


VRF SYSTEM INDOOR UNIT Ceiling Type



CAUTION

R410A
REFRIGERANT

This Air Conditioner contains
and operates with refrigerant R410A.

THIS PRODUCT MUST ONLY BE INSTALLED OR SERVICED
BY QUALIFIED PERSONNEL.

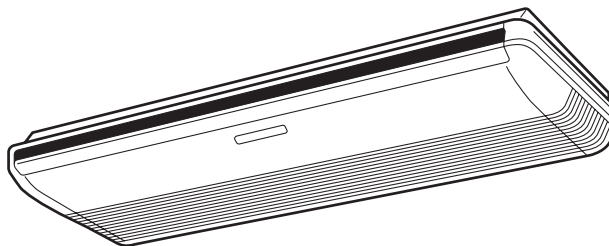
Refer to Commonwealth, State, Territory and local legislation,
regulations, codes, installation & operation manuals, before
the installation, maintenance and/or service of this product.

English

中文

INSTALLATION MANUAL

For authorized service personnel only.



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PART NO. 9367702046-02

1. SAFETY PRECAUTIONS

- Be sure to read this Manual thoroughly before installation.
- The warnings and precautions indicated in this Manual contain important information pertaining to your safety. Be sure to observe them.
- Hand this Manual, together with the Operating Manual, to the customer. Request the customer to keep them on hand for future use, such as for relocating or repairing the unit.

WARNING

This mark indicates procedures which, if improperly performed, might lead to the death or serious injury of the user.

- Request your dealer or a professional installer to install the indoor unit in accordance with this Installation Manual. An improperly installed unit can cause serious accidents such as water leakage, electric shock, or fire. If the indoor unit is installed in disregard of the instructions in the Installation Manual, it will void the manufacturer's warranty.
- Do not turn ON the power until all work has been completed. Turning ON the power before the work is completed can cause serious accidents such as electric shock or fire.
- If refrigerant leaks while work is being carried out, ventilate the area. If the refrigerant comes in contact with a flame, it produces a toxic gas.
- Installation work must be performed in accordance with national wiring standards by authorized personnel only.

CAUTION

This mark indicates procedures which, if improperly performed, might possibly result in personal harm to the user, or damage to property.

2. ABOUT THE UNIT

2.1. Precautions for using R410A refrigerant

WARNING

- Do not introduce any substance other than the prescribed refrigerant into the refrigeration cycle. If air enters the refrigeration cycle, the pressure in the refrigeration cycle will become abnormally high and cause the piping to rupture.
- If there is a refrigerant leak, make sure that it does not exceed the concentration limit. If a refrigerant leak exceeds the concentration limit, it can lead to accidents such as oxygen starvation.
- Do not touch refrigerant that has leaked from the refrigerant pipe connections or other area. Touching the refrigerant directly can cause frostbite.
- If a refrigerant leak occurs during operation, immediately vacate the premises and thoroughly ventilate the area. If the refrigerant comes in contact with a flame, it produces a toxic gas.

2.2. Special tool for R410A

WARNING



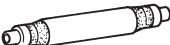
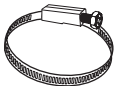







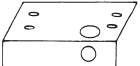

- To install a unit that uses R410A refrigerant, use dedicated tools and piping materials that have been manufactured specifically for R410A use. Because the pressure of R410A refrigerant is approximately 1.6 times higher than the R22, failure to use dedicated piping material or improper installation can cause rupture or injury. Furthermore, it can cause serious accidents such as water leakage, electric shock, or fire.

Tool name	Changes
Gauge manifold	The pressure in the refrigerant system is extremely high and cannot be measured with a conventional gauge. To prevent erroneous mixing of other refrigerants, the diameter of each port has been changed. It is recommended to use a gauge manifold with a high pressure display range of -0.1 to 5.3 MPa and a low pressure display range of -0.1 to 3.8 MPa.
Charging hose	To increase pressure resistance, the hose material and base size were changed. (The charging port thread diameter for R410A is 1/2 UNF 20 threads per inch.)
Vacuum pump	A conventional vacuum pump can be used by installing a vacuum pump adapter. Be sure that the pump oil does not backflow into the system. Use one capable for vacuum suction of -100.7 kPa (5 Torr, -755 mmHg).
Gas leakage detector	Special gas leakage detector for R410A refrigerant.

2.3. Accessories

WARNING

- For installation purposes, be sure to use the parts supplied by the manufacturer or other prescribed parts. The use of non-prescribed parts can cause serious accidents such as the unit falling, water leakage, electric shock, or fire.
- The following installation parts are furnished. Use them as required.
- Keep the Installation Manual in a safe place and do not discard any other accessories until the installation work has been completed.

Name and Shape	Q'ty	Application
Operating Manual 	1	
Installation Manual 	1	(This book)
Drain hose 	1	For installing drain pipe
Hose Band 	1	For installing drain hose
Drain hose insulation 	1	Adhesive type 220 × 100 mm
VT wire 	1	For fixing the drain hose L 280 mm
Coupler heat insulation (Large) 	2	For indoor side pipe joint (Gas pipe)
Coupler heat insulation (Small) 	1	For indoor side pipe joint (Liquid pipe)
Binder 	Extra large 4	For fixing the coupler heat insulation
	large 4	
	Medium 3	For power supply and transmission and remote control cable binding
Special nut A (Large flange) 	4	For installing indoor unit
Special nut B (Small flange) 	4	For installing indoor unit
Installation template 	1	For positioning the indoor unit
Auxiliary pipe assembly 	1	For connecting the piping

2.4. Optional parts

The following options are available.

- DRAIN PUMP UNIT: UTR-DPB241 (P/N 9034087001)
- ROUND DUCT: UTD-RF204 (P/N 9093160004)

3. INSTALLATION WORK

Especially, the installation place is very important for the split type air conditioner because it is very difficult to move from place to place after the first installation.

3.1. Selecting an installation location

Decide the mounting position together with the customer as follows.

WARNING

- Select installation locations that can properly support the weight of the indoor unit. Install the units securely so that they do not topple or fall.

CAUTION

Do not install the indoor unit in the following areas:

- Area with high salt content, such as at the seaside. It will deteriorate metal parts, causing the parts to fall or the unit to leak water.
- Area filled with mineral oil or containing a large amount of splashed oil or steam, such as a kitchen. It will deteriorate plastic parts, causing the parts to fall or the unit to leak water.
- Area that generates substances that adversely affect the equipment, such as sulfuric gas, chlorine gas, acid, or alkali. It will cause the copper pipes and brazed joints to corrode, which can cause refrigerant leakage.
- Area that can cause combustible gas to leak, contains suspended carbon fibers or flammable dust, or volatile inflammables such as paint thinner or gasoline. If gas leaks and settles around the unit, it can cause a fire.
- Area where animals may urinate on the unit or ammonia may be generated.

- Do not use the unit for special purposes, such as storing food, raising animals, growing plants, or preserving precision devices or art objects.
It can degrade the quality of the preserved or stored objects.

- Do not install where there is the danger of combustible gas leakage.

- Do not install the unit near a source of heat, steam, or flammable gas.

- Install the unit where drainage does not cause any trouble.

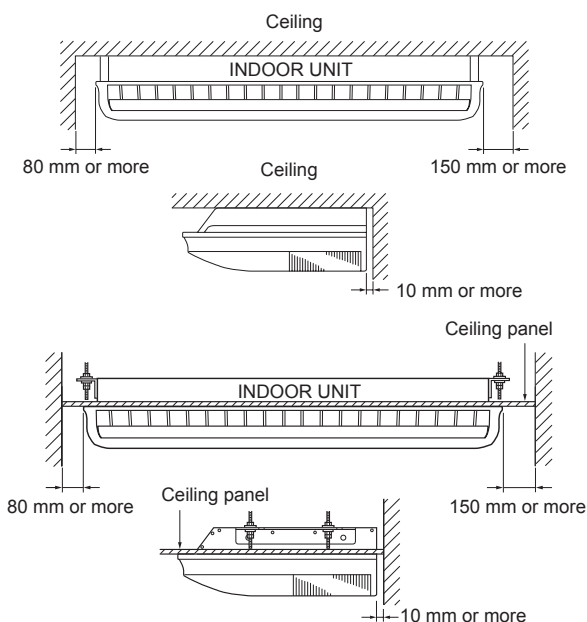
- Install the indoor unit, outdoor unit, power supply cable, transmission cable, and remote control cable at least 1 m away from a television or radio receivers. The purpose of this is to prevent TV reception interference or radio noise. (Even if they are installed more than 1 m apart, you could still receive noise under some signal conditions.)

- If children under 10 years old may approach the unit, take preventive measures so that they cannot reach the unit.

- Take precautions to prevent the unit from falling.

- (1) Install the indoor unit on a place having a sufficient strength so that it withstands against the weight of the indoor unit.
- (2) The inlet and outlet ports should not be obstructed; the air should be able to blow all over the room.
- (3) Leave the space required to service the air conditioner.
- (4) Install the unit where connection to the outdoor unit is easy.
- (5) Install the unit where the connection pipe can be easily installed.
- (6) Install the unit where the drain pipe can be easily installed.
- (7) Install the unit where noise and vibrations are not amplified.
- (8) Take servicing, etc., into consideration and leave the spaces. Also install the unit where the filter can be removed.
- (9) Do not install the unit where it will be exposed to direct sunlight.

3.2. Installation dimension



3.3. Installing the unit

⚠ WARNING

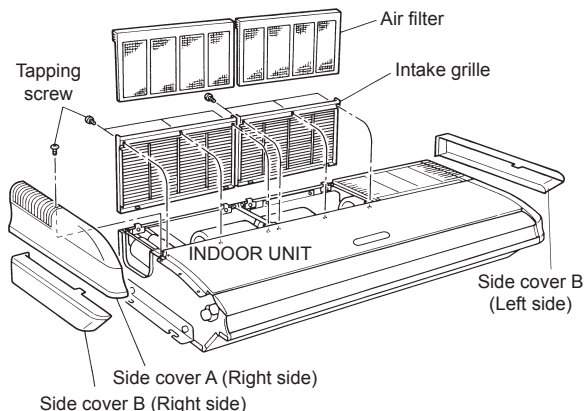
- Install the air conditioner in a location which can withstand a load of at least five times the weight of the main unit and which will not amplify sound or vibration. If the installation location is not strong enough, the indoor unit may fall and cause injuries.

3.3.1. Preparing indoor unit installation

Remove the intake grille and side cover.

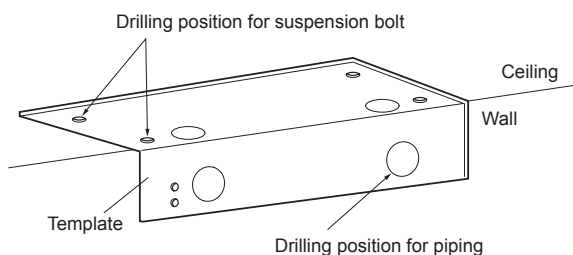
- (1) Remove the two Air filters.
- (2) Remove the two Intake grilles.
 - For ④ Left rear drain and ⑤ Left drain: Remove air filters and intake grilles at three places. (Refer to "3.3.4. Select piping direction".)
- (3) Remove the Side cover A (Right side) and Side cover B (Right and Left side).
 - For ⑤ Left drain: Remove both the Side cover A (Right and Left side). (Refer to "3.3.4. Select piping direction".)

- (4) This air conditioner can be set up to intake fresh air. For information about how to install for fresh-air intake, refer to "8. FRESH-AIR INTAKE".



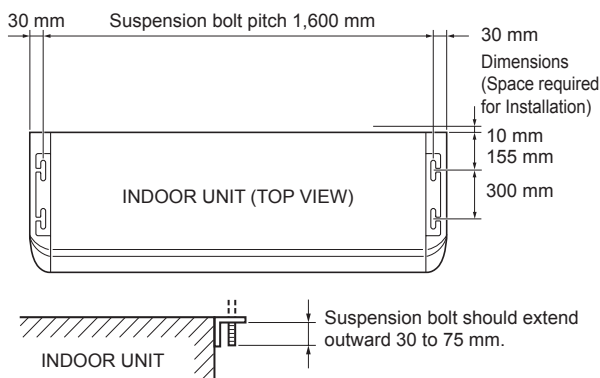
3.3.2. Indoor unit installation

You can use the accessory template to help you install the indoor unit. The template helps you determine the appropriate locations for suspension bolts and pipe openings (drain pipe and connection cable).



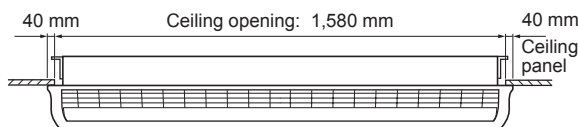
3.3.3. Location of ceiling suspension bolts

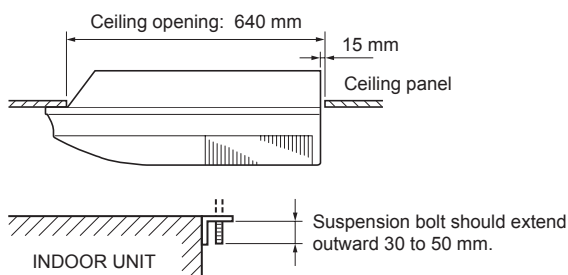
Fig. A



[For Half-Concealed Installation]

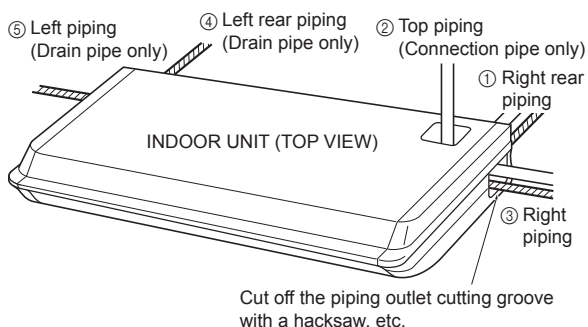
- Suspension-bolt pitch should be as shown in Fig. A.





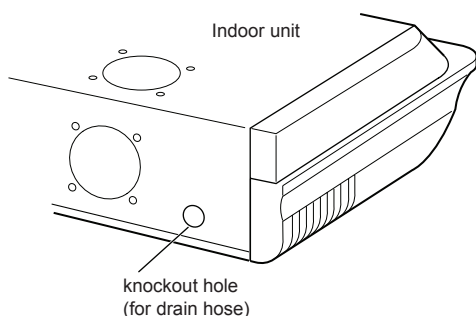
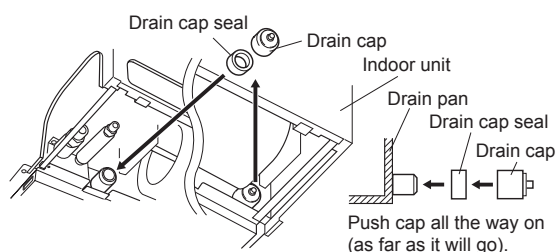
3.3.4. Select piping direction

Select connection piping and drain piping directions.



[For ④ Left rear piping, ⑤ Left piping]

- Transfer the Drain cap and Drain cap seal.



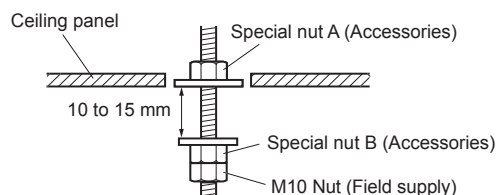
CAUTION

- When removing the knockout port, be careful not to damage the indoor unit internal parts and surrounding area (outer case).
- When processing the knockout port, be careful not to injure yourself with burrs, etc.

3.3.5. Drilling the holes and attaching the suspension bolts

- (1) Drill $\phi 25$ mm holes at the suspension-bolt locations.
- (2) Install the bolts, then temporarily attach Special nuts A and B and a normal M10 nut to each bolt. (The two special nuts are provided with the unit. The M10 nut must be obtained locally.)

