

Comfort Range**DC Inverter Split system for Wall / ceiling mounting****DC INVERTER
R410A**

Heat pump



The appliance shall not be installed in the laundry.

NOTE: This manual is for the single split application.
For multi split applications please use installation manual supplied
within outdoor unit package.



IT IS MANDATORY TO CUT OFF POWER SUPPLY BEFORE STARTING TO WORK IN THE ELECTRIC CASING BOXES.

GENERAL RECOMMENDATIONS

- *Congratulations for having selected an our air conditioner.*


SAFETY DIRECTIONS

- *Follow the safety rules in force when you are working on your appliance.*
- *Installation and maintenance of the equipment must only be performed by qualified specialists in accordance with the rules of good workmanship and prevailing standards and instructions.*
- *Make sure that the power supply and its frequency are adapted to the required electric current of operation, taking into account specific conditions of the location and the current required for any other appliance connected with the same circuit.*


WARNING

- *Cutoff power supply before starting to work on the appliance. The manufacturer declines any responsibility and the warranty becomes void if these instructions are not respected.*
- *If you meet a problem, please call the Technical Department of your area.*
- *If possible, assemble the mandatory or optional accessories before placing the appliance on its final location.(see instructions provided with each accessory)*
- *In order to become fully familiar with the appliance, we suggest to read also our Technical Instructions.*
- *The information contained in these Instructions are subject to modification without advance notice.*
- *For appliances with supplementary heaters, the minimum clearance from the appliance to combustible is 50cm other wise, it will cause fire.*

PRECAUTIONS

 Danger	This sign warns of death or serious injury.
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- Do not attempt to install this air conditioner by yourself.
- This unit contains no user-serviceable parts. Always consult authorized service personnel for repairs.
- When moving, consult authorized service personnel for disconnection and installation of the unit.
- Do not become excessively chilled by staying for lengthy periods in the direct cooling airflow.
- Do not insert fingers or objects into the outlet port or intake grilles.
- Do not start and stop air conditioner operation by disconnecting the power supply cord and so on.
- Take care not to damage the power supply cord.
- In the event of a malfunction (burning smell, etc.), immediately stop operation, disconnect the power supply plug, and consult authorized service personnel.
- If the power supply cord of this appliance is damaged, it should only be replaced by the authorized service personal, since special purpose tools and specified cord are required.
- The appliance is not intended for use by young children of infirm persons without supervision.
- Please pre-heat the air conditioner for at least 12 hours before operation. If use it for a long time, please keep the power on.

 Caution	This sign warns of damage to property.
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- Provide occasional ventilation during use.
- Do not direct air flow at fireplaces or heating apparatus.
- Do not climb on, or place objects on, the air conditioner.
- Do not hang objects from the indoor unit.
- Do not set flower vases or water containers on top of air conditioners.
- Do not expose the air conditioner directly to water.
- Do not pull power supply cord.
- Turn off power source when not using the unit for extended periods.
- Check the condition of the installation stand for damage.
- Do not place animals or plants in the direct path of the air flow.
- Do not drink the water drained from the air conditioner.
- Do not use in applications involving the storage of foods, plants or animals, precision equipment, or art works.
- Connection valves become hot during Heating; handle with care.
- Do not apply any heavy pressure to radiator fins.
- Operate only with air filters installed.
- Do not block or cover the intake grille and outlet port.
- Ensure that any electronic equipment is at least one metre away from either the indoor or outdoor units.
- Avoid installing the air conditioner near a fireplace or other heating apparatus.
- When installing the indoor and outdoor unit, take precautions to prevent access to infants.
- Do not use inflammable gases near the air conditioner.

OPERATION TIPS

- Set a suitable room temperature; excessively low room temperature is not good for your health and wastes electricity. Avoid frequent setting of the temperature.
- During cooling, avoid direct sun. Keep curtains and blinds closed. Close doors and windows to keep the cool air in the room.
- Avoid generating heat or using of heating appliances while the air conditioner in cooling mode.
- Make sure that the air flap is positioned properly: horizontal flow in cooling and downward vertical flow for heating.
- Keep the room temperature uniform by adjusting the left/right vertical air blades.
- Position the air flap and the left/right air blades in such a manner as to prevent your body from being exposed directly to air drafts.
- During prolonged operation, ventilate the room occasionally by opening a window from time to time.
- In a power failure, the microprocessor memory is retained. When restarted, operation will be resumed in the last mode of operation. However, if the timer was used, the unit will be turned off by the timer only if the remote control is aimed at the unit. Otherwise the power failure will cause the timer data to be erased from the microprocessor memory.
- After turning on, allow more than 3 minutes for cooling, heating or dry operation to start.
- When DRY mode is used, make sure that the room temperature is between 20°C and 27°C. When used out of this range, the unit may protect itself and become inoperative.
- When COOL or DRY modes are used, make sure that the room's relative humidity is below 78%. If the unit is used for a prolonged periods of time in high humidity, moisture may form on the air outlet and drip down.
- Remote control signals may not be received if the indoor unit controls cover is exposed to direct sunlight or strong light. In such a case, block the sunlight or dim the lighting.
- The remote control is operative in a range of 8 meters. If you are out of range, the remote control may have difficulties in transmitting signals.

