

619R*D
Ducted Heat Pump Split System
Sizes 09 to 48



Installation Instructions



NOTE: Read the entire instruction manual before starting the installation.

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SAFETY CONSIDERATIONS

Installing, starting up, and servicing air-conditioning equipment can be hazardous due to system pressures, electrical components, and equipment location (roofs, elevated structures, etc.).

Only trained, qualified installers and service mechanics should install, start-up, and service this equipment.

Untrained personnel can perform basic maintenance functions such as cleaning coils. All other operations should be performed by trained service personnel.

When working on the equipment, observe precautions in the literature and on tags, stickers, and labels attached to the equipment.

Follow all safety codes. Wear safety glasses and work gloves. Keep quenching cloth and fire extinguisher nearby when brazing. Use care in handling, rigging, and setting bulky equipment.

Read these instructions thoroughly and follow all warnings or cautions included in literature and attached to the unit. Consult local building codes and National Electrical Code (NEC) for special requirements. Recognize safety information. This is the safety-alert symbol . When you see this symbol on the unit and in instructions or manuals, be alert to the potential for personal injury. Understand these signal words: DANGER, WARNING, and CAUTION. These words are used with the safety-alert symbol. DANGER identifies the most serious hazards which **will** result in severe personal injury or death. WARNING signifies hazards which **could** result in personal injury or death. CAUTION is used to identify unsafe practices which **may** result in minor personal injury or product and property damage. NOTE is used to highlight suggestions which **will** result in enhanced installation, reliability, or operation.



WARNING

ELECTRICAL SHOCK HAZARD

Failure to follow this warning could result in personal injury or death.

Before installing, modifying, or servicing system, main electrical disconnect switch must be in the OFF position. There may be more than 1 disconnect switch. Lock out and tag switch with a suitable warning label.



WARNING



EXPLOSION HAZARD

Failure to follow this warning could result in death, serious personal injury, and/or property damage.

Never use air or gases containing oxygen for leak testing or operating refrigerant compressors. Pressurized mixtures of air or gases containing oxygen can lead to an explosion.



CAUTION

EQUIPMENT DAMAGE HAZARD

Failure to follow this caution may result in equipment damage or improper operation.

Do not bury more than 36 in. (914 mm) of refrigerant pipe in the ground. If any section of pipe is buried, there must be a 6 in. (152 mm) vertical rise to the valve connections on the outdoor units. If more than the recommended length is buried, refrigerant may migrate to the cooler buried section during extended periods of system shutdown. This causes refrigerant slugging and could possibly damage the compressor at start-up.

SYSTEM REQUIREMENTS

Allow sufficient space for airflow and servicing unit.

Recommended Connection Method for Power and Communication Wiring (To minimize communication wiring interference)

Power Wiring:

The main power is supplied to the outdoor unit. The field supplied connecting cable from the outdoor unit to indoor unit consists of three (3) wires and provides the power for the indoor unit. Two wires are high voltage AC power and one is a ground wire.

Consult your local building codes and the NEC (National Electrical Code) or CEC (Canadian Electrical Code) for special requirements.

All wires must be sized per NEC or CEC and local codes. Use Electrical Data table MCA (minimum circuit amps) and MOC (maximum over current protection) to correctly size the wires and the disconnect fuse or breakers respectively.

Per caution note, only copper conductors with a minimum 300 volt rating and 2/64-inch thick insulation must be used.

Communication Wiring:

A separate shielded copper conductor only, with a minimum 300 volt rating and 2/64-inch thick insulation, must be used as the communication wire from the outdoor unit to the indoor unit.

To minimize voltage drop of the control wire, use the following wire size and maximum lengths shown in the chart below:

Wire Size	Length ft (m)
18 AWG	50 (15)
16 AWG	50 (15) to 100 (30)



CAUTION

EQUIPMENT DAMAGE HAZARD

Failure to follow this caution may result in equipment damage or improper operation.

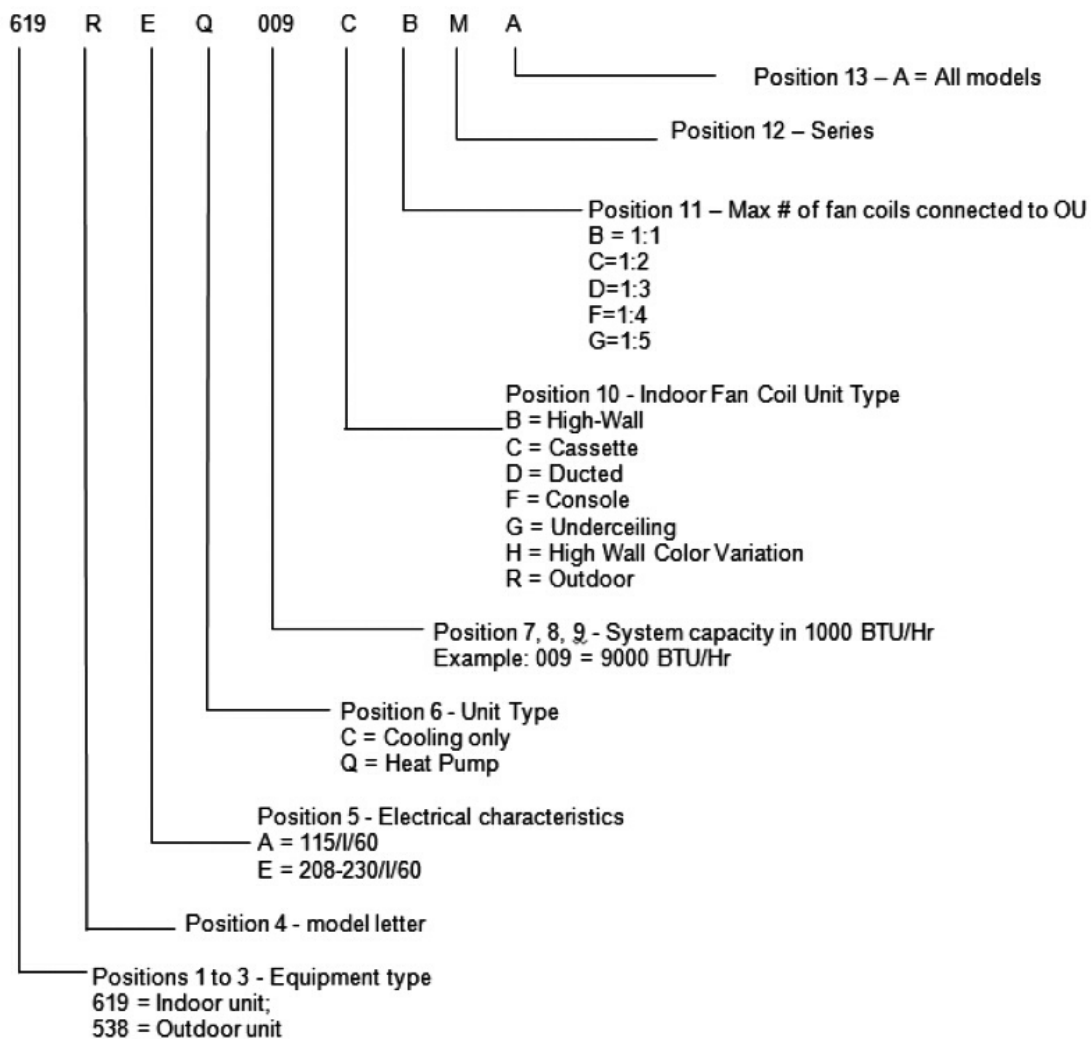
- Wires should be sized based on NEC and local codes.
- Use copper conductors only with a minimum 300 volt rating and 2/64 inch thick insulation.

- If used as MULTI unit, please refer to the Installation & operation manuals packed with outdoor unit.

Model Numbers

System Btuh	Volt-Ph @ 60Hz	Indoor Model Number
9,000	208/230-1	619REQ009DBMA
12,000	208/230-1	619REQ012DBMA
18,000	208/230-1	619REQ018DBMA
24,000	208/230-1	619REQ024DBMA
36,000	208/230-1	619REQ036DBMA
48,000	208/230-1	619REQ048DBMA

Model number Nomenclature



1. SAFETY PRECAUTIONS

- Keep this manual where the operator can easily find them.
 - Read this manual closely before starting up the units.
 - For safety reasons the operator must read the following cautions carefully.
 - Installation must be performed in accordance with the requirement of NEC and CEC by authorized personnel only.
(Applicable to the North American area only)
-

The safety precautions listed here are divided into two categories.



WARNING

If you do not follow these instructions exactly, the unit may cause property damage, personal injury or loss of life.



CAUTION

If you do not follow these instructions exactly, the unit may cause minor or moderate property damage, personal injury.

After completing the installation, make sure that the unit operates properly during the start-up operation. Please instruct the customers on how to operate the unit and keep it maintained. Also, inform customers that they should store this installation manual along with the owner's manual for future reference.



WARNING

Be sure only trained and qualified service personnel to install, repair or service the equipment.

Improper installation, repair, and maintenance may result in electric shocks, short-circuit, leaks, fire or other damage to the equipment.

Install according to this installation instructions strictly.
If installation is defective, it will cause water leakage, electrical shock and fire.

When installing the unit in a small room, take measures against to keep refrigerant concentration from exceeding allowable safety limits in the event of refrigerant leakage.
Contact the place of purchase for more information.
Excessive refrigerant in a closed ambient can lead to oxygen deficiency.

Use the attached accessories parts and specified parts for installation.

otherwise, it will cause the set to fall, water leakage, electrical shock and fire.

Install at a strong and firm location which is able to withstand the set's weight.

If the strength is not enough or installation is not properly done, the set will drop to cause injury.

The appliance must be installed 7.5ft / 2.3m above floor.

The appliance shall not be installed in the laundry.

Before obtaining access to terminals, all supply circuits must be disconnected.

The appliance must be positioned so that the plug is accessible.

The enclosure of the appliance shall be marked by word, or by symbols, with the direction of the fluid flow.

For electrical work, follow the local national wiring standard, regulation and this installation instructions. An independent circuit and single outlet must be used.

If electrical circuit capacity is not enough or defect in electrical work, it will cause electrical shock or fire.

Use the specified cable and connect tightly and clamp the cable so that no external force will be acted on the terminal.

If connection or fixing is not perfect, it will cause heat-up or fire at the connection.

Wiring routing must be properly arranged so that control board cover is fixed properly.

If control board cover is not fixed perfectly, it will cause heat-up at connection point of terminal, fire or electrical shock.

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

An all-pole disconnection switch with a contact separation of at least 0.118in/3mm in all poles should be connected in fixed wiring.

When carrying out piping connection, take care not to let air substances go into refrigeration cycle.

Otherwise, it will cause lower capacity, abnormal high pressure in the refrigeration cycle, explosion and injury.

Do not modify the length of the power supply cord or use of extension cord, and do not share the single outlet with other electrical appliances.

Otherwise, it will cause fire or electrical shock.

Carry out the specified installation work after taking into account strong winds, typhoons or earthquakes.

Improper installation work may result in the equipment falling and causing accidents.

If the refrigerant leaks during installation, ventilate the area immediately.

Toxic gas may be produced if the refrigerant comes into the place contacting with fire.

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

After completing the installation work, check that the refrigerant does not leak.

Toxic gas may be produced if the refrigerant leaks into the room and comes into contact with a source of fire, such as a fan heater, stove or cooker.



CAUTION

Ground the air conditioner.

Do not connect the ground wire to gas or water pipes, lightning rod or a telephone ground wire. Inappropriate grounding may result in electric shocks.

Be sure to install an earth leakage breaker.

Failure to install an earth leakage breaker may result in electric shocks.

Connect the outdoor unit wires , then connect the indoor unit wires.

You are not allowed to connect the air conditioner with the power supply until the wiring and piping is done.

While following the instructions in this installation manual, install drain piping in order to ensure proper drainage and insulate piping in order to prevent condensation.

Improper drain piping may result in water leakage and property damage.

Install the indoor and outdoor units, power supply wiring and connecting wires should be at least 3.28ft/1m away from televisions or radios in order to prevent image interference or noise.

Depending on the radio waves, a distance of 3.28ft/1m may not be sufficient enough to eliminate the noise.

The appliance is not intended for use by young children or infirm persons without supervision.

Don't install the air conditioner in the following circumstance:

- There is petroleum nearby.
- There is salty air nearby (near the coast).
- There is caustic gas (sulfide, for example) in the air (near a hot spring).
- The volt vibrates violently (in the factories).
- In buses or cabinets.
- In kitchen where it is full of oil gas.
- There is strong electromagnetic wave.
- There are inflammable materials or gas.
- There is acid or alkaline liquid evaporating.
- Other special conditions.

The appliance shall be installed in accordance with national wiring regulations.

Do not operate your air conditioner in a wet room such as a bathroom or laundry room.

An all-pole disconnection device which has at least 3mm clearances in all poles , and has a leakage current that may exceed 10mA, the residual current device (RCD) has a rated residual operating current not exceeding 30mA, and disconnection must be incorporated in the fixed wiring in accordance with the wiring rules.

2. INSTALLATION INFORMATION

- To install properly, please read this installation manual at first.
- The air conditioner must be installed by qualified persons.
- When installing the indoor unit or its tubing, please follow this manual closely.
- If the air conditioner is installed on a metal part of the building, it must be electrically insulated according to the relevant standards to electrical appliances.
- When all the installation work is finished, please turn on the power only after a thorough check.

