

Sustainable Comfort

Wise™ Series

Silent DC Motor Fan Coil Unit

340~2380m³/h



CLIMAVENETA

Silent DC Motor Fan Coil Unit

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.

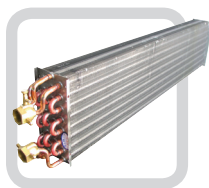
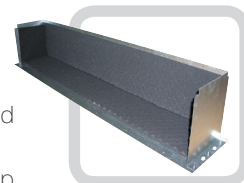
Air Volume: 340~2380m³/h, Cooling Capacity: 1.95~12.6kW

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 $\Phi 9.52$ mm 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.

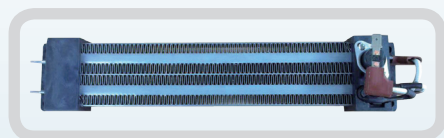


Installation: High Flexibility, Low Installation Cost

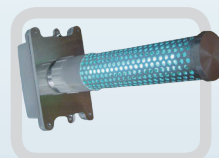
The product is lightly designed. The drain pipe, the line and the return air box are easy to install, and the position of the air outlet can be changed on site to meet the actual needs.

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



PTC electric heater



Single-ended nanophoton purification device



Water valve

DC Brushless Motor

The fourth-generation DC brushless motor is a three-phase winding, three-phase energized, and a PMSM motor with FOC technology without position sensor. Compared with traditional fan coils, fan coils with DC brushless motor has the advantages of energy saving, tranquility, intelligence, reliability, etc. It can be widely applied to high-end places or green buildings with high requirements for energy saving and comfort.



Reliability

- Strict reliability verification test
- Magnetic tile and rotor are injection-molded to prevent the magnetic tile from falling off
- Patented rotor structure design to reduce bearing current and prevent electrical corrosion

Tranquility

- Sinusoidal winding design + FOC vector control to completely solve the low frequency noise problem
- Start-up smoothly, no start shock noise
- Ten pole rotor design

High Efficiency

- Motor efficiency can reach up to 80%
- Short payback period

Flexibility

- Modular design to meet customers' choices of power supply and speed control
- Provides multiple interface methods and communication to reduce material management
- Same size interface with AC motor, flexible upgrade

Intelligent

- Demand for constant speed, torque or air volume
- Automatic speed reduction when overload to ensure uninterrupted operation, with feedback of multiple motor operating parameters
- Real time filter status monitoring and alarm information display

Model Nomenclature

FC-□□□□□□□□

□ Pipe connection direction: L: Left R: Right(subject to the direction when facing air outlet)

□ Motor and thermostat: Default: 3-speed Regulation with Thermostat;

W: stepless regulation with factory configured specialized thermostat

□ 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-800~1400)

□ Coil: default: 3-row 2-pipe; 4: 3+1-row 4-pipe

□ External static pressure: default: 12 Pa; H30: 30 Pa; H50: 50 Pa

□ Structural type: NFCILD: silent horizontal concealed brushless DC fan coil unit

□ Nominal Air Volume (CFM)

□ Fan Coil Unit

FCB-□□□

□ Structure Type: A: without air filter; N: nylon air filter without aluminum frame; L: double layer aluminum air filter with aluminum frame

□ LN(Low Noise Version)

□ Nominal Air Volume (CFM)

□ Air Return Box

Model Designation Example:

FC-800NFCILDH304EXBWL

The model indicates that it is a silent horizontal concealed brushless DC unit, with 800CFM nominal air volume, 4 pipes (3+1 rows of pipes), 30Pa external static pressure, 3kW electric heating, stainless steel drain pan, stepless regulation with factory configured specialized thermostat, water pipe connected to the left.

FCB-800LNN

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

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

Silent DC Motor Fan Coil Unit

3 Rows(2-pipe)

ITEM			200	300	400	500	600	800	1000	1200	1400
Nominal Air Flow	H	m³/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=0.06m³/h.

3+1 Rows(4-pipe)