SUMMARY

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INSTALLATION

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INSTALLATION/SERVICE TOOLS

CAUTION

New Refrigerant Air Conditioner Installation

THIS AIR CONDITONER ADOPTS THE NEW HFC REFRIGERANT (R410A) WHICH DOES NOT DESTROY OZONE LAYER. R410A refrigerant is apt to be affected by impurities such as water, oxidizing membrane, and oils because the working pressure of R410A refrigerant is approx. 1.6 times of refrigerant R22. Accompanied with the adoption of the new refrigerant, the refrigeration machine oil has also been changed. Therefore, during installation work, be sure that water, dust, former refrigerant, or refrigeration machine oil does not enter into the new type refrigerant R410A air conditioner circuit.








To prevent mixing of refrigerant or refrigerating machine oil, the sizes of connecting sections of charging port on main unit and installation tools are different from those used for the conventional refrigerant units. Accordingly, special tools are required for the new refrigerant (R410A) units. For connecting pipes, use new and clean piping materials with high pressure fittings made for R410A only, so that water and/or dust does not enter. Moreover, do not use the existing piping because there are some problems with pressure fittings and possible impurities in existing piping.

Changes in the product and components

In air conditioners using R410A, in order to prevent any other refrigerant from being accidentally charged, the service port diameter size of the outdoor unit control valve (3 way valve) has been changed. (1/2 UNF 20 threads per inch)

- In order to increase the pressure resisting strength of the refrigerant piping, flare processing diameter and opposing flare nuts sizes have been changed. (for copper pipes with nominal dimensions 1/2 and 5/8)

New tools for R410A

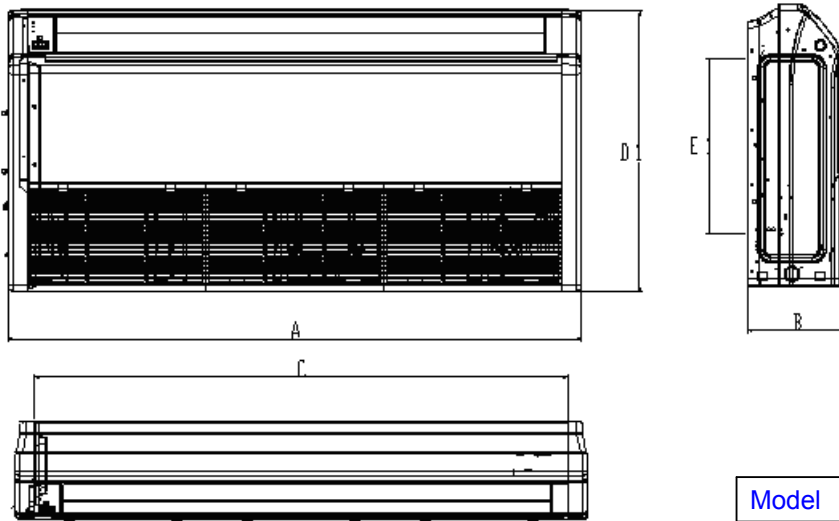
New tools for R410A	Applicable to R22 model	Changes
Gauge manifold	×	 As the working pressure is high, it is impossible to measure the working pressure using conventional gauges. In order to prevent any other refrigerant from being charged, the port diameters have been changed.
Charge hose	×	 In order to increase pressure resisting strength, hose materials and port sizes have been changed (to 1/2 UNF 20 threads per inch). When purchasing a charge hose, be sure to confirm the port size.
Electronic balance for refrigerant charging	○	 As working pressure is high and gasification speed is fast, it is difficult to read the indicated value by means of charging cylinder, as air bubbles occur.
Torque wrench (nominal dia. 1/2, 5/8)	×	 The size of opposing flare nuts have been increased. Incidentally, a common wrench is used for nominal diameters 1/4 and 3/8.
Flare tool (clutch type)	○	 By increasing the clamp bar's receiving hole size, strength of spring in the tool has been improved.
Gauge for projection adjustment	—	Used when flare is made by using conventional flare tool.
Vacuum pump adapter	○	 Connected to conventional vacuum pump. It is necessary to use an adapter to prevent vacuum pump oil from flowing back into the charge hose. The charge hose connecting part has two ports -- one for conventional refrigerant (7/16 UNF 20 threads per inch) and one for R410A. If the vacuum pump oil (mineral) mixes with R410A a sludge may occur and damage the equipment.
Gas leakage detector	×	 Exclusive for HFC refrigerant.

