pressure Switch at 4.15MPa (601psi)	
	Inverter circuit		Over-heat protection, Over current protection	
	Compressor		Over-heat protection	
Refrigerant	Type x charge		R32 x 5.2 (kg) x 4	
	Control		LEV	

*1 Under normal cooling conditions at evaporation side water inlet temp 12°C outlet temp 7°C
codensation side water inlet temp 30°C outlet temp 35°C. Pump input is not included in cooling capacity and power input.
*2 Under normal cooling conditions at evaporation side water inlet temp 12°C outlet temp 7°C
condensation side water inlet temp 30°C outlet temp 35°C. Pump input is included in cooling capacity and power input based on EN14511.
*3 Under normal heating conditions at condensation side water inlet temp 40°C outlet temp 45°C
evaporation side water inlet temp 10°C outlet temp 7°C. Pump input is not included in cooling capacity and power input.
*4 Under normal heating conditions at condensation side water inlet temp 40°C outlet temp 45°C
evaporation side water inlet temp 10°C outlet temp 7°C. Pump input is included in cooling capacity and power input based on EN14511.

- Please don't use the steel material for the water piping.
- Please always make water circulate, or pull the circulation water out completely when not in use.
- Please do not use groundwater or well water in direct.
- The water circuit must be closed circuit.
- Due to continuous improvement, the above specifications may be subject to change without notice.
- This model doesn't equip with a pump.

CLIMAVENETA

AIR-COOLED MAGNETIC LEVITATION

TECS2



EUROVENT CERTIFIED PERFORMANCE
www.eurovent-certification.com

Air-cooled Magnetic Levitation Variable Frequency Centrifugal Chiller

Today's office buildings, hotels, large shopping and leisure complexes, all the most prestigious projects require leading edge solutions to meet extremely demanding challenges. As a result of the recognized prestige of Climaveneta brand products utilizing magnetic levitation technology, TECS2 air and water source chillers are the most efficient and reliable solutions available in the market today. ESEER 5.87 for TECS2 with all the advantages in terms of reliability and technical support, due to Climaveneta's unbeatable know-how of this technology, for a truly ideal answer to the challenge of the most demanding applications



Centrifugal compressor with magnetic levitation



Flooded evaporator



Electronic Valve



EC fans

COOLING CAPACITY

- **Cooling Capacity:** 229-1324kW
- **Maximum capacity:** 2,000 RT
- **Refrigerant:** HFC R-134a
- **Turbocor compressor:** 2-stage direct drive centrifugal

FEATURES AND BENEFITS

- **Unbeatable efficiency at part load**
- **Simplified logistics**
- **Extremely silent operation**
- **Low inrush current**
- **Centrifugal compressor with magnetic levitation**
- **Flooded evaporator**
- **Electronic valve**
- **EC fans**
- **Color LCD Display**

Air-Cooled Magnetic Levitation Line up

TECS2



TECS2 / SL-CA
From 220 to 1.325 kW.

TECS2-W



TECS2-W / HC / H
From 241 to 1949 kW.

TECS2 | VISION 2.0

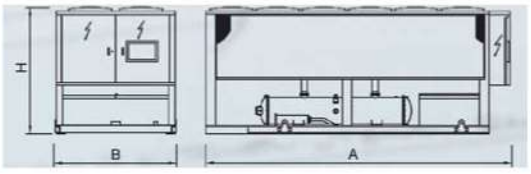
Air cooled unit with magnetic levitation centrifugal compressors. From 220 to 1.325 kW.



TECS2 / SL-CA			0211	0251	0351	0452	0512	0552	0652	0712	0853	0913	1013	1054	1154
Power supply		V/ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
Performance															
Cooling only (Gross Value)															
Cooling capacity	(1)	kW	233	258	346	442	509	574	650	742	848	903	977	1065	1183
Total power input	(1)	kW	70,5	81,1	110	138	161	174	208	225	269	286	310	336	374
EER	(1)		3,30	3,18	3,13	3,20	3,16	3,30	3,13	3,30	3,15	3,15	3,15	3,17	3,17
ESEER	(1)		4,77	4,87	4,72	5,07	5,17	5,09	5,04	5,16	5,12	5,13	5,09	5,06	5,14
Cooling only (EN14511 Value)															
Cooling capacity	(1) (2)	kW	232	257	345	441	507	572	648	740	846	901	975	1062	1180
EER	(1) (2)		3,25	3,14	3,10	3,16	3,13	3,26	3,11	3,26	3,12	3,12	3,12	3,13	3,13
ESEER	(1) (2)		4,61	4,73	4,57	4,88	4,97	4,87	4,89	4,97	4,92	4,90	4,90	4,85	4,92
Cooling energy class			A	A	A	A	A	A	A	A	A	A	A	A	A
Exchangers															
Heat exchanger user side in refrigeration															
Water flow	(1)	m^3/h	40,1	44,4	59,5	76,1	87,6	98,8	112	128	146	156	168	183	204
Pressure drop	(1)	kPa	36,4	27,4	28,5	27,6	27,7	35,2	21,1	27,6	31,8	36,0	29,7	35,3	37,3
Compressors															
Compressors nr.	N°		1	1	1	2	2	2	2	2	3	3	3	4	4
No. Circuits	N°		1	1	1	1	1	1	1	1	2	2	2	2	2
Noise level															
Noise Pressure	(3)	dB(A)	56	56	58	58	58	59	59	59	60	60	60	61	61
Noise Power	(4)	dB(A)	88	88	90	90	90	91	92	92	93	93	93	94	94
Size and weight															
A	(5)	mm	3100	3100	4000	4900	4900	5800	7000	7000	8500	9700	10600	11200	11500
B	(5)	mm	2260	2260	2260	2260	2260	2260	2260	2260	2260	2260	2260	2260	2260
H	(5)	mm	2430	2430	2430	2430	2430	2430	2430	2430	2430	2430	2430	2430	2430
Operating weight	(5)	kg	2320	2370	3050	4000	4240	4530	5800	6150	6940	7370	8150	8700	9020

Note

1) Plant (side) cooling exchanger water (in/out) 12°C/7°C; Source (side) heat exchanger air (in) 35°C
2) Values in compliance with EN14511-3:2011
3) Average sound pressure level, at 10m distance, unit in a free field on a reflective surface; non-binding value obtained from the sound power level.
4) Sound power on the basis of measurements made in compliance with ISO 9614 and Eurovent 8/1 for Eurovent certified units; in compliance with ISO 3744 for non-certified units.
5) Unit in standard configuration/execution, without optional accessories.



Oasis kit performance

The table on the right shows the effects of Oasis kit in relation to outside air temperature and relative humidity. It is clear that, the higher the air temperature and lower the air humidity, the higher the system's effectiveness: in these conditions infact, as higher waterflow is sprayed to the net, and most of it evaporate thanks to the energy given by the airflow through the net, water evaporates and air is cooled.

Water consumption comparison.

Another point to highlight is the water consumption, which is less than 30% of that requested by a cooling tower coupled to a water cooled unit of the same cooling capacity.



Adiabatic cooling kit coupled with an air cooled chiller (260 kW @ 12/7 °C, 35 °C, 50% RH)



Cooling tower coupled with a water cooled chiller (260 kW @ 12/7°C, 30/35 °C, 50% RH)

TECS2 / XL-CA			0211	0251	0351	0452	0512	0552	0652	0712	0853	0913	1013	1054	1154
Power supply		V/ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
Performance															
Cooling only (Gross Value)															
Cooling capacity	(1)	kW	220	254	341	435	525	579	640	739	874	900	972	1049	1174
Total power input	(1)	kW	68,5	79,8	109	137	166	171	206	226	279	290	312	331	377
EER	(1)		3,21	3,19	3,12	3,19	3,17	3,38	3,11	3,27	3,13	3,11	3,12	3,17	3,11
ESEER	(1)		4,75	4,99	4,84	5,19	5,23	5,17	5,19	5,24	5,24	5,30	5,24	5,19	5,23
Cooling only (EN14511 Value)															
Cooling capacity	(1) (2)	kW	219	254	340	434	524	578	639	737	872	897	970	1046	1171
EER	(1) (2)		3,17	3,15	3,08	3,16	3,14	3,34	3,08	3,24	3,10	3,07	3,09	3,13	3,08
ESEER	(1) (2)		4,61	4,84	4,69	5,02	5,03	4,94	5,03	5,05	5,03	5,06	5,04	4,96	5,01
Cooling energy class			A	A	B	A	A	A	B	A	A	B	B	A	B
Exchangers															
Heat exchanger user side in refrigeration															
Water flow	(1)	m^3/h	37,9	43,8	58,7	74,9	90,5	99,7	110	127	150	155	167	181	202
Pressure drop	(1)	kPa	32,6	26,7	27,7	26,7	29,5	35,9	20,5	27,3	33,7	35,7	29,4	34,2	36,8
Compressors															
Compressors nr.	N°		1	1	1	2	2	2	2	2	3	3	3	4	4
No. Circuits	N°		1	1	1	1	1	1	1	1	2	2	2	2	2
Noise level															
Noise Pressure	(3)	dB(A)	50	50	51	51	52	52	52	53	53	53	54	54	55
Noise Power	(4)	dB(A)	82	82	83	83	84	85	85	86	86	86	87	87	88
Size and weight															
A	(5)	mm	3100	3100	4000	4900	5800	7000	7000	7900	9400	9700	10600	11200	12400
B	(5)	mm	2260	2260	2260	2260	2260	2260	2260	2260	2260	2260	2260	2260	2260
H	(5)	mm	2430	2430	2430	2430	2430	2430	2430	2430	2430	2430	2430	2430	2430
Operating weight	(5)	kg	2370	2420	3200	4240	4690	5350	6150	6650	7520	7770	8650	9150	9960

TECS2 / SL-CA-E			0211	0251	0351	0452	0512	0552	0652	0712	0853	0913	1013	1054	1154
Power supply		V/ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
Performance															
Cooling only (Gross Value)															
Cooling capacity	(1)	kW	229	285	385	455	527	590	703	796	902	969	1086	1177	1324
Total power input	(1)	kW	67,1	81,3	113	134	154	168	204	233	263	279	317	336	383
EER	(1)		3,41	3,50	3,40	3,41	3,41	3,50	3,45	3,41	3,43	3,48	3,42	3,50	3,46
ESEER	(1)		5,29	5,52	5,43	5,79	5,71	5,64	5,77	5,77	5,62	5,79	5,71	5,87	5,75
Cooling only (EN14511 Value)															
Cooling capacity	(1) (2)	kW	228	284	383	454	526	588	701	794	900	966	1083	1173	1320
EER	(1) (2)		3,36	3,45	3,35	3,37	3,38	3,46	3,42	3,37	3,39	3,43	3,38	3,45	3,41
ESEER	(1) (2)		5,09	5,31	5,19	5,55	5,46	5,34	5,57	5,51	5,37	5,48	5,44	5,55	5,42
Cooling energy class			A	A	A	A	A	A	A	A	A	A	A	A	A
Exchangers															
Heat exchanger user side in refrigeration															
Water flow	(1)	m^3/h	39,4	49,0	66,2	78,3	90,7	102	121	137	155	167	187	203	228
Pressure drop	(1)	kPa	35,2	33,5	35,2	29,2	29,7	37,2	24,7	31,7	35,9	41,5	36,7	43,1	46,8
Compressors															
Compressors nr.	N°		1	1	1	2	2	2	2	2	3	3	3	4	4
No. Circuits	N°		1	1	1	1	1	1	1	1	2	2	2	2	2
Noise level															
Noise Pressure	(3)	dB(A)	56	56	58	58	58	59	59	59	60	60	60	61	62
Noise Power	(4)	dB(A)	88	88	90	90	90	91	92	92	93	93	93	94	95
Size and weight															
A	(5)	mm	3100	3100	4000	4900	4900	5800	7000	7900	8500	9700	10600	11200	12400
B	(5)	mm	2260	2260	2260	2260	2260	2260	2260	2260	2260	2260	2260	2260	2260
H	(5)	mm	2430	2430	2430	2430	2430	2430	2430	2430	2430	2430	2430	2430	2430
Operating weight	(5)	kg	2270	2350	3130	4070	4230	4570	6040	6450	7020	7610	8510	8660	9720

Impact of Oasis on the condensation and operational limits

Relative Humidity outdoor air [%]	Ambient air temperature, dry bulb [°C]	Delta T inlet condenser coil temperature [°C]	Water consumption for 1000m³/h air flow [l/h]
30	35	6	5,1
	40	6,5	5,6
	45	7,5	6,1
40	35	5	4,0
	40	5,5	4,6
	45	6	5,2
50	35	4,5	3,3
	40	5	3,7
	45	5	4,1
60	35	3,5	2,3
	40	4	2,6
	45	4,5	2,8
70	35	3	1,4
	40	4	1,6
	45	4	1,7

Main accessories

- Several serial card for protocols ModBus, Bacnet, Echelon lonTalk for supervisory systems both in BMS resources and Climaveneta devices (FWS3000, Manager3000)
- Remote keyboard; it offers access up to 10 units from a single point, with the possibility to set the main plant variables
- DEMETRA system to have an hourly complete report of the main variables: temperatures, energy given and absorbed
- Integrated hydronic group, with the possibility to select different pumps. Available also as VPF (Variable Primary Flow)
- EC fans (already standard in TECS2/SL-CA-E versions) (only for TECS2)
- Acoustical enclosure 'base' and 'plus' for a sound power level reduction of 14 and 18 dB(A) respectively (only for TECS2-W)
- Leak detector; devices to detect refrigerant leakage in close ambient

TECS2-W | VISION 2.0

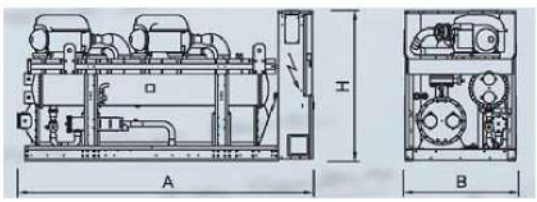
Water cooled unit with magnetic levitation centrifugal compressors. From 241 to 1949 kW.



TECS2-W / HC / H			0251	0311	0351	0411	0512	0612	0712	0812	0913	1053	1213	1414	1614
Power supply		V/ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
Performance															
Cooling Only (Gross Value)															
Cooling capacity	(1)	kW	241	293	359	405	497	588	716	811	881	1045	1213	1405	1618
Total power input	(1)	kW	46,0	57,0	69,2	78,9	94,8	114	139	158	171	203	237	269	316
EER	(1)		5,24	5,15	5,19	5,13	5,24	5,16	5,14	5,14	5,15	5,15	5,12	5,23	5,13
ESEER	(1)		8,70	8,83	8,84	8,95	9,08	9,16	9,04	9,21	9,13	8,96	9,12	9,16	9,20
Cooling Only (EN14511 Value)															
Cooling capacity	(1) (2)	kW	240	292	358	404	496	586	714	809	879	1042	1210	1402	1615
EER	(1) (2)		5,05	4,94	4,97	4,96	5,08	4,97	4,96	4,98	5,02	5,00	5,01	5,09	5,01
ESEER	(1) (2)		7,72	7,64	7,59	7,82	7,94	7,80	7,75	8,04	8,12	7,88	8,22	8,18	8,32
Cooling energy class			A	B	B	B	A	B	B	B	B	B	B	A	B
Heating Only (Gross Value)															
Total heating capacity	(3)	kW	267	326	408	465	551	654	814	931	979	1189	1393	1599	1858
Total power input	(3)	kW	57,1	69,7	88,9	102	117	139	179	204	209	261	306	347	408
COP			4,68	4,68	4,59	4,57	4,69	4,69	4,56	4,57	4,68	4,55	4,56	4,61	4,56
Heating Only (EN14511 Value)															
Total heating capacity	(3) (2)	kW	268	327	410	467	552	655	817	934	981	1192	1395	1602	1861
COP	(3) (2)		4,54	4,53	4,45	4,45	4,56	4,54	4,44	4,46	4,57	4,45	4,47	4,51	4,48
Cooling energy class			A	A	A	A	A	A	A	A	A	A	A	A	A
Exchangers															
Heat Exchanger User Side in Refrigeration															
Water flow	(1)	m^3/h	41,5	50,5	61,8	69,7	85,6	101	123	140	152	180	209	242	279
Pressure drop	(1)	kPa	35,7	38,6	36,7	28,6	38,0	42,8	32,5	28,6	36,6	33,0	27,9	35,1	27,2
Water flow	(1)	m^3/h	49,2	60,1	73,4	83,0	102	120	147	166	180	214	249	287	332
Pressure drop	(1)	kPa	25,4	38,5	46,0	37,1	24,2	38,0	45,0	39,2	21,5	34,4	23,5	24,7	24,2
Heat Exchanger User Side In Heating															
Water flow	(3)	m^3/h	46,4	56,7	71,0	80,8	95,7	114	142	162	170	207	242	278	323
Pressure drop	(3)	kPa	22,5	34,2	43,0	35,2	21,5	33,8	41,9	37,2	19,1	32,0	22,3	23,2	22,9
Water flow	(3)	m^3/h	49,2	60,1	73,4	83,0	102	120	147	166	180	214	249	287	332
Pressure drop	(3)	kPa	50,3	54,6	51,8	40,6	53,5	60,5	46,1	40,6	51,8	46,7	39,6	49,5	38,5
Compressors															
Compressors nr.		N°	1	1	1	1	2	2	2	2	3	3	3	4	4
No. Circuits		N°	1	1	1	1	1	1	1	1	1	1	1	1	1
Noise Level															
Noise Pressure	(4)	dB(A)	73	75	74	76	76	77	76	78	77	77	78	78	79
Noise Power	(5)	dB(A)	91	93	92	94	94	95	94	96	96	96	97	97	98
Size and Weight															
A	(6)	mm	2990	2990	2990	2990	3490	3490	3490	3490	4990	4990	4990	5450	5450
B	(6)	mm	950	950	950	950	1300	1300	1300	1300	1300	1300	1300	1300	1300
H	(6)	mm	1900	1900	1900	1900	1800	1800	1800	1800	1800	1800	1800	1990	1990
Operating weight	(6)	kg	1485	1485	1640	1810	2715	2695	3095	3245	3815	4500	4910	5400	6130

Note

1) Plant (side) cooling exchanger water (in/out) 12°C/7°C; Source (side) heat exchanger water (in/out) 30°C/35°C
2) Values in compliance with EN14511-3:2011
3) Plant (side) heating exchanger water (in/out) 40°C/45°C; Source (side) heat exchanger water (in/out) 10°C/* °C (flow rate as in cooling)
4) Average sound pressure level, at 1m distance, unit in a free field on a reflective surface; non-binding value obtained from the sound power level.
5) Sound power on the basis of measurements made in compliance with ISO 9614 and Eurovent 8/1 for Eurovent certified units; in compliance with ISO 3744 for non-certified units.
6) Unit in standard configuration/execution, without optional accessories.



AIR-COOLED SCREW CHILLER

ERACS.C(-INV)



Air-cooled Screw Chiller

CLIMAVENETA "ERACS.C-INV" high efficiency screw chiller has introduced the latest technology from Italy which can obviously reduce the total investment and operation cost without a conventional cooling tower, cooling water pump and cooling system. The unit can be installed on the building roof or outdoors that no extra plant room is needed. The ERACS.C-INV units are optimized for all commercial and industry applications.

ERACS.C
High Efficiency Air-cooled Screw Chiller

- **Cooling Capacity:** 240 kW - 2,030 kW
- **Refrigerant:** R-134a
- **Compressor:** Semi-hermetic screw compressor

ERACS.C-INV
Inverter Air-cooled Screw Chiller

- **Cooling Capacity:** 280 kW - 1,490 kW
- **Refrigerant:** R-134a
- **Compressor:** Variable frequency compressor

FEATURES AND BENEFITS

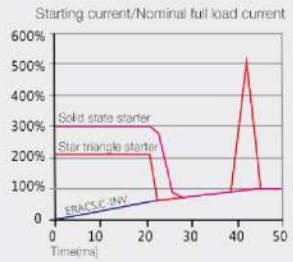


Inverter Screw Type Compressor

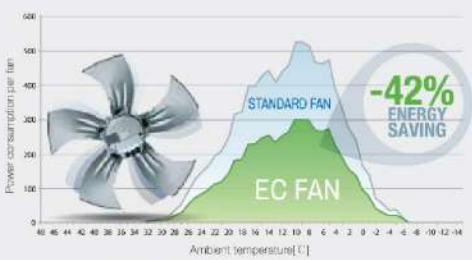


Electronic Expansion Valve

- **Inverter Screw Type Compressor**
- **Electronic Expansion Valve**
- **Inverter Fan**
- **Super Low Noise**
- **Cost Saving:** Compared with conventional units, INVERTER series can have the payback in 2 years
- **Excellent Performance:** the total harmonic distortion rate THD can be as low as 5% or less, and the compensation correction
- displacement power factor is 0.95 during the operation of the unit.
- **EC Fan(optional)**



Starter Current Performance



EC Fan Energy Saving Performance

Air-cooled Screw Chiller Line up



ERACS.C



ERACS.C-INV

Scan here

ERACS.C-INV INVERTER AIR COOLED SCREW CHILLER

Technical Data

ERACS.C-INV(-P3)		0701HE	0821HE	0951HE	1051HE	1201HE	1301HE	1501HE	1651HE
Cooling Capacity	kW	287.5	336.4	374.3	418.9	470.0	507.9	573.4	632.6
Power Input	kW	76.4	92.3	101.7	112.4	128.8	143.9	163.2	179.2
Chilled Water Flow	m^3/h	49.5	57.9	64.4	72.1	80.9	87.4	98.7	108.9
Chilled Water Pressure Drop	kPa	35.3	37.2	38.7	32.0	40.3	42.9	36.0	37.2
Microprocessor		W3000							
Compressor									
Qty.		1	1	1	1	1	1	1	1
Refrigerant Circuit No.		1	1	1	1	1	1	1	1
Stepless Energy Regulation		27～100%							
Fan									
Qty.		6	6	8	8	10	10	10	12
Air Volume	m^3/s	33.9	33.9	42.0	44.8	52.8	52.8	55.6	63.6
Fan Power Input	kW	2	2	2	2	2	2	2	2
Refrigerant									
R134a Charged	kg	66	80	82	102	102	105	117	121
Oil	kg	17	17	21	21	25	25	25	25
Dimension									
Length	mm	4000	4000	4000	4900	4900	4900	5800	5800
Width	mm	2260	2260	2260	2260	2260	2260	2260	2260
Height	mm	2450	2450	2450	2450	2450	2450	2450	2450
Operation Weight	kg	3640	3970	4130	4900	5260	5300	5820	6160

Note:

Working condition: Chilled water (in/out) 12/7°C ; Ambient temperature 35°C

ELITE

Technical Data

ERACS.C-INV(-P3)		1902	2102	2402	2652	2952	3302	3602	3902	4252
Cooling Capacity	kW	670.8	745.1	839.3	931.0	1037.0	1152.0	1270.0	1374.0	1502.0
Power Input	kW	188.2	209.4	241.5	265.4	295.0	332.1	356.2	379.7	424.1
Chilled Water Flow	m^3/h	115.5	128.3	144.5	160.3	178.6	198.3	218.6	236.4	258.5
Chilled Water Pressure Drop	kPa	50.5	56.8	48.0	40.5	50.2	30.7	37.3	46.4	56.1
Microprocessor		W3000								
Compressor										
Qty.		2	2	2	2	2	2	2	2	2
Refrigerant Circuit No.		2	2	2	2	2	2	2	2	2
Stepless Energy Regulation		20～100%								
Fan										
Qty.		12	12	12	14	16	16	20	24	24
Air Volume	m^3/s	63.6	61	65.3	72.5	82.9	79.8	101.2	127.2	127.2
Fan Power Input	kW	2	2	2	2	2	2	2	2	2
Refrigerant										
R134a Charged	kg	109	120	133	147	186	198	220	235	246
Oil	kg	42	42	50	50	50	50	60	60	60
Dimension										
Length	mm	5800	5800	7000	7000	7900	7900	9400	11200	11200
Width	mm	2260	2260	2260	2260	2260	2260	2260	2260	2260
Height	mm	2450	2450	2450	2450	2450	2450	2450	2450	2450
Operation Weight	kg	6220	6550	7780	7840	8860	9330	9880	10680	10780

Note:

Working condition: Chilled water (in/out) 12/7°C ; Ambient temperature 35°C

ERACS.C-INV INVERTER AIR COOLED SCREW CHILLER

Technical Data

ERACS.C-INV(-P3)		0701HE	0821HE	0951HE	1051HE	1201HE	1301HE	1501HE	1651HE
Cooling Capacity	kW	284.6	333.1	370.6	414.7	465.4	503.0	567.8	626.5
Power Input	kW	76.1	92.0	101.2	111.9	128.2	143.2	162.4	178.4
Chilled Water Flow	m^3/h	44.5	52.1	58.0	64.9	72.8	78.7	88.8	98.1
Chilled Water Pressure Drop	kPa	28.6	30.2	31.3	25.9	32.6	34.8	29.1	30.2
Microprocessor		W3000							
Compressor									
Qty.		1	1	1	1	1	1	1	1
Refrigerant Circuit No.		1	1	1	1	1	1	1	1
Stepless Energy Regulation		27～100%							
Fan									
Qty.		6	6	8	8	10	10	10	12
Air Volume	m^3/s	33.9	33.9	42.0	44.8	52.8	52.8	55.6	63.6
Fan Power Input	kW	2	2	2	2	2	2	2	2
Refrigerant									
R134a Charged	kg	66	80	82	102	102	105	117	121
Oil	kg	17	17	21	21	25	25	25	25
Dimension									
Length	mm	4000	4000	4000	4900	4900	4900	5800	5800
Width	mm	2260	2260	2260	2260	2260	2260	2260	2260
Height	mm	2450	2450	2450	2450	2450	2450	2450	2450
Operation Weight	kg	3640	3970	4130	4900	5260	5300	5820	6160

Note:

Working condition@AHRI: Chilled water (in/out) 12.2/6.7°C ; Ambient temperature 35°C

ELITE

Technical Data

ERACS.C-INV(-P3)		1902	2102	2402	2652	2952	3302	3602	3902	4252
Cooling Capacity	kW	664.2	737.8	831.1	921.8	1027	1141	1257	1360	1487
Power Input	kW	187.4	208.4	240.4	264.1	293.6	330.5	354.5	377.9	422.1
Chilled Water Flow	m^3/h	103.9	115.5	130.1	144.3	160.7	178.5	196.7	212.9	232.8
Chilled Water Pressure Drop	kPa	41.0	46.0	38.9	32.8	40.7	24.9	30.2	37.6	45.5
Microprocessor		W3000								
Compressor										
Qty.		2	2	2	2	2	2	2	2	2
Refrigerant Circuit No.		2	2	2	2	2	2	2	2	2
Stepless Energy Regulation		20～100%								
Fan										
Qty.		12	12	12	14	16	16	20	24	24
Air Volume	m^3/s	63.6	61	65.3	72.5	82.9	79.8	101.2	127.2	127.2
Fan Power Input	kW	2	2	2	2	2	2	2	2	2
Refrigerant										
R134a Charged	kg	109	120	133	147	186	198	220	235	246
Oil	kg	42	42	50	50	50	50	60	60	60
Dimension										
Length	mm	5800	5800	7000	7000	7900	7900	9400	11200	11200
Width	mm	2260	2260	2260	2260	2260	2260	2260	2260	2260
Height	mm	2450	2450	2450	2450	2450	2450	2450	2450	2450
Operation Weight	kg	6220	6550	7780	7840	8860	9330	9880	10680	10780

Note:

Working condition@AHRI: Chilled water (in/out) 12.2/6.7°C ; Ambient temperature 35°C

Electrical Data

Model	Compressor Qty.	Compressor			Fan		Unit		
		FLI(kW)	FLA(A)	LRA(A)	FLI(kW)	FLA(A)	FLI(kW)	FLA(A)	SA(A)
0701HE	1	108	180	267	12	25.8	120	206	103
0821HE	1	124	207	267	12	25.8	136	233	116
0951HE	1	138.7	240	285	16	34.4	154.7	274	137
1051HE	1	153.7	265.6	365	16	34.4	170	300	150
1201HE	1	176.3	304	459	20	43	196.3	347	173.5
1301HE	1	192	331	459	20	43	212	374	187
1501HE	1	216	365	506	20	43	236	408	204
1651HE	1	236.5	402	628	24	51.6	260.5	454	227
1902	2	126	218	285	24	51.6	276	488	244
2102	2	140	241	365	24	51.6	303	535	267
2402	2	160	276	459	24	51.6	345	604	302
2652	2	174	301	459	28	60.2	377	663	331
2952	2	196	332	506	32	68.8	424	732	366
3302	2	215	366	628	32	68.8	462	801	400
3602	2	236	403	715	40	86	512	891	446
3902	2	253	432	850	48	103.2	554	966	483
4252	2	271	463	850	48	103.2	591	1030	515

Note:

F.L.I. Power input L.R.A. Locked rotor current for single compressor

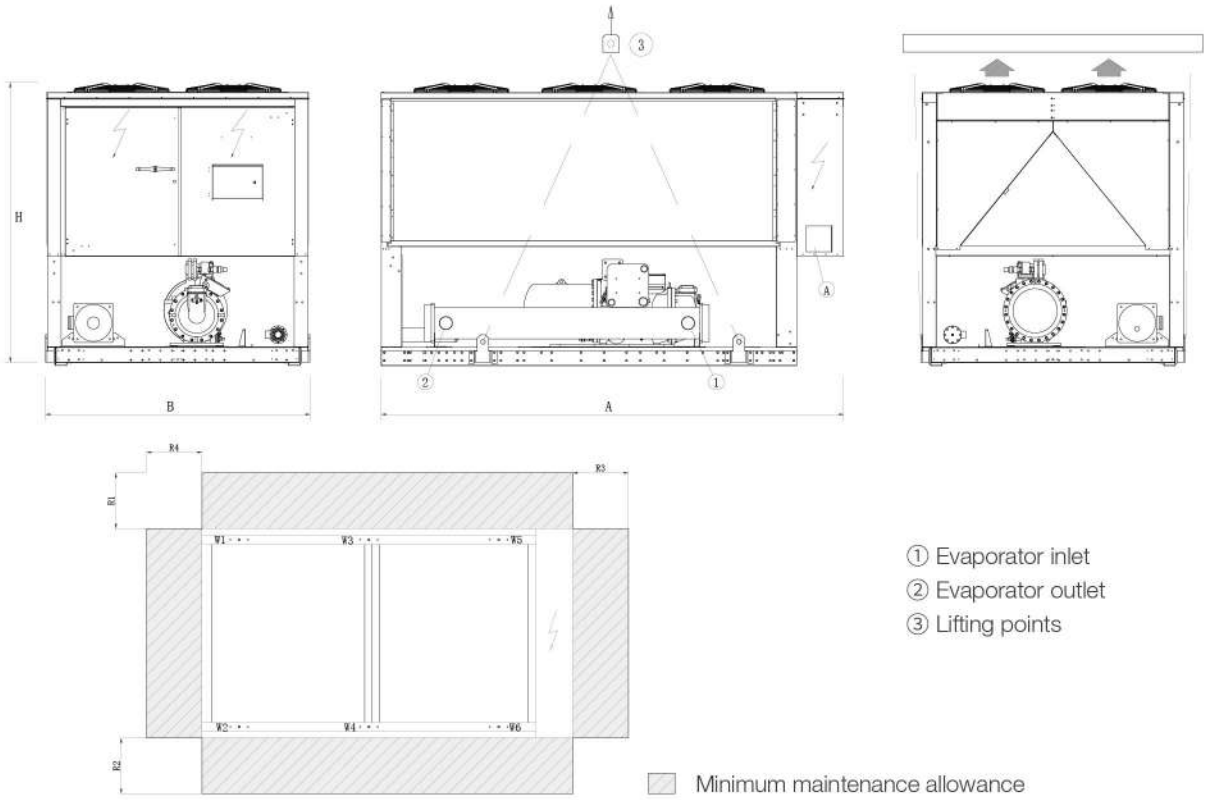
F.L.A. Current absorption S.A. Starting current

Power input 380V-3Ph-50Hz (60Hz), voltage tolerance ±10%，voltage unbalance 3%.

All the values are referred to the maximum working condition. Energy restriction function can be equipped when energy supply is not enough.

Unit Dimension

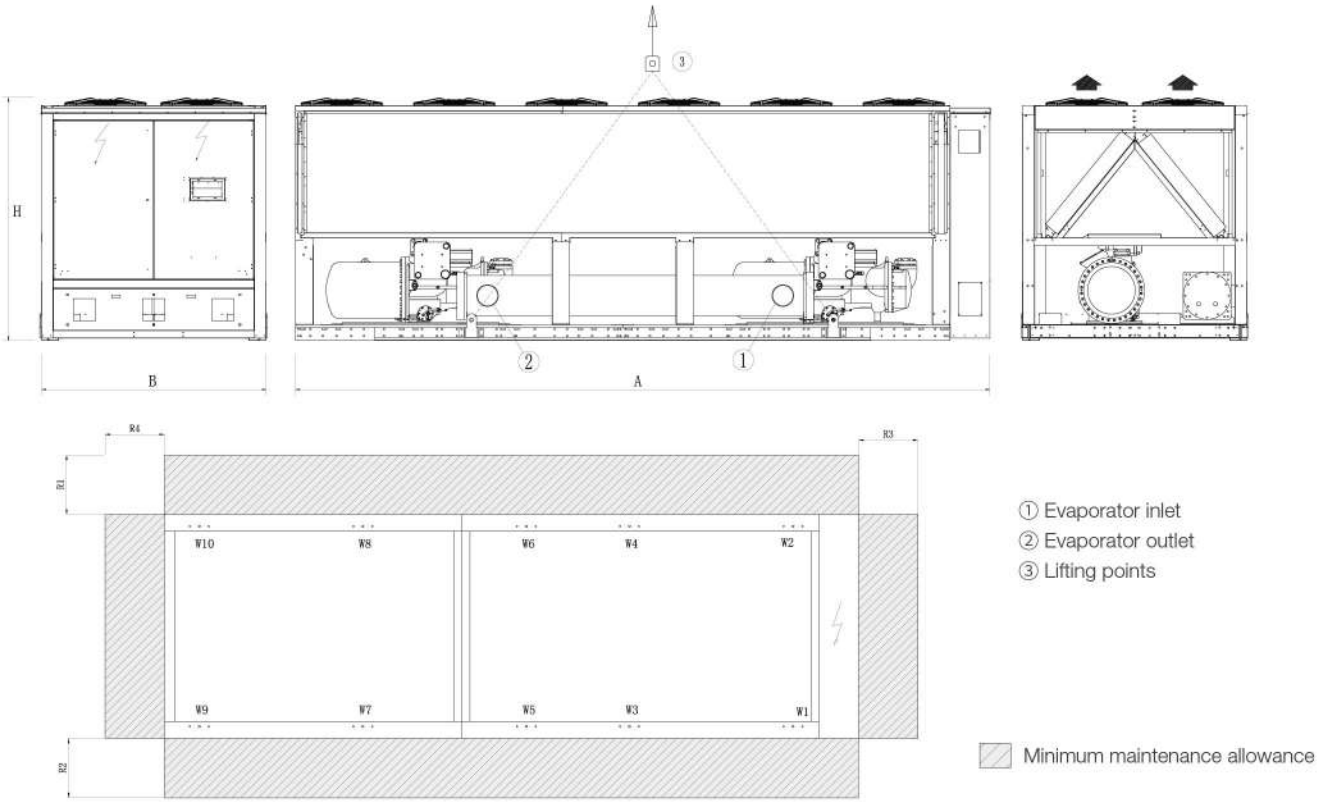
ERACS 0701--1651C



Model	Dimensions			Maintenance allowance					Evaporator pipe connection	
	A	B	H	Operating weight	R1	R2	R3	R4	IN/OUT	
	mm	mm	mm	Kg	mm	mm	mm	mm	Type	Φ
ERACS 0701C-B-HE-INV(-P3)	4000	2260	2450	3640	2000	2000	1800	1500	Victaulic	4"
ERACS 0821C-B-HE-INV(-P3)	4000	2260	2450	3970	2000	2000	1800	1500	Victaulic	5"
ERACS 0951C-B-HE-INV(-P3)	4000	2260	2450	4130	2000	2000	1800	1500	Victaulic	5"
ERACS 1051C-B-HE-INV(-P3)	4900	2260	2450	4900	2000	2000	1800	1500	Victaulic	6"
ERACS 1201C-B-HE-INV(-P3)	4900	2260	2450	5260	2000	2000	1800	1500	Victaulic	6"
ERACS 1301C-B-HE-INV(-P3)	4900	2260	2450	5300	2000	2000	1800	1500	Victaulic	6"
ERACS 1501C-B-HE-INV(-P3)	5800	2260	2450	5820	2000	2000	1800	1500	Victaulic	6"
ERACS 1651C-B-HE-INV(-P3)	5800	2260	2450	6160	2000	2000	1800	1500	Victaulic	6"

Unit Dimension

ERACS 0701--1651C



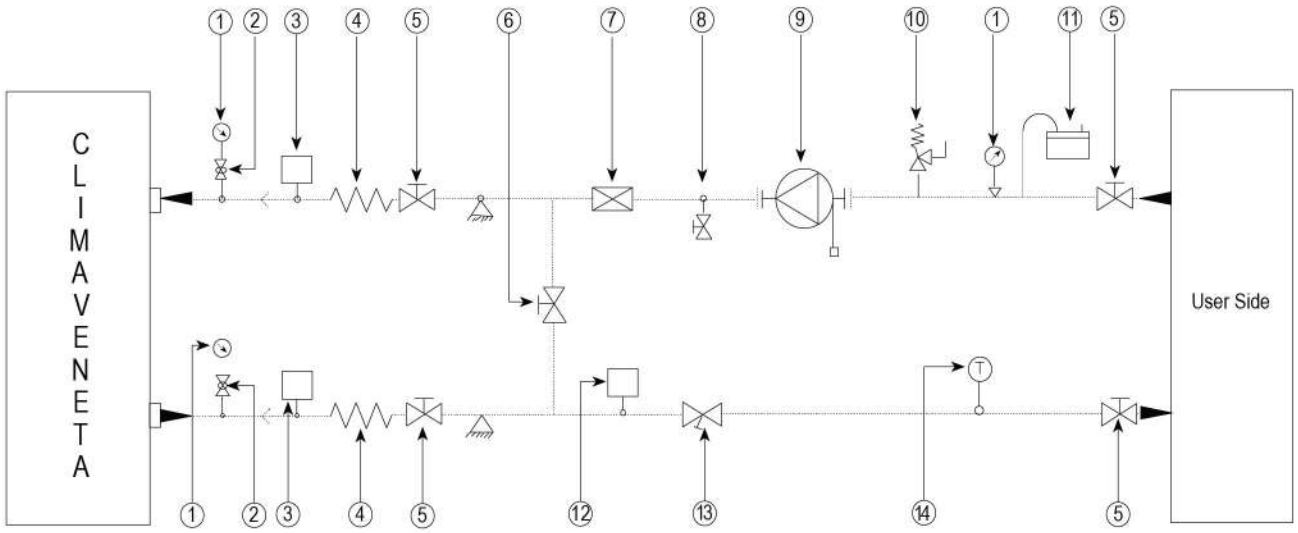
Model	Dimensions			Maintenance allowance					Evaporator pipe connection	
	A	B	H	Operating weight	R1	R2	R3	R4	IN/OUT	
	mm	mm	mm	Kg	mm	mm	mm	mm	Type	ϕ
ERACS 1902C-B-INV(-P3)	5800	2260	2450	6220	2000	2000	1800	1500	Victaulic	6"
ERACS 2102C-B-INV(-P3)	5800	2260	2450	6550	2000	2000	1800	1500	Victaulic	6"
ERACS 2402C-B-INV(-P3)	7000	2260	2450	7780	2000	2000	1800	1500	Victaulic	8"
ERACS 2652C-B-INV(-P3)	7000	2260	2450	7840	2000	2000	1800	1500	Victaulic	8"
ERACS 2952C-B-INV(-P3)	7900	2260	2450	8860	2000	2000	1800	1500	Victaulic	8"
ERACS 3302C-B-INV(-P3)	7900	2260	2450	9330	2000	2000	1800	1500	Victaulic	8"
ERACS 3602C-B-INV(-P3)	9400	2260	2450	9880	2000	2000	1800	1500	Victaulic	8"
ERACS 3902C-B-INV(-P3)	11200	2260	2450	10680	2000	2000	1800	1500	Victaulic	8"
ERACS 4252C-B-INV(-P3)	11200	2260	2450	10780	2000	2000	1800	1500	Victaulic	8"

ELITE

Water Flow Data

Model	Min.	Max.
	m^3/h	m^3/h
0701HE	21.30	93.89
0821HE	27.39	94.90
0951HE	30.10	122.11
1051HE	36.90	125.78
1201HE	36.90	125.78
1301HE	40.21	131.90
1501HE	52.88	175.90
1651HE	52.88	178.99
1902	52.88	181.40
2102	52.88	195.91
2402	80.50	181.40
2652	80.50	227.48
2952	80.50	227.48
3302	115.31	356.62
3602	115.31	356.62
3902	115.31	329.80
4252	115.31	329.80

CLIMAVENETA Chiller Water Circulation System Schematic



1. Water pressure gauge
2. On-off valve
3. Automatic exhaust valve
4. Flexible joint
5. Check valve
6. Bypass water pipe
7. Strainer
8. Drain valve
9. Circulating pump
10. Safety drain valve
11. Expansion water box
12. Target flow switch
13. One way valve
14. Temperature display gauge

Reminding for CLIMAVENETA chiller water circulation system pipe layout

1. Install an automatic vent valve at the highest point on the chilled water circulation line.
2. The evaporator inlet and outlet of the unit must be equipped with a rubber soft connection, including the cooling water inlet pipe of the chiller.
3. A flow switch is required on the horizontal pipe of the cooling water and the chilled water, and is interlocked with the electric control system of the unit.
4. When installing the chilled water circulation pump pipeline, a short-circuit circulation pipe is needed at the inlet and outlet of the evaporator and a shut-off valve on the short-circuit circulation pipe to make water circulation, decontamination and then confirm the water quality. The unit can be connected only after the quality is OK.
5. A strainer (60 mesh or more) must be installed at the inlet of the evaporator to ensure that the circulating water of the evaporator does not contain any impurities such as metal material, welding slag, steel wire, etc.
6. In order to ensure that the heat exchanger of the unit is not corroded, according to the chemical characteristics of copper, the influent water must not contain corrosive ions such as chloride ions, ammonia ions and sulfur ions. In hard water area, a qualified softened water device need to be installed to make the influent calcium bicarbonate content within the national standard.
7. For outdoor installations, the outdoor pipeline section should be equipped with drain valves. When the unit is not in use, the water shold be completely emptied to avoid freezing the pipeline and the unit.
8. Check valve should be installed on evaporator inlet and outlet.

WATER-COOLED MAGNETIC LEVITATION

TECS-W/L-E, TECS-W/L-M, TWM-4-T, TWM-TR



Water-cooled Magnetic Levitation



TECS-W/L-E

Water-cooled Magnetic Levitation Variable Frequency Centrifugal Chiller

Our Chiller extremely outstanding performance in the chiller industry. With magnetic levitation compressor, variable frequency inverter control and oil free lubrication system. In the transition period, the cooling water temperature decline results in additional energy saving of the unit.



Magnetic Levitation Oil-free Centrifugal Compressor

COOLING CAPACITY

- **Cooling Capacity:** 280 – 4220 kW (80-1200RT)
- **Refrigerant:** HFC R-134a
- **Turbocor compressor:** 2-stage direct drive centrifugal



Electronic Expansion Valve (EXV)

FEATURES AND BENEFITS

- **Magnetic Levitation Oil-free Centrifugal Compressor**
- **Super-low Noise and Vibration**
- **High-efficiency Flooded Type Evaporator and Condenser**
- **Electronic Expansion Valve (EXV)**
- **Energy Conservation and Environment Protection**
- **Color LCD Display**



Color LCD Display



TECS-W/L-M

Modular Water-cooled Oil-free Chiller

Modular Water Cooled Oil Free Centrifugal Chiller adopts modular design which is specially designed by CLIMAVENETA targeting on energy efficiency reconstruction applications. It is mostly demanded to replace old and low efficient units, especially for applications with limited transportation and installation space such as small-medium data centers in high layer buildings, hotels, hospitals, subways and other republic buildings.

COOLING CAPACITY

- **Cooling Capacity:** 281 – 528 kW (80-150RT)
- **Module capacity:** 80 RT / 100 RT / 125 RT / 150 RT
- **System control maximum 8 modules,** Capacity 80 RT to 1,200 RT
- **Refrigerant:** HFC R-134a
- **Turbocor compressor:** 2-stage direct drive centrifugal

FEATURES AND BENEFITS

- **Oil-free Centrifugal Compressor**
- **High-efficiency Flooded Type Evaporator**
- **Electronic Expansion Valve (EXV)**
- **Energy Saving and High Efficiency**
- **Compact Structure, Small Footprint**
- **Lower Noise**
- **Flexible Redundancy**



TWM-4-T

Water-cooled Magnetic Levitation Centrifugal Chiller

CLIMAVENETA's high-efficiency two-stage centrifugal compressor frequency conversion water-cooled centrifugal chiller is the latest product, using the newly developed W3000 microcomputer controller, 13-inch large touch screen, HFO1234ze (GWP < 1) refrigerant, new high-efficiency heat exchanger, And the perfect combination of the economizer makes the system optimally matched. It integrates the characteristics of high efficiency, energy saving, green environmental protection, stability and reliability, and can be widely used in hotels, hospitals, enterprises, office buildings and other places. It can not only provide cold water for central air-conditioning systems in hotels, hospitals, commercial buildings, industrial and mining enterprises, etc., but also provide process cold water for textile, chemical, food, electronic scientific research and other departments.

COOLING CAPACITY

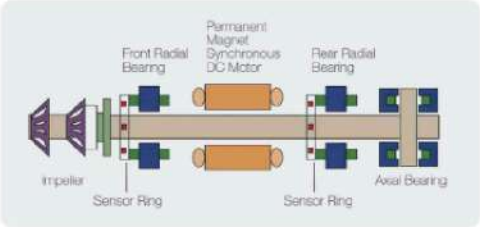
- **Cooling Capacity:** 1231 – 6331 kW (350-1800RT)
- **Refrigerant:** HFO1234ze (GWP < 1)
- **Danfoss Turbocor compressor**

FEATURES AND BENEFITS

- **Two-stage centrifugal and center supplement gas :** Increase cooling capacity, reduce power input and improve energy efficiency
- **Power backup function :** The shaft remains suspended for up to 5 seconds after power failure.
- **Quick start function :** The unit can swiftly return to its previous operational state once power is restored.
- **Large cooling capacity of single compressor :** The cooling capacity of a single compressor can reach 450RT (R134a refrigerant), so that chiller structure can be more compact.
- **Permanent magnet synchronous motor :** Extremely high motor efficiency and improved compressor energy efficiency.



Magnetic Levitation Oil-free Centrifugal Compressor



Permanent magnet synchronous motor



TWM-TR

Water-cooled Magnetic Levitation Variable Speed Centrifugal Chiller

CLIMAVENETA's high-efficiency two-stage centrifugal compressor frequency conversion water-cooled centrifugal chiller is the latest product, using the newly developed W3000 microcomputer controller, 13-inch large touch screen, HFC R-134a (Optional R1234ze) refrigerant, new high-efficiency heat exchanger, And the perfect combination of the economizer makes the system optimally matched. It integrates the characteristics of high efficiency, energy saving, green environmental protection, stability and reliability, and can be widely used in hotels, hospitals, enterprises, office buildings and other places. It can not only provide cold water for central air-conditioning systems in hotels, hospitals, commercial buildings, industrial and mining enterprises, etc., but also provide process cold water for textile, chemical, food, electronic scientific research and other departments.

COOLING CAPACITY

- **Cooling Capacity:** 1231 – 6331 kW (350-1800RT) (1-4 Com.)
- **Capacity:** 450 RT / 900 RT / 1,350 RT / 1,800 RT
- **Refrigerant:** HFC R-134a (Optional R1234ze)
- **Danfoss Turbocor compressor:** VTX magnetic

FEATURES AND BENEFITS

- **Advanced Compressor Technology:**
  Features a large cooling capacity magnetic levitation variable speed compressor, offering oil-free operation, high efficiency, and a broad range of cooling capacity adjustments.
- **Intelligent Control:**
  Utilizes Danfoss' inverter-driven compressor for intelligent and efficient operation under all conditions.
- **Exceptional Cooling Performance:**
  Provides a cooling capacity range of 400-1800RT, surpassing first-class energy efficiency standards set by GB 19577-2015.
- **Enhanced Heat Exchanger Design:**
  Incorporates a larger heat exchanger surface through evaporator series connection and counter flow design, significantly improving energy efficiency.
- **Efficient Configuration:**
  Equipped with a high-efficiency flooded evaporator, specially designed condenser, flash tank (economizer), orifice plate, and electronic expansion valve, resulting in high performance and compact structure.
- **Responsive Liquid Level Sensor:**
  Quickly and accurately responds to load changes across various working conditions.
- **Intelligent Load Control:** Ensures efficient and stable operation through precise control and pre-protection functions.
- **Ideal for Critical Applications:** Optimal for data centers and process sites, achieving low cooling water conditions.
- **Environmentally Friendly Refrigerant:** Offers the option of R1234ze refrigerant with ODP=0 and GWP<1.
- **Certified Performance:** All units are AHRI certified.

Water-cooled Magnetic Levitation Line up



TECS-W/L-E



TECS-W/L-M



TWM-4-T



TWM-TR

ClimaPRO Plant Room Optimization Group Control System (Option)



Microprocessor Control Features

Microprocessor	W3000	Microprocessor	W3000
Remote on/off with external volt-free contact	√	Energy limit function	OPT
Multi-language menu	√	Manual control	√
Phase sequence relay	√	ModBus communication protocol	OPT
Cumulative fault alarm	√	BACnet communication protocol	OPT
Alarms code function	√	LonWorks communication protocol	OPT
"BLACK BOX" alarm events record	√	Pump control	OPT
Self-test when power on	√	Backup pump control	OPT
Daily/weekly programming control	Par.	Water temp. regulation by external signal (4-20mA)	OPT
Evaporator inlet/outlet water temp. display	√	Remote relay control	OPT
Compressor/unit alarms display	√	Local/remote network monitor (FWS)	OPT
General unit alarms display	√	Remote secondary temp. control	OPT
Entering water temp. ratio control	√	Set-point regulation from external signal (0-5V)	OPT
Start/stop operating timer	Par.	Compressor run-timer, time balance & FIFO	√
Double set-point timer	Par.	Compressor start scheduling	√
"Pump-Down" when stopped	√		

√ Standard OPT avaiable on request Par. available by modifying a value of the configuration paramenters

TECHNICAL PARAMETERS

TECS-W/L-E(-P0/P3)		0801	1051	1401	1421	1801	2152	2452	3252	3902	3903	4503	5203
Cooling Capacity	kW	281.0	422.0	493.0	552.1	703.0	880.0	1055.0	1231.0	1407.0	1583.0	1759.0	1935.0
	RT	80	120	140	157	200	250	300	350	400	450	500	550
Power Input	kW	50.8	72.1	87.1	95.1	113.8	152.7	183.5	201.1	224.9	266.3	291.0	311.0
EER		5.53	5.85	5.66	5.81	6.18	5.76	5.75	6.12	6.26	5.94	6.04	6.22
IPLV		8.46	8.43	8.63	8.89	8.38	8.95	8.74	8.87	8.84	8.84	9.06	9.17
Chilled Water Flow	m^3/h	48.35	72.58	84.82	94.97	120.92	151.34	181.51	211.72	242.06	272.34	302.58	332.82
Chilled Water Pressure Drop	kPa	42.80	48.20	40.00	50.00	82.20	55.90	80.50	47.10	45.10	57.30	49.50	47.70
Cooling Water Flow	m^3/h	58.90	87.73	106.45	118.76	151.20	183.35	227.34	265.03	302.18	339.55	369.00	415.80
Cooling Water Pressure Drop	kPa	42.00	48.10	41.90	52.10	65.80	55.50	83.90	41.50	39.30	49.70	41.00	41.60
Microprocessor		W3000 Touch											
Compressor No.	n	1	1	1	1	1	2	2	2	2	3	3	3
Refrigerant Circuit No.	n	1	1	1	1	1	1	1	1	1	1	1	1
Stepless Energy Regulation		20%-100%					15%-100%				10%-100%		
Operating Weight	kg	1,835	1,930	2,115	2,150	2,385	3,100	3,112	4,625	4,785	5,347	5,760	6,080
Dimension													
Length	mm	2,930	2,930	2,930	2,930	2,930	2,990	2,990	4,450	4,450	4,450	4,450	4,450
Width	mm	1,210	1,210	1,210	1,210	1,400	1,480	1,480	1,350	1,350	1,450	1,360	1,360
Height	mm	1,800	1,800	1,800	1,800	1,830	1,980	1,980	2,050	2,050	1,990	2,150	2,150

TECS-W/L-E(-P0/P3)		5853	6304	6904	7504	8104	8905	9806	11006	12106	16108	20H10
Cooling Capacity	kW	2110.0	2286.0	2462.0	2638.0	2814.0	3165.0	3517.0	3869.0	4220.0	5626	7032
	RT	600	650	700	750	800	900	1000	1100	1200	1600	2000
Power Input	kW	339.8	371.9	395.5	419.4	444.5	503.4	567.6	614.1	663.0	904.5	1130.5
EER		6.21	6.15	6.23	6.29	6.33	6.29	6.20	6.30	6.37	6.22	6.22
IPLV		8.94	9.09	9.08	9.00	9.01	9.19	9.16	9.23	9.19	9.28	9.15
Chilled Water Flow	m^3/h	362.88	393.12	423.36	453.60	484.20	544.32	604.80	665.64	725.76	967.68	1209.6
Chilled Water Pressure Drop	kPa	64.70	48.10	55.70	51.60	58.70	53.40	65.90	70.90	89.70	54.4	78.7
Cooling Water Flow	m^3/h	453.60	492.12	528.84	565.92	603.36	684.72	762.48	837.00	911.52	1215.7	1519.56
Cooling Water Pressure Drop	kPa	59.80	60.70	70.10	64.20	72.90	56.30	69.80	77.10	99.90	55.5	71.3
Microprocessor		W3000 Touch										
Compressor No.	n	3	4	4	4	4	5	6	6	6	8	10
Refrigerant Circuit No.	n	1	2	2	2	2	2	2	2	2	2	2
Stepless Energy Regulation		10%-100%			8%-100%			6%-100%		5%-100%		
Operating Weight	kg	6,690	8,770	8,850	9,310	9,365	11,570	11,800	12,520	13,680	16980	21940
Dimension												
Length	mm	5,310	5,000	5,000	5,000	5,000	5,060	5,060	5,060	5,860	5280	6140
Width	mm	1,360	2,200	2,200	2,200	2,200	2,425	2,425	2,425	2,425	3850	3850
Height	mm	2,150	2,150	2,150	2,150	2,150	2,140	2,140	2,140	2,140	2460	2460

Remarks:

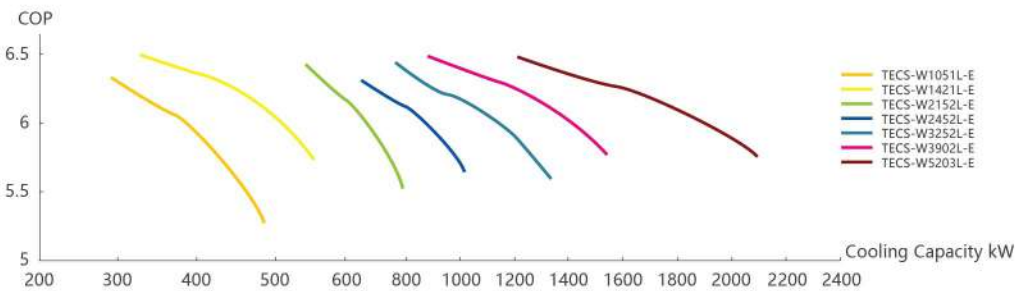
1. Cooling condition: outlet temperature of chilled water 7℃ , chilled water flow per cooling capacity 0.172 $m^3/(h{\cdot}kW)$; outlet temperature of cooling water 30℃ , cooling water flow per cooling capacity 0.215 $m^3/(h{\cdot}kW)$.;
2. IPLV is measured according to GB/T 18430.1;
3. Standard water side pressure of evaporator and condenser is 1.0MPa. 1.6MPa or 2.0MPa is optional.

