IMPORTANT!
Please Read Before Starting

This air conditioner must be installed by the sales dealer or installer.
This information is provided for use only by authorized persons.

For safe installation and trouble-free operation, you must:

- Read the Installation Instructions of the indoor and outdoor unit as well.
- Carefully read this instruction booklet before beginning.
- This air conditioner is required to have the remote controller which is adaptable to nanoe™X function.
- Follow each installation or repair step exactly as shown.
- This air conditioner shall be installed in accordance with National Wiring Regulations.
- That compliance with national gas regulations shall be observed.
- The product meets the technical requirements of EN/IEC 61000-3-3.
- Pay close attention to all warning and caution notices given in this manual.

WARNING	This symbol refers to a hazard or unsafe practice which can result in severe personal injury or death.
CAUTION	This symbol refers to a hazard or unsafe practice which can result in personal injury or product or property damage.

If Necessary, Get Help

These instructions are all you need for most installation sites and maintenance conditions. If you require help for a special problem, contact our sales/service outlet or your certified dealer for additional instructions.

In Case of Improper Installation

The manufacturer shall in no way be responsible for improper installation or maintenance service, including failure to follow the instructions in this document.

WARNING

- Do not use means to accelerate the defrosting process or to clean, other than those recommended by the manufacturer.
- The appliance shall be stored in a room without continuously operating ignition sources (for example: open flames, an operating gas appliance or an operating electric heater).
- **(Middle Static Pressure Duct Type)** Auxiliary devices which may be a **potential ignition source** shall not be installed in the duct work. Examples of such **potential ignition sources** are hot surfaces with a temperature exceeding 700°C and electric switching devices.
- **(Middle Static Pressure Duct Type)** For appliances connected via an air duct system to one or more rooms, only auxiliary devices approved by the appliance manufacturer or declared suitable with the refrigerant shall be installed in connecting ductwork.
- Do not pierce or burn.
- Be aware that refrigerants may not contain an odour.
- The following checks shall be applied to installations using flammable refrigerants. Appliance shall be installed, operated and stored in a room with a floor area larger than [Amin] m^2. As for [Amin], see “CHECK OF DENSITY LIMIT”.

SPECIAL PRECAUTIONS

WARNING When Wiring

ELECTRICAL SHOCK CAN CAUSE SEVERE PERSONAL INJURY OR DEATH. ONLY A QUALIFIED, EXPERIENCED ELECTRICIAN SHOULD ATTEMPT TO WIRE THIS SYSTEM.

- Do not supply power to the unit until all wiring and tubing are completed or reconnected and checked.
- Highly dangerous electrical voltages are used in this system. Carefully see the wiring diagram and “1-10. Electrical Wiring” when wiring. Improper connections and inadequate grounding can cause **accidental injury or death.**
- Connect all wiring tightly. Loose wiring may cause overheating at connection points and a possible fire hazard.
- Provide a power outlet to be used exclusively for each unit.
- Provide a power outlet exclusively for each unit, and full disconnection means having a contact separation by 3 mm in all poles must be incorporated in the fixed wiring in accordance with the wiring rules.
- To prevent possible hazards from insulation failure, the unit must be grounded.

- Check that cabling will not be subject to wear, corrosion, excessive pressure, vibration, sharp edges or any other adverse environmental effects.
  The check shall also take into account the effects of aging or continual vibration from sources such as compressors or fans.
- This equipment is strongly recommended to be installed with Earth Leakage Circuit Breaker (ELCB) or Residual Current Device (RCD).
  Otherwise, it may cause electrical shock and fire in case of equipment breakdown or insulation breakdown.

When Transporting

- It need two or more people to carry may out the installation work.
- Be careful when picking up and moving the indoor and outdoor units. Get a partner to help, and bend your knees when lifting to reduce strain on your back. Sharp edges or thin aluminum fins on the air conditioner can cut your fingers.

When storing…

⚠ WARNING

- The appliance shall be stored in a well-ventilated area where the room size corresponds to the room area as specified for operation.
- The appliance shall be stored in a room without continuously operating open flames (for example: an operating gas appliance) and ignition sources (for example: an operating electric heater).
- The appliance shall be stored so as to prevent mechanical damage from occurring.

When Installing…

- Select an installation location which is rigid and strong enough to support or hold the unit, and select a location for easy maintenance.
- In cases that require mechanical ventilation, ventilation openings shall be kept clear of obstruction.
- An unventilated area where the appliance using flammable refrigerants is installed shall be so constructed that should any refrigerant leak, it will not stagnate so as to create a fire or explosion hazard.

(Middle Static Pressure Duct Type)

- Ducts connected to an appliance shall not contain a **potential ignition source**;
- For appliances connected via an air duct system to one or more rooms, the supply and return air shall be directly ducted to the space.

…In a Room

Properly insulate any tubing run inside a room to prevent “sweating” that can cause dripping and water damage to walls and floors.

⚠ CAUTION Keep the fire alarm and the air outlet at least 1.5 m away from the unit.

…In Moist or Uneven Locations

Use a raised concrete pad or concrete blocks to provide a solid, level foundation for the outdoor unit. This prevents water damage and abnormal vibration.

…In an Area with High Winds

Securely anchor the outdoor unit down with bolts and a metal frame. Provide a suitable air baffle.

…In a Snowy Area (for Heat Pump-type Systems)

Install the outdoor unit on a raised platform that is higher than drifting snow. Provide snow vents.

(4-Way Cassette Type, Ceiling Type, 4-Way Cassette 60 × 60 Type)
…At least 2.2m

Indoor unit of this air conditioner shall be installed in a height of at least 2.2 m.

(Middle Static Pressure Duct Type (horizontal installation), Wall Mounted Type)…At least 1.8m

Indoor unit of this air conditioner shall be installed in a height of at least 1.8 m.

…In laundry rooms

Do not install in laundry rooms. Indoor unit is not drip proof.

When Connecting Refrigerant Tubing

Pay particular attention to refrigerant leakages.

⚠ WARNING

- When performing piping work, do not mix air except for specified refrigerant (R32) in refrigeration cycle. It causes capacity down, and risk of explosion and injury due to high tension inside the refrigerant cycle.
- If the refrigerant comes in contact with a flame, it produces toxic gases and fire.
- Do not add or replace refrigerant other than specified type. It may cause product damage, burst and injury, etc.

- Ventilate the room immediately in the event of a refrigerant gas leakage during installation. Be careful not to allow contact of the refrigerant gas with a flame as this will cause the generation of toxic gases and fire.
- Keep all tubing runs as short as possible.
- Use the flare method for connecting tubing.
- Apply refrigerant lubricant to the matching surfaces of the flare and union tubes before connecting them, then tighten the nut with a torque wrench for a leak-free connection.
- Check carefully for leaks before starting the test run.
- Do not leak refrigerant while piping work for an installation or re-installation, and while repairing refrigeration parts. Handle liquid refrigerant carefully as it may cause frostbite.
- Under no circumstances shall potential sources of ignition be used in the searching or detection of refrigerant leaks.
- A halide torch (or any other detector using a naked flame) shall not be used.
- Electronic leak detectors may be used to detect refrigerant leaks but, the sensitivity may not be adequate, or may need re-calibration. (Detection equipment shall be calibrated in a refrigerant-free area.)
- Ensure that the detector is not a potential source of ignition and is suitable for the refrigerant used.
- Leak detection equipment shall be set at a percentage of the lower flammable limit (LFL) of the refrigerant and shall be calibrated to the refrigerant employed and the appropriate percentage of gas (25% maximum) is confirmed.
- Leak detection fluids are suitable for use with most refrigerants but the use of detergents containing chlorine shall be avoided as the chlorine may react with the refrigerant and corrode the copper pipe-work.
- If a leak is suspected, all naked flames shall be removed/extinguished.
- If a leakage of refrigerant is found which requires brazing, all of the refrigerant shall be recovered from the system, or isolated (by means of shut off valves) in a part of the system remote from the leak. Oxygen free nitrogen (OFN) shall then be purged through the system both before and during the brazing process.

When Servicing

- Contact to the sales dealer or service dealer for a repair.
- Be sure to turn off the power before servicing.
- Turn the power OFF at the main power box (mains), wait at least 10 minutes until it is discharged, then open the unit to check or repair electrical parts and wiring.
- Keep your fingers and clothing away from any moving parts.
- Clean up the site after you finish, remembering to check that no metal scraps or bits of wiring have been left inside the unit.

⚠ WARNING

- This product must not be modified or disassembled under any circumstances. Modified or disassembled unit may cause fire, electric shock or injury.
- Do not clean inside the indoor and outdoor units by users. Engage authorized dealer or specialist for cleaning.
- In case of malfunction of this appliance, do not repair by yourself. Contact to the sales dealer or service dealer for a repair and disposal.

⚠ CAUTION

- Ventilate any enclosed areas when installing or testing the refrigeration system. Leaked refrigerant gas, on contact with fire or heat, can produce dangerously toxic gases.
- Confirm after installation that no refrigerant gas is leaking. If the gas comes in contact with a burning stove, gas water heater, electric room heater or other heat source, it can cause the generation of toxic gases and fire.

Others

When disposal of the product, do follow the precautions in “11. Recovery” on page 1-11-2-1-7, 1-11-2-2-7, 1-11-2-3-6, 1-11-2-4-6 and comply with national regulations.

⚠ WARNING

- Do not sit or step on the unit. You may fall down accidentally.

⚠ CAUTION

- Do not touch the air inlet or the sharp aluminum fins of the outdoor unit. You may get injured.

- Do not stick any object into the FAN CASE.
  You may be injured and the unit may be damaged.

SERVICING

⚠ CAUTION

- Any qualified person who is involved with working on or breaking into a refrigerant circuit should hold a current valid certificate from an industry-accredited assessment authority, which authorizes their competence to handle refrigerants safely in accordance with an industry recognised assessment specification.
- Servicing shall only be performed as recommended by the equipment manufacturer. Maintenance and repair requiring the assistance of other skilled personnel shall be carried out under the supervision of the person competent in the use of flammable refrigerants.
- Servicing shall be performed only as recommended by the manufacturer.
- Prior to beginning work on systems containing flammable refrigerants, safety checks are necessary to ensure that the risk of ignition is minimised. For repair to the refrigerating system, (2) to (6) shall be completed prior to conducting work on the system.

(1) Work shall be undertaken under a controlled procedure so as to minimise the risk of a flammable gas or vapour being present while the work is being performed.

(2) All maintenance staff and others working in the local area shall be instructed on the nature of work being carried out. Work in confined spaces shall be avoided. The area around the workspace shall be sectioned off. Ensure that the conditions within the area have been made safe by control of flammable material.

(3) The area shall be checked with an appropriate refrigerant detector prior to and during work, to ensure the technician is aware of potentially toxic or flammable atmospheres. Ensure that the leak detection equipment being used is suitable for use with all applicable refrigerants, i.e. non-sparking, adequately sealed or intrinsically safe.

(4) If any hot work is to be conducted on the refrigerating equipment or any associated parts, appropriate fire extinguishing equipment shall be available to hand. Have a dry powder or CO_2 fire extinguisher adjacent to the charging area.

