Contents

Safety Precautions

The following safety precautions must be taken when installing the unit.

✳ R410A refrigerant is used for MINI DVM air conditioner.
- When using R410A, moisture or foreign substances may affect to the capacity and reliability of the product. Safety precautions must be taken when installing the refrigerant pipe.
- The design pressure of the unit is 4.1MPa. Select appropriate material and thickness according to the regulations.
- R410A is a quasi-azeotrope of two refrigerants.
  Make sure to charge liquid one when adding refrigerant.
  If you charge gaseous refrigerant, it may affect the capacity and reliability of the product as a result of change formation of the refrigerant.

✳ Connect only the indoor units fit on R410A refrigerant. Check whether the indoor units can be connected with the product's catalogue.
(When incorrect indoor units are connected, they cannot operate normally.)

WARNING If you don't follow the safety precautions, you may get the risk of serious wound or death.

- The installation must be done by the manufacturer or its service agent or a similar qualified person in order to avoid a hazard.
  - Installation by an unqualified person may cause a water leakage, electric shock or fire and so on.
- The electric work must be done by service agent or similarly qualified persons according to national wiring regulations and use only rated cable.
  - If the capacity of the power cable is insufficient or electric work is not properly completed, electric shock or fire may occur.
- Install the outdoor unit correctly according to the installation manual.
  - An incorrect installation may cause a water leakage, electric shock or fire and so on.
- Manufacturer is not responsible for accidents due to incorrect installation.
- When you install the air conditioner in a small room, you consider a proper ventilation to prevent a leakage level within the maximum permissible limit.
  - In that case, you may die from suffocation by some possibility.
- Use only rated parts and tools.
  - If you don't use the rated parts and tools, it can cause trouble with the air conditioner and bring about injury.
- Install the outdoor unit on a hard and even place that can support its weight.
  - If the place cannot support its weight, the outdoor unit may fall down and it may cause injury.
- Fix the outdoor unit securely to prepare against strong wind or earthquake.
  - If the outdoor unit is not properly fixed, it turns over and accidents may occur.
- Install the cables with supplied cables firmly. Fix them securely so that external force is not exerted to the terminal board.
  - If the connection or fixing is incomplete, it can cause trouble with a heat generation, electric shock or fire and so on.
- Arrange the cables between the indoor and outdoor unit after connecting. Attach the cover securely so that the electrical component box cover does not get loosen.
  - If the cover is attached incompletely, it can cause trouble with a heat generation, electric shock or fire of the terminal board.
- Install separate MCCB and ELB when installing the power cable.
  - If you do not install the MCCB and ELB, electric shock or fire may occur.
- The unit must be plugged into an independent circuit if applicable or connect the power cable to the auxiliary circuit breaker. An all pole disconnection from the power supply must be incorporated in the fixed wiring with a contact opening of >3mm.
- If any gas or impurities except R410A refrigerant come into the refrigerant pipe, serious problem may occur and it may cause injury.
- Make sure there is no leakage after installation.
  - Toxic gas may generate when refrigerant gas contacts with fire.
- Leak test must be done using only Nitrogen gas.

⚠ CAUTION If you don't follow the safety precautions, you may get the risk of injury or loss of property.

- Make sure of a earthing.
  - Do not connect the earth wire to the gas pipe, water pipe, lighting rod or telephone wire.
    If earthing is incomplete, electric shock or fire may occur.
- Do not connect the heater to the outdoor unit and do not install remodeled duct as you please.
  - The capacity of the air conditioner may reduce, electric shock or fire may occur and it has a chance of occurrence of and accident like electric shock or fire.
- Make sure that the condensed water dripping from the drain hose runs out properly and insulate the drain pipe so that frost does not generate.
  - Household goods may get wet if the drain pipe is not properly installed.
- Install the power cable and communication cable of the indoor and outdoor unit at least 1m away from electric appliances.
  - Noise may heard depending on the electric wave though the cables are installed away from electric appliances.
- Install the indoor unit away from lighting apparatus using the ballast.
  - If you use the wireless remote control, it may not operate normally.
- Do not install the air conditioner in following places.
  - The place where there is mineral oil or arsenic acid
    There is a chance that parts may get damaged due to burned resin.
    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.

Selecting outdoor unit combination

◆ Install the indoor unit only for R410A.

Outdoor unit (Series)	Capacity of the outdoor unit (HP/kW)	Maximum of connected indoor units	Total capacity of connected indoor units (kW)
RVXMHF040E	4/12.5	7	6.3~16.3
RVXMHF050E	5/14.0	8	7.0~18.2
RVXMHF050G	5/14.0	8	7.0~18.2
RVXMHF060G	6/16.0	9	8.0~20.8

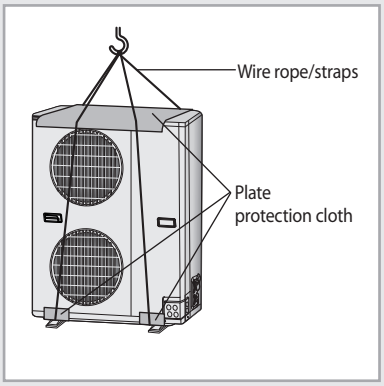
◆ Connect maximum 7 to 9 indoor units to the selected outdoor unit.
◆ Connect the indoor units within capacity 50 to 130% of the selected outdoor unit.
◆ If all the indoor units operate simultaneously when total capacity of indoor units exceeds 100% of the outdoor unit, actual capacity of each indoor unit may be reduced a little as compared with its rated capacity.

Moving the Outdoor Unit

- Select the moving route.
- Secure the strength of the carrying path to resist against the weight of the outdoor unit.
- Do not slant the product more than 30˚ when carrying it.
  (Do not lay the product down sideways.)
- The surface of the heat exchanger is sharp. Be careful not to be get injury while moving.

When moving with a crane or straps

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

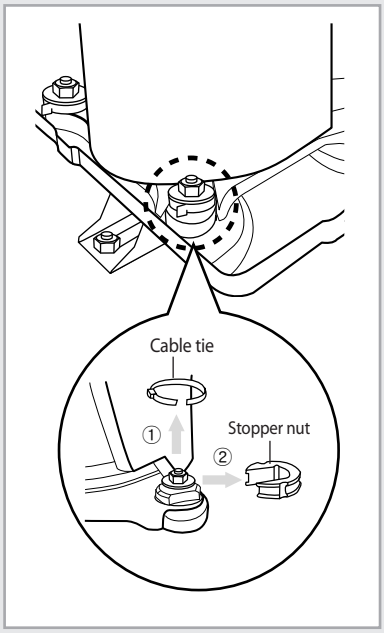


Detaching Fasteners

1 Open the cabinet.
The compressor is fastened with stopper nuts.

2 Cut and remove cable tie.

3 Remove stopper nuts from the compressor.



CAUTION

- ***Pay your attention to not to touch the copper pipes when removing stopper nuts.***
- ***The stopper nuts should be removed. If the outdoor unit is operated with stopper nuts attached, abnormal vibration or noise may be generated.***

Locating the Units (Continued)

Decide the installation location regarding the following condition and obtain the user's approval.

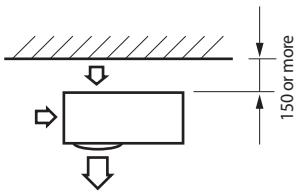
- Avoid a place that may disturb your neighbor. Noise may occur from the outdoor unit and the discharged air may run into the neighborhood. (Be careful of the operation time in a residential area)
- Install the outdoor unit on a hard and even area that can support its weight.
- Choose a flat place that 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.
- If you install the outdoor unit by the sea or a spa, concern about corrosion.
- Build a support where may have a heavy snow so that the air inlet is not blocked by snow.
- Install a protective safety fence to eliminate the possibility of falling.

Space Requirements for Outdoor Unit

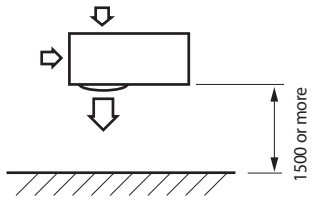
- Observe the clearances and dimensions as seen below when installing the outdoor unit.
- If you install several outdoor units simultaneously, observe the space for ventilation and free airflow. If the space for ventilation is insufficient, the air conditioner may be inefficient.
- SAMSUNG logo is attached on the front side of the outdoor unit.