- Incidentally, the "refrigerant cylinder" comes with the refrigerant designation (R410A) and protector coating in the U.S.'s ARI specified rose color (ARI color code: PMS 507).
- Also, the "charge port and packing for refrigerant cylinder" requires 1/2 UNF 20 threads per inch corresponding to the charge hose's port size.

OPERATING TEMPERATURE RANGE

		Indoor		Outdoor	
		DB[°C]	WB[°C]	DB[°C]	WB[°C]
Cooling	Upper Limit	32	23	46	NA
	Lower Limit	21	15	-10	NA
Heating	Upper Limit	27	NA	24	18
	Lower Limit	10	NA	-15	-16

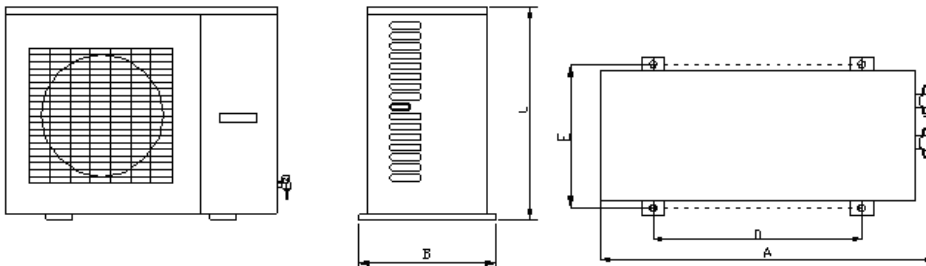
DIMENSIONS OF INDOOR UNIT



Unit: mm

Model	A	B	C	D	E
24K	1220	225	1158	700	280
30/36K	1420	245	1354	700	280
48K	1700	245	1634	700	280

DIMENSIONS OF OUTDOOR UNITS



Unit: mm

Model	A	B	L	D	E
24/30K	980	427	790	610	395
36K	1107	440	1100	631	400
48/60K	1085	427	1365	620	395

Indoor Unit Installation

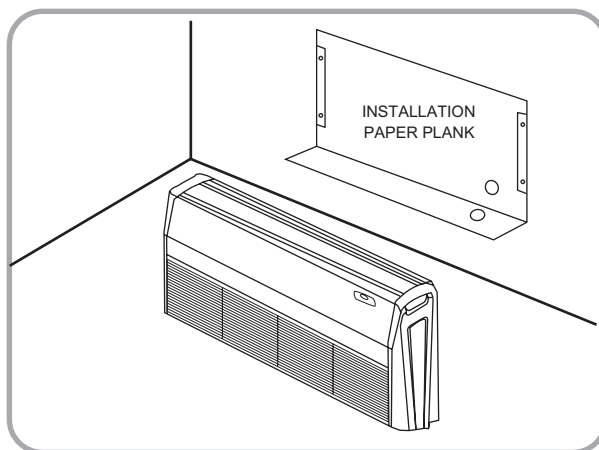
INSTALLATION INSTRUCTIONS

SELECTION OF INSTALLATION LOCATION.

- Such a place where is condensation water is easily drained out.
- Such a place that can handle the weight of indoor unit.
- Such a place which has easy access for maintenance.
- Such a place where is permitting easy connection with the outdoor unit.
- Such a place where is 1m or more away from other electric appliances such as television, audio device, etc.
- Avoid a location where there is heat source, high humidity or inflammable gas.
- Do not use the unit in the immediate surroundings of a laundry, a bath, a shower or a swimming pool.
- Be sure that the installation conforms to the installation dimension diagram.
- The space around the unit is adequate for ventilation

CAUTION FOR INSTALLATION WHERE AIR CONDITIONER TROUBLE IS LIKELY TO OCCUR.

- Where there is too much of oil.
- Where it is acid base area.
- Where there is irregular electrical supply.



THERE ARE 2 STYLES OF INSTALLATION.

