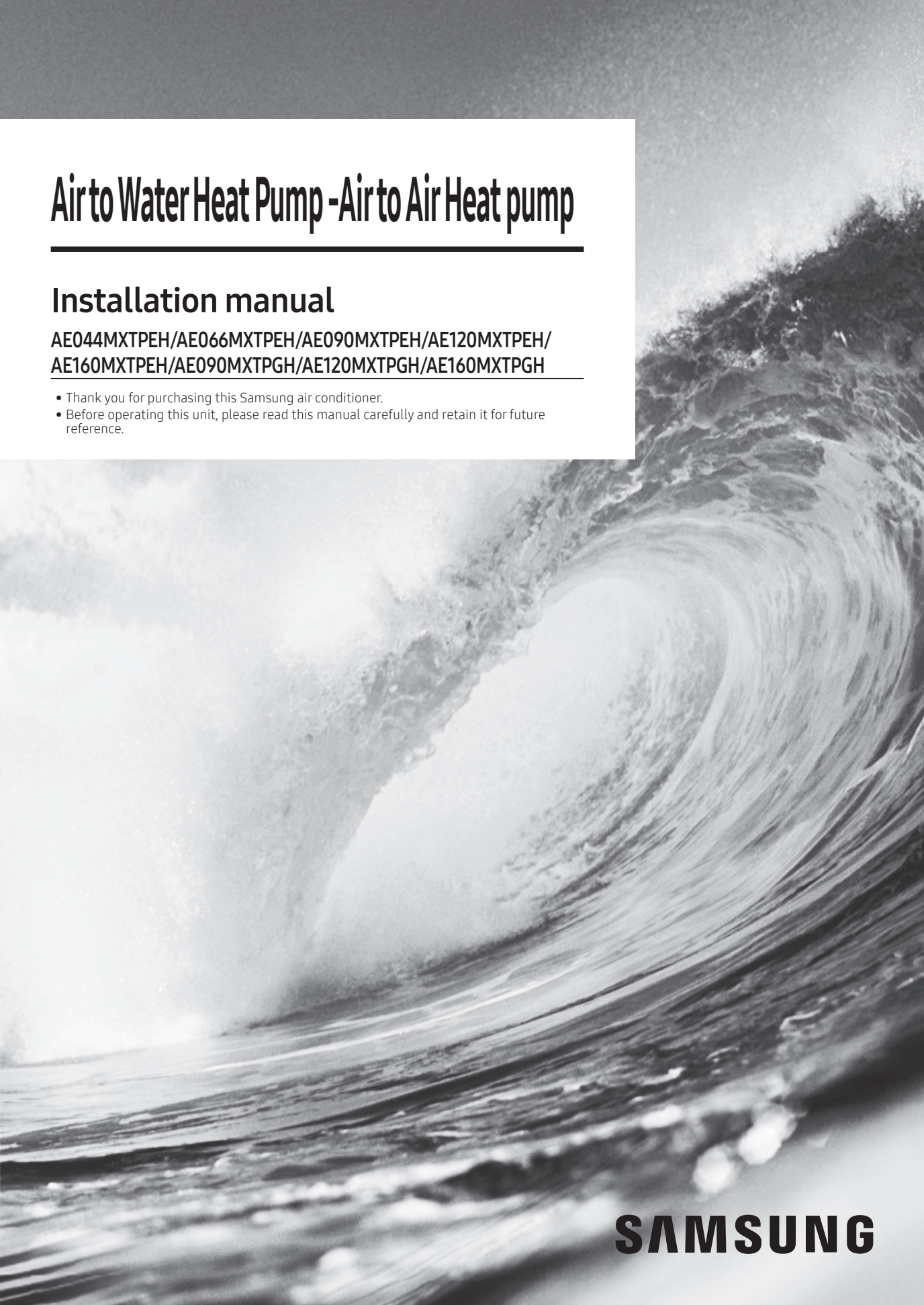
Air to Water Heat Pump -Air to Air Heat pump

Installation manual

AE044MXTPEH/AE066MXTPEH/AE090MXTPEH/AE120MXTPEH/
AE160MXTPEH/AE090MXTPGH/AE120MXTPGH/AE160MXTPGH

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



SAMSUNG

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Correct Disposal of This Product
(Waste Electrical & Electronic Equipment)

(Applicable in countries with separate collection systems)

This marking on the product, accessories or literature indicates that the product and its electronic accessories (e.g. charger, headset, USB cable) should not be disposed of with other household waste at the end of their working life. To prevent possible harm to the environment or human health from uncontrolled waste disposal, please separate these items from other types of waste and recycle them responsibly to promote the sustainable reuse of material resources.

Household users should contact either the retailer where they purchased this product, or their local government office, for details of where and how they can take these items for environmentally safe recycling.

Business users should contact their supplier and check the terms and conditions of the purchase contract. This product and its electronic accessories should not be mixed with other commercial wastes for disposal.

For information on Samsung's environmental commitments and product regulatory obligations, e.g. REACH, visit our sustainability page available via www.samsung.com

Safety Precautions

- You must install the product by qualified installer. If you install the product on your own or by unqualified person, Samsung is not responsible for any damages which may occur due to incorrect installation.
- Make sure to read the following safety precautions carefully before installation.
- Make sure to observe the cautions specified in this manual.
- Conduct a test run of the unit after installation and then explain all system functions to the owner.
- Follow IEC (International Electrotechnical Commission) standards for the power input and ISO (International Standards Organization) standards for input current.
- R410A refrigerant is used for Air to Water Heat pump.
  - 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 4.1 MPa (41.8 kgf/cm²). 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.)
- When installing, use tools and materials for R410A only. If you use tools and materials for R22, there is potential risk of bursting, injury, electric shock and fire because the pressure of R410A is higher than the pressure of R22(conventional).

⚠ WARNING

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

- Installation must be carried out by a qualified installer. Do not attempt to repair, move, modify or reinstall the unit on your own since such act may cause fire, electric shock or water leakage.
- Install the unit in a place where it is strong enough to hold the product weight. When installed in place where it is not strong enough to withhold the product weight, the unit could fall and cause injury.
- The unit should be installed in accordance with the National Electrical regulations. Check if the voltage and the frequency of the main power supply are those required for the unit to be installed and check the connection. Do not share the power outlet with other appliances. Incomplete connection, defective insulation or exceeding the permissible current may cause electric shock or fire.
- Use the specified wires to connect the indoor and outdoor units securely and attach the wires firmly to the terminal block connecting sections so that the pressure is not applied to the sections. Inappropriate connection and fixing could cause fire.
- Attach the electrical cover to the indoor and outdoor unit securely without any gaps. If there are any gaps, there is potential risk of fire or electric shock due to dust or water.
- Make sure to use the part provided or specified parts for the installation work. The use of defective parts could cause an injury or leakage of water due to a fire, an electric shock, the unit falling, etc.
- Make sure that the refrigerant gas does not leak after completing the installation. If the refrigerant gas of the indoor unit leaks and comes into contact with the fan heater, space heater or stove, harmful gas will be generated.
- Ensure that the national safety code requirements have been followed for the main supply circuit. Ensure that a proper ground wire is in place. Do not connect the ground to a gas pipe, water pipe, lightning rod or telephone grounding. Defective grounding could cause electric shock.

Safety Precautions

- Do not install the unit in a place with direct sunlight, dangerous substances or where it is exposed to inflammable gas leakage to prevent explosion, fire or personal injury.
- Perform the installation securely referring to the installation manual. Incomplete installation could cause personal injury due to fire, electric shock and water leakage or from the unit falling.
- Check first the following situations before starting the operation during the installation.
  - The pipe must be properly connected and make sure there is no leakage.
  - Service valves must be open. If compressor is operated with the service valve closed, excessive pressure may damage parts of the compressor. If leakage occurs on any of the connection, air inflow may also cause excessive pressure that could lead to explosion.
- Stop the compressor before disconnecting the refrigerant pipe for pump-down operation. If you disconnect the refrigerant pipe while compressor is operating with service valve open, air inflow will cause excessive pressure in the refrigerant cycle that could lead to explosion and personal injury.
- Be sure not to perform power cable modification, extension wiring, and multiple wire connection.
  - It may cause electric shock or fire due to poor connection, poor insulation, or current limit override.
  - When extension wiring is required due to power line damage, refer to "How to connect your extended power cables" in the installation manual.
- Make sure to turn off the main power when setting up the indoor unit electrical circuit or power cords. There is a risk of electric shock.
- Make sure that proper circuit breaker and safety switches are installed. Install a ground leakage breaker depending on the installation place (where it is humid). If not, it may cause electric shock.
- Do not install the unit by yourself (owners). Incorrect installation of the unit could cause injury due to fire, electric shock and water leakage or from the unit falling. Consult a dealer or a qualified installer.
- Use the unit on a single outlet circuit. Do not share the power outlet with other appliances. Obtain the consent by a qualified installer before connecting the unit to the power supply system. An all pole disconnection from the power supply must be incorporated in the fixed wiring with a contact opening of >3mm.
- Manufacturer is not responsible for accidents due to incorrect installation.
- When you install the Air to water heat pump 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.
- 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.
- If any gas or impurities except R410A refrigerant come into the refrigerant pipe, serious problem may occur and it may cause injury.
- 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.
- Wear protective equipment (such as safety gloves, goggles, and headgear) during installation and maintenance works. Installation/repair technicians may be injured if protective equipment is not properly equipped.
- 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 ; Young children should be supervised to ensure that they do not play with the appliance.
- For use in Europe : This appliance can be used by children aged from 8 years and above and persons with reduced physical,sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved. Children shall not play with the appliance. Cleaning and user maintenance shall not be made by children without supervision.

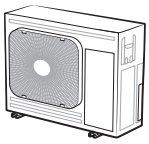
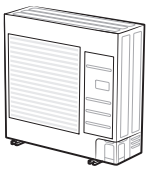
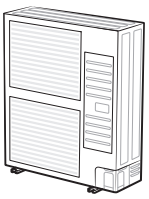
⚠ CAUTION

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

- Perform the drainage/piping work securely according to the installation manual. If not, water could drop from the unit and household goods could get wet and damaged.
- Fasten a flare nut with a torque wrench as specified in this installation manual. When fastened too tight, a flare nut may break after a long period of time and cause refrigerant leakage.
- Wear thick gloves during the installation process. If not, personal injury may occur due to the Air to water heat pump parts.
- Be careful not to touch the outdoor unit inlet or aluminum pins. You may get personal injury.
- Do not install the outdoor unit in a place where animals could live. If an animal get contact with the electric parts, damage or fire may occur. In addition ask the customer to maintain a clean installation place around it.
- After completing the installation run the trial operation. If no error occurs, explain to the customer how to use and clean the Air to water heat pump according to the user's manual. In addition give the installation manual and the user's manual to the customer.
- Check the unit for damage that may have taken place during transportation and do not install or use damaged equipment.
- All of the manufacturing and packaging material used for your new appliance are compatible with the environment and can be recycled.
- Dispose of the packaging material in accordance with the local requirements.
- This product is an air conditioning system and contains a coolant that must be recovered and disposed of in an appropriate way by qualified personnel. At the end of the life cycle, take it to a proper recycling or disposal center or return it to the dealer so that it can be disposed correctly.
- Do not connect the heater to the outdoor unit and do not install remodeled duct as you please.
  - The capacity of the Air to water heat pump 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 1.5m away from electric appliances.
  - Noise may hear 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 controller, it may not operate normally.

Product Specification

Shape of the outdoor unit

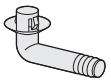
Model Name	AE044MXTPEH AE066MXTPEH	AE090MXTPEH AE090MXTPGH	AE120MXTPEH AE160MXTPEH AE120MXTPGH AE160MXTPGH
Shape			

Outdoor	Weight(net) (kg)	Dimensions (net) (mm)
AE044MXTPEH	59.5	880 x 793 x 310
AE066MXTPEH	59.5	880 x 793 x 310
AE090MXTPEH	74	940 x 998 x 330
AE090MXTPGH	76	940 x 998 x 330
AE120MXTPEH AE120MXTPGH AE160MXTPEH AE160MXTPGH	107	940 x 1,420 x 330

Accessories

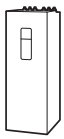
- Keep supplied accessories until the installation is finished.
- Hand the installation manual over to the customer after finishing installation.
- The quantities are indicated in parentheses.

Installation manual (1)	Rubber-leg (4)
	

Drain plug	
AE044/066✳	AE090/120/160✳
1	2
	

Drain cap	
AE044/066✳	AE090/120/160✳
3	5
	

Product compatibility

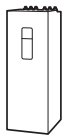
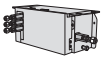
Outdoor unit \ Indoor unit		Slim Duct	MSP Duct	RAC	Console	Hydro Unit	Tank Integrated Hydro Units
							
		2.2~5.6kW	3.6~9kW	2.2~7.1kW	2.2~5.6kW	9/16kW	200~260L
Classification	Features						
	- Heat pump for heating and hot water system [Eco Heating Full System] - Outdoor unit: 4.4/6.6/9/12/16 kW - Long pipe reliability: 75m	AE022MNLDEH AE028MNLDEH AE036MNLDEH AE056MNLDEH AE022ANLDEH AE028ANLDEH AE036ANLDEH AE056ANLDEH	AE071MNMPEH AE090MNMPEH AE071ANMPEH AE090ANMPEH AE036BNMPEH AE056BNMPEH	AE022TNXDEH AE028TNXDEH AE036TNXDEH AE056TNXDEH AE071TNXDEH	AE022MNJDEH AE028MNJDEH AE036MNJDEH AE056MNJDEH	AE090MNYDEH AE160MNYDEH AE090MNYDGH AE160MNYDGH AE090BNYDEH AE090BNYDGH AE160BNYDEH AE160BNYDGH	AE200TNWTEH AE260TNWTEH

NOTE

- AE✻✻✻MXTP✻H and above EHS TDM Indoor units are applicable for EHS products only. They are not compatible with EHS Split Hydro unit, CAC, DVM and FJM products.
- A2W: Air to Water, A2A: Air to Air

Product Specification

Subsidiary materials compatibility

Subsidiary materials \ Indoor unit		Slim Duct	MSP Duct	RAC	Console	Hydro Unit	Tank Integrated Hydro Units	Remark
								
		2.2~5.6kW	3.6~9kW	2.2~7.1kW	2.2~5.6kW	9/16kW	200~260L	
EEV Kit	 EEV Kit for 1/2/3 room	-	-	MEV-E24SA MEV-E32SA MXD-E24K132A MXD-E24K200A MXD-E24K232A MXD-E24K300A MXD-E32K200A MXD-E32K224A MXD-E32K300A	-	-	-	Requisite
Y-joint		MXJ-YA1509M (≤15.0kW and below)						Requisite
Drain Pump		AE**AN**: MDP-Z075SZCD (Option, Internal Type) AE**MN**: MDP-E075SEE3D (Option, Internal Type)	MDP-G075SP (Option, External Type) MDP-G075SQ (Option, Internal Type)	-	-	-	-	
Wireless remote controller		MR-EH00 (Option)		AR-EH03E (Included)	MR-EH00 (Included)	-	-	
Remote controller receive kit		MRK-A10N (Option)		-	-	-	-	
Wired remote controller		MWR-WE10N (Option)		-	-	MWR-WW00N (Included)	-	
Wired remote controller		-		-	-	-	MWR-WW10N (Option)	

NOTE

- Subsidiary materials are compatible with DVM products.
- EEV KIT : Required installation. It is not included inside of product. Install distribution kit for 1, 2 or 3 indoor on the ceiling or outdoor area.
- A2W: Air to Water, A2A: Air to Air

Locating the Units

Deciding on Where to Install the Outdoor Unit

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

- The outdoor unit must not be placed on its side or upside down, as the compressor lubrication oil will run into the cooling circuit and seriously damage the unit.
- Choose a location that is dry and sunny, but not exposed to direct sunlight or strong winds.
- Do not block any passageways or thoroughfares.
- Choose a location where the noise of the Air to water heat pump when running and the discharged air do not disturb any neighbours.
- Choose a position that enables the pipes and cables to be easily connected to the indoor unit.
- Install the outdoor unit on a flat, stable surface that can support its weight and does not generate any unnecessary noise and vibration.
- Position the outdoor unit so that the air flow is directed towards the open area.
- Place the outdoor unit where there are no plants and animals because they may cause malfunction of outdoor unit.
- Maintain sufficient clearance around the outdoor unit, especially from a radio, computer, stereo system, etc.
- Installation Guide at the seashore

  Make sure to follow below guides when installing at the seashore.