(5) No person carrying out work in relation to a refrigerating system which involves exposing any pipe work shall use any sources of ignition in such a manner that it may lead to the risk of fire or explosion. All possible ignition sources, including cigarette smoking, should be kept sufficiently far away from the site of installation, repairing, removing and disposal, during which refrigerant can possibly be released to the surrounding space. Prior to work taking place, the area around the equipment is to be surveyed to make sure that there are no flammable hazards or ignition risks. “No Smoking” signs shall be displayed.

(6) Ensure that the area is in the open or that it is adequately ventilated before breaking into the system or conducting any hot work. A degree of ventilation shall continue during the period that the work is carried out. The ventilation should safely disperse any released refrigerant and preferably expel it externally into the atmosphere.

(7) Where electrical components are being changed, they shall be fit for the purpose and to the correct specification. At all times the manufacturer’s maintenance and service guidelines shall be followed. If in doubt, consult the manufacturer’s technical department for assistance.

- The actual refrigerant charge is in accordance with the room size within which the refrigerant containing parts are installed.
- The ventilation machinery and outlets are operating adequately and are not obstructed.

- Marking to the equipment continues to be visible and legible. Markings and signs that are illegible shall be corrected.
- Refrigerating pipe or components are installed in a position where they are unlikely to be exposed to any substance which may corrode refrigerant containing components, unless the components are constructed of materials which are inherently resistant to being corroded or are suitably protected against being so corroded.

(8) Repair and maintenance to electrical components shall include initial safety checks and component inspection procedures. If a fault exists that could compromise safety, then no electrical supply shall be connected to the circuit until it is satisfactorily dealt with. If the fault cannot be corrected immediately but it is necessary to continue operation, an adequate temporary solution shall be used. This shall be reported to the owner of the equipment so all parties are advised. Initial safety checks shall include:

- That capacitors are discharged. This shall be done in a safe manner to avoid possibility of sparking.
- That no live electrical components and wiring are exposed while charging, recovering or purging the system.
- That there is continuity of earth bonding.

- During repairs to sealed components, all electrical supplies shall be disconnected from the equipment being worked upon prior to any removal of sealed covers, etc.
- Particular attention shall be paid to the following to ensure that by working on electrical components, the casing is not altered in such a way that the level of protection is affected. This shall include damage to cables, excessive number of connections, terminals not made to original specification, damage to seals, incorrect fitting of glands, etc.
- Ensure that apparatus is mounted securely.
- Ensure that seals or sealing materials have not degraded such that they no longer serve the purpose of preventing the ingress of flammable atmospheres.
- Replacement parts shall be in accordance with the manufacturer's specifications.

  NOTE:

  The use of silicon sealant may inhibit the effectiveness of some types of leak detection equipment. Intrinsically safe components do not have to be isolated prior to working on them.

- Do not apply any permanent inductive or capacitance loads to the circuit without ensuring that this will not exceed the permissible voltage and current permitted for the equipment in use.
- Intrinsically safe components are the only types that can be worked on while live in the presence of a flammable atmosphere.
- The test apparatus shall be at the correct rating.
- Replace components only with parts specified by the manufacturer. Unspecified parts by manufacturer may result ignition of refrigerant in the atmosphere from a leak.

REMOVAL AND EVACUATION

⚠ CAUTION

- When breaking into the refrigerant circuit to make repairs – or for any other purpose – conventional procedures shall be used.
  However, it is important that best practice is followed since flammability is a consideration.
  The following procedure shall be adhered to:
  - Remove refrigerant.
  - Purge the circuit with inert gas.
  - Evacuate.
  - Purge again with inert gas.
  - Open the circuit by cutting or brazing.
- The refrigerant charge shall be recovered into the correct recovery cylinders.
- The system shall be “flushed” with Oxygen free nitrogen (OFN) to render the unit safe.
- This process may need to be repeated several times.
- Compressed air or oxygen shall not be used for this task.
- Flushing shall be achieved by breaking the vacuum in the system with OFN and continuing to fill until the working pressure is achieved, then venting to atmosphere, and finally pulling down to a vacuum.
- This process shall be repeated until no refrigerant is within the system.
- When the final OFN charge is used, the system shall be vented down to atmospheric pressure to enable work to take place.
- This operation is absolutely vital if brazing operations on the pipe work are to take place.
- Ensure that the outlet for the vacuum pump is not close to any potential ignition sources and there is ventilation available.

CHARGING PROCEDURES

NOTE:

See “1-11-2. Installation Instructions of Outdoor Unit”.

DECOMMISSIONING

⚠ CAUTION

- Before carrying out this procedure, it is essential that the technician is completely familiar with the equipment and all its details.
- It is recommended good practice that all refrigerants are recovered safely.
- Prior to the task being carried out, an oil and refrigerant sample shall be taken in case analysis is required prior to re-use of recovered refrigerant.
- It is essential that electrical power is available before the task is commenced.
  a) Become familiar with the equipment and its operation.
  b) Isolate system electrically.
  c) Before attempting the procedure ensure that:
  - Mechanical handling equipment is available, if required, for handling refrigerant cylinders.
  - All personal protective equipment is available and being used correctly.
  - The recovery process is supervised at all times by a competent person.

- Recovery equipment and cylinders conform to the appropriate standards.

d) Pump down refrigerant system, if possible.
e) If a vacuum is not possible, make a manifold so that refrigerant can be removed from various parts of the system.
f) Make sure that cylinder is situated on the scales before recovery takes place.
g) Start the recovery machine and operate in accordance with instructions.
h) Do not overfill cylinders. (No more than 80% volume liquid charge).
i) Do not exceed the maximum working pressure of the cylinder, even temporarily.
j) When the cylinders have been filled correctly and the process completed, make sure that the cylinders and the equipment are removed from site promptly and all isolation valves on the equipment are closed off.
k) Recovered refrigerant shall not be charged into another refrigerating system unless it has been cleaned and checked.

- Electrostatic charge may accumulate and create a hazardous condition when charging or discharging the refrigerant.

  To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before charging / discharging.

RECOVERY

NOTE:

See “11. Recovery” on page 1-11-2-1-7, 1-11-2-2-7, 1-11-2-3-6 and 1-11-2-4-6.

Check of Density Limit

1. Outdoor

1-1. U-25PZ3E5, U-36PZ3E5, U-50PZ3E5, U-60PZ3E5A, U-71PZ3E5A

The refrigerant (R32), which is used in the air conditioner, is a flammable refrigerant.
So the requirements for installation space of appliance are determined according to the refrigerant charge amount (m_c) used in the appliance.

The minimum indoor floor space compared with the amount of refrigerant is roughly as follows:

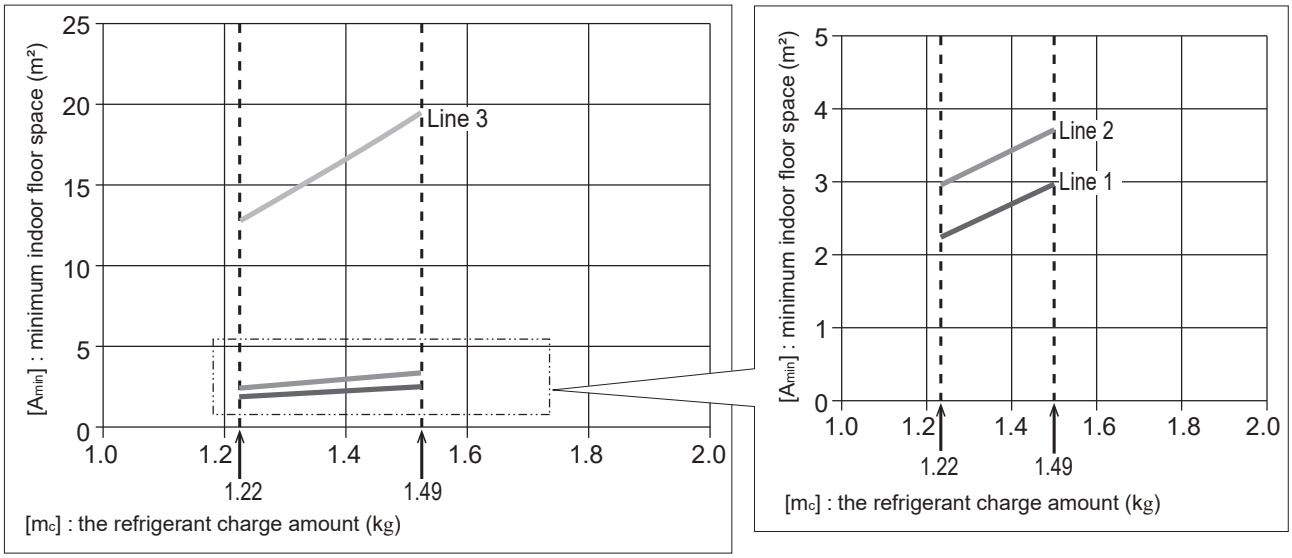


Table 1-1-1		
Installation height of Indoor Unit: h_{inst}	Indoor Unit Type	Density Limit Line
$h_{inst} \geq 2.2$ m	4-Way Cassette, Ceiling Middle Static Pressure Duct 4-Way Cassette 60 × 60	Line 1
1.8 m ≤ h_{inst} < 2.2 m	Wall Mounted Middle Static Pressure Duct	Line 2
h_{inst} < 1.8 m	Middle Static Pressure Duct	Line 3

$m_c \leq 1.22$: Can be installed
$1.22 < m_c \leq m_{max}$: Can be installed above "Density Limit Line" *1
*1 See "Density Limit Line" in Table 1-1-1 and below.
Fig. 2-1-1, Table 2-1-1.
Fig. 2-2-1, Table 2-2-2.
Fig. 2-3-1, Table 2-3-1.
Fig. 2-4-1, Table 2-4-1.
Fig. 2-5-1, Table 2-5-1.
$m_c > m_{max}$: Cannot be installed

	U-25PZ3E5	U-36PZ3E5	U-50PZ3E5	U-60PZ3E5A	U-71PZ3E5A
m_{max} (kg)	0.95	0.95	1.33	1.30	1.49

m_c : The refrigerant charge amount (Total of refrigerant at shipment and refrigerant charge amount in the field).

- Please calculate m_c according to piping length in the field as shown in the calculation example below.

< Calculating example >

- See table "Specification for pipe connecting indoor unit to outdoor unit." on page 1-11-2-1-20.

(conditions : U-71PZ3E5A Total pipe length = 40 m)

$$m_c = ① + ② = ① + (③ * (④ - ⑤)) = 1.32 \text{ kg} + (0.017 \text{ kg} * (40 \text{ m} - 30 \text{ m})) = 1.49 \text{ kg}$$

① : Refrigerant charged at shipment
② : Refrigerant charge amount in the field
③ : Additional charge per 1m
④ : Total pipe length
⑤ : Charge-less pipe length(max.)

