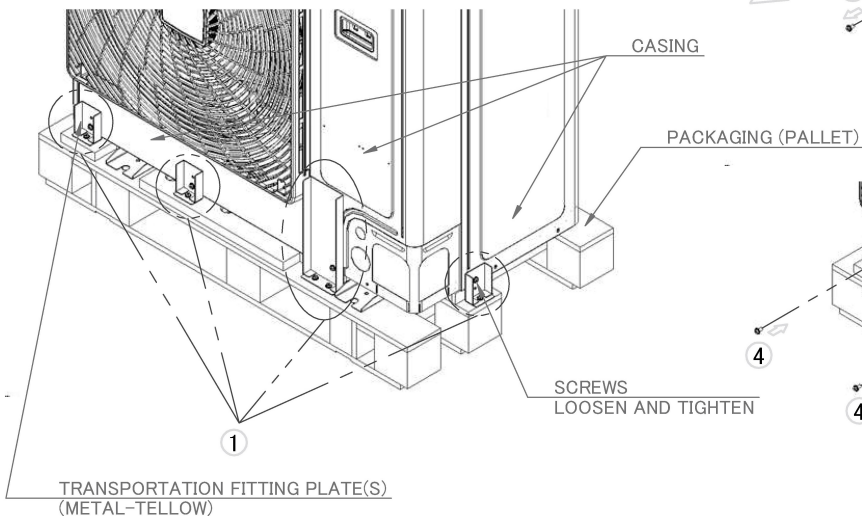




## CAUTION

DO NOT OPERATE THIS OUTDOOR UNIT  
BEFORE REMOVE TRANSPORTATION  
FITTING PLATE(S).

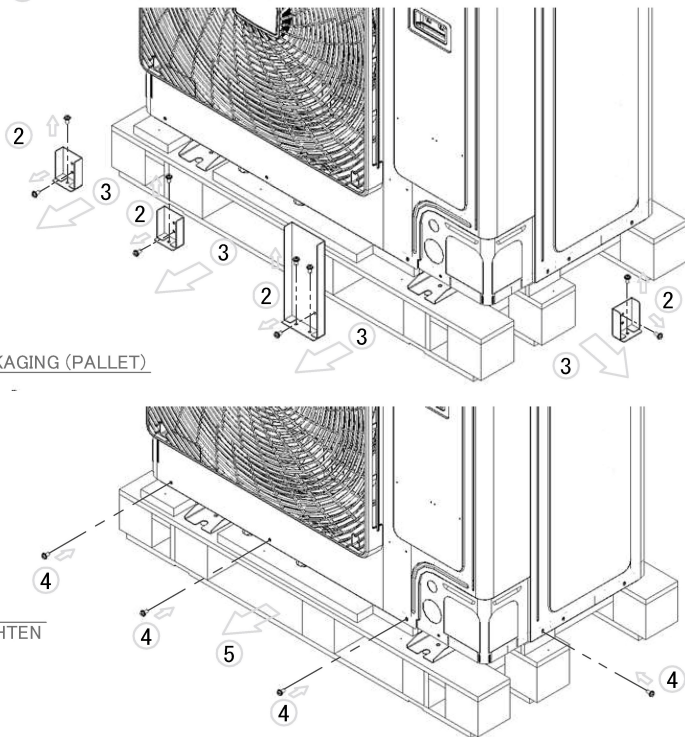
OUTSIDE OUTDOOR UNIT INCLUDES TRANSPORTATION  
FITTING PLATE(S) AT CASING.  
ENSURE REMOVE THIS PLATE(S)  
BEFORE REMOVE PACKAGING (PALLET).



To those who install the unit

Method of REMOVE the Transportation fitting plate(s)

- 1 Check all outside the unit.
- 2 If there is the Transportation fitting plate(s), Loosen screws with a suitable tool.
- 3 Take off the Transportation fitting plate(s) carefully.
- 4 After removing the Transportation fitting plate(s), re-tighten screws to the original position (only casing).
- 5 Remove packaging (pallet) before installation.





# OPERATION MANUAL



System air conditioner

RXMQ10BRY1(6)  
RXMQ12BRY1(6)  
RXYMQ10BRY1(6)  
RXYMQ12BRY1(6)  
RXYMQ8BYFK

Thank you for purchasing this Daikin air conditioner. Carefully read this operation manual before using the air conditioner. It will tell you how to use the unit properly and help you if any trouble occurs. After reading the manual, keep it in your custody for future reference.

See also the operation manual included with the indoor unit for details on the indoor unit.

Store the operation manual included with the indoor unit together with this operation manual in a safe place.

After receiving the warranty card from the dealer, store it in a safe place.

# Operation manual

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## 1. Definitions

### 1.1. Meaning of warnings and symbols

Warnings in this manual are classified according to their severity and probability of occurrence.



#### **DANGER**

Indicates an imminently hazardous situation, which if not avoided, will result in death or serious injury.



#### **WARNING**

Indicates a potentially hazardous situation, which if not avoided, could result in death or serious injury.



#### **CAUTION**

Indicates a potentially hazardous situation, which if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.



#### **NOTICE**

Indicates situations that may result in equipment or property-damage accidents only.



#### **INFORMATION**

This symbol identifies useful tips or additional information.

Some types of danger are represented by special symbols:



Electric current.



Danger of burning and scalding.

### 1.2. Meaning of used terms

#### **Installation manual:**

Instruction manual specified for a certain product or application, explaining how to install, configure and maintain it.

#### **Operation manual:**

Instruction manual specified for a certain product or application, explaining how to operate it.

#### **Maintenance instructions:**

Instruction manual specified for a certain product or application, which explains (if relevant) how to install, configure, operate and/or maintain the product or application.



**Dealer:**

Sales distributor for products as per the subject of this manual.

**Installer:**

Technical skilled person who is qualified to install products as per the subject of this manual.

**User:**

Person who is owner of the product and/or operates the product.

**Service company:**

Qualified company which can perform or coordinate the required service to the unit.

**Applicable legislation:**

All international, European, national and local directives, laws, regulations and/or codes which are relevant and applicable for a certain product or domain.

**Accessories:**

Equipment which is delivered with the unit and which needs to be installed according to instructions in the documentation.

**Optional equipment:**

Equipment which can optionally be combined to the products as per the subject of this manual.

**Field supply:**

Equipment which needs to be installed according to instructions in this manual, but which are not supplied by Daikin.

---

### 1.3. Safety precautions

To gain full advantage of the air conditioner's functions and to avoid malfunction due to mishandling, we recommend that you read this instruction manual carefully before use.

Read the precautions thoroughly to avoid misuse of the equipment.

This air conditioner is classified under "appliances not accessible to the general public".

- The precautions described herein are classified as WARNING and CAUTION. They both contain important information regarding safety. Be sure to observe all precautions without fail.
- There are three kinds of safety precaution and tips listed in the following.

**WARNING.....**

- Failure to follow these instructions properly may result in personal injury or loss of life.
- This unit contains electrical and hot parts.
- Before operating the unit, be sure the installation has been carried out correctly by an installer. If you feel unsure about operation, contact your installer for advice and information.

**CAUTION.....**

- Failure to observe these instructions properly may result in property damage or personal injury, which may be serious depending on the circumstances.
- After reading, keep this manual in a convenient place so that you can refer to it whenever necessary. If the equipment is transferred to a new user, be sure also to hand over the manual.