- **CEILING TYPE**
- **FLOOR TYPE**

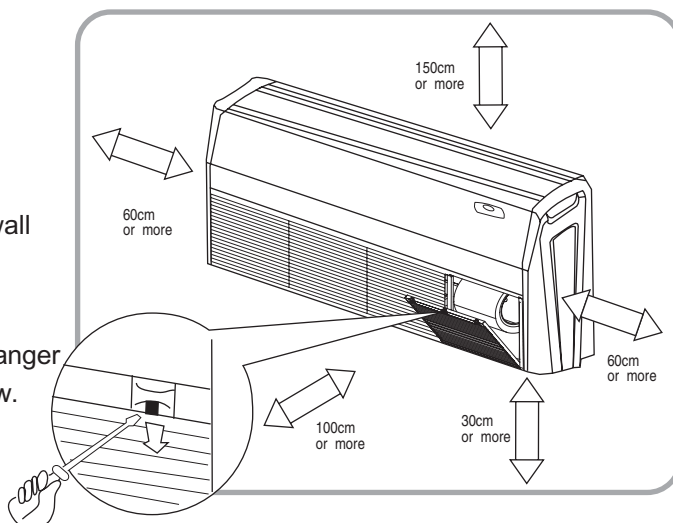
Each type is similar to the other as follows;

Determine the mounting position on ceiling or wall by using paper pattern to indicate indoor frame.

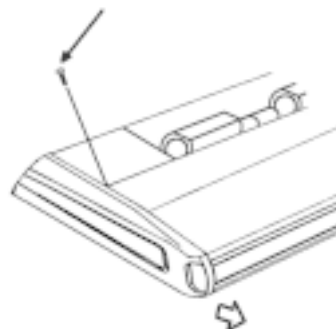
Mark the pattern and pull out the paper pattern.

Remove the return grill, the side panel and the hanger bracket from the indoor unit as per procedure below.

- Press the fixing knob of the return grilles, the grilles will be opened wider and then pull it out from the indoor.
- Remove the side panel fixing screw and pull to the front direction (arrow direction) to remove.
- Loosen two hanger bracket setting bolts (M8) on each side for less than 10mm. Remove two hanger bracket fixing bolts (M6) on the rear side. Detach the hanger bracket by pulling it backward



Side panel fixing screw (M4)



Set the suspension bolt.(Use W3/8 or M10 size suspension bolts)

- Adjust the distance from the unit to the ceiling slab beforehand.

Fix the hanger bracket to the suspension bolt. **⚠ WARNING**

- Make sure that extended suspension bolt from the ceiling stays inside the arrowed position. Readjust the hanger bracket when it is outside the arrowed position.(Refer to Fig.)
- Suspension bolt stays inside the cap of indoor unit. Never remove the cap.

Lift the unit and slide forward unit the dent.(Refer to Fig.)

Screw tightly both hanger bracket setting bolts(M8).(Refer to Fig.)

Screw tightly both hanger bracket fixing bolts(M6) to prevent the movement of the indoor unit.

(Refer to Fig.)

Adjust the unit height so that rear side of the drain pipe slightly inclines to improve drainage. **⚠ CAUTION**

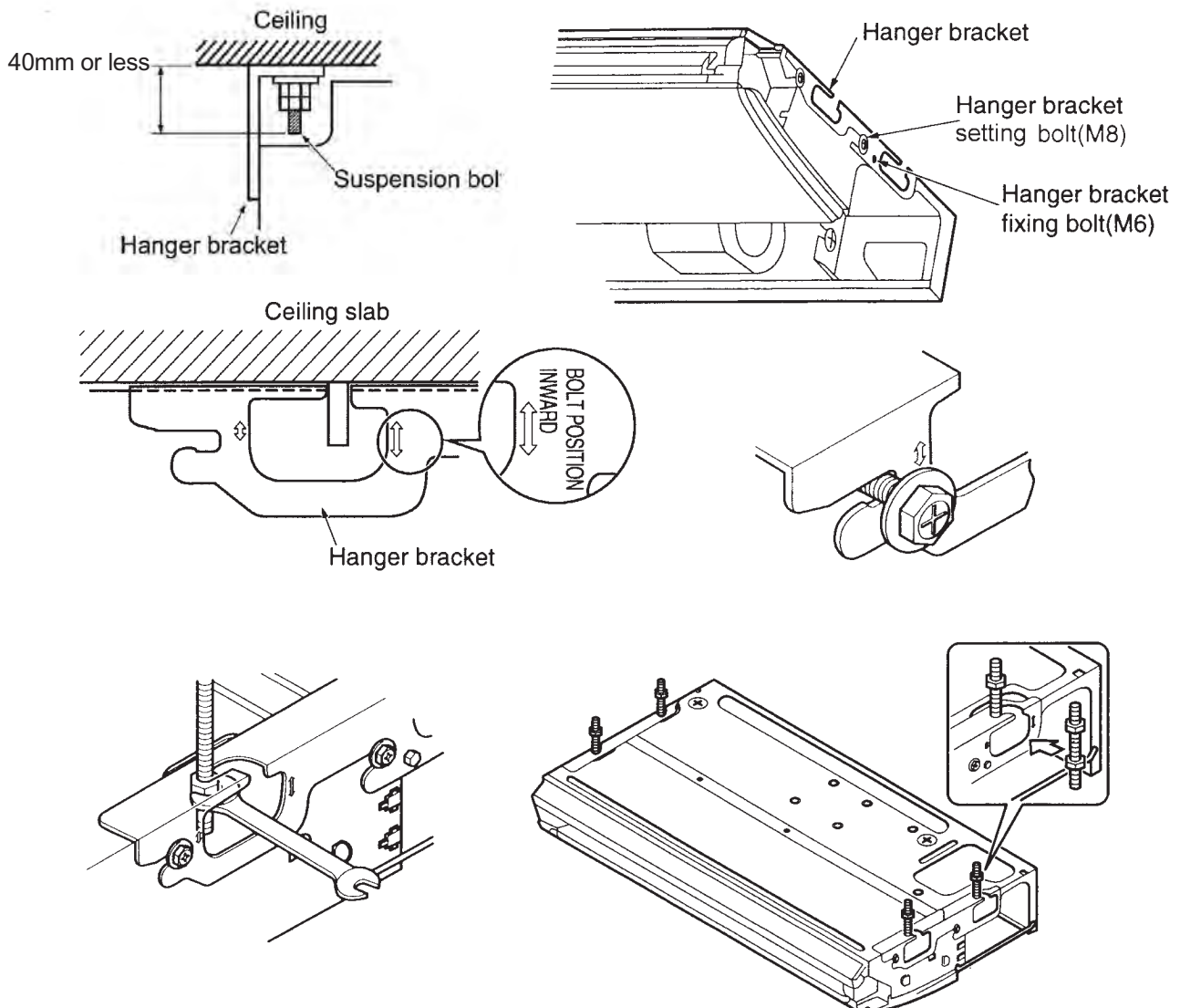
- Adjust the height by turning the nut with a spanner.

