



Air Flow: 1000~6000 m³/h

Contents

1. UNIT INTRODUCTION	1
1-1 BRIEF INTRODUCTION	1
1-2 MAIN PARAMETERS	2
1-3 UNIT DRAWING	4
2. TRANSPORTATION & INSTALLATION	8
2-1 TRANSPORTATION	8
2-2 ACCEPTANCE	8
2-3 STORAGE	8
2-4 LIFTING OF THE UNIT	8
2-5 POINTS FOR ATTENTION BEFORE INSTALLATION	8
2-6 POINTS FOR ATTENTION DURING INSTALLATION	9
2-7 BRIEF INTRODUCTION TO THE INSTALLATION	9
3. START, COMMISSIONING AND RUNNING	13
3-1 CHECK BEFORE START-UP	13
3-2 ELECTRIC CONNECTION	13
3-3 COLD AREA OPERATION	14
3-4 FAN SECTION	14
3-5 ELECTRIC HEATER SECTION	14
3-6 POINTS FOR ATTENTION DURING START-UP	14
4. MAINTENANCE	16
4-1 AIR FILTER	16
4-2 COOLING COIL AND HEATING COIL	16
4-3 FAN AND MOTOR ASSEMBLIES	16
4-4 ELECTRICAL COMPONENTS AND SAFETY DEVICE INSPECTION	16
4-5 POINTS FOR ATTENTION DURING MAINTENANCE	16
5. FAILURE ANALYSIS	17
5-1 LOW AIR FLOW RATE	17
5-2 HIGH AIR FLOW RATE	17
5-3 HIGH NOISE AND VIBRATION LEVEL	17
6. HAZARDOUS MATERIALS	18

1. Unit Introduction

1-1 Brief Introduction

Johnson Controls YORK® YBAH ECM ceiling mounted cabinet fan coil units are highly energy efficient, variable air volume, high airflow and static pressure HVAC terminal units. YBAH ECM fan coil units include integrated direct drive fan with EC motor and variable speed drive.

YBAH ECM cabinet fan coils are the ideal solution for air-conditioning of commercial buildings with ducted air distribution applications.

YBAH ECM cabinet fan coils have a range of 4 different models. Each model includes variable speed EC fan(s), with multiple row coil types for each model (The 2 pipe system has 3 and 5 rows, 4 pipe system has 3+1, 3+2, 5+1 and 5+2 rows). The air flow ranges from a nominal 1000 m³/h to 6000 m³/h, with a cooling capacity range from 5.2 kW to 99.6 kW. The max external static pressure capability is from 250 Pa to 350 Pa depending on required air flow.

Each single skin unit is made from galvanized steel with 15mm thick polyester fiber inner insulation. And the double skin unit is made from double skin galvanized steel with 25mm PU foam, the PVC profiles between inner and outer plate for anti-cold bridge. It contains a built-in cooling coil and fan, and externally mounted nylon air filters.

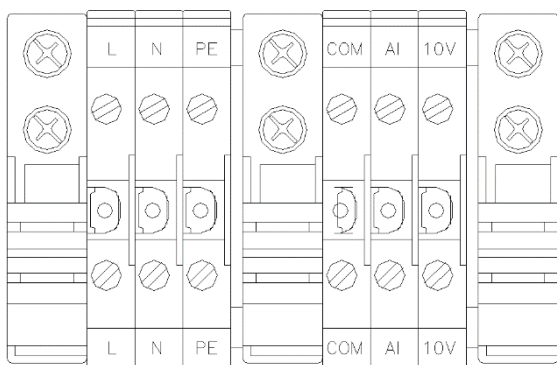
Cooling and heating coils use copper tubes with aluminum fins. The fan is a forward curved centrifugal model that works on double air inlets. A type mounted filter can be withdrawn from side or bottom. For double skin unit, the filter only can be withdrawn from side.

YBAH ECM units incorporate a full galvanized steel with power coated or stainless steel drain pan with an easily removable access panel for inspection.

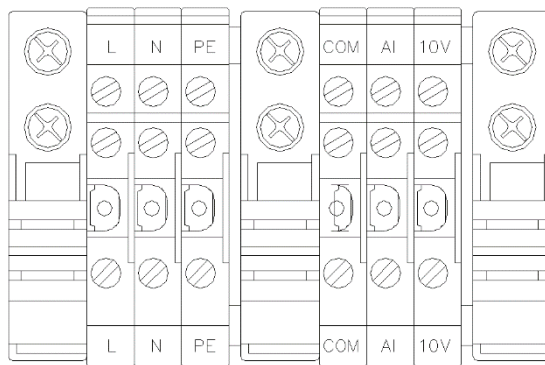
The single or dual EC fan(s) provide variable airflow and pressure from a remote 0 - 10 VDC control signal.

Each EC fan is factory wired to the customer terminal strip.

