

# Chilled Water Fan Coil Unit

340m<sup>3</sup>/h~2380m<sup>3</sup>/h  
0.5Ton~3.6Ton

## Application areas

- Bureaux, business building, superstore, hotel, hospital, bank, apartment and amusement place.

## Why this choice?

- Install type: horizontal concealed/exposed type and vertical concealed/exposed type
- External static pressure 12pa, 30pa and 50pa can be choosed
- Airfoil ABS wind wheel with high efficiency and U type bend pipe design



## Characteristics

### Durable construction

Casing of Amrta fan coil units shall be galvanized steel panel. And the condensate pan is treated by extruded seamless technology to prevent the leakage. Fire rated thermal insulation is attached to the condensate pan integrally. Construction of the units is sturdy and permanent.

### High efficiency

Coils shall be fabricated by  $\Phi 9.25$ mm cooper tubes and hydrophilic aluminum fins. Tubes are expanded into the fins accurately to confirm the heat transfer efficiency. Fans shall be high airflow rate and low noise design. And brass headers of copper tubes well distribute water flow configuration to assure optimum heat transfer efficiency.

### Low noise and operating cost

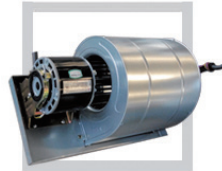
Fans shall be specially designed with over-sized galvanized multi-blade centrifugal wheel, operating with low noise, high static pressure and airflow rate. And hi-static, permanent split capacitor motors shall be factory balance tested for proof the high efficiency and quite operation.

### Easy maintenance

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

## Low installation cost

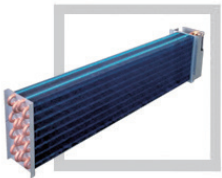
Units shall be low-weight design. Drain pipes and wires are easy for connection. The water connection direction and air return are changeable according to the site requirements.



## Specification

### Coil: high efficiency heat transfer performance

Coils shall be manufactured by  $\Phi 9.25\text{mm}$  cooper tubes and sine-wave hydrophilic aluminum fins. Copper 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 extruded galvanize steel panel (class 1), fitting for sturdy command.

### Drain pan: special design for no leakage

Condensate drain pans shall be fabricated by high quality panel with punch forming and hot-dip baking paint treated. PE insulation with thickness of 7 mm 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.

### Motor: high efficiency and low power consumption

Motors shall consist of low noise permanent capacitor motors and total hermetic rolling bearing with permanent lubricated. The base of motor shall be isolated by rubber mount to minimize the vibration and operation noise.

### Fans: low acoustic level

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



### Controller: facile and comfortable

Controller shall be facile with changeable speed of fans and friendly interface for users. AMT801 controller is used as optional allowing users to select operating mode and fan speed manually, to set the temperature by using the knob. Or AMT806 Series Thermostats is advanced control as optional using digital LCD display and EL Backlight, allowing users: to detect the room temperature with NTC sensor and compares it with the set-point for automatically keeping the room temperature stable; to adjust automatically 3-speed of fan; to save data and memory with output reliable by relay.

## Options

- ✦ Electric heater
- ✦ High static pressure fan
- ✦ Air return box (below return or back return)
- ✦ Fresh air inlet for air return box
- ✦ Removable aluminum filter
- ✦ Stainless steel condensate pan
- ✦ Controller: AMT801 controller or AMT806 Series Thermostats

## Advanced Option (Upgraded EC Fan Coil Unit)

Symbolizing by outstanding energy-saving effect, the EC fan coil unit saves more than 30% energy compared with traditional fan coil units at the same motor speed. When the fan motor operates at mid or low speed, the effect of energy-saving is more remarkable.