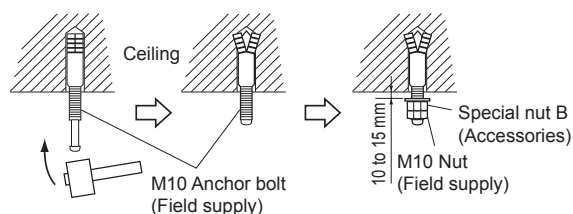
Bolt Strength	980 to 1470 N (100 to 150 kgf)
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[If using anchor bolts]

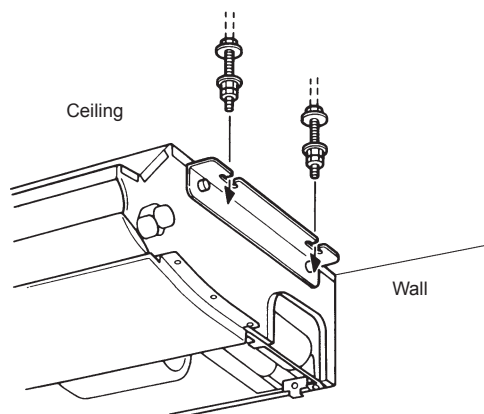
- (1) Drill holes for anchor bolts at the locations at which you will set the suspension bolts. Note that anchor bolts are M10 bolts (to be obtained locally).
- (2) Install the anchor bolts, then temporarily attach special nut "B" (Accessories) and a locally-procured M10 nut to each of the bolts.

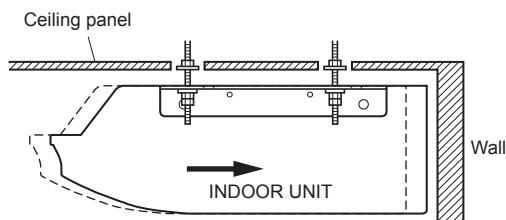
Anchor-Bolt Strength	980 to 1470 N (100 to 150 kgf)
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3.3.6. Installing the indoor unit

- (1) Lift unit so that suspension bolts pass through the suspension fittings at the sides (four places), and slide the unit back.

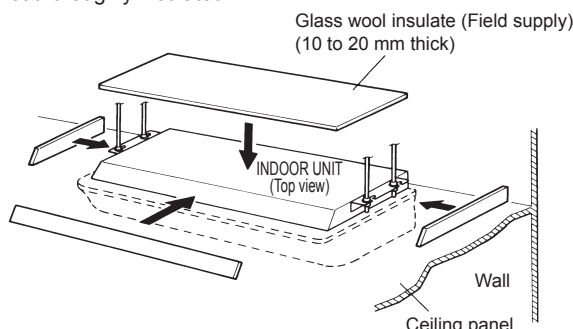




- (2) Fasten the indoor unit into place by tightening-up the special "B" bolts and the M10 nuts. Make sure that unit is secure and will not shift back and forth.

[For Half-Concealed Installation]

When installing the indoor unit in a semi-concealed orientation, make sure to reinforce the insulation (field supply) of the unit on all sides. Drops of water may fall from the unit if it is not thoroughly insulated.



⚠ CAUTION

- In order to check the drainage, be sure to use a level during installation of the indoor unit. If the installation site of the indoor unit is not level, water leakage may occur.

4. PIPE INSTALLATION

⚠ CAUTION

- Be more careful that foreign matter (oil, water, etc.) does not enter the piping than with refrigerant R410A models. Also, when storing the piping, securely seal the openings by pinching, taping, etc.
- While welding the pipes, be sure to blow dry nitrogen gas through them.

4.1. Selecting the pipe material

⚠ CAUTION

- Do not use existing pipes.
- Use pipes that have clean external and internal sides without any contamination which may cause trouble during use, such as sulfur, oxide, dust, cutting waste, oil, or water.
- It is necessary to use seamless copper pipes.
Material : Phosphor deoxidized seamless copper pipes
It is desirable that the amount of residual oil is less than 40 mg/10 m.
- Do not use copper pipes that have a collapsed, deformed, or discolored portion (especially on the interior surface). Otherwise, the expansion valve or capillary tube may become blocked with contaminants.

⚠ CAUTION

- Improper pipe selection will degrade performance. As an air conditioner using R410A incurs pressure higher than when using conventional refrigerant, it is necessary to choose adequate materials.
- Thicknesses of copper pipes used with R410A are as shown in the table.
- Never use copper pipes thinner than those indicated in the table even if they are available on the market.

Thicknesses of Annealed Copper Pipes (R410A)

Pipe outside diameter [mm (in.)]	Thickness [mm]
6.35 (1/4)	0.80
9.52 (3/8)	0.80
12.70 (1/2)	0.80
15.88 (5/8)	1.00
19.05 (3/4)	1.20

4.2. Pipe requirement

⚠ CAUTION

- Refer to the Installation Manual of the outdoor unit for description of the length of connecting pipe or for difference of its elevation.
- Use pipe with water-resistant heat insulation.

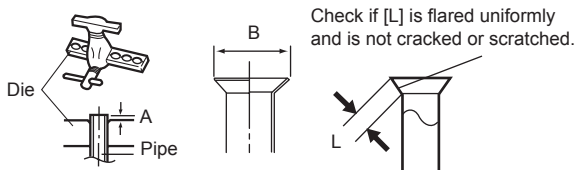
⚠ CAUTION

- Install heat insulation around both the gas and liquid pipes. Failure to do so may cause water leaks. Use heat insulation with heat resistance above 120 °C. (Reverse cycle model only)
In addition, if the humidity level at the installation location of the refrigerant piping is expected to exceed 70 %, install heat insulation around the refrigerant piping. If the expected humidity level is 70-80 %, use heat insulation that is 15 mm or thicker and if the expected humidity exceeds 80 %, use heat insulation that is 20 mm or thicker. If heat insulation is used that is not as thick as specified, condensation may form on the surface of the insulation.
In addition, use heat insulation with heat conductivity of 0.045 W/(m·K) or less (at 20 °C).

4.3. Flare connection (pipe connection)

4.3.1. Flaring

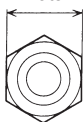
- Use special pipe cutter and flare tool exclusive for R410A.
- (1) Cut the connection pipe to the necessary length with a pipe cutter.
 - (2) Hold the pipe downward so that cuttings will not enter the pipe and remove any burrs.
 - (3) Insert the flare nut (always use the flare nut attached to the indoor and outdoor units respectively) onto the pipe and perform the flare processing with a flare tool. Use the special R410A flare tool, or the conventional flare tool. Leakage of refrigerant may result if other flare nuts are used.
 - (4) Protect the pipes by pinching them or with tape to prevent dust, dirt, or water from entering the pipes.



Pipe outside diameter [mm (in.)]	Dimension A [mm] Flare tool for R410A, clutch type	Dimension B _{0.4} [mm]
6.35 (1/4)	0 to 0.5	9.1
9.52 (3/8)		13.2
12.70 (1/2)		16.6
15.88 (5/8)		19.7
19.05 (3/4)		24.0

When using conventional flare tools to flare R410A pipes, the dimension A should be approximately 0.5 mm more than indicated in the table (for flaring with R410A flare tools) to achieve the specified flaring. Use a thickness gauge to measure the dimension A.

Width across flats



Pipe outside diameter [mm (in.)]	Width across flats of Flare nut [mm]
6.35 (1/4)	17
9.52 (3/8)	22
12.70 (1/2)	26
15.88 (5/8)	29
19.05 (3/4)	36

4.3.2. Bending pipes

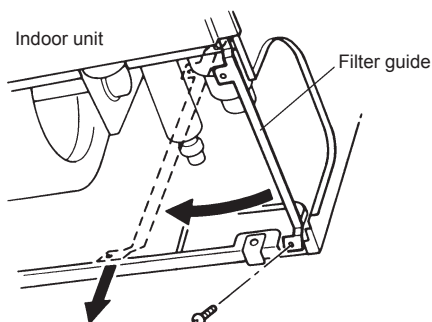
- The pipes are shaped by your hands or pipe bender. Be careful not to collapse them.
- Do not bend the pipes in an angle more than 90°.
- When pipes are repeatedly bent or stretched, the material will harden, making it difficult to bend or stretch them any more. Do not bend or stretch the pipes more than three times.

CAUTION

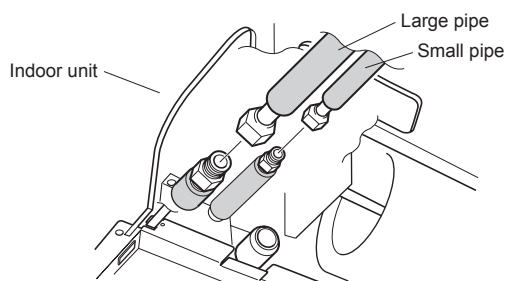
- To prevent breaking of the pipe, avoid sharp bends.
- If the pipe is bent repeatedly at the same place, it will break.

4.3.3. Pipe connection

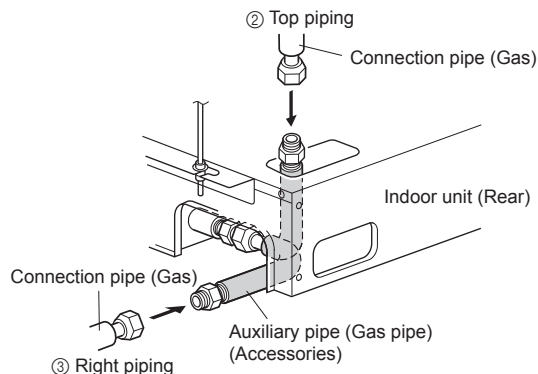
(1) Remove the filter guide.



(2) Attach the connection pipe.



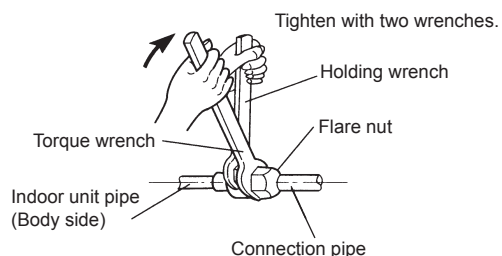
- For ② Top piping and ③ Right piping connections, use the Auxiliary pipe (Gas pipe) provided.



CAUTION

- Hold the torque wrench at its grip, keeping it in the right angle with the pipe, in order to tighten the flare nut correctly.
- Tighten the flare nuts with a torque wrench using the specified tightening method. Otherwise, the flare nuts could break after a prolonged period, causing refrigerant to leak and generate a hazardous gas if the refrigerant comes into contact with a flame.

When the flare nut is tightened properly by your hand, hold the body side coupling with a separate spanner, then tighten with a torque wrench.



Flare nut [mm (in.)]	Tightening torque [N·m (kgf·cm)]
6.35 (1/4) dia.	16 to 18 (160 to 180)
9.52 (3/8) dia.	32 to 42 (320 to 420)
12.70 (1/2) dia.	49 to 61 (490 to 610)
15.88 (5/8) dia.	63 to 75 (630 to 750)
19.05 (3/4) dia.	90 to 110 (900 to 1,100)

⚠ CAUTION

- Be sure to apply the pipe against the port on the indoor unit and the outdoor unit correctly. If the centering is improper, the flare nut cannot be tightened smoothly. If the flare nut is forced to turn, the threads will be damaged.
- Do not remove the flare nut from the indoor unit pipe until immediately before connecting the connection pipe.
- Do not use mineral oil on flared part. Prevent mineral oil from getting into the system as this would reduce the lifetime of the units.

4.4. Installing heat insulation

Install the heat insulation material after performing a refrigerant leak check (see the Installation Manual for the outdoor unit for details).

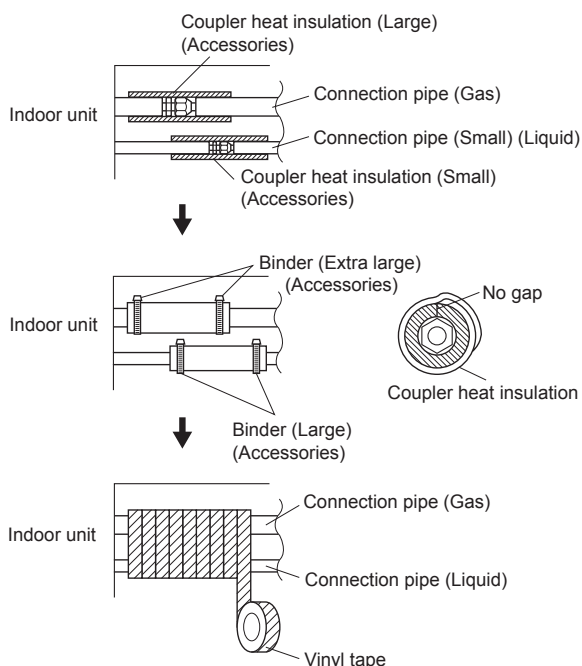
COUPLER HEAT INSULATION

- Insulate by the coupler heat insulation (Accessories) around the gas pipe and liquid pipe of indoor side.
- After installing the coupler heat insulation, wrap both end with vinyl tape so that there is no gap.
- After affixing the coupler heat insulation, secure it with two binders, one on each end of the insulation.
- Make sure that the binders overlap the heat insulation pipe.

And finally fix connection pipe (Liquid) to connection pipe (Gas) by rolling vinyl tape over coupler heat insulation (Gas) and coupler heat insulation (Liquid).

⚠ CAUTION

- After checking for gas leaks (refer to the Installation Manual of the outdoor unit), perform this section.
- Install heat insulation around both the large (gas) and small (liquid) pipes. Failure to do so may cause water leaks.



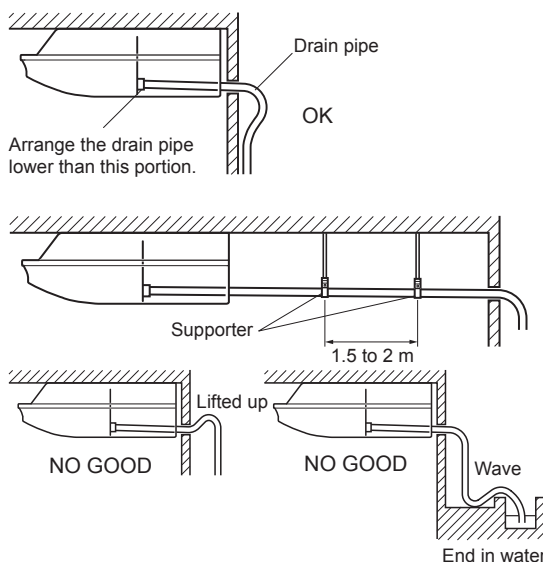
- When using an auxiliary pipe, make sure that the fastener used is insulated in the same way.

5. INSTALLING DRAIN PIPES

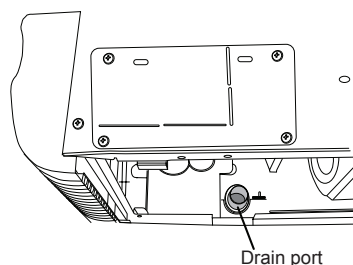
Use general hard polyvinyl chloride pipe and connect it with adhesive (polyvinyl chloride) so that there is no leakage. Always heat insulate the indoor side of the drain hose. Use a drain pipe that matches the size of the drain hose.

- Do not perform a rise, trap and air bleeding.
- Provide a downward gradient (1/100 or more).
- Provide supporters when long pipes are installed.
- Use an insulation material as needed, to prevent the pipes from freezing.
- Install the pipes in a way that allows for the removal of the control box.
- Always heat insulate (8 mm or over thick) the indoor side of the drain pipe.

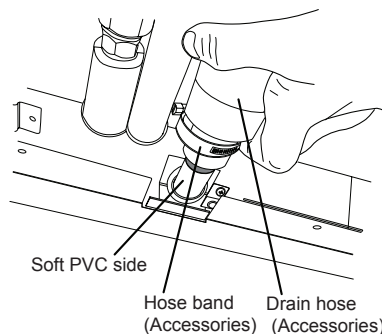
	O.D.
Drain pipe	32 mm (VP25)

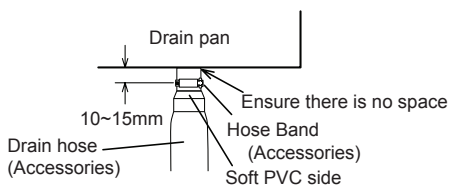


- (1) Install insulation for the drain pipe. Assemble as described below.

