

Air conditioner

User & Installation manual

AF80KV3SAEE / AF0AKV3SAEE

- Thank you for purchasing this Samsung air conditioner.
- Before operating this unit, please read this user manual carefully and retain it for future reference.



DB68-06277A-00

SAMSUNG

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Safety precautions

Before using your new air conditioner, please read this manual thoroughly to ensure that you know how to safely and efficiently operate the extensive features and functions of your new appliance.

Because the following operating instructions cover various models, the characteristics of your air conditioner may differ slightly from those described in this manual. If you have any questions, call your nearest contact center or find help and information online at www.samsung.com.

These warning signs are here to prevent injury to you and others. Please follow them carefully.






Important safety symbols and precautions:

WARNING

Hazards or unsafe practices that may result in severe personal injury or death.

CAUTION

Hazards or unsafe practices that may result in minor personal injury or property damage.

-  Follow directions.
-  Do NOT attempt.
-  Make sure the machine is grounded to prevent electric shock.
-  Unplug the power plug from the wall socket.
-  Do NOT disassemble.

Safety precautions

FOR INSTALLATION

WARNING

! Use the power line with the power specifications of the product or higher and use the power line for this appliance only. In addition, do not use an extension line.

- Extending the power line may result in electric shock or fire.
- Do not use an electric transformer. It may result in electric shock or fire.
- If the voltage/frequency/rated current condition is different, it may cause fire.

The installation of this appliance must be performed by a qualified technician or service company.

- Failing to do so may result in electric shock, fire, explosion, problems with the product, or injury.

Install a switch and circuit breaker dedicated to the air conditioner.

- Failing to do so may result in electric shock or fire.

Fix the outdoor unit firmly so that the electric part of the outdoor unit is not exposed.

- Failing to do so may result in electric shock or fire.

⊘ Do not install this appliance near a heater, inflammable material. Do not install this appliance in a humid, oily or dusty location, in a location exposed to direct sunlight and water (rain drops). Do not install this appliance in a location where gas may leak.

- This may result in electric shock or fire.

Never install the outdoor unit in a location such as on a high external wall where it could fall.

- If the outdoor unit falls, it may result in injury, death or property damage.



This appliance must be properly grounded. Do not ground the appliance to a gas pipe, plastic water pipe, or telephone line.

- Failure to do so may result in electric shock, fire, an explosion, or other problems with the product.
- Never plug the power cord into a socket that is not grounded correctly and make sure that it is in accordance with local and national codes.



CAUTION



Install your appliance on a level and hard floor that can support its weight.

- Failing to do so may result in abnormal vibrations, noise, or problems with the product.

Install the draining hose properly so that water is drained correctly.

- Failing to do so may result in water overflowing and property damage.

When installing the outdoor unit, make sure to connect the draining hose so that draining is performed correctly.

- The water generated during the heating operation by the outdoor unit may overflow and result in property damage. In particular, in winter, if a block of ice falls, it may result in injury, death or property damage.

Do not install the product in a place where thermo-hygrostat is needed (such as server room, machinery room, computer room, etc.)

- Those places do not provide guaranteed operation condition of the product therefore performance can be poor in these places.





Do not install the product in a place where hair spray is frequently used (such as hair salon) since it decreases the hydrophilicity of the product's heat exchanger and cause dew formation on the surface of the product.

Safety precautions

FOR POWER SUPPLY

WARNING

-  When the circuit breaker is damaged, contact your nearest service centre.
-  Do not pull or excessively bend the power line. Do not twist or tie the power line. Do not hook the power line over a metal object, place a heavy object on the power line, insert the power line between objects, or push the power line into the space behind the appliance.
 - This may result in electric shock or fire.

CAUTION

-  When not using the air conditioner for a long period of time or during a thunder/lightning storm, cut the power at the circuit breaker.
 - Failing to do so may result in electric shock or fire.

FOR USING

WARNING

-  If the appliance is flooded, please contact your nearest service centre.
 - Failing to do so may result in electric shock or fire.

If the appliance generates a strange noise, a burning smell or smoke, unplug the power plug immediately and contact your nearest service centre.

- Failing to do so may result in electric shock or fire.

In the event of a gas leak (such as propane gas, LP gas, etc.), ventilate immediately without touching the power line. Do not touch the appliance or power line.

- Do not use a ventilating fan.
- A spark may result in an explosion or fire.

To reinstall the air conditioner, please contact your nearest service centre.

- Failing to do so may result in problems with the product, water leakage, electric shock, or fire.
- A delivery service for the product is not provided. If you reinstall the product in another location, additional construction expenses and an installation fee will be charged.
- Especially, when you wish to install the product in an unusual location such as in an industrial area or near the seaside where it is exposed to the salt in the air, please contact your nearest service centre.

⊘ Do not touch the circuit breaker with wet hands.

- This may result in electric shock.

Do not strike or pull the air conditioner with excessive force.

- This may result in fire, injury, or problems with the product.

Do not place an object near the outdoor unit that allows children to climb onto the machine.

- This may result in children seriously injuring themselves.

Do not turn the air conditioner off with the circuit breaker while it is operating.

- Turning the air conditioner off and then on again with the circuit breaker may cause a spark and result in electric shock or fire.

After unpacking the air conditioner, keep all packaging materials well out of the reach of children, as packaging materials can be dangerous to children.

- If a child places a bag over its head, it may result in suffocation.

Do not insert your fingers or foreign substances into the outlet when the air conditioner is operating or the air flow blade is closing.

- Take special care that children do not injure themselves by inserting their fingers into the product.


Safety precautions

Do not insert your fingers or foreign substances into the air inlet/outlet of the air conditioner.

- Take special care that children do not injure themselves by inserting their fingers into the product.

Do not use this air conditioner for long periods of time in badly ventilated locations or near infirm people.

- Since this may be dangerous due to a lack of oxygen, open a window at least once an hour.

 **If any foreign substance such as water has entered the appliance, cut the power by unplugging the power plug and turning the circuit breaker off and then contact your nearest service centre.**

- Failing to do so may result in electric shock or fire.

 **Do not attempt to repair, disassemble, or modify the appliance yourself.**

- Do not use any fuse (such as copper, steel wire, etc.) other than the standard fuse.
- Failing to do so may result in electric shock, fire, problems with the product, or injury.

CAUTION

 **Do not place objects or devices under the indoor unit.**

- Water dripping from the indoor unit may result in fire or property damage.

Check that the installation frame of the outdoor unit is not broken at least once a year.

- Failing to do so may result in injury, death or property damage.

Max current is measured according to IEC standard for safety and current is measured according to ISO standard for energy efficiency.

⊘ **Do not stand on top of the appliance or place objects (such as laundry, lighted candles, lighted cigarettes, dishes, chemicals, metal objects, etc.) on the appliance.**

- This may result in electric shock, fire, problems with the product, or injury.

Do not operate the appliance with wet hands.

- This may result in electric shock.

Do not spray volatile material such as insecticide onto the surface of the appliance.

- As well as being harmful to humans, it may also result in electric shock, fire or problems with the product.

Do not drink the water from the air conditioner.

- The water may be harmful to humans.

Do not apply a strong impact to the remote control and do not disassemble the remote control.

Do not touch the pipes connected with the product.

- This may result in burns or injury.

Do not use this air conditioner to preserve precision equipment, food, animals, plants or cosmetics, or for any other unusual purposes.

- This may result in property damage.

Avoid directly exposing humans, animals or plants from the air flow from the air conditioner for long periods of time.


- This may result in harm to humans, animals or plants.

This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety. Children should be supervised to ensure that they do not play with the appliance.



Safety precautions

FOR CLEANING

WARNING

-  **Do not clean the appliance by spraying water directly onto it. Do not use benzene, thinner, alcohol or acetone to clean the appliance.**
 - This may result in discoloration, deformation, damage, electric shock or fire.
- Before cleaning or performing maintenance, unplug the air conditioner from the wall socket and wait until the fan stops.**
 - Failing to do so may result in electric shock or fire.

CAUTION

-  **Take care when cleaning the surface of the heat exchanger of the outdoor unit since it has sharp edges.**
 - To avoid cutting your fingers, wear thick cotton gloves when cleaning it.
-  **Do not clean the inside of the air conditioner by yourself.**
 - For cleaning inside the appliance, contact your nearest service centre.
 - When cleaning the internal filter, refer to the descriptions in the 'Cleaning and maintaining the air conditioner' section.
 - Failure to do may result in damage, electric shock or fire.

Checking before use

Using outdoor unit

Take away any covers or barriers.

- It may cause product failure and poor performance in cooling by blocking air flow.

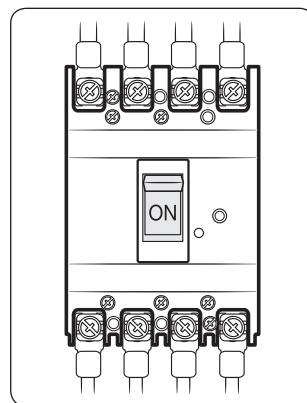
Checking the auxiliary power switch

Turn on the auxiliary power switch which is installed separately.

NOTE

Auxiliary power switch (ELCB : Earth Leakage Circuit Breaker)

- Auxiliary power switch is not included in the package. Purchase and install it separately.
- Auxiliary power switch is a device for preventing over-current or short circuit. When not using the auxiliary power switch for a long time, it should be turned off.
- If ELCB have already been installed in the switch box of the building, you don't need to install the auxiliary power switch.



Operational temperature and humidity range

When the air conditioner operates outside of temperature and humidity range indicated below, protective device may activate and stop the operation. Especially, do not operate the air conditioner when the temperature of the outdoor is below -15°C since product can be damaged.

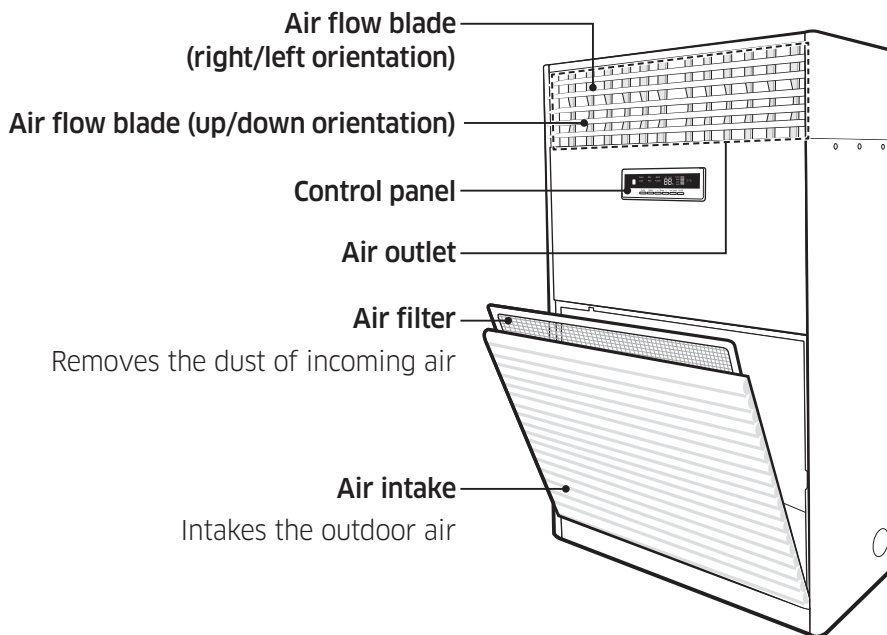
Mode	Indoor temperature	Outdoor temperature	Indoor humidity
Cool	18°C ~32°C	-15°C ~52°C	Relative humidity 80% or less
Dry	18°C ~32°C	-15°C ~52°C	

- If the air conditioner operates in cooling mode for long period of time in high humidity area, dew may be formed.

Viewing the parts

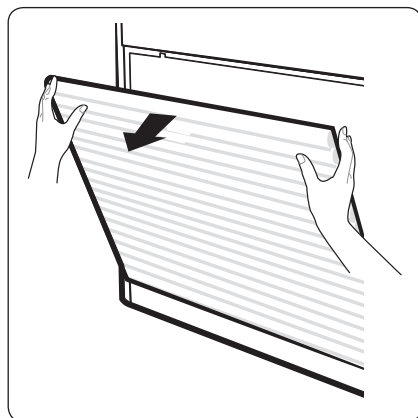
The picture and function of the indoor unit may different depending on the model.

Main parts

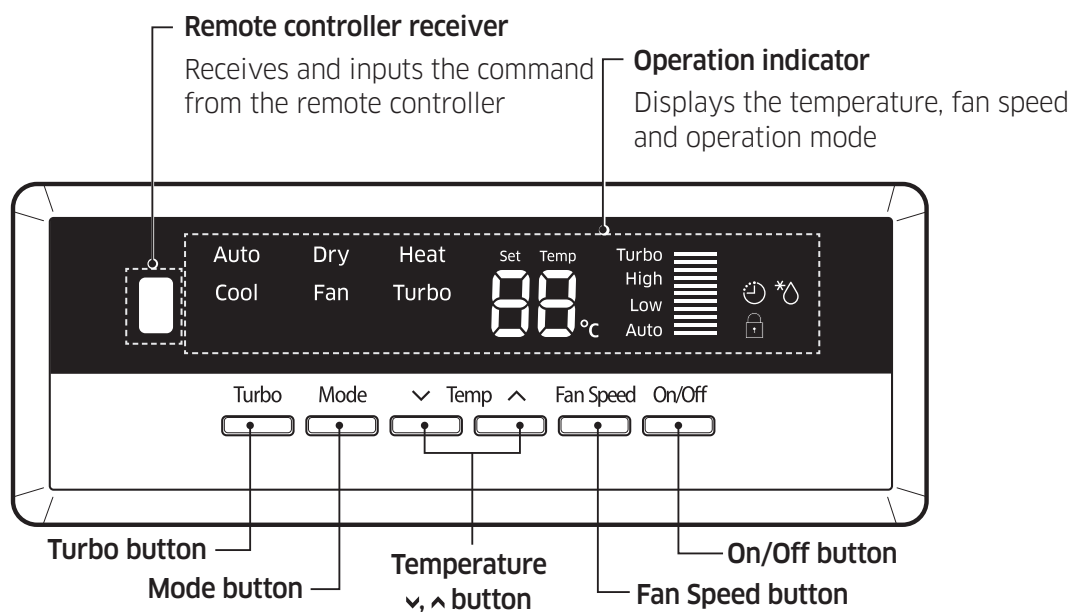


To open the panel

Hold the upper part of the panel, and then pull it slightly forward. Don't open the panel during the operation. It may cause a malfunction or an electrical hazard.



Control panel and the display




NOTE

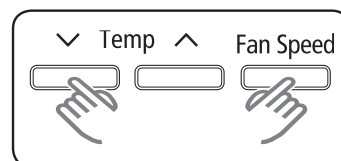
- Heat mode is not supported by this model.

Locking the control panel

Whether the air conditioner is switched on or off, you cannot control the air conditioner with the control panel if this function is set.

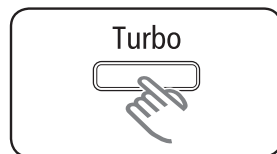
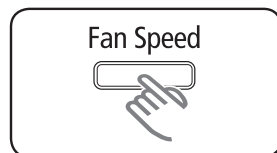
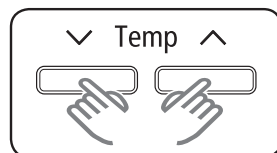
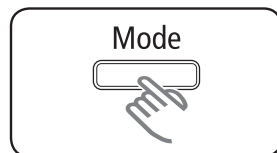
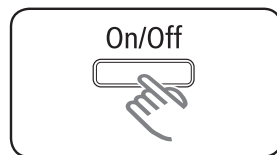
Press the **Temp \downarrow** and **Fan Speed** buttons for 3 seconds.

- You will hear ring and the Lock icon  will appear on the indoor unit display.
- Once Lock is set, you cannot control the air conditioner with the control panel but you can only control it with the remote controller. Therefore this function will be useful to keep the children away from touching the control panel.
- To unlock the control panel, press the **Temp \downarrow** and **Fan Speed** buttons again for 3 seconds.



Using the air conditioner with the control panel

- 1 Press the **On/Off** button on the indoor unit control panel.
 - The air conditioner will operate in Cool mode.
 - To turn off the air conditioner, press the **On/Off** button again.
- 2 Press the **Mode** button to select the operation mode.
 - You can select operation mode you want by pressing the **Mode** button.
 - Each time you press the **Mode** button, the mode will change in order of Cool, Auto, Dry and Fan.
- 3 Press the **Temp** ▼ and ▲ button to adjust the temperature.
 - You can increase/decrease the temperature by 1°C.
- 4 Press the **Fan Speed** button to adjust the fan speed.
 - Each time you press the **Fan Speed** button, the fan speed will change in order of (High) ▷ (Auto) ▷ (Low).
- 5 Press the **Turbo** button to select Turbo mode



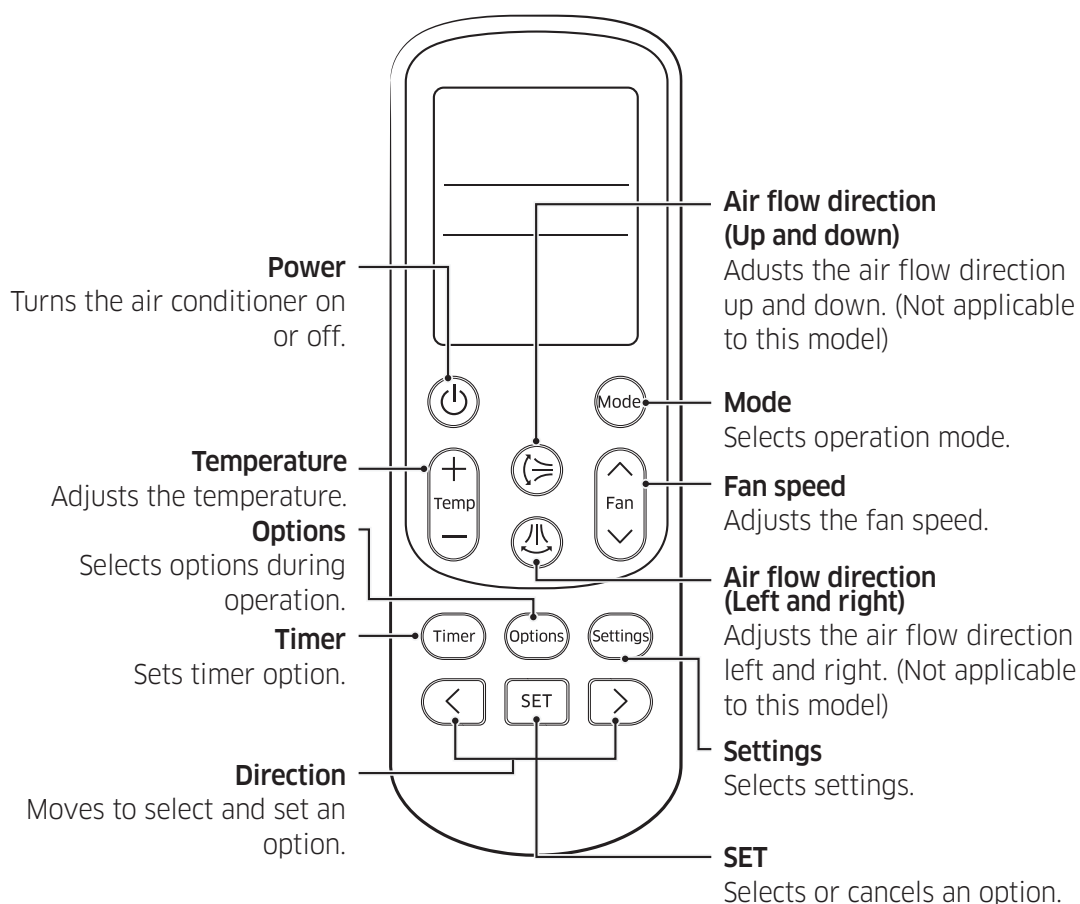
NOTE

- General and duct type air conditioners may show different Fan speeds.