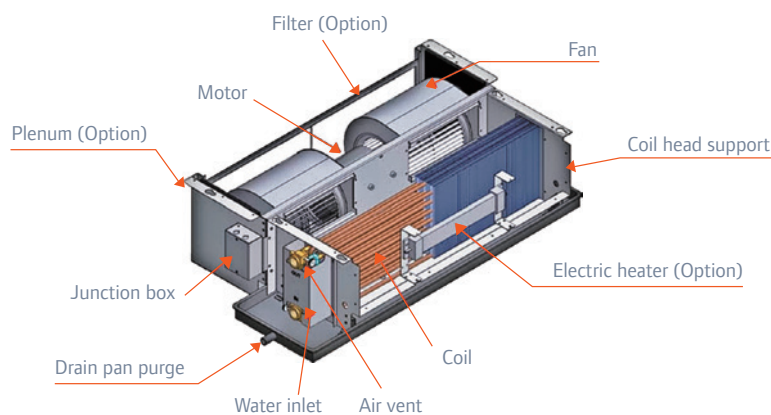
Intelligent control by standard smart thermostat, with microprocessor technology, effectively permits to achieve the stepless speed variation with automatic adjustment of motor charges and electrical dampers by detecting the ambient temperature and the set-point, significantly improve energy-saving, comfort and reliability.

Traditional fan coil unit is normally operating in 3-variable-speed with a range of  $\pm 2^{\circ}\text{C}$  for room temperature fluctuation. The upgraded EC fan coil unit features continuous automatic adjustment technology and stepless speed variation, which controls the room temperature fluctuation under  $\pm 0.5^{\circ}\text{C}$ .



Operating with small vibration and any electromagnetic noise ensures a quiet operation and improves the tranquility and comfort for room environment.

Using electronic commutation module, reducing the abrasion of electrical components, makes EC fan coil units with higher quality and longer life than traditional AC motor fan coil units.



## Technical Data for Standard Units (2 Pipes 3 Rows)

Model	Unit	34	51	68	85	102	136	170	204	238
Air flow	H m <sup>3</sup> /h	340	510	680	850	1020	1360	1700	2040	2380
	M m <sup>3</sup> /h	255	383	510	638	765	1020	1275	1530	1785
	L m <sup>3</sup> /h	170	255	340	425	510	680	850	1020	1190
Total cooling capacity *	H Ton	0.5	0.8	1	1.3	1.5	2.1	2.6	3.1	3.6
	H W	1800	2700	3600	4500	5400	7200	9000	10800	12600
	M W	1440	2160	2880	3600	4320	5760	7200	8640	10080
	L W	1170	1755	2340	2925	3510	4680	5850	7020	8190
Sensible cooling capacity*	H m <sup>3</sup> /h	1307	1961	2615	3268	3922	5229	6537	7844	10300
	M m <sup>3</sup> /h	1177	1765	2353	2942	3530	4706	5883	7060	8500
	L m <sup>3</sup> /h	1059	1588	2118	2647	3177	4236	5295	6354	7460
Heating capacity*	H Ton	0.8	1.2	1.5	1.9	2.3	3.1	3.9	4.6	5.4
	H W	2700	4050	5400	6750	8100	10800	13500	16200	18900
	M W	2160	3240	4320	5400	6480	8640	10800	12960	15120
	L W	1857	2633	3510	4388	5265	7020	8775	10530	11340
Standard external pressure	Pa	12	12	12	12	12	12	12	12	12
Power input	12Pa W	35.2	46	57.4	69	86	123	160	189	228
	30Pa W	39.5	55	66.9	82	100	136	175	211	247
	50Pa W	49.5	59	85.4	93	108	155	188	236	297
Sound pressure Level**	12Pa dB(A)	37	39	41	43	45	46	48	50	52
	30Pa dB(A)	40	42	44	46	47	48	50	52	54
	50Pa dB(A)	42	44	46	47	49	50	52	54	56
Net weight	kg	10.5	14.6	16	16.5	18.5	23.5	25.5	30.5	35.5
Water flow rate	m <sup>3</sup> /h	0.4	0.51	0.71	0.92	1.05	1.4	1.75	2.1	2.5
Water pressure drop	kPa	20	20	25	30	35	40	40	45	50
Water connections	Inch	RC 3/4								
Drain pipe	Inch	RC 3/4								
Fan motor quantity	Nr.	1	1	1	1	1	2	2	2	2
Fan quantity	Nr.	1	2	2	2	2	3	4	4	4
Max. working pressure	Mpa	2								
Power supply	/	220V/1Ph/50Hz								

\*The data are referred to the following conditions:  
Cooling: room temperature: 27°C 50% RH, water temperature: 7/12°C, high speed.  
Heating: room temperature: 21°C, water temperature: 45/40°C, high speed.