TECHNICAL PARAMETERS

TECS-W/L-E(-P0/P3)		0801	1051	1401	1421	1801	2152	2452	3252	3902	3903	4503	5203
Cooling Capacity	kW	275.2	368.1	503.7	507.5	631.4	751.5	873.2	1158.0	1392.0	1382.0	1616.0	1797.0
	RT	78	105	143	144	180	214	248	329	396	393	459	511
Power Input	kW	50.2	61	92.5	85.9	103.3	126.1	145.9	189.6	227.5	226.5	263	287.2
EER		5.48	6.03	5.45	5.91	6.11	5.96	5.98	6.11	6.12	6.1	6.14	6.26
IPLV		9.82	9.56	9.97	10.2	9.81	10.3	10.0	10.2	10.2	10.3	10.3	10.4
Chilled Water Flow	m^3/h	42.70	57.10	78.12	78.70	97.92	116.57	135.43	179.60	215.96	214.34	250.63	278.75
Chilled Water Pressure Drop	kPa	33.3	29.8	33.9	34.4	40.7	33.1	44.7	33.9	35.9	35.4	33.9	33.4
Cooling Water Flow	m^3/h	54.00	71.24	98.93	98.53	122.00	145.73	169.20	223.81	269.03	267.12	312.05	346.21
Cooling Water Pressure Drop	kPa	35.3	31.6	36.1	35.8	42.7	35	46.4	29.6	31.1	30.7	29.2	28.8
Microprocessor		W3000 Touch											
Compressor No.	n	1	1	1	1	1	2	2	2	2	3	3	3
Refrigerant Circuit No.	n	1	1	1	1	1	1	1	1	1	1	1	1
Stepless Energy Regulation		20%-100%					15%-100%				10%-100%		
Operating Weight	kg	1,835	1,930	2,115	2,150	2,385	3,100	3,112	4,625	4,785	5,347	5,760	6,080
Dimension													
Length	mm	2,930	2,930	2,930	2,930	2,930	2,990	2,990	4,450	4,450	4,450	4,450	4,450
Width	mm	1,210	1,210	1,210	1,210	1,400	1,480	1,480	1,350	1,350	1,450	1,360	1,360
Height	mm	1,800	1,800	1,800	1,800	1,830	1,980	1,980	2,050	2,050	1,990	2,150	2,150

TECS-W/L-E(-P0/P3)		5853	6304	6904	7504	8104	8905	9806	11006	12106	16108	20H10
Cooling Capacity	kW	1926.0	2120.0	2273.0	2417.0	2576.0	3169.0	3473.0	3884.0	4300.0	5626	7032
	RT	548	603	646	687	732	901	987	1104	1222	1600	2000
Power Input	kW	311.6	341	362.9	383.4	408.6	517.7	572.2	634.2	697.6	895.3	1118.3
EER		6.18	6.22	6.26	6.3	6.3	6.12	6.07	6.12	6.16	6.28	6.29
IPLV		10.2	10.5	10.5	10.6	10.7	10.5	10.5	10.5	10.6	10.9	10.9
Chilled Water Flow	m^3/h	298.76	328.86	352.58	374.76	399.60	491.40	538.56	602.28	666.72	870.84	1088.64
Chilled Water Pressure Drop	kPa	43.7	33.5	38.5	35.1	39.9	43.5	52.2	58.1	75.6	53.9	59.2
Cooling Water Flow	m^3/h	371.52	408.96	437.76	465.12	495.72	612.36	671.76	750.24	829.80	1085.4	1356.4
Cooling Water Pressure Drop	kPa	40.1	41.8	47.9	43.3	49.2	45	54.2	61.9	82.7	51.8	49.7
Microprocessor												
Compressor No.	n	3	4	4	4	4	5	6	6	6	8	10
Refrigerant Circuit No.	n	1	2	2	2	2	2	2	2	2	2	2
Stepless Energy Regulation		10%-100%			8%-100%			6%-100%		5%-100%		
Operating Weight	kg	6,690	8,770	8,850	9,310	9,365	11,570	11,800	12,520	13,680	16980	21940
Dimension												
Length	mm	5,310	5,000	5,000	5,000	5,000	5,060	5,060	5,060	5,860	5280	6140
Width	mm	1,360	2,200	2,200	2,200	2,200	2,425	2,425	2,425	2,425	3850	3850
Height	mm	2,150	2,150	2,150	2,150	2,150	2,140	2,140	2,140	2,140	2460	2460

Remarks:
1. Standard Cooling Condition: Chilled water (in/out)=12.2/6.7℃; Condenser water (in/out)=29.4/34.6℃;
2. IPLV is measured according to AHRI Standard 550/590;
3. Standard water side pressure of evaporator and condenser is 1.0MPa. 1.6MPa or 2.0MPa is optional.



Each project has different application and demand: some require best full load efficiency, while others lowest initial investment, or an unrivaled part load performance. CLIMAVENETA provides optimized and tailored solution based on different cooling capacity and efficiency demand.

ELECTRIC PARAMETERS

TECS-W/L-E(-P3)				0801	1051	1401	1421	1801	2152	2452	3252
Max Value	Compressor (Single)	n		1	1	1	1	1	2	2	2
		F.L.I	kW	80	105	105	105	124	105	105	105/124
		F.L.A	A	145	170	170	170	206	170	170	170/206
	Unit	F.L.I	kW	80	105	105	105	124	210	210	229
		F.L.A	A	145	170	170	170	206	340	340	376
Recommended Cable			mm^2	50	70	70	70	95	185	185	120*2

TECS-W/L-E(-P3)				3902	3903	4503	5203	5853	6304	6904	7504
Max Value	Compressor (Single)	n		2	3	3	3	3	4	4	4
		F.L.I	kW	124	105	105*2/124	105/124*2	124	105*3/124	105*2/124*2	105/124*3
		F.L.A	A	206	170	170*2/206	170/206*2	206	170*3/206	170*2/206*2	170/206*3
	Unit	F.L.I	kW	248	315	334	353	372	439	458	477
		F.L.A	A	412	510	546	582	618	716	752	788
Recommended Cable			mm^2	120*2	150*2	150*2	185*2	185*2	240*2	240*2	240*2

TECS-W/L-E(-P3)				8104	8905*	9806*	11006*	12106*	16108*	20H10*
Max Value	Compressor (Single)	n		4	5	6	6	6	8	10
		F.L.I	kW	124	105*2/124*3	105*4/124*2	105*2/124*4	124	125	125
		F.L.A	A	206	170*2/206*3	170*4/206*2	170*2/206*4	206	206	206
	Unit	F.L.I	kW	496	582	668	706	744	1000	1250
		F.L.A	A	824	958	1092	1164	1236	1648	2060
Recommended Cable			mm^2	300*2/185*3	185*2	185*2	185*2	185*2	300*2	400*2

Note:

1. F.L.I Full load power input at max admissible condition
   F.L.A Full load current ampere at max admissible condition
   Supply power 380V-3Ph-50Hz(60Hz)
   Range of voltage fluctuation: 10%
   Range of voltage unbalance: 3%
   The rated power and current are based on the rated working condition. The maximum data is the theoretical limit value. When making wiring and power distribution, the data in the table are as reference. The energy limit function shall be selected as option while the power supply is insufficient.
2. set power cables for the unit with "*" mark. The wiring cables shall be single-pole and exposed laying type. 3. The cables in the table are chosen under the working temperature of 90℃ and environment temperature of 30℃.
4. The cables size in use shall not be less than the value in the table.

ELECTRIC PARAMETERS

TECS-W/L-E-P0				0801	1051	1401	1421	1801	2152	2452	3252
Max Value	Compressor (Single)	n		1	1	1	1	1	2	2	2
		F.L.I	kW	80	105	105	105	124	105	105	105/124
		F.L.A	A	145	170	170	170	196	170	170	170/206
	Unit	F.L.I	kW	80	105	105	105	124	210	210	229
		F.L.A	A	145	170	170	170	196	340	340	366
Recommended Cable			mm^2	50	70	70	70	95	185	185	120*2

TECS-W/L-E-P0				3902	3903	4503	5203	5853	6304	6904	7504
Max Value	Compressor (Single)	n		2	3	3	3	3	4	4	4
		F.L.I	kW	124	105	105*2/124	105/124*2	124	105*3/124	105*2/124*2	105/124*3
		F.L.A	A	196	170	170*2/196	170/196*2	196	170*3/196	170*2/196*2	170/196*3
	Unit	F.L.I	kW	248	315	334	353	372	439	458	477
		F.L.A	A	392	510	536	562	588	706	732	758
Recommended Cable			mm^2	120*2	150*2	150*2	185*2	185*2	240*2	240*2	240*2

TECS-W/L-E-P0				8104	8905*	9806*	11006*	12106*	16108*	20H10*
Max Value	Compressor (Single)	n		4	5	6	6	6	8	10
		F.L.I	kW	124	105*2/124*3	105*4/124*2	105*2/124*4	124	125	125
		F.L.A	A	196	170*2/196*3	170*4/196*2	170*2/196*4	196	196	196
	Unit	F.L.I	kW	496	582	668	706	744	1000	1250
		F.L.A	A	784	928	1072	1124	1176	1568	1960
Recommended Cable			mm^2	300*2/185*3	185*2	185*2	185*2	185*2	300*2	400*2

Note:

1. F.L.I Full load power input at max admissible condition
   F.L.A Full load current ampere at max admissible condition
   Supply power 400V-3Ph-50Hz
   Range of voltage fluctuation: 10%
   Range of voltage unbalance: 3%
   The rated power and current are based on the rated working condition. The maximum data is the theoretical limit value. When making wiring and power distribution, the data in the table are as reference. The energy limit function shall be selected as option while the power supply is insufficient.
2. 2 set power cables for the unit with "*" mark. The wiring cables shall be single-pole and exposed laying type.
3. The cables in the table are chosen under the working temperature of 90℃ and environment temperature of 30℃.
4. The cables size in use shall not be less than the value in the table.

ELECTRIC PARAMETERS

TECS-W/L-E Standard Configuration: Line Reactor

In order to reduce current harmonic distortion made by inverter and improve the imbalance of three phase power supply, line reactor is applied in the electric system. It can limit the voltage jump of power grid and the current shock when operation. By smoothing the pulse peak and voltage leakage caused when rectifier commutation, the disorder from grid can be prevented and in the meanwhile to cut down the impact of harmonic current on grid.

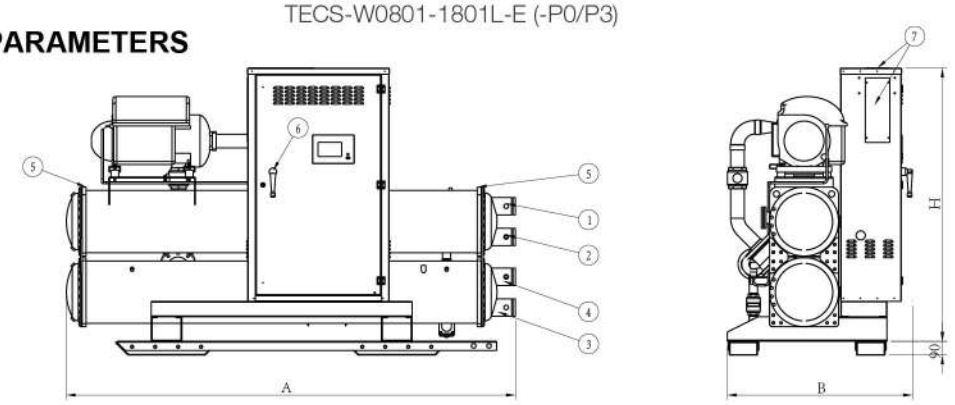
TECS-W/L-E Optional Configuration: Harmonic Filter

Harmonic filter is able to improve power transmission and usage efficiency, further reduce the electrical system of local parallel resonance or series resonance and noise, to assure the safety of electrical protection and automatic device.

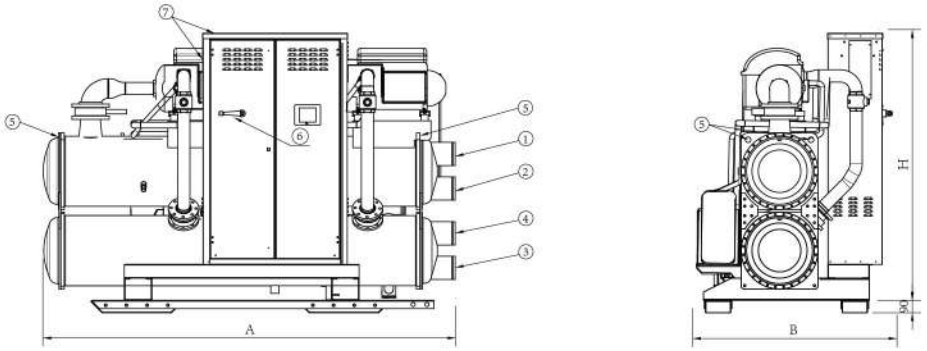
DIMENSION DRAWING

ELECTRIC PARAMETERS

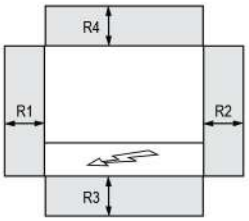
TECS-W0801-1801L-E (-P0/P3)



TECS-W2152-3902L-E (-P0/P3)



①Evaporator Inlet ③Condenser Inlet ⑤Lifting Points ⑦Power Inlet
②Evaporator Outlet ④Condenser Outlet ⑥Main Isolator
Please consult with Climaveneta office for detail drawing.



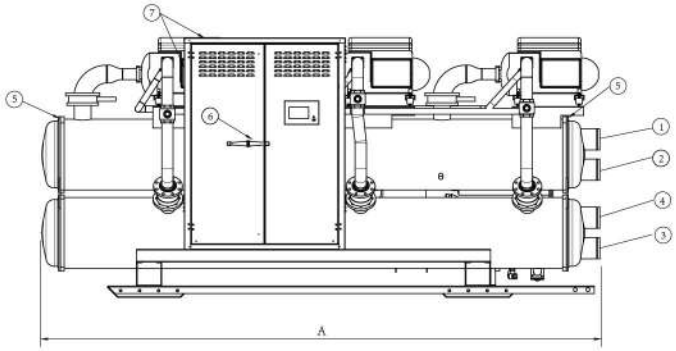
Minimum Clearance

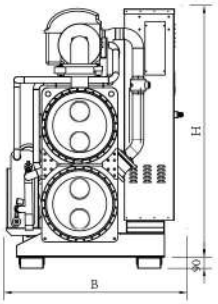
DIMENSION AND WEIGHT

TECS-W/L-E (-P0/P3)	A	B	H	Lifting Weight	Pipe Size		Minimum Clearance			
	mm	mm	mm	kg	①/②	③/④	R1(mm)	R2(mm)	R3(mm)	R4(mm)
0801	2930	1210	1800	1735	3"	3"	2500	1000	900	500
1051	2930	1210	1800	1755	3"	3"	2500	1000	900	500
1401	2930	1210	1800	1985	4"	4"	2500	1000	900	500
1421	2930	1210	1800	2005	4"	4"	2500	1000	900	500
1801	2930	1400	1830	2150	5"	5"	2500	1000	900	500
2152	2990	1480	1980	2783	6"	6"	2500	1000	900	900
2452	2990	1480	1960	2860	6"	6"	2500	1000	900	900
3252	4450	1350	2050	3995	6"	6"	4000	1000	900	900
3902	4450	1350	2050	4050	6"	6"	4000	1000	900	900

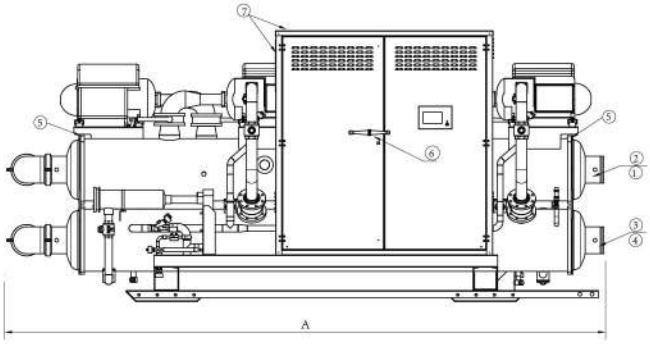
DIMENSION DRAWING

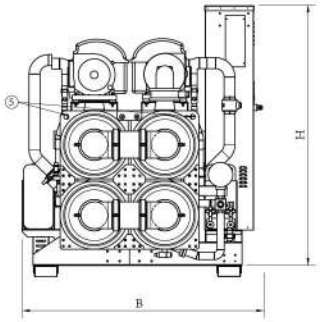
TECS-W3903 -5853L-E (-P0/P3)



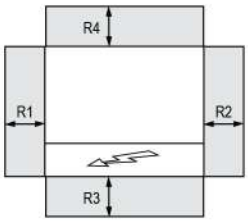


TECS-W6004-8104L-E (-P0/P3)





①Evaporator Inlet ③Condenser Inlet ⑤Lifting Points ⑦Power Inlet
②Evaporator Outlet ④Condenser Outlet ⑥Main Isolator
Please consult with Climaveneta office for detail drawing.



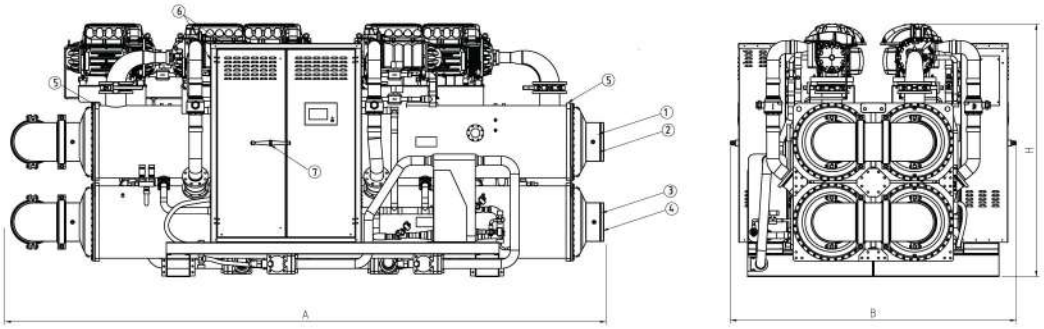
Minimum Clearance

DIMENSION AND WEIGHT

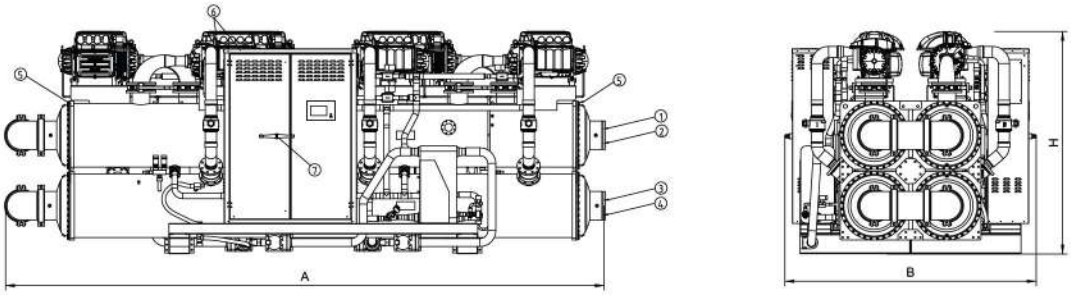
TECS-W/L-E (-P0/P3)	A	B	H	Lifting Weight	Pipe Size		Minimum Clearance			
	mm	mm	mm	kg	①/②	③/④	R1(mm)	R2(mm)	R3(mm)	R4(mm)
3903	4440	1450	1990	4350	6"	6"	4000	1000	900	900
4503	4450	1360	2150	4845	8"	8"	4000	1000	900	900
5203	4450	1360	2150	4880	8"	8"	4000	1000	900	900
5853	5310	1360	2150	5390	8"	8"	4000	1000	900	900
6004	4900	1970	2125	7870	8"	8"	4000	1000	900	900
6304	5000	2200	2150	7315	10"	10"	4000	1000	900	900
6904	5000	2200	2150	7370	10"	10"	4000	1000	900	900
7504	5000	2200	2150	7615	10"	10"	4000	1000	900	900
8104	5000	2200	2150	7670	10"	10"	4000	1000	900	900

DIMENSION DRAWING

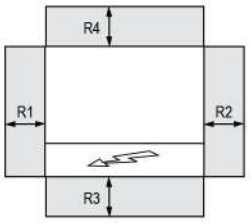
TECS-W8905L-E (-P0/P3)



TECS-W9806-12106L-E (-P0/P3)



①Evaporator Inlet ③Condenser Inlet ⑤Lifting Points ⑦Power Inlet
②Evaporator Outlet ④Condenser Outlet ⑥Main Isolator
Please consult with Climaveneta office for detail drawing.



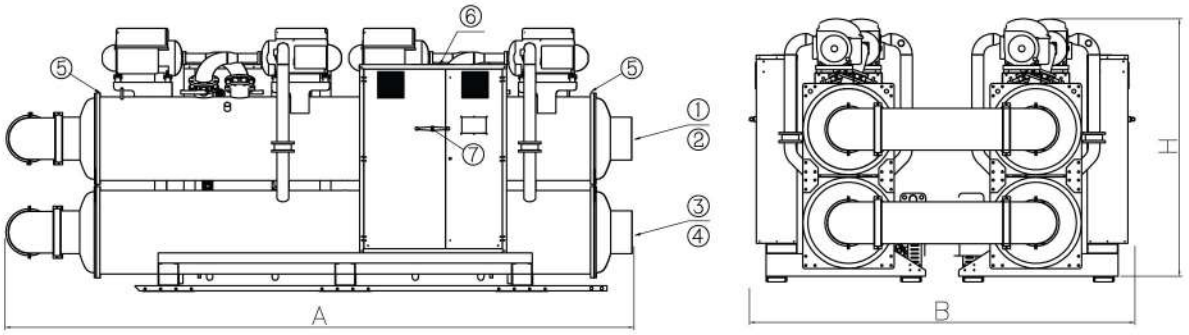
Minimum Clearance

DIMENSION AND WEIGHT

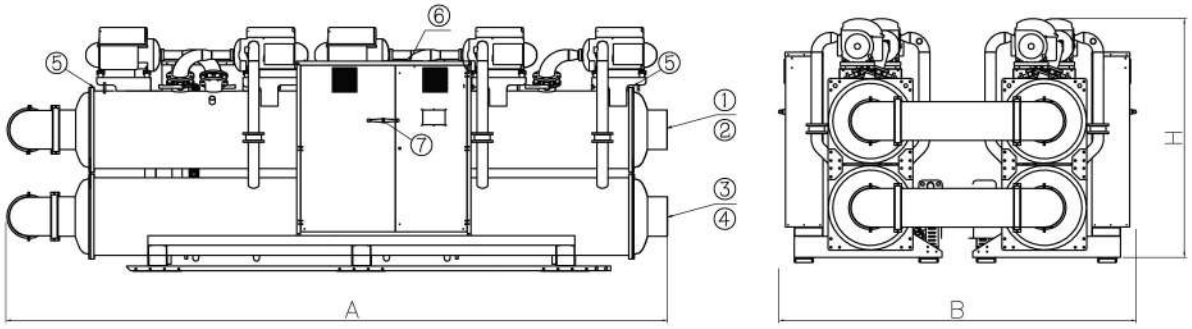
TECS-W/L-E (-P0/P3)	A	B	H	Lifting Weight	Pipe Size		Minimum Clearance			
	mm	mm	mm	kg	①/②	③/④	R1(mm)	R2(mm)	R3(mm)	R4(mm)
8905	5060	2425	2140	9760	12"	12"	4000	1000	900	900
9806	5060	2425	2140	9990	12"	12"	4000	1000	900	900
11006	5060	2425	2140	10080	12"	12"	4000	1000	900	900
12106	5860	2425	2140	11080	12"	12"	4850	1000	900	900

DIMENSION DRAWING

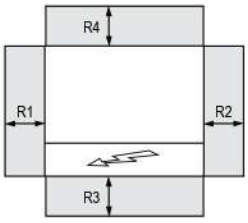
TECS-W16108L-E(-P0/P3)



TECS-W20H10L-E(-P0/P3)



①Evaporator Inlet ③Condenser Inlet ⑤Lifting Points ⑦Power Inlet
②Evaporator Outlet ④Condenser Outlet ⑥Main Isolator
Please consult with Climaveneta office for detail drawing.



Minimum Clearance

DIMENSION AND WEIGHT

TECS-W/L-E (-P0/P3)	A	B	H	Lifting Weight	Pipe Size		Minimum Clearance			
	mm	mm	mm	kg	①/②	③/④	R1(mm)	R2(mm)	R3(mm)	R4(mm)
16108	5280	3850	2460	16980	14"	14"	5000	1000	1000	1000
20H10	6140	3850	2460	21940	14"	14"	6000	1000	1000	1000

WATER-COOLED SCREW CHILLER

FOCSWATER.E(-INV)



Water-cooled Screw Chiller

CLIMAVENETA constantly strives for technology innovation to deliver better performance and higher reliability products consistently based on customer focus. FOCSWATER.E Series Water-cooled Flooded Higher Efficiency Screw Chiller delivers superior full load performance and is also AHRI certified. It's equipped with the latest W3000 microprocessor, HFC134a refrigerant, and a newly designed high-efficiency heat exchanger. The optimized design makes the system more compatible, highly efficient, environmentally friendly, and reliable. It is ideal for both commercial and industrial applications. Especially for the FOCSWATER.E-INV screw chiller with the inverter, part load performance is also superior and especially suitable for large comfort complexes with variable populations and unstable cooling demand, such as railways, hotels, hospitals, etc.

COOLING CAPACITY

- **Cooling Capacity:** 230 - 1860kW (62-500 RT)
- **Refrigerant:** R-134a
- **Compressor Type:** Direct drive, two rotors, semi-hermetic screw compressor



Screw Compressor



Electric Expansion Valve

FEATURES AND BENEFITS

- **Screw Compressor**
- **Inverter Technology**
- **Flooded type evaporator**
- **Electric Expansion Valve**
- **Safety of Electrical Devices**
- **High Stability**
- **Convenient Maintenance**
- **Easy Installation**

Water-Cooled Screw Chiller Line up



FOCSWATER.E(-INV)

Latest control system

The chiller adopts a new control system with a friendly humanmachine interface, excellent controls and adjustments ability, strong capabilities of function expansion, monitoring and management, as well as strong compatibility. The chiller also contains several optional accessories, and adds remote and group control functions.

Friendly human-machine interface

The operation screen is embedded in the unit for easy operation and good protection. The automatic control by the computer realizes unattended operation.

LCD screen can display data and parameter adjustment in various languages and menus. According to the tradition of Climaveneta, the status and parameters of the compressor are visually displayed individually to make sure the operating status clear at a glance.



Unit control and operation management

The advanced microcomputer intelligent control system of W30000 contains specially designed control algorithm of Climaveneta. It highlights the energy efficiency and reliability of the unit. The balanced running time of FIFO compressor prolongs the life of machine. The automatic adjustment of the output load makes the machine more energy saving. Combining with the load shedding system of the compressor can achieve 25-100% stepless adjustment. The adjustments and settings of the operating parameters can adapt to different environments. The temperature and pressure protection using analog measurement can predict and prevent of failure and increase reliability.

Network communication and building management control

The chiller supports BMS connection and can connect to common BMS systems such as Climaveneta, De'Longhi, MODBUS, LONWORKS, BACNET and so on.

FWS network server

Microcomputer intelligent controller can be equipped with FMS network server to monitor, set and adjust parameters and control he unit operation through LAN or Internet.

Fault protection, alarm and analysis capabilities

The microcomputer intelligent controller contains perfect functions of fault protection, alarm, recording and analysis. It has protection functions of high/low pressure switch, lack of phase, reverse phase, overload, overcurrent, overheat, exhaust temperature, water flow, frost and so on. The controller also achieves fault recording and alarm display. The unique “Black Box” fault recording and analyzing system can record 400 failures and more than 200 field data before each failure. It can diagnose and remove faults rapidly to improve the technical support effect. By connecting to the Climaveneta remote service program, it can find potential failures before they occur and take proper preventive treatments.

Control features

Microprocessor	W3000	Microprocessor	W3000
Remote ON/OFF dry contact	√	Energy limit	OPT
Multi-language menu	√	"Pump-down" when stopped	√
Phase sequency relay	√	ModBus communication protocol	OPT
Cumulative fault alarm	√	BACNET communication protocol	OPT
Fault code	√	Interface connection to LonWorks network	OPT
"BLACK BOX" function for alarm events	√	Pump management	OPT
Switch-on self-check	√	Spare pump management	OPT
Programming of daily/weekly program	Par.	External 4-20mA signal for water temp. setting	OPT
Evaporator inlet/outlet water temperature display	√	Remote relay control	OPT
Compressor/ circuit failure display	√	Local/Remote supervision through FWS	OPT
General unit alarms display	√	Double set-point by external contact	OPT
Water temperature proportional control	√	Set-point regulation from external signal(0-5v)	OPT
Regular programming operation	Par.	Compressor run-timer,time balance & FIFO	√
Regular double set point	Par.	Management of the compressor working hours	√

√ Standard OPT avaiable on request Par. available by modifying a value of the configuraton paramenters

Remote group controller

Sequencer



- LCD Visual display
- Group control and management
- Centralized control unit ON/OFF
- Pump control
- Potocols as ModBus, LonWork, Bance are optional

Remote group controller



- Touch-screen
- Group control and management
- Centralized control unit ON/OFF
- Pump control
- Potocols as ModBus, LonWork, Bance are optional

Recommended Operation Range

Cooling Condition	Water Inlet Temp (℃)		Water Outlet Temp (℃)	
	Min.	Max.	Min.	Max.
Chilled Water	-	23	5	15
Cooling Water	12*	-	22	47.5

Remark:

1. "*" means the optional cooling water control is required, if the cooling water temperature is lower than the value;
2. For other operation condition which is exceed the range above, please contact Climaveneta office for detail information.

General Technical Data

FOCSWATER.E-INV		0601	0751	0851	1001	1101	1301	1451	1701	1951	2201	2451	2602	2752	2902	3152	3502	3702	3952	4202	4452	4702	4952
Cooling Capacity	kW	219.3	264.1	309.3	350.8	398.7	461.8	517.0	611.5	689.1	782.0	868.8	926.5	981.9	1041.0	1126.0	1250.0	1329.0	1407.0	1489.0	1585.0	1672.0	1764.0
Power input	kW	38.7	45.7	53.8	61.6	70.5	79.7	89.6	101.7	114.5	129.7	143.6	154.0	163.0	172.8	187.1	197.8	210.5	222.7	235.8	250.9	264.3	277.0
COP	kW/kW	5.67	5.78	5.75	5.70	5.66	5.79	5.78	6.01	6.02	6.03	6.05	6.02	6.02	6.02	6.02	6.32	6.31	6.32	6.32	6.32	6.33	6.37
IPLV	kW/kW	7.88	8.05	8.00	7.93	7.87	8.06	8.03	8.24	8.36	8.37	8.40	8.49	8.50	8.44	8.54	8.65	8.65	8.65	8.65	8.65	8.66	8.72
Chilled Water Flow	m^3/h	37.7	45.4	53.2	60.3	68.6	79.4	88.9	105.2	118.5	134.5	149.4	159.4	168.9	179.1	193.7	215.0	228.6	242.0	256.1	272.5	287.6	303.3
Chilled Water Pressure Drop	kPa	45.2	59.7	51.2	60.1	57.9	45.0	45.1	39.6	40.6	41.6	40.0	52.3	48.5	54.5	53.3	36.5	41.3	39.2	43.9	40.1	44.7	54.3
Cooling Water Flow	m^3/h	46.4	55.7	65.3	74.1	84.3	97.3	109.0	132.0	148.8	168.8	187.4	200.0	212.0	224.8	243.2	268.2	285.2	301.8	319.4	339.9	358.6	377.9
Cooling Water Pressure Drop	kPa	53.1	69.5	60.1	68.7	69.1	57.9	55.9	49.3	54.4	53.3	52.7	58.0	65.1	65.2	72.7	47.5	46.3	51.9	48.0	54.3	52.7	70.0
Controller		W3000																					
Compressor No.	n	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2
Circuit No.	n	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2
Capacity Regulating		30%-100% Stepless											15%-100% Stepless										
HFC-134a Charged	kg	80	80	85	90	90	100	105	135	140	155	165	200	200	220	235	265	280	310	320	330	340	360
Lubrication Oil	kg	16	16	16	17	19	23	26	28	28	30	30	46	49	52	54	56	56	56	58	60	60	60
Operating Weight	kg	1840	1930	2055	2105	2205	2645	2770	3160	3350	4095	4190	5260	5400	5540	5750	6500	7045	7450	7935	8430	8590	8875
Dimension																							
Length	mm	2940	2940	2940	2940	2940	2950	2950	2950	2950	3000	3000	3350	3350	3350	3350	3440	3540	3540	3540	3540	3540	3940
Width	mm	1120	1120	1120	1120	1120	1120	1120	1220	1220	1280	1280	1960	1960	1960	1960	2070	2130	2130	2130	2150	2150	2150
Height	mm	2030	2030	2030	2030	2030	2155	2155	2320	2320	2410	2410	2200	2200	2200	2200	2320	2370	2430	2430	2410	2410	2410

Remarks:

1. Cooling condition: outlet temperature of chilled water 7℃, chilled water flow per cooling capacity 0.172 $m^3/(h \cdot kW)$; outlet temperature of cooling water 30℃, cooling water flow per cooling capacity 0.215 $m^3/(h \cdot kW)$.
2. Standard water side pressure of evaporator and condenser is 1.0MPa, 1.6MPa and 2.0MPa is optional
3. Special application, such as river, sea water, please contact Climaveneta office for detail

General Technical Data

FOCSWATER.E-INV		0601	0751	0851	1001	1101	1301	1451	1701	1951	2201	2451	2602	2752	2902	3152	3502	3702	3952	4202	4452	4702	4952
Cooling Capacity	kW	217.2	261.7	306.4	347.6	395.0	457.5	512.2	605.0	681.7	773.7	859.5	916.7	971.5	1030.0	1114.0	1237.0	1315.0	1392.0	1473.0	1568.0	1654.0	1745.0
Power input	kW	38.5	45.5	53.5	61.3	70.2	79.3	89.1	101.6	114.4	129.6	143.5	153.9	162.8	172.6	186.9	197.6	210.2	222.5	235.5	250.6	264.0	276.7
COP	kW/kW	5.64	5.75	5.73	5.67	5.64	5.77	5.75	5.96	5.96	5.97	5.99	5.96	5.97	5.97	5.96	6.26	6.26	6.26	6.26	6.26	6.27	6.31
IPLV	kW/kW	9.21	9.39	9.32	9.25	9.21	9.40	9.39	9.47	9.74	9.74	9.75	9.89	9.90	9.77	9.98	9.92	9.91	9.92	9.90	9.92	9.92	10.00
Chilled Water Flow	m^3/h	34.0	41.0	48.0	54.4	61.8	71.6	80.2	94.7	106.7	121.1	134.5	143.5	152.0	161.2	174.4	193.6	205.8	217.8	230.6	245.4	258.9	273.1
Chilled Water Pressure Drop	kPa	36.8	48.5	41.6	48.8	47.0	36.6	36.6	32.1	32.9	33.7	32.4	42.4	39.3	44.2	43.2	29.6	33.5	31.8	35.6	32.5	36.2	44.0
Cooling Water Flow	m^3/h	42.2	50.7	59.4	67.5	76.8	88.6	99.2	116.6	131.4	149.1	165.6	176.7	187.3	198.6	214.8	236.9	251.9	266.6	282.2	300.3	316.8	333.9
Cooling Water Pressure Drop	kPa	44.0	57.6	49.8	56.9	57.3	48.0	46.3	38.5	42.5	41.6	41.1	45.3	50.8	50.9	56.8	37.0	36.2	40.5	37.4	42.4	41.1	54.6
Controller		W3000																					
Compressor No.	n	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2
Circuit No.	n	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2
Capacity Regulating		30%-100% Stepless											15%-100% Stepless										
HFC-134a Charged	kg	80	80	85	90	90	100	105	135	140	155	165	200	200	220	235	265	280	310	320	330	340	360
Lubrication Oil	kg	16	16	16	17	19	23	26	28	28	30	30	46	49	52	54	56	56	56	58	60	60	60
Operating Weight	kg	1840	1930	2055	2105	2205	2645	2770	3160	3350	4095	4190	5260	5400	5540	5750	6500	7045	7450	7935	8430	8590	8875
Dimension																							
Length	mm	2940	2940	2940	2940	2940	2950	2950	2950	2950	3000	3000	3350	3350	3350	3350	3440	3540	3540	3540	3540	3540	3940
Width	mm	1120	1120	1120	1120	1120	1120	1120	1220	1220	1280	1280	1960	1960	1960	1960	2070	2130	2130	2130	2150	2150	2150
Height	mm	2030	2030	2030	2030	2030	2155	2155	2320	2320	2410	2410	2200	2200	2200	2200	2320	2370	2430	2430	2410	2410	2410

Remarks:

1. Cooling condition: Evaporator water inlet/outlet temp. 12.2/6.7℃ , Condenser water inlet/outlet temp. 29.4/34.6℃
2. Standard water side pressure of evaporator and condenser is 1.0MPa, 1.6MPa and 2.0MPa is optional
4. Special application, such as river, sea water, please contact Climaveneta office for detail

FOCSWATER.E-INV

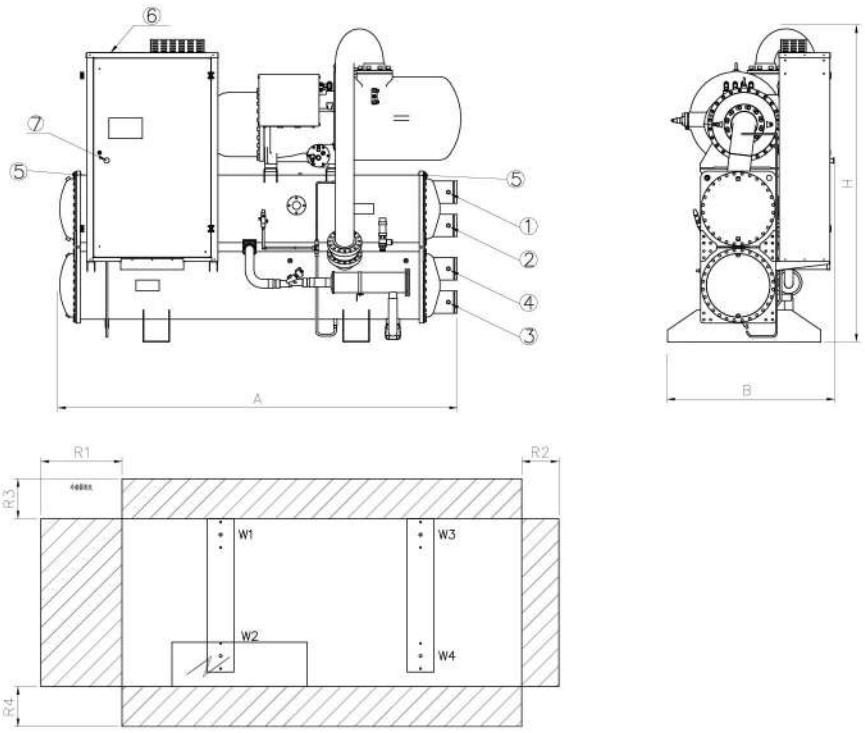
FOCSWATER.E-INV	Single Compressor			Unit		
	F.L.I	F.L.A	L.R.A.	F.L.I	F.L.A	S.A.
0601	56.3	96.1	155.0	56.3	96.1	48.1
0751	65.7	114.1	200.0	65.7	114.1	57.1
0851	78.7	133.8	232.0	78.7	133.8	66.9
1001	87.4	148.1	262.0	87.4	148.1	74.1
1101	98.8	168.0	320.0	98.8	168.0	84.0
1301	115.3	198.4	285.0	115.3	198.4	99.2
1451	128.9	220.1	340.0	128.9	220.1	110.1
1701	151.7	256.4	427.0	151.7	256.4	128.2
1951	165.8	281.4	483.0	165.8	281.4	140.7
2201	192.6	328.9	518.0	192.6	328.9	164.5
2451	212.0	361.9	560.0	212.0	361.9	181.0
2602	115.3	198.4	285.0	230.6	396.8	178.6
2752	115.3/128.9	198.4/220.1	285/340	244.2	418.5	187.2
2902	128.9	220.1	340.0	257.8	440.2	198.1
3152	128.9/151.7	220.1/256.4	340/427	280.6	476.5	212.6
3502	151.7	256.4	427.0	303.4	512.8	230.8
3702	151.7/165.8	256.4/281.4	427/483	317.5	537.8	243.3
3952	165.8	281.4	483.0	331.6	562.8	253.3
4202	165.8/192.6	281.4/328.9	483/518	358.6	610.3	272.3
4452	192.6	328.9	518.0	385.2	657.8	296.0
4702	192.6/212	328.9/361.9	518/560	404.6	690.8	309.2
4952	212.0	361.9	560.0	424	723.8	325.7

Remarks:

1. Electrical power input: 380-400/3+N/50; Maximum voltage unbalance: 3%
2. Safety allowance should be considered when cabling the unit for power supply and line-protections
3. F.L.I. Max. Power Input L.R.A. Locked Rotor Current F.L.A. Max. Running Current S.A. Starting Current

DIMENSION DRAWING

FOCSWATER0601～2451E-INV



FOCSWATER.E-INV	Dimension			Operating Weight	Pipe Size		Clearance			
	A(mm)	B(mm)	H(mm)	P./W.(kg)	①/②	③/④	R1(mm)	R2(mm)	R3(mm)	R4(mm)
0601	2940	1120	2030	1840	3"	3"	2500	1000	500	900
0751	2940	1120	2030	1930	3"	3"	2500	1000	500	900
0851	2940	1120	2030	2055	3"	3"	2500	1000	500	900
1001	2940	1120	2030	2105	3"	3"	2500	1000	500	900
1101	2940	1120	2030	2205	3"	3"	2500	1000	500	900
1301	2950	1120	2155	2645	4"	4"	2500	1000	500	900
1451	2950	1120	2155	2770	4"	4"	2500	1000	500	900
1701	2950	1220	2320	3160	5"	5"	2500	1000	500	900
1951	2950	1220	2320	3350	5"	5"	2500	1000	500	900
2201	3000	1280	2410	4095	6"	6"	2500	1000	500	900
2451	3000	1280	2410	4190	6"	6"	2500	1000	500	900

Remarks:

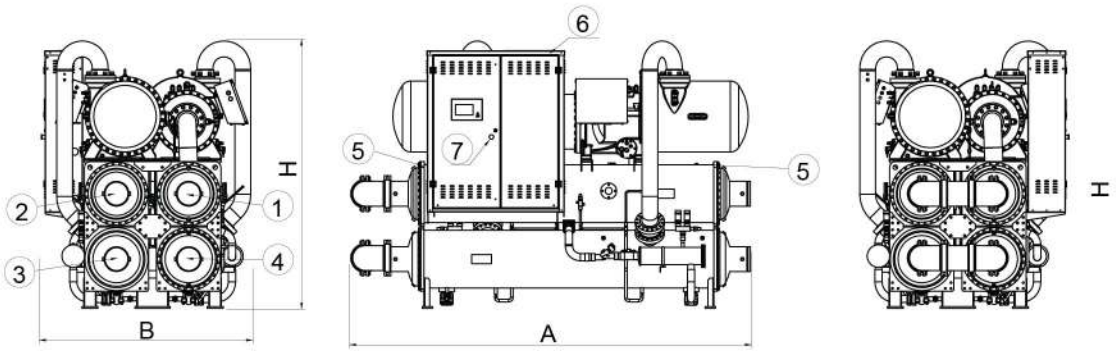
1.①Evaporator water inlet ③Condensers water inlet ⑤Lifting points ⑦Main isolator
②Evaporator water outlet ④Condensers water outlet ⑥Power inlet

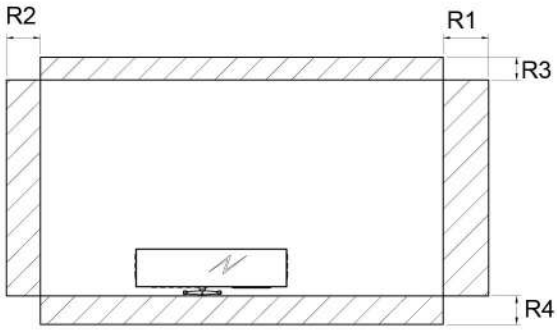
2.Shadows are the maintenance clearance and pipe connector area.(If pipe connector direction need to be exchange to the opposite side, please consult local CLIMAVENETA office);

3.Please contact CLIMAVENETA office for detail drawings.

DIMENSION DRAWING

FOCSWATER2602～4952E-INV





FOCSWATER.E-INV	Dimension			Operating Weight	Pipe Size		Clearance			
	A(mm)	B(mm)	H(mm)	P./W.(kg)	①/②	③/④	R1(mm)	R2(mm)	R3(mm)	R4(mm)
2602	3350	1960	2200	5260	6"	6"	2500	1000	500	900
2752	3350	1960	2200	5400	6"	6"	2500	1000	500	900
2902	3350	1960	2200	5540	6"	6"	2500	1000	500	900
3152	3350	1960	2200	5750	6"	6"	2500	1000	500	900
3502	3440	2070	2320	6500	8"	8"	2500	1000	500	900
3702	3540	2130	2370	7045	8"	8"	2500	1000	500	900
3952	3540	2130	2430	7450	8"	8"	2500	1000	500	900
4202	3540	2130	2430	7935	8"	8"	2500	1000	500	900
4452	3540	2150	2410	8430	8"	8"	2500	1000	500	900
4702	3540	2150	2410	8590	8"	8"	2500	1000	500	900
4952	3940	2150	2410	8875	8"	8"	2900	1000	500	900

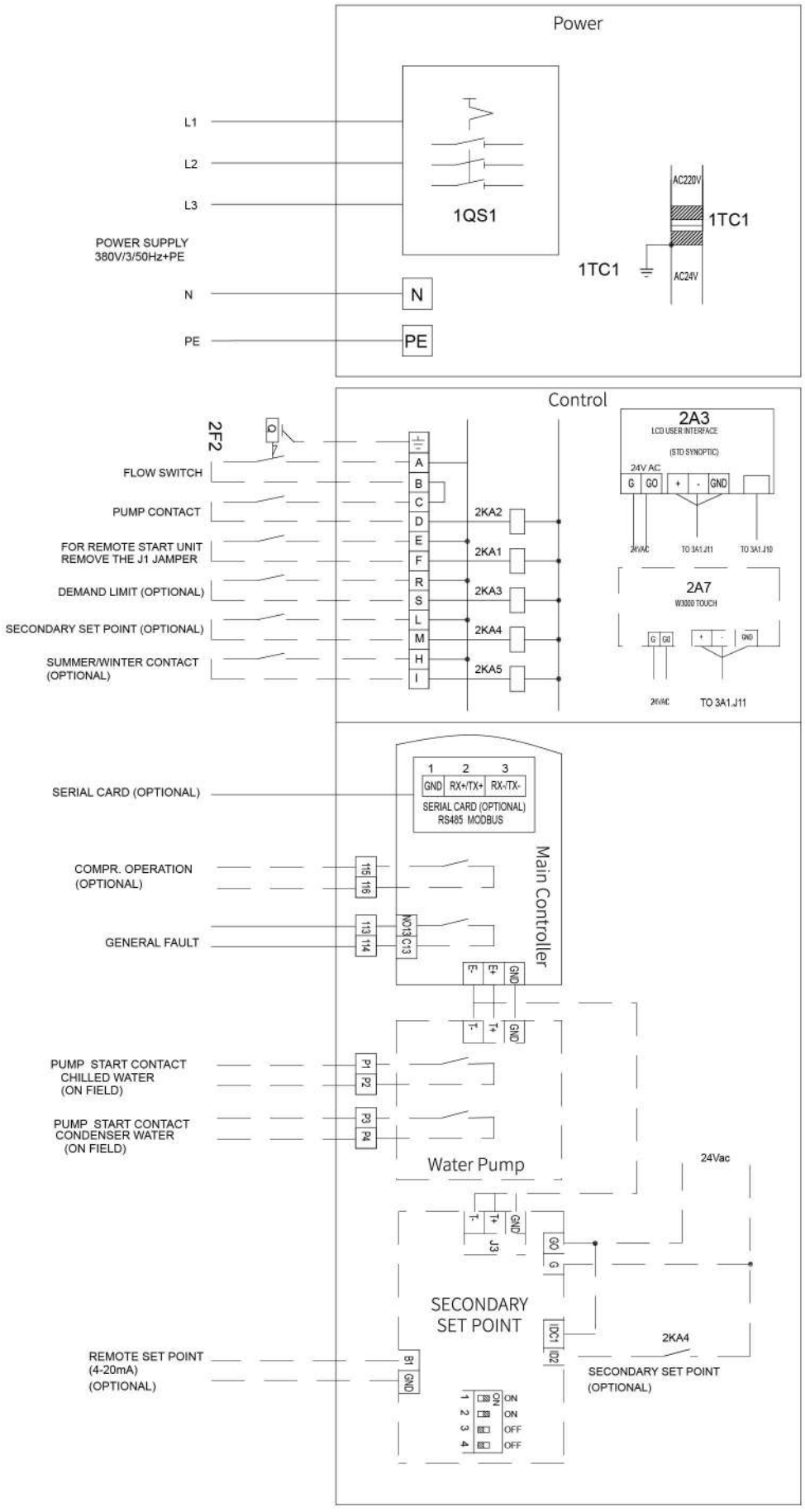
Remarks:

1.①Evaporator water inlet ③Condensers water inlet ⑤Lifting points ⑦Main isolator
②Evaporator water outlet ④Condensers water outlet ⑥Power inlet

2.Shadows are the maintenance clearance and pipe connector area.(If pipe connector direction need to be exchange to the opposite side, please consult local CLIMAVENETA office);

3.Please contact CLIMAVENETA office for detail drawings.

FIELD WIRING



CONVENTIONAL CENTRIFUGAL CHILLER

CCS(-INV)



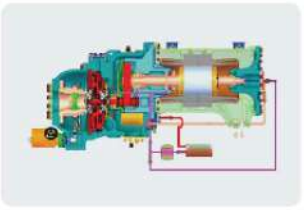
Water-cooled Conventional Centrifugal Chiller

Two stage centrifugal compressor with optimized impeller for R134a refrigerant promises high efficiency of unit, in the meanwhile, with low noise level and wide range of capacity, which permits stable operation even under 10% of full load. The compressor, with build-in oil pump and outside refrigerant cooling oil cooler, makes sure oil temperature insusceptible of ambient temperature change. The motor is cooled by refrigerant with low operation temperature. Compact design theory is adopted in unit structure design, which effectively reduces unit dimension and saves installation space

- **CCS:** Standard Version
- **CCS-F1:** High Efficiency
- **CCS-INV:** Inverter Version
- **CCS-F1-INV:** High Efficiency Inverter Version

COOLING CAPACITY

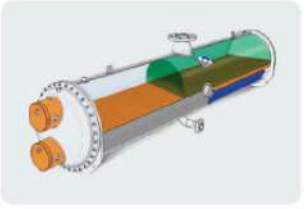
- **Cooling Capacity:** 1758-3516kW (500-1000RT)
- **Refrigerant:** HFC R-134a
- **Compressor:** Two-stage centrifugal type
- **Motor:** Semi-hermetic design



Two-stage Centrifugal Compressor

FEATURES AND BENEFITS

- **Two-stage Centrifugal Compressor**
- **Flooded Evaporator**
- **Economizer** combining with two-stage compression technology, remarkably enhances the performance of unit
- **Throttle Device** The unit adopts patented orifice plate plus EXV throttle system to control refrigerant flow, which has the benefits of simple, reliable structure and is easy to maintain.
- **Interlocking Control**
- **Shut-down Safety**



Flooded Evaporator

Conventional Centrifugal Chiller Line up



CCS(-INV)

UNIT FEATURES

High Efficiency

Two stage centrifugal compressor with optimized impeller for R134a refrigerant promises high efficiency of unit, in the meanwhile, with low noise level and wide range of capacity, which permits stable operation even under 10% of full load.

