

INSTALLATION INSTRUCTIONS INDOOR UNIT

Model No.: S-25PK** S-50PK** S-71PK** S-100PK**



https://eu.datanavi.ac.smartcloud.panasonic.com/documents/index.htm?model=S-25PK4R

Required tools for Installation Works

- | | | |
|--|----------------------|---------------------|
| 1 Phillips screw driver | 7 Pipe cutter | 15 Torque wrench |
| 2 Flathead screw driver | 8 Reamer | 18 N·m (1.8 kg·m) |
| 3 Level gauge | 9 Knife | 42 N·m (4.3 kg·m) |
| 4 Electric drill, hole core drill (ø70 mm) | 10 Gas leak detector | 55 N·m (5.6 kg·m) |
| 5 Hexagonal wrench (4 mm) | 11 Measuring tape | 65 N·m (6.6 kg·m) |
| 6 Spanner | 12 Thermometer | 100 N·m (10.2 kg·m) |
| | 13 Megohmmeter | |
| | 14 Multimeter | |
| | 16 Vacuum pump | |
| | 17 Gauge manifold | |

Explanation of symbols displayed on the indoor unit or outdoor unit.



This symbol shows that this equipment uses a flammable refrigerant. If the refrigerant is leaked, together with an external ignition source, there is a possibility of ignition.



CAUTION

This symbol shows that the Operating Instructions should be read carefully.



CAUTION

This symbol shows that a service personnel should be handling this equipment with reference to the Technical Manual.

This Air Conditioner contains and operates with refrigerant R32

THIS PRODUCT MUST ONLY BE INSTALLED OR SERVICED BY QUALIFIED PERSONNEL.

Refer to Commonwealth, State, Territory and local legislation, regulations, codes, installation & operating instructions, before the installation, maintenance and/or service of this product.

Note: Ensure to hand over this installation instruction manual to the person performing the installation and inform the customer to keep it properly stored.

DISCLAIMER

Panasonic will not be responsible for any accident or damage due to improper installation in anyway not described in the detailed manuals. Malfunction caused by incorrect installation is also not covered by product warranty.

SAFETY PRECAUTIONS

- Read the following "SAFETY PRECAUTIONS" carefully before installation.
- Electrical work must be installed by a licensed electrician. Be sure to use the correct rating of the power plug and main circuit for the model to be installed.
- The caution items listed below must be followed because these important contents are related to safety. The meaning of each indication used is as below. Incorrect installation due to ignoring of the instruction will cause harm or damage, and the seriousness is classified by the following indications.

	WARNING	This indication shows the possibility of causing death or serious injury.
	CAUTION	This indication shows the possibility of causing injury or damage to properties only.

The items to be followed are classified by the symbols:

	Symbol with white background denotes item that is PROHIBITED.
	Symbol with dark background denotes item that must be carried out.

- Carry out test running to confirm that no abnormality occurs after the installation. Then, explain to user the operation, care and maintenance as stated in instructions. Please remind the customer to keep the operating instructions for future reference.

