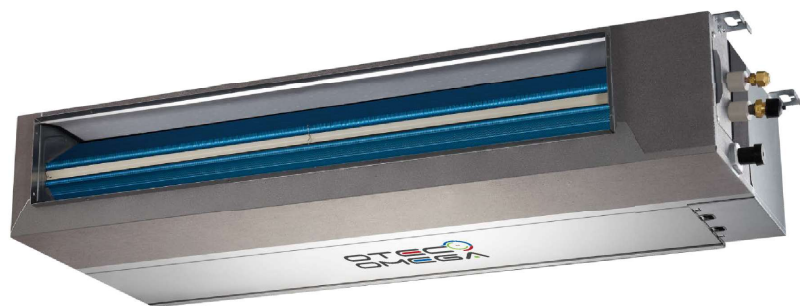
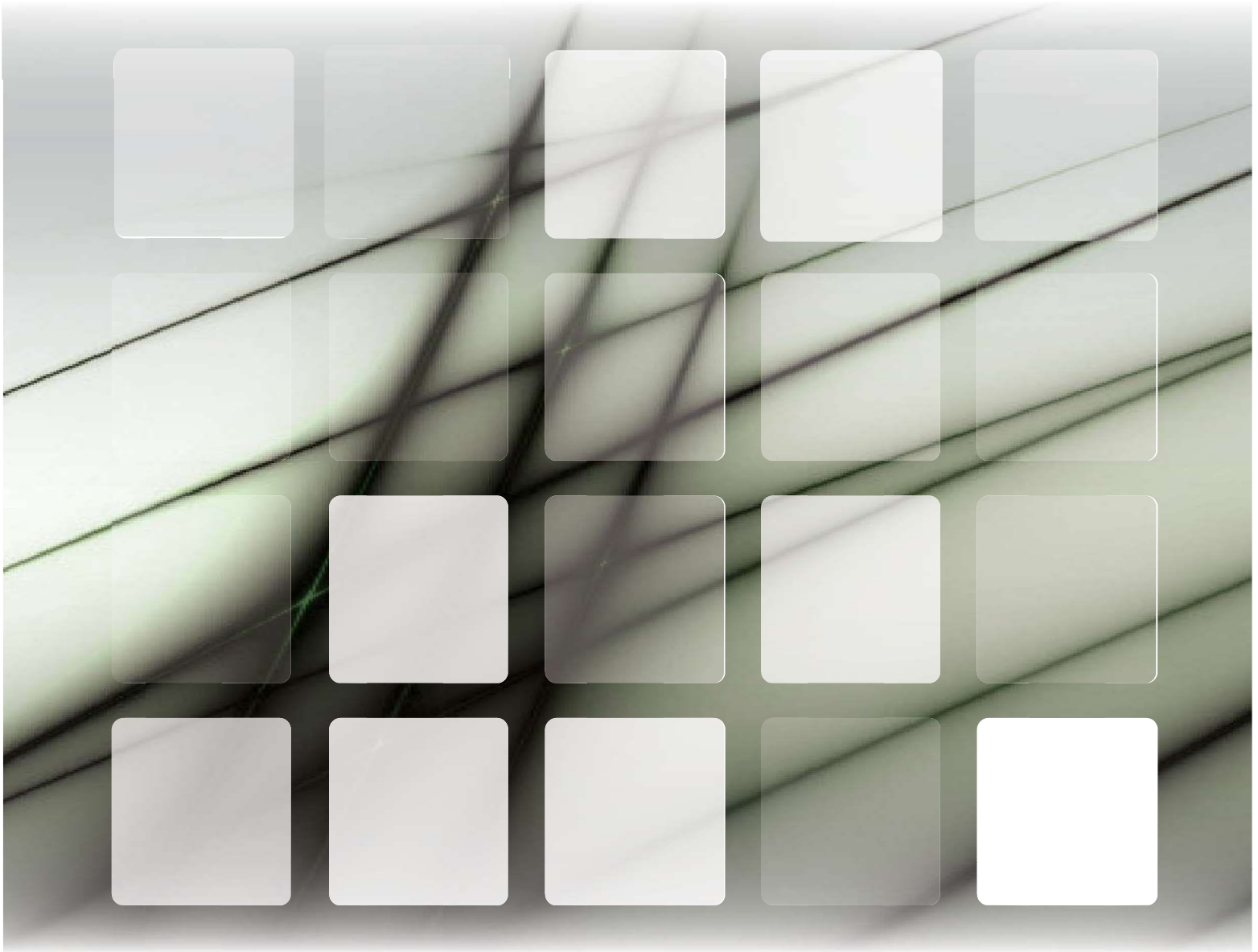


# IEMP-D Series Ducted Fan Coil Installation Manual



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# 1. PRECAUTIONS

- Ensure that all Local, National and International regulations are satisfied.
- Read this "PRECAUTIONS " carefully before Installation. The precautions described below include the important
- items regarding safety. Observe them without fail. After the installation work, perform a trial operation to check
- for any problem. Follow the Owner's Manual to explain how to use and
- maintain the unit to the customer. Turn off the main power supply switch (or breaker) before
- maintenance the unit . Ask the customer that the Installation Manual and the Owner's
- Manual should be kept together .



## CAUTION

New Refrigerant Air Conditioner Installation

**THIS AIR CONDITIONER ADOPTS THE NEW HFC REFRIGERANT(R410A)WHICH DOES NOT DESTROY OZONE LAYER.**

The characteristics of R410A refrigerant are; Hydrophilic, oxidizing membrane or oil, and its pressure is approx.1.6 times higher than that of refrigerant R22. Accompanied with the new refrigerant, refrigerating oil has also been changed ,Therefore, during installation work, be sure that water, dust, former refrigerant, or refrigerating oil does not enter the refrigerating cycle.

To prevent charging an incorrect refrigerant and refrigerating oil, the sizes of connecting sections of charging port of the main unit and installation tools are charged from those for the conventional refrigerant.

Accordingly the exclusive tools are required for the new refrigerant (R410A):

For connecting pipes, use new and clean piping designed for R410A, and please care so that water or dust does not enter. Moreover, do not use the existing piping because there are problems with pressure-resistance force and impurity in it.



## CAUTION

Do not connect the Appliance from Main Power Supply.

This unit must be connected to the main power supply by means of a switch with a contact separation of at least 3 mm. The installation fuse must be used for the power supply line of this conditioner.



## WARNING

If the supply cord is damaged, it must be replaced by the manufacturer or its service agent or a similarly qualified person in order to avoid a hazard.

An all-pole disconnection switch having a contact separation of at least 3mm in all poles should be connected in fixed wiring. The appliance shall be installed in accordance with national wiring regulations.

The temperature of refrigerant circuit will be high, please keep the interconnection cable away from the copper tube.

An all-pole disconnection device which has at least 3mm separation distance in all pole and a residual current device(RCD) with the rating of above 10mA shall be incorporated in the fixed wiring according to the national rule.

The power cord type designation is H05RN-R/H07RN-F or above. Ask an authorized dealer or qualified installation professional to install/maintain the air conditioner.

Inappropriate installation may result in water leakage, electric shock or fire.

Turn off the main power supply switch or breaker before attempting any electrical work.

Make sure all power switches are off. Failure to do so may cause electric shock.

Connect the connecting cable correctly.

If the connecting cable is connected in a wrong way, electric parts may be damaged.

When moving the air conditioner for the installation into another place, be very careful not to enter any gaseous matter other than the specified refrigerant into the refrigeration cycle.