**WARNING**

- **Do not place objects in direct proximity of the outdoor unit and do not let leaves and other debris accumulate around the unit.**  
Leaves are a hotbed for small animals which can enter the unit.  
Once in the unit, such animals can cause malfunctions, smoke or fire when making contact with electrical parts.
- **Consult your local dealer about installation work.**  
Doing the work yourself may result in water leakage, electric shocks or fire hazards.
- **Do not insert fingers, rods or other objects into the air inlet or outlet.**  
When the fan is rotating at high speed, it will cause injury.
- **Never let the indoor unit or the user interface get wet.**  
It may cause an electric shock or a fire.
- **Do not put user interface in risk to wet place.**  
If water enter into controller, risk to electric leakage and cause to electronics parts damaged.
- **Be sure to use fuses with the correct ampere reading.**  
Do not use improper fuses, copper or other wires as a substitute, as this may result in electric shock, fire, injury or damage to the unit.

- **Consult your local dealer regarding what to do in case of refrigerant leakage.**

When the air conditioner is to be installed in a small room, it is necessary to take proper measures so that the amount of any leaked refrigerant does not exceed the concentration limit in the event of leakage. Otherwise, this may lead to an accident due to oxygen depletion.

- **Beware of fire in case of refrigerant leakage.**

If the air conditioner is not operating correctly, i.e. not generating cool or warm air, refrigerant leakage could be the cause.

Consult your dealer for assistance. The refrigerant within the air conditioner is safe and normally does not leak. However, in the event of a leakage, contact with a naked burner, heater or cooker may result in generation of noxious gas. Do not longer use air conditioner until a qualified service person confirms that the leakage has been repaired.

- **Do not use the air conditioner until a service person confirms that the portion where the refrigerant leaks happened is repaired.**

- **Turn off any combustible heating devices, ventilate the room and contact the dealer where you purchased the unit.**

- **Improper installation or attachment of equipment or accessories could result in electric shock, short circuit, leaks, fire or other damage to the equipment.**

- **Consult your local dealer regarding modification, repair and maintenance of the air conditioner.**

Improper workmanship may result in water leakage, electric shocks or fire hazards.

- **Consult your local dealer regarding relocation and reinstallation of the air conditioner.**

Improper installation work may result in leakage, electric shocks or fire hazards.

- **Before cleaning, be sure to stop the operation, turn the breaker off or pull out the supply cord.**

Otherwise, an electric shock and injury may result.

- **Do not operate the air conditioner with wet hands.**

An electric shock may result.

- **Do not wash the air conditioner with water, as this may result in electric shocks or fire.**

- **Be sure to install an earth leakage breaker.**

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

In order to avoid electric shock or fire, make sure that an earth leak detector is installed.

- **Consult the dealer if the air conditioner submerges owing to a natural disaster, such as a flood or typhoon.**

Do not operate the air conditioner in that case, or otherwise a malfunction, electric shock or fire may result.

- **Do not start or stop operating the air conditioner with the power supply breaker turned ON or OFF.**

Otherwise, fire or water leakage may result. Furthermore, the fan will rotate abruptly if power failure compensation is enabled, which may result in injury.

- **Do not use the product in the atmosphere contaminated with oil vapor, such as cooking oil or machine oil vapor.**

Oil vapor may cause crack damage, electric shocks or fire.

- **Do not install the air conditioner at any place where there is a danger of flammable gas leakage.**

In case of a gas leakage, build-up of gas near the air conditioner may result in fire hazards.

- **Contact professional personnel about attachment of accessories and be sure to use only accessories specified by the manufacturer.**

If a defect results from your own workmanship, it may result in water leaks, electric shock or fire.

- **Do not use the product in places with excessive oily smoke, such as cooking room, or in places with flammable gas, corrosive gas, or metal dust.**

Using the product in such places may cause fire or product failures.

- **When the air conditioner is malfunctioning (giving off a burning odour, etc.) turn off power to the unit and contact your local dealer.**

Continued operation under such circumstances may result in a failure, electric shocks or fire hazards.

- **Do not place flammable sprays or operate spray containers near the unit as this may result in fire.**

- **Do not clean the product with organic solvents such as paint thinner.**

The use of organic solvents may cause crack damage to the product, electric shocks or fire.

- **Be sure to use a dedicated power supply for the air conditioner.**

The use of any other power supply may cause heat generation, fire or product failures.

- **Consult your dealer regarding cleaning the inside of the air conditioner.**

Improper cleaning may cause breakage of plastic parts, water leakage and other damage as well as electric shocks.

- **Be sure the air conditioner is electrically earthed.**

In order to avoid electric shock, make sure that the unit is grounded and that the earth wire is not connected to gas or water pipe, lightning conductor or telephone earth wire.

- **Do not place a flower vase or anything containing water on the unit. Water may enter the unit, causing an electric shock or fire.**

- **Avoid placing the controller in a spot which can be splashed with water. Water entering the machine may cause an electric leak or may damage the internal electronic parts.**

- **Be aware that prolonged, direct exposure to cool or warm air from the air conditioner or to air that is too cool or too warm can be harmful to your physical condition and health.**

### CAUTION

- **Do not remove the outdoor unit's fan guard.**  
The guard protects against the unit's high speed fan, which may cause injury.

- **Do not place objects that are susceptible to moisture directly beneath the indoor or outdoor units.**

Under certain conditions, condensation on the main unit or refrigerant pipes, air filter dirt or drain blockage may cause dripping, resulting in fouling or failure of the object concerned.

- **To avoid oxygen depletion, ensure that the room is adequately ventilated if equipment such as a burner is used together with the air conditioner.**

- **Do not place flammable sprays near the unit as this can cause explosions.**

- **Do not place appliances that produce naked flames in places exposed to the air flow from the unit as this may impair combustion of the burner.**

- **Do not place burners or heaters in places exposed to the air flow from the unit as this may impair combustion of the burner or heater.**

- **Do not place heaters directly below the unit, as resulting heat can cause deformation.**

- **Do not allow a child to mount on the outdoor unit or avoid placing any object on it.**  
Falling or tumbling may result in injury.

- **Do not block air inlets or outlets.**  
Impaired air flow may result in insufficient performance or trouble.

- **Arrange the drain hose to ensure smooth drainage.**  
Imperfect drainage may cause wetting of the building, furniture etc.

- **Arrange the drain hose to ensure smooth drainage.**  
Imperfect drainage may cause wetting.

- **Be sure that children, plants or animals are not exposed directly to air flow from the unit, as adverse effects may ensue.**

- **Do not wash air conditioner or user interface, causing an electric shock or fire.**

- **Do not put flammable containers, such as spray cans, within 1 m from the blow-off mouth.**

The containers may explode because the warm air output of the outdoor unit will affect them.

- **Arrange the drain to ensure complete drainage.**

If proper drainage from the outdoor drain pipe does not occur during air conditioner operation, there could be a blockage due to dirt and debris build-up in the pipe.

This may result in a water leakage from the indoor unit. Under these circumstances, stop air conditioner operation and consult your dealer for assistance.

- **The appliance is not intended for use by unattended young children or infirm persons.**  
Impairment of bodily functions and harm to health may result.

- **Children should be supervised to ensure that they do not play with the unit or its user interface.**

Accidental operation by a child may result in impairment of bodily functions and harm health.