WARNING

- Do not use means to accelerate the defrosting process or to clean, other than those recommended by the manufacturer. Any unit method or using incompatible material may cause product damage, burst and building.
- Do not install outdoor unit near handrail of veranda. When installing air-conditioner unit on veranda of a high rise building, child may climb up to outdoor unit and cross over the handrail causing an accident.
- Do not use unspecified cord, modified cord, joint cord or extension cord for power supply cord. Do not share the single outlet with other electrical appliances. Poor contact, poor insulation or over current will cause electrical shock or fire.
- Do not tie up the power supply cord into a bundle by band. Abnormal temperature rise on power supply cord may happen.
- Do not insert your fingers or other objects into the unit, high speed rotating fan may cause injury.
- Do not sit or step on the unit, you may fall down accidentally.
- Keep plastic bag (packaging material) away from small children, it may cling to nose and mouth and prevent breathing.
- When installing or relocating air conditioner, do not let any substance other than the specified refrigerant, eg. air etc mix into refrigeration cycle (piping). Mixing of air etc. will cause abnormal high pressure in refrigeration cycle and result in explosion, injury etc.
- Do not pierce or burn as the appliance is pressurized. Do not expose the appliance to heat, flame, sparks, or other sources of ignition. Else, it may explode and cause injury or death.
- Do not add or replace refrigerant other than specified type. It may cause product damage, burst and injury etc.
- Do not use joint cable for indoor / outdoor connection cable. Use the specified indoor/outdoor connection cable, refer to instruction ③ ELECTRICAL WIRING and connect tightly for indoor / outdoor connection. Clamp the cable so that no external force will have impact on the terminal. If connection or fixing is not perfect, it will cause heat up or fire at the connection.
- For R32 model, use new piping, flare nut and tools which is specified for R32 refrigerant. Using of existing (R22) piping, flare nut and tools may cause abnormally high pressure in the refrigerant cycle (piping), and possibly result in explosion and injury. For R32 and R410A, the same flare nut on the outdoor unit side and pipe can be use.
- Since the working pressure for R32/R410A is higher than that of refrigerant R22 models, replacing conventional piping and flare nuts on the outdoor unit side are recommended.
- If reuse piping is unavoidable, refer to instruction ④ REFRIGERANT INSTALLATION (IN CASE OF REUSING EXISTING REFRIGERANT PIPING) in outdoor unit installation manual.
- Thickness for copper pipes used with R32 must be more than 0.8 mm. Never use copper pipes thinner than 0.8 mm. For copper pipe ø15.88 or more use copper pipe thickness 1.0 mm and above.
- It is desirable that the amount of residual oil less than 40 mg/10 m.

- Engage authorized dealer or specialist for installation. If installation done by the user is incorrect, it will cause water leakage, electrical shock or fire.

- For refrigeration system work, install according to this installation instructions strictly. If installation is defective, it will cause water leakage, electrical shock or fire.

- Use the attached accessories parts and specified parts for installation. Otherwise, it will cause the set to fall, water leakage, fire or electrical shock.

- Install at a strong and firm location which is able to withstand weight of the set. If the strength is not enough weight installation is not properly done, the set will drop and cause injury.

- For electrical work, follow the national regulation, legislation and this installation instruction. An independent circuit and single outlet must be used. If electrical circuit capacity is not enough or defect in electrical work, it will cause electrical shock or fire.

- Wire routing must be properly arranged so that control board cover is fixed properly. If control board cover is not fixed perfectly, it will cause fire or electrical shock.

- This equipment is strongly recommended to be installed with Earth Leakage Circuit Breaker (ELCB) or Residual Current Device (RCD), with sensitivity of 30mA at 0.1 sec or less. Otherwise, it may cause electrical shock and fire in case of equipment breakdown or insulation breakdown.

- During installation, install the refrigerant piping properly before running the compressor. Operation of compressor without fixing refrigeration piping and valves at opened position will cause suck-in of air, abnormal high pressure in refrigeration cycle and result in explosion, injury etc.

- During pump down operation, stop the compressor before removing the refrigeration piping. Removal of refrigeration piping while compressor is operating and valves are opened will cause suck-in of air, abnormal high pressure in refrigeration cycle and result in explosion, injury etc.

- Tighten the flare nut with torque wrench according to specified method. If the flare nut is over-tightened, after a long period, the flare may break and cause refrigerant gas leakage.

- After completion of installation, confirm there is no leakage of refrigerant gas. It may generate toxic gas when the refrigerant contacts with fire.

- Ventilate if there is refrigerant gas leakage during operation. It may cause toxic gas when the refrigerant contacts with fire.

- Be aware that refrigerants might not contain an odour.