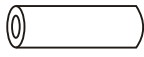
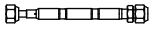
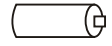
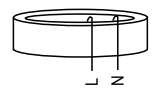
INSTALLATION ORDER

- Select the location.
- Install the indoor unit.
- Install the outdoor unit.
- Install the connecting pipe.
- Connect the drain pipe.
- Wiring.
- Test operation.

3. ATTACHED FITTINGS

Determine whether the following fittings are in full scope. If there are spare fittings , please restore them carefully.

Table 3-1

	NAME	SHAPE	QUANTITY
Tubing and Fittings	1. Soundproof / insulation sheath		2
	2. Binding tape		1
	3. Seal sponge		1
	4. Orifice		1 (on some models)
Drainpipe Fittings (for cooling and heating)	5. Drain joint		1
	6. Seal ring		1
Remote controller and its Frame (Match with remote controller)	7. Remote controller (on some models)		1
	8. Frame		1 (on some models)
	9. Mounting screw(ST2.9×10-C-H)		2
	10. Alkaline dry batteries (AM4)		2
	11. Remote controller manual		1
Wire controller and Its Frame (Match with wire controller)	12. Wire controller		1
EMC and Its Fitting (for some models)	13. Magnetic ring (twist the electric wires L and N around the magnetic ring to five circles)		1
Others	14. Owner's manual		1
	15. Installation manual		1
	16. Transfer connector(Φ0.375in-Φ0.5in)/ (Φ9.52-Φ12.7) (Packed with the indoor unit, used for multi-type models only) (NOTE: Pipe size differs from appliance to appliance. To meet different pipe size requirements, sometimes the pipe connections need the transfer connector to install on the outdoor unit .)		1 (on some models)
	17. Connecting wire for display (6.56ft/2M)		1 (on some models)
	18. Cord protection rubber ring		1 (on some models)

4. INSPECTING AND HANDLING THE UNIT

At delivery, the package should be checked and any damage should be reported immediately to the service agent.

When handling the unit, take into account the following:

- 1  Fragile, handle the unit with care.
 Keep the unit upright in order to avoid compressor damage.
- 2 Decide before hand the path which the unit is to be brought in.
- 3 Move the unit in the original package if possible.
- 4 When lifting the unit , always use protectors to prevent belt damage and pay attention to the position of the unit's centre of gravity.

5. INDOOR UNIT INSTALLATION

5.1 Installation place

The indoor unit should be installed in a location that meets the following requirements:

- There is enough room for installation and maintenance.
- The ceiling is horizontal, and its structure can endure the weight of the indoor unit.
- The outlet and the inlet are not impeded, and the influence of external air is minimal.
- The air flow can reach throughout the room.
- The connecting pipe and drainpipe could be extracted easily.
- There is no direct radiation from heaters.

Maintenance roomage

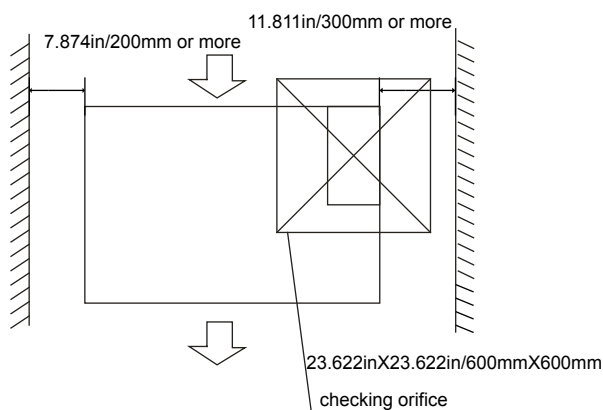


Fig.5-1



CAUTION

Keep indoor unit, outdoor unit, power supply wiring and transmission wiring at least 3.28ft/1m away from televisions and radios. This is to prevent image interference and noise in those electrical appliances. (Noise may be generated depending on the conditions under which the electric wave is generated, even if 3.28ft/1m is kept.)

5.2 Install the main body

1 Installing Ø0.394in/Ø10 hanging screw bolts. (4 bolts)

- Please refer to the following figures for positioning 4 screw bolts.
- Evaluate the ceiling construction and please install with Ø0.394in/Ø10 hanging screw bolts.
- Consult the construction personnels for the specific procedures.
 - Keepv the ceiling flat. Consolidate the roof beam to avoid possible vibration.
- Carry out the pipe and line operation in the ceiling after finishing the installation of the main body. While choosing where to start the operation, determine the direction of the pipes to be drawn out. Especially in case there is a ceiling, position the refrigerant pipes, drain pipes,indoor & outdoor lines to the connection places before hanging up the machine.
- The installation of hanging screw bolts.
 - Cut off the roof beam.
 - Strengthen the place that has been cut off, and consolidate the roof beam.
- After the selection of installation location, position the refrigerant pipes, drain pipes, indoor and outdoor wires to the connection places before hanging up the machine.
- The installation of hanging screw bolts.



NOTE

Confirm the minimum drain tilt is 1/100 or more

5.2.1 Wooden construction

Put the square timber transversely over the roof beam, then install the hanging screw bolts. (Refer to Fig.5-2)

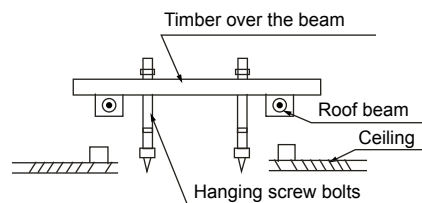


Fig.5-2

5.2.2 New concrete bricks

Inlaying or embedding the screw bolts. (Refer to Fig. 5-3)

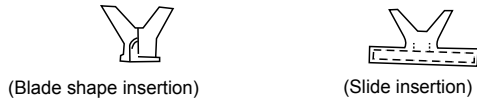


Fig. 5-3

5.2.3 For Original concrete bricks

Use embedding screw bold, crock and stick harness. (Refer to Fig. 5-4)

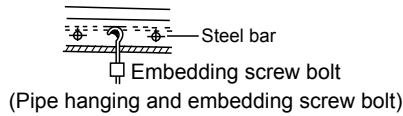


Fig. 5-4

5.2.4 Steel roof beam structure

Install and use the supporting angle steel. (Refer to Fig. 5-5)

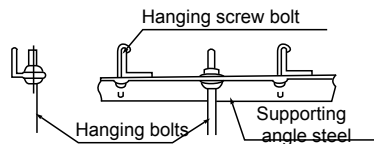


Fig. 5-5

2 Overhanging the indoor unit

- (1) Overhang the indoor unit onto the hanging screw bolts with a block.
- (2) Position the indoor unit in a flat level by using the level indicator, unless it may cause leakage.

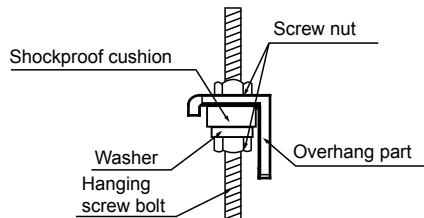


Fig. 5-6

5.3 Duct and accessories installation

1. Install the filter(optional) according to air inlet size.
2. Install the canvas tie-in between the body and duct.

3. Air inlet and air outlet duct should be apart far enough to avoid air passage short-circuit.
4. Recommended duct connection.

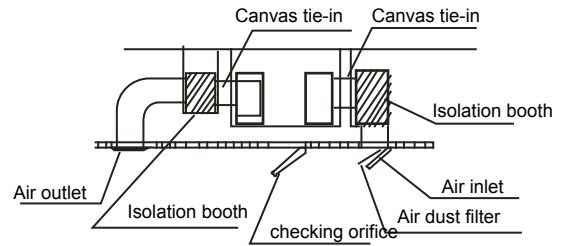


Fig. 5-7

5. Please refer to the following static pressure table to install.

Table.5-1

System size		DUCT					
		9K	12K	18K	24K	36K	48K
Max static pressure	Pa	40	40	70	70	80	100
	In.WG	0.16	0.16	0.28	0.28	0.32	0.40

Note: The above static pressure ratings are in Turbo mode.



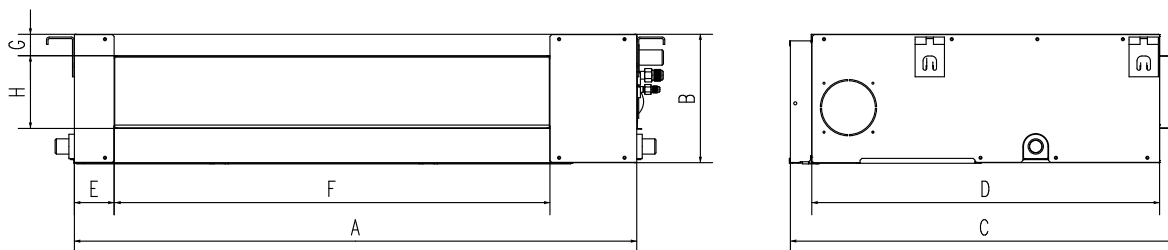
NOTE

1. Do not put the connecting duct weight on the indoor unit.
2. When connecting duct, use inflammable canvas tie-in to prevent vibrating.
3. Insulation foam should be wrapped outside the duct to avoid condensation and internal duct underlayer shall be added to reduce the noise for special requirement.

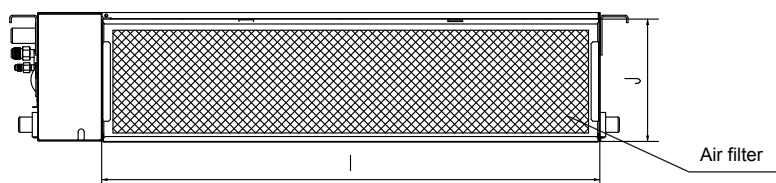
The positioning of ceiling hole, indoor unit and hanging screw bolts

Dimension and air outlet size

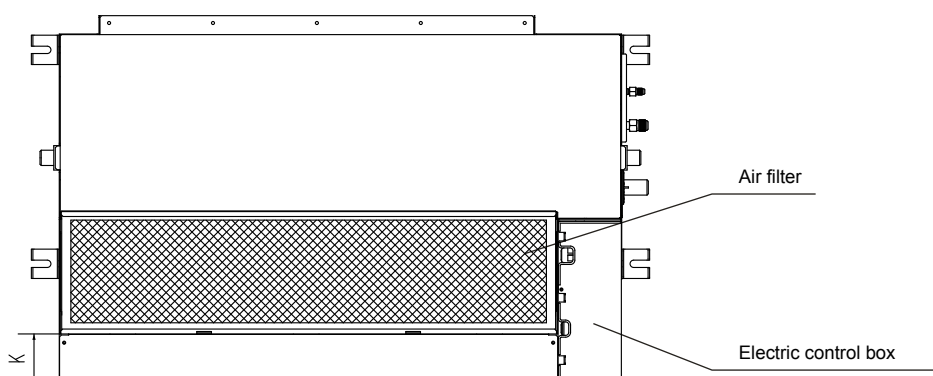
Unit: in/mm



Air inlet size



Position size of descensional ventilation opening



Size of mounted hook

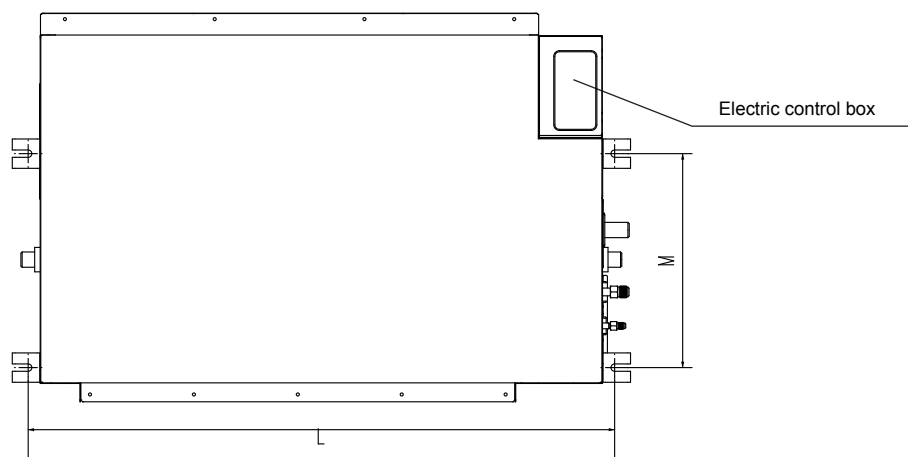


Fig.5-8

Table.5-2

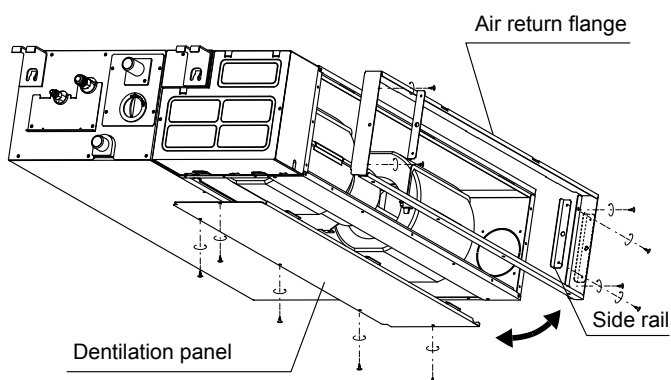
in/mm

	Outline dimension				Air outlet opening size				Air return opening size			Size of mounted lug	
	A	B	C	D	E	F	G	H	I	J	K	L	M
9~12	27.6/700	8.3/210	25/635	22.4/570	2.6/65	19.4/493	1.4/35	4.7/119	23.4/595	7.9/200	3.2/80	29.1/740	13.8/350
18	36.2/920	8.3/210	25/635	22.4/570	2.6/65	28.1/713	1.4/35	4.7/119	32.1/815	7.9/200	3.2/80	37.8/960	13.8/350
24	36.2/920	10.6/270	25/635	22.4/570	2.6/65	28.1/713	1.4/35	7/179	32.1/815	10.2/260	0.8/20	37.8/960	13.8/350
36	44.9/1140	10.6/270	30.5/775	28/710	2.6/65	36.7/933	1.4/35	7/179	40.7/1035	10.2/260	1.8/45	48.8/1240	19.7/500
48	47.2/1200	11.8/300	34.1/865	31.5/800	3.2/80	38.1/968	0.4/40	8/204	43.1/1094	11.3/288	1.8/45	48.8/1240	19.7/500

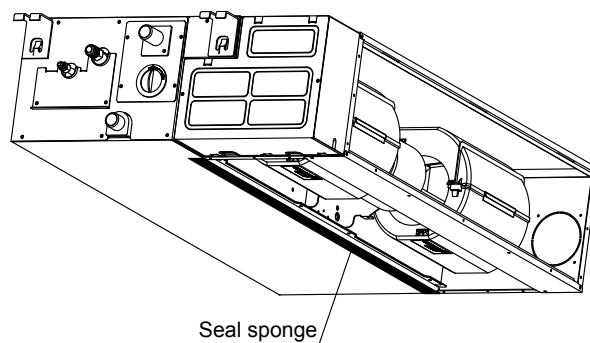
(in=mm/25.4)

How to adjust the air inlet direction? (From rear side to under-side.)