If air or any other gas is mixed in refrigerant, the gas pressure in the refrigeration cycle becomes abnormally high and it may resultingly causes pipe burst and injuries on persons.

Do not modify this unit by removing any of the safety guards or by by-passing any of the safety interlock switches.

Exposure of unit to water or other moisture before installation may cause a short-circuit of electrical parts.

Do not store it in a wet basement or expose to rain or water.

After unpacking the unit, examine it carefully if there are possible damage.

Do not install in a place that might increase the vibration of the unit.

To avoid personal injury (with sharp edges), be careful when handling parts.

Perform installation work properly according to the Installation Manual.

Inappropriate installation may result in water leakage, electric shock or fire.

When the air conditioner is installed in a small room, provide appropriate measures to ensure that the concentration of refrigerant leakage occur in the room does not exceed the critical level.

Install the air conditioner securely in a location where the base can sustain the weight adequately.

Perform the specified installation work to guard against an earthquake.

If the air conditioner is not installed appropriately, accidents may occur due to the falling unit.

If refrigerant gas has leaked during the installation work, ventilate the room immediately.

If the leaked refrigerant gas comes in contact with fire, noxious gas may generate.

After the installation work, confirm that refrigerant gas does not leak.

If refrigerant gas leaks into the room and flows near a fire source, such as a cooking range, noxious gas might generate.

Electrical work must be performed by a qualified electrician in accordance with the Installation Manual. Make sure the air conditioner uses an exclusive power supply.

An insufficient power supply capacity or inappropriate installation may cause fire.

**Use the specified cables for wiring connect the terminals securely fix. To prevent external forces applied to the terminals from affecting the terminals.**

**Be sure to provide grounding.**

Do not connect ground wires to gas pipes, water pipes, lightning rods or ground wires for telephone cables.

**Conform to the regulations of the local electric company when wiring the power supply.**

Inappropriate grounding may cause electric shock.

**Do not install the air conditioner in a location subject to a risk of exposure to a combustible gas.**









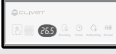



If a combustible gas leaks, and stays around the unit, a fire may occur.

**Required tools for installation work**

- 1) Philips screw driver
- 2) Hole core drill(65mm)
- 3) Spanner
- 4) Pipe cutter
- 5) Knife
- 6) Reamer
- 7) Gas leak detector
- 8) Tape measure
- 9) Thermometer
- 10) Mega-tester
- 11) Electro circuit tester
- 12) Hexagonal wrench
- 13) Flare tool
- 14) Pipe bender
- 15) Level vial
- 16) Metal saw
- 17) Gauge manifold (Charge hose:R410A special requirement)
- 18) Vacuum pump (Charge hose:R410A special requirement)
- 19) Torque wrench
  - 1/4(17mm)16N•m (1.6kgf•m)
  - 3/8(22mm)42N•m (4.2kgf•m)
  - 1/2(28mm)55N•m (5.5kgf•m)
  - 5/8(15.9mm)120N•m (12.0kgf•m)
- 20) Copper pipe gauge adjusting projection margin
- 21) Vacuum pump adapter

## 2. OVERVIEW

### 2.1 Accessories

NAME	SHAPE	QUANTITY
Installation Manual Installation instructions (Make sure you hand over to the user)		1
User Manual Operating instructions (Make sure you hand over to the user)		1
Brass nut For use in the installation of connecting pipe (the quantity is one for models with a process pipe)		2
Mounting spring Control box fixing assembly		2
Water Outlet Joint For drainage of ODU (IN ODU)		1
Seal ring For drainage of ODU (IN ODU)		1
Accessory - sponge		1
Water discharge hose For drainage of IDU		1
Display control box assembly For receiving remote signals		1
Insulation piping For insulation of piping connections		2
Ring clamp For use in the installation of connecting pipes		1
Wire controller		1

### 2.2 Locally Purchased Accessories

(Unit:mm)

Copper pipe			Water discharge pipe PVC	Insulation casing
Model	Piping	Gas side		
90~160	Liquid side	φ 9.5×0.8	φ 15.9×1.0	<p>This is used as the IDU's drain pipe. The length is determined according to actual needs.</p> <p>The inner diameter should match the corresponding copper tube and rigid polyethylene plastic tube. The thickness is usually 10mm (or above). If the pipe is used in a closed humid area, the thickness should be increased.</p>
Remarks	<p>It is used to connect the IDU and ODU refrigerant systems. A soft copper tube (T2M) is recommended. The length is determined according to actual needs.</p>			



### CAUTION

Wired controller is standard.

The air conditioner is delivered from the factory without connecting pipes.

All the figures in the manual explain only the general appearance and dimensions of the unit. The air conditioner you purchased may not be completely consistent with the appearance and functions listed in the figures. Please refer to the actual product.

### 3. INSTALLATION

#### 3.1 Choosing an Installation Site

##### ■ Selecting an installation site for IDU

- Enough space for installation and maintenance.
- The ceiling is level, and the structure is strong enough to support the weight of IDU; take reinforcement measures when necessary.
- Airflow in/out of the machine is not obstructed, and the external air exerts minimum impact.
- Easy to supply airflow to every corner in the room.
- Easy to drain fluids from the connected piping and water discharge piping.
- No direct heat radiation.
- Avoid installation in narrow spaces or where there are more stringent noise requirements.



#### CAUTION

Installing the unit in the following places may cause it to malfunction (please enquire if it is unavoidable):

Places that contain mineral oil such as machine oil for cutting.

Places with high salt content in the air such as the sea.

Areas like hot springs where there are corrosive gases like sulphur gases.

Factories with major voltage fluctuations in the power supplies.

Places like a car or cabin room.

Areas filled with cooking oil and gas like kitchens.

Places where strong electromagnetic waves are present.

Places where flammable gases or materials are present.

Areas where there is evaporation of acid or alkaline gases.

Other special environmental conditions.

##### ■ Selection of Installation Site for ODU

- Enough space for installation and maintenance.
- Unobstructed airflow in/out of the unit; no strong breeze.
- The site should be dry and well-ventilated.
- The supporting surface should be flat and able to bear the weight of the unit. The ODU should be able to be installed horizontally without increasing vibration and noise. Take reinforcement measures when necessary.
- The operating noise and the discharged air should not affect neighbours.
- There should be no leakage of flammable gas nearby. It should be easy to install the connecting pipes and complete electrical connections.
- The level difference of connection pipes and the lengths of connection pipes must be within the allowed ranges.



#### CAUTION

Choose the correct move-in path.

Carry the device in its original package.

Electrical insulation measures can be taken in accordance with relevant technical specifications of electrical equipment if the air conditioner is to be installed onto the metal part of a building.

If the height difference is greater than the allowed level difference, it is recommended to place the ODU above the IDU.

#### 3.2 IDU Installation



#### WARNING

Install the air conditioner in a location with sufficient strength to support the weight of the unit. Take reinforcement measures when necessary.

The unit may fall and cause personal injury if the location is not strong enough.

Carry out the specified installation works to prevent strong winds or earthquakes.

Improper installation may cause the unit to drop leading to accidents.

Before wiring/pipe layout, make sure that the installation area (walls and floor) is safe and free of water, power, gas, and other hidden dangers.



#### CAUTION

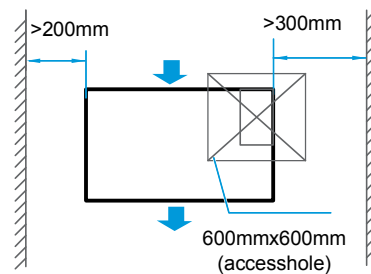
The IDU should be handled with care, and it should not be subjected to heavy pressure.