When installing 1 outdoor unit

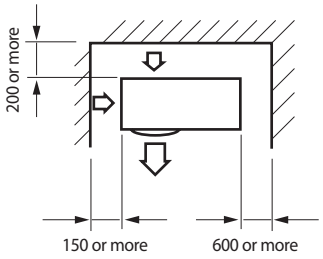
Unit : mm



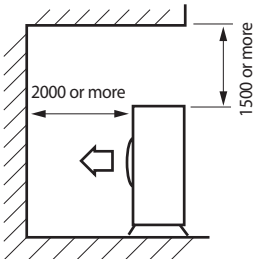
✳ When the air outlet is opposite the wall



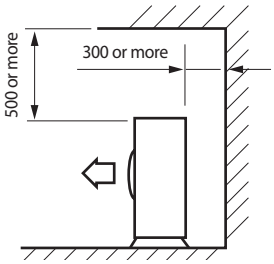
✳ When the air outlet is toward the wall



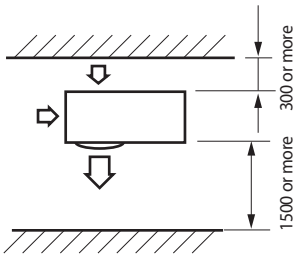
✳ When 3 sides of the outdoor unit are blocked by the wall



✳ The upper part of the outdoor unit and the air outlet is toward the wall



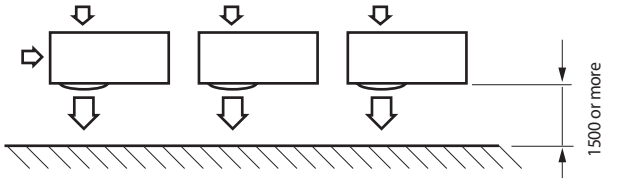
✳ The upper part of the outdoor unit and the air outlet is opposite the wall



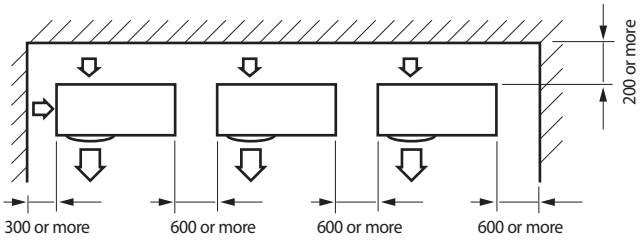
✳ When front and rear side of the outdoor unit is toward the wall

When installing more than 1 outdoor unit

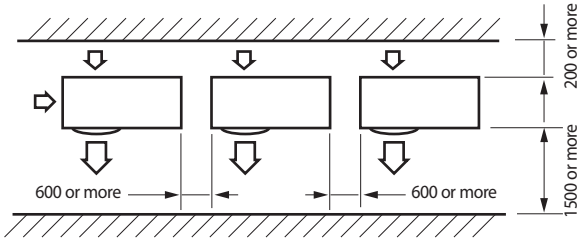
Unit : mm



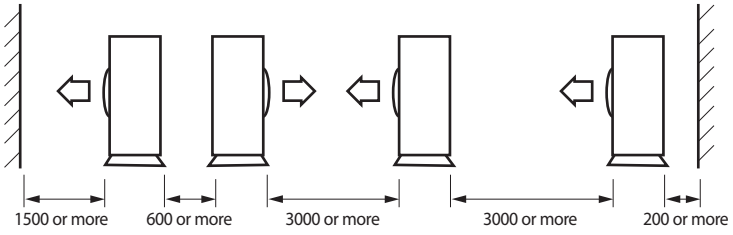
✳ When the air outlet is toward the wall



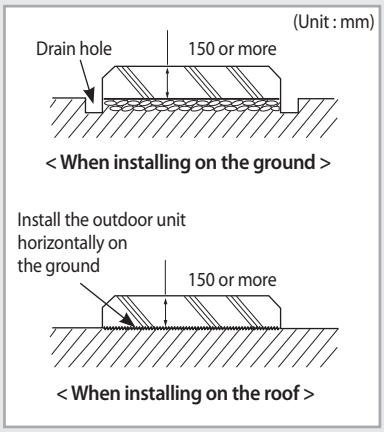
✳ When 3 sides of the outdoor unit are blocked by the wall



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



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



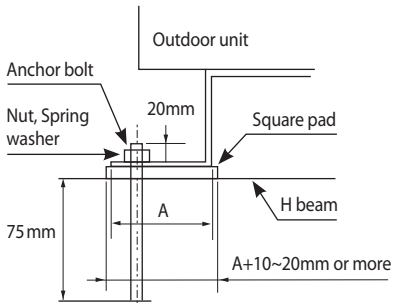
✳ Base mount construction

Installing the Outdoor Unit

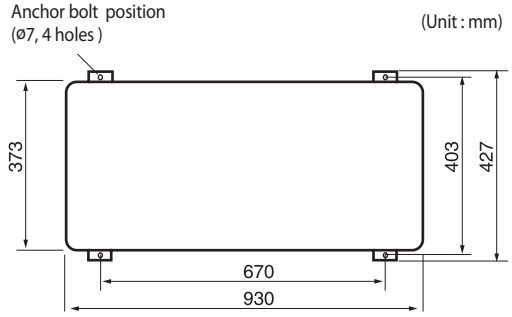
CAUTION

- ***Do not install the outdoor unit on a wood palette.***
- ***Fix the outdoor unit completely to the base surface with anchor bolts.***
- ***The manufacturer is not responsible for the damage occurred by not keeping standard of the installation.***

- Install the outdoor unit higher than 150mm from the base surface and install the drain hole to connect the pipe to the drainage.
- If forward fan outdoor unit is installed where has average fallen snow 150mm over, outward duct should be attached to the outdoor unit.
- The concrete foundation should be 1.5 times larger than bottom of the outdoor unit.
- When heating, condensed water may be generated. Pay attention to waterproof and drainage of the concrete foundation where the outdoor unit is installed. (An ice road may form on the base surface in winter)
- Make up for wire mash or steel bar so that the outdoor unit is not damaged or broken when installing concrete foundation.
- When installing the outdoor units in same place simultaneously, install the H beam inside concrete foundation. (When installing a number of outdoor unit, you can install it on the concrete foundation)
- Install the H beam(150mm x 150mm x t10 : basic specification) to jut out from the concrete foundation.
- After installing the H beam, apply corrosion protection.
- Install a square pad(t=20mm or more) to prevent vibration of the outdoor unit delivering to the base surface when installing the concrete for the outdoor unit.
- Place the outdoor unit on the H beam and fix it with the bolt, nut and washer.



Outdoor unit base mount and anchor bolt position



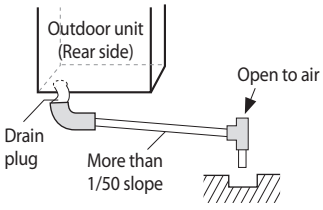
CAUTION

When tightening the anchor bolt

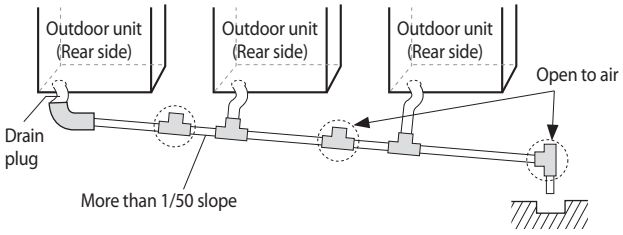
- ***Tighten the rubber washer to prevent the outdoor unit bolt connection part from corroding.***

Installing the drain pipe

- ***When installing 1 outdoor unit***



- ***When installing more than 1 outdoor unit***



- Open the upside of connected parts of outdoor units to prevent inner pressure.
- Do not place a trap on the concentrated pipe. And install the drain pipe horizontally with a slope of 1/50 or more.
- Insulate the drain pipe and drain plug by using the insulation over 10t.
- Install a self-regulation heat cable to prevent the drain pipe from freezing.