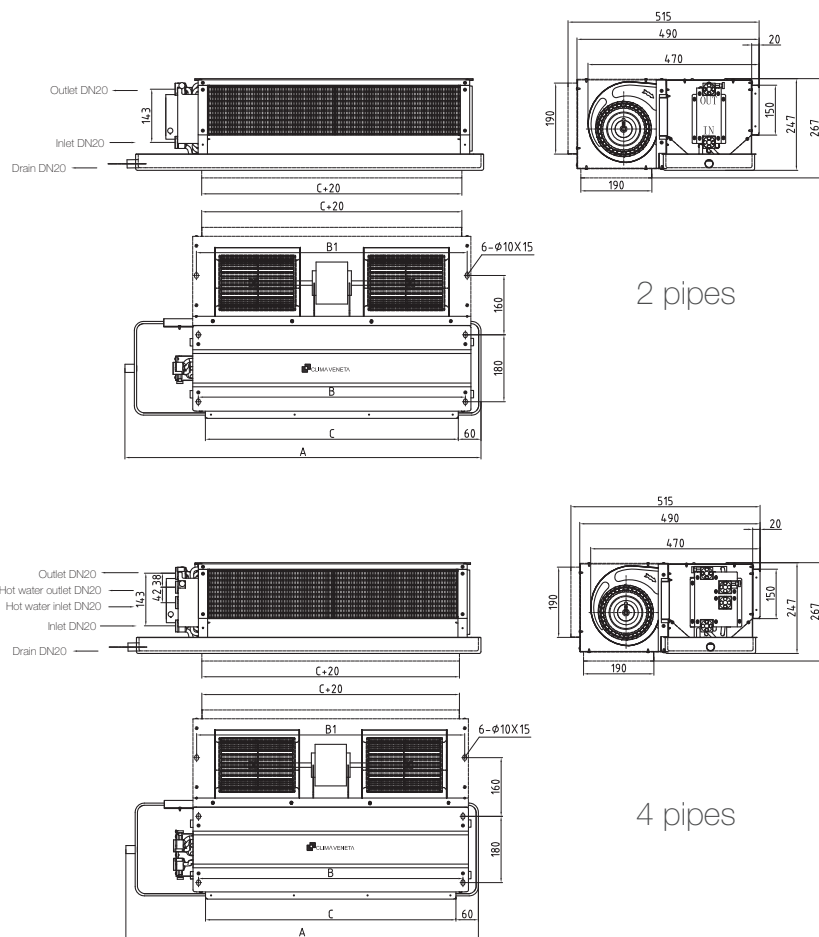
ITEM			200	300	400	500	600	800	1000	1200	1400
Normal Air Flow	H	m³/h	340	510	680	850	1020	1360	1700	2040	2380
	M		260	390	530	660	780	1040	1300	1530	1790
	L		180	270	360	440	520	690	870	1020	1190
Capacity (3+1 Rows)	Cooling	kW	1.95	2.8	3.65	4.55	5.4	7.2	8.64	10.4	12.1
	Heating	kW	1.76	2.5	3.1	3.7	4.61	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
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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)).
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Silent DC Motor Fan Coil Unit

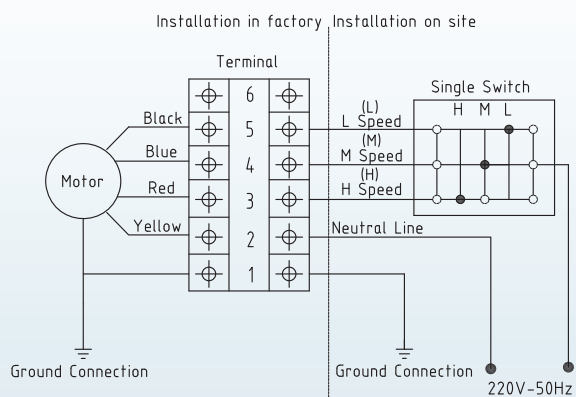
Dimension Drawing



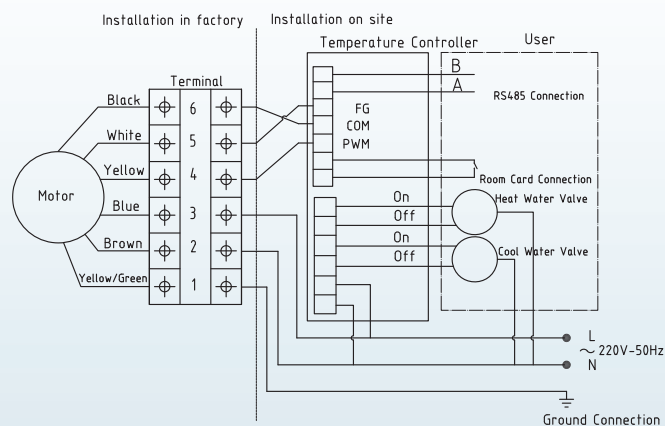
Unit: mm

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



Digital Fan Coil Thermostat (Specialized for Stepless Regulation)

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 (refer to the instructions manual).



Features

- 3 step air speed regulation manually and stepless air speed regulation automatically
- Non-volatile memory (EEPROM) retains user settings during power loss
- Backlit lightness adjustment
- Scheduled ON/OFF
- Soft start
- RS485 communication
- Temperature deviation correction function
- Sleep temperature control
- Celsius/Fahrenheit display function
- Fan rotation speed display
- Alarm display
- Wide voltage range (AC90-250V)

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.

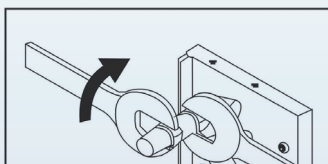
Water Pipe Connection

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). Stepless regulation fan coil need to use configured specialized thermostat.

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 ensure 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



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