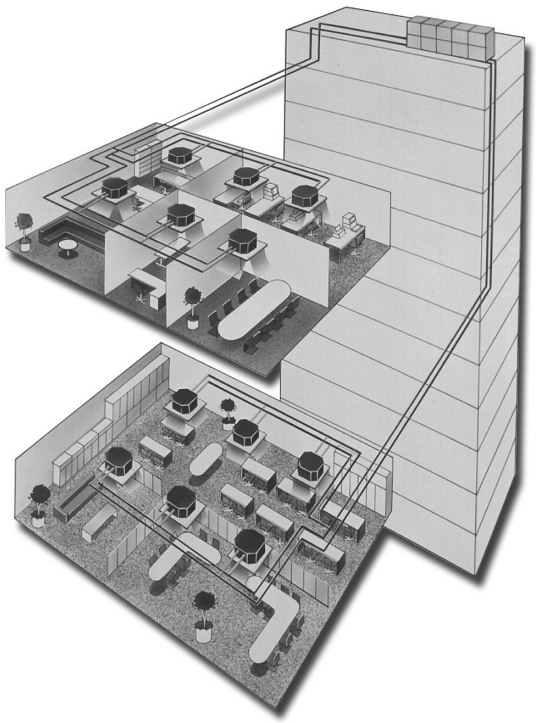
HITACHI
VRF AIR CONDITIONERS (HEAT PUMP)

- INDOOR UNIT -

HITACHI

Technical Data for Indoor Unit



Models

• Wall Type

RPK-0.8HNBUSQ
RPK-1.0HNBUSQ
RPK-1.3HNBUSQ
RPK-1.5HNBUSQ
RPK-1.8HNBUSQ
RPK-2.0HNBUSQ
RPK-2.3HNBUSQ
RPK-2.5HNBUSQ

TCY22021001A **Date: 4.2021**

IMPORTANT NOTICE

- HITACHI pursues a policy of continuing improvement in design and performance of products. The right is therefore reserved to vary specifications without notice.
- HITACHI cannot anticipate every possible circumstance that might involve a potential hazard.
- This heat pump air conditioner is designed for standard air conditioning only. Do not use this heat pump air conditioner for other purposes such as drying clothes, refrigerating foods or for any other cooling or heating process.
- The installer and system specialist shall secure safety against leakage according to local regulations or standards. The following standards may be applicable, if local regulations are not available.
  International Organization for Standardization, ISO5149 or European Standard, EN378 or Japan Standard, KHKS0010.
- No part of this manual may be reproduced without written permission.
- The following words (DANGER, WARNING and CAUTION) are used to identify levels of hazard seriousness. Definitions for identifying hazard levels are provided below with their respective signal words.

⚠DANGER : Immediate hazards which WILL result in severe personal injury or death.

⚠WARNING : Hazards or unsafe practices which COULD result in severe personal injury or death.

⚠CAUTION : Hazards or unsafe practices which COULD result in minor personal injury or product or property damage.

NOTE : Useful information for operation and/or maintenance.

- It is assumed that this heat pump air conditioner will be operated and serviced by English speaking people.
  If this is not the case, the customer should add safety, caution and operating signs in the native language.
- If you have any questions, contact your distributor or dealer of HITACHI.
- This manual gives a common description and information for this heat pump air conditioner which you operate as well as for other models.

This manual should be considered as a permanent part of the air conditioning equipment and should remain with the air conditioning equipment.

SAFETY SUMMARY

⚠ DANGER

- Use the specified non-flammable refrigerant to the outdoor unit in the refrigerant cycle. Do not charge material other than specified refrigerant into the unit such as hydrocarbon refrigerants (propane or etc.), oxygen, flammable gases (acetylene or etc.) or poisonous gases when installing, maintaining and moving. These flammables are extremely dangerous and may cause an explosion, a fire, and injury.
- Do not pour water into the indoor or outdoor unit. These products are equipped with electrical parts. If poured, it will cause a serious electrical shock.
- Do not touch or adjust safety devices inside the indoor or outdoor units. If these devices are touched or readjusted, it may cause a serious accident.
- Do not open the service cover or access panel for the indoor or outdoor units without turning OFF the main power supply.
- Refrigerant leakage can cause difficulty with breathing due to insufficient air. Turn OFF the main switch, extinguish any naked flames and contact your service contractor, if refrigerant leakage occurs.
- The installer and system specialist shall secure safety against refrigerant leakage according to local regulations or standards.
- Use an ELB (Electric Leakage Breaker). In the event of a fault, there is danger of an electric shock or a fire if it is not used.
- Do not install the outdoor unit where there is a high level of oil mist, flammable gases, salty air or harmful gases such as sulphur.

⚠ WARNING

- Do not use any sprays such as insecticide, lacquer, hair spray or other flammable gases within approximately one (1) meter from the system.
- If circuit breaker or fuse is often activated, stop the system and contact your service contractor.
- Do not perform installation work, refrigerant piping work, drain piping and electrical wiring connection without referring to our installation manual. If the instructions are not followed, it may result in a water leakage, electric shock or a fire.
- Check that the ground wire is securely connected. If the unit is not correctly grounded, it lead electric shock. Do not connect the ground wiring to gas piping, water piping, lightning conductor or ground wiring for telephone.
- Connect a fuse of specified capacity.
- Do not put any foreign material on the unit or inside the unit.
- Make sure that the outdoor unit is not covered with snow or ice, before operation.
- Before performing any brazing work, check to ensure that there is no flammable material
- around.
  When using refrigerant be sure to wear leather gloves to prevent cold injuries.
- Protect the wires, electrical parts, etc. from rats or other small animals.
  If not protected, rats may gnaw at unprotected parts and which may lead to a fire.
- Fix the cables securely. External forces on the terminals could lead to a fire.

SAFETY SUMMARY

⚠CAUTION

- Do not install the indoor unit, outdoor unit, remote control switch and cable within approximately 3 meters from strong electromagnetic wave radiators such as medical equipment.
- Supply electrical power to the system to energize the oil heater for 12 hours before startup after a long shutdown.
- Do not step or put any material on the product.
- Provide a strong and correct foundation so that;
  a. The outdoor unit is not on an incline.
  b. Abnormal sound does not occur.
  c. The outdoor unit will not fall down due to a strong wind or earthquake.

NOTES:

- It is recommended that the room be ventilated every 3 to 4 hours.
- The heating capacity of the heat pump unit is decreased according to the outdoor air temperature. Therefore, it is recommended that auxiliary heating equipment be used in the field when the unit is installed in a low temperature region.

CONTENT

1. Product Features of new High Wall Indoor Unit

1.1 Stylish design with good sense of aesthetic.

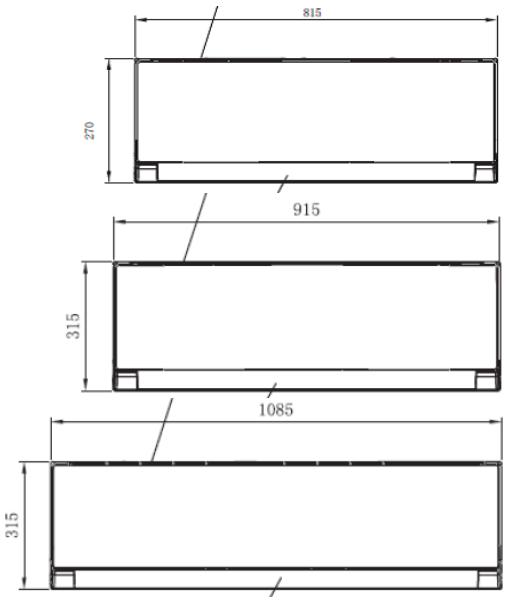
- Simple and clear design of new panel for matching with any interior.
- LED temperature and operation mode display on front panel helps improve user experience and sense of aesthetic, and user can see the setting temperature easily.

1.2 Optimized cabinet and refrigerant distribution for low noise.

- Thanks to the active noise reducing technology, a max. 5dB noise is lowered compare with the last generation.
- DC fan motor help realizes 6-step fan speed adjustment, more quiet and efficient.

1.3 Compact design for ease of installation or maintenance

- The unit has been designed with a flat front panel and a slim body. The front panel is easy to clean and should remain relatively dust free.
- For 0.8 to1.3HP units, compact design unit with 815mm width. For 1.5 to 1.8HP units, unit width is 915mm. For 2.0 to 2.5HP units, unit width is 1085mm. which can be installed even at the narrow space among posts in the room. This compact design allows for flexible and neat installation or maintenance work.



1.4 Convenient control with wireless/wired operation

- When each unit is controlled with the remote control switch, wireless remote control operation is available by the built-in receiver kit. Wired remote control operation is also available to change instead of wireless operation.
- Signal receiving buzzer and indication lamp inform the wireless remote control switch operation.

2. Working Range

Power Supply

Working Voltage: 90% to 110% of the Rated Voltage
Voltage Imbalance: Within a 3% Deviation from Each Voltage at the Main Terminal of Outdoor Unit
Starting Voltage: Higher than 85% of the Rated Voltage

Temperature Range

The temperature ranges are given in the following table Operate within this range.

°C

		Maximum	Minimum
Cooling Operation	Indoor	32 DB/23 WB	21 DB/15 WB
	Outdoor	43 DB *	-5 DB *
Heating Operation	Indoor	27 DB	15 DB
	Outdoor	23 DB/17WB *	-20 DB/-21 WB *

DB: Dry Bulb, WB: Wet Bulb

*: The temperature may change depending on the outdoor units.

3. Necessary Tools

Necessary Tools and Instrument List for Installation

No.	Tool	No.	Tool
1	Handsaw	11	Spanner
2	Screwdriver	12	Charging Cylinder
3	Vacuum Pump	13	Gauge Manifold
4	Refrigerant Gas Hose	14	Cutter for Wires
5	Megohmmeter	15	Gas Leak Detector
6	Copper Pipe Bender	16	Spirit level
7	Manual Water Pump	17	Clamper for Solderless Terminals
8	Pipe Cutter	18	Hoist（for Indoor Unit)
9	Brazing Kit	19	Ammeter
10	Hexagon Wrench	20	Voltage Meter

NOTE

Please use tools or devices exclusively for R410A when contacting with R410A is inevitable.
Do not mix with other refrigerants.

4. Transportation and Handling

4.1 Transportation

Transport the product as close to the installation location as practical before unpacking.

⚠CAUTION

Do not put any materials on the product.

4.2 Handling

⚠WARNING

Do not put any foreign matters into the indoor unit and check to ensure that none exists in the indoor unit before installation and test run. Otherwise, it may lead to a fire or failure, etc.

⚠CAUTION

Be careful not to damage on insulation materials on unit surface when lifting.

5. Precautions during Installation

⚠DANGER

Do not install the indoor unit in a flammable environment to avoid a fire or explosion.

⚠WARNING

- Check to ensure that the ceiling slab is strong enough. Otherwise, the indoor unit may fall down.
- Do not install the indoor unit outdoors. Otherwise, an electric hazard or electric leakage will occur.

  It is recommended that indoor units be installed at least 2.5 meters above the floor level.

⚠CAUTION

- Please make sure the accessories are shipped along with the indoor unit. If not, please contact the distributer.

6. General Data

Indoor Unit Type		Wall Type			
Model		RPK-0.8HNBUSQ	RPK-1.0HNBUSQ	RPK-1.3HNBUSQ	RPK-1.5HNBUSQ
Indoor Unit Power supply		AC 1φ,220~240V/50Hz;AC 1φ,220V/60Hz;			
Nominal Cooling Capacity	kW	2.2	2.8	3.6	4.0
	Btu/h	7,500	9,600	12,300	13,600
Nominal Heating Capacity	kW	2.5	3.3	4.0	4.5
	Btu/h	8,500	11,300	13,600	15,400
Sound Pressure Level (Overall A Scale)	dB(A)	36/35/33/32/30/28	36/35/33/32/30/28	38/35/33/32/30/28	38/37/36/32/31/29
Outer Dimensions Height	mm	270	270	270	315
Width	mm	815	815	815	915
Depth	mm	203	203	203	230
Net Weight	kg	9	9	9	12.5
Refrigerant		R410A (Nitrogen charged in case of corrosion)			
Indoor Fan Air Flow Rate	m^3/h	590/550/520/ 490/450/420	590/550/520/ 490/450/420	620/550/520/ 490/450/420	690/660/620/ 540/520/480
Connections Refrigerant Piping	-	Flare-Nut Connection (with Flare Nuts)			
Liquid Line	mm	Φ6.35	Φ6.35	Φ6.35	Φ6.35
Gas Line	mm	Φ9.53	Φ9.53	Φ9.53	Φ12.7
Condensate Drain	_	VP16	VP16	VP16	VP16
Packaging Dimensions Height	mm	375	375	375	430
Width	mm	920	920	920	1013
Depth	mm	310	310	310	330
Packing Volume	m^3	0.11	0.11	0.11	0.15
Standard Accessories		Wall Mounting Bracket			

NOTES:

1. The nominal cooling capacity and heating capacity are based on following conditions:
   Cooling Operation Conditions
   Indoor Air Inlet Temperature: 27°C DB (80°F DB)
   19°C WB (66°F WB)
   Outdoor Air Inlet Temperature: 35°C DB (95°F DB)
   Heating Operation Conditions
   Indoor Air Inlet Temperature: 20°C DB (68°F DB)
   Outdoor Air Inlet Temperature: 7°C DB (44°F DB)
   6°C WB (42°F WB)
   Piping Length: 7.5m(2.6ft.) Piping Lift: 0m(0ft.)
2. The sound pressure level is based on following conditions:
   0.8m(2.6ft.) below the unit and 1m(3.3ft.) in front of the unit.
   The above data were measured in an anechoic chamber so that reflected sound should be taken into consideration in the field.
   The above noise values are measured under the condition of air supply.