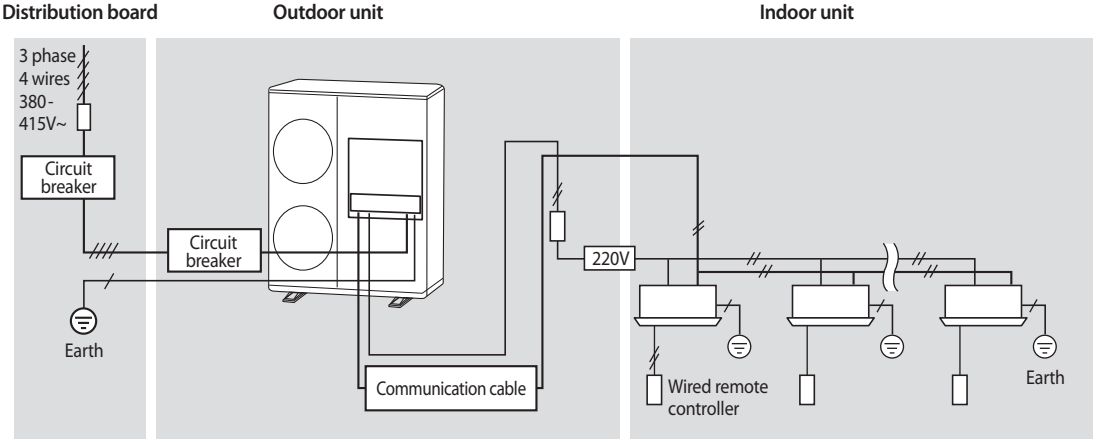
Electrical Connections

CAUTION

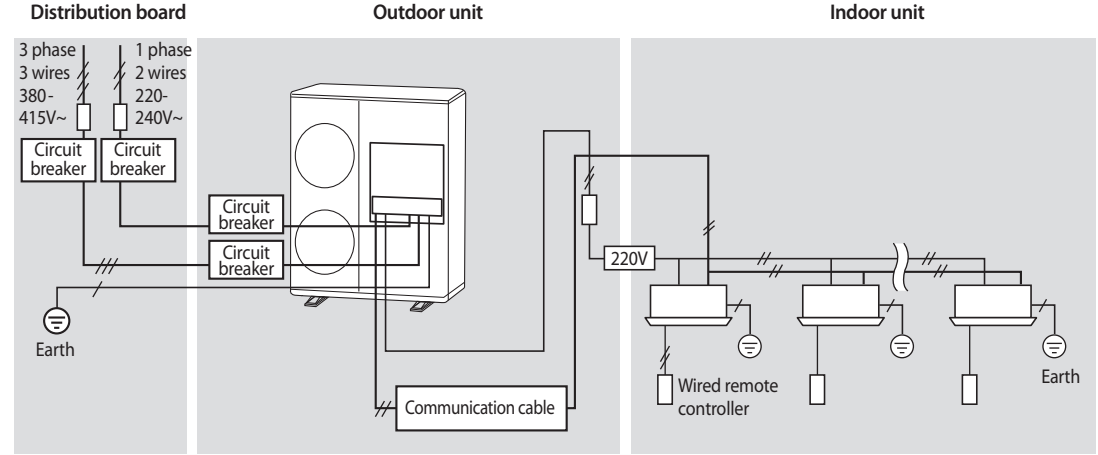
- ***The electric work must be done by its service agent or similar qualified persons according to national wiring regulations.***
- ***Use rated wires and parts.***
- ***Switch off the main circuit breaker and the branch circuit breaker before electric work.***
- ***Perform earthing work 3 without fail. An earthing resistance should be under 100Ω .***
  The protective earthing resistance can be applied in case of using ELB(Earth Leakage Circuit Breaker).
  When using a ELB that has a tolerance limit as 100mA per second, the protective earthing resistance is 250Ω in an electrical danger zone, else under 500Ω.
- ***Do not connect the earth wire to the gas pipe, water pipe, lighting rod or telephone wire.***
  - Gas pipe: If gas leaks, explosion or ignition may occur.
  - Liquid pipe: Earthing has no effect in case of the water pipe made of hard vinyl.
  - Lighting rod or telephone wire: There is a chance of abnormal raising voltage be affected by lightening.
- ***Install 3 phase cables in order of L1, L2 and L3 when connecting main power cable of the outdoor unit.***
- ***The input voltage of the indoor and outdoor unit should be within ±10% of the rated one.***
- ***For details of wiring, refer to the circuit diagram attached onto the outdoor unit.***
- ***The circuit diagram for wiring shows only the concept.***
- ***Be sure to install the circuit breakers and fuses on the power supply cable to the outdoor units.***
- ***Connect the wires to the terminals without excessive forces and arrange the wiring with the cover or other parts so that prevent it from loosing.***
- ***Loose connections may cause the overheating, electrical shock and fire.***
- ***Install the MCCB(Molded Case Circuit Breaker) to protect the air conditioner from excess current.***

Overall System Configuration

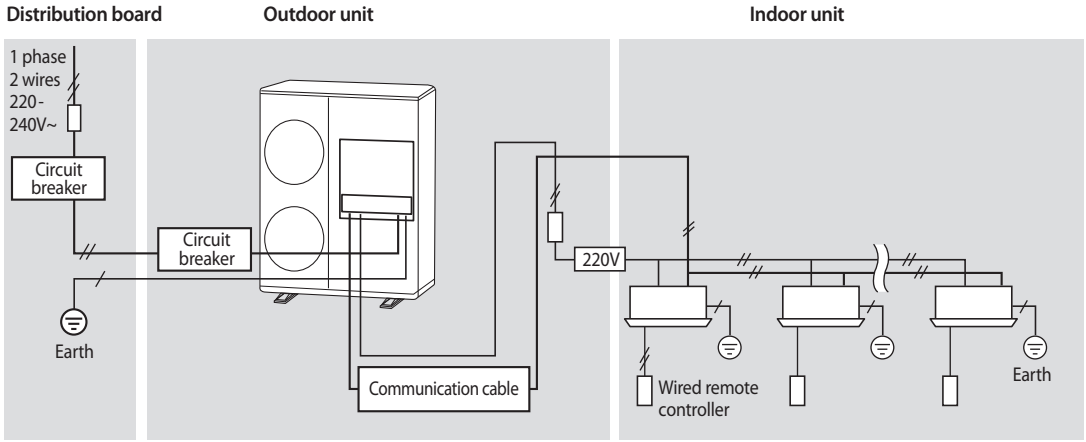
Connection of the power cable (3 phase 4 wires)



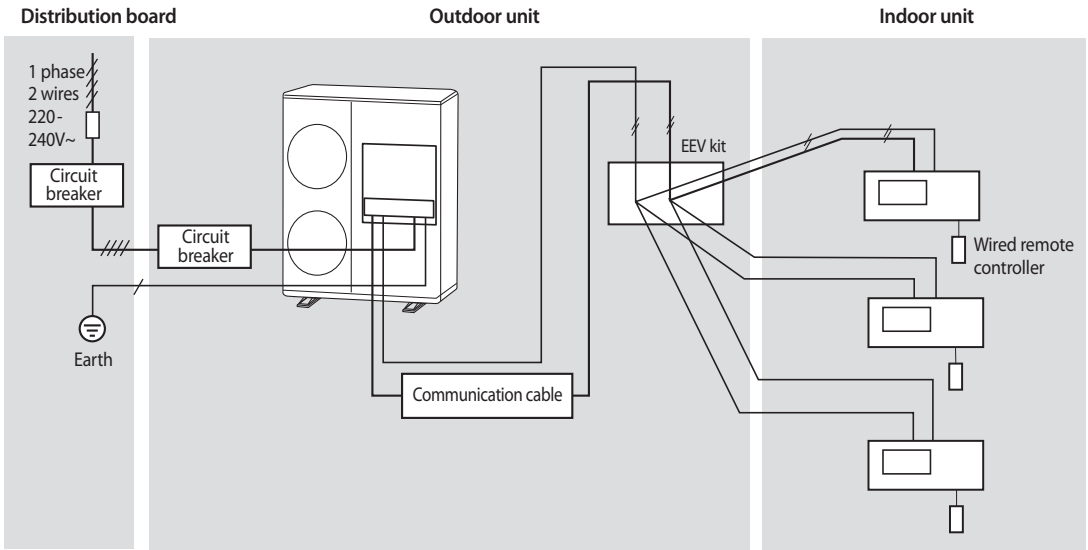
Connection of the power cable (3 phase 3 wires and 1 phase 2 wires)



Connection of the power cable (1 phase 2 wires)



Connection of the power cable (1 phase 2 wires using EEV kit)



Specification of electronic wire of the outdoor unit

Outdoor unit Model (Series)	Power Supply									
	3 Phase					1 Phase				
	Power Supply(V)	Max/ Min(V)	MCCB/ ELB	Power cable	Max Length	Power Supply(V)	Max/ Min(V)	MCCB/ ELB	Power cable	Max Length
RVXMHF040E RVXMHF050E	-	-	-	-	-	220-240V~/ 50Hz	242/198	30A	5.5 mm^2	18m
RVXMHF050G	380-415V~/ 50Hz	418/342	16A	2.0mm^2	18m	220-240V~/ 50Hz	242/198	16A	2.0 mm^2	18m
RVXMHF060G			20A	3.5mm^2	18m			20A		

- The power cable is not supplied with the air conditioner.
- For the power cable, use the grade H07RN-F or H05RN-F materials.