Single fan

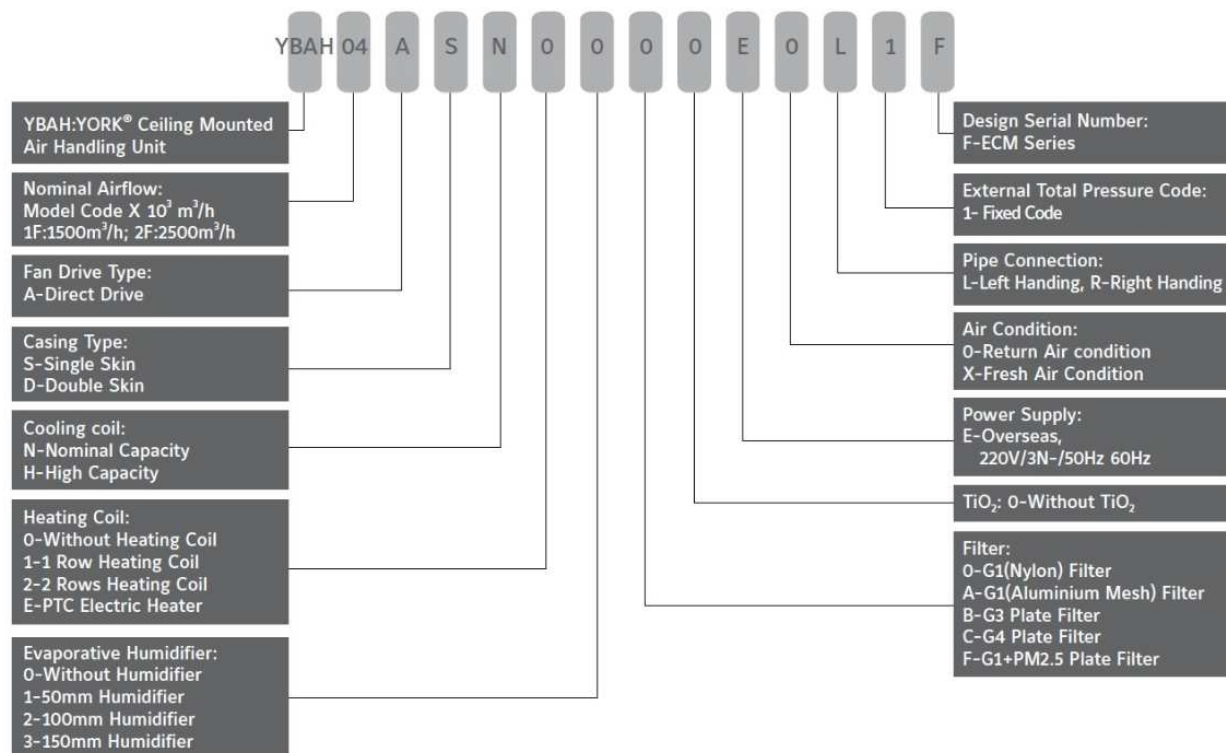


Double fan



Terminal Strip

YBAH ECM nomenclature:



1-2 Main Parameters

Model	Air Flow (m3/h)	Max.ESP (Pa) 3R	Max.ESP (Pa) 5R	Normal cooling capacity(kW)				Normal heating capacity(kW)			
				27/19.5°C		35/28°C		21°C		7°C	
				3 Row	5 Row	3 Row	5 Row	1 Row	2 Row	1 Row	2 Row
YBAH ECM 01	1000	250	200	5.2	7.0	11.9	15.7	3.3	6.1	4.7	8.8
YBAH ECM 1F	1500	300	250	8.2	11.5	18.5	24.2	4.3	8.3	6.5	12.1
YBAH ECM 02	2000	325	275	11.3	15.1	24.4	31.7	6	11.3	8.9	16.4
YBAH ECM 2F	2500	325	275	13.3	17.4	28.2	36.9	7.9	13.8	11.6	20.2
YBAH ECM 03	3000	325	275	17.2	22.6	36.2	47.6	9.5	17.3	13.9	24.3
YBAH ECM 04	4000	325	275	22.5	30.7	50.5	65.0	13	22.8	17.8	32.9
YBAH ECM 05	5000	325	275	28.3	38.6	63.1	80.1	16.2	28.5	23.6	41.1
YBAH ECM 06	6000	350	300	33.7	44.1	72.6	99.6	19.8	34.6	27.1	47.5

Model	Fan and motor	Power Supply	Motor rated power (W)	Unit weight(kg)			
				3 Rows single skin	5 Rows single skin	3 Rows double skin	5 Rows double skin
YBAH ECM 01	EC DIDW forward curve Fan	220V-1P-50Hz 60Hz	375	60	62	65	70
YBAH ECM 1F			375	69	72	78	82
YBAH ECM 02			500	74	80	85	91
YBAH ECM 2F			750	87	93	100	106
YBAH ECM 03			750	100	106	115	121
YBAH ECM 04			750x2	135	146	152	164
YBAH ECM 05			750x2	156	170	176	190
YBAH ECM 06			750x2	168	184	191	208

Note:

1. The weight listed in the table is the shipping weight. The operation weight of unit is about 20% more than the shipping weight.
2. Standard air cooling conditions: chilled water inlet/outlet at 7°C/12°C.
3. Standard air heating conditions: hot water inlet/outlet at 60°C /50°C.
4. For four-piped unit, heating coil is in the front of the cooling coil in the direction of air flow.
5. ESP: External static pressure, static pressure at the outlet of the unit after overcoming its own resistance. The maximum external static pressure value in the table is when unit equipped with G1 filter and cooling coil only.