## Technical Data for Standard Units (4 Pipes 3+1 Rows)

Model	Unit	34	51	68	85	102	136	170	204	238	
Air flow	H	m <sup>3</sup> /h	340	510	680	850	1020	1360	1700	2040	2380
	M	m <sup>3</sup> /h	255	383	510	638	765	1020	1275	1530	1785
	L	m <sup>3</sup> /h	170	255	340	425	510	680	850	1020	1190
Total cooling capacity *	H	Ton	0.5	0.8	1	1.3	1.5	2.1	2.6	3.1	3.6
	H	W	1800	2700	3600	4500	5400	7200	9000	10800	12600
	M	W	1440	2160	2880	3600	4320	5760	7200	8640	10080
	L	W	1170	1755	2340	2925	3510	4680	5850	7020	8190
Sensible cooling capacity*	H	m <sup>3</sup> /h	1307	1961	2615	3268	3922	5229	6537	7844	10300
	M	m <sup>3</sup> /h	1177	1765	2353	2942	3530	4706	5883	7060	8500
	L	m <sup>3</sup> /h	1059	1588	2118	2647	3177	4236	5295	6354	7460
Heating capacity*	H	Ton	0.2	0.3	0.5	0.6	0.7	0.9	1.2	1.4	1.8
	H	W	810	1215	1620	2025	2430	3240	4050	4860	6300
	M	W	729	1094	1458	1823	2187	2916	3645	4374	5040
	L	W	656	984	1312	1640	1968	2624	3281	3937	4780
Standard external pressure	Pa	12	12	12	12	12	12	12	12	12	
Power input	12Pa	W	35.2	46	57.4	69	86	123	160	189	228
	30Pa	W	39.5	55	66.9	82	100	136	175	211	247
	50Pa	W	49.5	59	85.4	93	108	155	188	236	297
Sound pressure Level**	12Pa	dB(A)	37	39	41	43	45	46	48	50	52
	30Pa	dB(A)	40	42	44	46	47	48	50	52	54
	50Pa	dB(A)	42	44	46	47	49	50	52	54	56
Net weight	kg	10.5	14.6	16	16.5	18.5	23.5	25.5	30.5	35.5	
Water flow rate	m <sup>3</sup> /h	0.4	0.51	0.71	0.92	1.05	1.4	1.75	2.1	2.5	
Water pressure drop	kPa	20	20	25	30	35	40	40	45	50	
Water connections	Inch	RC 3/4									
Drain pipe	Inch	RC 3/4									
Fan motor quantity	Nr.	1	1	1	1	1	2	2	2	2	
Fan quantity	Nr.	1	2	2	2	2	3	4	4	4	
Max. working pressure	Mpa	2									
Power supply	/	220V/1Ph/50Hz									

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Heating: room temperature: 21°C, water temperature: 45/40°C, high speed.