- **To avoid injury, do not touch the air inlet or aluminium fins of the unit.**  
These fins are sharp and could result in cutting injuries.
- **Never touch the internal parts of the controller.**  
Do not remove the front panel. Touching certain internal parts will cause electric shocks and damage to the unit. Please consult your dealer about checking and adjustment of internal parts.
- **Do not leave user interface wherever there is a risk of wetting.**  
If water gets into the remote controller there is a risk of electrical leakage and damage to electronic components.
- **Turn off the main power switch when the air conditioner is not to be used for prolonged periods.**  
When the main power switch is left on, some electric power (watts) is still consumed even if the air conditioner is not operating. Therefore, switch off the main power switch to save energy. When resuming operation, to ensure smooth running, turn on the main power switch 6 hours before operating the air conditioner again.
- **Watch your steps at the time of air filter cleaning or inspection.**  
High-place work is required, to which utmost attention must be paid.  
If the scaffold is unstable, you may fall or topple down, thus causing injury.
- **Take care of scaffolding and exercise caution when working high above ground level.**
- **Do not operate with the control panel lid open.**  
If water gets inside the panel, it may result in equipment failure or electric shock.
- **Do not sit or place objects on the outdoor unit**  
Falling yourself of objects could cause injury.
- **Do not let children play on or around the outdoor unit.**  
If they touch the unit carelessly, injury may be caused.
- **Never operate user interface buttons with hard, pointed objects.**  
This may result in remote controller damage.
- **Do not pull or twist user interface cord.**  
This may cause malfunctioning.
- **Do not use the air conditioner for purposes other than those for which it is intended.**  
Do not use the air conditioner for cooling precision instruments, food, plants, animals or works of art as this may adversely affect the performance, quality and/or longevity of the object concerned
- **After prolonged use, check the unit stand and its mounts for damage.**  
If left in a damaged condition, the unit may fall and cause injury.
- **Do not place items which might be damaged by moisture under the indoor unit.**  
Condensation may form if the humidity is above 80%, if the drain outlet is blocked or the filter is polluted.
- **Ensure that user interface is not exposed to direct sunlight.**  
This will cause discoloration of the LCD display with resulting loss of readability.
- **Do not wipe the controller panel with benzene or other organic solvent.**  
This will cause discoloration and/or peeling. If the panel needs cleaning, use a damp cloth with some water-diluted neutral detergent. Wipe with a dry cloth afterwards.
- **Do not operate the air conditioner when using a room fumigation type insecticide.**  
Fumigation chemicals deposited in the unit could endanger the health of those who are hyper-sensitive to touch chemicals.



## Installation Site

### Regarding places for installation

- **Install the air conditioner in a well-ventilated place that is free of obstructions**
- **Do not use the air conditioner in the following kinds of places:**
  - a. Where there is considerable use of mineral oil such as cutting oil.
  - b. Where there is much salt such as a beach area.
  - c. Where there is sulphur gas such as in a hot-spring resort.
  - d. Where there are considerable voltage fluctuations such as a factory.
  - e. Where there are motor vehicles or marine vessels.
  - f. Where there is considerable atmospheric oil such as in cooking areas.
  - g. Where there are machines generating electromagnetic radiation.
  - h. Where the air contains acidic or alkaline steam or a vapour.

### Wiring

- **All wiring must be performed by an authorized electrician.**  
Always consult your dealer about wiring.  
Never do it by yourself.
- **Only use the dedicated power supply circuit provided for this air conditioner.**

### Also pay attention to operating noise.

- **Select the following kinds of location:**
  - a. A place that can sufficiently withstand the weight of the air conditioner with less running noises and vibrations.
  - b. A place where warm airflow from the air outlet of the outdoor unit and operating noise do not cause a nuisance to neighbours.
- **Be sure there are no obstructions near the air outlet of the outdoor unit.**
- **Obstructions may result in poor performance and increased operating noise.**  
If abnormal noise occur, ask your dealer for advise.
- **Make sure that the piping is heat insulated.**  
If the piping is frozen and broken, scalding or water leakage may result.  
Consult your installer.

### System relocation

- **Consult your Daikin about remodelling and relocation.**

## 2. Introduction

### 2.1. General information

The indoor unit part of VRV heat pump system can be used for heating/cooling applications. The type of indoor unit which can be used depends on the outdoor units series.

#### NOTICE

For future modifications or expansions of your system:

A full overview of allowable combinations (for future system extensions) is available in technical engineering data and should be consulted. Contact your installer to receive more information and professional advice.

In general following type of indoor units can be connected to a VRV system (not exhaustive list, depending on outdoor unit model and indoor unit model combinations):

- VRV direct expansion indoor units (air to air applications).
- RA direct expansion indoor units (air to air applications).

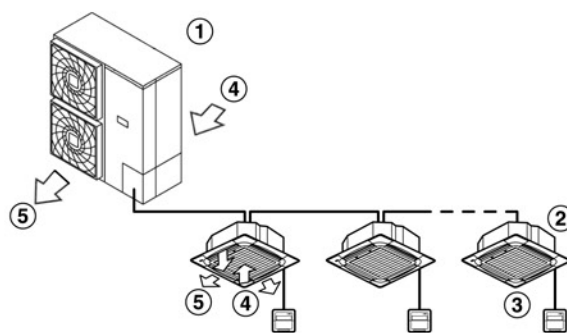
Combination of VRV direct expansion indoor units with RA direct expansion units is allowed.

For more specifications, see technical engineering data.

### 2.2. System layout

Your VRV-S Heat pump/Cooling only RXYMQ/RXMQ series outdoor is a single unit and can't combine with multiple outdoor unit.

Depending on the type of outdoor unit which is chosen, some functionality will or will not exist.








#### • Names and functions of parts (Refer to figure 1)

1. Outdoor unit
2. Indoor unit
3. Remote controller
4. Air inlet
5. Air outlet

### 3. Before operation

This operation manual is for the following systems with standard control. Before initiating operation, contact your dealer for the operation that corresponds to your system type and mark. If your installation has a customized control system, ask your dealer for the operation that corresponds to your system.

Operation modes(depending on indoor/outdoor unit type):

- Heating (air to air). 
- Cooling Only (air to air). 
- Fan only operation (air to air). 
- Dry operation. 
- Automatic operation. 

For Indoor unit

Dedicated functions exist depending on the type of indoor unit, refer to dedicated installation/operation manual for more information.

### 4. User interface



This operation manual will give a non-exhaustive overview of the main functions of the system.

Detailed information on required actions to achieve certain functions can be found in the dedicated installation and operation manual of the indoor unit.

Refer to the operation manual of the installed user interface.

### 5. Operation range

Use the system in the following temperature and humidity ranges for safe and effective operation.

		
Outdoor temperature	0~49°C DB	0~20°C DB
Indoor temperature	14~28°C WB	10~27°C DB
Indoor humidity	≤80%(a)	




(a) To avoid condensation and water dripping out of the unit. If the temperature or the humidity is beyond these conditions, safety devices may be put in action and the air conditioner may not operate.

Above operation range is only valid in case direct expansion indoor units are connected to the VRV system.

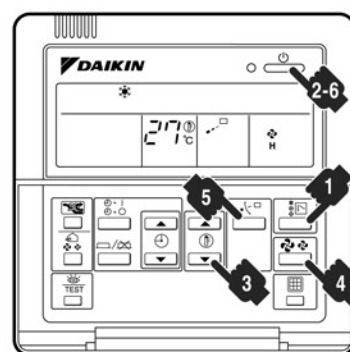
### 6. Operation procedure






- Operation procedure varies according to the combination of outdoor unit and user interface. Read the chapter 3 "Before operation"
- To protect the unit, turn on the main power switch 6 hours before operation. And do not turn off the power supply during the air conditioning season because of smoothly start up.
- If the main power supply is turned off during operation, operation will restart automatically after the power turns back on again.

#### 6.1 Cooling, heating, fan only, automatic operation and dry operation

- The operation mode cannot be changed with the remote controller whose display shows "  " (change over under centralized control). Change the operation mode with user interface whose display dose not show "  ".
- When the display  "change over under centralized control" flashes, refer to "6.4. Setting the master user interface"
- The fan may keep on running for about 1 minute after the heating operation stops for removing the heat in the indoor unit.
- The air flow rate may adjust itself depending on the room temperature or the fan may stop immediately. This is not a malfunction.