Specification of electronic wire of the indoor unit

Power Supply (1 Phase)				Earth Cable	Communication cable
Power Supply	Max/Min(V)	Power cable	Max length		
220-240V~/50Hz	242/198	2.0mm^2	Decided by power drop among indoor units	2.0~5.5mm^2	0.75~1.25mm^2

- Select the thickness and length of power cable for total drop of electric pressure to be less than 10%(On 220V Input voltage basis).

$$\sum_{k=1}^{n}\left(\frac{Coef\times 35.6\times L_k\times i_k}{1000\times A_k}\right) < 20[V]$$

✳ coef: Use approximately 1.55

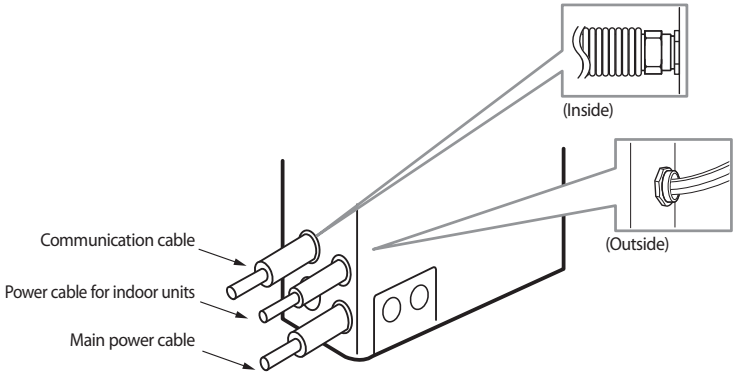
✳ L_k: Distance between each unit[m], A_k: Thickness of power cable[mm^2]
i_k: Running current of each unit[A]

CAUTION

- ***You should connect the power cable into the power cable terminal and fasten it with a clamp.***
- ***The unbalanced power must be maintained within 2% of supply rating.***
  - If the power is unbalanced greatly it may shorten the life of the condenser.
  If the unbalanced power is exceeded over 4% of supply rating, the indoor unit is protected, stopped and the error mode indicates.
- ***To protect the product from water and possible shock, you should keep the power cable and the connection cord of the indoor and outdoor units in the iron pipe.***
- ***Connect the power cable to the auxiliary circuit breaker. An all pole disconnection from the power supply must be incorporated in the fixed wiring(≥3mm).***
- ***Must keep the cable in a protection tube.***
- ***Keep distances of 50mm or more between power cable and communication cable.***
- ***Power cable should be used within maximum length limitation.***
- ***Each indoor unit power should be supplied between maximum and minimum values.***

Power Wiring and Communication Wiring Configuration

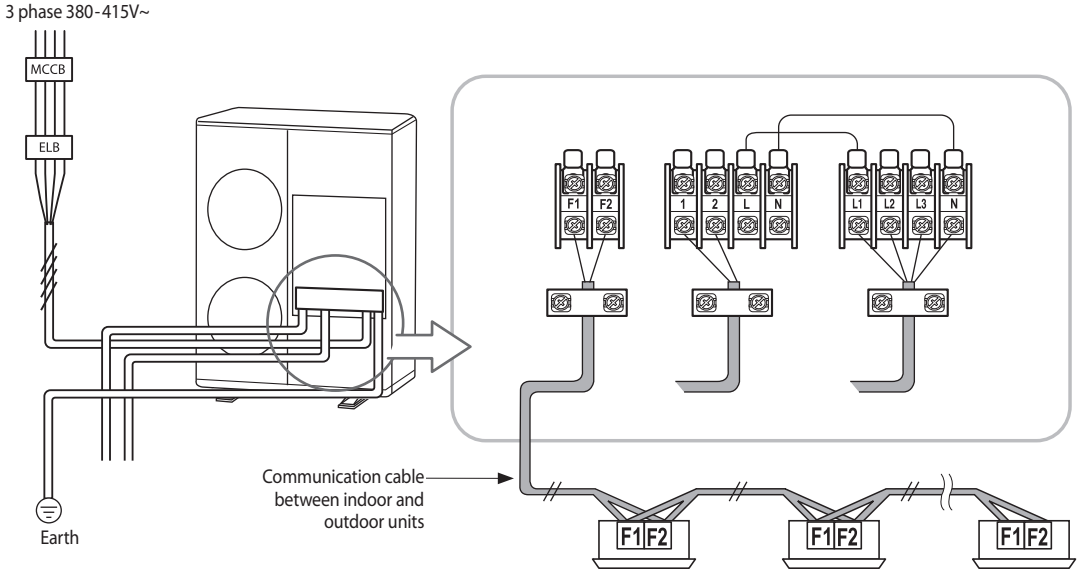
- Be sure to run the power supply cable and the communication cable through electrical conduit as seen in the picture.
- Install the communication cable, indoor power cable and the main power cable in the cable tube.
- Secure the cable tube to the outdoor knockout using the CD connector and bushing.
- Arrange the cables as shown in the picture.
- The diameter of the 6 knock-out holes is Ø27.8 mm.



CAUTION

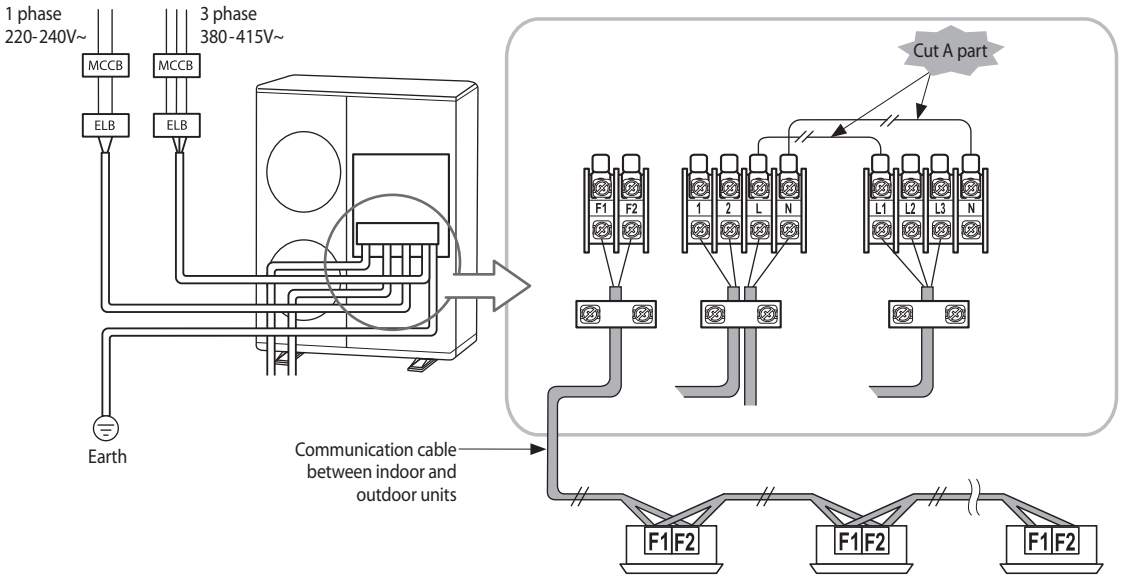
- ***Make a knockout hole by driving in a nail.***
- ***After making a knockout hole, apply rust resisting paint around the hole.***
- ***When installing the cables through the knockout hole, remove all burrs and protect them with the protection tape.***

3 phase 4 wires (380-415V~)



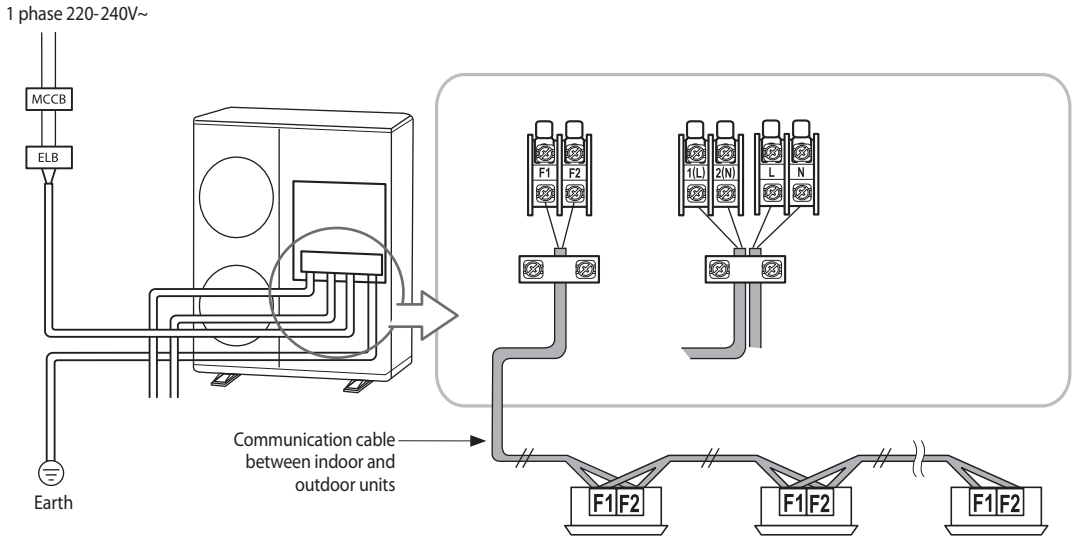
- Connect the power cable of the outdoor unit after checking that L1-L2-L3-N(3 phase 4 wire) is properly connected. (If 380V power cable is connected to N phase, PCB or other components may be damaged.)
- The communication cable between indoor and outdoor units has no polarity.
- Secure the cables using the clamp of the electrical component box of the outdoor unit.

3 phase 3 wires(380-415V~) and 1 phase 2 wires(220-240V~)



- 220V power is supplied separately. Cut the cables of the A part.
- Connect the power cable of the outdoor unit after checking that L1-L2-L3 (3 phase 3 wire) is properly connected.
- The communication cable between indoor and outdoor units has no polarity.
- Secure the cables using the clamp of the electrical component box of the outdoor unit.