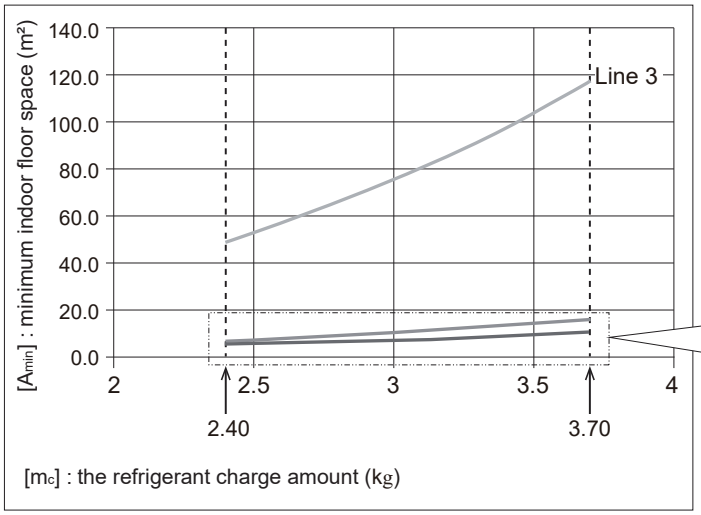
- If the total piping length is within the maximum value of the charge-less piping length, refrigerant charge in the field is unnecessary.

m_{max} : The maximum refrigerant charge amount

1-2. U-100PZ3E5, U-125PZ3E5, U-140PZ3E5
U-100PZ3E8, U-125PZ3E8, U-140PZ3E8

The refrigerant (R32), which is used in the air conditioner, is a flammable refrigerant.
So the requirements for installation space of appliance are determined according to the refrigerant charge amount (m_c) used in the appliance.

The minimum indoor floor space compared with the amount of refrigerant is roughly as follows:



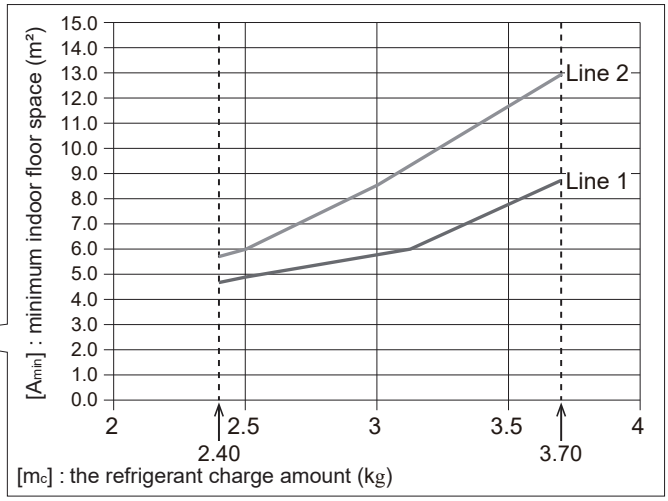


Table 1-2-1		
Installation height of Indoor Unit: h_{inst}	Indoor Unit Type	Density Limit Line
$h_{inst} \geq 2.2$ m	4-Way Cassette, Ceiling Middle Static Pressure Duct 4-Way Cassette 60 × 60	Line 1
1.8 m ≤ h_{inst} < 2.2 m	Wall Mounted Middle Static Pressure Duct	Line 2
h_{inst} < 1.8 m	Middle Static Pressure Duct	Line 3

$2.40 \leq m_c \leq m_{max}$: Can be installed above "Density Limit Line" *1
*1 See "Density Limit Line" in Table 1-2-1 and below.
Fig. 2-1-1, Table 2-1-1.
Fig. 2-2-1, Table 2-2-2.
Fig. 2-3-1, Table 2-3-1.
Fig. 2-4-1, Table 2-4-1.
Fig. 2-5-1, Table 2-5-1.

$m_c > m_{max}$: Cannot be installed

	U-100PZ3E5 U-100PZ3E8	U-125PZ3E5, U-140PZ3E5 U-125PZ3E8, U-140PZ3E8
m_{max}	3.30 kg	3.70 kg

m_c : The refrigerant charge amount (Total of refrigerant at shipment and refrigerant charge amount in the field).

- Please calculate m_c according to piping length in the field as shown in the calculation example below.

< Calculating example >

- See table "Specification for pipe connecting indoor unit to outdoor unit." on page 1-11-2-2-20.

(conditions : U-140PZ3E5 Total pipe length = 50 m)

$$m_c = ① + ② = ① + (③ * (④ - ⑤)) = 2.80 \text{ kg} + (0.045 \text{ kg} * (50 \text{ m} - 30 \text{ m})) = 3.70 \text{ kg}$$

① : Refrigerant charged at shipment
② : Refrigerant charge amount in the field
③ : Additional charge per 1m
④ : Total pipe length
⑤ : Charge-less pipe length(max.)

- If the total piping length is within the maximum value of the charge-less piping length, refrigerant charge in the field is unnecessary.

m_{max} : The maximum refrigerant charge amount

1-3. U-36PZH3E5, U-50PZH3E5, U-60PZH3E5

The refrigerant (R32), which is used in the air conditioner, is a flammable refrigerant.
So the requirements for installation space of appliance are determined according to the refrigerant charge amount (m_c) used in the appliance.

The minimum indoor floor space compared with the amount of refrigerant is roughly as follows:

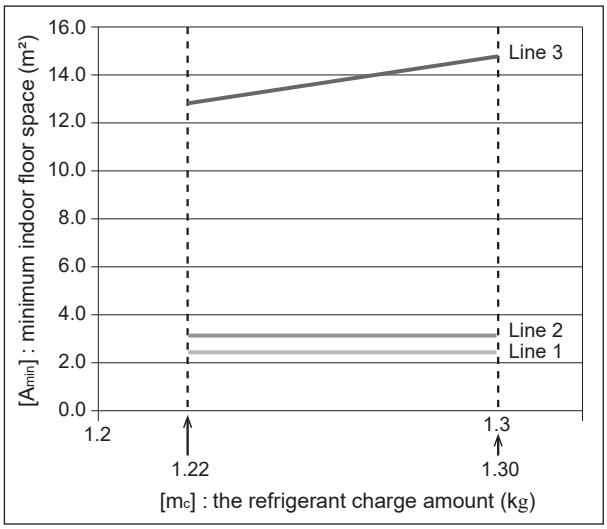


Table 1-3-1		
Installation height of Indoor Unit: h_{inst}	Indoor Unit Type	Density Limit Line
$h_{inst} \geq 2.2$ m	4-Way Cassette, Ceiling Middle Static Pressure Duct 4-Way Cassette 60 × 60	Line 1
1.8 m ≤ h_{inst} < 2.2 m	Wall Mounted Middle Static Pressure Duct	Line 2
h_{inst} < 1.8 m	Middle Static Pressure Duct	Line 3

$m_c \leq 1.22$: Can be installed
$1.22 < m_c \leq m_{max}$: Can be installed above "Density Limit Line" *1
*1 See "Density Limit Line" in Table 1-3-1 and below.
Fig. 2-1-1, Table 2-1-1.
Fig. 2-2-1, Table 2-2-2.
Fig. 2-3-1, Table 2-3-1.
Fig. 2-4-1, Table 2-4-1.
Fig. 2-5-1, Table 2-5-1.
$m_c > m_{max}$: Cannot be installed

	U-36PZH3E5	U-50PZH3E5	U-60PZH3E5
m_{max} (kg)	1.28	1.28	1.30

m_c : The refrigerant charge amount (Total of refrigerant at shipment and refrigerant charge amount in the field).

- Please calculate m_c according to piping length in the field as shown in the calculation example below.

< Calculating example >

- See table "Specification for pipe connecting indoor unit to outdoor unit." on page 1-11-2-3-19.

(conditions : U-60PZH3E5 Total pipe length = 40 m)

$$m_c = ① + ② = ① + (③ * (④ - ⑤)) = 1.15\ kg + (0.015\ kg * (40\ m - 30\ m)) = 1.30\ kg$$

① : Refrigerant charged at shipment
② : Refrigerant charge amount in the field
③ : Additional charge per 1m
④ : Total pipe length
⑤ : Charge-less pipe length(max.)

- If the total piping length is within the maximum value of the charge-less piping length, refrigerant charge in the field is unnecessary.

m_{max} : The maximum refrigerant charge amount

1-4. U-71PZH4E5, U-100PZH4E5, U-125PZH4E5, U-140PZH4E5
U-71PZH4E8, U-100PZH4E8, U-125PZH4E8, U-140PZH4E8

The refrigerant (R32), which is used in the air conditioner, is a flammable refrigerant.
So the requirements for installation space of appliance are determined according to the refrigerant charge amount (m_c) used in the appliance.

The minimum indoor floor space compared with the amount of refrigerant is roughly as follows:

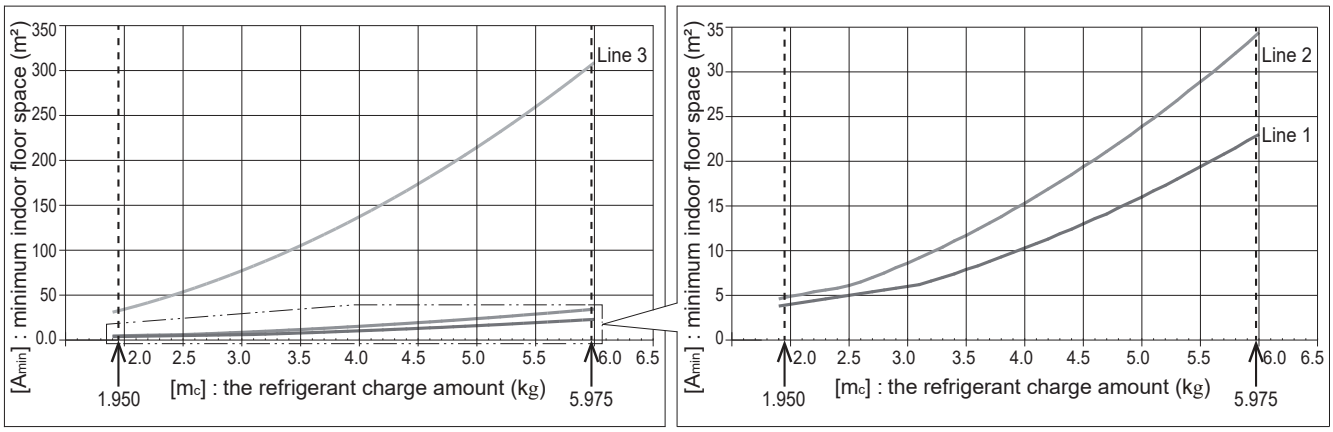


Table 1-4-1		
Installation height of Indoor Unit: h_{inst}	Indoor Unit Type	Density Limit Line
$h_{inst} \geq 2.2$ m	4-Way Cassette, Ceiling Middle Static Pressure Duct (Horizontal Installation) 4-Way Cassette 60 × 60	Line 1
1.8 m ≤ h_{inst} < 2.2 m	Middle Static Pressure Duct (Horizontal Installation) Wall Mounted	Line 2
h_{inst} < 1.8 m	Middle Static Pressure Duct (Vertical Installation)	Line 3

1.950 ≤ m_c ≤ m_{max} : Can be installed above "Density Limit Line" *1
*1 See "Density Limit Line" in Table 1-4-1 and below.
Fig. 2-1-1, Table 2-1-1.
Fig. 2-2-1, Table 2-2-2.
Fig. 2-3-1, Table 2-3-1.
Fig. 2-4-1, Table 2-4-1.
Fig. 2-5-1, Table 2-5-1.
$m_c > m_{max}$: Cannot be installed

	U-71PZH4E5 U-71PZH4E8	U-100PZH4E5, U-125PZH4E5, U-140PZH4E5 U-100PZH4E5, U-125PZH4E5, U-140PZH4E5
m_{max}	2.850 kg	5.975 kg

m_c : The refrigerant charge amount (Total of refrigerant at shipment and refrigerant charge amount in the field).