## Technical Data for EC Units (2 Pipes 3 Rows)

Model	Unit	51	68	85	102	136	170	204	238
Air flow	H m <sup>3</sup> /h	510	680	850	1020	1360	1700	2040	2380
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	H W	2700	3600	4500	5400	7200	9000	10800	12600
	M W	2160	2880	3600	4320	5760	7200	8640	10080
	L W	1755	2340	2925	3510	4680	5850	7020	8190
Sensible cooling capacity*	H m <sup>3</sup> /h	1961	2615	3268	3922	5229	6537	7844	10300
	M m <sup>3</sup> /h	1765	2353	2942	3530	4706	5883	7060	8500
	L m <sup>3</sup> /h	1588	2118	2647	3177	4236	5295	6354	7460
Heating capacity*	H Ton	1.2	1.5	1.9	2.3	3.1	3.9	4.6	5.4
	H W	4050	5400	6750	8100	10800	13500	16200	18900
	M W	3240	4320	5400	6480	8640	10800	12960	15120
	L W	2633	3510	4388	5265	7020	8775	10530	11340
Standard external pressure	Pa	12	12	12	12	12	12	12	12
Power input	12Pa W	23	34	43	53	67	82	115	157
	30Pa W	35	45	55	64	78	106	145	172
	50Pa W	41	64	70	84	108	140	169	214
Sound pressure Level**	12Pa dB(A)	35	35	37	38	40	40	42	42
	30Pa dB(A)	39	41	43	45	45	48	50	52
	50Pa dB(A)	43	44	46	47	48	50	52	54
Net weight	kg	17	18	20	22	32	35	37	41
Water flow rate	m <sup>3</sup> /h	0.46	0.62	0.77	0.93	1.24	1.55	1.86	2.17
Water pressure drop	kPa	20	25	30	35	40	40	45	50
Water connections	Inch	RC 3/4"							
Drain pipe	Inch	RC 3/4"							
Fan motor quantity	Nr.	1	1	1	1	1	2	2	2
Fan quantity	Nr.	2	2	2	2	2	4	4	4
Max. working pressure	Mpa	≤1.6							
Power supply	/	220V/1Ph/50Hz							

\*The data are referred to the following conditions:  
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	H	W	2700	3600	4500	5400	7200	9000	10800	12600
	M	W	2160	2880	3600	4320	5760	7200	8640	10080
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	M	m <sup>3</sup> /h	1765	2353	2942	3530	4706	5883	7060	8500
	L	m <sup>3</sup> /h	1588	2118	2647	3177	4236	5295	6354	7460
Heating capacity*	H	Ton	0.3	0.5	0.6	0.7	0.9	1.2	1.4	1.8
	H	W	1215	1620	2025	2430	3240	4050	4860	6300
	M	W	1094	1458	1823	2187	2916	3645	4374	5640
	L	W	984	1312	1640	1968	2624	3281	3937	5040
Standard external pressure	Pa	12	12	12	12	12	12	12	12	
Power input	12Pa	W	23	34	43	53	67	82	115	157
	30Pa	W	35	45	55	64	78	106	145	172
	50Pa	W	41	64	70	84	108	140	169	214
Sound pressure Level**	12Pa	dB(A)	35	35	37	38	40	40	42	42
	30Pa	dB(A)	39	41	43	45	45	48	50	52
	50Pa	dB(A)	43	44	46	47	48	50	52	54
Net weight	kg	17	18	20	22	32	35	37	41	
Water flow rate	m <sup>3</sup> /h	0.46	0.62	0.77	0.93	1.24	1.55	1.86	2.17	
Water pressure drop	kPa	20	25	30	35	40	40	45	50	
Water connections	Inch	RC 3/4"								
Drain pipe	Inch	RC 3/4"								
Fan motor quantity	Nr.	1	1	1	1	2	2	2	2	
Fan quantity	Nr.	2	2	2	2	3	4	4	4	
Max. working pressure	Mpa	≤1.6								
Power supply	/	220V/1Ph/50Hz								