  1. Do not install the product in a place where it is directly exposed to sea water and sea breeze.

  - Make sure to install the product behind a structure (such as building) that can block see breeze.

  - Even when it is inevitable to install the product in seashore, make sure that product is not directly exposed to sea breeze by installing a protection wall.

  2. Consider that the salinity particles clinging to the external panels should be sufficiently washed out.

  3. Because the residual water at the bottom of the outdoor unit significantly promotes corrosion, make sure that the slope does not disturb drainage.

  - Keep the floor level so that rain does not accumulate.

  - Be careful not to block the drain hole due to foreign substance.

  4. When product is installed in seashore, periodically clean it with water to remove attached salinity.

  5. Make sure to install the product in a place that provides smooth water drainage.

  Especially, ensure that the base part has good drainage.

  6. If the product is damaged during the installation or maintenance, make sure to repair it.

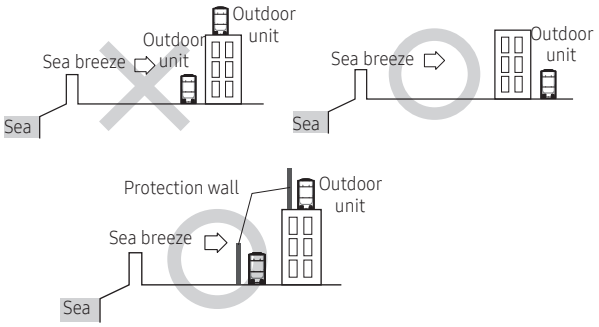
  7. Check the condition of the product periodically.

  - Check the installation site every 3 months and perform anti-corrosion treatment such as R-Pro supplied by SAMSUNG (Code : MOK-220SA) or commercial water repellent grease and wax, etc., based on the product condition.

  - When the product is to be shut down for a long period of time, such as off-peak hours, take appropriate measures like covering the product.

  8. If the product installed within 500m of seashore, special anti-corrosion treatment is required.

  ※ Please contact your local SAMSUNG representative for further details.



Protection wall should be constructed with a solid material that can block the sea breeze and the height and width of the wall should be 1.5 times larger than the size of the outdoor unit.(You must secure more than 700 mm of space between the protection wall and the outdoor unit for air circulation.)

- Do not install the Air to Water Heat pump 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 to Water Heat pump 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 danger of existing combustible gas, carbon fiber or flammable dust. The place where thinner or gasoline is handled.

Locating the Units

⚠ CAUTION

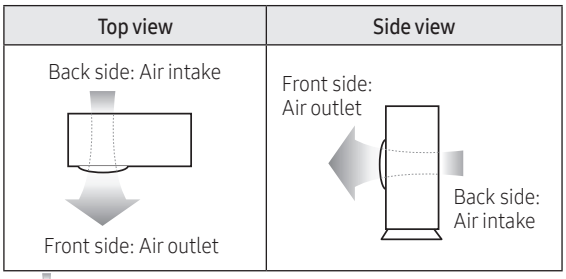
- Do not install the outdoor unit in a snowy and cold area (low temperature and high humidity area - where the temperature is below -7 °C and humidity is higher than 85%) because according to operation condition (defrost, etc.), ice may be formed in the drain route. If the ice is accumulated, it may cause critical damage to the product. (ex) lakeside of cold area in winter time, seashore, alpine region and etc.)
- You have just purchased Air to Water Heat pump and it has been installed by your installation specialist.
- This device must be installed according to the national electrical rules.
- With an outdoor unit having net weight upper than 60kg, we suggest do not install it suspended on wall, but considering floor standing one.

- 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 intake 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 to water heat pump may be inefficient.
- SAMSUNG logo is attached on the front side of the outdoor unit.

Figure Description

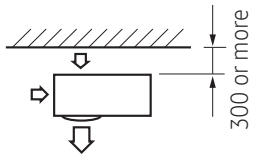


- , Air flow direction.

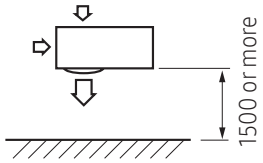
When installing 1 outdoor unit

(Unit: mm)

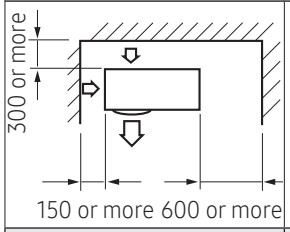
When the air outlet is opposite the wall



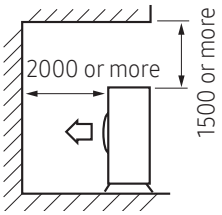
When the air outlet is toward the wall



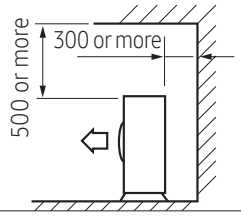
When 3 sides of the outdoor unit are blocked by the wall



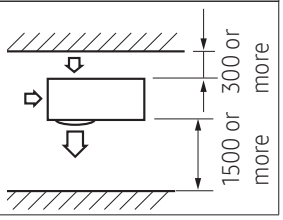
The upper part of the outdoor unit and the air outlet is toward the wall



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



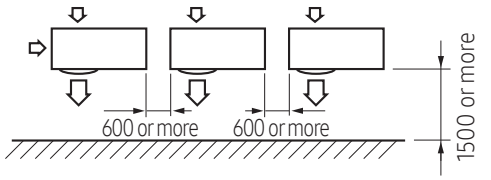
When the walls are blocking front and the rear side of the outdoor unit



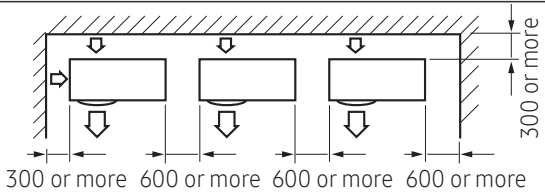
When installing more than 1 outdoor unit

(Unit: mm)

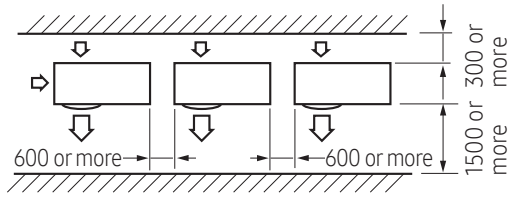
When the air outlet is toward the wall



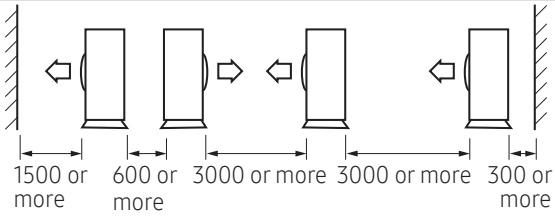
When 3 sides of the outdoor unit are blocked by the wall



When the walls are blocking front and the rear side of the outdoor units



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



Locating the Units

Combinations (Outdoor / indoor units)

Outdoor unit	Cooling capacity (kW)	Maximum allowable connections for indoor units (Not including Hydro-A2W)	Total capacity of connected indoor units (kW)
AE044MXTPEH	5.1	2	2.6~5.1
AE066MXTPEH	6.7	3	3.4~6.7
AE090MXTPEH	8.0	4	4.0~8.0
AE120MXTPEH	12.0	5	6.0~12.0
AE160MXTPEH	14.5	7	7.3~14.5
AE090MXTPGH	8.0	4	4.0~8.0
AE120MXTPGH	12.0	5	6.0~12.0
AE160MXTPGH	14.5	7	7.3~14.5

- Available for max 7 indoor units.
- When considering the system capacity of allowable indoor units, follow the table above.

Tools Required for Installation

General Tools

- Vacuum Pump (Backward flowing prevention)
- Manifold Gauge
- Stud Finder
- Torque Wrench
- Pipe Cutter
- Reamer
- Pipe Bender
- Spirit Level
- Screw Driver
- Spanner
- Drill
- L Wrench
- Measuring Tape

Tools for test operations

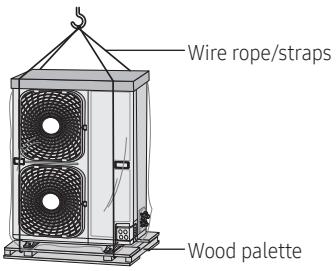
- Thermometer
- Resistance Meter
- Electroscope

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.

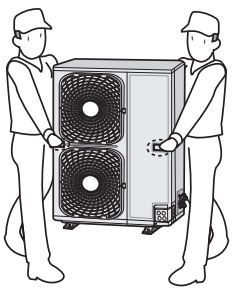
When moving with a crane or straps

- In case of placing the outdoor unit on a high ground such as rooftop
  - Fasten the wire rope as seen in the picture.
  - Move the product with its package on, to prevent any damages caused by the rope.



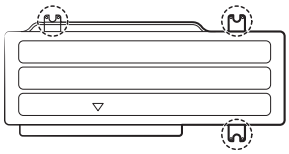
When moving by installation personnel

- When the moving distance of the product is close enough for installation personnel to carry.
  - 2 people should move the product using the carry handle as shown in the picture.
  - Be careful not to damage the heat exchanger.
  - Be careful not to get injured by the sharp edge of the heat exchanger.



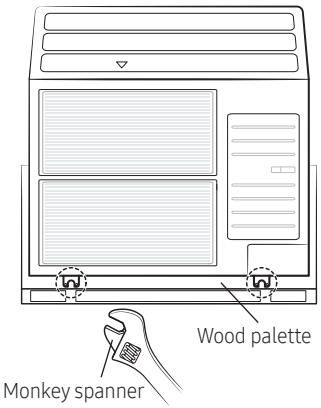
Disassembling the Leg Base and Wood Palette / Fastening the Anchor Bolt

1 Disassemble the three screws (with an electric driver) which fixes wood palette.



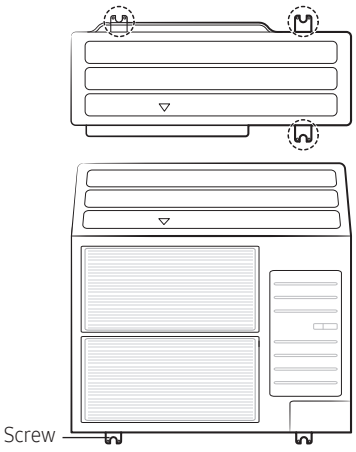
2 Disassemble the bottom-left screw with monkey spanner.

- Do not remove guard fan.



3 After removing the wood palette, move the outdoor unit to the installation place.

4 Fasten the bottom-left screw with monkey spanner first, and then fasten the other three anchor bolts.



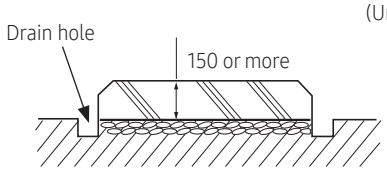
Installing the Outdoor Unit

⚠ CAUTION

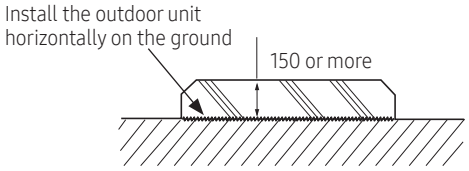
- Do not install the outdoor unit on a wooden pallet palette.
- Fix the outdoor unit completely to the base fix the outdoor unit with anchor bolts.
- The manufacturer is not responsible for the damage occurred by not keeping standard of the installation.

- Install the outdoor unit higher than 150mm from the base surface and install the drain hole to connect the pipe to the drainage.
- If front fan outdoor unit is installed where average snow fall is 150mm or more, a duct should be fitted to the 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 patch may form on the base surface in winter.)
- 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.

(Unit : mm)



‹ When installing on the ground ›

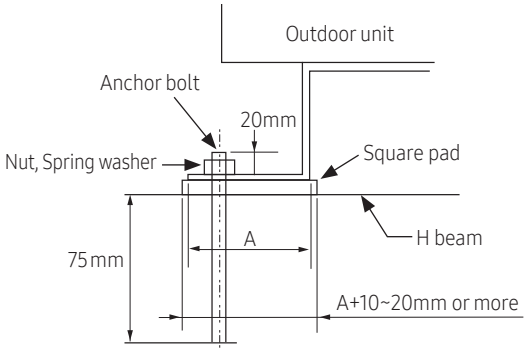


‹ When installing on the roof ›

※ Base mount construction

Locating the Units

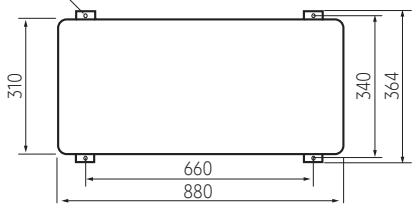
- Place the outdoor unit on the H beam and fix it with the bolt, nut and washer.



Outdoor unit base mount and anchor bolt position

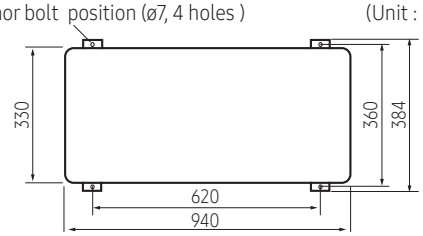
- 4.4/6.6kW

Anchor bolt position (ø7, 4 holes) (Unit : mm)



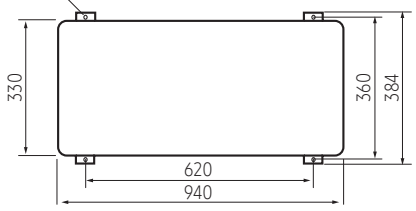
- 9kW

Anchor bolt position (ø7, 4 holes) (Unit : mm)



- 12/16kW

Anchor bolt position (ø7, 4 holes) (Unit : mm)



⚠ CAUTION

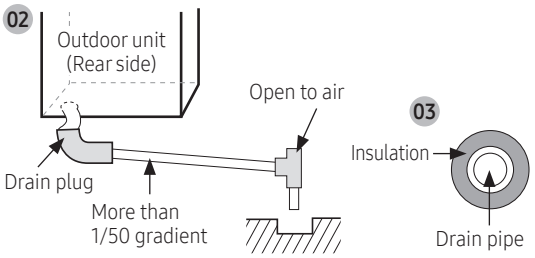
When tightening the anchor bolt

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

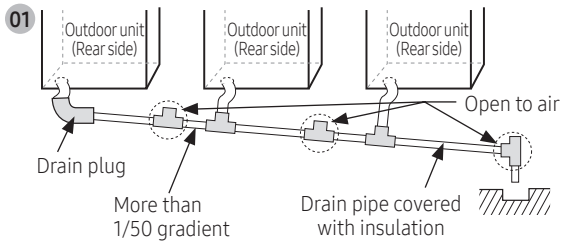


Installing the drain pipe

- When installing 1 outdoor unit



- When installing more than 1 outdoor unit



01 Open the upside of connected parts of outdoor units to prevent inner pressure.

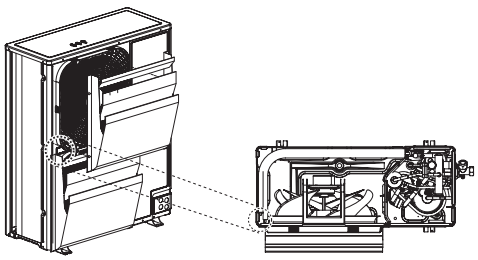
02 Do not install a trap in the drain pipe work and install with a 1/50 gradient or more.