- Please calculate m_c according to piping length in the field as shown in the calculation example below.

< Calculating example >

- Refer to table "Specification for pipe connecting indoor unit to outdoor unit." on page 1-11-2-4-20.

(conditions : U-71PZH4E5 (Single) Total pipe length = 40 m)

m_c = ① + ② = ① + (③ * (④ – ⑤)) = 1.95 kg + (0.03 kg * (40 m – 30 m)) = 2.250 kg

(conditions : U-125PZH4E5 (TRIPLE) Total pipe length = 65 m)

- Please refer to "7. TWIN, TRIPLE AND DOUBLE TWIN TYPE CONNECTIONS-Refrigerant charging" on page 1-11-2-4-24.

m_c = ① + ② = ① + (③ * (④ – ⑤ – ⑦ – ⑧ – ⑨)) + (⑥ * (⑦ + ⑧ + ⑨)) = 3.00 kg + 0.040 kg * (65 m - 20 m - 3 m - 4 m - 5 m) + 0.020 kg * (3 m + 4 m + 5 m) * = 4.56 kg

① : Refrigerant charged at shipment
② : Refrigerant charge amount in the field
③ : Additional charge per 1m (Main tube)
④ : Total pipe length
⑤ : Charge-less pipe length(max.)
⑥ : Additional charge per 1m (Branch pipe)
⑦ : 1st Branch pipe length (3 m)
⑧ : 2nd Branch pipe length (4 m)
⑨ : 3rd Branch pipe length (5 m)

- If the total piping length is within the maximum value of the charge-less piping length, refrigerant charge in the field is unnecessary.

m_{max} : The maximum refrigerant charge amount

2. Indoor

2-1. 4-Way Cassette Type

The refrigerant (R32), which is used in the air conditioner, is a flammable refrigerant. So the requirements for installation space of appliance are determined according to the refrigerant charge amount [m_c] used in the appliance.

Regarding the refrigerant charge amount [m_c] used in the appliance, see "4. REFRIGERANT INSTALLATION" on page 1-11-2-1-20, 1-11-2-2-20, 1-11-2-3-19 and 1-11-2-4-20.

The minimum indoor floor space compared with the amount of refrigerant is roughly as follows:

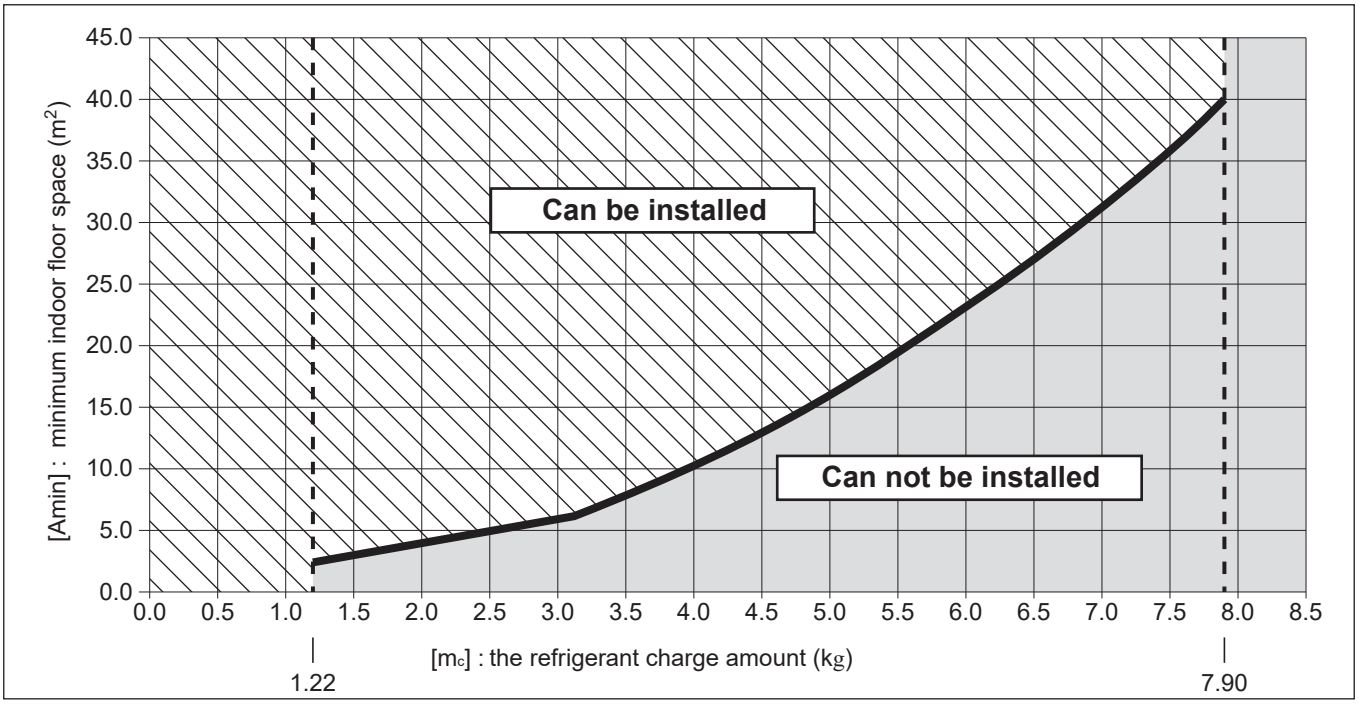


Fig. 2-1-1

[m_c] : The refrigerant charge amount (kg) (Total of refrigerant at shipment and refrigerant charge amount in the field).
[Amin] : Minimum indoor floor space (m^2)

Table 2-1-1

[m_c]	[Amin]	[m_c]	[Amin]	[m_c]	[Amin]	[m_c]	[Amin]
1.22	2.5	2.9	5.8	4.6	13.6	6.3	25.4
1.3	2.6	3.0	6.0	4.7	14.1	6.4	26.2
1.4	2.8	3.1	6.2	4.8	14.8	6.5	27.0
1.5	3.0	3.2	6.6	4.9	15.4	6.6	27.9
1.6	3.2	3.3	7.0	5.0	16.0	6.7	28.7
1.7	3.4	3.4	7.4	5.1	16.7	6.8	29.6
1.8	3.6	3.5	7.9	5.2	17.3	6.9	30.4
1.9	3.8	3.6	8.3	5.3	18.0	7.0	31.3
2.0	4.0	3.7	8.8	5.4	18.7	7.1	32.2
2.1	4.2	3.8	9.3	5.5	19.4	7.2	33.1
2.2	4.4	3.9	9.8	5.6	20.1	7.3	34.1
2.3	4.6	4.0	10.3	5.7	20.8	7.4	35.0
2.4	4.8	4.1	10.8	5.8	21.5	7.5	35.9
2.5	5.0	4.2	11.3	5.9	22.3	7.6	36.9
2.6	5.2	4.3	11.9	6.0	23.0	7.7	37.9
2.7	5.4	4.4	12.4	6.1	23.8	7.8	38.9
2.8	5.6	4.5	13.0	6.2	24.6	7.9	39.9

2-2. Middle Static Pressure Duct Type

The refrigerant (R32), which is used in the air conditioner, is a flammable refrigerant. So the requirements for installation space of appliance are determined according to the refrigerant charge amount [m_c] used in the appliance.

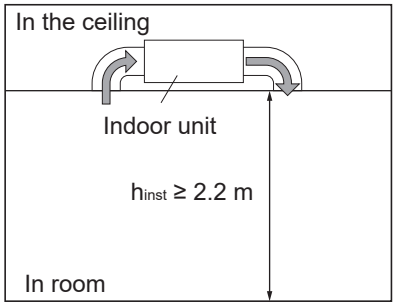
Regarding the refrigerant charge amount [m_c] used in the appliance, see "4. REFRIGERANT INSTALLATION" on page 1-11-2-1-20, 1-11-2-2-20, 1-11-2-3-19 and 1-11-2-4-20.

The minimum indoor floor space compared with the amount of refrigerant is roughly as follows:

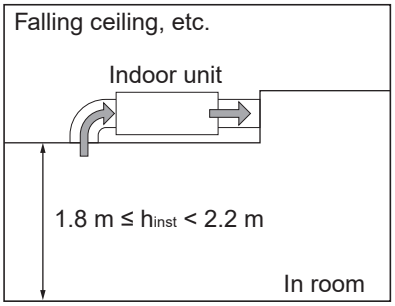
Table 2-2-1

Installation height of Indoor Unit: h_{inst}	Indoor Unit Type	Density Limit Line
$h_{inst} \geq 2.2$ m	Middle Static Pressure Duct (Horizontal installation)	Line 1
1.8 m $\leq h_{inst} <$ 2.2 m	Middle Static Pressure Duct (Horizontal installation)	Line 2
$h_{inst} <$ 1.8 m	Middle Static Pressure Duct (Vertical installation)	Line 3

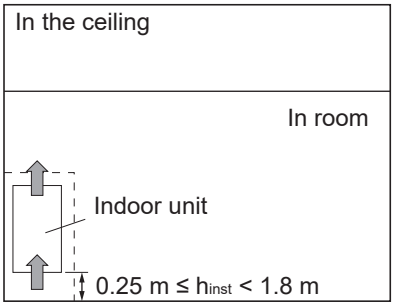
Line 1



Line 2



Line 3



The minimum indoor floor space compared with the amount of refrigerant is roughly as follows:
Use the graph or Table 2-2-2 to determine the minimum indoor floor space.