Insert the spanner from the hanger bracket opening.(Refer to Fig.)

In case of hanging

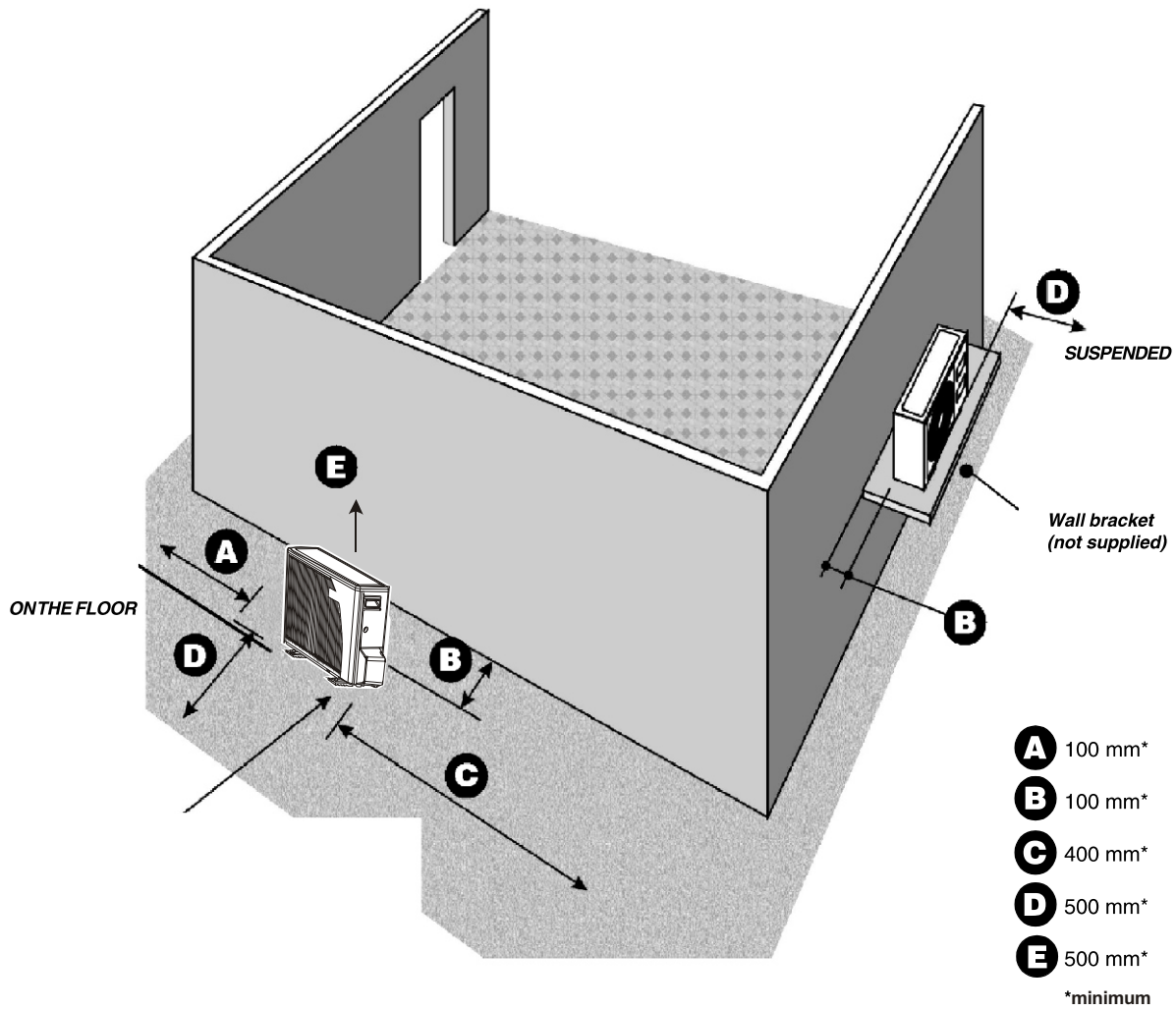
It is possible to install using inward facing hanger brackets by not removing the brackets from the indoor unit.(Refer to Fig.)