Heat Exchangers adopt CLIMAVENETA dedicated highly effective compact flooded-type evaporator and tube-shell type condenser. The heat exchanger has the features of structure compact, high efficient heat exchange, and low water pressure drop, as a result of operation cost reduction.

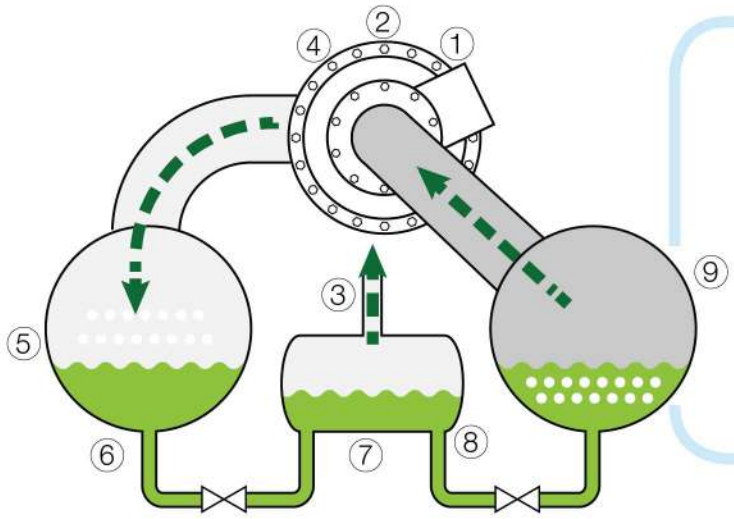
The unit, equipped with EXV and CLIMAVENETA patented throttle orifice-plate, coordinates with IGV to adjust the flow of refrigerant according to load changes and improves unit part load efficiency.

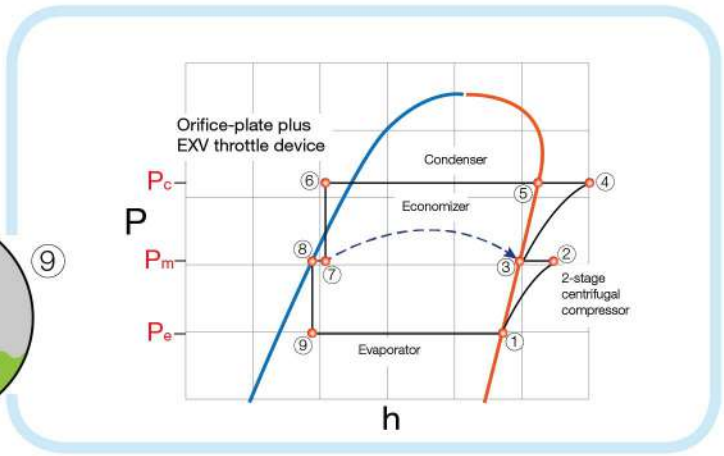
Advanced Design

Compact design theory is adopted in unit structure design, which effectively reduces unit dimension and saves installation space.

The motor is cooled when the middle pressure of compressor, avoiding condensation of compressor under lower temperature and ensuring stable operation of motor without additional insulation.

Standard configuration of refrigerant isolation valve enables storage of refrigerant in evaporator or condenser and favorable of on-site maintenance.





Reliable Operation

Semi-hermetic compressor eliminates the issue of shaft seal leakage for open-type compressor. The compressor, with build-in oil pump and outside refrigerant cooling oil cooler, makes sure oil temprature insusceptible of ambient temperature change. The motor is cooled by refrigerant with low operation temperature.

Easy Installation

Refrigerant and oil are charged in factory. Test and commissioning are conducted before delivery.

Starter cabinet of unit is default of machine-carry type. Only water connection and power supply shall be installed on site.

Advanced Design

The unit is strictly designed, manufactured and tested based on international or national standard, such as AHRI、EN、UNI、JIS and GB/T18430.1.

The electric system is designed based on IEC60204-1/GB5226.1 standard. And the operation of unit is controlled and monitored by intelligent microcomputer system.

Each unit is fully tested by strict process for best reliability and to meet customer's request.

MAIN CONFIGURATION

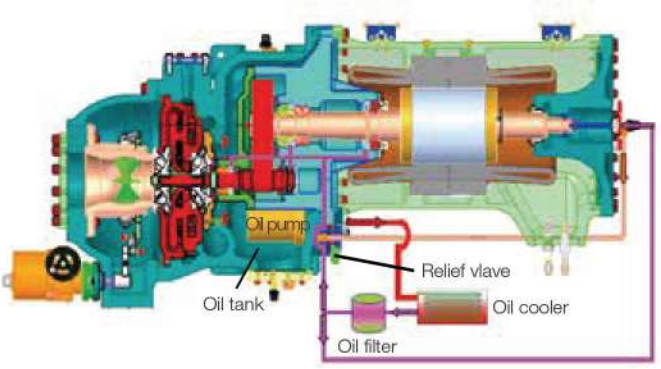
Two-stage Centrifugal Compressor

Two-stage centrifugal compressors are optimized according to the three-dimensional flow theory and the efficiency of HFC134a under both full load and part load condition. It can obtain an excellent operation performance, and dramatically reduce the unit operation surge point effectively as well.

High efficiency backward type fully enclosed impellers are adopted to avoid refrigerant broken flow, which makes the efficiency 6% higher than normal single stage compressor.

IGV of compressor is controlled by high precision stepper motor. It can precisely control the opening of IGV, therefore accurately adjust the cooling capacity of unit.

Semi-hermetic compressor, comparing with open-type, has no trouble of refrigerant leakage. The motor is well cooled by refrigerant as a result no more cooling system needed but ventilation equipment for the machine room.



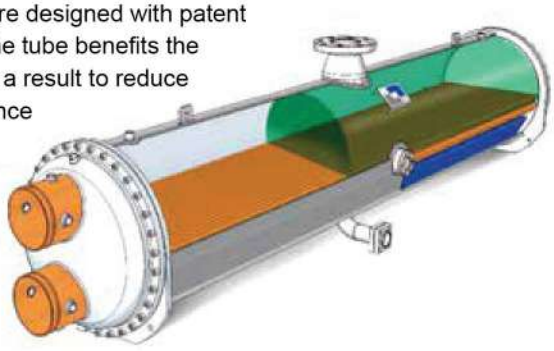
Two-stage centrifugal compressor section view

Flooded Evaporator

The copper tubes of flooded type evaporator are completely dipped inside the boiling liquid refrigerant. Thanks to this design, the unit performance and COP are enhanced obviously.

Super high efficiency copper tubes are designed with patent technology. The external screw on the tube benefits the evaporation of the refrigerant and as a result to reduce the heat transfer temperature difference between tube internal surface and external surface effectively.

In order to achieve perfect water perturbation and turbulent heat transfer, the internal surface of the copper tube is also special designed.



Chilled water flowing inside the tube, it's beneficial for clean and maintenance.

Economizer

Flash economizer, combining with two-stage compression technology, remarkably enhances the performance of unit.

The economizer is optimized with compact structure, which reinforces gas-liquid separation and reduces water pressure drop, as a result to improve the performance and reliability of economizer.

Shell and Tube Condenser

Shell and tube condenser with patented high efficiency heat exchanger tube, rolling thread outside of tube, enhances dropwise condensation of refrigerant and greatly decreases the heat transfer temperature difference, therefore improves C OP of unit.

Thread inside of tube reinforces water perturbation and turbulent heat transfer.

Cooling water flowing inside the tube, it's beneficial for clean and maintenance.

Throttle Device

The unit adopts patented orifice plate plus EXV throttle system to control refrigerant flow, which has the benefits of simple, reliable structure and is easy to maintain.

Orifice plate has the features of reliability and simple maintenance. Coupling with EXV's benefits of instant response, the dedicated throttle device is able to adjust refrigerant flow according to realtime load, ensuring stable and continuous regulation ranging from 10% to 100% of total load.

SELECTION INSTRUCTION

Evaporator Water Side Pressure: Standard of 1.0Mpa, with option of 1.6Mpa, 2.0Mpa, and other particular specifications.
Condenser Water Side Pressure: Standard of 1.0Mpa, with option of 1.6Mpa, 2.0Mpa, and other particular specifications.
Spring Isolator: With option of spring isolator for special application request.
Starting Cabinet: Standard of machine-carry type starting cabinet, with option of soft starter and inverter starter. Please consult with CLIMAVENETA office, if you have request of non-machine-carry type starting cabinet.

GENERAL TECHNICAL DATA

Standard

CCS(-P3)		0500	0550	0600	0650	0700	0800	0850	0900	1000
Cooling Capacity	kW	1758.0	1934.0	2110.0	2286.0	2462.0	2814.0	3000.0	3164.0	3516.0
	RT	500	550	600	650	700	800	850	900	1000
Power input	kW	297.4	315.9	341.5	370.5	399.9	452.9	492.3	516.2	571.7
Full Load COP	kW/kW	5.91	6.12	6.18	6.17	6.16	6.21	6.09	6.13	6.15
Condenser										
Cooling Water Flow	m^3/h	339.3	371.5	405.0	438.5	472.7	539.3	576.7	607.7	675.0
Cooling Water Pressure Drop	kPa	24.9	29.8	29.8	29.5	28.9	29.8	26.6	29.6	42.3
Evaporator										
Chilled Water Flow	m^3/h	275.2	302.7	330.3	357.8	385.2	440.3	469.4	495.0	550.4
Chilled Water Pressure Drop	kPa	27.6	33.3	33.3	32.0	31.3	32.7	32.6	36.3	52.8
Controller		W3000 Touch								
HFC-134a Charged	kg	465	535	570	630	665	775	845	845	1000
Lubrication Oil	kg	38	38	38	38	38	57	57	57	57
Stepless Energy Regulation										
Energy Regulation		10%-100% Stepless Regulation								

Remarks:

1. Standard Cooling Condition: Chilled water (in/out)=12.2/6.7℃; Condenser water (in/out)=29.4/34.6℃;
2. The standard water side pressure of evaporator and condenser is 1.0MPa. and 2.0Mpa are as optional;
3. If soft start cabinet is needed, please consult with CLIMAVENETA local office;
4. CLIMAVENETA can provide tailored solutions for customers based on different capacity, working conditions and efficiency requirements. For more details, please consult with CLIMAVENETA local office.

GENERAL TECHNICAL DATA

F1 Unit

CCS(-P3)		0500F1	0550F1	0600F1	0650F1	0700F1	0800F1	0900F1	1000F1
Cooling Capacity	kW	1758.0	1934.0	2110.0	2286.0	2462.0	2814.0	3164.0	3516.0
	RT	500	550	600	650	700	800	900	1000
Power input	kW	281.1	306.1	330.2	358.5	387.5	442.5	497.4	553.2
Full Load COP	kW/kW	6.25	6.32	6.39	6.38	6.35	6.36	6.36	6.36
Condenser									
Cooling Water Flow	m^3/h	336.7	370.1	403.2	436.7	470.5	537.8	604.8	672.1
Cooling Water Pressure Drop	kPa	20.6	21.0	21.1	19.5	17.8	23.2	34.0	47.8
Evaporator									
Chilled Water Flow	m^3/h	275.1	302.7	330.2	357.8	385.2	440.3	495.4	550.4
Chilled Water Pressure Drop	kPa	23.2	22.9	23.0	21.6	22.0	28.7	42.7	60.0
Controller		W3000 Touch							
HFC-134a Charged	kg	580	645	680	790	860	860	1000	1200
Lubrication Oil	kg	38	38	38	38	38	57	57	57
Stepless Energy Regulation									
Energy Regulation		10%-100% Stepless Regulation							

Remarks:

1. Standard Cooling Condition: Chilled water (in/out)=12.2/6.7℃; Condenser water (in/out)=29.4/34.6℃;
2. The standard water side pressure of evaporator and condenser is 1.0MPa. and 2.0Mpa are as optional;
3. If soft start cabinet is needed, please consult with CLIMAVENETA local office;
4. CLIMAVENETA can provide tailored solutions for customers based on different capacity, working conditions and efficiency requirements. For more details, please consult with CLIMAVENETA local office.

GENERAL TECHNICAL DATA

INV-Standard

CCS-INV(-P3)		0500	0550	0600	0650	0700	0800	0850	0900	1000
Cooling Capacity	kW	1758.0	1934.0	2110.0	2286.0	2462.0	2814.0	3000.0	3164.0	3516.0
	RT	500	550	600	650	700	800	850	900	1000
Power input	kW	291.8	317.6	345.1	375.7	405.6	457.4	496.4	519.7	579.9
Full Load COP	kW/kW	6.02	6.09	6.11	6.08	6.07	6.15	6.04	6.09	6.06
Condenser										
Cooling Water Flow	m^3/h	338.5	371.9	405.4	439.6	473.4	540	577.1	608.0	676.1
Cooling Water Pressure Drop	kPa	24.8	30.0	29.9	29.6	29.1	29.9	26.8	29.6	42.5
Evaporator										
Chilled Water Flow	m^3/h	275.2	302.7	330.3	357.8	385.2	440.3	469.4	495.0	550.1
Chilled Water Pressure Drop	kPa	27.6	33.4	33.4	32.0	31.3	32.8	32.7	36.3	52.8
Controller		W3000 Touch								
HFC-134a Charged	kg	465	535	570	630	665	775	845	845	1000
Lubrication Oil	kg	38	38	38	38	38	57	57	57	57
Stepless Energy Regulation										
Energy Regulation		10%-100% Stepless Regulation								

Remarks:

1. Standard Cooling Condition: Chilled water (in/out)=12.2/6.7℃; Condenser water (in/out)=29.4/34.6℃;
2. The standard water side pressure of evaporator and condenser is 1.0MPa. 1.6Mpa and 2.0Mpa are as optional;
3. CLIMAVENETA can provide tailored solutions for customers based on different capacity, working conditions and efficiency requirements. For more details, please consult with CLIMAVENETA local office.

GENERAL TECHNICAL DATA

INV-F1 Unit

CCS-INV(-P3)		0500F1	0550F1	0600F1	0650F1	0700F1	0800F1	0900F1	1000F1
Cooling Capacity	kW	1758.0	1934.0	2110.0	2286.0	2462.0	2814.0	3164.0	3516.0
	RT	500	550	600	650	700	800	900	1000
Power input	kW	281.7	308.3	334.3	364.0	393.3	447.4	502.1	558.7
Full Load COP	kW/kW	6.24	6.27	6.31	6.28	6.26	6.29	6.30	6.29
Condenser									
Cooling Water Flow	m^3/h	336.7	370.4	403.6	437.8	471.6	538.6	605.5	672.8
Cooling Water Pressure Drop	kPa	20.6	21.1	21.1	19.6	17.9	23.3	34.1	47.9
Evaporator									
Chilled Water Flow	m^3/h	336.9	302.7	330.2	357.8	385.2	440.3	495.0	550.4
Chilled Water Pressure Drop	kPa	20.6	22.9	23.0	21.6	22.0	28.8	42.7	60.1
Controller		W3000 Touch							
HFC-134a Charged	kg	580	645	680	790	860	860	1000	1200
Lubrication Oil	kg	38	38	38	38	38	57	57	57
Stepless Energy Regulation									
Energy Regulation		10%-100% Stepless Regulation							

Remarks:

1. Standard Cooling Condition: Chilled water (in/out)=12.2/6.7℃; Condenser water (in/out)=29.4/34.6℃;
2. The standard water side pressure of evaporator and condenser is 1.0MPa. 1.6Mpa and 2.0Mpa are as optional;
3. CLIMAVENETA can provide tailored solutions for customers based on different capacity, working conditions and efficiency requirements. For more details, please consult with CLIMAVENETA local office.

ELECTRICAL DATA

CCS	FLI	FLA	SA		Recommended Cable Current
			3Default (380V/3Ph+N/50Hz)	-P3 (380V/3Ph/60Hz)	
	[kW]	[A]	[A]	[A]	[A]
500	332	580	1107	1150	684
550	366	640	1107	1150	727
600	400	700	1107	1150	798
650	435	760	1107	1150	866
700	435	760	1107	1150	934
800	526	920	1560	1555	1059
900	560	980	1828	1822	1135
1000	620	1080	1980	2002	1135
850	560	980	1828	1822	1220
0500F1	332	580	1107	1150	684
0550F1	366	640	1107	1150	727
0600F1	400	700	1107	1150	798
0650F1	435	760	1107	1150	866
0700F1	435	760	1107	1150	934
0800F1	526	920	1560	1555	1059
0900F1	560	980	1828	1822	1135
1000F1	620	1080	1980	2002	1220

Remarks:

1. F.L.I. Full load power absorption F.L.A. Full load current S.A. Locked-rotor current of star circuit
2. For other power supply voltage requirement, please consult with local CLIMAVENETA office.

ELECTRICAL DATA

CCS-INV(-P3)	FLI	FLA	SA	Recommended Cable
	[kW]	[A]	[A]	[A]
500	332	580	580	684
550	366	640	640	727
600	400	700	700	798
650	435	760	760	866
700	435	760	760	934
800	526	920	920	1059
850	560	980	980	1135
900	560	980	980	1135
1000	620	1080	1080	1220
0500F1	332	580	580	684
0550F1	366	640	640	727
0600F1	400	700	700	798
0650F1	435	760	760	866
0700F1	435	760	760	934
0800F1	526	920	920	1059
0900F1	560	980	980	1135
1000F1	620	1080	1080	1220

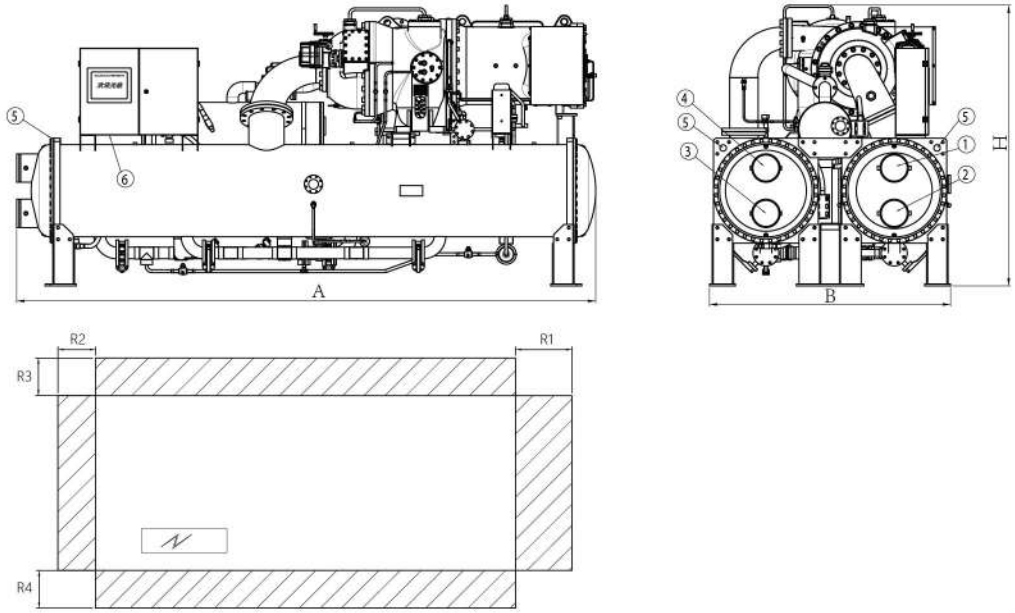
Remarks:

F.L.I. Full load power absorption, F.L.A. Full load current, S.A. starting current;

Voltage: 380V/3Ph+N/50Hz, 380V/3Ph/60Hz;

For other power supply voltage requirement, please consult with local CLIMAVENETA office.

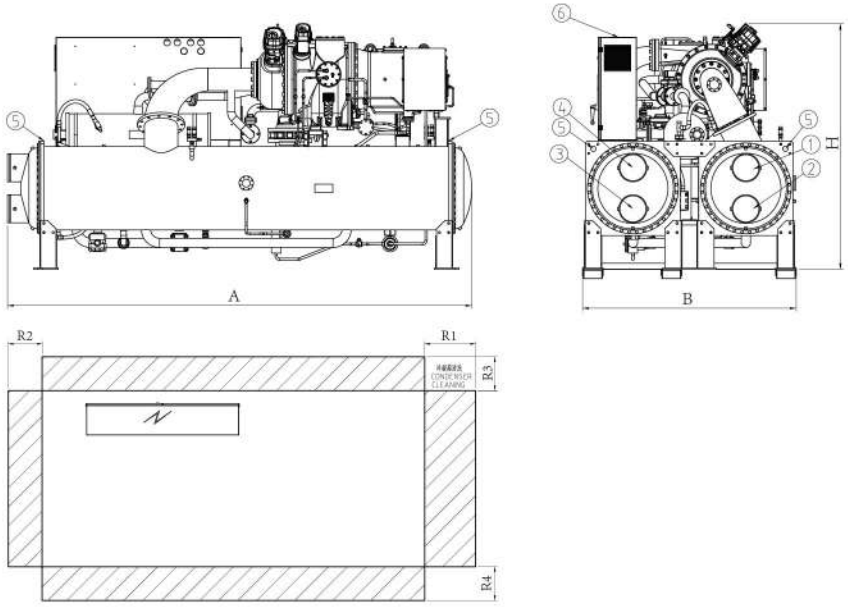
DIMENSION DRAWING



1. ①Chilled water inlet ②Chilled water outlet ③Cooling water inlet ④Cooling water outlet ⑤Lifting points ⑥Power inlet
2. Shadows are the maintenance clearance and pipe connector area.
3. Facing control screen, water pipe connection in left side is A direction, in right side B direction.
4. For detail drawing, please consult CLIMAVENETA local office.
5. R5 indicates the minimum maintenance space between roof and the unit top.
6. Above drawing is for the unit with non machine carry type starting cabinet, including INVERTER series.

CCS (-INV) (-P3)	Dimension			Weight		Pipe size		Maintenance clearance				
	A(mm)	B(mm)	H(mm)	Lifting Weight (kg)	Operating Weight (kg)	①/②	③/④	R1(mm)	R2(mm)	R3(mm)	R4(mm)	R5(mm)
0500	4470	1860	2240	8370	9430	8"	8"	4000	1000	900	900	1200
0550	4470	1860	2240	8790	9840	8"	8"	4000	1000	900	900	1200
0600	4470	1860	2240	8900	10050	8"	8"	4000	1000	900	900	1200
0650	4520	1910	2280	9340	10610	10"	10"	4000	1000	900	900	1200
0700	4520	1910	2280	9460	10830	10"	10"	4000	1000	900	900	1200
0800	4520	2080	2580	11320	12810	10"	10"	4000	1000	900	900	1200
0850	4520	2080	2580	11390	13080	10"	10"	4000	1000	900	900	1200
0900	4520	2080	2580	11390	13190	10"	10"	4000	1000	900	900	1200
1000	5500	2080	2580	13520	15560	10"	10"	4850	1000	900	900	1200
0500F1	4470	1860	2240	8910	10130	8"	8"	4000	1000	900	900	1200
0550F1	4520	1910	2280	9350	10630	10"	10"	4000	1000	900	900	1200
0600F1	4520	1910	2280	9470	10850	10"	10"	4000	1000	900	900	1200
0650F1	4520	2080	2420	10300	11850	10"	10"	4000	1000	900	900	1200
0700F1	4520	2080	2420	10370	12070	10"	10"	4000	1000	900	900	1200
0800F1	4520	2080	2580	11400	13090	10"	10"	4000	1000	900	900	1200
0900F1	5500	2080	2580	13370	15410	10"	10"	4850	1000	900	900	1200
1000F1	6200	2080	2580	14720	17360	10"	10"	5650	1000	900	900	1200

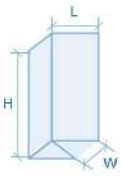
DIMENSION DRAWING



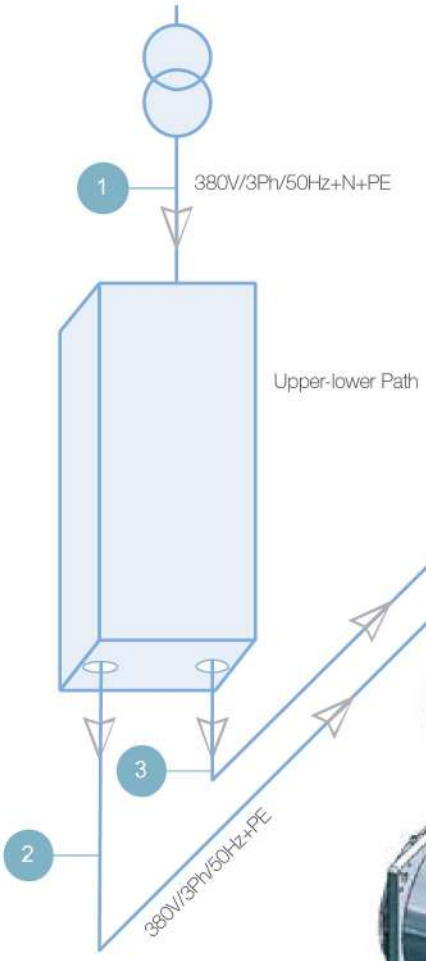
1. ①Chilled water inlet ②Chilled water outlet ③Cooling water inlet ④Cooling water outlet ⑤Lifting points ⑥Power inlet
2. Shadows are the maintenance clearance and pipe connector area.
3. Facing control screen, water pipe connection in left side is A direction, in right side B direction.
4. For detail drawing, please consult CLIMAVENETA local office.
5. R5 indicates the minimum maintenance space between roof and the unit top.
6. Above drawing is only available for CCS series unit with machine carry type starting cabinet. Machine carry type starting cabinet demand for INVERTER series, please consult CLIMAVENETA local office.

CCS (-P3)	Dimension			Weight		Pipe size		Maintenance clearance				
	A(mm)	B(mm)	H(mm)	Lifting Weight (kg)	Operating Weight (kg)	①/②	③/④	R1(mm)	R2(mm)	R3(mm)	R4(mm)	R5(mm)
0500	4470	1860	2240	8670	9730	8"	8"	4000	1000	900	900	1200
0550	4470	1860	2240	9090	10140	8"	8"	4000	1000	900	900	1200
0600	4470	1860	2240	9200	10350	8"	8"	4000	1000	900	900	1200
0650	4520	1910	2280	9640	10910	10"	10"	4000	1000	900	900	1200
0700	4520	1910	2280	9760	11130	10"	10"	4000	1000	900	900	1200
0800	4520	2080	2580	11620	13110	10"	10"	4000	1000	900	900	1200
0850	4520	2080	2580	11690	13380	10"	10"	4000	1000	900	900	1200
0900	4520	2080	2580	11800	13490	10"	10"	4000	1000	900	900	1200
1000	5500	2080	2580	13820	15860	10"	10"	4850	1000	900	900	1200
0500F1	4470	1860	2240	9210	10430	8"	8"	4000	1000	900	900	1200
0550F1	4520	1910	2280	9650	10930	10"	10"	4000	1000	900	900	1200
0600F1	4520	1910	2280	9770	11150	10"	10"	4000	1000	900	900	1200
0650F1	4520	2080	2420	10600	12150	10"	10"	4000	1000	900	900	1200
0700F1	4520	2080	2420	10670	12370	10"	10"	4000	1000	900	900	1200
0800F1	4520	2080	2580	11700	13390	10"	10"	4000	1000	900	900	1200
0900F1	5500	2080	2580	13670	15710	10"	10"	4850	1000	900	900	1200
1000F1	6200	2080	2580	15020	17660	10"	10"	5650	1000	900	900	1200

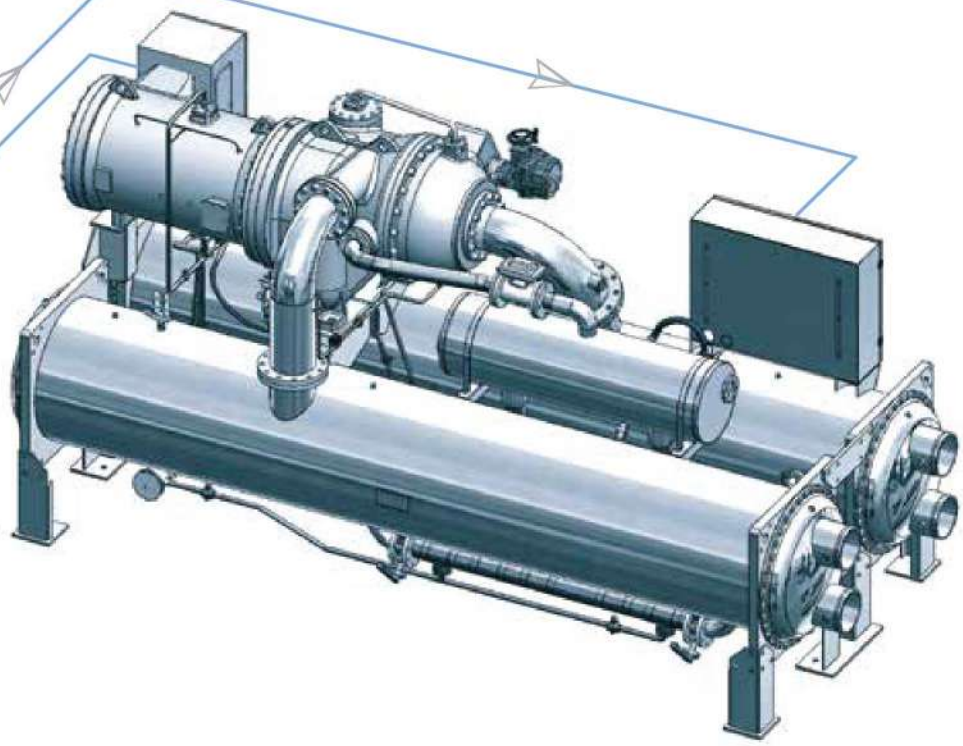
ELECTRICAL INSTALLATION



Starting Cabinet Dimension		
Length (mm)	Width (mm)	Height (mm)
850	600	2200



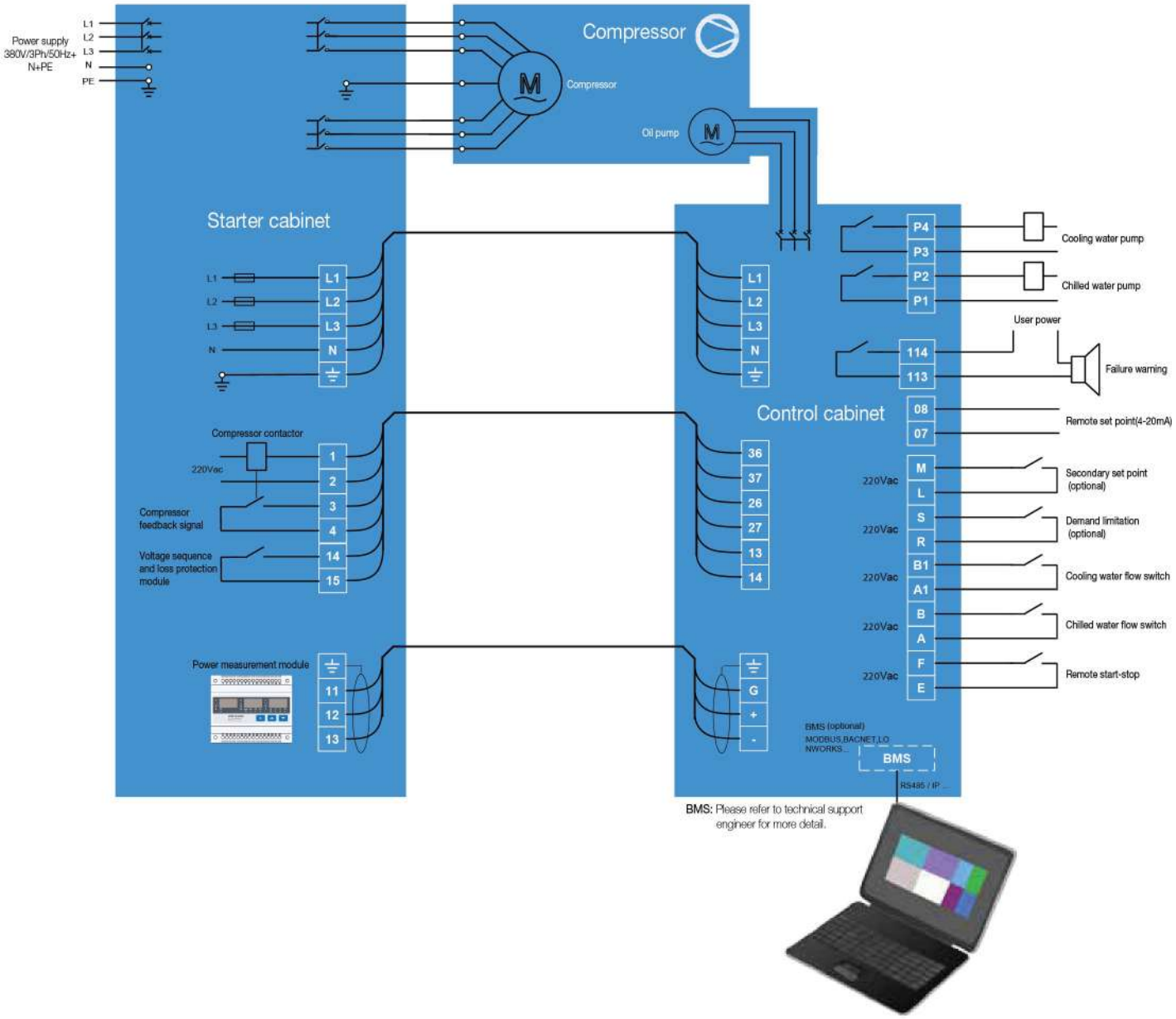
No.	Description	Cable
1	Power Supply	5Wires (L1,L2,L3,N,PE)
2	Compressor Motor Power	4Wires (L1,L2,L3,PE)
3	Control Power	5Wires (L1,L2,L3,N,PE)



Remarks:

1. Above diagram is for the wiring instruction of the unit with non-machine-carry type starting cabinet.
2. This diagram is only for your reference. Please consult with CLIMAVENETA office before wiring on site.

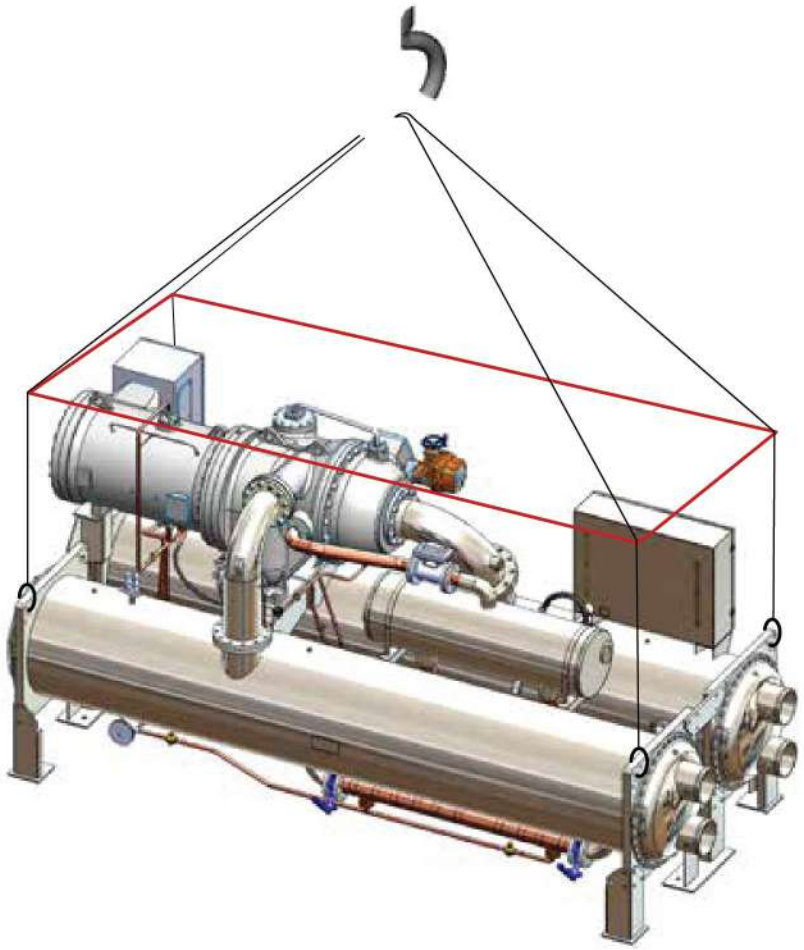
STARTING CABINET WIRING DIAGRAM



Remarks:

1. Above diagram is for the wiring instruction of the unit with non-machine-carry type starting cabinet.
2. This diagram is only for your reference. Please consult with CLIMAVENETA office before wiring on site.

INSTALLATION GUIDE



- Water-cooled chiller should avoid closing to the fire and flammable. Please take care of heat radiation when adjacent to boiler.
- It is better to choose the space where the room temperature is under 45℃ and well ventilation.
- Choose the place of less dust.
- Field should be of good daylighting for better maintenance and inspection condition.
- There shall be a good drainage system around the unit and the entire room.
- It is recommended of unit to use steel tube to connect the safety valve port to the outside.
- In order to ensure safety and health of staff, installing oxygen detector in the room is recommended. Alert when oxygen is consumed or displaced to be less than 19.5% of oxygen content.
- Spring isolator device is optional, please consult local CLIMAVENETA office.

BREEZE™ SERIES FAN COIL UNITS

FC-NFCI (HORIZONTAL) CEILING TYPE

340-2380M^3/H



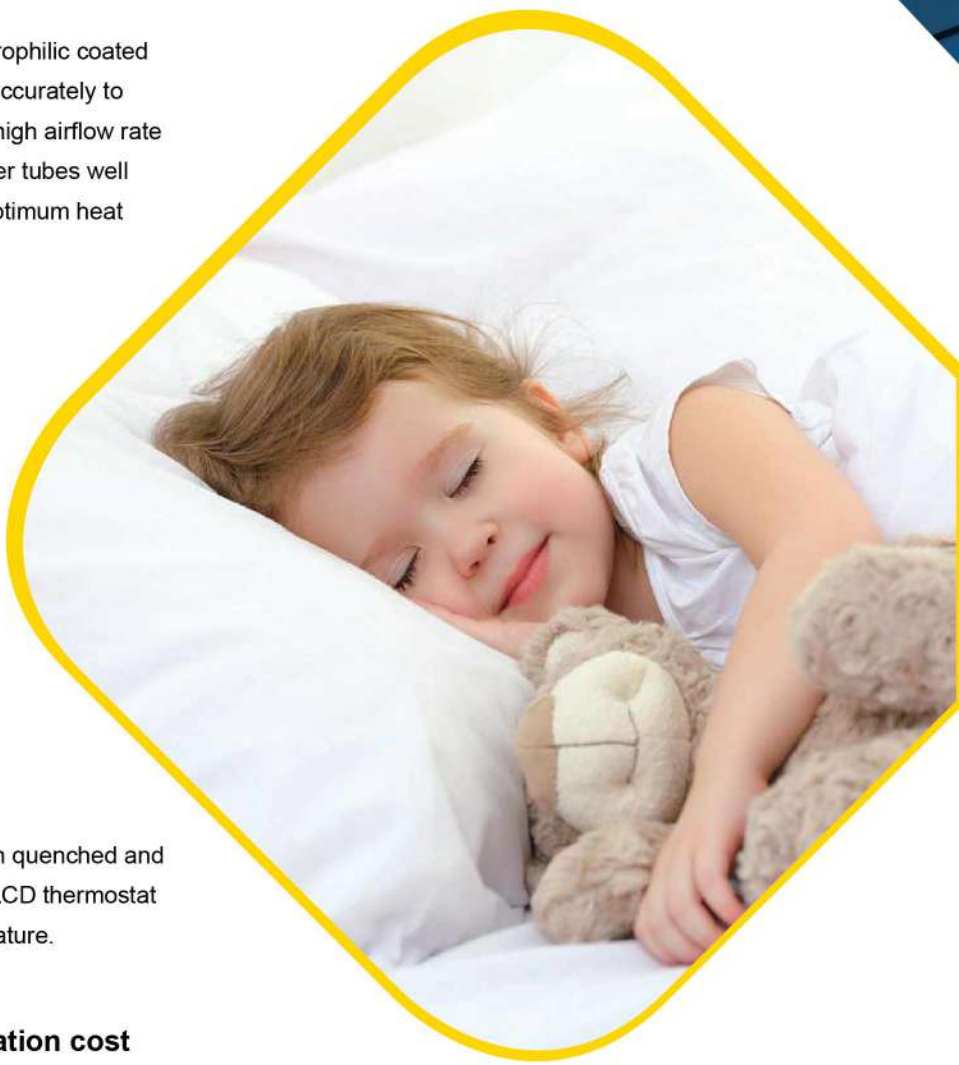
FEATURE AND BENEFIT

Durable construction

Casing of Breeze fan coil units shall be galvanized steel panel. And the drain pan is treated by extruded seamless technology to prevent the leakage and rust. Thermal insulation that meets fire code is attached to the drain pan integrally. Construction of the units is sturdy and permanent.

High efficiency Performance

Coils shall be fabricated by copper tubes and hydrophilic coated aluminum fins. Tubes are expanded into the fins accurately to assure the heat transfer efficiency. Fans shall be high airflow rate and low noise design. And brass headers of copper tubes well distribute the water flow configuration to assure optimum heat transfer efficiency.



Low noise level and cost saving

Fans shall be specially designed with over-sized galvanized multiblade centrifugal wheel, operating with low noise, high static pressure and airflow rate. And low noise permanent capacitor motor shall be factory balance tested for ensure the high efficiency and quiet operation.

Easy maintenance

Motors shall be fabricated with rolling bearing with quenched and tempered steel by antirust treated. Three-speed LCD thermostat is optional to control the airflow and room temperature.

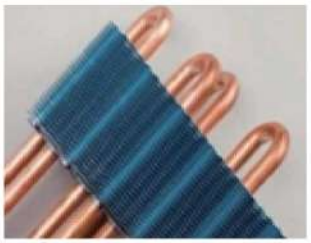
Versatile design and minimum installation cost

Units shall be low-weighted design. Drain pipes and wires are easy to install. The water connection direction and return air plenum connection direction are changeable according to the site requirements.

MECHANICAL SPECIfiCATION

Coil: high efficiency heat transfer performance

Coils shall be manufactured by copper tubes and sine-wave aluminum fins hydrophilic coated. And tubes are mechanically expanded to bond with aluminum fins. Considering water flow configuration and the performance of heat transfer, headers shall be fabricated of brass material.





Casing: reliable structure and elegant design

Casing shall be constructed by high quality extruded galvanize steel panel, sturdy and permanent. The key components shall be insulated with PE Layer, nice figure and smooth surface.

Drain pan: special design preventing leakage

Drain pans shall be fabricated by high quality steel panel with punch forming and hot-dip bake treated. PE insulation material is designed to tightly bond with drain pan with the benefit of easy manufacturing, anti-leakage and elegant feature, eventually extending the drain pan life. The coil and drain pan are internal fixed by screws to prevent rust and cold bridge. The width and length of the drain pan can cover the piping space of the motorized valve in the inlet and outlet pipes to ensure the water collection effect.





Motor: high efficiency and low power consumption

Motors shall consist of low noise permanent capacitor motors and total enclosed rolling bearing with permanent lubricated. The base of motor shall be isolated by rubber pad while minimizing the vibration and operation noise.

Fans: low acoustic level

Fans shall be equipped with efficient, low noise, multiblade centrifugal fan with oversized fan wheel, and shall be manufactured with galvanized steel panel for well dynamic balance performance.



Accessories (optional)

- Electric heater;
- Return air plenum (below return or back return);
- Removable filter (nylon filter or aluminum mesh-nylon-aluminun mesh filter);
- Extended drain pan;
- Stainless steel drain pan;
- UV light

PERFORMANCE DATA

3 rows fan coil unit (2 pipes)

Item		200	300	400	500	600
Nominal Airflow (m^3/h)	High Speed (H) 12Pa/30Pa/50Pa	340	510	680	850	1020
	Medium Speed (M) 7Pa/17Pa/28Pa	290/300/280	470/400/395	540/520/620	650/690/700	810/840/800
	Low Speed (L) 3Pa/8Pa/13Pa	180/180/200	280/300/290	340/370/440	500/490/510	610/620/530
Δt=5℃ Working Capacity (3 rows)	Total Cooling Capacity(W) 12Pa/30Pa/50Pa	2420/2420/2350	3460/3430/3400	4290/4180/4120	5370/5320/5270	6210/6140/6030
	Sensible Cooling Capacity(W) 12Pa/30Pa/50Pa	1620/1620/1570	2380/2340/2290	3010/2950/2890	3790/3750/3710	4380/4290/4210
	Heating Capacity (W) Water inlet Temperature 60℃ 12Pa/30Pa/50Pa	3600/3600/3600	5550/5530/5510	7170/7120/7130	8630/8570/8620	10220/10220/10170
	Heating Capacity (W) Water inlet Temperature 45℃ 12Pa/30Pa/50Pa	2240/2240/2240	3260/3250/3240	4410/4380/4380	5300/5270/5300	6130/6130/6010
	Water Flow Rate (LPM) 12Pa/30Pa/50Pa	7.0/7.0/6.8	9.9/9.8/9.7	12.3/12/11.5	15.4/15.2/15.1	17.8/17.3/17.0
	Cooling Water Pressure Drop (kPa) 12Pa/30Pa/50Pa	23/23/23	23/23/23	21/20/19	30/30/30	29/27/25
	Heating Water Pressure Drop (kPa) 12Pa/30Pa/50Pa	17/17/17	17/17/17	16/15/15	27/26/25	24/23/22
High Speed Power Input(W) 12Pa/30Pa/50Pa		34/42/47	48/57/64	60/70/81	72/84/97	93/104/110
Medium Speed Power Input(W) 7Pa/17Pa/28Pa		32/37/44	43/49/55	49/59/73	56/78/90	76/96/102
Low Speed Power Input(W) 3Pa/8Pa/13Pa		25/29/40	30/42/48	36/49/61	47/69/82	65/84/88
High Speed Noise Level dB(A) 12Pa/30Pa/50Pa		33.5/34.5/37.5	36/38/41	39.5/39.5/41.5	41/41/43	44/42.5/45
Medium Speed Noise Level dB(A) 7Pa/17Pa/28Pa		30/31/34	30.5/30.5/34.5	33/33.5/38	34/36/38	38/37/39
Low Speed Noise Level dB(A) 3Pa/8Pa/13Pa		20/20/24	21.5/21.5/23.5	21/22.0/27.0	25/27/29	31/30/32
Energy Efficiency Ratio (FCEER)(W/W) 12Pa/30Pa/50Pa		64/56/49	65/55/51	66/58/50	65/53/50	60/54/53
Coefficient Of Performance (FCCOP)(W/W) Water Inlet Temperature 60℃ 12Pa/30Pa/50Pa		100/85/74	107/88/80	110/97/84	108/85/79	98/87/85
Coefficient Of Performance (FCCOP)(W/W) Water Inlet Temperature 45℃ 12Pa/30Pa/50Pa		62/53/47	60/53/48	68/60/52	66/53/50	60/54/52
Coil	Coil Type	High quality copper tubes and hydrophilic aluminum fins				
	Inlet/outlet Connection size	DN20 Female thread (RC 3/4")				
	Drain Connection Size	DN20 Male thread (RC 3/4")				
	Working Water Pressure	1.6 Mpa				
Fan	Fan Type	Double inlet, forward curved centrifugal fan				
	Qty.	1	2			
Motor	Motor Type	3-speed capacitor motors				
	Bearing Type	Permanently lubricated bearing				
	Power Supply	220V/1P/50Hz				
	Qty.	1				
Net Weight (kg)	Without Return Air Box	11.0	13.0	15.0	16.0	17.0
	With Return Air Box	14.0	16.5	19.5	21.0	22.5

3 rows fan coil unit (2 pipes)

Item		700	800	1000	1200	1400
Nominal Airflow (m^3/h)	High Speed (H) 12Pa/30Pa/50Pa	1190	1360	1700	2040	2380
	Medium Speed (M) 7Pa/17Pa/28Pa	940/990/960	1150/1120/1170	1330/1360/1340	1630/1600/1700	1910/1790/2030
	Low Speed (L) 3Pa/8Pa/13Pa	660/690/690	850/860/860	960/1010/960	1200/1140/1200	1340/1310/1490
Δt=5℃ Working Capacity (3 rows)	Total Cooling Capacity(W) 12Pa/30Pa/50Pa	6910/6800/6620	8290/8240/8080	9430/9240/9150	11500/11330/10950	12920/12600/12600
	Sensible Cooling Capacity(W) 12Pa/30Pa/50Pa	4980/4890/4790	5930/5890/5790	6930/6780/6690	8510/8380/8100	9560/9240/9240
	Heating Capacity (W) Water inlet Temperature 60℃ 12Pa/30Pa/50Pa	11120/11130/11110	13380/13330/13380	15890/15840/15840	18740/18740/18690	21730/21670/21670
	Heating Capacity (W) Water inlet Temperature 45℃ 12Pa/30Pa/50Pa	6840/6840/6830	8200/8170/8200	9930/9900/9900	11300/11300/11280	11900/11860/11860
	Water Flow Rate (LPM) 12Pa/30Pa/50Pa	19.8/19.5/18.7	23.8/23.6/23.2	27/26.3/26.1	33/32.5/31.4	37/36.1/36.1
	Cooling Water Pressure Drop (kPa) 12Pa/30Pa/50Pa	30/30/30	36/35/33	40/40/40	40/40/40	50/50/50
	Heating Water Pressure Drop (kPa) 12Pa/30Pa/50Pa	24/24/23	30/29/30	40/40/40	40/40/40	50/50/50
High Speed Power Input(W) 12Pa/30Pa/50Pa		112/121/131	129/138/163	147/169/196	183/206/227	221/245/279
Medium Speed Power Input(W) 7Pa/17Pa/28Pa		90/110/120	119/127/154	128/158/184	167/193/217	197/226/253
Low Speed Power Input(W) 3Pa/8Pa/13Pa		73/91/100	101/110/130	109/138/166	142/171/193	165/200/227
High Speed Noise Level dB(A) 12Pa/30Pa/50Pa		45.5/45.5/46.5	45/44.5/46.5	47/47/49	49/49/51	51/50/51
Medium Speed Noise Level dB(A) 7Pa/17Pa/28Pa		40/39.5/41.5	41/40.5/42.5	41/41/45	44/45/46	47/46/47
Low Speed Noise Level dB(A) 3Pa/8Pa/13Pa		32/31/33	32/31/33	33/32.5/37	35/35/39	36/36/39
Energy Efficiency Ratio (FCEER)(W/W) 12Pa/30Pa/50Pa		57/53/48	54/51/45	53/49/44	52/47/43	48/44/38
Coefficient Of Performance (FCCOP)(W/W) Water Inlet Temperature 60℃ 12Pa/30Pa/50Pa		90/84/78	88/84/74	90/82/74	86/79/72	82/75/68
Coefficient Of Performance (FCCOP)(W/W) Water Inlet Temperature 45℃ 12Pa/30Pa/50Pa		56/52/49	55/52/46	57/52/47	52/47/43	48/44/38
Coil	Coil Type	High quality copper tubes and hydrophilic aluminum fins				
	Inlet/outlet Connection Size	DN20 Female thread (RC 3/4")				
	Drain Connection Size	DN20 Male thread (RC 3/4")				
	Working Water Pressure	1.6 Mpa				
Fan	Fan Type	Double inlet, forward curved centrifugal fan				
	Qty.	2	3	4		
Motor	Motor Type	3-speed capacitor motors				
	Bearing Type	Permanently lubricated bearing				
	Power Supply	220V/1P/50Hz				
	Qty.	1		2		
Net Weight (kg)	Without Return Air Box	18.0	23.0	27.5	30.0	31.5
	With Return Air Box	24.5	29.0	34.5	37.5	39.5

Remarks:

1.Cooling condition: Air inlet temp. 27℃DB/19.5℃WB, Water inlet temp. 7℃, Water temperature difference 5℃.

2.Heating condition: Air inlet temp. 21℃DB, Water inlet temp.60℃or 45℃, Water flow is same as cooling condition.

3.Noise level standard: GB/T 19232-2019.

