MITSUBISHI ELECTRIC

Mr.SLIM

Air-Conditioners
Кондиционеры
PUHZ-ZRP•KA Series
PUHZ-P•KA Series

INSTALLATION MANUAL

FOR INSTALLER

For safe and correct use, read this manual and the indoor unit installation manual thoroughly before installing the air-conditioner unit.

English

Contents

Note: This symbol mark is for EU countries only.
This symbol mark is according to the directive 2012/19/EU Article 14 Information for users and Annex IX.
Your MITSUBISHI ELECTRIC product is designed and manufactured with high quality materials and components which can be recycled and reused.
This symbol means that electrical and electronic equipment, at their end-of-life, should be disposed of separately from your household waste.
Please, dispose of this equipment at your local community waste collection/recycling centre.
In the European Union there are separate collection systems for used electrical and electronic product.
Please, help us to conserve the environment we live in!

⚠ **Caution:**
• Do not vent R410A into the atmosphere.

1. Safety precautions

► Before installing the unit, make sure you read all the "Safety precautions".
► Please report to or take consent by the supply authority before connection to the system.
► Equipment complying with IEC/EN 61000-3-12 (PUHZ-ZRP100/125/140VKA3)
► PUHZ-ZRP200/250Y, P200/250Y
"This equipment complies with IEC 61000-3-12 provided that the short-circuit power S_{sc} is greater than or equal to S_{sc} (*1) at the interface point between the user's supply and the public system. It is the responsibility of the installer or user of the equipment to ensure, by consultation with the distribution network operator if necessary, that the equipment is connected only to a supply with a short-circuit power S_{sc} greater than or equal to S_{sc} (*1)"
S_{sc} (*1)

Model	S_{sc} (MVA)
PUHZ-ZRP200Y, P200Y	1.35
PUHZ-ZRP250Y, P250Y	1.49

⚠ **Warning:**
Describes precautions that must be observed to prevent danger of injury or death to the user.

⚠ **Caution:**
Describes precautions that must be observed to prevent damage to the unit.

After installation work has been completed, explain the "Safety Precautions," use, and maintenance of the unit to the customer according to the information in the Operation Manual and perform the test run to ensure normal operation. Both the Installation Manual and Operation Manual must be given to the user for keeping. These manuals must be passed on to subsequent users.

⏚ : Indicates a part which must be grounded.

⚠ **Warning:**
Carefully read the labels affixed to the main unit.

⚠ **Warning:**
- **The unit must not be installed by the user. Ask a dealer or an authorized technician to install the unit. If the unit is installed incorrectly, water leakage, electric shock, or fire may result.**
- **For installation work, follow the instructions in the Installation Manual and use tools and pipe components specifically made for use with R410A refrigerant. The R410A refrigerant in the HFC system is pressurized 1.6 times the pressure of usual refrigerants. If pipe components not designed for R410A refrigerant are used and the unit is not installed correctly, the pipes may burst and cause damage or injuries. In addition, water leakage, electric shock, or fire may result.**
- **The unit must be installed according to the instructions in order to minimize the risk of damage from earthquakes, typhoons, or strong winds. An incorrectly installed unit may fall down and cause damage or injuries.**
- **The unit must be securely installed on a structure that can sustain its weight. If the unit is mounted on an unstable structure, it may fall down and cause damage or injuries.**
- **If the air conditioner is installed in a small room, measures must be taken to prevent the refrigerant concentration in the room from exceeding the safety limit in the event of refrigerant leakage. Consult a dealer regarding the appropriate measures to prevent the allowable concentration from being exceeded. Should the refrigerant leak and cause the concentration limit to be exceeded, hazards due to lack of oxygen in the room may result.**
- **Ventilate the room if refrigerant leaks during operation. If refrigerant comes into contact with a flame, poisonous gases will be released.**
- **All electric work must be performed by a qualified technician according to local regulations and the instructions given in this manual. The units must be powered by dedicated power lines and the correct voltage and circuit breakers must be used. Power lines with insufficient capacity or incorrect electrical work may result in electric shock or fire.**
- **Use C1220 copper phosphorus, for copper and copper alloy seamless pipes, to connect the refrigerant pipes. If the pipes are not connected correctly, the unit will not be properly grounded and electric shock may result.**
- **This appliance is intended to be used by expert or trained users in shops, in light industry and on farms, or for commercial use by lay persons.**
- **Use only specified cables for wiring. The wiring connections must be made securely with no tension applied on the terminal connections. Also, never splice the cables for wiring (unless otherwise indicated in this document). Failure to observe these instructions may result in overheating or a fire.**
- **The terminal block cover panel of the outdoor unit must be firmly attached. If the cover panel is mounted incorrectly and dust and moisture enter the unit, electric shock or fire may result.**
- **When installing or relocating, or servicing the air conditioner, use only the specified refrigerant (R410A) to charge the refrigerant lines. Do not mix it with any other refrigerant and do not allow air to remain in the lines. If air is mixed with the refrigerant, then it can be the cause of abnormal high pressure in the refrigerant line, and may result in an explosion and other hazards. The use of any refrigerant other than that specified for the system will cause mechanical failure or system malfunction or unit breakdown. In the worst case, this could lead to a serious impediment to securing product safety.**
- **Use only accessories authorized by Mitsubishi Electric and ask a dealer or an authorized technician to install them. If accessories are incorrectly installed, water leakage, electric shock, or fire may result.**
- **Do not alter the unit. Consult a dealer for repairs. If alterations or repairs are not performed correctly, water leakage, electric shock, or fire may result.**
- **The user should never attempt to repair the unit or transfer it to another location. If the unit is installed incorrectly, water leakage, electric shock, or fire may result. If the air conditioner must be repaired or moved, ask a dealer or an authorized technician.**
- **After installation has been completed, check for refrigerant leaks. If refrigerant leaks into the room and comes into contact with the flame of a heater or portable cooking range, poisonous gases will be released.**

1.1. Before installation

⚠ **Caution:**
- **Do not use the unit in an unusual environment. If the air conditioner is installed in areas exposed to steam, volatile oil (including machine oil), or sulfuric gas, areas exposed to high salt content such as the seaside, or areas where the unit will be covered by snow, the performance can be significantly reduced and the internal parts can be damaged.**
- **Do not install the unit where combustible gases may leak, be produced, flow, or accumulate. If combustible gas accumulates around the unit, fire or explosion may result.**
- **The outdoor unit produces condensation during the heating operation. Make sure to provide drainage around the outdoor unit if such condensation is likely to cause damage.**
- **When installing the unit in a hospital or communications office, be prepared for noise and electronic interference. Inverters, home appliances, high-frequency medical equipment, and radio communications equipment can cause the air conditioner to malfunction or breakdown. The air conditioner may also affect medical equipment, disturbing medical care, and communications equipment, harming the screen display quality.**

1. Safety precautions

1.2. Before installation (relocation)

⚠ **Caution:**

- **Be extremely careful when transporting or installing the units. Two or more persons are needed to handle the unit, as it weighs 20 kg or more. Do not grasp the packaging bands. Wear protective gloves to remove the unit from the packaging and to move it, as you can injure your hands on the fins or the edge of other parts.**
- **Be sure to safely dispose of the packaging materials. Packaging materials, such as nails and other metal or wooden parts may cause stabs or other injuries.**
- **The base and attachments of the outdoor unit must be periodically checked for looseness, cracks or other damage. If such defects are left uncorrected, the unit may fall down and cause damage or injuries.**
- **Do not clean the air conditioner unit with water. Electric shock may result.**
- **Tighten all flare nuts to specification using a torque wrench. If tightened too much, the flare nut can break after an extended period and refrigerant can leak out.**

1.3. Before electric work

⚠ **Caution:**

- **Be sure to install circuit breakers. If not installed, electric shock may result.**
- **For the power lines, use standard cables of sufficient capacity. Otherwise, a short circuit, overheating, or fire may result.**
- **When installing the power lines, do not apply tension to the cables. If the connections are loosened, the cables can snap or break and overheating or fire may result.**
- **Be sure to ground the unit. Do not connect the ground wire to gas or water pipes, lightning rods, or telephone grounding lines. If the unit is not properly grounded, electric shock may result.**
- **Use circuit breakers (ground fault interrupter, isolating switch (+B fuse), and molded case circuit breaker) with the specified capacity. If the circuit breaker capacity is larger than the specified capacity, breakdown or fire may result.**

1.4. Before starting the test run

⚠ **Caution:**

- **Turn on the main power switch more than 12 hours before starting operation. Starting operation just after turning on the power switch can severely damage the internal parts. Keep the main power switch turned on during the operation season.**
- **Before starting operation, check that all panels, guards and other protective parts are correctly installed. Rotating, hot, or high voltage parts can cause injuries.**
- **Do not touch any switch with wet hands. Electric shock may result.**
- **Do not touch the refrigerant pipes with bare hands during operation. The refrigerant pipes are hot or cold depending on the condition of the flowing refrigerant. If you touch the pipes, burns or frostbite may result.**
- **After stopping operation, be sure to wait at least five minutes before turning off the main power switch. Otherwise, water leakage or breakdown may result.**

1.5. Using R410A refrigerant air conditioners

⚠ **Caution:**

- **Use C1220 copper phosphorus, for copper and copper alloy seamless pipes, to connect the refrigerant pipes. Make sure the insides of the pipes are clean and do not contain any harmful contaminants such as sulfuric compounds, oxidants, debris, or dust. Use pipes with the specified thickness. (Refer to 4.1.) Note the following if reusing existing pipes that carried R22 refrigerant.**
  - Replace the existing flare nuts and flare the flared sections again.
  - Do not use thin pipes. (Refer to 4.1.)
- **Store the pipes to be used during installation indoors and keep both ends of the pipes sealed until just before brazing. (Leave elbow joints, etc. in their packaging.) If dust, debris, or moisture enters the refrigerant lines, oil deterioration or compressor breakdown may result.**
- **Use ester oil, ether oil, alkylbenzene oil (small amount) as the refrigeration oil applied to the flared sections. If mineral oil is mixed in the refrigeration oil, oil deterioration may result.**
- **Do not use refrigerant other than R410A refrigerant. If another refrigerant is used, the chlorine will cause the oil to deteriorate.**
- **Use the following tools specifically designed for use with R410A refrigerant. The following tools are necessary to use R410A refrigerant. Contact your nearest dealer for any questions.**

Tools (for R410A)	
Gauge manifold	Flare tool
Charge hose	Size adjustment gauge
Gas leak detector	Vacuum pump adapter
Torque wrench	Electronic refrigerant charging scale

- **Be sure to use the correct tools. If dust, debris, or moisture enters the refrigerant lines, refrigeration oil deterioration may result.**
- **Do not use a charging cylinder. If a charging cylinder is used, the composition of the refrigerant will change and the efficiency will be lowered.**

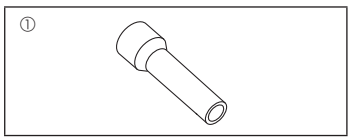

Fig. 1-1

1.6. Accessories of outdoor unit (Fig. 1-1) (ZRP200/250, P200/250)

The parts show in the left are the accessories of this unit, which are affixed to the inside of the service panel.

① Joint Pipe accessory ·····×1

(1) Put flare nut which is removed from the Ball Valve on the Joint Pipe accessory and carry out flare work.

(2) The Joint Pipe accessory and the pipe which is prepared on site must be brazed in non-oxidation status.

(3) After the pipes are brazed, connect the Joint Pipe accessory to the Ball Valve which locates within the unit by flare connection.

* Never connect the Joint Pipe accessory to the Ball Valve before brazing. Some parts may be burnt and it may cause refrigerant leakage.