Be sure to use only the specified accessories and parts for installation work.

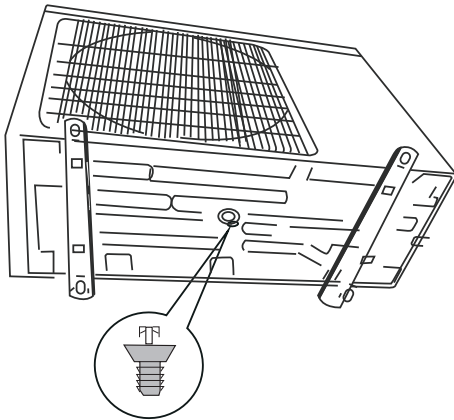


INSTALLATION OF THE OUTDOOR UNIT

- Minimum clearance to respect (in mm).



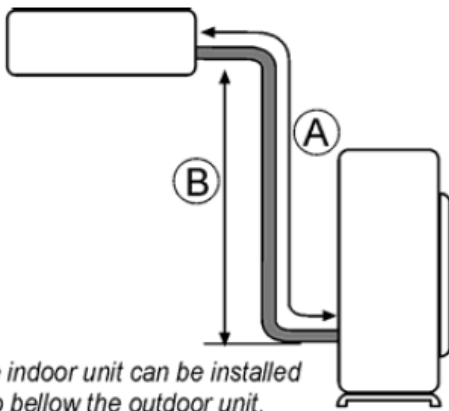
DRAINING CONDENSATES



CAUTION

If the heat pump outdoor unit is installed in an area where the outdoor temperature may fall below 0 + 1 C, it is mandatory to provide a system preventing any risk of freezing of the condensate (e.g.heating wire).

REFRIGERANT CONNECTIONS

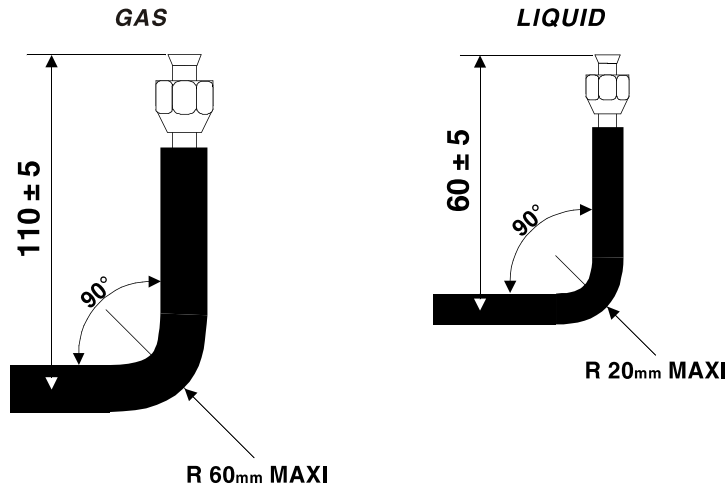


MAXIMUM PIPES LENGTH&HEIGHT			
MODEL	TUBES O.D	LENGTH(A)	HEIGHT(B)
024	3/8"-5/8"	30	15
030	3/8"-5/8"	30	15
036	3/8"-5/8"	30	15
036T	3/8"-5/8"	30	15
048	3/8"-5/8"	50	30
060	3/8"-3/4"	50	30

- The indoor unit may be installed above or below the unit
- The flare couplings are available as accessories in standard lengths of 2.5, 5 and 8m.
- The pipes are delivered coiled and equipped with flare nuts.
- Carefully uncoil the pipes in the opposite direction from the turns so as not to flatten them.