4.LPM: L/Mins, 1LPM=0.06m^3/h

PERFORMANCE DATA

3+1 rows fan coil unit (4 pipes)

Item		200	300	400	500	600
Nominal Airflow (m^3/h)	High Speed (H) 12Pa/30Pa/50Pa	340	510	680	850	1020
	Medium Speed (M) 7Pa/17Pa/28Pa	280/290/270	460/390/385	530/510/610	640/680/690	800/830/790
	Low Speed (L) 3Pa/8Pa/13Pa	170/170/210	270/290/280	340/360/430	490/480/500	600/610/520
Δt=5℃ Working Capacity (3 rows)	Total Cooling Capacity 3 Raws Cooling(W) 12Pa/30Pa/50Pa	2360/2360/2290	3420/3390/3370	4260/4150/3990	5300/5250/5200	6100/5960/5850
	Sensible Cooling Capacity 3 Raws Cooling(W) 12Pa/30Pa/50Pa	1580/1580/1530	2350/2310/2260	2980/2920/2800	3720/3680/3640	4300/4180/4100
	Heating Capacity - 1 Row Heating(W) Water inlet Temperature 60℃ 12Pa/30Pa/50Pa	2170/2170/2170	3220/3200/3200	4000/3980/3980	4600/4600/4600	5440/5440/5420
	Heating Capacity - 1 Row Heating(W) Water inlet Temperature 45℃ 12Pa/30Pa/50Pa	1390/1390/1390	2060/2040/2040	2560/2540/2540	2940/2940/2940	3480/3480/3460
	Water Flow Rate 3 Raws Cooling (LPM) 12Pa/30Pa/50Pa	6.8/6.8/6.6	9.8/9.7/9.7	12.2/11.9/11.4	15.2/15.0/14.9	17.5/17.1/16.8
	Water Flow Rate - 1 Row Heating (LPM) Water inlet Temperature 60℃ 12Pa/30Pa/50Pa	3.1/3.1/3.1	4.6/4.6/4.6	5.7/5.7/5.7	6.6/6.6/6.6	7.8/7.8/7.8
	Water Flow Rate - 1 Row Heating (LPM) Water inlet Temperature 45℃ 12Pa/30Pa/50Pa	4.0/4.0/4.0	5.9/5.8/5.8	7.3/7.3/7.3	8.4/8.4./8.4	10.0/10.0/9.9
	Water Pressure Drop 3 Raws Cooling(kPa) 12Pa/30Pa/50Pa	23/23/22	23/23/22	21/20/19	30/30/30	30/30/30
	Heating Water Pressure Drop - 1 Row Heating(kPa) Water inlet Temperature 60℃ 12Pa/30Pa/50Pa	30/30/30	13/13/13	16/16/16	25/25/25	33/33/33
	Heating Water Pressure Drop - 1 Row Heating(kPa) Water inlet Temperature 45℃ 12Pa/30Pa/50Pa	30/30/30	27/27/27	30/30/30	30/30/30	40/40/40
High Speed Power Input(W) 12Pa/30Pa/50Pa		34/42/47	48/57/64	60/70/81	72/84/97	93/104/110
Medium Speed Power Input(W) 7Pa/17Pa/28Pa		32/37/44	43/49/55	49/59/73	56/78/90	76/96/102
Low Speed Power Input(W) 3Pa/8Pa/13Pa		25/29/40	30/42/48	36/49/61	47/69/82	65/84/88
High Speed Noise Level dB(A) 12Pa/30Pa/50Pa		33.5/34.5/37.5	36/38/41	39.5/39.5/41.5	41/41/43	44/42.5/45
Medium Speed Noise Level dB(A) 7Pa/17Pa/28Pa		30/31/34	30.5/30.5/34.5	33/33.5/38	34/36/38	38/37/39
Low Speed Noise Level dB(A) 3Pa/8Pa/13Pa		20/20/24	21.5/21.5/23.5	21/22.0/27.0	25/27/29	31/30/32
Energy Efficiency Ratio (FCEER)(W/W) 12Pa/30Pa/50Pa		61/53/47	65/55/49	65/55/47	65/56/49	58/52/48
Coefficient Of Performance (FCCOP)(W/W) Water Inlet Temperature 60℃ 12Pa/30Pa/50Pa		61/51/45	65/55/49	64/55/48	61/53/46	55/50/47
Coefficient Of Performance (FCCOP)(W/W) Water Inlet Temperature 45℃ 12Pa/30Pa/50Pa		39/32/28	40/34/30	40/34/30	38/33/29	34/31/29
Coil	Coil Type	High quality copper tubes and hydrophilic aluminum fins				
	Inlet/outlet Connection Size	DN20 Female thread (RC 3/4")				
	Drain Connection Size	DN20 Male thread (RC 3/4")				
	Working Water Pressure	1.6 Mpa				
Fan	Fan Type	Double inlet, forward curved centrifugal fan				
	Qty.	1	2			
Motor	Motor Type	3-speed capacitor motors				
	Bearing Type	Permanently lubricated bearing				
	Power Supply	220V/1P/50Hz				
	Qty.	1				
Net Weight (kg)	Without Return Air Box	12.0	14.0	16.0	17.0	18.0
	With Return Air Box	15.0	17.5	20.5	22.0	23.5

3+1 rows fan coil unit (4 pipes)

Item		700	800	1000	1200	1400
Nominal Airflow (m^3/h)	High Speed (H) 12Pa/30Pa/50Pa	1190	1360	1700	2040	2380
	Medium Speed (M) 7Pa/17Pa/28Pa	930/980/950	1130/1120/1150	1310/1340/1320	1600/1570/1670	1880/1790/2000
	Low Speed (L) 3Pa/8Pa/13Pa	650/680/680	830/840/840	940/990/940	1170/1110/1170	1310/1280/1460
Δt=5℃ Working Capacity (3 rows)	Total Cooling Capacity 3 Raws Cooling(W) 12Pa/30Pa/50Pa	6830/6720/6540	8080/7840/7880	9000/9000/9000	10880/10800/10800	12600/12600/12600
	Sensible Cooling Capacity 3 Raws Cooling(W) 12Pa/30Pa/50Pa	4910/4810/4690	5830/5530/5690	6720/6720/6720	8340/8310/8310	9240/9240/9240
	Heating Capacity - 1 Row Heating(W) Water inlet Temperature 60℃ 12Pa/30Pa/50Pa	5920/5920/5900	7420/7400/7420	8190/8170/8170	10030/10030/10010	11420/11400/11400
	Heating Capacity - 1 Row Heating(W) Water inlet Temperature 45℃ 12Pa/30Pa/50Pa	3720/3720/3690	4750/4730/4750	5340/5320/5320	6400/6400/6380	7300/7280/7280
	Water Flow Rate 3 Raws Cooling (LPM) 12Pa/30Pa/50Pa	19.6/19.3/18.5	23.2/22.5/22.6	25.8/25.8/25.8	31.2/31.0/31.0	36.1/36.1/36.1
	Water Flow Rate - 1 Row Heating (LPM) Water inlet Temperature 60℃ 12Pa/30Pa/50Pa	8.5/8.5/8.5	10.6/10.6/10.6	11.7/11.7/11.7	14.4/14.4/14.3	16.4/16.3/16.3
	Water Flow Rate - 1 Row Heating (LPM) Water inlet Temperature 45℃ 12Pa/30Pa/50Pa	10.7/10.7/10.6	13.6/13.6/13.6	15.3/15.2/15.2	18.3/18.3/18.3	20.9/20.9/20.9
	Water Pressure Drop 3 Raws Cooling(kPa) 12Pa/30Pa/50Pa	30/30/30	29/28/28	40/40/40	40/40/40	50/50/50
	Heating Water Pressure Drop - 1 Row Heating(kPa) Water inlet Temperature 60℃ 12Pa/30Pa/50Pa	15/15/15	29/29/29	34/34/34	30/30/30	36/36/36
	Heating Water Pressure Drop - 1 Row Heating(kPa) Water inlet Temperature 45℃ 12Pa/30Pa/50Pa	25/25/25	40/40/40	40/40/40	40/40/40	50/50/50
High Speed Power Input(W) 12Pa/30Pa/50Pa		112/121/131	129/138/163	147/169/196	183/206/227	221/245/279
Medium Speed Power Input(W) 7Pa/17Pa/28Pa		90/110/120	119/127/154	128/158/184	167/193/217	197/226/253
Low Speed Power Input(W) 3Pa/8Pa/13Pa		73/91/100	101/110/130	109/138/166	142/171/193	165/200/227
High Speed Noise Level dB(A) 12Pa/30Pa/50Pa		45.5/45.5/46.5	45/44.5/46.5	47/47/49	49/49/51	51/50/51
Medium Speed Noise Level dB(A) 7Pa/17Pa/28Pa		40/39.5/41.5	41/40.5/42.5	41/41/45	44/45/46	47/46/47
Low Speed Noise Level dB(A) 3Pa/8Pa/13Pa		32/31/33	32/31/33	33/32.5/37	35/35/39	36/36/39
Energy Efficiency Ratio (FCEER)(W/W) 12Pa/30Pa/50Pa		55/50/45	56/52/45	53/47/41	52/46/42	48/44/39
Coefficient Of Performance (FCCOP)(W/W) Water Inlet Temperature 60℃ 12Pa/30Pa/50Pa		52/48/44	55/51/44	53/46/40	52/47/42	49/44/39
Coefficient Of Performance (FCCOP)(W/W) Water Inlet Temperature 45℃ 12Pa/30Pa/50Pa		32/29/27	34/32/27	33/29/25	32/29/26	30/27/24
Coil	Coil Type	High quality copper tubes and hydrophilic aluminum fins				
	Inlet/outlet Connection Size	DN20 Female thread (RC 3/4")				
	Drain Connection Size	DN20 Male thread (RC 3/4")				
	Working Water Pressure	1.6 Mpa				
Fan	Fan Type	Double inlet, forward curved centrifugal fan				
	Qty.	2	3	4		
Motor	Motor Type	3-speed capacitor motors				
	Bearing Type	Permanently lubricated bearing				
	Power Supply	220V/1P/50Hz				
	Qty.	1		2		
Net Weight (kg)	Without Return Air Box	19.0	25.0	29.0	32.0	33.0
	With Return Air Box	25.0	31.5	36.0	39.5	41.0

Remarks:

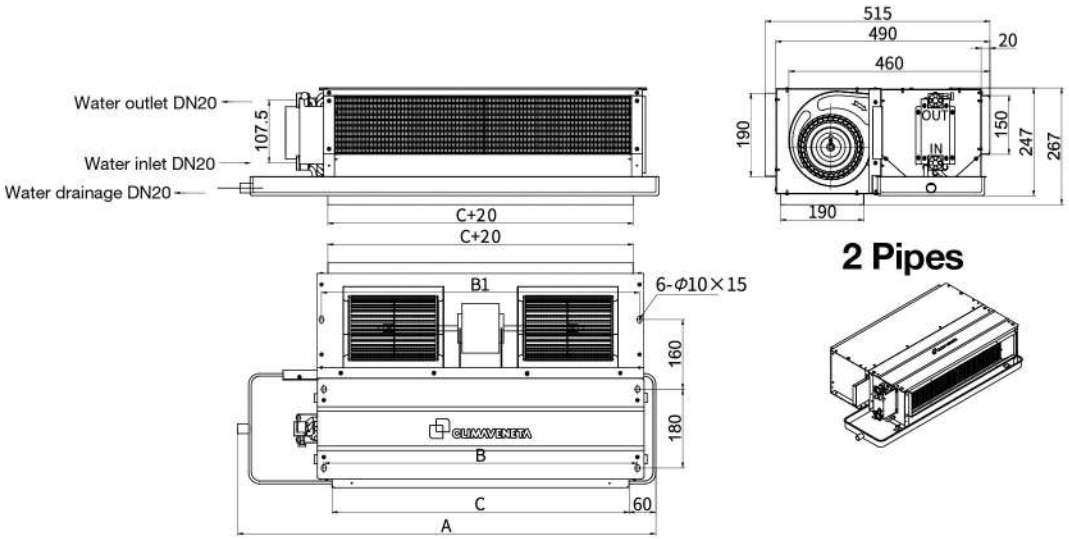
1.Cooling condition: Air inlet temp. 27℃DB/19.5℃WB, Water inlet temp.7℃, Water temperature difference 5℃.

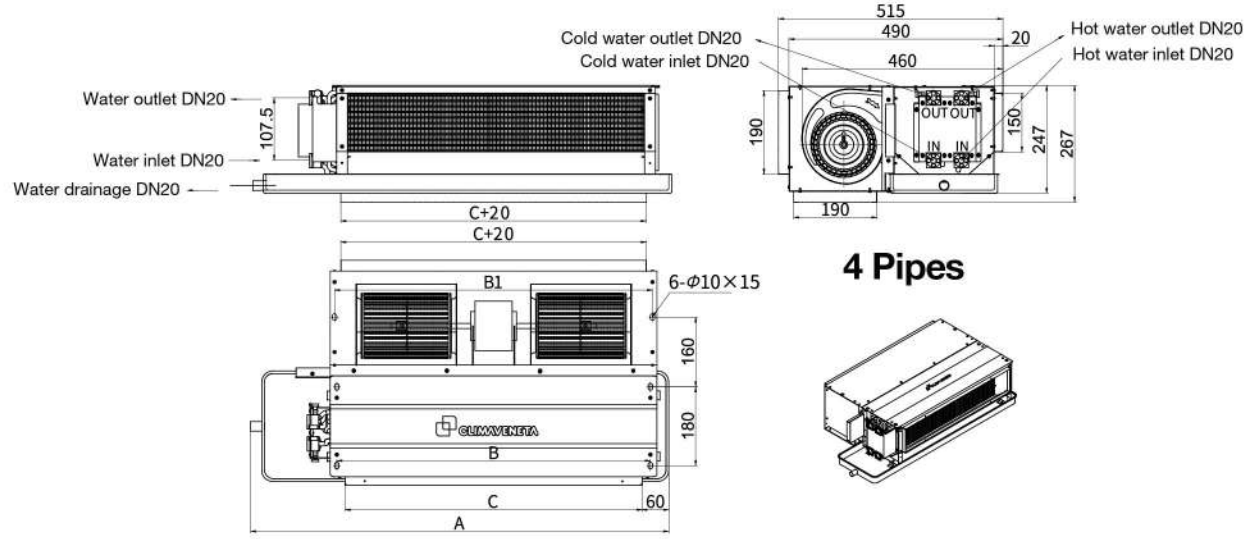
2.Heating condition: Air inlet temperature 21℃DB, Water inlet temp. 60℃ and Water temperature difference 10°C; Water inlet temp. 45℃ and water temperature difference 5℃.

3.Noise level standard: GB/T 19232-2019.

4.LPM: L/Mins, 1LPM=0.06m^3/h

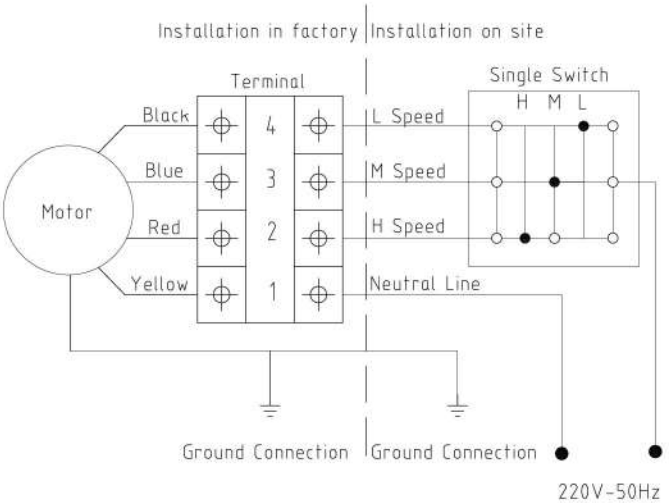
DIMENSION DRAWING





Model	A	B	B1	C
200	760	518	528	480
300	860	618	628	580
400	960	718	728	680
500	1060	818	828	780
600	1160	918	928	880
700	1260	1018	1028	980
800	1460	1218	1228	1180
1000	1560	1318	1328	1280
1200	1860	1558	1568	1520
1400	1960	1678	1688	1640

Dimension Drawing



CLIMAVENETA

SILENT FAN COIL UNIT

FC-NFCILN SERIES 340~1360 M^3/H



SILENT FAN COIL UNIT

Product Overview

FC-NFCILN Silent Fan Coil Unit is a series of high quality products developed and designed by CLIMAVENETA China factory based on the introduction of advanced technology from Italy. It is mainly used in central air-conditioning systems which can continuously or intermittently deliver air with a certain temperature difference and humidity to maintain the room's heat and moisture balance, temperature and humidity requirements. It can be widely used in hotels, apartments, villas, office buildings, hospitals, etc. With compact structure, the products can help save much valuable space. It is also high efficient, with low noise and easy to install and maintain. It is an ideal product for the customers.

Air Volume: 340~1360m^3/h, Cooling Capacity: 2010~7780W

PRODUCT FEATURES

Exquisite Structure, Durable Performance

The fan coil adopts galvanized plate casing; the condensate water tray is integrally formed by molding process, without weld seams and solder joints, which eliminates the shortcomings of easy water leakage of the welding water tray; the thermal insulation material conforming to the fireproof specification is integrally bonded to the water tray; the body structure is exquisite.

Exquisite Performance, High Efficiency

The heat exchanger of the fan coil adopts high-quality Φ9.52mm copper tube and louver type sinusoidal waveform hydrophilic aluminum heat-dissipating fins, and the copper tube and aluminum sheet are tightly combined through mechanical expansion tube. Combined with a large air volume and low noise fan to enhance heat transfer, the unit can achieve the optimal heat transfer efficiency. The water collecting head is made of brass forging with evenly distributed water flow which can achieve the ideal overall heat transfer effect further.

Quiet Operation, Energy Efficient

Uniquely designed galvanized multi-wing centrifugal wind wheel; equipped with a 160mm ultra-wide impeller and optimally matched with a low-noise permanent-capacitance motor. It is tested to ensure that the unit works quietly and efficiently. The fan is with large air volume and low noise.

Flexible Adjustment, Easy Maintenance

The bearings used in the motor are rolling bearings. The motor shaft is made of quenched and tempered steel, and the surface is treated with special anti-rust treatment for durability. Can configure optional three-speed switch or thermostat which is easy to operate and can adjust the indoor air volume and cooling capacity.

Installation: High Flexibility, Low Installation Cost

The product is lightly designed. The drain pipe, the line and the return air box are easy to install, and the position of the air outlet can be changed on site to meet the actual needs.

Options Available, Flexible Configuration

- PTC electric heater
- Return air box (need the customer to assemble onsite)
- Removable air filter (nylon filter or double layer aluminum mesh filter)
- Lengthen drain pan for valve water leaking and condensing water
- Stainless lengthen drain pan(standard length and 100mm lengthen)
- For space restriction spaces, drain pan length can be reduced 100mm.
- Single-ended nanophoton purification device(installed in return air box or duct)

STRUCTURE FEATURES

Fan coil: Super High Efficiency Heat Exchange



The product adopts high-quality Φ9.52mm copper tube and louver type sinusoidal waveform hydrophilic aluminum heat-dissipating fins, and the copper tube and aluminum sheet are tightly combined through mechanical expansion tube. The water collecting head is made of brass forging with evenly distributed water flow which can achieve the ideal overall heat transfer effect.



Enclosure: Beautiful Appearance, Strong Structure

The frame is formed by using a first-grade galvanized steel sheet through a mold, and the structure is firm and not easily deformed.

The products also have PE insulated key components, beautiful and generous appearance, special overlap protection design, and friendly human-machine interface.

Water Tray: No leakage



Adopting one-time stamping forming process of high-grade steel plate mold, the surface is treated by hot dip-coating; 7mmPE heat insulation is integrally bonded to the water tray. Not only is the processing simple, the appearance is beautiful, and the phenomenon that the welding water tray is easy to drip is eliminated. The service life of the water tray is extended. The width and length of the water pan have reserved the piping space for the electric valve of the inlet and outlet pipes to ensure the water collecting effect.



Motor: High Efficiency, Low Power Consumption

It adopts permanent low noise capacitor motor and fully enclosed rolling bearing without adding lubricating oil. The base is insulated by a rubber shock pad to reduce running noise.

Fan: Quiet Operation



The wind wheel is a high-efficiency, low-noise multi-wing centrifugal vane with a large impeller of 160mm diameter and is made of galvanized sheet with high dynamic balance. The Pittsburgh-style meshing between the wind shell main board and the side panels is sturdy and durable.

MODEL NOMENCLATURE

FC-□□□□□□□□

- Design code: G
- Pipe connection direction: L: Left R: Right (subject to the direction when facing air outlet)
- Drain pan: Default: standard; B: stainless steel J: 100mm lengthen than standard S: stainless steel 100mm lengthen
- Default: none; EX: electric heating(1kW:FC-200 ~ 400; 2kW:FC-500 ~ 600; 3kW: FC-800)
- Coil: default: 3-row 2-pipe
- External static pressure: default: 12Pa
- Structural type: NFCILN: silent horizontal concealed fan coil unit
- Nominal Air Volume (CFM)
- Fan Coil Unit

FCB-□□□

- Structure Type A: without air filter N: nylon air filter without aluminum frame N: nylon air filter without aluminum frame
- LN(Low Noise Version)
- Nominal Air Volume (CFM)
- Air Return Box

Model Designation Example:

FC-800NFCILNEXBLG The model indicates that it is a silent horizontal concealed unit, with 800CFM nominal air volume, 3-row 2-pipe, 12Pa external static pressure, 3kW electric heating, water pipe connected to the left.

FCB-800LNN The model indicates that it is air inlet plenum of a silent horizontal concealed unit, with 800CFM nominal air volume.

Note: Air inlet plenum is packaged separately and need to be assembled by the customer on site.

STRUCTURE FEATURES

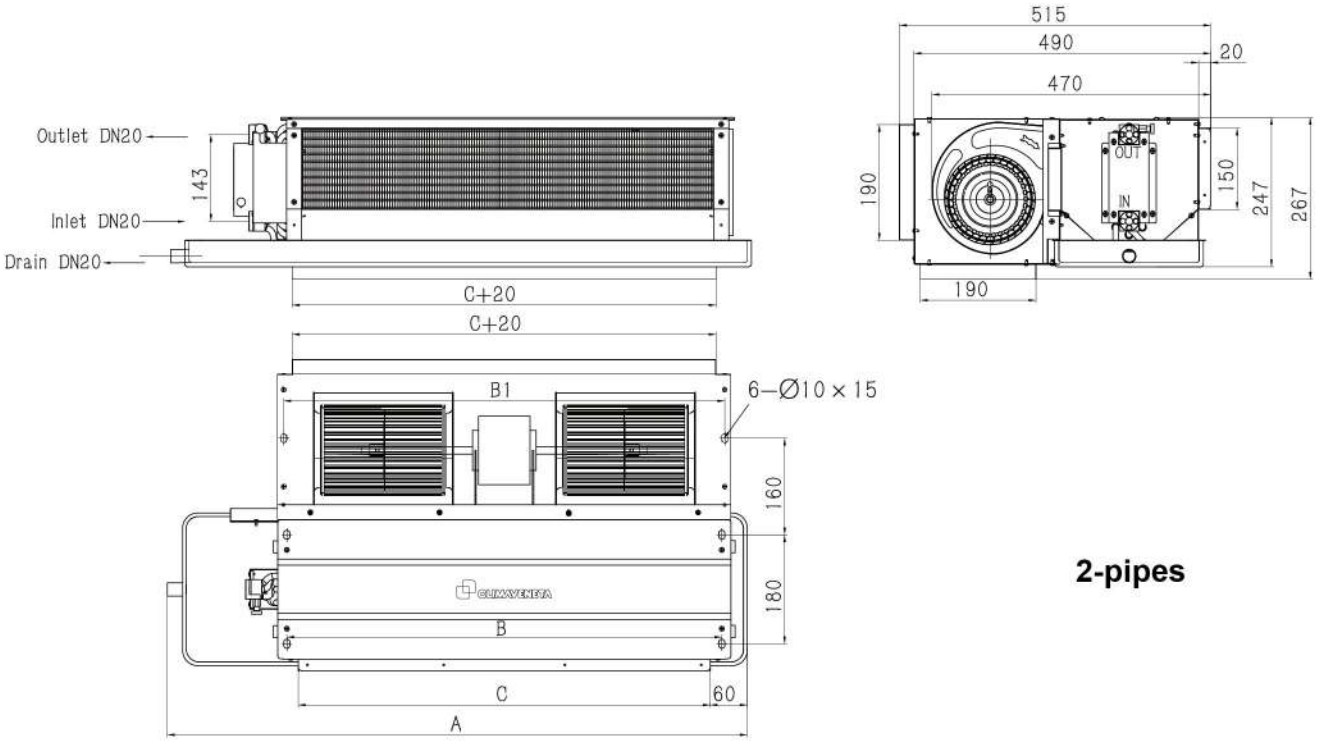
Technical Data
3 Rows(2-pipe)

ITEM		FC-200	FC-300	FC-400	FC-500	FC-600	FC-800
Nominal Air Flow (m^3/h)	H	340	510	680	850	1020	1360
	M	260	390	530	660	780	1040
	L	180	270	360	440	520	690
Capacity (3 Rows)	Cooling(W)	2010	2900	3900	4900	5600	7780
	Heating(W)	3300	5100	6380	7400	8500	12500
	Water Flow(LPM)	6.4	9.4	12.1	14	17	22.8
	WPD(kPa)	15	28	15	26	36	39
Power Input(W)	12Pa	25	45	40	78	90	92
Noise dB(A) (12Pa)	H	34.5	32.5	36	42	43.5	44.5
	M	28	25.5	30	34	37	39
	L	25	23	24	27	30	32
Heat Exchanger	Structure	Φ9.52 mm copper tubes with hydrophilic aluminum fin					
	Water Pipe	DN20 female thread (RC3/4)					
	Condensing Pipe	DN20 male thread (RC3/4)					
	Working Pressure	1.6 MPa					
Fan	Type	Double inlet forward curved centrifugal fan					
	Qty.	1	2				4
Motor	Type	Capacitor activated three-speed motor					
	Bearing	High-precision maintenance-free bearing					
	Power Supply	220V/1Ph/50Hz					
	Qty.	1					2
Weight(kg)	without Return Air Plenum	13	16	18	19	20	28
	with Return Air Plenum	16	20	22	23	24	32

Rated testing condition	Temp. DB (℃)	Temp. WB (℃)	Temp. water inlet (℃)	Water temp. difference (℃)
Nominal cooling mode	27	19.5	7	5
Nominal heating mode	21		60	According to water flow
Noise level	The measurement has been taken on surfaces positioned at d=1m distance from the unit in a standard anechoic chamber (<17dB (A)).			
Note	LPM: Liter per minute, 1LPM=0.06m^3/h			

SILENT FAN COIL UNIT

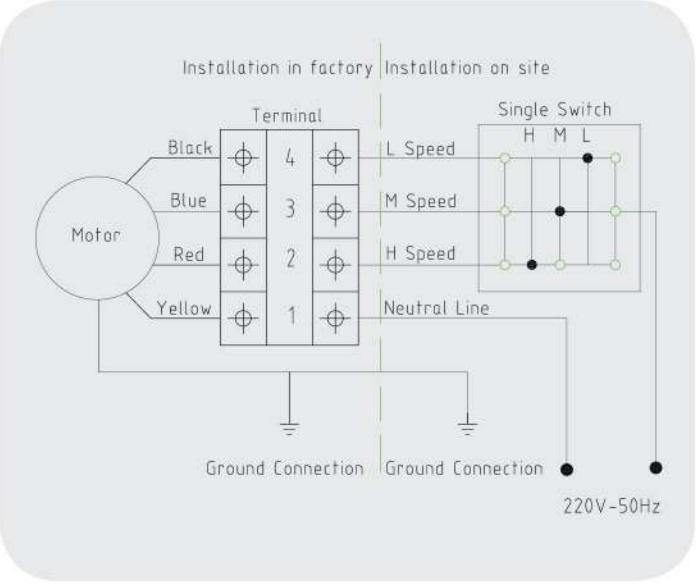
DIMENSION DRAWING



2-pipes

Model	A	B	B_1	C
FC-200LN	760	518	528	480
FC-300LN	960	718	728	680
FC-400LN	1060	818	828	780
FC-500LN	1160	918	928	880
FC-600LN	1260	1018	1028	980
FC-800LN	1560	1318	1328	1280

ELECTRIC WIRING DIAGRAM



SILENT FAN COIL UNIT

Advantages of Low Noise FCU compared with traditional FCU

ITEM		FC-300NFCILN	FC-300NFCI	FC-400NFCILN	FC-400NFCI	FC-500NFCILN	FC-500NFCI
Rated Air Volume(m3/h)	H	510	510	680	680	850	850
	M	390	390	530	530	660	660
	L	270	270	360	360	440	440
Noise dB(A) (12Pa)	H	32.5	38	36	41	42	43
	M	25.5	31	30	33.5	34	37.3
	L	23	27.2	24	27	27	30

From the above table, we can find under medium and low speed conditions, noise data of LN version FCU is much lower than traditional FCU.

Digital Fan Coil Thermostat



Product Description

The fan coil thermostat has a large LCD screen and modern appearance, which features the applications' elegance. It is suitable for industrial, commercial and residential applications. Cooling, heating and ventilation function can be selected through the LCD screen.

Features

- Modern appearance, large LCD screen
- Light touching button design
- Set point and room temperature display
- High reliability microcontroller, strong anti-interference
- Wide voltage range(AC85-260V)
- Adjustable manual 3-speed or automatic fan speed control
- Non-volatile memory (EEPROM) retains user settings during power loss(optional)
- Button lockout function(optional)
- Blue backlit(optional)

FCU ACCESSORIES

Water Valve

Features

- Forging brass body
- Stainless base with aluminum shell
- Synchromoter drive
- Efficient power consumption and less noise
- BSPP/NPT connections

Specifications

- Power Supply: AC220V±10%, 50/60Hz
- Power Consumption: <6.5W
- Pressure: 1.6MPa
- Working Conditions: 5~40 ℃ (ambient air); 5~90 ℃ (medium in pipe)



UNIT INSTALLATION, USE AND MAINTENANCE

Unit Installation

Attention should be paid to keeping the unit exterior in good shape and interior rotating components from mutual collision; during installation, prevent impurities from entering into fan impeller, motor and heat exchanger; and ensure the drainage end is 3-5mm lower than the other end, so as to ensure smooth drainage of condensation water.

Air Pipe Connection

Filter net shall be mounted at the air outlet to prevent dust from jamming the coil radiator-fan, thus ensuring the heat transmission effect of heat exchanger.

Water Pipe Connection

The water flows along a bottom-top path, so flexible pipes are recommended for inlet and outlet pipes. When connecting water pipe, use wrench to grip water pipe of fan coil; use another wrench to fasten water pipe connector, and be careful not to let torque exceed 2.5kg•m. Inlet and outlet water pipes shall keep warm; use PTFE thread seal tape to seal the threaded connector. The drain pipe shall be kept in enough slope, and shall not be flattered or bended, so as to ensure its smooth drainage.

Electrical Wiring

The unit shall be firmly grounded; after properly clamping the terminal, connect the unit's external wire end to the unit's upper terminal; pay attention to the terminal code and wire color when installing three-speed switch, and do not connect it in wrong way (for the electric connection, refer to the wiring diagram provided by the company).

Unit Startup

After completing the above installations, please clear away any possible foreign matters in water pond, wind crust and around coil pipe; and start up the unit only after checking the water pipe, electric wire and other mounting points to be error free. For three speed regulation units, better to regulate from the highest grade and then select the lower grades.

Unit Operation

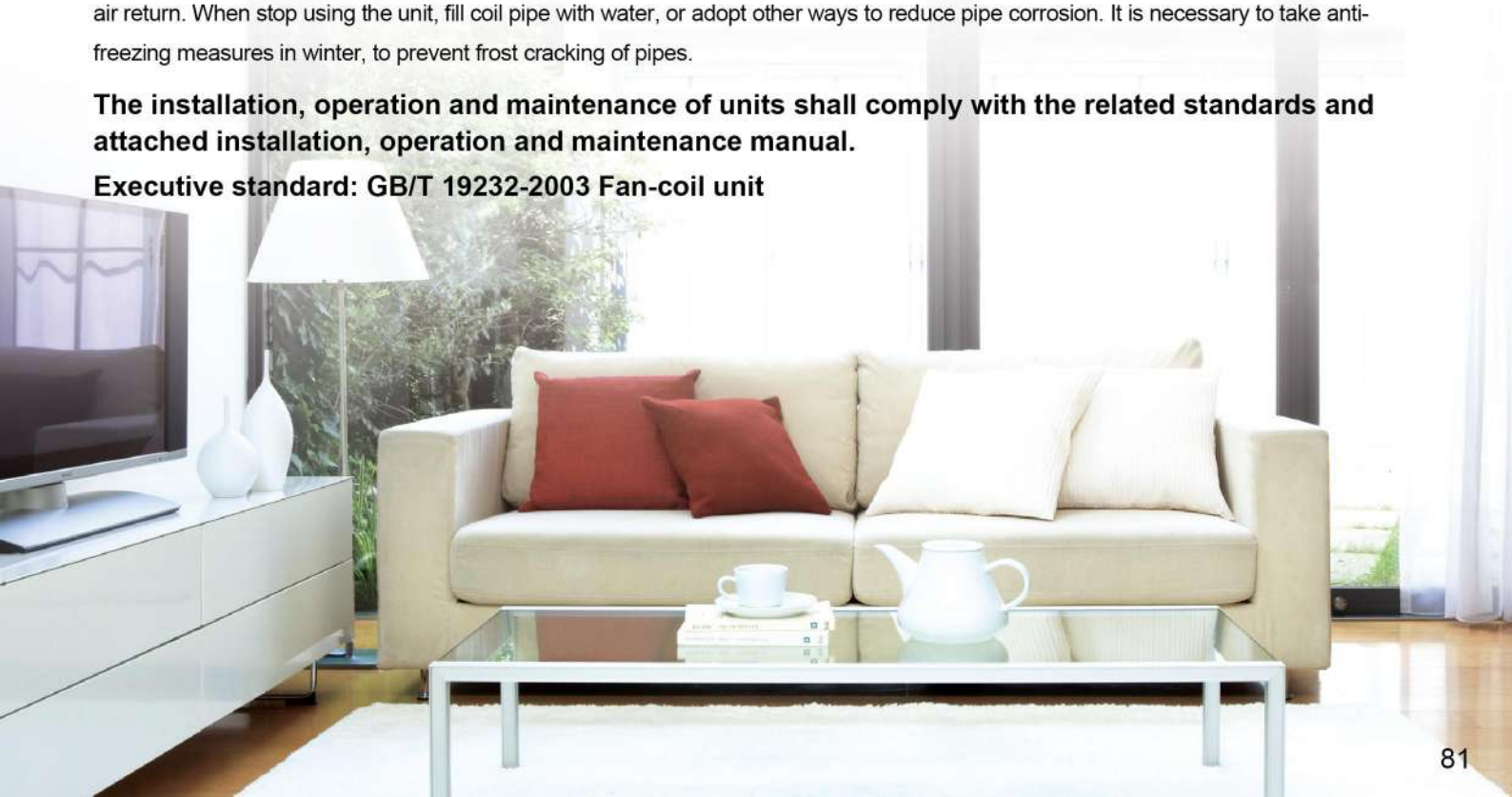
During the unit operation period, open the manual air vent valve to release air within water pipe on a periodical basis; the temperature of cold water supply for the unit in summer shall be no lower than 5°C and that of hot water supply for the unit in winter shall be no higher than 65°C; water quality should be cleansed and softened.

Maintenance

The heat exchanger of fan coil shall be purged periodically and kept clean; the filter net shall be cleaned periodically to ens ure smooth air return. When stop using the unit, fill coil pipe with water, or adopt other ways to reduce pipe corrosion. It is necessary to take anti-freezing measures in winter, to prevent frost cracking of pipes.

The installation, operation and maintenance of units shall comply with the related standards and attached installation, operation and maintenance manual.

Executive standard: GB/T 19232-2003 Fan-coil unit



CLIMAVENETA

SILENT DC MOTOR FAN COIL UNIT

340~2380 M^3/H



PRODUCT OVERVIEW

FC-NFCILD Silent DC Motor Fan Coil Unit is a series of high quality products developed and designed by CLIMAVENETA China factory based on the introduction of advanced technology from Italy. It is mainly used in central air-conditioning systems which can continuously or intermittently deliver air with a certain temperature difference and humidity to maintain the room's heat and moisture balance, temperature and humidity requirements. It can be widely used in hotels, apartments, villas, office buildings, hospitals, etc. With compact structure, the products can help save much valuable space. It is also high efficient, with low noise and easy to install and maintain. It is an ideal product for the customers.

Air Volume: 340~2380m^3/h, Cooling Capacity: 1.95~12.6kW

PRODUCT FEATURES

Enclosure: Beautiful Appearance, Strong Structure



The frame is formed by using a first-grade galvanized steel sheet through a mold, and the structure is firm and not easily deformed. The products also have PE insulated key components, beautiful and generous appearance, special overlap protection design, and friendly human-machine interface.



Fan coil: Super High Efficiency Heat Exchange

The product adopts high-quality Φ 9.52mm copper tube and specially designed "V" type windowless hydrophilic aluminum heat-dissipating fins, which are not easy to collect dust and easy to clean, and the copper tube and aluminum sheet are tightly combined through mechanical expansion tube. The water collecting head is made of brass forging with evenly distributed water flow, and the large diameter copper pipeline constitutes an energy saving low water resistance system. The overall heat transfer effect has obvious advantages, and the use of thick walled copper pipes prolongs the service life of the unit.

Water Tray: No leakage



Adopting one-time stamping forming process of high-grade steel plate mold, the surface is treated by hot dip-coating; 7mmPE heat insulation is integrally bonded to the water tray. Not only is the processing simple, the appearance is beautiful, and the phenomenon that the welding water tray is easy to drip is eliminated. The service life of the water tray is extended, and the specially designed water tray and coil connection avoids cold bridge effect.



Fan: Quiet Operation

The wind wheel is a high-efficiency, low-noise multi-wing centrifugal vane with a large impeller of 160mm diameter and is made of galvanized sheet with high dynamic balance. The Pittsburgh-style meshing between the wind shell main board and the side panels is sturdy and durable.

Motor: High Efficiency, Low Power Consumption



It adopts permanent magnet low noise DC brushless motor and fully enclosed rolling bearing without adding lubricating oil. The motor is bolted to the high strength bottom plate to ensure stable and reliable operation. The base is insulated by a rubber shock pad to reduce running noise.

Installation: High Flexibility, Low Installation Cost

The product is lightly designed. The drain pipe, the line and the return air box are easy to install, and the position of the air outlet can be changed on site to meet the actual needs.



PTC electric heater

Options Available, Flexible Configuration

- PTC electric heater Return air box (need the customer to assemble onsite), sound absorption treatment can be done for low noise requirement.
- Removable air filter (nylon filter or double layer aluminum mesh filter)
- Lengthen drain pan for valve water leaking and condensing water
- Stainless lengthen drain pan(standard length and 100mm lengthen)
- Single-ended nanophoton purification device
- Water valve



Single-ended nanophoton purification device



Water valve

3 Rows(2-pipe)

ITEM			200	300	400	500	600	800	1000	1200	1400
Norminal Air Flow	H	m^3/h	340	510	680	850	1020	1360	1700	2040	2380
	M		260	390	530	660	780	1040	1300	1530	1790
	L		180	270	360	440	520	690	870	1020	1190
Capacity (3 Rows)	Cooling	kW	1.95	2.9	3.9	4.9	5.6	7.3	9	10.8	12.6
	Heating	kW	3.3	5.1	6.38	7.4	8.5	11.8	14.6	16.7	19.6
	Water Flow	LPM	5.8	8.3	11.1	14	16	20.9	25.8	31	36.1
	WPD	kPa	15	28	16	26	34	33	30	37	50
Power Input	12Pa	W	12	14	20	30	43	51	66	91	121
	30Pa		17	22	29	39	55	66	88	114	148
	50Pa		22	31	39	52	71	86	114	146	177
Noise	12Pa	dB(A)	33	32	35.5	39.5	43	43	45.5	48	50
	30Pa		36	37	39	42	45	46	48	50	52
	50Pa		38	41	43	44.5	47	48	50	52	53.5
Heat Exchanger	Structure		Φ9.52 mm copper tubes with hydrophilic aluminum fin								
	Water Pipe		DN20 female thread (RC3/4)								
	Condensing Pipe		DN20 male thread (RC3/4)								
	Working Pressure		1.6 MPa								
Fan	Type		Double inlet forward curved centrifugal fan								
	Qty.		1	2				4			
Motor	Type		Brushless DC motor of stepless regulation								
	Bearing		High-precision maintenance-free bearing								
	Power Supply		220V/1Ph/50Hz								
	Qty.		1					2			
Weight	with Return Air Plenum	kg	13	16	18	19	20	28	30	34	36
	without Return Air Plenum		16	20	22	23	24	32	37	42	44

Note:

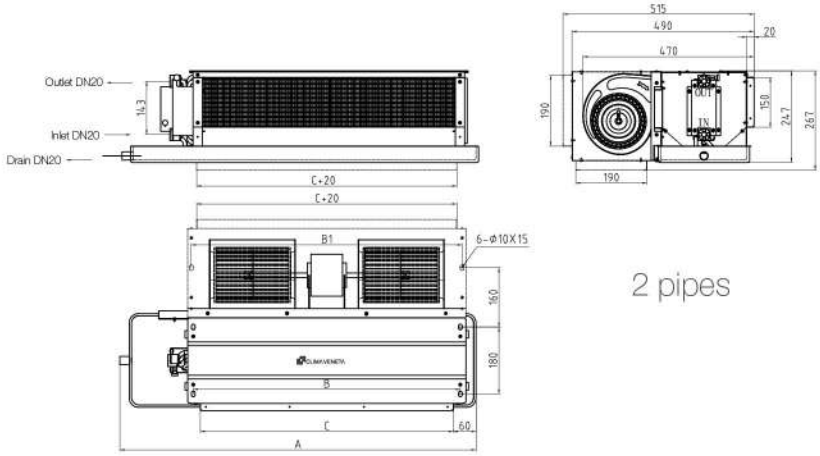
1. The above cooling capacity is under entering air temperature 27°C DB/19.5 °C WB, chilled water inlet 7°C and water temperature difference is 5°C.
2. The above heating capacity is under entering air temperature 21°C DB and heating water inlet temperature 60°C, water flow and air flow same as cooling mode.
3. Noise level have been measured on surfaces positioned at d=1m distance from the unit in a standard anechoic chamber, under back ground (<17dB(A)).
4. LPM: Liter per minute, 1LPM=0.06m^3/h.

3+1 Rows(4-pipe)											
ITEM			200	300	400	500	600	800	1000	1200	1400
Norminal Air Flow	H	m^3/h	340	510	680	850	1020	1360	1700	2040	2380
	M		260	390	530	660	780	1040	1300	1530	1790
	L		180	270	360	440	520	690	870	1020	1190
Capacity (3+1 Rows)	Cooling	kW	1.95	2.8	3.65	4.55	5.4	7.2	8.64	10.4	12.1
	Heating	kW	1.76	2.5	3.1	3.7	4.61	5.64	7.6	8.64	10.08
	Water Flow(Cooling)	LPM	5.6	8.0	10.5	13	15.5	20.6	24.8	29.7	34.7
	Water Flow(Heating)	LPM	2.5	3.6	4.4	5.3	6.6	8.1	10.9	12.4	14.4
	WPD(Cooling)	kPa	16	26	18	23	29	30	27	33	45
	WPD(Heating)	kPa	5	10	16	26	37	13	17	20	34
Power Input	12Pa	W	12	14	20	30	43	51	66	91	121
	30Pa		17	22	29	39	55	66	88	114	148
	50Pa		22	31	39	52	71	86	114	146	177
Noise	12Pa	dB(A)	33	32	35.5	39.5	43	43	45.5	48	50
	30Pa		36	37	39	42	45	46	48	50	52
	50Pa		38	41	43	44.5	47	48	50	52	53.5
Heat Exchanger	Structure		Φ9.52 mm copper tubes with hydrophilic aluminum fin								
	Water Pipe		DN20 female thread (RC3/4)								
	Condensing Pipe		DN20 male thread (RC3/4)								
	Working Pressure		1.6 MPa								
Fan	Type		Double inlet forward curved centrifugal fan								
	Qty.		1	2				4			
Motor	Type		Brushless DC motor of stepless regulation								
	Bearing		High-precision maintenance-free bearing								
	Power Supply		220V/1Ph/50Hz								
	Qty.		1					2			
Weight	with Return Air Plenum	kg	14	17	19	20	21	29	31	35	37
	without Return Air Plenum		17	21	23	24	25	33	38	43	45

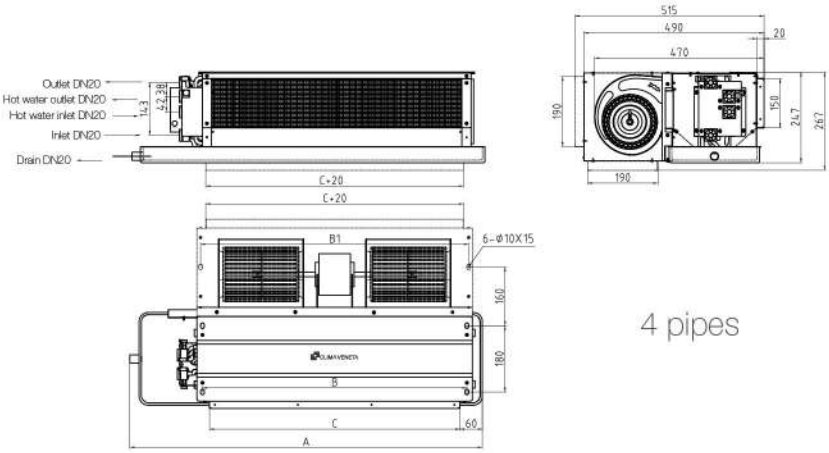
Note:

1. The above cooling capacity is under entering air temperature 27°C DB/19.5 °C WB, chilled water inlet 7°C and water temperature difference is 5°C.
2. The above heating capacity is under entering air temperature 21°C DB and heating water inlet temperature 60°C, water flow and air flow same as cooling mode.
3. Noise level have been measured on surfaces positioned at d=1m distance from the unit in a standard anechoic chamber, under back ground (<17dB(A)).
4. LPM: Liter per minute, 1LPM=0.06m^3/h.

Dimension Drawing



2 pipes

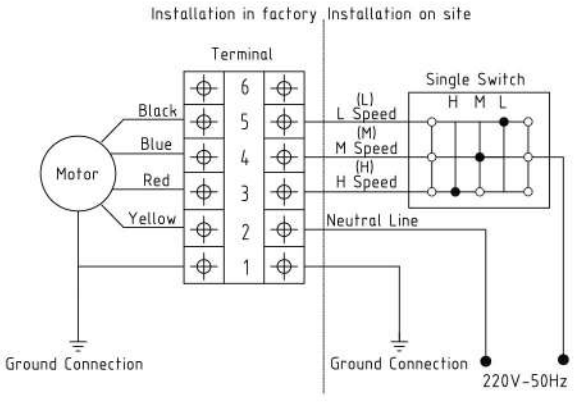


4 pipes

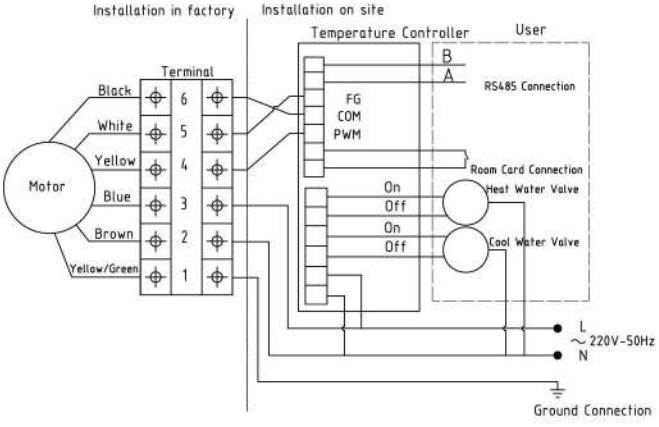
Unit: mm

Model	A	B	B1	C
FC-200LD	760	518	528	480
FC-300LD	960	718	728	680
FC-400LD	1060	818	828	780
FC-500LD	1160	918	928	880
FC-600LD	1260	1018	1028	980
FC-800LD	1560	1318	1328	1280
FC-1000LD	1660	1418	1428	1380
FC-1200LD	1860	1618	1628	1580
FC-1400LD	2060	1818	1828	1780

3 Step Electric Wiring Diagram



Stepless Electric Wiring Diagram



DUCT TYPE FAN COIL UNIT

AIR FLOW: 680~4590M^3/H
COOLING CAPACITY: 3.7~26.5KW



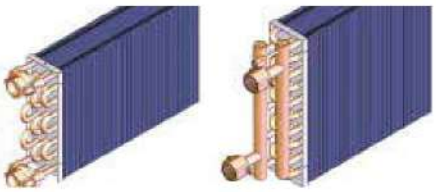
MODEL NOMENCLATURE

FC - 400 NFCI TH 4 - L

- FC: CLIMAVENETA Fan Coil Unit
- 400: Nominal Air Flow Rate: 1.7m^3/h
- NFCI: Horizontal concealed type
- NFCU: Horizontal cabinet type
- TH: Model Code : High-static Duct Type Unit
- 4: No Mark: 3-row; 4: 4-row
- L: L - Left connection, R - Right connection
- L: Face to the air outlet side

PRODUCT CONFIGURATION

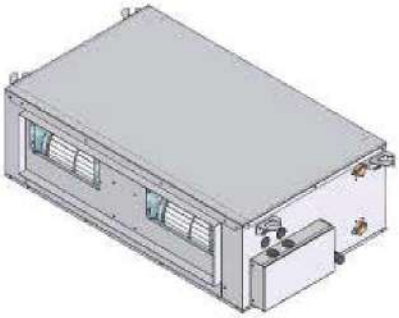
Coil: Super Heat Transfer-Coils are made of seamless high quality copper tubes and hydrophilic aluminum fins. To ensure leak free and perfect contact for themost efficient heat transfer rate, the coils are expanded.

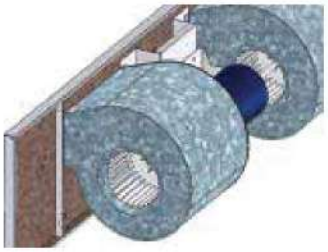




Draining Panel: Excellent steel draining panel is formed by mould, no Leakage.It is wholly insulated by 7mm PE insulating foam on the outside to prevent any condensation or leakage.

Casing: Good Appearance and Solid Construction Frame is made of high quality galvanized sheet steel,which has solid construction. Meanwhile, casing of open types is made of corrosion resistant treated steel plate. It is coated with heat hardened polyester based powder paint for better appearance.





Blower: Quiet Operation -fan blades are designed with forware-curved blades and material is galvanized.The scroll is fixed to the side plates by means of biting.

Motor: High Efficiency and Low Energy Consumption-Ball bearings are used to ensure longer life. The accurate alignment of the bearings and the use of rubber shock absorber guarantee the most smooth and quiet operation.



TECHNICAL DATA

2-pipe 3-row

Model		FC-NFCITH/NFCUTH											
		400	500	600	800	1000	1200	1400	1600	1800	2000	2400	2700
Air Flow (m^3/h)	H	680	850	1020	1360	1700	2040	2380	2720	3060	3400	4080	4590
	M	510	638	765	1020	1275	1530	1785	2040	2295	2550	3060	3443
	L	340	425	510	680	850	1020	1190	1360	1530	1700	2040	2295
Cooling Capacity (kW)	H	3.7	4.3	4.9	7.5	9.3	11.4	12.8	14.6	15.9	17.7	20.1	22.6
	M	3	3.5	4	6.1	7.5	9.2	10.4	11.8	12.9	14.3	16.3	18.3
	L	2.2	2.6	2.9	4.5	5.6	6.8	7.7	8.8	9.5	10.6	12.1	13.6
Heating Capacity (kW)	H	5.5	6.5	7.5	11.3	13.9	16.9	19.1	22.1	24.2	26.7	30.7	34.5
	M	4.4	5.1	5.9	8.9	11	13.4	15.1	17.5	19.2	21.1	24.3	27.3
	L	3	3.6	4.2	6.3	7.7	9.4	10.6	12.2	13.4	14.8	17	19.1
Water Flow (m^3/h)		0.636	0.744	0.846	1.302	1.608	1.968	2.202	2.52	2.736	3.036	3.456	3.888
Water Pressure Drop (kPa)		13.6	18.1	22.9	10.8	15.7	26.2	32.1	7.8	9	8.8	11.1	12.7
ESP (Pa)		60	60	60	80	80	100	100	100	100	100	100	100
Fan	Type	Centrifugal fan (forward-curved galvanized steel fan)											
	Quantity	2	2	2	2	2	2	2	2	2	2	2	2
Motor	Type	3-speed single phase motor											
	Quantity	1	1	1	1	1	1	1	1	1	1	1	1
	Power Supply (V / Ph / Hz)	AC 1PH-220V-50Hz											
	Insulation Class	B											
	Power Input (W)	88	110	143	202	256	278	333	385	485	573	715	860
	Running Current (A)	0.4	0.5	0.7	0.9	1.2	1.3	1.5	1.8	2.2	2.6	3.3	3.9
Pipe Connection	Cooling Coil Conn. (in/out)	3/4"FPT											
	Drain Pipe	15											
Noise Level (dB(A))		44	45	47	52	52	56	60	60	62	66	66	68
Net Weight (kg)		33	34	35	45	56	70	70	90	90	98	98	110

1. The above cooling capacity is under entering air temperature 27°C DB/19.5 °C WB, chilled water inlet 7°C and water temperature difference is 5°C.
2. The above heating capacity is under entering air temperature 21°C DB and heating water inelt temperature 60°C, water flow and air flow same as cooling mode.
3. The above noise level is measured under back ground(<17dB(A)) .