Indoor Unit Type		Wall Type			
Model		RPK-1.8HNBUSQ	RPK-2.0HNBUSQ	RPK-2.3HNBUSQ	RPK-2.5HNBUSQ
Indoor Unit Power supply		AC 1φ,220~240V/50Hz; AC 1φ,220V/60Hz;			
Nominal Cooling Capacity	kW	5.0	5.6	6.3	7.1
	Btu/h	17,100	19,100	21,500	24,200
Nominal Heating Capacity	kW	5.6	6.3	7.1	8.0
	Btu/h	19,100	21,500	24,200	27,300
Sound Pressure Level (Overall A Scale)	dB(A)	44/42/41/38/31/29	40/38/36/35/33/31	41/40/38/35/33/31	45/42/41/38/35/31
Outer Dimensions Height	mm	315	315	315	315
Width	mm	915	1085	1085	1085
Depth	mm	230	230	230	230
Net Weight	kg	12.5	14	14	14
Refrigerant		R410A (Nitrogen charged in case of corrosion)			
Indoor Fan Air Flow Rate	m^3/h	860/810/770/ 690/520/480	970/900/850/ 800/730/690	1020/970/900/ 800/730/690	1200/1080/1020/ 900/800/700
Connections Refrigerant Piping	-	Flare-Nut Connection (with Flare Nuts)			
Liquid Line	mm	Φ6.35	Φ9.53	Φ9.53	Φ9.53
Gas Line	mm	Φ12.7	Φ15.88	Φ15.88	Φ15.88
Condensate Drain	_	VP16	VP16	VP16	VP16
Packaging Dimensions Height	mm	430	430	430	430
Width	mm	1013	1178	1178	1178
Depth	mm	330	330	330	330
Packing Volume	m^3	0.15	0.17	0.17	0.17
Standard Accessories		Wall Mounting Bracket			

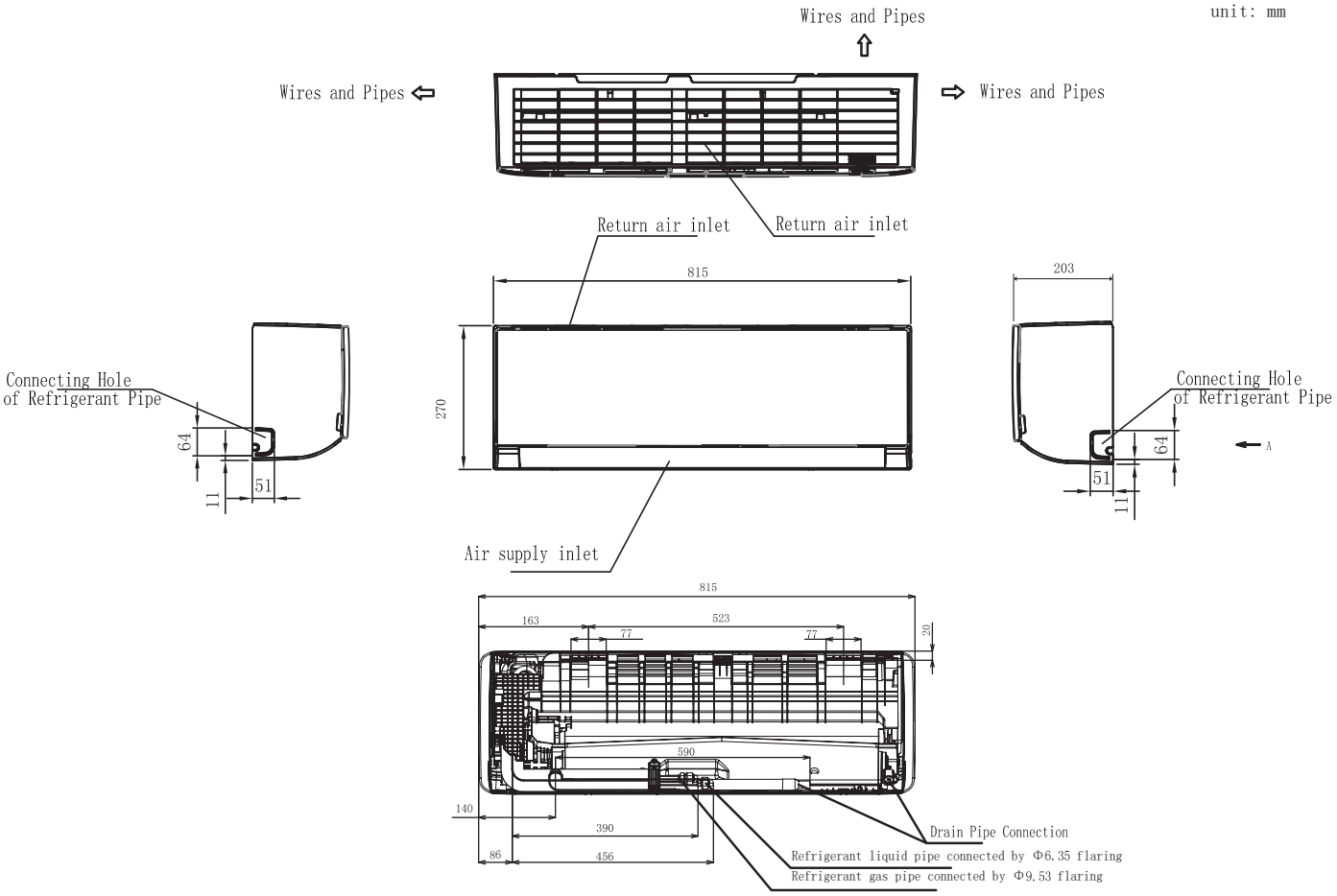
NOTES:

1. The nominal cooling capacity and heating capacity are based on following conditions:
   Cooling Operation Conditions
   Indoor Air Inlet Temperature: 27°C DB (80°F DB)
   19°C WB (66°F WB)
   Outdoor Air Inlet Temperature: 35°C DB (95°F DB)
   Heating Operation Conditions
   Indoor Air Inlet Temperature: 20°C DB (68°F DB)
   Outdoor Air Inlet Temperature: 7°C DB (44°F DB)
   6°C WB (42°F WB)
   Piping Length: 7.5m(2.6ft.) Piping Lift: 0m(0ft.)
2. The sound pressure level is based on following conditions:
   0.8m(2.6ft.) below the unit and 1m(3.3ft.) in front of the unit.
   The above data were measured in an anechoic chamber so that reflected sound should be taken into consideration in the field.
   The above noise values are measured under the condition of air supply.

