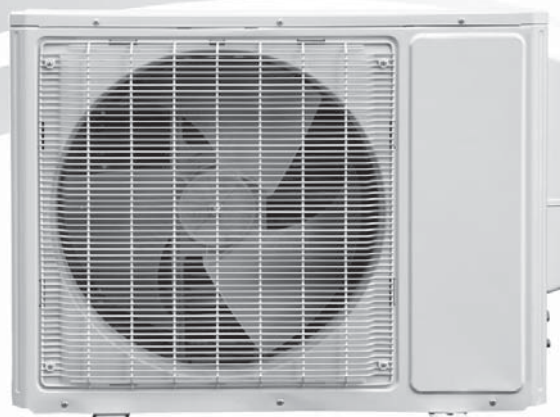


# Owner's Manual



## DUCTLESS MULTIZONE HEAT PUMP

22-21 SEER INVERTER  
18 000 to 42 000 BTU/hr

Models:

MPD18KCH22S-O  
MPD24KCH21S-O  
MPD30KCH21S-O  
MPD36KCH21S-O  
MPD42KCH21S-O



*Please read this owner's manual carefully  
before operating the unit and keep it for future reference.*

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

# OPERATION NOTICES

## EXPLANATION OF SYMBOLS



**DANGER**

Indicates a hazardous situation that, if not avoided, will result in serious injury or death.



**WARNING**

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



**CAUTION**

Indicates a hazardous situation that, if not avoided, may result in minor or moderate injury.

**NOTICE**

Indicates important but not hazard-related information, used to indicate risk of property damage.



Indicates a hazard and it is assigned to the signal words DANGER, WARNING or CAUTION.

## PRECAUTIONS

Only use the air conditioner as instructed in this booklet. These instructions are not intended to cover every possible condition and situation. As with any electrical household appliance, common sense and caution are therefore always recommended for installation, operation and maintenance.



### WARNING

#### Operation and Maintenance

- This appliance can be used by people (including children of 8 years old and above) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, as long as they are under the supervision or instruction concerning use of the appliance by a person responsible for their safety.
- Children shall not play with the appliance.
- Cleaning and user maintenance shall not be made by children.
- Disconnect power supply when cleaning. Otherwise, it may cause electric shock.
- If the power supply wire is damaged, it must be replaced by a qualified person in order to avoid a hazard.
- Do not wash with water to avoid electric shock.
- Maintenance must be performed by qualified person. Otherwise, it may cause personal injury or damage.
- Do not repair the appliance by yourself. It may cause electric shock or damage. Please contact a qualified person when you need to repair it.
- Do not extend fingers or objects into air inlet or air outlet. It may cause personal injury or damage.
- Do not block air outlet or air inlet. It may cause malfunction.
- When below phenomenon occurs, please turn off the appliance and disconnect power immediately, and then contact a qualified person for service:
  - There's abnormal sound during operation.
  - Circuit break trips off frequently.
  - The appliance gives off burning smell.
- If the appliance operates in an inappropriate environment or under abnormal conditions, it may cause malfunction, electric shock or fire hazard.
- Do not step on top panel of outdoor unit, or put on heavy objects. It may cause damage or personal injury.

## PRECAUTIONS



### WARNING

#### Wiring

- Installation must be performed by a qualified person. Otherwise, it may cause personal injury or damage.
- Must follow the electric safety regulations when installing the unit.
- According to the local safety regulations, use qualified power supply circuit and circuit breaker.
- Install a circuit breaker of adequate capacity only used for the system; otherwise, it may cause malfunction.
- An all-pole disconnection switch having a contact separation of at least 1/8" (3 mm) in all poles should be connected in fixed wiring.
- The appliance should be properly grounded. Incorrect grounding may cause electric shock.
- Make sure the power supply matches with the requirement of the appliance. Unstable power supply or incorrect wiring may cause malfunction of the unit, electric shock or fire hazard.
- Properly connect the live wire, neutral wire and grounding wire.
- Be sure to cut off the power supply before proceeding any work related to electricity and safety.
- Do not turn the power on before finishing installation.
- If the power supply or signal control wires are damaged, it must be replaced by a qualified person in order to avoid problems.
- The temperature of refrigerant circuit will be high, please keep the interconnection cable away from the copper tube.
- The appliance shall be installed in accordance with national wiring regulations.
- Installation must be performed in accordance with the requirement of NEC and CEC by a qualified person only.
- The heat pump is a first class electric appliance. It must be properly grounded with specialized grounding device by a qualified person. Please make sure it is always properly grounded, otherwise it may cause electric shock.
- The yellow-green wire in the appliance is the grounding wire, which can't be used for other purposes.
- The grounding resistance should comply with national electric safety regulations.
- All wires of indoor unit and outdoor unit should be connected by a qualified person.
- If the length of power connection wire is insufficient, please contact the dealer for a new one. Do not extend the wire yourself.