2. Installation location

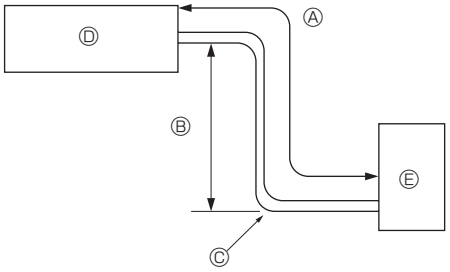

Fig. 2-1

2.1. Refrigerant pipe (Fig. 2-1)

► **Check that the difference between the heights of the indoor and outdoor units, the length of refrigerant pipe, and the number of bends in the pipe are within the limits shown below.**

Models	Ⓐ Pipe length (one way)	Ⓑ Height difference	Ⓒ Number of bends (one way)
ZRP100, 125, 140	Max. 75 m	Max. 30 m	Max. 15
ZRP200, 250	Max. 100 m	Max. 30 m	Max. 15
P200, 250	Max. 70 m	Max. 30 m	Max. 15

- Height difference limitations are binding regardless of which unit, indoor or outdoor, is positioned higher.
  - Ⓓ Indoor unit
  - Ⓔ Outdoor unit

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■ **ZRP100, 125, 140, 200, 250**
■ **P200, 250**

(mm)

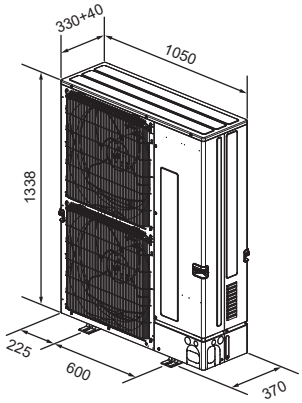


Fig. 2-2

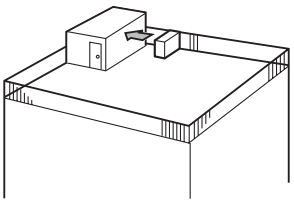


Fig. 2-3

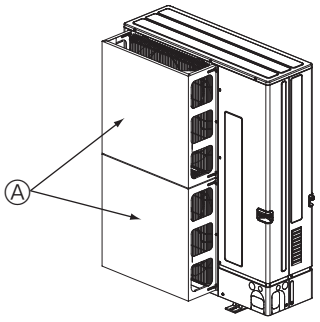


Fig. 2-4

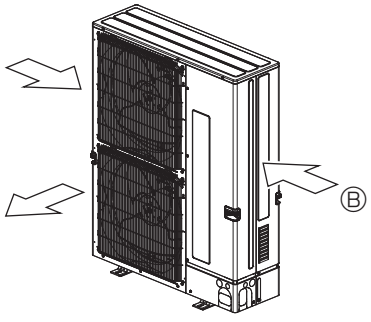


Fig. 2-5

2.2. Choosing the outdoor unit installation location

- Avoid locations exposed to direct sunlight or other sources of heat.
- Select a location from which noise emitted by the unit will not inconvenience neighbors.
- Select a location permitting easy wiring and pipe access to the power source and indoor unit.
- Avoid locations where combustible gases may leak, be produced, flow, or accumulate.
- Note that water may drain from the unit during operation.
- Select a level location that can bear the weight and vibration of the unit.
- Avoid locations where the unit can be covered by snow. In areas where heavy snow fall is anticipated, special precautions such as raising the installation location or installing a hood on the air intake must be taken to prevent the snow from blocking the air intake or blowing directly against it. This can reduce the airflow and a malfunction may result.
- Avoid locations exposed to oil, steam, or sulfuric gas.
- Use the transportation handles of the outdoor unit to transport the unit. If the unit is carried from the bottom, hands or fingers may be pinched.

2.3. Outline dimensions (Outdoor unit) (Fig. 2-2)

2.4. Ventilation and service space

2.4.1. Windy location installation

When installing the outdoor unit on a rooftop or other location unprotected from the wind, situate the air outlet of the unit so that it is not directly exposed to strong winds. Strong wind entering the air outlet may impede the normal airflow and a malfunction may result.
The following shows three examples of precautions against strong winds.

① Face the air outlet towards the nearest available wall about 50 cm away from the wall. (Fig. 2-3)
② Install an optional air guide if the unit is installed in a location where strong winds from a typhoon, etc. may directly enter the air outlet. (Fig. 2-4)
   Ⓐ Air outlet guide
③ Position the unit so that the air outlet blows perpendicularly to the seasonal wind direction, if possible. (Fig. 2-5)
   Ⓑ Wind direction

2.4.2. When installing a single outdoor unit (Refer to the last page)

Minimum dimensions are as follows, except for Max., meaning Maximum dimensions, indicated.
Refer to the figures for each case.

① Obstacles at rear only (Fig. 2-6)
② Obstacles at rear and above only (Fig. 2-7)
③ Obstacles at rear and sides only (Fig. 2-8)
④ Obstacles at front only (Fig. 2-9)
   * When using an optional air outlet guide, the clearance is 500 mm or more.
⑤ Obstacles at front and rear only (Fig. 2-10)
   * When using an optional air outlet guide, the clearance is 500 mm or more.
⑥ Obstacles at rear, sides, and above only (Fig. 2-11)
   • Do not install the optional air outlet guides for upward airflow.

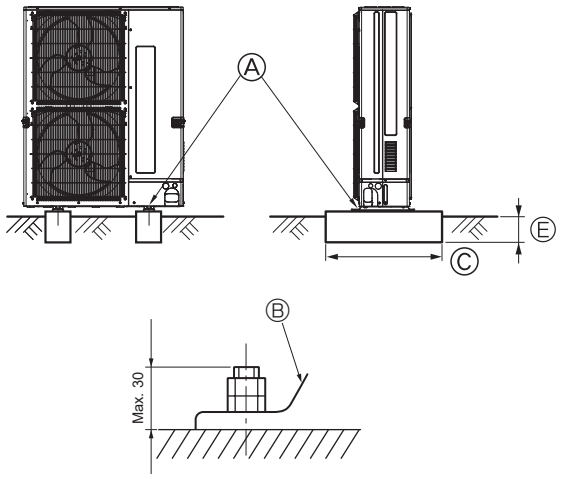
2.4.3. When installing multiple outdoor units (Refer to the last page)

Leave 50 mm for ZRP100-250/P200, 250 space or more between the units.

① Obstacles at rear only (Fig. 2-12)
② Obstacles at rear and above only (Fig. 2-13)
   • No more than 3 units must be installed side by side. In addition, leave space as shown.
   • Do not install the optional air outlet guides for upward airflow.
③ Obstacles at front only (Fig. 2-14)
   * When using an optional air outlet guide, the clearance for ZRP100-250/P200, 250 models is 1000 mm or more.
④ Obstacles at front and rear only (Fig. 2-15)
   * When using an optional air outlet guide, the clearance for ZRP100-250/P200, 250 models is 1000 mm or more.
⑤ Single parallel unit arrangement (Fig. 2-16)
   * When using an optional air outlet guide installed for upward airflow, the clearance is 1000 mm or more.
⑥ Multiple parallel unit arrangement (Fig. 2-17)
   * When using an optional air outlet guide installed for upward airflow, the clearance is 1500 mm or more.
⑦ Stacked unit arrangement (Fig. 2-18)
   • The units can be stacked up to two units high.
   • No more than 2 stacked units must be installed side by side. In addition, leave space as shown.

3. Installing the outdoor unit

(mm)



Ⓐ M10 (3/8") bolt
Ⓑ Base
Ⓒ As long as possible.
Ⓓ Vent
Ⓔ Set deep in the ground

- Be sure to install the unit in a sturdy, level surface to prevent rattling noises during operation. (Fig. 3-1)

<Foundation specifications>

Foundation bolt	M10 (3/8")
Thickness of concrete	120 mm
Length of bolt	70 mm
Weight-bearing capacity	320 kg

- Make sure that the length of the foundation bolt is within 30 mm of the bottom surface of the base.
- Secure the base of the unit firmly with four-M10 foundation bolts in sturdy locations.

Installing the outdoor unit

- Do not block the vent. If the vent is blocked, operation will be hindered and breakdown may result.
- In addition to the unit base, use the installation holes on the back of the unit to attach wires, etc., if necessary to install the unit. Use self-tapping screws (ø5 × 15 mm or less) and install on site.

⚠ Warning:

- **The unit must be securely installed on a structure that can sustain its weight. If the unit is mounted on an unstable structure, it may fall down and cause damage or injuries.**
- **The unit must be installed according to the instructions in order to minimize the risk of damage from earthquakes, typhoons, or strong winds. An incorrectly installed unit may fall down and cause damage or injuries.**

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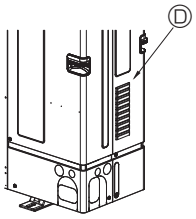
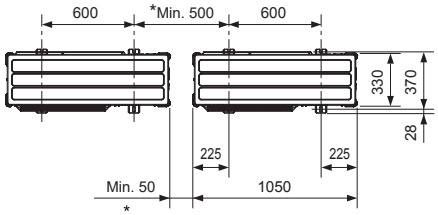
■ ZRP100-250/P200, 250



■ ZRP100-250/P200, 250



* When installing a single outdoor unit, the clearance is 15 mm or more.

Fig. 3-1

4. Installing the refrigerant piping

4.1. Precautions for devices that use R410A refrigerant

- **Refer to 1.5. for precautions not included below on using air conditioners with R410A refrigerant.**
- **Use ester oil, ether oil, alkylbenzene oil (small amount) as the refrigeration oil applied to the flared sections.**
- **Use C1220 copper phosphorus, for copper and copper alloy seamless pipes, to connect the refrigerant pipes. Use refrigerant pipes with the thicknesses specified in the table to the below. Make sure the insides of the pipes are clean and do not contain any harmful contaminants such as sulfuric compounds, oxidants, debris, or dust.**
  Always apply no-oxidation brazing when brazing the pipes, otherwise, the compressor will be damaged.

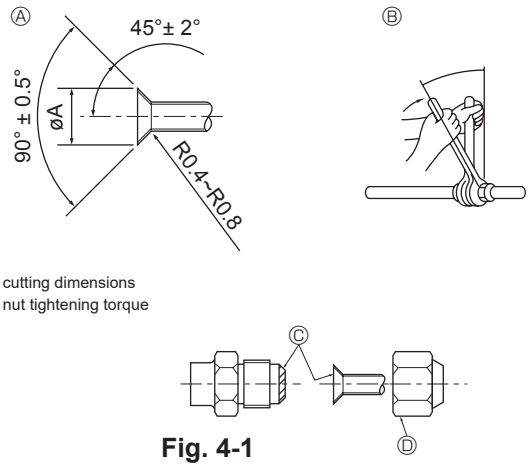
⚠ Warning:

When installing or relocating, or servicing the air conditioner, use only the specified refrigerant (R410A) to charge the refrigerant lines. Do not mix it with any other refrigerant and do not allow air to remain in the lines.
If air is mixed with the refrigerant, then it can be the cause of abnormal high pressure in the refrigerant line, and may result in an explosion and other hazards.
The use of any refrigerant other than that specified for the system will cause mechanical failure or system malfunction or unit breakdown. In the worst case, this could lead to a serious impediment to securing product safety.