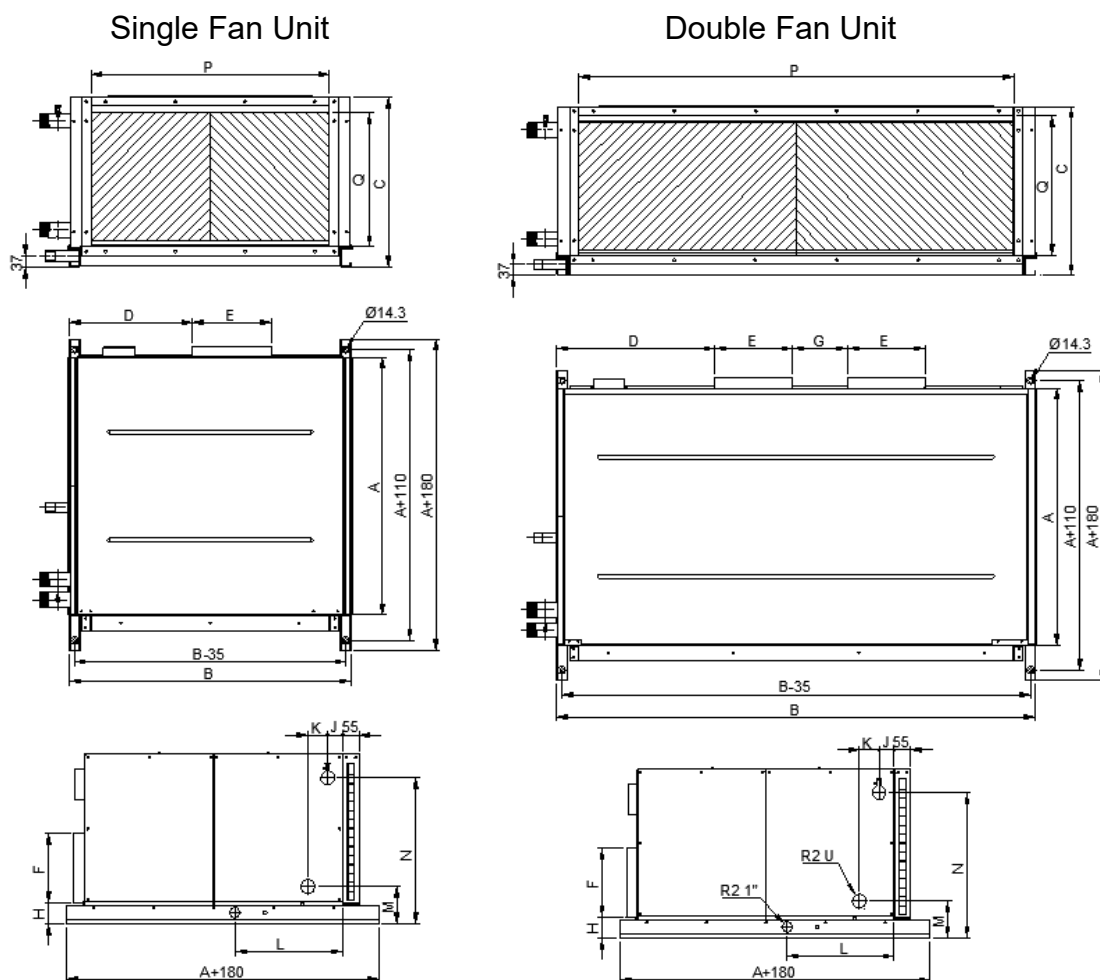
The unit performance is based on 5m altitude, the variance of altitude will affect the unit performance.

Altitude correction factors:

Altitude(m)	300	900	1200	1500	1800
Total capacity	0.99	0.97	0.96	0.94	0.93
Sensible capacity	0.96	0.90	0.86	0.93	0.80

1-3 Unit Drawing

Single Skin Unit:



Model	Airflow m3/h	D	W	H	Supply air flange size				
		A	B	C	D	E	F	G	H
YBAH ECM 01	1000	860	630	468	199	232	256	-	174
YBAH ECM 1F	1500	860	700	508	234	232	262	-	187
YBAH ECM 02	2000	860	850	508	276	298	262	-	187
YBAH ECM 2F	2500	860	1000	508	351	298	262	-	187
YBAH ECM 03	3000	860	1160	508	431	298	262	-	187
YBAH ECM 04	4000	940	1310	557	208	270	291	355	217
YBAH ECM 05	5000	940	1600	557	250	331	291	439	217
YBAH ECM 06	6000	940	1840	557	310	331	291	559	217

Model	Piping position							Return air flange size	
	J		K		L	M	N	P	Q
	3R	5R	3R	5R					
YBAH ECM 01	55.5	60.5	66	88	308	157	370	490	371
YBAH ECM 1F	55.5	60.5	66	88	308	146	410	560	411
YBAH ECM 02	55.5	60.5	66	88	308	146	410	710	411
YBAH ECM 2F	55.5	60.5	66	88	308	146	410	860	411
YBAH ECM 03	60.5	60.5	66	88	308	146	410	1020	411
YBAH ECM 04	60	60.5	66	88	368	144	458	1170	460
YBAH ECM 05	60	60.5	66	88	368	144	458	1460	460
YBAH ECM 06	60	60.5	66	88	368	144	458	1700	460

Coil connection size:

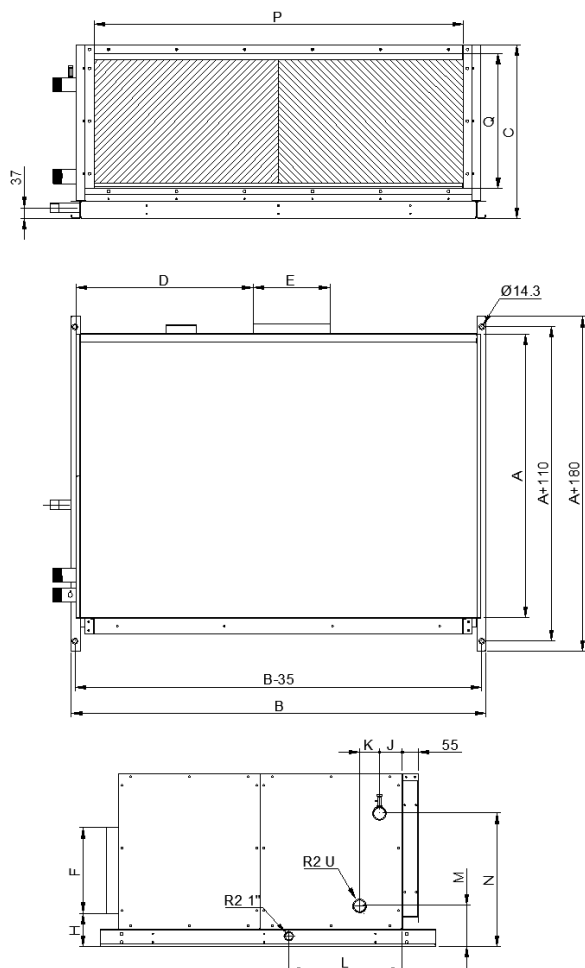
Model	Cooling coil		Heating coil	
	3 Rows	5 Rows	1 row	2 rows
YBAH ECM 01	Φ34	Φ34	Φ34	Φ34
YBAH ECM 1F	Φ34	Φ34	Φ34	Φ34
YBAH ECM 02	Φ34	Φ34	Φ34	Φ34
YBAH ECM 2F	Φ34	Φ48	Φ34	Φ34
YBAH ECM 03	Φ48	Φ60	Φ34	Φ34
YBAH ECM 04	Φ48	Φ60	Φ34	Φ34
YBAH ECM 05	Φ48	Φ60	Φ34	Φ34
YBAH ECM 06	Φ48	Φ60	Φ34	Φ34

Note:

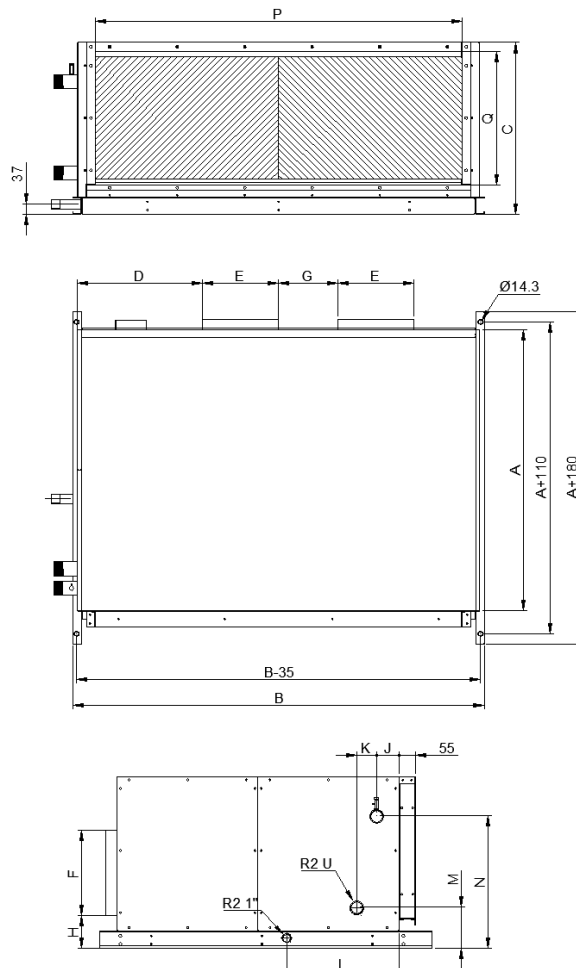
- The coil pipe connections use male threads (thread code R2),
The corresponding outer imperial diameters are:
34mm—1" 48mm—1-1/2"
42mm—1-1/4" 60mm—2"
76mm—2-1/2" 89mm—3"
- The condensate pipe connections use 34mm O.D. male threads (thread code R2).
- All dimensions are SI unit (mm).
- Coil connection and condensate connection follow the standard GB/T7306.2-2000.

Double Skin Unit:

Single Fan Unit



Double Fan Unit



Model	Airflow m3/h	D	W	H	Supply air flange size				
		A	B	C	D	E	F	G	H
YBAH ECM 01	1000	889	644	476	190	232	256	-	168
YBAH ECM 1F	1500	889	714	516	225	232	262	-	181
YBAH ECM 02	2000	889	864	516	267	298	262	-	181
YBAH ECM 2F	2500	889	1014	516	342	298	262	-	181
YBAH ECM 03	3000	889	1174	516	422	298	262	-	181
YBAH ECM 04	4000	969	1324	565	198	270	291	355	211
YBAH ECM 05	5000	969	1614	565	240	331	291	439	211
YBAH ECM 06	6000	969	1854	565	300	331	291	559	211

Model	Piping position							Return air flange size	
	J		K		L	M	N	P	Q
	N	H	N	H					
YBAH ECM 01	72	77	66	88	307	162	375	490	371
YBAH ECM 1F	77	77	66	88	307	152	416	560	411
YBAH ECM 02	77	77	66	88	307	152	416	710	411
YBAH ECM 2F	77	77	66	88	307	152	416	860	411
YBAH ECM 03	77	77	66	88	307	152	416	1020	411
YBAH ECM 04	77	77	66	88	387	143	458	1170	460
YBAH ECM 05	77	77	66	88	387	143	458	1460	460
YBAH ECM 06	77	77	66	88	387	143	458	1700	460

2. Transportation & Installation

2-1 Transportation

- a. Units are normally shipped ex-works. They are inspected, tested, and packaged prior to dispatch, carefully loaded into containers, shipped to country of destination, unloaded, and delivered to jobsite.
- b. Immediately upon receipt at jobsite, inspection should be made for any damage, which must be reported to Johnson Controls within 24 hours of receipt of goods.
- c. When moving the fan coil unit, please handle with care and prevent the coil water inlet, outlet and drain pipes from getting bent or damaged. Use only approved lifting equipment.