## PRECAUTIONS



### WARNING

#### Location

- If you need to relocate the appliance to another place, only a qualified person can perform the work. Otherwise, it may cause personal injury or damage.
- Select a location which is out of reach for children and far away from animals or plants. If it is unavoidable, please add a fence around the outdoor unit for safety purpose.
- Instructions for installation and use of this product are provided by the manufacturer.

## WORKING TEMPERATURE RANGE

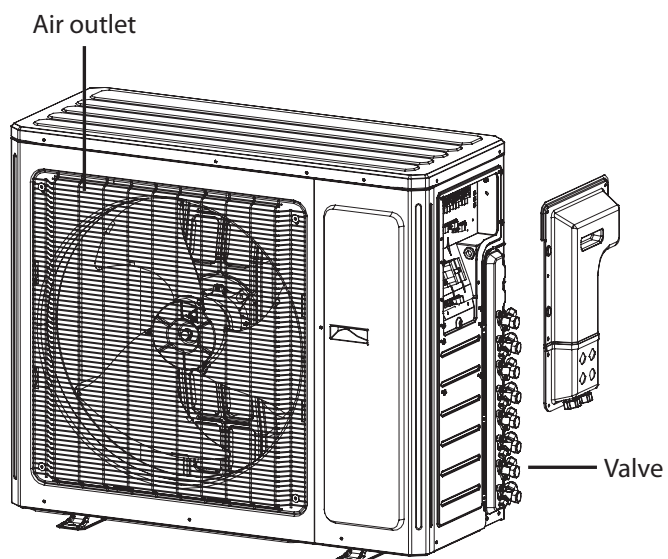
|              | Outdoor side DB/WB °C (°F) |
|--------------|----------------------------|
| Max. cooling | 48/- (118/-)               |
| Max. heating | 27/- (80/-)                |

## PARTS NAME

### NOTICE

Actual product may be different from below graphics, please refer to actual product for reference purposes.

#### Outdoor unit



# MAINTENANCE

## CLEANING AND MAINTENANCE



### WARNING

- Turn off the unit and disconnect the power before cleaning to avoid electric shock.
- Do not wash the unit with water to avoid electric shock.
- Do not use volatile liquid or mineral oils to clean the unit.
- Use suitable instruments for the refrigerant R410A.
- Do not use any other refrigerant than R410A.

### Cleaning the surface of outdoor unit

When the surface of outdoor unit is dirty, use a soft dry cloth or lightly moistened with water to wipe it.

### Checking before usage

1. Check that air inlets and air outlets are not blocked.
2. Check if circuit breaker and connection are in good condition.
3. Check that drainage pipe is not damaged or blocked.

### Checking after usage

1. Disconnect power supply.
2. Check whether mounting bracket for outdoor unit is damaged or corroded.  
If so, please contact the dealer.

### Notice for recovery

1. Many packing materials are recyclable. Please dispose of them in appropriate recycling bin.
2. If you want to get rid of the device, please contact a local recycling center for the correct disposal method.