Pipe size (mm)	ø6.35	ø9.52	ø12.7	ø15.88	ø19.05	ø22.2	ø25.4	ø28.58
Thickness (mm)	0.8	0.8	0.8	1.0	1.0	1.0	1.0	1.0

- **Do not use pipes thinner than those specified above.**
- **Use 1/2 H or H pipes if the diameter is 19.05 mm or larger.**

4. Installing the refrigerant piping



Ⓐ Flare cutting dimensions
Ⓑ Flare nut tightening torque

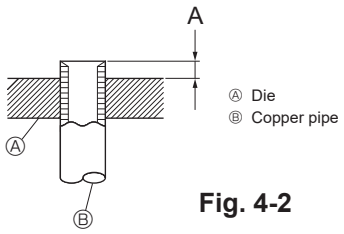
Fig. 4-1

Ⓐ (Fig. 4-1)

Copper pipe O.D. (mm)	Flare dimensions øA dimensions (mm)
ø6.35	8.7 - 9.1
ø9.52	12.8 - 13.2
ø12.7	16.2 - 16.6
ø15.88	19.3 - 19.7
ø19.05	23.6 - 24.0

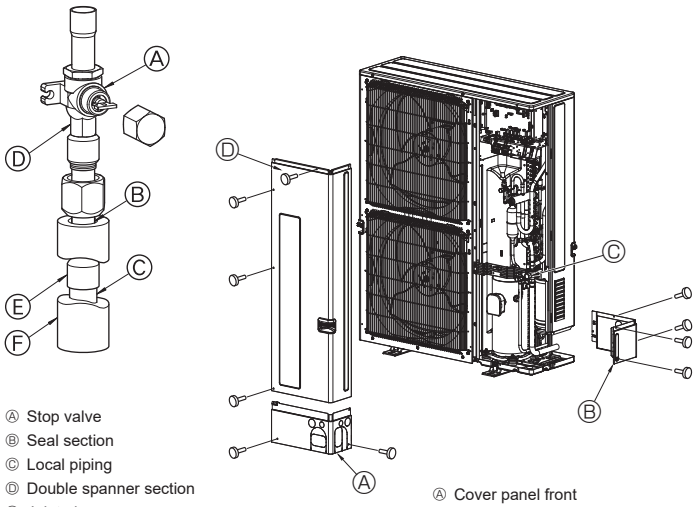
Ⓑ (Fig. 4-1)

Copper pipe O.D. (mm)	Flare nut O.D. (mm)	Tightening torque (N·m)
ø6.35	17	14 - 18
ø6.35	22	34 - 42
ø9.52	22	34 - 42
ø12.7	26	49 - 61
ø12.7	29	68 - 82
ø15.88	29	68 - 82
ø15.88	36	100 - 120
ø19.05	36	100 - 120



Ⓐ Die
Ⓑ Copper pipe

Fig. 4-2



Ⓐ Stop valve
Ⓑ Seal section
Ⓒ Local piping
Ⓓ Double spanner section
Ⓔ Joint pipe
Ⓕ Pipe cover

Fig. 4-3

Ⓐ Cover panel front
Ⓑ Cover panel rear
Ⓒ Stop valve
Ⓓ Service panel
Ⓔ Bend radius : 100 mm -150 mm

Fig. 4-4

4.2. Connecting pipes (Fig. 4-1)

- When commercially available copper pipes are used, wrap liquid and gas pipes with commercially available insulation materials (heat-resistant to 100 °C or more, thickness of 12 mm or more).
- The indoor parts of the drain pipe should be wrapped with polyethylene foam insulation materials (specific gravity of 0.03, thickness of 9 mm or more).
- Apply thin layer of refrigerant oil to pipe and joint seating surface before tightening flare nut. Ⓐ
- Use two wrenches to tighten piping connections. Ⓑ
- Use leak detector or soapy water to check for gas leaks after connections are completed.
- Apply refrigerating machine oil over the entire flare seat surface. Ⓒ
- Use the flare nuts for the following pipe size. Ⓓ

		ZRP100-140	ZRP200, P200	ZRP250, P250
Gas side	Pipe size (mm)	ø15.88	ø25.4	ø25.4
Liquid side	Pipe size (mm)	ø9.52	ø9.52	ø12.7

- When bending the pipes, be careful not to break them. Bend radii of 100 mm to 150 mm are sufficient.
- Make sure the pipes do not contact the compressor. Abnormal noise or vibration may result.

① Pipes must be connected starting from the indoor unit.
Flare nuts must be tightened with a torque wrench.

② Flare the liquid pipes and gas pipes and apply a thin layer of refrigeration oil (Applied on site).

- When usual pipe sealing is used, refer to Table 1 for flaring of R410A refrigerant pipes.
  The size adjustment gauge can be used to confirm A measurements.

Table 1 (Fig. 4-2)

Copper pipe O.D. (mm)	A (mm)	
	Flare tool for R410A	Flare tool for R22·R407C
	Clutch type	
ø6.35 (1/4")	0 - 0.5	1.0 - 1.5
ø9.52 (3/8")	0 - 0.5	1.0 - 1.5
ø12.7 (1/2")	0 - 0.5	1.0 - 1.5
ø15.88 (5/8")	0 - 0.5	1.0 - 1.5
ø19.05 (3/4")	0 - 0.5	1.0 - 1.5

③ Use the following procedure for connecting the gas-side piping. (Fig.4-3)

1 Braze the Ⓔ Joint pipe provided to the outdoor unit using locally procured brazing materials and Ⓒ Local piping without oxygen.
2 Connect the Ⓔ Joint pipe to the gas-side Stop valve.
  Use 2 wrenches to tighten the flare nut.
  * If order is reversed, refrigerant leak occurs because of the part damaging by brazing fire.

- For PEA-M200, 250
  The method of pipe connection is brazing connection.

		PEA-M200	PEA-M250
Gas side	Pipe size (mm)	ø25.4	ø25.4
Liquid side	Pipe size (mm)	ø9.52	ø12.7

4.3. Refrigerant piping (Fig. 4-4)

Remove the service panel Ⓓ (4 screws) and the cover panel front Ⓐ (2 screws) and cover panel rear Ⓑ (4 screws).

① Perform refrigerant piping connections for the indoor/outdoor unit when the outdoor unit's stop valve is completely closed.

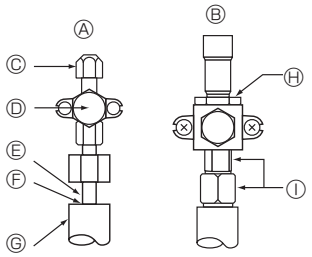
② Vacuum-purge air from the indoor unit and the connection piping.

③ After connecting the refrigerant pipes, check the connected pipes and the indoor unit for gas leaks. (Refer to 4.4. Refrigerant pipe airtight testing method)

④ A high-performance vacuum pump is used at the stop valve service port to maintain a vacuum for an adequate time (at least one hour after reaching –101 kPa (5 Torr)) in order to vacuum dry the inside of the pipes. Always check the degree of vacuum at the gauge manifold. If there is any moisture left in the pipe, the degree of vacuum is sometimes not reached with short-time vacuum application.
After vacuum drying, completely open the stop valves (both liquid and gas) for the outdoor unit. This completely links the indoor and outdoor refrigerant circuits.

- If the vacuum drying is inadequate, air and water vapor remain in the refrigerant circuits and can cause abnormal rise of high pressure, abnormal drop of low pressure, deterioration of the refrigerating machine oil due to moisture, etc.
- If the stop valves are left closed and the unit is operated, the compressor and control valves will be damaged.
- Use a leak detector or soapy water to check for gas leaks at the pipe connection sections of the outdoor unit.
- Do not use the refrigerant from the unit to purge air from the refrigerant lines.
- After the valve work is completed, tighten the valve caps to the correct torque: 20 to 25 N·m (200 to 250 kgf·cm).
  Failure to replace and tighten the caps may result in refrigerant leakage. In addition, do not damage the insides of the valve caps as they act as a seal to prevent refrigerant leakage.

⑤ Use sealant to seal the ends of the thermal insulation around the pipe connection sections to prevent water from entering the thermal insulation.



Ⓐ Stop valve <Liquid side>
Ⓑ Stop valve <Gas side>
Ⓒ Service port
Ⓓ Open/Close section
Ⓔ Local pipe
Ⓕ Sealed, same way for gas side
Ⓖ Pipe cover
Ⓗ Do not use a wrench here. Refrigerant leakage may result.
Ⓘ Use two wrenches here.

Fig. 4-5

(1)

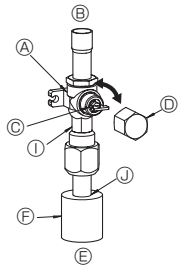


Fig. 4-6

(2)

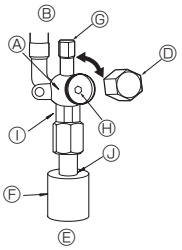
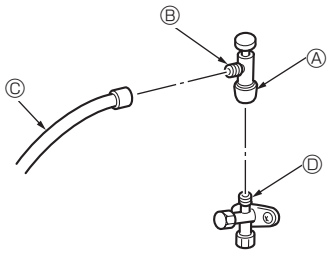


Fig. 4-7

Ⓐ Valve
Ⓑ Unit side
Ⓒ Handle
Ⓓ Cap
Ⓔ Local pipe side
Ⓕ Pipe cover
Ⓖ Service port
Ⓗ Wrench hole
Ⓘ Double spanner section
(Do not apply a spanner other than to this section. Doing so would cause coolant leaks.)
Ⓙ Seal section
(Seal the end of the heat insulation material at the pipe connection section with whatever seal material you have on hand so that water does not infiltrate the heat insulation material.)



* The figure to the left is an example only. The stop valve shape, service port position, etc., may vary according to the model.
* Turn section Ⓐ only. (Do not further tighten sections Ⓐ and Ⓑ together.)

Ⓒ Charge hose
Ⓓ Service port

Fig. 4-8

4.4. Refrigerant pipe airtight testing method (Fig.4-5)

(1) Connect the testing tools.
- Make sure the stop valves Ⓐ Ⓑ are closed and do not open them.
- Add pressure to the refrigerant lines through the service port Ⓒ of the liquid stop valve Ⓐ.

(2) Do not add pressure to the specified pressure all at once; add pressure little by little.
① Pressurize to 0.5 MPa (5 kgf/cm²G), wait five minutes, and make sure the pressure does not decrease.
② Pressurize to 1.5 MPa (15 kgf/cm²G), wait five minutes, and make sure the pressure does not decrease.
③ Pressurize to 4.15 MPa (41.5 kgf/cm²G) and measure the surrounding temperature and refrigerant pressure.

(3) If the specified pressure holds for about one day and does not decrease, the pipes have passed the test and there are no leaks.
- If the surrounding temperature changes by 1 °C, the pressure will change by about 0.01 MPa (0.1 kgf/cm²G). Make the necessary corrections.

(4) If the pressure decreases in steps (2) or (3), there is a gas leak. Look for the source of the gas leak.

4.5. Stop valve opening method

The stop valve opening method varies according to the outdoor unit model. Use the appropriate method to open the stop valves.

(1) Gas side (Fig.4-6)
① Remove the cap, pull the handle toward you and rotate 1/4 turn in a counterclockwise direction to open.
② Make sure that the stop valve is open completely, push in the handle and rotate the cap back to its original position.

(2) Liquid side (Fig.4-7)
① Remove the cap and turn the valve rod counterclockwise as far as it will go with the use of a 4 mm hexagonal wrench. Stop turning when it hits the stopper. (ø9.52: Approximately 10 revolutions)
② Make sure that the stop valve is open completely, push in the handle and rotate the cap back to its original position.

Refrigerant pipes are protectively wrapped
- The pipes can be protectively wrapped up to a diameter of ø90 before or after connecting the pipes. Cut out the knockout in the pipe cover following the groove and wrap the pipes.

Pipe inlet gap
- Use putty or sealant to seal the pipe inlet around the pipes so that no gaps remain. (If the gaps are not closed, noise may be emitted or water and dust will enter the unit and breakdown may result.)

Precautions when using the charge valve (Fig.4-8)
Do not tighten the service port too much when installing it, otherwise, the valve core could be deformed and become loose, causing a gas leak.
After positioning section Ⓑ in the desired direction, turn section Ⓐ only and tighten it. Do not further tighten sections Ⓐ and Ⓑ together after tightening section Ⓐ.

⚠ **Warning:**
When installing the unit, securely connect the refrigerant pipes before starting the compressor.

4.6. Addition of refrigerant

- Additional charging is not necessary if the pipe length does not exceed 30 m.
- If the pipe length exceeds 30m, charge the unit with additional R410A refrigerant according to the permitted pipe lengths in the chart below.
  * When the unit is stopped, charge the unit with the additional refrigerant through the liquid stop valve after the pipe extensions and indoor unit have been vacuumized.
  When the unit is operating, add refrigerant to the gas check valve using a safety charger. Do not add liquid refrigerant directly to the check valve.
  * After charging the unit with refrigerant, note the added refrigerant amount on the service label (attached to the unit).
  Refer to the “1.5. Using R410A refrigerant air conditioners” for more information.
- Be careful when installing multiple units. Connecting to an incorrect indoor unit can lead to abnormally high pressure and have a serious effect on operation performance.