After the IDU is installed, in case of construction, the IDU should be protected to prevent garbage and dust from falling into the unit.

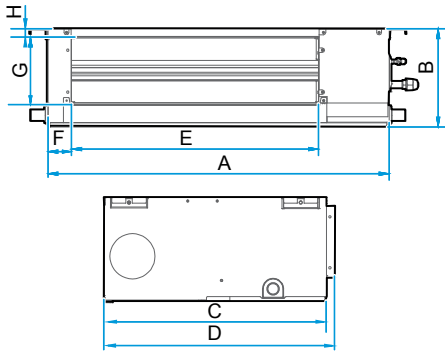
The fan should be rotated before the test run. Make sure that there is no abnormal friction before powering on the unit.

##### ■ Space Required for Installation and Maintenance

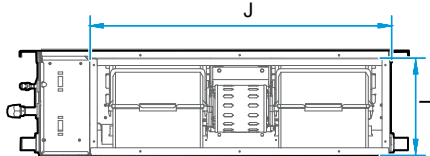
(Unit: mm)



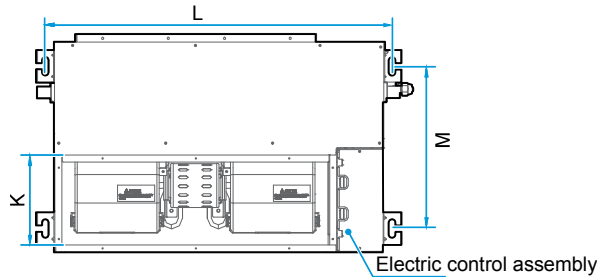
External dimensions and size of air outlet duct



Size of return air inlet (back return air mode)



Size of return air inlet (bottom return air mode), and the distance between the lugs



Model	External Dimension				Size of Air Outlet				Size of Return Air Inlet			Spacing Between Lugs	
	A	B	C	D	E	F	G	H	I	J	K	L	M
90-140	1140	270	710	775	933	65	179	35	260	1035	256	1180	490
160	1200	300	800	865	969	85	204	40	288	1094	285	1240	500



**CAUTION**

The IDU can be mounted on a ceiling with a height of 2.5 m to 4 m. As the mounting height of the unit increases, when the unit is operating in the heating mode, as hot air rises, the heating experience in the vicinity of the ground will become worse.

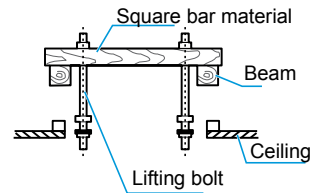
■ **Mount the Unit**

- Use the  $\Phi 10$  lifting bolts (four).
- Removing the ceiling: Since the building structure is different, discuss building details with the interior decoration workers.
  - a. Ceiling treatment: Reinforce the ceiling pedestal to make sure that the ceiling is level and to prevent ceiling vibrations.
  - b. Cut off and dismantle the ceiling pedestal.
  - c. Reinforce the remaining surface after the ceiling is removed. Add further reinforcements to the pedestal on two ends of the ceiling.
  - d. Once the main unit has been lifted and mounted, carry out the piping and wiring works within the ceiling. Determine the outlet direction of the piping after the installation site has been finalized.

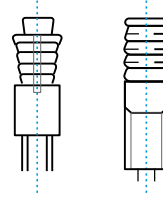
For a site where the ceiling is already available, first connect and put in position the refrigerant piping, water discharge piping, connecting wires of the indoor unit and wired controller before you lift and mount the unit.

To match the existing structure, set the screw pitch according to the product dimensions shown below.

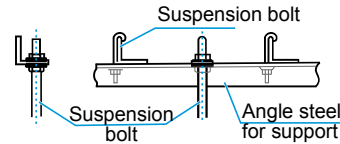
- **Wooden structure**  
Place the square bar by crossing the beams and set the lifting bolts.



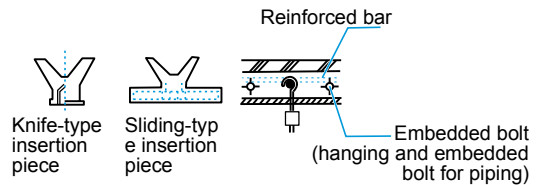
- **Original concrete slab structure**  
Use embedded bolts, embedded pull bolts, and embedded plug columns



- **Steel framework**  
Directly set and use an angle steel for support.

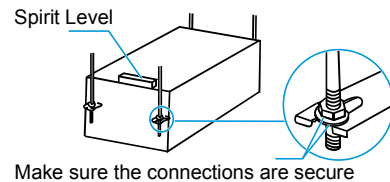
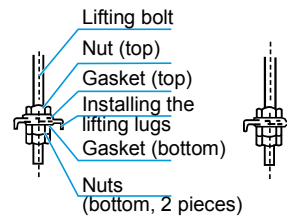


- **Newly set concrete slab structure**  
Set using embedded appliances and embedded type of bolts.



■ **Lifting the IDU**

- Mount the lifting bolt in the U-shaped groove to install the lifting lugs, lift the machine, and use the gradienter to determine how level the device is.
- Fasten the nuts on the top.





## CAUTION

All bolts should be made from high quality carbon steel (with galvanized surfaces or other rust preventive treatment) or stainless steel.

How the ceiling is treated will differ with the type of building. For specific measures, please consult the building and renovation engineers.

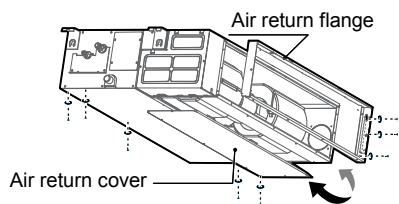
How the lifting bolt is secured depends on the specific situation, and it must be secure and reliable.

### ■ Air Inlet Panel for Air Return Plenum

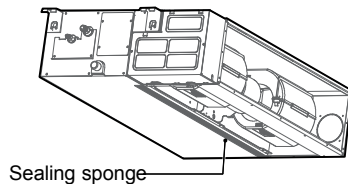
Site adjustment of air return plenum:

There are two kinds of air return modes for this series of models. One is back air return which is the factory default. The other is bottom air return which can be customized or adjusted on-site. Refer to the following two diagrams on the adjustment method.

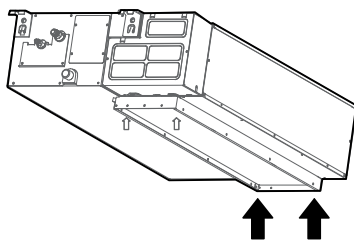
- Remove air return flange and air return cover



- Paste sealing sponge



- Install air return flange and air return cover

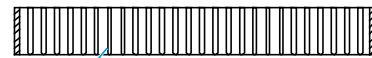


## CAUTION

In creating the air return plenum on the air inlet panel, make sure the air inlet grille is angled such that it is parallel to the direction of the air inlet. See Fig 3-1.

There should be no angle between the air inlet grille and the direction of the air inlet; otherwise the noise level will increase. Fig 3-2 shows the incorrect way of making the air inlet panel.

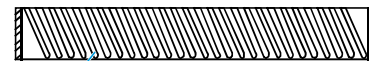
When the air outlet panel is connected to the air outlet flange of the unit body via the metallic air diffuser, make sure that the sheet metal contact surface is properly sealed and insulated using sponge, as shown in Fig 3-3.



