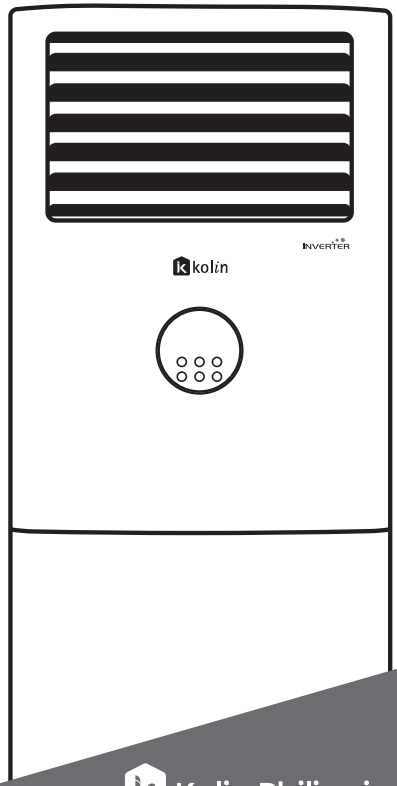
OWNER'S MANUAL

FLOOR MOUNTED INVERTER AIR CONDITIONER



MODEL:

KL-IF40-G6H1M32

KL-IF60-G6H1M32

Kolin Philippines International, Inc.

Please read this owner's manual before operation and retain it for future reference.

Content

Operation Notices

The Refrigerant 2
Precautions 3
Parts Name 8

Operation Guide

Button's Name and Function 9
Icon function introduction 11
Buttons on remote controller 12
Introduction for icons on display screen 12
Introduction for buttons on remote controller 13
Function introduction for combination buttons 17
Replacement of batteries in remote controller 18

Maintenance

Clean and maintenance 19

Malfunction

Malfunction 21
Safety operation of flammable refrigerant 25

Installation Notice

Installation dimension diagram 27
Safety precautions for installing and relocating the unit 28
Tools for installation 29
Selection of installation location 29
Requirements for electric connection 30

Installation

Installation of indoor unit 31
Installation of outdoor unit 35
Vacuum pumping 38
Leakage detection 38
Check after installation 39
Test operation 39

Attachment

Installation instructions of anti-collapse chain 40
Configuration of connection pipe 41
Pipe expanding method 43
Specialist's Manual 44

This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.
Children should be supervised to ensure that they do not play with the appliance.

Explanation of Symbols

⚠ DANGER	Indicates a hazardous situation that, if not avoided, will result in death or serious injury.
⚠ WARNING	Indicates a hazardous situation that, if not avoided, could result in death or serious injury.
⚠ CAUTION	Indicates a hazardous situation that, if not avoided, may result in minor or moderate injury.
NOTICE	Indicates important but non-hazard-related information, used to indicate risk of property damage.
	Indicates a hazard that would be assigned a signal word WARNING or CAUTION.

Exception Clauses

The manufacturer will bear no responsibility for personal injury or property loss caused by the following reasons:

- Damage to the product due to improper use or misuse.
- Modifying, altering, maintaining, or using the product with other equipment without following the manufacturer's instruction manual.
- Verified defects in the product directly caused by exposure to corrosive gases.
- Verified defects due to improper handling during transportation.
- Operating, repairing, or maintaining the unit without following the instruction manual or related regulations.
- Verified issues or disputes caused by the quality, specifications, or performance of parts and components produced by other manufacturers.
- Damage caused by natural disasters, harsh environmental conditions, or force majeure.

For any air conditioner installation, relocation, or maintenance, please first contact the Kolin Service Hotline or its authorized service partners. All such work must be performed by authorized personnel to prevent serious damage, personal injury, or death.
If refrigerant leaks or requires discharge during installation, maintenance, or disassembly, it must be handled by certified professionals and in compliance with local laws and regulations.
Please note: This appliance includes an earth connection for functional purposes only. This is applicable only to models equipped with a ground wire from the PCB.

Appliance filled with flammable gas R32 refrigerant.

Before using the appliance, read the owner's manual first.

Before installing the appliance, read the installation manual first.

Before repairing the appliance, read the service manual first.