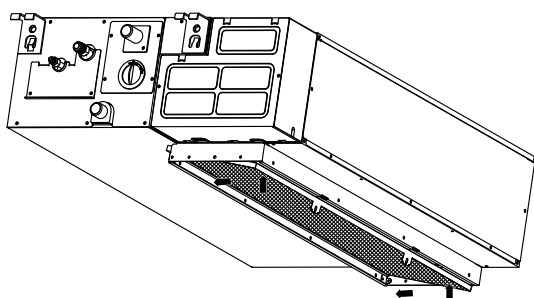
1. Take off ventilation panel and flange, cut off the staples at side rail.



2. Stick the attached seal sponge as per the indicating place in the following fig, and then change the mounting positions of air return panel and air return flange .



3. When installing the filter mesh, please plug it into flange inclined from air return opening, and then push up.



4. The installation is complete, after the filter mesh which holds the fixing blocks have been inserted into the flange positional holes.

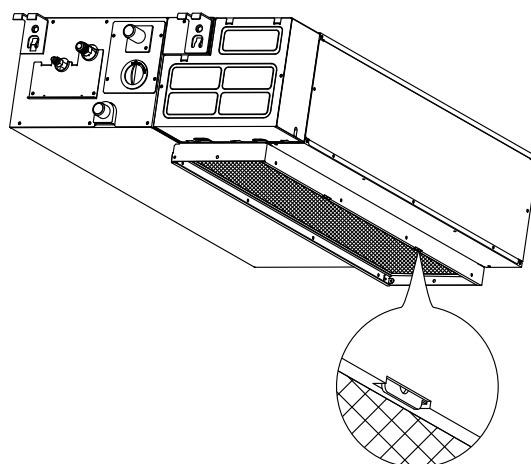


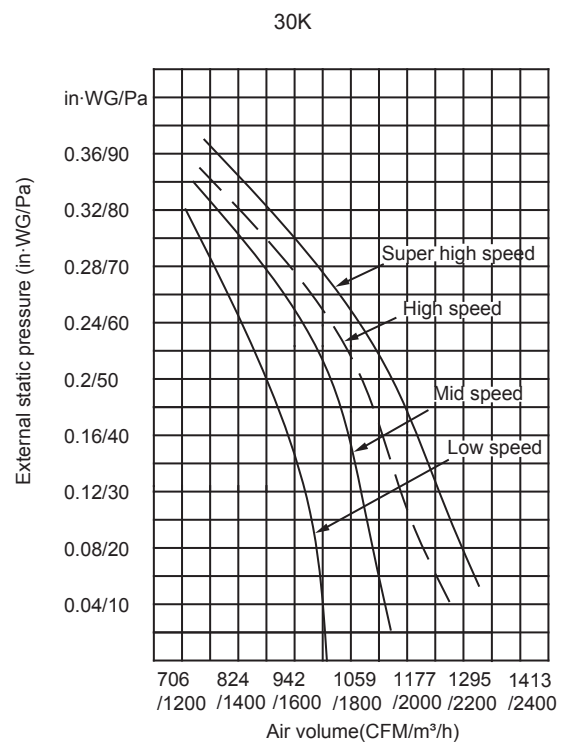
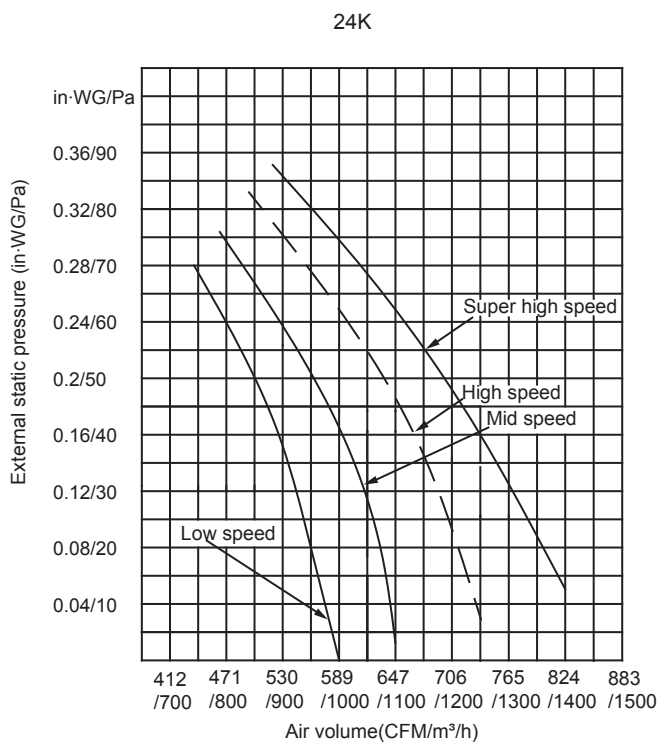
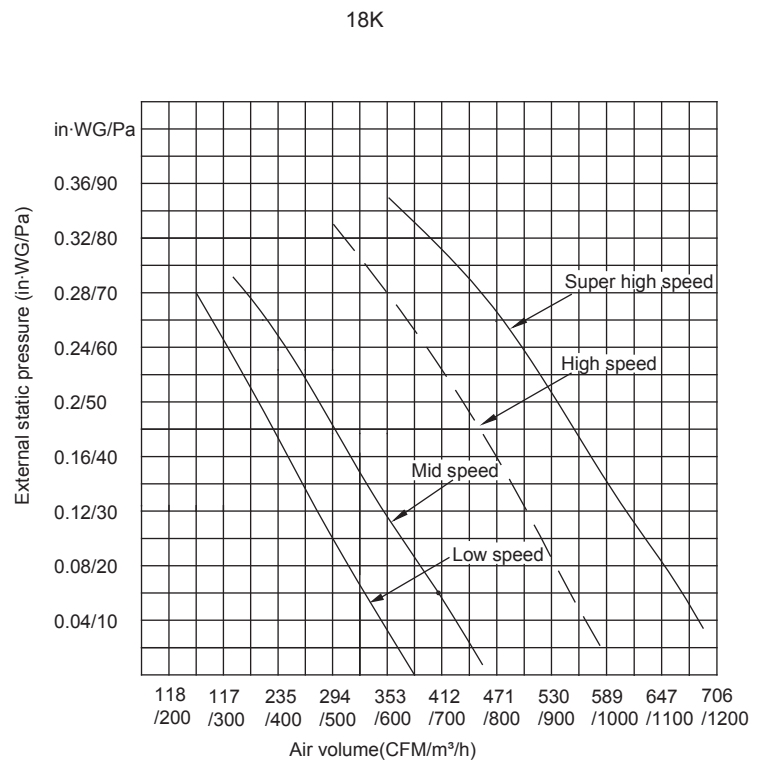
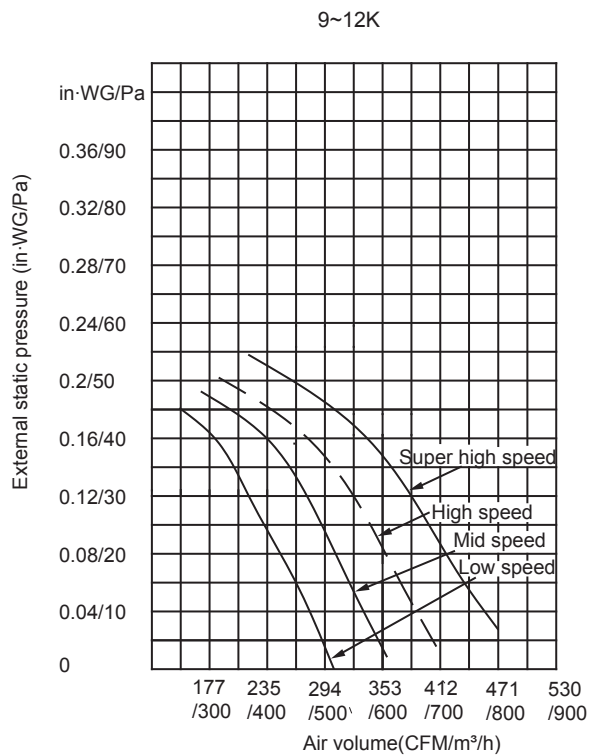
Fig.5-9

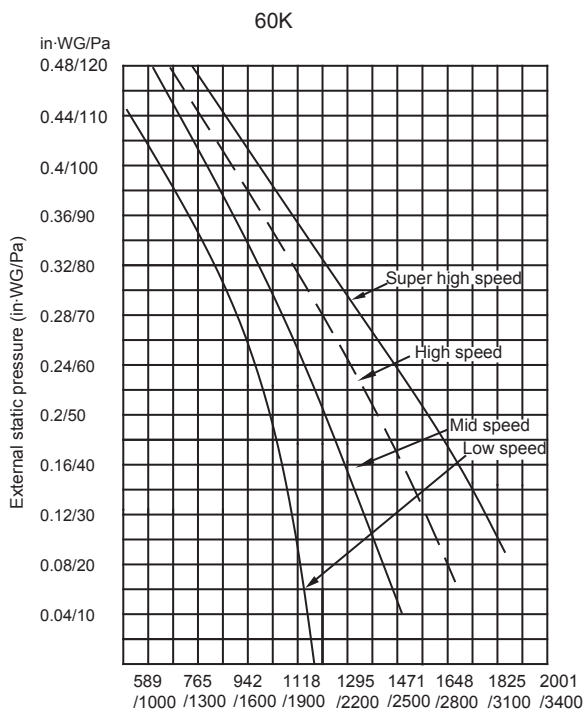
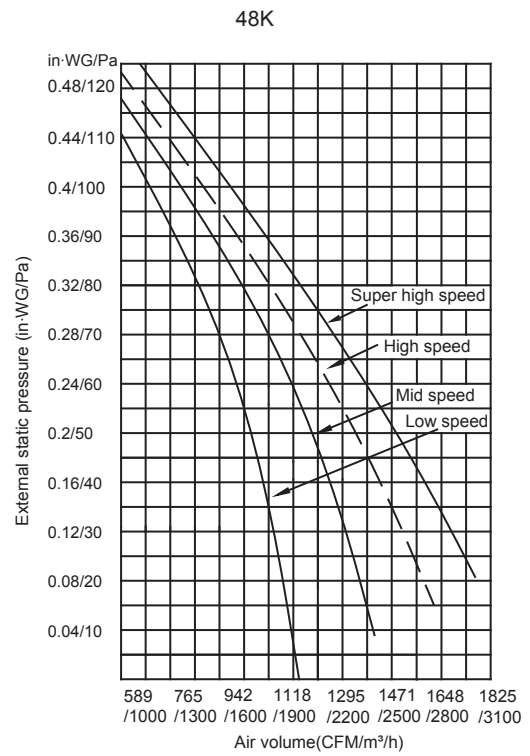
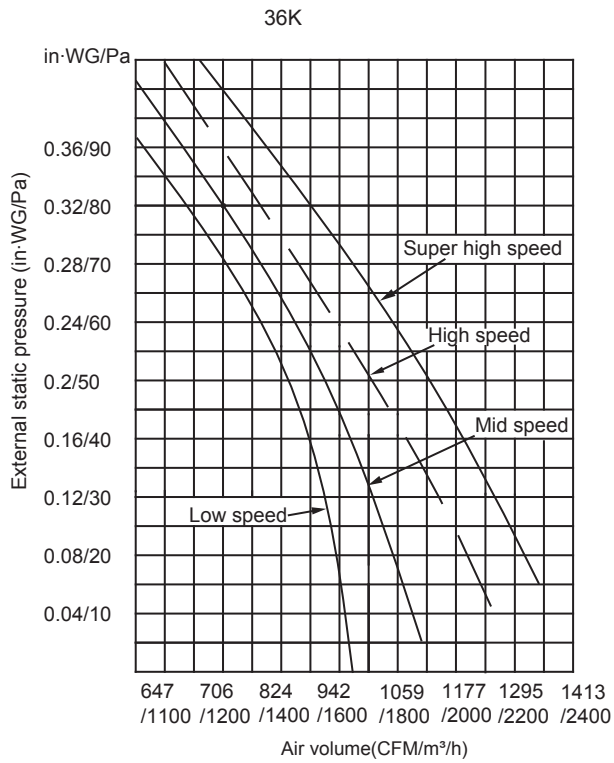
**NOTE**

All the figures in this manual are for illustration purposes only. They may differ slightly from the air conditioner you purchased.