2-2 Acceptance

All items must be checked against customer purchase order, delivery docket, and submittal drawings for correctness and any claims for non-compliance or short supply reported to Johnson Controls within 72 hours of delivery.

2-3 Storage

If the unit is stored on the jobsite, it should be protected against exposure to the elements. Specifically, units should be securely protected from theft, accidental damage, water ingress, moisture damage, rusting, or dust.

2-4 Lifting of the Unit

During the installation process, be careful to prevent the unit from any damage due to improper lifting and rigging. Use only approved lifting equipment. Safety should always be a priority. Only authorized lifting equipment and trained installers should be used. Equipment should be installed in accordance with all national safety codes.

2-5 Points for Attention before Installation

Before the unit is installed, the following should be verified during the construction of the building:

1. Water Supply
2. Power Supply

3. Supply air, return air, and outside air ducting
4. Ceiling Mounting points
5. Service Access

2-6 Points for Attention during Installation

For ceiling installation, hang the unit on threaded rods using the mounting holes provided. Alternately rubber isolators or spring mounts can be used.

Ensure correct spacing and alignment of mounting points directly above the mounting points on the unit chassis. This is important where the suspension points have been fixed into the concrete slab directly above the unit.

During the installation, be careful to avoid building materials damaging unit panels or components.

Do not remove protective covers from the coil connections until the unit is ready to be piped up.

Before the unit starts operation, any debris in the drain tray and the drain piping should be removed.

Ensure sufficient side clearance to enable air filter removal (units fitted with optional air filters).

Fan and fan motor service is achieved through a removable service panel. Fan service panels are fitted to both sides of the YBAH ECM unit. For units with two EC fans (Model 04 to 06) service access must be available from both sides of the unit. Allow at least 600mm service clearance.

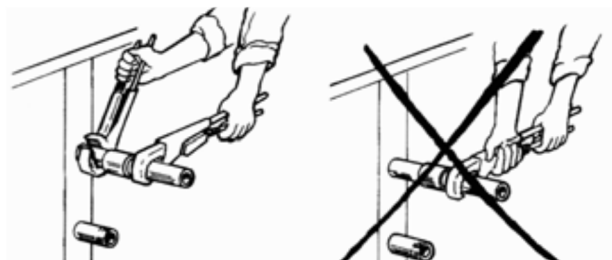
Notice: If the dirt on the motor or fan blades is not removed, Johnson Control YORK will not be able to provide effective maintenance services.

2-7 Brief Introduction to the Installation

2-7-1 Water Piping

Flow and return water pipes IN and OUT are marked on the unit and water pipework should be connected through flexible couplings to avoid transmission of vibration and to allow for pipework expansion and contraction. YBAH ECM water connections incorporate male pipe threads as scheduled in the table in this manual. Do not overtighten the water connections. Excessive tightening torque will damage the coil headers. Significant care should be taken when attaching water pipes or water valves to the coil connections.

Use a pipe wrench to restrain the pipe connections of the coil when connecting external pipework.



2-7-2 Piping Support

The weight of all connecting water pipes should be independently suspended and should not be borne by the unit.

Provide a minimum of 600mm service access to all water inlet, outlet and drain pipe interfaces.

2-7-3 Determination of Water Handing of the Unit

The water inlet and outlet pipe interfaces can be arranged in the right or left side of the unit. When viewing from the unit air inlet (or along the air flow direction), if the water inlet and outlet ducts are at the right side of the unit, the unit is called a Right-handed Unit; conversely, it is a Left-handed Unit.

Ensure correct handing of the unit to be installed.

2-7-4 Air Venting of the Coil

Each unit has a manual venting valve at the highest point of the coil. With the valve opened, the gas trapped in the coil can be released. Elimination of air from the water piping system is essential for reliable performance.



2-7-5 Condensed Water Drainage

Install the YBAH ECM fan coil level using a spirit level. Adjust the hanger rods to achieve minimum 5 mm side to side slope towards the drain outlet pipe. Do not install the unit with a slope away from the drain outlet pipe.

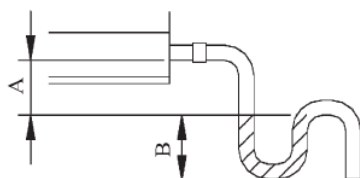
The external drain piping should slope downward and away from the fan coil unit.

A trap must be externally installed in the drain piping so that the drain will function correctly.

When external trap and pipework is installed, verify that the drain functions correctly.

Warning

Dear users,
Before the installation and commissioning of your unit, please connect the water seal (not provided by our company) with the condensed water drain pipe according the following condition.
The coil is positioned in the negative pressure side:
 $P = \text{Absolute Negative Pressure Value (Pa)}$
 $A = B \geq P/10 + 20 \text{ (mm)}$



2-7-6 Water Treatment

Chilled and hot water systems must be filled with clean and properly treated water.

Water circuits must be adequately flushed to remove construction debris.

Poor quality water must be adequately filtered to remove impurities.