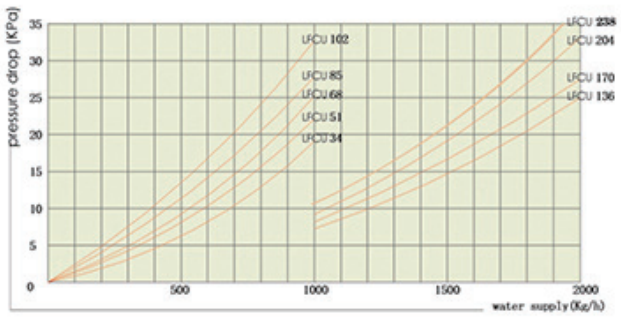
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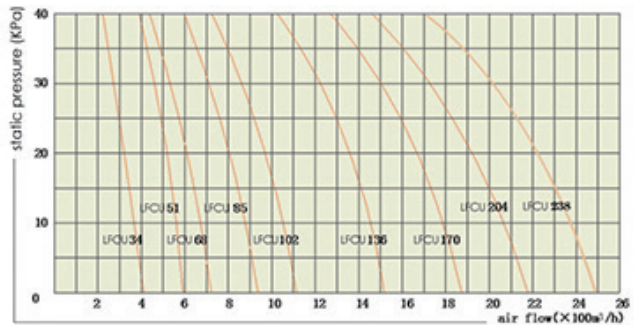
Heating: room temperature: 21°C, water temperature: 45/40°C, high speed.