#### STARTING THE SYSTEM



- 1 Press the operation mode selector button several times and select the operation mode of your choice
  - "  " Cooling operation
  - "  " Heating operation
  - "  " Fan only operation
  - "  " Dry operation
  - "  " Automatic operation.
- 2 Press the ON/OFF button.  
The operation lamp lights up and the system starts operation.

## ADJUSTMENT

For adjustment the desired temperature, fan speed and air flow direction (only for the remote controller, follow the procedure shown below.)

- 3 Press the temperature setting button



Each time this button is pressed, the temperature setting rises or lowers 1°C.

### NOTE

- Set the temperature within the operation range.
- The temperature setting is impossible for fan only operation.

- 4 Press the fan speed control button and select the fan speed of your preference.

- 5 Press air flow direction adjust button. Refer to the chapter “6.3 Adjusting the air flow direction” for details.

## STOPPING THE SYSTEM

- 6 Press the ON/OFF button once again. The operation lamp goes off and the system stops operation.

### NOTICE

- Do not turn off the power immediately after the unit stops, but wait for at least 5 minutes.
- The system need at least 5 minutes for residual operation of drain pump device. Turning off the power immediately will cause water leak or trouble.

## Explanation of heating operation

It may take longer to reach the set temperature for general heating operation than for cooling operation.

The following operation is performed in order to prevent the heating capacity from dropping or cold air from blowing.

## Defrost operation

- In heating operation, freezing of the outdoor unit's air cooled coil increases over time, restricting the energy transfer to the outdoor unit's coil. Heating capability decreases and the system needs to go into defrost operation to be able to deliver enough heat to the indoor units:
- When a RX(Y)MQ outdoor unit is installed, the indoor unit will stop fan operation, the refrigerant cycle will reverse and energy from inside the building will be used to defrost the outdoor unit coil.
- The indoor unit will indicate defrost operation on the displays

## Hot start

- In order to prevent cold air from blowing out of an indoor unit at the start of heating operation, the indoor fan is automatically stopped. The display of the user interface shows . It may take some time before the fan starts. This is not a malfunction.



## INFORMATION

- The heating capacity drops when the outside temperature falls. If this happens, use another heating device together with the unit. (When using together with appliances that produce open fire, ventilate the room constantly). Do not place appliances that produce open fire in places exposed to the air flow from the unit or under the unit.
- It takes some time to heat up the room from the time the unit is started since the unit uses a hot-air circulating system to heat the entire room.
- If the hot air rises to the ceiling, leaving the area above the floor cold, we recommend that you use the circulator (the indoor fan for circulating air). Contact your dealer for details.

## 6.2 Program dry operation

- The function of this program is to decrease the humidity in your room with minimal temperature decrease (minimal room cooling).
- The microcomputer automatically determines temperature and fan speed (cannot be set by the user interface).
- The system does not go into operation if the room temperature is low (<20°C).



### Starting the system

1. Select cooling operation mode with the remote control switch.
2. Press the operation mode selector button several times and select (program dry operation).
3. Press the ON/OFF button of the user interface. The operation lamp lights up and the system starts operating.
4. Press the air flow direction adjust button (only for Double-flow, Multi-flow, Corner, Ceiling-suspended and Wall-mounted). Refer to "6.3 Adjusting the air flow direction".

### Stopping the system

5. Press the ON/OFF button of the user interface once again. The operation lamp goes off and the system stops operating.



#### NOTICE

Do not turn off power immediately after the unit stops, but wait for at least 5 minutes.

## 6.3 Adjusting the air flow direction



- 1 Press the air flow direction button to select the air direction.

The air flow flap display swings as shown right and the air flow direction continuously varies. (Automatic swing setting)



- 2 Press the air flow direction adjust button to select the air direction of your choice.



The air flow flap display stops swinging and the air flow direction is fixed.



(Fixed air flow direction setting)

### Movement of the air flow flap



Double flow+multi-flow units



Corner units



Ceiling suspended units





Wall-mounted units

For the following conditions, a microcomputer controls the air flow direction which may be different from the display.


COOLING	HEATING
<ul style="list-style-type: none"> <li>• When the room temperature is lower than the set temperature.</li> </ul>	<ul style="list-style-type: none"> <li>• When starting operation.</li> <li>• When the room temperature is higher than the set temperature.</li> <li>• At defrost operation.</li> </ul>
<ul style="list-style-type: none"> <li>• When operating continuously at horizontal air flow direction.</li> <li>• When continuous operation with downward air flow is performed at the time of cooling with a ceiling-suspended or a wall-mounted unit, the microcomputer may control the flow direction, and then the user interface indication will also change.</li> </ul>	



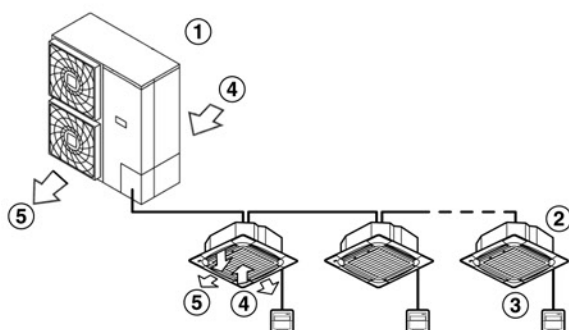
The air flow direction can be adjusted in one of the following ways:

- The air flow flap itself adjusts its position.
- The air flow direction can be fixed by the user.  
Automatic  or desired position 

### NOTICE


- The movable limit of the flap is changeable. Contact your dealer for details. (only for double-flow, multifold, corner, ceiling-suspended and wall-mounted).
- Avoid operating in the horizontal direction . It may cause dew or dust to settle on the ceiling or flap.

## 6.4 Setting the master user interface



### Names and functions of parts (Refer to figure 1)


1. Outdoor unit
2. Indoor unit
3. Remote controller
4. Air inlet
5. Air outlet



When the system is installed as shown in the figure above, it is necessary to designate one of the user interfaces as the master user interface. The displays of slave user interfaces show  (change over under centralized control) and slave user interfaces automatically follow the operation mode directed by the master user interface.

Only the master user interface can select heating or cooling or fan only mode.

## How to designate the master user interface



1 Press the operation mode selector button of the current master user interface for 4 seconds. In case this procedure was not yet performed, the procedure can be executed on the first user interface operated. The display showing  (change over under centralized control) of all slave user interfaces connected to the same outdoor unit flashes.

2 Press the operation mode selector button of the controller that you wish to designate as the master user interface. Then designation is completed. This user interface is designated as the master user interface and the display showing  (change over under centralized control) vanishes. The displays of other user interfaces show  (change over under centralized control).

## 6.5 Precautions for group control system or two user interface control system

This system provides two other control systems beside individual control system (one user interface controls one indoor unit). Confirm the following if your unit is of the following control system type:

- **Group control system**  
One user interface controls up to 16 indoor units. All indoor units are equally set.
- **Two user interface control system**  
Two user interfaces control one indoor unit (in case of group control system, one group of indoor units). The unit is individually operated.

### NOTICE

Contact your dealer in case of changing the combination or setting of group control and two user interface control systems.

---


## INFORMATION

For another user interfaces refer to the operation manual of the operation procedured user interface.

---

## 7. Energy saving and optimum operation

Observe the following precautions to ensure the system operates properly.