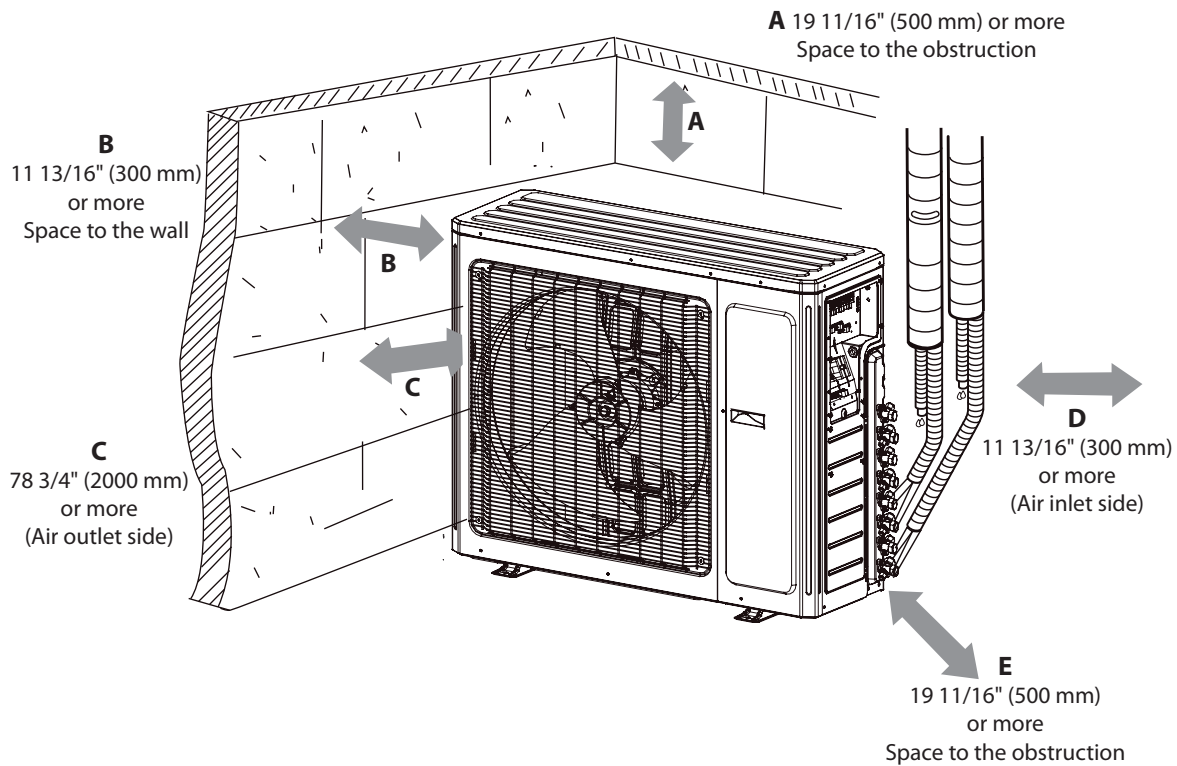
# PREPARATION BEFORE INSTALLATION

## REQUIRED INSTALLATION CLEARANCE DISTANCES DIAGRAM

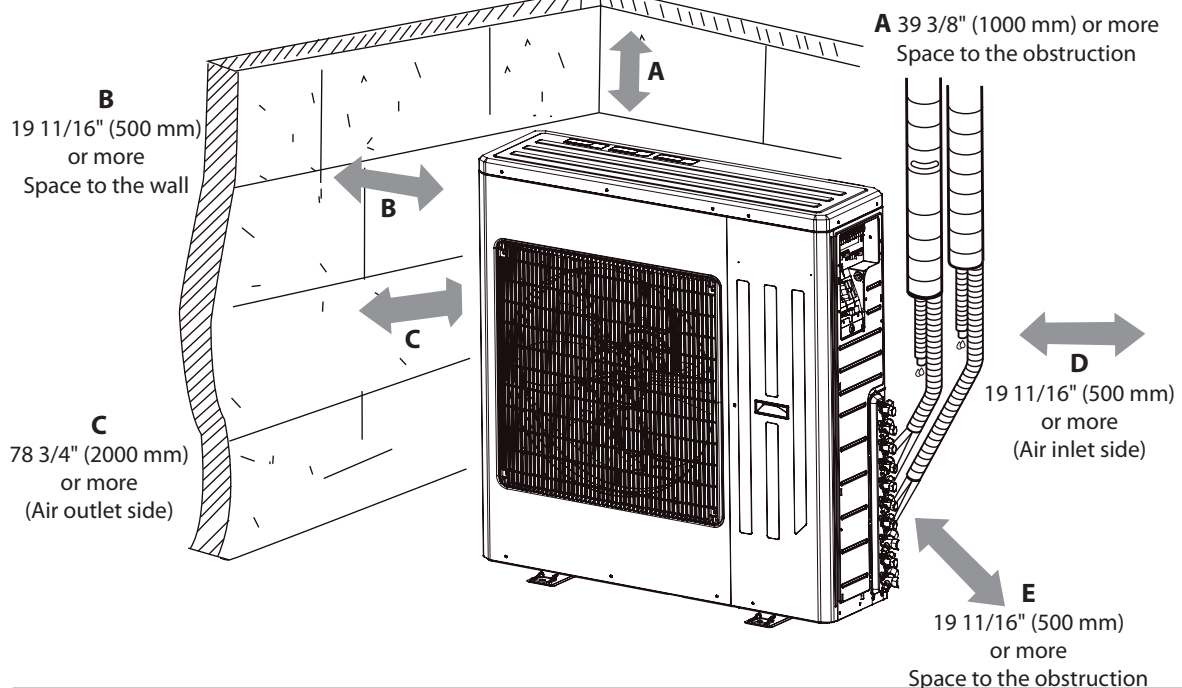
### NOTICE

Actual product may be different from below graphics, please refer to actual product for reference purposes.

### Models MPD18, MPD24, MPD30



### Models MPD36, MPD42



## TOOLS REQUIRED FOR INSTALLATION

- Level meter
- Screwdrivers
- Impact drill
- Drill head
- Pipe expander
- Torque wrench
- Open-end wrench
- Pipe cutter
- Leakage detector
- Vacuum pump
- Manometer
- Multimeter
- Inner hexagon spanner
- Measuring tape

### NOTICE

Contact a qualified person for installation.

## SELECTION OF INSTALLATION LOCATION

### Basic requirements

Installing the unit in the following places may cause malfunction. If it is unavoidable, please consult a qualified person:

- A place with strong heat sources, vapors, flammable or explosive gas or volatile objects spread in the air.
- A place with high-frequency devices (such as welding machine, medical equipment).
- A place near coastal regions.
- A place with oil or fumes in the air.
- A place with sulphurous gas.
- Other places with special environment.
- Near a swimming pool.