The Refrigerant

- To enable the proper functioning of the air conditioner unit, a special refrigerant circulates within the system. The refrigerant used is R32 fluoride, which undergoes special purification. R32 is a flammable and odorless refrigerant. Under certain conditions, it may lead to an explosion. However, its flammability is very low and can only be ignited by an open flame.
- Compared to common refrigerants, R32 is an environmentally friendly option that does not harm the ozone layer. It also has a lower impact on the greenhouse effect. Additionally, R32 has excellent thermodynamic properties, resulting in high energy efficiency. As a result, the units require a smaller refrigerant charge.

WARNING:

Do not use means to accelerate the defrosting process or to clean, other than those recommended by the manufacture. Should repair be necessary, contact your nearest Authorized Service Partner. Any repairs carried out by unqualified personnel may be dangerous. The appliance shall be stored in a room without continuously operating ignition sources. (for example: open flames, an operating gas appliance or an operating electric heater.) Do not pierce or burn.

Appliance shall be installed, operated and stored in a room with a floor area larger than X m^2. (Please refer to table "a" in section of " Safety operation of flammable refrigerant " for Space X.) (See page 25)

Appliance filled with flammable gas R32. For repairs, strictly follow manufacturer's instructions only. Be aware that refrigerants may not contain an odour. Read specialist's manual.

Precautions

WARNING

Operation and Maintenance

- This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved.
- Children shall not play with the appliance.
- Cleaning and user maintenance shall not be made by children without supervision.
- Do not connect air conditioner to multi-purpose socket. Otherwise, it may cause fire hazard.
- Do disconnect power supply when cleaning air conditioner. Otherwise, it may cause electric shock.
- If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard.
- Do not wash the air conditioner with water to avoid electric shock.
- Do not spray water on indoor unit. It may cause electric shock or malfunction.
- After removing the filter, do not touch fins to avoid injury.
- Do not use fire or hair dryer to dry the filter to avoid deformation or fire hazard.

Precautions

WARNING

- Maintenance must be performed by qualified professionals; otherwise, it may result in personal injury or damage.
- Do not attempt to repair the air conditioner yourself, as this may cause electric shock or damage. Please contact the dealer for repairs.
- Do not insert fingers or objects into the air inlet or air outlet, as this may cause personal injury or damage.
- Do not block the air outlet or air inlet, as this may cause malfunction.
- Do not spill water on the remote controller, as this may cause damage.
- If any of the following issues occur, turn off the air conditioner and disconnect the power immediately. Then, contact Kolin Service Hotline or its Authorized Service Partners for service.
  - The power cord is overheating or damaged.
  - There is an abnormal sound during operation.
  - The circuit breaker trips frequently.
  - The air conditioner emits a burning smell.
  - The indoor unit is leaking.
- If the air conditioner operates under abnormal conditions, it may result in malfunction, electric shock, or a fire hazard.
- When turning the unit on or off using the emergency operation switch, press the switch with an insulating object that is not made of metal.
- Do not step on the top panel of the outdoor unit or place heavy objects on it, as this may cause damage or personal injury.

Precautions

WARNING

Installation

- Installation must be performed by qualified professionals; otherwise, it may result in personal injury or damage.
- Follow electrical safety regulations when installing the unit.
- According to local safety regulations, use a qualified power supply circuit and circuit breaker.
- Ensure a circuit breaker is installed. Failure to do so may cause malfunction.
- An all-pole disconnection switch with a contact separation of at least 3mm in all poles should be connected in fixed wiring.
- When selecting a circuit breaker with the appropriate capacity, refer to the following table-Grounding Requirement (see page 30).
- The air switch should include a magnetic buckle and a heating buckle function to protect against short circuits and overloads.
- The air conditioner must be properly grounded. Incorrect grounding may cause electric shock.
- Do not use an unqualified power cord.
- Ensure the power supply matches the air conditioner's requirements. Unstable power supply or incorrect wiring may result in electric shock, fire hazard, or malfunction.
- Install proper power supply cables before using the air conditioner.
- Properly connect the live, neutral, and grounding wires of thepower socket.
- Always cut off the power supply before performing any electrical or safety-related work.