Model	Permitted pipe length	Permitted vertical difference	Additional refrigerant charging amount			
			31 - 40 m	41 - 50 m	51 - 60 m	61 - 75 m
ZRP100-140	- 75 m	- 30 m	0.6 kg	1.2 kg	1.8 kg	2.4 kg

Outdoor unit	A+B+C+D					
	Amount of additional refrigerant charge (kg)					
	30 m and less	31 - 40 m	41 - 50 m	51 - 60 m	61 - 70 m	71 - 100 m
ZRP200	No additional charge necessary	0.9 kg	1.8 kg	2.7 kg	3.6 kg	Calculate the amount of additional refrigerant charge using formula provided next page
ZRP250		1.2 kg	2.4 kg	3.6 kg	4.8 kg	
P200		0.9 kg	1.8 kg	2.7 kg	3.6 kg	–
P250		1.2 kg	2.4 kg	3.6 kg	4.8 kg	

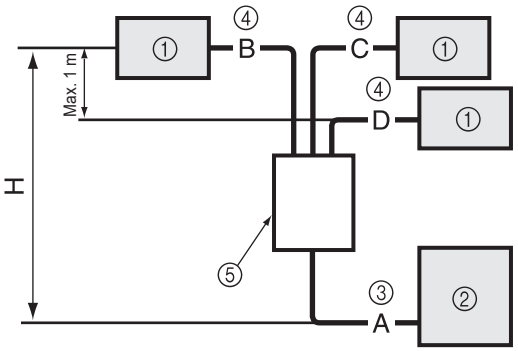
4. Installing the refrigerant piping

When length exceeds 70 m

When the total length of the piping exceeds 70 m, calculate the amount of additional charge based on the following requirements.
Note: If the calculation produces a negative number (i.e. a “minus” charge), of if calculation results in an amount that is less than the “Additional charge amount for 70 m”, perform the additional charge using the amount shown in “Additional charge amount for 70 m”.

Amount of additional charge	=	Main piping: Liquid line size ø12.7 overall length × 0.11	+	Main piping: Liquid line size ø9.52 overall length × 0.09 (Gas line: ø25.4)	+	Branch piping: Liquid line size ø9.52 overall length × 0.06 (Gas line: ø15.88)	+	Branch piping: Liquid line size ø6.35 overall length × 0.02	-	3.6 (kg)
(kg)		(m) × 0.11 (kg/m)		(m) × 0.09 (kg/m)		(m) × 0.06 (kg/m)		(m) × 0.02 (kg/m)		

Additional charge amount for 70 meters	ZRP200	3.6 kg
	ZRP250	4.8 kg



① Indoor unit
② Outdoor unit
③ Main piping
④ Branch piping
⑤ Multi distribution pipe (option)

Outdoor unit : ZRP250 A: ø12.7.....65 m
Indoor unit 1 : ZRP71 B: ø9.52.....5 m
Indoor unit 2 : ZRP71 C: ø9.52.....5 m
Indoor unit 3 : ZRP71 D: ø9.52.....5 m
Main piping ø12.7 is A = 65 m
Branch piping ø9.52 is B + C + D = 15 m
Therefore, the amount of additional charge is: 65 × 0.12 + 15 × 0.06 - 3.6 = 5.1(kg)
(Fractions are rounded up)

Fig. 4-9

Refilling refrigerant charge (kg) for less than 30 m (Chargeless pipe length)

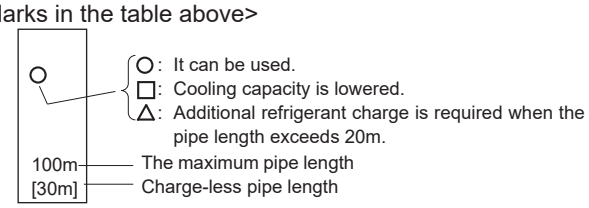
Outdoor unit	5 m and less	6 - 10 m	11 - 15 m	16 - 20 m	21 - 25 m	26 - 30 m
ZRP100-140	4.5	4.6	4.7	4.8	4.9	5.0
ZRP200	6.4	6.5	6.7	6.8	7.0	7.1
ZRP250	6.7	6.9	7.1	7.3	7.5	7.7
P200	5.8	5.9	6.1	6.2	6.4	6.5
P250	6.7	6.9	7.1	7.3	7.5	7.7

Maximum pipe length (ZRP200·ZRP250)

Liquid pipe (mm)	O.D.	ø9.52				ø12.7				ø15.88			
	Thickness	t0.8				t0.8				t1.0			
Gas pipe (mm)	O.D.	ø19.05	ø22.2	ø25.4	ø28.58	ø19.05	ø22.2	ø25.4	ø28.58	ø22.2	ø25.4	ø28.58	ø31.75
	Thickness	t1.0	t1.0	t1.0	t1.0	t1.0	t1.0	t1.0	t1.0	t1.0	t1.0	t1.0	t1.1
ZRP200		□ 20m [20m]	□ 50m [30m]	Standard size 100m [30m]	○ 100m [30m]	□ 20m [20m]	□ 50m [30m]	○ 100m [30m]	○ 100m [30m]	△□ 50m [20m]	△ 50m [20m]	△ 50m [20m]	△ 50m [20m]
ZRP250		□ 20m [20m]	□ 50m [30m]	○ 100m [30m]	○ 100m [30m]	□ 20m [20m]	□ 50m [30m]	Standard size 100m [30m]	□ 100m [30m]	△□ 50m [20m]	△ 50m [20m]	△ 50m [20m]	△ 50m [20m]

Note : Be sure to use hard (tempered) one for pipe over ø19.05.

<Marks in the table above>



■ ZRP200, 250

Additional refrigerant amount when the liquid pipe of the larger diameter is used.

1:1 system

Liquid pipe	When the pipe length exceeds 20 m
ø15.88	Additional refrigerant amount △w (g) = 180 × Pipe length (m) - 3000

* △w (g) ≦ 0 : Additional charge is not necessary.

Simultaneous twin/triple/quadruple system

When the pipe length (main piping and branch piping) exceeds 20 m
Additional refrigerant amount △w (g) = (180 × L1) + (120 × L2) + (90 × L3) + (30 × L4) - 3000

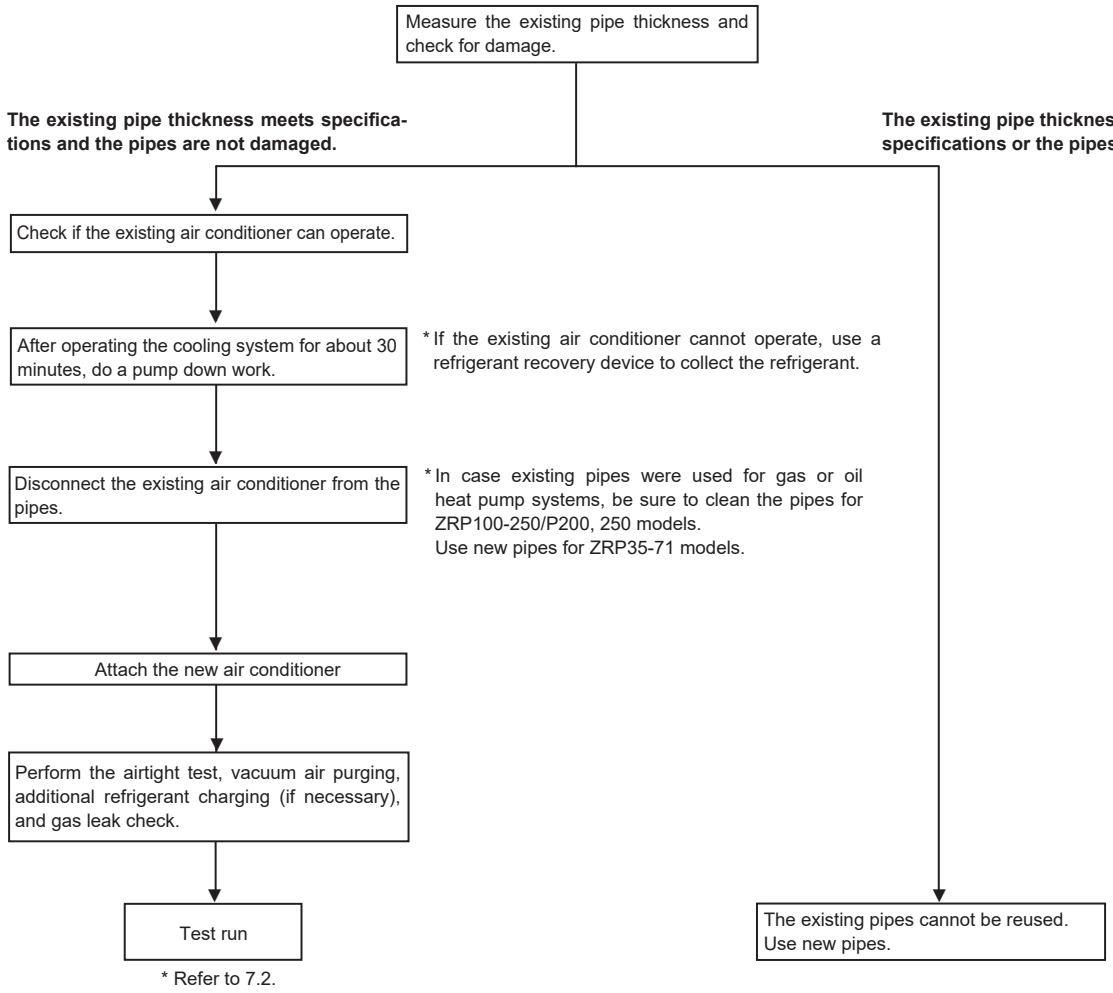
L1 : ø15.88 liquid pipe length (m) L2 : ø12.7 liquid pipe length (m)
L3 : ø9.52 liquid pipe length (m) L4 : ø6.35 liquid pipe length (m)

* △w (g) ≦ 0 : Additional charge is not necessary.

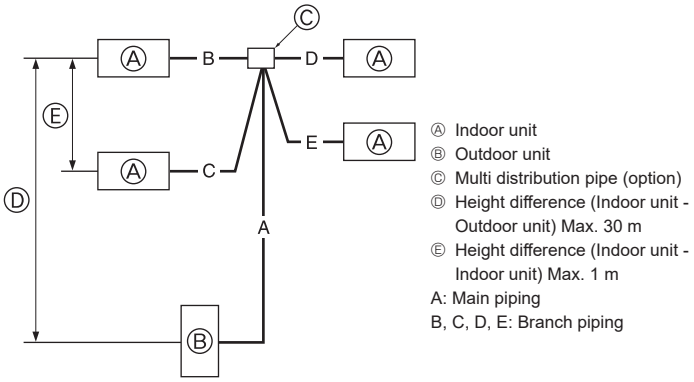
4. Installing the refrigerant piping

4.7. Precautions when reusing existing R22 refrigerant pipes

• Refer to the flowchart below to determine if the existing pipes can be used and if it is necessary to use a filter dryer.
• If the diameter of the existing pipes is different from the specified diameter, refer to technological data materials to confirm if the pipes can be used.



<Limits of refrigerant piping installation>



Ⓐ Indoor unit
Ⓑ Outdoor unit
Ⓒ Multi distribution pipe (option)
Ⓓ Height difference (Indoor unit - Outdoor unit) Max. 30 m
Ⓔ Height difference (Indoor unit - Indoor unit) Max. 1 m
A: Main piping
B, C, D, E: Branch piping

ZRP100 : A+B+C(+D) ≦ 75 m
ZRP125, 140 : A+B+C(+D)(+E) ≦ 75 m
ZRP200, 250 : A+B+C(+D)(+E) ≦ 100 m
P200, 250 : A+B+C(+D)(+E) ≦ 70 m
* "D" is for triple.
* "E" is for four (quadruple).

Fig. 4-10

4.8. For twin/triple/quadruple combination (Fig. 4-10)

• When this unit is used as a FREE COMPO MULTI unit, install the refrigerant piping with the restrictions indicated in the drawing on the left. In addition, if the restrictions are going to be exceeded, or if there are going to be combinations of indoor and outdoor units, refer to installation instructions for the indoor unit for details about the installation.

Outdoor unit	Permissible total piping length A+B+C+D+E	A+B or A+C or A+D or A+E	Charge-less piping length A+B+C+D+E
ZRP100-140	75 m and less	—	30 m and less
ZRP200 ZRP250	100 m and less	100 m and less	30 m and less
P200 P250	70 m and less	70 m and less	30 m and less

Outdoor unit	| B-C | or | B-D | or | B-E | or | C-D | or | C-E | or | D-E |	No. of bends
ZRP100-250	8 m and less	Within 15

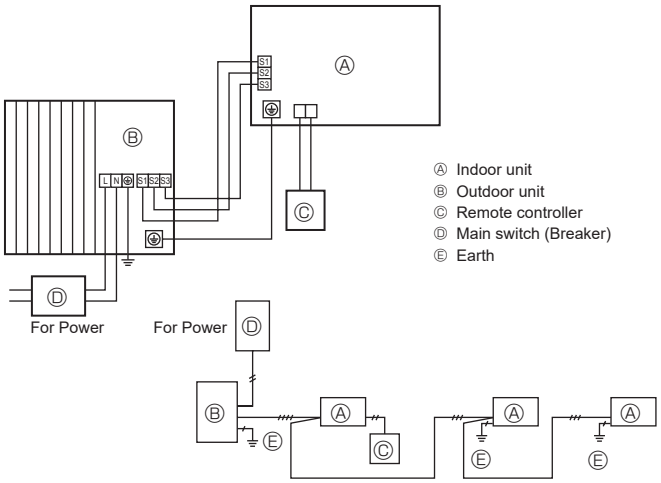
5. Drainage piping work

Outdoor unit drainage pipe connection
When drain piping is necessary, use the drain socket or the drain pan (option).