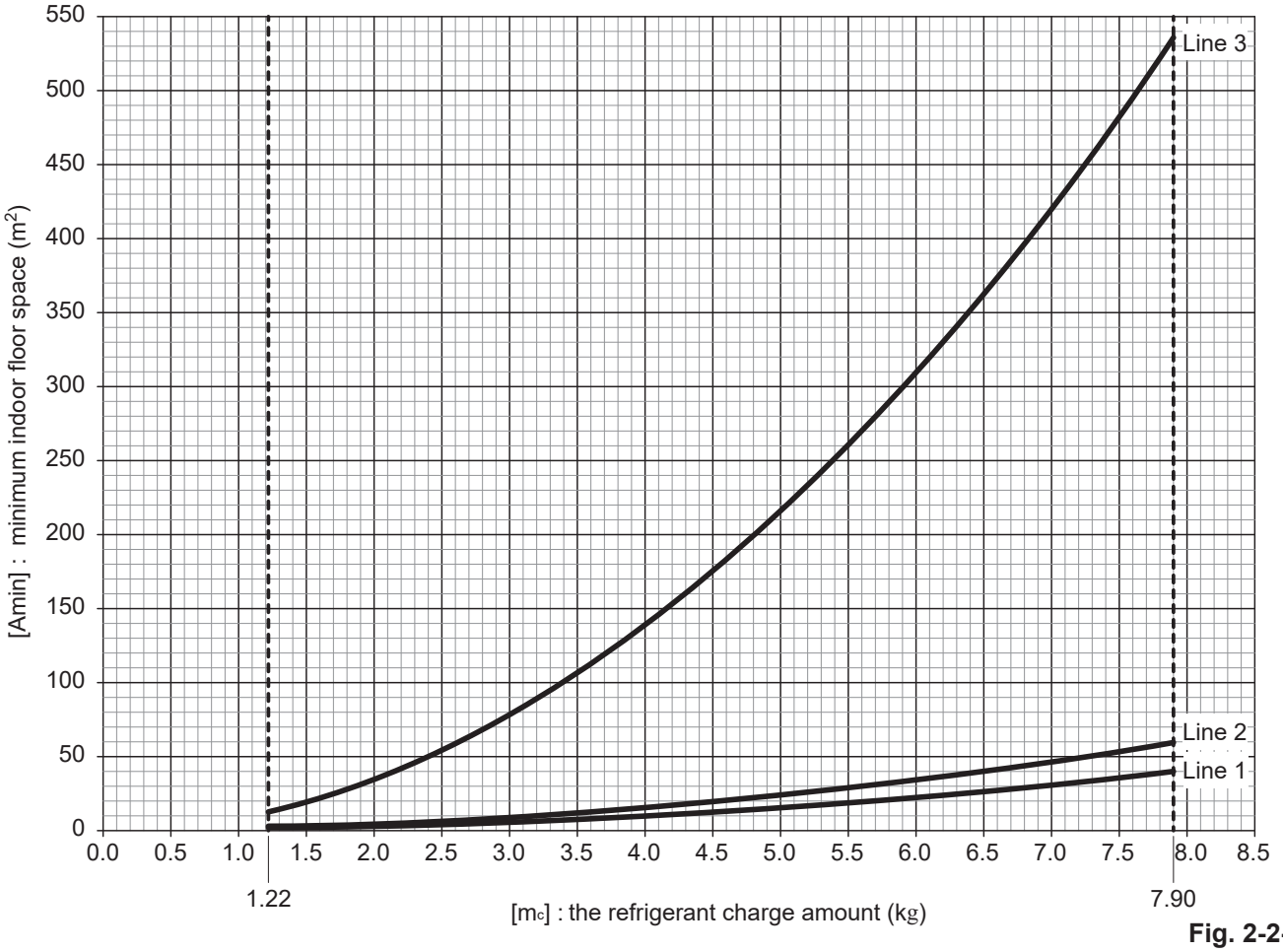


Fig. 2-2-1

Table 2-2-2

[m_c] kg	[Amin] m^2		
	Line 1	Line 2	Line 3
1.22	2.5	3.0	12.8
1.3	2.6	3.2	14.5
1.4	2.8	3.4	16.8
1.5	3.0	3.7	19.3
1.6	3.2	3.9	22.0
1.7	3.4	4.2	24.8
1.8	3.6	4.4	27.8
1.9	3.8	4.6	31.0
2.0	4.0	4.9	34.3
2.1	4.2	5.1	37.8
2.2	4.4	5.4	41.5
2.3	4.6	5.6	45.4
2.4	4.8	5.8	49.4
2.5	5.0	6.1	53.6
2.6	5.2	6.5	58.0
2.7	5.4	7.0	62.6
2.8	5.6	7.5	67.3
2.9	5.8	8.1	72.2
3.0	6.0	8.6	77.2
3.1	6.2	9.2	82.5
3.2	6.6	9.8	87.9
3.3	7.0	10.4	93.4
3.4	7.4	11.1	99.2

[m_c] kg	[Amin] m^2		
	Line 1	Line 2	Line 3
3.5	7.9	11.7	105.1
3.6	8.3	12.4	111.2
3.7	8.8	13.1	117.5
3.8	9.3	13.8	123.9
3.9	9.8	14.6	130.5
4.0	10.3	15.3	137.3
4.1	10.8	16.1	144.2
4.2	11.3	16.9	151.4
4.3	11.9	17.7	158.7
4.4	12.4	18.5	166.1
4.5	13.0	19.4	173.8
4.6	13.6	20.2	181.6
4.7	14.1	21.1	189.5
4.8	14.8	22.0	197.7
4.9	15.4	22.9	206.0
5.0	16.0	23.9	214.5
5.1	16.7	24.8	223.2
5.2	17.3	25.8	232.0
5.3	18.0	26.8	241.0
5.4	18.7	27.9	250.2
5.5	19.4	28.9	259.6
5.6	20.1	29.9	269.1
5.7	20.8	31.0	278.8

[m_c] kg	[Amin] m^2		
	Line 1	Line 2	Line 3
5.8	21.5	32.1	288.6
5.9	22.3	33.2	298.7
6.0	23.0	34.4	308.9
6.1	23.8	35.5	319.3
6.2	24.6	36.7	329.8
6.3	25.4	37.9	340.6
6.4	26.2	39.1	351.5
6.5	27.0	40.3	362.5
6.6	27.9	41.6	373.8
6.7	28.7	42.8	385.2
6.8	29.6	44.1	396.8
6.9	30.4	45.4	408.5
7.0	31.3	46.8	420.4
7.1	32.2	48.1	432.5
7.2	33.1	49.5	444.8
7.3	34.1	50.9	457.3
7.4	35.0	52.3	469.9
7.5	35.9	53.7	482.7
7.6	36.9	55.1	495.6
7.7	37.9	56.6	508.7
7.8	38.9	58.1	522.0
7.9	39.9	59.6	535.5

$m_c \leq 1.22$: Can be installed
$1.22 < m_c \leq m_{max}$: Can be installed above “Density Limit Line” *1
*1 See Table 2-2-1 and the Fig. 2-2-1 when deciding “Density Limit Line”.

2-3. Wall Mounted Type

The refrigerant (R32), which is used in the air conditioner, is a flammable refrigerant. So the requirements for installation space of appliance are determined according to the refrigerant charge amount [m_c] used in the appliance. Regarding the refrigerant charge amount [m_c] used in the appliance, see “4. REFRIGERANT INSTALLATION” on page 1-11-2-1-20, 1-11-2-2-20, 1-11-2-3-19 and 1-11-2-4-20.

The minimum indoor floor space compared with the amount of refrigerant is roughly as follows:

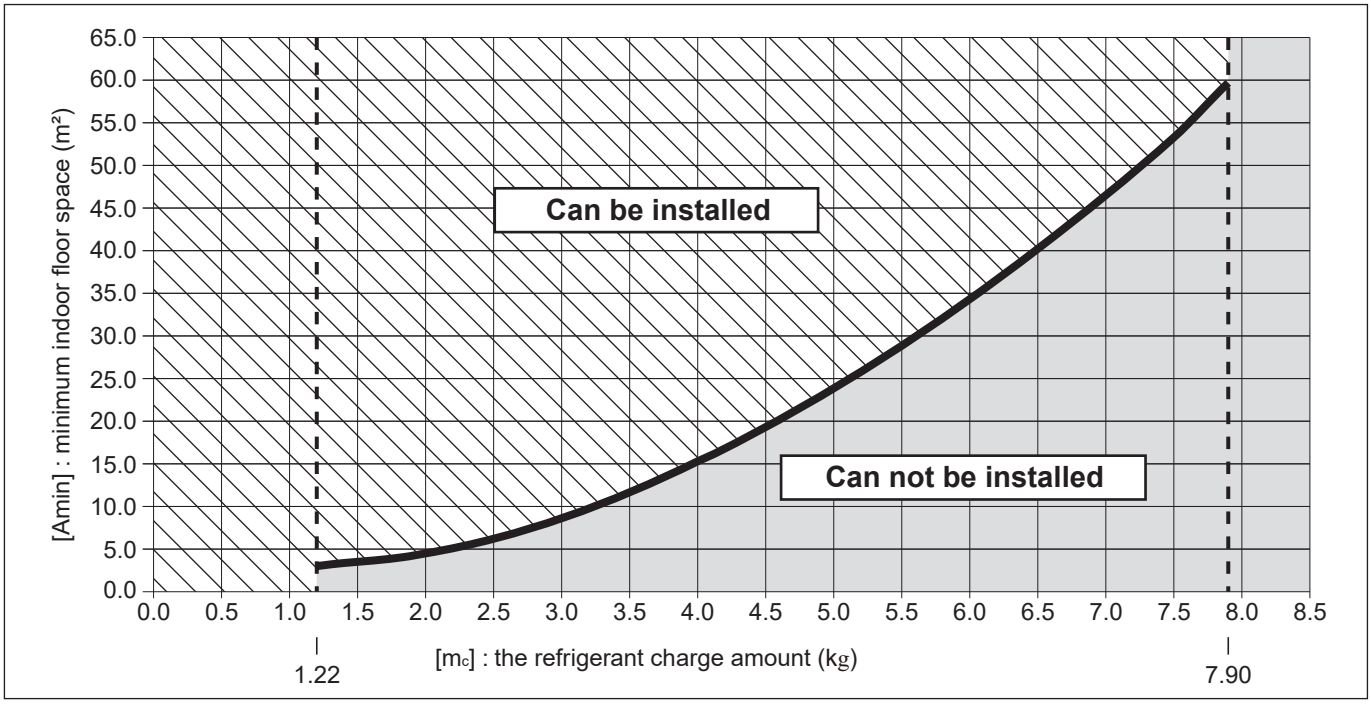


Fig. 2-3-1

[m_c] : The refrigerant charge amount (kg) (Total of refrigerant at shipment and refrigerant charge amount in the field).

[Amin] : Minimum indoor floor space (m^2)

Table 2-3-1

[m_c]	[Amin]	[m_c]	[Amin]	[m_c]	[Amin]	[m_c]	[Amin]
1.22	3.0	2.9	8.0	4.6	20.1	6.3	37.6
1.3	3.2	3.0	8.6	4.7	20.9	6.4	38.8
1.4	3.4	3.1	9.1	4.8	21.8	6.5	40.0
1.5	3.7	3.2	9.7	4.9	22.8	6.6	41.2
1.6	3.9	3.3	10.3	5.0	23.7	6.7	42.5
1.7	4.2	3.4	11.0	5.1	24.6	6.8	43.8
1.8	4.4	3.5	11.6	5.2	25.6	6.9	45.1
1.9	4.6	3.6	12.3	5.3	26.6	7.0	46.4
2.0	4.9	3.7	13.0	5.4	27.6	7.1	47.7
2.1	5.1	3.8	13.7	5.5	28.7	7.2	49.1
2.2	5.4	3.9	14.4	5.6	29.7	7.3	50.4
2.3	5.6	4.0	15.2	5.7	30.8	7.4	51.8
2.4	5.9	4.1	15.9	5.8	31.9	7.5	53.2
2.5	6.1	4.2	16.7	5.9	33.0	7.6	54.7
2.6	6.4	4.3	17.5	6.0	34.1	7.7	56.1
2.7	6.9	4.4	18.4	6.1	35.2	7.8	57.6
2.8	7.5	4.5	19.2	6.2	36.4	7.9	59.1

2-4. Ceiling Type

The refrigerant (R32), which is used in the air conditioner, is a flammable refrigerant. So the requirements for installation space of appliance are determined according to the refrigerant charge amount [m_c] used in the appliance. Regarding the refrigerant charge amount [m_c] used in the appliance, see “4. REFRIGERANT INSTALLATION” on page 1-11-2-1-20, 1-11-2-2-20, 1-11-2-3-19 and 1-11-2-4-20.