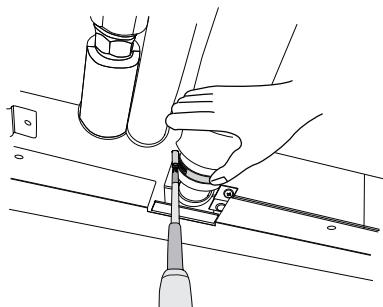


Assemble Drain hose (Accessories) and Hose band (Accessories) to Drain port.

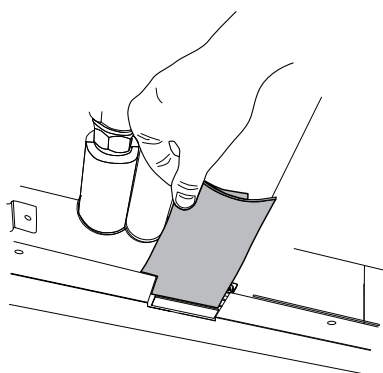
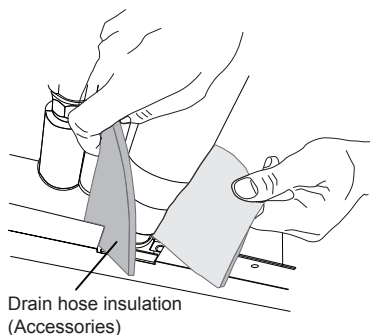




Fix the hose band (Accessories) with the screwdriver tightly.

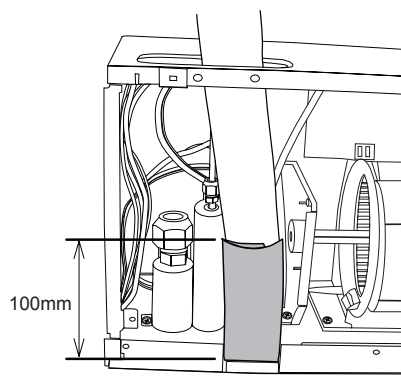
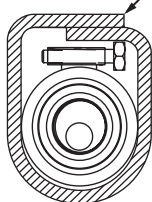


Wrap the drain hose insulation around the drain hose connection.

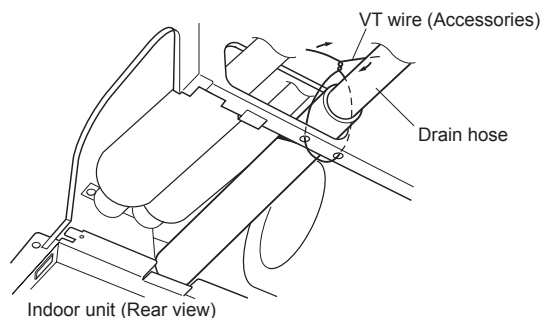


Hose opening view

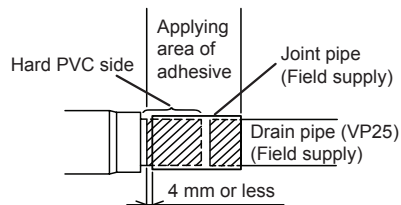
Wind the attached heat insulation around the hose band. Make sure the alignment is on top.



(2) If "① Right rear piping": fasten the drain hose with VT wire so that the pipe slopes correctly within the indoor unit.



(3) Connect the drain pipe.



6. ELECTRICAL WIRING

⚠ WARNING

- Electrical work must be performed in accordance with this Manual by a person certified under the national or regional regulations. Be sure to use a dedicated circuit for the unit. An insufficient power supply circuit or improperly performed electrical work can cause serious accidents such as electric shock or fire.
- Before starting work, check that power is not being supplied to the indoor unit and outdoor unit.
- Use the included connection cables and power cables or ones specified by the manufacturer. Improper connections, insufficient insulation, or exceeding the allowable current can cause electric shock or fire.
- For wiring, use the prescribed type of cables, connect them securely, making sure that there are no external forces of the cables applied to the terminal connections. Improperly connected or secured cables can cause serious accidents such as overheating the terminals, electric shock, or fire.
- Do not modify the power cables, use extension cables, or use any branches in the wiring. Improper connections, insufficient insulation, or exceeding the allowable current can cause electric shock or fire.

- Match the terminal board numbers and connection cable colors with those of the outdoor unit. Erroneous wiring may cause burning of the electric parts.
- Securely connect the connection cables to the terminal board. In addition, secure the cables with wiring holders. Improper connections, either in the wiring or at the ends of the wiring, can cause a malfunction, electric shock, or fire.
- Always fasten the outside covering of the connection cable with the cable clamp. (If the insulator is chafed, electric leakage may occur.)
- Securely install the electrical box cover on the unit. An improperly installed electrical box cover can cause serious accidents such as electric shock or fire through exposure to dust or water.
- Install sleeves into any holes made in the walls for wiring. Otherwise, a short circuit could result.
- Install a ground leakage breaker. In addition, install the ground leakage breaker so that the entire AC main power supply is cut off at the same time. Otherwise, electric shock or fire could result.
- Install a ground leakage breaker. If a ground leakage breaker is not installed, it may cause electric shock or fire.
- Always connect the ground cable. Improper grounding work can cause electric shocks.
- Install the remote control cables so as not to be direct touched with your hand.
- Perform wiring work in accordance with standards so that the air conditioner can be operated safely and positively.
- Connect the connection cable firmly to the terminal board. Imperfect installation may cause a fire.

CAUTION

- Ground the unit.
Do not connect the ground cable to a gas pipe, water pipe, lightning rod, or a telephone ground cable. Improper grounding may cause electric shock.
- Do not connect power supply cables to the transmission or remote control terminals, as this will damage the product.
- Never bundle the power supply cable and transmission cable together. Bundling these cables together will cause miss operation.
- When handling PCB, static electricity charged in the body may cause malfunction of the PCB. Follow the cautions below:
 - Establish a ground for the indoor and outdoor units and peripheral devices.
 - Cut power (breaker) off.
 - Touch metal part of the indoor and outdoor units for more than 10 seconds to discharge static electricity charged in the body.
 - Do not touch terminals of parts and patterns implemented on PCB.

6.1. Electrical requirement

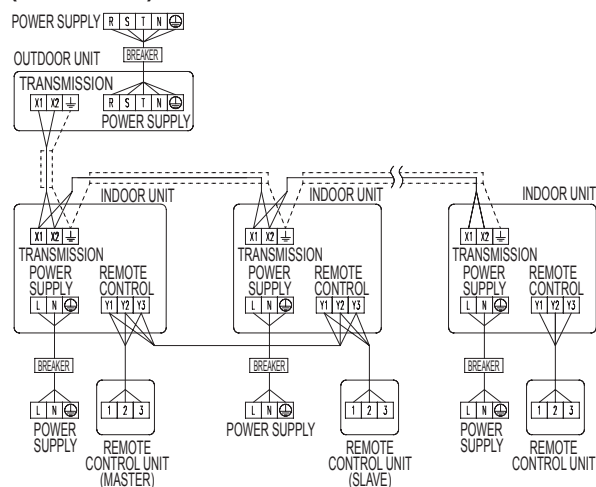
Voltage rating	230 V
Operating range	198 - 264 V

	Recom-mended cable size (mm ²)	Cable type	Remark
Power supply cable	2.5	Type245 IEC57 or equivalent	1ø 50 Hz 198 - 264 V 2 Cable + ground
Transmission cable	0.33	LONWORKS compatible cable	22 AWG LEVEL 4 (NEMA) non-polar 2 core, twisted pair solid core diameter 0.65 mm
Remote control cable	0.33	Sheathed PVC cable*	Polar 3 core Twisted pair

*: Use shielded cable in accordance with local rules for remote control cable.

6.2. Wiring method

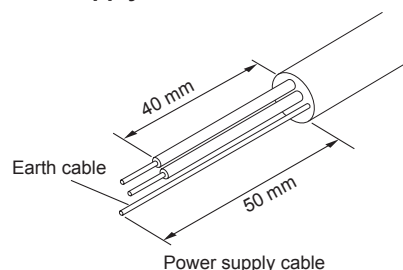
(EXAMPLE)



6.3. Unit wiring

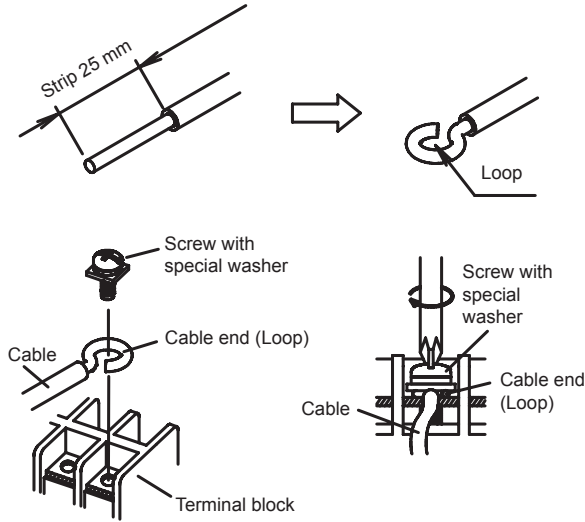
- Before attaching the cable to terminal block.

6.3.1. Power supply cable



A. For solid core wiring

- (1) To connect the electrical terminal, follow the below diagram and connect after looping it around the end of the cable.
- (2) Use the specified cables, connect them securely, and fasten them so that there is no stress placed on the terminals.
- (3) Use an appropriate screwdriver to tighten the terminal screws. Do not use a screwdriver that is too small, otherwise, the screw heads may be damaged and prevent the screws from being properly tightened.
- (4) Do not tighten the terminal screws too much, otherwise, the screws may break.
- (5) See the table for the terminal screw tightening torques.
- (6) Please do not fix two power supply cables with one screw.

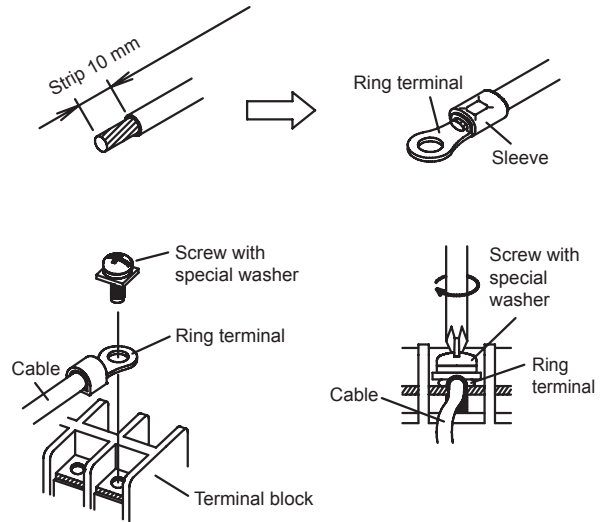


⚠ WARNING

- When using solid core cables, do not use the ring terminal. If you use the solid core cables with the ring terminal, the ring terminal's pressure bonding may malfunction and cause the cables to abnormally heat up.

B. For strand wiring

- (1) Use ring terminals with insulating sleeves as shown in the figure below to connect to the terminal block.
- (2) Securely clamp the ring terminals to the cables using an appropriate tool so that the cables do not come loose.
- (3) Use the specified cables, connect them securely, and fasten them so that there is no stress placed on the terminals.
- (4) Use an appropriate screwdriver to tighten the terminal screws. Do not use a screwdriver that is too small, otherwise, the screw heads may be damaged and prevent the screws from being properly tightened.
- (5) Do not tighten the terminal screws too much, otherwise, the screws may break.
- (6) See the table for the terminal screw tightening torques.
- (7) Please do not fix two power supply cables with one screw.



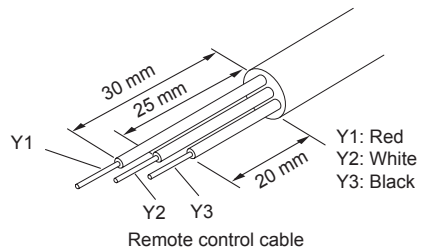
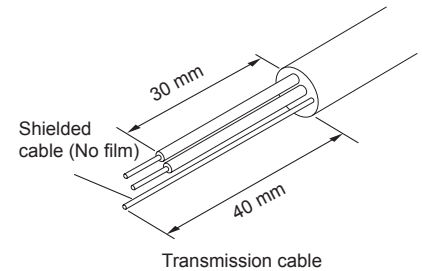
⚠ WARNING

- Use ring terminals and tighten the terminal screws to the specified torques, otherwise, abnormal overheating may be produced and possibly cause heavy damage inside the unit.

Tightening torque

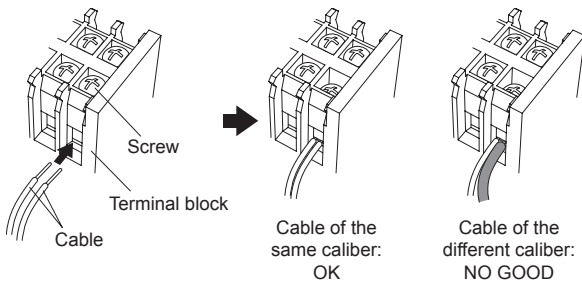
M4 screw (Power supply/L, N, GND)	1.2 to 1.8 N·m (12 to 18 kgf·cm)
--------------------------------------	-------------------------------------

6.3.2. Transmission and Remote control cable



- Connect remote control and transmission cables as shown in Fig. B.
- When the two cables are attached.

Fig. B



⚠ WARNING

- Tighten the terminal screws to the specified torques, otherwise, abnormal overheating may be produced and possibly cause heavy damage inside the unit.

Tightening torque

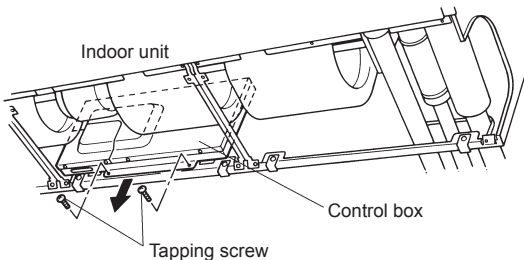
M3.5 screw (Transmission/X1, X2) (Remote control/Y1, Y2, Y3)	0.8 to 1.0 N·m (8 to 10 kgf·cm)
--	------------------------------------

⚠ CAUTION

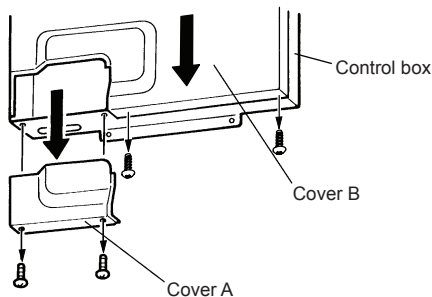
- To peel the film from the lead cable, use a dedicated tool that will not damage the conductor cable.
- When installing a screw on the terminal block, do not cut the cable by overtightening the screw. On the other hand, an undertightened screw can cause faulty contact, which will lead to a communication failure.

6.4. Connection of wiring

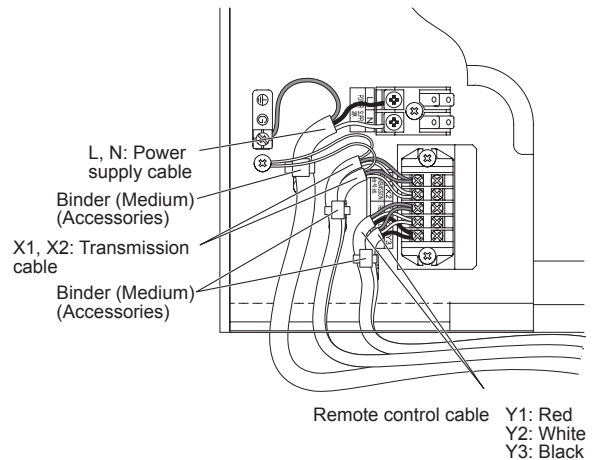
- (1) Remove the two tapping screws and pull the control box downward.