	ZRP100-250/P200, 250
Drain socket	PAC-SG61DS-E
Drain pan	PAC-SH97DP-E

6.1. Outdoor unit (Fig. 6-1, Fig. 6-2)

① Remove the service panel.
② Wire the cables referring to the Fig. 6-1 and the Fig. 6-2.
► Except PEA-M200, 250



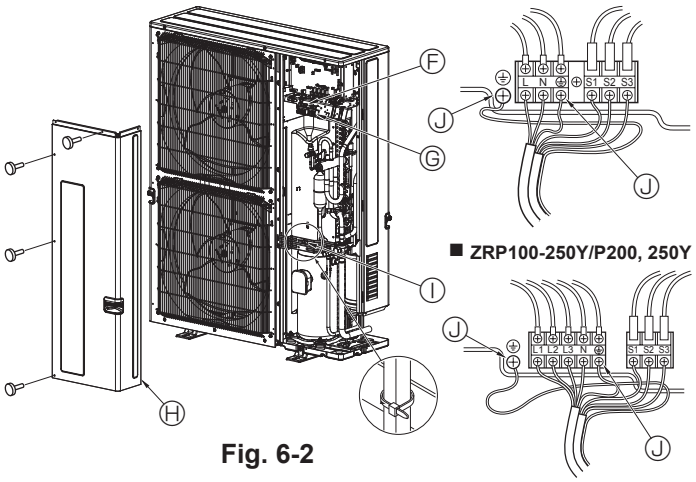
Ⓐ Indoor unit
Ⓑ Outdoor unit
Ⓒ Remote controller
Ⓓ Main switch (Breaker)
Ⓔ Earth

Fig. 6-1

en

■ **ZRP100-250**

■ **ZRP100-140V**



■ **ZRP100-250Y/P200, 250Y**

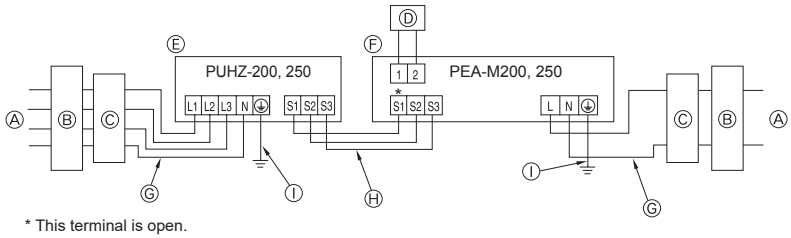
Fig. 6-2

Ⓕ Terminal block
Ⓖ Indoor/Outdoor connection terminal block (S1, S2, S3)
Ⓗ Service panel
Ⓘ Clamp
* Clamp the cables so that they do not contact the center of the service panel or the gas valve.
Ⓙ Earth terminal

Note :
If the protective sheet for the electrical box is removed during servicing, be sure to reinstall it.

⚠ **Caution:**
Be sure to install N-Line. Without N-Line, it could cause damage to unit.

► In case of PEA-M200, 250



* This terminal is open.

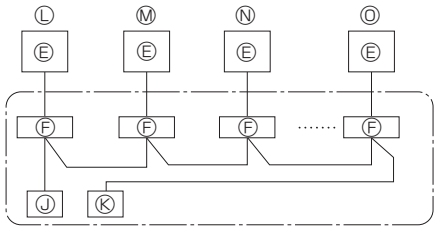


Fig. 6-3

Ⓐ Power supply
Ⓑ Earth leakage breaker
Ⓒ Circuit breaker or local switch
Ⓓ LCD remote controller
Ⓔ Outdoor unit
Ⓕ Indoor unit
Ⓖ Power cable wiring
Ⓗ Indoor/outdoor connection wiring
Ⓘ Grounding
Ⓙ Main remote controller
Ⓚ Subordinate remote controller
Ⓛ Standard (Refrigerant address = 00)
Ⓜ Refrigerant address = 01
Ⓝ Refrigerant address = 02
Ⓞ Refrigerant address = 15

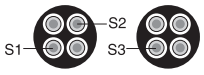
6. Electrical work

6.2. Field electrical wiring

Outdoor unit model			ZRP100,125V	ZRP140V	ZRP100, 125, 140Y	ZRP200, 250/P200, 250
Outdoor unit power supply			~/N (single), 50 Hz, 230 V	~/N (single), 50 Hz, 230 V	3N~ (3 ph 4-wires), 50 Hz, 400 V	3N~ (3 ph 4-wires), 50 Hz, 400 V
Outdoor unit input capacity Main switch (Breaker)		*1	32 A	40 A	16 A	32 A
Wiring Wire No. × size (mm^2)	Outdoor unit power supply		3 × Min. 4	3 × Min. 6	5 × Min. 1.5	5 × Min. 4
	Indoor unit-Outdoor unit	*2	3 × 1.5 (Polar)	3 × 1.5 (Polar)	3 × 1.5 (Polar)	Cable length 50m: 3×4 (Polar) / Cable length 80m: 3×6 (Polar)
	Indoor unit-Outdoor unit earth	*2	1 × Min. 1.5	1 × Min. 1.5	1 × Min. 1.5	1 × Min. 2.5
	Remote controller-Indoor unit	*3	2 × 0.3 (Non-polar)	2 × 0.3 (Non-polar)	2 × 0.3 (Non-polar)	2 × 0.3 (Non-polar)
Circuit rating	Outdoor unit L-N (single) Outdoor unit L1-N, L2-N, L3-N (3 phase)	*4	230 VAC	230 VAC	230 VAC	230 VAC
	Indoor unit-Outdoor unit S1-S2	*4	230 VAC	230 VAC	230 VAC	230 VAC
	Indoor unit-Outdoor unit S2-S3	*4	24 VDC	24 VDC	24 VDC	24 VDC
	Remote controller-Indoor unit	*4	12 VDC	12 VDC	12 VDC	12 VDC

*1. A breaker with at least 3.0 mm contact separation in each poles shall be provided. Use earth leakage breaker (NV).
Make sure that the current leakage breaker is one compatible with higher harmonics.
Always use a current leakage breaker that is compatible with higher harmonics as this unit is equipped with an inverter.
The use of an inadequate breaker can cause the incorrect operation of inverter.

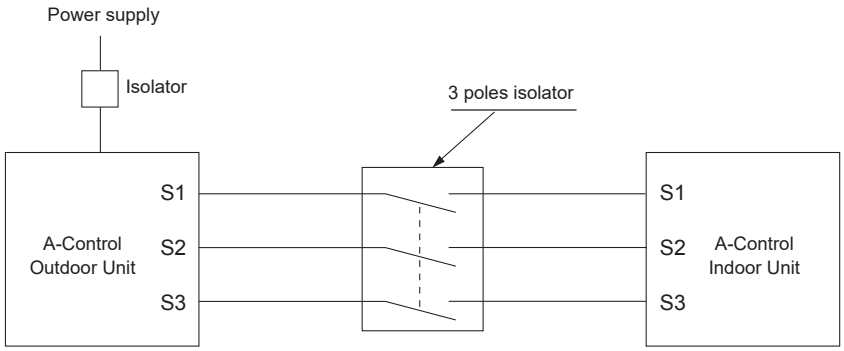
*2. (ZRP100-140)
Max. 45 m
If 2.5 mm^2 used, Max. 50 m
If 2.5 mm^2 used and S3 separated, Max. 80 m
(ZRP200, 250/P200, 250)
Max. 80 m Total Max. including all indoor/indoor connection is 80 m.
• Use one cable for S1 and S2 and another for S3 as shown in the picture.
• Max. 50 m Total Max. for PEA. Wiring size 3 × 1.5 (Polar).



*3. The 10 m wire is attached in the remote controller accessory.

*4. The figures are NOT always against the ground.
S3 terminal has 24 VDC against S2 terminal. However between S3 and S1, these terminals are NOT electrically insulated by the transformer or other device.

Notes: 1. Wiring size must comply with the applicable local and national code.
2. Power supply cords and Indoor/Outdoor unit connecting cords shall not be lighter than polychloroprene sheathed flexible cord. (Design 60245 IEC 57)
3. Use an earth wire which is longer than the other cords so that it will not become disconnected when tension is applied.



⚠ **Warning:**
- **In case of A-control wiring, there is high voltage potential on the S3 terminal caused by electrical circuit design that has no electrical insulation between power line and communication signal line. Therefore, please turn off the main power supply when servicing. And do not touch the S1, S2, S3 terminals when the power is energized. If isolator should be used between indoor unit and outdoor unit, please use 3-pole type.**

Never splice the power cable or the indoor-outdoor connection cable, otherwise it may result in a smoke, a fire or communication failure.

INDOOR-OUTDOOR CONNECTING CABLE (ZRP200, 250/P200, 250)

Cross section of cable	Wire size (mm^2)	Number of wires	Polarity	L (m)*6
Round 	2.5	3	Clockwise : S1-S2-S3 *Pay attention to stripe of yellow and green	(30) *2
Flat 	2.5	3	Not applicable (Because center wire has no cover finish)	Not applicable *5
Flat 	1.5	4	From left to right : S1-Open-S2-S3	(18) *3
Round 	2.5	4	Clockwise : S1-S2-S3-Open *Connect S1 and S3 to the opposite angle	(30) *4

*1 :Power supply cords of appliances shall not be lighter than design 60245 IEC or 227 IEC.
*2 :In case that cable with stripe of yellow and green is available.
*3 :In case of regular polarity connection (S1-S2-S3), wire size is 1.5 mm^2.
*4 :In case of regular polarity connection (S1-S2-S3).
*5 :In the flat cables are connected as this picture, they can be used up to 30 m.
*6 :Mentioned cable length is just a reference value.
It may be different depending on the condition of installation, humidity or materials, etc.

Be sure to connect the indoor-outdoor connecting cables directly to the units (no intermediate connections).
Intermediate connections can lead to communication error if water enters the cables and causes insufficient insulation to ground or a poor electrical contact at the intermediate connection point.

en

7. Test run

7.1. Before test run

► After completing installation and the wiring and piping of the indoor and outdoor units, check for refrigerant leakage, looseness in the power supply or control wiring, wrong polarity, and no disconnection of one phase in the supply.

► Use a 500-volt megohmmeter to check that the resistance between the power supply terminals and ground is at least 1 MΩ.

► Do not carry out this test on the control wiring (low voltage circuit) terminals.

⚠ Warning:

Do not use the air conditioner if the insulation resistance is less than 1 MΩ.

Insulation resistance

After installation or after the power source to the unit has been cut for an extended period, the insulation resistance will drop below 1 MΩ due to refrigerant accumulating in the compressor. This is not a malfunction. Perform the following procedures.

1. Remove the wires from the compressor and measure the insulation resistance of the compressor.
2. If the insulation resistance is below 1 MΩ, the compressor is faulty or the resistance dropped due the accumulation of refrigerant in the compressor.
3. After connecting the wires to the compressor, the compressor will start to warm up after power is supplied. After supplying power for the times indicated below, measure the insulation resistance again.
   - The insulation resistance drops due to accumulation of refrigerant in the compressor. The resistance will rise above 1 MΩ after the compressor is warmed up for 12 hours.
     (The time necessary to warm up the compressor varies according to atmospheric conditions and refrigerant accumulation.)
   - To operate the compressor with refrigerant accumulated in the compressor, the compressor must be warmed up at least 12 hours to prevent breakdown.
4. If the insulation resistance rises above 1 MΩ, the compressor is not faulty.