Precautions

WARNING

- Do not turn on the power if the installation is not yet completed.
- If the supply cord is damaged, it must be replaced by the manufacturer, an Authorized Service Partner, or a similarly qualified professional to prevent hazards.
- The refrigerant circuit temperature will be high; keep the interconnection cable away from the copper tube.
- The appliance must be installed in compliance with national wiring regulations.
- Installation must follow NEC and CEC requirements and be performed by authorized personnel or our authorized service partners. For assistance, please contact the Kolin hotline.
- This air conditioner is a first-class electrical appliance and must be properly grounded using a specialized grounding device installed by a professional. Improper grounding may cause electric shock.
- The yellow-green wire in the air conditioner is the grounding wire and must not be used for other purposes.
- The grounding resistance must comply with national electrical safety regulations.
- The appliance must be positioned so that the plug remains accessible.
- All wiring for the indoor and outdoor units must be connected by a professional.
- If the power connection wire is too short, contact the supplier for a new one. Do not extend the wire yourself.

Precautions

WARNING

- For air conditioners with a plug, ensure that the plug remains accessible after installation.
- For air conditioners without a plug, a circuit breaker must be installed in the wiring.
- If the air conditioner needs to be relocated, only a qualified professional should perform the work.
- Otherwise, it may cause personal injury or damage.
- Choose a location that is out of reach of children and away from animals or plants. If unavoidable, install a protective fence for safety.
- The indoor unit should be installed close to the wall.
- The manufacturer provides installation and usage instructions for this product.

Working temperature range

	Indoor side DB/WB(℃)	Outdoor side DB/WB(℃)
Maximum cooling	32/23	43/26

NOTICE:

- The operating temperature range (outdoor temperature) for cooling only unit is 18℃~ 43℃.

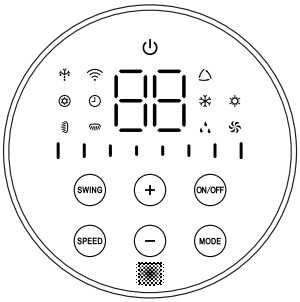
Special functions and instructions

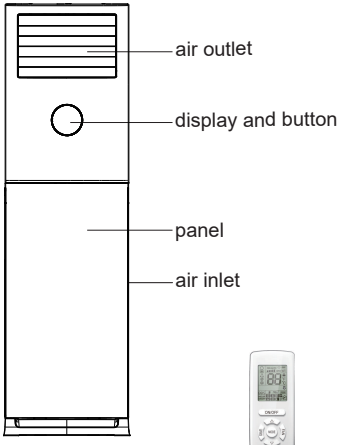
Sensor	Function
Temperature sensor	It's used for detecting ambient temperature and pipeline temperature.
Infrared receiver	Receive the infrared signal sent from the remote controller.

Parts' Name

Indoor Unit

display and button

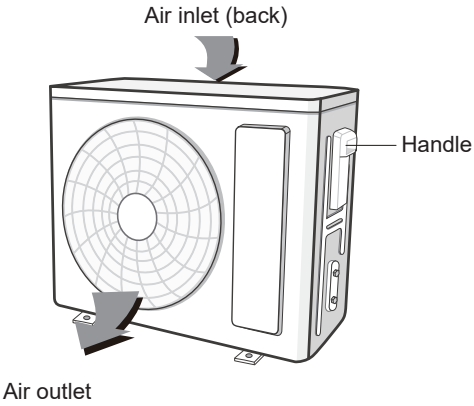




remote controller

(Display content or position may be different from above graphics, please refer to actual products)

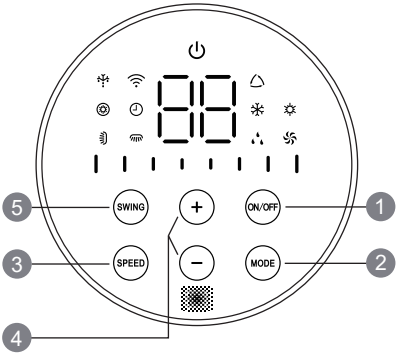
Outdoor Unit



NOTICE:

Actual product may be different from above graphics, please refer to actual products.

Button's Name and Function



1. ON/OFF button
2. MODE button
3. SPEED button
4. +/- button
5. SWING button

Note:

This series is without E-heater function.