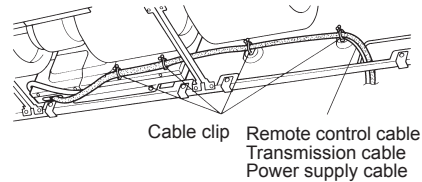
- (2) Remove the cover A and B. And install the connection cable.



- (3) After wiring is complete, clamp the power supply cable with the cable binder (Accessories).



- (4) Reattach cover A and B. Then fasten the control box back into its original position using the two tapping screws.
- (5) Attach the remote control cable, transmission cable, power supply cable, RB unit cable (for Reverse cycle model) and cable clips. Make sure that they are positioned so that they will not interfere with opening and closing of the intake grille or with removal and installation of the air filters.



7. FIELD SETTING

- Refer to the following three items for setting the FIELD SETTING address. The respective settings are included below.
 - (1) IU AD, REF AD SW settings...This section
 - (2) Remote control settingsRefer to the wired or wireless remote control manual for detailed setting information. (Set IU AD, REF AD SW to 0)
 - (3) Automatic address settings...Refer to the indoor unit manual for detailed setting information. (Set IU AD, REF AD SW to 0)

⚠ CAUTION

- Be sure to turn OFF the power before performing the field setting.

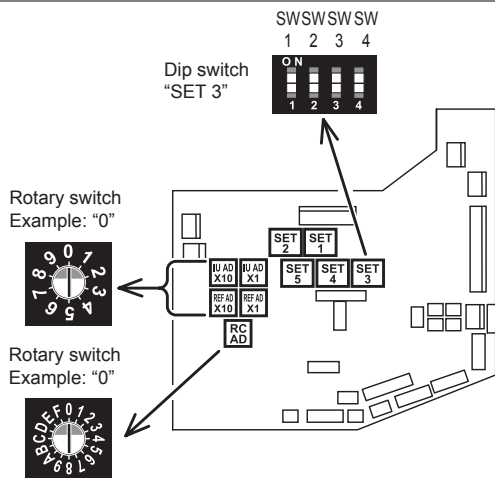
7.1. Setting the address





Manual address setting method

- The indoor unit address and the refrigerant circuit address can also be set up through the wireless remote controller (see "Infrared Address Setting" in this Manual).

CAUTION

- Use an insulated screwdriver to set the dip switches.



Setting	Setting range	Type of switch
Indoor unit address	0–63	Setting example 2  IU AD × 10  IU AD × 1
Refrigerant circuit address	0–99	Setting example 63  REF AD × 10  REF AD × 1

(1) Indoor unit address

Rotary switch (IU AD × 1).....Factory setting "0"

Rotary switch (IU AD × 10)....Factory setting "0"

When connecting multiple indoor units to one refrigerant system, set the address at IU AD SW as shown in the Table A.

(2) Refrigerant circuit address

Rotary switch (REF AD × 1).....Factory setting "0"

Rotary switch (REF AD × 10)....Factory setting "0"

In the case of multiple refrigerant systems, set REF AD SW as shown in the Table A for each refrigerant system. Set to the same refrigerant circuit address as the outdoor unit.

Table A


Address	Rotary Switch Setting		Address	Rotary Switch Setting	
Refrigerant circuit	REF AD SW		Indoor unit	IU AD SW	
	× 10	× 1		× 10	× 1
0	0	0	0	0	0
1	0	1	1	0	1
2	0	2	2	0	2
3	0	3	3	0	3
4	0	4	4	0	4
5	0	5	5	0	5
6	0	6	6	0	6
7	0	7	7	0	7
8	0	8	8	0	8
9	0	9	9	0	9
10	1	0	10	1	0
11	1	1	11	1	1
12	1	2	12	1	2
⋮	⋮	⋮	⋮	⋮	⋮
99	9	9	63	6	3

Do not set the indoor unit address (IU AD SW) at 64 to 99. It may result failure.

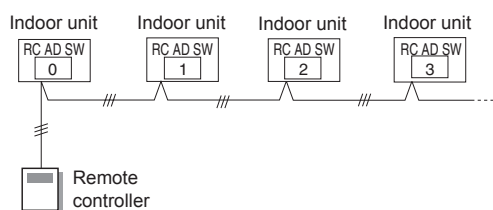
3) Remote controller address

Rotary switch (RC AD SW)....Factory setting "0"

When connecting multiple indoor units to one standard wired remote controller, set the address at RC AD SW in sequence from 0.

Setting	Setting range	Type of switch
Remote controller address	0–15	Setting example 0  RC AD

Example If 4 indoor units are connected.



RC AD SW	0	1	2	3	4	5	6	7
Address	0	1	2	3	4	5	6	7

RC AD SW	8	9	A	B	C	D	E	F
Address	8	9	10	11	12	13	14	15

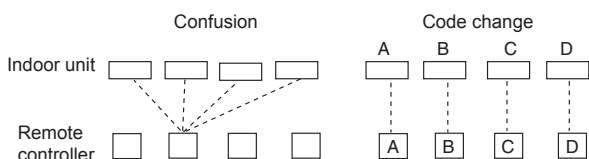
7.2. Custom code setting

Selecting the custom code prevents the indoor unit mix-up. (Fig. B)

(Up to 4 codes can be set.)

Perform the setting for both the indoor unit and the remote controller.

Fig. B



• Custom code setting for indoor unit

Set the DIP SW SET 3 SW1, SW2, referring to the Table B.

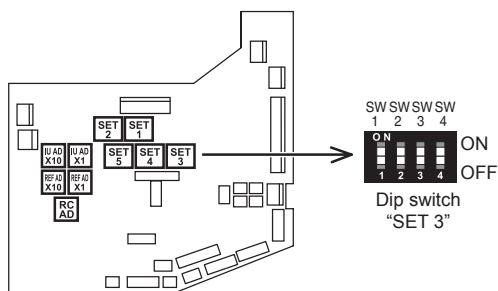


Table B

	Custom code			
	A (Factory setting)	B	C	D
DIP SW SET 3 SW1	OFF	ON	OFF	ON
DIP SW SET 3 SW2	OFF	OFF	ON	ON

7.3. Function setting

- FUNCTION SETTING can be performed with the wired or wireless remote control.
(The remote control is optional equipment)
- Refer to the wired or wireless remote control manual for detailed setting information. (Set IU AD, REF AD SW to 0)
- Refer to "7.1. Setting the address" for indoor unit address and refrigerant circuit address settings.
- Turn the power of the indoor unit ON before starting the setting.

* Turning on the power indoor units initializes EEV, so make sure the piping air tight test and vacuuming have been conducted before turning on the power.

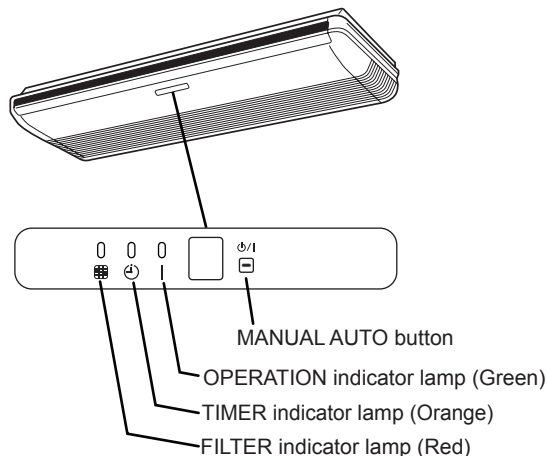
* Also check again to make sure no wiring mistakes were made before turning on the power.

Function details

Function	Function number	Setting number	Default	Details
Filter indicator interval	11	00	Default	Adjust the filter cleaning interval notification. If the notification is too early, change to setting 01. If the notification is too late, change to setting 02.
		01	Longer	
		02	Shorter	
Filter indicator action	13	00	Enable	Enable or disable the filter indicator. Setting 02 is for use with a central remote control.
		01	Disable	
		02	Display only on central remote control	

Horizontal swing airflow direction	24	00	Default	○	Adjust the horizontal swing airflow direction. (For horizontal swing equipped models)
		01	Left half		
		02	Right half		
Cool air temperature trigger	30	00	Default	○	Adjust the cool air trigger temperature. To lower the trigger temperature, use setting 01. To raise the trigger temperature, use setting 02.
		01	Adjust (1)		
		02	Adjust (2)		
Hot air temperature trigger	31	00	Default	○	Adjust the hot air trigger temperature. To lower the trigger temperature by 6 degrees C, use setting 01. To lower the trigger temperature by 4 degrees C, use setting 02. To raise the trigger temperature, use setting 03.
		01	Adjust (1)		
		02	Adjust (2)		
		03	Adjust (3)		
Auto restart	40	00	Enable		Enable or disable automatic system restart after a power outage.
		01	Disable	○	
External control	46	00	Start/Stop	○	Allow an external controller to start or stop the system, or to perform an emergency shutdown. *If an emergency shutdown is performed from an external controller, all refrigerant systems will be disabled.
		01	Emergency stop		
Error report target	47	00	All	○	Change the target for reporting errors. Errors can either be reported in all locations, or only on the wired remote.
		01	Display only on central remote control		

7.3.1. Button name and function



7.3.2. Checking the function settings

- Press and hold the "MANUAL AUTO" button on the indoor unit for 3 seconds to check the function settings. It is necessary to disconnect the power in order to return to normal operation mode.

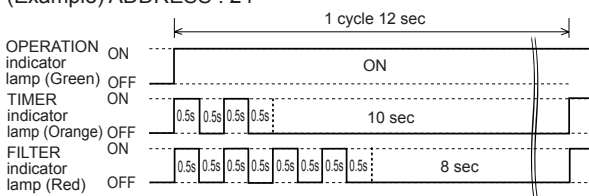
(1) Indoor unit and refrigerant address indication

Indication pattern

Indicator name	Indication pattern	
	Indoor unit address	Refrigerant address
OPERATION indicator lamp (Green)	ON	Flash (1.0s ON/1.0s OFF)
TIMER indicator lamp (Orange)	Address: tens place (0.5s ON/0.5s OFF)	
FILTER indicator lamp (Red)	Address: ones place (0.5s ON/0.5s OFF)	

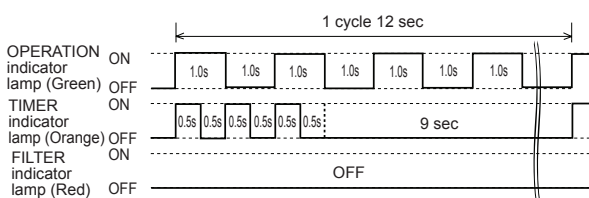
• Indoor unit address example

(Example) ADDRESS : 24



• Indoor unit address exampleRefrigerant address example

(Example) ADDRESS : 30



• Setting details

Function number	Item	Setting number
01	Indoor unit address	00~63
02	Refrigeration address	00~99

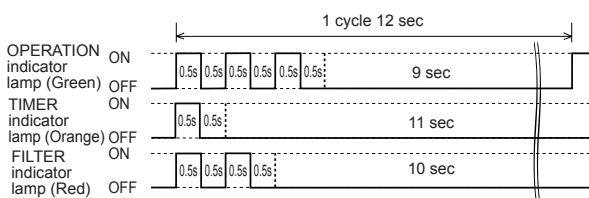
For use with a remote control, set all rotary switches to 0, and refer to "7.1. Setting the address" for details.
All switches are set to 0 at the factory.

(2) Others

Indication pattern

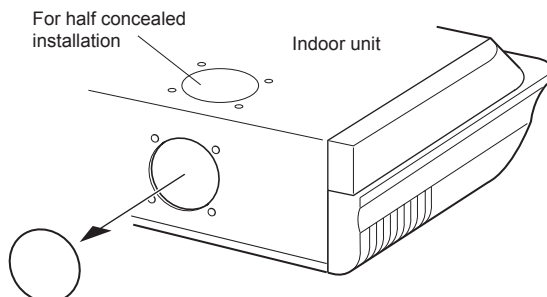
Indicator Name	Indication pattern
OPERATION indicator lamp (Green)	Function number; tens place (0.5s ON/0.5s OFF)
TIMER indicator lamp (Orange)	Function number; ones place (0.5s ON/0.5s OFF)
FILTER indicator lamp (Red)	Setting number: (0 - 9) (0.5s ON/0.5s OFF)

(Example) Function : 31, Setting number : 2



8. FRESH-AIR INTAKE

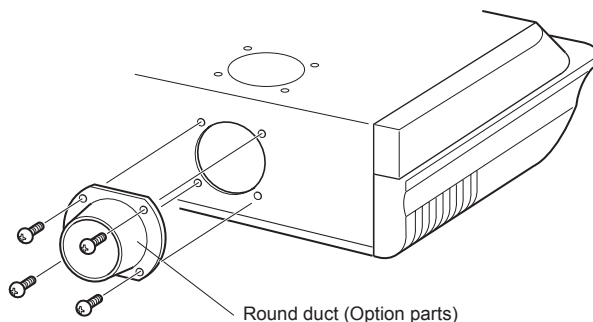
- (1) Open up the knockout hole for the fresh-air intake (If using half-concealed installation, open up the top knockout hole instead.)



CAUTION

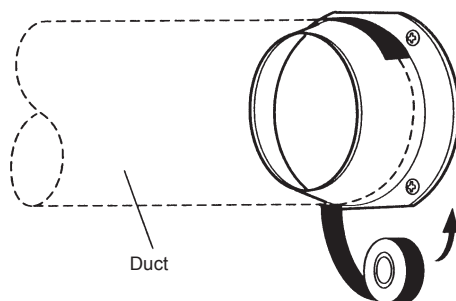
- When removing the cabinet (iron plate), be careful not to damage the indoor unit internal parts and surrounding area (outer case).
- When processing the cabinet (iron plate), be careful not to injure yourself with burrs, etc.

- (2) Fasten the round flange (optional) to the fresh-air intake (If using half-concealed installation, attach to the top.)



[After completing "3.3. Installing the unit"...]

- (3) Connect the duct to the round flange.
- (4) Seal with a band and vinyl tape, etc. so that air does not leak from the connection.



9. FINISHING

- (1) Close the piping outlet with the closing material (putty etc.).
- (2) Install the filter guide.
- (3) Install the intake grilles.
- (4) Install side covers A and B (if the unit is installed in a half-concealed orientation, only install side cover A).
- (5) Install the air filters.

10. TEST OPERATION

10.1. Test operation using PCB (Outdoor unit)

- Refer to the Installation Manual for the outdoor unit if the PCB for the outdoor unit is to be used for the test operation.

10.2. Test operation using remote controller

- Refer to the Installation Manual for the remote control unit to perform the test operation using the remote control unit.
- When the air conditioner is being test run, the OPERATION and TIMER indicator lamps flash slowly at the same time.

11. CHECK LIST

Pay special attention to the check items below when installing the indoor unit(s). After installation is complete, be sure to check the following check items again.

Check items	If not performed correctly	Check box
Has the indoor unit been installed correctly?	Vibration, noise, indoor unit may drop	
Has there been a check for gas leaks (refrigerant pipes)?	No cooling, No heating	
Has heat insulation work been completed?	Water leakage	
Does water drain easily from the indoor units?	Water leakage	
Is the voltage of the power source the same as that indicated on the label on the indoor unit?	No operation, heat or burn damage	
Are the wires and pipes all connected completely?	No operation, heat or burn damage	
Is the indoor unit grounded?	Short circuit	
Is the connection cable the specified thickness?	No operation, heat or burn damage	
Are the inlets and outlets free of any obstacles?	No cooling, No heating	
After installation is completed, has the proper operation and handling been explained to the user?		

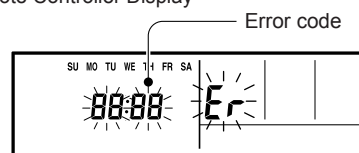
12. ERROR CODES

If you use a wired type remote control, error codes will appear on the remote control display. If you use a wireless remote control, the lamp on the photodetector unit will output error codes by way of blinking patterns. See the lamp blinking patterns and error codes in the table below.