⚠ Caution:

- **The compressor will not operate unless the power supply phase connection is correct.**
- **Turn on the power at least 12 hours before starting operation.**

- Starting operation immediately after turning on the main power switch can result in severe damage to internal parts. Keep the power switch turned on during the operational season.

► The followings must be checked as well.

- The outdoor unit is not faulty. LED1 and LED2 on the control board of the outdoor unit flash when the outdoor unit is faulty.
- Both the gas and liquid stop valves are completely open.
- A protective sheet covers the surface of the DIP switch panel on the control board of the outdoor unit. Remove the protective sheet to operate the DIP switches easily.

en

7.2. Test run

7.2.1. Using SW4 in outdoor unit

SW4-1	ON	Cooling operation
SW4-2	OFF	
SW4-1	ON	Heating operation
SW4-2	ON	

* After performing the test run, set SW4-1 to OFF.

- After power is supplied, a small clicking noise may be heard from the inside of the outdoor unit. The electronic expansion valve is opening and closing. The unit is not faulty.
- A few seconds after the compressor starts, a clanging noise may be heard from the inside of the outdoor unit. The noise is coming from the check valve due to the small difference in pressure in the pipes. The unit is not faulty.

The test run operation mode cannot be changed by DIP switch SW4-2 during the test run. (To change the test run operation mode during the test run, stop the test run by DIP switch SW4-1. After changing the test run operation mode, resume the test run by switch SW4-1.)

7.2.2. Using remote controller

Refer to the indoor unit installation manual.

Note : Occasionally, vapor that is made by the defrost operation may seem as if smoke come up from the outdoor unit.

8. Special Functions

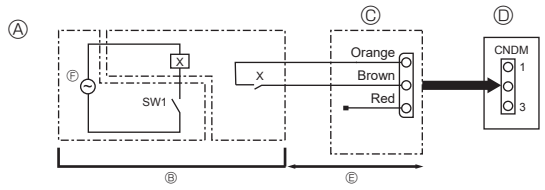


Fig. 8-1

Ⓐ Circuit diagram example (low noise mode)
Ⓑ On-site arrangement
Ⓒ External input adapter (PAC-SC36NA-E)
X: Relay
Ⓓ Outdoor unit control board
Ⓔ Max. 10 m
Ⓕ Power supply for relay

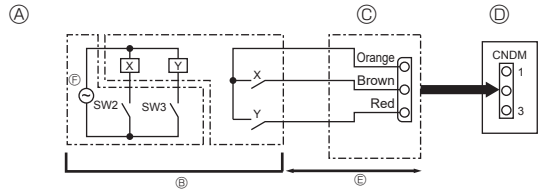


Fig. 8-2

Ⓐ Circuit diagram example (Demand function)
Ⓑ On-site arrangement
X, Y: Relay
Ⓒ External input adapter (PAC-SC36NA-E)
Ⓓ Outdoor unit control board
Ⓔ Max. 10 m
Ⓕ Power supply for relay

8.1. Low noise mode (on-site modification) (Fig. 8-1)

By performing the following modification, operation noise of the outdoor unit can be reduced by about 3-4 dB.
The low noise mode will be activated when a commercially available timer or the contact input of an ON/OFF switch is added to the CNDM connector (option) on the control board of the outdoor unit.

- The ability varies according to the outdoor temperature and conditions, etc.

① Complete the circuit as shown when using the external input adapter (PAC-SC36NA-E). (Option)
② SW7-1 (Outdoor unit control board): OFF
③ SW1 ON: Low noise mode
SW1 OFF: Normal operation

8.2. Demand function (on-site modification) (Fig. 8-2)

By performing the following modification, energy consumption can be reduced to 0–100% of the normal consumption.
The demand function will be activated when a commercially available timer or the contact input of an ON/OFF switch is added to the CNDM connector (option) on the control board of the outdoor unit.

① Complete the circuit as shown when using the external input adapter (PAC-SC36NA-E). (Option)

② By setting SW7-1 on the control board of the outdoor unit, the energy consumption (compared to the normal consumption) can be limited as shown below.

	SW7-1	SW2	SW3	Energy consumption
Demand function	ON	OFF	OFF	100%
		ON	OFF	75%
		ON	ON	50%
		OFF	ON	0% (Stop)

en

8.3. Refrigerant collecting (pump down)

Perform the following procedures to collect the refrigerant when moving the indoor unit or the outdoor unit.

① Supply power (circuit breaker).
* When power is supplied, make sure that “CENTRALLY CONTROLLED” is not displayed on the remote controller. If “CENTRALLY CONTROLLED” is displayed, the refrigerant collecting (pump down) cannot be completed normally.
* Start-up of the indoor-outdoor communication takes about 3 minutes after the power (circuit breaker) is turned on. Start the pump-down operation 3 to 4 minutes after the power (circuit breaker) is turned ON.

② After the liquid stop valve is closed, set the SWP switch on the control board of the outdoor unit to ON. The compressor (outdoor unit) and ventilators (indoor and outdoor units) start operating and refrigerant collecting operation begins. LED1 and LED2 on the control board of the outdoor unit are lit.
* Only set the SWP switch (push-button type) to ON if the unit is stopped. However, even if the unit is stopped and the SWP switch is set to ON less than 3 minutes after the compressor stops, the refrigerant collecting operation cannot be performed. Wait until compressor has been stopped for 3 minutes and then set the SWP switch to ON again.

③ Because the unit automatically stops in about 2 to 3 minutes when the refrigerant collecting operation is completed (LED1 off, LED2 lit), be sure to quickly close the gas stop valve. If LED1 is lit and LED2 is off and the outdoor unit is stopped, refrigerant collection is not properly performed. Open the liquid stop valve completely, and then repeat step ② after 3 minutes have passed.
* If the refrigerant collecting operation has been completed normally (LED1 off, LED2 lit), the unit will remain stopped until the power supply is turned off.

④ Turn off the power supply (circuit breaker).
* Note that when the extension piping is very long with large refrigerant amount, it may not be possible to perform a pump-down operation. When performing the pump-down operation, make sure that the low pressure is lowered to near 0 MPa (gauge).

⚠ **Warning:**
When pumping down the refrigerant, stop the compressor before disconnecting the refrigerant pipes. The compressor may burst if air etc. get into it.

9. System control (Fig. 9-1)

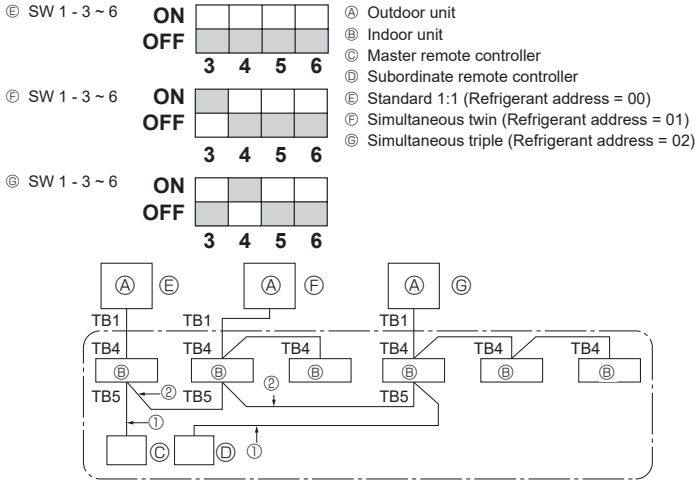


Fig. 9-1

Ⓐ Outdoor unit
Ⓑ Indoor unit
Ⓒ Master remote controller
Ⓓ Subordinate remote controller
Ⓔ Standard 1:1 (Refrigerant address = 00)
Ⓕ Simultaneous twin (Refrigerant address = 01)
Ⓖ Simultaneous triple (Refrigerant address = 02)

* Set the refrigerant address using the DIP switch of the outdoor unit.

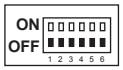
① Wiring from the Remote Control
This wire is connected to TB5 (terminal board for remote controller) of the indoor unit (non-polar).

② When a Different Refrigerant System Grouping is Used.
Up to 16 refrigerant systems can be controlled as one group using the slim MA remote controller.

Note:
In single refrigerant system (twin/triple), there is no need of wiring ②.

SW1
Function table

<SW1>



	Function	Operation according to switch setting	
		ON	OFF
SW1 function settings	1 Compulsory defrosting	Start	Normal
	2 Error history clear	Clear	Normal
	3 Refrigerant 4 system address setting 5 6	Settings for outdoor unit addresses 0 to 15	

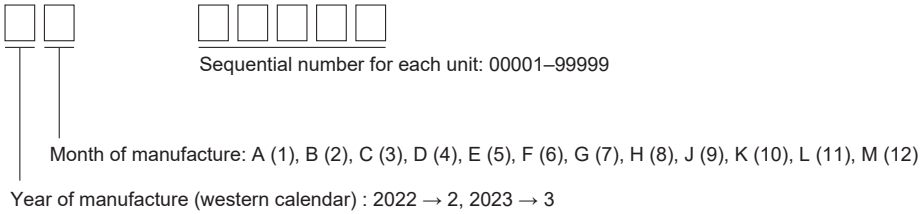
10. Specifications

Outdoor model			PUHZ-ZRP 100VKA3	PUHZ-ZRP 125VKA3	PUHZ-ZRP 140VKA3	PUHZ-ZRP 100YKA3	PUHZ-ZRP 125YKA3	PUHZ-ZRP 140YKA3	PUHZ-ZRP 200YKA3	PUHZ-ZRP 250YKA3	PUHZ-P 200YKA3	PUHZ-P 250YKA3
Power supply (V / Phase / Hz)			230 / Single / 50			400 / Three / 50						
Dimensions (W × H × D)		mm	1050 × 1338 × 330 (+40)									
Sound level *1	Cooling	dB (A)	49	50	50	49	50	50	59	59	58	59
	Heating		51	52	52	51	52	52	62	62	60	62

*1 Measured under rated operation frequency.

11. Serial number

■ The serial number is indicated on the SPEC NAME PLATE.



en

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EU-KONFORMITÄTSERKLÄRUNG
DÉCLARATION DE CONFORMITÉ UE
EU-CONFORMITEITSVERKLARING
DECLARACIÓN DE CONFORMIDAD UE
DICHIARAZIONE DI CONFORMITÀ UE
ΔΗΛΩΣΗ ΣΥΜΜΟΡΦΩΣΗΣ ΕΕ
DECLARAÇÃO DE CONFORMIDADE UE
EU-OVERENSSTEMMELSESERKLÆRING
EU-FÖRSÄKRAN OM ÖVERENSSTÄMMELSE
AB UYGUNLUK BEYANI
ДЕКЛАРАЦИЯ СООТВЕТСТВИЯ НОРМАМ ЕС
DEKLARACJA ZGODNOŚCI UE
EU-ERKLÆRING OM SAMSVAR