5.9 Fan performances

Static pressure curve(middle static pressure duct)





6. OUTDOOR UNIT INSTALLATION

6.1 Installation Place

■ The outdoor unit should be installed in the location that meets the following requirements:

- There is enough room for installation and maintenance.
- The air outlet and the air inlet are not impeded, and can not be reached by strong wind.
- It must be a dry and well ventilating place.
- The support is flat and horizontal and can stand the weight of the outdoor unit. And will no additional noise or vibration.
- Your neighborhood will not feel uncomfortable with the noise or expelled air.
- It is easy to install the connecting pipes or cables.
- Determine the air outlet direction where the discharged air is not blocked.
- There is no danger of fire due to leakage of inflammable gas.
- The piping length between the outdoor unit and the indoor unit may not exceed the allowable piping length.
- In the case that the installation place is exposed to strong wind such as a seaside, ensure the fan operates properly by putting the unit lengthwise along the wall or using a dust shield. (Refer to Fig.6-1)
- If possible, do not install the unit where it is exposed to direct sunlight.
- If necessary, install a blind that does not interfere with the air flow.
- During the heating mode, the water drained off the outdoor unit ,the condensate should drain well away by the drain hole to an appropriate.
- Select the position where it will not be subject to snow drifts, accumulation of leaves or other seasonal debris. If unavoidable, please cover it with a shelter.
- Locate the outdoor unit as close to the indoor unit as possible.
- If possible, please remove the obstacles nearby to prevent the performance from being impeded by air circulation.
- The minimum distance between the outdoor unit and obstacles described in the installation chart does not mean that the same is applicable to the situation of an airtight room. Leave open two of the three directions (L1,L2) (Refer to Fig.6-4)

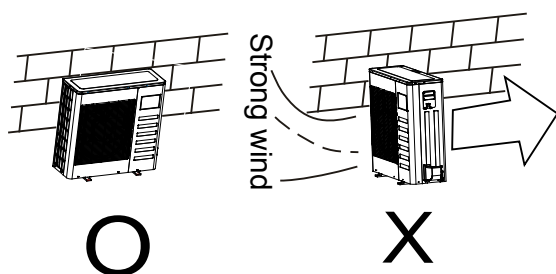


Fig.6-1



NOTE

All the figures in this manual are for illustration purposes only. They may be slightly different from the air conditioner you purchased.

6.2 Figure of body size

1. Split type outdoor unit

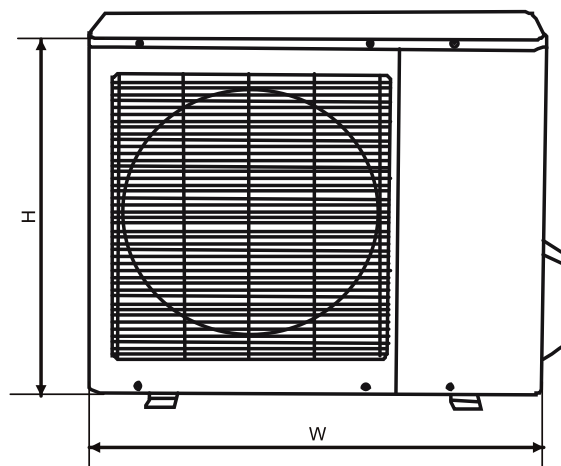


Fig.6-2

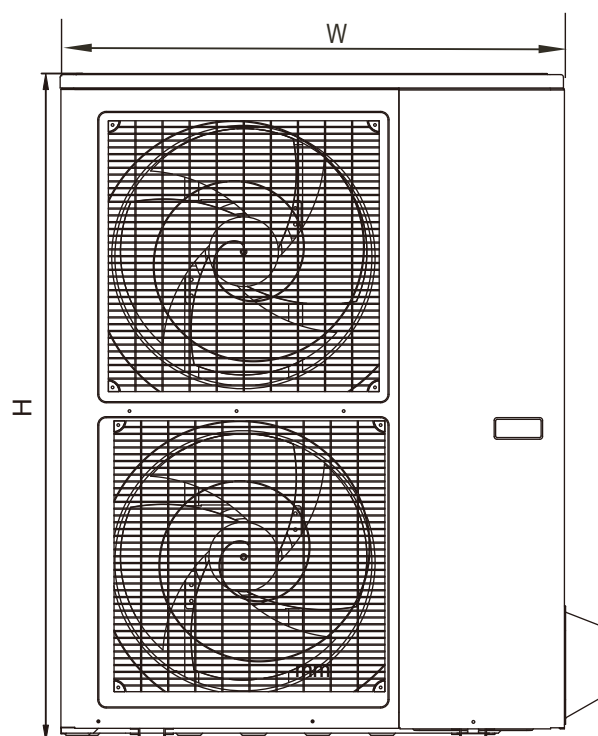


Fig.6-3

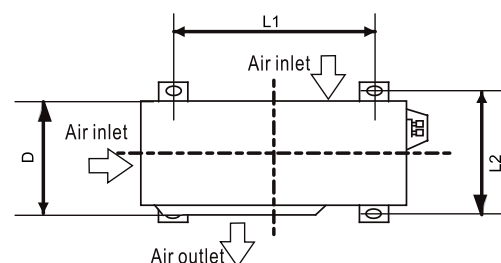


Fig.6-4

Model	W in (mm)	D in (mm)	H in (mm)	L1 in (mm)	L2 in (mm)
9K/12K	31.89 (810)	12.2 (310)	21.97 (558)	20.9 (530)	11.4 (290)
18K	33.27 (845)	12.60 (320)	27.56 (700)	21.1 (560)	13.2 (335)
24K	37.20 (945)	15.55 (395)	31.89 (810)	25.1 (640)	15.9 (405)
36K	37.20 (945)	15.55 (395)	31.89 (810)	31.89(810)	31.89 (810)
48K	36.93 (938)	15.43 (392)	53.90 (1369)	24.96(634)	15.90 (404)

(in=mm/25.4)

6.3 Space of installation and maintenance

1. Split type outdoor unit

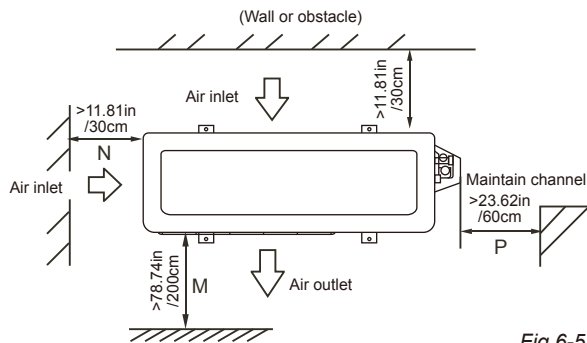


Fig.6-5



NOTE

All the figures in this manual are for illustration purposes only. They may differ slightly from the air conditioner you purchased.

6.4 Available configuration for centrifugal fan type outdoor unit



NOTE

Keep in mind that fan unit weight is approx 1058oz/30kg ,the unit as well as relevant equipment covered with the vinyl cover during installation work.

6.5 Moving and installation

- Since the gravity center of the unit is not at its physical center, be careful when lifting it with a sling.
- Never hold the inlet of the outdoor unit to prevent it from deforming.
- Do not touch the fan with hands or other objects.
- Do not lean it more than 45°, and do not lay it sidelong.
- Make concrete foundation according to the specifications of the outdoor units.(Refer to Fig.6-11)
- Fasten the feet of this unit with bolts firmly to prevent it from collapsing in case of earthquake or strong wind.(Refer to Fig.6-11)

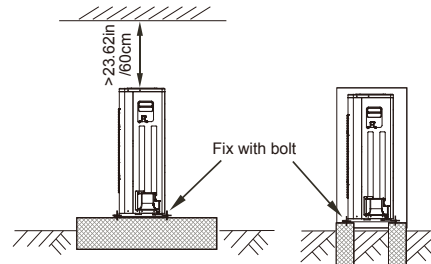


Fig.6-6

■ Concrete Foundation

1. The foundation could be flat ground and is recommended be 3.94-11.81in /100-300mm higher than ground level.
2. Install a drainage around the foundation for smooth drain.
3. When installing the outdoor unit fix the unit by anchor bolts of M10.
4. When installing the unit on a roof or a veranda, drain water sometimes turns to ice in cold weather. Therefore, avoid draining in an area that people often use because it is slippery.

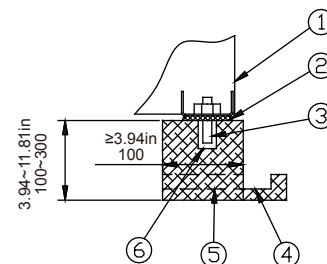


Fig.6-7

Table 6-2

No	Description
①	Outdoor Unit
②	Vibration-proof rubber
③	Anchor Bolt M10
④	Drainage (Wide 3.94in/100×Depth 5.9in/150)
⑤	Drainage
⑥	Mortar Hole (Φ3.94in100×Depth 5.9in/150)

NOTE: Make sure 3-4 degree of angel is kept between the unit and the floor when the unit is installed in the low temprature and humid environment.
 Make sure the ice on the chassis of the outdoor unit can be dealt with when the unit is installed in the low temperature and humid enviroment.
 The outdoor unit should be installed in amounting rack 11.81in /30cm high.The enviroment temperature should be above 0°.
 The machine must be installed indoor.

7. INSTALL THE CONNECTING PIPE

7.1 Preparation and Caution

Before installation make sure the height difference, the length of refrigerant pipe, and the number of the bends between the indoor unit and outdoor unit meet the following requirements:

Table 7-1

unit: ft/m

The type of models	Model	The length of refrigerant pipe	The max height drop
R410A inverter Split type air conditioner	9K-12K	32.8ft/10	16.4ft/5
	18K-24K	82.02ft /25	39.37ft/12
	30K	82.02ft/25	49.21ft/15
	48K	164.04ft/50	82.02ft/25

The outdoor unit is charged with rating refrigerant amount in the factory.Additional charges refer to the table below:

Table 7-2

Piping			
System size	Additional refrigerant charge(between standard-Max piping length)	Gas Pipe(size-connection type)	Liquid Pipe(size-connection type)
	Oz/ft(g/m)	in(mm)	in(mm)
9K	0.16(15)	3/8(9.52)	1/4(6.35)
12K	0.16(15)	1/2(12.7)	1/4(6.35)
18K	0.16(15)	1/2(12.7)	1/4(6.35)
24K	0.32(30)	5/8(16)	3/8(9.52)
36K	0.32(30)	5/8(16)	3/8(9.52)
48K	0.32(30)	5/8(16)	3/8(9.52)

- NOTE:the table above refers to the liquid tube.
- NOTE:The number of bends is up to the length of the max height drop.Usually for each 32.8ft/10m need a bend.



CAUTION

All field piping must be provided by a licensed refrigeration technician and must comply with the relevant local and national codes.

Prevent air, dust, or other impurities from entering in the pipe system during installation.

Insulation pipe shall be used to the gas piping and the liquid piping. Otherwise, condensation may occur.

7.2 The Procedure of Connecting Pipes

1 Measure the required length of the connecting pipe, then create it per the following steps.

- Connect the indoor unit first, then the outdoor unit.
- Bend the tubing in a proper way. Do not twist the pipe.

Bend the pipe with thumb



min-radius 3.94in/100mm

Fig.7-1

- Put some refrigerant oil on the surfaces of the flare pipe and the joint nuts then wrench it for 3~4 rounds with your hands before you fasten the flare nuts.(Refer to chart 16)

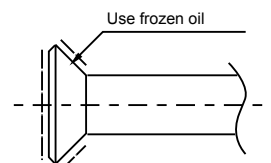
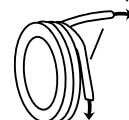


Fig.7-2

- Be sure to use two wrenches simultaneously when you connect or disconnect the pipes.



Make the ends straight

Fig.7-3

- The service valves of the outdoor unit should be completely closed(as original status).Every time you connect,first loosen the nuts, then connect the flare pipes within 5 minutes. If the nuts have been loosened for a long time, dusts and other impurities may enter the pipe system and may cause a malfunction.So please expel the air out of the pipe with refrigerant before connection.
- Expel the air(refer to the “8.1”)after connecting the refrigerant pipe with the indoor unit and the outdoor unit.
Then fasten the nuts at the service valves.
- Bend the connecting pipe of small wall thickness.
 - Cut out a proper concave at the bending part of the insulating pipe.
 - Then expose the pipe(cover it with tape after bending).
 - To prevent twisting, please bend the pipe at a proper radius.