1 ON/OFF button

This button controls ON and OFF. Every time you press this button, the device is switched on or off.

2 MODE button

Press the Mode button to select and display a running mode in the following order:

AUTO → Cool → Dry → Fan → Heat → AUTO

3 SPEED button

- Press this button and then fan speed can be selected and displayed in the sequence as below:

(low) → (medium) → (high) → (turbo)

(Note:Only low fan speed is available for dry mode. Fan speed can't be adjusted under dry mode. Turbo can only be set under cooling and heating modes.)

4 +/- button

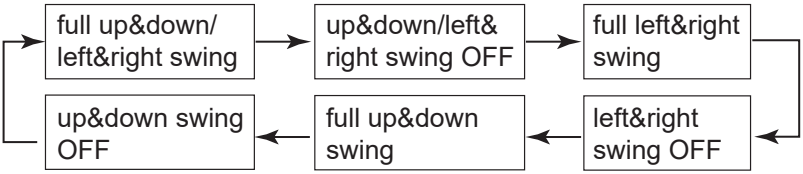
- After each pressing of " + " or " - " button, set temperature will increase or decrease 1℃. Temperature adjustment range is 16℃~30℃. (" + " and " - " are invalid in auto mode).

Button’s Name and Function

- Hold " + " and " - " buttons for 3s and the air conditioner will display "LC", which indicates buttons are locked. Any button under on status or ON/OFF button and function buttons under off status are all invalid. Hold these two button for 3s again to release the lock.

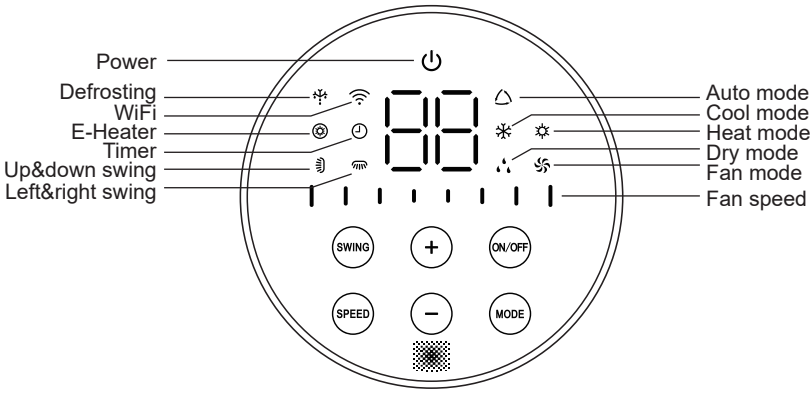
5 SWING button

Press this button can turn on or turn off up&down/left&right swing function; the circulation status is as below:



When fixed angle up&down/left&right swing has been set by the remote controller, press this button to set full up&down/left&right swing.

Icon function introduction



Power display

It indicates that the air conditioner is powered on. The indicator remains on in standby mode and does not turn off when the unit is operating.

Defrosting display

When this indicator is on, it indicates defrosting function is turned on.

WiFi display

When this indicator is on, it indicates WiFi function is turned on.

E-Heater display

When this indicator is on, it indicates the E-heater function is turned on.(Only available for some heat pump unit)

Timer display

When this indicator is on, it indicates timer function is turned on.

Up&down swing display

When this indicator is on, it indicates up&down swing is turned on.

Left&right swing display

When this indicator is on, it indicates left&right swing is turned on.

Auto display

When this indicator is on, it indicates auto mode is turned on.

Cooling display

When this indicator is on, it indicates cooling mode is turned on.

Dry display

When this indicator is on, it indicates dry mode is turned on.

Fan display

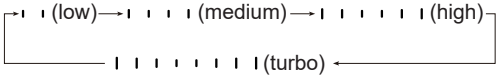
When this indicator is on, it indicates fan mode is turned on.

Heating display

When this indicator is on, it indicates heating mode is turned on.