Checking the remote controller

- Point the remote controller towards the remote controller receiver of the indoor unit.
- When you press the button on the remote controller correctly, you will hear beep sound from the indoor unit and a transmit indicator(Ⓢ) appears on the remote controller display.

Remote controller button

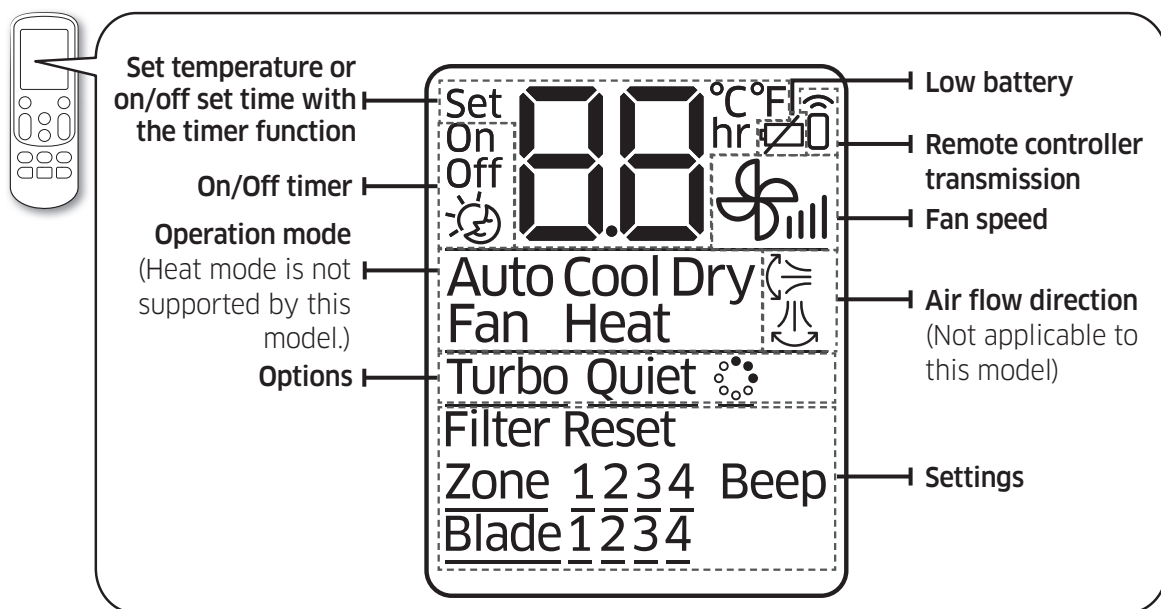


NOTE


- Air flow direction (Up/Down, Left/Right) functions are not supported by this model.

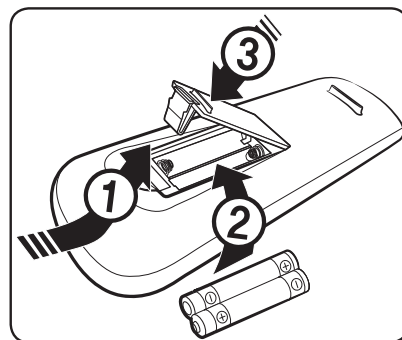
Checking the remote controller

Remote controller display



Inserting the batteries

- 1 Open the battery cover of the remote controller.
 - Press the () part gently and lift it up in the arrow direction.
- 2 Insert the batteries.
 - Check and match the (+) and (-) signs accordingly.
- 3 Close the battery cover.
 - Match the cover and bottom part of the remote controller and press it until you hear click sound.




CAUTION

- Make sure that water is not Allowed to enter the remote controller.

NOTE

- There is a possibility that the air conditioner will not operate by remote controller near strong light such as a fluorescent lamp or neon sign. In this case, use the remote controller in front of the remote controller receiver of the indoor unit.

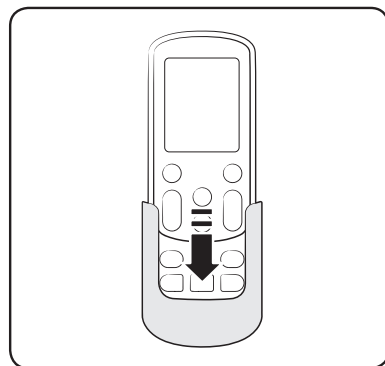
Battery changing time

When the battery is exhausted,  will be displayed on the remote controller display. When the icon appears, change the batteries.

The remote controller requires two 1.5V AAA type batteries.

Storing the remote controller

When you do not use the remote controller for a long time, remove the batteries from the remote controller and store it in the remote controller holder.



Basic operation

Basic operation is the operation mode that can be selected by pressing the **Mode** button.

Cool

In Cool mode, indoor temperature and fan speed can be adjusted at your desire to cool your indoor room.

Auto

When setting the desired temperature of the air conditioner for your fresh environment, the operation mode will operate automatically according to the desired temperature and current temperature and control the fan speed in Auto mode.

Dry

In Dry mode, indoor humidity can be removed efficiently to refresh the humid indoor room.

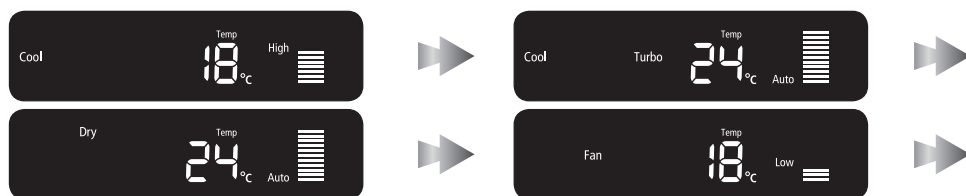
- Switching the outdoor unit on or off will be repeated according to the temperature difference between current temperature and the desired temperature.

Fan


In Fan mode, the breeze will be generated just like the electric fan to provide natural indoor environment.









Press the  button to start the operation of the air conditioner.


Press the  button to start the operation of the air conditioner.



- You can check the display on the indoor unit to make sure that you selected desired operation mode.

Press the  button to start the operation of the air conditioner.

Auto	 (Auto)
Cool	 (Auto),  (Med),  (High)
Dry	 (Auto)
Fan	 (Low),  (Med),  (High)

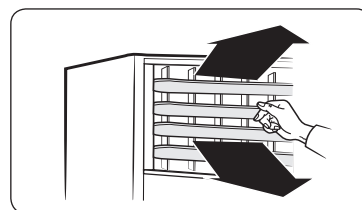
Press the  button to adjust the desired temperature.

Cool	You can adjust the Desired temperature by 1°C within the range of 18°C~30°C.
Auto	When desired temperature is adjusted, operation mode will change to Cool mode.
Dry	You can adjust the desired temperature by 1°C within the range of 18°C~30°C.
Fan	Desired temperature cannot be adjusted.

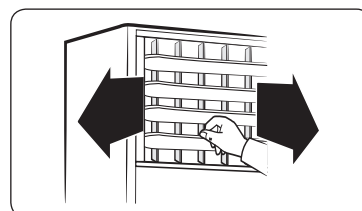
Adjusting the air flow direction

Air flow can be directed to your desired position.

Hold the Air flow blade (up/down orientation) and adjust the up/down direction.



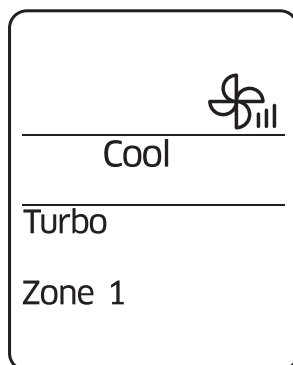
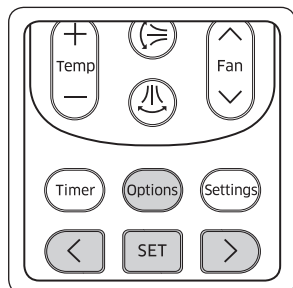
Hold the Air flow blade (left/right orientation) and adjust the left/right direction.



Using the Turbo function

You can set the Turbo function to provide fast and powerful cooling.

When the air conditioner is operating in Auto, Cool mode;



Remote controller display



- 1 Press the **Options** button.
- 2 Press the <, > or **Options** button until (Turbo) indicator starts to blink.
- 3 Press the SET button to set the Turbo function.
 - (Turbo) → (Turbo) indicator will be displayed on the remote controller display and Turbo function will operate for 30 minutes.

Cancel

- Press the **Options** button → press the <, > or **Options** button to make the (Turbo) indicator blink and press the **SET** button.

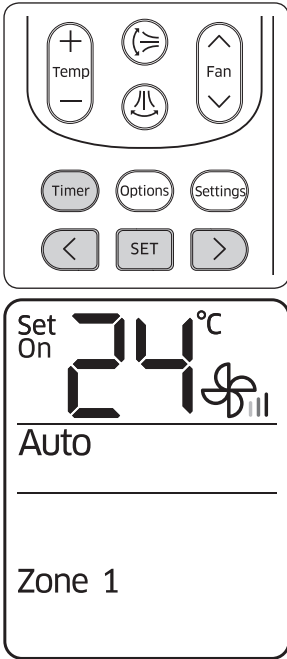
NOTE

- Turbo function is only available in Auto, Cool mode.
- Temperature and fan speed cannot be adjusted.

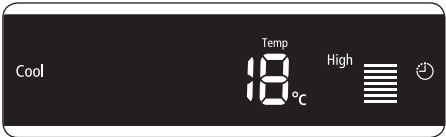
Timer function

Setting the On timer

When the air conditioner is turned off.



Remote controller display



- 1 Press the **Timer** button to select (On).
 - (On) indicator will keep blinking and you can set the time.
- 2 Press the < or > button to set the time.
 - You can set the time in half hour unit from 30 minutes (0.5 on the display) ~ 3 hours and hour unit from 3 ~ 24 hours.
 - Time can be set from minimum 30 minutes to maximum 24 hours.
- 3 Press the **SET** button to complete the On timer setting.
 - (On) indicator and the set time of the timer will be displayed on the remote controller display.
 - On timer setting will be cancelled if you don't press the **SET** button within 10 seconds after setting the time. Therefore, check for the (On) indicator on the remote controller display.

Cancel

- Press the **Timer** button → select (On) → press the < or > button → set the timer to 00 → press the **SET** button.

Additional options available in On timer

	Select the mode from (Auto) → (Cool) → (Dry) and → (Fan). <ul style="list-style-type: none">• Heat mode is not supported by this model.
	You can adjust the temperature after timer setting is completed. Temperature adjustment is only available in Auto/Cool/Dry mode. In Fan mode, temperature cannot be adjusted. <ul style="list-style-type: none">• Heat mode is not supported by this model.

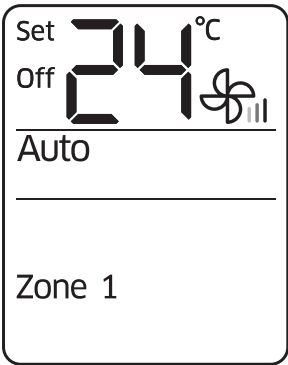
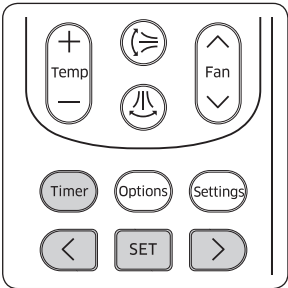
NOTE

- When On timer setting is completed, the set status will be displayed for 3 seconds, and then only (On) indicator will remain on the remote controller display thereafter.
- You cannot set the Fan speed when setting the On timer.

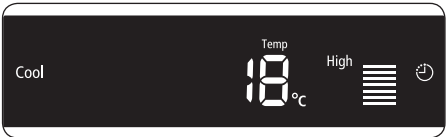
Timer function

Setting the Off timer

When the air conditioner is turned on



Remote controller display



- 1 Press the **Timer** button to select (Off).
 - (Off) indicator will keep blinking and you can set the time.
- 2 Press the < or > button to set the time.
 - You can set the time in half hour unit from 30 minutes (0.5 on the display) ~ 3 hours and hour unit from 3 ~ 24 hours.
 - Time can be set from minimum 30 minutes to maximum 24 hours.
- 3 Press the **SET** button to complete the Off timer setting.
 - (Off) indicator and the set time of the timer will be displayed on the remote controller display.
 - Off timer setting will be cancelled if you don't press the **SET** button within 10 seconds after setting the time. Therefore, check for the (Off) indicator on the remote controller display.

Cancel

- Press the **Timer** button → select (Off) → press the < or > button → set the timer to 00 → press the **SET** button.

Combining On timer and Off timer	
When the air conditioner is turned off	When the air conditioner is turned on
When set time on On timer is shorter than Off timer e.g. On timer: 3 hours, Off timer: 5 hours The air conditioner will be turned on after 3 hours from the moment you have set the timer and the air conditioner will remain on for 2 hours and then be turned off automatically.	When set time on On timer is longer than Off timer e.g. On timer: 3 hours, Off timer: 1 hour The air conditioner will be turned off after 1 hour from the moment you have set the timer and will be turned on after 2 hours from the moment it was turned off.

NOTE

- Set time for the On timer and the Off timer should be different from each other.
- When the On timer or the Off timer is set, setting can be cancelled by pressing the **Power** button.

Cleaning and maintaining the air conditioner

CAUTION

- Make sure to turn off the auxiliary power switch or unplug the power plug when cleaning the air conditioner.

Cleaning the indoor unit

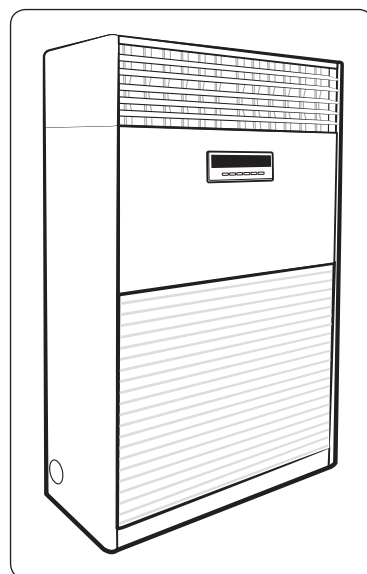
- Wipe the surface of the unit with a slightly wet or dry cloth when needed.
- Brush away the dust on the narrow gap of air conditioner.

NOTE

- If it is difficult to clean the indoor unit heat exchanger on your own, contact service center.
- Depending on the usage environment (restaurant, hair salon etc.), odor may be generated. Prevent the odor by cleaning the air filter or performing Fan mode while ventilating your room. If you have a problem with the odor, contact a service center.

CAUTION

- Do not clean the control panel with alkaline detergent.
- Do not clean the surface with sulfuric acid, hydrochloric acid or organic solvent (thinner, kerosene, acetone) or attach stickers. It may damage the surface of the unit.



Cleaning the outdoor unit heat exchanger

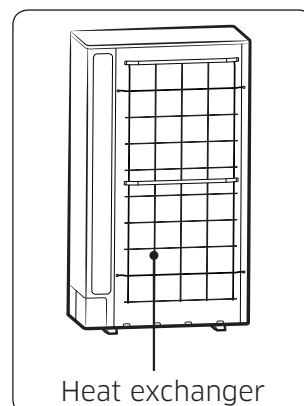
- When dust accumulates on the heat exchanger, it may decrease cooling performance. Therefore, clean it regularly.
- Spray water to clean the dust.

NOTE

- If it is too difficult to clean the outdoor unit heat exchanger on your own, contact service center.

CAUTION

- Be careful with the sharp edges on the outdoor unit heat exchanger.

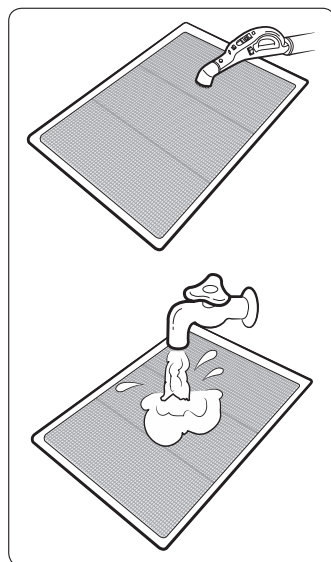
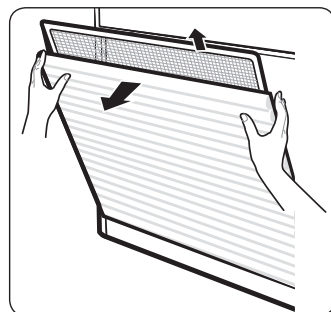


Cleaning and maintaining the air conditioner

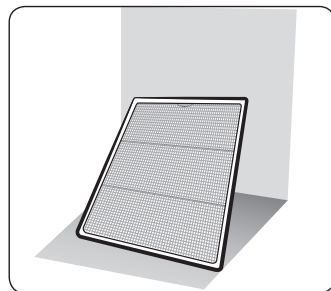
Cleaning the air filter

Washable air filter captures large particles from the air. The filter can be cleaned with a vacuum or by hand washing.

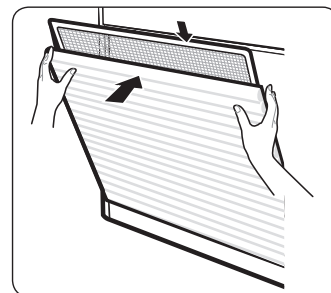
- 1** Open the panel and pull out the air filter.
 - Pull out the air filter in the direction of the arrow as shown in the below figure.
- 2** Clean the air filter with a vacuum cleaner or in running water.
 - If dust is too heavy, use warm water mixed with detergent. Do not scrub the filter too hard since it may get damaged.