1 phase 2 wires (220-240V~)



Connecting the Power Terminal

- Connect the cables to the terminal board using the compressed ring terminal.
- Connect the rated cables only.
- Connect using a driver which is able to apply the rated torque to the screws.
- If the terminal is loose, fire may occur caused by arc.
  If the terminal is connected too firmly, the terminal may be damaged.

	Tightening Torque (kgf • cm)
M4	12.0~14.7
M5	24.4~29.8
M6	56.1~74.4

Installing the Earth Wire

- Earthing must be done by your installation specialist for your safety.
- Use the earth wire by referring to the specification of the electric cable for the outdoor unit.

Earthing the power cable

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

Installation place / Power condition	High humidity	Average humidity	Low humidity
Electrical potential of lower than 150V		Perform the earthing work 3. Note 1)	The dry place Perform the earthing work 2 if possible for your safety. Note 2)
Electrical potential of higher than 150V	Must perform the earthing work 3. Note 1) (In case of installing circuit breaker)		

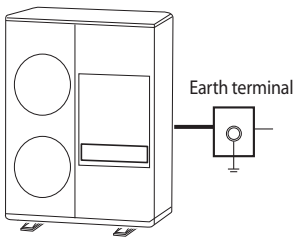
Note 1) Earthing work 3

- Earthing must be done by your installation specialist.
- Check if the earthing resistance is lower than 100Ω.
  When installing a circuit breaker that can cut the electric circuit in case of a short circuit, the allowable earthing resistance can be 30~50Ω.

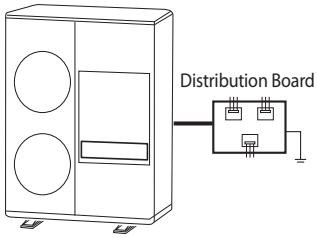
Note 2) Earthing at dry place

- The earthing resistance is should be lower than 100Ω. (It should not be higher than 250Ω)

✳ **When using the terminal for earthing only**



✳ **When using earthing of the switchboard**



- Install the refrigerant pipe within the maximum allowable length, difference in height and length of after the first branch pipe.
- The pressure of the R410A is high.
  Use only rated refrigerant pipe and follow the installation method.
- Use clean refrigerant pipe which there is no harmful ion, oxide, dust, iron content or moisture.
- Use tools and accessories fit on R410A.

Manifold gauge	• Use manifold gauge only for R410A to prevent the inflow of foreign substances.
Vacuum pump	• Use vacuum pump with check valve to prevent pump oil from flowing backward while the vacuum pump is stopped. • Use the vacuum pump that the vacuum induction is available up to 100.7kPa(5Torr, 755mmHg).
Flare nut	• Use only flare nut supplied with the product.

Selecting the Refrigerant Pipe

Outer diameter [mm/(inch)]	Minimum thickness (mm)	Temper grade
ø 6.35 (1/4)	0.8	C1220T-O (Soft)
ø 9.52 (3/8)	0.8	
ø12.70 (1/2)	0.8	
ø15.88 (5/8)	1.0	
ø19.05 (3/4)	1.0	C1220T-1/2H (Semi-hard)

✳ Temper grade and minimum thickness of the refrigerant pipe

✳ **Installing pipes between outdoor unit and first Y-joint**

Outdoor unit capacity (HP)	Liquid side (mm)	Gas side (mm)
4	ø9.52	ø15.88
5	ø9.52	ø15.88
6	ø9.52	ø19.05

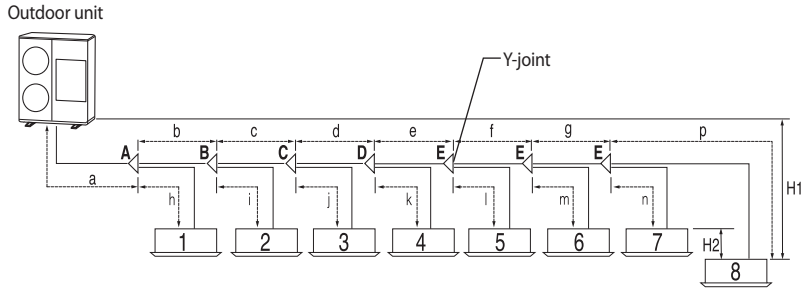
- Install refrigerant pipe depending on the outdoor unit capacity.
- Use the copper pipe of semi-hard(1/2H) when installing Ø19.05 of the pipe.
  If you use Soft(O) pipe, the internal pressure is too low to cause personal injury.

✳ **Installing pipes between Y-joints**

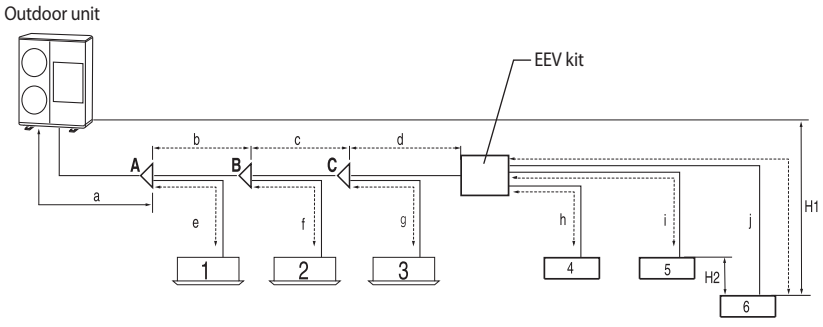
Indoor unit total capacity (kW)	Liquid side (mm)	Gas side (mm)
X < 22.4	ø9.52	ø15.88

Allowable Length of the Refrigerant Pipe and the Installation Examples

✳ **Using only Y-joint**



✳ **Using EEV kit**



			Using only Y-joint	Using EEV kit
Maximum allowable length of pipe	Outdoor unit~ Indoor unit	Actual length	The distance between the outdoor unit and the furthest indoor unit ≤ 100m	
			Ex) 8 Indoor units : a+b+c+d+e+f+g+p≤ 100m	Ex) 6 Indoor units : a+b+c+d+j ≤ 100m
		Equivalent length	The distance between the outdoor and the furthest indoor unit ≤ 125m (The equivalent length of Y-joint :0.5m)	
		Total length	The total distance from the outdoor unit to all indoor units ≤ 180m	
Maximum allowable height	Outdoor unit~ Indoor unit	Height	H1: Difference of height between the outdoor unit and indoor unit → < 30m, When the outdoor unit is lower → < 25m	
	Indoor unit~ Indoor unit	Height	H2: Difference of height among the indoor units → ≤ 15m	
Maximum allowable length after the first Y-joint		Actual length	The distance between the first Y-joint and the indoor unit ≤ 30m Ex) 8 Indoor units : b+c+d+e+f+g+p ≤ 30m, 6 Indoor units : b+c+d+j ≤ 30m	
			Allowable length between EEV kit and indoor unit : less than 20m Ex) h, i, j < 20m	

Selecting the Y-joint

◆ Select the first Y-joint depending on the outdoor unit capacity.
Select the other Y-joints depending on the total capacity of attached indoor units below the selected joint individually.

Selecting the first Y-joint	
Outdoor capacity (HP)	Y-joint model
4, 5	MXJ-YA1509A
6	MXJ-YA2212A

The other Y-joint	
Total capacity of attached indoor units below this Y-joint (kW)	Y-joint model
X < 22.4	MXJ-YA1509A

Selecting additional refrigerant charge

✳ **Basic charge**
The basic amount of refrigerant for outdoor unit charged in factory is 5.5kg, and the amount for pipe is 1.2kg.

◆ Depends on the total length of the liquid side pipe.

Additional Charge (kg) = {(L_1x0.02) + (L_2x0.06)} - Basic charge for pipe

Note ◆ L1: Total length of liquid pipe Ø 6.35(m)
L2: Total length of liquid pipe Ø 9.52(m)

◆ Estimate after EEV kit (Using EEV kit)

Additional Charge (kg) = {(L_1x0.01) + (L_2x0.01)} - Basic charge for pipe

Note ◆ L1: Total length of liquid pipe Ø 6.35(m)
L2: Total length of liquid pipe Ø 9.52(m)

CAUTION

◆ ***Do not charge additional refrigerant if the estimate is less than 1.2kg.***

Keeping Refrigerant Pipe Clean and Dry

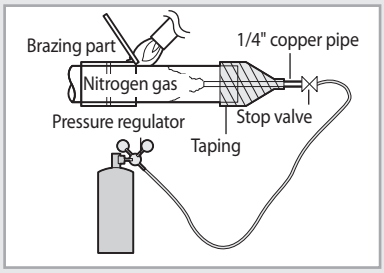
- To prevent foreign materials or water from entering the pipe, it is important to keep the refrigerant pipe and to seal it while installing.

Brazing the Pipe

- Make sure that there is no moisture inside the pipe.
- Make sure that there are no foreign materials and impurities in the pipe.