Air inlet grille ↑ Air inlet direction



Fig 3-1



Air inlet grille ↑ Air inlet direction



Fig 3-2

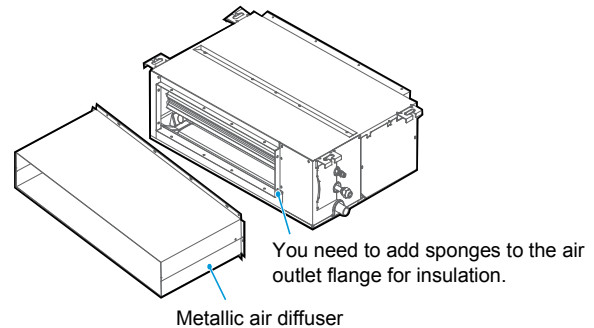


Fig 3-3

### ■ Steps to dismantle the drain pan

The drain pan must first be removed during the maintenance of the internal unit assembly (make sure that there is no water in the drain pan). Dismantle the drain pan according to the following schematic to prevent water leakage in the unit.

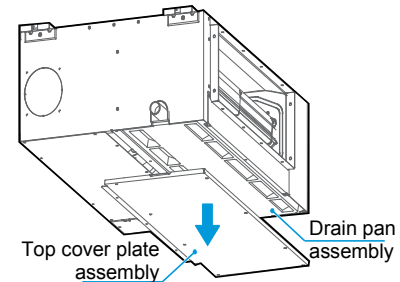


Figure a: Dismantle the top cover plate assembly

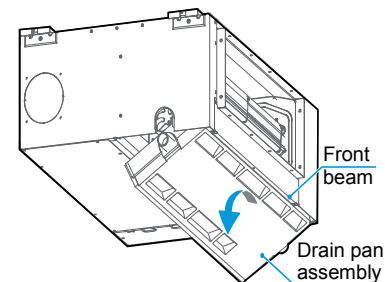


Figure b: Rotate the drain pan assembly by 30 to 45 degrees around the front horizontal beam

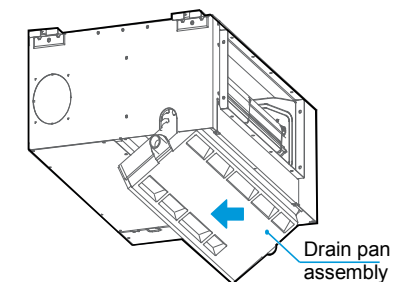


Figure c: Shift the drain pan assembly to the left by more than 30 mm

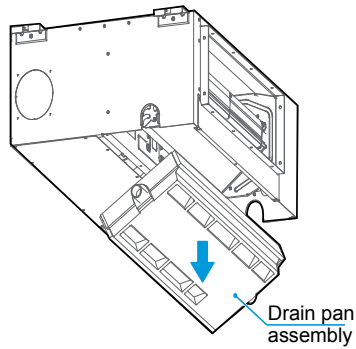


Figure d: Shift the drain pan downwards until the drain pan is removed from the unit body

### 3.3 ODU Installation



#### WARNING

The ODU can be installed only by qualified professionals. Improper installation by the user will lead to accidents such as water leakage, electrical leakage and fire.

Select places not exposed to direct sunlight or direct heat radiation. If it is unavoidable, install a shelter to prevent exposure to direct sunlight.

The support surface should be horizontal and capable of supporting the weight of the outdoor unit. Take reinforcement measures when necessary.

Install the unit securely; otherwise it will cause abnormal noises and vibration due to poor installation.

The ODU should be installed at a place where the noise and hot exhaust air do not disturb your neighbours.

The installation location must be free of flammable gas leaks, which may lead to a fire.

Remove as many nearby obstacles as possible to prevent obstructing the air circulation range and affecting performance of the unit.

Install it as close to the IDU as possible while ensuring that installation requirements are met.

When installing at locations near the sea, at high altitudes, or exposed to strong winds, the ODU should be installed against a wall to ensure normal operation of the fan. Use a baffle when necessary.

Especially in regions with strong wind, prevent wind from blowing down and into the ODU.

#### ■ Space Required for Installation and Maintenance

(Unit:mm)

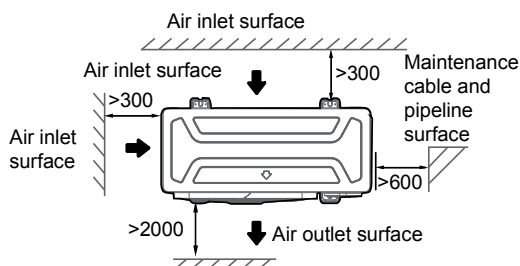


Fig 3-4

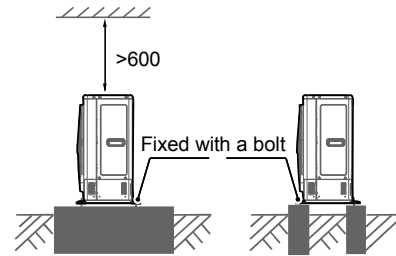


Fig 3-5

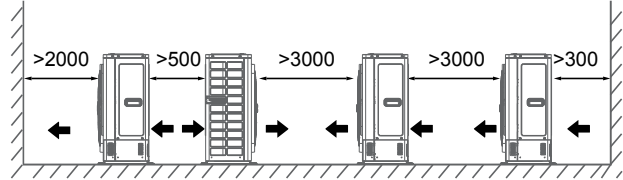


Fig 3-6

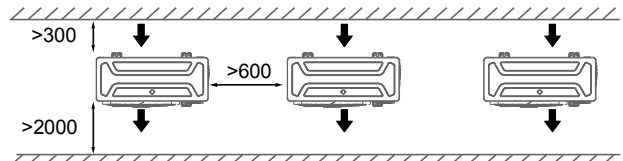


Fig 3-7

#### ■ Handling and Installation

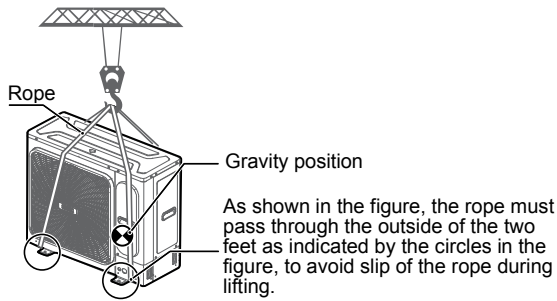
- Because the center of gravity of the unit is not at the center, be careful when lifting the unit with a hoist cable.
- Do not hold the suction port on the casing; otherwise, it will be deformed.
- Do not touch the blades with your hands or other objects.
- Do not tilt the unit over 45° when carrying it; do not store it horizontally.
- Use M8 or M10 bolts to secure the feet of the unit. The unit must be installed firmly to prevent collapse in the event of an earthquake or a sudden blast.

### 3.4 Handling and Installation

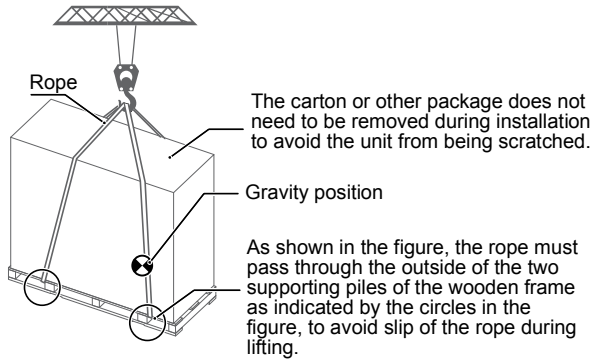
- Select the lifting method according to the actual installation conditions (for details, see the figure below). Use two suitable ropes to lift and transport the packed unit.