- Adjust the air outlet properly and avoid direct air flow to room inhabitants.
- Adjust the room temperature properly for a comfortable environment. Avoid excessive heating or cooling.
- Prevent direct sunlight from entering a room during cooling operation by using curtains or blinds.
- Ventilate often.  
Extended use requires special attention to ventilation.
- Keep doors and windows closed. If the doors and windows remain open, air will flow out of your room causing a decrease in the cooling or heating effect.
- Be careful not to cool or heat too much. To save energy, keep the temperature setting at a moderate level.
- Never place objects near the air inlet or the air outlet of the unit.  
It may cause deterioration in the effect or stop the operation.
- Turn off the main power supply switch to the unit when the unit is not used for longer periods of time. If the switch is on, it consumes electricity. Before restarting the unit, turn on the main power supply switch 6 hours before operation to ensure smooth running. (Refer to "Maintenance" in the indoor unit manual.)
- When the display shows  (time to clean the air filter), ask a qualified service person to clean the filters. (Refer to "Maintenance" in the indoor unit manual.)
- Keep the indoor unit and user interface at least 1 m away from televisions, radios, stereos, and other similar equipment. Failing to do so may cause static or distorted pictures.
- Do not place items under the indoor unit, they may be damaged by water.

- Do not use other heating devices directly beneath the indoor unit.  
Otherwise, the unit might be get deformed by the heat.
- Condensation may form if the humidity is above 80% or if the drain outlet gets blocked.

Your system is equipped with advanced energy saving functionality. Depending on the priority emphasises can be put on energy saving or comfort level. Several parameters can be selected, resulting in the optimal balance between energy consumption and comfort for your particular application.

Several patterns are available and roughly explained below. Contact your installer or dealer for advice or to modify the parameters to the needs of your building.

Detailed information is given for the installer in the installation manual. He can help you to realize the best balance between energy consumption and comfort.

## 8. Maintenance

---

### CAUTION

Pay attention to the fan.

It is dangerous to inspect the unit while the fan is running.

Be sure to turn off the main switch and to remove the fuses from the control circuit located in the outdoor unit.

---

### 8.1 Maintenance after a long stop period (e.g., at the beginning of the season)

- Check and remove everything that might be blocking inlet and outlet vents of indoor units and outdoor units.
- Clean air filters and casings of indoor units.<sup>(b)</sup>  
Refer to the operation manual supplied with the indoor units for details on how to proceed and make sure to install for details on how to proceed and make sure to install cleaned air filters back in the same position.
- Turn on the power at least 6 hours before operating the unit in order to ensure smoother operation. As soon as the power is turned on, the user interface display appears.

<sup>(b)</sup> Contact your installation or maintenance person to clean air filters and casings of the indoor unit. Maintenance tips and procedures for cleaning are provided in the installation/operation manuals of dedicated indoor units.

## 8.2 Maintenance before a long stop period (e.g., at the end of the season)

- Let the indoor units run in fan only operation for about half a day in order to dry the interior of the units.  
Refer to "6.1. Cooling, heating, fan only, automatic operation and dry operation".
- Turn off the power. The user interface display disappears.
- When the power supply is on, the unit consumes up to several dozen watts of power. Turn off the power supply to save energy.
- Clean air filters and casings of indoor units. Refer to the operation manual supplied with the indoor units for details on how to proceed and make sure to install cleaned air filters back in the same position.



## 9. Symptoms that are not air conditioner troubles

Following symptoms are not air conditioner troubles:

### 9.1 The system does not operate

- The air conditioner does not start immediately after the ON/OFF button on the user interface is pressed. If the operation lamp lights, the system is in normal condition. To prevent overloading of the compressor motor, the air conditioner starts 5 minutes after it is turned ON again in case it was turned OFF just before.  
The same starting delay occurs after the operation mode selector button was used.
- If "Under Centralized Control" is displayed on the user interface and pressing the operation button causes the display to blink for a few seconds indicating that the central device is controlling the unit. The blinking display indicates that the user interface cannot be used.
- The system does not start immediately after the power supply is turned on. Wait one minute until the microcomputer is prepared for operation.

### 9.2 Cool/Heat cannot be changed over

- When the display shows  (change-over under centralized control), it shows that this is a slave user interface.
- When the cool/heat changeover remote control switch is installed and the display shows  (change-over under centralized control). This is because cool/heat changeover is controlled by the cool/heat changeover remote control switch. Ask your dealer where the remote control switch is installed.

### 9.3 Fan operation is possible, but cooling/heating do not work

- Immediately after the power is turned on. The microcomputer is getting ready to operate and is performing a communication check with all indoor units. Please wait 12 minutes (max.) till this process is finished.

### 9.4 The fan strength does not correspond to the setting

- The fan speed does not change even if the fan speed adjustment button is pressed. During heating operation, when the room temperature reaches the set temperature, the outdoor unit goes off and the indoor unit changes to whisper fan speed. This is to prevent cold air blowing directly on occupants of the room. The fan speed will not change even if the button is pressed, when another indoor unit is in heating operation.

### 9.5 The fan direction does not correspond to the setting

- The fan direction does not correspond with the user interface display. The fan direction does not swing. This is because the unit is being controlled by the microcomputer.

### 9.6 White mist comes out of a unit

#### 1.) Indoor unit

- When humidity is high during cooling operation. If the interior of an indoor unit is extremely contaminated, the temperature distribution inside a room becomes uneven. It is necessary to clean the interior of the indoor unit. Ask your dealer for details on cleaning the unit. This operation requires a qualified service person.
- Immediately after the cooling operation stops and if the room temperature and humidity are low. This is because warm refrigerant gas flows back into the indoor unit and generates steam.

#### 2.) Indoor unit, outdoor unit

- When the system is changed over to heating operation after defrost operation. Moisture generated by defrost becomes steam and is exhausted.

### 9.7 The user interface display reads "U4" or "U5" and stops, but then restarts after a few minutes

- This is because the user interface is intercepting noise from electric appliances other than the air conditioner. The noise prevents communication between the units, causing them to stop. Operation automatically restarts when the noise ceases.

## 9.8 Noise of air conditioners

### 1.) Indoor unit

- A “zeen” sound is heard immediately after the power supply is turned on.  
The electronic expansion valve inside an indoor unit starts working and makes the noise. Its volume will reduce in about one minute.
- A continuous low “shah” sound is heard when the system is in cooling operation or at a stop. When the drain pump (optional accessories) is in operation, this noise is heard.
- A low “sah”, “choro-choro” sound is heard while the indoor unit is stopped.  
When the other indoor unit is in operation, this noise is heard. In order to prevent oil and refrigerant from remaining in the system, a small amount of refrigerant is kept flowing.
- A “pishi-pishi” squeaking sound is heard when the system stops after heating operation. Expansion and contraction of plastic parts caused by temperature change make this noise.

### 2.) Indoor unit, outdoor unit

- A continuous low hissing sound is heard when the system is in cooling or defrost operation. This is the sound of refrigerant gas flowing through both indoor and outdoor units.
- A hissing sound which is heard at the start or immediately after stopping operation or defrost operation. This is the noise of refrigerant caused by flow stop or flow change.

### 3.) Outdoor unit

- When the tone of operating noise changes. This noise is caused by the change of frequency.

## 9.9 Dust comes out of the unit

- When the unit is used for the first time in a long time.  
This is because dust has gotten into the unit.

## 9.10 The units can give off odours

- The unit can absorb the smell of rooms, furniture, cigarettes, etc., and then emit it again.

## 9.11 The outdoor unit fan does not spin

- The speed of the fan is controlled in order to optimise product operation.

## 9.12 The display shows “88”

- This is the case immediately after the main power supply switch is turned on and means that the user interface is in normal condition. This continues for one minute.

## 9.13 The compressor in the outdoor unit does not stop after a short heating operation.

- This is to prevent oil and refrigerant from remaining in the compressor. The unit will stop after 5 to 10 minutes.

## 9.14 The inside of an outdoor unit is warm even when the unit has stopped

- This is because the crankcase heater is warming the compressor so that the compressor can start smoothly.