Replacement of Nitrogen gas

1 Use Nitrogen gas when brazing the pipes as shown in the picture.



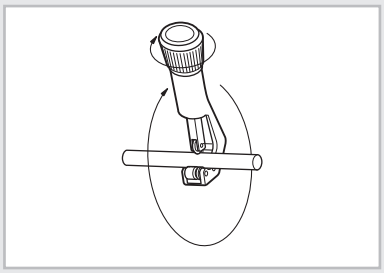
2 If you don't use Nitrogen gas when brazing the pipes, oxide may form in the pipe. It can cause the damage of the compressor, valves.

3 Adjust the flow rate of the replacement with a pressure regulator to maintain 0.05m^3/h or less.

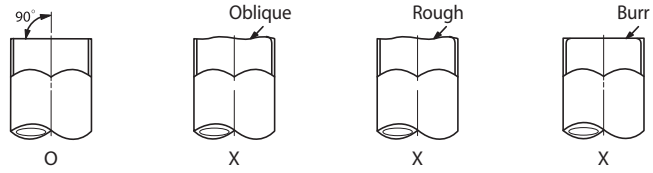
4 Perform brazing of the service valve after protecting the valve.

Cutting or Flaring the Pipes

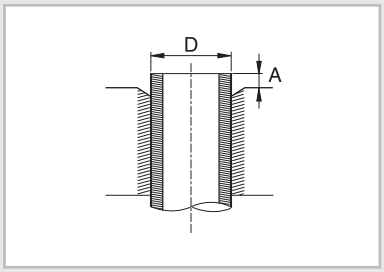
1 Make sure that you prepared the required tools. (pipe cutter, reamer, flaring tool and pipe holder)



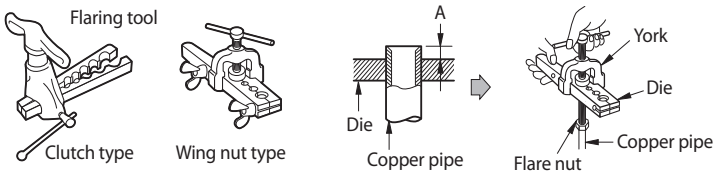
2 If you want to shorten the pipe, cut it using a pipe cutter ensuring that the cut edge remains at 90° with the side of the pipe. There are some examples of correctly and incorrectly cut edges below.



3 To prevent a gas leak, remove all burrs at the cut edge of the pipe using a reamer.

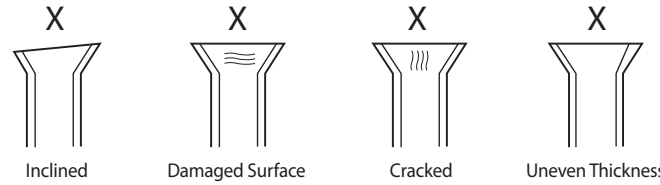


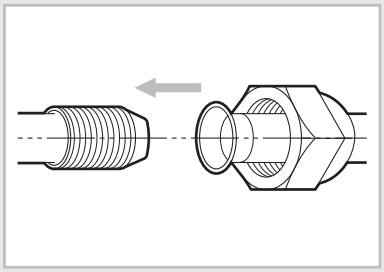
4 Carry out flaring work using flaring tool as shown below.



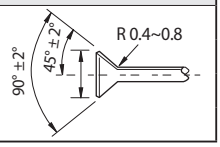
Outer diameter (mm)	A(mm)		
	Flare tool for R410A clutch type	Conventional flare tool	
		Clutch type	Wing nut type
6.35	0~0.5	1.0~1.5	1.5~2.0
9.52	0~0.5	1.0~1.5	1.5~2.0
12.70	0~0.5	1.0~1.5	1.5~2.0
15.88	0~0.5	1.0~1.5	1.5~2.0

5 Check if you flared the pipe correctly. There are some examples of incorrectly flared pipes below.





6

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

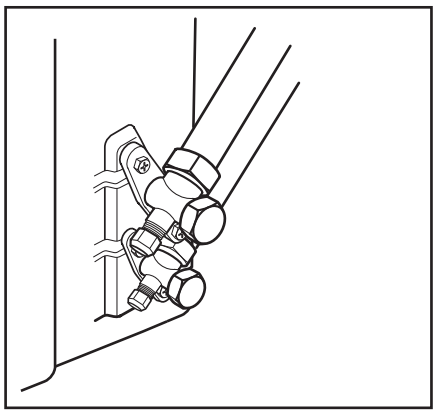
CAUTION

- ***In case of needing brazing, you must work with Nitrogen gas blowing.***

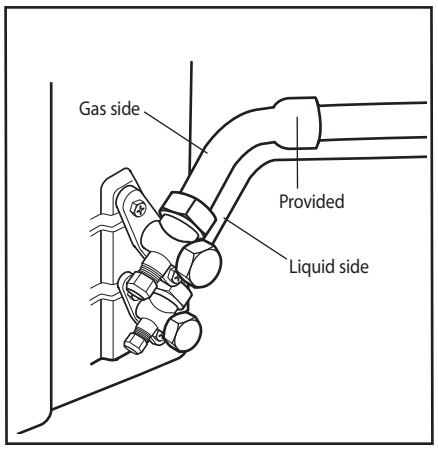
Connecting the Outdoor Unit Pipe

- Conduct a pipe work within maximum allowable length, height and length after branching.
- Make sure to have no crack an the bended part of the pipe.

4HP ~ 5HP Outdoor unit

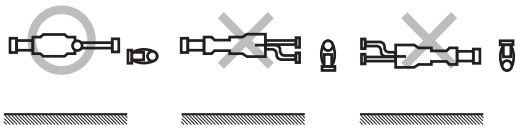


6HP Outdoor unit

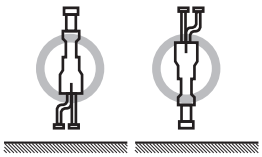


Installing the Y-Joint

- Install the Y-joint 'horizontally' or 'vertically'.



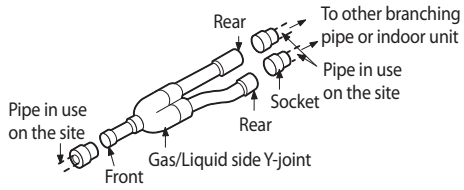
< Install horizontally>

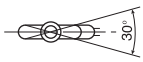


< Install vertically>

CAUTION

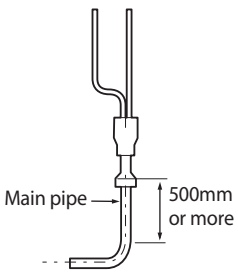
- ***Make certain of a minimum distance in straight line.***





Maintain ±15° start from the horizontal line

✳ Install the Y-joint within ±15° from the horizontal or vertical line.



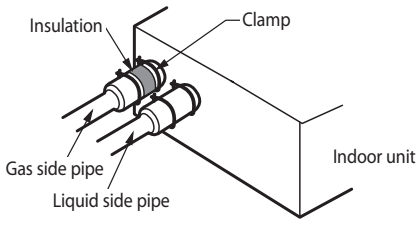
Insulating the refrigerant pipe

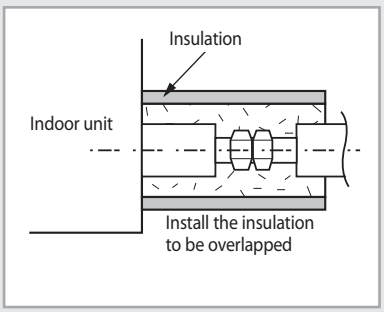
- You must check if there is a gas leak before completing all the installation process.
- Use EPDM insulation which meets the following condition.

Item	Unit	Standard	Remarks
Density	g/cm^2	0.048~0.096	KSM 3014-01
Dimension change route by heat	%	-5 or less	
Water absorption rate	g/cm^2	0.005 or less	
Thermal conductivity	kcal/m·h·˚C	0.032 or less	KSL 9016-95
Moisture transpiration factor	ng/(m^2·s·Pa)	15 or less	KSM 3808-03
Moisture transpiration grade	{g/(m^2·24h)}	15 or less	KSA 1013-01
Formaldehyde dispersion	mg/L	-	KSF 3200-02
Oxygen rate	%	25 or less	ISO 4589-2-96

Insulating the refrigerant pipe

- Be sure to insulate the refrigerant pipe, joints and connections with class 'o' material.
- If you insulate the pipes, the condensed water does not fall from the pipes and the capacity of the air conditioner is improved.
- Check if there are any insulation cracks on the bent pipe.

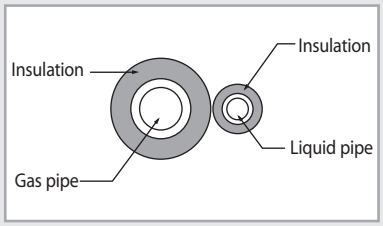


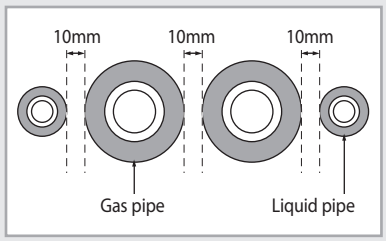


Selecting the insulation of the refrigerant pipe

- Insulate the gas side and liquid side pipe referring to the thickness according to the pipe size.
- The thickness according to the pipe size is a standard of the indoor temperature of 27°C and humidity of 80%. If installing in an unfavorable conditions from it, use thicker one.