Abnormal display			Wired Remote Controller Error CODE	Abnormal contents
OPERATION indicator lamp (green)	TIMER indicator lamp (orange)	FILTER indicator lamp (red)		
● (1)	● (2)	◇	12	Remote control abnormal communication
● (1)	● (4)	◇	14	Anomalous network communications
● (1)	● (6)	◇	16	Abnormal parallel communication
● (3)	● (1)	◇	31	Abnormal power frequency
● (3)	● (2)	◇	32	Abnormal model information / abnormal EEPROM accession
● (4)	● (1)	◇	41	Abnormal room temperature thermistor
● (4)	● (2)	◇	42	Abnormal indoor heat exchanger temperature thermistor
● (5)	● (1)	◇	51	Abnormal indoor fan motor
● (5)	● (3)	◇	53	Abnormal drainage
● (9)	● (15)	◇	90	Abnormal outdoor unit

Display mode ● : 0.5s ON / 0.5s OFF
 ◇ : 0.1s ON / 0.1s OFF
 () : Number of flashing

Wired Remote Controller Display



VRF 系统 室内机组 吊顶式

安装说明书

只供授权专业维修人员使用。

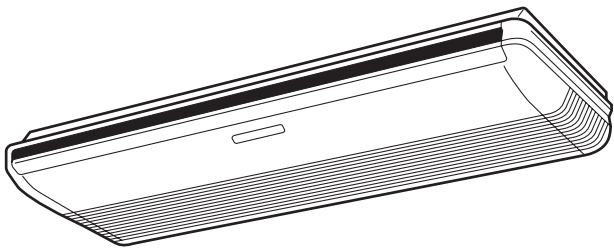
注意

**R410A
制冷剂**

本空调含有并使用制冷剂R410A。

本产品需由专业人员安装或维修。

在安装、保养及（或）维修本产品前，请先阅读联邦、州、地区及地方之法律、规则、法规、及安装手册。





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1. 安全注意事项


- 安装之前务必彻底阅读该说明书
- 该说明书指出的警告和注意事项包含与您的安全密切相关的重要信息。请务必遵循这些信息。
- 将该说明书与操作手册交给用户。请用户将它们收藏好，以便日后使用，例如更换机组位置或对机组进行修理。

 警告	该标志表示如果步骤执行失当，可能会导致用户死亡或严重伤害。
• 请您的经销商或专业安装人员依照该安装说明书安装机组。机组安装不当可能造成严重的事故，例如漏水、电击或火灾。如果没有依照安装说明书中的说明来安装室内机组，则制造商不会保用。	
• 未完成所有工作之前请勿打开电源。在工作完成之前打开电源可能造成严重的事故，例如电击或火灾。	
• 如果制冷剂在执行工作时泄漏，请为该区域通风。如果制冷剂接触火，就会产生有害气体。	
• 务必由授权的维修人员按照国家接线标准执行安装工作。	


 注意	该标志表示，如果步骤执行不当，可能会导致用户人身伤害或财产损失。
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2. 关于机组

2.1. 使用 R410A 制冷剂时的注意事项


 警告
• 请勿让除规定的制冷剂之外的其他物质进入制冷循环。如果空气进入制冷循环，则其中的压力将变得异常之高，并且会造成管道破裂。
• 如果制冷剂泄漏，请确保它未超过浓度限制。如果制冷剂泄漏超过了浓度限制，则可能造成缺氧等事故。
• 请勿触摸从制冷管管接头等部位泄漏的制冷剂。直接触摸制冷剂会导致冻伤。
• 如果运行过程中发生制冷剂泄漏，请立即离开建筑物，并对该区域彻底通风。如果制冷剂接触火，就会产生有害气体。

2.2. R410A 的专用工具







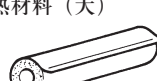
 警告
• 要安装使用 R410A 制冷剂的机组，请使用专供 R410A 使用而制造的专用工具和管道材料。由于 R410A 制冷剂的压力约是 R22 的 1.6 倍，未使用专用的管道材料或不当的安装可能会导致管道破裂或造成人身伤害。另外，还可能会导致如漏水、电击或火灾等严重事故。





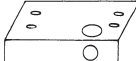

工具名称	变更内容
压力表歧管	压力较高，不能使用传统的压力计测量。为了避免与其它制冷剂错误混合，每个接口的直径均已更改。建议使用具有高压显示范围为 -0.1 至 5.3 MPa 以及低压显示范围为 -0.1 至 3.8 MPa 的压力表歧管。
充注软管	为了增加抗压能力，软管材料和尺寸已变更。 (R410A 的充注接口螺纹直径为 1/2 UNF 每英寸 20 个螺纹。)
真空泵	可以通过安装真空泵适配器使用传统的真空泵。 确保真空泵油不会回流到系统中。 使用真空吸力能够达到 -100.7 kPa (5 Torr, -755 mmHg) 的真空泵。
气体泄漏检测器	HFC 制冷剂 R410A 的专用气体泄漏检测器。

2.3. 附件

 警告
• 安装时，请务必使用制造商供应的部件或其他规定部件。使用非规定部件可能造成严重的事故，例如机组掉落、漏水、电击或火灾。

- 本机配有以下安装部件。请按照需要使用。
- 请妥善保管安装说明书，并且不要在安装工作完成前丢弃任何其它附件。

名称及形状	数量	用途
使用说明书 	1	
安装说明书 	1	本书
排水软管 	1	用于安装排水管
软管卡子 	1	用于安装排水软管
排水管绝热材料 	1	不干胶型 220 × 100 mm
VT 线 	1	用于固定排水软管 L 280 mm
接管绝热材料 (大) 	2	用于室内机管道接头 (气体管)

名称及形状	数量	用途
接管绝热材料（小） 	1	用于室内机管道接头（液体管）
扎线带 	超大 4 大 4 中等 3	用于固定接管绝热材料
专用螺母 A（大法兰） 	4	用于安装室内机
专用螺母 B（小法兰） 	4	用于安装室内机
安装模板 	1	用于定位室内机
辅助管组件 	1	用于连接管道

2.4. 选购件

下列选购件可选：

- 排水泵单元：UTR-DPB241 (P/N 9034087001)
- 圆形风管：UTD-RF204 (P/N 9093160004)

3. 安装工作

对于分体式空调，安装地点尤为重要，因为首次安装后，移动位置非常困难。

3.1. 选择安装位置

请按照以下要求与用户一起决定安装位置。

警告

- 选择能有效支撑室内机重量的安装位置。将机组安装牢固，以免倾倒或坠落。

注意

请勿将机组安装在下列区域：

- 盐含量高的区域，例如海边。这会损坏金属部件，使部件掉落或使机组漏水。
- 充满矿物油或包含大量溅油或蒸汽的区域，例如厨房。这会损坏塑料部件，使部件掉落或使机组漏水。
- 会产生对设备有负面影响的物质（例如硫磺气体、氯气、酸或碱）的区域。这会腐蚀铜管和铜焊接合，从而造成制冷剂泄漏。
- 可能造成易燃气体泄漏、含有悬浮碳纤维或易燃尘埃，或者如涂料稀释剂或汽油等挥发性易燃物的区域。如果气体泄漏并沉积在机组周围，可能会造成火灾。
- 动物可能会在机组上排尿或者可能会产生氨的区域。

- 请勿将机组用于特殊用途，例如存放食物、饲养动物、栽培植物或保存精密装置或艺术品。这可能降低保存或存放对象的质量。

- 请勿安装在可能泄漏燃烧气体的地方。

- 请勿将机组安装在靠近热源、蒸汽或易燃气体的地方。

- 将机组安装在排水不会造成任何问题的地方。

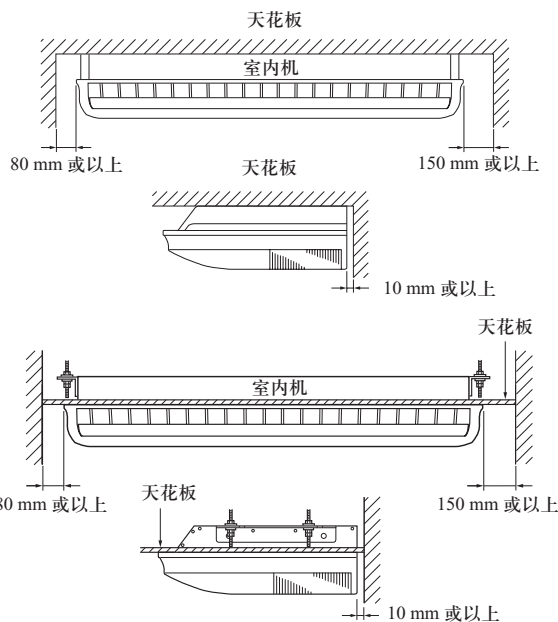
- 请在距离电视机和收音机 1 m 以外的地方进行室内机和室外机、电力接线、信号接线及遥控接线的安装，以免发生图像失真和声音失真。（然而，即使将上述机组和接线安装在距电视机和收音机 1 m 以外的地方，根据电波的状况的不同，声音失真也可能无法避免。）

- 如 10 岁以下的儿童有可能接触到时，请采取适当的预防措施，使他们无法接触机组。

- 请采取预防措施防止机组坠落。

- (1) 将室内机安装在具有足够强度的地方，以便能承受室内机的重量。
- (2) 请勿堵塞进气口和出气口。空气应能吹向整个房间。
- (3) 请保留可以维修空调的空间。
- (4) 将机组安装在容易连接室内机的地方。
- (5) 请在方便安装连接管的地方安装机组。
- (6) 请在方便安装排水管的地方安装机组。
- (7) 将机组安装在不会将噪音和振动放大的地方。
- (8) 应考虑之后的维修等情况，并留出空间。将机组安装在可以拆卸过滤网的地方。
- (9) 请勿在易受阳光直射处安装机组。

3.2. 安装尺寸



3.3. 安装机组

警告

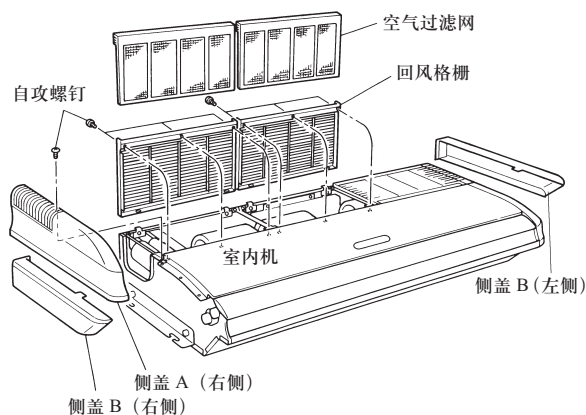
- 将空调安装在能够承受至少主机重量 5 倍并且不会将噪音或振动放大的地方。如果安装位置不够坚固，室内机可能会坠落，引起人身伤害。

3.3.1. 准备安装室内机

拆下回风格栅和侧盖。

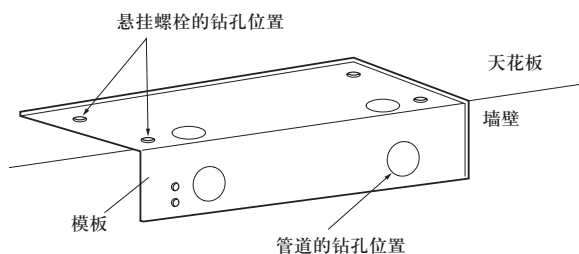
- (1) 拆下两个空气过滤网。
- (2) 拆下两个回风格栅。
 - 对于左后部排水管 ④ 和左侧排水管 ⑤：拆下空气过滤网和回风格栅（3 处）。（请参见“3.3.4. 选择管道方向”。）

- (3) 拆下侧盖 A (右侧) 和侧盖 B (右侧和左侧)。
- 对于左侧排水管 ⑤：拆下两个侧盖 A (右侧和左侧)。(请参见“3.3.4. 选择管道方向”。)
- (4) 可以安装本空调以进行换气：有关如何安装进行换气的信息，请参见“8. 换气孔”。



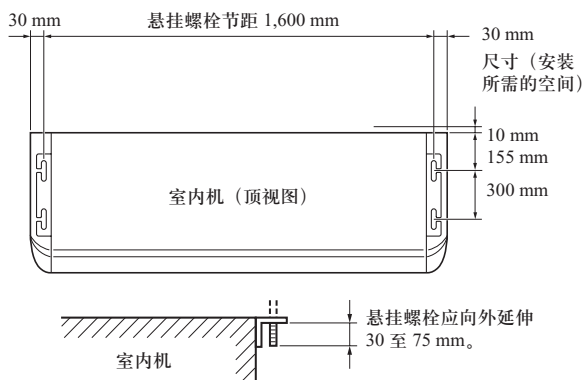
3.3.2. 安装室内机

可以使用附件模板以帮助安装室内机。模板可以帮助您确定悬挂螺栓和管道开口 (排水管和连接线) 的适当位置。



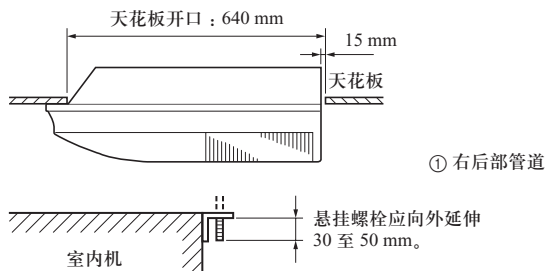
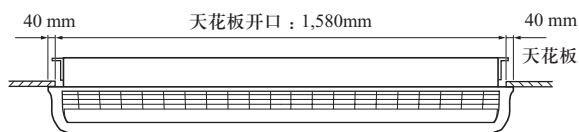
3.3.3. 天花板悬挂螺栓的位置

图 A



[对于半隐藏安装]

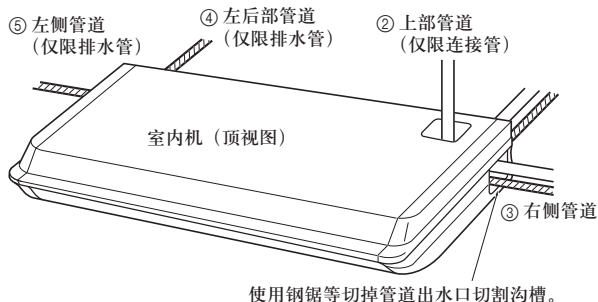
- 悬挂螺栓节距应为图 A 中所示。



① 右后部管道

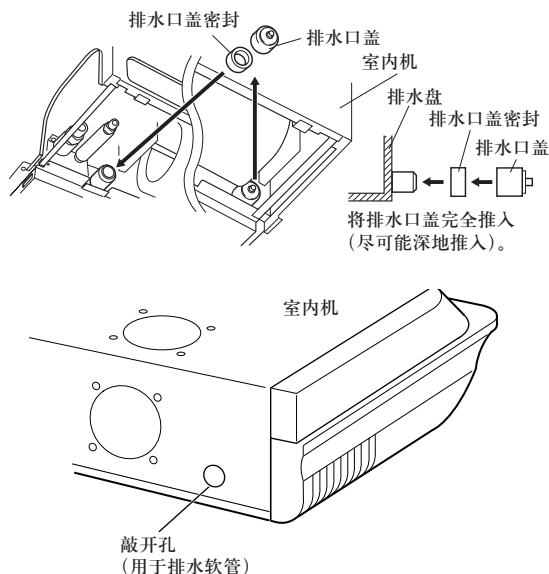
3.3.4. 选择管道方向

选择连接管和排水管方向。



[对于左后部管道 ④、左侧管道 ⑤]