## 9.15 Does not cool very well

- Program dry operation.  
Program dry operation is designed to lower the room temperature as little as possible refer to “6.2 Program dry operation”

## 9.16 Hot air can be felt when the indoor unit is stopped

- Several different indoor units are being run on the same system. When another unit is running, some refrigerant will still flow through the unit.

# 10. Troubleshooting

If one of the following malfunctions occur, take the measures shown below and contact your dealer.




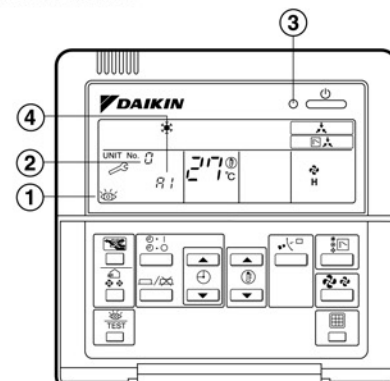
### WARNING

Stop operation and shut off the power if anything unusual occurs (burning smells etc.)

Leaving the unit running under such circumstances may cause breakage, electric shock or fire. Contact your dealer.

The system must be repaired by a qualified service person :

- If a safety device such as a fuse, a breaker or an earth leakage breaker frequently actuates or the ON/OFF switch does not properly work.  
Measure: Turn off the main power switch.
- If water leaks from the unit.  
Measure: Stop the operation.
- The operation switch does not work well.  
Measure: Turn off the power.
- If the user interface display  indicates the unit number, the operation lamp flashes and the malfunction code  
Measure: Notify your installer and report the malfunction code.





**If the system does not properly operate except for the above mentioned cases and none of the above mentioned malfunctions is evident, investigate the system according to the following procedures. If it is impossible to fix the problem yourself after checking all the above items, contact your dealer.**

**Let him know the symptoms, system name and model name (listed on the warranty card).**

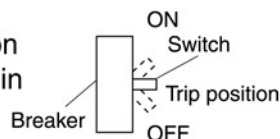
1. If the system does not operate at all:

- Check if there is no power failure. Wait unit power is restored. If power failure occurs during operation, the system automatically restarts immediately after the power supply is recovered.
- Check if no fuse has blown or breaker has worked. Change the fuse or reset the breaker if necessary.


Turn the power on with the breaker switch in the off position.

Do not turn the power on with the breaker switch in the trip position.

(Contact your dealer.)



2. If the system goes into fan only operation, but as soon as it goes into cooling operation, the system stops:

- Check if air inlet or outlet of outdoor or indoor unit is not blocked by obstacles. Remove any obstacle and make it well-ventilated. Check if the user interface display shows  (time to clean the air filter). Refer to "the operation manual of the indoor unit And clean the air filter".

3. The system operates but cooling or heating is insufficient:

- Check if air inlet or outlet of outdoor or indoor unit is not blocked by obstacles.
- Remove any obstacle and make it well-ventilated.
- Check if the air filter is not clogged (refer to "Maintenance" in the indoor unit manual).
- Check the temperature setting.
- Check the fan speed setting on your user interface.
- Check for open doors or windows. Shut doors and windows to prevent wind from coming in.
- Check if there are too many occupants in the room during cooling operation. Check if the heat source of the room is excessive.
- Check if direct sunlight enters the room. Use curtains or blinds.

- Check if the air flow angle is proper.

If the checking all above items, it is impossible to fix the problem your self, contact your installer and state the symptoms, the complete model name of the air conditioner (with manufacturing number if possible) and the installation date (possibly listed on the warranty card).

## **11. After-sales service and warranty**

### **11.1 Warranty period**

- This product includes a warranty card that was filled in by the dealer at the time of installation. The completed card has to be checked by the customer and stored carefully.
- If repairs to the air conditioner are necessary within the warranty period, contact your dealer and keep the warranty card at hand.

### **11.2. After-sales service**

#### **11.2.1 Recommendations for maintenance and inspection**

Since dust collects when using the unit for several years, performance of the unit will deteriorate to some extent. As taking apart and cleaning interiors of units requires technical expertise and in order to ensure the best possible maintenance of your units, we recommend to enter into a maintenance and inspection contract on top of normal maintenance activities. Our network of dealers has access to a permanent stock of essential components in order to keep your air conditioner in operation as long as possible. Contact your dealer for more information.

**When asking your dealer for an intervention, always state :**

- The complete model name of the air conditioner.
- The manufacturing number (stated on the name plate of the unit).
- The installation date.
- The symptoms or malfunction and details of the defect.

#### **⚠ WARNING**

- Do not modify, disassemble, remove, reinstall or repair the unit yourself as incorrect dismantling or installation may cause an electric shock or fire. Contact your dealer.
- In case of accidental refrigerant leaks, make sure there are no naked flames. The refrigerant itself is entirely safe, non-toxic and non-combustible, but it will generate toxic gas when it accidentally leaks into a room where combustible air from fan heaters, gas cookers, etc. is present. Always have qualified service personnel confirm that the point of leakage has been repaired or corrected before resuming operation.

- Do not remove or reinstall the unit by yourself. Incorrect installation may cause electrical shock or fire. Contact your dealer.

### 11.2.2 Recommended inspection and maintenance cycles

Be aware that the mentioned maintenance and replacement cycles do not relate to the warranty period of the components.

Table 1 assumes the following conditions of use:

- Normal use without frequent starting and stopping of the unit.  
Depending on the model, we recommend not starting and stopping the machine more than 6 times/hour.
- Operation of the unit is assumed to be 10 hours/day and 2,500 hours/year.

Table 1: “Inspection Cycle” and “Maintenance Cycle” list

Component	Inspection cycle	Maintenance cycle (replacements and/or repairs)
Electric motor (fan, damper, etc.)	1 year	20,000 hours
PCB boards		25,000 hours
Heat exchanger		5 years
Sensor (thermistor, etc.)		5 years
User interface and switches		25,000 hours
Drain pan		8 years
Expansion valve		20,000 hours
Electromagnetic valve		20,000 hours

#### NOTICE

- 1 Table 1 indicates main components. Refer to your maintenance and inspection contract for more details.
- 2 Table 1 indicates recommended intervals of maintenance cycles. However, in order to keep the unit operational as long as possible, maintenance work may be required sooner. Recommended intervals can be used for appropriate maintenance design in terms of budgeting maintenance and inspection fees. Depending on the content of the maintenance and inspection contract, inspection and maintenance cycles may in reality be shorter than listed.

### 11.3 Shortening of “maintenance cycle” and “replacement cycle” needs to be considered in following situations

The unit is used in locations where:

- Heat and humidity fluctuate out of the ordinary.
- Power fluctuation is high (voltage, frequency, wave distortion, etc.) (the unit cannot be used if power fluctuation is outside the allowable range).

- Bumps and vibrations are frequent.
- Dust, salt, harmful gas or oil mist such as sulphurous acid and hydrogen sulfide may be present in the air.
- The machine is started and stopped frequently or operation time is long (sites with 24 hour air conditioning).

Recommended replacement cycle of wear parts

Table 2: “Replacement Cycle” list

Component	Inspection cycle	Maintenance cycle (replacements and/or repairs)
Air filter	1 year	5 years
High efficiency filter (Optional accessory)		1 year
Fuse		10 years
Crankcase heater		8 years

#### NOTICE

- Table 2: “Replacement Cycle” list indicates main components. Refer to your maintenance and inspection contract for more details.
- Table 2: “Replacement Cycle” list indicates recommended intervals of replacement cycles. However, in order to keep the unit operational as long as possible maintenance work may be required sooner. Recommended intervals can be used for appropriate maintenance design in terms of budgeting maintenance and inspection fees. Contact your dealer for details.

#### INFORMATION

Damage due to taking apart or cleaning interiors of units by anyone other than our authorized dealers may not be included in the warranty.