### Outdoor unit

- Select a location where the noise and outflow air emitted by the outdoor unit will not affect neighborhood.
- The location should be well ventilated and dry, where the outdoor unit won't be exposed directly to sunlight or strong wind.
- The location should be able to withstand the weight of outdoor unit.
- Make sure that the installation follows the requirement of clearance distance diagram.
- Select a location which is out of reach for children and far away from animals or plants. If it is unavoidable, please add a fence for safety purpose.

## REQUIREMENTS FOR ELECTRICAL CONNECTION

### Safety precautions

- You must follow the electric safety regulations when installing the unit.
- According to the local safety regulations, use qualified power supply circuit and circuit break.
- Make sure the power supply matches with the requirement of the device. Unstable power supply or incorrect wiring may cause malfunction and damage the unit or fire hazard.
- Properly connect the live wire, neutral wire and grounding wire.
- The connection pipes and wires from units A and B must correspond.
- Incorrect wire connections may cause some electric components to malfunction. After attaching the cable, ensure that the leads between connection to a fixed point are spaced out.
- Cut off the power supply before proceeding any work related to electricity.
- Do not turn on the power before finishing installation.
- The temperature of refrigerant circuit will be high, please keep the interconnection cable away from the copper tube.
- The appliance shall be installed in accordance with national wiring regulations.

### Grounding requirements

- The heat pump is a first class electric appliance. It must be properly grounded by a qualified person with specialized grounding device. Please make sure it is always grounded effectively, otherwise it may cause electric shock.
- The yellow-green wire in the appliance is the grounding wire, which cannot be used for other purposes.
- The grounding resistance should comply with national electric safety regulations.
- An all-pole disconnect switch having a contact separation of at least 1/8" (3 mm) in all poles should be connected in fixed wiring.

# INSTALLATION



## CAUTION

Installation must be performed in accordance with the NEC/CEC by authorized personnel only.

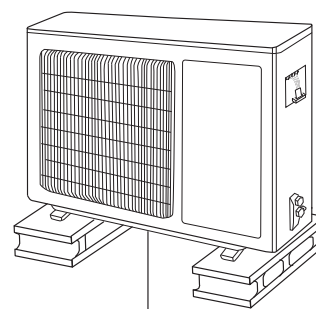
## INSTALLATION OF OUTDOOR UNIT

### Step 1: Fix the support of outdoor unit (select it according to the actual installation situation)

- Use bolts to secure the unit to a flat, solid floor. When mounting the unit on a wall or the roof, make sure the support is firmly secured so that it cannot move in the event of intense vibrations or a strong wind.
- Do not install the outdoor unit in pits or air vents.

### Notes:

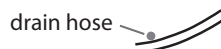
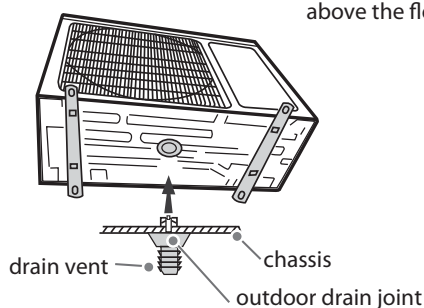
- Take sufficient protective measures when installing the outdoor unit.
- Make sure the support can withstand at least four times the unit weight.
- The outdoor unit should be installed at least 3/16" (30 mm) above the floor in order to install drain joint.



at least 1 3/16" (30 mm)  
above the floor

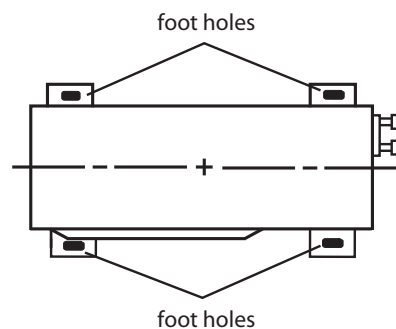
### Step 2: Install drain joint

- Connect the outdoor drain joint into the hole on the chassis, as shown in the picture below.
- Connect the drain hose into the drain vent.



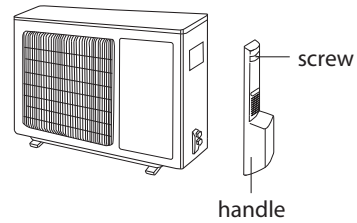
### Step 3: Fix outdoor unit

- Place the outdoor unit on the support.
- Fix the foot holes of outdoor unit with bolts.