- 转接排水口盖和排水口盖密封。

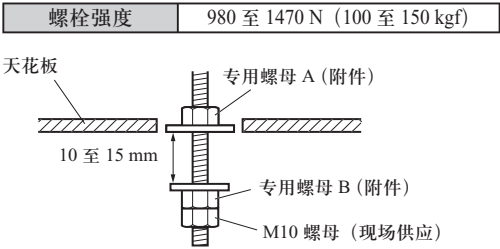


⚠ 注意

- 去除敲开孔时，注意不要损坏室内机内部零件和附近区域 (外壳)。
- 处理敲开孔时，注意不要让毛刺等刮碰而受伤。

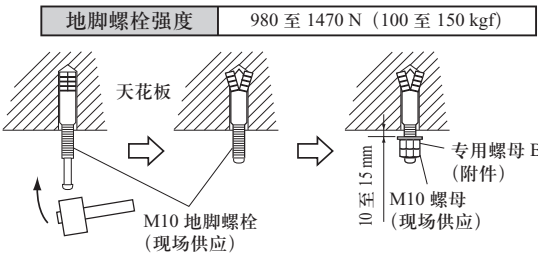
3.3.5. 钻孔并安装悬挂螺栓

- (1) 在悬挂螺栓的位置钻 $\phi 25$ mm 的孔。
- (2) 安装螺栓，然后暂时将专用螺母 A 和 B 以及标准 M10 螺母安装到各螺栓。（两颗专用螺母本机随附。M10 螺母必须在当地购买。）



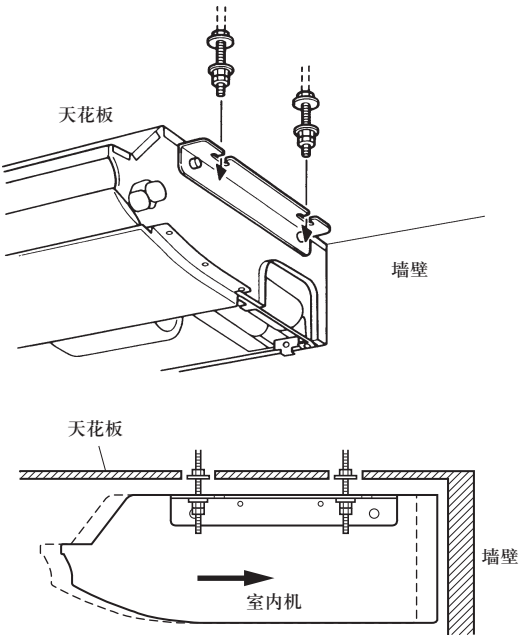
[如果使用地脚螺栓]

- (1) 在想要安装悬挂螺栓的位置为地脚螺栓钻孔。请注意，地脚螺栓为 M10 螺栓（需要在当地购买）。
- (2) 安装地脚螺栓，然后暂时将专用螺母“B”（附件）和当地购买的 M10 螺母安装到各螺栓。



3.3.6. 安装室内机

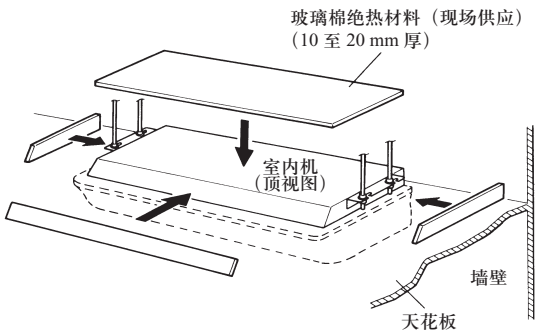
- (1) 抬起机组，使悬挂螺栓穿过侧面的悬挂配件（4 处），然后将机组滑回。



- (2) 拧紧专用“B”螺栓和 M10 螺母，将室内机固定到位。确认机组已固定牢靠，不会向后和向前移动。

[对于半隐藏安装]

以半隐藏方向安装室内机时，确保加固机组所有侧面上的绝热材料（现场供应）。如果未完全绝热，水滴可能会从机组掉落。



注意

- 为检查排水，安装室内机时请务必使用水平面。如果室内机的安装位置不是水平面，则可能发生漏水。

4. 管道安装

注意

- 要小心注意的是，杂质（油、水等）不会像制冷剂 R410A 型号那样进入管道。另外，存放管道时，通过夹住、捆绑等牢固密封管口。
- 焊接管道时，务必向里面冲入干燥的氮气。

4.1. 选择管材

注意

- 不要使用原有的管道。
- 使用的管道应内外表面清洁，不含在使用过程中可能引起故障的污染物，例如硫、氧化物、灰尘、切屑、油或水。
- 必须使用无缝铜管。
材料：经过磷脱氧处理的无缝铜管
残油量最好小于 40 mg/10 m。
- 使用的铜管不能带有压扁、变形或变色的部分（尤其是在内部表面）。否则，膨胀阀或毛细管可能会被污染物堵塞。
- 管道选择不当会降低性能。由于使用 R410A 的空调会比使用传统的制冷剂时承受更高的压力，因此需要选择适当的材料。

- 使用 R410A 的铜管厚度如表所示。
- 绝对不要使用厚度不足于表中所示的铜管，即使市场上有售。

退火铜管的厚度 (R410A)

管道外径 [mm (in.)]	厚度 [mm]
6.35 (1/4)	0.80
9.52 (3/8)	0.80
12.70 (1/2)	0.80
15.88 (5/8)	1.00
19.05 (3/4)	1.20

4.2. 管道要求

⚠ 注意

- 有关连接管道长度或不同标高的规格，请参见室外机的安装说明书。

- 使用带防水热绝缘材料的管道。

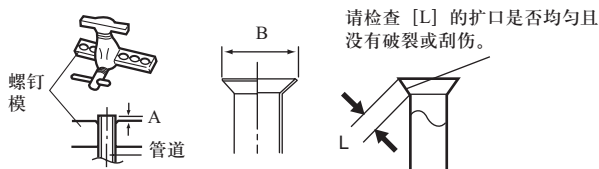
⚠ 注意

- 请在气体和液体管道周围安装绝热材料。否则可能会导致漏水。
请使用抗热能力超过 120℃ 的绝热材料。（仅限逆循环型）
此外，如果安装制冷剂管道的地方的湿度可能会超过 70%，请在制冷剂管道周围安装绝热材料。
如果预计的湿度为 70-80%，请使用 15 mm 或更厚的绝热材料；如果预计的湿度超过 80%，请使用 20 mm 或更厚的绝热材料。如果使用的绝热材料未达到指定的厚度，可能会在材料表面形成冷凝。
此外，请使用热传导率为 0.045 W/(m·K) 或以下（20℃ 时）的绝热材料。

4.3. 扩口接头（管接头）

4.3.1. 扩口

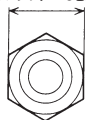
- 请使用专用的切管机和 R410A 专用的扩口工具。
- (1) 使用切管机将连接管道截成所需的长度。
- (2) 向下按住水管以避免切屑进入管道并去除毛刺。
- (3) 将扩口螺母（必须使用分别连接到室内机和室外机的扩口螺母）插入管道，并使用扩口工具执行扩口工序。请使用专用的 R410A 扩口工具或传统的扩口工具。如果使用其它扩口螺母，会导致制冷剂泄漏。
- (4) 请夹住或用胶带保护管道，防止灰尘、污物或水进入管道。



管道外径 [mm (in.)]	尺寸A [mm]	尺寸 B _{0.4} [mm]
	R410A的扩口工具， 离合式	
6.35 (1/4)	0至0.5	9.1
9.52 (3/8)		13.2
12.70 (1/2)		16.6
15.88 (5/8)		19.7
19.05 (3/4)		24.0

当使用传统的扩口工具对 R410A 管道进行扩口时，尺寸 A 应比表中（针对使用 R410A 扩口工具进行扩口）所示的尺寸大约 0.5 mm 以获得指定的扩口。使用厚度测量仪测量尺寸 A。

扳手开口宽度



管道外径 [mm (in.)]	扩口螺母的扳手开口 宽度 [mm]
6.35 (1/4)	17
9.52 (3/8)	22
12.70 (1/2)	26
15.88 (5/8)	29
19.05 (3/4)	36

4.3.2. 弯管加工

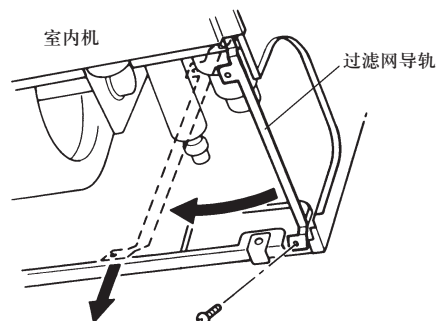
- 用手或弯管器使管道成形。注意请勿将它们压扁。
- 弯曲管道时角度不应超过 90°。
- 如果反复弯曲或拉伸管道，材料将变硬，以至很难再次弯曲或拉伸。弯曲或拉伸管道的次数不应超过三次。

⚠ 注意

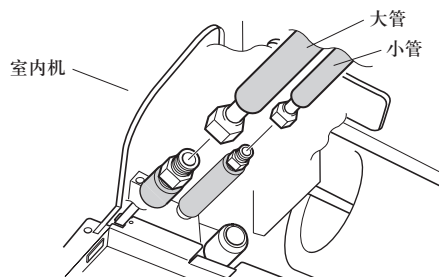
- 为了防止管道破裂，应避免过度的弯曲。
- 如果管道在同一位置反复弯曲，它会破裂。

4.3.3. 管道连接

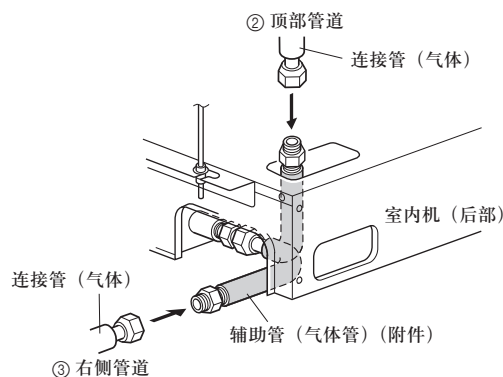
- (1) 拆下过滤网导轨。



- (2) 安装连接管。



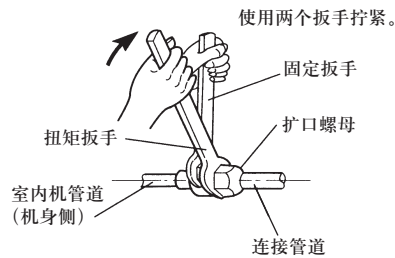
- 对于顶部管道 ② 和右侧管道连接 ③，使用附带的辅助管（气体管）。



⚠ 注意

- 握住扭矩扳手的手柄，使其与管道成 90 度，以便顺利地拧紧扩口螺母。
- 按照指定的拧紧方法，用扭矩扳手拧紧扩口螺母。否则长时间以后，扩口螺母会破裂，导致制冷剂泄漏，如果制冷剂与火焰接触，还会产生有害气体。

用手正确地拧紧扩口螺母时，用单独的扳手按住机身侧沟槽连接件，然后用扭矩扳手拧紧。



扩口螺母[mm (in.)]	拧紧扭矩[N·m (kgf·cm)]
6.35 (1/4) 直径	16至18 (160至180)
9.52 (3/8) 直径	32至42 (320至420)
12.70 (1/2) 直径	49至61 (490至610)
15.88 (5/8) 直径	63至75 (630至750)
19.05 (3/4) 直径	90至110 (900至1,100)

⚠ 注意

- 务必将管道与室内机和室外机的接口正确连接。如果没有对齐，扩口螺母将无法顺利紧固。如果强行旋转扩口螺母，将损坏螺纹。
- 只有在对连接管道进行连接之前才能从室内机管道上拆除扩口螺母。
- 请勿在扩口部件上使用矿物油。防止矿物油进入系统，因为这样会降低机组的寿命。

4.4. 安装绝热材料

执行制冷剂绝缘检查后，请安装绝热材料（有关详细信息，请参见室内机的安装说明书）。

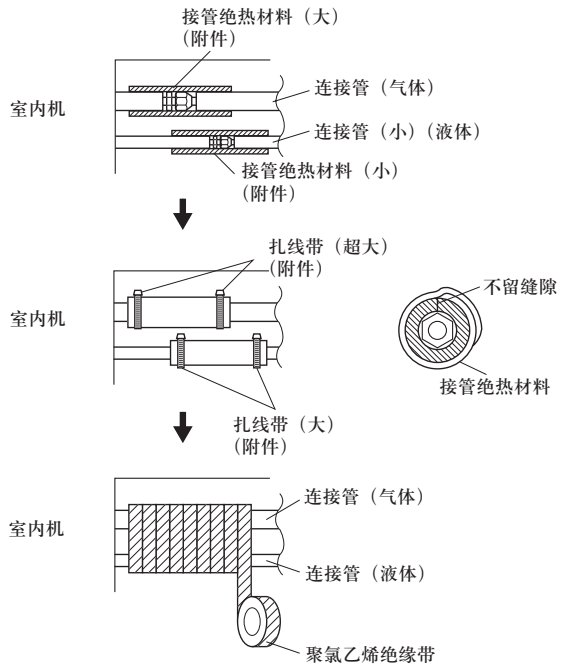
接管绝热材料

- 在室内侧的气体和液体管周围用接管绝热材料（附件）进行绝缘。
- 安装了接管绝热材料之后，请用聚氯乙烯胶带将两端包扎，不留间隙。
- 接上接管绝热材料后，请在绝热材料的两端各用一个绑扎件将其固定。
- 请确保绑扎件覆盖绝热管道。

然后转动接管绝热材料（气体）和接管绝热材料（液体）上的聚氯乙烯绝缘带，将连接管（液体）最终安装到连接管（气体）。

⚠ 注意

- 检查气体泄漏之后（请参考室外机的安装说明书），请执行这部分操作。
- 在大（气体）管道和小（液体）管道周围安装绝热材料。否则可能会导致漏水。



- 使用辅助管时，确保以相同的方式对所使用的紧固件绝热。

5. 安装排水管

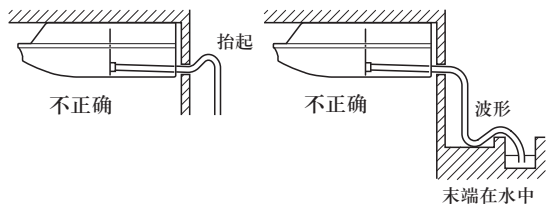
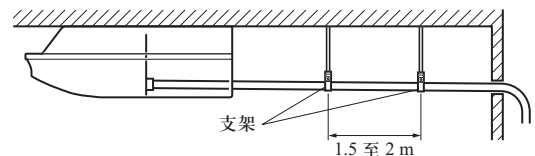
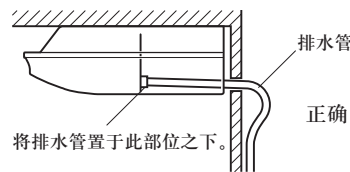
请使用普通硬度的聚氯乙烯管，并使用胶带（聚氯乙烯）将其连接，以防止渗水。

必须对室内侧排水管进行绝缘热处理。

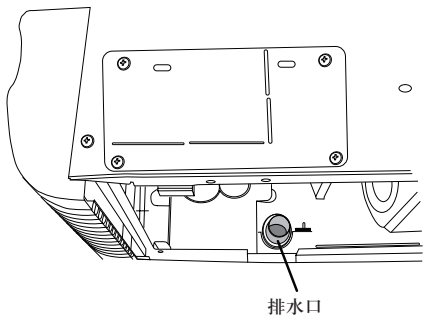
请使用与排水软管的尺寸相匹配的排水管。

- 请勿提起、令其出现存水弯和出气孔。
- 提供向下的倾斜度（1/100 或更大）。
- 安装长管道时，请使用支架。
- 如果需要，请使用绝热材料，以防止管道冻结。
- 安装管道时，必须便于拆卸控制箱。
- 请务必对排水管的室内部分进行热绝缘（8 mm 厚或以上）。