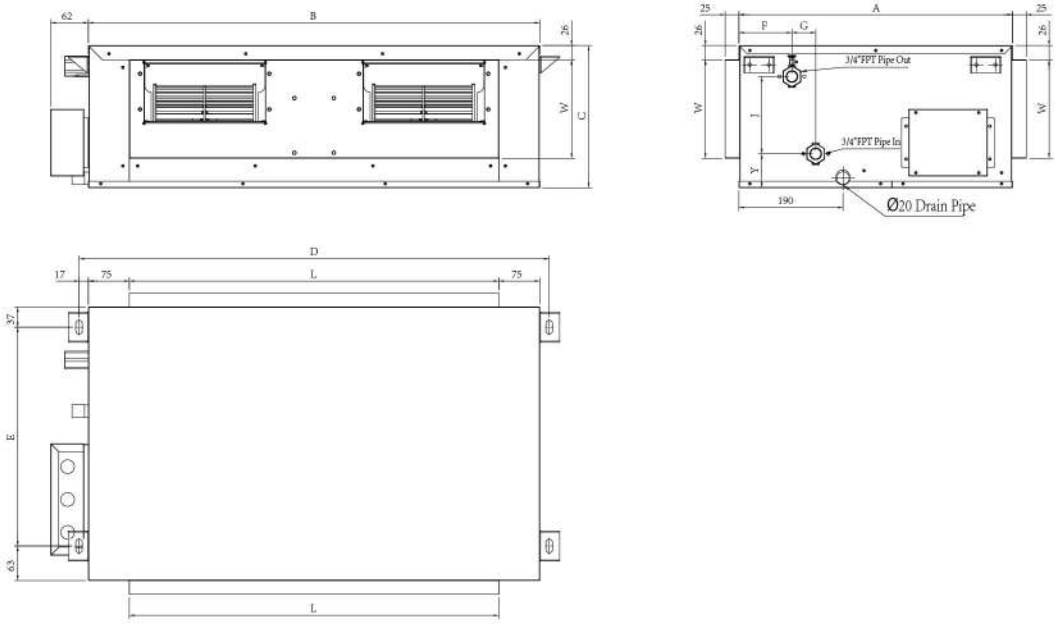
TECHNICAL DATA

2-pipe 4-row

Model		FC-NFCITH/NFCUTH											
		400	500	600	800	1000	1200	1400	1600	1800	2000	2400	2700
Air Flow (m^3/h)	H	680	850	1020	1360	1700	2040	2380	2720	3060	3400	4080	4590
	M	510	638	765	1020	1275	1530	1785	2040	2295	2550	3060	3443
	L	340	425	510	680	850	1020	1190	1360	1530	1700	2040	2295
Cooling Capacity (kW)	H	4.7	5.5	6.2	9	10.6	12.2	13.5	16.5	18	20.9	23.7	26.5
	M	3.8	4.5	5	7.3	8.6	9.9	10.9	13.4	14.6	16.9	19.2	21.5
	L	2.8	3.3	3.7	5.4	6.4	7.3	8.1	9.9	10.8	12.5	14.2	15.9
Heating Capacity (kW)	H	6.7	7.9	9.1	12.9	15.3	18	20.2	24.2	26.5	30.4	35	39
	M	5.3	6.3	7.2	10.2	12.1	14.2	16	19.2	21	24.1	27.7	30.9
	L	3.7	4.4	5	7.1	8.5	10	11.2	13.4	14.7	16.8	19.4	21.6
Water Flow (m^3/h)		0.81	0.948	1.08	1.56	1.824	2.094	2.328	2.844	3.09	3.588	4.068	4.548
Water Pressure Drop (kPa)		12.4	16.6	20.9	33.2	44	9.4	11.4	12.9	15	15.8	19.7	21.3
ESP (Pa)		50	50	50	70	70	90	90	90	90	90	90	90
Fan	Type	Centrifugal fan (forward-curved galvanized steel fan)											
	Quantity	2	2	2	2	2	2	2	2	2	2	2	2
Motor	Type	3-speed single phase motor											
	Quantity	1	1	1	1	1	1	1	1	1	1	1	1
	Power Supply (V / Ph / Hz)	AC 1PH-220V-50Hz											
	Insulation Class	B											
	Power Input (W)	88	110	143	202	256	278	333	385	485	573	715	860
	Running Current (A)	0.4	0.5	0.7	0.9	1.2	1.3	1.5	1.8	2.2	2.6	3.3	3.9
Pipe Connection	Cooling Coil Conn. (in/out)	3/4"FPT											
	Drain Pipe	15											
Noise Level (dB(A))		44	45	47	52	52	56	58	58	60	60	60	62
Net Weight (kg)		34	35	36	47	58	72	73	93	93	102	103	117

1. The above cooling capacity is under entering air temperature 27°C DB/19.5 °C WB, chilled water inlet 7°C and water temperature difference is 5°C.
2. The above heating capacity is under entering air temperature 21°C DB and heating water inelt temperature 60°C, water flow and air flow same as cooling mode.
3. The above noise level is measured tested under back ground(<17dB(A)) .

Dimension Drawing



Model	Length	Width	Height	Hole		Air Inlet/Outlet		Pipe Connection							
								3-row 2-pipe				4-row 2-pipe			
	A	B	C	D	E	L	W	F	G	Y	J	F	G	Y	J
FC-NFCITH/NFCUTH	mm														
FC-400NFCITH	500	825	260	870	400	675	185	97	0	67	110	75.4	65	67	110
FC-500NFCITH	500	825	260	870	400	675	185	97	0	67	110	75.4	65	67	110
FC-600NFCITH	500	825	260	870	400	675	185	97	0	67	110	75.4	65	67	110
FC-800NFCITH	550	1000	315	1045	450	850	240	94	43.3	67	165	94	65	67	165
FC-1000NFCITH	550	1000	315	1045	450	850	240	94	43.3	67	165	94	65	67	165
FC-1200NFCITH	620	1200	315	1245	520	1050	240	94	43.3	63	165	94	65	63	165
FC-1400NFCITH	620	1200	315	1245	520	1050	240	94	43.3	63	165	94	65	63	165
FC-1600NFCITH	620	1400	350	1445	520	1250	275	94	43.3	63	200	94	65	63	200
FC-1800NFCITH	620	1400	350	1445	520	1250	275	94	43.3	63	200	94	65	63	200
FC-2000NFCITH	670	1400	400	1445	570	1250	325	94	43.3	63	250	94	65	63	250
FC-2400NFCITH	670	1400	400	1445	570	1250	325	94	43.3	63	250	94	65	63	250
FC-2700NFCITH	670	1400	450	1445	570	1250	375	94	43.3	63	250	94	65	63	250

DUCT TYPE FAN COIL UNIT

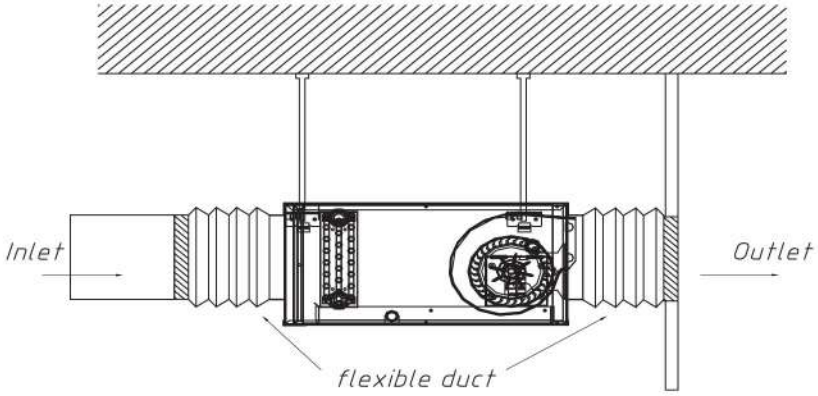
INSTALLATION INSTRUCYION

1.INSTALLATION

Pay attention to maintain the unit properly. The turning parts inside should not collide .Make sure there are no large floating debris into fan, motor or coil. Also make sure that the outlet side of a draining panel keeps 3 to 5 mm lower than the opposite side at least and water discharges well.

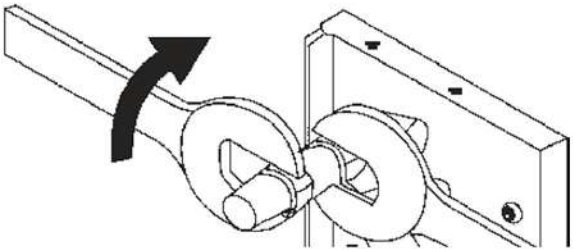
2.AIR DUCT CONNECTION

In order to restrict vibration transmitting use flexible duct on inlet/outlet of unit.



3.WATER CONNECTION

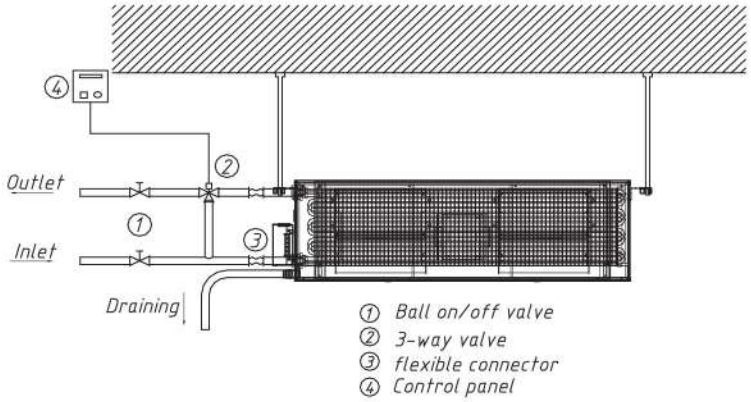
Fix the connections by tightening the fan coil fitting with the wrench against wrench system. Remember that the torque should not exceed 2.5kg.m.



Make sure the correct direction of water flow. The cooling/heating water shall go through the coil from the bottom (inlet) to the top (outlet). The installation of flexible connector is advised to restrict vibration transmitting. To control room tempera use a room sensor connected with 3-way or 2-way valve actuator as on the diagram. Ball valves should be installed to adtjuurset water flow rate or stop up the flow if needed. The drain pipe shall keep a slope to make draining water goes freely. All pipes and regulating parts shall be installed. When connection is finished a leak test must be applied. Normally the testing pressure is 1.5 times more than working pressure.

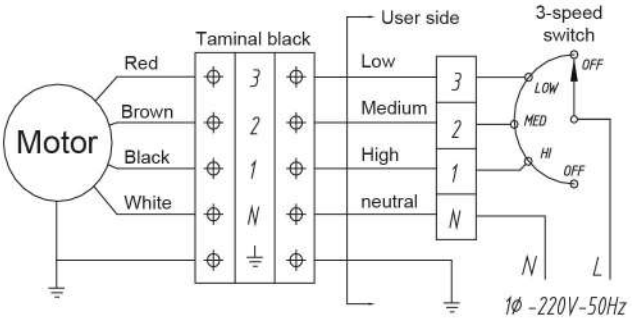
DUCT TYPE FAN COIL UNIT

INSTALLATION INSTRUCYION



4.WIRING

Make sure of the correct color when connecting wires. Make sure that the unit is grounded properly.



5.TEST RUN

After installation, carry out the test run before decorate the interior.

6.OPERATIOM

In summer time the cooling water temperature shall not be lower than 5 , otherwise the dew can destroy the surface of insulation and the interior will be damaged. In winter time the heating water temperature shall not exceed 65 . If the unit does not work long period in winter time the water must be discharged from the coils if there are no any special sntifreeze components. Other it will break coils.

7.MAINTENANCE

In order to keep the normal air flow rate clean the filter and the coil permanently. Pay extra attention in case the unit has no cooling/ heating effect.

CASSETTE TYPE FAN COIL UNIT

FC-NHDU4 CASSETTE TYPE FAN COIL UNIT
340~2380 M^3/H

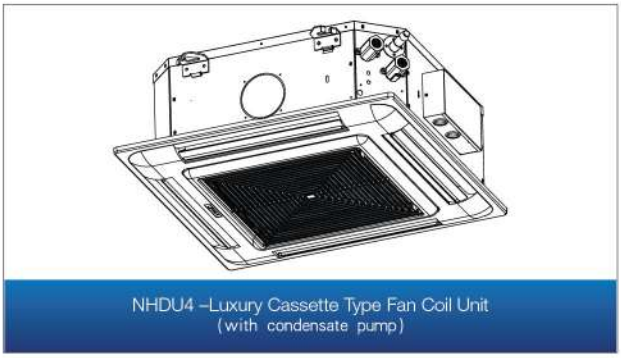


FC-NHDU4 series is the cassette type fan coil unit of Climaveneta. They are ideally designed with versatile configuration and adoption for all applications with 2-pipe system and 4-pipe system. The units shall guarantee lower pressure drop of air side and water side in accordance with different installation requirement. The 2-pipe system units shall be constructed with one coil which can interchange the mode between heating and cooling in specific condition. And the 4-pipe system units are characterized by 2 coils, resulting in the independent operation of heating and cooling mode. The cooling and heating mode of 4-pipe system also can be exchanged upon different requests in different areas.

UNIT FEATURES

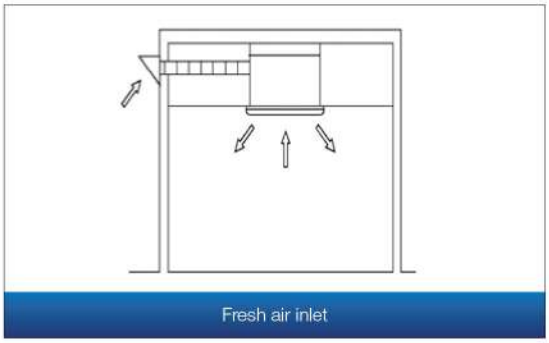
Casing

The casing shall be manufactured by Grand 1 galvanized steel sheet with extruded treated. The thermal resistance material shall be integrally attached to the exterior surface of the casing and installed with seamless connection method preventing the condensate occurs at the unit exterior surface.

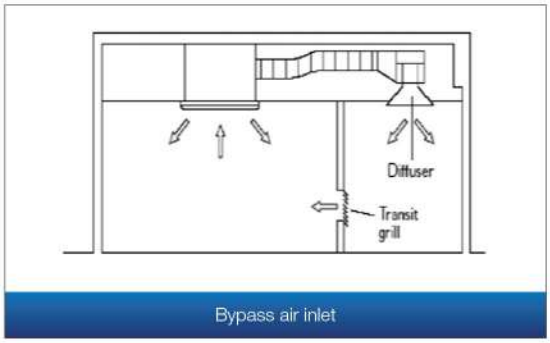


NHDU4 –Luxury Cassette Type Fan Coil Unit
(with condensate pump)

The fresh air inlet and air inlet bypass are equipped in the standard configuration, and they shall be installed as an option depending on customer's requirement.



Fresh air inlet



Bypass air inlet

The minimal height of unit is 290mm ideally fitting for the installation of compact space in the ceiling.



Front Panel

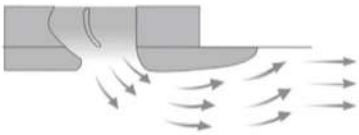
The front panels of Cassette Type Fan Coil Units are manufactured by ABS material, and the air return section shall be fixed with removable grills, resulting in the convenient replacement and cleaning of filters. The electric diffuser at the air outlet section shall adjust the airflow direction for specific requests.



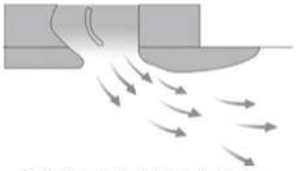


Optimized Air Diffusion Configuration

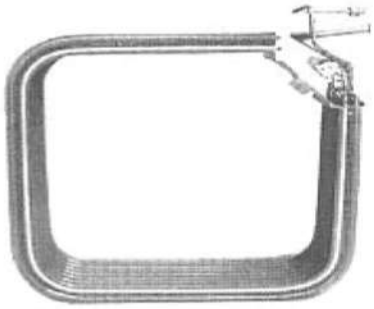
Preventing the condensation on the front panel of units and the dirt on the ceiling near the airflow outlet efficiently.



Typical air diffusion type
The airflow moving along the ceiling make the dirt occurs.



Optimized air diffusion type by Climaveneta
The upward airflow is limited



Coil

- The reasonable water flow configuration shall be designed to ensure the balance of cooling load between the water side and air side, as well as the matching of cooling load and airflow rate.
- The coils shall be made of hydrophilic aluminum fins which can prevent the film condensation efficiently and discharge the condensate fluently, resulting in the reduction of the thermal resistant and air resistant. The noncorrosive hydrophilic coat can expand the working life of drain pans also.
- The exclusive fins shall distribute the air adequately and maximize the heat transfer efficiency. Coils are annular type designed with the possibility to minimize the blind angle of heat transfer, finally guaranteeing the 4-way heat exchange ability.
- The headers shall be made of copper with ideal performance of water flow configuration.

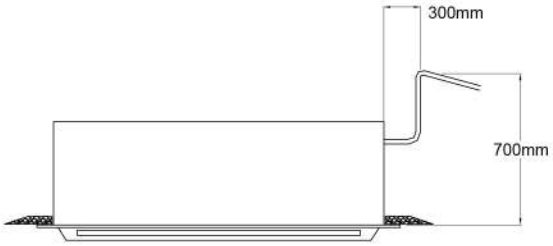


Fan

- Non-direction, one-inlet centrifugal fan shall be fixed. And oversized fan wheel made of thermoplastic ABS material shall be factory dynamical balance tested to ensure the reliable operation.
- Motors shall be equipped with low-speed, total-hermetic, 3-speed, free-lubricated scroll bearing. Unit foundation shall be installed with rubber collars to insulate the vibration, finally reducing the noise level. Wire cables shall be protected with specific covers for the reliability of units.
- The motors, fans and heat exchangers shall be performance match tested strictly to guarantee the motors working at the highest efficient performance with low noise operation.

Condensate Pump

The condensate pumps shall be expected to lift the condensate for 700mm from the ceiling. And the units without condensate pump offered upon customer's requirement also.



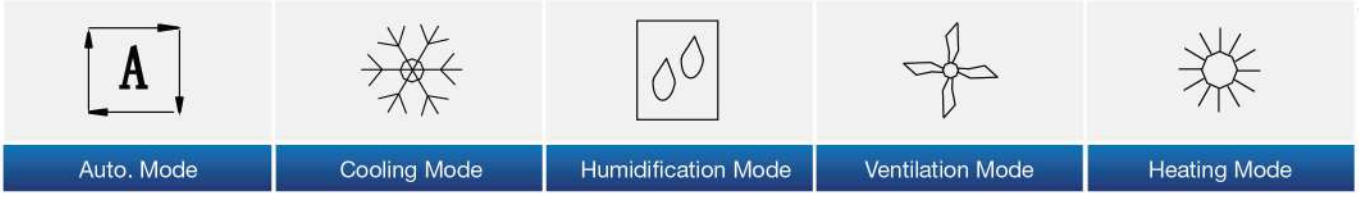
Drain Pan

The oversized drain pans shall be fixed with well thermal insulation protection on the exterior surface preventing the leakage and stagnant condensation.

Control system

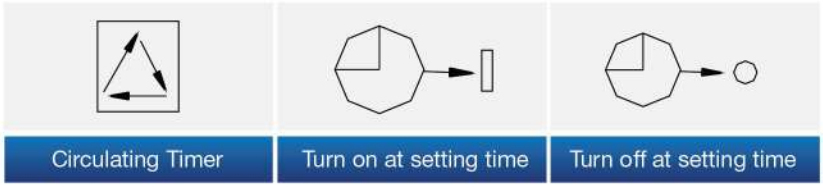
Both wireless remote controllers and wall-mounted thermostats shall be provided for customer as an option to regulate the oper units accurately. And the control system could exchange the operation mode in different applications.

Operation Mode

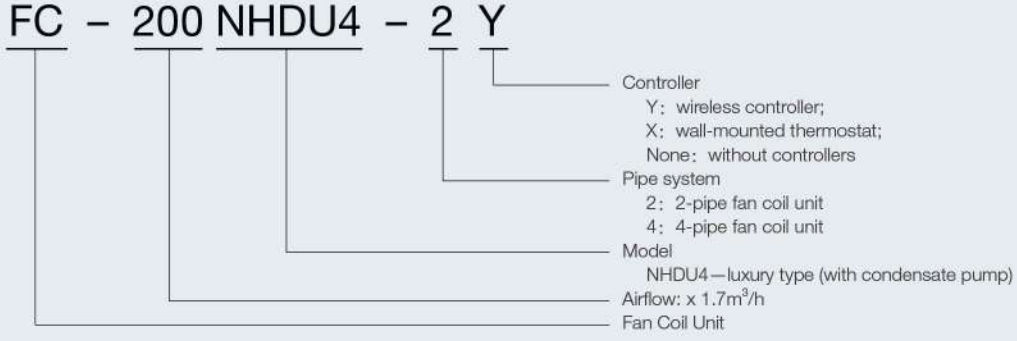


24-Hour programmable timer shall be friendly designed keeping the excellent balance between comfort request and energy saving, which presenting the exclusive humanization care of Climaveneta.

Timer operation



MODEL NOMENCLATURE



TECHNICAL DATA

FC-NHDU4-2 Cassette Type Fan Coil Unit (2-pipe, with condensate pump)

Model			200	300	400	470	500	600	800	1000	1200	1400
Air Flow	H	m^3/h	340	510	680	800	850	1020	1360	1700	2040	2380
	M		255	380	510	600	635	765	1020	1275	1530	1785
	L		170	255	340	400	425	510	680	850	1020	1190
Cooling	H	kW	2.12	3.09	3.94	4.32	5	5.87	7.32	9.59	11.46	13.04
	M		1.7	2.6	3.2	3.5	4.1	4.9	6.2	8	9.6	11
	L		1.3	1.9	2.4	2.6	3.1	3.6	4.7	6.1	7.2	8.3
Coil	H	kW	3.37	4.81	6.21	7.01	7.66	9.62	12.42	15.47	17.43	20.16
	M		2.7	3.8	5	5.6	6.1	7.6	9.9	12.3	14	16.2
	L		1.9	2.7	3.6	4.1	4.4	5.5	7.1	8.9	10.1	11.7
Coil	Water Flow	m^3/h	0.366	0.534	0.678	0.744	0.858	1.008	1.26	1.65	1.974	2.244
	Pressure Drop	kPa	16.2	20.8	28.2	36.3	21.5	25.4	35.9	33.6	40	47.2
Power Supply			220V/1Ph/50Hz									
Power Input		W	35	49	58	70	72	94	130	149	183	220
Motor Current		Amp	0.16	0.22	0.26	0.32	0.33	0.43	0.59	0.68	0.83	1
Noise		dB(A)	35	39	41	44	40	45	46	44	48	52
Net Weight		kg	21.5	21.5	21.5	21.5	30.5	32	32	41	41	41
Water Pipe	Inlet	inch	FPT 3/4"									
	Outlet		FPT 3/4"									
Drain Pipe Size		mm	ϕ 26									

Rated testing condition	Temp. DB (℃)	Temp. WB (℃)	Temp. water inlet (℃)	Water temp. difference (℃)
Nominal cooling mode	27	19.5	7	5
Nominal heating mode	21		60	
Noise level	The measurement has been taken on surfaces positioned at d=1m distance from the unit in a standard anechoic chamber (<17dB (A)).			
Rated airflow	stands for the airflow while the exterior static pressure is 0Pa			
FPT	Female Pipe Thread			

CASSETTE TYPE FAN COIL UNIT

TECHNICAL DATA

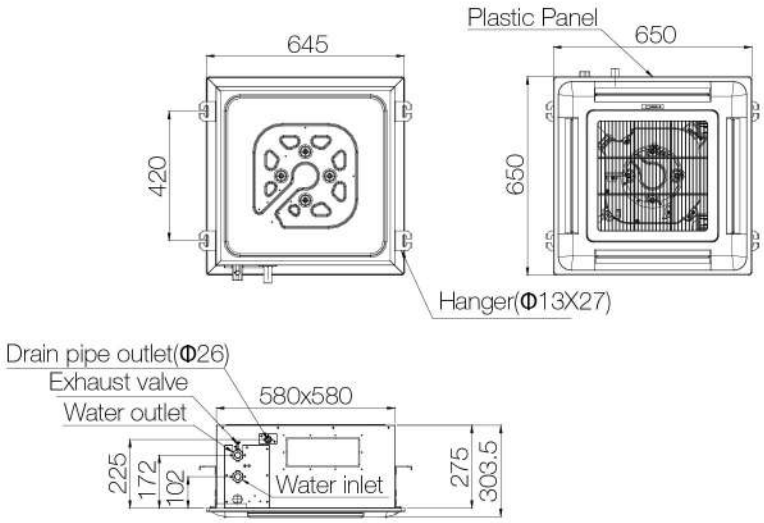
FC-NHDU4-4 Cassette Type Fan Coil Unit (4-pipe, with condensate pump)

Model			200	300	400	470	500	600	800	1000	1200	1400
Air Flow	H	m^3/h	340	510	680	800	850	1020	1360	1700	2040	2380
	M		255	380	510	600	635	765	1020	1275	1530	1785
	L		170	255	340	400	425	510	680	850	1020	1190
Cooling	H	kW	1.76	2.53	3.19	3.47	4.25	5.19	6.01	8.07	9.05	9.81
	M		1.41	2.13	2.59	2.81	3.49	4.28	5.07	6.72	7.55	8.25
	L		1.08	1.56	1.94	2.11	2.64	3.19	3.82	5.12	5.7	6.21
Heating	H	kW	2.09	2.72	3.3	3.64	4.29	4.79	5.53	7.55	8.45	9.31
	M		1.97	2.25	2.72	3.04	3.52	3.99	4.79	6.36	7.08	7.78
	L		1.7	1.97	2.09	2.32	2.74	3.42	3.69	4.83	5.45	6.06
Coil	Water Flow (m^3/h)	Cooling	0.3	0.438	0.552	0.6	0.732	0.894	1.032	1.386	1.56	1.686
		Heating	0.18	0.252	0.324	0.36	0.396	0.468	0.57	0.72	0.792	0.9
	Pressure Drop (kPa)	Cooling	16.2	20.8	28.2	36.3	21.5	25.4	35.9	33.6	40	47.2
		Heating	9.7	16	22	27	45	55	62	26	32	38
Power Supply			220V/1Ph/50Hz									
Power Input		W	35	49	58	70	72	94	130	149	183	220
Motor Current		Amp	0.16	0.22	0.26	0.32	0.33	0.43	0.59	0.68	0.83	1
Noise		dB(A)	35	39	41	44	40	45	46	44	48	52
Net Weight		kg	22	22	22	22	31	32.5	32.5	41.5	41.5	41.5
Water Pipe	Inlet	inch	FPT 3/4"									
	Outlet		FPT 3/4"									
Drain Pipe Size		mm	ϕ 26									

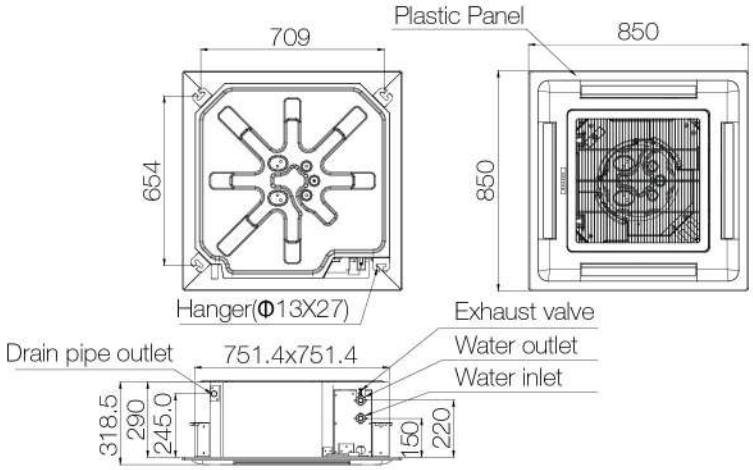
Rated testing condition	Temp. DB (℃)	Temp. WB (℃)	Temp. water inlet (℃)	Water temp. difference (℃)
Nominal cooling mode	27	19.5	7	5
Nominal heating mode	21		60	
Noise level	The measurement has been taken on surfaces positioned at d=1m distance from the unit in a standard anechoic chamber (<17dB (A)).			
Rated airflow	stands for the airflow while the exterior static pressure is 0Pa			
FPT	Female Pipe Thread			

DIMENSION

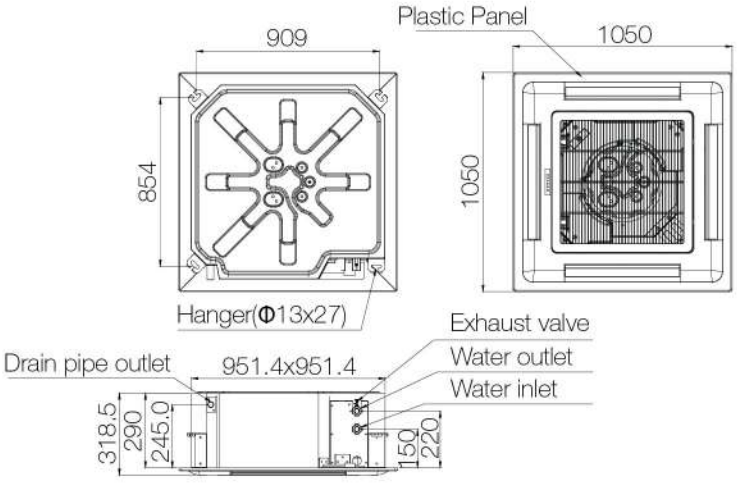
FC-200NHDU4-2~FC-470NHDU4-2



FC-500NHDU4-2~FC-800NHDU4-2



FC-1000NHDU4-2~FC-1400NHDU4-2

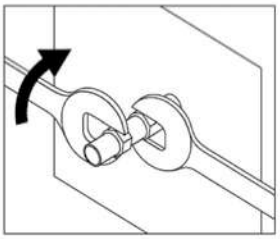


CASSETTE TYPE FAN COIL UNIT

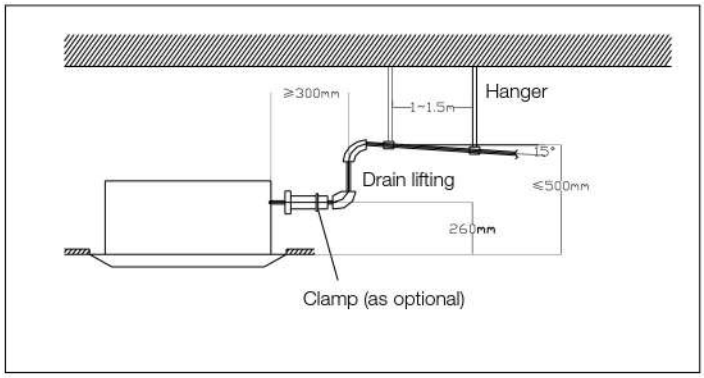
INSTALLATION, OPERATION AND MAINTENANCE

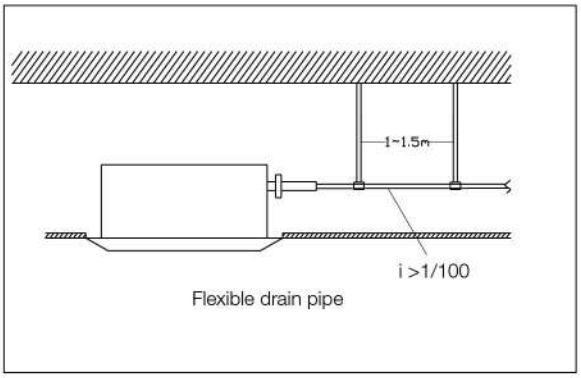
Installation--- Make sure that the unit is not damaged during transit and the all the components inside shall not collide with each other and no dirt shall drop into the fan, motor and heat exchanger. The unit shall be installed in the middle of the ceiling ensuring the optimal air diffusion.

Water Pipe Connection--- Water connections are inlet from the bottom and outlet from the top; Flexil connectors are suggested for both inlet and outlet; The torque shall be less than 2.5kg•m during installation; All water pipes shall be well insulated. And all bolt connections shall be insulated and se material of PTFE belt. The drain pipe shall be mounted with proper gradient, no squash, no bending.



Union joint with 2 spanners shown in the drawing





Electrical Connection--- The unit must be earthing, All electrical wires exposing to the air should well bonded to connectors before attach to unit (Wire connection shall comply with the wire diagram offered by the company).

Start-up Procedure--- After proper installation, the drain pan, fan casing and coil must be clean; Then check all field connections of pipes and wires; And now the unit can be started. The 3-speed switch is recommended to be turned on from high speed.

Operation--- The lowest water temperatures for unit inlet is 2 ºC for cooling and highest temperature is 80 ºC for heating. The manual vent valve shall be regularly opened to release the air in the pipe system. The system water shall be softened and meet the water quality requirements.

Maintenance--- Fan coils and filters shall be cleaned regularly by blowing with compressed air in opposite direction of airflow. Clean water should be charged in the coils to reduce the rust while the unit stops working. And in winter, anti-freeze method shall be considered.

Filter Cleaning--- The customer shall be suggested to clean the front panel and filters only! Before the cleaning, always turn off the main power! The filters shall be cleaned by soap water. The strong oxidant, strong acid or alkalis liquid are forbidden to use! The front panel shall be cleaned by wet rag with soap water. And the filters shall be treated with the proper method in the manual book.

The installation, operation and maintenance of units shall comply with the “Installation manual book of Cassette Type Fan Coil Unit”.

CLIMAVENETA

WALL MOUNTED FAN COIL UNIT



■ Condealed digital display panel ■ Remote controller
■ Stainless steel hose for easy connection(option)

Model (2-pipe)				FC-200NFGM	FC-300NFGM	FC-400NFGM	FC-400NFGM	FC-600NFGM	FC-800NFGM
Fan Coil Unit Appearance									
Power Supply				220V,60Hz,1Ph					
Nominal Air Flow		H	m^3/h	340	510	680	850	1020	1360
		M		260	380	515	660	765	1010
		L		180	260	340	430	530	710
Static Pressure			Pa	0	0	0	0	0	0
Cooling Capacity	Total	H	W	1800	2700	3600	4500	5400	7200
	Sensible		W	1350	2025	2700	3375	4050	5400
	Total	M	W	1476	2214	2952	3690	4428	5904
	Sensible		W	978	1399	1963	2409	3044	3886
	Total	L	W	1098	1647	2196	2745	3294	4392
	Sensible		W	649	960	1355	1715	2060	2573
Heating Capacity	H		W	2700	4050	5400	6750	8100	10800
	M		W	2146	3219	4293	5366	6439	8586
	L		W	1512	2268	3024	3780	4536	6048
Noise	High Speed		dB(A)	37	39	41	43	45	46
Power Input	High Speed		W	30	38	45	50	90	100
Water flow	High Speed		m^3/h	0.31	0.46	0.62	0.77	0.93	1.03
Water Pressure Drop			kPa	16	18	20	21	22.5	23.5
Water Tube Connection(inlet)				ZG1/2"	ZG1/2"	ZG1/2"	ZG1/2"	ZG1/2"	ZG1/2"
Water Tube Connection(outlet)				ZG1/2"	ZG1/2"	ZG1/2"	ZG1/2"	ZG1/2"	ZG1/2"
Coil			Type	high efficient copper pipe to wear Hydrophilic aluminum foil					
Max. Working Pressure			MPa	1.6	1.6	1.6	1.6	1.6	1.6
Condensing Water Tube(outer diameter)			mm	₡ 16	₡ 16	₡ 16	₡ 16	₡ 16	₡ 16
Dimension(L×W×H)			mm	885×300×198		970×315×235		1100×330×235	
Net Weight			kg	11.2	11.2	14.5	14.5	16.5	16.5

1. The above cooling capacity is under entering air temperature 27°C DB/19.5 °C WB, chilled water inlet 7°C and water temperature difference is 5°C;
2. The above heating capacity is under entering air temperature 21°C DB and heating water inlet temperature 60°C. Data is subject to change without notice, refer to nameplate.

CLIMAVENETA

UNIVERSAL TYPE FAN COIL UNIT

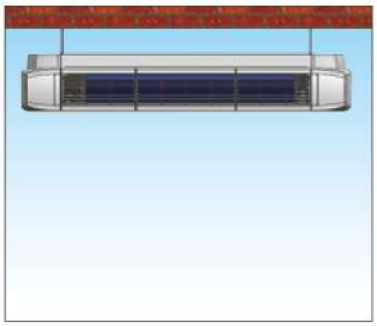
FC-G
340~2380 M^3/H



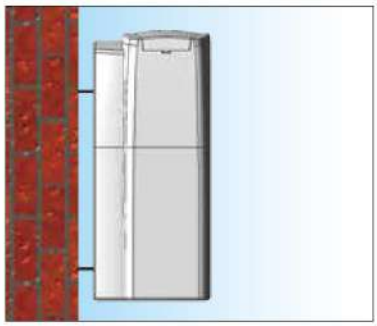
PRODUCT OVERVIEW

FC-G series universal type fan coil unit is a high-quality product developed on the basis of CLIMANENETA ITALY original technology. Thanks to its incredible appearance design, it is applicable to central air condition system with great installation flexibilit y, such as ceiling suspended, wall hanged and floor mounted, which makes it an optimal option of exposed products.

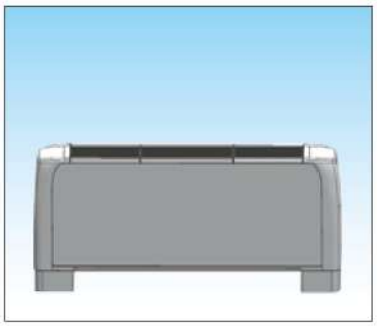
Product line of 9 models. Air flow: 340~2380 m3/h. Cooling capacity: 2.15~12.69 kW.



Ceiling Suspended



Wall Hanged



Floor Mounted

PRODUCT FEATURES

Attractive Appearance

This series adopts the brand-new model appearance design of ABS material curved-edge shell.

High Heat-exchange Efficiency

The coils are made of high quality copper tubes (Φ9.52mm) and louver hydrophilic aluminium fins. All tubes and fins are expanded by advanced manufacturing process with perfect contact. Combined with large air flow while low noise fan, the unit has the most excellent heat transfer performance.

Low Noise

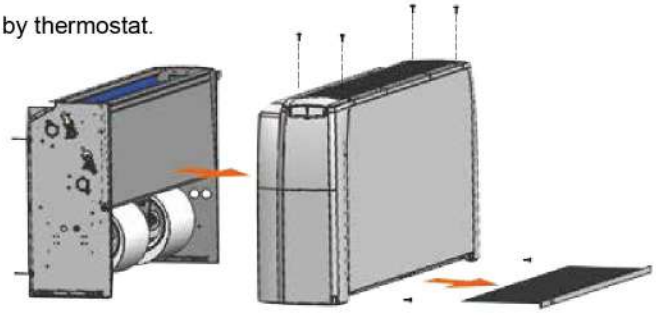
The unit is designed with lower coil face velocity and optimized internal structure, which enables lower unit internal air re sistance, as a result of low noise.

Good Flexibility

The unit is suitable for various site conditions and able to be controlled by thermostat.

Simple Installation and Maintenance

The casing of the unit can be easily dismantled for service.



UNIVERSAL TYPE FAN COIL UNIT

STRUCTURE CHARACTERISTICS



Casing

The casing is manufactured by color steel or galvanized steel with extruded treated. The exterior frame is connected by ABS angle bead through bending and buttoning. The top of exterior frame is equipped with ABS outlet, which can switch the air supply direction when installation.



Coil

The coils are made of high quality copper tubes (Φ9.52mm) and louver hydrophilic aluminium fins. All tubes are tightly expanded to fins. The headers are made of copper with ideal performance of water flow configuration. The coils have been optimized to decrease coil face velocity, which effectively reduce the internal resistance.



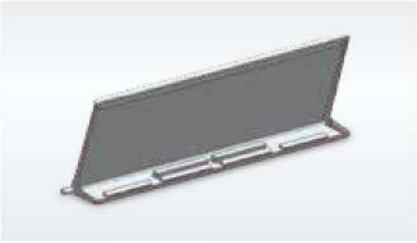
Fan

Fans shall be equipped with high-efficient and low-noise DIDW centrifugal fan wheels manufactured by galvanized steel with excellent static and dynamical balance capacity. And the main panel and side panels are well insulated to prevent leakage and vibration.



Motor

Capacitor motor is adopted with low-noise, total-hermetic and free-lubricated scroll bearing. The rubber pads between the unit and the foundation shall be fixed to insulate the vibration and reduce the noise.

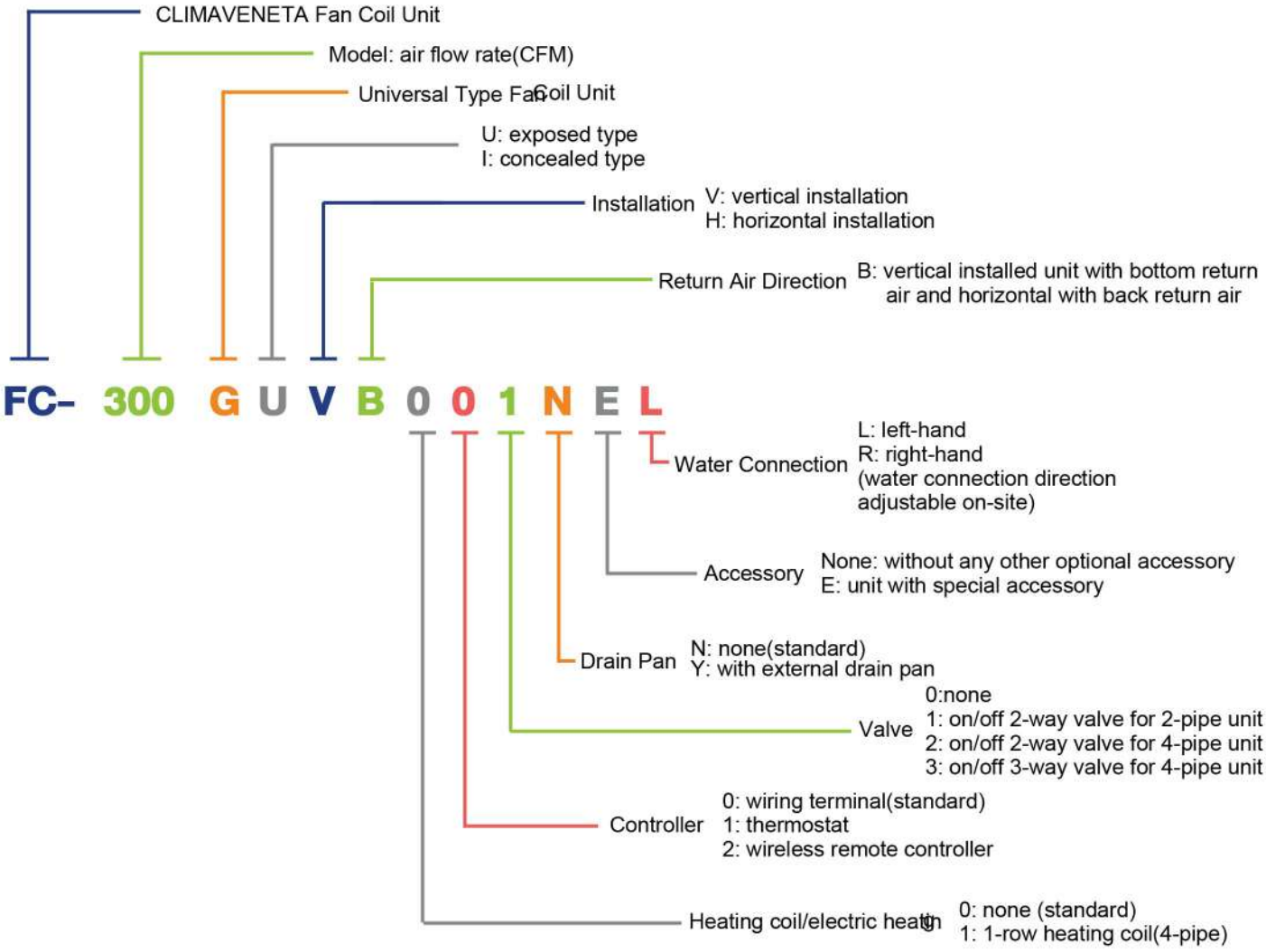


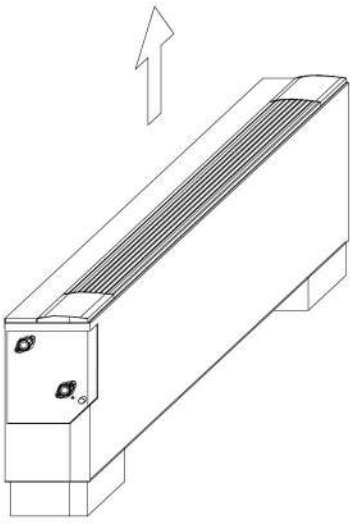
Drain Pan

The use of L-type plastic drain pan guarantees smoothly drain under any installation condition.

UNIVERSAL TYPE FAN COIL UNIT

MODEL NOMENCLATURE





Note:

1. The left-hand water connection type is defined by the cooling water in coils coming from the left side while standing in front of the air-inlet side. The right-hand type is defined on the contrary. As in the diagram, the left-hand water connection configuration is shown.
2. For the universal type fan coil units, the foundation braces are fixed in the vertical installation only.

UNIVERSAL TYPE FAN COIL UNIT

TECHNICAL DATA

3-row fan coil unit (2 pipes)

Model		200	300	400	500	600	800	1000	1200	1400
Nominal Air Flow (m^3/h)	High	340	510	680	850	1020	1360	1700	2040	2380
	Medium	270	400	540	670	810	1080	1360	1630	1900
	Low	200	300	400	510	610	810	1000	1220	1430
Capacity	Cooling (kW)	2.15	3.13	3.92	4.75	5.63	7.25	9.29	11.16	12.69
	Heating(kW)	3.5	4.8	6.68	8.03	9.39	13	15.92	19	20.52
	Water Flow(m^3/h)	6.2	9	11.2	13.6	16.1	20.8	26.6	32	36.4
	Water Pressure Drop(kPa)	12	23	16	24	30	25	19	30	40
Noise Level dB(A)		37	39	41	43	45	46	48	50	52
Input Power(w)		35	48	61	75	94	134	152	189	226
Heat Exchanger	Structure	High quality copper tubes (Φ9.52mm) with louver hydrophilic aluminium fins								
	Water Pipe	DN20 FPT (RC3/4)								
	Drain Pipe	DN20 MPT (RC3/4)								
	Working Pressure	1.6MPa								
Fan	Type	DIDW centrifugal fan								
	Quantity	1	2				4			
Motor	Type	3-speed capacitor motors								
	Bearing	High precision bearing								
	Power Supply	220V-1ph-50Hz								
	Quantity	1					2			
	Insulation Class	B								
	Running Current(A)	0.16	0.22	0.28	0.34	0.43	0.61	0.69	0.86	1.03
Net Weight(kg)		18	20.6	22.2	24.5	26	35	38.5	43	45.7

Note:
1. Nominal air flow is the air flow of concealed type unit when ESP 12Pa and exposed type unit when ESP 0 Pa.
2. Cooling Condition: air inlet 27°C DB/19.5°C WB, water inlet:7°C, water △T:5°C.
3. Heating Condition: air inlet 20°C DB, water inlet:60°C, water flow same with cooling condition.

UNIVERSAL TYPE FAN COIL UNIT

TECHNICAL DATA

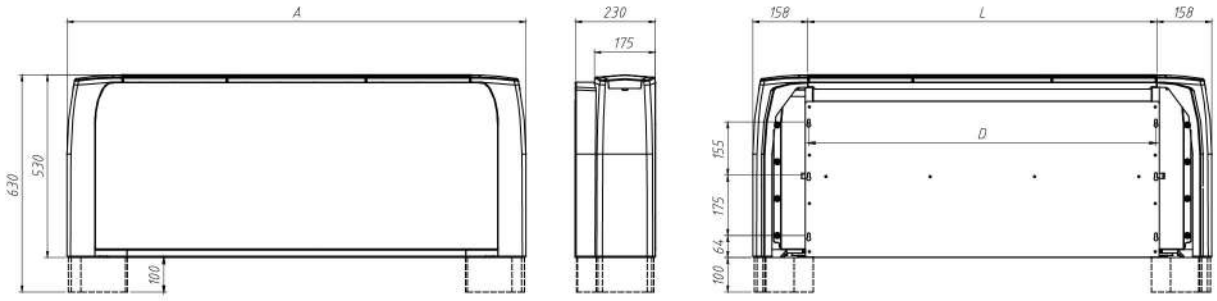
3+1-row fan coil unit (4 pipes)

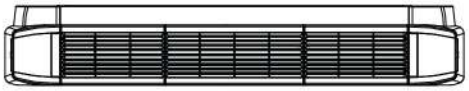
Model			200	300	400	500	600	800	1000	1200	1400
Nominal Air Flow (m^3/h)	High		320	490	650	810	980	1310	1630	1980	2300
	Medium		250	380	520	640	780	1040	1300	1570	1840
	Low		190	290	380	490	590	780	960	1180	1380
Capacity	Cooling (kW)		2.15	3.13	3.92	4.75	5.63	7.25	9.29	11.16	12.69
	Heating(kW)		1.88	2.75	3.57	4.25	5.41	6.45	8.62	10.5	12.1
	Water Flow (m^3/h)	Cooling	0.354	0.534	0.672	0.792	0.948	1.248	1.548	1.878	2.118
		Heating	0.162	0.234	0.306	0.366	0.468	0.552	0.744	0.906	1.044
	Water Pressure Drop(kPa)	Cooling	12	23	16	24	30	25	19	30	40
		Heating	8	11	21	28	52	18	33	38	46
Noise Level dB(A)			37	39	41	43	45	46	48	50	52
Input Power(w)			35	48	61	75	94	134	152	189	226
Heat Exchanger	Structure		High quality copper tubes (Φ9.52mm) with louver hydrophilic aluminium fins								
	Water Pipe		Chilled water: DN20 FPT (RC3/4) Hot water: DN15 FPT (RC1/2)								
	Drain Pipe		DN20 MPT (RC3/4)								
	Working Pressure		1.6MPa								
Fan	Type		DIDW centrifugal fan								
	Quantity		1	2				4			
Motor	Type		3-speed capacitor motors								
	Bearing		High precision bearing								
	Power Supply		220V-1ph-50Hz								
	Quantity		1					2			
	Insulation Class		B								
	Running Current(A)		0.16	0.22	0.28	0.34	0.43	0.61	0.69	0.86	1.03
Net Weight(kg)			18.9	21.6	23.3	25.6	27.2	36.4	40.1	44.7	47.5

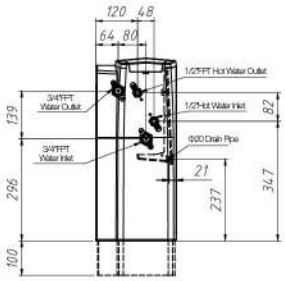
Note:
1. Nominal air flow is the air flow of concealed type unit when ESP 12Pa and exposed type unit when ESP 0 Pa.
2. Cooling Condition: air inlet 27°C DB/19.5°C WB, water inlet:7°C, water △T:5°C.
3. Heating Condition: air inlet 20°C DB, water inlet:60°C, water flow same with cooling condition.

UNIVERSAL TYPE FAN COIL UNIT

DIMENSION

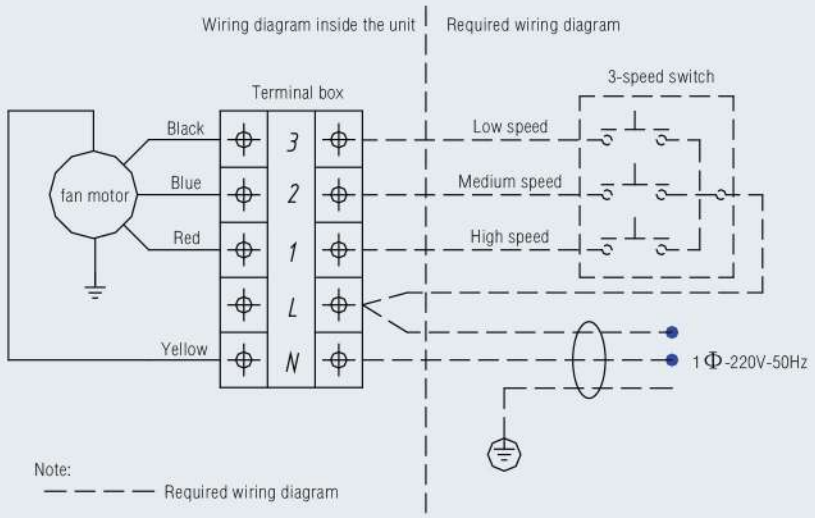






Model	Length	Width	Height	Lifting Hole	Air Outlet
	A	B	C	D	L
200	920	230	630	599	604
300	1020	230	630	699	704
400	1120	230	630	799	804
500	1220	230	630	899	904
600	1320	230	630	999	1004
800	1520	230	630	1199	1204
1000	1820	230	630	1499	1504
1200	2020	230	630	1699	1704
1400	2020	230	630	1699	1704

WIRING DIAGRAM



AIR HANDLING UNIT CONTROLLER

PAC-AH-M-J



Control Device for Air Handling Unit

Control Device for Air Handling Units

The **PAC-AH-M-J** functions as the controller for Air Handling Unit (AHU) which functions as a crucial component of the system's operation. It utilizes an LEV (Linear Expansion Valve), which plays a crucial role in the system's operation, and connects directly to the VRF (CITY MULTI) system. This enables the air conditioning system to operate seamlessly under the VRF network.

It is suitable for Air Handling Unit applications requiring precise environmental control such as cleanrooms, laboratories, or other specialized rooms.

MAIN FEATURES OF PAC-AH-M-J

- Connects directly to the VRF system.
- Controls air supply easily via a remote controller.
- Allows centralized control of multiple zones.
- Provides error detection and displays error codes.
- IP2x protection rating (for indoor use).

PAC-AH-M-J - AHU CONTROLLER

MODEL REFERENCE		PAC-AH125M-J	PAC-AH125M-J	PAC-AH140M-J	PAC-AH250M-J	PAC-AH250M-J	PAC-AH500M-J	PAC-AH500M-J
AIR HANDLING UNIT SIZE		P100	P125	P140	P200	P250	P400*2	P500*2
ALLOWED HEAT EXCHANGER CAPACITY (KW) - HEATING (MIN/MAX)		10.0 - 12.5	12.5 - 16.0	16.0 - 18.0	18.0 - 25.0	25.0 - 31.5	40.0 - 50.0	50.0 - 63.0
ALLOWED HEAT EXCHANGER CAPACITY (KW) - COOLING (MIN/MAX)		9.0 - 11.2	11.2 - 14.0	14.0 - 16.0	16.0 - 22.4	22.4 - 28.0	36.0 - 45.0	45.0 - 56.0
ALLOWED HEAT EXCHANGER VOLUME (CM^3)		1500 - 2850	1900 - 3550	2150 - 4050	3000 - 5700	3750 - 7100	6000 - 11400	7500 - 14200
REFERENCE AIR FLOW RATE (M3/H)*3		2000	2500	3000	4000	5000	8000	10000
STANDARD EVAPORATOR PATH NUMBER*1		4 - 5	4 - 5	5 - 6	6 - 10	8 - 10	16 - 20	16 - 20
DIMENSIONS (MM) ( ) = INC MOUNTINGS	WIDTH DEPTH HEIGHT	328 104 (122) 378 (420)	328 104 (122) 378 (420)	328 104 (122) 378 (420)	328 104 (122) 378 (420)	328 104 (122) 378 (420)	328 104 (122) 378 (420)	328 104 (122) 378 (420)
WEIGHT (KG)		5	5	5	5	5	5	5
PIPE SIZE (MM)	GAS LIQUID	15.88 9.52	15.88 9.52	15.88 9.52	19.05 9.52	22.22 9.52	28.58 12.7	28.58 15.88

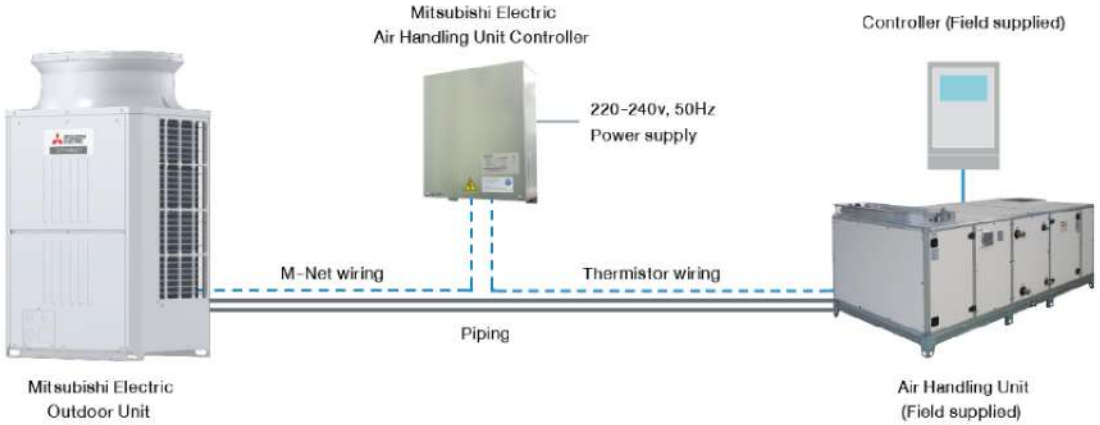
Note: One air handling unit controller is required per air handling unit. Saturated refrigerant temperature at exit of evaporator = 8.5°C, SH = 5K, liquid temperature = 25°C, air = 27°CDB/19°CWB.