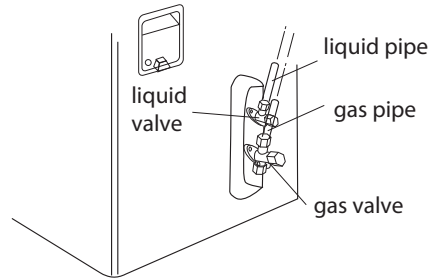


#### Step 4: Connect indoor and outdoor pipes

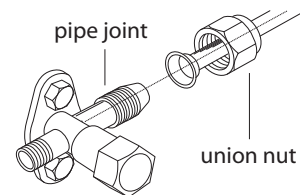
- Remove the screw on the right handle of outdoor unit and then remove the handle.



- Remove the valve cap and align the pipe joint on the flared orifice of the pipe.



- Pre-tighten the union nut by hand.

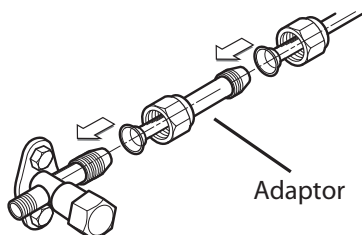


- Tighten the union nut with torque wrench by referring to the sheet below.

| Hex nut diameter | Tightening torque (N-m) |
|------------------|-------------------------|
| Φ 6              | 15~20                   |
| Φ 9.52           | 30~40                   |
| Φ 12             | 45~55                   |
| Φ 16             | 60~65                   |
| Φ 19             | 70~75                   |

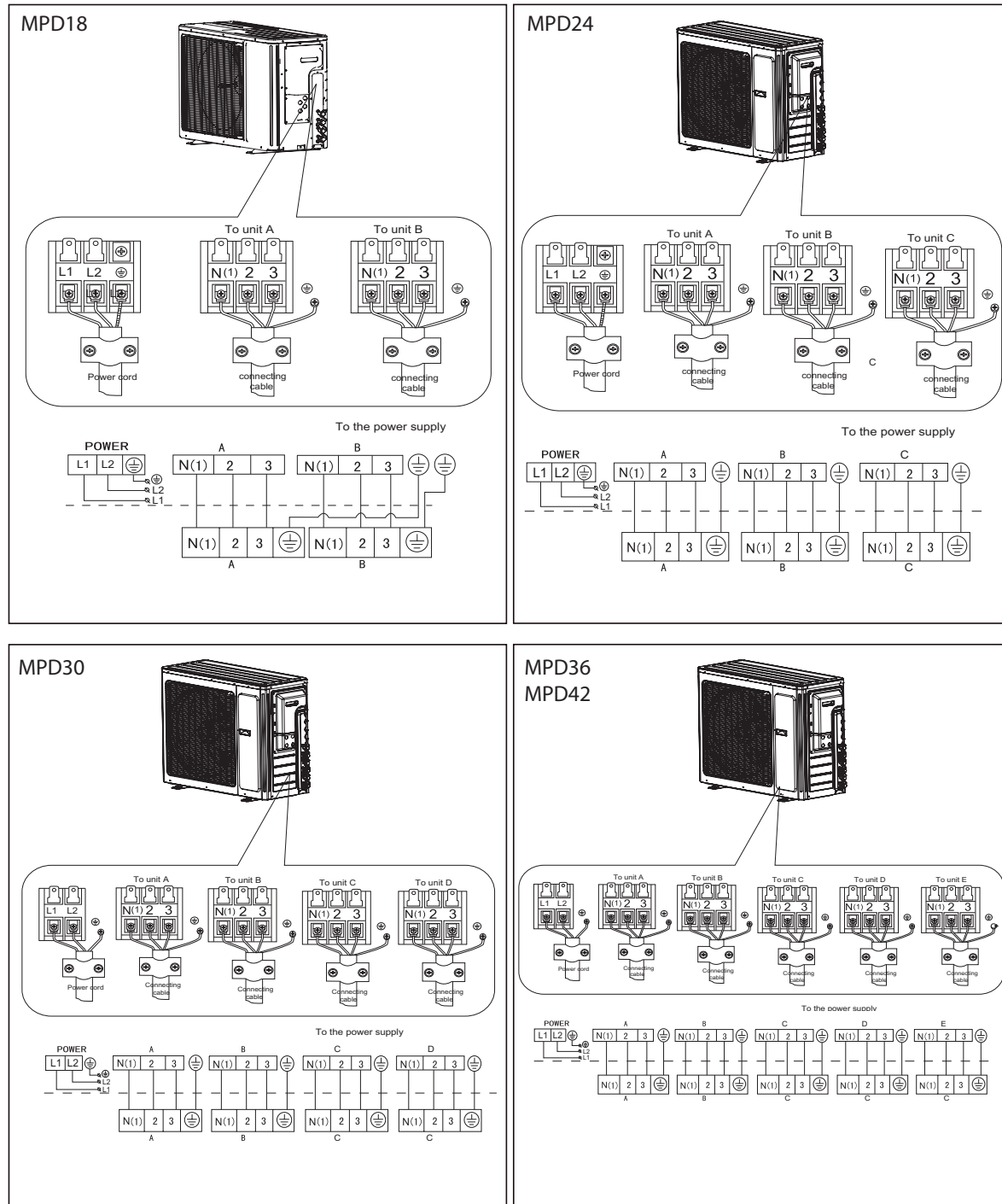
#### NOTES:

- If the pipe diameter of the outdoor unit doesn't match the piping connection size of the indoor unit, use the piping connection size of the indoor unit and add the adaptor supplied with the indoor unit.
- Make sure to label each pipe so you know which system it belongs to, in order to avoid inaccurate piping.