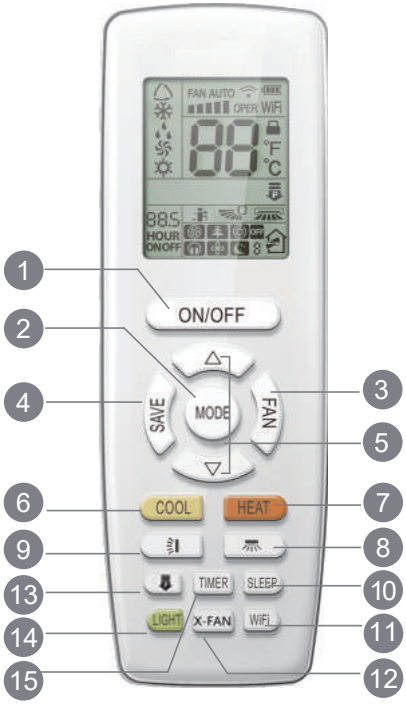
Fan speed display

Displays the fan speed. The fan speed is displayed as below:



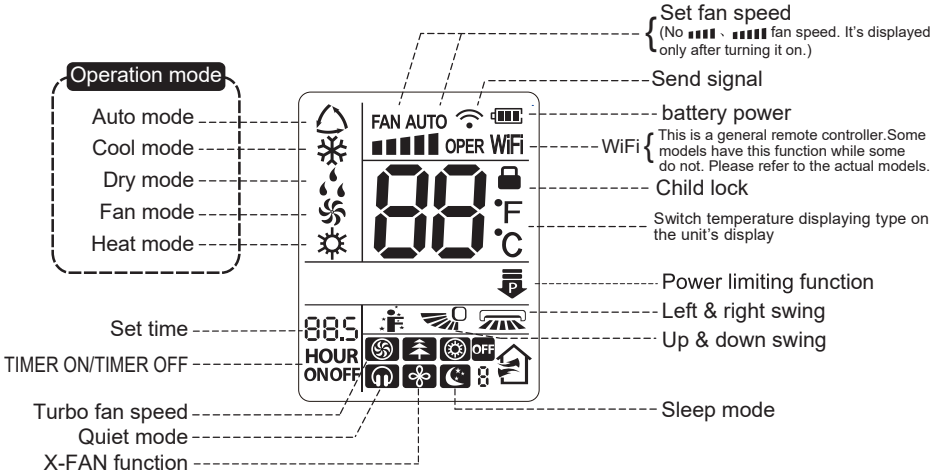
("QUIET" fan speed mode has the same display with "low" fan speed mode)

Buttons on remote controller



1. ON/OFF button
2. MODE button
3. FAN button
4. SAVE button
5. ▲/ ▼ button
6. COOL button
7. HEAT button
8. button
9. button
10. SLEEP button
11. WiFi button
12. X-FAN button
13. button
14. LIGHT button
15. TIMER button

Introduction for icons on display screen



Introduction for buttons on remote controller

Note:

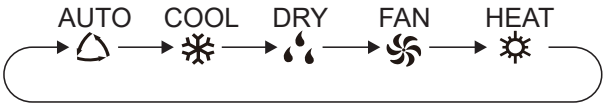
- This is a general use remote controller, it could be used for the air conditioners with multifunction; For some function, which the model doesn't have, if press the corresponding button on the remote controller that the unit will keep the original running status.
- After powering it on, the air conditioner will give out a sound. Operation indicator "⏻" is ON . After that, you can operate the air conditioner by using remote controller.
- When the air conditioner is on, pressing a button on the remote controller will cause the signal icon "📶"on the remote display to blink once. The air conditioner will emit a "di" sound, indicating that the signal has been received.

1 ON/OFF button

Pressing this button will turn the air conditioner on or off. When turned on, the indoor unit will emit a sound.

2 MODE button

Press this button to select your required operation mode.



- When selecting auto mode, air conditioner will operate automatically according to the sensed temperature. Set temperature can't be adjusted and will not be displayed as well. Press "FAN" button can adjust fan speed. Press "↕" / "↔" button can adjust fan blowing angle.
- After selecting cool mode, air conditioner will operate under cool mode. Cool indicator "❄" on indoor unit is ON(This indicator is not available for some models). Press "▲" or "▼" button to adjust set temperature. Press "FAN" button to adjust fan speed. Press "↕" / "↔" button to adjust fan blowing angle.
- When selecting dry mode, the air conditioner operates at low speed under dry mode. Dry indicator "💧" on indoor unit is ON(This indicator is not available for some models). Under dry mode, fan speed can't be adjusted. Press "↕" / "↔" button to adjust fan blowing angle.
- When selecting fan mode, the air conditioner will only blow fan, no cooling and no heating. Fan indicator "🌀" on indoor unit is ON. Press "FAN" button to adjust fan speed. Press"↕" / "↔" button to adjust fan blowing angle.