- This equipment must be properly earthed. Earth line must not be connected to gas pipe, water pipe, earth of lightning rod and telephone. Otherwise, it may cause electrical shock in case of equipment breakdown or insulation breakdown.

CAUTION

- Do not install the unit at place where leakage of flammable gas may occur. In case gas leaks and accumulates at surrounding of the unit, it may cause fire.

- Prevent liquid or vapor from entering sumps or sewers since vapor is heavier than air and may form suffocating atmospheres.

- Do not overcharge the unit, refer to gas charge specification in Outdoor Installation manual. Overcharge will cause over current and damage to compressor.

- Do not release refrigerant during piping work for installation, re-installation and during repairing a refrigeration parts. Take care of the liquid refrigerant, it may cause frostbite.

- Do not install this appliance in a laundry room or other location where water may drip from the ceiling, etc.

- Do not touch the sharp aluminium fin, sharp parts may cause injury.

- Carry out drainage piping as mentioned in installation instructions. If drainage is not perfect, water may enter the room and damage the furniture.

- Select an installation location which is easy for maintenance. Incorrect installation, service or repair of this air conditioner may increase the risk of rupture and this may result in loss damage or injury and/or property.

- Power supply connection to the room air conditioner. Use power supply cord type designation 60245 IEC 57 or heavier cord. Connect the power supply cord of the air conditioner to a circuit breaker for the permanent connection. It must be a double pole switch with a minimum 3.0mm contact gap. Power supply point should be in easily accessible place for power disconnection in case of emergency.

- Installation work. It may need two people to carry out the installation work.

- Keep any required ventilation openings clear of obstruction.

PRECAUTION FOR USING R32 REFRIGERANT

- The basic installation work procedures are the same as conventional refrigerant (R410A, R22) models. However, pay careful attention to the following points:

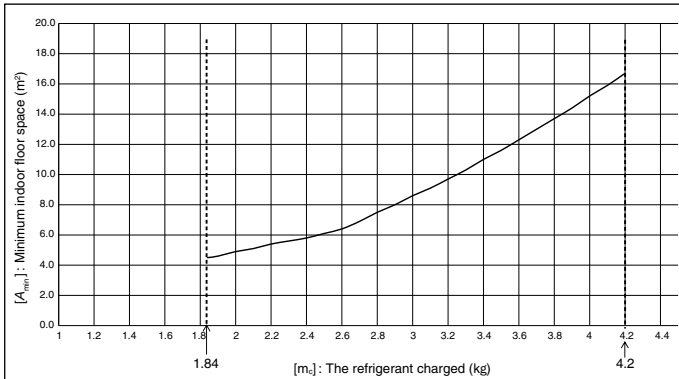
- Do not perform flare connection inside a building or dwelling or room, when joining the heat exchanger of indoor unit with interconnecting piping. Refrigerant connection inside a building or dwelling or room must be made by brazing or welding. Joint connection of indoor unit by flaring method can only be made at outdoor or at outside of a building or dwelling or room. Flare connection may cause gas leak and flammable atmosphere.

- The appliance shall be stored, installed and operated in a well ventilated room with indoor floor area larger than A_{min} (m²) [Refer to Check of Density Limit] and without any continuously operating ignition source. Keep away from open flames, any operating gas appliances or any operating electric heater. Else, it may explode and cause injury or death.

- Refer to "PRECAUTION FOR USING R32 REFRIGERANT" in outdoor unit installation manual for other precautions that need to pay attention to.