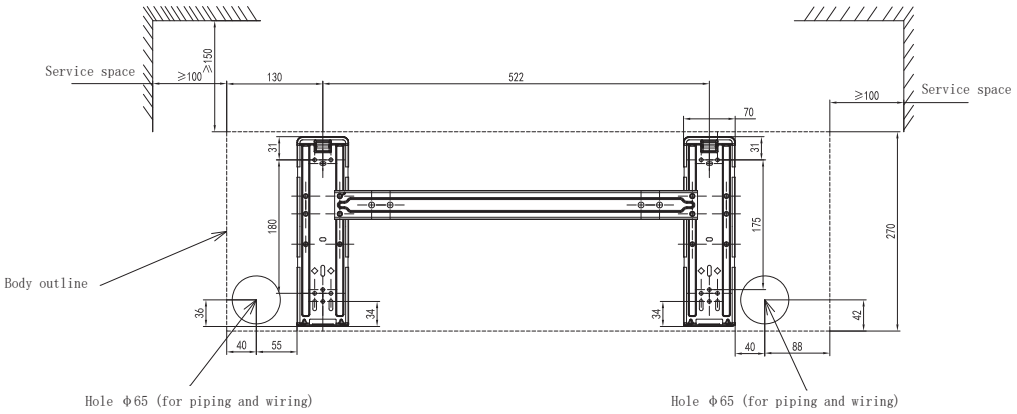
7. Dimensional Data

Models: RPK-0.8~1.3HNBUSQ

unit: mm

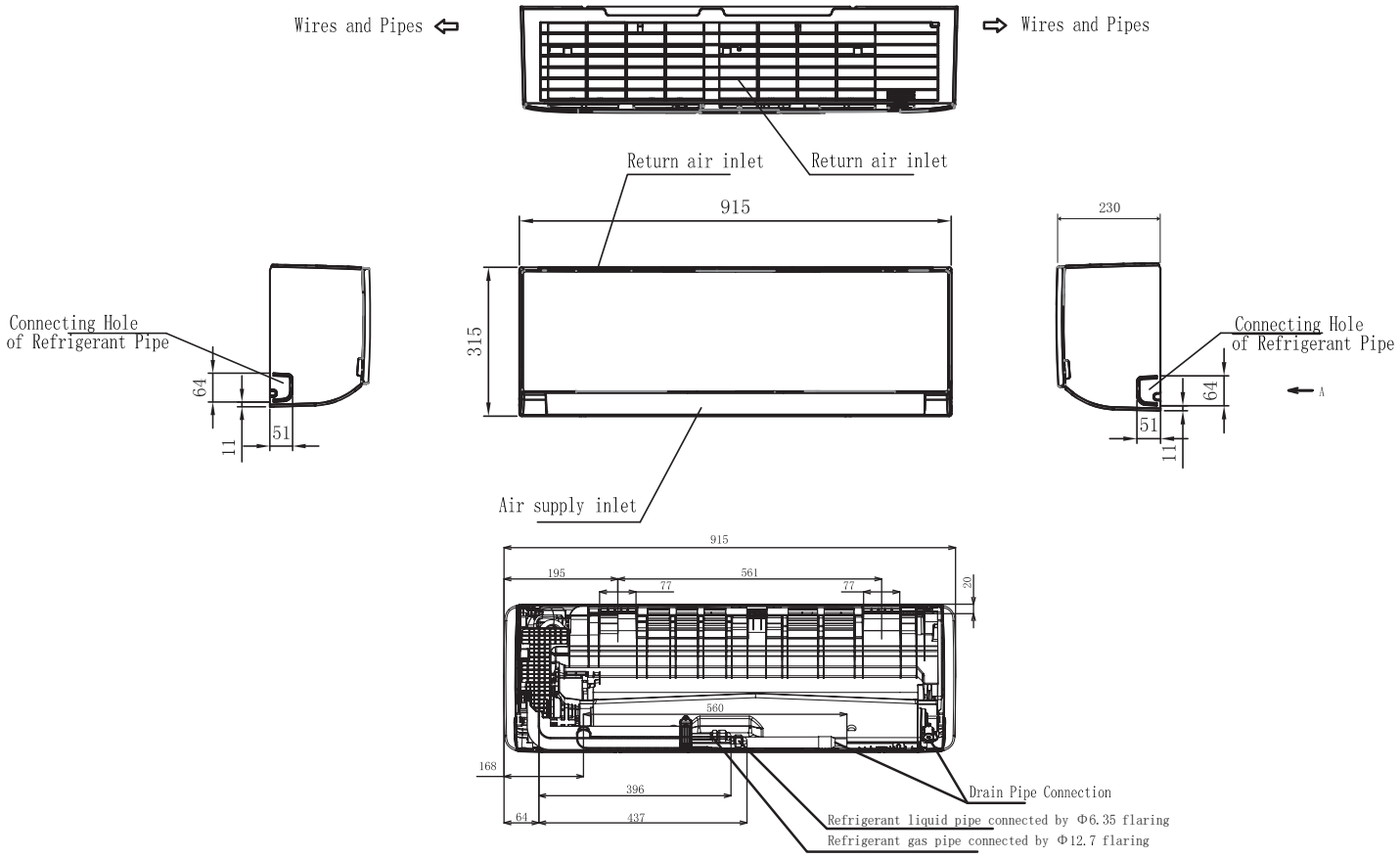


Side A

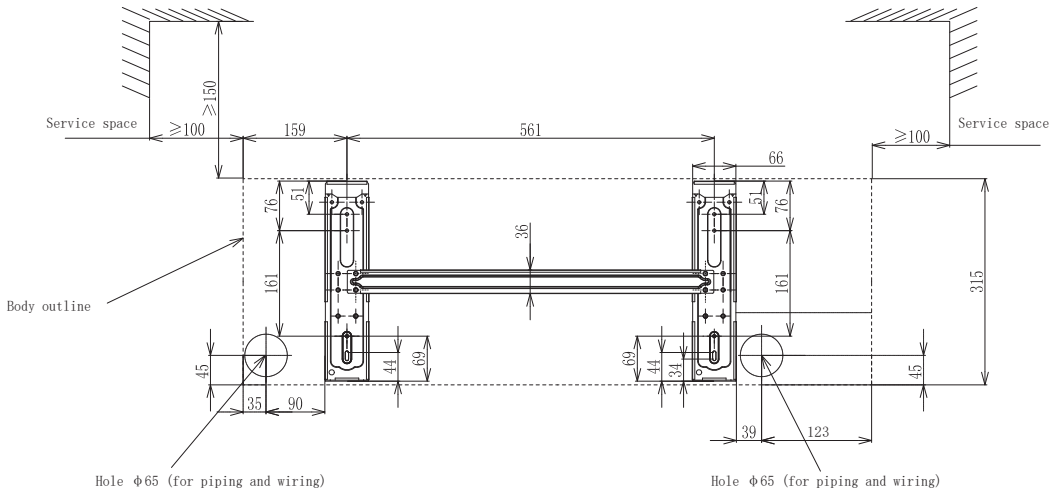


Models: RPK-1.5~1.8HNBUSQ

unit: mm

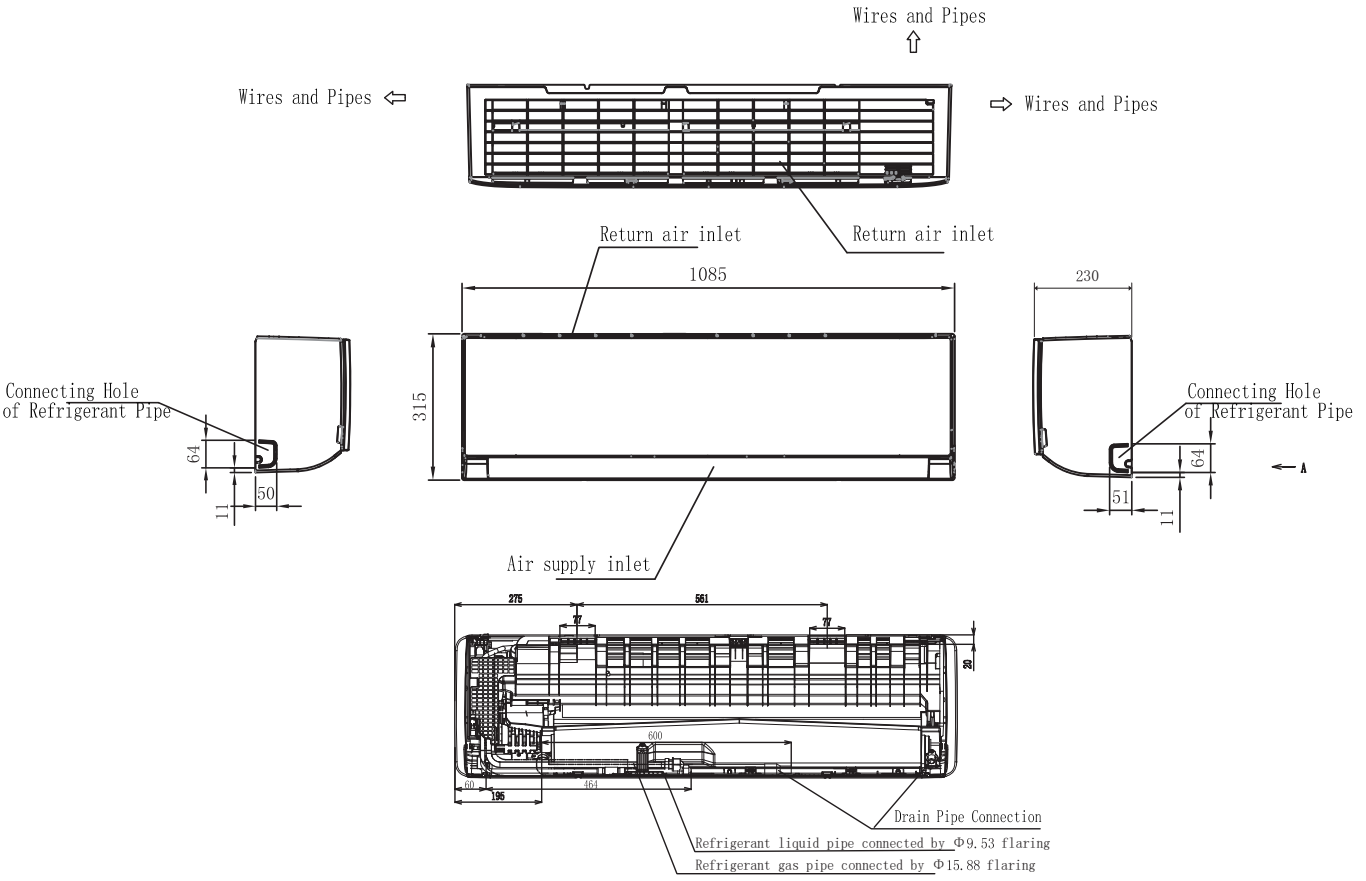


Side A

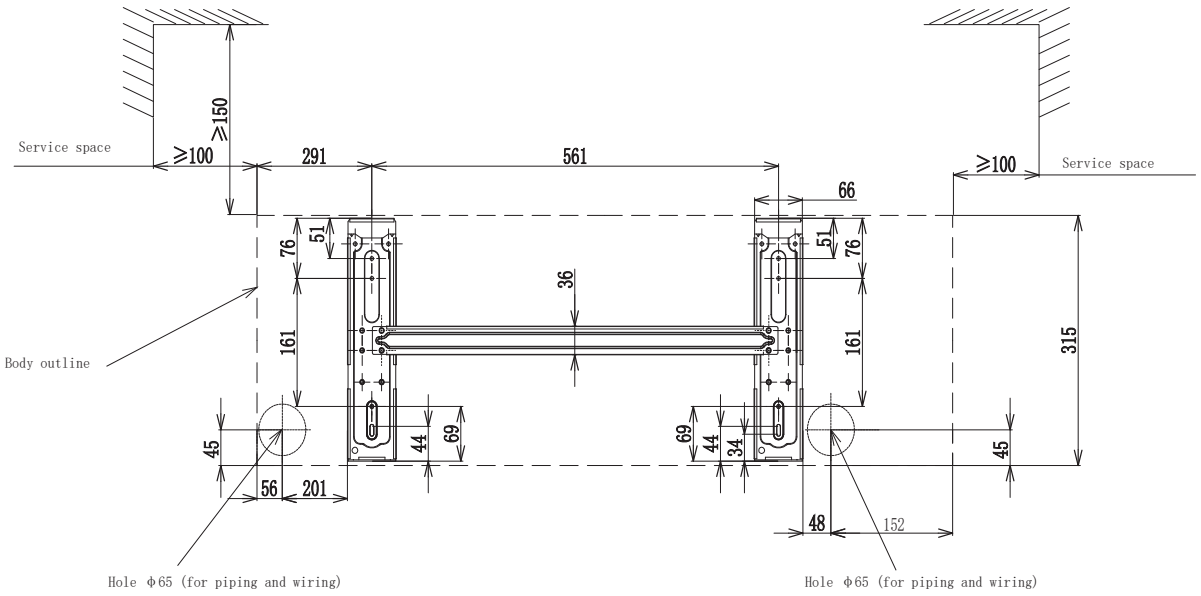


Models: RPK-2.0~2.5HNBUSQ

unit: mm

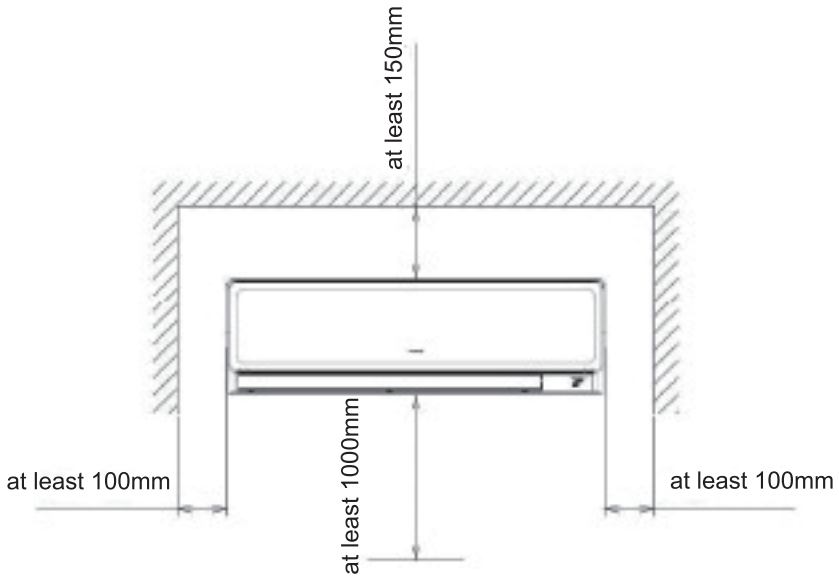


Side A



8. Selection Data

- Service Space



Operation and Maintenance Space

- Sensible Heat Factor (SHF)

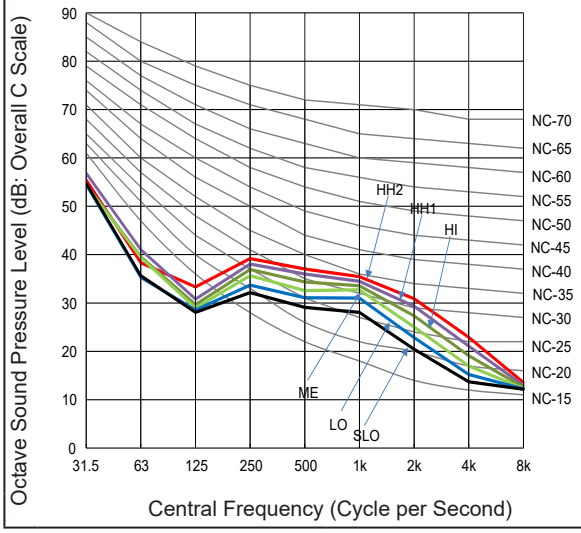
The sensible heat factor of indoor units at each fan speed (Hi, Me, Lo) is given in the table below.

Indoor Unit Model	SHF					
	Super-Hi	Hi	Me	Lo	Super-Lo	Mute
RPK-0.8HNBUSQ	0.70	0.69	0.69	0.68	0.67	0.66
RPK-1.0HNBUSQ	0.70	0.69	0.69	0.68	0.67	0.66
RPK-1.3HNBUSQ	0.71	0.69	0.69	0.68	0.67	0.66
RPK-1.5HNBUSQ	0.71	0.71	0.70	0.69	0.69	0.68
RPK-1.8HNBUSQ	0.73	0.72	0.72	0.71	0.69	0.68
RPK-2.0HNBUSQ	0.71	0.70	0.70	0.69	0.68	0.68
RPK-2.3HNBUSQ	0.72	0.71	0.70	0.69	0.68	0.68
RPK-2.5HNBUSQ	0.74	0.73	0.72	0.70	0.69	0.69

- Sound Data

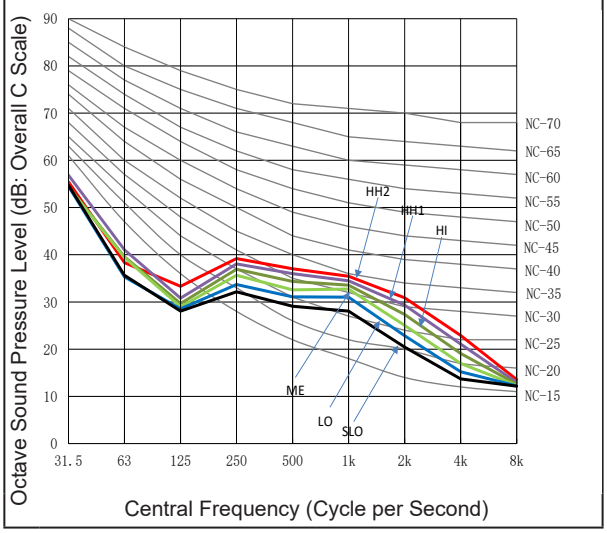
Model	Power Supply:
RPK-0.8HNBUSQ	AC 1φ,220V/50Hz

Measurement Point: 0.8m to upper/lower side and 1m to front/rear side of the air outlet



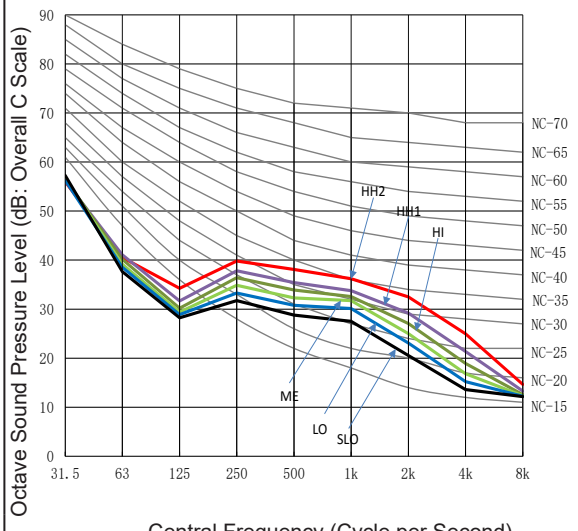
Model	Power Supply:
RPK-1.0HNBUSQ	AC 1φ,220V/50Hz

Measurement Point: 0.8m to upper/lower side and 1m to front/rear side of the air outlet



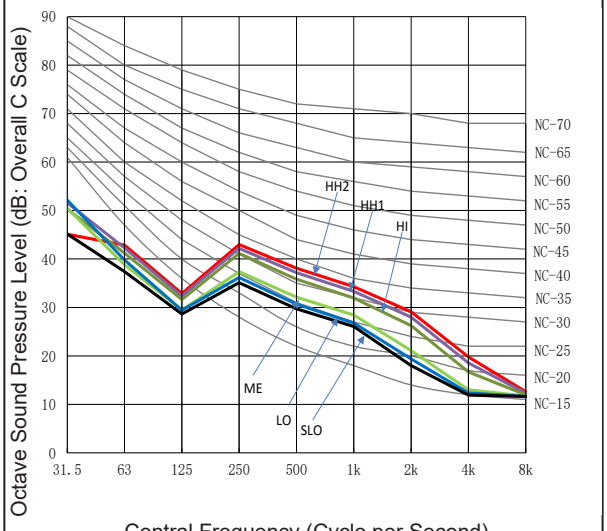
Model	Power Supply:
RPK-1.3HNBUSQ	AC 1φ,220V/50Hz