MITSUBISHI ELECTRIC AIR CONDITIONING SYSTEMS EUROPE LTD.
NETTLEHILL ROAD, HOUSTOUN INDUSTRIAL ESTATE, LIVINGSTON, EH54 5EQ, SCOTLAND, UNITED KINGDOM

hereby declares under its sole responsibility that the air conditioner(s) and heat pump(s) for use in residential, commercial, and light-industrial environments described below:
erklärt hiermit auf seine alleinige Verantwortung, dass die Klimaanlage(n) und Wärmepumpe(n) für das häusliche, kommerzielle und leichtindustrielle Umfeld wie unten beschrieben:
déclare par la présente et sous sa propre responsabilité que le(s) climatiseur(s) et la/les pompe(s) à chaleur destinés à un usage dans des environnements résidentiels, commerciaux et d'industrie légère décrits ci-dessous :
verklaart hierbij onder eigen verantwoordelijkheid dat de voor huishoudelijke, handels- en lichtindustriële omgevingen bestemde airconditioner(s) en warmtepomp(en) zoals onderstaand beschreven:
por la presente declara, bajo su exclusiva responsabilidad, que el(los) acondicionador(es) de aire y la(s) bomba(s) de calor previsto(s) para su uso en entornos residenciales, comerciales y de industria ligera que se describen a continuación:
conferma con la presente, sotto la sua esclusiva responsabilità, che i condizionatori d'aria e le pompe di calore destinati all'utilizzo in ambienti residenziali, commerciali e semi-industriali e descritti di seguito:
με το παρόν δηλώνει με αποκλειστική ευθύνη ότι το ή τα κλιματιστικά και η ή οι αντλίες θερμότητας για χρήση σε οικιακά, εμπορικά και ελαφρά βιομηχανικά περιβάλλοντα που περιγράφονται παρακάτω:
declara pela presente, e sob sua exclusiva responsabilidade, que o(s) aparelho(s) de ar condicionado e a(s) bomba(s) de calor destinados a utilização em ambientes residenciais, comerciais e de indústria ligeira descritos em seguida:
erklærer hermed under eneansvar, at det/de herunder beskrevne airconditionanlæg og varmepumpe(r) til brug i beboelses- og erhvervsmiljøer samt i miljøer med let industri:
intygar härmed att luftkonditioneringarna och värmepumparna som beskrivs nedan för användning i bostäder, kommersiella miljöer och lätta industriella miljöer:
ev, ticaret ve hafif sanayi ortamlarında kullanıma yönelik aşağıda açıklanan klima ve ısıtma pompalarıyla ilgili aşağıdaki hususları yalnızca kendi sorumluluğunda olmak üzere beyan eder:
настоящим заявляет под свою исключительную ответственность, что кондиционер (-ы) и тепловой (-ые) насос (-ы) для использования в описанных ниже жилых, коммерческих и небольших складских и промышленных помещениях:
niniejszym oświadcza na swoją wyłączną odpowiedzialność, że klimatyzatory i pompy ciepła do zastosowań w środowisku mieszkalnym, handlowym i lekko uprzemysłowionym opisane poniżej:
erklærer et fullstendig ansvar for undernevnte klimaanlegg og varmepumper ved bruk i boliger, samt kommersielle og lettindustrielle miljøer:

MITSUBISHI ELECTRIC, PUHZ-ZRP100VKA*, PUHZ-ZRP100YKA*, PUHZ-ZRP125VKA*
PUHZ-ZRP125YKA*, PUHZ-ZRP140VKA*, PUHZ-ZRP140YKA*

is/are in conformity with provisions of the following Union harmonisation legislation.
die Bestimmungen der folgenden Harmonisierungsrechtsvorschriften der Union erfüllt/erfüllen.
est/sont conforme(s) aux dispositions de la législation d'harmonisation de l'Union suivante.
voldoet/voldoen aan bepalingen van de volgende harmonisatiewetgeving van de Unie.
cumple(n) con las disposiciones de la siguiente legislación de armonización de la Unión.
sono in conformità con le disposizioni della seguente normativa dell'Unione sull'armonizzazione.
συμμορφώνονται με τις διατάξεις της ακόλουθης νομοθεσίας εναρμόνισης της Ένωσης.
está/estão em conformidade com as disposições da seguinte legislação de harmonização da União.
er i overensstemmelse med bestemmelserne i følgende harmoniserede EU-lovgivning.
uppfyller villkoren i följande harmoniserade föreskrifter inom unionen.
aşağıdaki Avrupa Birliği uyumlaştırma mevzuatının hükümlerine uygundur.
соответствуют положениям следующих законодательных актов Союза о гармонизации.
są zgodne z przepisami następującego unijnego prawodawstwa harmonizacyjnego.
er i samsvar med forskriftene til følgende EU-lovgivning om harmonisering.

2014/35/EU: Low Voltage
2006/42/EC: Machinery
2014/30/EU: Electromagnetic Compatibility
2009/125/EC: Energy-related Products *
*** Only ZRP 100**
2011/65/EU: RoHS

Issued: **20 Apr. 2016** **Takashi TANABE**
UNITED KINGDOM **Manager, Quality Assurance Department**

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EU-KONFORMITÄTSERKLÄRUNG
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MITSUBISHI ELECTRIC, PUHZ-P200YKA*, PUHZ-P250YKA*
PUHZ-ZRP200YKA*, PUHZ-ZRP250YKA*

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die Bestimmungen der folgenden Harmonisierungsrechtsvorschriften der Union erfüllt/erfüllen.
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voldoet/voldoen aan bepalingen van de volgende harmonisatiewetgeving van de Unie.
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соответствуют положениям следующих законодательных актов Союза о гармонизации.
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2014/35/EU: Low Voltage
2006/42/EC: Machinery
2014/30/EU: Electromagnetic Compatibility
2011/65/EU: RoHS

Issued: **20 Apr. 2016** **Takashi TANABE**
UNITED KINGDOM **Manager, Quality Assurance Department**

UK DECLARATION OF CONFORMITY

MITSUBISHI ELECTRIC AIR CONDITIONING SYSTEMS EUROPE LTD.
NETTLEHILL ROAD, HOUSTOUN INDUSTRIAL ESTATE, LIVINGSTON, EH54 5EQ, SCOTLAND, UNITED KINGDOM

hereby declares under its sole responsibility that the air conditioner(s) and heat pump(s) for use in residential, commercial, and light-industrial environments described below:

MITSUBISHI ELECTRIC, PUHZ-ZRP100VKA*, PUHZ-ZRP100YKA*, PUHZ-ZRP125VKA*, PUHZ-ZRP125YKA*, PUHZ-ZRP140VKA*, PUHZ-ZRP140YKA*, PUHZ-ZRP200YKA*, PUHZ-ZRP250YKA*, PUHZ-P200YKA*, PUHZ-P250YKA*

is/are in conformity with provisions of the following UK legislation

The Electrical Equipment (Safety) Regulations 2016
The Supply of Machinery (Safety) Regulations 2008
The Electromagnetic Compatibility Regulations 2016
The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012
The Ecodesign for Energy-Related Products and Energy Information (Amendment) (EU Exit) Regulations 2019

Issued:	**1 Jun. 2021**	**Atsushi EDAYOSHI**
UNITED KINGDOM		**Manager, Quality Assurance Department**

<ENGLISH>

English is original. The other languages versions are translation of the original.

⚠ CAUTION

- Refrigerant leakage may cause suffocation. Provide ventilation in accordance with EN378-1.
- Be sure to wrap insulation around the piping. Direct contact with the bare piping may result in burns or frostbite.
- Never put batteries in your mouth for any reason to avoid accidental ingestion.
- Battery ingestion may cause choking and/or poisoning.
- Install the unit on a rigid structure to prevent excessive operation sound or vibration.
- The A-weighted sound pressure level is below 70dB.
- This appliance is intended to be used by expert or trained users in shops, in light industry and on farms, or for commercial use by lay persons.

<DEUTSCH>

Das Original ist in Englisch. Die anderen Sprachversionen sind vom Original übersetzt.

⚠ VORSICHT

- Wenn Kältemittel austritt, kann dies zu Ersticken führen. Sorgen Sie in Übereinstimmung mit EN378-1 für Durchlüftung.
- Die Leitungen müssen isoliert werden. Direkter Kontakt mit nicht isolierten Leitungen kann zu Verbrennungen oder Erfrierungen führen.
- Nehmen Sie niemals Batterien in den Mund, um ein versehentliches Verschlucken zu vermeiden.
- Durch das Verschlucken von Batterien kann es zu Erstickungen und/oder Vergiftungen kommen.
- Installieren Sie das Gerät auf einem stabilen Untergrund, um übermäßige Betriebsgeräusche oder -schwingungen zu vermeiden.
- Der A-gewichtete Schalldruckpegel ist niedriger als 70dB.
- Dieses Gerät ist vorgesehen für die Nutzung durch Fachleute oder geschultes Personal in Werkstätten, in der Leichtindustrie und in landwirtschaftlichen Betrieben oder für die kommerzielle Nutzung durch Laien.

<FRANÇAIS>

L'anglais est l'original. Les versions fournies dans d'autres langues sont des traductions de l'original.

⚠ PRECAUTION

- Une fuite de réfrigérant peut entraîner une asphyxie. Fournissez une ventilation adéquate en accord avec la norme EN378-1.
- Assurez-vous que la tuyauterie est enveloppée d'isolant. Un contact direct avec la tuyauterie nue peut entraîner des brûlures ou des engelures.
- Ne mettez jamais des piles dans la bouche pour quelque raison que ce soit pour éviter de les avaler par accident.
- Le fait d'ingérer des piles peut entraîner un étouffement et/ou un empoisonnement.
- Installez l'appareil sur une structure rigide pour prévenir un bruit de fonctionnement et une vibration excessifs.
- Le niveau de pression acoustique pondéré est en dessous de 70 dB.
- Cet appareil est conçu pour un utilisateur expert ou les utilisateurs formés en magasin, dans l'industrie légère et dans l'agriculture ou dans le commerce par le profane.

<NEDERLANDS>

Het Engels is het origineel. De andere taalversies zijn vertalingen van het origineel.

⚠ VOORZICHTIG

- Het lekken van koelvloeistof kan verstikking veroorzaken. Zorg voor ventilatie in overeenstemming met EN378-1.
- Isoleer de leidingen met isolatiemateriaal. Direct contact met de onbedekte leidingen kan leiden tot brandwonden of bevriezing.
- Stop nooit batterijen in uw mond om inslikking te voorkomen.
- Het inslikken van batterijen kan verstikking of vergiftiging veroorzaken.
- Installeer het apparaat op een stabiele structuur om overmatig lawaai of trillingen te voorkomen.
- Het niveau van de geluidsdruk ligt onder 70 dB(A).
- Dit apparaat is bedoeld voor gebruik door ervaren of opgeleide gebruikers in werkplaatsen, in de lichte industrie en op boerderijen, of voor commercieel gebruik door leken.

<ESPAÑOL>

El idioma original del documento es el inglés. Las versiones en los demás idiomas son traducciones del original.

⚠ CUIDADO

- Las pérdidas de refrigerante pueden causar asfixia. Se debe proporcionar la ventilación determinada en EN378-1.
- Asegúrese de colocar el aislante alrededor de las tuberías. El contacto directo con la tubería puede ocasionar quemaduras o congelación.
- Para evitar una ingestión accidental, no coloque las pilas en su boca bajo ningún concepto.
- La ingestión de las pilas puede causar asfixia y/o envenenamiento.
- Coloque la unidad en una estructura rígida para evitar que se produzcan sonidos o vibraciones excesivos debidos a su funcionamiento.
- El nivel de presión acústica ponderado A es inferior a 70 dB.
- Este aparato está destinado a su uso por parte de usuarios expertos o capacitados en talleres, industrias ligeras y granjas, o a su uso comercial por parte de personas no expertas.

<ITALIANO>

Il testo originale è redatto in lingua Inglese. Le altre versioni linguistiche rappresentano traduzioni dell'originale.

⚠ ATTENZIONE

- Le perdite di refrigerante possono causare asfissia. Prevedere una ventilazione adeguata in conformità con la norma EN378-1.
- Accertarsi di applicare materiale isolante intorno alle tubature. Il contatto diretto con le tubature non schermate può provocare ustioni o congelamento.
- Non introdurre in nessun caso le batterie in bocca onde evitare ingestioni accidentali.
- L'ingestione delle batterie può provocare soffocamento e/o avvelenamento.
- Installare l'unità su una struttura rigida in modo da evitare rumore o vibrazioni eccessivi durante il funzionamento.
- Il livello di pressione del suono ponderato A è inferiore a 70dB.
- Questa apparecchiatura è destinata all'utilizzo da parte di utenti esperti o addestrati in negozi, industria leggera o fattorie oppure a un uso commerciale da parte di persone non esperte.

<ΕΛΛΗΝΙΚΑ>

Η γλώσσα του πρωτοτύπου είναι η αγγλική. Οι εκδόσεις άλλων γλωσσών είναι μεταφράσεις του πρωτοτύπου.

⚠ ΠΡΟΣΟΧΗ

- Η διαρροή του ψυκτικού ενδέχεται να προκαλέσει ασφυξία. Φροντίστε για τον εξαερισμό σύμφωνα με το πρότυπο EN378-1.
- Φροντίστε να τυλίξετε με μονωτικό υλικό τη σωλήνωση. Η απευθείας επαφή με τη γυμνή σωλήνωση ενδέχεται να προκαλέσει εγκαύματα ή κρυοπαγήματα.
- Μη βάζετε ποτέ τις μπαταρίες στο στόμα σας για κανένα λόγο ώστε να αποφύγετε την κατά λάθος κατάποσή τους.
- Η κατάποση μπαταριών μπορεί να προκαλέσει πνιγμό ή/και δηλητηρίαση.
- Εγκαταστήστε τη μονάδα σε σταθερή κατασκευή ώστε να αποφύγετε τον έντονο ήχο λειτουργίας ή τους κραδασμούς.
- Η Α-σταθμισμένη στάθμη ηχητικής πίεση είναι κάτω των 70dB.
- Η συσκευή αυτή προορίζεται για χρήση από έμπειρους ή εκπαιδευμένους χρήστες σε καταστήματα, στην ελαφριά βιομηχανία και σε αγροκτήματα, ή για εμπορική χρήση από άτομα τα οποία δεν είναι ειδήμονες.