### Step 5: Wiring of the unit

- Remove the wire clip; connect the power connection wire and signal control wire to the wiring terminal according to the color; fix them with screws.

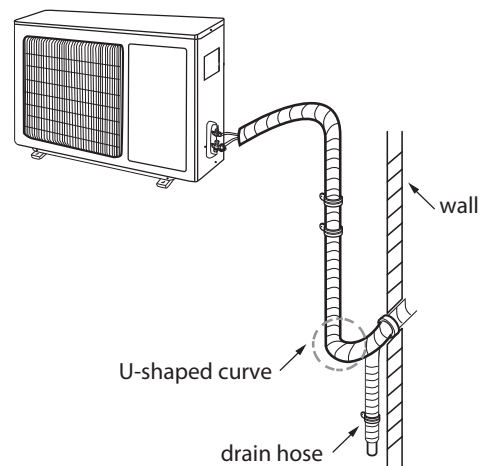


### Notes:

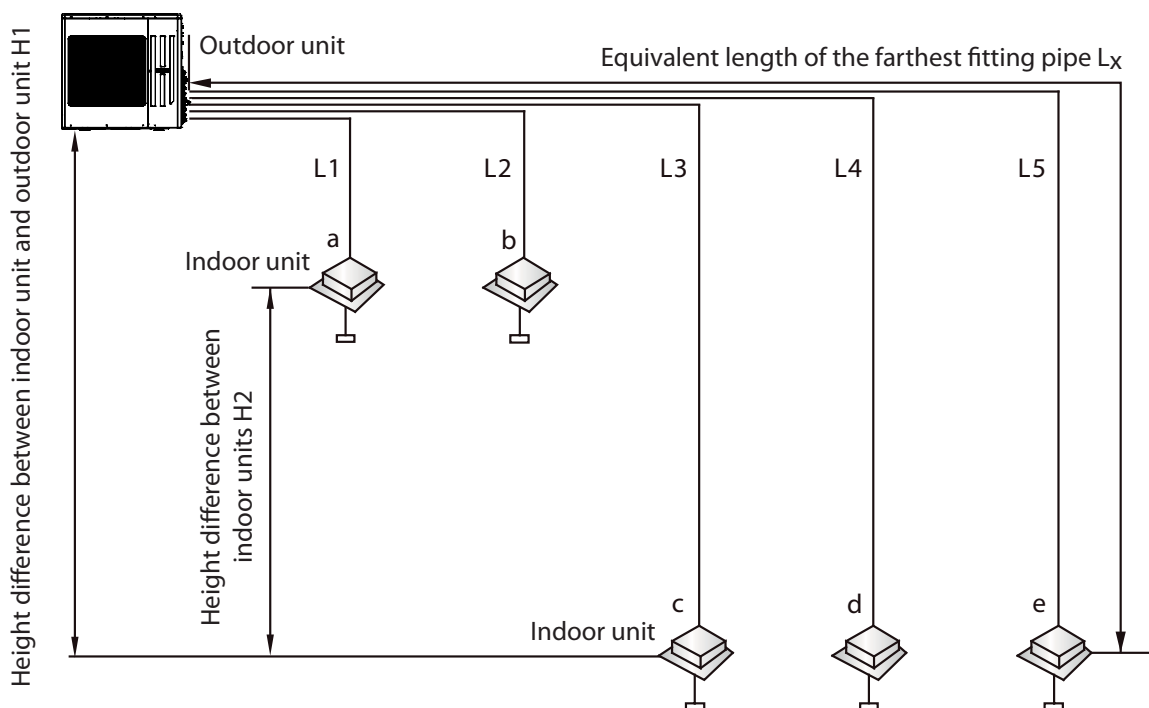
- These wiring diagrams are for reference only, please always refer to the one on the actual unit.
- Actual product may be different from above graphics, please refer to actual product for reference purposes.

### Step 6: Pipe arrangement

- Use suitable connecting pipes and equipment for the refrigerant R410A.
- The pipes should be placed along the wall, slightly bent and if possible be hidden. The minimum bending semi diameter is 4" (100 mm).
- If the outdoor unit is higher than the wall hole, you must set a U-shaped curve in the pipe before pipe goes into the house, in order to prevent rain from getting in.