The minimum indoor floor space compared with the amount of refrigerant is roughly as follows:

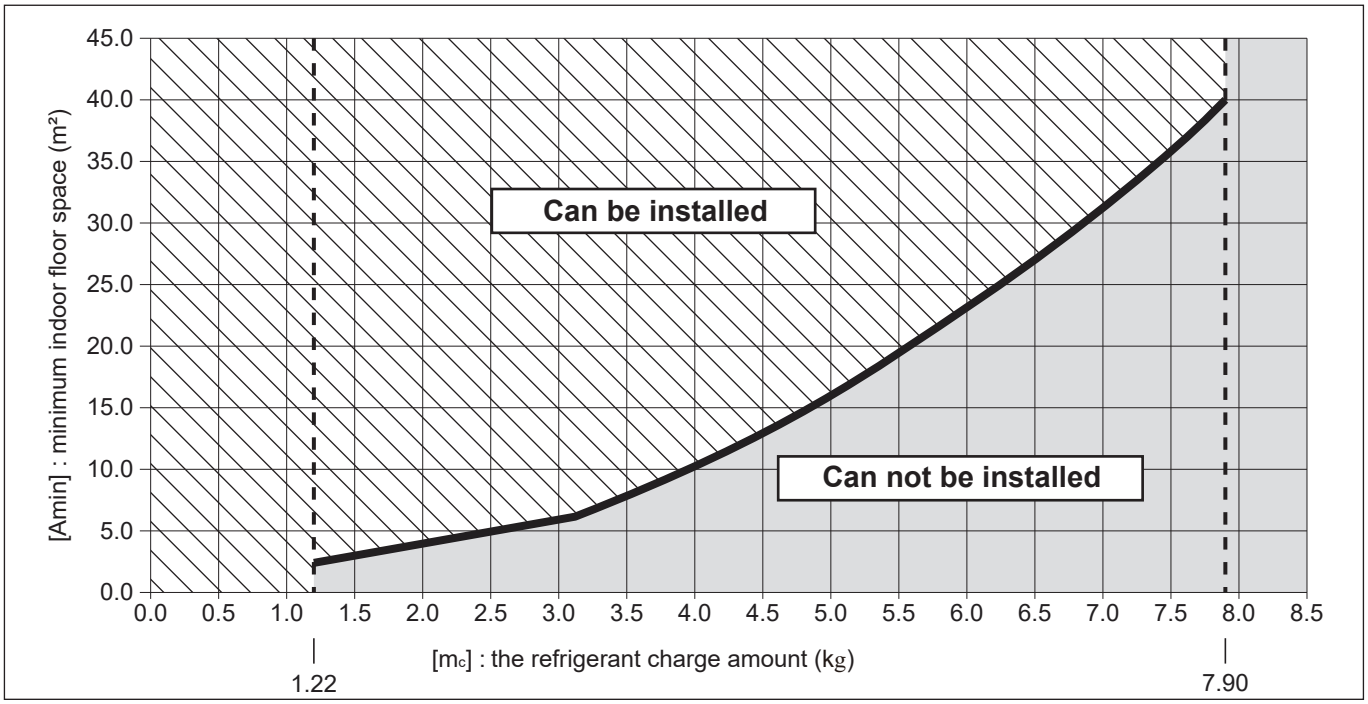


Fig. 2-4-1

[m_c] : The refrigerant charge amount (kg) (Total of refrigerant at shipment and refrigerant charge amount in the field).

[Amin] : Minimum indoor floor space (m^2)

Table 2-4-1

[m_c]	[Amin]	[m_c]	[Amin]	[m_c]	[Amin]	[m_c]	[Amin]
1.22	2.5	2.9	5.8	4.6	13.4	6.3	25.2
1.3	2.6	3.0	6.0	4.7	14.0	6.4	26.0
1.4	2.8	3.1	6.2	4.8	14.6	6.5	26.8
1.5	3.0	3.2	6.5	4.9	15.2	6.6	27.6
1.6	3.2	3.3	6.9	5.0	15.9	6.7	28.5
1.7	3.4	3.4	7.4	5.1	16.5	6.8	29.3
1.8	3.6	3.5	7.8	5.2	17.2	6.9	30.2
1.9	3.8	3.6	8.3	5.3	17.8	7.0	31.1
2.0	4.0	3.7	8.7	5.4	18.5	7.1	32.0
2.1	4.2	3.8	9.2	5.5	19.2	7.2	32.9
2.2	4.4	3.9	9.7	5.6	19.9	7.3	33.8
2.3	4.6	4.0	10.2	5.7	20.6	7.4	34.7
2.4	4.8	4.1	10.7	5.8	21.3	7.5	35.7
2.5	5.0	4.2	11.2	5.9	22.1	7.6	36.6
2.6	5.2	4.3	11.8	6.0	22.8	7.7	37.6
2.7	5.4	4.4	12.3	6.1	23.6	7.8	38.6
2.8	5.6	4.5	12.9	6.2	24.4	7.9	39.6

2-5. 4-Way Cassette 60 × 60 Type

The refrigerant (R32), which is used in the air conditioner, is a flammable refrigerant. So the requirements for installation space in each room of appliance are determined according to the refrigerant charge amount [m_c] used in the appliance.

Regarding the refrigerant charge amount [m_c] used in the appliance, see “4. REFRIGERANT INSTALLATION” on page 1-11-2-1-20, 1-11-2-2-20, 1-11-2-3-19 and 1-11-2-4-20.

The minimum indoor floor space compared with the amount of refrigerant is roughly as follows:

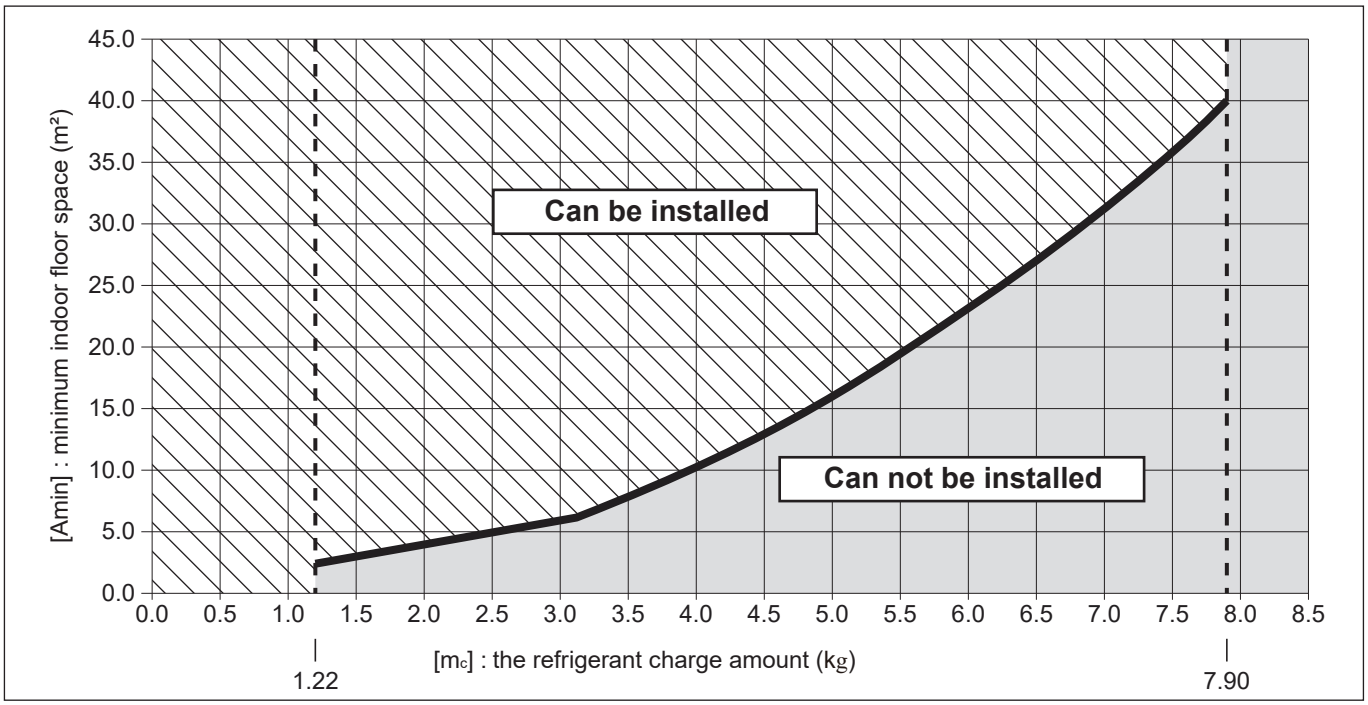


Fig. 2-5-1

[m_c] : The refrigerant charge amount (kg) (Total of refrigerant at shipment and refrigerant charge amount in the field).

[Amin] : Minimum indoor floor space (m^2)

Table 2-5-1

[m_c]	[Amin]
1.22	2.5
1.3	2.6
1.4	2.8
1.5	3.0
1.6	3.2
1.7	3.4
1.8	3.6
1.9	3.8
2.0	4.0
2.1	4.2
2.2	4.4
2.3	4.6
2.4	4.8
2.5	5.0
2.6	5.2
2.7	5.4
2.8	5.6

[m_c]	[Amin]
2.9	5.8
3.0	6.0
3.1	6.2
3.2	6.5
3.3	6.9
3.4	7.4
3.5	7.8
3.6	8.3
3.7	8.7
3.8	9.2
3.9	9.7
4.0	10.2
4.1	10.7
4.2	11.2
4.3	11.8
4.4	12.3
4.5	12.9

[m_c]	[Amin]
4.6	13.4
4.7	14.0
4.8	14.6
4.9	15.2
5.0	15.9
5.1	16.5
5.2	17.2
5.3	17.8
5.4	18.5
5.5	19.2
5.6	19.9
5.7	20.6
5.8	21.3
5.9	22.1
6.0	22.8
6.1	23.6
6.2	24.4

[m_c]	[Amin]
6.3	25.2
6.4	26.0
6.5	26.8
6.6	27.6
6.7	28.5
6.8	29.3
6.9	30.2
7.0	31.1
7.1	32.0
7.2	32.9
7.3	33.8
7.4	34.7
7.5	35.7
7.6	36.6
7.7	37.6
7.8	38.6
7.9	39.6

Precautions for Installation Using New Refrigerant

1. Care regarding tubing

1-1. Process tubing

- Material: Use seamless phosphorous deoxidized copper tube for refrigeration. Wall thickness shall comply with the applicable legislation. The minimal wall thickness must be in accordance with the table below.
- Tubing size: Be sure to use the sizes indicated in the table below.
  For the renewal tubing size, see “INCASE OF REUSING EXISTING REFRIGERANT PIPING” on page 1-11-2-1-22, 1-11-2-2-22, 1-11-2-3-21 and 1-11-2-4-22.
- Use a tube cutter when cutting the tubing, and be sure to remove any flash. This also applies to distribution joints (optional).
- When bending tubing, use a bending radius that is 4 times the outer diameter of the tubing or larger.