03 Insulate the drain pipe and drain plug by using the insulation over 10mm.

04 Install a self-regulation heat cable to prevent the drain pipe from freezing.

Caution When Installing Cover for Heating Air Direction Change

- Parts shown in the picture is where the copper pipe may be passing by or the external plate may be near the copper pipe. When using screw for installing the air direction changing device such as heating air cover, check and make sure that it does not damage the copper pipe.



‹ Internal view from bottom›

INSTALLATION

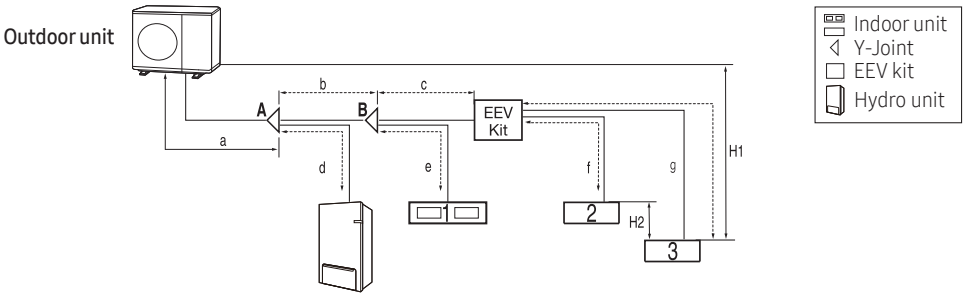
Installing the Refrigerant Pipe Work

- 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 Where there is no harmful ion, oxide, dust, iron content or moisture.
- Use adequate tools and accessories for 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 5 Torr (666.6Pa , 0.0067 kgf/cm², 5 mmHg)
Flare nut	• Use only flare nut supplied with the product.

Allowable Length of the Refrigerant Pipe and the Installation Examples

AE044MXTPEH/AE066MXTPEH



Item				Example	Remarks
Maximum allowable length of pipe	Outdoor unit ~ Indoor units	Longest piping length	Less than 30m	a+b+c+g ≤ 30m	
		Equivalent length	Less than 40m	Y-joint and EEV kit : 0.5m	
		Total length	Less than 75m	a+b+c+d+e+f+g ≤ 75 m	5m ≤ Total length ≤ 75m
Maximum allowable height	Outdoor unit ~ Indoor units	Less than 20m		H1	If outdoor unit is located lower position H1 ≤15m
	Indoor unit ~ Indoor unit	Height difference between indoor units	Less than 7.5m	H2	
Maximum allowable length of pipe	First Y-joint ~ Last indoor unit	Actual piping length	Less than 20m	b+c+g ≤ 20 m (between first Y-joint and indoor unit) h ≤ 20 m (between EEV kit and indoor unit)	
Additional refrigerant calculation	R=Basic Charge + Additional charge by the piping length + Additional charge by (A2A)Indoor Basic Charge : Up to 10m When Installing A2W only = 2600g Additional charge by the piping length : 3/8" - 50g/m, 1/4" - 20g/m Additional charge by (A2A)Indoor unit : Refer to the 16 page 'Amount of additional refrigerant for each indoor unit' table.				

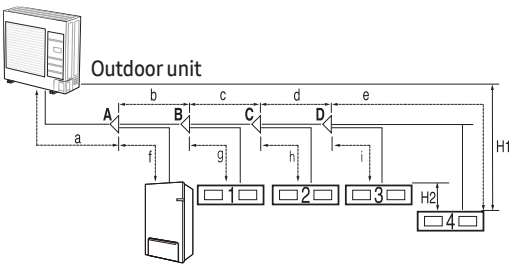
Installing the Refrigerant Pipe Work

- Amount of additional refrigerant for each indoor unit (Unit : kg)

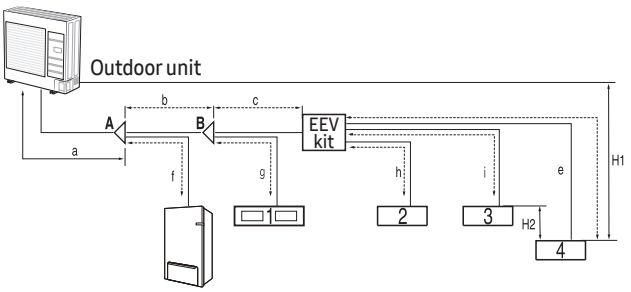
Model	Capacity [kW]	Model name	Refrigerant amount [kg]	Model	Capacity [kW]	Model name	Refrigerant amount [kg]
LSP Duct	2.2	AE022MNLDEH/EU	0.17	RAC	2.2	AE022TNXDEH/EU	0.23
	2.8	AE028MNLDEH/EU	0.17		2.8	AE028TNXDEH/EU	0.32
	3.6	AE036MNLDEH/EU	0.26		3.6	AE036TNXDEH/EU	0.32
	5.6	AE056MNLDEH/EU	0.35		5.6	AE056TNXDEH/EU	0.48
	2.2	AE022ANLDEH/EU	0.13		7.1	AE071TNXDEH/EU	0.48
	2.8	AE028ANLDEH/EU	0.13	Console	2.2	AE022MNJDEH/EU	0.16
	3.6	AE036ANLDEH/EU	0.17		2.8	AE028MNJDEH/EU	0.27
	5.6	AE056ANLDEH/EU	0.24		3.6	AE036MNJDEH/EU	0.27
MSP Duct	7.1	AE071MNMPEH/EU	0.28		5.6	AE056MNJDEH/EU	0.27
	9.0	AE090MNMPEH/EU	0.32				
	7.1	AE071ANMPEH/EU	0.45				
	9.0	AE090ANMPEH/EU	0.68				
	3.6	AE036BNMPEH/EU	0.45				
	5.6	AE056BNMPEH/EU	0.45				

AE090MXTP⁎H

Using only Y-joint



Using EEV kit

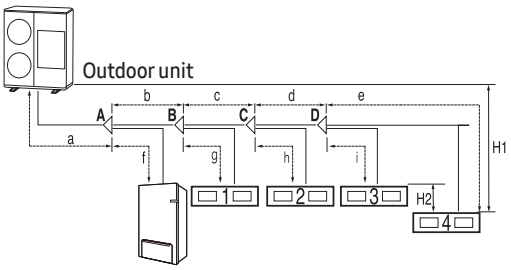


Item				Example	Remarks
Maximum allowable length of pipe	Outdoor unit ~ Indoor units	Longest piping length	Less than 30m	a+b+c+d+e ≤ 30m	
		Equivalent length	Less than 40m	Y-joint and EEV kit : 0.5m	
		Total length	Less than 75m	a+b+c+d+e+f+g+h+i ≤ 75m	5m ≤ Total length ≤ 75m
Maximum allowable height	Outdoor unit ~ Indoor units	Less than 20m		H1	If outdoor unit is located lower position H1 ≤15m
	Indoor unit ~ Indoor unit	Height difference between indoor units	Less than 7.5m	H2	
Maximum allowable length of pipe	First Y-joint ~ Last indoor unit	Actual piping length	Less than 20m	b+c+g ≤ 20 m (between first Y-joint and indoor unit) h ≤ 20 m (between EEV kit and indoor unit)	
Additional refrigerant calculation	R=Basic Charge + Additional charge by the piping length + Additional charge by (A2A)Indoor Basic Charge : Up to 10m When Installing A2W only = 2400g Additional charge by the piping length : 3/8" - 50g/m, 1/4" - 20g/m Additional charge by (A2A)Indoor unit : Refer to the above 'Amount of additional refrigerant for each indoor unit' table.				

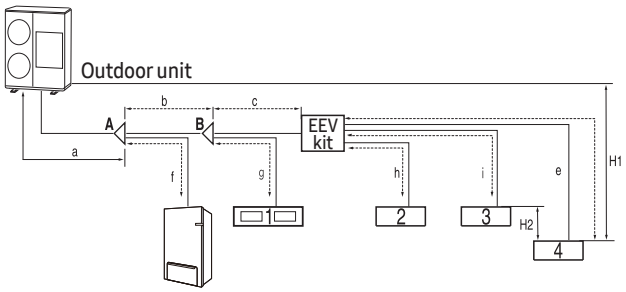
- Contact the manufacturer if the length should exceed.

AE120/160MXTP*H

Using only Y-joint



Using EEV kit



Item				Example	Remarks
Maximum allowable length of pipe	Outdoor unit ~ Indoor units	Longest piping length	Less than 70m	a+b+c+d+e ≤ 70m	
		Equivalent length	Less than 85m	Y-joint and EEV kit : 0.5m	
		Total length	Less than 200m	a+b+c+d+e+f+g+h+i ≤ 200m	10m ≤ Total length ≤ 200m
Maximum allowable height	Outdoor unit ~ Indoor units	Less than 30m		H1	If outdoor unit is located lower position H1 ≤ 25m
	Indoor unit ~ Indoor unit	Height difference between indoor units	Less than 15m	H2	
Maximum allowable length of pipe	First Y-joint ~ Last indoor unit	Actual piping length	Less than 40m	b+c+d+e ≤ 40m (between first Y-joint and indoor unit) h≤20m(between EEV kit and indoor unit)	
Additional refrigerant calculation		R=Basic Charge + Additional charge by the piping length + Additional charge by (A2A)Indoor Basic Charge : Up to 10m When Installing A2W only = 3500g Additional charge by the piping length : 3/8" - 50g/m, 1/4" - 20g/m Additional charge by (A2A)Indoor : Refer to the 16 page 'Amount of additional refrigerant for each indoor unit' table.			

- Contact the manufacturer if the length should exceed.

EEV Kit			Model name		Remarks
EEV Kit ~ Indoor units	Actual pipe lengh	2m or less	MEV-E24SA	1 indoor	Apply to products without EEV (Wall mounted & ceiling)
			MEV-E32SA		
		20m or less	MXD-E24K132A	2 indoor	
			MXD-E24K200A		
			MXD-E32K200A		
			MXD-E24K232A	3 indoor	
			MXD-E24K300A		
			MXD-E32K224A		
			MXD-E32K300A		

- Please refer to the EEV Kit manual.

Installing the Refrigerant Pipe Work

Selecting the Refrigerant Pipe

Installing pipes between outdoor unit and first Y-joint

Model	Liquid side	Gas side (Air)	Gas pipe (Water)
	mm	mm	mm
AE044MXTPEH	Φ9.52	Φ15.88	Φ15.88
AE066MXTPEH	Φ9.52	Φ15.88	Φ15.88
AE090MXTP*H	Φ9.52	Φ15.88	Φ15.88
AE120MXTP*H	Φ9.52	Φ15.88	Φ15.88
AE160MXTP*H	Φ9.52	Φ15.88	Φ15.88

Outer diameter	Minimum thickness	Temper grade
mm	mm	
Φ 6.35	0.8	C1220T-O (soft drawn)
Φ 9.52	0.8	
Φ12.70	0.8	
Φ15.88	1.0	

- Install refrigerant pipe depending on the outdoor unit capacity.
- Temper grade and minimum thickness of the refrigerant pipe.

Installing pipes between Y-joints

Indoor unit total capacity (kW)	Liquid side (mm)	Gas side (mm)
X < 20.2	Φ9.52	Φ15.88

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	
Model	Y-joint model
AE044MXTPEH	MXJ-YA1509M
AE066MXTPEH	
AE090MXTP*H	
AE120MXTP*H	
AE160MXTP*H	

The other Y-joint	
Total capacity of attached indoor units below this Y-joint (kW)	Y-joint model
X < 20.2	MXJ-YA1509M

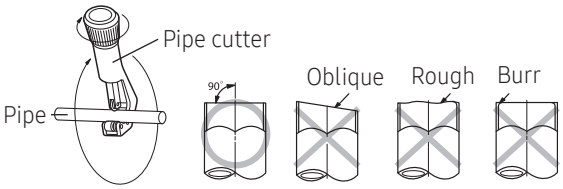
Keeping Refrigerant Pipe Clean and Dry

- To prevent foreign materials or water from entering the pipe, Pipes shall be sealed by caps.

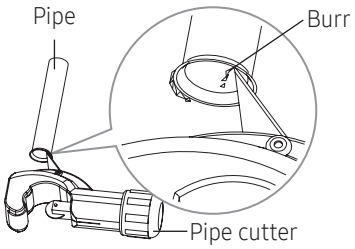
Cutting or Flaring the Pipes

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

2 If you wish to shorten the pipes, cut it with a pipe cutter, taking care to ensure that the cut edge remains at a 90° angle with the side of the pipe. Refer to the illustrations below for examples of edges cut correctly and incorrectly.



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

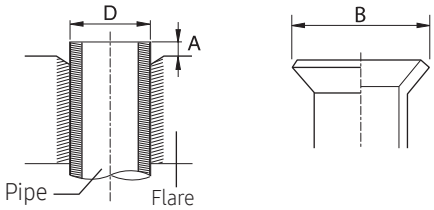


⚠ CAUTION

- Face the pipe down while removing the burrs to make sure that burrs do not get in to the pipe.

INSTALLATION

4 Put a flare nut slightly into the pipe and modify the flare.

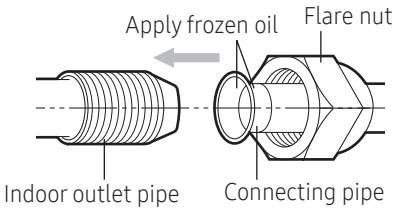


Outer Diameter (D)	Depth (A)	Flaring Size (B)
Φ6.35 mm	1.3 mm	8.7~9.1 mm
Φ9.52 mm	1.8 mm	12.8~13.2 mm
Φ12.70 mm	2.0 mm	16.2~16.6 mm
Φ15.88 mm	2.2 mm	19.3~19.7 mm

5 Check that the flaring is correct, referring to the illustrations below for examples of incorrect flaring.



6 Align the pipes to connect them easily. Tighten the flare nuts first with your hands, and then with a torque wrench, applying the following torque:



Outer Diameter (D)	Torque (kgf·cm)
Φ6.35 mm	140~180
Φ9.52 mm	350~430
Φ12.70 mm	500~620
Φ15.88 mm	690~830

NOTE

- Excessive torque can be cause of gas leakage.