- 3** Dry the air filter in a ventilated area.
 - Do not dry the air filter in a place with direct sunlight.



- 4 Insert the air filter back in its original position. Make sure it is firmly fixed.



NOTE

- Clean the air filter every two weeks. Cleaning term may differ depending on usage and environmental conditions therefore if you are using the air conditioner in dusty area, clean the air filter every week.

Maintaining the air conditioner

If the air conditioner will not be used for an extended period of time, dry the air conditioner to maintain it in best condition.

- 1 Dry the air conditioner thoroughly by operating in Fan mode for 3 to 4 hours and turn off the circuit breaker. There may be internal damage if moisture is left in components.
- 2 Before using the air conditioner again, dry the inner components of the air conditioner again by running in Fan mode for 3 to 4 hours. This helps remove odors which may have generated from dampness.

Cleaning and maintaining the air conditioner

Periodical checks

Refer to the following chart to maintain the air conditioner properly.

Type	Description	Every 2 weeks	Every 3 months	Every 4 months	Once a year
Indoor unit	Clean the air filter (1)	●			
	Clean the condensate drain pan (2)				●
	Thoroughly clean the heat exchanger (2)				●
	Clean the condensate drain pipe (2)			●	
Outdoor unit	Clean the heat exchanger on the outside of the unit (2)			●	
	Clean the heat exchanger on the inside of the unit (2)				●
	Clean the electric components with jets of air (2)				●
	Verify that all the electric components are firmly tightened (2)				●
	Clean the fan (2)				●
	Verify that all the fan assembly is firmly tightened (2)				●
	Clean the condensate drain pan (2)				●

● : This check mark requires checking the indoor/outdoor unit periodically, following to the description to maintain the air conditioner properly.

NOTE

- The checks and maintenance operations described are essential to guarantee the efficiency of the air conditioner. The frequency of these operations varies according to the characteristics of the area, the amount of dust, etc.
 - The described operations should be performed more frequently if the area of installation is very dusty.
 - These operations must always be performed by qualified personnel. For more detailed information, see the Installation part.

Troubleshooting

Refer to following chart if the air conditioner operates abnormally. This may save time and unnecessary expenses.

PROBLEM	SOLUTION
The air conditioner does not work at all.	<ul style="list-style-type: none"> • Check power status and then operate the air conditioner again. • Check whether the power plug is connected correctly or the auxiliary power switch is switched on. • If the air conditioner is switched off by the Timer function, press the On/Off button.
The temperature adjustment is not working.	<ul style="list-style-type: none"> • Temperature adjustment is not available when the Fan mode is selected.
Fan speed adjustment is not working.	<ul style="list-style-type: none"> • Check if you have selected Auto/Dry/Turbo mode. In these modes, fan speed is set to Auto and you cannot adjust the fan speed.
Remote controller does not work.	<ul style="list-style-type: none"> • Replace the exhausted batteries with new ones. • Do not block the remote controller receiver. • If the remote controller is used near strong light(3-wavelength fluorescent light, neon sign etc.), the remote controller may not work due to the electronic jamming signal
Cool air does not come out of the air conditioner.	<ul style="list-style-type: none"> • Check if the set temperature is higher than the current temperature. Press the Temp + or - button on the remote controller to set the temperature lower than the current temperature. • Check if you have selected Fan mode. In this mode, Cool air will not come out in Fan mode therefore select Auto/Cool/Dry mode. • Check if the air filter is blocked by dirt. If there is a lot of dust on the Air filter, cooling performance may decrease. Clean them frequently. • Check if the outdoor unit is covered or installed near the obstacle. Take the cover off and take the obstacle away. • Check if the indoor unit is installed in a place with direct sunlight. Close the curtain or blind to cover the sunlight. • If the doors or windows are open, it may cause bad cooling performance. Close the doors and windows. • If the air conditioner has just been turned on or the indoor temperature reaches the desired temperature, only fan will operate around 3 minutes for the product protection. • Check if the pipe length is too long. When the pipe length exceeds maximum allowable pipe length, cooling performance may decrease.

Troubleshooting

PROBLEM	SOLUTION
Timer function is not working.	Check if the air conditioner is off. Turn the air conditioner on and set the Timer function. When the timer is already set icon will appear on the indoor unit display, check to see if the timer is already set.
Odors permeate in the room during operation.	Odor may permeate depending on the surrounding environment or operating condition. Ventilate the indoor air or operate Fan mode for 1~2 hours if the odor does not go away. (Parts of the air conditioner does not generate any odor) Clean the air filter if it is dirty.
Error is indicated.	If the message E1 01, E1 03, E1 21, E1 22, E1 62, E1 85, E1 93, E1 94, E2 21, E2 56, E4 16, E4 25, E4 51, E4 53, E4 54, E4 55, E4 56, E4 57, E4 60 blink on the indoor unit display, it means there is a problem so you should contact a service center.
Noise is generated.	Depending on the status of the air conditioner usage (especially when the outdoor temperature is below 20°C), noise can be generated due to changes in refrigerant flow. You don't have to worry since it is normal.
Water is dropping from the connection part of the drain pipe.	Water may be generated because of the temperature difference. It is normal.
Indoor unit display is blinking.	Press the On/Off button and check if the display keeps blinking. Turn off the auxiliary power switch and turn it on. If the display keeps blinking after following above 2 instructions, contact the service center.
Heat is generated from the control panel on the indoor unit.	When the air conditioner is on, little bit of heat may be generated from the control panel. It is normal.
Air conditioner is not turning off.	After turning off the air conditioner, it may generate breeze for certain period of time for defrosting. It is normal.

Safety precautions

Carefully follow the precautions listed below because they are essential to guarantee the safety of the equipment.

WARNING

- Always disconnect the air conditioner from the power supply before servicing it or accessing its internal components.
- Verify that installation and testing operations are performed by qualified personnel.
- Verify that the air conditioner is not installed in an easily accessible area.

General information

- Carefully read the content of this manual before installing the air conditioner and store the manual in a safe place in order to be able to use it as reference after installation.
- For maximum safety, installers should always carefully read the following warnings.
- Store the manual in a safe location and remember to hand it over to the new owner if the air conditioner is sold or transferred.
- This manual explains how to install an indoor unit with a split system with two SAMSUNG units. The use of other types of units with different control systems may damage the units and invalidate the warranty. The manufacturer shall not be responsible for damages arising from the use of non compliant units.
- The manufacturer shall not be responsible for damage originating from unauthorized changes or the improper connection of electric and hydraulic lines. Failure to comply with these instructions or to comply with the requirements set forth in the “Operating limits” table, included in the manual, shall immediately invalidate the warranty.
- The air conditioner should be used only for the applications for which it has been designed: the indoor unit is not suitable to be installed in areas used for laundry.
- Do not use the units if damaged. If problems occur, switch the unit off and disconnect it from the power supply.
- In order to prevent electric shocks, fires or injuries, always stop the unit, disable the protection switch and contact SAMSUNG’s technical support if the unit produces smoke, if the power cable is hot or damaged or if the unit is very noisy.
- Always remember to inspect the unit, electric connections, refrigerant tubes and protections regularly. These operations should be performed by qualified personnel only.
- The unit contains moving parts, which should always be kept out of the reach of children.
- Do not attempt to repair, move, alter or reinstall the unit. If performed by unauthorized personnel, these operations may cause electric shocks or fires.
- Do not place containers with liquids or other objects on the unit.

Safety precautions

- All the materials used for the manufacture and packaging of the air conditioner are recyclable.
- The packing material and exhaust batteries of the remote controller(optional) must be disposed of in accordance with current laws.
- The air conditioner contains a refrigerant that has to be disposed of as special waste. At the end of its life cycle, the air conditioner must be disposed of in authorized centers or returned to the retailer so that it can be disposed of correctly and safely.

Installing the unit

IMPORTANT: When installing the unit, always remember to connect first the refrigerant tubes, then the electrical lines. Always disassemble the electric lines before the refrigerant tubes.

- Upon receipt, inspect the product to verify that it has not been damaged during transport. If the product appears damaged, **DO NOT INSTALL** it and immediately report the damage to the carrier or retailer (if the installer or the authorized technician has collected the material from the retailer.)
- After completing the installation, always carry out a functional test and provide the instructions on how to operate the air conditioner to the user.
- Do not use the air conditioner in environments with hazardous substances or close to equipment that release free flames to avoid the occurrence of fires, explosions or injuries.
- Our units must be installed in compliance with the spaces indicated in the manual to ensure either accessibility from both sides or ability to perform routine maintenance and repairs. The units' components must be accessible and that can be disassembled in conditions of complete safety either for people or things. For this reason, where it is not observed as indicated into the manual, the cost necessary to reach and repair the unit (in safety, as required by current regulations in force) with slings, trucks, scaffolding or any other means of elevation won't be considered in-warranty and charged to end user.

Power supply line, fuse or circuit breaker

- Always make sure that the power supply is compliant with current safety standards. Always install the air conditioner in compliance with current local safety standards.
- Always verify that a suitable grounding connection is available.
- Verify that the voltage and frequency of the power supply comply with the specifications and that the installed power is sufficient to ensure the operation of any other domestic appliance connected to the same electric lines.
- Always verify that the cut-off and protection switches are suitably dimensioned.











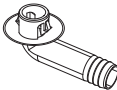
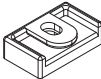
- Verify that the air conditioner is connected to the power supply in accordance with the instructions provided in the wiring diagram included in the manual.
- Always verify that electric connections (cable entry, section of leads, protections...) are compliant with the electric specifications and with the instructions provided in the wiring scheme. Always verify that all connections comply with the standards applicable to the installation of air conditioners.
- Be sure not to perform power cable modification, midway wiring, and multiple wire connection.
 - It may cause electric shock or fire due to poor connection or insulation and current limit override.
 - When midway wiring is required due to power line damage, refer to "How to connect your extended power cables" in the installation manual.

CAUTION

- Make sure that you earth the cables.
 - Do not connect the earth wire to the gas pipe, water pipe, lighting rod or telephone wire. If earthing is not complete, electric shock or fire may occur.
- Install the circuit breaker.
 - If the circuit breaker is not installed, electric shock or fire may occur.
- Make sure that the condensed water dripping from the drain hose runs out properly and safely.
- Install the power cable and communication cable of the indoor and outdoor unit at least 1m away from the electric appliance.
- Install the indoor unit away from lighting apparatus using the ballast.
 - If you use the wireless remote controller, reception error may occur due to the ballast of the lighting apparatus.
- Do not install the air conditioner in following places.
 - Place where there is mineral oil or arsenic acid. Resin parts flame and the accessories may drop or water may leak. The capacity of the heat exchanger may reduce or the air conditioner may be out of order.
 - The place where corrosive gas such as sulfurous acid gas generates from the vent pipe or air outlet. The copper pipe or connection pipe may corrode and refrigerant may leak.
 - The place where there is a machine that generates electromagnetic waves. The air conditioner may not operate normally due to control system.
 - The place where there is a danger of existing combustible gas, carbon fiber or flammable dust. The place where thinner or gasoline is handled. Gas may leak and it may cause fire.

Accessory parts list

Product illustration may look different from the actual product.

No.	Part Name		Quantity	Remarks
1	Remote controller		1	Indoor Unit
2	Remote controller holder		1	
3	Batteries for remote controller		2	
4	M4 X L16 screws		2	
5	Cable tie		4	
6	Protective piping cover		1	
7	Pipe insulation (ID30 X L150 X T10)		1	
8	Pipe insulation (ID35 X L200 X T10)		2	
9	User and Installation manual		1	
10	Drain cap		5	Outdoor unit
11	Drain plug		1	
12	Leg rubber		4	

Preparation for installation

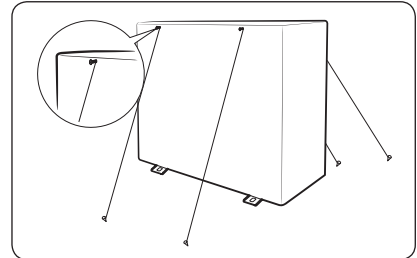
You must check the model names of the indoor and outdoor units.

Indoor • outdoor unit type and combination

Capacity(Btu/h)	Type	Model name
80k	Indoor unit	AF80KV3SAEEN
	Outdoor unit	AF80KV3SAEEX
100k	Indoor unit	AF0AKV3SAEEN
	Outdoor unit	AF0AKV3SAEEX

Moving the outdoor unit

- Select the moving path in advance.
- Be sure that moving path can support weight of the outdoor unit.
- Do not slant the product more than 30° when carrying it. (Do not lay the product down in sideways.)
- Surface of the heat exchanger is sharp. Be careful not to get injured while moving the product.
- If you need to ensure the outdoor unit from falling, use wires to fix it firmly.
 - Loosen the 4 screws from the top cover of the outdoor unit.
 - Put the wire around the screws and fasten the screws.
 - Fix the wire on the ground.



NOTE

- When the outdoor unit is not firmly fixed, it may fall and cause personal injury or property damage.
- When the outdoor unit is installed in water-proofed rooftop, fix the wires on the wall.

Preparation for installation

1 When moving with a crane

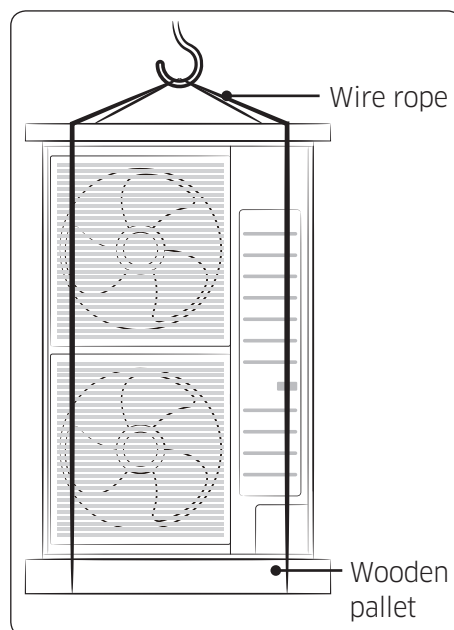
- Fasten the wire rope as shown in the figure.
- To protect damage or scratches, insert a piece of cloth between the outdoor unit and the wire rope.

2 When moving with a forklift

- Carefully insert the forklift forks into the forklift holes at the bottom of the outdoor unit.
- Be careful with the forklift from damaging the product.

3 When moving the product without wooden pallet and the crane is not available for use

- Connect a wire rope to the outdoor unit as you would move it with a crane.
- Hang the wire rope to the forklift fork to move the outdoor unit.

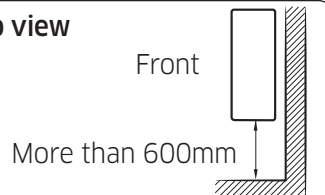


Deciding on where to install the product

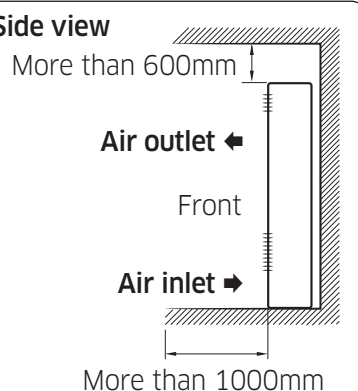
Indoor unit

- Install the unit at a place close to the wall facing the outside as it is necessary to perform piping connection with the outdoor unit.
 - It is effective to install the unit at a window side to ensure uniform distribution of indoor temperature.
- Install the unit at a place where there is no obstacle against the wind around the air intake and air outlet.
- Install the unit horizontally at a stable, rigid place. (When installing the unit at a place subjected to oscillation, noise may occur.)
- Avoid a place near the door which is frequented by people.
- Avoid a place subject to direct sunlight.
- Avoid a place with high humidity. Dew may form during cooling operation. (Near kitchen)

Top view

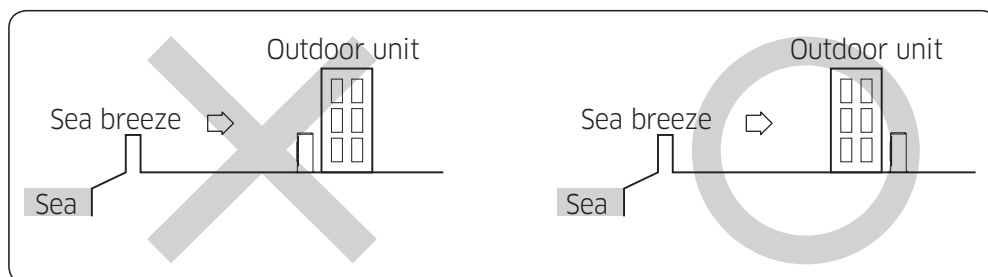


Side view

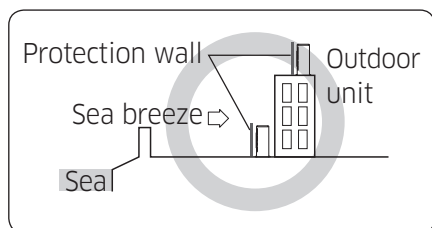


Outdoor unit

- Avoid a place that may disturb your neighbor. Noise may occur from the outdoor unit and the discharged air may run into the neighborhood. (Be careful of the operation time in a residential area)
- Install the outdoor unit on a hard and even area that can support its weight.
- Choose a flat place that rainwater does not settle or leak.
- Choose a place avoiding strong winds.
- Maintain sufficient space for repairs and service.
- Choose a place where you can easily connect the pipes and cables to the indoor unit.
- Make sure that the condensed water dripping from the drain hose runs out properly and safely.
- When installing the outdoor unit near seashore, make sure it is not directly exposed to sea breeze. If you can not find a adequate place without direct sea breeze, protection wall should be constructed.
- Install the outdoor unit in a place (such as near buildings etc.) where it can be prevented from sea breeze which can damage the outdoor unit.



- If you cannot avoid installing the outdoor unit by the seashore, construct a protection wall around to block the sea breeze.



- Protection wall should be constructed with a solid material such as concrete to block the sea breeze and the height and the width of the wall should be 1.5 times larger than the size of the outdoor unit. Also, secure over 700mm between the protection wall and the outdoor unit for exhausted air to ventilate.

Deciding on where to install the product

- Install the outdoor unit in a place where water can drain smoothly.
 - If you cannot find a place satisfying above conditions, please contact manufacturer. Make sure to clean the sea water and the dust on the outdoor unit heat exchanger and spread corrosion inhibitor on heat exchanger. (At least one time per one year.)
- Choose a place where there is no direct sunlight.
- Choose a place where it could not come into contact with snow and rain.
- Choose a place where flammable gas does not leak.
- Choose a place where the indoor and outdoor unit can be connected with a pipe.
- Choose a place where there is no direct sunlight.
- Choose a place where it could not come into contact with snow and rain.
- Choose a place where flammable gas does not leak.
- Choose a place where the indoor and outdoor unit can be connected with a pipe.