Keep the unit in balance and lifted it securely and stably. Where the unit is not packed or the package is damaged, use a gasket or package to protect the unit.

- The ODU should be kept vertical during the lifting and handling process. If the gravity of the unit is not at the center, the inclination angle must not exceed 30°, as shown in the figure below. Pay attention to the safety during the handling and lifting process. Do not tilt the unit over 45° when carrying it; do not store it horizontally.
- Do not hold the air outlet grille on the casing; otherwise, it will be deformed.
- Do not touch the blades with your hands or other objects.
- Use the bolts (M10) to fix the feet of the unit. The unit must be installed firmly to prevent collapse in the event of an earthquake or a sudden blast. See Figure 2 for the picture of the concrete foundation.

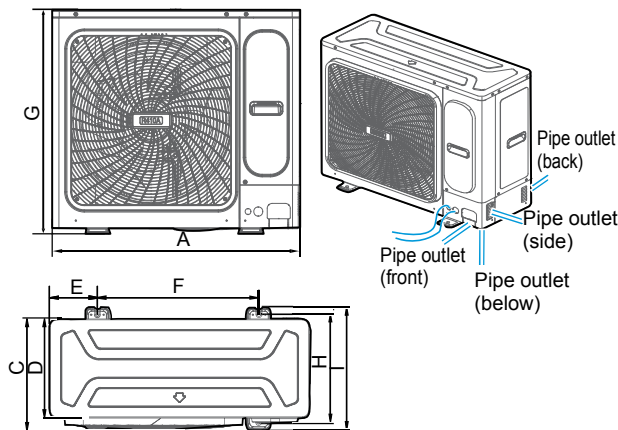


Lifting method 1: Applicable to installation on the external wall



Lifting method 2: Applicable to installation at the top of a building

### 3.5 External Dimension Diagram



Model	A	B	C	D	E	F	G	H	I
90	910	/	390	345	120	663	712	403	427
105/120/140	950	/	406	360	175	590	840	390	440
160	1040	/	452	410	191	656	865	463	523

### 3.6 Water Discharge Piping Layout



#### NOTE

Do not exert too much force when installing the suction piping in order not to break the pipes. Wrap both the suction piping and water discharge piping evenly with heat insulation protective casing to prevent water condensation.

#### ■ Installation of water discharge piping for the indoor unit

- Use the attached water discharge hose to connect to the drainage outlet and PVC piping of the indoor unit. Use the provided ring clamps to clasp tightly (see Fig 3-8).
- Use hard PVC adhesives for connecting to other water piping. Check that the connections are tight with no leakage. Use insulation casing to wrap the water suction piping connections and water discharge piping of the main body (especially the indoor portion) tie for the water discharge piping to bind them firmly to make sure air does not enter and condense to form water.
- In order to prevent the back-flow of water into the interior of the air conditioner when the unit stops operating, the water discharge pipe should slope downwards towards the outside (drainage side) at a slope of more than 1/100. Make sure that the water discharge pipe does not swell or store water, otherwise it will cause abnormal sounds.
- When connecting the water discharge piping, do not use force to pull and tug the pipes to prevent the main body from being affected by the force. The distance to pull out the water discharge piping should be within 20m, with supporting points set at every 0.8 to 1.0m to prevent the water discharge piping from bending.
- When concentrating and installing the water discharge piping, arrange the pipes according to the diagram provided in Fig 3-10.
- The end of the water discharge pipe must be more than 50 mm above the ground or from the base of the water discharge slot. In addition, do not submerge it in water. To discharge the condensed water directly into a ditch, the water discharge pipe must bend upwards to form a U-shaped water plug to stop the odour from entering the room via the water discharge pipe.



#### CAUTION

Make sure all the connections in the piping system are properly sealed to prevent water leakages.

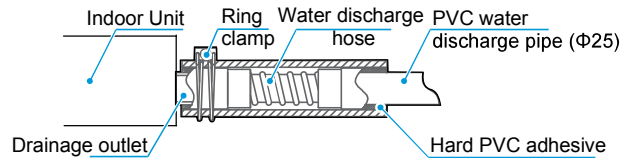
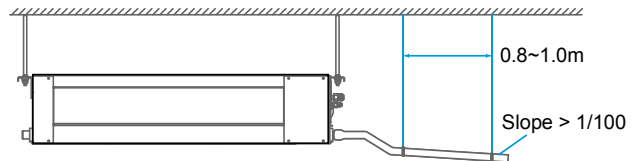


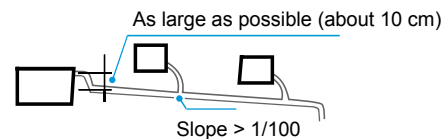
Fig 3-8

Connection of drainage pipe (see Fig 3-9 and Fig 3-10):



Method to connect the water discharge piping for a single unit

Fig 3-9



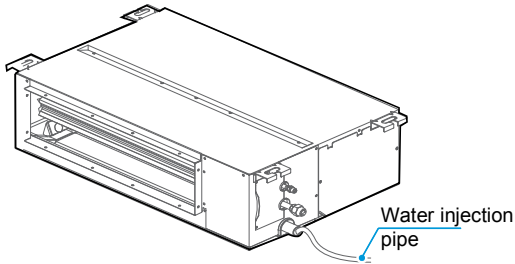
Method for centralised water discharge piping connection

Fig 3-10



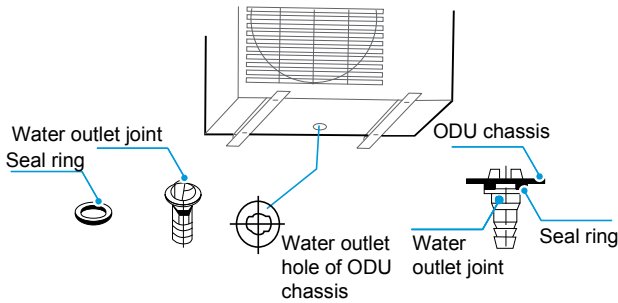
■ **Water Discharge Test**

1. Before the test, make sure that the water discharge pipeline is smooth, and check that each connection is sealed properly.
2. Conduct the water discharge test in the new room before the ceiling is paved.
  - Use the water injection pipe to fill the drain pan with about 500ml of water through the drain pan outlet (high side) or through the air outlet (if the air outlet duct is not installed).
  - Connect the power supply, and set the air conditioner to operate in the cool mode. Check that the water discharge piping outlet discharges water properly (based on the length of the pipe, the discharge may occur at a delay of 1 minute or so), and check for water leakages at each joint. The water injection pipe is marked as shown in the following figure.



■ **Installation of water discharge piping of ODU**

Put the seal ring on the water outlet joint, insert it from the bottom of the ODU into the hole of the chassis and rotate it 90 degrees to make it fit firmly. Connect the water discharge piping (to be purchased by the customer) to the water outlet joint to discharge condensation water from the ODU during heating.



**3.7 Connection of Connecting Pipe**

■ **Length and level difference requirements for the pipe connections of IDU and ODU**

Product Model	Maximum length (m)	Maximum level difference (m)	Maximum number of bends
90/105/120	30	20	15
140/160	50	25	15

Notes: If the height difference is greater than the allowed level difference, it is recommended to place ODU above the IDU.



**CAUTION**

Do not let air, dust, or other particles invade the pipeline system during installation of the connecting pipes.

Install the connecting pipes only when the indoor and outdoor units are secured.

Make sure to keep the connecting pipes dry during installation so that no water will enter the piping system.