Measurement Point: 0.8m to upper/lower side and 1m to front/rear side of the air outlet



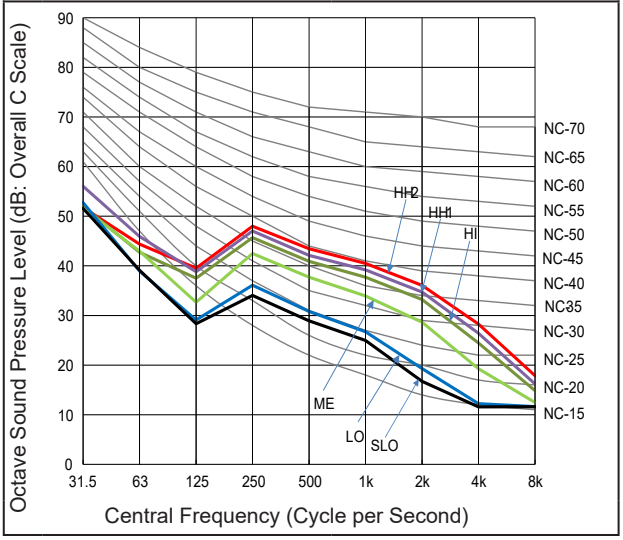
Model	Power Supply:
RPK-1.5HNBUSQ	AC 1φ,220V/50Hz

Measurement Point: 0.8m to upper/lower side and 1m to front/rear side of the air outlet



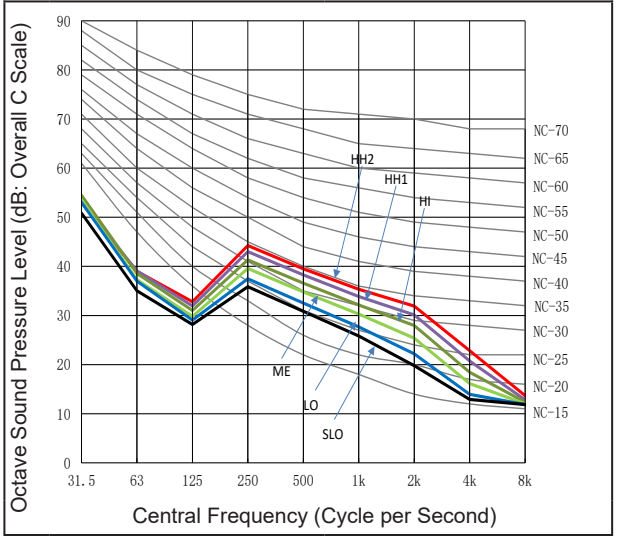
Model	Power Supply:
RPK-1.8HNBUSQ	AC 1φ,220V/50Hz

Measurement Point: 0.8m to upper/lower side and 1m to front/rear side of the air outlet



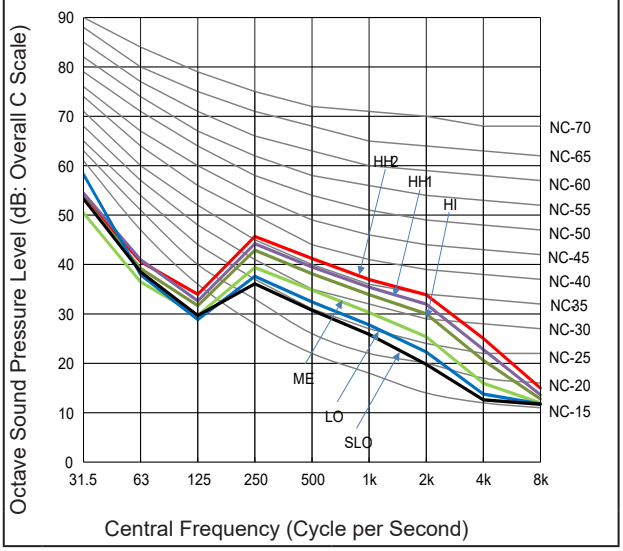
Model	Power Supply:
RPK-2.0HNBUSQ	AC 1φ,220V/50Hz

Measurement Point: 0.8m to upper/lower side and 1m to front/rear side of the air outlet



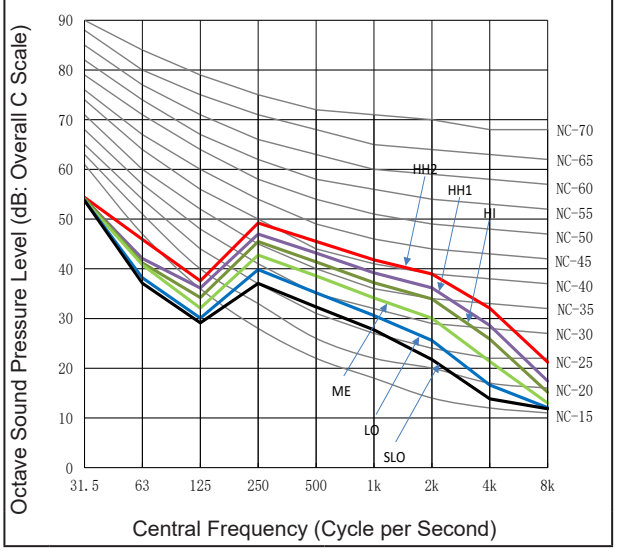
Model	Power Supply:
RPK-2.3HNBUSQ	AC 1φ,220V/50Hz

Measurement Point: 0.8m to upper/lower side and 1m to front/rear side of the air outlet



Model	Power Supply:
RPK-2.5HNBUSQ	AC 1φ,220V/50Hz

Measurement Point: 0.8m to upper/lower side and 1m to front/rear side of the air outlet



9. Component Data

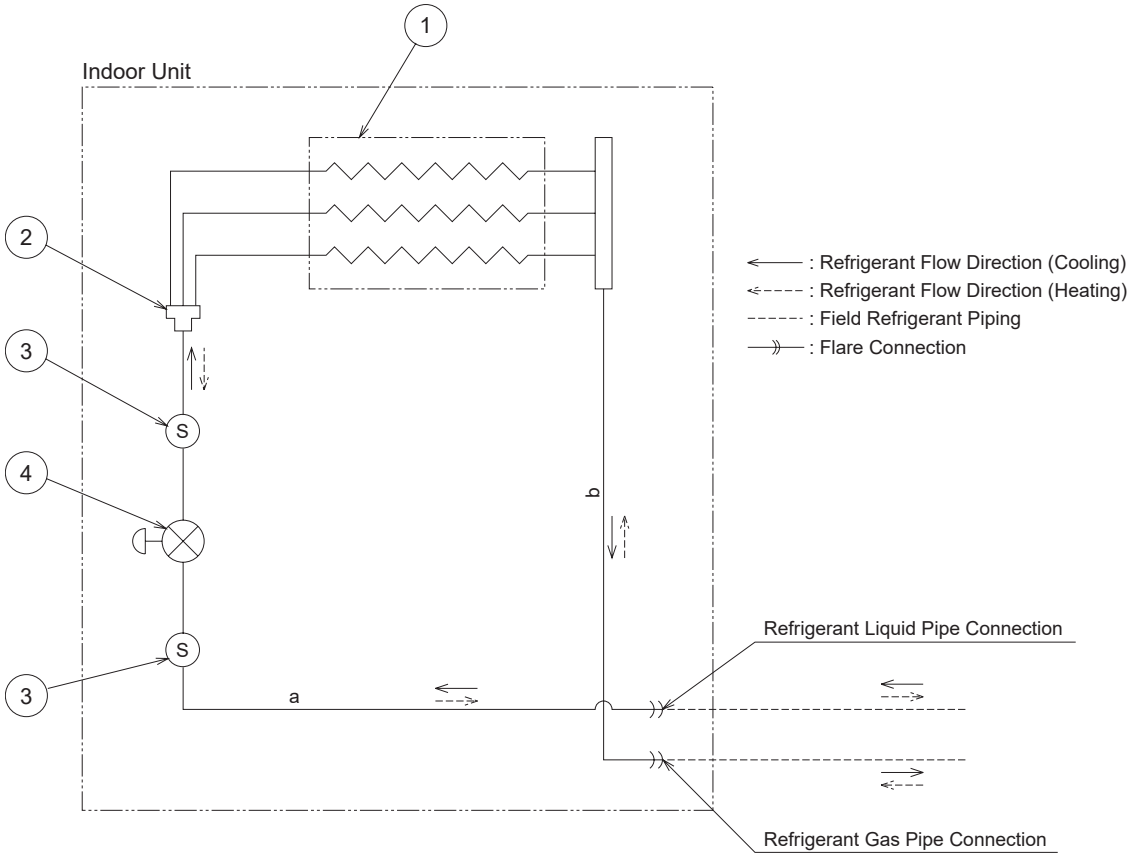
Indoor Heat Exchanger and Fan

Model				RPK-0.8HNBUSQ	RPK-1.0HNBUSQ	RPK-1.3HNBUSQ	RPK-1.5HNBUSQ
Heat Exchanger	Heat Exchanger Type		—	Multi-Pass Cross Finned Tube			
	Tube	Material	—	Copper			
		Outer Diameter	mm	7.0	7.0	7.0	7.0
		Rows	—	2	2	2	2
	Fin	Material	—	Aluminum			
		Pitch	mm	1.4	1.4	1.4	1.4
	Maximum Operating Pressure		Mpa	4.15	4.15	4.15	4.15
	Total Face Area		m^2	0.17	0.17	0.17	0.24
	Quantity		—	1	1	1	1
Air Supply	Fan	Type	—	Cross-flow Fan			
		Quantity	—	1	1	1	1
		Outer Diameter	mm	92	92	92	107
		Revolution	rpm	1100/1050/1000 /950/900/850	1100/1050/1000 /950/900/850	1150/1050/1000 /950/900/850	1005/970/930 /830/800/760
		Nominal Air Flow	m^3/h	590/550/520 /490/450/420	590/550/520 /490/450/420	620/550/520 /490/450/420	690/660/620 /540/520/480
	Fan Motor	Type	—	Water-proof Case			
		Starting Method	—	DC Driven			
		Nominal Output Power	W	25	25	25	35
		Quantity	—	1	1	1	1
		Insulation Class	—	E	E	E	E
		Water/Dust Proof Grade	—	IP24	IP24	IP24	IP24

Indoor Heat Exchanger and Fan

Model				RPK-1.8HNBUSQ	RPK-2.0HNBUSQ	RPK-2.3HNBUSQ	RPK-2.5HNBUSQ
Heat Exchanger	Heat Exchanger Type		—	Multi-Pass Cross Finned Tube			
	Tube	Material	—	Copper			
		Outer Diameter	mm	7.0	7.0	7.0	7.0
		Rows	—	2	2	2	2
	Fin	Material	—	Aluminum			
		Pitch	mm	1.4	1.4	1.4	1.4
	Maximum Operating Pressure		Mpa	4.15	4.15	4.15	4.15
	Total Face Area		m^2	0.17	0.17	0.17	0.24
	Quantity		—	1	1	1	1
Air Supply	Fan	Type	—	Cross-flow Fan			
		Quantity	—	1	1	1	1
		Outer Diameter	mm	107	107	107	107
		Revolution	rpm	1200/1150/1100 /1000/800/760	1000/950/900 /850/800/760	1050/1000/950 /850/800/760	1200/1100/1050 /950/850/780
		Nominal Air Flow	m^3/h	860/810/770 /690/520/480	970/900/850 /800/730/690	1020/970/900 /800/730/690	1200/1080/1020 /900/800/700
	Fan Motor	Type	—	Water-proof Case			
		Starting Method	—	DC Driven			
		Nominal Output Power	W	35	35	35	35
		Quantity	—	1	1	1	1
		Insulation Class	—	E	E	E	E
		Water/Dust Proof Grade	—	IP24	IP24	IP24	IP24

10. Refrigerant Cycle



Mark	Part Name
1	Heat Exchanger
2	Splitter
3	Strainer
4	Micro-Computer Control Expansion Valve

11. Electrical Data

Indoor Unit

Model		Unit Main Power			Applicable Voltage		Indoor		
		VOL	PH	HZ	Maximum	Minimum	PH	RNC (Cooling/Heating)	IPT (Cooling/Heating)
Wall Mounted Type	RPK-0.8*	220~240	1	50/60	264	198	1	0.36/0.36	0.030/0.030
	RPK-1.0*							0.36/0.36	0.030/0.030
	RPK-1.3*							0.38/0.43	0.040/0.040
	RPK-1.5*							0.38/0.38	0.030/0.030
	RPK-1.8*							0.46/0.51	0.050/0.050
	RPK-2.0*							0.40/0.45	0.040/0.040
	RPK-2.3*							0.45/0.58	0.040/0.060
	RPK-2.5*							0.58/0.75	0.060/0.090

VOL: Rated Unit Power Supply Voltage (Plated)(V)
PH: Phase (Φ)
HZ: Frequency (Hz)
RNC: Running Current (A)
IPT: Input (kW)