Pipe size (mm)	Minimum thickness of insulation (mm)		Remarks
	PE foam	EPDM foam	
ø6.35~ø19.05	13	10	If you install the pipe underground, at the seaside, a spa or on the lake, use thicker one according to the pipe size.
-	19	13	





Refrigerant pipe before EEV kit or without EEV kit

- You can contact the gas side and liquid side pipes but the insulation should not be pressed.
- When contacting the gas side and liquid side pipe, use thicker insulation.

Refrigerant pipe after EEV kit

- When installing the gas side and liquid side pipes, leave 10mm of space.
- When contacting the gas side and liquid side pipe, use thicker insulation.

CAUTION

- ***Install the insulation not to be get wider and use the adhesives on the connection part of it to prevent moisture entering.***
- ***Wind the refrigerant pipe with insulation tape if it is exposed to outside sunlight.***
- ***Install the refrigerant pipe respecting that the insulation does not get thinner on the bent part or hanger of pipe.***

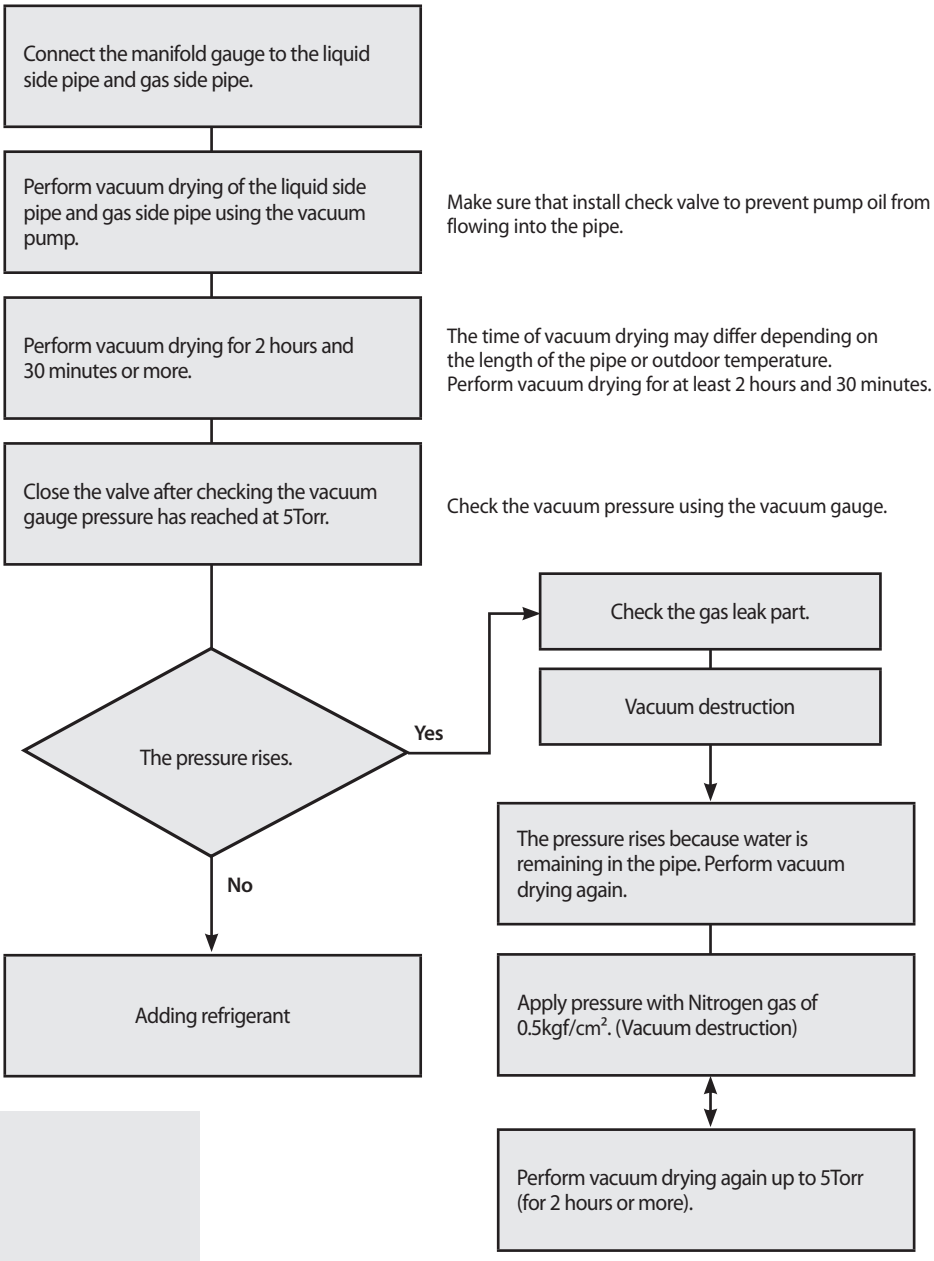
Performing the Refrigerant Gas Leak Test

- Use tools for R410A to prevent the inflow of foreign substances and resist against the internal pressure.
- Pressure test with dry Nitrogen gas only.

Apply pressure to the liquid side pipe and gas side pipe with Nitrogen gas of 38kgf/cm^2	If you apply pressure more than 38kgf/cm^2, the pipes may be damaged. Apply pressure using pressure regulator.
Keep it for minimum 24 hours to check if the pressure drops.	After applying Nitrogen gas, check the change of pressure using pressure regulator.
If the pressure drops, check if there's gas leak.	If the pressure is changed, apply soapy water to check the leak. Check the pressure of the Nitrogen gas again.
Maintain 10kgf/cm^2 of the pressure before performing vacuum drying and check further gas leak.	After checking first gas leak, maintain 10kgf/cm^2 to check further gas leak.

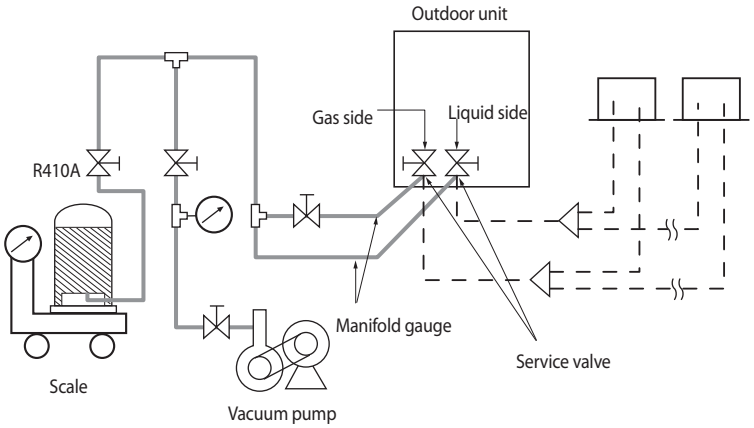
Vacuum Drying

- Use the tools for R410A to prevent the inflow of foreign substances and resist against the internal pressure.
- Vacuum system to 5Torr.
- Use the vacuum pump with the check valve to prevent pump oil from flowing backward while the vacuum pump is stopped.
- Close the service valve of the liquid side pipe and gas side pipe completely.



Adding Refrigerant

- The R410A refrigerant is blended refrigerant. Add only liquid refrigerant.
- Measure the quantity of the refrigerant depending on the length of the liquid side pipe. Add fixed quantity of the refrigerant using a scale.



- Open the manifold gauge valve of the liquid side service valve and add the liquid refrigerant.
- If you cannot add the whole quantity of the refrigerant while the outdoor unit is stopped, open the gas side and liquid side service valve. Add remaining refrigerant by pressing the refrigerant adding button of the outdoor PCB.

CAUTION

- ***Open the gas side and liquid side service valve completely after charging the refrigerant. (If you operate the air conditioner with the service valve closed, the important parts may be damaged.)***

Important information regulation regarding the refrigerant used

This product contains fluorinated greenhouse gases covered by the Kyoto Protocol. Do not vent gases into the atmosphere.

Please fill in with indelible ink,

- ① the factory refrigerant charge of the product,
- ② the additional refrigerant amount charged in the field and
- ①+② the total refrigerant charge.

on the refrigerant charge label supplied with the product.