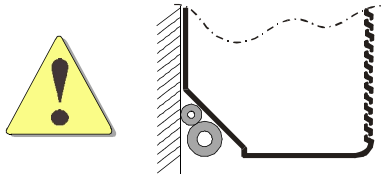
INSTALLATION OF TUBING ON WALL SUPPORT

- After choosing your coolant tubing input location (right, left or rear), you can set up your tubing. To do this, use the installation template in order to form the tubes correctly and thus facilitate connection.



INSTALLATION OF TUBING ON WALL SUPPORT

- Locate the LIQUID tube above the GAS tube.

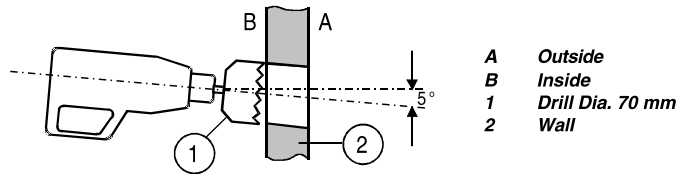


- Fit the nuts of the (for med) tubing into the recess provided on the template.
- Secure the tubing with the clamps provided.
- Remove the tubing template; you can now install your unit on its support.

NOTE

output to the rear

- The slanted hole prevents condensates or rain from entering the unit.
- Fit a Dia. 70 mm sleeve into the hole.

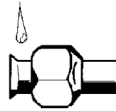


VACUUM OF COOLING PIPES AND INDOOR UNIT

- Only the outdoor unit is charged with R410A cooling fluid. The indoor unit contains a small quantity of a neutral gas. This the reason it is imperative to vacuum the linking pipes and the indoor unit.

ASSEMBLY

- The outdoor unit is equipped with a valve allowing to vacuum the installation (large valve)
- 1 Connect the connecting pipes to the outdoor unit by FLARE NUTS and to the indoor unit by BRAZING
- To obtain the right tightening, cover the sur face with cooling oil.



- The use of a counter wrench is required to tighten the valves.



- The values of the tightening torque are shown in the table below.

Ø of the Pipe	Torque
Pipe 1/4"	15-20 Nm
Pipe 3/8"	30-35 Nm
Pipe 1/2"	50-54 Nm
Pipe 5/8"	70- 75 Nm
Pipe 7/8"	90-95 Nm

- 2 Connect the vacuum pump with the flare coupling of the outdoor unit equipped with a process valve.
- 3 Start the vacuum pump and check that the needle of the indicator goes down to - 0,2 mm Hg. The pump should run during at least 15 minutes.
- 4 Before disconnecting the vacuum pump, check that the vacuum indicator remains in the same position during five minutes.
- 5 Disconnect the vacuum pump.
- 6 Remove the cap of the "GAS" and "LIQUID" valves and open them with a hexagonal wrench to free the R410A contained in the outdoor unit.
- 7 Check that the linking pipes are sealed. Use an electronic leak detector or a soapy sponge.

ELECTRICAL CONNECTION BETWEEN INDOOR AND OUTDOOR UNIT

ELECTRICAL REQUIREMENTS

Electrical wiring and connections should be made by qualified electricians and in accordance with local electrical codes and regulation. The air conditioner units must be grounded.

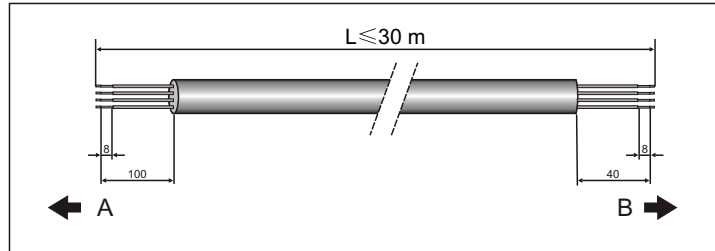
The air conditioner unit must be connected to an adequate power outlet from a separate branch circuit protected by a time delay circuit breaker, as specified on unit's nameplate.

Voltage should not vary beyond 10% of the rated voltage.

An all-pole disconnection switch having a contact separation of at least 3mm in all poles should be connected in fixed wiring.

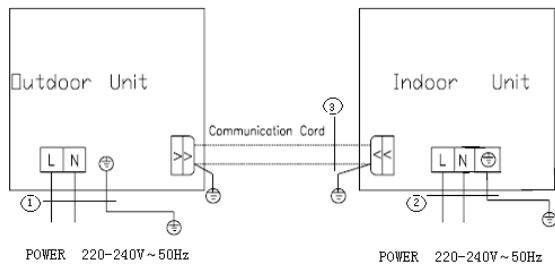
1. To connect the indoor unit to the outdoor unit use the following electrical cables.