# Performance

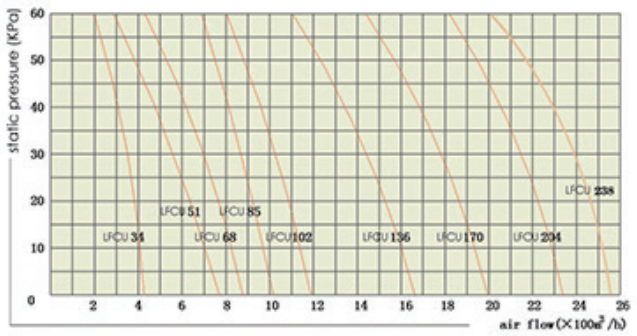
Coil pressure drops 3rows



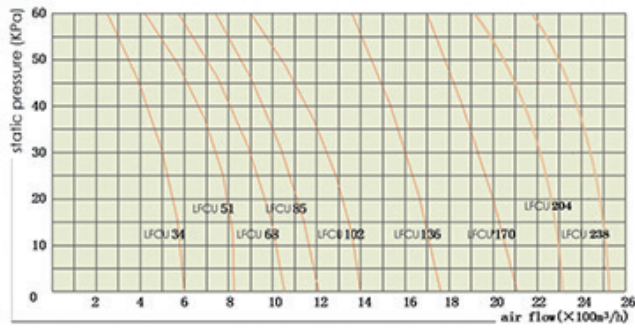
Unit fan features curve 12Pa



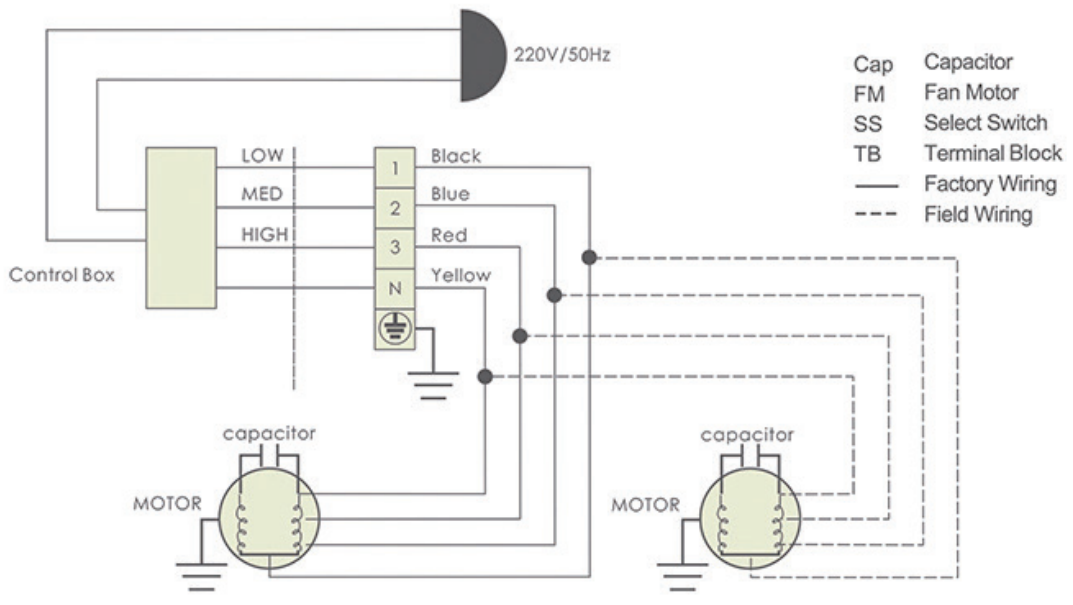
Unit fan features curve 30Pa



Unit fan features curve 50Pa

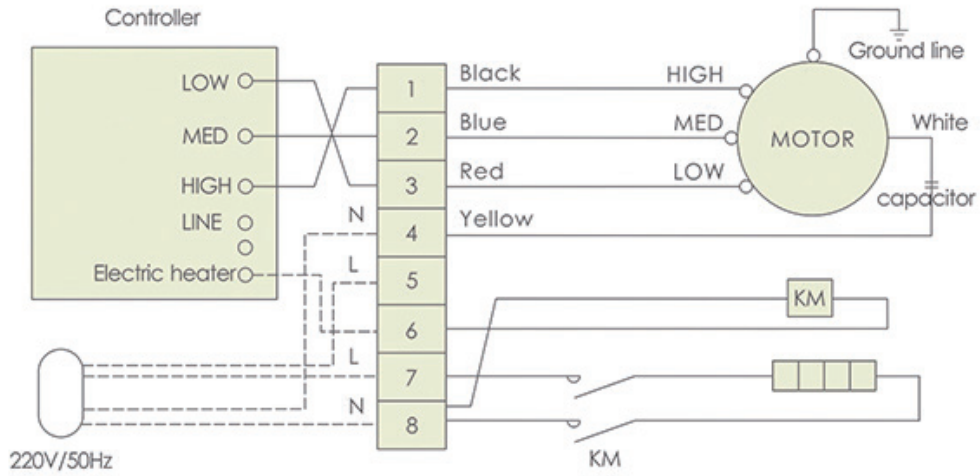