*1 When the diameter of the heat exchanger tube is ø9.52.

*2 P400 and P500 are not compatible with PURY and PQRY.

*3 If using in combination with standard indoor units, then these figures do not apply.

Example



CLIMAVENETA

Product Inquiry – Climaveneta:

Our expert team is ready to provide guidance on air conditioning systems for large buildings and residential complexes.

Tel: +66 (0) 2763-7000 ext. 7

Air Handling Unit Controller Line up



DX-M/CW-M Series

AIR HANDLING UNIT



Custom-Engineered Air Handling Units for Every Cooling Demand

We offer Air Handling Units (AHUs) that can be fully customized to meet your specific requirements — from cooling capacity and airflow design to installation layout and control systems. Each unit is precisely engineered to deliver optimal performance, energy efficiency, and long-term reliability.

Our AHUs are ideal for all types of large-scale buildings, including commercial complexes, hospitals, factories, data centers, and any facility that demands high-performance cooling solutions. Whether you require a compact design or a large-capacity system, we can tailor every specification to ensure perfect compatibility with your project needs.

Example of AHU standard line up

MODEL			AHU-250HA	AHU-500HA	AHU-800HA	AHU-1000HA	AHU-1250HA	AHU-1500HA	AHU-2000HA	AHU-2500HA	AHU-3000HA
Total Cooling Capacity		BTUh	95,500	191,000	300,300	382,000	464,000	573,000	764,000	928,000	1,146,000
Total Sensible Cooling Capacity		BTUh	70,450	144,900	223,485	290,220	343,485	424,825	556,220	674,890	872,990
Capacity Index			250	500	800	1000	1250	1500	2000	2500	3000
Input Power		Kw.	2.42-3.60	4.90-7.41	7.38-10.61	8.83-12.96	11.08-15.97	14.78-19.98	19.16-25.49	24.46-32.27	29.08-38.70
Air Flow		CMH	5,000	10,000	16,000	20,000	24,600	30,000	40,000	49,200	60,000
Ent. Temp.		CDB/CWB	27/19	27/19	27/19	27/19	27/19	27/19	27/19	27/19	27/19
Lea. Temp.		CDB/CWB	14.7/13	14.36/12.94	14.81/13.12	14.34/12.98	14.82/13.19	14.64/13.09	14.87/13.15	15.03/13.26	14.3/12.93
Coil Type			Dx Coil (R410A)								
Coil Face Area		m2	0.74	1.12	1.86	2.23	2.79	3.35	4.46	5.2	6.7
Coil Face Vel.		m/s	1.87	2.49	2.39	2.49	2.45	2.49	2.49	2.63	2.49
ESP.		Pa	250-500	250-500	250-500	250-500	250-500	250-500	250-500	250-500	250-500
Total Static Pressure		Pa	478-728	550-800	534-784	547-797	539-789	547-797	541-791	555-805	548-798
Fan Type			CENTRIFUGAL FORWARD CURVE								
Motor Power		Kw.	2.2-3	4-5.5	5.5-7.5	7.5-11	11-15	11-15	15-18.5	18.5-30	22-30
Power Supply		Valt/Ph./Hz.	380/3/50								
FLA		A	4.96-6.59	8.67-11.5	11.5-15.3	15.3-22.2	22.2-31.4	24.2-31.4	31.4-38.4	38.4-59.2	45.4-59.2
Weight		Kg.	355	420	560	615	690	750	935	1115	1325
Expansion Valve		Model/PCS.	PAC-AH250M-J/1pc.	PAC-AH500M-J/1pc.	PAC-AH500M-J/2pc.	PAC-AH500M-J/2pc.	PAC-AH250M-J/1pc. PAC-AH500M-J/2pc.	PAC-AH500M-J/3pc.	PAC-AH500M-J/4pc.	PAC-AH250M-J/2pc. PAC-AH500M-J/4pc.	PAC-AH500M-J/6pc.
Piping Connections	Liquid pipes	mm.	Ø12.7	Ø15.88	Ø19.05	Ø19.05	Ø19.05	Ø19.05	Ø19.05 x 2	Ø19.05 x 2	Ø19.05 x 2
	Gas pipes	mm.	Ø22	Ø28.58	Ø34.93	Ø41.28	Ø41.28	Ø41.28	Ø41.28 x 2	Ø41.28 x 2	Ø41.28 x 2
	Drain pipes	mm.	DN40								
Refrigerant Control			Electronic expansion valve								

OPTION

Panel
- Single skin
- Double skin 25 mm
- Double skin 50 mm

Unit type
- Horizontal type
- Vertical type

Air flow direction
- Horizontal Discharge
- Vertical Discharge

Filter type
- Pre-Filter
- Medium-Filter
- Hepa Filter

Fan type
- Forward Curve
- Backward Curve
- Plug Fan
- EC Fan

Other
- Mixing Box
- UVC Lamp
- Marine Lamp
- Dehumidification
  - Electric Heater
  - Heat Pump
- Damper
  - Volume Damper
  - Motorized Damper
- DP Pressure
  - DP Switch
  - DP Gauge
  - DP Transmitter
- Air to Air Heat recovery
  - Heat recovery wheel
  - Plate heat exchanger

Air Handling Unit Line up



Air Handling Unit

DX AHU
DIRECT EXPANSION AIR HANDLING UNIT



DX AHU INTRODUCTION

Climaveneta Direct Expansion Air Handling Unit (DX AHU) is designed to operate with Mitsubishi Electric outdoor condensing unit to meet diversified requirements of high capacity air conditioning application. The refrigeration circuit configuration is optimized with the application of Variable Refrigerant Flow Unit (VRF) to achieve the highest efficiency in fulfilling the increasingly energy-saving demand today. The DX AHU is featured with flexible design for customizable components and filtration classes to

MODEL NOMENCLATURE

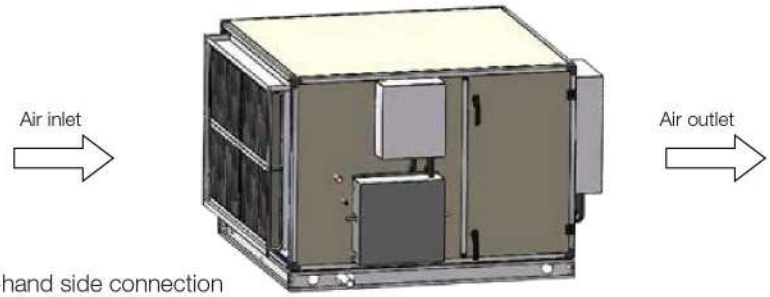
Indoor unit

MDX 008 DA R L 1

- 1-3phase 380V 50Hz
- 2-3phase 380V 60Hz
- L- Connection position is left (suitable for MDX 008~060)
  Access door is left (suitable for MDX 080,100,120)
- R- Connection position is right (suitable for MDX 008~060)
  Access door is right (suitable for MDX 080,100,120)
- R-Return air or Mixing air
- DA-25mm indoor unit; DB-50mm indoor unit
- OA-25mm outdoor unit; OB-50mm outdoor unit
- 008 : 8 HP (cooling capacity)
- Climaveneta Direct Expansion Air Handling Unit

CONNECTION TYPE

The left-right type discrimination of the unit is divided into two cases: For units with less than 80 HP, it is determined based on the direction of the pipe connection. When facing the air-inlet side , if the pipe connection is on the left side, then the unit is a left-type. For units with 80 HP or more, it is determined based on the direction of the access door. When facing the air-inlet side , if the access door is on the left side, then the unit is a left-type.



Shown as the right-hand side connection

Note:

1.Access door & pipe connection are located on the same side as standard. Please contact our representatives for other configurations.

2.For units with 80 HP or more, piping connection is required on both sides of the unit.

DIRECT EXPANSION AIR HANDLING UNIT

DX AHU features & options

Inlet Section / Mixing Box (optional) :

The standard DX AHU is designed for open-return air application without mixing box or inlet section to minimize dimensional footprint. It is equipped with external filter frame & side withdrawal filters.



Inlet section or mixing box is available as option. Dampers are mounted on mixing box to mix fresh air and return air. This section is required for additional filtration requirements.
Inlet options are as below:
- Manual dampers (Galvanized steel/Aluminum alloy)
- Electric dampers (Galvanized steel/Aluminum alloy)
- Flange

Air Filter Type:

DX AHU offers a wide range of filter options with an array of filtration classes to meet various indoor air quality requirements.

Standard unit is equipped with external side-drawn panel type pre-filter G4.
Pre-filter classes: G3, G4
Bag filters are always used after pre-filter to achieve higher air filtration efficiency.
Bag filter classes: M5, M6, F7, F8, F9
High-Efficiency particulate air filters (HEPA) are necessary for the clean environment application such as medical facilities or clean room.
HEPA filter classes: E10, H13, H14





Evaporator Coil:

The evaporator coil is the major heat exchange component of the DX AHU. Standard unit is equipped with GI coil frame paired with GI drain pan, equipped with hydrophilic fins.
Stainless steel SS304 material is also available as option for drain pan and coil frame:
SS304 Drain Pan
SS304 Coil Frame
PTC heater:
PTC heaters have high heat exchange efficiency, quickly raising the temperature to the desired range and reducing heating time. It uses PTC ceramic heating elements, has no open flame, and can automatically maintain a constant temperature. Typically used for reheating after coil dehumidification.



Sterilization:

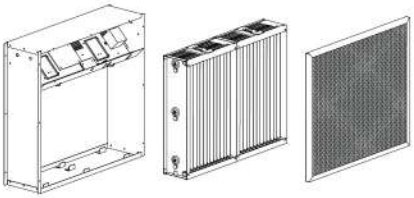
UV light:

Application of UV-C is increasingly common in new buildings and also retrofit projects.
UV light utilizes short-wave ultraviolet energy to irritate cooling coil, killing airborne microbes to reduce infectious pathogens thus offering a cleaner and safer air quality, generally installed on the coil section.



Electrostatic filter:

Electrostatic filter, also known as electronic air cleaner is a two stage electronic precipitator that consist of two sections, charging section and collection section. The charging section uses ionizer to impart positive charge to incoming dust particles, smoke and fumes. The charged particles are then drawn into the secondary electric field to be collected and removed from the airstream .



Blower Motor Assembly:

The AHU blower (or known as fan) is responsible for the circulation of air. There are several types of fan available as options to meet different application. It is selected according to the airflow volume and static pressure requirements.
Standard unit is fitted with double-inlet; double-width (DIDW) centrifugal fan. Standard unit is equipped with forward curved blade type.
The blower is belt-driven by 3-phase asynchronous AC motor.
AC motors are rated with IP55 protection and class F insulation.
They are available in IE3 or IE4 efficiency.
Fan Discharge position: THF (Front) ,UBR(Top)

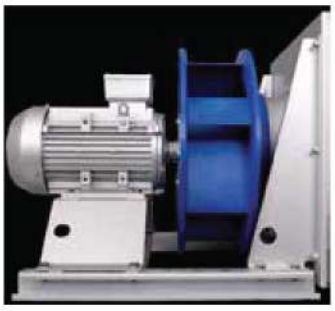




Optional Fan Types:

AC Plug fan

Plug fans (also known as plenum fans) are commonly direct-driven fan. The fan wheel operates without a housing within the fan section. The fan section will be positively pressurized. The direct drive by AC motor enables the AHU to vary the fan speed via the application of a variable frequency drive (VFD). It also eliminates the need for belt and pulley maintenance.



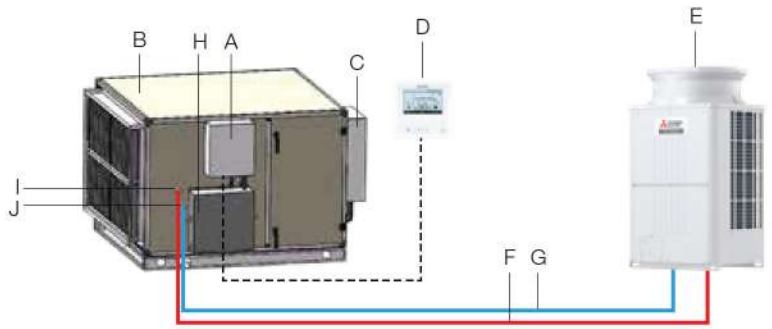
EC Plug fan

EC plug fans work similar to an AC plug fan with a major difference of the introduction of electronically commutated (EC) motor. The EC motor is able to vary its rotation speed allowing more precise airflow control. It operate with much higher efficiency compared to conventional AC motor. The compact size of EC plug fans also allow greater equipment design flexibility.



DIRECT EXPANSION AIR HANDLING UNIT

System structure diagram



A Controller
B Air handling unit
C Starter
D Temperature controller
E Outdoor unit
F Gas pipe
G Liquid pipe
H Expansion valve
I Thermistor(gas pipe)
J Thermistor(liquid pipe)

Benefits of using DX AHU system

Simplified system:

The DX AHU is designed to simplify the overall system structure for compact application.
It eliminates the need for cooling towers, circulating water pumps, water treatment devices and other equipment. The compact footprint of DX AHU allows greater serviceable space and reduce costly maintenance.

Modular combination:

DX AHU operates with the VRF outdoor unit that adopts a modular combination and branch pipe connection design. This allows greater flexibility in capacity zoning, reduced investment costs and provide greater ease of installation. The modular design enables the system to meet larger capacity demand.

Selection software:

The DX AHU is designed to be configured and selected with our own-developed selection software. The comprehensive selection software is capable of providing an optimal configuration of unit performance and functional segments, allowing user to freely customize the AHU to best fit the customer needs.

DX AHU operation range

The following are the cooling operation range

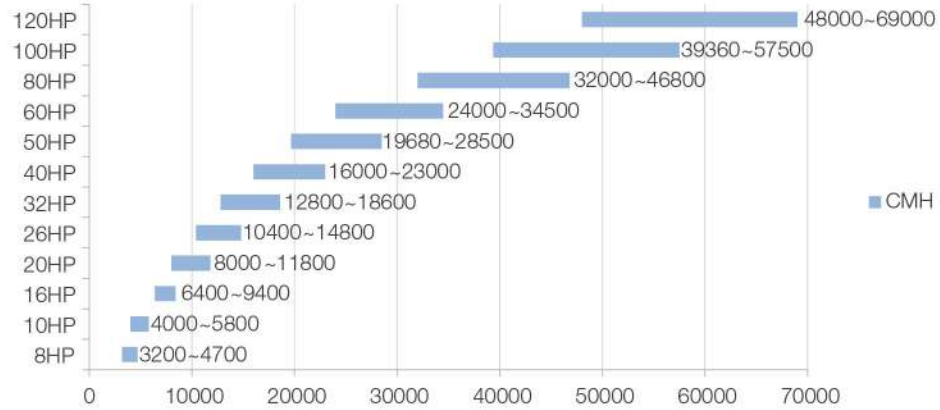
Entering Air Temperature to DX AHU	Minimum	15°CWB,30～80%RH
	Maximum	24°CWB,30～80%RH
Expansion Valve	Minimum	0°CDB
	Maximum	43°CDB
Controller	Minimum	-20°CDB
	Maximum	43°CDB

DX AHU standard series

DX AHU series, the capaticy range is 8 HP to 120 HP, the air volume range is 3,200CMH to 69,000CMH.

DX AHU capaticy

Capaticy	8HP	10HP	16HP	20HP	26HP	32HP	40HP	50HP	60HP	80HP	100HP	120HP
Max CMH	4700	5800	9400	11800	14800	18600	23000	28500	34500	46800	57500	69000
Min CMH	3200	4000	6400	8000	10400	12800	16000	19680	24000	32000	39360	48000



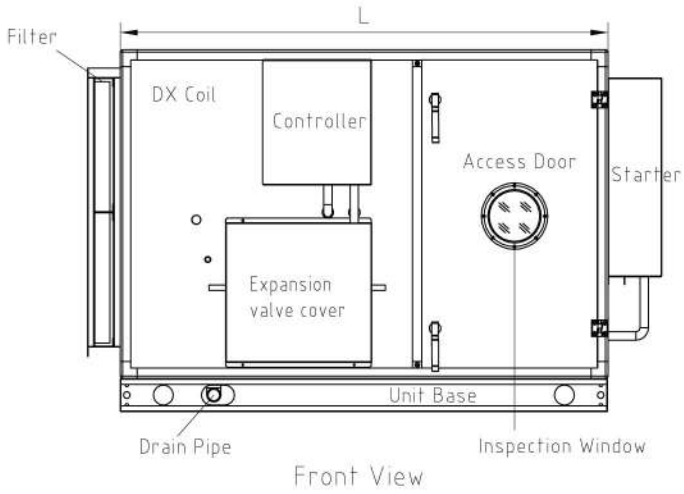
DIRECT EXPANSION AIR HANDLING UNIT

Standard AHU controller

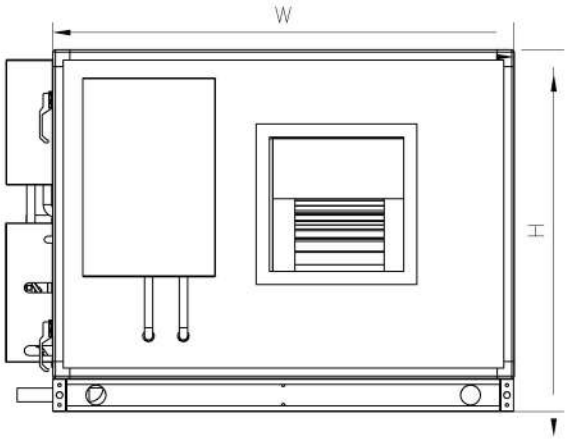
Standard AHU controller is a system composed of Controller and Expansion valve, used to connect with outdoor units
Applicable models: PAC-AH250, and 500M-J

Model name			PAC-AH250M-J		PAC-AH500M-J	
Unit capacity			200	250	400	500
Dimensions	Unit	H×W×D mm	378(420)×328×104(122)The figure in ( ) indicates mounting's			
Weight	Unit	Kg	5			
Ambient temperature	Cooling	Min.~Max.°CDB	-20~43			
Refrigerant	Type		R410A			

Drawings and Dimensions of DX AHU



Front View



Side View

Model	Dimension L×W×H (mm)
MDX008DAR	1,230×1,070×850
MDX010DAR	1,230×1,390×850
MDX016DAR	1,390×1,390×1,090
MDX020DAR	1,470×1,390×1,250
MDX026DAR	1,550×1,390×1,570
MDX032DAR	1,710×1,390×1,890
MDX040DAR	1,710×1,950×1,570
MDX050DAR	1,870×1,950×1,890
MDX060DAR	1,950×1,950×2,210
MDX080DAR	1,710×2,670×2,290
MDX100DAR	1,870×3,870×1,890
MDX120DAR	1,950×3,870×2,210

Model	Dimension L×W×H (mm)
MDX008DBR	1,280×1,120×900
MDX010DBR	1,280×1,440×900
MDX016DBR	1,440×1,440×1,140
MDX020DBR	1,520×1,440×1,300
MDX026DBR	1,600×1,440×1,620
MDX032DBR	1,760×1,440×1,940
MDX040DBR	1,760×2,000×1,620
MDX050DBR	1,920×2,000×1,940
MDX060DBR	2,000×2,000×2,260
MDX080DBR	1,760×2,720×2,340
MDX100DBR	1,920×3,920×1,940
MDX120DBR	2,000×3,920×2,260

Note:
The function section of the standard unit is: outside withdrawing filter section (G4)+ coil section + fan section

DIRECT EXPANSION AIR HANDLING UNIT

DX AHU specifications

MODEL			MDX008DAR MDX008DBR						MDX010DAR MDX010DBR						MDX016DAR MDX016DBR					
Total Cooling capacity		NET(kW)	22.5	22.4	22.3	22.2	22.1	22.0	28.4	28.2	28.1	28.0	27.8	27.7	44.8	44.6	44.4	44.1	43.9	43.7
Total Sensible Cooling capacity			17.0	16.9	16.8	16.7	16.6	16.5	21.5	21.3	21.2	21.1	20.9	20.8	34.1	33.9	33.7	33.4	33.2	33.0
Total Cooling capacity		GROSS(kW)	24.3						30.4						47.9					
Total Sensible Cooling capacity			18.8						23.5						37.2					
Input power		kW	1.8	1.9	2.0	2.1	2.2	2.3	2.0	2.2	2.3	2.4	2.6	2.7	3.1	3.3	3.5	3.8	4.0	4.2
Air Flow		CMH	4000						5000						8000					
Ent.Temp.		°CDB/°CWB	27/19						27/19						27/19					
Coil Type			DX COIL (R410A) 9.52mm louvered fins																	
Coil Face Area		m^2	0.45						0.54						0.90					
Coil Face Vel.		m/s	2.49						2.57						2.47					
Air PD.In Coil		Pa	150						155						145					
Air PD.In Pre Filter		Pa	40						45						55					
Air Filter Size		24"*12"*2"	1						-						2					
		24"*20"*2"	1						-						2					
		24"*24"*2"	-						2						-					
Air PD.In Casing		Pa	30						30						30					
ESP.Initial		Pa	250	300	350	400	450	500	250	300	350	400	450	500	250	300	350	400	450	500
Total Static Pressure		Pa	470	520	570	620	670	720	480	530	580	630	680	730	480	530	580	630	680	730
Fan Type			FORWARD CURVE																	
Fan Model			FDA225CM						FDA250CM						FDA315CM					
Fan Motor		kW	2.2					3	2.2			3			4					5.5
		Pole	4						4						4					
Power Supply(50Hz/60Hz)		Volt/Ph./Hz.	380/3/50 380/3/60																	
FLA(IE3)		amp	4.7					6.3	4.7			6.3			8.4					11.1
Machine Weight	DA	kg	195						230						295					315
	DB	kg	255						295						370					385
Sound Pressure Level(SPL)		dBA	64	64.6	65.2	65.8	66.4	67	65	65.6	66.2	66.8	67.4	68	67	67.6	68.2	68.8	69.4	70
Standard AHU Controller Model			PAC-AH250M-J(200)*1						PAC-AH250M-J						PAC-AH500M-J(400)*2					
Pipe connections	Liquid pipes	mm	12.7(Brazing connection)						12.7(Brazing connection)						15.88(Brazing connection)					
	Gas pipes	mm	22(Brazing connection)						22(Brazing connection)						28(Brazing connection)					
	Drain pipes	mm	DN32(External thread)						DN32(External thread)						DN32(External thread)					
Refrigerant Control			Electronic expansion valve						Electronic expansion valve						Electronic expansion valve					

Note: *1 represents the actual capacity of the unit as 200; *2 represents the actual capacity of the unit as 400.

DIRECT EXPANSION AIR HANDLING UNIT

MODEL			MDX020DAR MDX020DBR						MDX026DAR MDX026DBR						MDX032DAR MDX032DBR					
Total Cooling capacity		NET(kW)	56.7	56.5	56.3	56.0	55.8	55.5	73.8	73.5	73.3	73.0	72.7	72.4	91.0	90.7	90.4	90.0	89.6	89.2
Total Sensible Cooling capacity			43.2	43.0	42.8	42.5	42.3	42.0	56.2	55.9	55.7	55.4	55.1	54.8	69.3	69.0	68.7	68.3	67.9	67.5
Total Cooling capacity		GROSS(kW)	60.1						78.2						96.2					
Total Sensible Cooling capacity			46.6						60.6						74.5					
Input power		kW	3.4	3.6	3.8	4.1	4.3	4.6	4.4	4.7	4.9	5.2	5.5	5.8	5.2	5.5	5.8	6.2	6.6	7.0
Air Flow		CMH	10000						13000						16000					
Ent.Temp.		°CDB/°CWB	27/19						27/19						27/19					
Coil Type			DX COIL (R410A) 9.52mm louvered fins																	
Coil Face Area		m^2	1.14						1.44						1.80					
Coil Face Vel.		m/s	2.44						2.51						2.47					
Air PD.In Coil		Pa	145						150						150					
Air PD.In Pre Filter		Pa	65						60						60					
Air Filter Size		24"*12"*2"	2						-						2					
		24"*20"*2"	-						-						-					
		24"*24"*2"	2						4						4					
Air PD.In Casing		Pa	30						30						30					
ESP.Initial		Pa	250	300	350	400	450	500	250	300	350	400	450	500	250	300	350	400	450	500
Total Static Pressure		Pa	490	540	590	640	690	740	490	540	590	640	690	740	490	540	590	640	690	740
Fan Type			FORWARD CURVE																	
Fan Model			FDA355CM						FDA400CM						FDA450CM					
Fan Motor		kW	4				5.5		5.5				7.5		5.5		7.5			
		Pole	4						4						4					
Power Supply(50Hz/60Hz)		Volt/Ph./Hz.	380/3/50 380/3/60																	
FLA(IE3)		amp	8.4				11.1		11.1				14.8		11.1		14.8			
Machine Weight	DA	kg	335				350		420				430		485		500			
	DB	kg	410				430		500				515		590		600			
Sound Pressure Level(SPL)		dBA	68	68.6	69.2	69.8	70.4	71	69	69.6	70.2	70.8	71.4	72	70	70.6	71.2	71.8	72.4	73
Standard AHU Controller Model			PAC-AH500M-J						PAC-AH250M-J+ PAC-AH500M-J(400)*2						PAC-AH500M-J(400)*1 x 2					
Pipe connections	Liquid pipes	mm	15.88(Brazing connection)						12.7(Brazing connection) x 1+ 15.88(Brazing connection) x 1						15.88(Brazing connection) x 2					
	Gas pipes	mm	28(Brazing connection)						22(Brazing connection) x 1+ 28(Brazing connection) x 1						28(Brazing connection) x 2					
	Drain pipes	mm	DN32(External thread)						DN32(External thread)						DN32(External thread)					
Refrigerant Control			Electronic expansion valve						Electronic expansion valve						Electronic expansion valve					

Note: *2 represents the actual capacity of the unit as 400.

DIRECT EXPANSION AIR HANDLING UNIT

MODEL			MDX040DAR MDX040DBR						MDX050DAR MDX050DBR						MDX060DAR MDX060DBR					
Total Cooling capacity	NET(kW)		114.0	113.5	113.1	112.7	112.2	111.7	140.2	139.7	139.2	138.7	138.2	137.6	170.5	169.8	169.1	168.5	167.7	167.1
Total Sensible Cooling capacity			86.9	86.4	86.0	85.6	85.1	84.6	107.1	106.6	106.1	105.6	105.1	104.5	130.2	129.5	128.8	128.2	127.4	126.8
Total Cooling capacity	GROSS(kW)		120.6						147.8						180.1					
Total Sensible Cooling capacity			93.5						114.7						139.8					
Input power	kW		6.6	7.1	7.5	7.9	8.4	8.9	7.6	8.1	8.6	9.1	9.6	10.2	9.6	10.3	11.0	11.6	12.4	13.0
Air Flow	CMH		20000						24600						30000					
Ent.Temp.	°CDB/°CWB		27/19						27/19						27/19					
Coil Type			DX COIL (R410A) 9.52mm louvered fins																	
Coil Face Area	m^2		2.15						2.69						3.23					
Coil Face Vel.	m/s		2.58						2.54						2.58					
Air PD.In Coil	Pa		155						155						155					
Air PD.In Pre Filter	Pa		65						65						65					
Air Filter Size	24"*12"*2"		-						3						-					
	24"*20"*2"		-						-						-					
	24"*24"*2"		6						6						9					
Air PD.In Casing	Pa		30						30						30					
ESP.Initial	Pa		250	300	350	400	450	500	250	300	350	400	450	500	250	300	350	400	450	500
Total Static Pressure	Pa		500	550	600	650	700	750	500	550	600	650	700	750	500	550	600	650	700	750
Fan Type			FORWARD CURVE																	
Fan Model			FDA500CM						FDA560CM						FDA630CM					
Fan Motor	kW		7.5		11				11						11		15			
	Pole		4						6		4				6					4
Power Supply(50Hz/60Hz)	Volt/Ph./Hz.		380/3/50 380/3/60																	
FLA(IE3)	amp		14.8		21.5				21.5						21.5		29			
Machine Weight DA	kg		570		610				715						810		850			
Machine Weight DB	kg		695		735				850						960		1000			
Sound Pressure Level(SPL)	dBA		71	71.6	72.2	72.8	73.4	74	72	72.6	73.2	73.8	74.4	75	73	73.6	74.2	74.8	75.4	76
Standard AHU Controller Model			PAC-AH500M-J x 2						PAC-AH250M-J x 1 + PAC-AH500M-J x 2						PAC-AH500M-J x 3					
Pipe connections Liquid pipes	mm		15.88(Brazing connection) x 2						15.88(Brazing connection) x 2 + 12.7(Brazing connection) x 1						15.88(Brazing connection) x 3					
Pipe connections Gas pipes	mm		28(Brazing connection) x 2						28(Brazing connection) x 2 + 22(Brazing connection) x 1						28(Brazing connection) x 3					
Pipe connections Drain pipes	mm		DN32(External thread)						DN32(External thread)						DN32(External thread)					
Refrigerant Control			Electronic expansion valve						Electronic expansion valve						Electronic expansion valve					

DIRECT EXPANSION AIR HANDLING UNIT

MODEL			MDX080DAR MDX080DBR						MDX100DAR MDX100DBR						MDX120DAR MDX120DBR					
Total Cooling capacity		NET(kW)	226.3	225.4	224.5	223.5	222.5	221.5	279.8	278.8	277.7	276.7	275.6	274.5	340.0	338.6	337.2	335.9	334.4	332.9
Total Sensible Cooling capacity			172.3	171.4	170.5	169.5	168.5	167.5	213.5	212.5	211.4	210.4	209.3	208.2	259.4	258.0	256.6	255.3	253.8	252.3
Total Cooling capacity		GROSS(kW)	240.1						295.9						360.3					
Total Sensible Cooling capacity			186.1						229.6						279.7					
Input power		kW	13.8	14.7	15.6	16.6	17.6	18.6	16.1	17.1	18.2	19.2	20.3	21.4	20.3	21.7	23.1	24.4	25.9	27.4
Air Flow		CMH	40000						49200						60000					
Ent.Temp.		°CDB/°CWB	27/19						27/19						27/19					
Coil Type			DX COIL (R410A) 9.52mm louvered fins																	
Coil Face Area		m^2	4.56						5.38						6.46					
Coil Face Vel.		m/s	2.44						2.54						2.58					
Air PD.In Coil		Pa	145						155						155					
Air PD.In Pre Filter		Pa	65						65						65					
Air Filter Size		24"*12"*2"	-						6						-					
		24"*20"*2"	-						-						-					
		24"*24"*2"	12						12						18					
Air PD.In Casing		Pa	30						30						30					
ESP.Initial		Pa	250	300	350	400	450	500	250	300	350	400	450	500	250	300	350	400	450	500
Total Static Pressure		Pa	490	540	590	640	690	740	500	550	600	650	700	750	500	550	600	650	700	750
Fan Type			FORWARD CURVE																	
Fan Model			FDA500T2M						FDA560T2M						FDA630T2M					
Fan Motor		kW	15		18.5				18.5			22			22		30			
		Pole	4						6	4					6		4			
Power Supply(50Hz/60Hz)		Volt/Ph./Hz.	380/3/50 380/3/60																	
FLA(IE3)		amp	29		36				36			43.5			43.5		58			
Machine Weight	DA	kg	1085		1120				1360			1375			1590		1595			
	DB	kg	1250		1285				1585			1600			1825		1835			
Sound Pressure Level(SPL)		dBA	74	74.6	75.2	75.8	76.4	77	75	75.6	76.2	76.8	77.4	78	76	76.6	77.2	77.8	78.4	79
Standard AHU Controller Model			PAC-AH500M-J x 4						PAC-AH250M-J x 2 + PAC-AH500M-J x 4						PAC-AH500M-J x 6					
Pipe connections	Liquid pipes	mm	15.88(Brazing connection) x 4						15.88(Brazing connection) x 4 + 12.7(Brazing connection) x 2						15.88(Brazing connection) x 6					
	Gas pipes	mm	28(Brazing connection) x 4						28(Brazing connection) x 4 + 22(Brazing connection) x 2						28(Brazing connection) x 6					
	Drain pipes	mm	DN32(External thread)						DN32(External thread)						DN32(External thread)					
Refrigerant Control			Electronic expansion valve						Electronic expansion valve						Electronic expansion valve					

Notes: 1.The unit is single cooled and has no heating parameters
2.The capacity shown is the capacity under 27°C DB/19°C WB and 35°C ambient air conditions. Pipe length : 7.5m, Level difference : 0m.
3.Net capacity includes indoor fan heat, gross capacity do not include indoor fan heat.
4.The data in this table is for reference only, Actual selections should be based on the software.
5.The unit is equipped with a standard starter(AC Plug fan is VFD variable-frequency started), please contact CLIMAVENETA office for more control requirements.

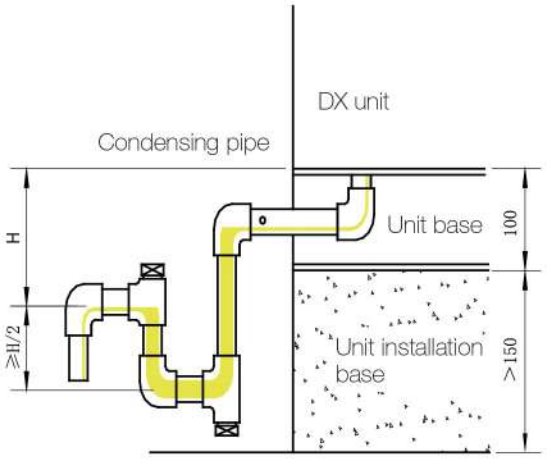
Installation, Operation and Maintenance

Lifting and rigging

- The unit shall be supplied with lifting lugs fitting for forking and lifting. And protection gaskets should be set up between the unit and the strap preventing the damage during the lifting. All straps shall keep away from all the water and air duct connectors.
- Do not use the crowbar or other identical tools to rig the unit in order to avoid units deformation.

Installation and Piping

- The units shall be suspended in the horizontal level.
- Considering the unit installation, operation, usual inspection and servicing, it's suggested that 1m clearance from the unit shall be recommended.
- Ducts shall be connected in the direction displayed on the units label, and shall be treated with balance strength preventing the damage of copper tubes or drain pipes.
- The unit can't afford the weight of air ducts or water pipes. And flexible connectors shall be fixed between air ducts and water pipes to isolate the vibration.
- Thermal insulation treatment shall be applied on the liquid,gas,and drain pipe connection.
- The water seal pipe (water trap) shall be equipped at the section of drain pipe outlet for the removal of condensate (shown as the following picture).



Note: H=max. negative pressure(mm)+50mm

Wiring and start-up procedure

- The electrical construction should be conducted in accordance with relevant specifications and following the unit-attaching technical manual.
- Units should be grounding treated. And motors shall be connected to the power supply with overload protection.
- It is recommended to clean all contaiminants inside the fan casing, and inspect the following items before the set-up procedure. All valves shall be checked and guaranteed in the normal condition. Fan wheels shall be inspected without abnormal noise by manually rotating the fan. And all connection sections shall be examined ensuring without shedding off .
- It's recommended to check the electric wiring connection, fan rotating direction before the set-up procedure.

Operation and maintenance

- Before the operation of units, inspection process is required, such as valve conditions and other components.
- Filters shall be cleaned or replaced accordingly depending on the cleanliness of the filters or recommended pressure difference
- The bearing lubrication and belt tension condition of unit fans shall be inspected regularly.

For more details about units' installation, operation and maintenance could refer to the unit attaching "Installation & Operation Manual".

FAN WALL UNIT FOR DATA CENTER COOLING



Extremely versatile solution for high thermal loads in IT environments
Cooling capacity: 90-420 kW

The fan wall unit is one universal solution for the cooling system of data center which with low initial investment, faster installation and space optimization performance.

Data centers generate a significant amount of heat due to the operation of servers and other hardware. Efficient cooling is crucial to maintain optimal operating conditions and prevent equipment overheating. A fan wall unit may offer a cost-effective alternative with lower upfront expenses.

FEATURES AND BENEFITS

- **No Raised Floor:** There is no need for raised floors, which reduces maintenance costs and costs associated with repairs
- **Modular Design:** Equipment with stackable modules designed for modularity
- **Frontal Accessibility:** Full frontal accessibility to the main components of a system from the suction side (blown coil) in a flexible setup
- **Lower First Investment:** As a result of the design of the product, the initial cost per kW is lower than traditional solutions.
- **Flexiable Connection:** Providing both top and side hydraulic connection demonstrates a commitment to flexibility and adaptability
- **Compact Foot Print:** Positioning units in a technical corridor to create more usable space for server racks is a strategic approach that can optimize the utilization of available room.
- **Cooling Density:** FANWALL is designed for maximizing power density and utilizing available vertical space. The rising heating load necessitates the use of more-powerful cooling units that fan wall unit can fulfill by taking advantage of the height.

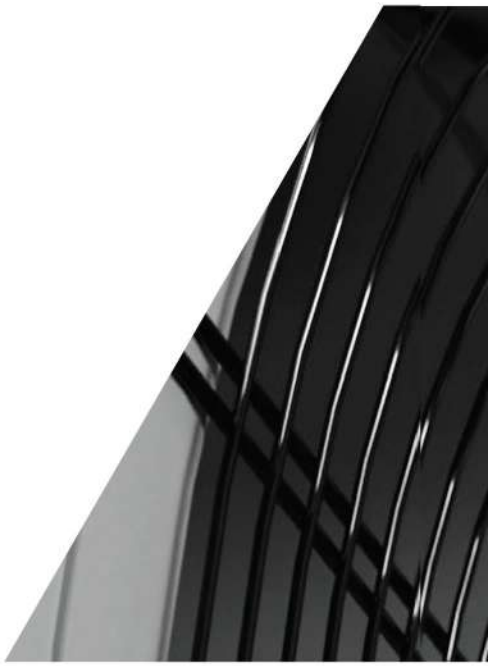
Fan Wall Unit for Data Center Cooling Line up



Fan Wall

FANWALL

FANWALL



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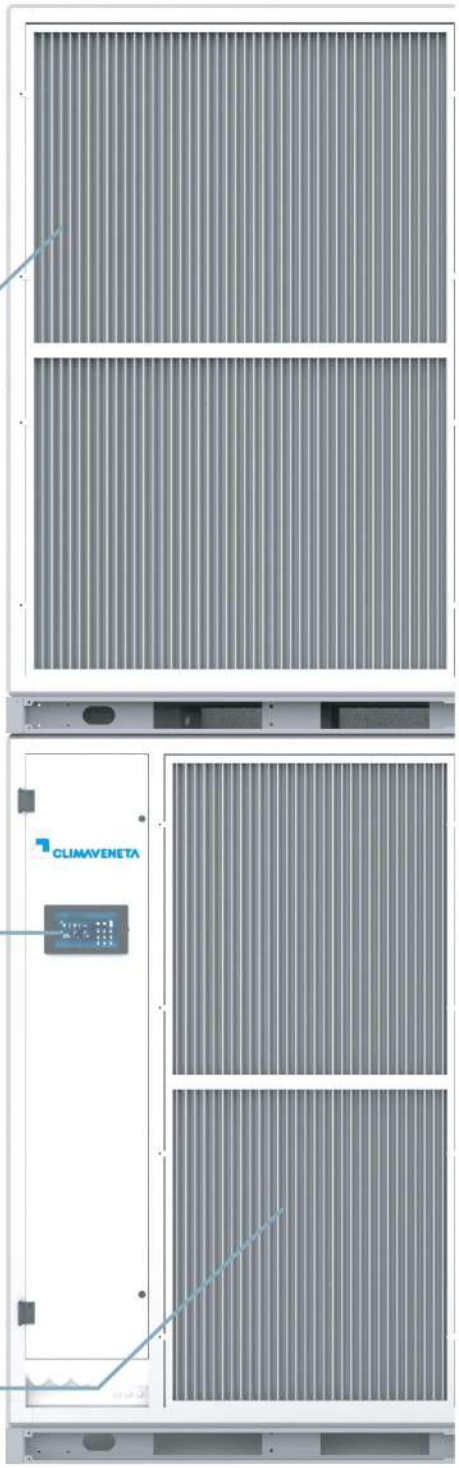
Compact Foot Print

Positioning units in a technical corridor to create more usable space for server racks is a strategic approach that can optimize the utilization of available room.



TECHNOLOGICAL FEATURES

FAN WALL is one of the most universal solution. Since each unit is stackable in order to increase the kW per footprint.



TAILOR-MADE COIL

A "tailor-made coil" typically refers to a customized or specially designed coil that is created to meet specific requirements or specifications. The term "tailor-made" suggests that the coil is uniquely crafted to suit the exact needs of particular delivery air temperatures, specific delta T and volumetric air flow rates.

TOUCH DISPLAY (opt.)

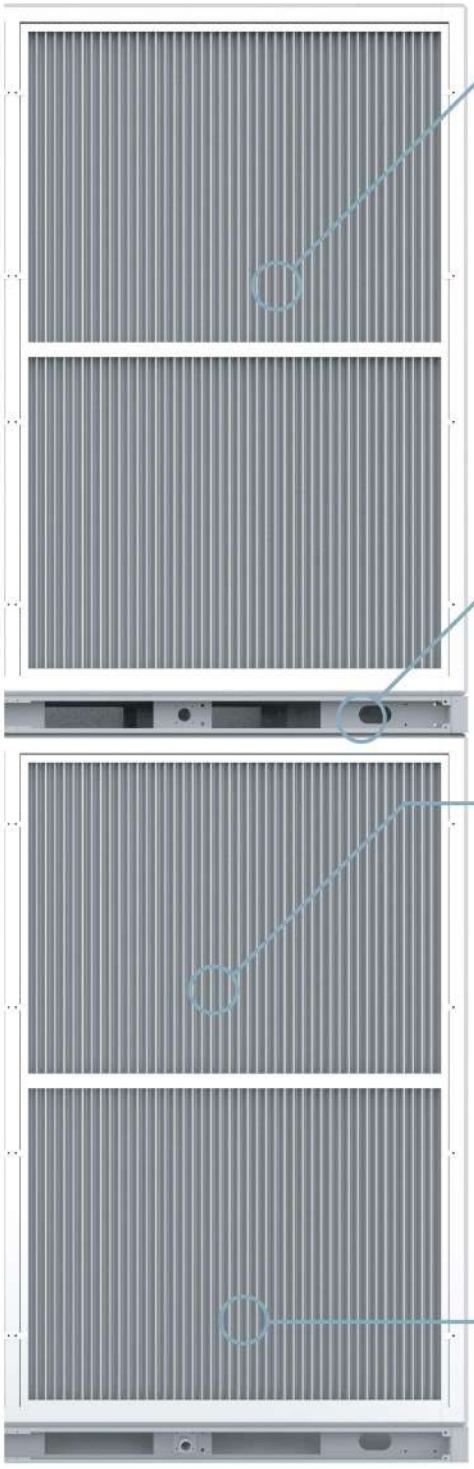
The touch display makes it easy to interact with the unit thanks to the latest generation human machine interface.



MAINTENANCE LAMP(opt.)

The purpose of a maintenance lamp is to ensure that the fan wall unit operates efficiently and reliably. By providing clear visual indications of maintenance needs or system status.







EC PLUG FANS

Permanent magnet motors in conjunction with plug fans to ensure high efficiency, scalability of volumetric air flow, and the flexibility to adjust the number of fans.

High Gauge Aluminum Alloy Frame

The framework consists of the internal frame, external frame and the PVC insulator. All frames are made of aluminum alloy with anodize treatment.
The PVC insulator is extruded to the internal and external frame avoiding thermal bridge.

PRESSURE INDEPENDENT CONTROL VALVE (opt.)

The PICV valve regulates the fluid flow accurately within the system.
By ensuring the correct amount of water with differential pressure changes and partial loads, it can contribute to the energy savings significantly.



HIGH EFFICIENCY FILTERS

Thanks to the optimized structure of the fan wall unit, the filters can cover entire frontal surface of the air stream. That the pressure loss will be lower and filtration performance is better.

Performance and Overall Dimension



FANWALL		FW081CW	FW101CW	FW171CW	FW201CW	FW172CW	FW202CW	FW342CW	FW402CW
Total cooling capacity	kW	84.8	100.0	169.5	200.0	169.6	201.0	340.0	401.0
Air flow	CMH	24250	28500	48500	57000	48500	57000	97000	114000
Width (W)	mm	2500	2500	3500	3500	2500	2500	3500	3500
Depth (D)	mm	1600	1600	1600	1600	1600	1600	1600	1600
Height (H)	mm	1750	2000	1750	2000	3500	4000	3500	4000





INDOOR COOLING MODULE RACK COOLER

RCK-IC/CRCX-IC



Cooling capacity: 9.3kW-55.3kW

The rack cooler air conditioner is used to solve the cooling problem in the high heat density area of the computer room and as an auxiliary refrigeration device to solve the local hot spot problem in the computer room. Climaveneta air-cooled rack cooler air conditioners, all series of standard high-efficiency scroll or brushless DC inverter compressors, low-noise EC fans, CAREL's new generation controller, and electronic expansion valves make the unit have the best cooling performance. The whole system also supports a variety of installation schemes for up and down pipes and up and down wiring. The frame of the unit is 300mm and 600mm, and the size of the unit can be customized according to the project requirements.



Flexibility and Modular Design



Hot Spot Management



Cooling Capacity Redundancy and Reliability Design

ADVANTAGE

- Flexibility and Modular Design
- Data Center extension
- Extreme flexibility (applicability to 42U &48U racks)
- Small floor standing area (0.3m")
- Hot spot management
- Plug&Play connections for a quick and easy installtion
- Dual coil and redundant ATS is available
- EC fans keep running even during maintenance
- Rolling wheels under the frame for unit movement
- Humidifier (Optional)

Indoor Cooling Module Rack Cooler Line up



RCK-IC/CRCX-IC

HIGH EFFICIENCY
Reliable and Durable
Energy Saving

Direct Expansion Unit



CRCK-IN with Fixed-speed Compressor
CRCX-IN with Inverter Compressor

CONFIGURATION

By adopting the changing technology of inverter compressor and brushless DC motor, the rack cooler CRCK and CRCX units can fulfill outstanding performance and higher energy efficiency level.

- New generation DC motor in inverter scroll compressor
- Electric expansion valve, improving the refrigeration circuit by precision control
- Ultralight EC fan with latest technology
- Outstanding sensible heat ratio (SHR=1)
- EC fans keep running even during maintenance
- Rolling wheels under the frame for easy movement

Chilled Water Unit



CRCC-IC with Chilled Water Coil

CONFIGURATIONS

Keeping using the latest technology, the rack cooler CRCC units can also fulfill outstanding performance and higher energy efficiency level.

- Ultralight EC fan with latest technology
- 3-way or 2-way modulating valves (Optional)
- Capacity from 20 to 60kW
- Optimal integration with Climaveneta Freecooling chillers
- EC fans keep running even during maintenance
- Rolling wheels under the frame for easy movement

HPAC High Precision Air Conditioner

CRC RACKCOOLER

Dedicated for High-density Servers



Hot Spot Management

CRC unit is known as an effective way to manage the hot spot in high-density servers (blade servers).

- Flexible configuration, avaliable for extension request of data centers
- Direct Expansion systems with Inverter or Fix speed technology. Chilled water version is also available.
- Modulating Air flow, thanks to EC high efficiency fans. The fans adapt to the thermal load detected by sensors positioned in the hot and cold aisles
- Perfectly compatible with most of racks and ready for expansion of the cooling system

Flexibility and Modular Design

The CRC units have been developed to coupled with modern racks in data centers, allowing:

- Several avaliable products, suitable for 42U and 48U racks
- Great flexibility of the cooling system, as the units easily adapt to the real thermal load of the server
- Modular design of the cooling system and rapid upgrade of the Data Center capacity





Cooling Capacity Redundancy and Reliability Design

Thanks to the latest dual coil and independent cooling system, N+1 is available for highest reliability. Besides, redundant ATS is also available to achieve higher reliability.







CRCK-IN (DXA with fixed speed compressor)

Model		0101	0151	0201
Total Cooling Capacity(1)	kW	26.4	40.2	50.0
Sensible Cooling Capacity(1)	kW	26.4	40.2	50.0
SHR	kW/kW	1.0	1.0	1.0
Power Supply	V-Ph-Hz		380/3/50	
EC Fan				
Qty.		6	2	2
Air Flow	m^3/h	5000	9000	11000
Nominal Power Input	kW	0.98	1.36	2.72
Scroll Compressor				
Qty.		1	1	1
Power Input	kW	5.61	8.56	10.00
Humidifier				
Humidification Capacity	kg/h	3	3	3
Power Input	kW	2.25	2.25	2.25
Electric Heating				
Step		3	3	3
Power Input	kW	3.6	7.2	7.2
Unit Reserved Pipe Connection Size				
Liquid Pipe (Outer diameter)	mm	16	19	19
Gas Pipe (Outer diameter)	mm	19	22	22
Dimensions and Weight				
Width	mm	300	600	600
Depth	mm	1200	1200	1200
Height	mm	2000	2000	2000
Net weight	kg	245	265	315
The Outdoor Unit				
Model		C42	C58	C74
Power Input	kW	1.18	1.18	1.77

Note:
1) Working condition: return air temp. 37° C, RH 25%. Outdoor temp. 35° C
2) The electric heating capacity and humidification capacity in the table are standard configuration. If the customer needs to increase the heating or humidification capacity of the unit, please consult the Climaveneta factory



CRCX-IN (DXA with inverter compressor)

Model		0101	0151
Total Cooling Capacity(1)	kW	26.2	40.2
Sensible Cooling Capacity(1)	kW	26.2	40.2
SHR	kW/kW	1.0	1.0
Power Supply	V-Ph-Hz	380/3/50	
EC Fan			
Qty.		6	2
Air Flow	m^3/h	5000	9000
Nominal Power Input	kW	1.17	1.34
Scroll Compressor			
Qty.		1	1
Power Input	kW	5.79	8.53
Humidifier			
Humidification Capacity	kg/h	3	3
Power Input	kW	2.25	2.25
Electric Heating			
Step		3	3
Power Input	kW	3.6	7.2
Unit Reserved Pipe Connection Size			
Liquid Pipe (Outer diameter)	mm	16	16
Gas Pipe (Outer diameter)	mm	16	19
Dimensions and Weight			
Width	mm	300	600
Depth	mm	1200	1200
Height	mm	2000	2000
Net weight	kg	240	270
The Outdoor Unit			
Model		C42	C58
Power input	kW	1.18	1.18

Note:
1) Working condition: return air temp. 37° C, RH 25%. Outdoor temp. 35° C
2) The electric heating capacity and humidification capacity in the table are standard configuration. If the customer needs to increase the heating or humidification capacity of the unit, please consult the Climaveneta factory





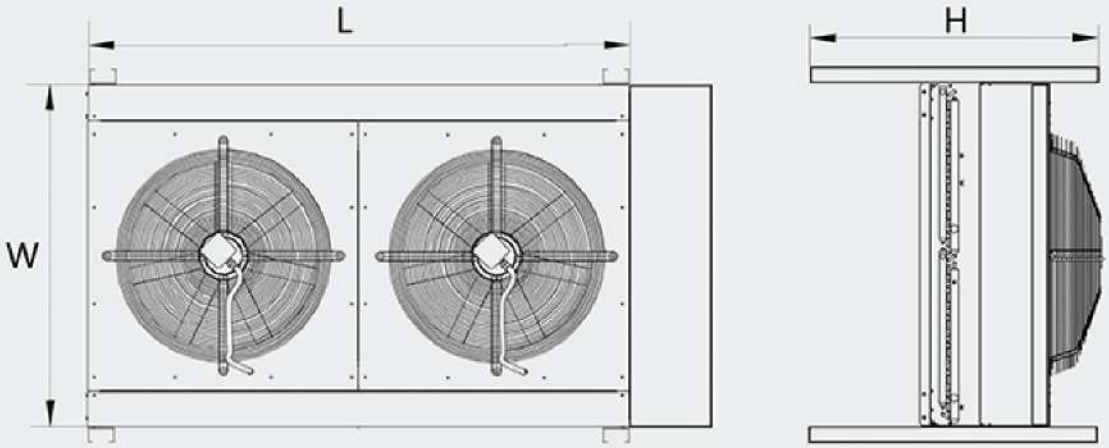


CRCC-IC (Chilled water unit)

Model		0030	0045	0065
Power Supply	V-Ph-Hz	220/1/50	380/3/50	380/3/50
Cooling Performance				
Total Cooling Capacity(1)	kW	33.0	48.9	66.1
Sensible Cooling Capacity(1)	kW	33.0	48.9	66.1
SHR		1.0	1.0	1.0
Water System				
Circuit No.		1	1	1
Water Flow	L/s	1.58	2.34	3.16
Unit WPD	kPa	72	76	97
EC Fan				
Air Flow	m^3/h	5000	10000	11000
Nominal Power Input	kW	1.02	2.07	2.8
Qty.		6	2	2
Humidifier				
Humidification Capacity	kg/h	3	3	3
Power Input	kW	2.25	2.25	2.25
Electric Heating				
Step		3	3	3
Power Input	kW	3.6	7.2	7.2
Dimensions and Weight				
Width	mm	300	600	600
Depth (2)	mm	1000/1200	1000/1200	1000/1200
Height	mm	2000	2000	2000
Net weight(1000mm/1200mm)	kg	195/210	275/290	315/330
Pipe Connection				
Water Pipe Diameter	IN	F 1 1/4"	F 1 1/2"	F 1 1/2"
	OUT	F 1 1/4"	F 1 1/2"	F 1 1/2"

Note:
1) Working condition: return air temp. 37° C, RH 25%. Chilled water inlet/outlet:10/15° C
2) There are two depth under request. Please note it clearly in order.