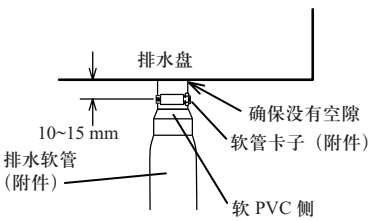
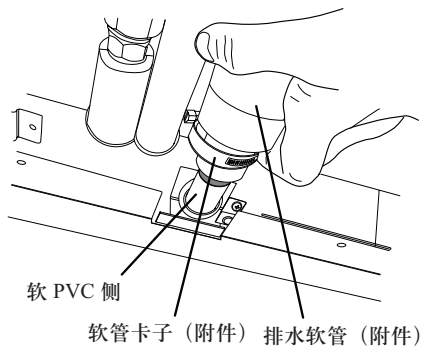
	外径
排水管	32 mm (VP25)



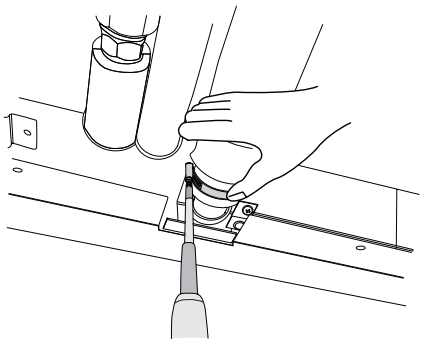
(1) 安装排水管的绝热材料。
如下所述进行组装。



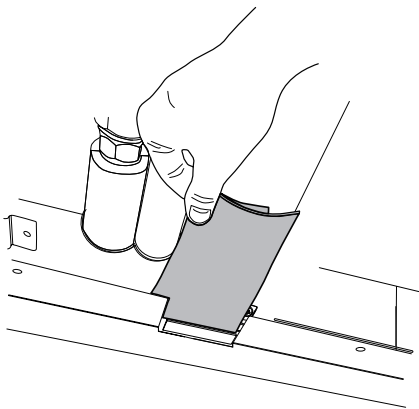
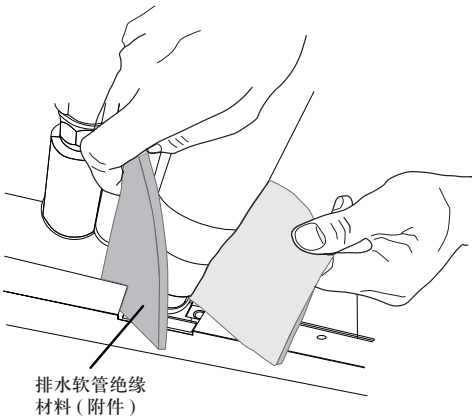
将排水软管（附件）和软管卡子（附件）组装到排水口。



使用螺丝刀牢固地固定软管卡子（附件）。

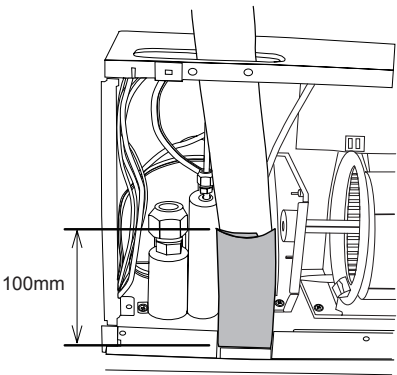
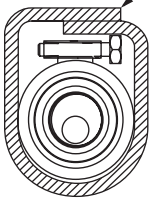


在排水软管连接处周围缠绕排水软管绝热材料。

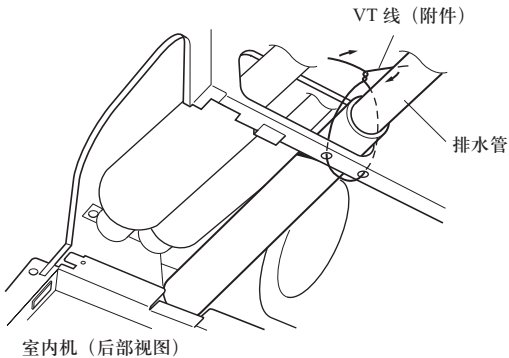


软管剖开视图

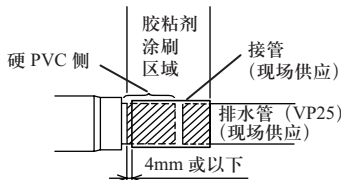
将附带的绝热材料缠在软管卡子上。
确保调整部分位于顶部。



- (2) 如果是“① 右后部管道”：使用 VT 线固定排水软管，使管道在室内机内斜度正确。



- (3) 连接排水管。



6. 电气接线

⚠ 警告

- 必须由持有证书的人员根据国家或地方法规并按照本说明书执行电气作业。务必使用机组专用的电路。电源电路供电不足或不当的电气作业可能会导致如电击或火灾的严重事故。
- 开始工作前，检查室内机和室外机是否没有通电。
- 使用附带的连接线和电源线，或者制造商指定的线缆。连接不当、绝缘不充分或者超出了允许的电流限制可能会导致电击或火灾。
- 对于接线，使用指定类型的电线，将其牢固连接，并确保电线的外力没有施加到接线端子上。电线连接或紧固不当可能会导致如端子过热、电击或火灾的严重事故。
- 请勿改装电源线、使用延长线或者使用接线中的任何支线。连接不当、绝缘不充分或者超出了允许的电流限制可能会导致电击或火灾。
- 将接线板号码与室外机上的连接线颜色相匹配。错误的接线可能会导致电气部件烧毁。
- 将连接线牢靠地连接到端子板。此外，使用接线座紧固电线。如果接线内或端部连接不当，可能会导致故障、电击或火灾。
- 必须用线夹固定连接线的绝缘层。（如果绝缘层未被夹住，可能会发生漏电。）
- 在机组上牢固地安装电气盒盖。电气盒盖安装不当可能会因暴露于灰尘或水而导致如电击或火灾的严重事故。
- 在用于接线的墙壁开孔中安装套管。否则，可能会导致短路。
- 安装接地漏电断路器。此外，安装接地漏电断路器，以便同时切断整个 AC 主电源。否则，可能会导致电击或火灾。
- 安装接地漏电断路器。如果未安装接地漏电断路器，可能会导致电击或火灾。
- 必须连接地线。不当的接地工作可能会导致电击。
- 安装遥控器电线时，要确保不会用手直接触摸到。

- 按照标准进行接线工作，以便空调器可以安全无故障地运行。
- 将连接电缆牢固地连接在接线板上。不正确的安装可能会导致火灾。

⚠ 注意

- 将机组接地。请勿将地线连接到气体会管、水管、避雷针或电话地线。不适当的接地可能造成电击。
- 请勿将电源线连接到信号线或遥控器接线端，因为这会损坏该产品。
- 绝不要将电源线和信号线束在一起。将这些线束在一起会导致错误运行。
- 操作 PCB 时，机身上的静电可能造成控制 PCB 发生故障。请遵循下列注意事项：
 - 对室内和室外机组以及外围设备使用接地线。
 - 切断电源（断路器）。
 - 请触摸室内和室外机组金属部分 10 秒以上，以释放机身静电。
 - 请勿触碰接线 PCB 上的部件端子和布线模式。

6.1. 电气要求

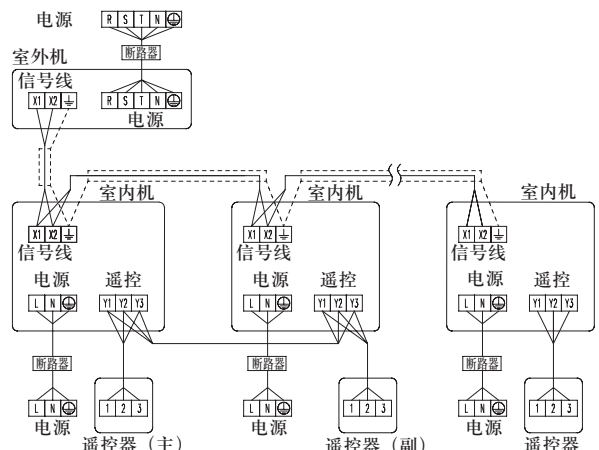
额定电压	230 V
操作范围	198 - 264 V

	电缆尺寸推荐值 (mm ²)	电线类型	备注
电源线	2.5	245 IEC57 或相当品	1ø 50 Hz 198 - 264 V 2 电线 + 地线
信号线	0.33	LONWORKS 兼容线	22 AWG LEVEL 4 (NEMA) 非极性双芯双绞实芯线，直径 0.65 mm
遥控器线	0.33	聚氯乙烯外皮电缆 *	极性 3 芯双绞线

*: 根据当地规则，对遥控器使用屏蔽电缆。

6.2. 接线方法

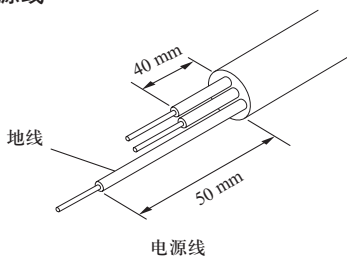
(示例)



6.3. 机组接线

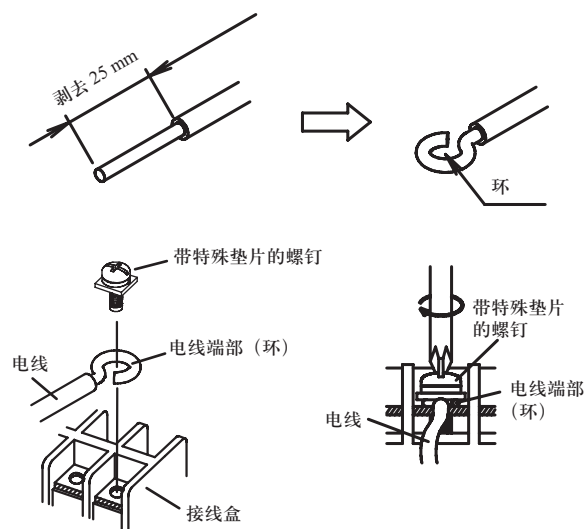
- 将电线连接到接线板之前。

6.3.1. 电源线



A. 对于实芯接线

- (1) 要连接端子，请将电线在端部结环后根据下图进行连接。
- (2) 用指定的电线连接牢固，然后拧紧，保持端子上没有张力。
- (3) 使用适当的螺丝刀拧紧端子螺钉。不要使用过小的螺丝刀，否则，螺钉头可能会被损坏并且无法将螺钉正确拧紧。
- (4) 不要过分拧紧端子螺钉，否则螺钉可能会断裂。
- (5) 请参见表中的端子螺钉拧紧扭矩。
- (6) 请不要用一颗螺丝固定两根电源线。

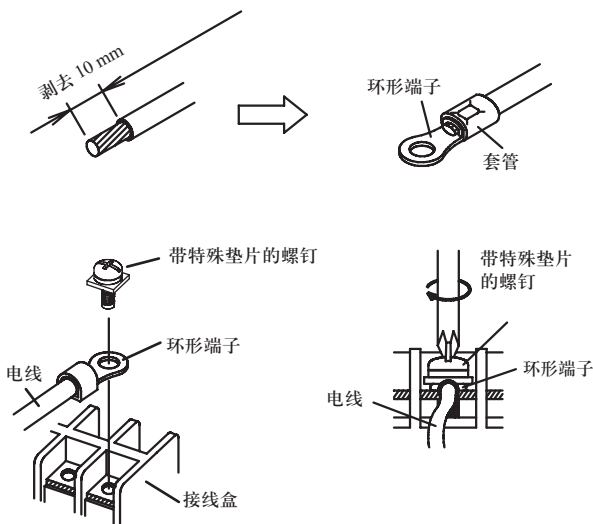


警告

- 使用实芯电线时，请勿使用环形端子。如果使用带有环形端子的实芯电线，环形端子的气压粘结可能会发生故障并导致电线异常发热。

B. 对于绞合线

- (1) 如下图所示，用带绝缘套管的环形端子连接到接线盒。
- (2) 用适当的工具将环形端子压紧到电线，不要让电线松脱。
- (3) 用指定的电线连接牢固，然后拧紧，保持端子上没有张力。
- (4) 使用适当的螺丝刀拧紧端子螺钉。不要使用过小的螺丝刀，否则，螺钉头可能会被损坏并且无法将螺钉正确拧紧。
- (5) 不要过分拧紧端子螺钉，否则螺钉可能会断裂。
- (6) 请参见表中的端子螺钉拧紧扭矩。
- (7) 请不要用一颗螺丝固定两根电源线。



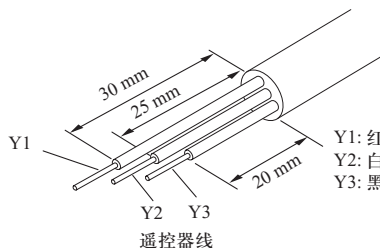
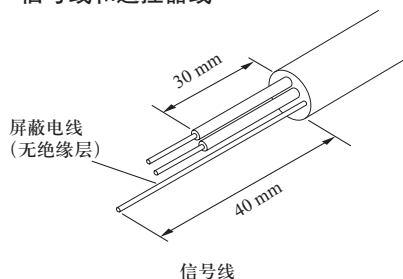
警告

- 使用环形端子并将端子螺钉拧紧到指定的扭矩，否则可能会造成异常过热并可能造成机组内部严重损坏。

拧紧扭矩

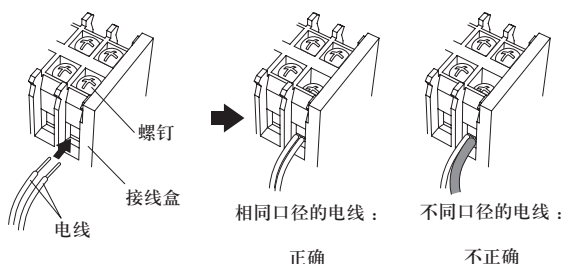
M4 螺钉 (电源 /L, N, GND)	1.2 至 1.8 N·m (12 至 18 kgf·cm)
--------------------------	-----------------------------------

6.3.2. 信号线和遥控器线



- 如图 B 所示连接遥控和信号线。
- 连接两根电线时。

图 B



警告

- 将端子螺钉拧紧到指定的扭矩，否则可能会造成异常过热并可能造成机组内部严重损坏。

拧紧扭矩

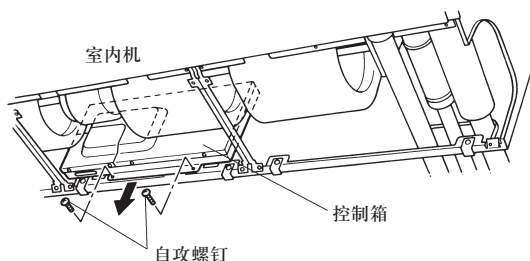
M3.5 螺钉 (传输 /X1, X2) (遥控器 /Y1, Y2, Y3)	0.8 至 1.0 N · m (8 至 10 kgf · cm)
--	--------------------------------------

注意

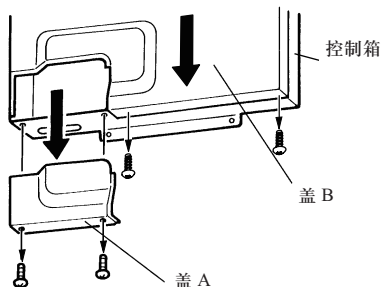
- 要剥去引线上的绝缘层，请使用不会损坏导线的专用工具。
- 在接线盒上安装螺钉时，请勿过度拧紧螺钉而折断电线。同时，过度拧紧的螺钉可能造成错误接触，从而导致通信故障。