#### Moving and discarding the unit

- Contact your dealer for removing and reinstalling the total unit. Moving units requires technical expertise.
- This unit uses hydrofluorocarbon. Contact your dealer when discarding this unit. It is required by law to collect, transport and discard the refrigerant in accordance with the “hydrofluorocarbon collection and destruction” regulations.

## 11.4 Malfunction codes

In case a malfunction code appears on the indoor unit user interface display, contact your installer and inform the malfunction code, the unit type and serial number (you can find this information on the nameplate of the unit).

For your reference, a list with malfunction codes is provided. You can, depending on the level of the malfunction code, reset the code by pushing the ON/OFF button. If not, ask your installer for advice.

There may be possibility that malfunction code display on user interface different from, below list.

Malfunction code	Contents
Main code	
RQ	External protection device was activated
RI	EEPROM failure (indoor)
R3	Drain system malfunction (indoor)
RE	Fan motor malfunction (indoor)
R7	Swing flap motor malfunction (indoor)
R9	Expansion valve malfunction (indoor)
RF	Drain malfunction (indoor unit)
RH	Filter dust chamber malfunction (indoor)
RJ	Capacity setting malfunction (indoor)
CI	Transmission malfunction between main PCB and sub PCB (indoor)
C4	Heat exchanger thermistor malfunction (indoor; liquid)
C5	Heat exchanger thermistor malfunction (indoor; gas)
C9	Suction air thermistor malfunction (indoor)
CR	Discharge air thermistor malfunction (indoor)
CE	Movement detector or floor temperature sensor malfunction (indoor)
CJ	User interface thermistor malfunction (indoor)
EI	PCB malfunction (outdoor)
E2	Current leakage detector was activated (outdoor)
E3	High pressure switch was activated
E4	Low pressure malfunction (outdoor)
E5	Compressor lock detection (outdoor)
E7	Fan motor malfunction (outdoor)
E9	Electronic expansion valve malfunction (outdoor)
F3	Discharge temperature malfunction (outdoor)
F4	Abnormal suction temperature (outdoor)

Malfunction code	Contents
Main code	
F6	Refrigerant overcharge detection
H3	High pressure switch malfunction
H4	Low pressure switch malfunction
H7	Fan motor trouble (outdoor)
H9	Ambient temperature sensor malfunction (outdoor)
J1	Pressure sensor malfunction
J2	Current sensor malfunction
J3	Discharge temperature sensor malfunction (outdoor)
J4	Heat exchanger gas temperature sensor malfunction (outdoor)
J5	Suction temperature sensor malfunction (outdoor)
J6	De-icing temperature sensor malfunction (outdoor)
J7	Liquid temperature sensor (after subcool HE) malfunction (outdoor)
J8	Liquid temperature sensor (coil) malfunction (outdoor)
J9	Gas temperature sensor (after subcool HE) malfunction (outdoor)
JA	High pressure sensor malfunction (S1NPH)
JC	Low pressure sensor malfunction (S1NPL)
LI	INV PCB abnormal
L4	Fin temperature abnormal
L5	Inverter PCB faulty
LB	Compressor over current detected
L9	Compressor lock (startup)
LC	Transmission outdoor unit - inverter: INV transmission trouble
PI	INV unbalanced power supply voltage
P2	Autocharge operation related
P4	Fin thermistor malfunction
P8	Autocharge operation related
P9	Autocharge operation related
PE	Autocharge operation related
PJ	Capacity setting malfunction (outdoor)
UQ	Abnormal low pressure drop, faulty expansion valve
UI	Open phase
U2	INV voltage power shortage
U3	System test run not yet executed
U4	Faulty wiring indoor/outdoor
U5	Abnormal user interface - indoor communication
U7	Faulty wiring to Q1/Q2
UB	Abnormal main-sub user interface communication
U9	System mismatch. Wrong type of indoor units combined. Indoor unit malfunction.
UR	Connection malfunction over indoor units or type mismatch
UC	Centralized address duplication
UE	Malfunction in communication centralized control device - indoor unit
UF	Auto address malfunction (inconsistency)
UH	Auto address malfunction (inconsistency)

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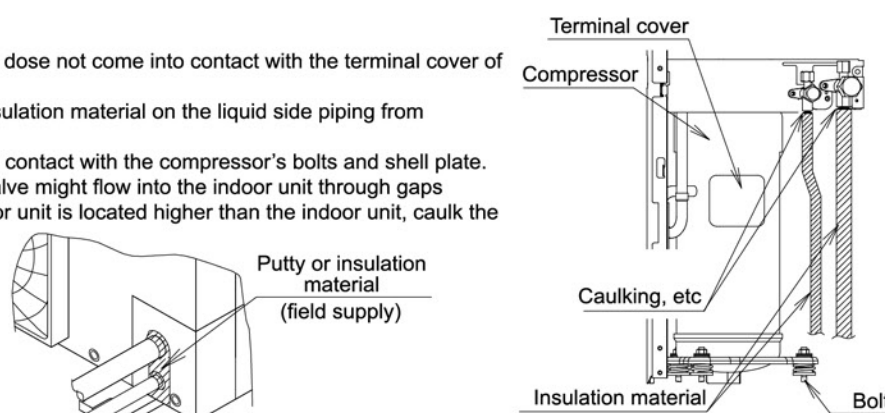
## 7 Refrigerant piping connection

### Precautions to piping connection

- Make sure the connection pipe of the indoor and outdoor units does not come into contact with the terminal cover of the compressor.  
Adjust the height as shown in the right figure to prevent the insulation material on the liquid side piping from contacting with the cover.
- In addition, make sure the connection pipe does not come into contact with the compressor's bolts and shell plate.
- If there is a possibility that the condensed water on the stop valve might flow into the indoor unit through gaps between the insulation material and piping because the outdoor unit is located higher than the indoor unit, caulk the gaps at the connection.

### [How to prevent entry of small animals]

- Caulk the piping through holes with putty or insulation material (field supply) as shown in the right figure to prevent gaps.
- (For the outdoor unit, entry by insects could cause short circuit of the electrical component box.)



### 7-6. Piping insulation

- If temperature within the ceiling exceeds 30°C and the humidity over HR80%, thicken the insulation material of the refrigerant piping. (Thickness at least 20mm)  
(Condensation might form on the surface of the insulation material.)
- The connection piping (liquid side, gas side) and the refrigerant branch kit must be insulated. (Otherwise, it may cause water dripping.)

(Be sure to use the insulation material with high-heat-resistance performance as the gas side piping can reach temperature of about 120°C during heating operation.)

For piping connected locally, wrap the insulation material till the root segment of the stop valve. The naked piping may result in condensation and burns.

### Example of connection

(Connecting 3 indoor units)

### Branch with refnet joint

Outdoor unit REFNET joint (A-G)

Indoor units (1-8)

### Branch with refnet joint and refnet header

Outdoor unit REFNET joint (A+B)

Indoor units (1-8)

### Branch with refnet header

Outdoor unit Refnet header

Indoor units (1-8)

### Max. allowable length

Between outdoor unit and indoor unit

### Allowable height difference

Between outdoor unit and indoor unit

Between indoor units

### Allowable length after the branch

Selecting refrigerant branch kit

Refrigerant branch kit can only be used with R410A

### Selecting the piping size

#### <Precautions to select connection piping>

- If the equivalent piping length between outdoor and indoor unit is over 50m, size of the main pipe on the gas side and liquid side must be increased.
- In addition, depending on the distance of the refrigerant piping, size of the main pipe also can be increased if capability decreased.

Model	Gas side	Liquid side
10HP	Φ25.4	Φ12.7
12HP	Φ28.6	Φ15.9

The first refrigerant branch kit

Note

To increase the size of the piping joint, connect it using joints of different apertures (field supply). In addition, connection part should be set beside the outdoor unit (behind the 1st bending outside the unit).