WARNING

- After installing the outdoor unit, apply rust inhibitor on the internal pipes and heat exchanger.
 - If you don't apply rust inhibitor, airborne corrosive gas (such as sulfur compounds, hydrogen sulfide and ammonia) and salty dust may cause pipe corrosion which will lead to refrigerant leakage.
 - Inspect the outdoor unit at least once a year and re-apply the rust inhibitor where it is damaged (worn out).
- When applying the rust inhibitor, please be aware of the following:
 - Turn off the power before spraying the rust inhibitor.
 - Wear protective goggles and mask before spraying.
 - Clean the dusty surface with clean fabric or paper before spraying.
 - Make sure that wind is blowing from worker's back when spraying.
 - Do not spray on the PCB panel and electric parts.

CAUTION

- Install the indoor unit away from any interfering sources such as radio, computer, stereo equipment and also select the place where the electrical wiring work can be possible.
 - Especially keep the unit at least 3m away from the electrical equipment in an area electromagnetic waves generated and install the protection tube to protect the main power cable and communication cable.
 - Make sure that there is no equipment electromagnetic waves generate. If not, malfunction of the control system may occur due to the effect of the electromagnetic wave. (For example: The remote control sensor of the indoor unit may not be received well of electronic lighting style fluorescent lamps, such as fluorescent lamps are in the same space when using a remote control.)
- Make sure to install the outdoor unit in a safe place where snowfall will not be obstructed. The frame should be installed in a place where the air inlet and heat exchanger of the unit are not buried in the snow.
- A ventilation system may be required in the case the outdoor unit is installed in a closed space or room, even though R410a is not poisonous or flammable.
- Install the railing around the outdoor unit to prevent falling when the unit is installed at high place of roof on the building.
- Avoid installing the units in places such as an exhaust pipe and ventilating opening exposed to corrosive gas, oxides of sulfur, ammonia gas or sulfur gas herbicides. (These places need additional anticorrosive treatments. Please contact manufacture to avoid corroding copper pipes or soldered parts)
- Depending on the condition of power supply, unstable power or voltage may cause malfunction of the parts or control system. (At the ship or places using power supply from electric generator...etc)

Space requirements

- The space suggested below is based on operating condition of outdoor temperature of 35°C. If operating condition of outdoor temperature is higher than 35°C, try to have more space.
- Make sure to clear a passage for a person and air flow.
- Observe the clearances and dimensions as seen below when installing the outdoor unit.
- If you install several outdoor units at the same place, observe the space for ventilation and free airflow.
- If the space for ventilation is insufficient, the air conditioner may not generate performance designed. Keep in mind that SAMSUNG logo is located on the front side of outdoor unit.

Deciding on where to install the product

Installation location

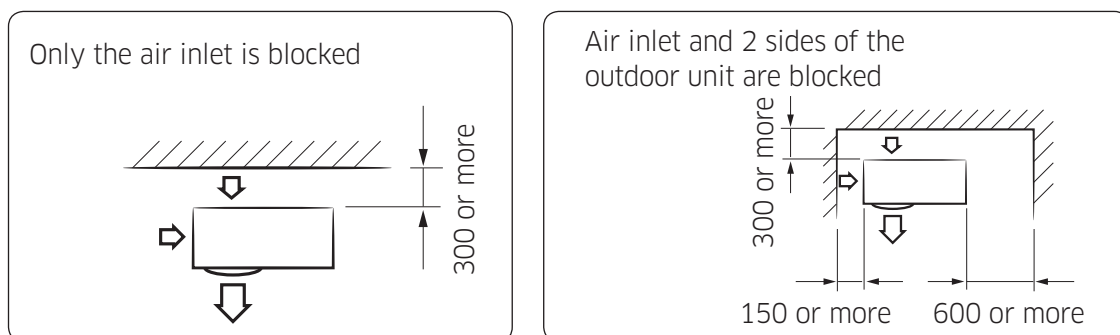
Instructions for parallel installation

1 When the air inlet is blocked

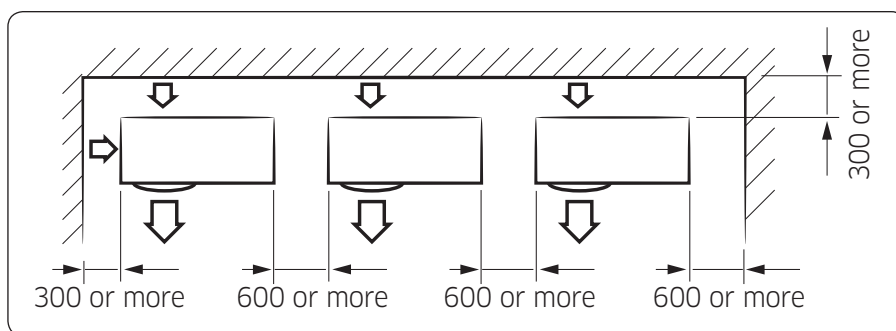
The upper part of the outdoor unit is not blocked

(Unit: mm)

- When installing 1 outdoor unit



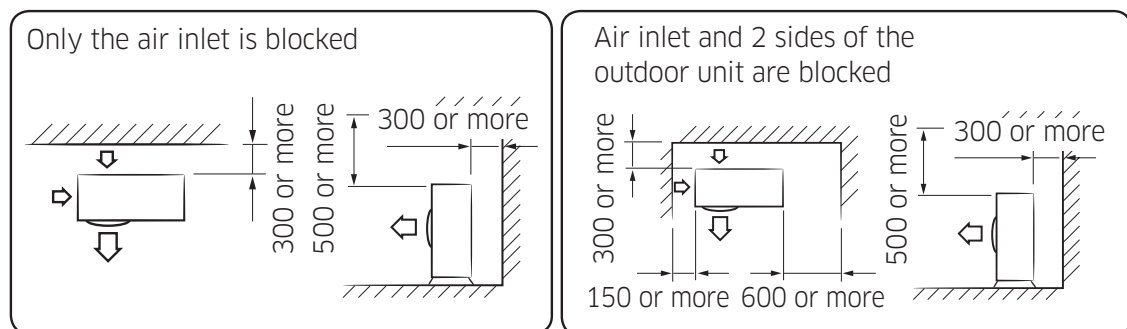
- When parallel installing more than 2 outdoor units(*1)
 - Air inlet and 2 sides of the outdoor unit are blocked



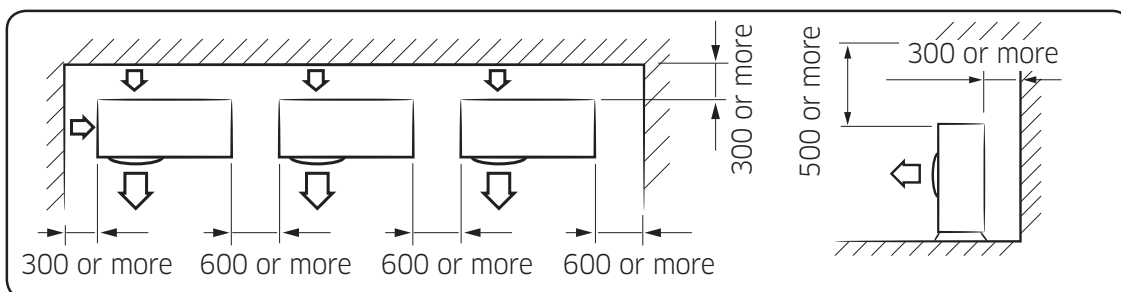
The upper part of the outdoor unit is not blocked

(Unit: mm)

- When installing 1 outdoor unit



- When parallel installing more than 2 outdoor units(*1)
- Air inlet and 2 sides of the outdoor unit are blocked

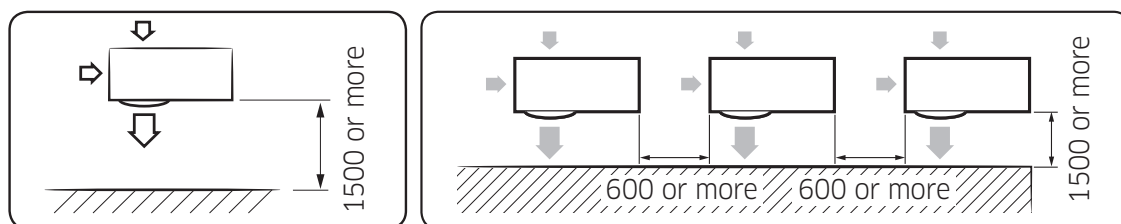


2 When the air outlet is blocked

The upper part of the outdoor unit is not blocked

(Unit: mm)

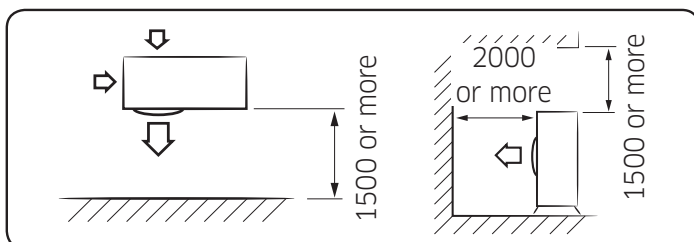
- When installing 1 outdoor unit
- When parallel installing more than 2 outdoor units(*1)



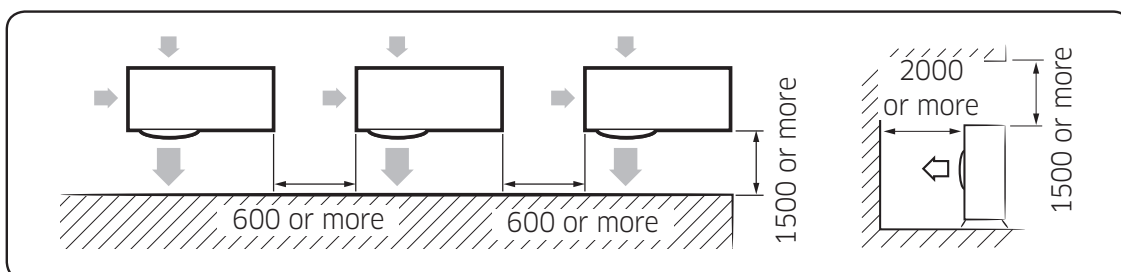
The upper part of the outdoor unit is blocked

(Unit: mm)

- When installing 1 outdoor unit



- When parallel installing more than 2 outdoor units(*1)



Deciding on where to install the product

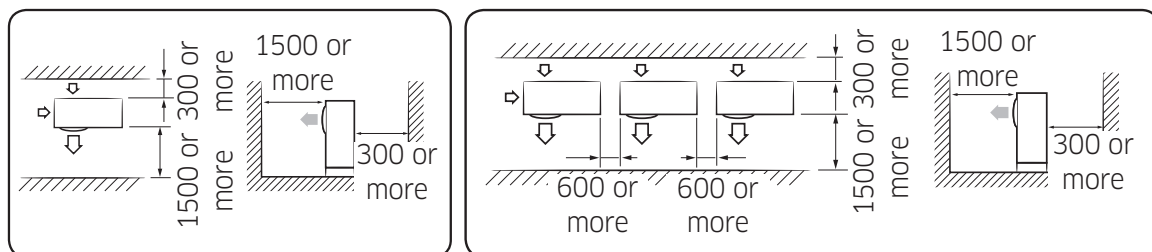
3 When air inlet and air outlet of the outdoor unit are blocked

Case 1: Obstacle on exhausting side is higher than the unit.(regardless of the height of obstacle on suction side)

The upper part of the outdoor unit is not blocked

(Unit: mm)

- When installing 1 outdoor unit
- When parallel installing more than 2 outdoor units(*1)



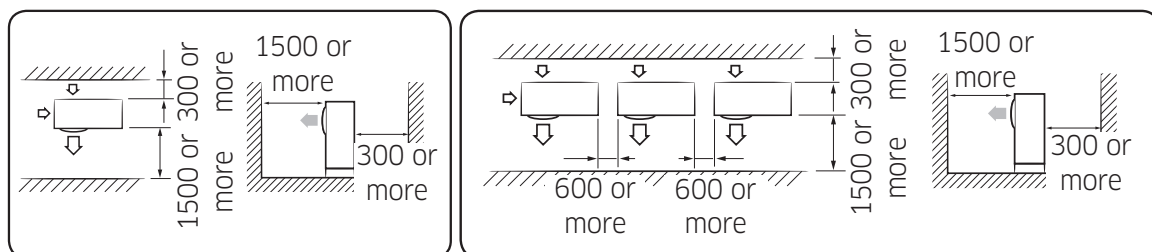
- The backside block can not be higher than the outdoor unit. If the backside block is higher than the outdoor unit, arrange the outdoor unit higher than the backside block.

Case 2: Obstacle on exhausting side is lower than the unit.(regardless of the height of obstacle on suction side)

The upper part of the outdoor unit is not blocked

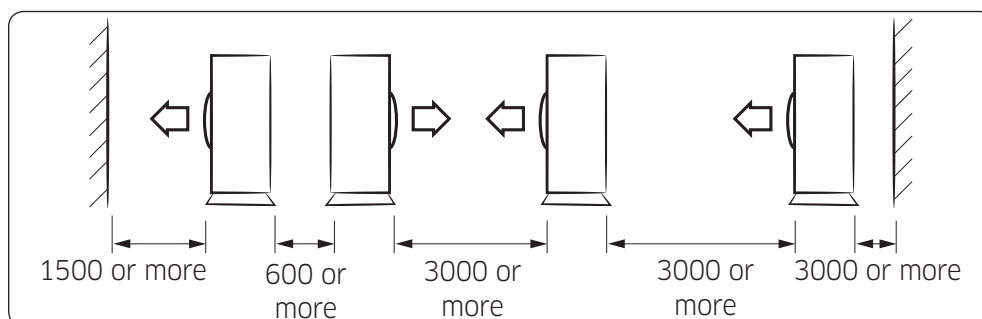
(Unit: mm)

- When installing 1 outdoor unit
- When parallel installing more than 2 outdoor units(*1)



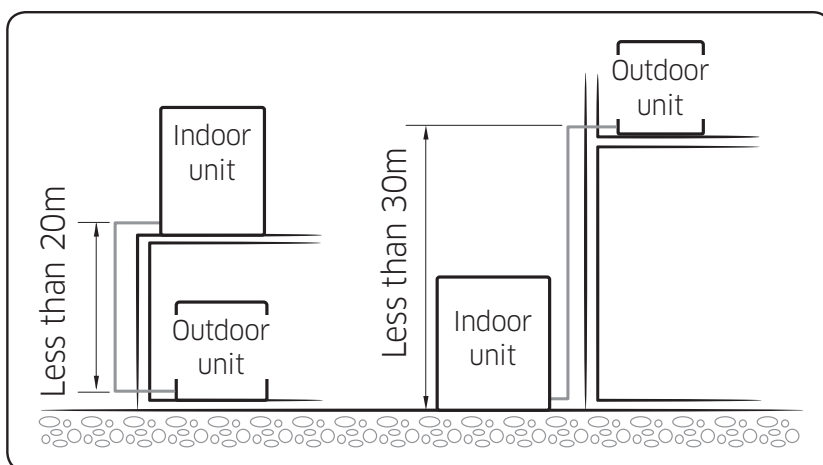
- The frontside block can not be higher than the outdoor unit. If the frontside block is higher than the outdoor unit, arrange the outdoor unit higher than the frontside block.
- (*1) When installing outdoor units paralleled, more than 600mm gap shall be left.

- When front and rear side of the outdoor unit is toward the wall



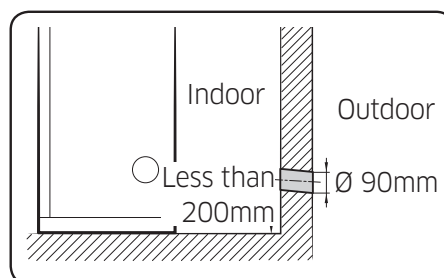
Pipe length between the indoor and the outdoor unit

- If the pipe is lengthened, the performance of the unit is degraded, and the service life is shortened. Therefore, the pipe length should be as short as possible.
 - Allowable pipe length: Maximum 75m
 - Allowable pipe height difference:
 - When outdoor unit is installed higher level than indoor unit: Maximum 30m
 - When indoor unit is installed higher level than indoor unit: Maximum 20m
- Choose a installation place where you can limit the pipe bending to less than 10.



Drilling a hole in the wall

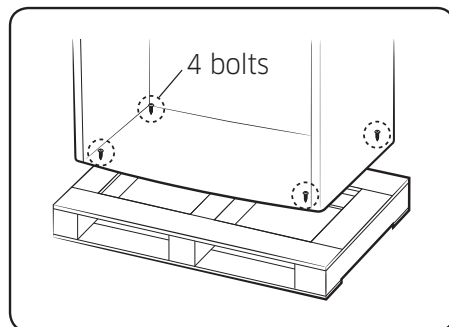
- Drill a hole of a 90mm in diameter at a less than 200mm in height from the bottom of the indoor unit in a slightly downward slope.



Base construction and installation of the indoor · outdoor unit

Installing indoor unit

- 1 Open the air inlet grille in the front and unscrew 4 bolts on the bottom of the product.
- 2 Remove the wooden palette used for product transport.
- 3 Install the product on an even floor.