Check of Density Limit

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 [m₃] used in the appliance. Regarding the refrigerant charge amount [m₃] used in the appliance, refer to the installation instructions for the outdoor unit. The minimum indoor floor space compared with the amount of refrigerant is roughly as follows:



[m ₃] (kg)	[A _{min}] (m ²)	[m ₃] (kg)	[A _{min}] (m ²)	[m ₃] (kg)	[A _{min}] (m ²)	[m ₃] (kg)	[A _{min}] (m ²)	[m ₃] (kg)	[A _{min}] (m ²)
1.8	4.5	2.3	5.6	2.8	7.5	3.3	10.3	3.8	13.7
1.9	4.6	2.4	5.8	2.9	8.0	3.4	11.0	3.9	14.4
2.0	4.9	2.5	6.1	3.0	8.6	3.5	11.6	4.0	15.2
2.1	5.1	2.6	6.4	3.1	9.1	3.6	12.3	4.1	15.9
2.2	5.4	2.7	6.9	3.2	9.7	3.7	13.0	4.2	16.7

ACCESSORIES SUPPLIED WITH INDOOR UNIT

Make sure all accessory parts listed are with the system before beginning.

Part Name	Figure	Q'ty	Remarks	Part Name	Figure	Q'ty	Remarks
Installation plate		1		Flare insulator		1	For flare nut insulation 200 mm x 200 mm
Screw (4x20)		5	For installation plate installation	Cable Tie		3	For fixing wires (optional)
Ferrite core		1	For electrical EMC stability (Used when using wired remote controller)				

1 SELECT THE INDOOR UNIT INSTALLATION LOCATION

1-1. Indoor Unit

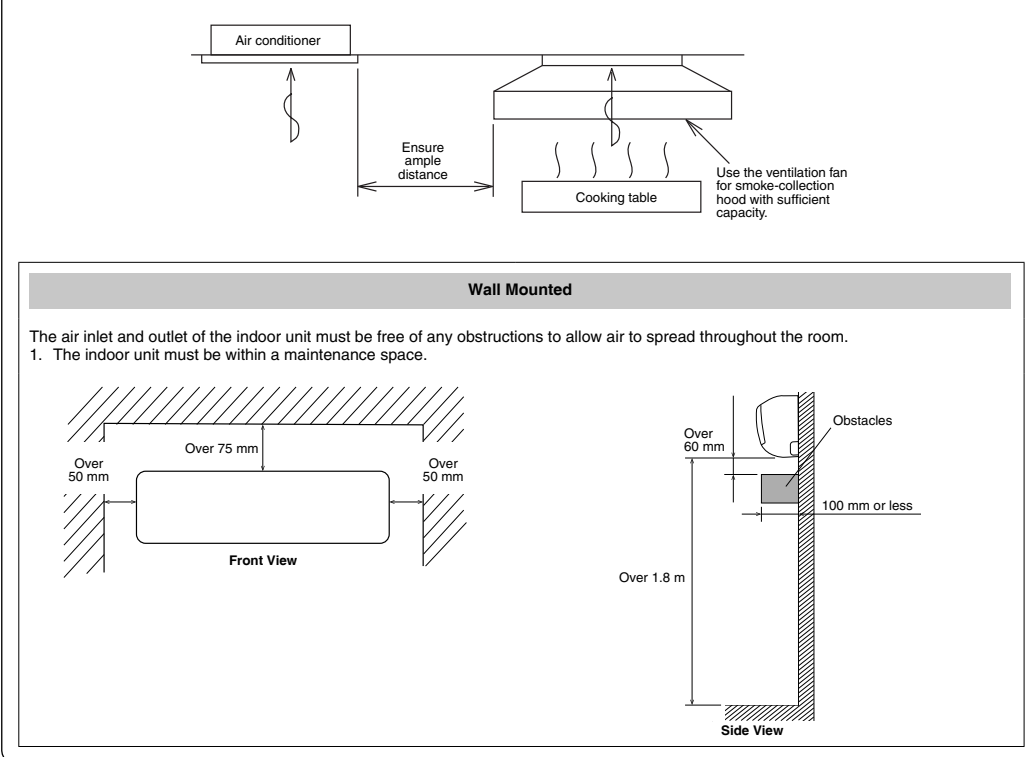
- Install the indoor unit once the following conditions are satisfied and after receiving the customer approval.
 - The indoor unit must be within a maintenance space.
 - The indoor unit must be free from any obstacles in path of the air inlet and outlet, and must allow spread of air throughout the room.
- If the height from the floor to ceiling exceeds three meters, air flow distribution deteriorates and the effect is decreased.