CAUTION **Use sufficient care in handling the tubing. Seal the tubing ends with caps or tape to prevent dirt, moisture, or other foreign substances from entering. These substances can result in system malfunction.**

Unit: mm

Material		Temper - O (Soft copper tube)			
Copper tube	Outer diameter	6.35	9.52	12.7	15.88
	Wall thickness	0.8	0.8	0.8	1.0

1-2. Prevent impurities including water, dust and oxide from entering the tubing. Impurities can cause R32 refrigerant deterioration and compressor defects. Due to the features of the refrigerant and refrigerating machine oil, the prevention of water and other impurities becomes more important than ever.

2. Be sure to recharge the refrigerant only in liquid form.

2-1. Since refrigerant composition changes and performance decreases when gas leaks, collect the remaining refrigerant and recharge the required total amount of new refrigerant after fixing the leak.

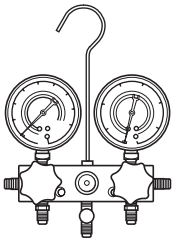
3. Different tools required

3-1. Tool specifications have been changed due to the characteristics of R32.
Some tools for R22- and R407C-type refrigerant systems cannot be used.

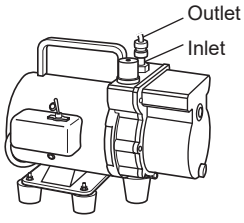
Item	Different tools? (From R22 and R407C)	R410A tools compatible with R32?	Remarks
Manifold gauge	Yes	Yes	Types of refrigerant, refrigerating machine oil, and pressure gauge are different.
Charge hose	Yes	Yes	To resist higher pressure, material must be changed.
Vacuum pump	Yes	Yes	Use a conventional vacuum pump if it is equipped with a check valve. If it has no check valve, purchase and attach a vacuum pump adapter.
Leak detector	Yes	Yes	Leak detectors for CFC and HCFC that react to chlorine do not function because R32 and R410A contains no chlorine. Leak detectors for HFC can be used for R32 and R410A.
Flaring oil	Yes	Yes	For systems that use R22, apply mineral oil (Suniso oil) to the flare nuts on the tubing to prevent refrigerant leakage. For machines that use R32 or R410A, apply synthetic oil (ether oil) to the flare nuts.

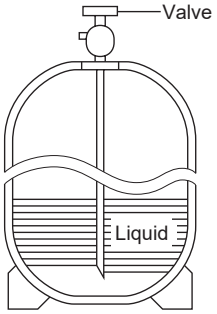
* Using tools for R22 and R407C can cause defects.

Manifold gauge



Vacuum pump





Single-outlet valve
(with siphon tube)
Liquid refrigerant should be recharged with the cylinder standing on end as shown.

Important Information Regarding The Refrigerant Used

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

Refrigerant type: R32

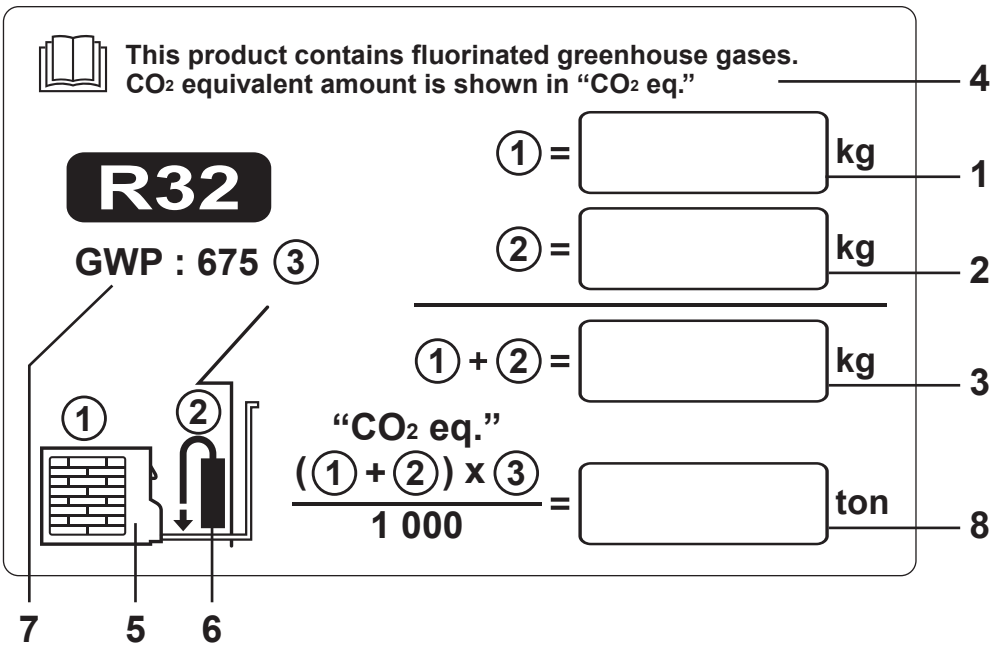
GWP(1) value: 675

(1)GWP = global warming potential

Periodical inspections for refrigerant leaks may be required depending on European or local legislation.
Please contact your local dealer for more information.

Fill in the blanks below with the indelible ink pens.

- ①: the factory refrigerant charge of the product
- ②: the additional refrigerant amount charged in the field
- ① + ② : the total refrigerant charge
- (① + ②) x ③/1000: CO_2 equivalent in tons; multiply the total refrigerant charge by GWP value, then divided by 1000.



1. Factory refrigerant charge of the product: see unit name plate
2. Additional refrigerant amount charged in the field*
3. Total refrigerant charge
4. Contains fluorinated greenhouse gases
5. Outdoor unit
6. Refrigerant cylinder and manifold for charging
7. GWP(global warming potential) of the refrigerant used in this product
8. CO_2 equivalent of fluorinated greenhouse gases contained in this product

* See "4. REFRIGERANT INSTALLATION" on page 1-11-2-1-20, 1-11-2-2-20, 1-11-2-3-19 and 1-11-2-4-20.

Combination of Indoor and Outdoor Units

PZ3

Single-phase

	36	50	60	71	100	125	140
U3	S-3650PU3E (S-3650PU3E(36)) U-36PZ3E5	S-3650PU3E (S-3650PU3E(50)) U-50PZ3E5	S-6071PU3E (S-6071PU3E(60)) U-60PZ3E5A	S-6071PU3E (S-6071PU3E(71)) U-71PZ3E5A	S-1014PU3E (S-1014PU3E(100)) U-100PZ3E5	S-1014PU3E (S-1014PU3E(125)) U-125PZ3E5	S-1014PU3E (S-1014PU3E(140)) U-140PZ3E5
		S-3650PU3E ×2 (S-3650PU3E(50)) U-100PZ3E5	S-6071PU3E ×2 (S-6071PU3E(60)) U-125PZ3E5	S-6071PU3E ×2 (S-6071PU3E(71)) U-140PZ3E5			
F3	S-3650PF3E (S-3650PF3E(36)) U-36PZ3E5	S-3650PF3E (S-3650PF3E(50)) U-50PZ3E5	S-6071PF3E (S-6071PF3E(60)) U-60PZ3E5A	S-6071PF3E (S-6071PF3E(71)) U-71PZ3E5A	S-1014PF3E (S-1014PF3E(100)) U-100PZ3E5	S-1014PF3E (S-1014PF3E(125)) U-125PZ3E5	S-1014PF3E (S-1014PF3E(140)) U-140PZ3E5
		S-3650PF3E ×2 (S-3650PF3E(50)) U-100PZ3E5	S-6071PF3E ×2 (S-6071PF3E(60)) U-125PZ3E5	S-6071PF3E ×2 (S-6071PF3E(71)) U-140PZ3E5			
K3	S-3650PK3E (S-3650PK3E(36)) U-36PZ3E5	S-3650PK3E (S-3650PK3E(50)) U-50PZ3E5	S-6010PK3E (S-6010PK3E(60)) U-60PZ3E5A	S-6010PK3E (S-6010PK3E(71)) U-71PZ3E5A	S-6010PK3E (S-6010PK3E(100)) U-100PZ3E5		
		S-3650PK3E ×2 (S-3650PK3E(50)) U-100PZ3E5	S-6010PK3E ×2 (S-6010PK3E(60)) U-125PZ3E5	S-6010PK3E ×2 (S-6010PK3E(71)) U-140PZ3E5			
T3	S-3650PT3E (S-3650PT3E(36)) U-36PZ3E5	S-3650PT3E (S-3650PT3E(50)) U-50PZ3E5	S-6071PT3E (S-6071PT3E(60)) U-60PZ3E5A	S-6071PT3E (S-6071PT3E(71)) U-71PZ3E5A	S-1014PT3E (S-1014PT3E(100)) U-100PZ3E5	S-1014PT3E (S-1014PT3E(125)) U-125PZ3E5	S-1014PT3E (S-1014PT3E(140)) U-140PZ3E5
		S-3650PT3E ×2 (S-3650PT3E(50)) U-100PZ3E5	S-6071PT3E ×2 (S-6071PT3E(60)) U-125PZ3E5	S-6071PT3E ×2 (S-6071PT3E(71)) U-140PZ3E5			
Y3	S-36PY3E U-36PZ3E5	S-50PY3E U-50PZ3E5	S-60PY3E U-60PZ3E5A				
		S-50PY3E ×2 U-100PZ3E5	S-60PY3E ×2 U-125PZ3E5				