Water treatment chemicals shall be applied to prevent scale and corrosion of water circuits.

Water treatment shall be carried out by authorized professionals and shall be tested on a periodic basis.

2-7-7 Air Duct Connection

The connecting between the return air duct and the return air opening or return air plenum and that between the air outlet flange and the supply air duct or plenum must be flexible. The hard connection between the unit and the air outlet flange must be prohibited. During the installation, all air duct(s) should be provided with adequate support. Ductwork should not be supported directly by the fan coil unit.

2-7-7 Shock Absorption for Ceiling Installation

The ceiling installed equipment must be equipped with a shock absorber with good performance to prevent the unit from generating resonance and increasing low-frequency noise. When installing the shock absorber, it is recommended to install the shock absorber at the end close to the hanging beam of the unit.

2-7-9 Electrical Connection

The YBAH ECM is designed for single phase power. The EC fans include integral variable speed drives. 220-240 volt power wiring including neutral and earth (Ground) is required. The supply must have a suitable power isolation switch mounted nearby to the fan coil unit, and appropriately labelled. Wiring must be in accordance with national codes and standards.

2-7-10 Control Requirements

YBAH ECM features a control terminal strip for 0-10v DC speed control, volt free alarm outputs per fan motor, and a 10vDC output for testing fan operation by varying its speed via a 10k ohm potentiometer. (Potentiometer is supplied by others)

YBAH ECM incorporates variable speed fans that operate from a 0-10v DC control signal.

Fan speed can be continuously varied between maximum and minimum values based on the control voltage limits established in the control device.

The 0-10v control signal can be provided by a building automation system (such as Johnson Controls Metasys) or from an advanced thermostat with a 0-10v variable speed fan output (such as Johnson Controls TEC3000 range).

YBAH ECM is equipped with high level interface connection via RS485 MODBUS. Data available from the EC fan variable speed drive can be transmitted to a building automation system to support operational and energy information requirements.

YBAH ECM also has a set of volt free contacts for each fan motor to indicate when the motor is in fault or alarm condition.

Minimum control voltage would typically be set between 2 and 4.5 volts DC to achieve minimum fan airflow requirements.

Maximum control voltage would be typically set between 6 and 10 volts DC to achieve design fan airflow at design fan static pressure.

Note: maximum control voltage should not permit excess coil velocity greater than 2.68 m/s.

When YBAH ECM are installed in applications with a high percentage of outside air which may contain higher levels of humidity, the maximum control voltage shall be set to avoid moisture carryover issues. Typically, under these conditions YBAH ECM would operate at a coil velocity of 2.3 m/s or less.

Note: for jobsites where remote electric duct heaters are installed, minimum airflow settings should enable the duct heaters to operate without safety device intervention due to excessively low airflow.

Unit performance of airflow and static pressure vs control voltage can be found in the YBAH ECM catalog.

Installation Precautions:

1. To ensure unobstructed drainage and normal operation, the unit must be installed horizontally.
2. No foreign matter accumulated in the drain pan, and all foreign matter must be removed from the drain pan. Ensure that the drainage path is unobstructed before starting the motor unit.
3. All cold water valves and cold water pipes of all units must be protected against condensation. Unless the cold water valve and cold water pipe are both insulated, Otherwise, the cold water valve and cold water pipe must be installed with an extended water pan during installation on the site.
4. The length of the air duct connection should not be greater than the length determined by the residual pressure of the unit. At the same time, the air duct cannot bear weight, and the air duct must be soft connected to the unit.
5. Ceiling installed units can only be installed in places that are not easy to burn.
6. The condensate drain pipe must be equipped with an external water sealing device.
7. Water quality requirements: In order to make the unit run well, it is recommended to use soft water.

3. Start, Commissioning and Running

3-1 Check before Start-up

Check the YBAH ECM unit before it is started:

1. Remove any foreign material from the interior and exterior of the unit.
2. Check all components are securely fixed.
3. Check fans can rotate freely.
4. Check power and control wiring and available power is correct.
5. Check that the condensate drain system is installed and functioning correctly.
6. Check the flexible sleeve or duct connection device before starting the fan.
7. Perform air bleed and system water pressure tests.
8. Check whether the rough filter has been installed in place.
9. Check whether the duct has been installed properly.
10. Check the water flow is balanced to design requirements.

3-2 Electric Connection

1. The dashed lines are wiring provided by customer and it should be connected according to Fig.1. Please ensure that all connections are correct and tightened.
2. All electric connections should comply with local electric installation codes.
3. The earth wiring must be connected to the ground terminal in the control panel.
4. Make sure all the power supplies are consistent with the nameplate voltage, and the power supply configuration should with appropriate protection devices.
5. Customer should connect the power with the appropriate isolation and safety devices
6. The BMS or thermostat are connected and set to correct airflow limits and set-point temperatures