⚠ CAUTION

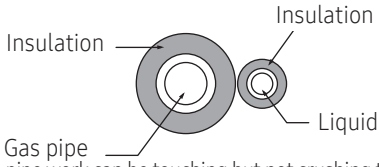
- You must purge with oxygen free nitrogen while brazing.

Selecting the Insulation of the Refrigerant Pipe

- According to pipes size ,Insulate pipes on gas and liquid side by selecting appropriate insulations.
- The thickness standard is determined by the indoor temperature of 27°C and humidity of 80%. If the units are in extreme conditions, use thicker one.

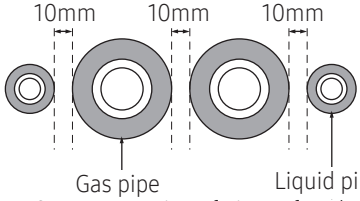
Pipe size (mm)	Minimum thickness of insulation (mm)		Remarks
	PE foam	EPDM foam	
Φ6.35 ~ Φ19.05	13	10	If you install the pipe underground, at the seaside, a spa or on the lake, use thicker one according to the pipe size.
Φ22.23 mm	19	13	

Refrigerant pipe before EEV kit or without EEV kit



- The pipe work can be touching but not crushing the insulation.
- When the pipes are touching, use thicker insulation.

Refrigerant pipe after EEV kit



- Keep a 10mm separation of pipes after the EEV.
- In case of small gap between gas and liquid 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.

Installing the Refrigerant Pipe Work

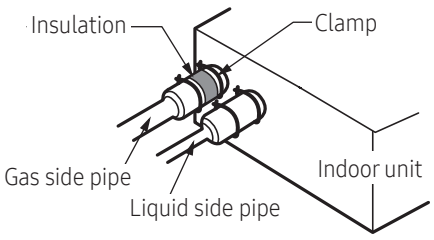
Insulating the Refrigerant Pipe

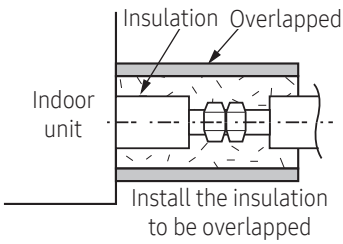
- You must check if there is a gas leak before completing all the installation process.
- Use EPDM insulation which meets the following condition.

Item	Unit	Standard	Remarks
Density	g/cm²	0.048 ~ 0.096	KSM 3014-01
Dimension change route by heat	%	-5 or less	
Water absorption rate	g/cm²	0.005 or less	
Thermal conductivity	kcal/ m·h·°C	0.032 or less	KSL 9016-95
Moisture transpiration factor	ng/ (m²·s·Pa)	15 or less	KSM 3808-03
Moisture transpiration grade	{g/ (m²·24h)}	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 to water heat pump is improved.
- Check if there are any insulation cracks on the bent pipe.



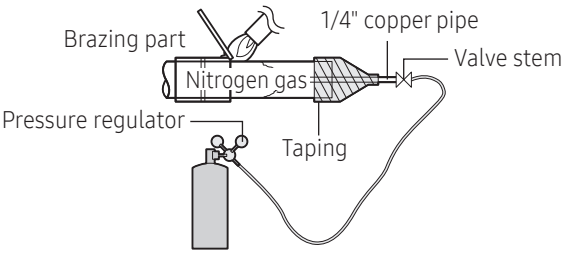


Brazing the Pipe

- 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 oxygen free nitrogen gas when brazing the pipes as shown in the picture.



2 If you do not use Nitrogen gas when brazing the pipes, oxidation may form in the pipe. It can cause the damage of the compressor and valves.

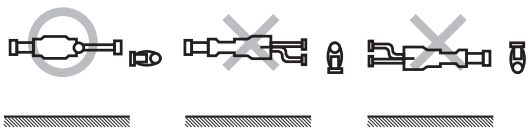
3 Adjust the flow rate of the replacement with a pressure regulator to maintain 0.05m3/h or more.

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

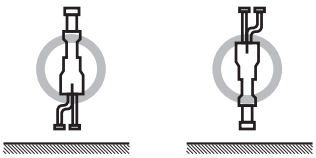
Installing the Y-Joint

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

- Install horizontally

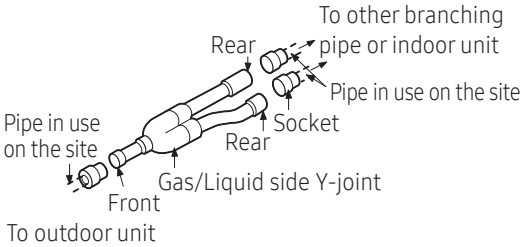


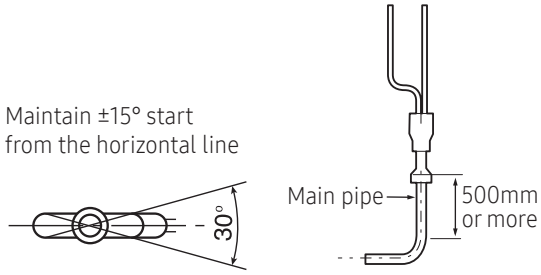
- Install vertically



⚠ CAUTION

- Make certain of a minimum distance in straight line.





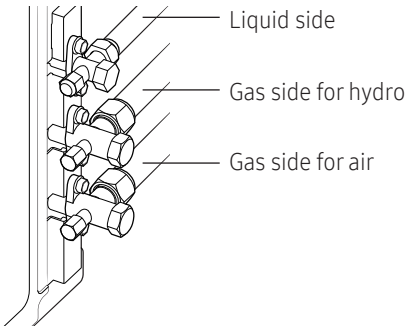
- Install the Y-joint within ±15° from the horizontal or vertical line.

Connecting the Outdoor Unit Pipe

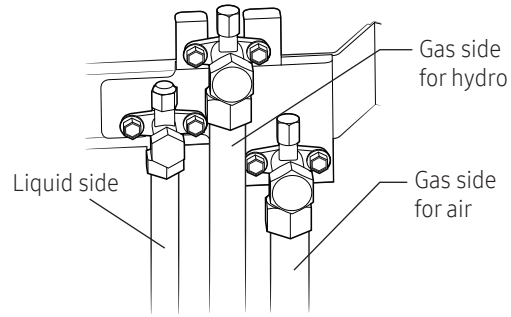
- Install pipe work within maximum allowable length, height and length after branching.
- Make sure there are no cracks on pipe bends.
- Make Sure where the Gas side for Hydro and Air → Check the Mark "hydro" and "air"

※ Hydro : A2W Hydro unit
Air : A2A Indoor unit

4.4/6.6kW Outdoor unit



9/12/16kW Outdoor unit

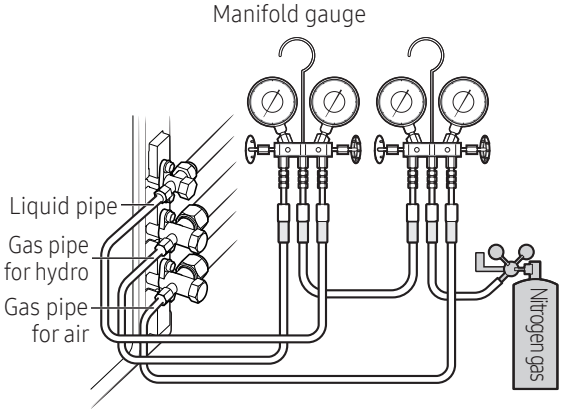


Installing the Refrigerant Pipe Work

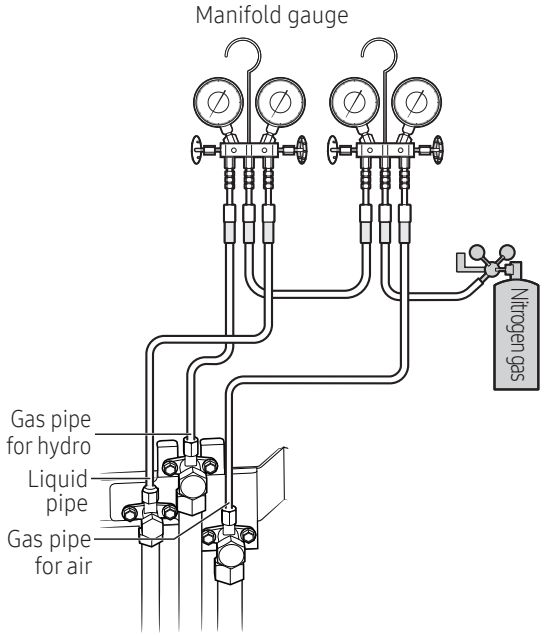
Air tightness test

- Use tools for R-410A to prevent the inflow of foreign substances and resist against the internal pressure.
- Do not remove the core of filling port.
- Use Nitrogen gas for air tightness test as shown in the illustration.

4.4/6.6kW



9/12/16kW



Apply pressure to the liquid side pipe and gas side pipe (when installing outdoor units in module) with Nitrogen gas at 4.1MPa.	If you apply pressure at more than 4.1MPa, pipes may get damaged. Apply pressure with pressure regulator and pay attention to the pressure of the nitrogen.
↓	
Keep it for minimum 24 hours to check if pressure drops.	After applying Nitrogen gas, check there's any change of pressure, using a pressure regulator.
↓	
If the pressure drops, check for gas leakage.	If the pressure is changed, apply soap water to check for leakage and check the pressure of the nitrogen gas again.
↓	
Maintain 1.0MPa of the pressure before performing vacuum drying and check for further gas leakage.	After checking the first gas leakage, maintain 1.0MPa to check for further gas leakage.

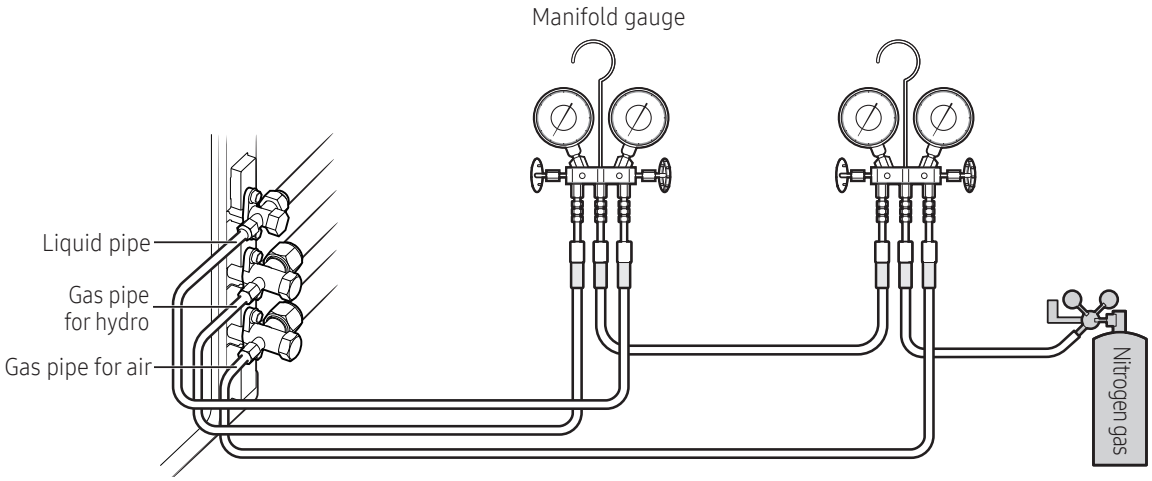
⚠ CAUTION

- Perform a Nitrogen gas leak test with the service valve of the outdoor unit closed.
- When charging the nitrogen gas, charge it from the both (high·low pressure) sides.
- If the pipe is filled in a short time with a highly excessive pressure of Nitrogen gas, the pipes may get damaged. Make sure to use a regulator to prevent the high pressure Nitrogen gas, over 4.1MPa, from entering into the pipe.

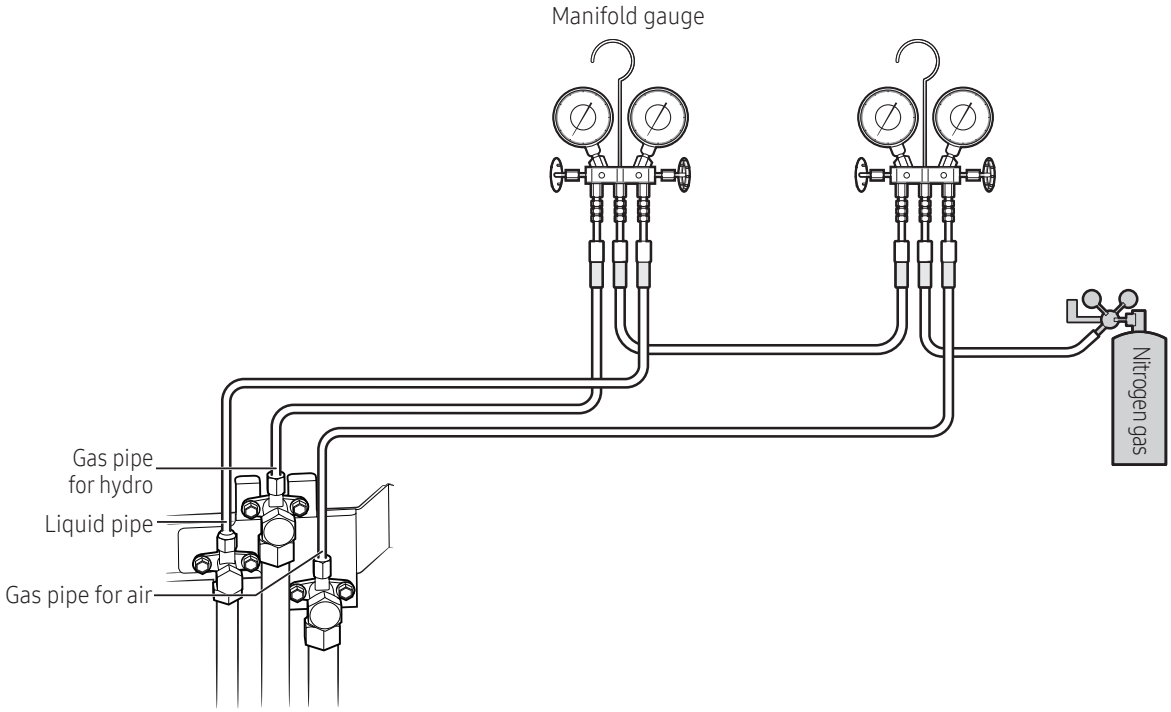
Vacuum Drying

- Use a manifold gauge for R410A to prevent the inflow of foreign substances and resist against the internal pressure.
- Use the vacuum pump with the check valve to prevent pump oil from flowing backward while the vacuum pump is stopped.
- Vacuum system to 5Torr (666.6Pa, 0.0067 kgf/cm², 5 mmHg).
- Close the service valve of the liquid side pipe and gas side pipe completely.