NOTE

The bending angle should not exceed 90°.

The bending position is preferably in the middle of the bendable pipe.

Do not bend the pipe more than three times.

Be sure to use the same insulating materials when you buy the brass pipe. (More than 0.35in/9mm thick)

2. Place The Pipe

- Drill a hole in the wall (suitable just for the size of the wall sleeve), then set the fittings such as the wall sleeve and its cover.
- Bind the connecting pipe and the cables together tightly with binding tapes.
- Pass the bound connecting pipe through the wall sleeve from outside. Make sure the pipe allocation does not damage the copper tubes.

3 Connect the pipes.

4 Expel the air with a vacuum pump or refrigerant.

5 Open the service valves of the outdoor unit .

6 Check the refrigerant leakage. Check all the joints with the leak detector or soap water.

7 Cover the joints of the connecting pipe with the insulation foam, and bind them well with the tape to prevent potential leakage.

8. REFRIGERANT PIPE(the unit with the twins function)

8.1 Length and drop height permitted of the refrigerant piping

Note: Reduced length of the branching tube is the 1.64ft /0.5m of the equivalent length of the pipe.

Table.8-1

		Permitted value		Piping
Pipe length	Total pipe length (Actual)	18K+18K	98.42ft/30m	L+L1+L2
		24K+24K/ 30K+30K	164.04ft/50m	
	(farthest from the line pipe branch)	49.21ft/15m		L1,L2
	(farthest from the line pipe branch)	32.8ft/10m		L1-L2
Drop height	Indoor unit-outdoor unit drop height	65.8ft/20m		H1
	Indoor unit to indoor unit drop height	1.64ft/0.5m		H2

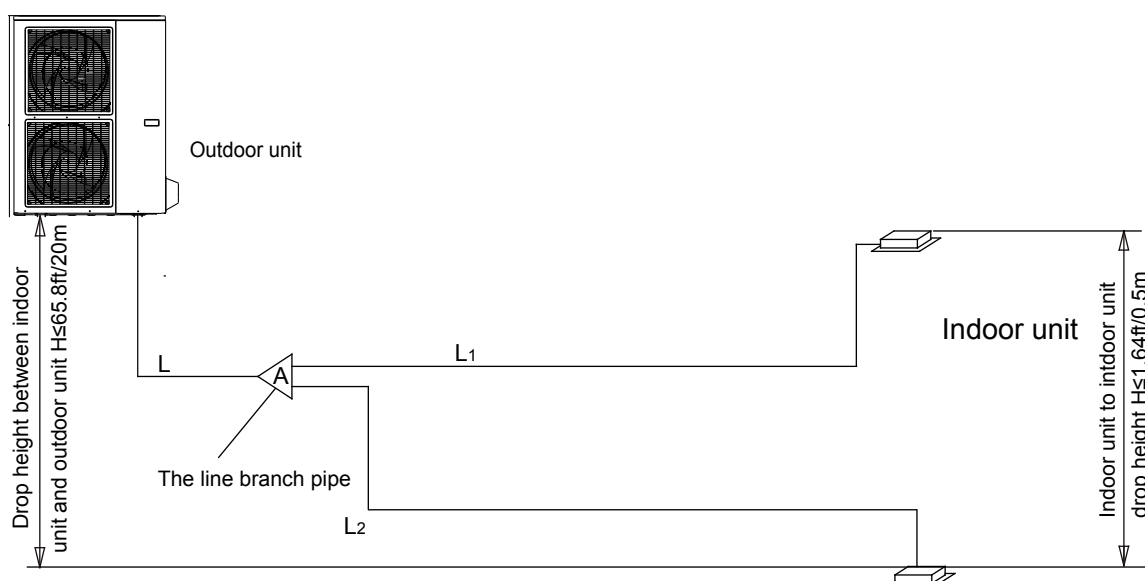


Fig. 8-1

Note: All used branch pipe must be produced by Midea, otherwise the unit will malfunction. The indoor units should be installed equivalently at both sides of the U type branch pipe.

8.2 Size of joint pipes for indoor unit

Table.8-2 Size of joint pipes for 410A indoor unit

Capacity of indoor unit (A)	Size of main pipe(in/mm)		
	Gas side	Liquid side	Available branching pipe
18K	Φ0.5in/12.7	Φ0.25in/6.35	CE-FQZHN-01C
24K	Φ0.626in/15.9	Φ0.375in/9.5	CE-FQZHN-01C
30K	Φ0.626in/15.9	Φ0.375in/9.5	CE-FQZHN-01C

8.3 Size of joint pipes for outdoor unit

Based on the following tables, select the diameters of the outdoor unit connective pipes. In case of the main accessory pipe being larger than the main pipe, use the large one for the selection.

Table.8-3 Size of joint pipes for 410A outdoor unit

Model	the size of main pipe(in/mm)		
	Gas side	Liquid side	The 1st branching pipe
36K	Φ0.626in/15.9	Φ0.375in/9.5	CE-FQZHN-01C
48K	Φ0.626in/15.9	Φ0.375in/9.5	CE-FQZHN-01C
60K	Φ0.626in/15.9	Φ0.375in/9.5	CE-FQZHN-01C

8.3 Vacuum with vacuum pump

- 1) Use the vacuum pump with the vacuum level lower than -14.5PSi/-0.1MPa and the air discharge capacity above 1.4CFM/40L/min.
- 2) It is not necessary to vacuum the outdoor unit. Don't open the outdoor unit gas and liquid pipe shut-off valves.
- 3) Make sure the vacuum pump registers as -14.5PSi/-0.1MPa or below after 2 hours or longer operation. If the pump operated 3 hours or above can not achieve -14.5PSi/-0.1MPa or below, please check whether there is a water mix or gas leak inside of the pipe.

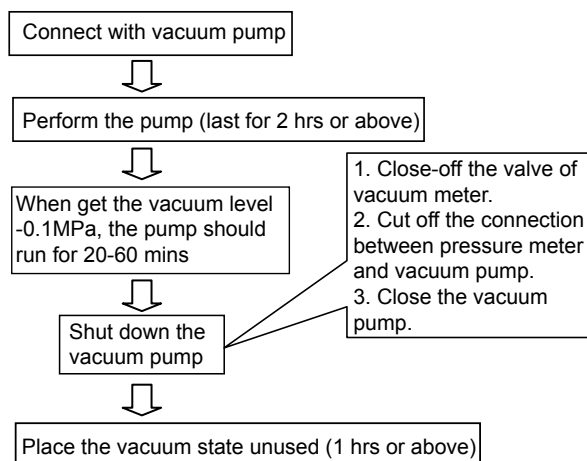


Fig.8-2



CAUTION

- Don't mix up the different refrigerants or abuse the tools and measurements which directly contact with refrigerants.
- Don't adopt refrigerant gas for air vacuuming.
- If vacuum level could not get to -14.5PSi/-0.1MPa, please check whether resulted by leakage and confirm the leakage site. If no leakage, please operate the vacuum pump again 1 or 2 hrs.

8.4 Refrigerant amount to be added

Calculate the added refrigerant according to the diameter and the length of the liquid side pipe of the outdoor/indoor unit connection. The refrigerant is R410A.

Table.8-3

Pipe size on liquid side	Refrigerant to be Added per meter
Φ0.25in/6.35	0.033lb/0.015kg
Φ0.375in/9.52	0.066lb/0.030kg

- 1) The branching pipe must be installed horizontally, error angle of it should not large than 10°. Otherwise, a malfunction will occur.

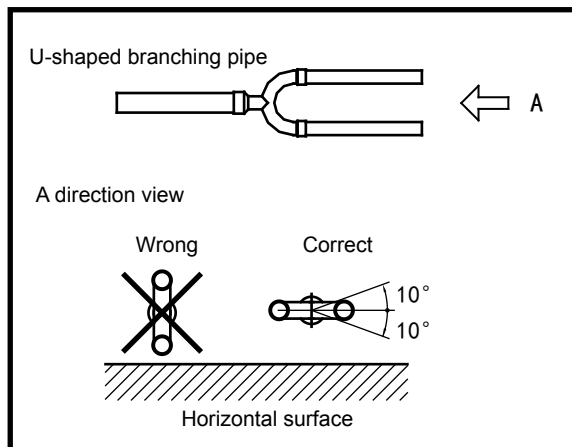


Fig.8-3

9. REFRIGERANT PIPE CONNECTION

9.1 Expel The Air

1 Flaring

- Cut a pipe with a pipe cutter. (Refer to Fig.9-1)

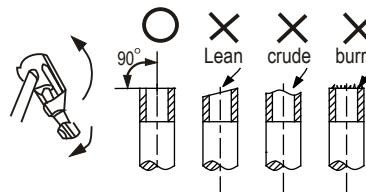


Fig.9-1

- Insert a flare nut into a pipe and flare the pipe.

2 Fasten the nut

- Put the connecting pipes at the proper position, wrench the nuts with hands then fasten it with two wrenches simultaneously. (Refer to Fig.9-2)

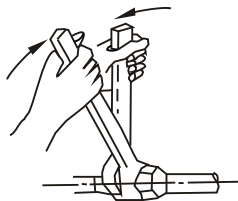


Fig.9-2



CAUTION

Too much torque will harm the bellmouthing and too little will cause leakage. Please determine the torque according to Table 9-1.

Table 9-1

Pipe gauge	Tightening torque	Flare dimension A min (in/mm) max	Flare shape
Ø0.25in/6.35	144~176 kgf.cm (14.2~17.2 N.m)	0.327in/8.3 0.343in/8.7	
Ø0.375in/9.52	333~407 kgf.cm (32.7~39.9 N.m)	0.472in/12.0 0.488in/12.4	
Ø0.5in/12.7	504~616 kgf.cm (49.5~60.3 N.m)	0.606in/15.4 0.622in/15.8	
Ø0.626in/15.9	630~770 kgf.cm (61.8~75.4 N.m)	0.732in/18.6 0.748in/19.0	

3 Expel the air with a vacuum pump(Refer to Fig.9-3)

(Please refer to its manual for the method of using the manifold valve)

- Loosen and remove the nuts of service valves A and B, and connect the charge hose of the manifold valve with the maintenance terminator of service valve A. (Be sure that service valves A and B are both closed)
- Connect the joint of the charge hose with the vacuum pump.
- Open the Lo-lever of the manifold valve completely.
- Turn on the vacuum pump. At the beginning of pumping, loosen the nut of service valve B a little to check whether the air comes in (the sound of the pump changes, and the indicator of compound meter turns below zero). Then fasten the nut.
- When the pumping has finished, close the Lo-lever of the manifold valve completely and turn off the vacuum pump. When you have waited for over 15 minutes, please confirm that the indicator of multimeter is on -1.0×10^{-5} Pa (-76cmHg)
- Loosen and remove the nuts of service valves A and B to open service valve A and B completely, then fasten nuts.
- Disassemble the charge hose of service valve A, and fasten the nut.

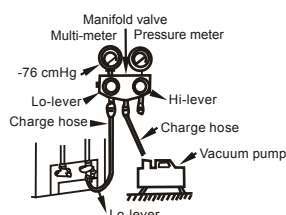


Fig.9-3



CAUTION

Both service valves should be open before test operation. Each air conditioner has two service valves of different sizes.(Refer to Fig.8-4)

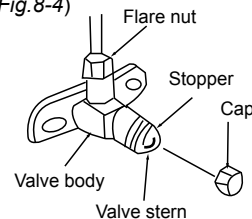


Fig.9-4

9.2 Check the Leakage

Check all the joints with the leak detector or soap water. (Refer Fig.9-5 as a reference illustration)

A.....Lo-stop valve

B.....Hi-stop valve

C,D..Joints of the connecting pipe to the indoor unit.

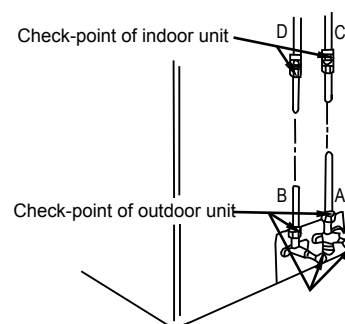


Fig.9-5

9.3 Insulation

- Be sure to completely insulate all the exposed parts of the flare pipes.
- Incomplete insulation may cause condensation.

10. CONNECT THE DRAIN PIPE

■ Install the drainpipe of the indoor unit

- Use a polyethylene tube as the drainpipe (out-dia.1.14-1.22in /29-31mm, in-dia.0.984in/25mm).
- When extending the drainpipe,tighten the connector with water-proof tape to prevent leakage.
- Lean the drainpipe down toward outdoor (outlet-side) at a degree of over 1/ 50 to keep water from flowing back. And please Avoid any bulge.
- Do not drag the drainpipe roughly. One support point should be set every 3.28~4.92ft/1~1.5m to prevent the drainpipe from yielding. Or tie the drainpipe with the connecting pipe to fix it.
- If the outlet of the drainpipe is higher than the body's pump joint, the pipe should be arranged as vertically as possible. And the lift distance must be less than 21.65in/550mm, otherwise the water can not be lifted completely and may cause overflow.(Only available for the unit with a pump.)
- The end of the drainpipe should be over 1.969in/50mm higher than the ground , and do not immerse it in water. If you discharge the water directly into sewage, be sure to make a U-form aqua seal by bending the pipe up to keep the foul gas entering the house through the drain pipe.