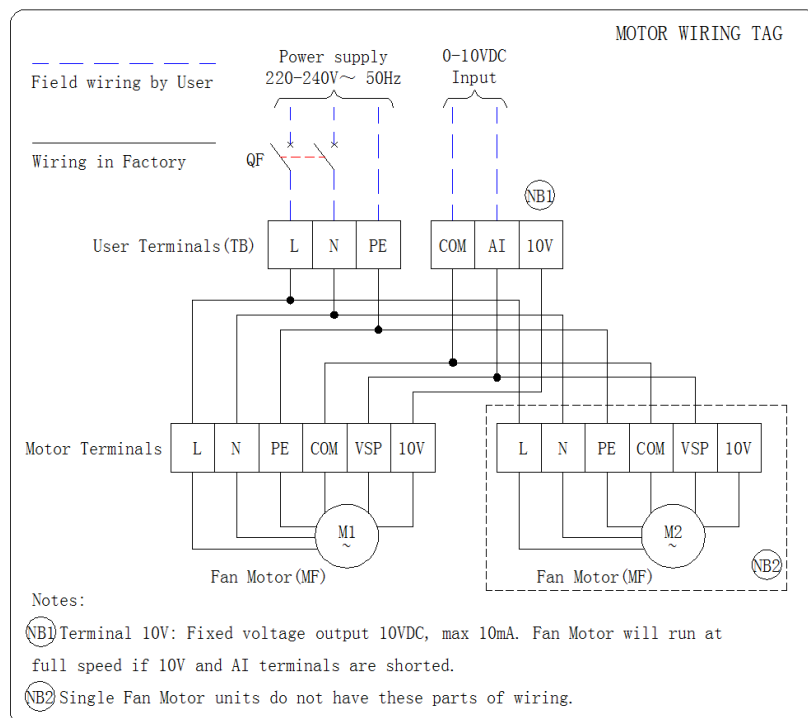


Fig 1

3-3 Cold Area Operation

When operating the fan coil unit in climates where ambient temperatures could result in coil freezing, ensure that the heating energy source is enabled, heating water is up to temperature, and heating water flow is available prior to starting the unit. Once the unit is enabled, open the outside air damper as required. This is to prevent coil frosting which may damage the unit. This is particularly important for units with air on coil conditions based on a high percentage of outside air.

For units that require seasonal drainage of water from the coils, when stopping the unit, close the fresh air damper first, isolate the power to the fan(s), and then isolate the water supply to the unit. Use the water piping drain point to drain the water in the coils to prevent damage from potential freezing.

3-4 Fan Section

1. Switch off the main power supply before inspecting the inside of the fan.
2. Before starting the fan, first check whether there is any foreign matter in the fan volute, then turn the fan impeller by hand to check whether the fan impeller and the volute collide or rub against each other and listen for abnormal sounds from the bearing. If there is no abnormality, then it can be started.

3-5 Electric Heater Section

Electric heater should pay attention to the following items in the operation of air conditioning system:

1. The electric heater is equipped with a high temperature protection switch, which must be connected to the control circuit of the heater power supply to ensure that the heating power supply can be cut off in time when the electric heater exceeds the set temperature.
2. Before the start of the air conditioning system blower, we should absolutely avoid sending electricity to the electric heater. Before the system blower stops, the electric heater must be stopped first.
3. In the air-conditioning system with interlock between electric heater and system blower, it is necessary to check the operation of blower at any time, so as not to cause the false appearance that the blower is out of operation and the operation indicator light of the control system is on. If this is found, the power supply of electric heater should be switched off immediately.
4. In the operation of air-conditioning system, if abnormal burning odor is found in the air-conditioning room or system, the heater power should be cut off first to check if there is any abnormality in the electric heater, and the system can be put into operation only after the reasons are found out and the system is eliminated.
5. The operation of the system should be checked regularly. If the temperature of the air-conditioned room is always lower than the required value during normal operation, the possibility of circuit breaking of the electric heater should be suspected. At this point, the power supply can be stopped and put into operation after the electric heater is inspected and processed.
6. In the electric heating and air-conditioning system with or without wind power failure (i.e. over temperature protection), the condition and sensitivity of the high temperature protection switch (or contact thermometer) should be checked regularly, and the abnormal situation should be dealt with in time.

3-6 Points for Attention during Start-up

1. Before starting the unit, open the coil air release valve.
2. When the unit is running, the water pressure cannot exceed 1.6Mpa, and the steam pressure cannot exceed 0.4Mpa.
3. When the unit is running, all panels should be in a securely connected state.
4. It is strictly forbidden to suddenly close the air valve of the system ductwork during the normal operation of the fan, otherwise it will cause overpressure and damage the unit structure.
5. If there is a sudden power failure during the operation of the unit, the cold and heating medium pipelines should be closed immediately to prevent the temperature in the box from being too high to become an "oven" or too low to become a "freezer".

-
6. When starting the unit, turn on the fan first, and then turn on the cooling valve, heater, and humidifier; when shutting down the unit, turn off the cold water or hot water pipeline first, and then stop the fan.
 7. In areas with cold weather, when turning on the mechanism to heat up, the heater should be turned on for about 5-10 minutes, and then the fan should be turned on to prevent a large amount of cold air from forming an ice plug in the heat exchanger; when shutting down, the fresh air damper should be closed first, then shut the hot water heating pipe, empty the water in the heating coil, and immediately turn off the fan to prevent the unit from overheating and damaging the electrical equipment such as the motor and the lubricating oil loss of the bearing.

4. Maintenance

4-1 Air Filter

Air filters should be checked and cleaned, or replaced, as necessary on a periodic basis.

Typically inspect air filters every 3 months, but filter cleaning and replacement frequency is dependent on run hours and outside air quality.

The filter can be removed from the unit by dis-assembling the cover plate in the side or on the bottom of the filter frame.

Filters are either washable or throwaway type. For washable filters, clean it per the manufacturer's instructions, dry it as required, and reassemble it back to the filter frame.