Outdoor unit for DXA



Standard packing: Plastic film package. Seaworthy package should be selected if shipped by sea.
Standard fan regulation: Stepless speed control.

Outdoor unit for DXA

Model		C17	C24	C29	C33	C42	C49	C58	C74
Fan Qty.		1	1	1	2	2	2	2	3
Power Supply		220V-1Ph-50Hz							
FLA	A	1.3	3.0	3.0	2.5	6.0	6.0	6.0	9.0
L	mm	1115	1330	1330	2005	2005	2427	2427	3488
W	mm	905	1108	1108	905	1108	1108	1108	1108
H	mm	830	830	830	830	830	830	830	830
Weight	kg	50	58	70	80	96	102	112	180

CLIMAVENETA

INDOOR COOLING MODULE COOLBLADE

DX-M/CW-M



Extremely versatile solution for high thermal loads in IT environments
Cooling capacity: 90-420 kW

Coolblade means not only comply with the severest environmental request but also the specific requirement. Its design satisfies the request for EFFICIENCY, FLEXIBILITY, OPERATING RELIABILITY and RESPECT FOR THE ENVIRONMENT. COOLBLADE has been created to show excellent performance which guarantees high air conditioning quality.








STANDARD CONFIGURATION

- Indoor unit and outdoor air-cooled condenser
- Outstanding rust protection thanks to galvanized steel sheet and powder-coated painting. The panels complete with internal soundproofing material
- Compressors and other key components from world leading brand such as COPELAND compressor
- Indoor fan adopts the high efficiency EC fan. The fans can fulfill maximum efficiency and low noise
- Electrical panel comply with IEC 204-1/EN60204-1
- Standard G4 filter, F5 is optional which is in accordance with CEN-EN 779, 90.1% filter efficiency, conforming to ASHRAE standard
- The microprocessor follows the FIFO to control the compressor's start-up times. The unit can conveys the alarm and connect the customer's receiving equipment automatically
- Other standard components: thermal expansion valve, high/low pressure safety switch, sight glass, dry filter, etc

Project Reference:


Huitian Cloud Big Data Processing Center


Wuxi Supercomputer Center (Light of Shenwei Taihu Lake)


Hangzhou Baida Greentown Xizi International

INDOOR COOLING MODULE COOLBLADE

CRAC : SA/DA-M SERIES - AIR-COOLED MODULAR

COOLING CAPACITY

- **Cooling Capacity:** 25.1kW-103kW
  Climaveneta modular air-cooled direct expansion CRAC indoor unit can be assembled on site. The indoor unit is divided into single system and double system, and the air supply mode is divided into lower air supply and upper air supply. The air-cooled direct-expansion machine room air conditioner adopts environmentally friendly refrigerant R410A.

FEATURES AND BENEFITS

- High-efficiency scroll compressor with high efficiency, low noise and low energy consumption
- The evaporator has a unique surface treatment (hydrophilic), and adopts special water treatment to solve the problem of condensed water droplets entering the air duct. The evaporator has a large area, and the fin material is specially treated, so it does not stick to water, the heat exchange effect is good, and the air pressure drop before and after the evaporator is small.
- Condenser end plate, side plate and hood of the outdoor unit coil are made of molded aluminum plate to protect the unit, the condenser is equipped with a large air volume and low noise fan, 46 degree condenser design, small size, light weight, easy to install, can be horizontal It can also be installed vertically on the wall, and can be installed in a variety of options. It can fully meet the requirements of various installation processes and has wide operating conditions.
- EC fan The impeller material is ultra-light polymer, which makes the operation noise of the computer room AC lower, and the energy saving rate is more than 10%. Inverter fans are not only better than AC fans in terms of energy saving and noise, but also better meet the requirements of today's data centers in terms of control strategies. The computer room air conditioner allows users to remotely read the fan speed, and combined with the upper air pressure sensor, it can also realize advanced functions such as constant air pressure control.

Indoor Cooling Module Coolblade Line up



DX-M/CW-M Series



DX-M/CW-M Series



1	MAIN BOARD
2	MAIN SWITCH
3	HEATERS
4	INVERTER EC FANS
5	COMPRESSOR
6	DRIER FILTER
7	LIQUID LINE VALVE
8	SIGHT GLASS
9	THERMOSTATIC VALVE
10	HUMIDIFIER
11	DEHUMIDIFICATION VALVE
13	TEMP. & HUMIDITY SENSOR
14	USER TERMINAL

Close air-conditioning means not only compliance with the severest environmental parameters but also with the specific requirements of the site, such as EFFICIENCY, FLEXIBILITY, OPERATING RELIABILITY AND RESPECT FOR THE ENVIRONMENT, which today's products must satisfy. COOLBLADE has been created to meet all these requirements, exploiting the renowned capacity to supply total quality airconditioning systems

EFFICIENCY MOST OF ALL

Nowadays efficiency is no longer considered as just energy saving in respect of the single unit, but takes into account both the PERFORMANCE of the whole system and its COMPLETE RELIABILITY and MODULARITY over the years.

In offering COOLBLADE as a solution to technological cooling problems, we have been concentrated on the use of known quality parts and integration with BMS (building management systems).

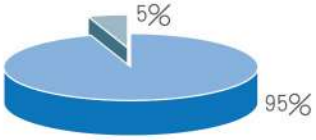
Standard solutions
- SCROLL compressors
- Thermostat valve with internal pressure equalization
- Electronic thermostat (optional)
- Standard centrifugal fans
- High efficiency EC INVERTER ventilation (optional)
- Standard condensation control (DX versions)
- Electric reheat or with hot water
- Immersed electrode humidifying system
- Intelligent dehumidifying system with constant airflow
- Semi-graphic control display
- Connection to traditional BMS

EXCELLENT SHR PERFORMANCE

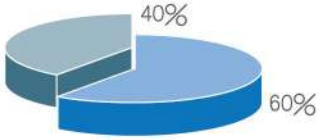
As is known, electronic equipment develops solely SENSIBLE heat loads and therefore needs dedicated air conditioning to deal with this.

That is why COOLBLADE has been made; to ensure maximum SENSIBLE cooling capacity to the detriment of the LATENT capacity, which would be a sheer waste of energy in these applications.

This is of basic importance for transforming all the supplied energy into a real room temperature control.
The result is a high SHR, minimum of 0.85 and a maximum of1. In order to have the utmost SENSIBLE and not latent type of cooling.



SHR for TECHNOLOGICAL Application



SHR for COMFORT Application



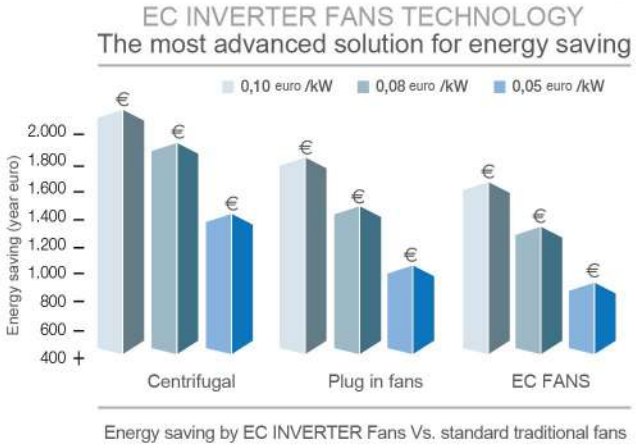
EC INVERTER FANS

This new technology with electronically commutated motor increases the efficiency of the COOLBLADE system, optimizing running costs through state-of-the-art electronics, which are used to change parameters such as:

- Flow rate
- cooling capacity
- External pressure
- Noise level

Thereby guaranteeing best operation of the system at any moment, and in particular:

1 Continuous adjustment of air flow
2 Intelligent and low-noise system of air conveyance throughout the whole appliance
3 Up to 45% saving in the chilled water units



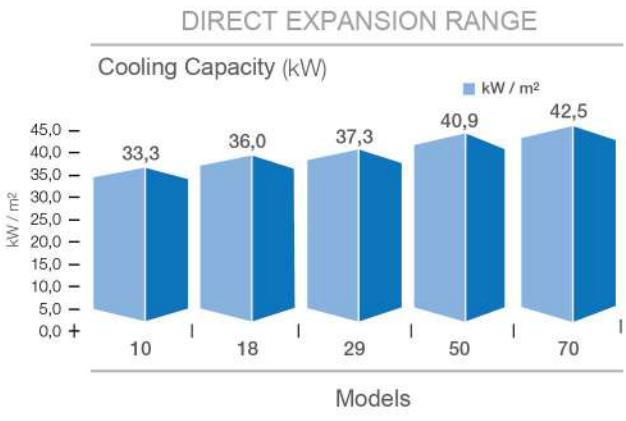
Energy saving by EC INVERTER Fans Vs. standard traditional fans

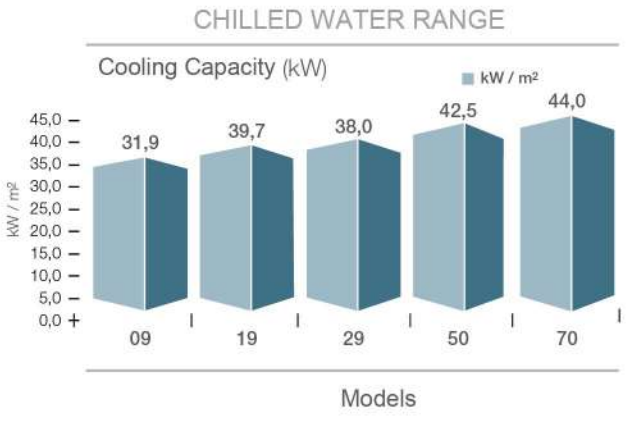
THE MOST COMPACT DESIGN

It is a known fact that the set loads (W/m2) in technological applications are continuously increasing.This is mainly due to the increase in data traffic, giving rise to new equipment with an increasingly greater capacity of transmission, which in turn develops a higher heat load to be dispersed.

This requires ever better performance from the air-conditioning system that should, however, take up as little space as possible, leaving it for the transmission equipment.

COOLBLADE is the air-conditioner with the best SUPPLIED POWER / FOOT PRINT ratio in the market.
Because space means value.





COOLBLADE has an intelligent electronic heart that allows it to keep a constant control over all the operating and environmental parameters of the site.
The COOLBLADE electronic unit is open and configurable to specific user requirements both in site and particularly in the factory with dedicated customisation.



ELECTRONICS

STANDARD FUNCTIONS

- Semi-graphic display 132 x 64 pixel
- Programmable software
- ICONS Graphic Display
- General alarm
- Automatic reset after blackout
- Compressor FIFO management
- Integral LAN system
- Standby management
- Automatic rotation
- Serious alarms
- Clock card
- Emergency function

MAIN OPTIONS

- Serial cards for BMS interconnection
- Fire-smoke alarms
- Flooding alarm
- Electronic thermostat control
- SMS alarm

OPTIONS AND MAIN ACCESSORIES



STANDARD

Structure
- Multi-speed centrifugal fans
- High efficiency Copeland Scroll compressors
- High and low side pressure switches
- Filters EU4
- R-410A Refrigerant
- 3-way valves (CW)
- Intelligent dehumidifier device with constant airflow

Electronic unit
- Semi-graphic display 132 x 64pixel
- LAN, integral Local Area Network
- Buffer battery
- Record 100 alarms

OPTIONALS

Structure
- EC INVERTER RADIAL-BLADE fans
- Hot water reheat system
- FILTER F5-F6-F7-F8 (built into the structure)
- Soundproofed plenum
- Electronic thermostat
- Condensing control

Electronic unit
- Serial cards for BMS interfacing
- DC INVERTER FAN control software
- Driver for electronic thermostat control

TECHNICAL FEATURES:

SAU/O-DAU/O 007-100



Type: DIRECT EXPANSION, AIR COOLED, upflow or downflow or frontflow version



Evolution	Available Versions
STD	Cooling only without condensation control device
MOD	Cooling only with condensation control device through external unit fans regulation

UNIT DESCRIPTION

Cooling capacity: 8~101kW

Particularly suitable for air-conditioning technological applications, server and CED rooms and all technological applications in general.

STANDARD CONFIGURATION

- Indoor unit and outdoor air-cooled condenser
- Maximum resistance to rust thanks to galvanized sheet metal structures and panels with powder-coated painting The panels adopt sound-insulating material.
- Reliable compressors and other key components from world leading brand such as Copeland compressor.
- Double-inlet centrifugal fan units directly coupled and suspended on vibration-isolation mountings. The fans are of the forward-bladed type for maximum efficiency and low noise.
- Electrical box under IEC 204-1/EN60204-1 rules
- Standard G4 filter, F5~F8 optional; in accordance with CEN-EN 779; 90.1% filter efficiency, conforming ASHRAE standard.
- The microprocessor controls the compressor activation times with FIFO logic, thereby regulating the cooling capacity; it also controls the operating alarms with the possibility of interfacing to supervisor and remote-servicing systems.
- Other standard components: thermal expansion valve, high/low pressure safety switch, sight glass, dry filter, etc.

TECHNICAL FEATURES:

SAU/O–DAU/O 007–100

Direct Expansion Air Cooled(DXA)

Model		SAU/O/F					SAU/O				DAU/O							
		008	013	017	020	025	030	035	040	045	035	045	050	060	070	080	090	100
Power supply	V/Ph/Hz	380/3N/50																
Refrigerant		R410A																
Cooling performances																		
Total cooling capacity (1)	kW	7.5	12.0	15.0	18.0	25.0	30.5	35.1	41.9	46.2	36.4	48.0	50.8	63.5	71.7	80.2	92.2	101.0
Sensible cooling capacity (1)	kW	6.9	10.9	13.8	16.4	22.5	30.0	33.5	41.5	45.5	36.0	47.6	49.5	62.0	70.5	78.0	90.5	98.7
SHR (1)		0.92	0.91	0.92	0.91	0.90	0.98	0.95	0.99	0.98	0.99	0.99	0.97	0.98	0.98	0.98	0.98	0.98
Compressors																		
Quantity		1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2
Power input	kW	1.87	3.0	3.69	4.2	4.91	6.01	6.3	8.25	8.88	7.17	9.88	10.50	12.0	13.9	15.9	17.9	21.9
Fan																		
Air flow	m^3/h	2200	2850	4750	4750	5750	8400	9180	13000	15200	11550	15200	15400	21300	22000	23000	27000	28000
N° Centrifugal fans		--	--	--	--	--	1	1	--	2	2	--	2	2	2	2	-	-
N° AC fans		1	1	1	1	1	--	--	--	--	--	--	--	--	--	--	--	--
N° EC fans		--	--	--	--	1	1	1	2	2	2	2	2	2	2	2	3	3
Centrifugal fans power input	kW	--	--	--	--	--	2.16	2.17	--	3.89	2.81	--	3.58	6.50	6.50	7.30	-	-
AC fans power input	kW	0.30	0.46	0.84	0.84	1.50	--	--	--	--	--	--	--	--	--	--	--	--
EC fans power input	kW	--	--	--	--	1.25	1.68	2.01	2.44	3.75	1.72	3.75	3.82	4.23	4.47	5.18	6.44	6.98
ESP	Pa	20-350																
Sound pressure level (2)	dB(A)	52	53	56	56	56	64	67	61	65	59	65	65	57	58	60	64	65
Humidifier																		
Humidifying capacity	kg/h	3	3	5	5	5	5	5	5	5	5	5	5	8	8	8	8	8
Power power input	kW	2.25	2.25	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	6	6	6	6	6
Heaters																		
Steps		3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Capacity	kW	6	6	6	6	6	9	9	15	15	15	15	15	18	18	18	18	18

NOTE

(1) return air:24℃, relative humidity:50%, condensing temperature:45℃, ESP 20 Pa;

(2) Measured at 1.5m height and 2m front free field;

(3) Except for up flow and down flow air schemes, front flow is also available for SA008~025;

(4) The humidifying capacity and heating capacity showed in the table is standard data, and we can enlarge the capacity in response to the customer requirement.



DIMENSION/WEIGHT

Direct Expansion Air Cooled(DXA)

Mode		SAU/O/F					SAU/O				DAU/O							
		008	013	017	020	025	030	035	040	045	035	045	050	060	070	080	090	100
Width	mm	600		800			1000				1490			1990			2490	
Depth	mm	550		700			790				890			890			890	
Height	mm	1980		1980			1980				1980			1980			1980	
Net Weight	kg	130	145	210	215	225	367	385	459	479	477	499	501	697	737	757	888	918

NOTE:

(1)The dimension of units DAU/O 060 070 080 showed in the table is the situation which the unit configure EC fans, and the units dimension is 2100mm×790mm×1980mm when the units fit out belt-driven fans.

TECHNICAL FEATURES:

SWU/O–DWU/O | 008–100



Type: DIRECT EXPANSION, WATER COOLED,
upflow or downflow version



Available Versions

Evolution



UNIT DESCRIPTION

Cooling capacity range: 8~104kW

Particularly suitable for air-conditioning technological applications, server and CED rooms and all technological applications in general.

STANDARD CONFIGURATION

- Indoor unit(the customer can choose outdoor dry cooler from CLIMAVENETA or provide cooling tower by themselves)
- Maximum resistance to rust thanks to galvanized sheet metal structures and panels with powder-coated painting The panels adopt sound-insulating material.
- Reliable compressors and other key components from world leading brand such as Copeland compressor.
- Double-inlet centrifugal fan units directly coupled and suspended on vibration-isolation mountings.
  The fans are of the forward-bladed type for maximum efficiency and low noise.
- Standard G4 filter, F5~F8 optional; in accordance with CEN-EN 779; 90.1% filter efficiency, conforming ASHRAE standard.
- The microprocessor controls the compressor activation times with FIFO logic, thereby regulating the cooling capacity; it also controls the operating alarms with the possibility of interfacing to supervisor and remote-servicing systems.
- Electrical box under IEC 204-1/EN60204-1 rules
- Other standard components: thermal expansion valve, high/low pressure safety switch, sight glass, dry filter, etc.

TECHNICAL FEATURES:

SWU/O–DWU/O | 008–100

Direct Expansion Water Cooled Unit (DXW)

Model		SWU/O/F					SWU/O				DWU/O							
		008	013	017	020	025	030	035	040	045	035	045	050	060	070	080	090	100
Power supply	V/Ph/Hz	380/3N/50																
Refrigerant		R410A																
Cooling performances																		
Total cooling capacity (1)	kW	7.5	12.0	15.0	18.0	25.0	30.5	35.1	41.9	46.2	36.4	48.0	50.8	63.5	71.7	80.2	92.2	101.0
Sensible cooling capacity (1)	kW	6.9	10.9	13.8	16.4	22.5	30.0	33.5	41.5	45.5	36.0	47.6	49.5	62.0	70.5	78.0	90.5	98.7
SHR (1)		0.92	0.91	0.92	0.91	0.90	0.98	0.95	0.99	0.98	0.99	0.99	0.97	0.98	0.98	0.98	0.98	0.98
Compressors																		
Quantity		1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2
Power input (1)	kW	1.87	3.0	3.69	4.2	4.91	6.01	6.3	8.25	8.88	7.17	9.88	10.50	12.0	13.9	15.9	17.9	21.9
Plate condenser																		
Quantity		1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	1
Water Flow (1)	l/h	1611	2580	3214	3818	5144	6279	7120	8525	9431	7508	9912	10549	12984	14721	16526	18934	21135
Total pressure drop(1)	kPa	15	21	18	20	23	30	27	27	30	24	21	21	33	30	26	31	39
Fan																		
Air flow	m^3/h	2200	2850	4750	4750	5750	8400	9180	13000	15200	11550	15200	15400	21300	22000	23000	27000	28000
N° AC fans		1	1	1	1	1	--	--	--	--	--	--	--	--	--	--	--	--
N° EC fans		1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	3	3
AC fans power input	kW	0.30	0.46	0.84	0.84	1.50	--	--	--	--	--	--	--	--	--	--	--	--
EC fans power input	kW	0.28	0.33	0.84	0.84	1.25	1.68	2.01	2.44	3.75	1.72	3.75	3.82	4.23	4.47	5.18	6.44	6.98
ESP	Pa	20-350																
Sound pressure level (2)	dB(A)	52	53	56	56	56	64	67	61	65	59	65	65	57	58	60	64	65
Humidifier																		
Humidifying capacity	kg/h	3	3	5	5	5	5	5	5	5	5	5	5	8	8	8	8	8
power input	kW	2.25	2.25	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	6	6	6	6	6
Heaters																		
Steps		3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Capacity	kW	6	6	6	6	6	9	9	15	15	15	15	15	18	18	18	18	18
cooling water connection																		
connection specification		F1"					F1 "1/4											F2"

NOTE

(1)-return air：24℃, relative humidity：50%, cooling water condition 30/35℃, ESP：20Pa

(2)-measured at 1.5m height and 2m front free field

(3)-Except for up flow and down flow, front flow is also available for SW008~025, shown as SWF;

(4)-The humidifying capacity and heating capacity showed in the table is standard data, and we can enlarge the capacity in response to customer requirements



DIMENSION/WEIGHT

Direct Expansion Water Cooled Unit

Model		SWU/O/F					SWU/O				DWU/O							
		008	013	017	020	025	030	035	040	045	035	045	050	060	070	080	090	100
Width	mm	600		800			1000		1490					1990			2490	
Depth	mm	550		700			790		890					890			890	
Height	mm	1980		1980			1980		1980					1980			1980	
Net Weight	kg	135	150	217	222	240	382	402	478	498	501	529	531	731	771	796	926	962

TECHNICAL FEATURES:

SCU/O | 009–220



Type：SINGLE COIL CHILLED WATER
up flow or downflow version



Available Versions

STD Cooling only,
with 3-way valve

UNIT DESCRIPTION

Cooling capacity range: 9~220kW

STANDARD CONFIGURATION

- Maximum resistance to rust thanks to galvanized sheet metal structures and panels with powder-coated painting The panels adopt sound-insulating material.
- Reliable key components from world leading brand such as 2-way or 3-way valve from Johnson, controller from Carel.
- High efficient EC fan
- Standard G4 filter, F5~F8 optional; in accordance with CEN-EN 779; 90.1% filter efficiency, conforming ASHRAE standard.
- Electrical box under IEC 204-1/EN60204-1 rules

TECHNICAL FEATURES:

SCU/O | 009–220

Single Coil Chilled Water Unit

Model		SCU/O(EX)																		
		009	011	016	020	025	030	035	050	060	070	080	090	100	120	140	160	180	200	220
Power supply	V/Ph/Hz	220/1N/50		380/3N/50																
Cooling performances(CONDITION (1)																				
Total cooling capacity(1)	kW	8.8	10.8	16.2	21.9	25.8	31.3	36.0	53.6	65.0	76.5	86.9	99.2	110.0	119.0	140.0	160.0	173.0	200.0	206.0
Sensible cooling capacity(1)	kW	8.8	10.8	16.2	21.9	25.8	31.3	36.0	53.6	65.0	76.5	86.9	99.2	110.0	119.0	140.0	160.0	173.0	200.0	206.0
SHR(1)		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Water side (CONDITION(1)																				
Water Flow(1)	m^3/h	1.3	1.6	2.3	3.1	3.7	4.5	5.2	7.7	9.3	11.0	12.5	14.3	15.8	17.1	20.2	22.9	24.8	28.7	29.6
Total pressure drops(1)	kPa	20.61	23.53	22.15	45.79	29.30	43.60	50.80	85.40	77.30	76.80	68.80	71.80	86.50	80.00	79.30	66.60	63.80	67.90	74.00
Cooling performances(CONDITION 2)																				
Total cooling capacity(2)	kW	8.9	11.1	16.5	21.8	24.0	30.0	35.2	50.2	64.0	74.0	84.1	96.0	105.0	116.0	140.0	158.0	176.0	198.0	212.0
Sensible cooling capacity(2)	kW	8.9	10.6	16.5	20.6	21.2	26.2	30.4	43.9	54.1	64.6	72.8	83.1	92.4	98.2	116.0	132.0	142.0	164.0	170.0
SHR(2)		1.00	0.95	1.00	0.94	0.88	0.87	0.86	0.87	0.85	0.87	0.87	0.87	0.88	0.85	0.83	0.84	0.81	0.83	0.80
Water side(CONDITION(2)																				
Water flow(2)	m^3/h	1.5	1.9	2.8	3.7	4.1	5.2	6.1	8.6	11.0	12.7	14.5	16.5	18.1	20.1	24.0	27.1	30.2	34.1	36.4
Total pressure drops(2)	kPa	30.0	34.7	32.6	64.3	37.5	56.7	69.0	105.0	105.0	100.0	90.3	94.7	112.0	108.0	110.0	91.0	92.8	93.0	108.0
Fan																				
Air flow		2750	2890	5390	5580	6000	7000	7600	13000	13000	16000	18000	20550	23500	23600	27000	31000	32500	38000	38000
N° EC fans		1	1	2	2	1	1	1	1	1	2	2	2	2	2	2	3	3	3	3
Up/down flow EC fan power input	kW	0.34	0.41	0.64	0.74	0.90	1.33	1.89	1.80	1.90	2.98	4.20	3.37	4.20	4.40	4.40	6.30	7.16	7.49	7.49
Under floor EC fan power input	kW	/	/	/	/	0.77	1.10	1.55	1.47	1.56	2.58	3.67	2.92	3.30	3.53	3.71	5.25	6.04	6.20	6.23
ESP	Pa	20~350																		
Humidifier																				
Humidifying capacity	kg/h	3	3	5	5	5	5	5	8	8	8	8	8	8	8	10	10	10	10	10
Power input	kW	2.25	2.25	3.75	3.75	3.75	3.75	3.75	6	6	6	6	6	6	6	7.5	7.5	7.5	7.5	7.5
Heaters																				
Steps		3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Capacity	kW	4	4	8	8	9	9	9	18	18	18	18	18	18	18	18	18	18	27	27
Water inlet/outlet connection																				
Connection size		F3/4"		F1"		F1"1/4			DN40	DN40	DN50	DN50	DN50	DN50	DN50	DN65	DN65	DN65	DN65	DN65

NOTE

(1) CONDITION 1

Return air:32℃,RH:30%, the temperature IN/OUT chilled water :12℃/18℃,ESP:20Pa

CONDITION 2

Return air:24℃,RH:50%, the temperature IN/OUT chilled water :7℃/12℃,ESP:20Pa

(2) Measured at 1.5m height and 2m front free field

(3) The humidifying capacity and heating capacity showed in the table is standard data, and we can enlarge the capacity in response to the customer requirement.



DIMENSION/WEIGHT

Chilled Water Unit

Model		SCU/O(EX)																		
		009	011	016	020	025	030	035	050	060	070	080	090	100	120	140	160	180	200	220
Width	mm	600		1000		800			1490				1990			2490			2990	
Depth	mm	500		500		700			890				890			890			890	
Height	mm	1980		1980		1980			1980				1980			1980			1980	
Net Weight	kg	120	130	200	210	245	260	290	369	379	385	396	476	495	516	610	650	680	720	760

TECHNICAL FEATURES:

SCU/O-B2 | 030-150 (ABOVE FLOOR AIR SUPPLY)
SCU/O-B2EX | 035-155 (UNDER FLOOR AIR SUPPLY)



Type: Dual coil chilled water
up flow, down flow or under floor air flow



Available Versions

STD Cooling only, with 3-way valve

UNIT DESCRIPTION

Cooling capacity: 35~150kW
Suitable for IDC and server room with cooling redundancy requirements

STANDARD CONFIGURATION

- Maximum resistance to rust thanks to galvanized sheet metal structures and panels with powder-coated painting The panels adopt sound-insulating material.
- Reliable key components from world leading brand such as 2-way or 3-way valve from BELIMO or SIMENS, controller from Carel.
- High efficient EC fan
- Standard G4 filter, F5~F8 optional; in accordance with CEN-EN 779; 90.1% filter efficiency, conforming ASHRAE standard.
- Electrical box under IEC 204-1/EN60204-1 rules

TECHNICAL FEATURES:

SCU/O-B2 | 030-150 (ABOVE FLOOR AIR SUPPLY)
SCU/O-B2EX | 035-155 (UNDER FLOOR AIR SUPPLY)

Dual Coil Chilled Water Unit

Model	SCU/O-B2										
	030	035	045	050	070	080	090	100	125	130	150
Power supply V/Ph/Hz	380/3N/50										
Cooling performance											
Total cooling capacity(1) kW	31.1	36.3	45.5	52.6	71.2	82.3	89.6	103	125	131	148
Sensible cooling capacity(1) kW	27.3	30.7	38.3	42.7	61.1	68	75.9	84.1	112	128	137
SHR	0.88	0.85	0.84	0.81	0.86	0.83	0.85	0.82	0.90	0.98	0.93
Water side											
Water flow(1) l/h	5364	6264	7848	9072	12240	14184	15408	17748	21456	22608	25524
Total pressure drop(1) kPa	74.3	69.2	92.9	71.8	119	116	151	122	81.6	54.6	55.6
Fan											
Air flow m^3/h	10000	10000	12500	12500	21000	21000	25000	25000	30000	36000	36000
N° EC fans	1	1	1	1	2	2	2	2	2	3	3
EC fans power input kW	1.66	1.76	1.96	2.04	3.58	3.76	3.82	3.97	5.63	7.15	7.68
ESP Pa	20~350										
Sound pressure level (2) dB(A)	59	59	62	62	64	65	67	68	65	69	69
Humidifier											
Humidifying capacity kg/h	5	5	5	5	8	8	8	8	8	15	15
Power input kW	3.75	3.75	3.75	3.75	6	6	6	6	6	11.25	11.25
Heaters											
Steps	3	3	3	3	3	3	3	3	3	3	3
Capacity kW	9	9	15	15	18	18	18	18	18	24	24

Note:

(1) return air:24℃, relative humidity:50%, chilled water inlet/outlet temp. 7/12℃, ESP 20 Pa;

(2) Measured at 1.5m height and 2m front free field;

(3) The humidifying capacity and heating capacity showed in the table is standard data, and we can enlarge the capacity in response to the customer requirement.



Chilled Water Unit

Model	SCU/O-B2										
	030	035	045	050	070	080	090	100	125	130	150
Width mm	1000	1000	1550	1550	2100	2100	2650	2650	2650	3200	3200
Depth mm	890	890	890	890	890	890	890	890	890	890	890
Height mm	2180	2180	2180	2180	2180	2180	2180	2180	2180	2180	2180
Net Weight kg	419	434	596	611	750	765	895	910	915	944	954

TECHNICAL FEATURES:

SCU/O-B2 | 030-150 (ABOVE FLOOR AIR SUPPLY)
SCU/O-B2EX | 035-155 (UNDER FLOOR AIR SUPPLY)

Dual Coil Chilled Water Unit

Model		SCU-B2EX									
		035	045	050	058	060	085	100	120	140	155
Power supply	V/Ph/Hz	380/3N/50									
Cooling performance											
Total cooling capacity(1)	kW	36.6	45	47.6	57.3	58.4	86.5	101.9	117.1	139.7	153.2
Sensible cooling capacity(1)	kW	32.3	37.7	42.1	45.6	53.4	73.8	83.2	101.5	115.7	127.9
SHR		0.88	0.84	0.88	0.80	0.91	0.85	0.82	0.87	0.83	0.83
Water side											
Water flow(1)	l/h	6280	7710	8170	9830	10030	14870	17480	20090	23970	26290
Total pressure drop(1)	kPa	83	114	66	70	97	94	89	75	116	73
Fan											
Air flow	m^3/h	12000	12000	14000	13000	19000	25000	25000	36000	36000	40000
N° EC fans		1	1	1	1	2	2	2	3	3	3
EC fans power input	kW	1.91	2.04	2.05	1.81	3.00	3.56	3.76	5.52	5.74	6.41
ESP	Pa	20~350									
Sound pressure level (2)	dB(A)	61	61	64	64	64	66	66	67	66	70
Humidifier											
Humidifying capacity	kg/h	5	5	5	5	5	8	8	10	10	15
Power input	kW	3.75	3.75	3.75	3.75	3.75	6	6	7.5	7.5	11.25
Heaters											
Steps		3	3	3	3	3	3	3	3	3	3
Water inlet/outlet connection											
Connection size		F1"1/4	F1"1/2		DN50				DN65		

Note:

(1) return air:24℃, relative humidity:50%, chilled water inlet/outlet temp. 7/12℃, ESP 20 Pa;

(2) Measured at 1.5m height and 2m front free field;

(3) The humidifying capacity and heating capacity showed in the table is standard data, and we can enlarge the capacity in response to the customer requirement.



Chilled Water Unit

Model		SCU-B2EX									
		035	045	050	058	060	085	100	120	140	155
Width	mm	1000	1000	1550	1550	1550	2100	2100	2650	2650	3200
Depth	mm	990	990	990	990	990	990	990	990	990	990
Height	mm	1980	1980	1980	1980	1980	1980	1980	1980	1980	1980
Net Weight	kg	486	501	717	717	717	931	946	1154	1169	1264

TECHNICAL FEATURES:

SAU/O-D DAU/O-D | 025-100

SWU/O-D DWU/O-D | 025-100



Type: DUAL FLUID, AIR COOLED,
DUAL FLUID, WATER COOLED
upflow or downflow version



Available Versions

STD Cooling only without condensation control device

MOD Cooling only with condensation control device through external unit fans regulation

UNIT DESCRIPTION

Cooling capacity per direct expansion air cooled unit is from 24 to 100kW. Dual fluid unit has two different types dual fluid air cooled and dual fluid water cooled. EC fan is used in dual fluid unit with highest efficiency. Unit will be always running under chilled water mode but it will also automatically change to direct expansion mode while failure of chilled water system happens. So dual fluid unit is the most reliable cooling solution to choose for all the customers.

STANDARD CONFIGURATION

- Maximum resistance to rust thanks to galvanized sheet metal structures and panels with powder-coated painting The panels adopt sound-insulating material.
- Reliable compressors and other key components from world leading brand such as Copeland compressor, 2-way or 3-way valve from BELIMO or SIMENS, etc.
- High efficient EC fan
- Standard G4 filter, F5~F8 optional; in accordance with CEN-EN 779; 90.1% filter efficiency, conforming ASHRAE standard.
- The microprocessor controls the compressor activation times with FIFO logic, thereby regulating the cooling capacity; it also controls the operating alarms with the possibility of interfacing to supervisor and remote-servicing systems.
- Electrical box under IEC 204-1/EN60204-1 rules
- Other standard components: thermal expansion valve, high/low pressure safety switch, sight glass, dry filter, etc.

TECHNICAL FEATURES:

SAU/O-D DAU/O-D | 025-100
SWU/O-D DWU/O-D | 025-100

Air Cooled Dual Fluid

Model		SAU/O-D				DAU/O-D						
		025	030	035	045	035	050	055	060	080	090	100
Power supply	V/Ph/Hz	380/3N/50										
Refrigerant		R410A										
Cooling performances												
Direct expansion total cooling capacity (1)	kW	24.15	29.98	33.55	43	37.32	48.33	55.84	63.21	76.77	88	100.33
Direct expansion sensible cooling capacity (1)	kW	23.17	29.28	33.04	40.35	37.08	48.12	54.15	61.49	74.79	87.72	97.41
Direct expansion SHR (1)		0.96	0.98	0.98	0.94	0.99	0.99	0.97	0.97	0.97	0.99	0.97
Chilled water total cooling capacity (2)	kW	25.46	30.09	33.56	53.55	42.85	53.55	55.03	69.34	72.02	97.47	99.35
Chilled water sensible cooling capacity (2)	kW	24.06	29.16	32.81	51.2	40.82	51.2	52.86	67.95	71.12	93.89	96.04
Chilled water SHR (2)		0.95	0.97	0.98	0.93	0.95	0.96	0.96	0.98	0.99	0.96	0.97
Compressors												
Quantity		1	1	1	1	2	2	2	2	2	2	2
Power input(1)	kW	4.93	6.01	6.75	7.87	7.15	9.87	11.70	12.02	15.40	17.68	21.38
Fan												
Air flow	m^3/h	6600	8250	8800	14300	11000	14300	14850	19800	20900	26400	27120
N° EC fans		1	1	1	2	2	2	2	3	3	3	3
EC fan power input	kW	0.89	1.60	1.80	3.40	2.09	3.40	3.65	4.50	5.20	6.1	6.1
Sound pressure level (3)	dB(A)	56	60	60	64	59	64	64	67	67	67	67
Humidifier												
Humidifying capacity	kg/h	5	5	5	5	5	5	5	8	8	8	8
EC fan power input	kW	3.75	3.75	3.75	3.75	3.75	3.75	3.75	00	6	6	6
Heaters												
Steps		3	3	3	3	3	3	3	3	3	3	3
Capacity	kW	9	9	9	15	15	15	15	18	18	18	18

NOTE

(1) DXA operating condition: return air:24°C, relative humidity: 50%, outdoor temperature: 35°C;

(2)CW operating condition: return air:24°C, relative humidity: 50%, chilled water inlet/outlet temp. 7/12℃;

(3)Measured at 1.5m height and 2m front free field;

(4)The humidifying capacity and heating capacity showed in the table is standard data, and we can enlarge the capacity in response to the customer requirement.



DIMENSION/WEIGHT

Air Cooled Dual Fluid

Model		SAU/O-D				DAU/O-D						
		025	030	035	045	035	050	055	060	080	090	100
Width	mm	1000	1000	1000	1550	1550	1550	1550	2100	2100	2650	2650
Depth	mm	790	790	790	790	790	790	790	790	790	790	790
Height	mm	1980	1980	1980	1980	1980	1980	1980	1980	1980	1980	1980
Net Weight	kg	312	359	377	516	428	511	536	774	794	993	1023

TECHNICAL FEATURES:

SAU/O-D DAU/O-D | 025-100
SWU/O-D DWU/O-D | 025-100

Water Cooled Dual Fluid

Model		SWU/O-D				DWU/O-D						
		025	030	035	045	035	050	055	070	080	090	100
Power supply	V/Ph/Hz	380/3N/50										
Refrigerant		R410A										
Cooling performances												
Direct expansion water cooled total cooling capacity (1)	kW	25.21	31.1	33.69	47.98	38.78	50.96	55.19	71.57	77.58	93.31	102.9
Direct expansion water cooled sensible cooling capacity (1)	kW	23.99	30.05	32.72	47.55	38.57	50.25	53.64	70.33	75.16	92.78	99.75
Direct expansion SHR (1)		0.93	0.97	0.97	0.99	0.99	0.99	0.97	0.98	0.97	0.99	0.97
Chilled water total cooling capacity (2)	kW	25.46	30.09	33.56	53.55	42.85	53.55	55.03	69.34	72.02	97.47	99.35
Chilled water sensible cooling capacity (2)	kW	24.06	29.16	32.51	51.2	40.82	51.2	52.86	67.95	71.12	93.89	96.04
Chilled water SHR(2)		0.95	0.97	0.97	0.96	0.95	0.96	0.96	0.98	0.99	0.96	0.97
Compressors												
Quantity		1	1	1	1	2	2	2	2	2	2	2
Power input(1)	kW	4.30	5.40	6.11	6.94	6.44	8.61	10.55	12.28	13.30	16.03	19.33
Plate condenser												
Quantity		1	1	1	1	2	2	2	2	2	1	1
Water Flow(1)	l/h	4900	6330	7002	8430	7380	9810	11954	14360	16132	18120	20830
Water pressure drop in DX mode	kPa	24	32	28	31	27	21	32	30	28	33	41
Total pressure drops	kPa	26	35	35	46	30	46	46	26	26	53	53
Fan												
Air flow	m^3/h	6600	8250	8800	14300	11000	14300	14850	19800	20900	26400	27120
N° EC fans		1	1	1	2	2	2	2	3	3	3	3
EC fan power input	kW	0.89	1.60	1.80	3.40	2.09	3.40	3.65	4.50	5.20	6.1	6.1
ESP	Pa	20-350										
Sound pressure level (3)	dB(A)	56	60	60	64	59	64	64	67	67	67	67
Humidifier												
Humidifying capacity	kg/h	5	5	5	5	5	5	5	8	8	8	8
Power input	kW	3.75	3.75	3.75	3.75	3.75	3.75	3.75	6	6	6	6
Heaters												
Steps		3	3	3	3	3	3	3	3	3	3	3
Capacity	kW	9	9	9	15	15	15	15	18	18	18	18

NOTE

(1)DXW operating condition: return air:24°C, relative humidity: 50%, cooling water inlet/outlet: 30/35°C;

(2)CW operating condition: return air: 24°C, relative humidity: 50%, chilled water inlet/outlet temp. 7/12℃;

(3)Measured at 1.5m height and 2m front free field;

(4)The humidifying capacity and heating capacity showed in the table is standard data, and we can enlarge the capacity in response to the customer requirement.



DIMENSION/WEIGHT

Water Cooled Dual Fluid

Model		SWU/O-D				DWU/O-D						
		025	030	035	045	035	050	055	070	080	090	100
Width	mm	1000	1000	1000	1550	1550	1550	1550	2100	2100	2650	2650
Depth	mm	790	790	790	790	790	790	790	790	790	790	790
Height	mm	1980	1980	1980	1980	1980	1980	1980	1980	1980	1980	1980
Net Weight	kg	348	399	417	556	468	511	576	811	831	981	1061

TECHNICAL FEATURES:

SWU/O-F DWU/O-F | 025÷100



Type:FREECOOLING, WATER COOLED,
upflow or downflow version



Available Versions

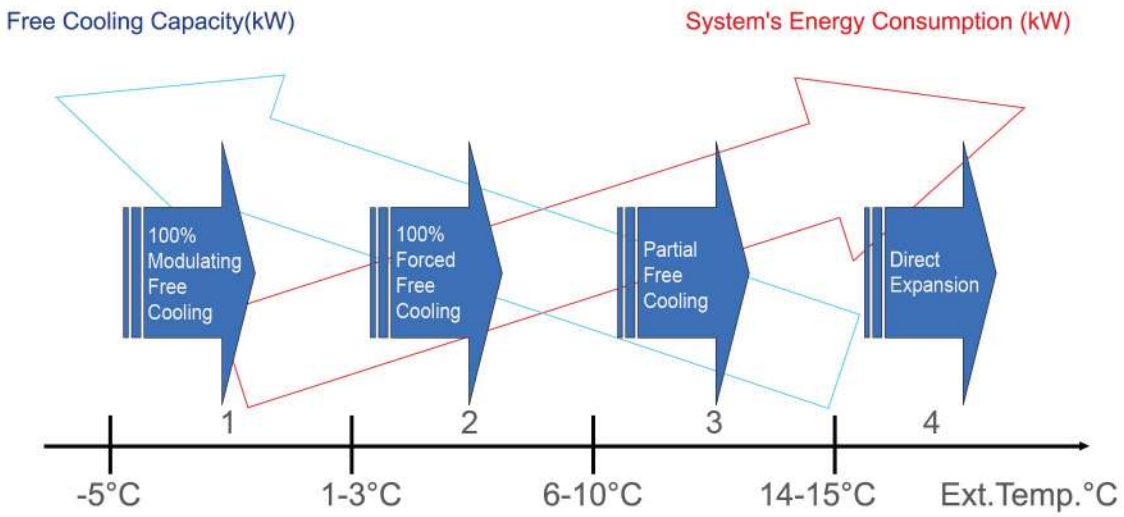
STD Cooling with 3-way valve



UNIT DESCRIPTION

Cooling capacity per free cooling unit is from 25 to 102kW. Free cooling units fit out EC fans normally.Free cooling unit consists of two coils direct expansion water cooled coil and free cooling coil. Unit can automatically switch working mode according to real outdoor temperature.

FREE COOLING CAPACITY



TECHNICAL FEATURES:

SWU/O-F DWU/O-F | 025÷100

Direct Expansion Water Cooling

Model		SWU/O-F				DWU/O-F						
		025	030	035	045	035	050	055	070	080	090	100
Power supply	V/Ph/Hz	380/3N/50										
Refrigerant		R410A										
Cooling performances												
Direct expansion mode total cooling capacity(1)	kW	25.21	31.1	33.69	47.88	38.78	50.96	55.19	71.57	77.58	93.31	102.9
Direct expansion mode sensible cooling capacity(1)	kW	23.55	30.05	32.72	47.55	38.57	50.25	53.64	70.33	75.16	92.78	99.75
Direct expansion SHR(1)		0.93	0.97	0.97	0.99	0.99	0.99	0.97	0.98	0.97	0.99	0.97
Freecooling mode total cooling capacity(1)	kW	24.9	30.6	32.3	47.3	38.1	50	54.5	70.3	76.7	91.8	102
Freecooling mode sensible cooling capacity(1)	kW	22.9	28.1	30	45.1	36.4	46.8	50.2	65.5	70	86.3	92.5
Freecooling mode SHR(1)		0.92	0.92	0.93	0.96	0.95	0.94	0.92	0.93	0.91	0.94	0.91
Compressors												
Quantity		1	1	1	1	2	2	2	2	2	2	2
Power input(1)	kW	4.40	5.40	6.11	8.00	6.44	8.41	10.96	12.28	13.30	16.03	19.33
Plate condenser												
Quantity		1	1	1	1	2	2	2	2	2	1	1
Water Flow(1)	l/h	4900	6330	7002	8430	7380	9610	12313	14360	16133	18120	20830
Water pressure drop in DX mode	kPa	47	70	46	66	49	58	57	65	70	55	68
Freecooling mode water pressure drop	kPa	60	97	69	89	64	84	95	85	91	80	99
Fan												
Air flow	m^3/h	6600	8250	8800	14300	11000	14300	14850	19800	20900	26400	27120
N° fans		1	1	1	2	2	2	2	3	3	3	3
Power input	kW	0.89	1.60	1.80	3.40	2.09	3.40	3.65	4.50	5.20	6.1	6.1
ESP	Pa	20-350										
Sound pressure level(2)	dB(A)	56	60	60	64	59	64	64	67	67	67	67
Humidifier												
Humidifying capacity	kg/h	5	5	5	5	5	5	5	8	8	8	8
Power input	kW	3.75	3.75	3.75	3.75	3.75	3.75	3.75	6	6	6	6
Heaters												
Steps		3	3	3	3	3	3	3	3	3	3	3
Power input	kW	9	9	9	9	9	9	9	18	18	18	18

NOTE

(1) Return air:24°C,relative humidity: 50%; freecooling water in temperature: 7°C; cooling water in/out temperature:30/35°C, ESP:20Pa

(2) Measured at 1.5m height and 2m front free field

(3) The humidifying capacity and heating capacity showed in the table is standard data, and we can enlarge the capacity in response to the customer requirement.



DIMENSION/WEIGHT

Direct Expansion Water Cooling		SWU/O-F				DWU/O-F						
		025	030	035	045	035	050	055	070	080	090	100
Width	mm	1000	1000	1000	1550	1550	1550	1550	2100	2100	2650	2650
Depth	mm	790	790	790	790	790	790	790	790	790	790	790
Height	mm	1980	1980	1980	1980	1980	1980	1980	1980	1980	1980	1980
Net Weight	kg	362	413	433	489	577	580	605	846	871	993	1123

MODULAR DX-M/CW-M SERIES

DX-M

Model		SAU/O-M					DAU/O-M							
		025	030	035	040	045	035	045	050	060	070	080	090	100
Power supply	V/Ph/Hz	380/3N/50												
The refrigerant		R410A												
Cooling Performance														
Total cooling capacity(1)	kW	25.1	30.1	35.1	40.5	45.0	35.0	46.9	50.3	60.0	70.0	80.9	90.1	103.0
Sensible cooling capacity(1)	kW	24.6	29.2	34.7	37.8	44.8	34.0	45.3	47.5	59.0	68.6	75.7	87.1	95.4
Sensible heat ratio SHR(1)		0.98	0.97	0.99	0.93	0.99	0.97	0.97	0.94	0.98	0.98	0.94	0.97	0.93
Compressor														
Number of compressors		1	1	1	1	1	2	2	2	2	2	2	2	2
Compressor power input (1)	kW	6.00	6.98	8.02	9.19	10.20	8.10	11.20	12.10	13.30	16.00	18.40	20.40	24.00
Fan														
Air volume	m^3/h	7870	9050	10500	10500	14200	10500	13500	14050	19400	20500	21000	27300	27500
Number of EC fans		1	1	1	1	1	1	1	1	2	2	2	2	2
EC fan power	kW	1.63	1.94	2.64	2.40	3.57	2.65	3.10	3.43	4.66	4.93	4.80	6.39	6.47
External static pressure	Pa	20~350												
Noise (2)	dB(A)	52	53	56	55	62	56	61	62	57	57	57	63	63
Humidifier														
Humidification capacity	kg/h	5	5	5	5	5	5	5	5	8	8	8	8	8
Humidifier power	kW	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	6	6	6	6	6
Electric Heating														
Series		3	3	3	3	3	3	3	3	3	3	3	3	3
Heater power	kW	9	9	9	9	9	9	9	9	18	18	18	18	18
Interface specifications reserved for the unit														
Liquid pipe	mm	16	16	16	16	19	16	16	16	16	16	16	19	19
Trachea	mm	16	19	22	22	22	19	19	19	19	22	22	22	22
The outdoor unit														
Outdoor unit model		C33	C42	C49	C58	C58	C24*2	C33*2	C33*2	C42*2	C49*2	C58*2	C58*2	C74*2
Outdoor unit powe	kW	0.46	1.18	1.18	1.18	1.18	1.18	0.92	0.92	2.36	2.36	2.36	2.36	3.54
Whole machine														
Total power	kW	8.1	10.1	11.8	12.8	15.0	11.9	15.2	16.5	20.3	23.3	25.6	29.2	34.0
Energy efficiency rating		2	2	2	1	2	2	1	2	2	2	1	1	1

(1)- Working conditions: return air 24°C, relative humidity 50%, external residual pressure 20Pa
(2)- Measured at 2 meters in front of the unit, 1.5 meters high
(3)- The electric heating capacity and humidification capacity in the table are standard configuration. If the customer needs to increase the heating or humidification capacity of the unit, please consult the Climaveneta factory
(4)- The unit design meets GB19413
(5)- If the project requires units with other energy efficiency levels, please consult the factory



Dimensions/Weight

Model		SAO/SAU-M					DAO/DAU-M							
		025	030	035	040	045	035	045	050	060	070	080	090	100
Length	mm	890	890	890	890	1330	1330	1330	1330	1740	1740	1740	2180	2180
Width	mm	990	990	990	990	990	990	990	990	990	990	990	990	990
Height	mm	1990	1990	1990	1990	1990	1990	1990	1990	1990	1990	1990	1990	1990
Weight	kg	315	320	325	330	400	420	430	435	640	650	660	690	700

MODULAR DX-M/CW-M SERIES

CW-M

Model		SCU/O-M (EX)															
		035	045	055	065	070	080	090	100	110	120	130	140	150	160	180	200
Power Supply V/Ph/Hz		380/3N/50															
Cooling Performance																	
Cooling Capacity(1)	kW	36.1	48.1	53.4	63.1	72.4	79.2	89.4	101.0	108.0	117.0	126.0	140.0	152.0	161.0	178.0	192.0
Sensible Cooling Capacity(1)	kW	35.1	42.2	46.6	55.0	70.3	78.0	79.5	88.7	94.3	98.8	109.0	124.0	134.0	146.0	150.0	165.0
SHR(1)		0.97	0.88	0.87	0.87	0.97	0.98	0.89	0.88	0.87	0.84	0.87	0.89	0.88	0.91	0.84	0.86
Water System																	
Water Flow(1)	m^3/h	6.23	8.28	9.18	10.87	12.46	13.64	15.41	17.35	18.54	20.12	21.78	24.08	26.14	27.72	30.60	33.08
EC Fan																	
Air Flow	m^3/h	11220	11025	12800	13500	22550	25800	23500	23500	26000	23600	26200	35250	35500	39900	36000	40000
Qty.		1	1	1	1	2	2	2	2	2	2	2	3	3	3	3	3
Power Input(over/under air flow)	kW	1.47	1.53	2.53	2.99	2.97	4.91	3.43	3.83	5.28	4.05	5.71	5.24	5.87	8.13	6.35	8.90
Power Input(sunken fan air flow)	kW	1.36	1.42	2.30	2.71	2.76	4.44	3.16	3.52	4.77	3.76	5.19	4.82	5.39	7.29	5.90	8.19
External Static Pressure	Pa	20~350															
Humidifier																	
Capacity	kg/h	5	5	5	5	8	8	8	8	8	8	8	10	10	10	10	10
Power Input	kW	3.75	3.75	3.75	3.75	6	6	6	6	6	6	6	7.5	7.5	7.5	7.5	7.5
Electric Heating																	
Step		3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Capacity	kW	9.0	9.0	9.0	9.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0	27.0	27.0	27.0	27.0	27.0
Unit Reserve Water Inlet/Outlet Pipe Connection Size																	
Connection Size		F 1 1/4"		F 1 1/2"		DN50							DN65				

(1)- Working condition: return air 24 ℃, relative humidity 50%, chilled water inlet and outlet water temperature 7 ℃ / 12 ℃, external pressure 20Pa.
(2)- The humidifying capacity and heating capacity showed in the table is standard data, if the customer needs to increase the heating or humidifying capacity of the unit, please contact CLIMAVENETA Factory.