WARNING

- The installation position must be able to support a load four times the indoor unit weight.
- The indoor unit must be away from heat and sources of steam, but avoiding installation near an entrance.
- In these cases, take the following actions:
 - Make sure that the ventilation fan for smoke-collecting hood has sufficient capacity so that it draws oily steam which should not flow into the suction of the air conditioner.
 - Make sure there is enough distance from the cooking room to install the air conditioner in such place where it may not suck in oily steam.
- Avoid installing the air conditioner in such circumstances where cutting oil mist or iron powder exist, especially in factories, etc.
- The indoor unit must allow easy draining.
- The indoor unit must be at least 3 m away from any noise-generating equipment. The electrical wiring must be shielded with a steel conduit.
- If the power supply is subject to noise generation, add a suppressor.
- Do not install the indoor unit in a laundry. Electric shocks may result.
- Installation height is more than 1.8m.

NOTE

- Thoroughly study the following installation locations
- In such places as restaurants and kitchens, considerable amount of oil steam and flour adhere to the fan, the fin of the heat exchanger, resulting in heat exchange reduction, spraying, dispersing of water drops, etc.
- In these cases, take the following actions:
 - Make sure that the ventilation fan for smoke-collecting hood has sufficient capacity so that it draws oily steam which should not flow into the suction of the air conditioner.
 - Make sure there is enough distance from the cooking room to install the air conditioner in such place where it may not suck in oily steam.
- Avoid installing the air conditioner in such circumstances where cutting oil mist or iron powder exist, especially in factories, etc.
- Avoid places where inflammable gas is generated, flows-in, contaminated, or leaked.
- Avoid places where sulphurous acid gas or corrosive gas can be generated.
- Avoid places near high frequency generators.



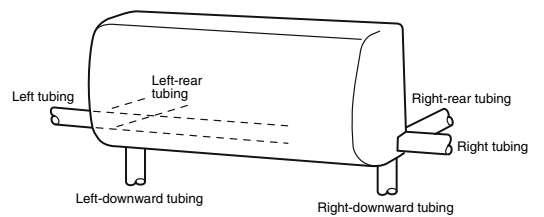
2 HOW TO INSTALL THE INDOOR UNIT

2-1. Starting the Installation

- Remove the rear panel.