Introduction for buttons on remote controller

- When selecting heating mode, the air conditioner operates under heat mode. Heat indicator " ☼ " on indoor unit will turn ON(This indicator is not available for some models). Press "▲" or "▼" button to adjust set temperature. Press "FAN" button to adjust fan speed. Press " " / " " button to adjust fan blowing angle. (Cooling only unit won't receive heating mode signal. If setting heat mode with remote controlle, press ON/OFF button can't start up the unit).

Note:

- To prevent cold air from blowing out immediately, the indoor unit will delay airflow for 1 to 5 minutes after starting heating mode. (The actual delay time depends on the indoor ambient temperature.)
- Set temperature range from remote controller: 16~30℃(61~86°F);
  Fan speed: auto, quiet speed, low speed, medium speed, high speed, turbo speed.

3 FAN button

Pressing this button can set fan speed circularly as: auto (AUTO), QUIET( ), low( ), medium( ), high( ), turbo( ).

Note:

- In AUTO fan speed mode, the air conditioner will automatically adjust the fan speed based on the factory default settings.
- In Dry mode, the air conditioner operates at Low fan speed.
- Turbo mode cannot be selected in Fan mode.

4 SAVE button

Under cooling mode, press this button to start up or turn off energy-saving function. When energy-saving function is started up, "SE" will be shown on remote controller, and air conditioner will adjust the set temperature automatically according to ex-factory setting to reach to the best energy-saving effect. Press this button again to exit energy-saving function.

5 ▲/ ▼button

- Press "▲" or "▼" button once to increase or decrease set temperature by1℃(°F). Holding "▲" or "▼" button for 2 seconds will allow the temperature to change quickly. After releasing the button, the temperature indicator on the indoor unit will update accordingly. (Temperature cannot be adjusted under auto mode)
- When setting TIMER ON, TIMER OFF, press "▲" or "▼" button to adjust time. (Refer to TIMER button for details)

Introduction for buttons on remote controller

6 COOL button

● Press this button, unit will operate in cool mode.

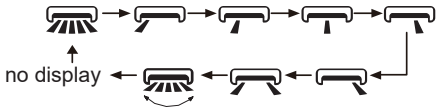
7 HEAT button (not applicable for this model)

● Press this button, unit will operate in heat mode.

8 button

● Under simple swing mode, pressing this button will turn on ("" icon is displayed) or turn off ("" icon is not displayed) the left&right swing function.

● When the unit is turned off by remote controller, press "▲" button and "" button can switch between single swing mode and fixed-angle swing mode. The "" icon on the remote controller will flash twice.
Pressing this button in Fixed-Angle Swing Mode will circulate the left & right swing angles in a sequence shown in the diagram:

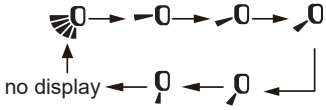


● This remote controller is the general type remote controller. When remote controller receives the signal of "" , swing status is same as "" ; when remote controller receives "" , swing status is same as left&right swing OFF.

9 button

● Under simple swing mode, press this button to turn on ("" icon is displayed) or turn off ("" icon is not displayed) the up&down swing function.

● When the unit is turned off by remote controller, press "▲" button and "" button to switch between single swing mode and fixed-angle swing mode. "" on the remote controller will flash twice.
Pressing this button in Fixed-Angle Swing Mode will circulate the up & down swing angles in a sequence shown in the diagram:



Introduction for buttons on remote controller

10 SLEEP button

Under COOL or HEAT mode, press this button to start up sleep function.
The " " icon will display on remote controller. Press this button again to cancel sleep function and " " icon will disappear.After powered on, Sleep Off is defaulted. After the unit is turned off, the Sleep function is canceled.
In this mode, set temperature will be adjusted with the change of time. Under Fan, DRY and Auto modes, this function is not available.