Connecting copper pipes must be wrapped with insulation materials (thicker than 10mm, the thickness should be increased if the unit is installed in a closed humid place).

■ **Steps of pipe connection**

Measure the required length of the connecting pipe. Make the connecting pipe using the following method (see the column Pipe Connection for details).

1. Connect the IDUs before the ODU.
  - Bend and arrange pipes carefully without damaging the pipes and their insulating layers.
 

Before tightening the flare nut, apply refrigerant oil on the outer surface at the pipe flaring position and the conical surface of the connecting nut (the refrigerant oil used must be compatible with the refrigerant of this model), and screw it 3 to 4 turns with your hand to tighten it as shown in the Fig 3-11.
  - When connecting or removing a pipe, use two wrenches at the same time.
  - Do not put the weight of the connecting pipe on the connector of the IDU. Otherwise, the heavy weight will deform the connector and affect the cooling (heating) effect.

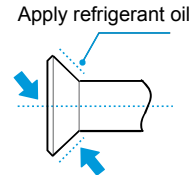


Fig 3-11

2. The check valve of the ODU should be completely closed (e.g. the ex-factory condition).

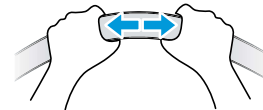
Unscrew nuts from the check valve in each connection, and connect the flared tube immediately (within 5 minutes). When the nut at the check valve is removed and placed for too long, dust and other sundries may enter the pipeline system and cause failures at a later time.

3. After the refrigerant pipe is connected to the IDU and ODU, discharge the air according to the column Air Discharge. After the air is discharged, tighten the service nut.

Precautions for flexible pipes:

- Do not bend a pipe more than 90 degrees (see the figure on the right).
- The bend should be as close as possible to the center of the tube and the bend radius should not be less than 3.5D (pipe diameter).
- Do not bend the flexible tube back and forth more than 3 times.

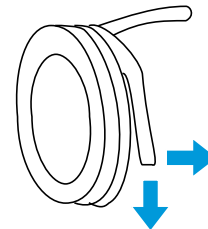
Bend the pipe with your thumbs



Bend a thin-walled connecting pipe (see the right figure):

- When bending a pipe, cut off the required recess in the insulation pipe at the bend and expose the pipe (wrap the bend with a binding tie after bending).
- Keep the elbow radius as much as possible to prevent flattening or crushing. Use a pipe bender to make tight elbows.

Method of unwinding the coil:  
Straighten the pipe end



If a copper pipe purchased from the market is used, the heat insulation material of the copper pipe must be the same (thicker than 10mm, the thickness should be increased if the unit is installed in a closed humid place).

### ■ Pipe Layout

1. Bend the pipe or drill a hole in the wall as needed. The cross-sectional area of the pipe bending deformation must not exceed 1/3 of the original pipe section. A protective casing should be provided at the wall or floor hole. The weld joint must not be inside the casing. The drill hole on the external wall must be sealed and tightly wrapped with a binding tie to prevent impurities from entering the pipe. The pipe must be insulated with an insulation pipe of suitable size.

2. Insert the bundled piping and wiring from outside the room through the wall opening into the room. Be careful when laying out the pipes. Do not damage them.

### ■ Vacuum the connecting pipe.

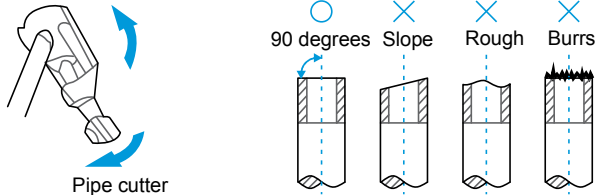
After completing the above steps, the check valve stem of the ODU should be fully opened to ensure that the refrigerant pipeline of the IDU and ODU is unobstructed.

Use a leak detector or soapy water to carefully check for leakage and ensure that there is no leakage. Cover the joint of the IDU with a sound/heat insulation sleeve (accessory) and wrap it tightly with a binding tie to prevent condensation and water leakage.

### ■ Pipe Connection

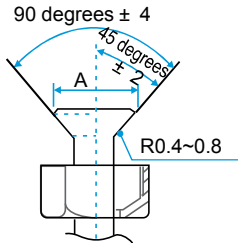
#### 1. Flaring

Use a pipe cutter to cut off the pipe, and rotate the pipe cutter repeatedly to cut off the pipe.



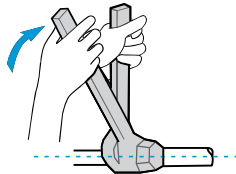
#### 2. Insert the pipe into the connection nut flare.

Outer diameter (mm)	A (mm)	
	Max.	Min.
Φ6.4	8.7	8.3
Φ9.5	12.4	12.0
Φ12.7	15.8	15.4
Φ15.9	19.0	18.6
Φ19.1	23.3	22.9



### ■ Fasten the nut

Align the connection pipe, tighten the connecting nut with a hand, and tighten them with a wrench as shown in the right figure.



### NOTE

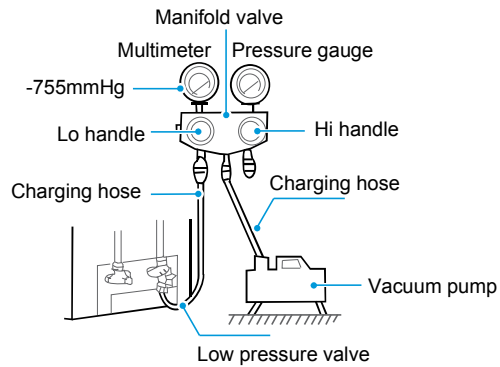
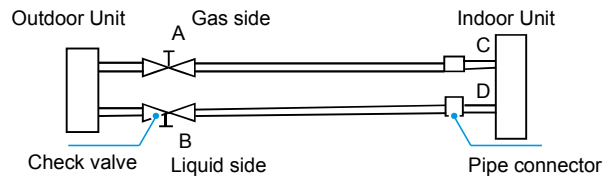
Depending on the installation conditions, excessive torque will damage the pipe socket, while inadequate torque will cause air leakage. Refer to the following table to determine the tightening torque.

Pipe size	Tightening torque N.m
Φ6.4	14.2~17.2 N.m (144~176 kgf.cm)
Φ9.5	32.7~39.9 N.m (333~407 kgf.cm)
Φ12.7	49.5~60.3 N.m (504~616 kgf.cm)
Φ15.9	61.8~75.4 N.m (630~770 kgf.cm)
Φ19.1	97.2~118.6 N.m (990~1210 kgf.cm)

### ■ Air Discharge

Use a vacuum pump to discharge the air.

- Loosen and remove the service port nut of check valve A and connect the manifold valve charging hose to the service port of check valve A (check valves A and B are closed).
- Connect the charging hose connector to the vacuum pump.
- Fully open the manifold valve Lo (low pressure) handle.
- Start the vacuum pump. When the vacuum is started, slightly loosen the service port nut of the check valve B to check if the air enters (the vacuum pump noise changes, and the multimeter reading changes from negative to 0). Tighten the service port nut.
- After the vacuum is complete, fully close the manifold valve low pressure (Lo) handle and stop the vacuum pump.
- Vacuum the pipe for 15 minutes or more, check whether the multimeter reading is  $-1.0 \times 10^5 \text{ Pa}$  ( $-755 \text{ mmHg}$ ).
- Loosen and remove the square head covers of check valves A and B, fully open the check valves A and B, and tighten the square head covers of the check valves A and B.
- Remove the charging hose from the service port of check valve A and tighten the nut. (Refer to its manual for the use of the manifold valve)



### ■ Adding Refrigerant

- If the one-way pipe length is less than 5m (including 5m), the refrigerant charging amount is determined according to the nameplate.
- If the one-way pipe length exceeds 5m, it is necessary to calculate the refrigerant charging amount according to the pipe diameter and length of the liquid-side pipes of the IDU and ODU. See the table below for details.
- Record the amount of refrigerant charged and retain the record for use during future maintenance.