The drain pipe installation for the unit with pump.

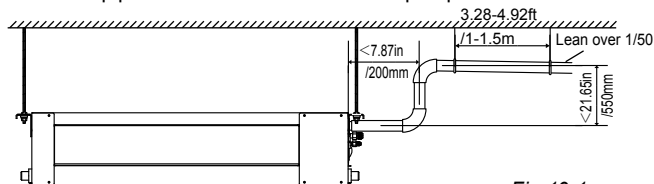


Fig.10-1

The drain pipe installation for the unit without pump.

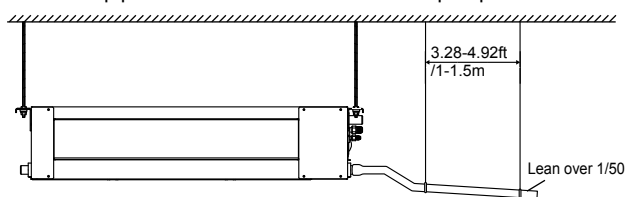


Fig.10-2

■ Drainage test

- Check whether the drainpipe is unhindered.
- New ly built houses should have this test done before paving the ceiling.

■ The unit with pump.

- 1 Remove the test cover, and stow about 2000ml water in the water pan.

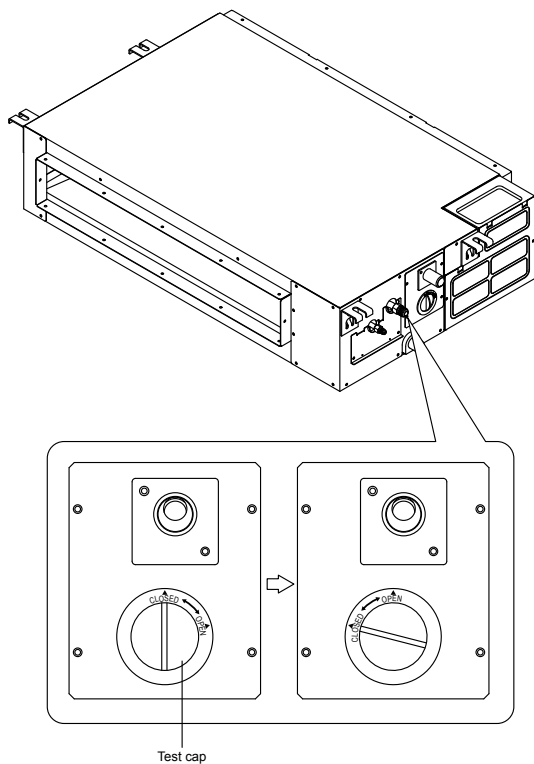


Fig.10-3

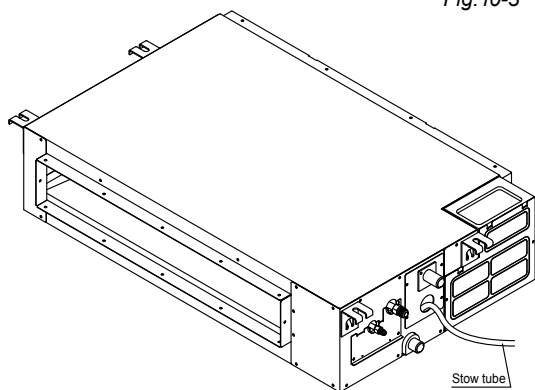


Fig.10-4

- 2 Operate the air conditioner in "COOLING" mode. The sound of the drain pump should be noticeable. Check whether the water is discharged well (1 min lag is possible, according to the length of the drain pipe), and check whether the water leaks from the joints.
- 3 Power off the air conditioner and recover the cap.

■ The unit without pump.

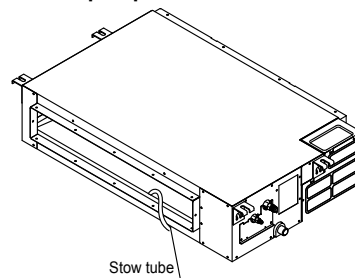


Fig.10-5

- Stow 2000ml water in the water pan through the stow tube,check whether the drainpipe is unhindered.

■ Install the drain joint of the outdoor unit (For Heat Pump Models)

Fit the seal into the drain joint, then insert the drain joint into the base pan hole of outdoor, rotate 90° to securely assemble them. Connect the drain joint with an extension drain hose (Locally purchased)to avoid condensate from draining off the outdoor unit during the heating mode.

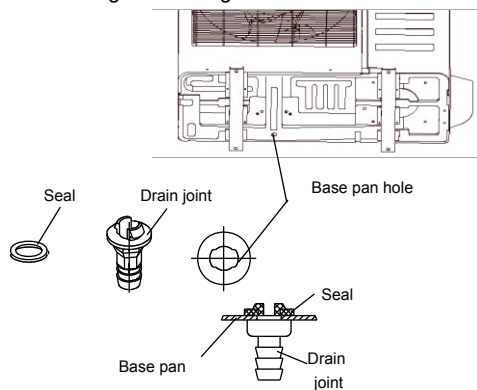


Fig.10-6

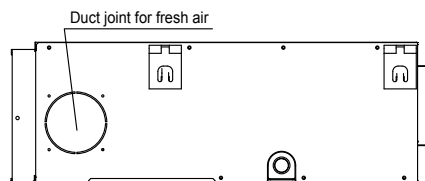


NOTE

All the figures in this manual are for illustration purposes only. They may differ slightly from the air conditioner you purchased.

11. FRESH AIR DUCT INSTALLATION

Dimension :



MODLE	
12-24	30-60

Fig.11-1

11.1 Motor and drain pump maintenance

(Use rear ventilated as example)

Motor maintain:

1. Take off the ventilated panel.
2. Take off the blower housing.
3. Take off the motor.

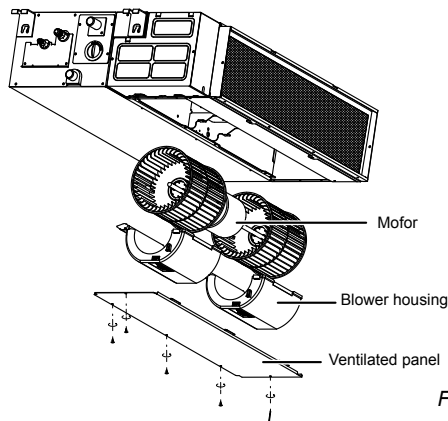


Fig.11-1

Pump maintenance:

1. Screw off four screws from drain pump.
2. Plug off pump power supply and water level switch cable.
3. Take off pump.

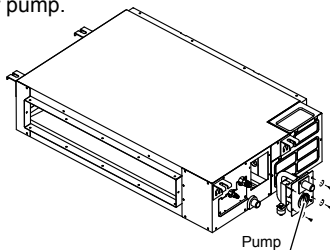


Fig.11-2

12. CONTROL(ONLY FOR INVERTER UNITS)

- The capacity of the system and the network address of the air-conditioner can be set by the switches on the indoor Main Control Board.
- Before setting, turn off the power. After setting, restart the unit.
- Setting is not allowed when the unit is power on.

12.1 Horsepower code setting

The capacity of the indoor unit has been set in the factory according to the below table.

Horsepower code

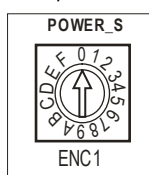


Table 12-1

ENC1	Toggle switch Code	Capacity(kw)
Note: The capacity has been set in the factory, only authorized personnel can adjust the setting.	8	10.5
	9	14.0
	A	16.0

12.2 Network address set

Every air-conditioner in the network has only one network address to distinguish each other. The address code of air-conditioner in LAN is set by code switches S1 & S2 on the Main Control Board of the indoor unit, and the set range is 0-63.

Table 12-2

Toggle switch set		Network address code
S1	S2	
		00~15
		16~31
		32~47
		48~63

13. WIRING

The appliance shall be installed in accordance with national wiring regulations.

The air conditioner should use a separate power supply with rated voltage.

The external power supply to the air conditioner should be grounded, which is linked to the ground wiring of the indoor and outdoor unit.

The wiring work should be done by qualified persons according to the wiring diagram.

A circuit breaker and a residual current device (RCD) with 10mA or above rating shall be installed in the power circuit according to the national rule.

Be sure to locate the power wiring and the signal wiring well to avoid cross-disturbance.

Do not turn on the power until you have confirmed proper wiring.

The power cord type is H07RN-F.



NOTE

Refer to EMC Directive 2004/108/EC

To prevent flicker impressions during the start of the compressor, the following installation conditions apply.

- 1 The power connection for the air conditioner has to be done at the main power distribution. The distribution has to be of a low impedance, normally the required impedance reaches at a 32 A fusing point.
- 2 No other equipment has to be connected with this power line.
- 3 For detailed installation acceptance please refer to your power supplier, to verify if restrictions apply for products like washing machines, air conditioners or electrical ovens.
- 4 For power details of the air conditioner refer to the rating nameplate of the product.
- 5 For any questions contact your local dealer.

13.1 Connect the cable

- Disassemble the cover.(If there isn't a cover on the outdoor unit, disassemble the screw from the maintenance board, and pull it in the direction of the arrow to remove the protection board.)
- Connect the cables to the terminals correspondingly.
- Re-install the cover or the protection board.

13.2 The Specification of Power

(Refer to Table14-1~14-3)

13.3 Wiring figure (Refer to Fig. 13-3~Fig.13-6)

1.split type outdoor unit

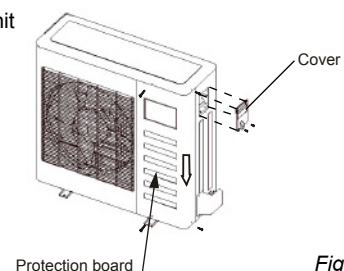


Fig.13-1



NOTE

All the figures in this manual are for illustration purposes only. They may differ slightly from the air conditioner you purchased (depend on model).

14. TEST OPERATION

- 1 The test operation must be carried out after the entire installation.
- 2 Please confirm the following points before the test operation:
 - The indoor unit and outdoor unit are installed properly.
 - Tubing and wiring are correctly completed.
 - The refrigerant pipe system is leakage-checked.
 - The drainage is unimpeded.
 - The heating insulation works well.
 - The ground wiring is connected correctly.
 - The length of the tubing and additional charge amount have been recorded.
 - The power voltage matches rated the voltage of the air conditioner.
 - There is no obstacle at the outlet and inlet of the outdoor and indoor units.
 - The gas-side and liquid-side service valves are both completely open.
 - The air conditioner is pre-heated by turning on the power.

3

Test operation

Set the air conditioner to the cooling mode with the remote controller, and check the following points. If there is any malfunction, please resolve it according to the chapter "Troubleshooting" in the "Owner's Manual".

- 1) The indoor unit
 - a. Whether the buttons on the remote controller works well.
 - b. Whether the air flow louver move normally.
 - c. Whether the room temperature is well adjusted.
 - d. Whether the indicator lights normally.
 - e. Whether the temporary switch on the unit works well.
 - f. Whether the drainage is normal.
 - g. Whether there is abnormal vibration or noise during operation.
 - h. Whether the air conditioner works well in heating mode (heat pump model).
- 2) The outdoor unit
 - a. Whether there is abnormal vibration and noise during operation.
 - b. Whether the exhaust air, noise, or condensation influence your neighborhood.
 - c. Whether there is any refrigerant leakage during operation.



CAUTION

A 3 minute delay is normal when restarting the unit for compressor protection.