6.4. 线路的连接

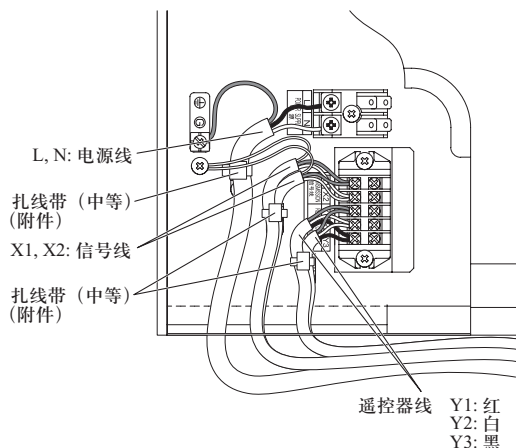
- (1) 拆下两颗自攻螺钉，然后向下拉控制箱。



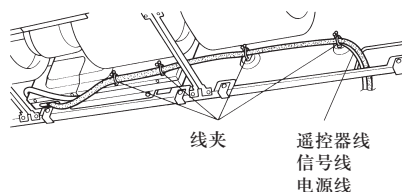
- (2) 拆下盖 A 和 B，然后安装连接线。



- (3) 接线完成后，用扎线带（附件）扎紧电源线。



- (4) 重新安装盖 A 和 B。然后使用两颗自攻螺钉将控制箱固定回原位。
- (5) 安装遥控器线、信号线、电源线、RB 机线（用于逆循环型）和线夹。将其妥善放置，确保其不会妨碍回风格栅的打开和关闭或者空气过滤网的拆卸和安装。



7. 现场设置

- 要设置现场设置地址，请参考下列 3 个项目。以下包括了相应的设置。

- (1) IU AD, REF AD SW 设置本部分内容
- (2) 遥控器设置有关详细的设置信息，请参阅有线或无线遥控器的说明书。（将 IU AD, REF AD SW 设为 0）
- (3) 自动地址设置有关详细的设置信息，请参阅室内机的说明书。（将 IU AD, REF AD SW 设为 0）

注意

- 在执行现场设置之前，请确保切断电源。

7.1. 设置地址

手动地址设置方法

- 则也可以通过无线遥控器来设置室内机地址和制冷剂地址。（参见本说明书中的“红外线地址设置”）

注意

- 请使用绝缘螺丝刀来设置 DIP 开关。

设置	设置范围	开关类型
室内机地址	0-63	设置示例 2 IU AD × 10 IU AD × 1
制冷剂回路地址	0-99	设置示例 63 REF AD × 10 REF AD × 1

- (1) 室内机地址
 旋转开关 (IU AD × 1)..... 出厂设置 “0”
 旋转开关 (IU AD × 10)..... 出厂设置 “0”
 将多台室内机连接到一个制冷剂系统时, 请参见 表 A 中的 IU AD SW 处的地址。
- (2) 制冷剂回路地址
 旋转开关 (REF AD × 1)..... 出厂设置 “0”
 旋转开关 (REF AD × 10)..... 出厂设置 “0”
 在有多台制冷剂系统的情况下, 请按 表 A 所示为每个制冷剂系统设置 REF AD SW。
 设置为与室外机相同的制冷剂回路地址。

表 A

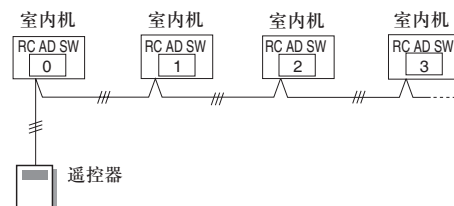
地址	旋转开关设置		地址	旋转开关设置	
	REF AD SW × 10	× 1		IU AD SW × 10	× 1
0	0	0	0	0	0
1	0	1	1	0	1
2	0	2	2	0	2
3	0	3	3	0	3
4	0	4	4	0	4
5	0	5	5	0	5
6	0	6	6	0	6
7	0	7	7	0	7
8	0	8	8	0	8
9	0	9	9	0	9
10	1	0	10	1	0
11	1	1	11	1	1
12	1	2	12	1	2
⋮	⋮	⋮	⋮	⋮	⋮
99	9	9	63	6	3

请勿在 64 至 99 之间设定室内机地址 (IU AD SW)。否则可能会导致故障。

- (3) 遥控器地址
 旋转开关 (RC AD SW)..... 出厂设定为 “0”
 将多台室内机连接到一个标准有线遥控器时, 请从 0 开始顺次设置 RC AD SW 处的地址。

设置	设置范围	开关类型
遥控器地址	0-15	设置示例 0 RC AD

示例 如果安装了 4 台室内机。



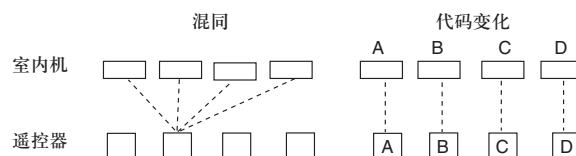
RC AD SW	0	1	2	3	4	5	6	7
地址	0	1	2	3	4	5	6	7

RC AD SW	8	9	A	B	C	D	E	F
地址	8	9	10	11	12	13	14	15

7.2. 用户代码设置

选择用户代码可以防止室内机信号混同。(图 B)
 (可以设置多达 4 个代码)
 为室内机和遥控器执行该设置。

图 B



室内机的用户代码设置

参考 表 B 设置 DIP SW SET 3 SW1, SW2。

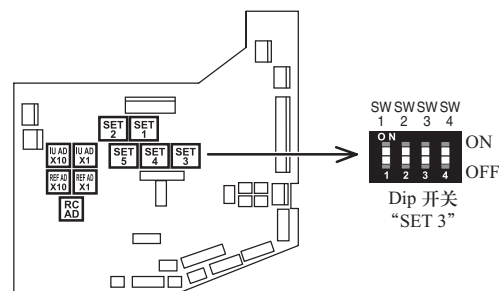


表 B

	自定义代码			
	A (出厂设定)	B	C	D
DIP SW SET 3 SW1	OFF	ON	OFF	ON
DIP SW SET 3 SW2	OFF	OFF	ON	ON

7.3. 功能设置

- 可以使用有线或无线遥控器执行功能设置。
(遥控器为选购设备)
- 有关详细的设置信息, 请参阅有线或无线遥控器的说明书。
(将 IU AD, REF AD SW 设为 0)
- 有关室内机地址和制冷剂回路地址设置, 请参阅“7.1 设置地址”。
- 开始设置之前, 请打开室内机的电源。

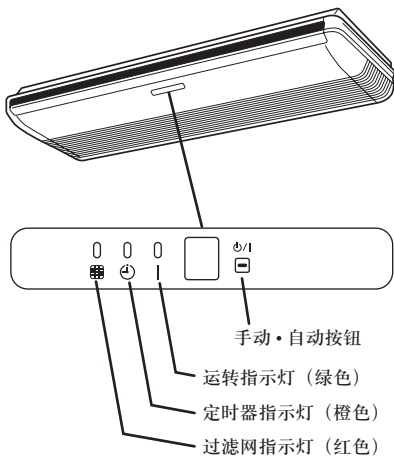
* 打开电源时, 室内机初始化 EEV, 所以请确保在打开电源之前已执行了管道气密性测试和抽真空作业。

* 打开电源前, 请再次检查以确保没有接线错误。

功能详情

功能	功能号码	设置号码	默认设置	说明
过滤网指示器间隔	11	00	默认设置	调整过滤网清洁间隔通知。如果通知时间过早, 请更改为设置 01。如果通知时间过迟, 请更改为设置 02。
		01	较长	
		02	较短	
过滤网指示器操作	13	00	启用	启用或禁用过滤网指示器。设置 02 适用于中央遥控。
		01	禁用	
		02	仅在中央遥控器上显示	
水平摆动气流方向	24	00	默认设置	调整水平摇摆气流方向。 (适用于带有水平摇摆功能的机型)
		01	左半区	
		02	右半区	
冷空气温度触发	30	00	默认设置	调节冷空气触发温度。要降低触发温度, 使用设置 01。要提高触发温度, 使用设置 02。
		01	调节 (1)	
		02	调节 (2)	
热空气温度触发	31	00	默认设置	调节热空气触发温度。要降低触发温度 6 摄氏度, 使用设置 01。要降低触发温度 4 摄氏度, 使用设置 02。要提高触发温度, 使用设置 03。
		01	调节 (1)	
		02	调节 (2)	
		03	调节 (3)	
自动重新启动	40	00	启用	电源中断后, 启用或禁用自动系统重新启动。
		01	禁用	
外部控制	46	00	开始 / 停止	允许外部控制器启动或停止系统, 或者执行紧急关机。 * 如果从外部控制器执行紧急关机, 将禁用所有制冷剂系统。
		01	紧急停止	
故障报告对象	47	00	所有	更改报告故障的对象。可以在所有位置报告故障, 也可以只在有线遥控器上报告故障。
		01	仅在中央遥控器上显示	

7.3.1. 按钮名称和功能



7.3.2. 检查功能设置

- 按住室内机上的“MANUAL AUTO (手动·自动)”按钮 3 秒钟以检查功能设置。要返回到正常运转模式, 需要切断电源。

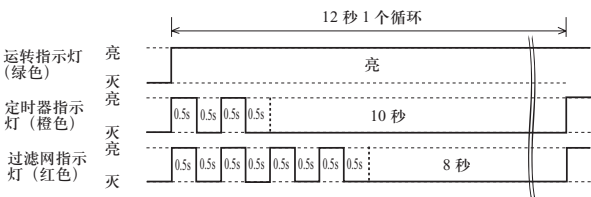
(1) 室内机和制冷剂地址指示

指示方式

指示器名称	指示方式	
	室内机地址	制冷剂地址
运转指示灯 (绿色)	ON (亮)	闪烁 (亮 1.0 秒 / 灭 1.0 秒)
定时器指示灯 (橙色)	地址: 10 处 (亮 0.5 秒 / 灭 0.5 秒)	
过滤网指示灯 (红色)	地址: 1 处 (亮 0.5 秒 / 灭 0.5 秒)	

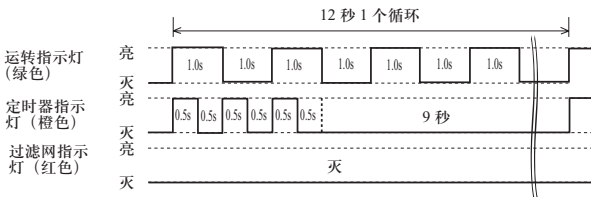
室内机地址示例

(示例) 地址: 24



制冷剂地址示例

(示例) 地址: 30



• 设置详情

功能号码	项目	设置号码
01	室内机地址	00~63
02	制冷剂地址	00~99

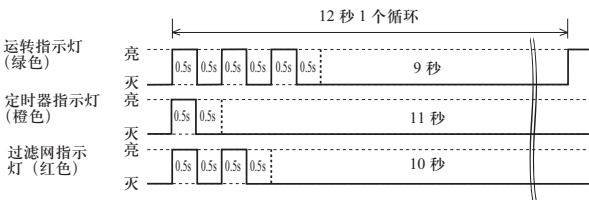
用于遥控器时，将所有的旋转开关设为 0，有关详细信息，请参阅“7.1 设置地址”。
出厂时，所有开关都被设为 0。

(2) 其它

指示方式

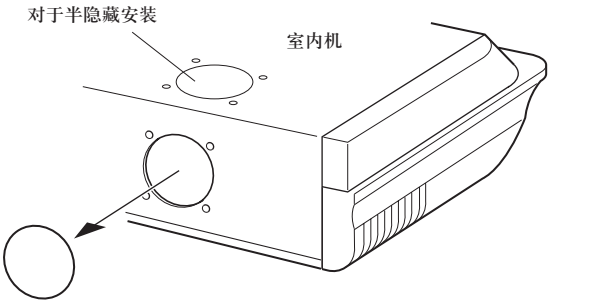
指示器名称	指示方式
运转指示灯（绿色）	功能号码：10 处（亮 0.5 秒 / 灭 0.5 秒）
定时器指示灯（橙色）	功能号码：1 处（亮 0.5 秒 / 灭 0.5 秒）
过滤网指示灯（红色）	设置号码：(0-9)（亮 0.5 秒 / 灭 0.5 秒）

(示例) 功能：31，设置号码：2



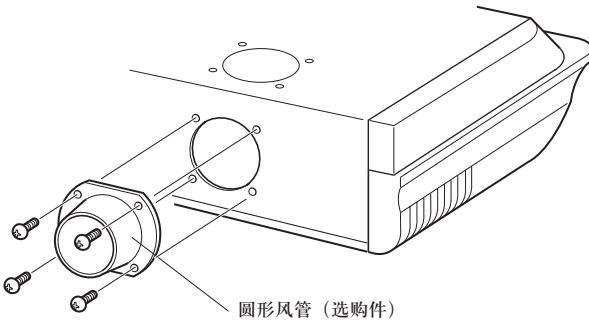
8. 换气孔

(1) 打开换气孔的敲落孔。(如果使用半隐藏安装，则打开顶部敲落孔)



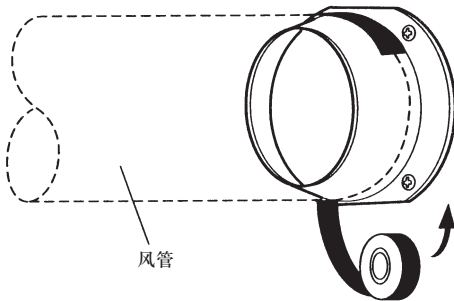
⚠ 注意
• 去除壳体（铁片）时，注意不要损坏室内机内部零件和附近区域（外壳）。
• 处理壳体（铁片）时，注意不要让毛刺等刮碰而受伤。

(2) 将圆法兰（选购件）固定到换气孔。(如果使用半隐藏安装，则安装到顶部)



["3.3 安装机组" 完成后...]

(3) 将风管连接到圆法兰。
(4) 用胶带和聚氯乙烯绝缘带等密封，这样空气不会从连接处漏出。



9. 最后处理

- (1) 使用封闭材料（腻子等）将管道出水口封闭。
- (2) 安装过滤网导轨。
- (3) 安装回风格栅。
- (4) 安装侧盖 A 和 B（如果以半隐藏方向安装机组，则仅安装侧盖 A）。
- (5) 安装空气过滤网。

10. 试运转

10.1. 使用 PCB 进行试运转（室外机）

- 如果使用室外机的 PCB 来进行试运转，请参考本安装说明书了解室外机。

10.2. 使用遥控器进行试运转

- 要使用无线遥控器来进行试运转，请参考遥控器的安装说明书。
- 对空调器进行试运转时，运转和定时器指示灯同时缓慢地闪烁。

11. 检查项目表

安装室内机(组)时,请特别注意以下的检查项目。安装完成后,请确保再次检查以下的检查项目。

检查项目	如果未正确执行	检查框
正确地安装了室内机了吗?	振动, 噪音, 室内机可能掉落	
已检查气体泄漏(制冷剂管道)了吗?	无制冷, 无制热	
已完成绝热工作了吗?	漏水	
室内机组排水容易吗?	漏水	
电源电压与室内机标签上显示的相同吗?	不运转, 发热或烧坏	
电线和管道全都连接正确吗?	不运转, 发热或烧坏	
室内机接地了吗?	短路	
连接电缆具有规定的粗细吗?	不运转, 发热或烧坏	
保持进口和出口无阻塞物了吗?	无制冷, 无制热	
安装完成后, 向用户说明正确的操作和处理了吗?		

12. 故障代码

如果您使用有线型遥控器, 则故障代码将显示在遥控器的显示屏上。如果您使用无线遥控器, 机组上的指示灯将通过各种闪烁的组合输出故障代码。请参阅下表中的指示灯闪烁组合和故障代码。

故障显示			有线遥控器故障代码	故障内容
运转指示灯(绿色)	定时器指示灯(橙色)	过滤网指示灯(红色)		
●(1)	●(2)	◇	12	遥控器通信故障
●(1)	●(4)	◇	14	网络通信故障
●(1)	●(6)	◇	16	并行通信故障
●(3)	●(1)	◇	31	电源频率异常
●(3)	●(2)	◇	32	型号信息异常/EEPROM存取故障
●(4)	●(1)	◇	41	室温热敏电阻故障
●(4)	●(2)	◇	42	室内机热交换器热敏电阻故障
●(5)	●(1)	◇	51	室内机风扇故障
●(5)	●(3)	◇	53	排水异常
●(9)	●(15)	◇	90	室外机故障

显示模式 ●: 亮 0.5 秒 / 灭 0.5 秒
◇: 亮 0.1 秒 / 灭 0.1 秒
(): 闪烁次数

有线遥控器显示