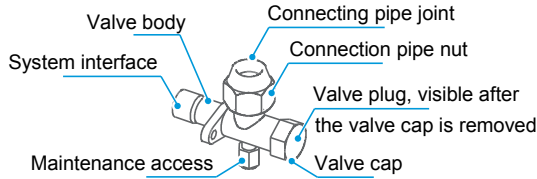
Diameter of liquid-side pipe	Refrigerant charging amount	Remarks
Φ9.5	0.027Kg(L-5)	L is the one-way pipe length

### ■ Check Valve Instructions

- Open the valve plug until it touches the limit block. Do not attempt to continue opening it.
- Use a wrench or similar tool to fasten the valve cap.
- See the torque table for the valve cap fastening torque.

Pipe size	Tightening torque N.m
Φ6.4	14.2~17.2 N.m (144~176 kgf.cm)
Φ9.5	32.7~39.9 N.m (333~407 kgf.cm)
Φ12.7	49.5~60.3 N.m (504~616 kgf.cm)
Φ15.9	61.8~75.4 N.m (630~770 kgf.cm)
Φ19.1	97.2~118.6 N.m (990~1210 kgf.cm)

After installation, the check valve must be fully opened before the test run. Each unit has two valves of different sizes located on the ODU side as the low pressure valve and high pressure valve. The operation of opening and closing the check valve is shown in the following figure.



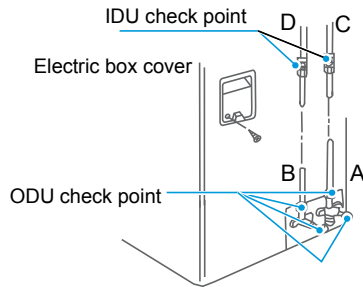
### Leak Detection

Use soapy water or a leak detector to check whether air leaks at each joint.

The low pressure check valve is indicated by A in the figure.

B indicates the high pressure side check valve.

C and D indicate IDU connecting pipe ports.

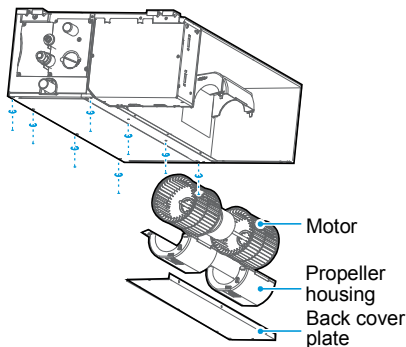


- The exposed flared tube connection portion and the refrigerant tube portion of the liquid pipe and the gas pipe must be wrapped with the heat insulation material with no gap in between.
- Insufficient insulation may cause condensation and water dripping.

## 3.8 Maintenance of Motor and Drain Pump

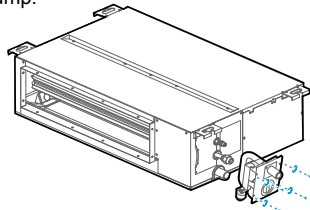
### Motor Maintenance

1. Removing return air cover the following example will refer to the air return model. First, remove the filter if any.
2. Remove the propeller housing of the lower half.
3. Remove the motor



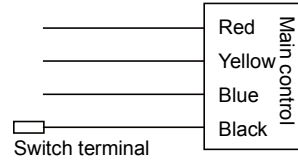
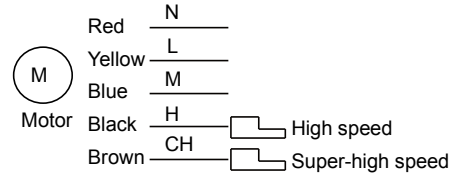
### Maintenance of Drain Pump (with water pump)

1. Remove the screws on the water pump cover.
2. Unplug the pump and water level switch power supply.
3. Remove the pump.



### Static Pressure Setting

Manually switch fan speed to set to high static pressure mode (super-high for high static pressure mode)



## 4. ELECTRICAL CONNECTION



### CAUTION

Before the installation, check whether the power supply of the user meets the electrical installation requirements of the product (including reliable grounding, power leakage, and wire-diameter electrical load). Do not install the product before the modification if the electrical installation requirements of the product are not met.

Air conditioners must use a dedicated power supply. The power voltage must conform to the rated voltage.

The external power supply circuit of the air conditioner must include a grounding line, and the grounding line of the power cable connecting to the indoor unit must be securely connected to the grounding line of the external power supply.

Electrical wiring work must be carried out by a professional technician, and must comply with the labels stated in the circuit diagram.

The fixed wiring connected must be equipped with an all-pole disconnection device with a minimum 3mm of contact separation.

Leakage protection devices must be configured according to national standards for electrical equipment.

The power cord and signal cables must be neatly and properly arranged without interfering with one another or contacting with any connecting pipes or valves.

When multiple air conditioners are installed in a centralized manner, ensure load balance of the three-phase power supply, and avoid installing multiple units at the same phase of the three-phase power supply.

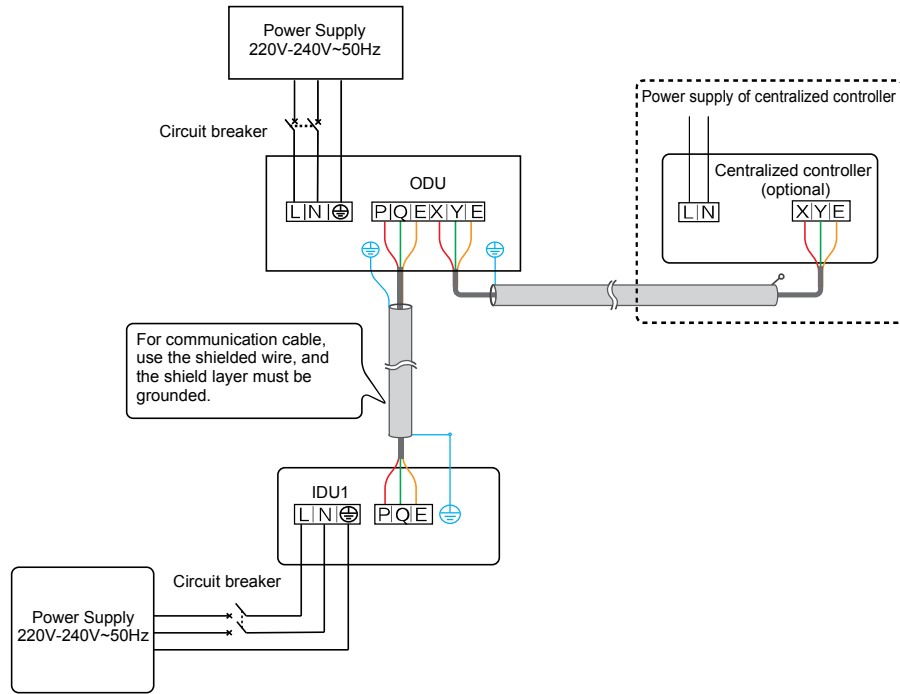
In general, two wires cannot be connected unless the joint is securely welded and wrapped with insulation tape.

Power the system on only after all the completed wiring operations have been carefully checked.