4-2 Cooling coil and Heating Coil

1. On an annual basis, observe for dirt accumulated on the coil heat exchanger and clean coil fins if required (it is recommended to clean it with the low pressure compressed air from the air outlet side).
2. Ensure the coil fins are not damaged. Comb coil fins as required.
3. If there is evidence that air has entered the water system, use the coil air vent to bleed air out of the system.
4. If any coil needs to be replaced, consult with the manufacturer

4-3 Fan and Motor assemblies

On an annual basis inspect the EC fan /motor assemblies.

1. Before any work is carried out on the fan or motor, isolate the power and lockout / tagout with appropriate warning signs.
2. Remove the appropriate side access panel to gain access to the fan/motor assembly.
3. Check whether the fan can rotate freely.
4. Clean the fan blades as required.
5. The normal service life of the fan bearing used in the YBAH ECM unit can be up to 75,000 working hours without service. Bearings are of the sealed type.
6. Check the tension of all motor terminals
7. If a motor needs to be replaced, consult with the manufacturer.

4-4 Electrical Components and Safety Device Inspection

Perform regular inspections of all electrical components and safety devices.

1. Water valve and system ductwork air valve.
2. Grounding device.
3. Air switch.

4-5 Points for Attention during Maintenance

1. The air-conditioning unit should be maintained by full-time personnel, and daily monitoring and regular maintenance of the unit should be carried out. It is necessary to formulate a strict responsibility system and operating procedures and strengthen regular maintenance and overhaul.
2. The interior of the unit should be cleaned regularly.
3. Regularly check the electrical equipment of the unit.
4. After the unit has been in operation for 6 months to 1 year, the parts that need to be lubricated should be supplemented with lubricating oil.

-
5. Before the unit is overhauled, it is required to turn off the power switch and set up warning signs to avoid danger caused by miss-operation.
 6. The air release valve of the coil should be opened frequently to remove the internal air, so that the cold and heat water can maintain a normal circulation flow in the heat exchange tube.
 7. When the air conditioning unit is running in winter, if it needs to be shut down, the fresh air valve on the system ductwork must be closed to prevent the heater from freezing.

5. Failure Analysis

5-1 Low Air Flow Rate

The actual static pressure needed in the outside of the unit is greater than the design static pressure and the air flow rate is turned into the static pressure. Thus, the air flow rate is lower than the design value. Increase fan speed as required.

5-2 High Air Flow Rate

The actual static pressure needed in the outside of the unit is lower than the design static pressure, and the static pressure is turned into the air flow rate, making the air flow rate higher than the design value. The increased air flow rate increases coil velocity and increased unit noise level.

Increased air flow rate leads to risk of moisture carryover where coil face velocity exceeds 2.5 m/s.

Decrease fan speed as required.

5-3 High Noise and Vibration level

1. Check for correct unit isolation.
2. Verify that there are no vibration paths via duct or pipe to the structure.
3. Verify there are correctly installed flexible connections between unit, the return air, and the supply air ductwork. Verify flexible connections are correctly installed to connecting water pipes.
4. Ensure the unit is correctly hung, and any installed vibration isolators are installed and functioning correctly.

6. Hazardous Materials

Toxic and Hazardous Substance Content Table						
Part	Toxic and Hazardous Substances or Elements					
	Pb	Hg	Cd	Cr(VI)	PBB	PBDE
Motor	○	○	○	○	○	○
Fan	○	○	○	○	○	○
Coil	○	○	○	○	○	○
Filter	○	○	○	○	○	○
Humidifier	○	○	○	○	○	○
Drain Pan	○	○	○	○	○	○
Electrical Heater	○	○	○	○	○	○
TiO ₂	○	○	○	○	○	○
ESP	○	○	○	○	○	○
Screws, Bolts & other Fasteners	X	○	○	X	○	○
Electronic Control Components	X	○	○	○	○	○
Copper Tube	○	○	○	○	○	○
Copper Accessories	X	○	○	○	○	○
Aluminum Foil	○	○	○	○	○	○
Metal Parts	○	○	○	X	○	○
Rubber Cushion/Gasket	X	○	○	X	○	○
Belt / Pulley	○	○	○	○	○	○
Wiring Terminals	○	○	○	○	○	○
Power Cables	○	○	○	○	○	○
Insulation Materials	○	○	○	○	○	○
Packaging Materials	○	○	○	○	○	○
Printings	○	○	○	○	○	○
This table is compiled in accordance with the regulations of SJ/T11364.						
○ indicates that the content of the toxic and hazardous substance in all homogeneous materials of the part is below the limit specified in GB/T26572.						
X indicates that the content of the toxic and hazardous substance in at least one of the homogeneous materials of the part exceeds the limit specified in GB/T26572. The parts marked with "X" in the above cannot be replaced due to technical reasons. Will be gradually improved with technological progress.						
To protect the environment and human health: 1. After this product is scrapped, please separate it from domestic garbage, and consumers are responsible for sending it to a qualified recycling point. 2. The recycling center will use appropriate methods to recycle the materials in the product. 3. For detailed information about the recycling of this product, please consult your local government, scrap processing center or local distributor.						



YORK Guangzhou Air Conditioning & Refrigeration Co.,Ltd.

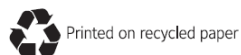
Phone: +86 763 468 1111

Fax: +86 763 468 1114



© 2021 Johnson Controls, Inc.

www.johnsoncontrols.com



FORM NO.: 6A6Y-A01C-NA-EN

SUPERSEDES: Nothing

* Johnson Controls is committed to the continuous product improvement.
Please note the product design may change without notification.

**This manual is for reference only. For the specific product specifications and performance,
Please refer to the purchase agreement.

SAP NO.: 6097388