# Electric Diagram for Standard Units



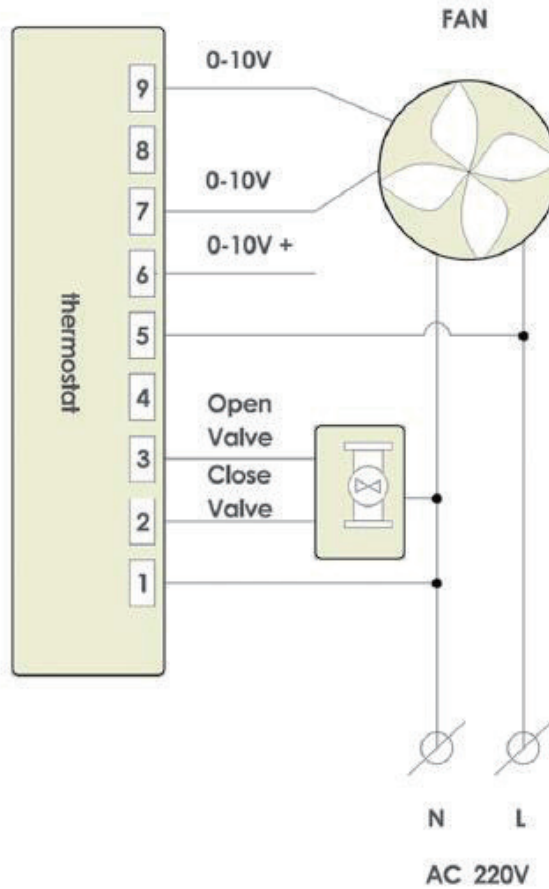
Wiring diagram/Standard





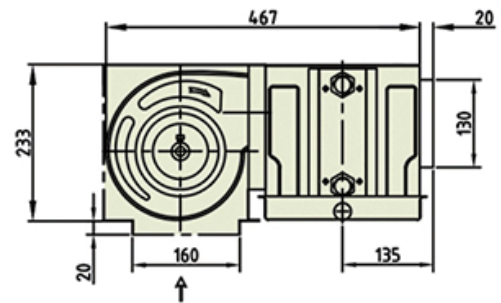
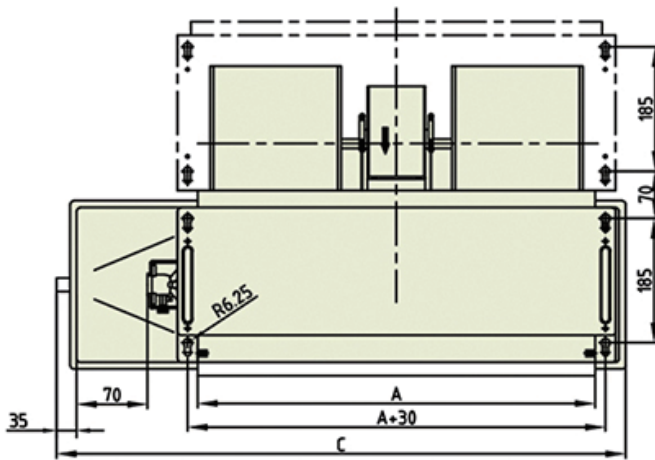
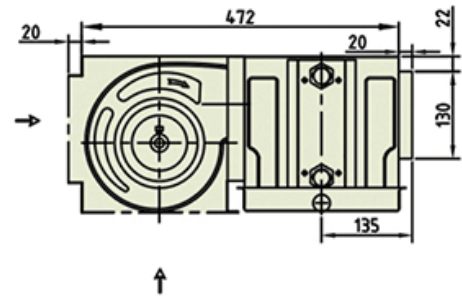
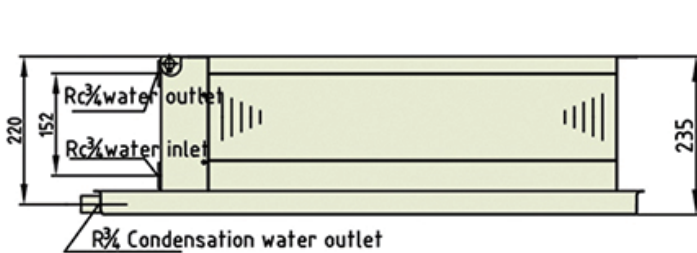
Wiring diagram with electric heater