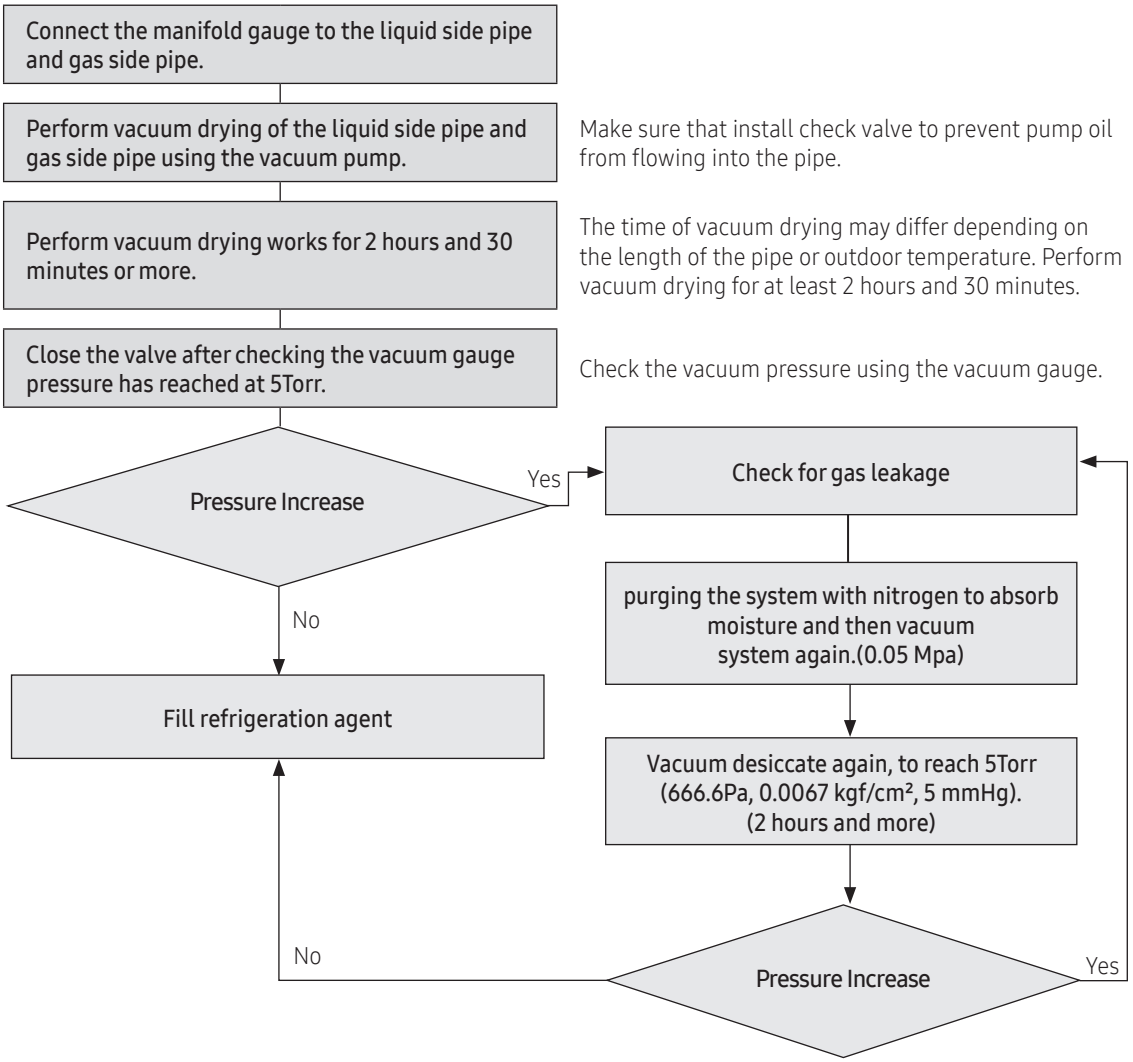
4.4/6.6kW



9/12/16kW



Installing the Refrigerant Pipe Work



⚠ CAUTION

- If pressure rises in an hour, moisture remains in the pipe work or there is a leak.

Selecting Additional Refrigerant Charge

Basic charge

The basic amount of refrigerant for outdoor unit charged in factory is :

Outdoor unit (Series)	Factory charge(kg)
AE044MXTPEH	2.6
AE066MXTPEH	
AE090MXTP*H	2.4
AE120MXTP*H	3.5
AE160MXTP*H	

Charge additional refrigerant according to the total length of the pipe.

Each factory charging values are determined according to basic pipe length as below.

AE044/066/090/120/160MXTP*H < 10m

When extra pipe length are required, additional charging works must be implemented as describes below.

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

Air to Water
Additional Charge(g) = {(L_1x20)+(L_2x50)}
Air to Air
Additional Charge(g) = {(L_1x20)+(L_2x50)} + (A2A) Additional charge by indoor unit

NOTE

- L_1:Total length of liquid pipe Ø 6.35(m)
- L_2:Total length of liquid pipe Ø 9.52(m)

Refrigerant Charging

- Additional charging amount is determined based on liquid pipe specifications.

Outdoor Unit of Liquid	ø6.35	ø9.52
Additional charging (g)	20g/m	50g/m

(A2A+A2W)Additional charging amount =
(sum of total length (m) of ø9.52) × 50g
+ (sum of total length (m) of ø6.35) × 20g
+ (A2A) Additional charge by Indoor unit

(A2A) Additional charge by Indoor unit: Refer to the 16 page 'Amount of additional refrigerant for each indoor unit' table.

Charging refrigerant

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

Important information regulation regarding the refrigerant used

This product contains fluorinated greenhouse gases. Do not vent gases into the atmosphere.

⚠ CAUTION

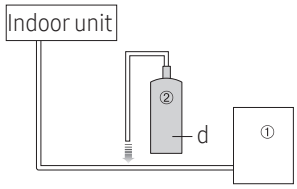
- Inform user if system contains 5 tCO_2e or more of fluorinated greenhouse gases. In this case, it has to be checked for leakage at least once every 12 months, according to regulation n°517/2014. This activity has to be covered by qualified personnel only. In case situation above (5 tCO_2e or more of R-410A), installer (or recognized person which has responsibility for final check) has to provide a maintenance book, with all the information recorded according to REGULATION (EU) No 517/2014 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 April 2014 on fluorinated greenhouse gases.

Installing the Refrigerant Pipe Work

Please fill in the following with indelible ink on the refrigerant charge label supplied with this product and on this manual.

Outdoor Unit of Liquid	Additional charging (g)
R410A	2088

- GWP=Global Warming Potential
- Calculating tCO_2e : kg x GWP / 1000



Unit	kg	tCO_2e
①, a		
②, b		
① + ②, C		

- ① the factory refrigerant charge of the product.
- ② the additional refrigerant amount charged in the field.
- ① + ② the total refrigerant charge.
  The refrigerant charge label supplied with the product.

NOTE

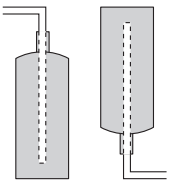
- Factory refrigerant charge of the product : see unit name plate.
- Additional refrigerant amount charged in the field. (Refer to the above information for the quantity of refrigerant replenishment.)
- Total refrigerant charge.
- Refrigerant cylinder and manifold for charging.

⚠ CAUTION

- The filled-out label must be adhered in the proximity of the product charging port. (ex. onto the inside of the stop valve cover.)
- Before charging, check whether the refrigerant cylinder has a siphon attached or not and position the cylinder accordingly.

Charging using a cylinder with a siphon attached

Charge the liquid refrigerantwith the cylinder in upright position.



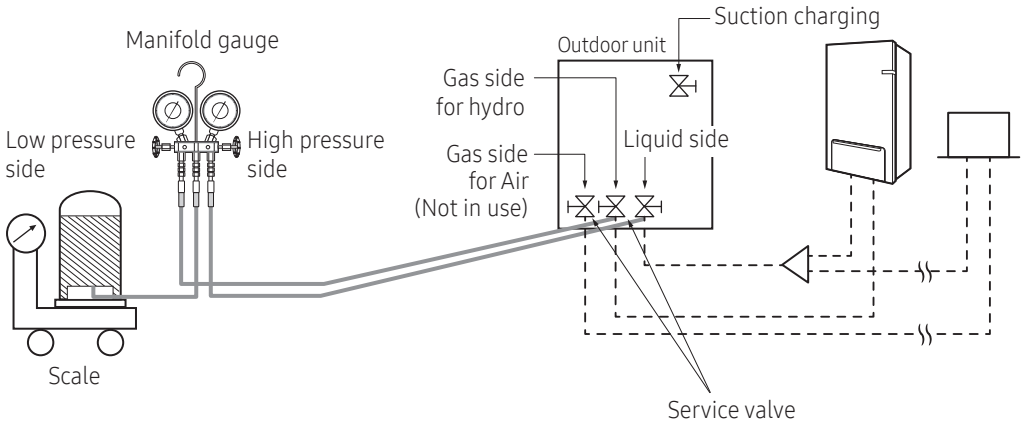
Charging using a cylinder without a siphon attached

Charge the liquid refrigerant with the cylinder in up-side-down position.

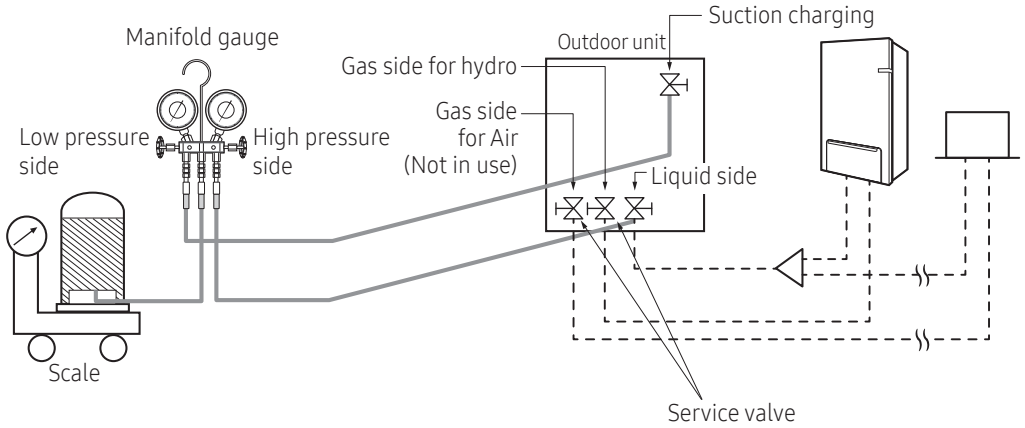
Adding Refrigerant

- 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.

Adding refrigerants in cooling conditions



Adding refrigerants in heating conditions



- Connect the manifold gauge and purge the manifold gauge.
- Open the manifold gauge valve of the liquid side service valve and add the liquid refrigerant.
- If you cannot fully recharge the additional refrigerant while the outdoor unit is stopped, use the key on the outdoor unit PCB to recharge the remaining refrigerant. (Refer to page 37.)

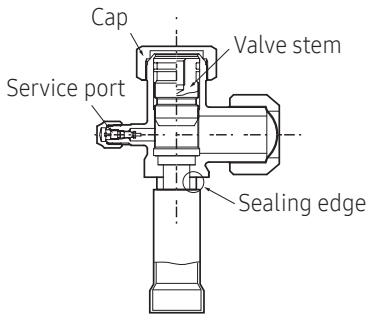
Installing the Refrigerant Pipe Work

- Adding the cooling refrigerant
  - Press the function key for adding refrigerant in cooling mode.
  - After 20 minutes of operation, open the valve on gas side.
  - Open the valve for low pressure side on the manifold gauge to recharge the remaining refrigerant.
- Adding the heating refrigerant
  - When recharging the heating refrigerant, connect the low pressure pipe from manifold gage to the suction charging port.
  - Press the function key for adding refrigerant in heating mode.
  - After 20 minutes of operation, open the valve on suction charge port.
  - Open the valve for low pressure side on the manifold gage to recharge the remaining refrigerant.

⚠ CAUTION

- Open the gas side and liquid side service valve completely after charging the refrigerant. (If you operate the Air to water heat pump with the service valve closed, the important parts may be damaged.)

To Close the Valve Stem



1 Open the cap and turn the valve stem clockwise by using a hexagonal wrench.
2 Tighten the valve stem until it reached the sealing edge.

NOTE

- Do not apply excessive force to the valve stem and always use special instruments. Otherwise, the contact surface between valve stem and sealing edge can be damaged and refrigerant can leak through this damaged surface.
- If refrigerant would leak, turn the valve stem back by half and tighten the valve stem again, then check the leakage. If there is no leakage any more, tighten the valve stem entirely.

3 Tighten the cap securely.

To Open the Valve Stem

1 Remove the cap.
2 Turn the valve stem counterclockwise by using a hexagonal wrench.
3 Turn the valve stem until it is stopped.
4 Tighten the cap securely.

⚠ CAUTION

- When you use the service port, always use a charging hose, too.
- Check the leakage of refrigerant gas after tightening the cap.
- Must use a spanner and wrench when you open/ tighten the valve stem.

Electrical Connections

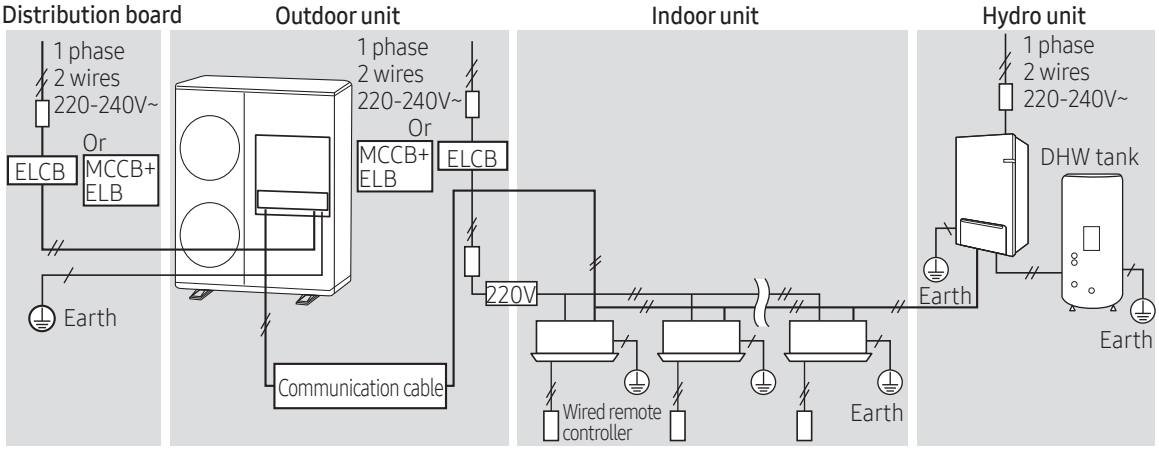
⚠ CAUTION

- 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.
- 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.
- Make sure there is no leakage after installation.
  - Toxic gas may generate when refrigerant gas contacts with fire.
- 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.
- 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 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.
- 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 ELCB (Earth Leakage Circuit Breaker). When using an ELCB that has a tolerance limit as 100mA per second, the protective earthing resistance is 250Ω in an electrical danger zone, else under 500Ω.
- 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.
- Do not connect the heater to the outdoor unit and do not install remodeled duct as you please.
  - The capacity of the Air to water heat pump may reduce and electric shock or fire may occur.
- Install the power cable and communication cable of the indoor and outdoor unit at least 1.5m away from electric appliances.
  - Noise may hear 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 controller, it may not operate normally.