Maximum length of connection pipe and maximum height difference



| Model #       | Max. total length<br>of connection pipe<br>$L1+L2+L3+L4+L5$ | Max. length<br>for single unit<br>$Lx$ | Max. height<br>difference<br>outdoor to<br>indoor unit<br>$H1$ | Max. height<br>difference between<br>indoor units<br>$H2$ |
|---------------|-------------------------------------------------------------|----------------------------------------|----------------------------------------------------------------|-----------------------------------------------------------|
|               | ft. (m)                                                     | ft. (m)                                | ft. (m)                                                        | ft. (m)                                                   |
| MPD18KCH22S-O | 66 (20)                                                     | 33 (10)                                | 33 (10)                                                        | 33 (10)                                                   |
| MPD24KCH21S-O | 197 (60)                                                    | 66 (20)                                | 33 (10)                                                        | 33 (10)                                                   |
| MPD30KCH21S-O | 230 (70)                                                    | 82.5 (25)                              | 49.5 (15)                                                      | 25 (7.5)                                                  |
| MPD36KCH21S-O | 246 (75)                                                    | 82.5 (25)                              | 49.5 (15)                                                      | 25 (7.5)                                                  |
| MPD42KCH21S-O | 246 (75)                                                    | 82.5 (25)                              | 49.5 (15)                                                      | 25 (7.5)                                                  |

**The outdoor unit is shipped with a full charge of R-410A refrigerant for the following total piping lengths:**

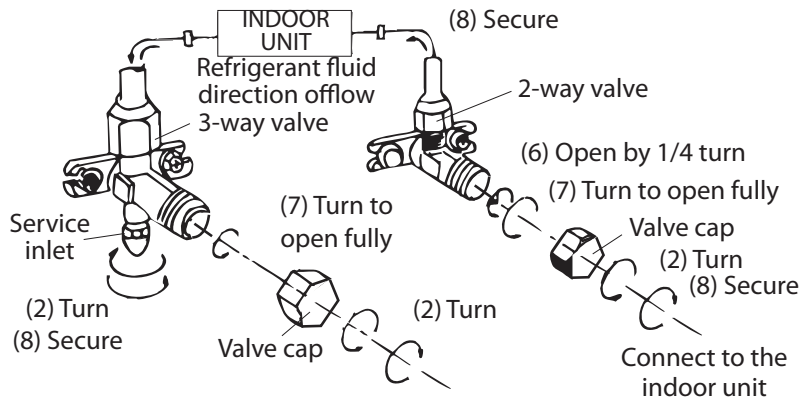
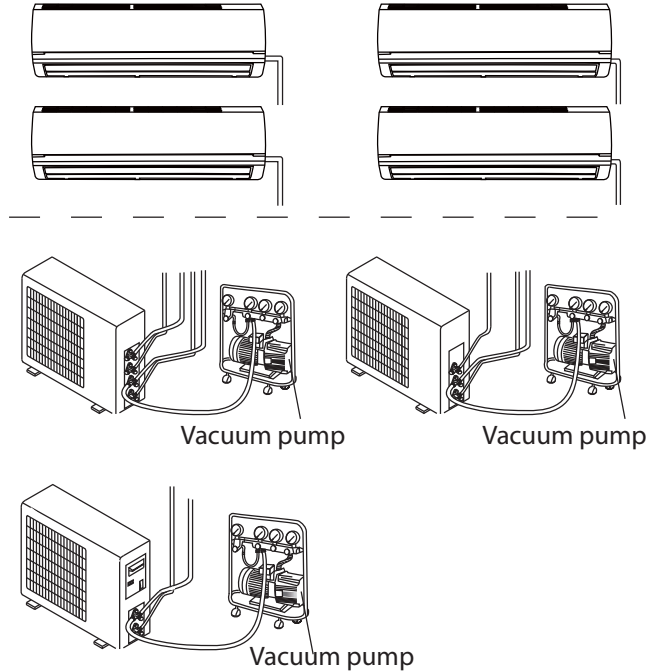
| Model #       | Pre-charge length |
|---------------|-------------------|
|               | ft. (m)           |
| MPD18KCH22S-O | 33 (10)           |
| MPD24KCH21S-O | 98 (30)           |
| MPD30KCH21S-O | 130 (40)          |
| MPD36KCH21S-O | 130 (40)          |
| MPD42KCH21S-O | 130 (40)          |

- For pipe runs over this limit, add 0.2 oz/ft (20 g/m) of additional refrigerant.

# VACUUM PUMPING

Humid air left inside the refrigerant circuit can cause compressor malfunction. After having connected the indoor and outdoor units, bleed the air and humidity from the refrigerant circuit using a vacuum pump.

1. Unscrew and remove the caps from the 2-way and 3-way valves.
2. Unscrew and remove the cap from the service valve.
3. Connect the vacuum pump hose to the service valve.
4. Operate the vacuum pump for 10-15 minutes until an absolute vacuum of 3/8" (10 mm) Hg has been reached.
5. With the vacuum pump still in operation, close the low-pressure knob on the vacuum pump coupling. Stop the vacuum pump.
6. Open the 2-way valve by 1/4 turn and then close it after 10 seconds. Check all the joints for leaks using liquid soap or an electronic leak device.
7. Turn the body of the 2-way and 3-way valves. Disconnect the vacuum pump hose.
8. Replace and tighten all the caps on the valves.