<PORTUGUÊS>

O idioma original é o inglês. As versões em outros idiomas são traduções do idioma original.

⚠ CUIDADO

- A fuga de refrigerante pode causar asfixia. Garanta a ventilação em conformidade com a norma EN378-1.
- Certifique-se de que envolve as tubagens com material de isolamento. O contacto directo com tubagens não isoladas pode resultar em queimaduras ou ulcerações provocadas pelo frio.
- Nunca coloque pilhas na boca, por nenhum motivo, para evitar a ingestão acidental.
- A ingestão de uma pilha pode causar obstrução das vias respiratórias e/ou envenenamento.
- Instale a unidade numa estrutura robusta, de forma a evitar ruídos ou vibrações excessivos durante o funcionamento.
- O nível de pressão sonora ponderado A é inferior a 70 dB.
- Este equipamento destina-se a ser utilizado por especialistas ou utilizadores com formação em lojas, na indústria ligeira e em quintas, ou para utilização comercial por leigos.

<DANSK>

Engelsk er originalen. De andre sprogversioner er oversættelser af originalen.

⚠ FORSIGTIG

- Lækage af kølemiddel kan forårsage kvælning. Sørg for udluftning i overensstemmelse med EN378-1.
- Sørg for at pakke rørene ind i isolering. Direkte kontakt med ubeklædte rør kan forårsage forbrændinger eller forfrysninger.
- Batterier må under ingen omstændigheder tages i munden for at forhindre utilsigtet indtagelse.
- Indtagelse af batterier kan forårsage kvælning og/eller forgiftning.
- Installér enheden på en fast struktur for at forhindre for høje driftslyde eller vibrationer.
- Det A-vægtede lydtrykniveau er under 70dB.
- Dette apparat er beregnet til at blive brugt af eksperter eller udlærte brugere i butikker, inden for let industri og på gårde eller til kommerciel anvendelse af lægmænd.

<SVENSKA>

Engelska är originalspråket. De övriga språkversionerna är översättningar av originalet.

⚠ FÖRSIKTIGHET

- Köldmedelsläckage kan leda till kvävning. Tillhandahåll ventilation i enlighet med EN378-1.
- Kom ihåg att linda isolering runt rören. Direktkontakt med bara rör kan leda till brännskador eller köldskador.
- Stoppa aldrig batterier i munnen, de kan sväljas av misstag.
- Om ett batteri sväljs kan det leda till kvävning och/eller förgiftning.
- Montera enheten på ett stadigt underlag för att förhindra höga driftljud och vibrationer.
- Den A-vägda ljudtrycksnivån är under 70dB.
- Denna apparat är ämnad för användning av experter eller utbildade användare i affärer, inom lätt industri och på lantbruk, eller för kommersiell användning av lekmän.

<TÜRKÇE>

Aslı İngilizcedir. Diğer dillerdeki sürümler aslının çevirisidir.

⚠ DİKKAT

- Soğutucu kaçağı boğulmaya neden olabilir. EN378-1 uyarınca uygun havalandırma sağlayın.
- Borular etrafına yalıtım yapıldığından emin olun. Borulara doğrudan çıplak elle dokunulması yanıklara veya soğuk ısırıklarına neden olabilir.
- Kazara yutmamak için, pilleri kesinlikle hiçbir amaçla ağzınızda tutmayın.
- Pillerin yutulması boğulmaya ve/veya zehirlenmeye yol açabilir.
- Aşırı çalışma seslerini veya titreşimi önlemek için, üniteyi sağlam bir yapı üzerine monte edin.
- A ağırlıklı ses gücü seviyesi 70dB'nin altındadır.
- Bu cihaz atölyelerde, hafif endüstriyel tesislerde ve çiftliklerde uzman veya eğitimli kullanıcılar tarafından kullanılmak üzere veya normal kullanıcılar tarafından ticari kullanım için tasarlanmıştır.

<РУССКИЙ>

Языком оригинала является английский. Версии на других языках являются переводом оригинала.

⚠ ОСТОРОЖНО

- Утечка хладагента может стать причиной удушья. Обеспечьте вентиляцию в соответствии с EN378-1.
- Обязательно оберните трубы изоляционной обмоткой. Непосредственный контакт с неизолированным трубопроводом может привести к ожогам или обморожению.
- Запрещается класть элементы питания в рот по каким бы то ни было причинам во избежание случайного проглатывания.
- Попадание элемента питания в пищеварительную систему может стать причиной удушья и/или отравления.
- Устанавливайте устройство на жесткую структуру во избежание чрезмерного шума или чрезмерной вибрации во время работы.
- Уровень звукового давления по шкале A не превышает 70 дБ.
- Данное устройство предназначено для использования специалистами или обученным персоналом в магазинах, на предприятиях легкой промышленности и фермах или для коммерческого применения непрофессионалами.

<NORSK>

Originalspråket er engelsk. De andre språkversjonene er oversettelser av originalen.

⚠ FORSIKTIG

- Kjølemiddellekkasje kan forårsake kvelning. Sørg for ventilering i samsvar med EN378-1.
- Pass på at isoleringen pakkes godt rundt røret. Direkte kontakt med ukledte rør kan forårsake brannskader eller forfrysninger.
- Aldri plasser batteri i munnen, da dette kan medføre en risiko for at du svelger batteriet ved et uhell.
- Hvis du svelger et batteri, kan du risikere kvelning og/eller forgiftning.
- Installer enheten på en stabil struktur for å forhindre unødvendig mye driftsstøy eller vibrering.
- Det A-vektede lydtrykknivået er under 70 dB.
- Dette apparatet er ment for bruk av eksperter eller faglært personell i butikker, lettindustri og på gårder, eller for kommersielt bruk av ikke-fagmenn.

<POLSKI>

Językiem oryginału jest język angielski. Inne wersje językowe stanowią tłumaczenie oryginału.

⚠ UWAGA

- Wyciek czynnika chłodniczego może spowodować uduszenie. Należy zapewnić wentylację zgodnie z normą EN378-1.
- Należy pamiętać, aby owinąć izolację wokół przewodów rurowych. Bezpośredni kontakt z niezabezpieczonymi przewodami rurowymi może doprowadzić do poparzeń lub odmrożeń.
- Nie wolno wkładać baterii do ust z jakiegokolwiek powodu, aby uniknąć przypadkowego połknięcia.
- Połknięcie baterii może spowodować zadławienie i/lub zatrucie.
- Zainstalować urządzenie na sztywnej konstrukcji, aby zapobiec nadmiernemu hałasowi i wibracjom.
- Poziom dźwięku A nie przekracza 70 dB.
- W sklepach, w przemyśle lekkim i w gospodarstwach rolnych urządzenie powinni obsługiwać profesjonalni lub przeszkoleni użytkownicy, a w środowisku handlowym mogą to być osoby nieposiadające fachowej wiedzy.

UNIT : mm

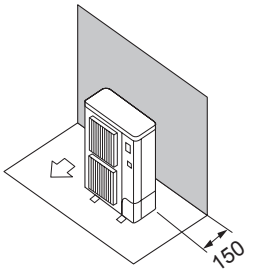


Fig. 2-6

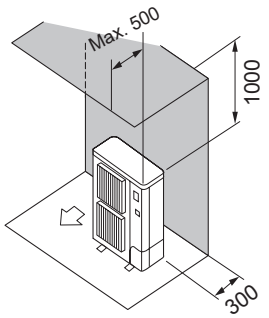


Fig. 2-7

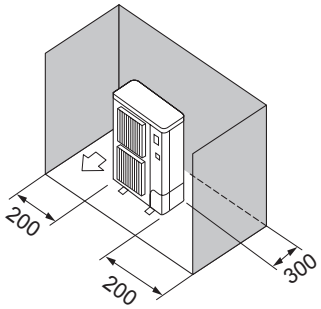
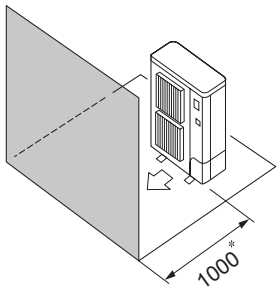


Fig. 2-8



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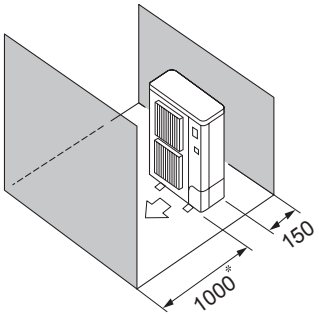

Fig. 2-10

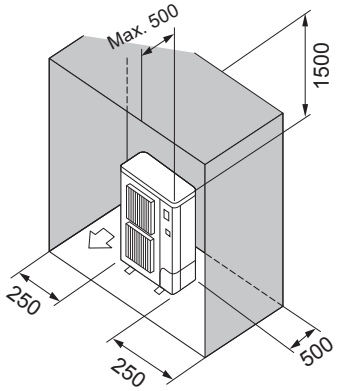

Fig. 2-11

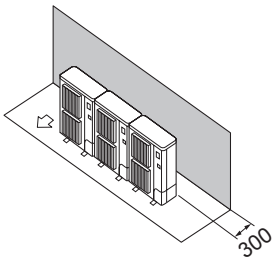

Fig. 2-12

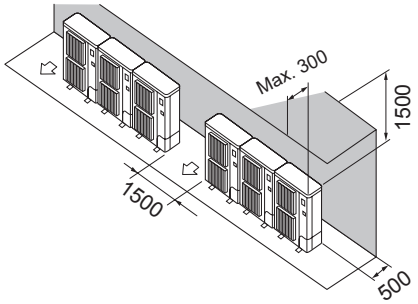

Fig. 2-13

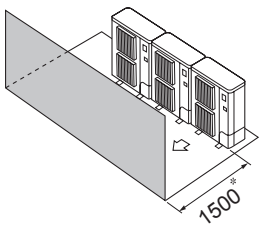

Fig. 2-14

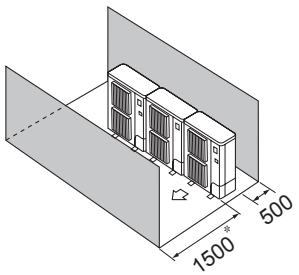

Fig. 2-15

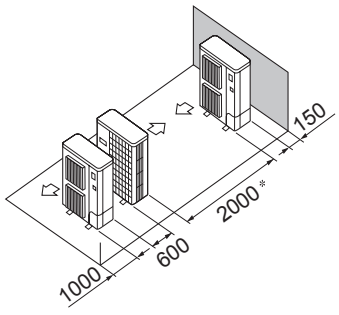

Fig. 2-16

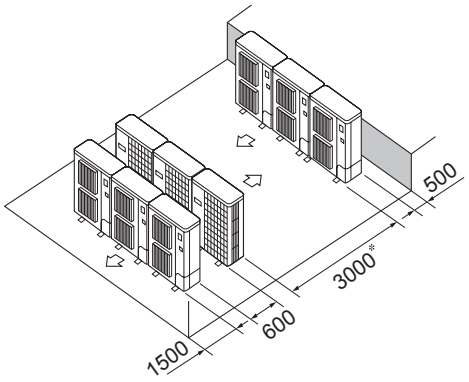

Fig. 2-17

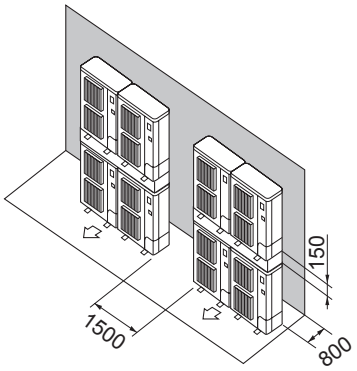

Fig. 2-18

This product is designed and intended for use in the residential, commercial and light-industrial environment.

MITSUBISHI ELECTRIC CORPORATION

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