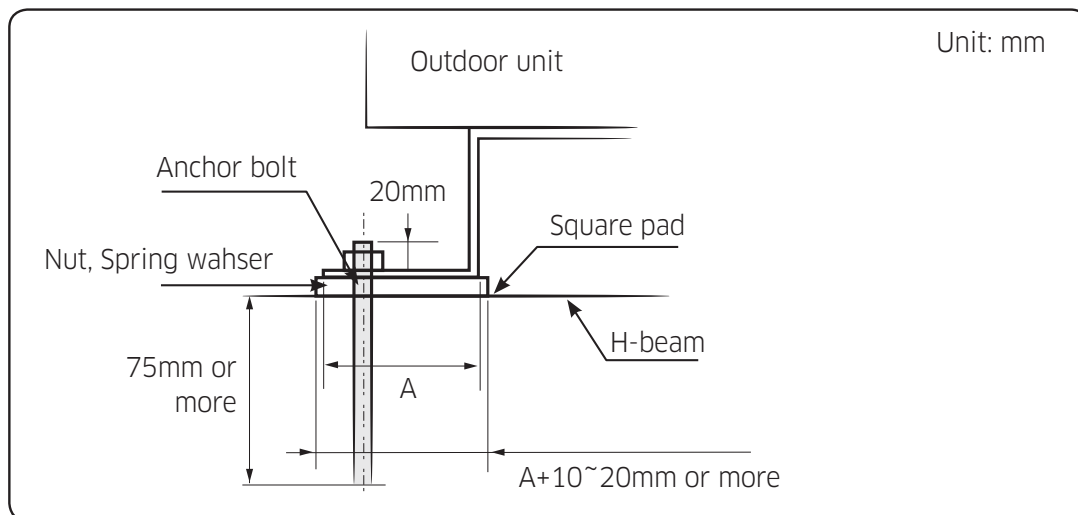


Installing Outdoor unit

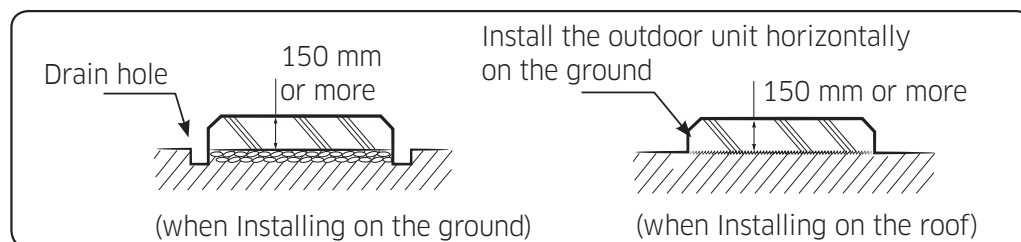
⚠ WARNING

- Make sure to remove the wooden pallet before installing the outdoor unit. If you do not remove the wooden pallet, there is risk of fire during welding the pipes. If the outdoor unit is installed with wooden pallet on, and it was used for long period time, wooden palette may break and cause electrical hazard or high pressure may damage the pipes.
- 1 Install the outdoor unit 150mm higher than the base ground and install the drain hole to connect the pipe to the drainage.
 - 2 When the front fan of an outdoor unit is installed in a place where the average snowfall is more than 150mm, the discharge duct should be attached to the outdoor unit.
 - 3 The concrete foundation should be 1.5 times larger than bottom of the outdoor unit.
 - 4 It is necessary to install wire mesh or steel bar when outdoor units are installed on a soft foundation.
 - 5 When installing multiple outdoor units at the same place, install the H beam on the base ground. (When installing a number of outdoor units, you can install it on the base ground.)
 - 6 Install the H beam(150mm x 150mm x t10 : basic specification) or vibration absorption frame to jut out from the base ground.
 - 7 After installing the H beam, apply corrosion protection.

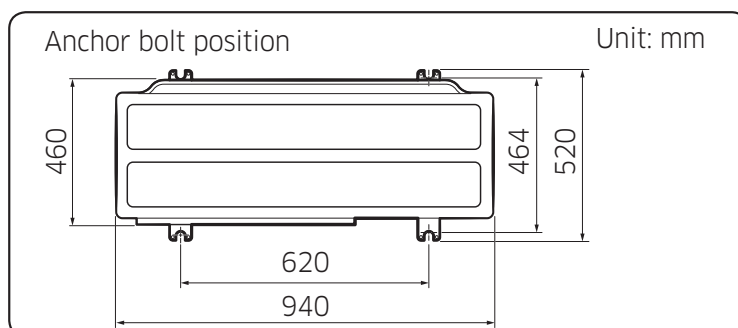
- 8 Install a square pad($t=20\text{mm}$ or more) to prevent vibration from the outdoor unit onto the base ground. Place the outdoor unit on the H beam and fix it with the bolt, nut and washer. (Fix with M10 basic anchor bolt, nut and washer.)



Base ground construction

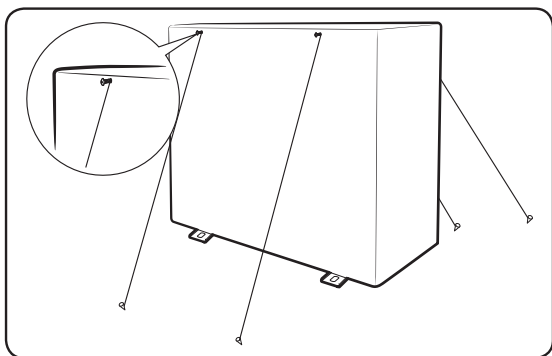


- The outdoor unit should be supported within the range of measurement below for base ground work.



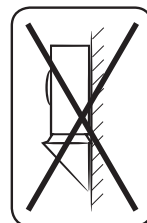
Base construction and installation of the indoor · outdoor unit

- When the outdoor unit needs to be supported, fix it with wire as shown in the picture.
 - Slightly unwind the four screws on the cover top of the outdoor unit.
 - Wind wires round the four screws and fasten the screws again.
 - Fix the wires to the ground.



CAUTION

- If the outdoor unit is not fixed securely, product may fall and it might cause loss of life or property damage.
- Do not install the outdoor unit on the wooden pallet.
- Fix the outdoor unit securely to the base ground with anchor bolts.
- The manufacturer is not responsible for the damage occurred by not adhering to the standard of the installation.
- To protect the outdoor unit from external condition such as rain, install it on the base ground and connect the drain pipe to the drainage.
- Please firstly ensure the strength and levelness of the platform, ground and the support so as to lower the noise and vibration for fear of human injuries.
- The hanging mount on the wall is prohibited due to the heavy machine. The improper installation shall lead to the fall of the machine as well as human injuries.



The machine shall be installed on the ground or on the high platform

- As shown in Figure 1, to ensure the shadow part is on the bearing surface without suspension.
- As shown in Figure 1, the four installation footings shall be firmly fastened on the base platform by the bolts (preparing four sets of M10 bolts with fitful nuts and washer which are used on site)
- In order to reduce the vibration of the noisemeter, the vibration absorber (offer on site) shall be used between the contact of machine and base platform.
- It is optimal that anchor bolt is 20mm above the surface. (See Figure 2)

The base of the outdoor unit and the position of foundation bolts

Position of the foundation bolts (Ø12.0 Hole 4Points)

Unit : mm

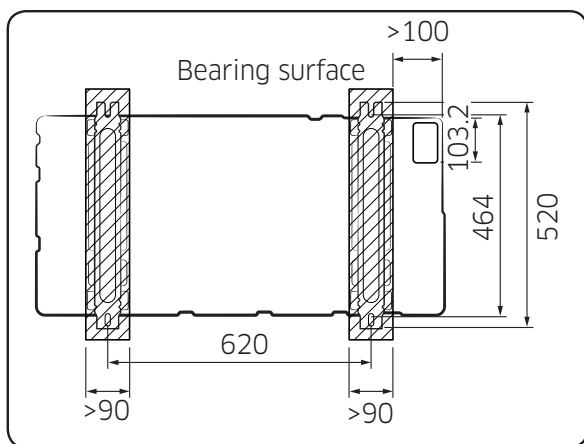


Figure 1

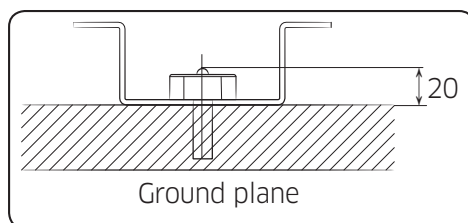
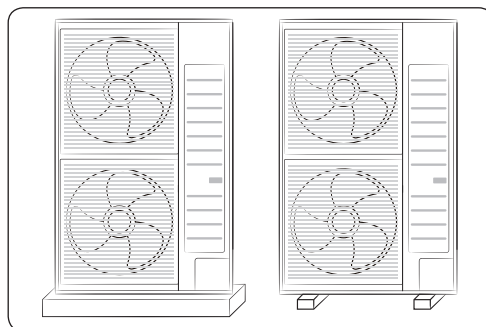


Figure 2

- Please ensure the shadow part in Figure 1 is really installed on the bearing surface without any suspension.
- The ground base that is larger than the standing leg of the air-conditioner (90mm in width and 520mm in length) shall be used to support the air-conditioner (See Figure 1), and the rubber mat shall be fully placed on the whole bearing surface.
- The base platform shall be at least 150mm above the ground.

CAUTION

- When the grounding pipe comes out from the below, please reserve the place for the connection pipe.
- The installation mode mentioned above shall ensure that the shadow part in Figure 1 is really on the installation surface.



Refrigerant piping work

⚠ WARNING

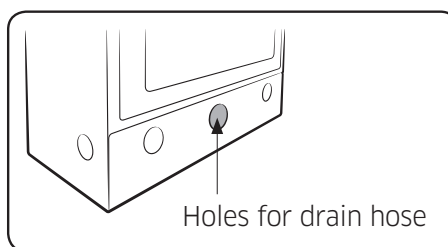
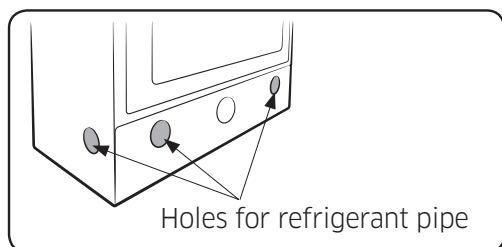
- When installing, make sure there is no leakage. When recovering the refrigerant, ground the compressor before removing the connection pipe.
- If the refrigerant pipe is not properly connected and the compressor works with the service valve open, the pipe inhales the air and it makes the pressure inside of the refrigerant cycle abnormally high and it may cause explosion and injury.
- Try to keep the length of the refrigerant pipe as short as possible and make sure to minimize the height difference between the indoor and outdoor unit.
- The piping length between the outdoor unit and the indoor unit may not exceed the allowable piping length and height difference.
- Use only certified refrigerant pipe and follow the installation method.
- After completing the pipe installation, measure the length of the pipe to see whether or not you need to charge additional refrigerant. If you do, you must use R-410A refrigerant.
- Use clean refrigerant pipe with no harmful ion, oxide, dust, iron content or moisture inside pipe.

Connecting the pipes

- 1 There are holes for refrigerant pipes on the left, right and rear side of the indoor unit and you may choose any one of the holes depending on your installation location. Choose a side for the easier pipe connection. You may connect the drain hose through the hole in the middle part of the rear side on the indoor unit.

⚠ CAUTION

- Do not use a hammer, but use a cutter to cut the notch.

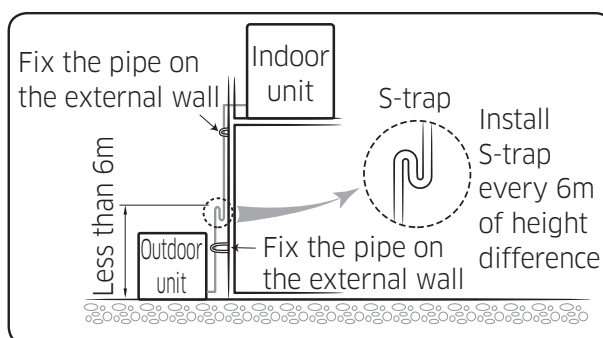
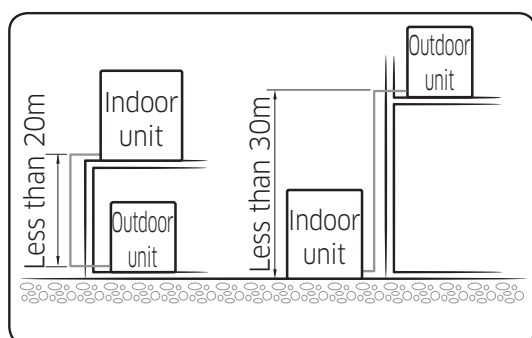


2 Pipe installation condition may vary depending on the installation location. Therefore, use indoor and outdoor unit elbow pipe connector to install the pipe if necessary.

- Allowable pipe length: Maximum 75m
- Allowable pipe height difference: Maximum 30m
- Make sure that there are less than 10 bending points in a pipe.

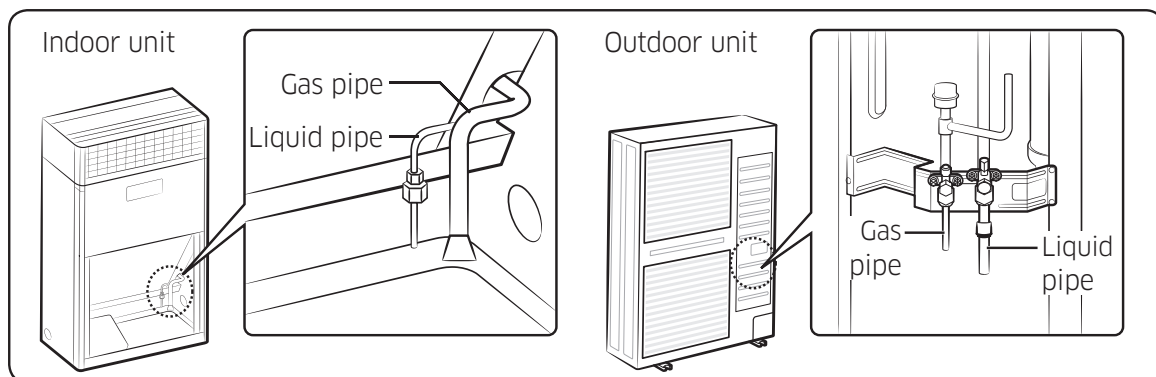
⚠ CAUTION

- If the pipe is lengthened, the performance of the unit is degraded, and the service life is shortened. Therefore, try to keep the pipe length as short as possible.
- You must install 1 S-trap on the gas side pipe up to 6m of height difference.
- If the height difference of the pipe exceeds 6m, install S-trap every 6m.



Refrigerant piping work

Pipe connection



Selecting refrigerant pipe

Model name	Liquid side (mm)	Gas side (mm)
AF80KV3SAEEX	Ø9.52	Ø19.05
AFOAKV3SAEEX	Ø9.52	Ø22.23

Temper grade and minimum thickness of the refrigerant pipe

Outer diameter [mm/(inch)]	Minimum thickness (mm)	Temper grade
Ø 6.35 (1/4)	0.7	C1220T-O (Soft)
Ø 9.52 (3/8)	0.7	
Ø 12.70 (1/2)	0.8	
Ø 15.88 (5/8)	0.8	
Ø 19.05 (3/4)	1.0	
Ø 22.23 (7/8)	0.9	
Ø 25.40 (1)	1.0	C1220T-1/2H (Semi-soft) or C1220T-H (Soft)
Ø 28.58 (1-1/8)	1.1	
Ø 31.75 (1-1/4)	1.1	
Ø 38.10 (1-1/2)	1.35	
Ø 44.45 (1-3/4)	1.6	
Ø 50.80 (2)	2.0	

Storing refrigerant pipe

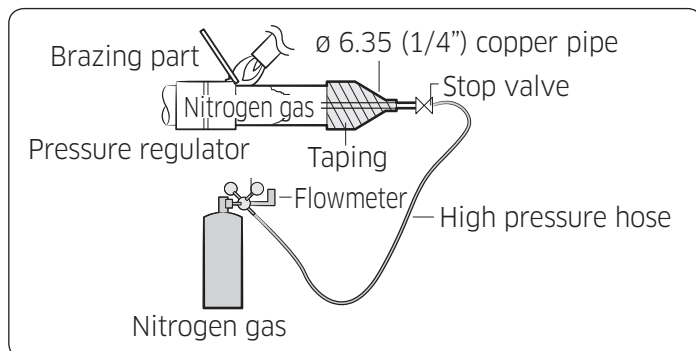
To prevent foreign materials or water from entering the pipe, it is important to keep the refrigerant pipe sealed in clean and dry condition during installation. Apply correct sealing method depending on the environment.

Stored place	Stored time	Sealing type
Outside	Longer than one month	Pipe pinch
	Shorter than one month	Taping
Inside	-	Taping

Refrigerant pipe brazing and safety information

Important information for refrigerant pipe work

- Important information for refrigerant pipe work
 - Make sure that there is no moisture inside the pipe.
 - Make sure that there are no foreign materials and impurities in the pipe.
 - Make sure that there is no leak.
 - Make sure to follow the instruction when brazing and keeping the pipe.
- Nitrogen flushing brazing
 - Use nitrogen gas when brazing the pipes as shown in the picture.
 - If you do not perform nitrogen flushing when brazing the pipes, oxide may form inside the pipe. It can cause the damage of the important parts such as compressor, valves.
 - Adjust the flow rate of the nitrogen flushing with a pressure regulator to maintain 0.05m³/h or less.
 - Wrap the bottom side of the service valve with a wet cloth and weld it as shown in the figure. Since water will evaporate during welding, pour some water time to time. If not, O-ring and packing inside the service valve may get damaged by a welding fire and cause critical leakage.



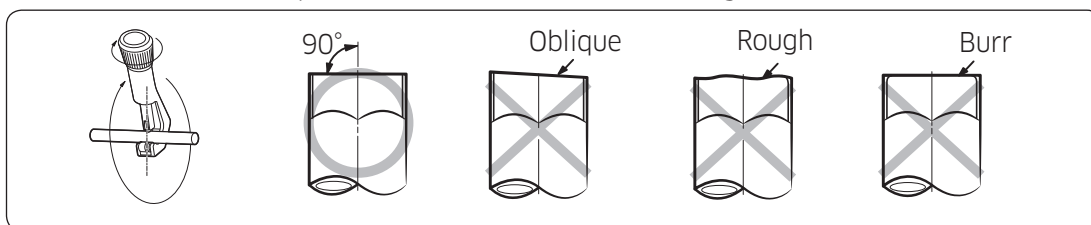
Refrigerant piping work

Direction of the pipe when brazing

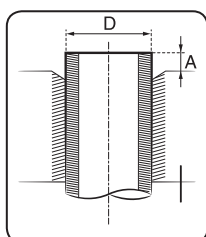
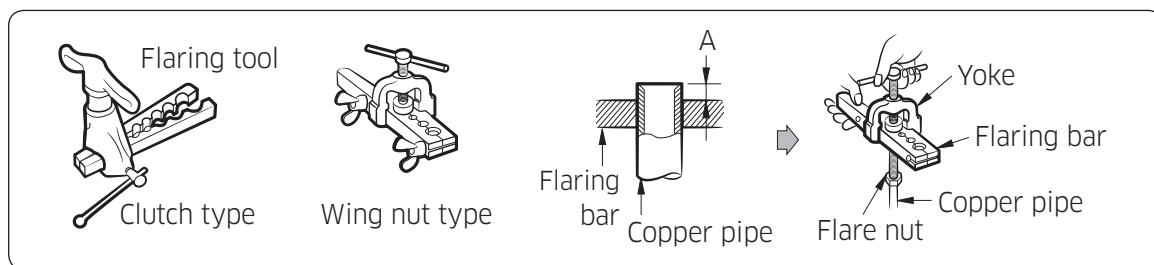
- Brazing the pipe should be done with the pipe headed downward or horizontally.
- Avoid brazing with the pipe headed upward.