Dimensions/Weight

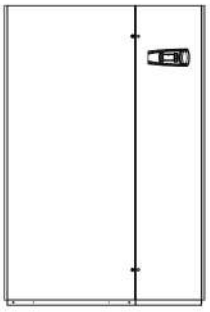
Model		SCU/O-M (EX)															
		035	045	055	065	070	080	090	100	110	120	130	140	150	160	180	200
Length	mm	890	890	890	890	1740	1740	1740	1740	1740	1740	1740	2590	2590	2590	2590	2590
Width	mm	990	990	990	990	990	990	990	990	990	990	990	990	990	990	990	990
Height	mm	1990	1990	1990	1990	1990	1990	1990	1990	1990	1990	1990	1990	1990	1990	1990	1990
Weight	kg	326	352	356	386	430	434	490	492	494	550	554	638	640	642	730	732

MODULAR DX-M/CW-M SERIES

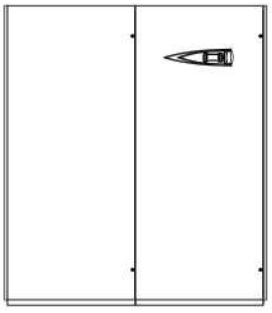
Air cooled modular combination technical parameters



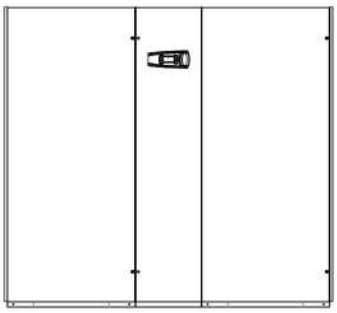
Model	SAO/SAU-M			
	025	030	035	040
Modules Qty.	Single module			
Dimensions	890*990*1990			



Model	SAO/SAU-M	DAO/DAU-M		
	045	035	045	050
Modules Qty.	Single module + control cabinet			
Dimensions	1330*990*1990			



Model	DAO/DAU-M		
	060	070	080
Modules Qty.	Single module *2		
Dimensions	1740*990*1990		



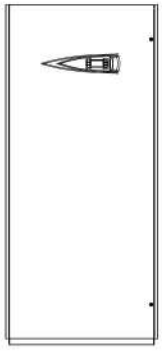
Model	DAO/DAU-M	
	090	100
Modules Qty.	Single module *2+ control cabinet	
Dimensions	2180*990*1990	

MODULAR DX-M/CW-M SERIES

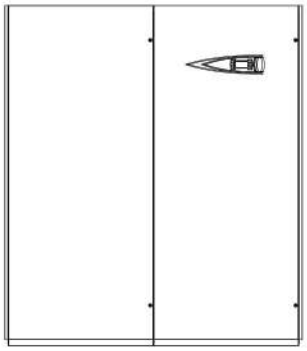
MODULAR COMBINATION TECHNICAL PARAMETERS

CLIMAVENETA Modular unit can be assembled on site to make installation and transportation easier especially in limited space.

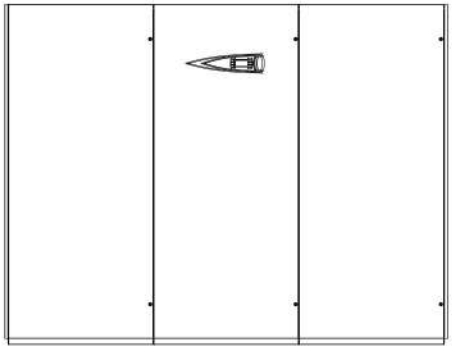
Chilled water modular combination technical parameters



Model	SCU/O-M(EX)			
	035	045	055	065
Modules Qty.	Single module			
Dimensions	890*990*1990			



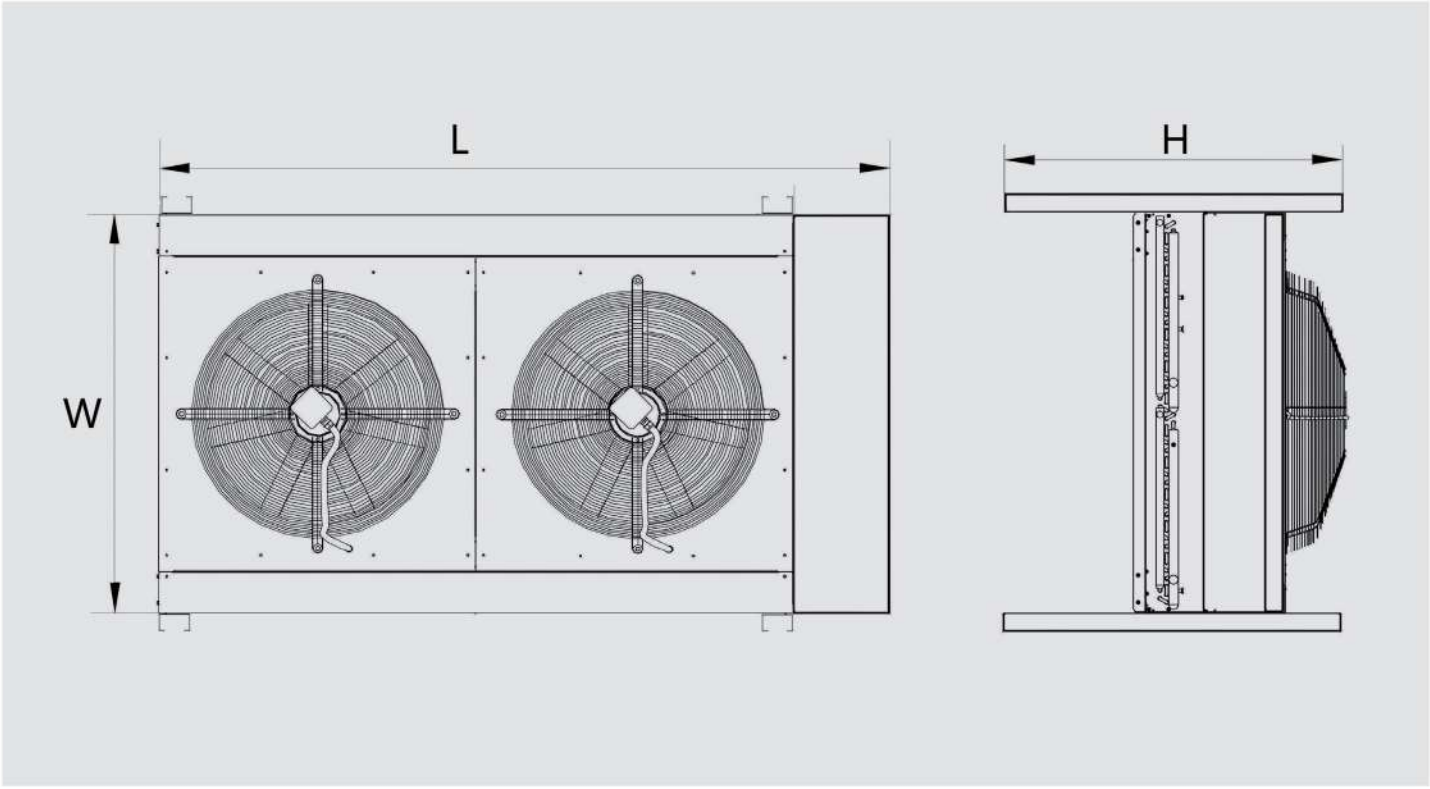
Model	SCU/O-M(EX)						
	070	080	090	100	110	120	130
Modules Qty.	Single module*2						
Dimensions	1740*990*1990						



Model	SCU/O-M(EX)				
	140	150	160	180	200
Modules Qty.	Single module*3				
Dimensions	2590*990*1990				

MODULAR DX-M/CW-M SERIES

Air-cooled unit outdoor condenser



Protective Coating
Stepless fan speed regulation control

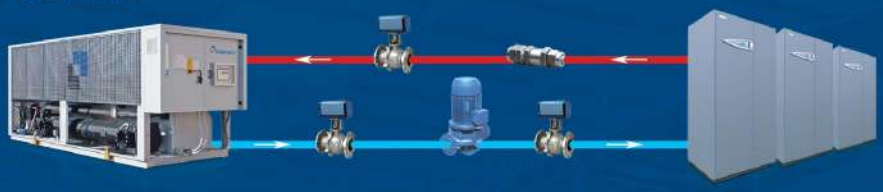
Air-cooled unit outdoor condenser

Model		C17	C24	C29	C33	C42	C49	C58	C74
Fan Qty.		1	1	1	2	2	2	2	3
Power Supply		220V/1/50							
FLA	A	1.3	3.0	3.0	2.5	6.0	6.0	6.0	9.0
L	mm	1115	1330		2005		2427		3488
W	mm	905	1108	1108	905	1108	1108	1108	1108
H	mm	830	830	830	830	830	830	830	830
Weight	kg	50	58	70	80	96	102	112	180

AIR-COOLED FREE COOLING AIR CONDITIONING SYSTEM

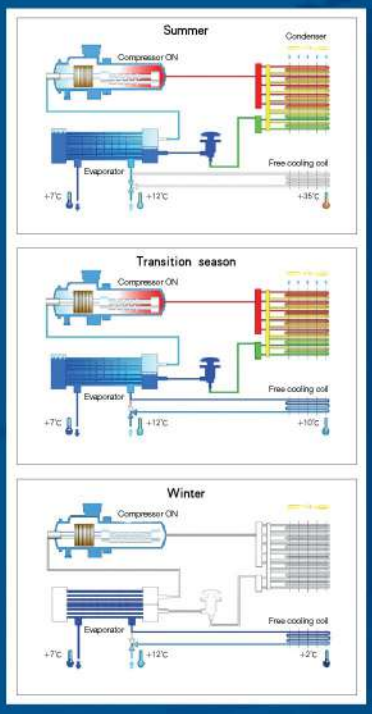
The unit comes with a dry cooler and a water distribution system. In the transitional season and winter, the air-conditioning water can be automatically cooling and cool down by the low-temperature air, and the compressor is cooled by the insufficient part. In this transitional season and winter, compressor refrigeration can be reduced or not, effectively reducing the energy consumption of electric refrigeration. The annual electricity saving can be as high as 20-60% according to different regions.

System Schematic



System Operation Characteristics

The system can automatically adjust the operating state of the unit according to the change of the outdoor ambient temperature, and realize the intelligent switching of the three operating modes, so as to make full use of the outdoor natural cold source to make the system more energy-saving.



Summer operating conditions: conventional mechanical cooling

Transition season operating conditions: combined cooling

When the outdoor ambient temperature is lower than the return water temperature by 2 °C, the free cooling function is turned on, and the insufficient portion is compensated by the compressor cooling.

Winter operating conditions: Fully FREE COOLING

Fully FREE COOLING when the outdoor ambient temperature is lower than the unit supply temperature by 5~8°C.

Project Reference



China Construction Bank Head Office (Taoxiang Lake)



Qingdao Union Data Center



China Mobile Beijing International Information Port

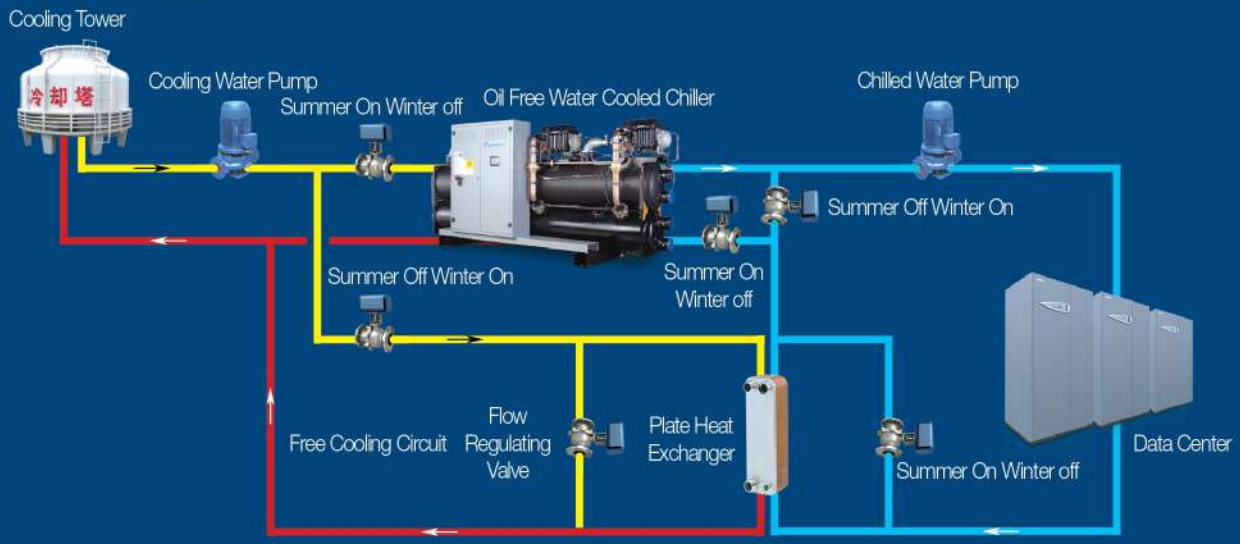
VARIABLE FREQUENCY OIL FREE CENTRIFUGAL COOLING SYSTEM

Oil free centrifugal compressor represents the trend of today's most advanced compressor technology.

Oil free centrifugal chiller adopts magnetic suspension bearing oil-free two-stage centrifugal compressor, variable frequency control, oil-free full liquid heat exchanger, which not only ensures the efficiency at full load, but also ensures high efficiency and energy saving operation under partial load, IPLV is up to The combined partial load efficiency of 10. And there is no surge, ultra-low mute, no peak current is generated, and there is no starting shock to the grid.

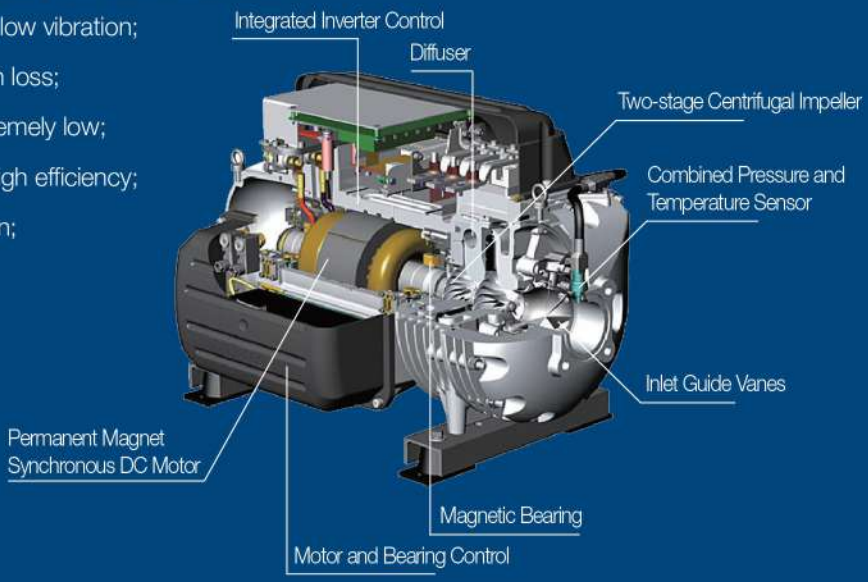
It is especially suitable for data center construction that is put into use step by step.

System schematic



System Features

- Two-stage centrifugal compression to improve compression efficiency;
- Magnetic suspension bearings, extremely low vibration;
- No speed increasing gear, no transmission loss;
- No lubrication required, friction loss is extremely low;
- Permanent magnet synchronous motor, high efficiency;
- Variable frequency drive / soft start function;
- Excellent partial load performance;
-Noise about running is extremely low;
- The compressor is light in weight.



Project Reference



Huitian Cloud Big Data Processing Center



Wuxi Supercomputer Center (Light of Shenwei Taihu Lake)



Hangzhou Baida Greentown Xizi International

CLIMAVENETA

IT COOLING PRODUCTS: PCCS

BCD, FW-DX, PAO/PAU,CRC series



Data Center Magnetic Levitation Oil Free Phase Change Cooling System : PCCS

- Air-cooled PUE ≤ 1.19 | Zero WUE
- Evaporative cooled PUE ≤ 1.15 | Low WUE
- Integrated VRF, Magnetic Levitation and Oil Free Technology.

FEATURES AND BENEFITS

- Energy saving, high efficiency, simple operation and maintenance
- **Oil-free magnetic levitation technology:** It can eliminate oil system maintenance, friction loss, bearing/resistance loss
- **Permanent magnet synchronous DC motor technology:** It can eliminate the mechanical loss caused by the gearbox, and the motor efficiency is as high as 98%
- **Frequency conversion technology:** stepless speed regulation, starting current as low as 2A, extremely high partial load Efficiency
- **Low pressure ratio technology:** The compressor has a wide speed regulation range of 18500～52000RPM to meet the needs of different pressure ratios and cooling load
- Free cooling technology does not need to run the compressor, which significantly improves the energy efficiency of the system.
- The equipment is directly placed outdoors, without occupying the internal space of the equipment room and without setting up an equipment room.
- Applicable to a wide range of areas, regardless of region, regardless of new or renovation projects, de-engineered design, modular construction.
- Multi-connection modules, easy on-site installation, saving installation space, and de-engineering to the greatest extent

AIR COOLED OUTDOOR UNIT

- **No water consumption, saving operating costs - Application of power heat pipe technology**

FEATURES AND BENEFITS

- The use of refrigerant to directly transport cold capacity is more than 8 times larger than the capacity of chilled water to transport cold capacity, which significantly reduces the flow of refrigerant transport and greatly reduces the transport power. Usually, the transport power of the refrigerant pump is less than one-fifth of the power of the water pump.
- There is no water in the system, no antifreeze, no need to clean the heat exchanger regularly, the maintenance of system is simple, which can ensure the long-term stability of the system performance.
- The system is filled with refrigerant, and the copper pipes are connected, so there is no danger of flooding in data center room.
- It increases the system evaporating temperature, thus increases the cooling capacity and improves the efficiency the of the system significantly.
- No water consumption, environmental friendly, more suitable for water-scarce or no-water areas.

WATER COOLED OUTDOOR UNIT

- Save space for outdoor units - Water cooling technology

FEATURES AND BENEFITS

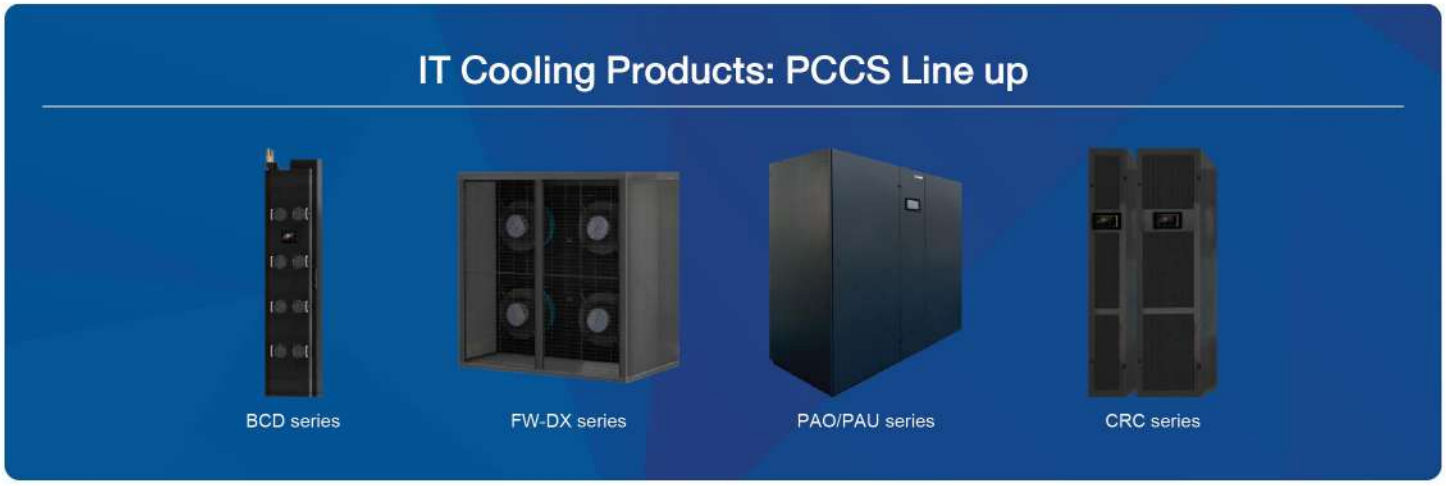
- Suitable for areas with plenty of water
- One cooling tower can be connected to multiple pump cabinets, and the outdoor unit has a small footprint
- The switching temperature point of free cooling can be increased by 5-7°C which means that the unit can have a longer free cooling operation time

EVAPORATIVE COOLED

- Further improve energy efficiency - Evaporative cooling technology

FEATURES AND BENEFITS

- The outdoor unit uses the latent heat of vaporization of water for heat exchange, and the condensation temperature is related to the wet bulb temperature. Comparing with the traditional condenser + cooling tower, the evaporative condenser can decrease the condensation temperature by about 6 degrees, and the energy efficiency can be increased by 20%.
- The temperature point of free cooling can be increased by 5-7°C, which means the unit provides free cooling at higher temperature and a longer free cooling operation time.
- The water pump equipped with the evaporative condenser only needs to carry out the internal water flow circulation, and the conveying distance is shorter; There is only the phase changing heat to be rejected, and the required circulating water volume is smaller, so the water pump can be significantly smaller than the cooling tower water pump, The power consumption is significantly reduced, which improves the system efficiency significantly.

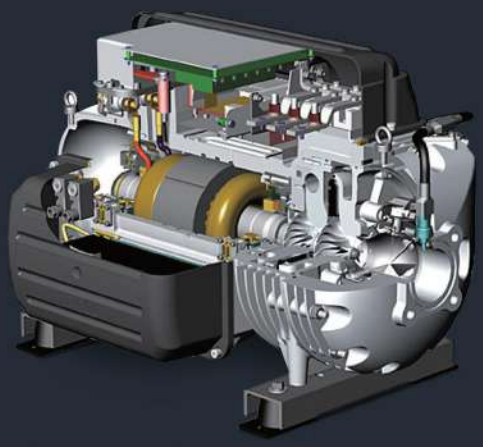


MAGNETIC LEVITATION OIL FREE PHASE CHANGING COOLING SYSTEM

ENERGY SAVING, HIGH EFFICIENCY, SIMPLE OPERATION AND MAINTENANCE

——Maglev oil-free centrifugal compressor technology application

- Oil-free magnetic levitation technology: It can eliminate oil system maintenance, friction loss, bearing/resistance loss
- Permanent magnet synchronous DC motor technology: It can eliminate the mechanical loss caused by the gearbox, and the motor efficiency is as high as 98%
- Frequency conversion technology: stepless speed regulation, starting current as low as 2A, extremely high partial load Efficiency
- Low pressure ratio technology: The compressor has a wide speed regulation range of 18500 ～ 52000RPM to meet the needs of different pressure ratios and cooling load



NO COMPRESSOR RUNNING IN WINTER

——Free cooling technology applied

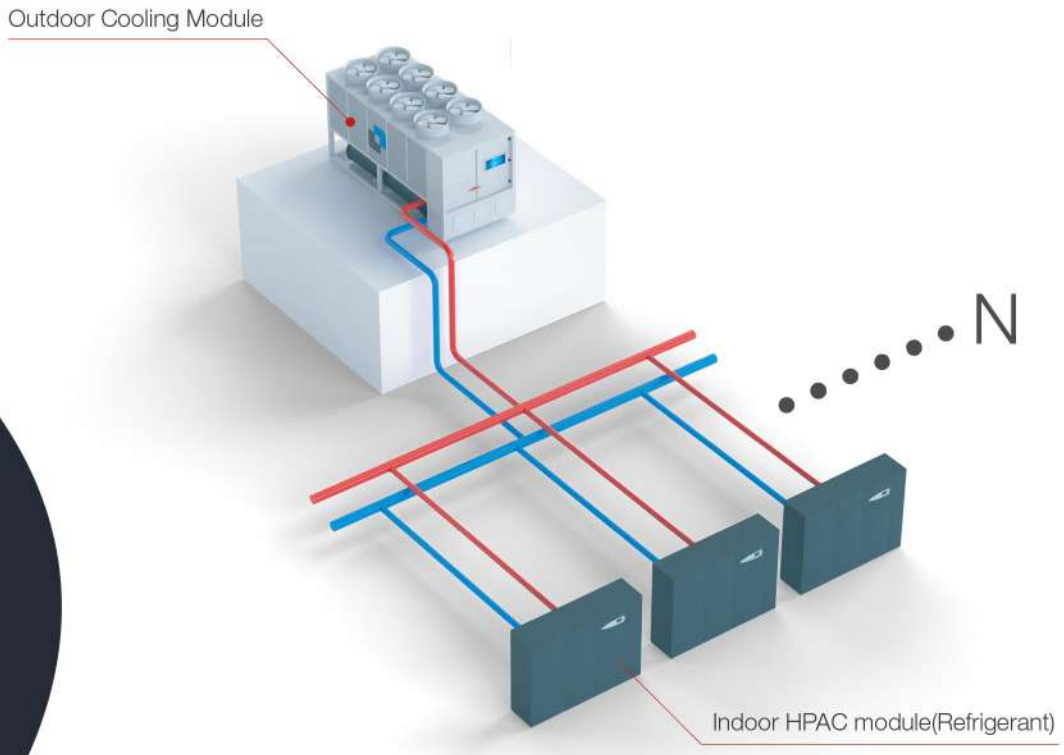
- Free cooling technology does not need to run the compressor, which significantly improves the energy efficiency of the system.

SIMPLICITY IS ALL

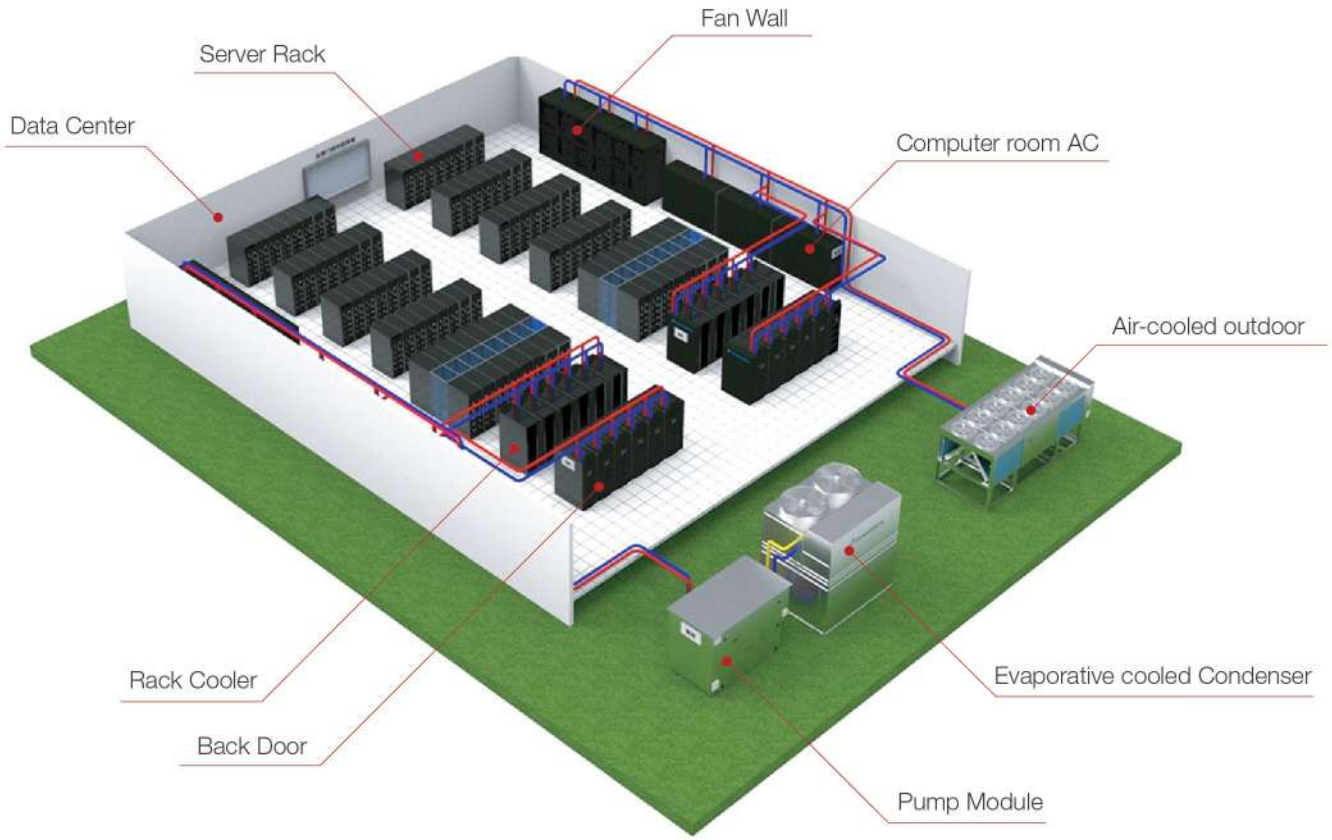
——The system is simple and can be

- The equipment is directly placed outdoors, without occupying the internal space of the equipment room and without setting up an equipment room.
- Applicable to a wide range of areas, regardless of region, regardless of new or renovation projects, de-engineered design, modular construction.
- Multi-connection modules, easy on-site installation, saving installation space, and de-engineering to the greatest extent

PCCS Distribution System

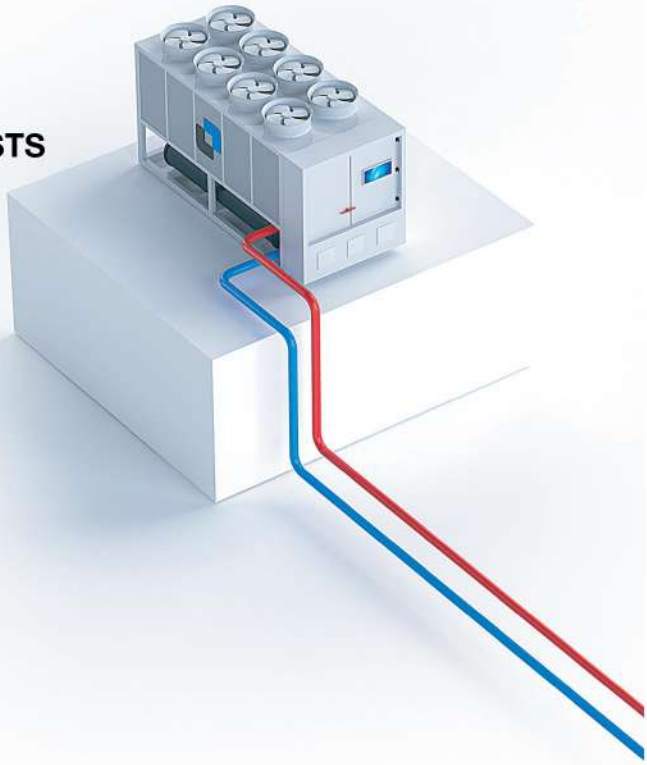


PCCS Solutions



According to the cooling type of the outdoor unit, it can be divided into air cooled and Evaporative cooled systems.

Air cooled

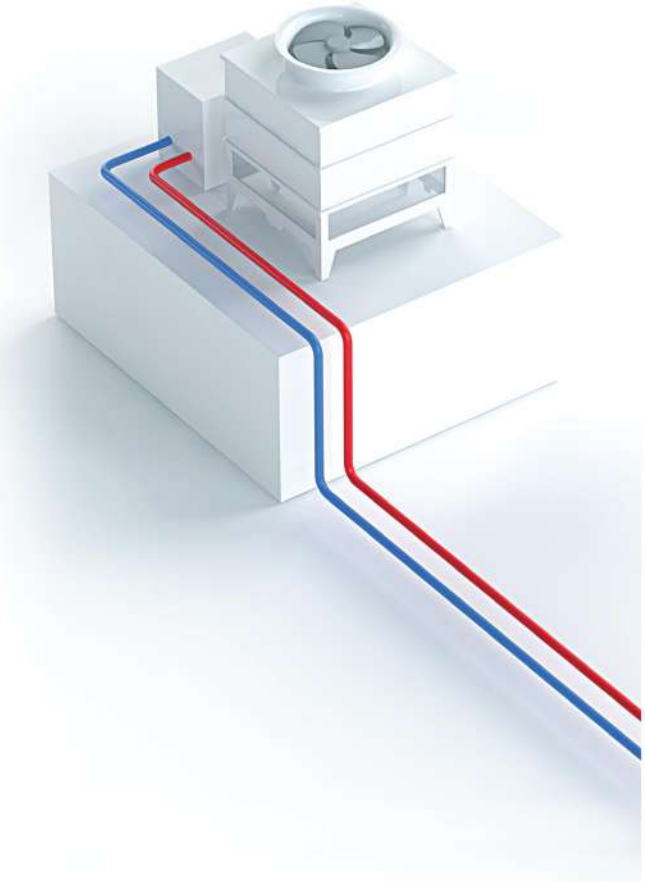


NO WATER CONSUMPTION, SAVING OPERATING COSTS

——Application of power heat pipe technology

- The use of refrigerant to directly transport cold capacity is more than 8 times larger than the capacity of chilled water to transport cold capacity, which significantly reduces the flow of refrigerant transport and greatly reduces the transport power. Usually, the transport power of the refrigerant pump is less than one-fifth of the power of the water pump.
- There is no water in the system, no antifreeze, no need to clean the heat exchanger regularly, the maintenance of system is simple, which can ensure the long-term stability of the system performance.
- The system is filled with refrigerant, and the copper pipes are connected, so there is no danger of flooding in data center room.
- It increases the system evaporating temperature, thus increases the cooling capacity and improves the efficiency the of the system significantly.
- No water consumption, environmental friendly, more suitable for water-scarce or no-water areas

Evaporative cooled



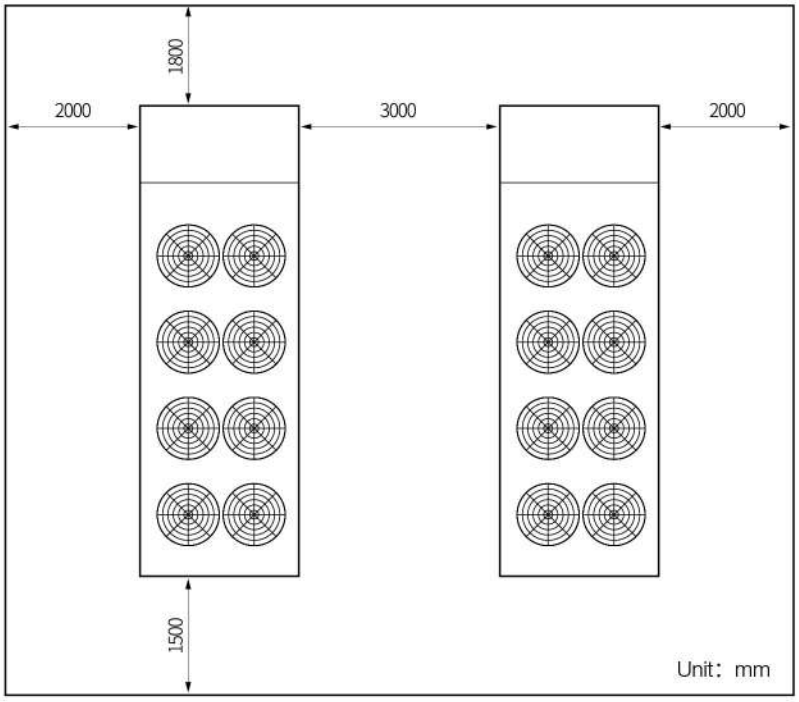
FURTHER IMPROVE ENERGY EFFICIENCY

——Evaporative cooling technology

- The outdoor unit uses the latent heat of vaporization of water for heat exchange, and the condensation temperature is related to the wet bulb temperature. Comparing with the traditional condenser + cooling tower, the evaporative condenser can decrease the condensation temperature by about 6 degrees, and the energy efficiency can be increased by 20%.
- The temperature point of free cooling can be increased by 5-7℃ , which means the unit provides free cooling at higher temperature and a longer free cooling operation time.
- The water pump equipped with the evaporative condenser only needs to carry out the internal water flow circulation, and the conveying distance is shorter; There is only the phase changing heat to be rejected, and the required circulating water volume is smaller, so the water pump can be significantly smaller than the cooling tower water pump, The power consumption is significantly reduced, which improves the system efficiency significantly.

Air cooled outdoor unit

Unit Model	PCCS0250-TA1-A00-V	PCCS0300-TA1-A00-V	PCCS0350-TB1-A00-V	PCCS0400-TB1-A00-V	PCCS0450-TB1-A00-V	PCCS0500-TB1-A00-V
Indoor unit supply/return air temperature(°C)	23/35					
Outdoor dry bulb temperature(°C)	40					
Cooling capacity(kW)	250	300	350	400	450	500
Rated power(kW)	69	84	97	110	123	145
Power supply system	380V/3/50Hz Dual power suppy					
Overall dimensions(mm*mm*mm)	4485*2300*2505		5385*2300*2505			6285*2300*2505
Operating weight(kg)	3465	3530	3860	4000	4205	4460
Refrigerant pumps system pipe						
Indoor unit return air pipe(mm)	89	89	89	108	108	108
Indoor unit supply fluid pipe(mm)	42	42	42	54	54	54
Compressor						
Type	Oil-free magnetic levitation variable speed centrifugal compressors					
Refrigerant	R134a					
Quantities	1					
Rated power(kW)	57	69	80	91	104	122
Air-cooled condenser						
Type	Air-cooled condenser					
Number of fans	6	8	8	10	10	10



Layout drawing of air cooled PCCS outdoor unit

Water-cooled

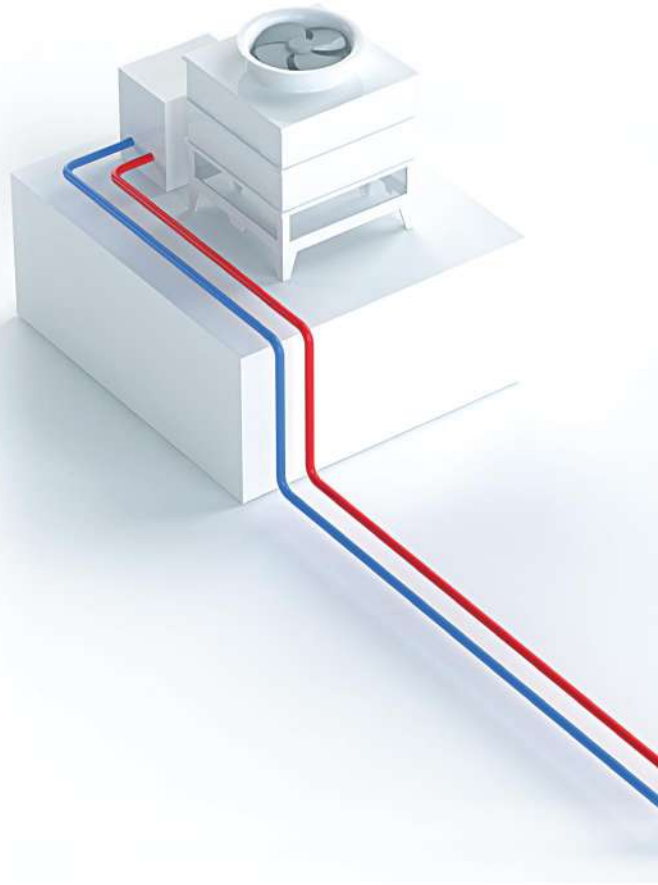
SAVE SPACE FOR OUTDOOR UNITS

——Water cooling technology

Suitable for areas with plenty of water

One cooling tower can be connected to multiple pump cabinets, and the outdoor unit has a small footprint

The switching temperature point of free cooling can be increased by 5-7℃ which means that the unit can have a longer free cooling operation time.





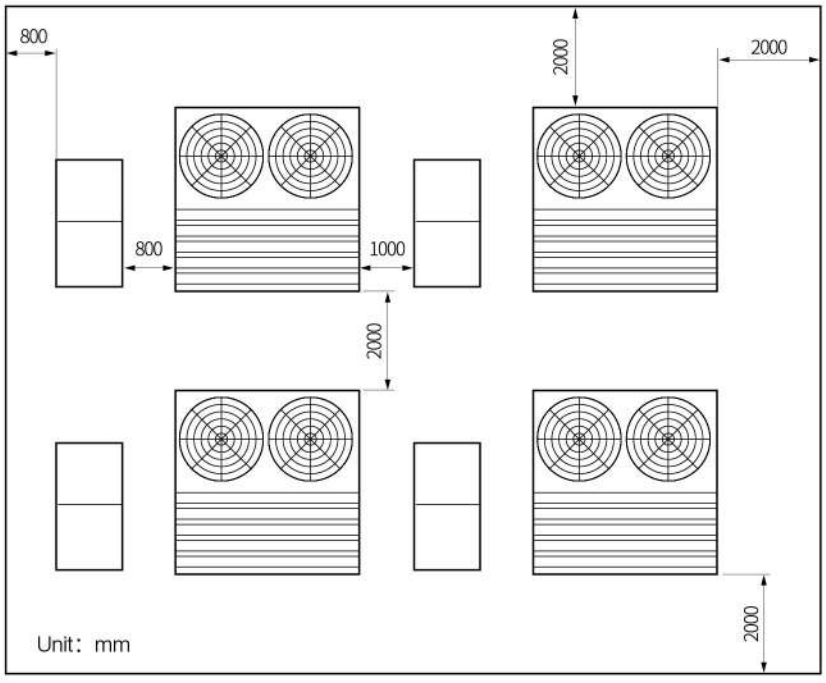
Recommended Programs: PCCS——Air-cooled condenser(optional spray), distributed system, dry and cold in winter
Resource conditions: Water scarcity and low land prices (Inner Mongolia, Ningxia, Gansu, Xinjiang, Northeast China)
Meteorological parameters: Extreme/average wet and dry bulb temperatures are lower, and minimum dry bulb temperatures are lower
Energy saving needs: Meet the PUE needs of all regions of the country

Recommended Programs: PCCS - water-cooled condenser, centralized system, year-round evaporative heat exchange
Resource conditions: Water resources are abundant, land resources are scarce (Jiangsu, Anhui, Hubei, etc.)
Meteorological parameters: Extreme/Average wet and dry bulb temperatures are higher and lowest dry bulb temperatures are lower
Energy saving needs: Meet the PUE needs of all regions of the country

Recommended Programs: PCCS - evaporative condenser, distributed system, evaporative heat exchange throughout the year
Resource conditions: Water is abundant and land prices are moderate (most cities in the country)
Meteorological parameters: Extreme/Average Wet and Dry Bulb Temperature, Moderate Minimum Dry Bulb
Energy saving needs: Meet the PUE needs of all regions of the country

Evaporative cooled outdoor unit

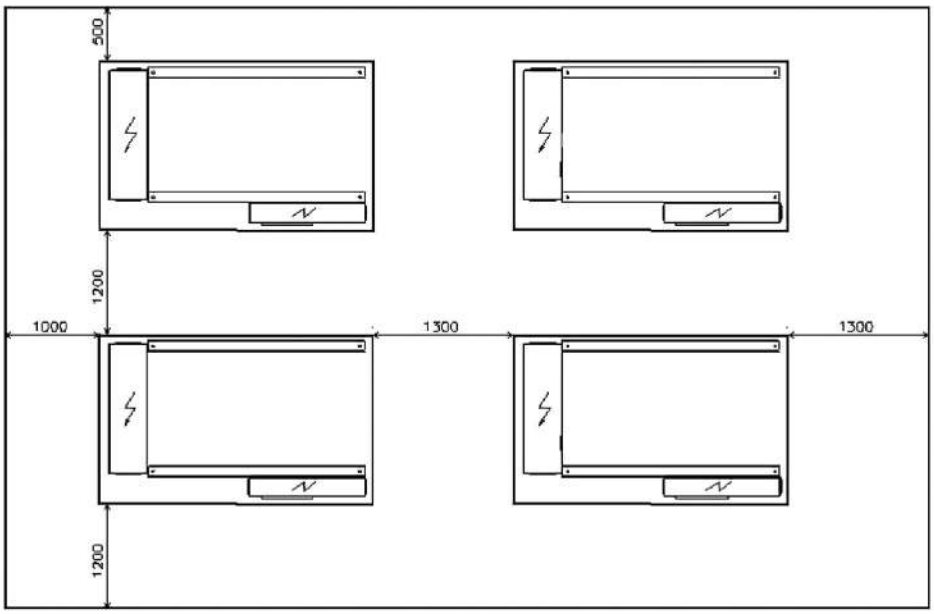
Unit Model	PCCS0300-TA1-E-V	PCCS0350-TA1-E-V	PCCS0400-TB1-E-V	PCCS0450-TB1-E-V	PCCS0500-TB1-E-V	PCCS0550-TB1-E-V	PCCS0600-TC1-E-V
Indoor unit supply/ return air temperature(°C)	23/35						
Outdoor wet bulb temperature(°C)	31						
Cooling capacity(kW)	300	350	400	450	500	550	600
Rated power(kW)	54	67	64	73	87	101	104
Power supply system	380V/3/50Hz Dual power supply						
Refrigerant pumps system pipe							
Indoor unit return air pipe(mm)	89	89	108	108	108	108	133
Indoor unit supply fluid pipe(mm)	42	42	54	54	54	54	54
Supply air pipe(mm)	89	89	108	108	108	108	133
Return fluid pipe(mm)	42	42	54	54	54	54	54
Compressor							
Type	Oil-free magnetic levitation variable speed centrifugal compressors						
Quantities	1						
Rated power(kW)	38	50	47	55	65	75	80
Pump cabinet							
Overall dimensions(mm*mm*mm)	2600*1330*2180						2800*1530*2180
Weight(kg)	1750	1770	1850	1850	1850	1850	1980
Cooling tower							
Type	Evaporative cooling tower						
Dissipation of heat (kW)	340	400	450	500	570	630	680



Layout of evaporative cooled PCCS outdoor unit

Water cooled outdoor unit

Unit Model	PCCS0250-TA1-W00-V	PCCS0300-TA1-W00-V	PCCS0350-TA1-W00-V	PCCS0400-TB1-W00-V	PCCS0450-TB1-W00-V	PCCS0500-TB1-W00-V	PCCS0550-TB1-W00-V	PCCS0600-TC1-W00-V
Indoor unit supply/return air temperature(°C)	23/35							
Cooling capacity(kW)	250	300	350	400	450	500	550	600
Rated power(kW)	42	51	64	68	78	90	102	107
Power supply	380V/3/50Hz Dual power supply							
Refrigerant pumps system pipe								
Return air pipe(mm)	89	89	89	108	108	108	108	133
Supply fluid pipe(mm)	42	42	42	54	54	54	54	54
Full liquid shell and tube condenser								
Extreme Inlet Temperature(°C)	35	35	35	35	35	35	35	35
Extreme water temperature(°C)	40	40	40	40	40	40	40	40
Water flow (m^3/h)	48	58	68	77	87	97	106	116
Compressor								
Type	Oil-free magnetic levitation variable speed centrifugal compressors							
Quantities	1							
Rated power(kW)	35	42	54	54	63	74	86	87
Pump cabinet								
Overall dimensions(mm*mm*mm)	2850*1800*2470						3000*2100*2500	
Weight(kg)	2135	2160	2190	2250	2520	2600	2900	2900



Layout of water cooled PCCS outdoor unit

INDOOR COOLING MODULE

CLIMAVENETA PCCS INDOOR UNIT


Back Cooling Door


Room CRAC


Fan Wall


Rack Cooler


Back Cooling Wall



BCD series

Use in areas with high heat density
Refrigeration equipment close to the heat source
Eliminate local hot spots
Not take up cabinet space



FW-DX series

The fan matrix is arranged to form a fan wall
No need for raised floors
Ultra-long-distance air supply



PAO/PAU series

Supply air under the raised floors
A variety of air supply type



CRC series

Use in areas with high heat density
Refrigeration equipment close to the heat source
Highly compatible with a variety of cabinets
Suitable for micro-modular data centers

Room CRAC

models	PAO/U080	PAO/U100	PAO/U125	PAO/U150
Power Type	380V/3/50Hz			
Refrigerant	R134a			
Air supply type	Over/Under/Sunken air supply			
Total cooling capacity(kW)	87.0	110.1	131.0	159.1
Sensible cooling capacity(kW)	87.0	110.1	131.0	159.1
SHR	1.00	1.00	1.00	1.00
Air flow(m^3/h)	21000	26000	33000	39000
Supply and return air temperature(°C)	25/37	25/37	25/37	25/37
Overall dimensions: W×D×H(mm)	1990×890×1980	2490×890×1980	2990×890×1980	2990×890×1980
Operating weight(KG)	450	510	630	630
Fan				
Type	EC			
Quantities	2	2	3	3
Power(kW)	4.6	5.6	6.9	8.4

Fan Wall

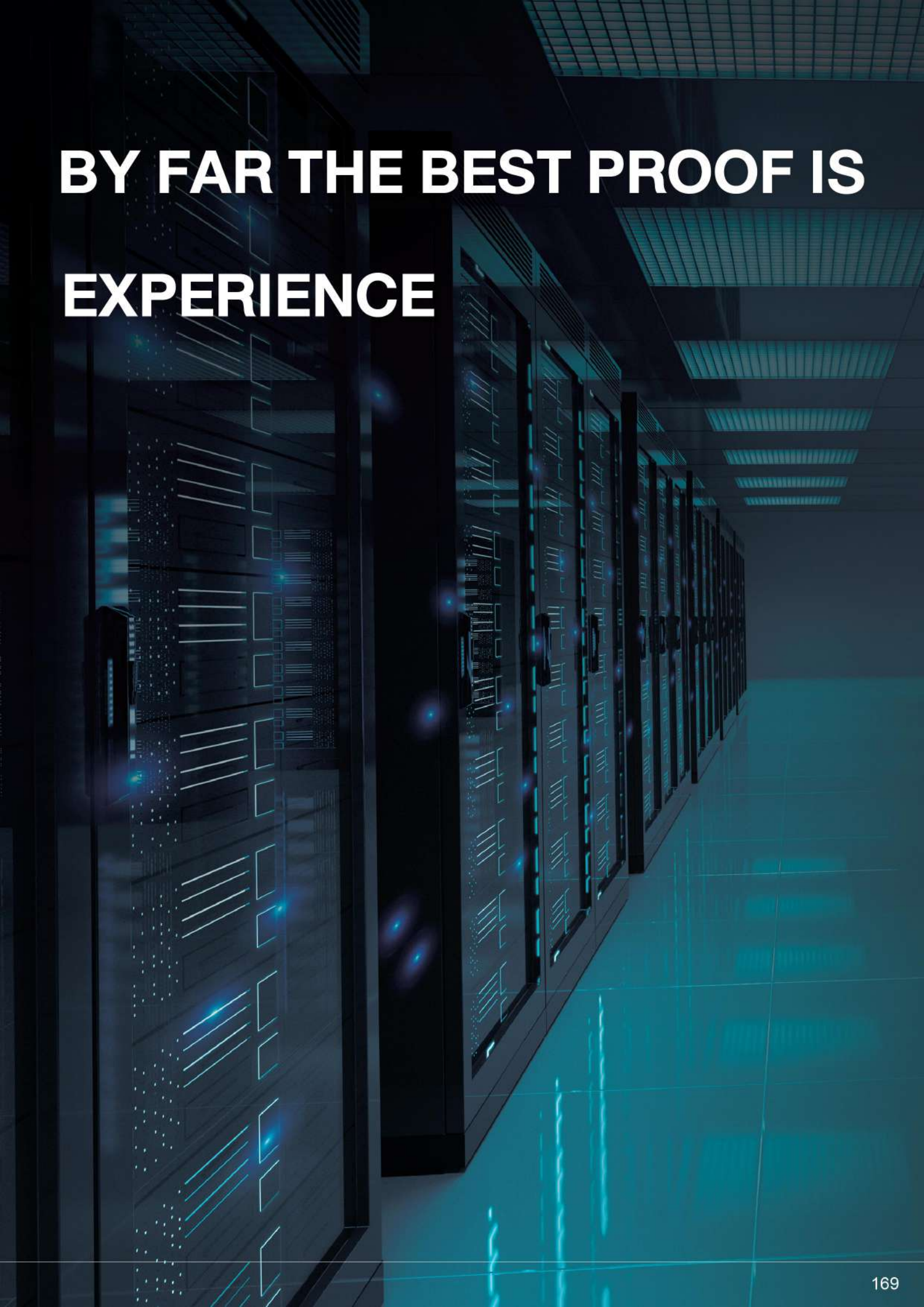
models	FW100DX	FW125DX	FW150DX	FW165DX
Power Type	380V/3/50Hz			
Refrigerant	R134a			
Total cooling capacity(kW)	104.8	131.6	152.0	171.6
Sensible cooling capacity(kW)	104.8	131.6	152.0	171.6
SHR	1.00	1.00	1.00	1.00
Air flow(m^3/h)	27000	33000	39000	44000
Supply and return air temperature(°C)	25/37	25/37	25/37	25/37
Overall dimensions: W×D×H(mm)	1500×1200×2600	2000×1200×2300	2000×1200×2600	2400×1200×2600
Operating weight(KG)	472	548	620	638
Fan				
Power Type	EC			
Quantities	3	4	4	4
Power(kW)	5.0	6.2	7.2	8.2

Rack Cooler

models	CRC020	CRC030	CRC040
Power Type	230V/1/50Hz	380V/3/50Hz	
Refrigerant	R134a		
Total cooling capacity(kW)	22.9	33.7	46.0
Sensible cooling capacity(kW)	22.9	33.7	46.0
SHR	1.00	1.00	1.00
Air flow(m^3/h)	5600	8200	11200
Supply and return air temperature(°C)	25/37	25/37	25/37
Overall dimensions: W×D×H(mm)	300×1200×2200/2300	600×1200×2200/2300	600×1200×2200/2300
Operating weight(KG)	260	310	320
Fan			
Type	EC		
Quantities	7	2	3
Power(kW)	0.8	1.2	1.8

Back CoolingDoor

models	BCD005	BCD010	BCD020
Power Type	DC48V		
Refrigerant	R134a		
Total cooling capacity(kW)	5.6	11.3	22.1
Sensible cooling capacity(kW)	5.6	11.3	22.1
SHR	1.00	1.00	1.00
Air flow(m^3/h)	1400	3000	5900
Supply and return air temperature(°C)	25/37	25/37	25/37
Overall dimensions: W×D×H(mm)	600×150×2200/2300	600×150×2200/2300	600×150×2200/2300
Operating weight(KG)	80	90	100
Liquid/gas tube diameter(mm)	12/16	12/22	12/28
Frame size: W×D×H(mm)	600×100×3400/3500		
Weight(KG)	40	40	40
Fan			
Type	DC		
Quantities	10	10	18
Power(kW)	0.1	0.3	0.5


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