### How to calculate the additional refrigerant to be charged

Additional refrigerant to be charged: R(kg)

(R should be rounded off in units of 0.1 kg.)

### Piping between outdoor unit and refrigerant branch kit

- Should correspond to the size of the connection piping of outdoor unit.

Size of the piping connected to outdoor unit (Unit: mm)

Outdoor unit capacity

Piping size (outer diameter)

Gas side piping

Liquid side piping

10HP

Φ22.2

Φ9.5

12HP

Φ25.4

Φ12.7

Hardness and wall thickness of piping (Unit: mm)

Copper tube O.D.

Minimum requirement

Temper grade

Φ6.4

0.80

Φ9.5

0.80

Φ12.7

0.80

Φ15.9

0.99

Φ19.1

0.80

Φ22.2

0.80

Φ25.4

0.88

Φ28.6

0.99

1/2H type

(Conforming to JIS H 3300 is required)

### Piping between refrigerant branch kits

- Select from the following table based on the total capacity index of all the indoor units upstream the refrigerant branch kit.

Connection piping shall not be larger than the size of the main refrigerant piping.

If the connection piping selected from the table below is larger than the main refrigerant piping, determine the size following either procedure given below.

①Reduce the connection piping size to the same size of the main refrigerant piping.

②Increase the main refrigerant piping size by one grade to the same size of the connection piping.

(Unit: mm)

Total indoor unit capacity index

Piping size (outer diameter)

Gas side piping

Liquid side piping

< 150

Φ15.9

150 ≤ x < 200

Φ19.1

200 ≤ x < 290

Φ22.2

290 ≤ x < 420

Φ28.6

420 ≤ x < 640

Φ15.9

### How to select the PPM header

- Choose from below model.

BHF8RHP6 max. 6 unit can connect

BHF10RHP6 max. 6 unit can connect

BHF16RHP6 max. 6 unit can connect

Selection of header based on outdoor and indoor pipe size.

For size selection Refer installation manual of PPM header

Piping between refrigerant branch kit and indoor unit

- Should correspond to the size of the connection piping of indoor unit

Size of the piping connected to indoor unit (Unit: mm)

Indoor unit capacity

Piping size (outer diameter)

Gas side piping

Liquid side piping

50 or before

Φ12.7

Φ6.4

56 or later

Φ15.9

Φ9.5

### 7-7. Air tight test and vacuum drying

#### ● Air tight test - Always use nitrogen. (Refer to Stop valve operation procedure for service port's position.)

【Procedure】 Pressurize the liquid side piping and the gas side piping to 4.0MPa (do not exceed 4.0 MPa). If the pressure does not drop within 24 hours, the system passes the test.

If there is a pressure drop, check for leaks. (Discharge the nitrogen after confirming there is no leakage.)

● Vacuum drying - Use a vacuum pump able to evacuate the system to -100.7 kPa (5Torr, -755mmHg) or less.

【Procedure】 Evacuate the system from the liquid side piping and gas side piping using a vacuum pump for more than 2 hours to -100.7 kPa or less.

Keep the system under this condition for more than 1 hour, check if the vacuum gauge indication rises or not.

If it rises, the system may either contain moisture inside or have gas leak.

(If it does, if doing work during the rainy season, if the actual work takes long enough that condensation may form on the inside of the pipes, if rain might enter the pipes during work, etc.)

After performing the vacuum drying for 2 hours, pressurize to 0.05 MPa (vacuum breakdown) with nitrogen gas, then depressurize down to -100.7 kPa or less and hold for an hour using the vacuum pump (vacuum drying).

(If the pressure does not reach -100.7 kPa (vacuum breakdown) after depressurizing for at least 2 hours, repeat the vacuum breakdown-vacuum drying process.) After vacuum drying, maintain the vacuum for an hour and make sure the pressure does not rise by monitoring with a vacuum gauge.

Preparation

<Tools required>

Multi-tube pressure gauge

charge hose valve

● To prevent entry of any impurities and insure sufficient pressure resistance, always use the special tools dedicated for R410A.

● To connect to the service port of the stop valves or the refrigerant charge port, use the charge hose with a pushing stick.

● Use a vacuum pump able to evacuate the system to -100.7 kPa (5Torr, -755mmHg) or less for vacuum drying.

● Take care the pump oil never flows backward into the refrigerant pipe during the pump stops.

Vacuum pump

Pressure-reducing valve

Valve (open)

Vacuum pump

Stop valve service port

Charge hose

Note Be sure to shut off the liquid side and gas side stop valves. Otherwise, it may cause refrigerant leakage of the outdoor unit.

### Check the following after piping connection is finished.

#### ● Air tight test - Always use nitrogen. (Refer to Stop valve operation procedure for service port's position.)

【Procedure】 Pressurize the liquid side piping and the gas side piping to 4.0MPa (do not exceed 4.0 MPa). If the pressure does not drop within 24 hours, the system passes the test.

If there is a pressure drop, check for leaks. (Discharge the nitrogen after confirming there is no leakage.)

● Vacuum drying - Use a vacuum pump able to evacuate the system to -100.7 kPa (5Torr, -755mmHg) or less.

【Procedure】 Evacuate the system from the liquid side piping and gas side piping using a vacuum pump for more than 2 hours to -100.7 kPa or less.

Keep the system under this condition for more than 1 hour, check if the vacuum gauge indication rises or not.

If it rises, the system may either contain moisture inside or have gas leak.

(If it does, if doing work during the rainy season, if the actual work takes long enough that condensation may form on the inside of the pipes, if rain might enter the pipes during work, etc.)

After performing the vacuum drying for 2 hours, pressurize to 0.05 MPa (vacuum breakdown) with nitrogen gas, then depressurize down to -100.7 kPa or less and hold for an hour using the vacuum pump (vacuum drying).

(If the pressure does not reach -100.7 kPa (vacuum breakdown) after depressurizing for at least 2 hours, repeat the vacuum breakdown-vacuum drying process.) After vacuum drying, maintain the vacuum for an hour and make sure the pressure does not rise by monitoring with a vacuum gauge.

Preparation

<Tools required>

Multi-tube pressure gauge

charge hose valve

● To prevent entry of any impurities and insure sufficient pressure resistance, always use the special tools dedicated for R410A.

● To connect to the service port of the stop valves or the refrigerant charge port, use the charge hose with a pushing stick.

● Use a vacuum pump able to evacuate the system to -100.7 kPa (5Torr, -755mmHg) or less for vacuum drying.

● Take care the pump oil never flows backward into the refrigerant pipe during the pump stops.

Vacuum pump

Pressure-reducing valve

Valve (open)

Vacuum pump

Stop valve service port

Charge hose

Note Be sure to shut off the liquid side and gas side stop valves. Otherwise, it may cause refrigerant leakage of the outdoor unit.

### Stop valve operation procedure

#### Precautions to stop valve operation

● Name of each part should be known before operating the stop valve (as shown in the right figure). When shipped, the stop valve is left closed.

● Use proper tools.

Since the stop valve of this unit is not flaring sealed type, remove it forcibly may result in damage to the valve body.

● When using the service port, attach charge hose.

● After tightening the cap, check if the refrigerant leaks.

Service port

Shaft

Valve lid

To open

To close

<Liquid side>

<Gas side>

Shaft

Valve lid

To open

To close

<Liquid side>

<Gas side>

Shaft

Valve lid

To open

To close

<Liquid side>

<Gas side>

Shaft

Valve lid

To open

To close

<Liquid side>

<Gas side>

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<Liquid side>

<Gas side>

Shaft

Valve lid

To open

To close

<Liquid side>

<Gas side>

Shaft