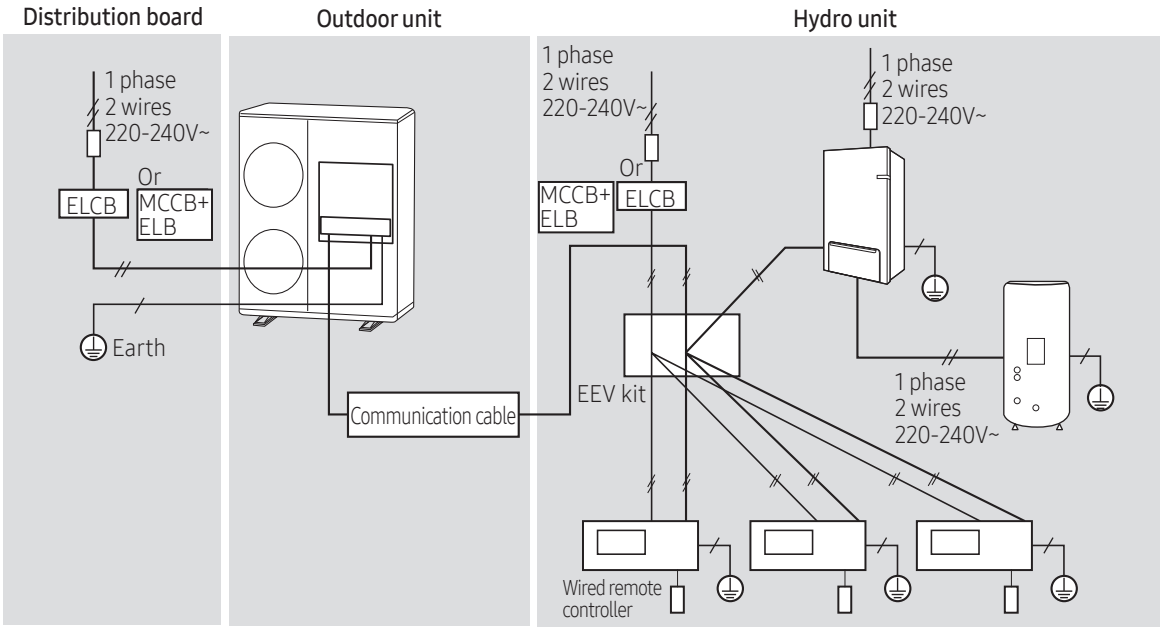
Electrical Connections

Overall System Configuration

Connection of the power cable (1 phase 2 wires)



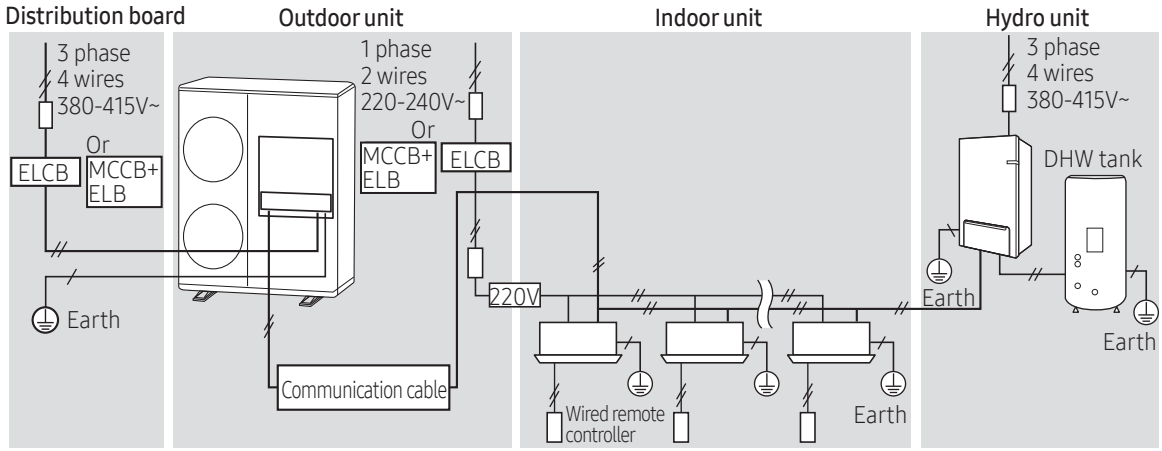
Connection of the power cable (1 phase 2 wires using Electronic Expansion Valve kit)



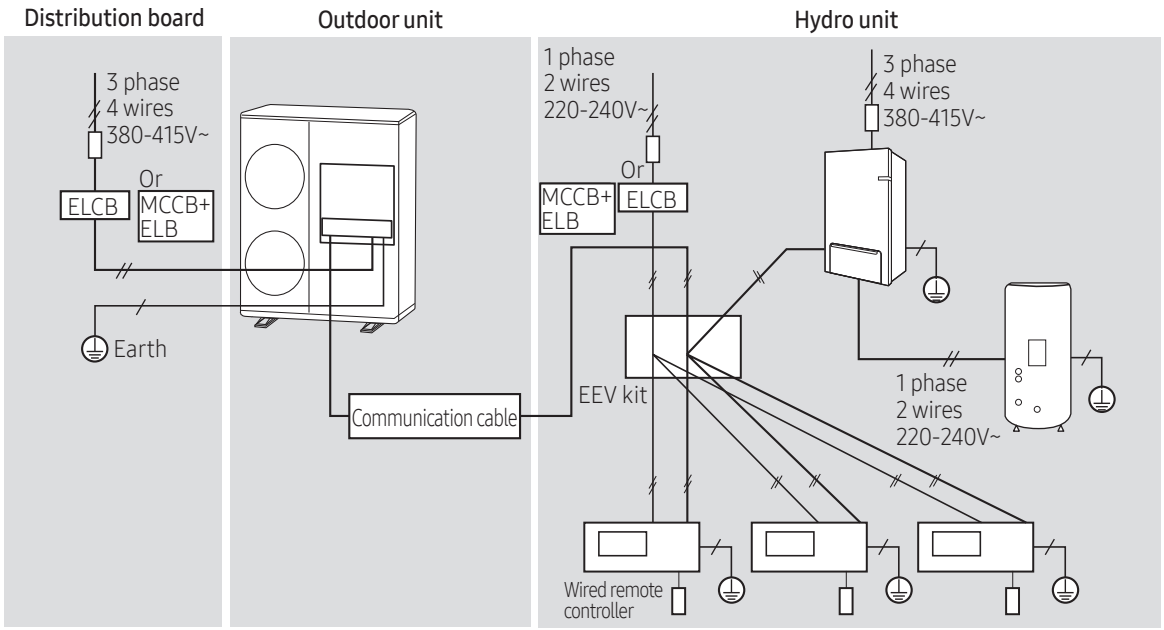
⚠ CAUTION

- Install cabinet panel near the outdoor unit for the convenience of service and emergency operation off.
- Make sure to install the circuit breaker with the over-current and electric leakage protection.

Connection of the power cable (3 phase 4 wires)



Connection of the power cable (1 phase 2 wires using Electronic Expansion Valve kit)



⚠ CAUTION

- Install cabinet panel near the outdoor unit for the convenience of service and emergency operation off.
- Make sure to install the circuit breaker with the over-current and electric leakage protection.

Electrical Connections

Specification of Electronic Wire of the Outdoor Unit

Outdoor unit	Power Supply		Voltage Range		MCA	MFA
	Hz	Volts	Min	Max	Min. Circuit Amps.	Max. Circuit Amps.
AE044MXTPEH	50	220-240	198	264	18.0	25.0
AE066MXTPEH			198	264	20.0	25.0
AE090MXTPEH			198	264	22.0	27.5
AE120MXTPEH			198	264	28.0	35.0
AE160MXTPEH			198	264	32.0	40.0
AE090MXTPGH	50	380-415	342	457	10.0	16.1
AE120MXTPGH			342	457	10.0	16.1
AE160MXTPGH			342	457	12.0	16.1

NOTE

- The power cable is not supplied with the Air to water heat pump.

NOTE

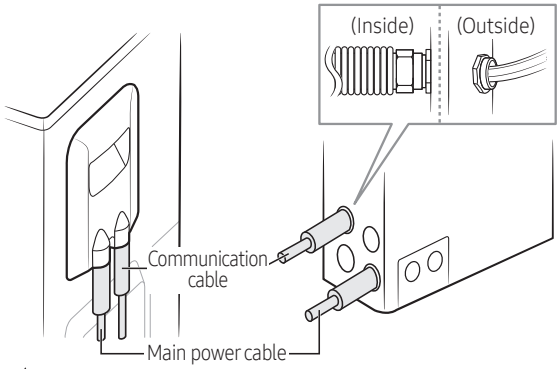
- Select the thickness and length of power cable less than 10% of voltage drop from input voltage.

⚠ CAUTION

- You should connect the power cable into the power cable terminal and fasten it with a clamp.
- 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.
- Must keep the cable in a protection tube.
- Keep distances of 50mm or more between power cable and communication cable.
- Each indoor unit should be supplied between maximum and minimum voltage values (264V~198V).
- Power 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 , IEC:60245 IEC 66 / CENELEC: H07RN-F)

Power Wiring and Communication Wiring Configuration

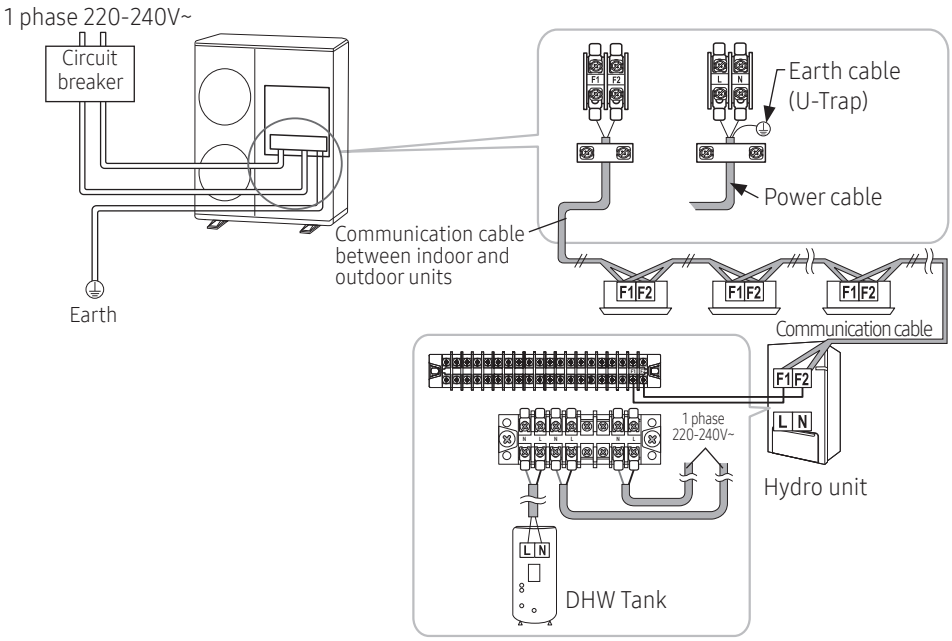
- Be sure to run the power supply cable and the communication cable through electrical conduit as seen in the picture.
- Install the communication cable, indoor power cable and the main power cable in the cable tube.
- Secure the cable tube to the outdoor knockout using the CD connector and bushing.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



⚠ CAUTION

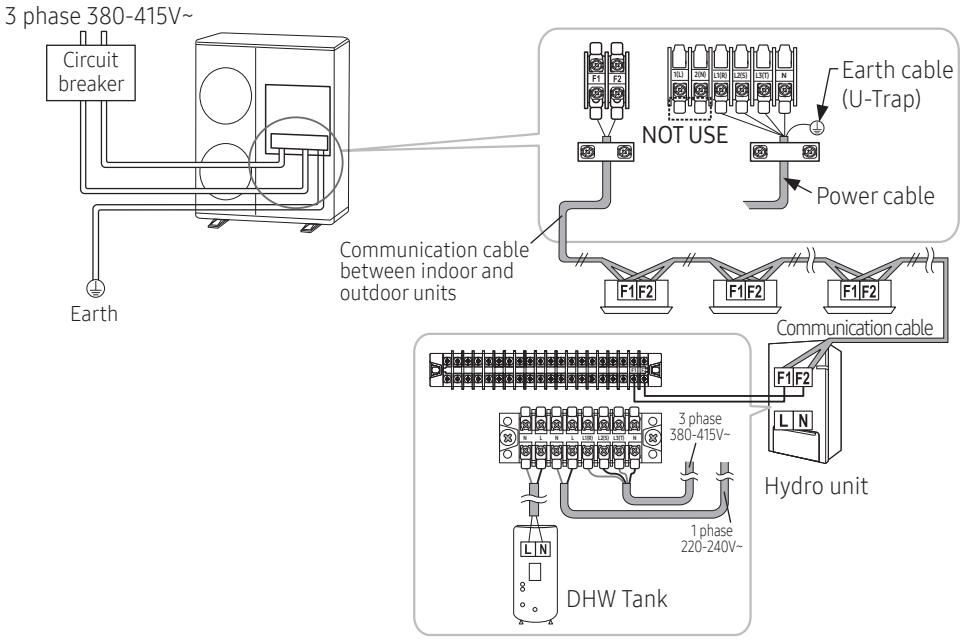
- Make a knockout hole by driving in a nail.
- When installing the cables through the knockout hole, remove all burrs and protect them with the protection tape.
- Apply rust resisting paint around the hole.

1 phase 2 wires (220-240V~)



Electrical Connections

3 phase 4 wires (380-415V~)



⚠ CAUTION

- When removing the outer cover of the power cable, use the appropriate tools to prevent damaging the inner cover.
- Make sure to place the outer cover of the power cable and the communication cable, at least 20mm into the electrical parts.
- Communication wiring should be done separately from the power cable and other communication cables.

Connecting the Power Terminal

- Connect the cables to the terminal board using the compressed ring terminal.
- Connect the rated cables only.
- Connect using a wrench 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	12~18
M5	20~30

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.

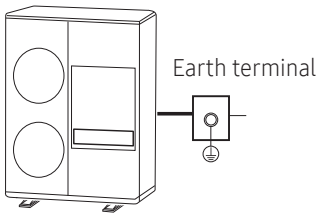
Earthing the power cable

- The standard of earthing may vary according to the rated voltage and installation place of the Air to water heat pump.
- Earth the power cable according to the following.

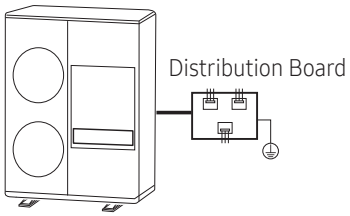
<table>
<tr><th>Installation place / Power condition</th><th>High humidity</th><th>Average humidity</th><th>Low humidity</th></tr>
<tr><td>Electrical potential of lower than 150V</td><td rowspan="2" colspan="2">Must perform the earthing work 3. Note 1)
(In case of installing circuit breaker)</td><td>Perform the earthing work 2 if possible for your safety. Note 2)</td></tr>
<tr><td>Electrical potential of higher than 150V</td><td>Perform the earthing work 3. Note 1)</td></tr>
</table>

- 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 30~500Ω.
- Note 2) Earthing at dry place
  - The earthing resistance should be lower than 100Ω. (Even in worst case it should be lower than 250Ω.)