Safety and Control Device Setting

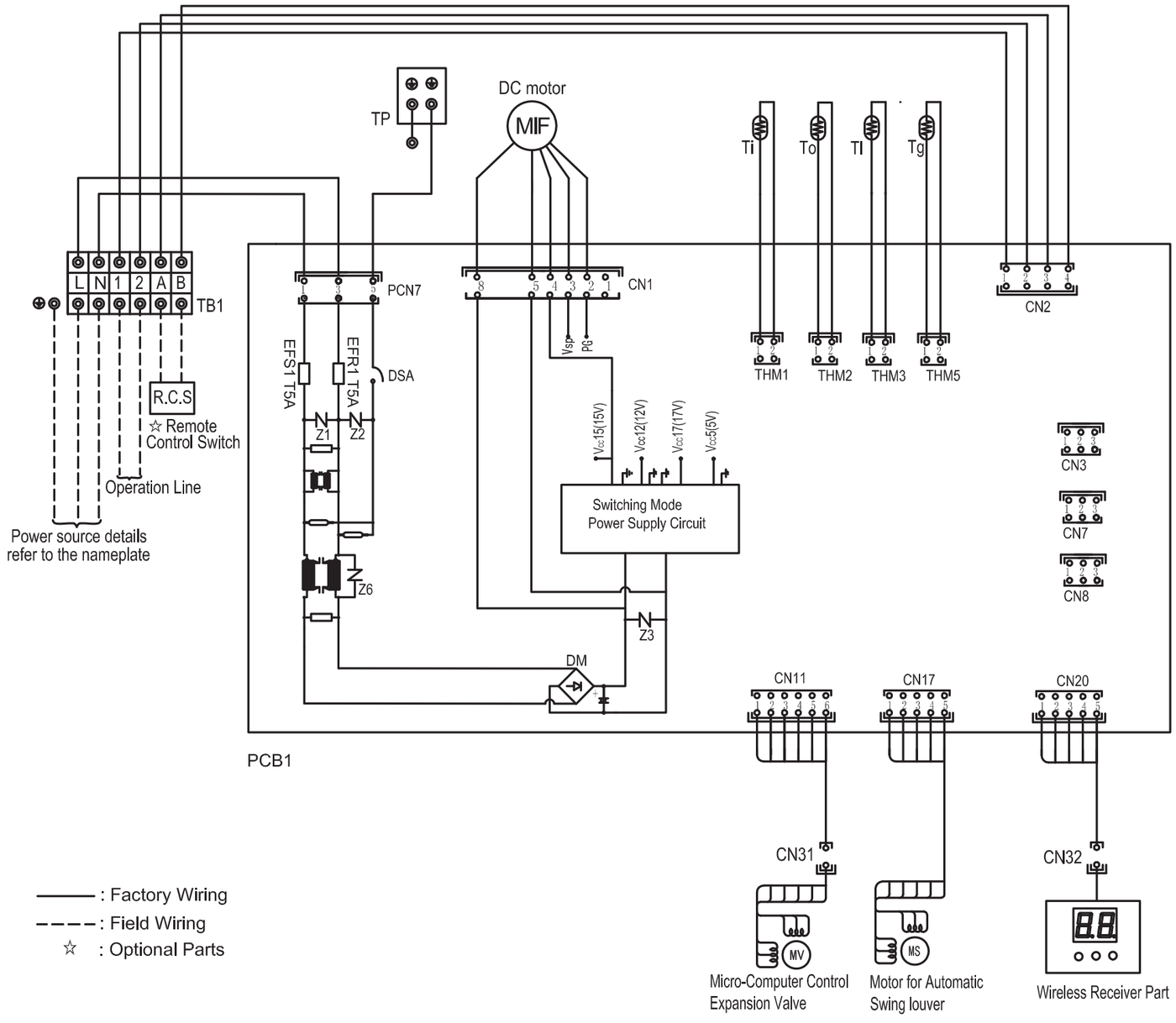
Model		HP	0.8-2.5
For Control Circuit Fuse Capacity		A	5
Freeze Protection Thermostat	Cut-Out	°C	0
	Cut-In	°C	14

12. Electrical Wiring Diagram

WALL-MOUNTED TYPE

ELECTRICAL WIRING DIAGRAM

WARNING	Before inspecting the electrical parts set the Operation Switch to OFF, and cut OFF the power supply !



——— : Factory Wiring

– – – – : Field Wiring

☆ : Optional Parts

Mark	Name
CN1, CN2, CN11, CN17, CN20	Connector on PCB
CN31, CN32	Connector
EFR1, EFS1	Fuse
MS	Motor for Automatic Swing louver
MV	Micro-Computer Control Expansion Valve
MIF	Motor for Indoor Fan
PCN7	Connector on PCB
PCB1	Printed Circuit Board
TB1	Terminal Board
TP	Terminal Plate for GND
$THM_{1\sim3}$, THM_5	Thermistor
$Z_{1\sim3}$, Z_6	Surge Absorber
◎	Terminals

Note :

1. All the field wiring and equipment must comply with local codes.

13. Optional Parts

Optional Parts	
Type	Model
Wire Remote Control	PC-ARF/PC-ARF1
	PC-ARE
	HCWA10NEGQ
	PC-ARH1
Wireless Remote Control	PC-LH7QE
Centralized Controller	PSC-A32MN
	PSC-A64GT
	PSC-A64S
	PSC-A1T
	PSC-A16RS
	PSC-A128EX

14. Factory-Supplied Accessories

Check to ensure that the following accessories are packed with the indoor unit.

NOTE

If any of these accessories are not packed with the unit, please contact your contractor

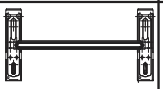
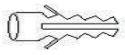
Accessory	Quantity	Purpose
Mounting Bracket 	1	For Mounting Indoor Unit
Wireless Remote Control Switch 	1	For Control the Indoor Unit
Screw 	6	For Mounting Bracket
Screw Cover 	1 (0.8-1.3) 3 (1.5-2.5)	Cover screw hole
Thermal Insulation Pipe 	1	For Refrigerant Pipe
Plug 	6	For Mounting Bracket
Refirgerant Pipe Connection	2	For Refrigerant Pipe

Fig . Factory-Supplied Accessories

15. Installation

15.1 Initial Check

- Install the indoor unit with a proper clearance around it for operation and maintenance working space, as shown in figure.

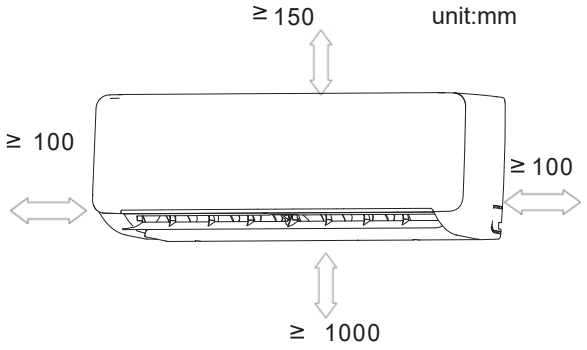


Fig. Operation and Maintenance Space

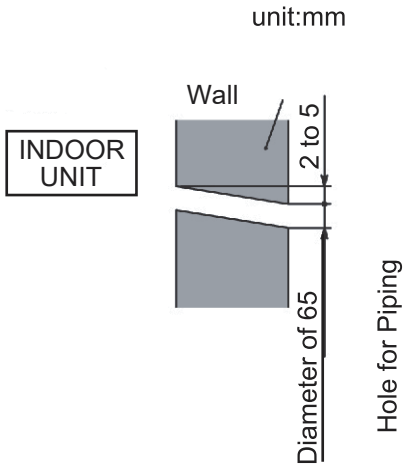


Fig. Hole for Piping on the Wall

- Consider the air distribution from the indoor unit to the space of the room, and select a suitable location so that uniform air temperature in the room can be obtained.
- Avoid obstacles which may hamper the air intake or the air discharge flow.
- Do not install the indoor unit in a machine shop or kitchen where vapor from oil or its mist flows to the indoor unit.
  The oil will deposit on the heat exchanger, thereby reducing the indoor unit performance, and may deform and in the worst case, break the plastic parts of the indoor unit.
- Pay attention to the following points when the indoor units is installed in a hospital or other facilities where there are electronic waves from medical equopment.
  (A) Do not install the indoor unit where the electromagnetic wave is directly radiated to the electrical box, remote control cable or remote control switch.
  (B) Install the indoor unit and components as far as practical or at least 3 meters from the electromagnetic wave radiator.
  (C) Prepare a steel box and install the remote control switch in it. Prepare a steel conduit tube and wire the remote control cable init. Then, connect the ground wire with the box and the tube.
  (D) Install a noise filter when the power supply emits harmful noises.
- To avoid any corrosive action to the heat exchangers, do not install the indoor unit in an acid or alkaline environment.

15.2 Installation

The dimensions of the mounting bracket and the unit installation are indicated in figure below.

- Mounting Bracket onto Wall

When the mounting bracket is directly attached to a wood wall or a concrete wall, check to ensure of 2000N.
Mounting on a Concrete Wall or a Concrete Block Wall:
Attach the mounting bracket to the wall with anchor bolts as shown in figure.

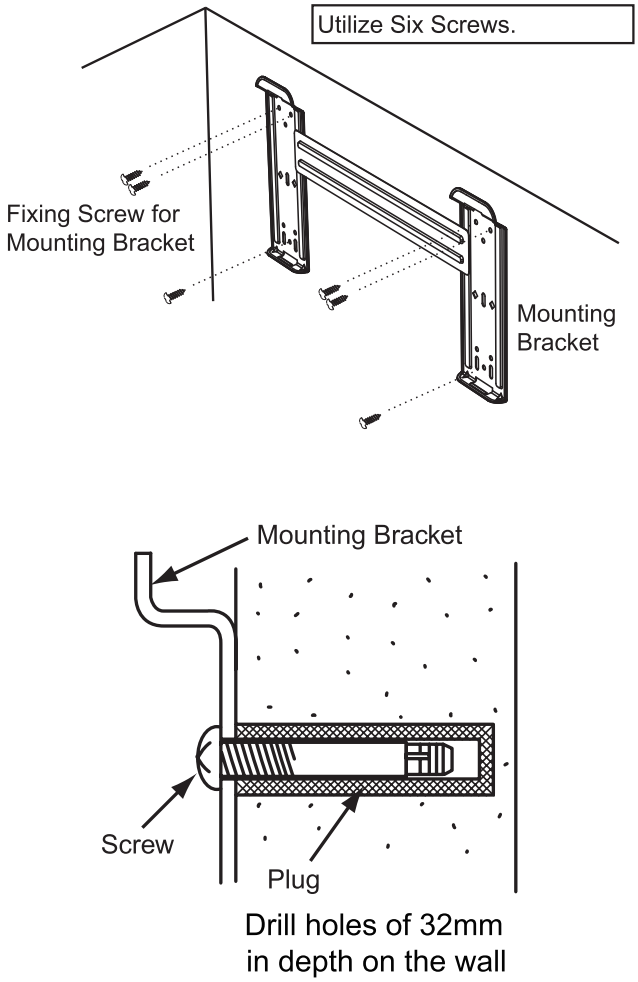
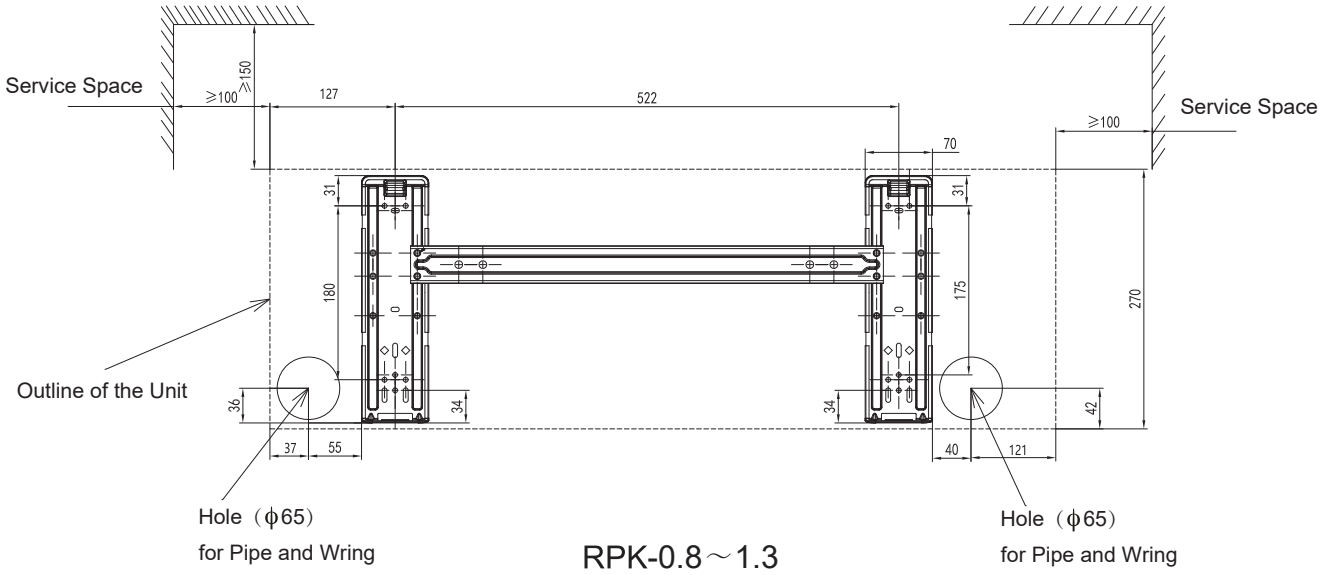


Fig. Mounting on Concrete Wall or Concrete Block Wall

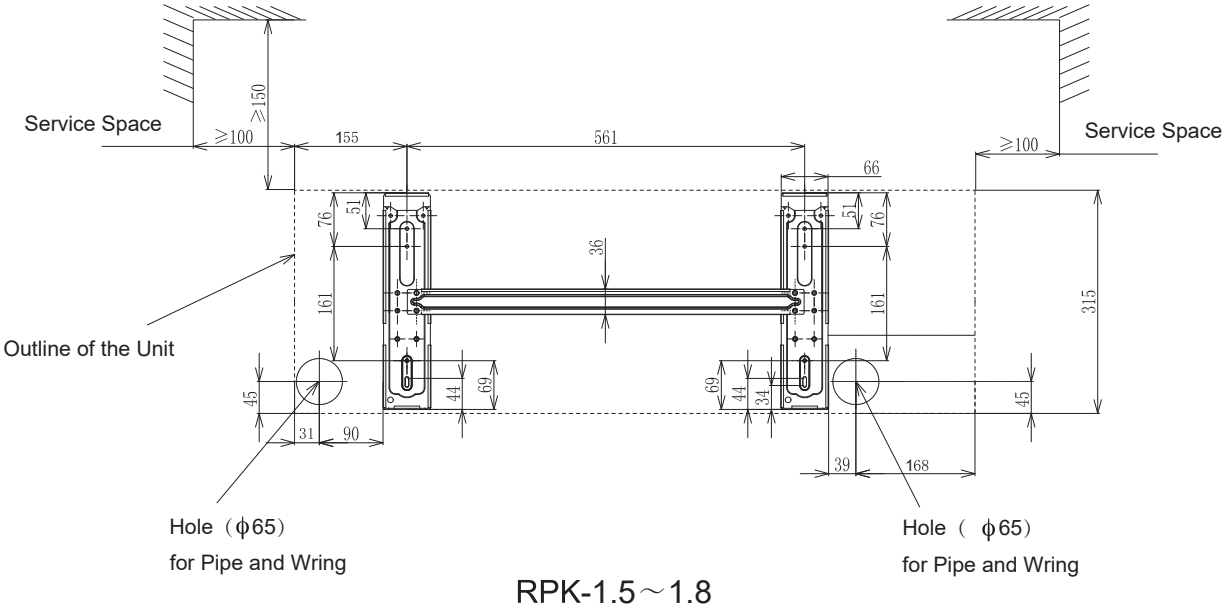
NOTE

The mounting bracket should be installed so that the side of drain piping connected is slightly (about 3mm) lower than the other side, in order to avoid the incorrect position of the drain discharge. (Drain piping connection can be performed both right side and left side of the unit.)