The Specification of Power(indoor power supply)

■ Table 13-1

MODEL		9~12	18	24	36	48
POWER	PHASE	1Phase	1Phase	1Phase	1Phase	1Phase
	FREQUENCY AND VOLT	208/230V	208/230V	208/230V	208/230V	208/230V
CIRCUIT BREAKER/FUSE(A)		15	15	15	15	15

The Specification of Power(outdoor power supply)

■ Table 13-2

MODEL		9	12~18	24	36	48
POWER	PHASE	1Phase	1Phase	1Phase	1Phase	1Phase
	FREQUENCY AND VOLT	208/230V	208/230V	208/230V	208/230V	208/230V
CIRCUIT BREAKER/FUSE(A)		20	15~20	25	50	55

The specification of power for the invert type air conditioner(independence power supply)

■ Table 13-3

MODEL		9~12	18	24	30	48
POWER (indoor)	PHASE	1Phase	1Phase	1Phase	1Phase	1Phase
	FREQUENCY AND VOLT	220/230V	220/230V	220/230V	220/230V	220/230V
CIRCUIT BREAKER/FUSE(A)		15	15	15	15	15
POWER (outdoor)	PHASE	1Phase	1Phase	1Phase	1Phase	1Phase
	FREQUENCY AND VOLT	208/230V	208/230V	208/230V	208/230V	208/230V
CIRCUIT BREAKER/FUSE(A)		20~15	20	25	50	55

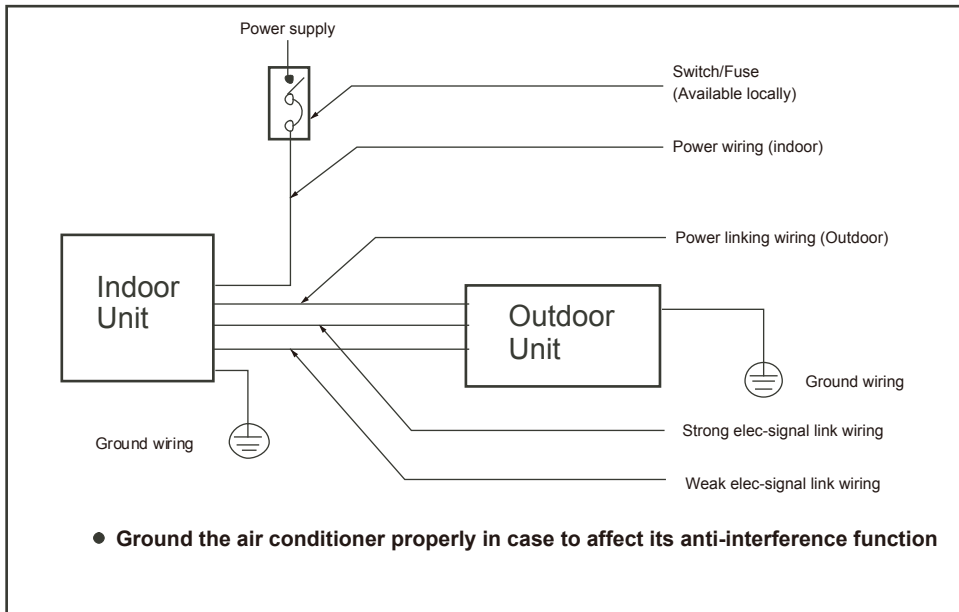


CAUTION

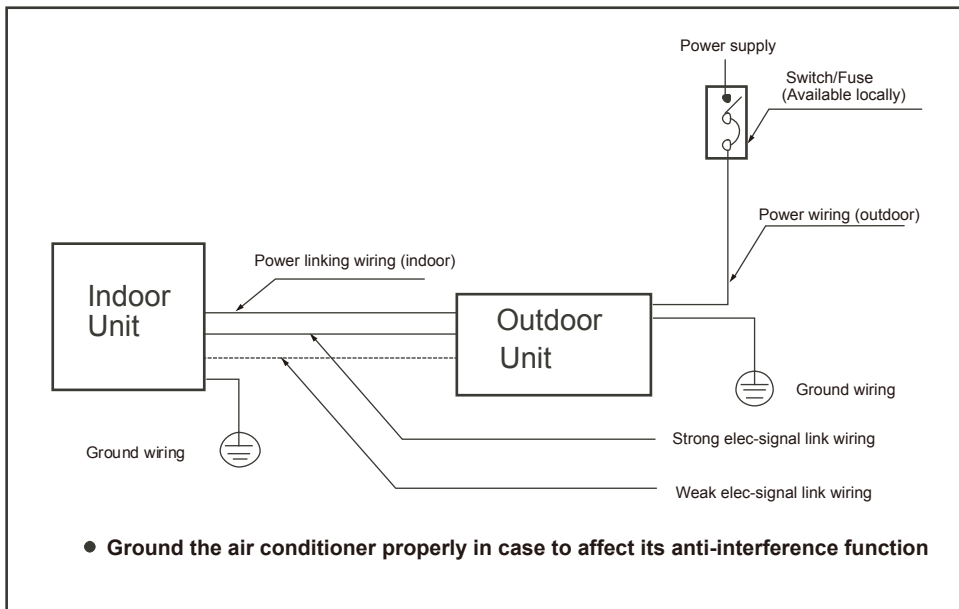
The power supply is included in the power supply above mentioned can be applied to the table.
Before obtaining access to terminals, all supply circuits must be disconnected.

■ Wiring figure

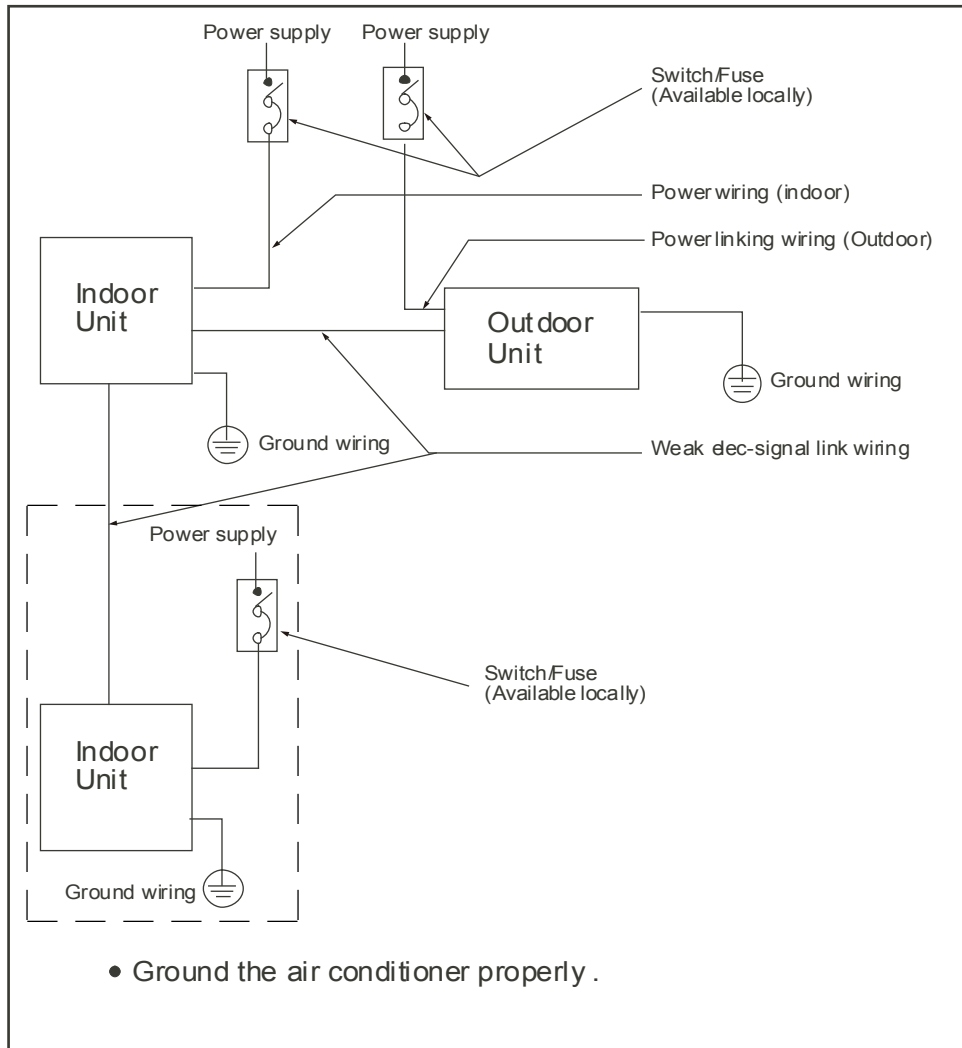
■ Fig.14-3



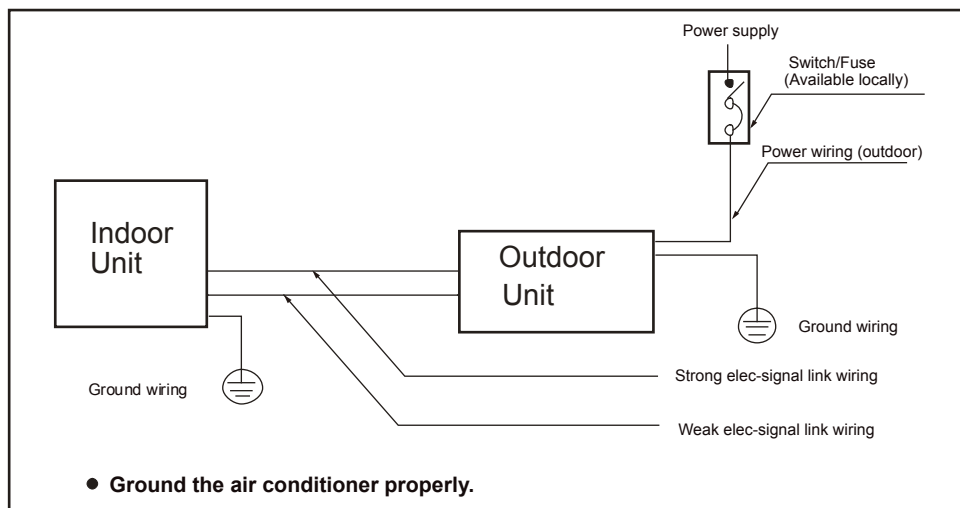
■ Fig.14-4



■ Fig.14-5



■ Fig.14-6



CAUTION

A disconnection device having an air gap contact separation in all active conductors should be incorporated in the fixed wiring according to the National Wiring Regulation.

When wiring, please choose the corresponding chart, or it may cause damage. The signs of the indoor terminal block in the some of following figures may be replaced by L N L1 N1.

15. SAFETY PRECAUTIONS

- Read the safety precautions carefully before installing the unit.
- Stated below are important safety issues that must be obeyed.

 WARNING	Means improper handling may lead to personal death or severe injury.
 CAUTION	Means improper handling may lead to personal injury or property loss.



WARNING

Please entrust the distributor or professionals to install the unit.
Installation by other persons may lead to imperfect installation, electric shock or fire.
Adhere to this installation manual.
Improper installation may lead to electric shock or fire.
Reinstallation must be performed by professionals.
Improper installation may lead to electric shock or fire.

Do not uninstall the unit randomly.
Random uninstalling may lead to abnormal operation, heating or fire of the air condition.



NOTE

- ① Do not install the unit in a place vulnerable to leakage of flammable gases. Once flammable gases are leaked and left around the wire controller, fire may occur.
 - ② Do not operate with wet hands or let water enter the wire controller. Otherwise, electric shock may occur.
 - ③ The wiring should adapt to the wire controller current. Otherwise, electric leakage or heating may occur and result in fire.
 - ④ The specified cables shall be applied in the wiring. No external force may be applied to the terminal. Otherwise, wire cut and heating may occur and result in fire.
-

16. INSTALLATION ACCESSORY

Select the installation location

Don't install at the place where cover with heavy oil, vapor or sulfureted gas, otherwise, this product would be deformed that would lead to system malfunction.

Preparation before installation

1. Please confirm that all the following parts you have been supply.

No.	Name	Qty.	Remarks
1	Wire controller	1	_____
2	Installation and owner's manual	1	_____
3	Screws	3	M4X20 (For Mounting on the Wall)
4	Wall plugs	3	For Mounting on the Wall
5	Screws	2	M4X25 (For Mounting on switch box)
6	Plastic screw bars	2	For fixing on switch box
7	The connective wires group	1	Optional

2. Prepare the following assemblies on the site.

No.	Name	Qty.(embedded into wall)	Specification (only for reference)	Remarks
1	Switch box	1	_____	_____
2	Wiring Tube(Insulating Sleeve and Tightening Screw)	1	_____	_____

16. INSTALLATION ACCESSORY

Precaution of install the wire controller

1. This manual provides the installation method of wire controller. Please refer to the wiring diagram of this installation manual to wire the wire controller with indoor unit.
2. The wire controller working in low voltage loop circuit. Forbid to directly contact the cable of 220V commercial electricity or of 380V high voltage, and don't wire this kind of wire in the said loop; wiring clearance between configured tubes should at the range of 300~500mm or above.
3. The Shielded wire of the wire controller must be grounded reliable.
4. Upon finish the wire controller connection, do not employed tramegger to detect the insulation.
5. The connective cable of wire controller should not be longer than 20 meters.