When using the terminal for earthing only



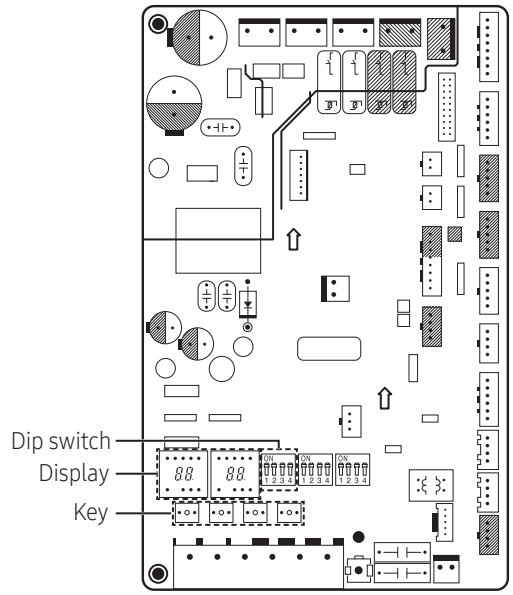
When using earthing of the switchboard



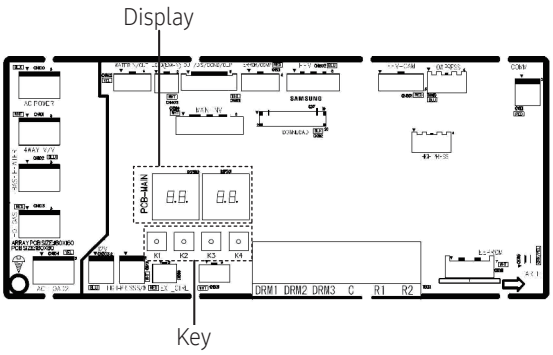
Setting the Option Switch and Function of the Keys

Option Switches in PBA of the Outdoor Unit

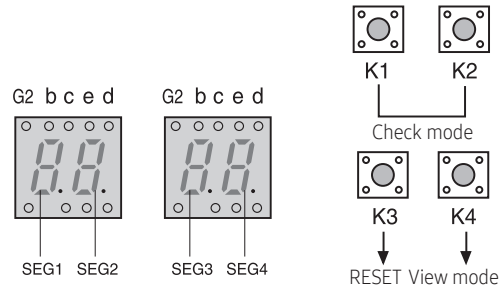
Main PBA (AE090/120/160MXTP*H)



Main PBA (AE044/066MXTPEH)



Key Function of the Outdoor Unit PBA



Function of KEY

Number of pressing	K1 (Heating)	K2 (Cooling)
1	Adding refrigerant in heating mode (H1)	Adding refrigerant in cooling mode (H5)
2	Test operation for heating (H2)	Test operation for cooling (H6)
3	Heating Pump out operation (H3)	Cooling Pump down operation (H7)
4	Vacuum(All)(t 4) (H4)	Inverter Check(H8)
5	End of key operation	End of key operation

- Adding refrigerant (H1,H5) :
  The operation for charging additional refrigerant
- Test operation (H2,H6) :
  Checking the indoor and outdoor unit operation
- Recovery of refrigerant (H7) :
  Operation for collecting refrigerants from pipes and indoor units to the outdoor unit when moving or repairing works are required.
- Refrigerant release (H3) :
  Operation for releasing the refrigerant on the outdoor unit to the indoor unit pipes.
- K3 : Reset

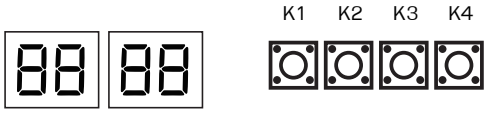
Function of K4

K4 (Press and hold to enter the setting) → K4 press (Number of press)	Displayed content	Display on segment		
0 time	Main Micon version	Version (ex. 0912)		
1 time	Inverter Micom version	Version (ex. 0912)		
2 time	EEPROM version	Version (ex. 0912)		
3 time	Automatically assigned address of the units	SEG1	SEG2	SEG3,4
		Indoor unit:"A"	Indoor unit:"0"	Address (ex:05)
4 time	Manually assigned address of the units	SEG1	SEG2	SEG3,4
		Indoor unit: "A"	Indoor unit: "0"	Address (ex:01)

Number of presses (K4)	Description	Display segment			
		SEG 1	SEG 2	SEG 3	SEG 4
0	Communication status	10s digit of Tx	1s digit of Tx	10s digit of Rx	1s digit of Rx
1	Current frequency	1	100s digit	10s digit	1s digit
2	High pressure	2	10s digit	1s digit	First decimal
3	Low pressure	3	10s digit	1s digit	First decimal
4	Outdoor air temperature	4	+ / -	10s digit	1s digit
5	Discharge Temperature	5	100s digit	10s digit	1s digit
6	Cond temperature	6	+ / -	10s digit	1s digit
7	Current	7	10s digit	1s digit	First decimal
8	Fan RPM	8	1000s digit	100s digit	10s digit
9	Main EEV	9	1000s digit	100s digit	10s digit
10	EVI EEV	A	100s digit	10s digit	1s digit
11	IPM temperature	B	100s digit	10s digit	1s digit
12	Inverter pump frequency of hydro unit	C	100s digit	10s digit	1s digit
13	Inlet water temperature	D	10s digit	1s digit	First decimal
14	Outlet water temperature	E	10s digit	1s digit	First decimal
15	Number of connected indoor units	F	0	10s digit	1s digit

Setting the Option Switch and Function of the Keys

Setting total number of installed indoor units using K1~K4

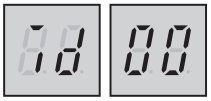


1 In the initial, display will show the following.



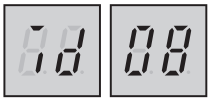
2 Press and hold simultaneously K1, K2 to enter the setting mode.

If you enter the setting mode, display will show the following.



3 If you want to set manually, press K2 or K4 shortly.
- K2 : 10 digit / K4 : 1 digit

Example) total number of installed indoor unit : 08
press K2 1 time, press K4 2 times.
then, display will show(The displayed value is including hydro unit.)



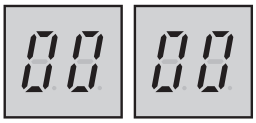
4 If you want to set automatically, press and hold K4 for 2 seconds.
Display will show total number of installed indoor units.
But you have to be careful, it is displayed only for the indoor unit in which a communication and power lines are connected normally.

5 If you want to finish setting mode, press and hold K2.
And then Main PCB will be reset after display blinking in 3 seconds.
* In case of inputting in the wrong way while you inputting, press "K3" (Main PCB reset) and progress again from the first step.

Setting key function

Setting the option

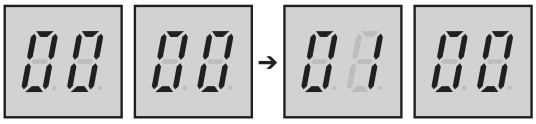
1 Press and hold K2 to enter the option setting. (Only available when the operation is stopped)
   – If you enter the option setting, display will show the following. (If you have set the 'Emergency operation for compressor malfunction', 1 or 2 will be displayed on Seg 4.)



   – Seg 1 and Seg 2 will display the number for selected option.
   – Seg 3 and Seg 4 will display the number for set value of the selected option.

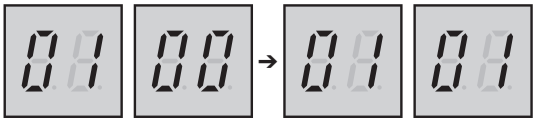
2 If you have entered option setting, you can shortly press the K1 switch to adjust the value of the Seg 1, Seg 2 and select the desired option. (Refer to pages 71~73 for the Seg number of the function for each option)

   Example)



3 If you have selected desired option, you can shortly press the K2 switch to adjust the value of the Seg 3, Seg 4 and change the function for the selected option. (Refer to pages 71~73 for the Seg number of the function for each option)

   Example)



4 After selecting the function for options, press and hold the K2 switch for 2 seconds. Edited value of the option will be saved when entire segments blinks and tracking mode begins.

⚠ CAUTION

- Edited option will not be saved if you do not end the option setting as explained in above instruction.

Setting key function

- While you are setting the option, you may press and hold the K1 button to reset the value to previous setting.
- If you want to restore the setting to factory default, press and hold the K4 button while you are in the option setting mode.
  - If you press and hold the K4 button, setting will be restored to factory default but it doesn't mean that restored setting is saved. Press and hold the K2 button. When the segments shows that tracking mode is in progress, setting will be saved.

Optional item	Input unit	SEG1	SEG2	SEG3	SEG4	Remarks
Cooling capacity correction	Main	0	0	0	0	7 to 9
				0	1	5 to 7
				0	2	9 to 11
				0	3	10 to 12
Heating capacity correction	Main	0	1	0	0	Standard high-pressure target [Default]
				0	1	High-pressure target : standard-0.2MPa
				0	2	High-pressure target : standard-0.1MPa
				0	3	High-pressure target : standard+0.1MPa
Current restriction option	Individual	0	2	0	0	All electric current [Default]
				0	1	All electric current I_Down_OP1
				0	2	All electric current I_Down_OP2
				0	3	All electric current I_Down_OP3
Defrost temperature correction	Main	0	3	0	0	Defrost temperature constant (α) = MID
				0	1	Defrost temperature constant (α) = MID
				0	2	Defrost temperature constant (α) = LOW1
				0	3	Defrost temperature constant (α) = LOW2
Channel address	Main	0	4	A	U	Automatic address setting
				00 to 15		Automatic address setting
						0 to 15
Energy saving mode	Main	0	5	0	0	Disabled (default)
				0	1	Enabled
Snow prevention control option (AE044/066MXTPEH Only)	Main	0	6	0	0	Disuse snow prevention control (Default)
				0	1	Use snow prevention control
Silent mode operation setting (AE044/066MXTPEH Only)	Main	0	7	0	0	Automatic Silent mode operation (Default)
				0	1	Manual Silent mode operation
Silent mode option (AE044/066MXTPEH Only)	Main	0	8	0	0	Disuse Silent mode (Default)
				0	1	STEP - 1
				0	2	STEP - 2
				0	3	STEP - 3

Function of Dip switch(AE090/120/160MXTP*H only)

▶ DIP 1 (K5) : Automatic / Manual Silent mode operation setting

Switch	Function (Silent mode operation control)
DIP1 (K5)	
ON	Automatic Silent mode operation (Cooling)
OFF	Manual Silent mode operation (Cooling/Heating)

❋ DIP 1 (K5) On : Enables the silent mode for night-time in cooling mode.
(After accumulating for 6 hours by counting the time after the outdoor temperature sensor value reaches the maximum value, the silent mode is maintained for 12 hours.)

❋ DIP 1 (K5) Off : If the external contact interface module is used, entering the silent mode is available with contact signal in cooling and heating mode.

❋ The actual silent mode operates with the DIP 3 (K7) / DIP 4 (K8) switch setting value.

▶ DIP 2 (K6) : Snow prevention control option

Switch	Function (Snow prevention control)
DIP 2 (K6)	
ON	Disuse snow prevention control (Default)
OFF	Use snow prevention control

❋ When you set the snow prevention control as 'Use', outdoor fan will operate for one minute every 30minutes in the condition of Cooling/heating stop status at below 5°C.

▶ DIP 3 (K7), DIP 4 (K8) : Silent mode option. This reduces FAM RPM/Comp Hz to operate the outdoor unit quietly during night operation.

Switch		Function (Silent mode)
DIP 3 (K7)	DIP 4 (K8)	
ON	ON	Disuse Silent mode (Default)
ON	OFF	STEP - 1
OFF	ON	STEP - 2
OFF	OFF	STEP - 3

Pump down procedure

Objective of Pump Down

For product repairs and indoor unit relocation, pump down operation must be done recover the refrigerant into the outdoor unit.

Cautions When Performing Pump Down

- Product limits amount of refrigerant in the outdoor unit due to slim design.
- Collect the majority of the refrigerant in the system in an empty refrigerant vessel and perform a pump down operation with remaining refrigerant. Maximum amount of refrigerant is 5Kg.
- If the amount of refrigerant exceeds maximum allowable limit, increased pressure may cause compressor trip or a burn out.

Pumping down refrigerant

1 Close the manifold gauge.
2 Close the liquid side service valve.
3 Press the K2 button on the outdoor unit PCB three times. (P7 will be displayed on outdoor unit PCB LED.)
4 Observe low pressure side using manifold gauge when the compressor moves.
5 When the pressure on low pressure side decrease below 0 MPa(0 kgf/cm²) close the gas side service valve and end the pump down operation.
(To end the pump down operation, press the K2 button once more or press K3 button to reset.)

⚠ CAUTION

- Use a transfer cylinder when recovering refrigerant to be re used. Using modified refrigerant vessel may cause explosion and cause damage or personal injury.

NOTE

Relocation of the Air to water heat pump

- Refer to this procedure when the unit is relocated.
- Carry out the pump down procedure (refer to the details of 'pump down').
- Collecting refrigerant may be hard, since multi type products exceeds allowable charging amount of refrigerant in the outdoor unit to support long piping. (Refer to page 44.)
- Remove the power cord.
- Disconnect the assembly cable from the indoor and outdoor units.
- Remove the flare nut connecting the indoor unit and the pipe.
- At this time, cover the pipe of the indoor unit and the other pipe using a cap or vinyl plug to avoid foreign material entering.
- Disconnect the pipe connected to the outdoor unit. At this time, cover the valve of the outdoor unit and the other pipe using a cap or vinyl plug to avoid foreign material entering.
- Make sure you do not bend the connection pipes in the middle and store together with the cables.
- Move the indoor and outdoor units to a new location.
- Remove the mounting plate for the indoor unit and move it to a new location.

Collecting Refrigerant in Refrigerant Vessel Before Pump Down Operation

If the amount of refrigerant in the system exceeded the maximum allowable limit, reduce the amount of the refrigerant by following the below instruction before pump down operation.

1 Prepare an exclusive rechargeable refrigerant vessel, scale and a manifold gauge.

2 Check the amount of refrigerant in the entire system.

3 Connect a refrigerant vessel to an outdoor unit and operated about 50% of the indoor unit in cooling mode.

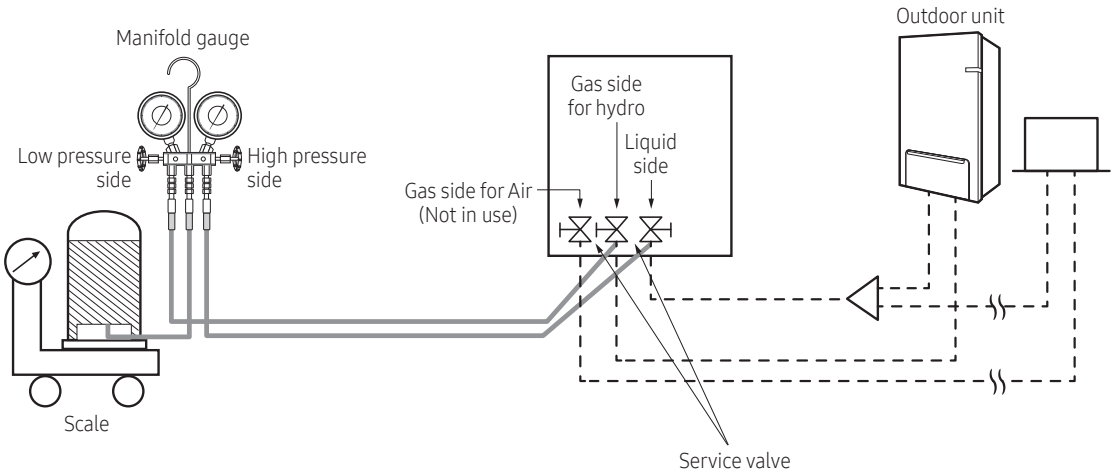
4 After 10 minutes of cooling operation, check the pressure on high pressure side with the manifold gauge. If the pressure on the high pressure side is over 3.0 MPa (30.59 kgf/cm²),g reduce the number of operating indoor unit to decrease the pressure below 3.0 MPa (30.59 kgf/cm²).