## Electric Diagram for EC Units



# Dimensions for Standard Units

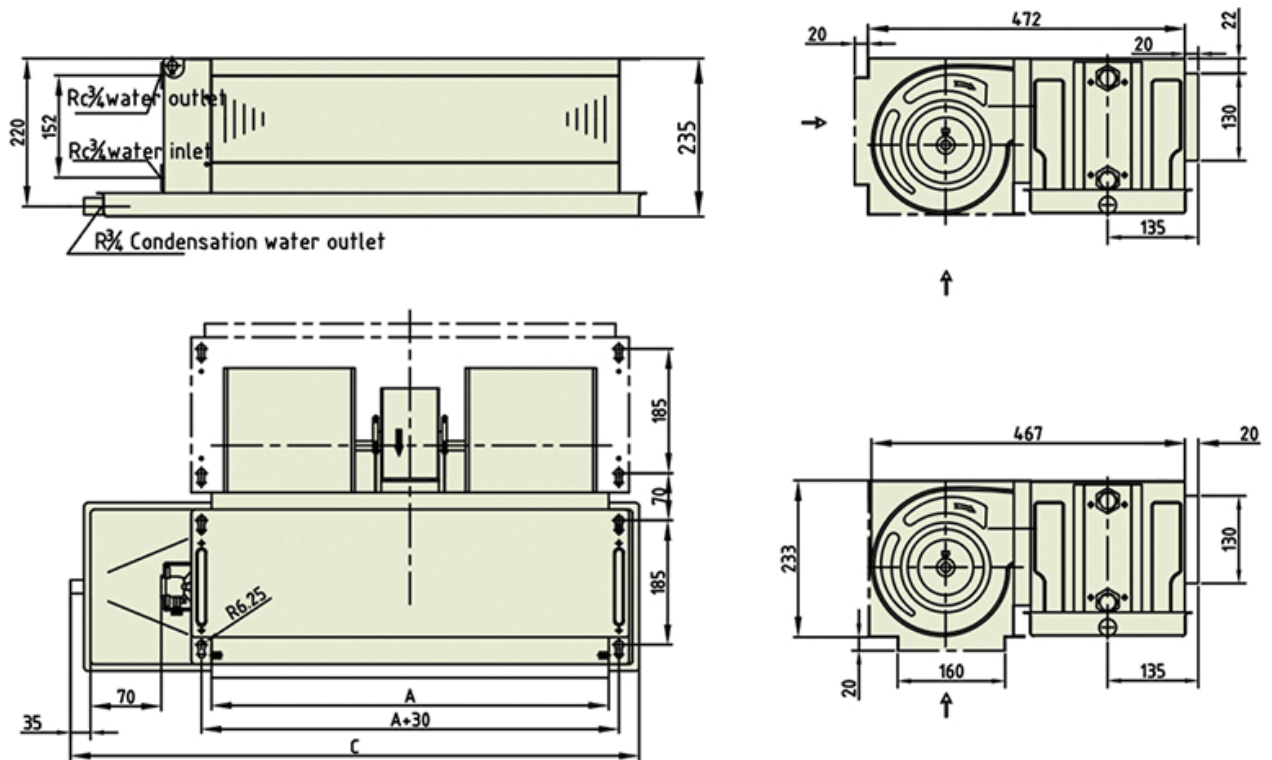
3 row coil & 3+1 row coil



Model	A	C	Fan Motor	Water outlet	Water inlet	Condenser water
34	385	640	1	DN20	DN20	DN20
51	580	840	2	DN20	DN20	DN20
68	650	940	2	DN20	DN20	DN20
85	730	1040	2	DN20	DN20	DN20
102	870	1140	2	DN20	DN20	DN20
136	1030	1340	3	DN20	DN20	DN20
170	1250	1540	4	DN20	DN20	DN20
204	1350	1640	4	DN20	DN20	DN20
238	1670	1940	4	DN20	DN20	DN20

## Dimensions for EC Units

3 row coil & 3+1 row coil



Model	A	C	Water outlet pipe	Water inlet pipe
51	600	840	DN20	DN20
68	700	940	DN20	DN20
85	780	1040	DN20	DN20
102	920	1140	DN20	DN20
136	1060	1340	DN20	DN20
170	1280	1440	DN20	DN20
204	1390	1540	DN20	DN20
238	1720	1940	DN20	DN20

# Installation, Operation and Maintenance

## Installation

Make sure that all components inside shall not collide with each other.

Make sure that no dirt shall drop into the fan, motor and heat exchanger.

Make sure that drain pipe shall be mounted at least 3-5mm lower than the other side assuring the condensate removal.

## Air duct

The filter shall be installed at air inlet to prevent dust to block the fin and make sure good heat exchange efficiency.

## Water pipe connection

Water connections are inlet from the bottom and outlet from the top, flexible 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. All bolt connections shall be insulated and sealed by material of PTFE belt.

The drain pipe shall be mounted with proper gradient, no squash, no bending.

## Electrical connection

FCU must be earthing. All electrical wires exposing to the air should be well bonded to connectors before attach to unit. Also, it's necessary to check the mark and color of the terminals before connected to the 3-speed switch.

## 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 FCU can be started. The 3-speed switch is recommended to be turned on from high speed.

## Operation

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.