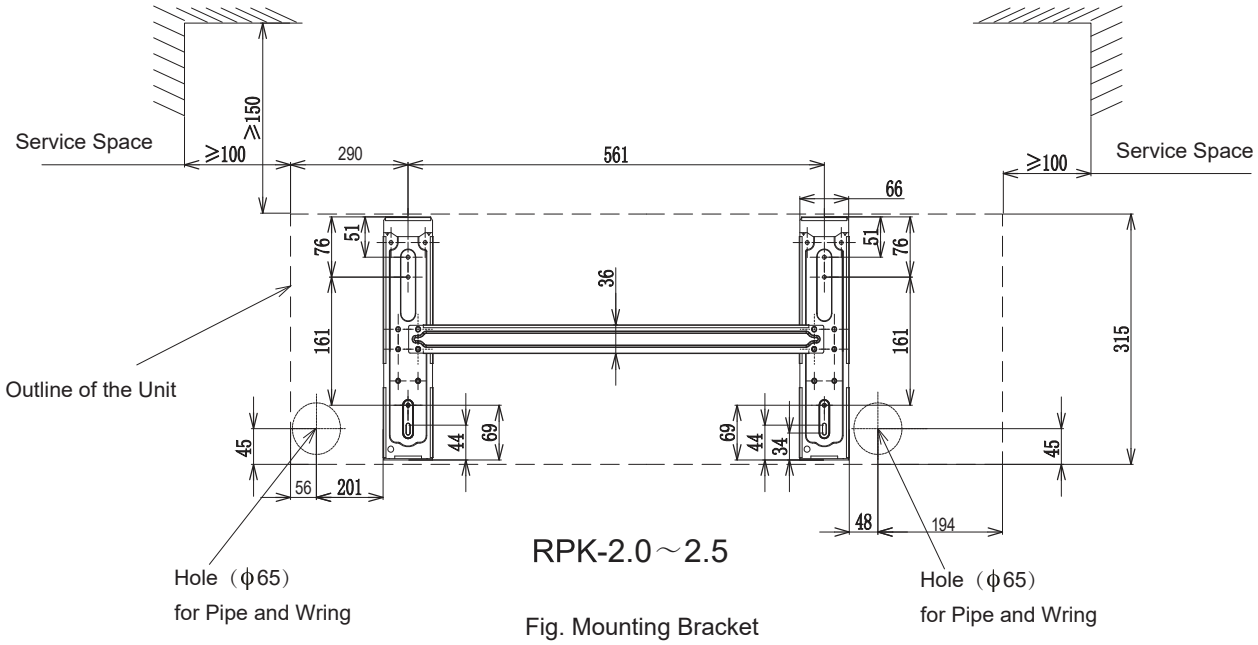
unit:mm



RPK-0.8～1.3



RPK-1.5～1.8

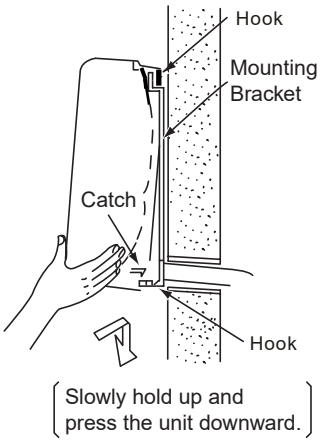


RPK-2.0～2.5

Fig. Mounting Bracket

15.3 Mounting the Indoor Units

Hook the indoor unit to the mounting bracket, maintaining the indoor unit upright.



⚠CAUTION

Check to ensure that the unit is completely hooked onto the mounting bracket. If not, it may drop from the bracket, resulting in a serious accident.

(1) The side of the drain pipe is downward-sloping 2 degrees or 3 degrees in the process of the unit installation.
(2) Check the drainage of the drain pan through water overflow test.

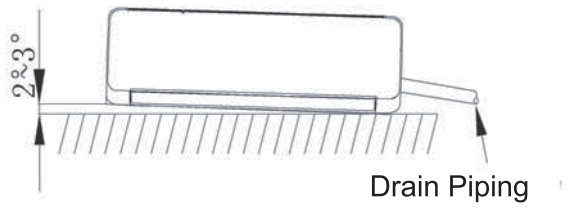
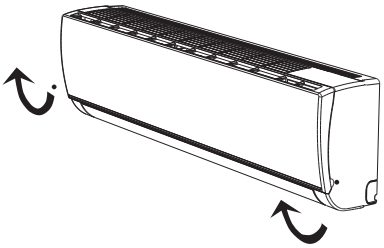


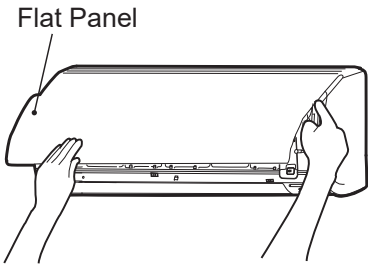
Fig. Slop Angle of the Indoor Units

15.4 Removing Flat Panel

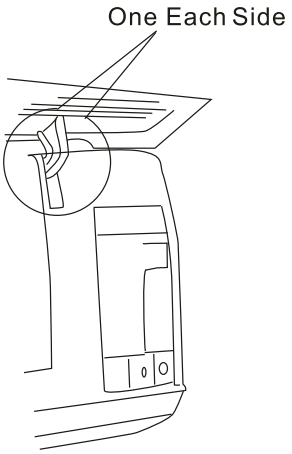
In order to connect the refrigerant piping, wiring and to check drain water flow, removing the flat panel is needed. Perform these work according to the following instructions. Pay attention to the resin components not to scratch.

(1) Hold both sides of the flat panel and open it, and pull the right arm toward the inner side. Slightly close the flat panel and pull it, then remove the flat panel.



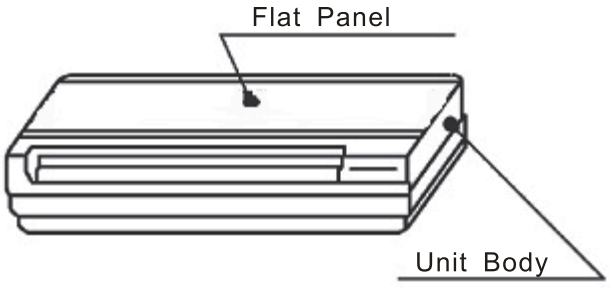


(2) Pay attention to the junction of grille from each side, to prevent breaking off.



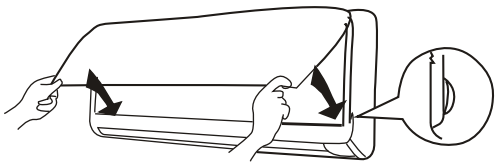
⚠CAUTION

When removing flat panel, do not apply strong forces by hitting, etc. It may break the unit body.

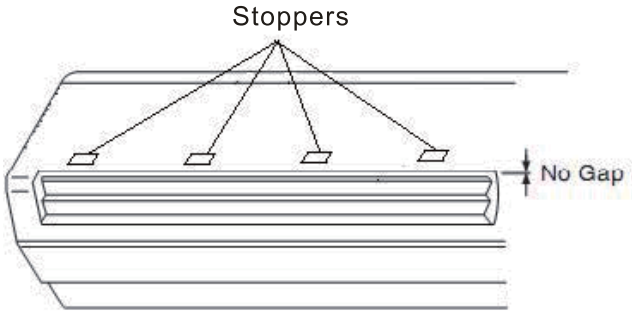


15.5 Install Flat Panel

(1) Press flat panel down, make the two joints of the flat panel tightly fasten.



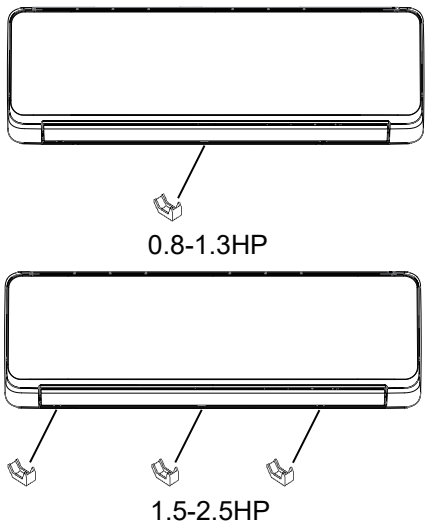
(2) There are four stoppers inside of the flat panel. Check to ensure that there is no gap between flat panel and unit body.



⚠CAUTION

Any gap will lead to leak or frost.

(3) Put three screws cover into the screw hole in the air outlet.



16. Refrigerant Piping Work

⚠ DANGER

Charge refrigerant R410A in the refrigerant cycle. Do not charge oxygen, acetylene or other flammable and poisonous gases into the refrigerant cycle when performing a leakage test or an air-tight test. These types of gases are extremely dangerous and can cause an explosion. It is recommended that compressed air, nitrogen or refrigerant be used for these types of tests.

16.1 Piping Materials

(1) Prepare locally-supplied copper pipes.

(2) Select the piping size from the following table.

unit: mm

Model (HP)	Gas pipe	Liquid pipe
0.8~1.3	Φ9.53	Φ6.35
1.5~1.8	Φ12.7	Φ6.35
2.0~2.5	Φ15.88	Φ9.53

(3) Select clean copper pipes making sure there is no dust and moisture inside the tubes. Before connecting pipes, purge the pipes with nitrogen or dry air to remove any dust or foreign matters.

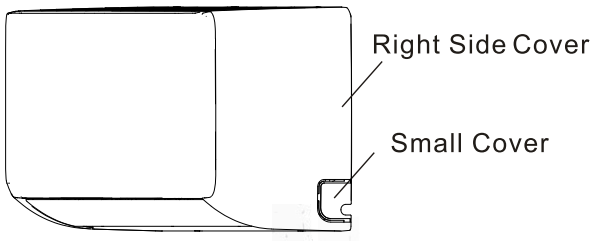
16.2 Piping Connection

(1) Position of piping connection is shown below.

(2) Piping direction for the indoor unit: three directions of piping connection (rear, right and left) to the indoor unit can be performed respectively. Therefore, the most appropriate piping for a room can be selected.

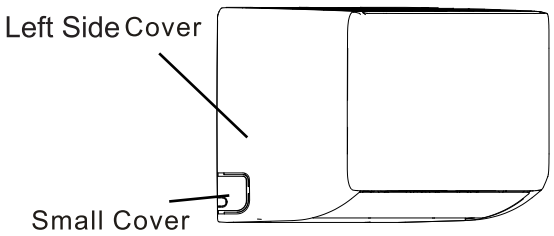
- Right Side Piping

Take off the small cover from right side.



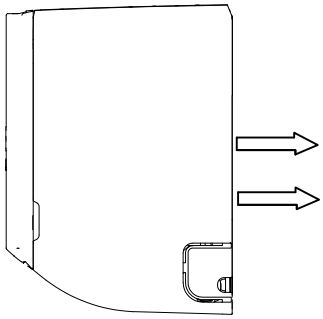
- Left Side Piping

Take off the small cover from left side.



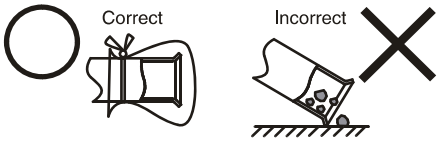
- Rear Side Piping

Bend pipe backwards directly.



⚠ CAUTION

- Cap the end of the pipe when the pipe is to be inserted through a hole.
- Do not put pipes on the ground directly without a cap or vinyl tape at the end of the pipe.



- When bending the pipes, firmly fix the pipe at the heat exchanger side.