NOTE

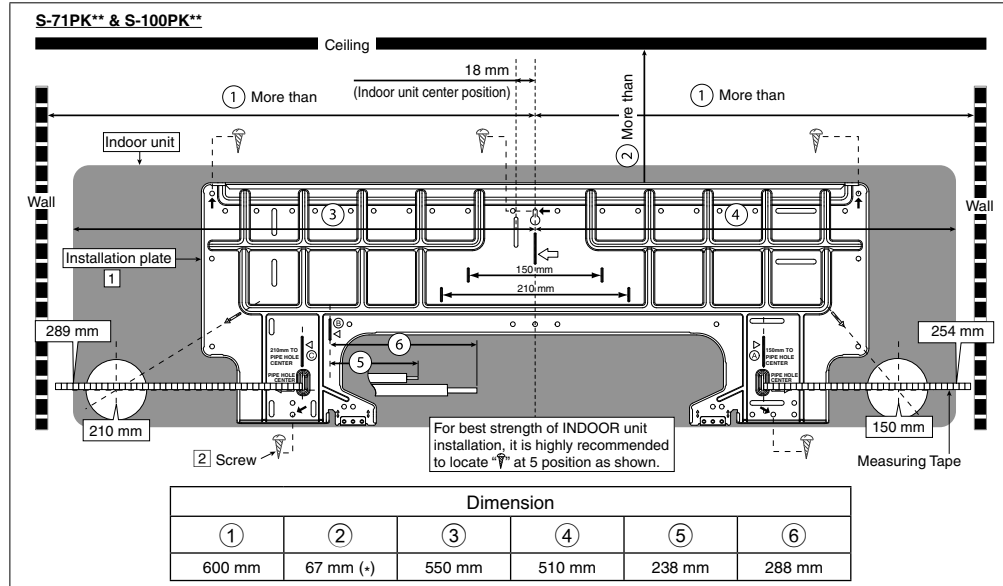
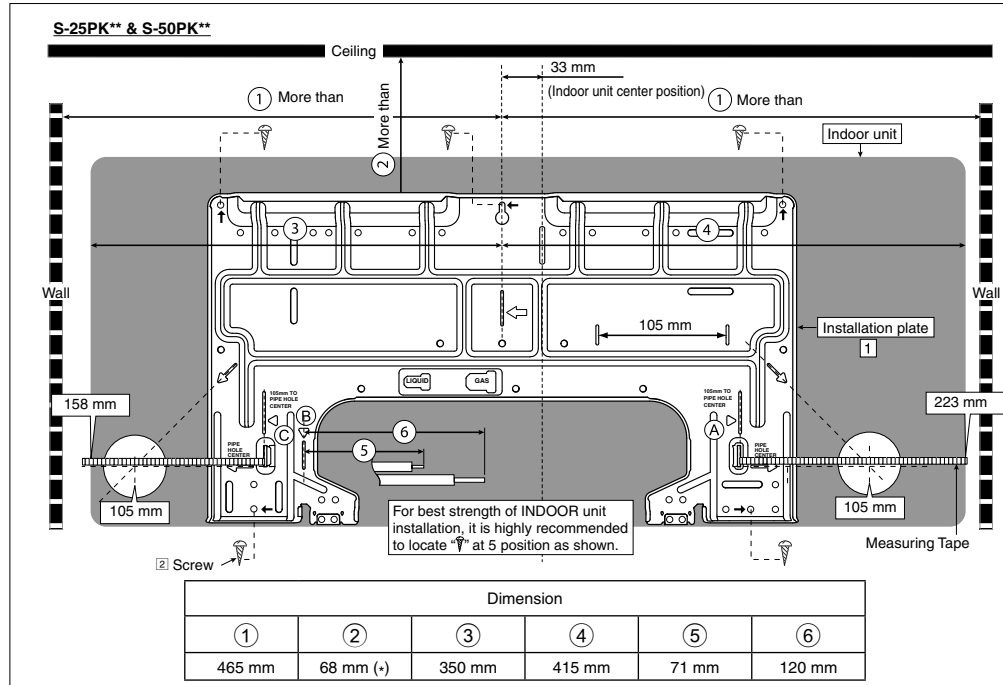
Tubing can be extended in 6 directions as shown below. Select the direction you need providing the shortest run to the outside unit.



2-2. How to Fix Installation Plate

The mounting wall should be strong and solid enough to withstand the unit's vibration.

- Place the installation plate from the indoor unit on the wall at the location selected.



- The center of installation plate should be at more than ① at right and left of the wall.
 - The distance from installation plate edge to ceiling should more than ②.
 - From installation plate center to unit's left side is ③.
 - From installation plate center to unit's right side is ④.
 - For left side piping, piping connection for liquid should be about ⑤ from this line.
 - For left side piping, piping connection for gas should be about ⑥ from this line.
- Mount the installation plate on the wall with 5 screws or more (at least 5 screws). (If mounting the unit on the concrete wall, consider using anchor bolts.)
 - Always mount the installation plate horizontally by aligning the marking-off line with the thread and using a level gauge.

If Wooden Wall

- Attach the installation plate to the wall with the 5 screws (4 x 20) provided.
- Double check with a carpenter's level or tape measure that the panel is level. This is important to install the unit properly.