■ Power Supply Specifications

Model	Power Supply	Maximum operating current (A)	Recommended circuit breaker (A)	Power cord (AWG)	Ground line (AWG)	Communication wire (AWG)
ICHD031	220-240V~50Hz	23	32	2×10	10	3×18
IEMP031	220-240V~50Hz	2	6	2×18	18	3×18
ICHD036	220-240V~50Hz	27	32	2×10	10	3×18
IEMP036	220-240V~50Hz	2	6	2×18	18	3×18
ICHD041	220-240V~50Hz	27	32	2×10	10	3×18
IEMP041	220-240V~50Hz	2	6	2×18	18	3×18
ICHD048	220-240V~50Hz	32	40	2×8	8	3×18
IEMP048	220-240V~50Hz	2	6	2×18	18	3×18
ICHD060	220-240V~50Hz	33	40	2×8	8	3×18
IEMP060	220-240V~50Hz	2	6	2×18	18	3×18

■ Electrical Connection Diagram



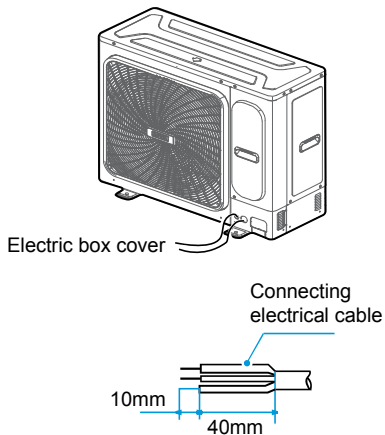
Single-phase ODU electrical control system connection diagram (IDU and ODU use separate power supply)



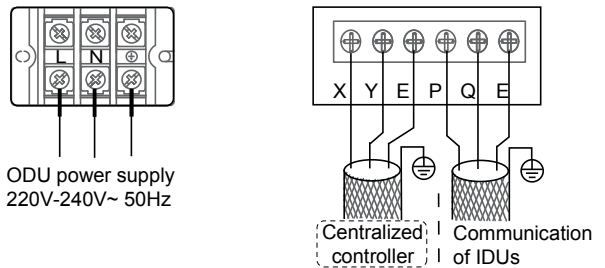
**CAUTION**

It is for reference only. See physical wiring for actual state.

■ Outdoor Unit



4.1 Wiring Terminal Description





## NOTE

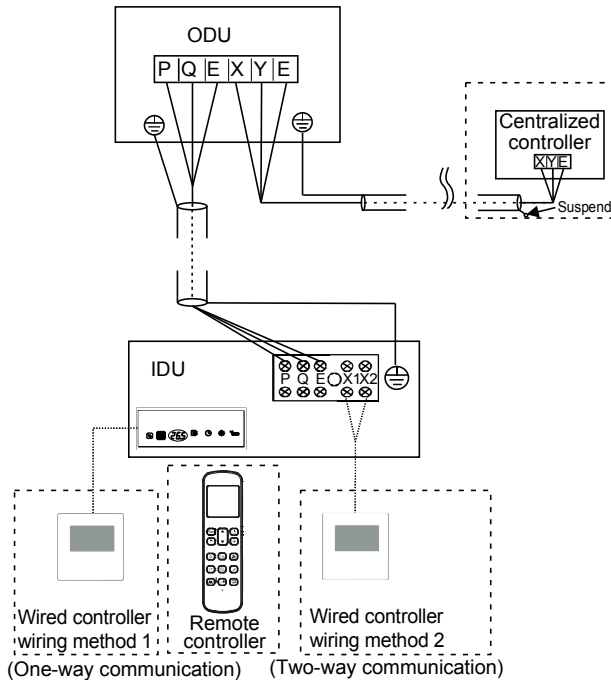
Remove the electric box cover of the outdoor unit (two screws).

Connect the cables of the indoor unit to the outdoor unit's terminal block according to the numbers.

To prevent water from entering, make an electrical coil with the connecting cable.

Wrap cables (conductors) that are not plugged into the terminal block with insulating tape so that they do not contact any electrical or metal parts.

## 4.2 Control Wiring Diagram



Note: The wired controller, remote controller and centralized controller in the dashed box are optional accessories. If necessary, please contact the local distributor for purchase.

## 5. TRIAL RUN

1. Conduct the test run only after all installation tasks have been completed.
2. Check the following items during the test run.
  - Indoor and outdoor units are properly installed.
  - Piping length, and the amount of refrigerant charged have been recorded.
  - Piping and wiring are correct.
  - The voltage of the power supply is the same as the rated voltage of the air conditioner.
  - No leakage from the refrigerant piping system.
  - There is no obstacle at the air inlet and outlet of the IDUs and ODU.
  - Water discharge is smooth.
  - Open the check valves on the gas and liquid sides. Heat insulation is complete.
  - Connect to the power supply to let the air conditioner warm up first.
  - Grounding cables have been properly connected.

3. Install the remote controller mounting rack according to the user's requirements.

The location of the mounting rack must be such that the remote control signal can be successfully transmitted to the indoor unit.

### 4. Test Run

Use wired/remote controller to control and operate the air conditioner in the cooling mode. Check the following items according to the manual. If there is any fault, troubleshoot by referring to the section "Fault and Troubleshooting" in the manual.

#### ■ Indoor Unit

- The wired/remote controller switch is operating normally.
- Function keys of the wired/remote controller are operating normally.
- Air deflector is running normally.
- Room temperature regulation is normal.
- LED indicator is on.
- The manual operation key is normal.
- Water discharge is normal.
- There is no vibration or strange sounds during operation.
- The heating and cooling power supply works normally in the heating mode.

#### ■ Outdoor Unit

- There is no vibration or strange sounds during operation.
- The wind, noise and condensation do not affect the neighbours.
- There is no refrigerant leakage.



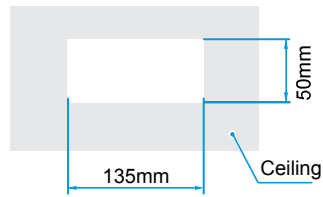
## CAUTION

Once the power is connected, when the unit is turned on or started immediately after the unit has been turned off, the air conditioner has a protective function which delays the start of the compressor by 3 minutes.

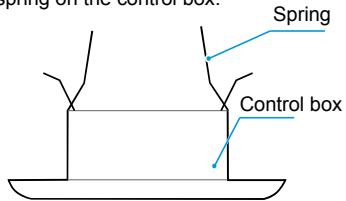
## ■ Technical Specifications

### ■ Installation Diagram

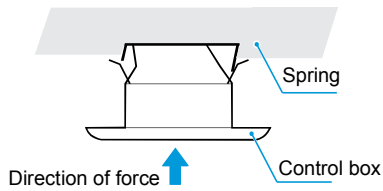
1. First create a gap of 50 mm x 135 mm in the ceiling where the unit will be mounted.



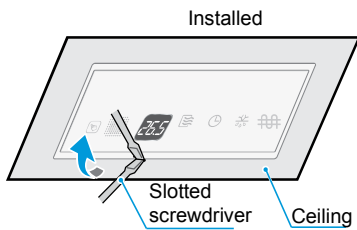
2. Turn up the spring on the control box.



3. First properly connect the connecting lines to the indoor unit. Position the control box directly at the ceiling opening, and exert force to press it into the ceiling, until you hear a "click" sound from the spring. When the control box is fitted snugly into the ceiling, the installation is completed.



4. Use a slotted screwdriver to pry it open before taking it down, and then use force to pull it down.



## WARNING

Make sure the control box is free of water, cement or other impurities.



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