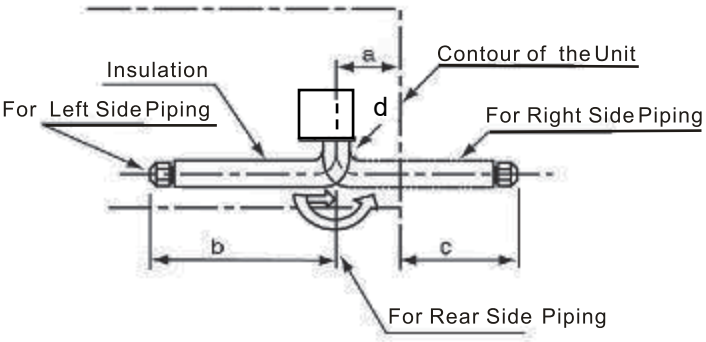
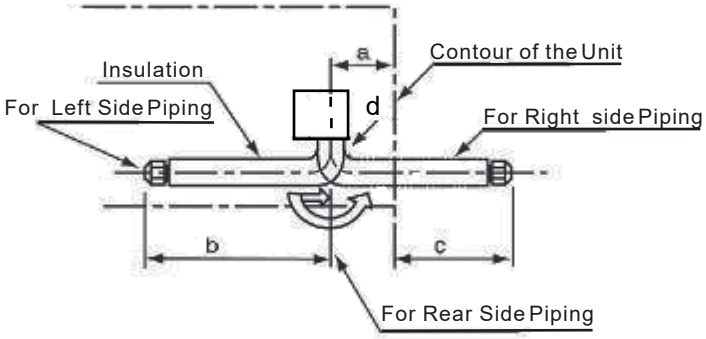


Fig. Liquid pipe

unit: mm

Model (HP)	a	b	c	d
0.8~1.3	86	456	370	10R
1.5~1.8	64	437	373	10R
2.0~2.5	60	464	404	20R

- Bend the gas pipe at the flexible pipe part.

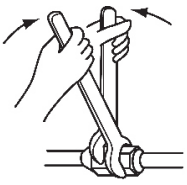


unit: mm

Model (HP)	a	b	c	d
0.8~1.3	101	390	289	15R
1.5~1.8	78	396	318	20R
2.0~2.5	76	431	355	25R

Fig. Tightening Work of Flare Nut

(3) When tightening the flare nut, use two spanners as shown below.



Pipe Diameter	Torque (N. m)
Φ6.35	20
Φ9.53	40
Φ12.7	60
Φ15.88	80

Fig. Tightening Work of Flare Nut

(4) Insulate the refrigerant pipes as shown below.

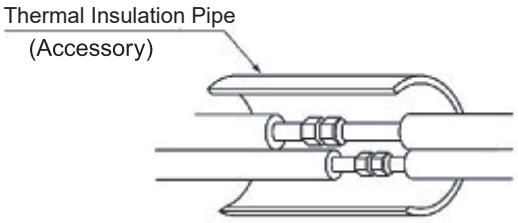


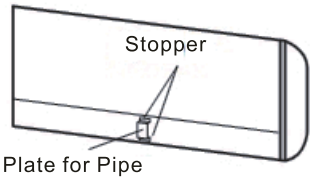
Fig. Insulation on pipes

(5) Evacuation and refrigerant charging procedures should be performed according to “Installation & Maintenance Manual “ of the outdoor unit.

⚠CAUTION

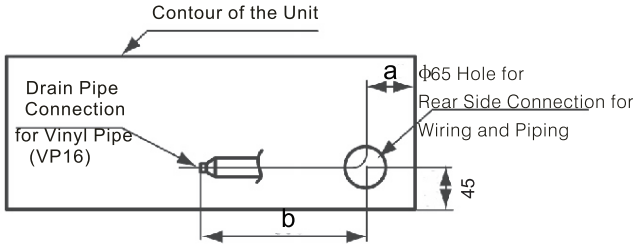
An excess or a shortage of refrigerant is the main cause of trouble to the units. Charge the correct refrigerant quantity.

(6) Fix the plate of pipes (factory-supplied) as shown below.



17. Drain Piping

(1) The standard direction of drain piping connection is right side as viewed from the discharge grilles. However, it can be performed from the left side or rear side.



unit: mm

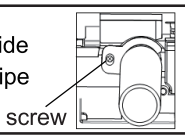
Model (HP)	a	b
0.8~1.3	140	590
1.5~1.8	168	600
2.0~2.5	195	600

Fig. Direction of Drain Piping

(2) When the left-side drain pipe connection is performed, remove the drain plug of left-side, and then attach this plug to the right-side in order to change drain piping connection from right-side to left-side.

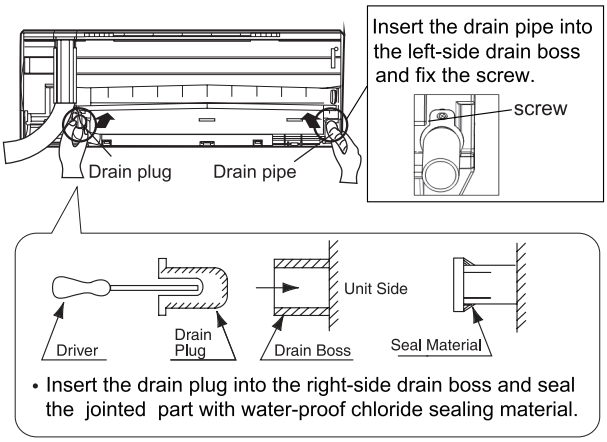
(A) Draw out the drain plug and drain pipe

- Remove the fixing screw for right-side drain pipe and draw out the drain pipe from drain boss.



- Please use pliers to pull out the drain plug for left-side. (This is an easier way to remove the drain cap).

(B) Insert the drain plug and drain pipe



⚠ CAUTION Insufficient insert may result in water leakage.

(3) Provide a vinyl chloride pipe, VP20.

(4) Connect a drain piping as shown in the following figure. Use adhesive tape for connecting the drain pipe.

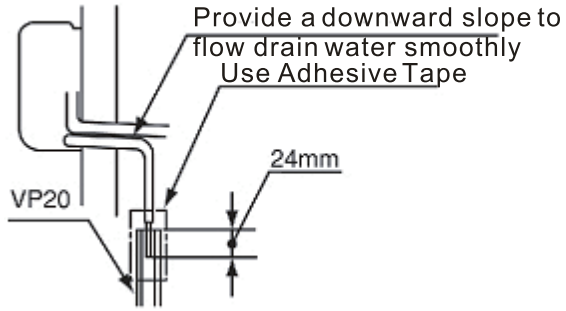


Fig. Connection of Drain Piping

(5) Pour water into the drain pan and check to ensure that water can flow smoothly.

⚠CAUTION

- Do not connect the drain pipes with sanitary or sewage or any other drainage pipe.
- When installing the pipe, do not tie the drain pipe and refrigerant pipe together.
- Pay attention to the thickness of the insulation when the left side piping is performed. If it is too thick, there will be no room for piping in the unit.

⚠CAUTION

- Do not provide an upslope or rise for the drain piping, since drain water can flow back to the unit and leakage to the room will occur when the unit operation is stopped.
- Do not connect the drain pipe with sanitary or sewage piping or any other drainage piping.
- When the common drain piping is connected with other indoor units, the connected position of each indoor unit must be higher than the common piping. The pipe size of the common drain pipe must be large enough according to the unit size and number of units.

18. Electrical Wiring

⚠WARNING

- Turn OFF the main power switches to the indoor unit and outdoor unit before electrical wiring or periodical check, and wait for at least 10 minutes.
- Check to ensure the indoor and outdoor fans have stopped before electrical wiring or periodical check.
- Protect the wires, drain pipes, electrical parts, etc. from rats or other small animals. If not protected, rats may gnaw at unprotected parts, which may lead to a fire.
- Avoid the contact of wires with the refrigerant piping, sheet metal edges and electrical components in unit. Otherwise, the wires may get damaged or even cause a fire.
- Use ELB(earth leakage breaker) with medium sensing rate (ELB with action time being equal to 0.1 seconds or less). Failing to do so may result in electric shock or a fire.
- The wires must be firmly secured. External force applied to terminals may cause a fire.
- It is forbidden to connect a plurality of power lines into one power terminal block. At the indoor unit side of air conditioner, power wiring can be extended through a power distribution box. Be sure to calculate the wiring capacity carefully, since excessively low wiring capacity may frequently cause fire.
- Do not start the system before all check points are thoroughly checked.

⚠CAUTION

- Tighten screws according to the following torque.

unit: N·m

M3.5:	1.2
M4:	1.0~1.3
M5:	2.0~2.4
M6:	4.0~5.0
M8:	9.0~11.0
M10:	18.0~23.0

- Wrap the accessory packing around the wires, and plug the wiring connection hole with the seal material to protect the product from any condensate or insects.
- Tightly secure the wires with the cord clamp inside the indoor unit.
- Secure the cable of the remote control switch using the cord clamp inside the electrical box

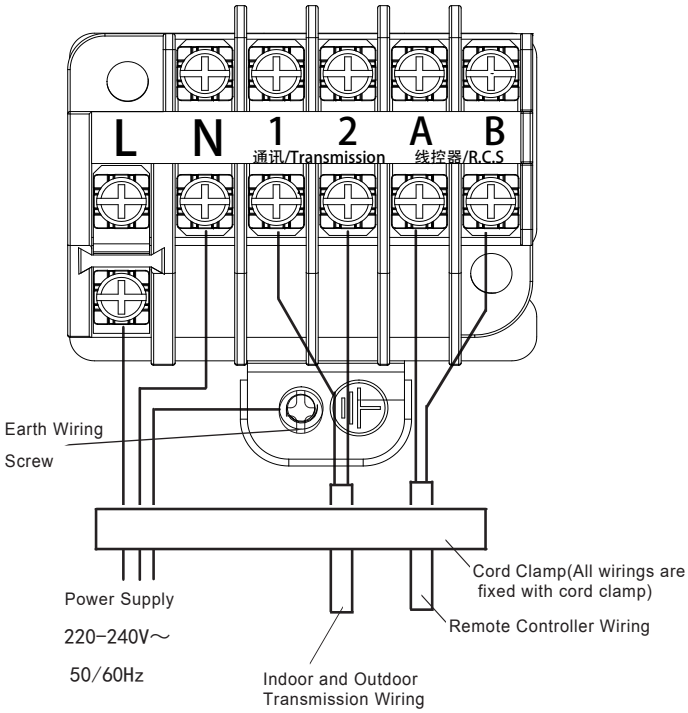
18.1 General Check

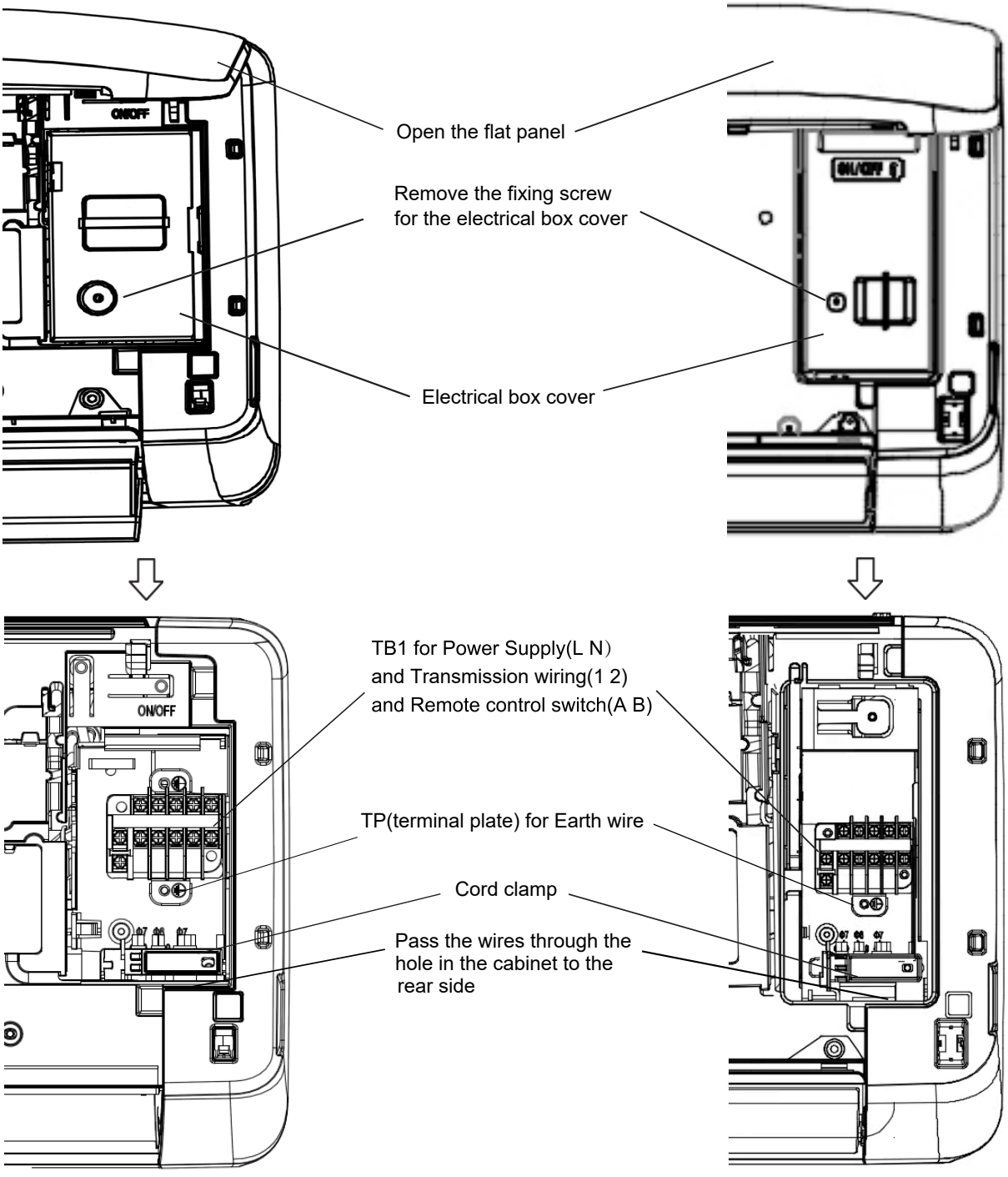
(1) Make sure that the field-supplied electrical components (main power switches, circuit breakers, wires, conduit connectors and wire terminals) have been properly selected according to the specified electrical data. Make sure that the components comply with National Electrical Code (NEC).
(2) Use shielded twist pair cable for control cable between outdoor unit and indoor unit, control cable between indoor units and remote control switch.
(3) Check to ensure that the power supply voltage is within ±10% of the rated voltage.
(4) Check the capacity of the electrical wires In case of low capacity, the system cannot start due to the voltage drop.
(5) Check to ensure that the earth wire is connected.
(6) Power Source Main Switch. Install a multi-pole main switch with a space of 3.5mm or more between each phase.