# CHECKING AFTER INSTALLATION

Check the following items after finishing installation:

| Items to check                                                                     | Possible malfunction                                                                       |
|------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|
| Has the unit been installed solidly?                                               | The unit may drop, shake or emit noise.                                                    |
| Have you done the refrigerant leakage test?                                        | It may cause insufficient cooling (heating) capacity.                                      |
| Is heat insulation of pipeline sufficient?                                         | It may cause condensation and water dripping.                                              |
| Is water drained well?                                                             | It may cause condensation and water dripping.                                              |
| Is the voltage of power supply according to the voltage marked on the nameplate?   | It may cause malfunction or damaging the parts.                                            |
| Are electric wiring and pipes installed correctly?                                 | It may cause malfunction or damaging the parts.                                            |
| Is the unit grounded securely?                                                     | It may cause electric leakage.                                                             |
| Does the power wire follow the specifications?                                     | It may cause malfunction or damaging the parts.                                            |
| Is there any obstruction in the air inlet and outlet?                              | It may cause insufficient cooling (heating) capacity.                                      |
| Are dust and installation debris removed?                                          | It may cause malfunction or damaging the parts.                                            |
| Are gas valve and liquid valve of connection pipe completely opened?               | It may cause insufficient cooling (heating) capacity.                                      |
| Have the length of refrigerating pipe and refrigerant charge amount been recorded? | It is not easy to figure out the charge amount of refrigerant if it has not been recorded. |

# OTHER CONSIDERATIONS

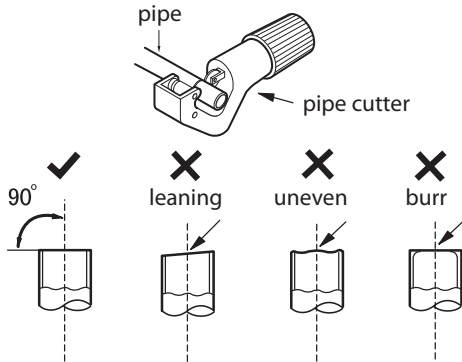
## PIPE EXPANDING METHOD

### Note:

Improper pipe expanding is the main cause of refrigerant leakage.  
Please expand the pipe according to the following steps:

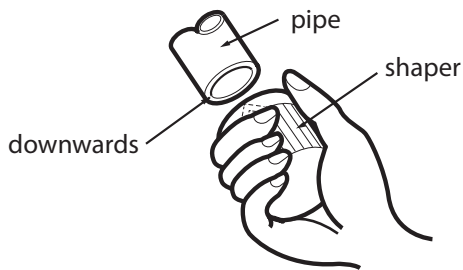
### 1. Cut the pipe

- Confirm the pipe length according to the distance between indoor and outdoor unit.
- Cut the pipe with pipe cutter.



### 2. Remove the burrs

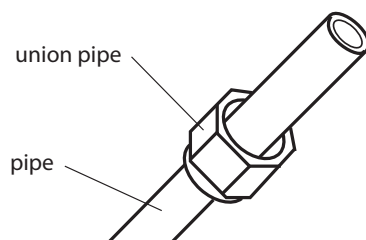
- Remove the burrs with a shaper and prevent the burrs from getting into the pipe.



### 3. Put on suitable insulating pipe

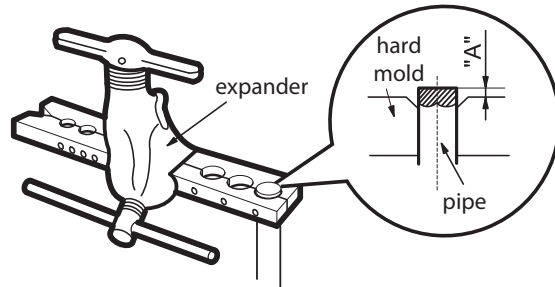
### 4. Put on the union nut

- Remove the union nut on the indoor connection pipe and outdoor valve; install the union nut on the pipe.



### 5. Expand the port

- Expand the port with an expander.



### Note:

"A" varies according to the diameter, please refer to the chart below:

| Outer diameter<br>(mm) | A (mm) |     |
|------------------------|--------|-----|
|                        | Max    | Min |
| Φ 6 - 6.35 (1/4")      | 1.3    | 0.7 |
| Φ 9.52 (3/8")          | 1.6    | 1.0 |
| Φ 12 - 12.7 (1/2")     | 1.8    | 1.0 |
| Φ 15.8 - 16 (5/8")     | 2.4    | 2.2 |

### 6. Inspection

- Check the quality of the expansion. If the surface is not smooth, repeat the previous steps.