- Make sure the panel is flush against the wall. Any space between the wall and unit will cause noise and vibration.
 - When attaching the installation plate to the concrete wall, use the screws (field supply) for concrete or an optional anchor plug and fix to the hole of ø5 mm of the installation plate as shown in the figure under Section 2-2.
 - When fixing with bolt, attach to the hole of ø8 mm.
- Double check with a carpenter's level or tape measure that the plate is level. This is important to install the unit properly.
- Make sure the installation plate is flush against the wall. Any space between the wall and unit will cause noise and vibration.
- Drill the piping plate hole with ø70 mm hole-core drill.
 - Line according to the left and right side of the installation plate. The meeting point of the extended line is the center of the hole.
 - Another method is by putting measuring tape at position as shown in the diagram above.
 - For S-25PK** & S-50PK**, the hole center is obtained by measuring the distance namely 105 mm for left and right hole respectively.
 - For S-71PK** & S-100PK**, the hole center is obtained by measuring the distance namely 210 mm for left hole and 150 mm for right hole respectively.
 - Drill the piping hole at either the right or the left and the hole should be slightly slanting to the outdoor side.

2-3. To Drill a Hole in the Wall and Install a Sleeve of Piping

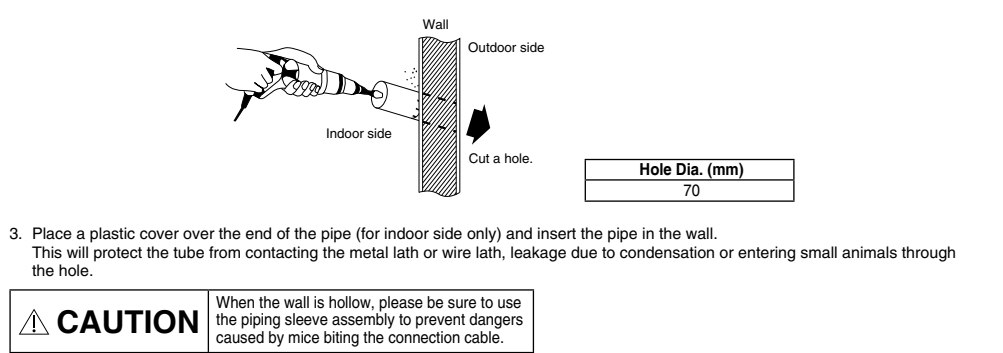
- Before making the hole, check carefully that no studs or pipes are directly run behind the spot to be cut.

CAUTION

Avoid areas where electrical wiring is located.

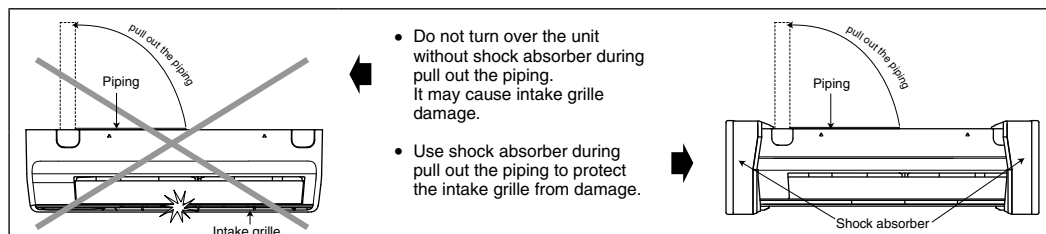
The above precautions are also applicable if tubing goes through the wall in any other location.

- Using a sabre saw, keyhole saw or hole-cutting drill attachment, cut a hole of ø70 mm in the wall. Hole should be made at a slight downward slant to the outdoor side.