18.2 Electrical Wiring Connection

The electrical wiring connection for the indoor unit is shown in figure.

(1) Connect the wires of an optional remote control switch to A, B terminals of the terminal board inside the electrical box through the connecting hole in the cabinet.
(2) Connect the wires between the indoor unit and the outdoor unit to 1,2 terminals of the terminal board inside the electrical box through the connecting hole in the cabinet.
(3) Connect power supply wires to L, N and connect earth wire to the earth. Please connect to the power circuit with a ELB.
(4) Check to ensure that the terminal specification is applied to the screw (M3.5 for power supply and operating line) of the terminal box.
(5) Fix all the wires securely with cord clamp.





0.8-1.3HP

1.5-2.5HP

⚠CAUTION

- ELB must be connected to the power circuit. If not, it may lead to dangers.
- Apply the specified screw for terminal board (M4 for TB2 and M3.5 for TB1) and fasten the screw firmly.

NOTE

Wired and wireless remote control switches can not be used simultaneously. If wired remote control switch is connected, please disconnect the wire of signal receptor in the electrical box.

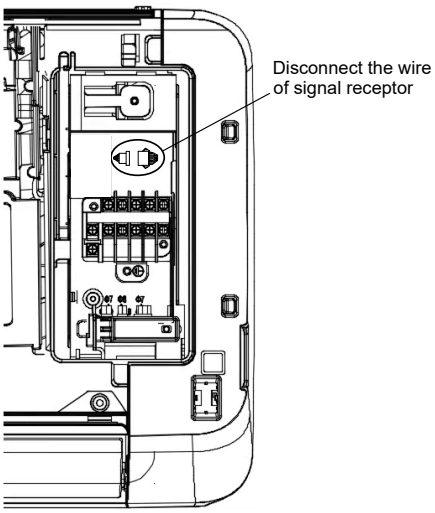


Fig. Connection description for signal receptor

19. Test Run

Test run should be performed according to “Installation & Maintenance Manual” of the outdoor unit.

⚠WARNING

- Do not operate the system until all the check points have been cleared.
  - (A) Check to ensure that the electrical resistance is more than 1 MΩ by measuring the resistance between ground and the terminal of the electrical parts. If not, do not operate the system until the electric leakage is located and repaired.
  - (B) Check to ensure that the stop valves of the outdoor unit are fully opened, and then start the system.
  - (C) Check to ensure that the switch on the main power source has been ON for more than 12 hours to warm up the compressor oil by the crankcase heater.
- Pay attention to the following items while the system is running.
  - (A) Do not touch any of the parts by hand at the discharge gas side, since the compressor chamber and the pipes at the discharge side are heated higher than 90°C.
  - (B) DO NOT PUSH THE BUTTON OF THE MAGNETIC SWITCH(ES). It will cause a serious accident.

20. Common

20.1 Field Minimum Wire Sizes for Power Supply

⚠WARNING

- Use an ELB (Electric Leakage Breaker). If not used, it will cause an electric shock or a fire.

Model (HP)	Power Source	Rated Current	Power Source Cable Size *1	Transmitting Cable Size *1
0.8	220-240V~ 50/60Hz	0.36A	1.5mm^2	0.75mm^2
1.0		0.36A		
1.3		0.43A		
1.5		0.38A		
1.8		0.51A		
2.0		0.45A		
2.3		0.58A		
2.5		0.75A		

Total Current (A)	Wire(mm^2)	
I ≤ 6	2.5	※1 DO NOT connect wires in series when the current exceeds 63A.
6 < I ≤ 10	2.5	
10 < I ≤ 16	2.5	
16 < I ≤ 25	4	
25 < I ≤ 32	6	
32 < I ≤ 40	10	
40 < I ≤ 63	16	
63 < I	※1	

Note:

(1) Field wiring shall be in conformity to local laws and regulations, and all wiring operations must be performed by qualified professionals.

(2) Refer to relevant standards for above-noted power cord size.

(3) Where power cord is connected through junction box, be sure to determine the total current and choose wires based on the table below.

(4) As a minimum, the chosen power cord shall be compliant with requirements on neoprene sheathed wire #57 as stated in IEC 60245-1, while the power cord shall be made from copper conductor.

(5) The wiring specifications for weak-current communication circuit shall not be lower than that for RVV(S)P shielded wires or equivalent, and the shielding layer shall be grounded.

(6) A switch that can ensure all-pole disconnection shall be installed between power supply and air conditioning unit in such a manner that the contact spacing shall not be less than 3mm.

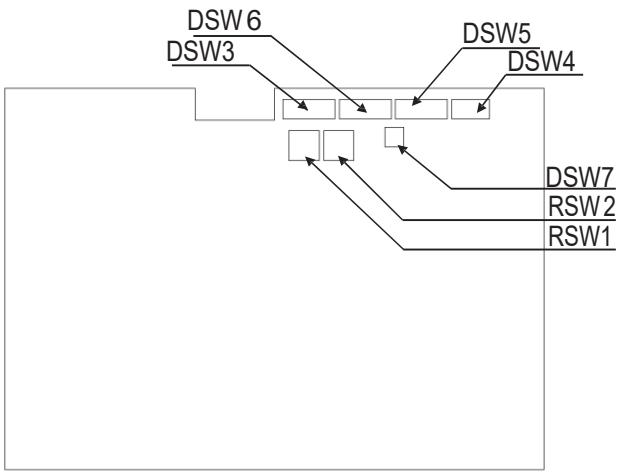
(7) Once the power cord is damaged, the dealer or the professionals from designated maintenance department must be contacted in a timely manner for repair and replacement.

(8) For the installation of power cord, the ground wire must be longer than the current-carrying conductor.

20.2 Setting of Dip Switches

(1) DIP switch must be set with power sources of the indoor and outdoor units in OFF state. Otherwise, the settings are invalid.

(2) The DIP switches are located as shown in the figure below.



(3) The PCB in the indoor unit is equipped with 2 rotary switches and 5 dip switches. Before testing unit, set these dip switches according to the following instructions. Unless these dip switches are set in the field, the unit can not be operated.

(A) Unit No. Setting (RSW1&DSW6):
The indoor unit numbers of all indoor units are not required. The indoor unit numbers are set by the auto -address function. If the indoor unit number setting is required, set the unit numbers of all indoor units respectively and serially by following setting positions. It is recommended to assign a number to each indoor unit beginning with “1”. Though a maximum of 64 indoor units per refrigerant system can be connected to the H-LINK II System, available number s range from 0 to 63. Therefore, the applicable number for the 64th indoor unit will be “0”.
For centralized control ,this setting isrequired.

Unit No. Setting

DSW6 (Tens Digit)	RSW1 (Units Digit)	Ex.) Set at No.16 Unit
ON / OFF 1 2 3 4 5 6	Setting Position; Set by inserting slotted screwdriver into the groove.	DSW6: ON / OFF 1 2 3 4 5 6; Set No.1 Pin ON; RSW1: Set at "6"
Before shipment, DSW6 and RSW1 are set to "0".		

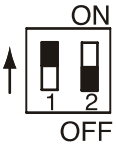
(B) Refrigeration Cycle No. Setting (RSW2&DSW5)
The refrigeration system codes of all indoor units are required to be set based on the position diagram below. All are set to OFF before delivery.

Refrigerant Cycle No. Setting

DSW5 (Tens Digit)	RSW2 (Units Digit)	Ex.) Set at No.5 Cycle
ON / OFF 1 2 3 4 5 6	Setting Position; Set by inserting slotted screwdriver into the groove.	DSW5: ON / OFF 1 2 3 4 5 6; Set All Pins OFF; RSW2: Set at "5"
Before shipment, DSW5 and RSW2 are set to "0".		

(4) Fuse Recover(DSW7)
No setting is required.
Setting position before shipment is at OFF.

Once strong current is accidentally connected to Terminals 1 and 2 of TB, the PCB fuse will be blown. In such a case, it’s essential to correct the wiring and then to set switch No. 1 to ON position.



NOTE

The“■” mark indicates position of dip switches Figures show setting before shipment.

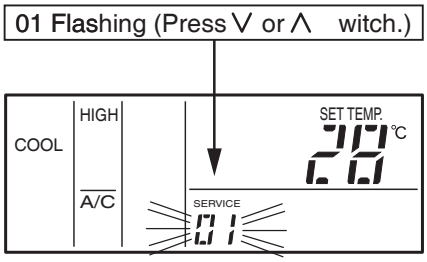
⚠CAUTION

Before setting dip switches, firstly turn OFF power source and set the position of the dip switches.1f the switches are set without turning OFF the power source, the switches can not function.

20.3 Setting the Filter Indication Interval

The FILTER indication interval on the remote control switch (PC-AR) can be set approximately 100, 1,200 or 2,500 hours (factory setting: 200 hours). If 100, 1,200 or 2,500 hours interval is required, follow the instructions below.

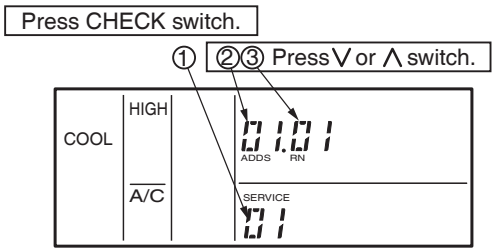
Step 1
Changing to Optional Setting Mode
Press the CHECK switch and the RESET switch together more than 3 seconds while the unit is stopped. The operation mode is changed to the field setting mode, "SERVICE" is indicated and "01" flashes. When "01" is not indicated, press the ∨ or ∧ switch and set "01". In this condition, press the CHECK switch and the mode is changed to the optional setting mode.



Step 2
Selection of Indoor Unit for Optional Setting
When the mode is changed to the optional setting mode, the indication on the liquid crystal display is as shown below.

(1) The flashing indication of "01" stops.
(2) The address of the indoor unit for optional setting is indicated.
(3) The address of the refrigerant system for optional setting is indicated.

Select the indoor unit to set by pressing the ∨ or ∧ switch and indicate the address of the indoor unit. In this condition, press the CHECK switch (or leave this condition for 7 seconds) and the indication is changed to the indication of optional setting.



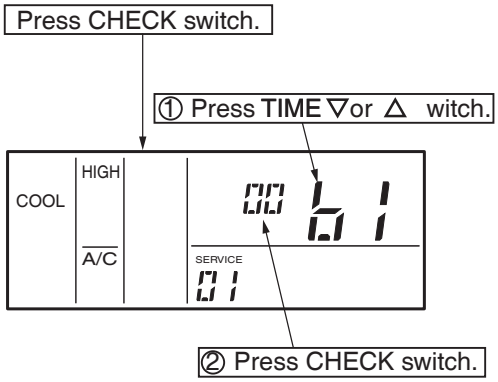
NOTE

A. In case that the both indications of the ADDS. (Address) and RN. (Refrigerant Cycle Number) show "AA", the same setting is performed to all the indoor units.
B. The indoor units not connected are not indicated.

Step 3
Optional Setting Items and Changing Setting Conditions
The indication of optional setting is as shown below.

(1) The code of optional setting is as shown below.
(2) The indications of ADDS. and RN. are turned OFF and the optional setting condition is indicated.

The item code of optional setting is changed by pressing the TIME △ or ▽ switch. The optional setting condition is changed by pressing the CHECK switch. Set the item code to "b4".
In case of setting other indoor unit, press the ∨ or ∧ switch and the indication is changed to the condition of the item "Step 2 Selection of Indoor Unit for Optional Setting".



The relation between the indication and the interval is shown in the table below.

FILTER Indication Interval				
Approx. 100 hr.	Approx. 200 hr.	Approx. 1,200 hr.	Approx. 2,500 hr.	No Indication
b4 01	b4 00(*)	b4 02	b4 03	b4 04

(*): Standard

Step 4
Canceling Optional Setting Mode
Press the RESET switch in the condition of Step 2 or Step 3, the condition is changed to the standard condition.

NOTE

The label for checking the contents of the setting is attached to the holding bracket. Write down the contents of the setting on the label.

Hitachi - Johnson Controls Air Conditioning

Add.: 1-16-1, Kaigan Minato-ku, Tokyo 105-0022, Japan

Specifications in this catalogue are subject to change without notice, in order that Hitachi-Johnson Controls may bring the latest innovations to customers.

TCY22021001A