5 When the pressure becomes lower than 3.0 MPa (30.59 kgf/cm²) open the manifold gauge valve ② which is connected to a liquid side. Then, open the valve on the refrigerant vessel for the refrigerant to flow from the liquid side pipe to a vessel.

6 Check the weight difference with the scale. When desired amount of the refrigerant is collected into the vessel, close the valve and remove the manifold gauge.

7 Make sure that the amount of the refrigerant in the vessel is about 50% of the entire system.

8 Measure the amount of refrigerant correctly to not exceed amount of collected refrigerant.



Pump down procedure

When refrigerant recovery is difficult due to the large amount of refrigerant

1 Prepare manifold gauge, scale and an empty refrigerant vessel.

2 As shown below, connect the middle hose of manifold gauge to the refrigerant vessel and then connect the both ends of manifold gauge to the outdoor unit service valve individually.

(Valve of refrigerant vessel and Low pressure side valve must be closed and the high pressure side valve must be open.)

3 Start refrigerant recovery operation by pressing K2 button three times. (Refer to page 36.)

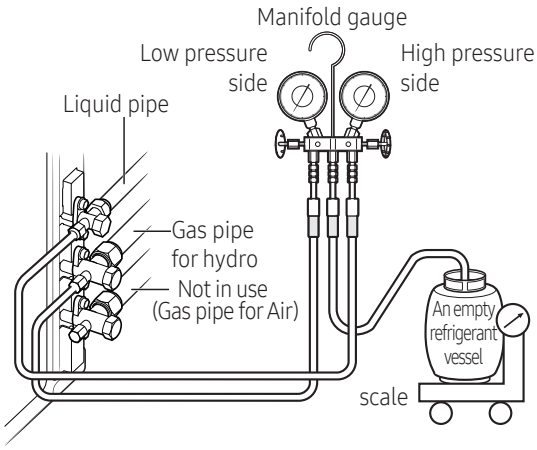
4 After operating for 10 minutes, open the valve of refrigerant vessel and fill it with refrigerant.

5 Close the valve of refrigerant vessel when sufficient refrigerant is filled.

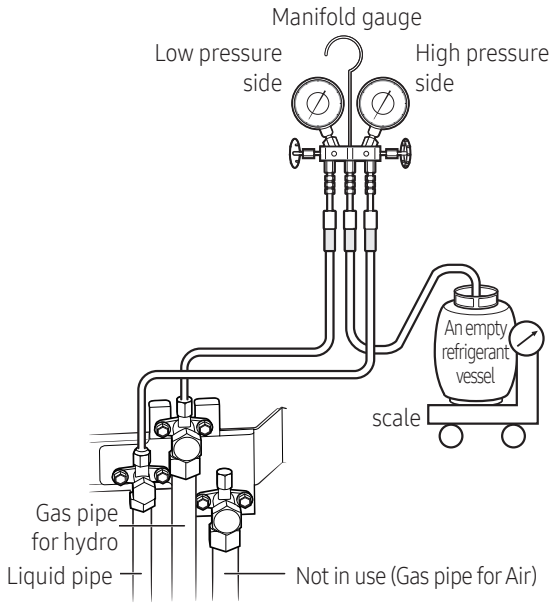
6 Close the liquid service valve immediately. When the low pressure falls down lower than 0, close the gas service valve.

7 Stop the operation by pressing reset button.

- 4.4/6.6kW



- 9/12/16kW



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

Turn on the outdoor unit 3 hours before the test operation to preheat the compressor. If the compressor is not preheated, 'CH' will appear on the outdoor unit PCB.

Inspection Before Test Operation

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

2 Check the power supply between the outdoor unit and the cabinet panel.
- Check the 220V-240V~/380-415V~ power with the voltage meter.

3 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.

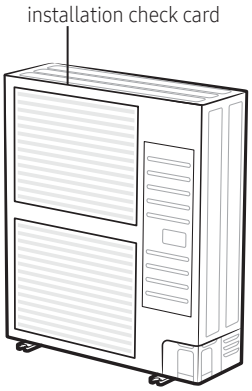
2 Check the indoor and outdoor units' running status.
- Check indoor unit cooling and heating air flow
- Each indoor unit controls: air flow direction, air velocity
- Indoor and outdoor unit's abnormal running noise
- Proper drainage from indoor unit in cooling mode
- Check detail running status using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

3 Finish test.

4 Explain to the customer how to use the Air to water heat pump following the user's manual.

Filling Out the Installation Check Card and Storing it Inside of the Outdoor Unit

- The installation check card is enclosed in the installation manual.
- Installation engineer should fill out the installation card honestly.
  - Basic contents such as installation date, name of engineer, contact number, service company, etc.
  - Additional contents such as model name of outdoor unit, remarks, refrigerant calculation due to additional pipe, etc.
  - Contents related indoor unit such as the place where indoor unit is installed, model name of indoor unit, etc.
- Store the installation check card inside of the outdoor unit and make sure not to lose it.



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.

Display	Explanation	Error Source
101	Hydro Unit / Outdoor Unit communication connection error	Hydro Unit
118	Indoor unit fan controller PCB overheat error	Indoor unit
122	EVA Inlet temp sensor SHORT or OPEN	Hydro Unit
123	EVA Outlet temp sensor SHORT or OPEN	Hydro Unit
162	EEPROM Error	Hydro Unit
198	Error of Terminal Block's Thermal Fuse(Open)	Hydro Unit
201	Hydro Unit / Outdoor Unit communication error(Matching error)	Hydro Unit/ Ourdoor Unit
202	Hydro Unit / Outdoor Unit communication error(3 min)	Hydro Unit/ Ourdoor Unit
203	Communication error between INVERTER and MAIN MICOM (4 min)	Outdoor Unit
221	Outdoor Unit air temperature sensor error	Outdoor Unit
231	Condenser temperature sensor error	Outdoor Unit
251	Discharge temperature sensor error	Outdoor Unit
320	OLP sensor error	Outdoor Unit
381	Inverter PCB overheat error	Outdoor Unit
403	Detection of freezing (During cooling operation)	Outdoor Unit
404	Protection of Outdoor Unit when it is overload (during Safety Start, Normal operation state)	Outdoor Unit
407	Comp down due to high pressure	Outdoor Unit
416	Discharge of a compressor is overheated	Outdoor Unit
419	OUTDOOR UNIT EEV operation error	Outdoor Unit
425	Power source line missing error (only for 3-phase model)	Outdoor Unit
440	Heating operation blocked (outdoor temperature over 35 °C)	Outdoor Unit
441	Cooling operation blocked (outdoor temperature under 9 °C)	Outdoor Unit
458	OUTDOOR UNIT fan1 error	Outdoor Unit
461	[Inverter] Compressor startup error	Outdoor Unit
462	[Inverter] Total current error/PFC over current error	Outdoor Unit
463	OLP is overheated	Outdoor Unit
464	[Inverter] IPM over current error	Outdoor Unit
465	Compressor overload error	Outdoor Unit
466	DC LINK over/low voltage error	Outdoor Unit

Troubleshooting

Display	Explanation	Error Source
467	[Inverter] Compressor rotation error	Outdoor Unit
468	[Inverter] Current sensor error	Outdoor Unit
469	[Inverter] DC LINK voltage sensor error	Outdoor Unit
470	Outdoor unit EEPROM Read/Write Error	Outdoor Unit
471	Outdoor unit EEPROM Read/Write Error(OTP error)	Outdoor Unit
474	IPM(IGBT Module) or PFCM temperature sensor Error	Outdoor Unit
475	Outdoor Unit Fan2 error	Outdoor Unit
484	PFC Overload Error	Outdoor Unit
485	Input current sensor error	Outdoor Unit
500	IPM is overheated	Outdoor Unit
554	Gas leak error	Outdoor Unit
590	Inverter EEPROM Checksum error	Outdoor Unit
601	Communication error between the Hydro Unit and wired remote controller	Hydro Unit
604	Communication tracking error between the Hydro Unit and wired remote controller	Hydro Unit
653	Wired remote controller temp sensor SHORT or OPEN	Hydro Unit, Wired Remote Controller
654	Memory(EEPROM) Read/Write Error(Wired remote Controller data error)	Hydro Unit, Wired Remote Controller
702	Error due to closed EEV of indoor unit(1st detection)	Hydro unit, Indoor unit
703	Error due to opened EEV of indoor unit(1st detection)	Hydro unit, Indoor unit
901	Water inlet (PHE) temperature sensor error(open/short)	Hydro Unit
902	Water outlet (PHE) temperature sensor error(open/short)	Hydro Unit
903	Water outlet (backup heater) temperature sensor error	Hydro Unit
904	DHW tank temperature sensor error	Hydro Unit
906	Refrigerant gas inlet (PHE) temperature sensor (open/short)	Outdoor Unit
911	Flow switch and water pump error (F/S signal is OFF for 15 sec. during the water pump signal is ON)	Hydro Unit
912	Flow switch and water pump error (F/S signal is ON for 10 min. during the Water pump signal is OFF)	Hydro Unit
916	Mixing valve sensor error	Hydro Unit

Optional : Extending the power cable

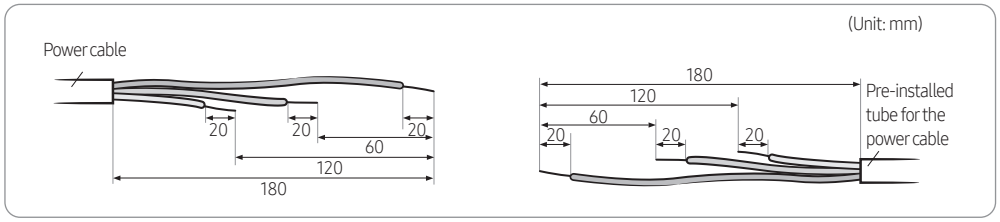
1. Prepare the following tools.

Tools	Spec	Shape
Crimping pliers	MH-14	
Connection sleeve (mm)	20xØ6.5 (HxOD)	
Insulation tape	Width 19 mm	
Contraction tube (mm)	70xØ8.0 (LxOD)	

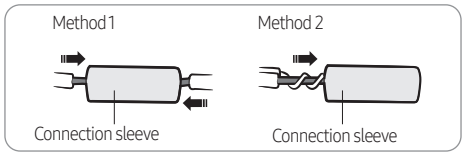
2. As shown in the figure, peel off the shields from the rubber and wire of the power cable.
   - Peel off 20 mm of cable shields from the pre-installed tube.

⚠ CAUTION

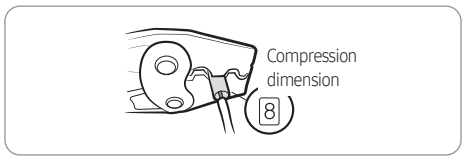
- For information about the power cable specifications for indoor and outdoor units, refer to the installation manual.
- After peeling off cable wires from the pre-installed tube, insert a contraction tube.
- If cable wires are connected without using connecting sleeves, their contact area becomes reduced, or corrosion develops on the outer surfaces of the wires (copper wires) over a long time. This may cause an increase of resistance (reduction of passing current) and consequently may result in a fire.



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.

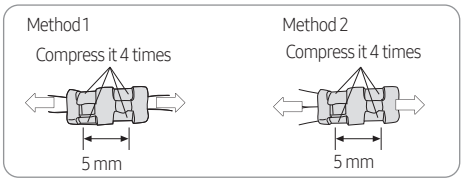


4. Using a crimping tool, compress the two points and flip it over and compress another two points in the same location.
   - The compression dimension should be 8.0.

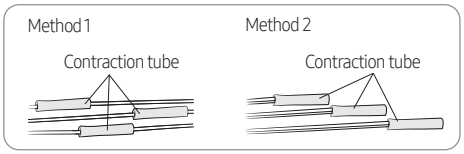


   - After compressing it, pull both sides of the wire to make sure it is firmly pressed.

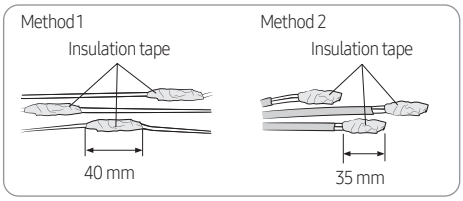
Optional : Extending the power cable



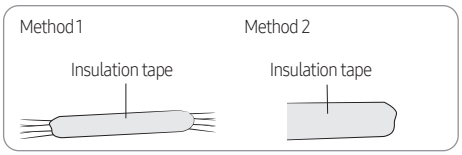
5. Apply heat to the contraction tube to contract it.



6. Wrap it with the insulation tape twice or more and position your contraction tube in the middle of the insulation tape.



7. After tube contraction work is completed, wrap it with the insulation tape to finish.
   Three or more layers of insulation are required.

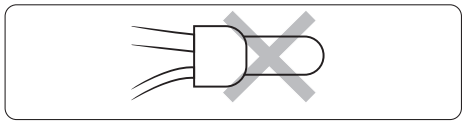


⚠ CAUTION

- 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.



Reference (HP KEYMARK Certification)

Model code Outdoor	Model code Indoor	Registration number
AE044MXTPEH/EU	AE200TNWTEH/EU	011-1W0369
AE066MXTPEH/EU	AE200TNWTEH/EU	
AE044MXTPEH/EU	AE260TNWTEH/EU	011-1W0370
AE066MXTPEH/EU	AE260TNWTEH/EU	
AE044MXTPEH/EU	AE090MNYDEH/EU	011-1W0371
AE066MXTPEH/EU	AE090MNYDEH/EU	
AE090MXTPEH/EU	AE200TNWTEH/EU	011-1W0372
AE090MXTPEH/EU	AE260TNWTEH/EU	011-1W0373
AE090MXTPEH/EU	AE090MNYDEH/EU	011-1W0374
AE090MXTPGH/EU	AE200TNWTEH/EU	011-1W0375
AE090MXTPGH/EU	AE260TNWTEH/EU	011-1W0376
AE090MXTPGH/EU	AE090MNYDGH/EU	011-1W0377
AE120MXTPEH/EU	AE260TNWTEH/EU	011-1W0378
AE120MXTPGH/EU	AE260TNWTEH/EU	
AE160MXTPEH/EU	AE260TNWTEH/EU	
AE160MXTPGH/EU	AE260TNWTEH/EU	
AE120MXTPEH/EU	AE160MNYDEH/EU	011-1W0379
AE120MXTPGH/EU	AE160MNYDGH/EU	
AE160MXTPEH/EU	AE160MNYDEH/EU	
AE160MXTPGH/EU	AE160MNYDGH/EU	

SAMSUNG