	25
Y3	S-25PY3E U-25PZ3E5

PZ3

3-phase

	36	50	60	71	100	125	140
U3					S-1014PU3E (S-1014PU3E(100)) U-100PZ3E8	S-1014PU3E (S-1014PU3E(125)) U-125PZ3E8	S-1014PU3E (S-1014PU3E(140)) U-140PZ3E8
		S-3650PU3E ×2 (S-3650PU3E(50)) U-100PZ3E8	S-6071PU3E ×2 (S-6071PU3E(60)) U-125PZ3E8	S-6071PU3E ×2 (S-6071PU3E(71)) U-140PZ3E8			
F3					S-1014PF3E (S-1014PF3E(100)) U-100PZ3E8	S-1014PF3E (S-1014PF3E(125)) U-125PZ3E8	S-1014PF3E (S-1014PF3E(140)) U-140PZ3E8
		S-3650PF3E ×2 (S-3650PF3E(50)) U-100PZ3E8	S-6071PF3E ×2 (S-6071PF3E(60)) U-125PZ3E8	S-6071PF3E ×2 (S-6071PF3E(71)) U-140PZ3E8			
K3					S-6010PK3E (S-6010PK3E(100)) U-100PZ3E8		
		S-3650PK3E ×2 (S-3650PK3E(50)) U-100PZ3E8	S-6010PK3E ×2 (S-6010PK3E(60)) U-125PZ3E8	S-6010PK3E ×2 (S-6010PK3E(71)) U-140PZ3E8			
T3					S-1014PT3E (S-1014PT3E(100)) U-100PZ3E8	S-1014PT3E (S-1014PT3E(125)) U-125PZ3E8	S-1014PT3E (S-1014PT3E(140)) U-140PZ3E8
		S-3650PT3E ×2 (S-3650PT3E(50)) U-100PZ3E8	S-6071PT3E ×2 (S-6071PT3E(60)) U-125PZ3E8	S-6071PT3E ×2 (S-6071PT3E(71)) U-140PZ3E8			
Y3		S-50PY3E ×2 U-100PZ3E8	S-60PY3E ×2 U-125PZ3E8				

PZH3

Single-phase

	36	45	50	60	71	100	125	140
U3	S-3650PU3E (S-3650PU3E(36)) U-36PZH3E5		S-3650PU3E (S-3650PU3E(50)) U-50PZH3E5	S-6071PU3E (S-6071PU3E(60)) U-60PZH3E5				
F3	S-3650PF3E (S-3650PF3E(36)) U-36PZH3E5		S-3650PF3E (S-3650PF3E(50)) U-50PZH3E5	S-6071PF3E (S-6071PF3E(60)) U-60PZH3E5				
K3	S-3650PK3E (S-3650PK3E(36)) U-36PZH3E5		S-3650PK3E (S-3650PK3E(50)) U-50PZH3E5	S-6010PK3E (S-6010PK3E(60)) U-60PZH3E5				
T3	S-3650PT3E (S-3650PT3E(36)) U-36PZH3E5		S-3650PT3E (S-3650PT3E(50)) U-50PZH3E5	S-6071PT3E (S-6071PT3E(60)) U-60PZH3E5				
Y3	S-36PY3E U-36PZH3E5		S-50PY3E U-50PZH3E5	S-60PY3E U-60PZH3E5				

PZH4

Single-phase

	25	36	45	50	60	71	100	125	140
U3						S-6071PU3E (S-6071PU3E(71)) U-71PZH4E5	S-1014PU3E (S-1014PU3E(100)) U-100PZH4E5	S-1014PU3E (S-1014PU3E(125)) U-125PZH4E5	S-1014PU3E (S-1014PU3E(140)) U-140PZH4E5
		S-3650PU3E ×2 (S-3650PU3E(36)) U-71PZH4E5		S-3650PU3E ×2 (S-3650PU3E(50)) U-100PZH4E5	S-6071PU3E ×2 (S-6071PU3E(60)) U-125PZH4E5	S-6071PU3E ×2 (S-6071PU3E(71)) U-140PZH4E5			
		S-3650PU3E ×3 (S-3650PU3E(36)) U-100PZH4E5	S-3650PU3E ×3 (S-3650PU3E(45)) U-125PZH4E5	S-3650PU3E ×3 (S-3650PU3E(50)) U-140PZH4E5					
		S-3650PU3E ×4 (S-3650PU3E(36)) U-125PZH4E5							
F3						S-6071PF3E (S-6071PF3E(71)) U-71PZH4E5	S-1014PF3E (S-1014PF3E(100)) U-100PZH4E5	S-1014PF3E (S-1014PF3E(125)) U-125PZH4E5	S-1014PF3E (S-1014PF3E(140)) U-140PZH4E5
		S-3650PF3E ×2 (S-3650PF3E(36)) U-71PZH4E5		S-3650PF3E ×2 (S-3650PF3E(50)) U-100PZH4E5	S-6071PF3E ×2 (S-6071PF3E(60)) U-125PZH4E5	S-6071PF3E ×2 (S-6071PF3E(71)) U-140PZH4E5			
		S-3650PF3E ×3 (S-3650PF3E(36)) U-100PZH4E5	S-3650PF3E ×3 (S-3650PF3E(45)) U-125PZH4E5	S-3650PF3E ×3 (S-3650PF3E(50)) U-140PZH4E5					
		S-3650PF3E ×4 (S-3650PF3E(36)) U-125PZH4E5							
K3						S-6010PK3E (S-6010PK3E(71)) U-71PZH4E5	S-6010PK3E (S-6010PK3E(100)) U-100PZH4E5		
		S-3650PK3E ×2 (S-3650PK3E(36)) U-71PZH4E5		S-3650PK3E ×2 (S-3650PK3E(50)) U-100PZH4E5	S-6010PK3E ×2 (S-6010PK3E(60)) U-125PZH4E5	S-6010PK3E ×2 (S-6010PK3E(71)) U-140PZH4E5			
		S-3650PK3E ×3 (S-3650PK3E(36)) U-100PZH4E5	S-3650PK3E ×3 (S-3650PK3E(45)) U-125PZH4E5	S-3650PK3E ×3 (S-3650PK3E(50)) U-140PZH4E5					
		S-3650PK3E ×4 (S-3650PK3E(36)) U-125PZH4E5							
T3						S-6071PT3E (S-6071PT3E(71)) U-71PZH4E5	S-1014PT3E (S-1014PT3E(100)) U-100PZH4E5	S-1014PT3E (S-1014PT3E(125)) U-125PZH4E5	S-1014PT3E (S-1014PT3E(140)) U-140PZH4E5
		S-3650PT3E ×2 (S-3650PT3E(36)) U-71PZH4E5		S-3650PT3E ×2 (S-3650PT3E(50)) U-100PZH4E5	S-6071PT3E ×2 (S-6071PT3E(60)) U-125PZH4E5	S-6071PT3E ×2 (S-6071PT3E(71)) U-140PZH4E5			
		S-3650PT3E ×3 (S-3650PT3E(36)) U-100PZH4E5	S-3650PT3E ×3 (S-3650PT3E(45)) U-125PZH4E5	S-3650PT3E ×3 (S-3650PT3E(50)) U-140PZH4E5					
		S-3650PT3E ×4 (S-3650PT3E(36)) U-125PZH4E5							
Y3		S-36PY3E ×2 U-71PZH4E5		S-50PY3E ×2 U-100PZH4E5	S-60PY3E ×2 U-125PZH4E5				
	S-25PY3E ×3 U-71PZH4E5	S-36PY3E ×3 U-100PZH4E5		S-50PY3E ×3 U-140PZH4E5					
	S-25PY3E ×4 U-100PZH4E5	S-36PY3E ×4 U-125PZH4E5							

PZH4

3-phase

	25	36	45	50	60	71	100	125	140
U3						S-6071PU3E (S-6071PU3E(71)) U-71PZH4E8	S-1014PU3E (S-1014PU3E(100)) U-100PZH4E8	S-1014PU3E (S-1014PU3E(125)) U-125PZH4E8	S-1014PU3E (S-1014PU3E(140)) U-140PZH4E8
		S-3650PU3E ×2 (S-3650PU3E(36)) U-71PZH4E8		S-3650PU3E ×2 (S-3650PU3E(50)) U-100PZH4E8	S-6071PU3E ×2 (S-6071PU3E(60)) U-125PZH4E8	S-6071PU3E ×2 (S-6071PU3E(71)) U-140PZH4E8			
		S-3650PU3E ×3 (S-3650PU3E(36)) U-100PZH4E8	S-3650PU3E ×3 (S-3650PU3E(45)) U-125PZH4E8	S-3650PU3E ×3 (S-3650PU3E(50)) U-140PZH4E8					
		S-3650PU3E ×4 (S-3650PU3E(36)) U-125PZH4E8							
F3						S-6071PF3E (S-6071PF3E(71)) U-71PZH4E8	S-1014PF3E (S-1014PF3E(100)) U-100PZH4E8	S-1014PF3E (S-1014PF3E(125)) U-125PZH4E8	S-1014PF3E (S-1014PF3E(140)) U-140PZH4E8
		S-3650PF3E ×2 (S-3650PF3E(36)) U-71PZH4E8		S-3650PF3E ×2 (S-3650PF3E(50)) U-100PZH4E8	S-6071PF3E ×2 (S-6071PF3E(60)) U-125PZH4E8	S-6071PF3E ×2 (S-6071PF3E(71)) U-140PZH4E8			
		S-3650PF3E ×3 (S-3650PF3E(36)) U-100PZH4E8	S-3650PF3E ×3 (S-3650PF3E(45)) U-125PZH4E8	S-3650PF3E ×3 (S-3650PF3E(50)) U-140PZH4E8					
		S-3650PF3E ×4 (S-3650PF3E(36)) U-125PZH4E8							
K3						S-6010PK3E (S-6010PK3E(71)) U-71PZH4E8	S-6010PK3E (S-6010PK3E(100)) U-100PZH4E8		
		S-3650PK3E ×2 (S-3650PK3E(36)) U-71PZH4E8		S-3650PK3E ×2 (S-3650PK3E(50)) U-100PZH4E8	S-6010PK3E ×2 (S-6010PK3E(60)) U-125PZH4E8	S-6010PK3E ×2 (S-6010PK3E(71)) U-140PZH4E8			
		S-3650PK3E ×3 (S-3650PK3E(36)) U-100PZH4E8	S-3650PK3E ×3 (S-3650PK3E(45)) U-125PZH4E8	S-3650PK3E ×3 (S-3650PK3E(50)) U-140PZH4E8					
		S-3650PK3E ×4 (S-3650PK3E(36)) U-125PZH4E8							
T3						S-6071PT3E (S-6071PT3E(71)) U-71PZH4E8	S-1014PT3E (S-1014PT3E(100)) U-100PZH4E8	S-1014PT3E (S-1014PT3E(125)) U-125PZH4E8	S-1014PT3E (S-1014PT3E(140)) U-140PZH4E8
		S-3650PT3E ×2 (S-3650PT3E(36)) U-71PZH4E8		S-3650PT3E ×2 (S-3650PT3E(50)) U-100PZH4E8	S-6071PT3E ×2 (S-6071PT3E(60)) U-125PZH4E8	S-6071PT3E ×2 (S-6071PT3E(71)) U-140PZH4E8			
		S-3650PT3E ×3 (S-3650PT3E(36)) U-100PZH4E8	S-3650PT3E ×3 (S-3650PT3E(45)) U-125PZH4E8	S-3650PT3E ×3 (S-3650PT3E(50)) U-140PZH4E8					
		S-3650PT3E ×4 (S-3650PT3E(36)) U-125PZH4E8							
Y3		S-36PY3E ×2 U-71PZH4E8		S-50PY3E ×2 U-100PZH4E8	S-60PY3E ×2 U-125PZH4E8				
	S-25PY3E ×3 U-71PZH4E8	S-36PY3E ×3 U-100PZH4E8		S-50PY3E ×3 U-140PZH4E8					
	S-25PY3E ×4 U-100PZH4E8	S-36PY3E ×4 U-125PZH4E8							