Note

a. Factory refrigerant charge of the product: see unit name plate

b. Additional refrigerant amount charged in the field
(Refer to the above information for the quantity of refrigerant replenishment.)

c. Total refrigerant charge

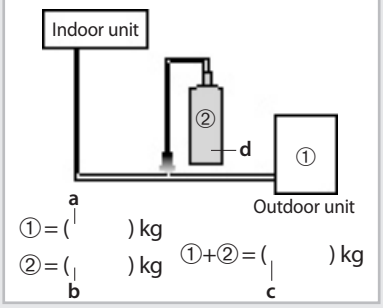
d. Refrigerant cylinder and manifold for charging

➢ ***The filled-out label must be adhered in the proximity of the product charging port (e.g. onto the inside of the stop valve cover).***

Refrigerant type	GWP value
R410A	1975

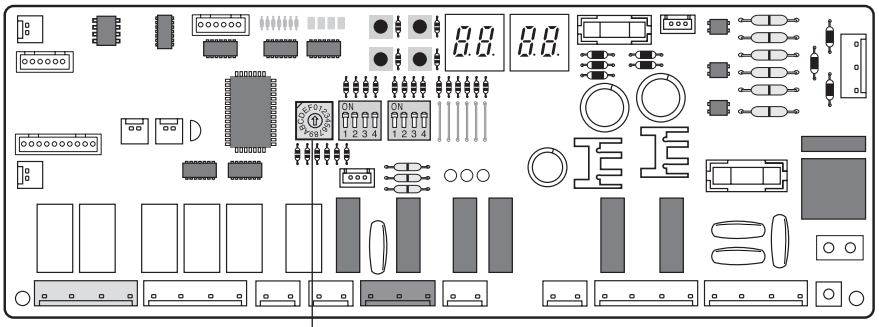
❊ GWP=Global Warming Potential

Contains fluorinated greenhouse gases covered by the Kyoto Protocol.



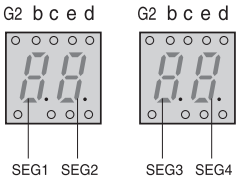
Setting the Option Switch and Function of the Keys

Option switches in PCB of the outdoor unit

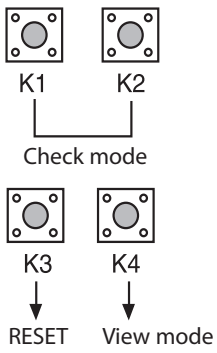


Key function of the outdoor unit PCB

※ Display



※ KEY



※ Function of KEY

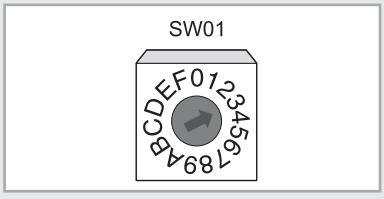
Function / Number of press times	KEY 1 (Displayed on SEG 3, 4)	KEY 2 (Displayed on SEG 3, 4)	KEY 3 (Displayed on SEG 3, 4)	KEY 4 (Displayed on SEG 3, 4)
1	Adding refrigerant in heating mode (H1)	Adding refrigerant in cooling mode (H3)	Reset	View mode
2	Test operation for heating mode (H2)	Test operation for cooling mode (H4)	-	-
3	End	Pump Down for recovery of refrigerant(H5)	-	-
4	-	End	-	-

- Adding refrigerant (H1, H3): The operation for charging additional refrigerant
- Test operation (H2, H4): Checking the indoor and outdoor unit operation
- Recovery of refrigerant (H5): Operation for collecting refrigerant to the outdoor unit when moving or repairing the outdoor unit .

Setting a switch number of the indoor unit

Number of the indoor unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Number of the switch	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	0

✳ For example: Set the switch to '3' if 3 indoor units are installed.

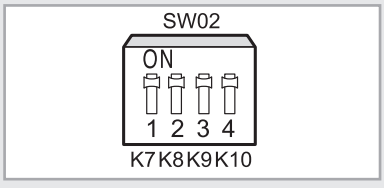


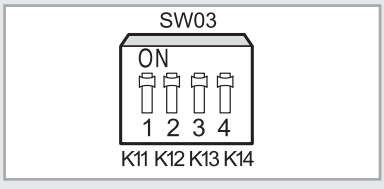
Setting the option switch of the outdoor unit

◆ The option switch is set to 'ON' when shipping.
Set the option switch 'OFF' when you select the mode.

#		Function	Switch ON	Switch OFF
SW03	4	Set the indoor unit address Automatically/ Manually	Set the address manually	Set the address automatically

Note ◆ If you select SW03 #4 to 'OFF', you do not need to set main address of each indoor unit.





Completing the Installation

◆ Check the following after completing the installation.

Installation	Outdoor unit	• Check the external surface and the inside of the outdoor unit. • Is there any possibility of short circuit? • Is the place well-ventilated and ensures space for service? • Is the outdoor unit fixed securely?
	Indoor unit	• Check the external surface and the inside of the indoor unit. • Is the place well-ventilated and ensures space for service? • Check if the center of the indoor unit is ensured and it is installed horizontally.
Adding refrigerant		• Is total number of connecting indoor units in the allowable range? • Are the length and the difference between the refrigerant pipes within the allowable range? • Is the Y-joint properly installed? • Is the pipe properly insulated? • Is the quantity of the additional refrigerant correctly weighed in?
Installing the drain pipe		• Check the drain pipe of the outdoor unit and the indoor unit. • Have you completed the drain test? • Is the drain pipe properly insulated?
Installing the wiring		• Have you performed the earthing work 3 to the outdoor unit? • Is 2-core cable used? • Is the length of the wire is in the limited range? • Is the wiring route correct?
Setting ADDRESS		• Are the ADDRESSES of the indoor and outdoor unit properly set?

Final Checks and Trial Operation

CAUTION

- ***Turn the circuit breaker on 6 hours before initial operation so the crank case heater can be heated enough to start the system.***
- ***If the heater is not heated, the air conditioner does not operate for 2 hours and 30 minutes to protect the compressor. ('CH' is displayed on the PCB display of the outdoor unit)***

Inspection before test operation

1 Check the power cable and communication cable of the indoor and outdoor unit.

2 Turn the circuit breaker(3 phases and 1 phase) on 6 hours before initial operation so that the crank case heater can be heated.

3 Check the power supply between the outdoor unit and the cabinet panel.
- Check the 3 phase power of the compressor {L1(Red), L2(White), L3(Black)} by the 3 phase tester.
- Check the 220V power with the voltage meter.

4 Once the outdoor unit is turned on, it performs the tracking to check the connected indoor unit and options.

Test operation

1 Run the unit by KEY MODE or controller.
- 1st- Running all indoor units by KEY MODE
  2nd- Each indoor unit run separately by controller
- Inspect the compressor sound during the initial operation.
  If roaring sound is heard, stop operation.
- If roaring sound is heard and the pressure does not change, the back-lashing of the compressor may occur.
  Check the power supply of the compressor. If the problem occurs continuously, check the compressor power cable.
  {3 phase:T1(L1)(R)-Red, T2(L2)(S)-White, T3(L3)(T)-Black,
  single phase: (R)-Red, (S)-White, (C)-Black}

2 Check the indoor and outdoor units' running status.
- Check indoor unit cooling and heating air flow
- Each indoor unit controls: air flow direction, air velocity
- Indoor and outdoor unit's abnormal running noise
- Proper drainage from indoor unit in cooling mode
- Check detail running status using S-NET program.

3 Finish test.

4 Explain to the customer how to use the air conditioner following the user's manual.

SAMSUNG

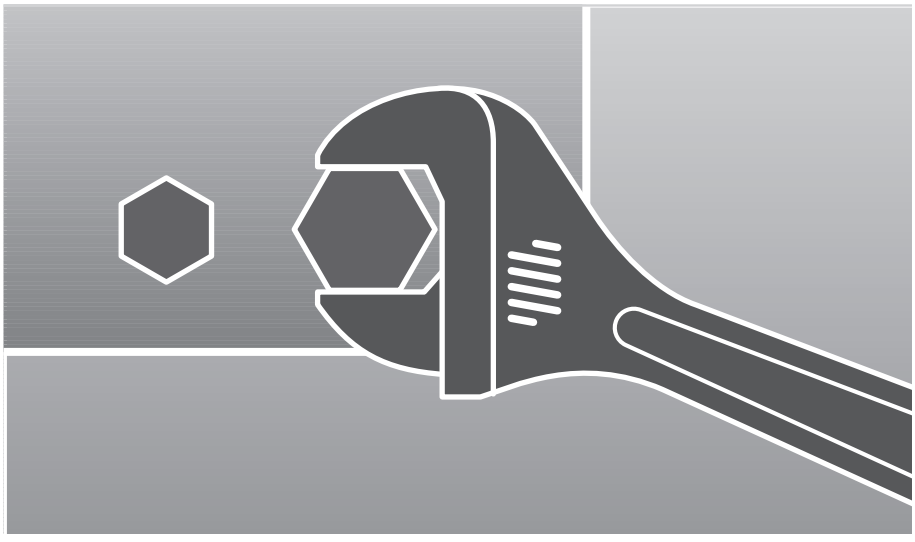
ELECTRONICS

INSTALLATION MANUAL

RVXMHF040E Series
RVXMHF050E Series
RVXMHF050G Series
RVXMHF060G Series

ENGLISH
ESPAÑOL
FRANÇAIS
ITALIANO
DEUTSCH

Air Conditioner R410A



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