Cutting or flaring the pipes

- 1 Make sure that you prepared the required tools.
 - Pipe cutter, reamer, flaring tool and pipe holder, etc.
- 2 If you want to shorten the pipe, cut it with a pipe cutter ensuring that the cut edge remains at 90° with the side of the pipe.
 - There are some examples of correct and incorrect cut edges below.



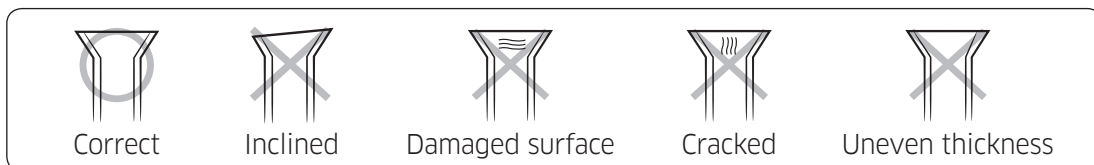
- 3 To prevent a gas leak, remove all burrs at the cut edge of the pipe with a reamer.
- 4 Carry out flaring work with a flaring tool as shown below.



Outer diameter [D (mm)]	Depth of the flare [A (mm)]	
	Flare tool	
	Clutch type	Wing nut type
ø 6.35	1.0~1.5	1.5~2.0
ø 9.52	1.0~1.5	1.5~2.0
ø 12.70	1.0~1.5	1.5~2.0
ø 15.88	1.0~1.5	1.5~2.0

5 Check that you flared the pipe correctly.

- Below figures shows some examples of incorrectly flared pipes.

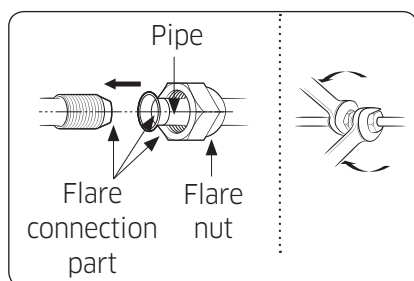


⚠ CAUTION

- If foreign matters or burrs are not removed after cutting the pipe, refrigerant gas may leak.
- If foreign matters enter inside of the pipe, the important interior parts of the unit may get damaged or product efficiency will be reduced. Therefore, direction of the pipe should be downward during cutting or flaring the pipe.

Tightening flare connection part

- Check that the flaring is properly made.
- Align the center of the piping and sufficiently tighten the flare nut with fingers. Then, tighten the flare nut with torque wrench until the wrench clicks. When tightening the flare nut with torque wrench, ensure the direction for tightening follows the arrow on the wrench.
- Make sure to use ester oil to coat the flare connection part.



Outer diameter (D, mm)	Connection torque (kgf•cm)	Flare dimension (L, mm)	Flare shape (mm)
ø 6.35	145~175	8.70~9.10	
ø 9.52	333~407	12.80~13.20	
ø 12.70	505~615	16.20~16.60	
ø 15.88	630~769	19.30~19.70	

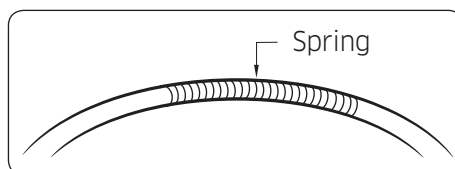
⚠ CAUTION

- Blowing nitrogen gas should be done when brazing the pipe.
- Make sure to use the provided flare nut.
- Make sure that there are no cracks when bending the pipe.
- Do not fasten the flare nut with excessive strength.

Refrigerant piping work

Pipe bending

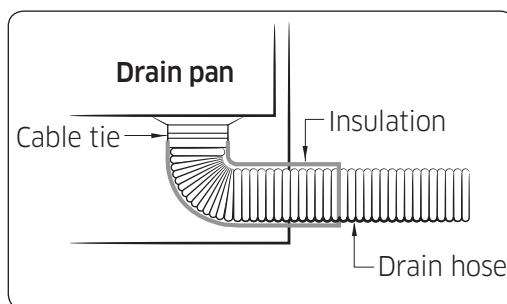
- 1 Perform bending of the pipe using the bender which has a specified bending radius.
- 2 Be sure to take full care to perform bending of the pipe successfully at one time. Bending and unbending the pipe more than twice makes the bending work increasingly difficult.
- 3 You may use the spring inserted into the gas pipe instead of the bender to bend the pipe.
- 4 When you bend the pipe using the spring, hold the pipe with both hands to prevent any distortion, and secure a minimum bending radius over 100mm.



Connecting the drain hose

- Connect the drain hose by inserting the extension drain hose to the drain connection port tightly.
- Insulated the extension drain hose, then fix it with a cable tie or a tape.

Piping material	Vinyl chloride (inner diameter of Ø16mm)
Insulation	Foamed polyethylene



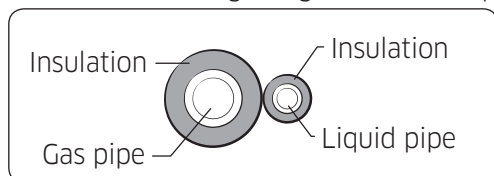
Selecting the insulator of the refrigerant pipe

- Insulate the gas pipe and liquid pipe by referring to the thickness of insulator for each pipe size.
- The standard condition for indoor temperature is 30°C with humidity less than 85%. If the condition is out of this standard condition, use the pipe that is one grade thicker.

Pipe diameter (mm)	Minimum thickness of the insulator		Remarks
	PE material	EPDM material	
ø 6.35~ø 19.05	13	10	If the installation place has high humidity (such as basement of a building, seaside, near hot spring or lake etc.) increase the minimum thickness to next size up for each pipes.
ø 22.23~ø 31.75	19	13	
ø 38.10~ø 44.45	25	19	
-	32	25	

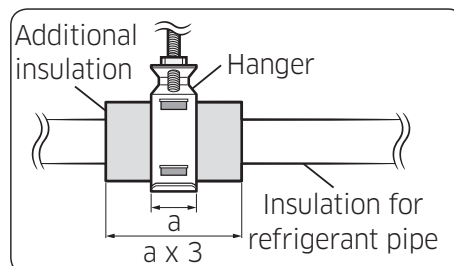
Insulating refrigerant pipe

- Pipe insulation
 - Insulation of the gas and liquid pipes can be in contact with each other but they should not be pressing each other.
 - When contacting the gas side and liquid side pipe, use thicker insulation.



⚠ CAUTION

- Make sure to install the insulation so that there is no gap or crack and use the adhesives on the connection part of it to prevent moisture from entering.
- Wind the refrigerant pipe with insulation tape if it is exposed to outside sunlight. (When winding the insulation tape, make sure that the thickness of the insulator does not get any thinner.)
- Install the refrigerant pipe respecting that the insulation does not get thinner on the bent part or hanger of pipe.
- If the thickness of the insulation gets thinner, use additional insulation.



Refrigerant charging

Allowable refrigerant pipe length and amount of additional refrigerant charging

- Air purge refrigerant for piping is not filled in this product.
- Make sure to vacuum inside of the connection pipe using vacuum pump after connecting pipes.
- During initial installation, fill the additional refrigerant if the pipe length exceeds 5 m.
- For every 1 m of exceeding pipe length, fill additional refrigerant as stated below.

Model	Refrigerant amount	
	Basic (g)	Additional (g/m)
AF80KV3SAEE*	6,600	50
AF0AKV3SAEE*	6,600	50

Ex) If total piping length is 30 m,

6,600g (standard filling amount for 5 m pipe): Factory default (AF0AKV3SAEE*)

1,250g = {50g/m x (30m-5m)}: Additional refrigerant amount

(Fill during the installation)

7,850g: Total amount of refrigerant filling

Allowable refrigerant pipe length

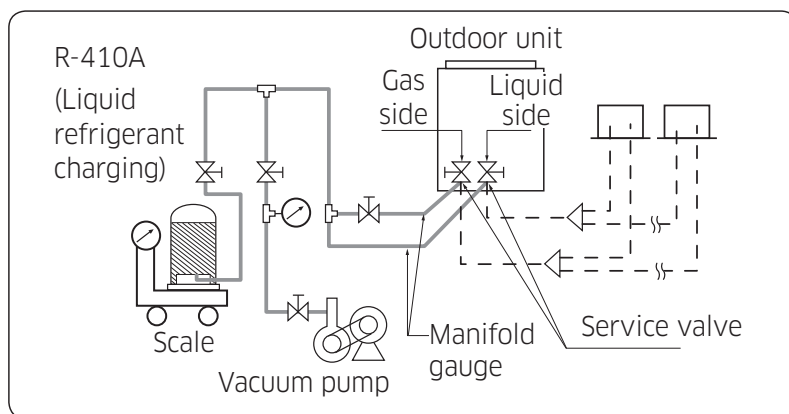
Model name	Maximum allowable pipe length	Maximum height difference of the pipe
AF80KV3SAEE Series AF0AKV3SAEE Series	75m	30m

How to add refrigerant

R-410 is a mixed type of refrigerant. It is required for recharging under condition of liquid with the cylinder upright.

Measure the quantity of refrigerant depending on the length of the liquid side pipe. Then, add fixed quantity of refrigerant by using a scale.

- When the pipe length exceeds the standard length of 5 m, charge refrigerant according to the increased length. Measure the quantity of refrigerant depending on the length of the liquid side pipe. Then, add fixed quantity of refrigerant by using a scale.



⚠ CAUTION

- After charging, open completely the both gas and liquid side valves. (If you operate the air conditioner with the service valves closed, the main parts of the outdoor unit may be damaged.)
- When charging refrigerant, wear protective gear.
- Do not charge refrigerant while operating the indoor unit.
- Be careful with the upper fan on the outdoor unit when operating the air conditioner with the front cabinet panel detached.
- Do not heat the refrigerant container with an extra heat source to charge refrigerant faster when the outdoor temperature is lower. This may result in an explosion or fire.
- Take care when connecting the manifold gauge to the refrigerant charging port for heating, the refrigerant may leak.
- After charging, close the valve of the refrigerant container quickly. The overall amount of refrigerant may be changed.

Wiring work

Electrical work

- Wiring work should be performed in accordance with related laws such as technical specification on electric installation or installation guide.
- Copper cable should be used for wiring work and all the wirings or parts should be rated products.
- Wiring work should be performed by a company certified by an electric power company.
- Refer to the circuit diagram attached to the outdoor unit for detailed wiring work.
- Wiring work should be performed after disconnecting main circuit breaker and Y-joint switch.
- You must perform ground working 3. (Grounding resistance value should be less than 100Ω.) When ELB is installed, protective grounding resistance value can be applied. (When the ELB is 100mA, 0.1sec, protective grounding resistance value should be less than 250Ω at a place where electric danger is high and should be less than 500Ω at other places.)
- Do not connect the ground wire to the gas pipe, water pipe, lightning rod, or telephone.
 - Gas pipe: If the gas leaks, explosion or ignition may occur.
 - Water pipe: If rigid vinyl pipe is used, there will be no grounding effect.
 - Ground wire of telephone and lightning rod: The electric potential of ground wire may rise abnormally when lightening strikes.
- The ELB for ground-fault protection should be combined with MCCB or fuse equipped load switch. In this case, you should use the one that has at least the same or larger fuse capacity or the rated current of MCCB.
- Use the wires that comply with regulated specification and firmly connect to the terminal board. Then tighten it with the provided screws so that the terminal board (connecting cable locally procured, grounding terminal) cannot be moved by external force.
- When connecting outdoor unit main power, be aware of the connection order for 3 phase (R, S, T, N).
- Standard power cable length should be below 50m.
 - If the length has to be over 50m, contact service center.
- Fix a cable tube using a CD connector (wire conduit) and bushing at the knock-out hole of the outdoor unit.

Power supply and wire specification

Model name				Indoor unit	Outdoor unit
				AF80KV3SAEEN	AF80KV3SAEEX
Power supply	Product			220 - 240 V~ 50 Hz	380 - 415 V 3N~ 50 Hz
Power consumption	Cooling	T1	W	520 W	8000 W
		T3		520 W	7600 W
	Heating	-	W	-	-
Operationg current	Cooling	T1	A	2.3 A	12.5 A
		T3		2.3 A	11.9 A
	Heating	-	A	-	-
Capacity of circuit breaker	Product		A	30	
Thickness of ground wire			mm²	4.0	
Indoor and outdoor unit communication wire			mm²	0.75~1.5	
Power wire	Type			At least equal to H05RN-F	At least equal to H07RN-F
	Product	Below 20m	mm²	2.5 (Should be purchased separately)	2.5 (Should be purchased separately)
		20m or over	mm²	4.0 (Should be purchased separately)	4.0 (Should be purchased separately)
Model name				Indoor unit	Outdoor unit
				AFOAKV3SAEEN	AFOAKV3SAEEX
Power supply	Product			220 - 240 V~ 50 Hz	380 - 415 V 3N~ 50 Hz
Power consumption	Cooling	T1	W	560 W	11 900 W
		T3		560 W	9900 W
	Heating	-	W	-	-
Operationg current	Cooling	T1	A	2.5 A	18.3 A
		T3		2.5 A	15.4 A
	Heating	-	A	-	-
Capacity of circuit breaker	Product		A	30	
Thickness of ground wire			mm²	4.0	
Indoor and outdoor unit communication wire			mm²	0.75~1.5	
Power wire	Type			At least equal to H05RN-F	At least equal to H07RN-F
	Product	Below 20m	mm²	2.5 (Should be purchased separately)	4.0 (Should be purchased separately)
		20m or over	mm²	4.0 (Should be purchased separately)	6.0 (Should be purchased separately)

Wiring work

NOTE

- Supply cords of parts of appliances for outdoor use shall not be lighter than polychloroprene sheathed flexible cord. (Code designation IEC:60245 IEC 57 / CENELEC: H05RN-F or IEC:60245 IEC66 / CENELEC H07RN-F)
- This equipment complies with IEC 61000-3-12 provided that the short-circuit power S_{sc} is greater than or equal to $S_{sc} (*2)$ at the interface point between the user's supply and the public system. It is the responsibility of the installer or user of the equipment to ensure, by consultation with the distribution network operator if necessary, that the equipment is connected only to a supply with a short-circuit power S_{sc} greater than or equal to $S_{sc}(*2)$. [$S_{sc} (*2)$]

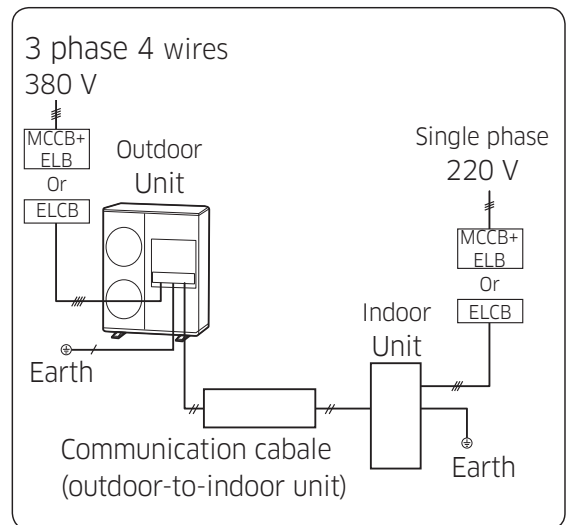
MODEL	S_{sc} [MVA]
AF80KV3SAEE	3.57
AFOAKV3SAEE	5.08

Power wiring diagram

Connect the power cable of the outdoor unit after checking that R-S-T-N (3-phase 4 wires) is properly connected. If the power of 380 V is supplied to the N phase, PCB and other electrical parts will be damaged.

NOTE

- Before supplying power to the outdoor unit, be sure to check the voltage of the distribution board. The voltage between phases for the 3 phase 4 wires 380 V is as follows:
 R phase and S phase: 380 V
 R phase and T phase: 380 V
 S phase and T phase: 380 V
 R phase and N phase: 220 V
 S phase and N phase: 220 V
 T phase and N phase: 220 V
- Communication cables between the indoor and outdoor units do not have polarity.



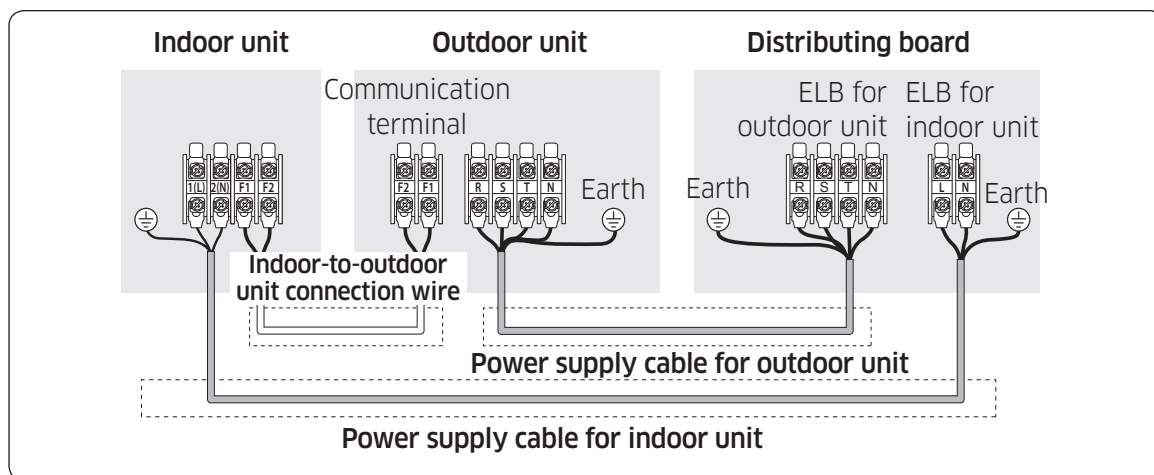
CAUTION

- Arrange the cables with a cable tie. ELCB and ELB must be installed because there is risk of electric shock or fire.

Connecting power and communication cable

This product uses the power for 380 V 50 Hz, 3-phase 4 wires. The indoor unit uses the power for 220 V 50 Hz, single-phase. The power cables for both units must be separated.