17. INSTALLATION METHOD

1.Wired remote controller structure size figure

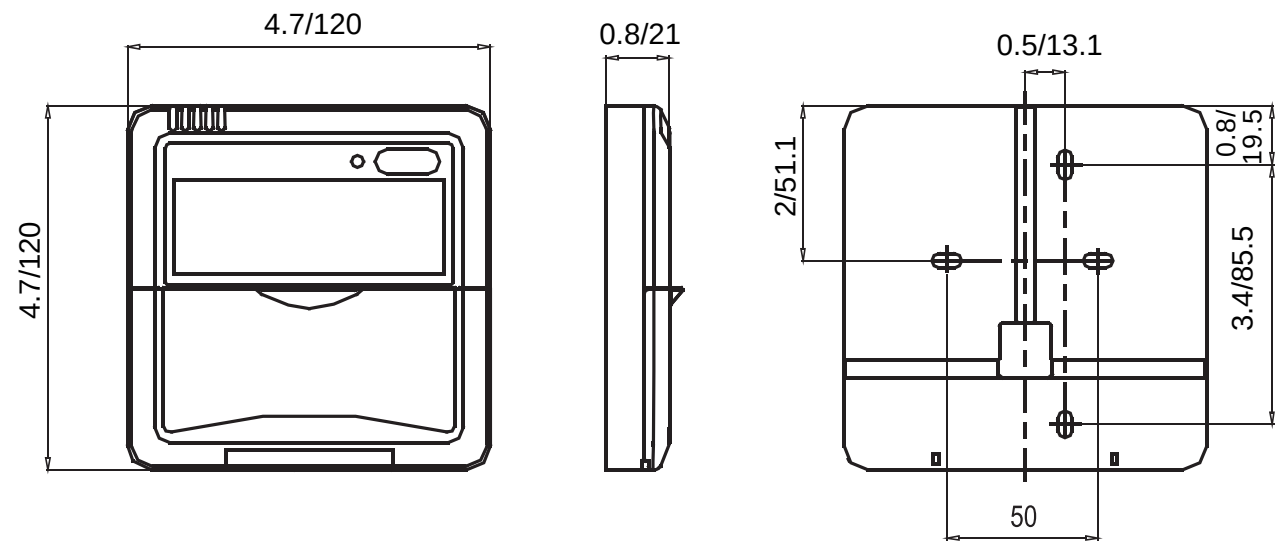


Fig 17-1

2.Wiring Principle Sketch:

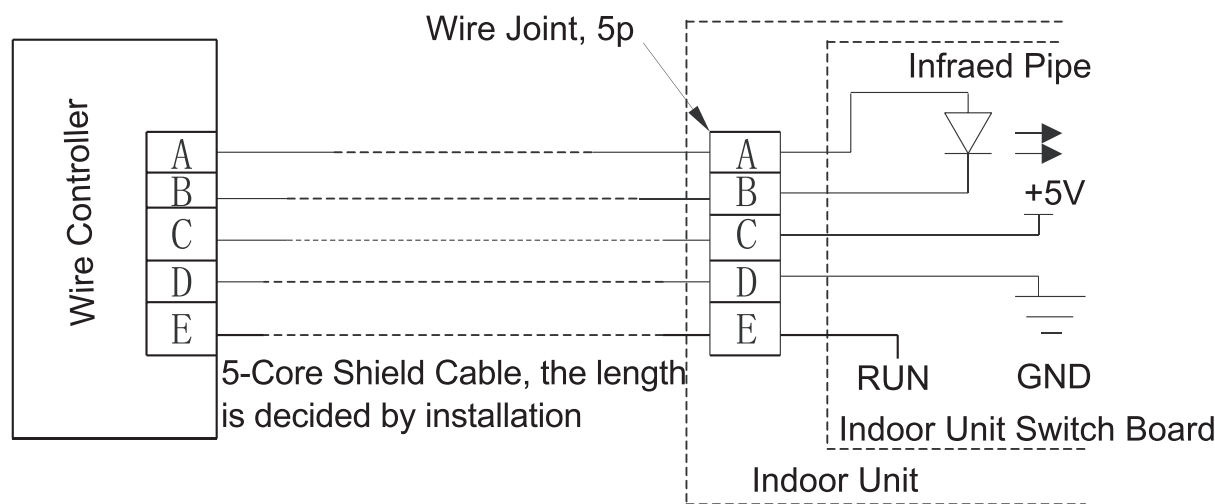
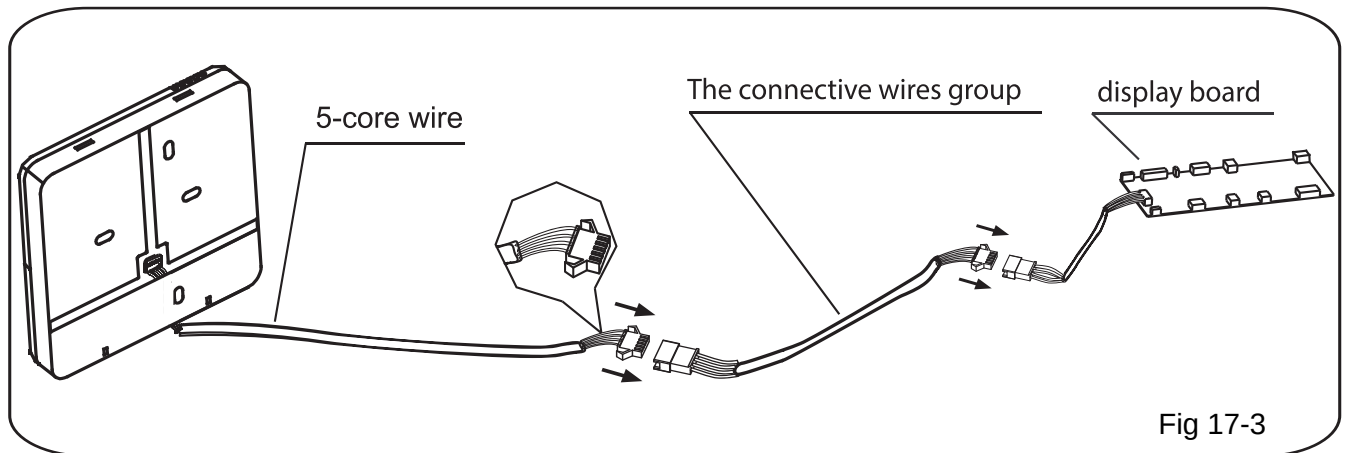


Fig 17-2

17. INSTALLATION METHOD

3. Wiring figure



- Connect the female joint of wires group from the mainboard with the male joint of connective wires group. (See Fig 17-3)
- Please connect the other side of connective wires group with the male joint of wires group leads from wire controller. (See Fig 17-3)

4. Remove the upper part of wire controller

- Insert a slot screwdriver into the slots in the lower part of the wire controller (2 places), and remove the upper part of the wire controller. (Fig 17-4)



NOTICE

The PCB is mounted in the upper part of the wire controller. Be careful not to damage the board with the slot screwdriver.

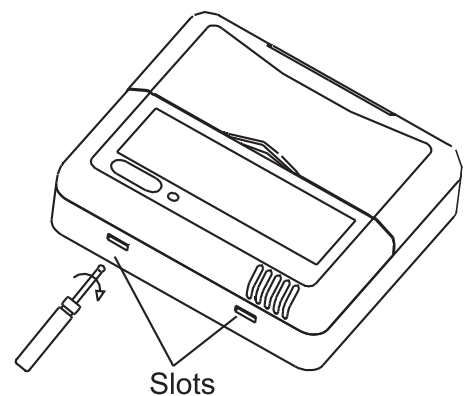
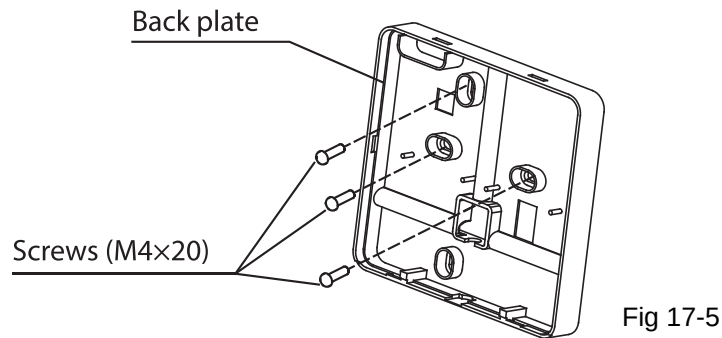


Fig 17-4

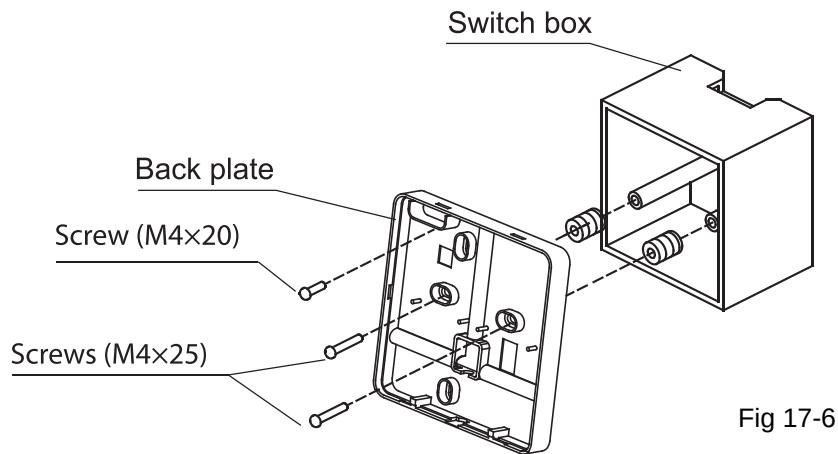
17. INSTALLATION METHOD

4. Fasten the back plate of the wire controller

- For exposed mounting, fasten the back plate on the wall with the 3 screws (M4×20) and plugs. (Fig 17-5)



- For flush-mounting, fasten the back plate on the switch box with 2 screws (M4×25) and fasten it on the wall with 1 screw (M4×20). (Fig 17-6)



NOTICE

Put on a flat surface. Be careful not to distort the back plate of the wire controller by overtightening the mounting screws.

17. INSTALLATION METHOD

5. Battery installation

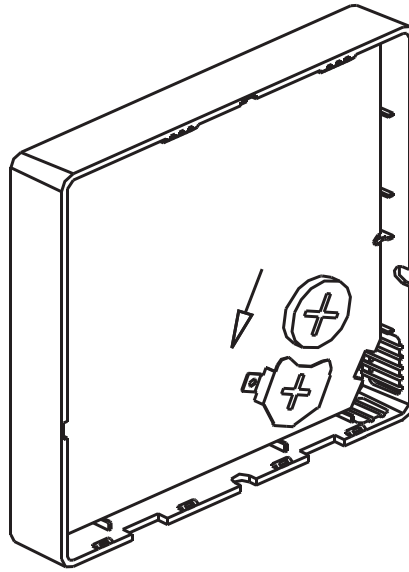
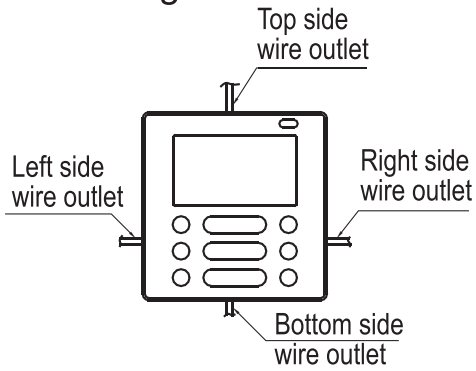


Fig 17-7

- Put the battery into the installation site and make sure the positive side of the battery is in accordance with the positive side of installation site. (See Fig 17-7)
- Please set the time corrected on the first time operation. Batteries in the wire controller can timing under power failure which ensure the time keep right. When the power restores, if the time displayed is not correct, it means the battery is dead and replace the battery.

17. INSTALLATION METHOD

6. Wiring



A. For exposed mounting, four outletting positions. There are three need cutting.

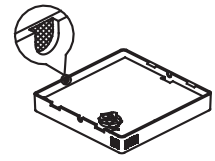
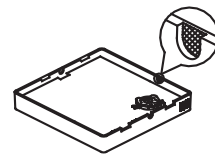
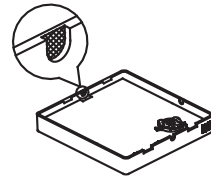
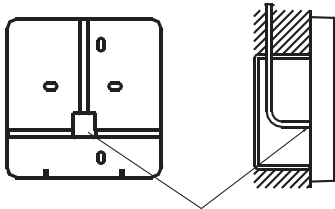


Fig 17-8

B. Shielded wiring

Embedded switch box wiring



Wiring through the wall

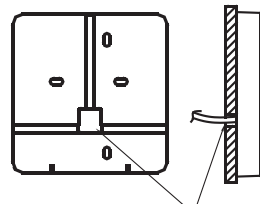


Fig 17-9

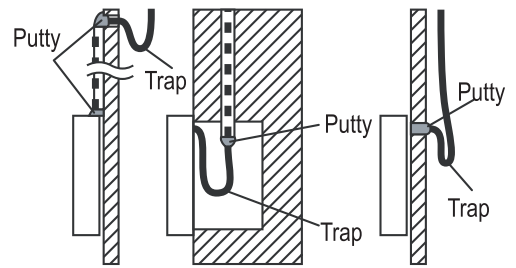


Fig 17-10



CAUTION

Avoid the water enter into the wired remote controller, use trap and putty to seal the connectors of wires during wiring installation.(Fig 17-10)
When under installation, reserve certain length of the connecting wire for convenient to take down the wired remote controller while during maintenance.

17. INSTALLATION METHOD

7.Reattach the upper part of the wire controller

- After adjusting the upper case and then buckle the upper case; avoid clamping the wiring during installation. (Fig 17-11)

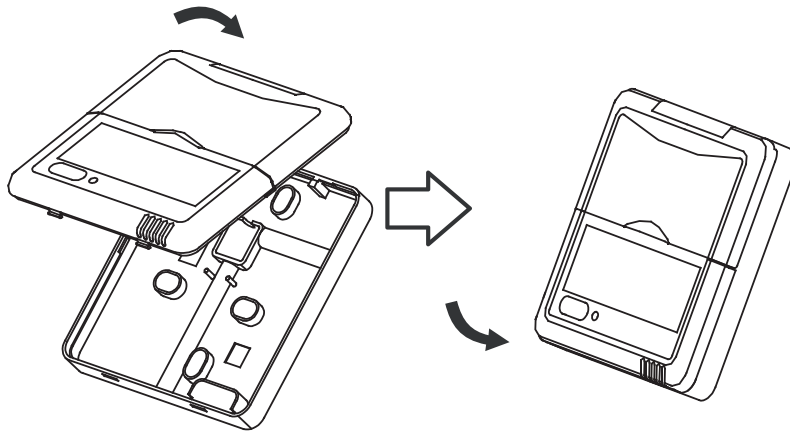


Fig 17-11

All the pictures in this manual are for explanation purpose only.
Your wire controller may be slightly different .The actual shape shall prevail.