- Place a plastic cover over the end of the pipe (for indoor side only) and insert the pipe in the wall. This will protect the tube from contacting the metal lath or wire lath, leakage due to condensation or entering small animals through the hole.
- Insert the piping sleeve to the hole.
- Fix the bushing to the sleeve.
- Cut the sleeve until it extrudes about 15 mm from the wall.
- Finish by sealing the sleeve with putty or caulking compound at the final stage.

2-4. Indoor Unit Installation



1. FOR THE RIGHT REAR PIPING

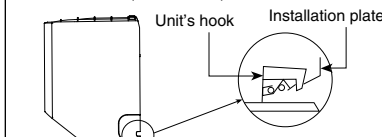
- Pull out the Indoor piping
- Install the Indoor Unit
- Secure the Indoor Unit
- Insert the power supply cord and connection cable
 - Insert the cables from bottom of the unit through the control board hole until terminal board area.

2. FOR THE RIGHT AND RIGHT BOTTOM PIPING

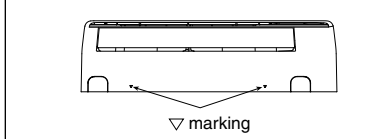
- Pull out the Indoor piping
- Install the Indoor Unit
- Insert the power supply cord and connection cable
 - Insert the cables from bottom of the unit through the control board hole until terminal board area.
- Secure the Indoor Unit

Secure the Indoor Unit

Press the lower left and right side of the unit against the installation plate until hooks engages with their slot (sound click).

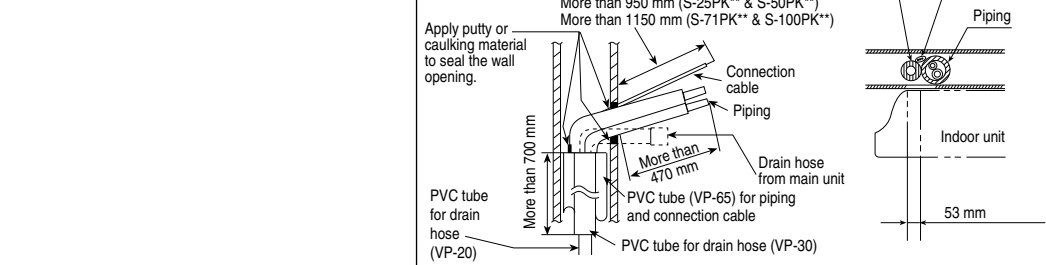


To take out the unit, push the ∇ marking at the bottom unit, and pull it slightly towards you to disengage the hooks from the unit.



3. FOR THE EMBEDDED PIPING

- Change the drain hose position
- Bend the embedded piping
 - Use a spring bender or equivalent to bend the piping so that the piping is not crushed.
- Pull the connection cable into Indoor Unit
 - The power supply cord and indoor unit and outdoor unit connection cable can be connected without removing the front grille.
- Cut and flare the embedded piping
 - When determining the dimensions of the piping, slide the unit all the way to the left on the installation plate.
 - Refer to the column "Cutting and flaring the piping".
- Install the Indoor Unit
- Connect the piping
 - Please refer to "Connecting the piping" column in outdoor unit section. (Below steps are done after connecting the outdoor piping and gas-leakage confirmation.)
- Insulate and finish the piping
 - Please refer to "Insulation of piping connection" column as mentioned in indoor/outdoor unit installation.
- Secure the Indoor Unit
 - (This can be used for left rear piping also.)



NOTE

When there is a long horizontal drain hose runs with very little slope to the run, water is likely to remain inside the hose. Slant the drain hose downward slightly to the outdoors and insulate it with the insulation.

- Slant downward not to remain water inside the drain hose.
- Make sure tubing does not become trapped.
- Do not let the tip of the drain hose dip into the drain water.
- Do not leave the drain hose in the sewerage. This will cause the heat exchanger erosion damage caused by the corrosive gas such as hydrogen sulfide occurred inside the sewerage and lead to a gas leak.