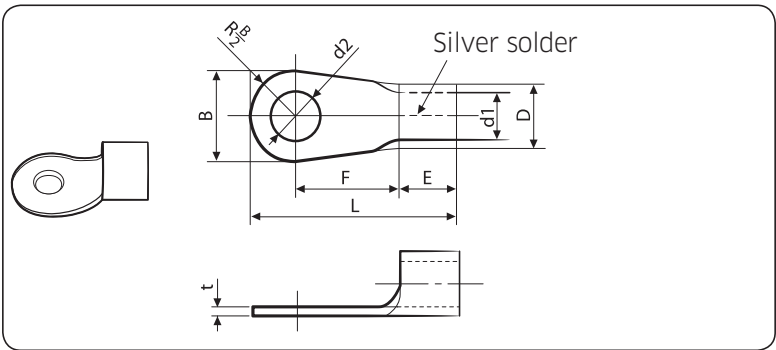
- 1 Remove the cover of the electrical component on the outdoor unit.
- 2 Connect the power cable (R, S, T, N) to the R, S, T, N of the terminal on the electrical component on the outdoor unit. (Power cable must be purchased separately.)
- 3 When tightening the screw on the terminal block, apply appropriate tightening torque to assemble cables to the terminal.
- 4 Install ELB [Earth Leakage breaker (for 4 wires)] for air conditioner. It must be selected according to the starting current of the compressor.



Wiring work

Selecting solderless ring terminal

- Select a compressed ring terminal of a power cable based on a nominal dimensions for cable.
- Cover a compressed ring terminal and a connector part of the power cable and then connect it.



Nominal dimensions for cable (mm ²)		4/6		10	16	25		35		50	70
Nominal dimensions for screw (mm)		4	8	8	8	8	8	8	8	8	8
B	Standard dimension (mm)	9.5	15	15	16	12	16.5	16	22	22	24
	Allowance (mm)	±0.2		±0.2	±0.2	±0.3		±0.3	±0.3	±0.3	±0.4
D	Standard dimension (mm)	5.6		7.1	9	11.5		13.3		13.5	17.5
	Allowance (mm)	+0.3		+0.3	+0.3	+0.5		+0.5		+0.5	+0.5
		-0.2		-0.2	-0.2	-0.2		-0.2		-0.2	-0.4
d1	Standard dimension (mm)	3.4		4.5	5.8	7.7		9.4		11.4	13.3
	Allowance (mm)	±0.2		±0.2	±0.2	±0.2		±0.2		±0.3	±0.4
E	Min.	6		7.9	9.5	11		12.5		17.5	18.5
F	Min.	5	9	9	13	15	13	13	13	14	20
L	Max.	20	28.5	30	33	34		38	43	50	51
d2	Standard dimension (mm)	4.3	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4
	Allowance (mm)	+ 0.2	+0.4	+0.4	+0.4	+0.4		+0.4		+0.4	+0.4
		0	0	0	0	0		0		0	0
t	Min.	0.9		1.15	1.45	1.7		1.8		1.8	2.0

Connecting the power terminal

- Connect the cables to the terminal board with solderless ring terminals.
- Only use the certified and rated cables and make sure to firmly connect them without applying any external force to the terminal.
- Connect with a driver and a wrench that are able to apply the rated torque to the screws.
- If the terminal is loose, fire can occur due to arc heat generation. However, if the terminal is connected too firmly, the terminal may get damaged.

Screw	Tightening torque (kgf•cm)
M3	5.0 ~ 7.5
M3.5	8.0 ~ 12.0
M4	12.0 ~ 18.0
M5	20.0 ~ 30.0
M6	25.0 ~ 37.5

CAUTION

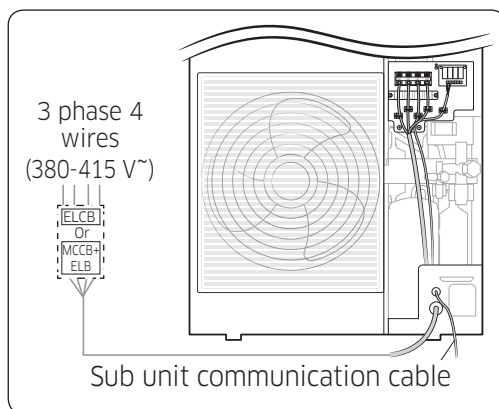
- When removing the outer sheath of the power supply cable, be careful not to scratch the inner sheath of the cable.
- Make sure that more than 20mm of the outer sheath of the indoor unit power supply cable and communication cable are inside the electrical component box.
- Install the communication cable separately from power cable and other communication cables.

Wiring work

Fixing the power cable

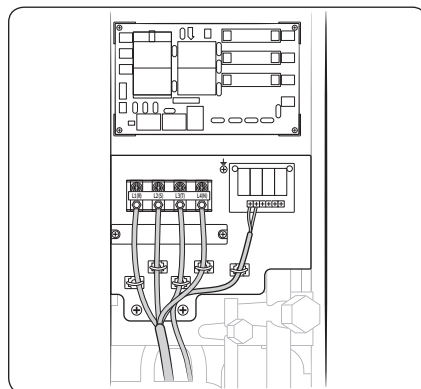
⚠ CAUTION

- Do not let the power cable come into contact with the pipes inside the outdoor unit. If the power supply cable touches the pipes, the vibration of the compressor is transferred to the pipes and can damage the power supply cables or pipes, creating the danger of fire or explosion.
- Make sure that the place where the sheath of power supply cable is removed is inside the power supply box. If it is impossible, you should connect the protection tube for power cable to the power supply box.
- After arranging the power cable into the power supply box, tighten the cover.



Connect the ring terminal

- 1 Cut the power cable to an appropriate length and connect it with the solderless terminal.
- 2 After connecting the power cable to the terminal as seen in the illustration, fix it with cable tie.
- 3 Fix the housing, which has an insulator to the terminal board.



Grounding work

Installing grounding wire

- Grounding must be done by a qualified installer for your safety.
- Use the grounding wire by referring to the specification of the electric cable of the outdoor unit.

1 Grounding the power cable

- The standard of grounding may vary according to the rated voltage and installation place of the air conditioner.
- Ground the power cable according to the following.

Power condition Installation place	Voltage to ground is lower than 150V	Voltage to ground is over 150V
High humidity	Must perform the grounding work 3. ^{Note 1)} (Including the case where earth leakage breaker is installed)	
Average humidity	Perform grounding work 3. ^{Note 1)}	Must perform the grounding work 3. ^{Note 1)} (Including the case where earth leakage breaker is installed)
Low humidity	Perform grounding work 3, if possible, for your safety. ^{Note 2)}	

Note 1) Grounding Work 3

- Grounding work must be done by an expert (with qualification).
- Check if the grounding resistance is lower than 100Ω. When installing a earth leakage breaker (that can cut the electric circuit within 0.5 second in case of a short circuit), allowable grounding resistance should be 30~500Ω.

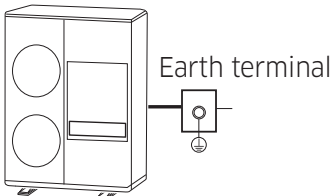
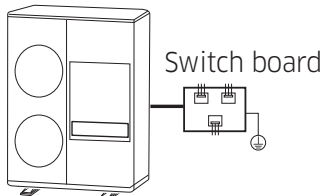
Note 2) Perform ground work in a dry place

- The grounding resistance should be lower than 100Ω. Even in worst case, grounding resistance should be lower than 250Ω.

Wiring work

2 Performing the grounding work

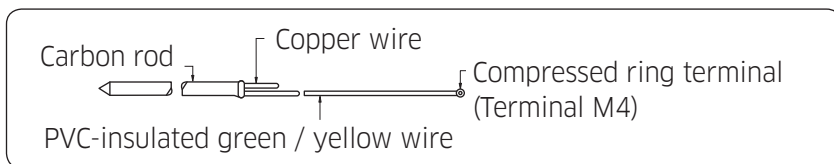
- Use a rated grounding cable by referring to the specification of the electric cable for the outdoor unit.

When using the terminal for grounding only	When using grounding of the switch board
	

If the power distribution circuit does not have a grounding or the grounding does not comply with specifications, a ground rod must be installed.

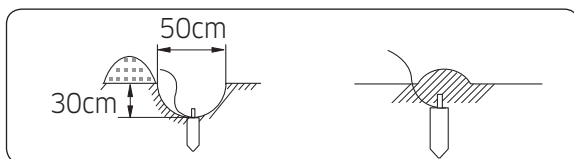
The corresponding accessories are not supplied with the air conditioner.

- 1 Select a grounding rod that complies with the specifications given in the illustration.



- 2 Select a proper place for the grounding rod installation. ~~priate~~ installing position for ground rod.

- In damp hard soil rather than loose sandy or gravel soil that has a higher grounding resistance.
- Away from underground structures or facilities, such as gas pipes, water pipes, telephone lines and underground cables.
- At least two meters away from lightning (as in a storm) conductor.



⚠ CAUTION

- The grounding wire for the telephone line cannot be used to ground the air conditioner.

3 Install a green / yellow grounding wire:

- Please refer to the "Wiring work" for the specification of grounding wire.
- When the grounding wire is too short, extend the grounding wire but bind the connection part with insulation tape. Extend the ground lead if too short and use the heat-insulated tape to secure the connection part.
(Do not bury the connection)
- Secure the grounding wire in position with staples.

CAUTION

- When the grounding rod is installed in a place where many people pass by, you must fix it firmly.
- 4 Carefully check the installation, by measuring the grounding resistance with a ground resistance tester.
- If the resistance is above required level, drive the grounding rod deeper into the ground or increase the number of grounding rods.
- 5 Connect the grounding wire to the electrical component box inside of the outdoor unit.
- Gas leak tests on the outdoor unit is done initially from the factory, but you must test for gas leakage after the installation.

Gas leak test and vacuum drying

Gas leak tests on the outdoor unit is done initially from the factory, but you must test for gas leakage after the installation.



- 1 Purge the pipe and run vacuum test. (Pressure should not increase for a minute.)
- 2 Insert the nitrogen gas so that pressure reaches minimum 2kg/cm².
- 3 Use soap water to check the leakage on the connection part.
- 4 For final vacuum test, leave the outdoor unit for 24 hours under pressure of 28kg/cm² and check for any signs of pressure decrease.
- 5 Discharge the nitrogen gas.
- 6 Keep the outdoor unit in vacuum status.
- 7 If length of the pipe exceeds the standard length, charge additional refrigerant.
- 8 Open the outdoor unit valve and circulate the refrigerant to the indoor unit so that pressure of the entire pipe becomes even.

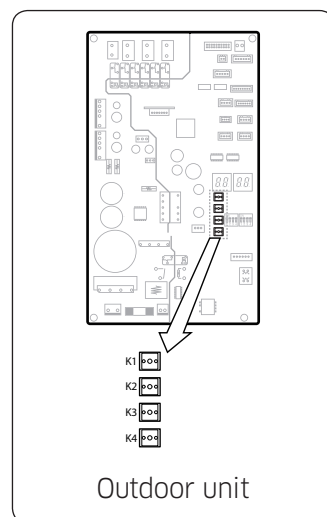
Check lists after completing the installation

- After completing the installation, you must check the following.

Installation	Indoor unit	<ul style="list-style-type: none"> • Have you checked the external surface and the internal part of the indoor unit? • Is the place well-ventilated and ensures space for service? • Have you checked if the center of the indoor unit is ensured and it is installed horizontally in level? • Have you connected refrigeration pipes properly?
	Outdoor unit	<ul style="list-style-type: none"> • Have you checked the external surface and the internal part of the outdoor unit? • Is there any possibility of short circuit due to the heat of an outdoor unit? • Is the place well-ventilated and ensures space for service? • Is the outdoor unit fixed securely?
Refrigerant pipe work		<ul style="list-style-type: none"> • Have you checked for any gas leakage? • Are the length and the height difference between the refrigerant pipes within the allowable range? • Have you properly insulated pipes? • Is the quantity of the additional refrigerant correctly weighed in? • You must record the amount of additional refrigerant charging on the service record label placed outside the outdoor unit.
Installing the drain pipe		<ul style="list-style-type: none"> • Have you completed the drain test? • Is the drainpipe properly insulated?
Wiring work		<ul style="list-style-type: none"> • Have you checked for interference between the power and the communication cable? • Have you performed the earthing work 3 to the outdoor unit? • Is the length of the wire within allowable range? • Is the wiring route correct? • Have you used verified power supply cable and the communication cable?
Option		<ul style="list-style-type: none"> • Check whether the vibration-resistance frame is correctly installed if there is a possible vibration of the outdoor unit.

Testing operations

- 1 Check the power supply between the outdoor unit and the auxiliary circuit breaker.
 - 1 phase power supply : L, N
 - 3 phases power supply : R, S, T, N
- 2 Check the indoor unit.
 - Check that you have connected the power and communication cables correctly. (If the power cable and communication cables are mixed up or connected incorrectly, the PCB will be damaged.)
 - Check the thermistor sensor, drain pump/hose, and display are connected correctly.
- 3 Press K2 on the outdoor unit PCB to run the test mode and stop.
 - Press K2 button → Start Cooling test mode → Press K2 button → Stop → Cooling test mode 7-seg display : 
 - Press K2 button twice → Start Inverter Checker mode → Press K2 button → Stop → Inverter Checker mode 7-seg display :  (For a service only)



- 4 After 12 minutes of stationary condition check each indoor unit air treatment :
 - Cooling mode(indoor unit check) → Inlet air temp. - Outlet air temp. : From 10°C to 12°C
- 5 How to reset the power supply of the outdoor unit and deactivate the eco mode (standby mode) :
 - Outdoor unit type A :
Press [K3] button over 1 sec to reset the power supply of the outdoor unit and deactivate the eco mode (standby mode)
- 6 View Mode : When the K4 switch is pressed, you can see information about our system state as below.

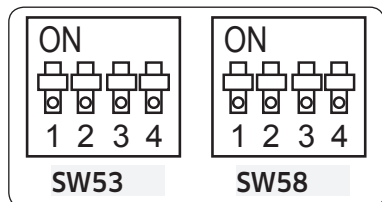
Testing operations

Short push	Display contents	SEG1	SEG2		SEG3	SEG4	Unit
1	Order frequency	1	Hundreds' digit		Tens' digit	Unit digit	Hz
2	Current frequency	2	Hundreds' digit		Tens' digit	Unit digit	Hz
3	The number of current indoor units	3	Hundreds' digit		Tens' digit	Unit digit	EA
4	The sensor for outdoor air intake	4	+ / -		Tens' digit	Unit digit	°C
5	Discharge sensor	5	Hundreds' digit		Tens' digit	Unit digit	°C
6	Eva-Mid sensor	6	+ / -		Tens' digit	Unit digit	°C
7	Cond sensor	7	+ / -		Tens' digit	Unit digit	°C
8	Current	8	Tens' digit		Unit digit	The first place of decimals	A
9	Fan RPM	9	Thousands' digit		Hundreds' digit	Tens' digit	rpm
10	Target discharge temperature	A	Hundreds' digit		Tens' digit	Unit digit	°C
11	EEV	B	16kW	Hundreds' digit	Tens' digit	Unit digit	step
			18/20/25kW	Thousands' digit	Hundreds' digit	Tens' digit	
12	The capacity sum of indoor units	C	Tens' digit		Unit digit	The first place of decimals	kW
13	Protective control	D	0: Cooling		Protective control 0: No Protective control 1: Freezing 2: Non-stop defrosting 3: Over-load 4: Discharge 5: Total electric current	Frequency status 0: Normal 1: Hold 2: Down 3: Up_limit 4: Down_limit	-
14	The temperature of heat radiating plate	E	Hundreds' digit		Tens' digit	Unit digit	-
15	S/W check	F	-		-	-	-

Long push 1	Main micom version	Year (Hex)	Month (Hex)	Date (Tens' digit)	Date (Unit digit)
After short push 1	Inverter micom version	Year (Hex)	Month (Hex)	Date (Tens' digit)	Date (Unit digit)
		Year (Dec)	Month (Hex)	Date (Tens' digit)	Date (Unit digit)
After short push 1	Fan1 version	Year (Dec)	Month (Hex)	Date (Tens' digit)	Date (Unit digit)
After short push 1	Fan2 version	Year (Dec)	Month (Hex)	Date (Tens' digit)	Date (Unit digit)
After short push 1	E2P version	Year (Hex)	Month (Hex)	Date (Tens' digit)	Date (Unit digit)
		Year (Dec)	Month (Hex)	Date (Tens' digit)	Date (Unit digit)

- Long push K4(Main micom ver.) → short push 1 more(Inv. micom ver.) → short push 1 more(E2P. ver.)

7 DIP switch option



- DIP switch(SW53) option

	On (default)	Off
Switch 2	Disable snow prevention control	Enable snow prevention control
Switch 3	Silence Mode option	
Switch 4		

- DIP switch(SW58) option

	On(default)	Off	
Switch 1	Auto Silence Mode	Manual Silence Mode	
Switch 2	-	-	
Switch 3	-	-	
Switch 4	-	-	

8 Silence Mode DIP switch option

- DIP switch(SW53) option

Switch 3	Switch 4	Operation
On	On	Disable Silence mode
On	Off	Silence mode 1st step
Off	On	Silence mode 2nd step
Off	Off	Silence mode 3rd step

Troubleshooting

The table below give indication about self diagnostic routine. Some of error code requires activities exclusively for Authorized Service Center.

Outdoor unit

If an error occurs during the operation, it is displayed on the outdoor unit PCB LED, both MAIN PCB and INVERTER PCB.