• Cable between indoor and outdoor units



A. OUTDOOR B. INDOOR

Power supply 9K 12K 18K 24K 30K 36K (1 PH)

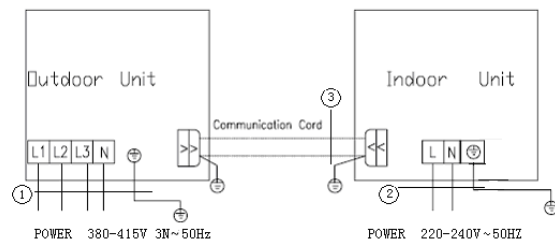


Electrical connections:

#	Desc.	24K	30K/36K (1 PH)	36/42/48/60K (3 PH)
①	Power Cable(ODU)	3 x 4.0 mm ²	3 x 6.0 mm ²	5 x 6.0 mm ²
②	Power Cable(IDU)		3 x 1.5 mm ²	
③	Communication		2 x 1.5 mm ²	




2. Prepare the needed cables for electrical connection.
3. Connect the cable ends to the terminals of the indoor and outdoor units.
4. Secure the multiple wire power cable with the cable clamps.

Power supply 36K (3PH) 42K 48K



NOTES: The wire color code can be selected by the installer.
The temperature of refrigerant circuit will be high, please keep the interconnection cable away from the copper tube.

INDICATOR LIGHTS AND CONTROLS ON THE UNIT

-  **A) HEATING INDICATOR**
*Lights during operation.
Heating and filtering the air in the room. Keeping the required ambient temperature.*
-  **B) COOLING INDICATOR**
*Lights during operation.
Cooling, humidifying and filtering the air in the room. Keeping the required ambient temperature.*
-  **7) POWER INDICATOR**
Lights as the unit is energised.

ACTIVE CHARCOAL FILTER

- An active charcoal filter and its support are supplied as accessories with your product. (1 per filter)
- in order to optimise air filtration, you can install it as follows.

MAINTENANCE AND REPAIR

BEFORE UNDERTAKING MAINTENANCE OPERATIONS, MAKE SURE THAT THE AIR CONDITIONER IS DISCONNECTED FROM THE MAINS.

Cleaning of air filter

Your air conditioner has an air filter clogging indicator light. When this indicator light F comes on, the filter must be cleaned.

- To remove the filter, pull the inlet grid forward and press the filters slightly downwards to unclip them.
- Reset the unit by pressing the Reset button. The filter indicator light F goes out.

Do not operate the air conditioner without the filter !

Cleaning of the air conditioner

- Rub the inside of the unit with a soft, dry cloth.
- Do not use hot water or volatile detergents, which could damage the face of the air conditioner.

Precautions to be taken

- Check that there are no obstacles preventing the flow of inlet air and pulsed air, on both the indoor and outdoor units.
- Check that the air conditioner is correctly connected.

Protection of the electronic system

- The indoor unit and the remote control must not be located less than one metre from a television set, a radio or any other electrical appliance, in order to avoid interference.
- Protect the unit against direct sunlight.

Replacement of the remote control batteries

- Remove the batteries from the remote control unit via the rear flap.
- Fit two new 1.5 V type **AAA** dry cell batteries.
- Used batteries must be recycled.

SERVICING

Routine servicing

- To ensure the correct operation of the installation, it is necessary to have preventive maintenance of the indoor and outdoor units carried out by qualified personnel.

General installation

- Carry out a visual inspection of the complete installation in service.
- Check the general cleanness of the installation, and check that the condensate evacuations are not blocked, particularly on the indoor unit, before the summer season.
- Check the condition of the tray.

OUTDOOR UNIT

Coolant system

- Clean the heat exchanger using a special product for aluminium-copper heat exchangers, and rinse with water. Do not use hot water or steam, as this could cause the pressure of the coolant to increase.
- Check that the surface of the aluminium fins of the heat exchanger is not damaged by impacts or scratches, and clean with an appropriate tool if necessary.

Electrical section

- Check that the main power supply cable is not damaged or altered in such a way as to affect the insulation.
- Check that the interconnecting cables between the two units are not damaged or altered, and that they are correctly connected.
- Check the earth connection.

INDOOR UNIT

- In order for the installation to operate correctly, it is essential to regularly clean the air filter located in the intake of the indoor unit.
- When clogged, the filter reduces the air flow through the heat exchanger of the indoor unit, which in turn reduces the efficiency of the installation and inhibits the cooling of the fan motor.
- Check the cleanness of the indoor heat exchanger.

CAUTION

BEFORE CARRYING OUT ANY OPERATION ON THE EQUIPMENT, CHECK THAT THE ELECTRICAL POWER SUPPLY IS SWITCHED OFF AND THAT IT CANNOT BE SWITCHED ON INADVERTENTLY.