No.	Error Code	Meaning	Remarks
1	E108	Error due to repeated address setting(when 2 or more devices has same address within the network)	Check on repeated indoor unit main address
2	E121	Error on indoor temperature sensor of indoor unit(Short or Open)	Indoor unit Room Thermistor Open/Short
3	E122	Error on EVA IN sensor of indoor unit(Short or Open)	Indoor unit EVA_IN Thermistor Open/Short
4	E123	Error on EVA OUT sensor of indoor unit(Short or Open)	Indoor unit EVA_OUT Thermistor Open/Short
5	E153	Error on float switch (2nd detection)	"Indoor unit Float Switch Open/Short Drain Pump operation Check"
6	E154	RPM feedback error of indoor unit	Check on indoor unit indoor Fan operation
7	E162	Outdoor unit EEPROM Read/Write error (H/W)	Check Outdoor EEPROM PBA
8	E163	Outdoor unit EEPROM Read/Write error (Option)	Check Outdoor EEPROM Data
9	E198	Error on thermal fuse of indoor unit (Open)	Thermal Fuse Open Check of indoor unit Terminal Block
10	E201	"Communication error between indoor and outdoor unit(Installation number setting error repeated indoor unit address,indoor unit communication cable error)"	Check indoor quantity setting in outdoor
11	E202	"Communication error between indoor and outdoor unit(Communication error on all indoor unit, outdoor unit communication cable error)"	Check electrical connection and setting between indoor unit and outdoor unit
12	E205	Communication error on all PBA within the outdoor unit C-Box,communication cable error	-
13	E206	E206-C002 : Fan PBA communication error, E206-C003 : INV PBA communication error	-
14	E221	Error on outdoor temperature sensor (Short or Open)	Check Outdoor sensor Open / Short
15	E231	Error on outdoor COND OUT sensor (Short or Open)	Check Cond-Out sensor Open / Short

No.	Error Code	Meaning	Remarks
16	E251	Error on discharge temperature sensor of compressor 1 (Short or Open)	Check Discharge sensor Open / Short
17	E320	Error on OLP sensor (Short or Open)	Check OLP sensor Open / Short
18	E346	Error due to operation failure of Fan2	Fan2 error
19	E347	Motor wire of Fan2 is not connected	Fan2 error
20	E348	Lock error on Fan2 of outdoor unit	Fan2 error
21	E353	Error due to overheated motor of outdoor unit's Fan2	Fan2 error
22	E355	Error due to overheated IPM of Fan2	Fan2 error
23	E378	Error due to overcurrent of Fan2	Fan2 error
24	E386	Over-voltage/low-voltage error of Fan2	Fan2 error
25	E387	Hall IC connection error of Fan2	Fan2 error
26	E389	V-limit error on Fan2 of compressor	Fan2 error
27	E391	Error due to DataFlash of Fan2	Fan2 error
28	E393	Output current sensor error of Fan2	Fan2 error
29	E396	DC voltage sensor error of Fan2	Fan2 error
30	E399	Heat sink temperature sensor error of Fan2	Fan2 error
31	E403	Compressor down due to freeze protection control	Check Outdoor Cond.
32	E404	System stop due to overload protection control	Check Comp. when it start
33	E416	System stop due to discharge temperature	-
34	E422	Blockage detected on high pressure pipe	1. Check if the service valve is open 2. Check for refrigerant leakage(pipe connections, heat exchanger) and charge refrigerant if necessary 3. Check if there's any blockage on refrigerant cycle(indoor unit/outdoor unit) 4. Check if additional refrigerant has been added after pipe extension
35	E425	Reverse phase or open phase	Check whether 3 phase is reversed or opened.
36	E440	Heating mode restriction due to high air temperature	Heating
37	E441	Cooling mode restriction due to low air temperature	Cooling
38	E446	Error due to operation failure of Fan1	Fan1 error





Troubleshooting

No.	Error Code	Meaning	Remarks
39	E447	Motor wire of Fan1 is not connected	Fan1 error
40	E448	Lock error on Fan1 of outdoor unit	Fan1 error
41	E452	Error due to ZCP detection circuit problem or power failure	-
42	E453	Error due to overheated motor of outdoor unit's Fan1	Fan1 error
43	E455	Error due to overheated IPM of Fan1	Fan1 error
44	E458	Fan speed error	Fan1 error
45	E461	Error due to operation failure of inverter compressor	-
46	E462	System stop due to full current control	-
47	E463	Operation temperature protection of the top of the compressor	1. Check if the service valve is open 2. Check for refrigerant leakage (pipe connection, pipe extension and others) and charge refrigerant if necessary 3. Check the location of the outdoor unit and change the location if necessary 4. Re-install the outdoor unit if necessary
48	E464	IPM Over Current(O.C)	IPM
49	E465	Comp. Over load error	-
50	E466	DC-Link voltage under/over error	Check AC Power and DC Link Voltage
51	E467	Error due to abnormal rotation of the compressor or unconnected wire of compressor	Check Comp wire
52	E468	Error on current sensor (Short or Open)	Check Outdoor Inverter PBA.
53	E469	Error on DC-Link voltage sensor (Short or Open)	-
54	E471	Outdoor EEPROM checksum error between MAIN and INVERTER	Check Outdoor EEPROM PBA
55	E472	AC Line Zero Cross Signal out	-
56	E473	Comp Lock error	-
57	E474	Error on IPM Heat Sink sensor of inverter 1 (Short or Open)	heck Outdoor Inverter PBA
58	E475	Error on inverter fan 2	Fan2 error
59	E478	Error due to overcurrent of Fan1	Fan1 error

No.	Error Code	Meaning	Remarks
60	E484	PFC Overload (Over current) Error	Check Outdoor Inverter PBA.
61	E485	Error on input current sensor of inverter 1 (Short or Open)	Check Outdoor EEPROM PBA
62	E486	Over-voltage/low-voltage error of Fan1	Fan1 error
63	E487	Hall IC connection error of Fan1	Fan1 error
64	E489	V-limit error on Fan1 of compressor	Fan1 error
65	E491	Error due to DataFlash of Fan1	Fan1 error
66	E493	Output current sensor error of Fan1	Fan1 error
67	E496	DC voltage sensor error of Fan1	Fan1 error
68	E499	Heat sink temperature sensor error of Fan1	Fan1 error
69	E500	IPM over heat error on inverter 1	Check Outdoor Inverter PBA.
70	E508	Smart install is not installed	-
71	E554	Detected full gas leakage	1. Check if the service valve is open 2. Check the amount of the refrigerant in the outdoor unit 3. Check for refrigerant leakage (pipe connection, pipe extension and others) and charge refrigerant if necessary 4. Check the sensor of the indoor unit 5. Check for EEV connection and connect them again if necessary
72	E556	Error due to mismatching capacity of indoor and outdoor unit	Check the indoor and Outdoor unit Capacity
73	E660	Inverter Boot Code error	-

How to connect your extended power cables

1 Prepare the following tools.

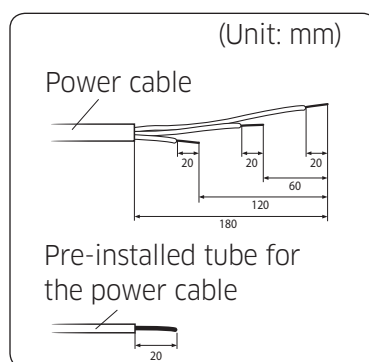
Tools	Crimping pliers	Connection sleeve (mm)	Insulation tape	Contraction tube (mm)
Spec	MH-14	20 x Ø 6.5(HxOD)	Width 19mm	70 x Ø 8.0(LxOD)
Shape				

2 As shown in the figure, peel off the shields from the rubber and wire of the power cable.

- Peel off 20 mm of cable shields from the pre-installed tube.

! CAUTION

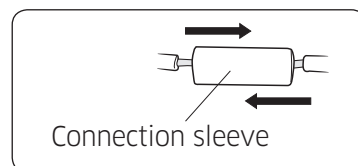
- For information about the power cable specifications for indoor and outdoor units, refer to the installation manual.
- After peeling off cable wires from the pre-installed tube, insert a contraction tube.



3 Insert both sides of core wire of the power cable into the connection sleeve.

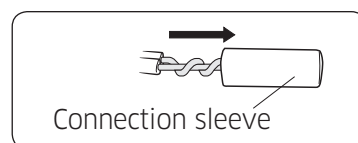
• Method 1

- Push the core wire into the sleeve from both sides.



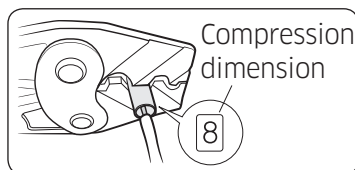
• Method 2

- Twist the wire cores together and push it into the sleeve.



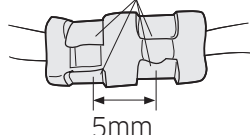
4 Using a crimping tool, compress the two points and flip it over and compress another two points in the same location.

- The compression dimension should be 8.0.
- After compressing it, pull both sides of the wire to make sure it is firmly pressed.



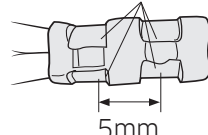
• Method 1

Compress it 4 times



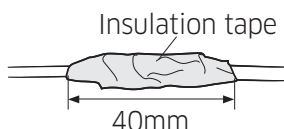
• Method 2

Compress it 4 times

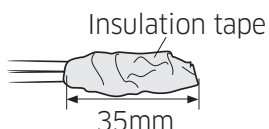


- 5 Wrap it with the insulation tape twice or more and position your contraction tube in the middle of the insulation tape. Three or more layers of insulation are required.

• **Method 1**

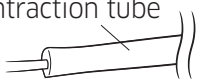


• **Method 2**



- 6 Apply heat to the contraction tube to contract it.

Contraction tube



- 7 After tube contraction work is completed, wrap it with the insulation tape to finish.

Insulation tape

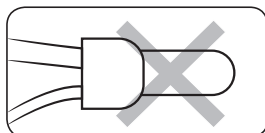


CAUTION

- Make sure that the connection parts are not exposed to outside.
- Be sure to use insulation tape and a contraction tube made of approved reinforced insulating materials that have the same level of withstand voltage with the power cable. (Comply with the local regulations on extensions.)

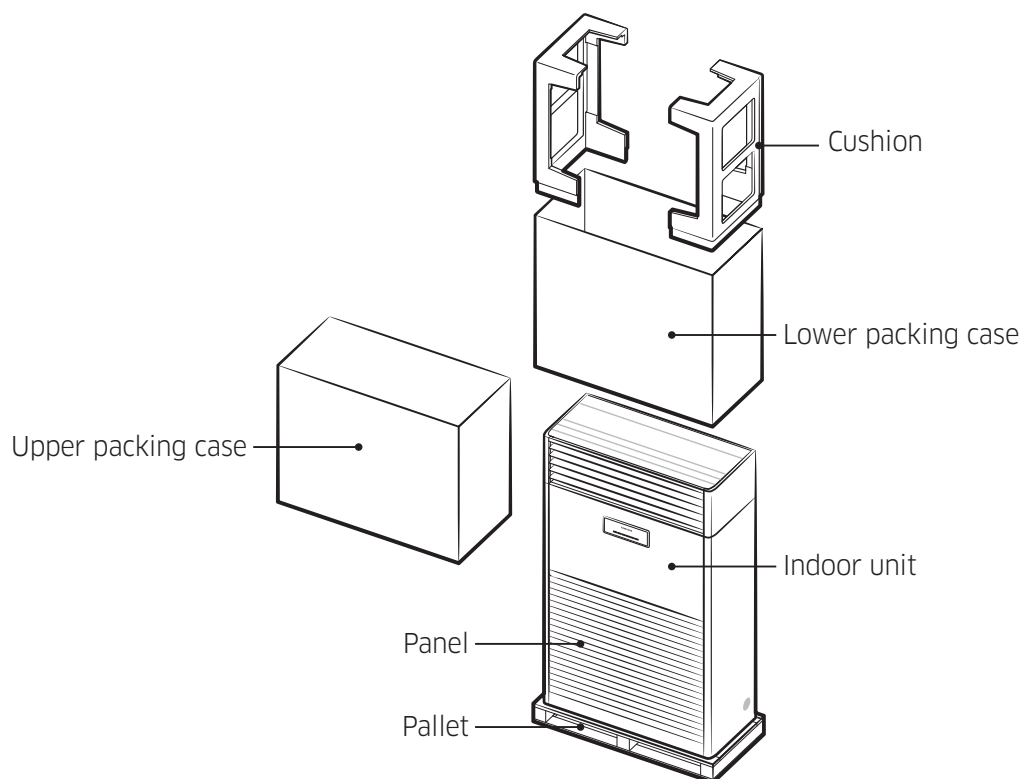
WARNING

- In case of extending the electric wire, please DO NOT use a round-shaped pressing socket.
 - Incomplete wire connections can cause electric shock or a fire.



Packing and unpacking guide

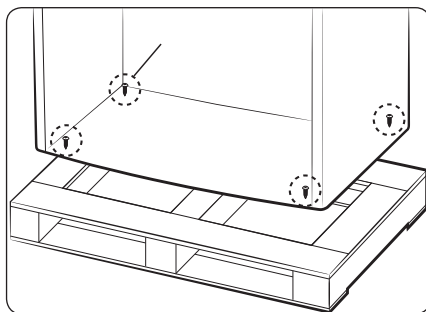
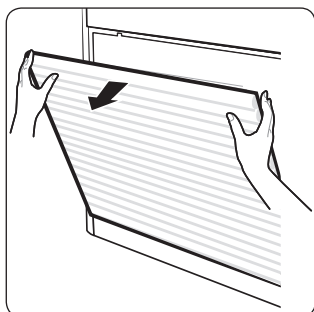
Indoor Unit



Unpacking the indoor unit

Perform the following steps as described below:

- 1 Remove the upper packing case.
- 2 Detach the cushions from the indoor unit.
- 3 Remove the lower packing case from the indoor unit.
- 4 Open the panel and remove the 4 screws placed at the corner of the pallet.



- 5 Remove the pallet and close the panel.

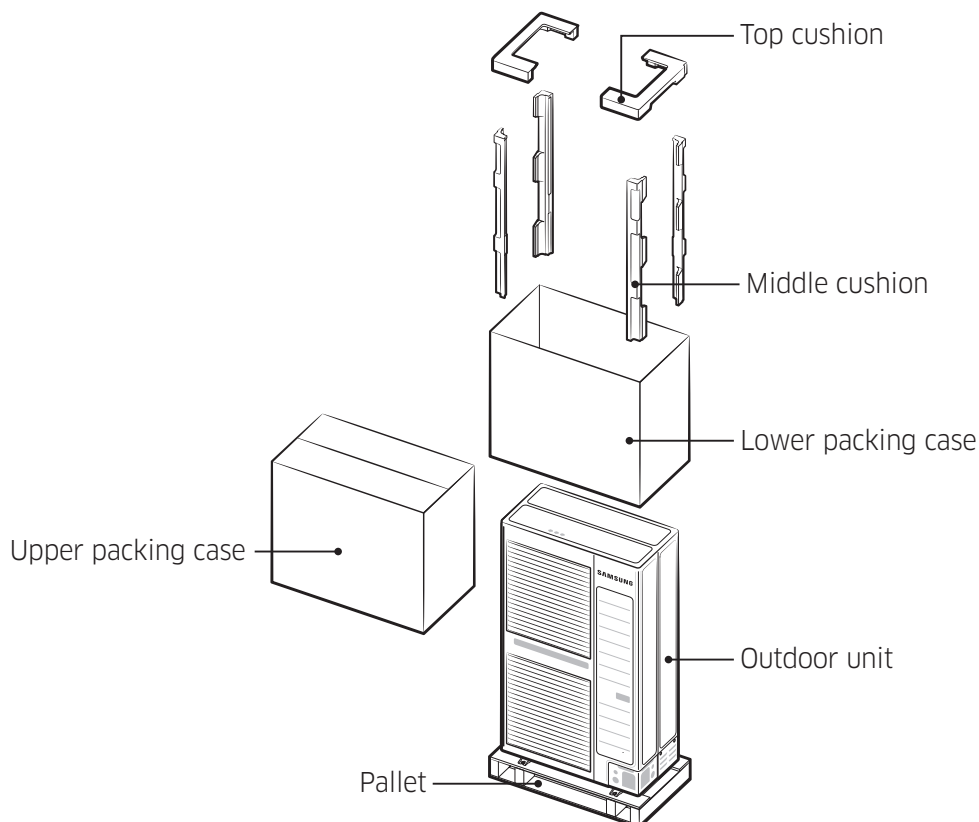
Packing the indoor unit

Perform the following steps as described below:

- 1 Open the panel and place the indoor unit on the pallet.
- 2 Fasten the 4 screws into the unit and close the panel.
- 3 Cover the unit with the lower packing case.
- 4 Attach the cushions on both side of the unit.
- 5 Cover the unit with the upper packing case.

Packing and unpacking guide

Outdoor Unit



Unpacking the outdoor unit

Perform the following steps as described below:

- 1 Remove the upper packing case.
- 2 Detach the cushions from the outdoor unit.
- 3 Remove the lower packing case.
- 4 Remove the 4 screws placed at the corner of the pallet and remove the pallet.

Packing the outdoor unit

Perform the following steps as described below:

- 1 Place the outdoor unit on the pallet and fasten the 4 screws into the unit.
- 2 Cover the unit with the lower packing case.
- 3 Attach the cushions on the unit.
- 4 Cover the unit with the upper packing case.

MODEL NAME		INDOOR UNIT		OUTDOOR UNIT	
		AF80KV3SAEEN		AF80KV3SAEEX	
CLIMATE CLASS		T1	T3	T1	T3
RATED VOLTAGE & FREQUENCY		INDOOR UNIT : 220 - 240 V~ 50 Hz OUTDOOR UNIT : 380 - 415 V 3N~ 50 Hz			
RATED CAPACITY	COOLING	75 000 Btu/h	56 000 Btu/h	75 000 Btu/h	56 000 Btu/h
	HEATING	-			
RATED CURRENT	COOLING	2.3 A		12.5 A	11.9 A
	HEATING	-			
RATED POWER INPUT	COOLING	520 W		8000 W	7600 W
	HEATING	-			
EER / COP	COOLING	9.37	7.36	9.37	7.36
	HEATING	-			
ANNUAL ENERGY CONSUMPTION		21600 kwh/year			
MAX CURRENT		25.0 A			
DESIGN PRESSURE		H : 4.1 MPa L : 2.2 MPa			
MAX. OPERATION PRESSURE (HEAT EXCHANGER)		4.1 MPa			
REFRIGERANT		R-410A 6.6 kg			
IP NUMBER		IPX4			
NET DIMENSION(W*H*D)	mm	1100*485*1800		940*460*1630	
PACKING DIMENSION(W*H*D)	mm	1177*563*1950		1020*575*1820	
WEIGHT (NET/GROSS)	kg	110 / 124		150.5 / 163.5	

MODEL NAME		INDOOR UNIT		OUTDOOR UNIT	
		AFOAKV3SAEEN		AFOAKV3SAEEX	
CLIMATE CLASS		T1	T3	T1	T3
RATED VOLTAGE & FREQUENCY		INDOOR UNIT : 220 - 240 V~ 50 Hz OUTDOOR UNIT : 380 - 415 V 3N~ 50 Hz			
RATED CAPACITY	COOLING	96 000 Btu/h	70 000 Btu/h	96 000 Btu/h	70 000 Btu/h
	HEATING	-			
RATED CURRENT	COOLING	2.5 A		18.3 A	15.4 A
	HEATING	-			
RATED POWER INPUT	COOLING	560 W		11 900 W	9900 W
	HEATING	-			
EER / COP	COOLING	8.06	7.07	8.06	7.07
	HEATING	-			
ANNUAL ENERGY CONSUMPTION		32130 kwh/year			
MAX CURRENT		25.0 A			
DESIGN PRESSURE		H : 4.1 MPa L : 2.2 MPa			
MAX. OPERATION PRESSURE (HEAT EXCHANGER)		4.1 MPa			
REFRIGERANT		R-410A 6.6 kg			
IP NUMBER		IPX4			
NET DIMENSION(W*H*D)	mm	1100*485*1800		940*460*1630	
PACKING DIMENSION(W*H*D)	mm	1177*563*1950		1020*575*1820	
WEIGHT (NET/GROSS)	kg	115 / 129		152.5 / 165.5	

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