11 WiFi button

Press "WiFi" button to turn on WiFi function, "WiFi" icon will be displayed on the remote controller;
Hold "WiFi" button for 5s to turn off WiFi function and "WiFi" icon will disappear.
Under off status, press "MODE" and "WiFi" buttons simultaneously for 1s, WiFi module will restore factory settings.

12 X-FAN button (not applicable for this model)

Pressing this button in COOL or DRY mode, the icon " " is displayed and the indoor fan will continue operation for a few minutes in order to dry the indoor unit even though you have turned off the unit. After energization, X-FAN OFF is defaulted.X-FAN is not available in AUTO, FAN or HEAT mode.
This function indicates that moisture on evaporator of indoor unit will be blowed after the unit is stopped to avoid mould.

- Having set X-FAN function on: After turning off the unit by pressing ON/OFF button indoor fan will continue running for about a few minutes. at low speed. In this period, press X-FAN button to stop indoor fan directly.
- Having set X-FAN function off: After turning off the unit by pressing ON/OFF button, the complete unit will be off directly.
- Only under cooling mode and dry mode, press this button can turn on (characters of “X-FAN” are displayed) or turn off (characters of “X-FAN” are not displayed) X-FAN function.

13 button (not applicable for this model)

The function is for limiting power of the whole unit. Press this button, the controller will circularly display as the following:

- Maximum power limited under the mode is lower than that of mode.
- If you want to cancel the power limiting function, press the button till the icon in remote controller is not displayed.
- When the remote controller is turned off, power limiting function is cancelled. If you want to activate the function, please repress this button.

Introduction for buttons on remote controller

- If the current power is lower than the maximum power of mode, then the power will not be limited after entering into such mode.
- For the model with one outdoor unit and two indoor units, if any one of indoor units enters into power limiting function, the outdoor unit will enter into the set limiting power mode of indoor unit; when two indoor units enter into power limiting mode, then the power of outdoor unit will be limited according to the lower power of the two indoor units.

Note:

- This function is only available for some models.

14 LIGHT button

Press this button to turn off display light on indoor unit. Press this button again to turn on display light.

15 TIMER button

- At ON status, press this button once to set TIMER OFF. The character of HOUR and OFF will flash. Press "▲" or "▼" button within 5s to adjust the time of TIMER ON. After each pressing of "▲" or "▼" button, time will increase or decrease half an hour. When holding "▲" or "▼" button, 2s later, the time will change quickly until to reach to your required time. After that, press "TIMER" button to confirm it. The character of HOUR and OFF won't flash again.
  Cancel TIMER OFF: Press "TIMER" button again under TIMER OFF status.
- At OFF status, press this button once can set TIMER ON. Please refer to TIMER off for detailed operation.
  Cancel TIMER ON: Press "TIMER" button again under TIMER ON status.

Note:

- Time setting range: 0.5-24 hours.
- Time interval between two operations can't exceed 5s. Otherwise, remote controller will exit the setting status automatically.

Function introduction for combination buttons

Child lock function

Press "▲" and "▼" simultaneously to turn on or turn off child lock function. When child lock function is on, "🔒" icon is displayed on remote controller. If you operate the remote controller, the "🔒" icon will blink three times without sending signal to the unit.

Temperature display switchover function

Under OFF status, press "▼" and "MODE" buttons simultaneously to switch temperature display between ℃ and ℉ .

Replacement of batteries in remote controller

1. Lift the cover along the direction of arrow (as shown in Fig 1 ①).
2. Take out the original batteries (as shown in Fig 1 ②).
3. Place two 7# (AAA 1.5V) dry batteries, and make sure the position of “+” polar and “-” polar is correct (as shown in Fig 2③).
4. Reinstall the cover (as shown in Fig 2 ④).

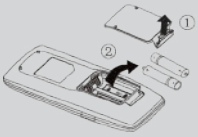


Fig.1

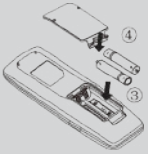


Fig.2

NOTICE

- During operation, point the remote control signal sender at the receiving window on indoor unit.
- The distance between signal sender and receiving window should be no more than 8m, and there should be no obstacles between them.
- Signal may be interfered easily in the room where there is fluorescent lamp or wireless telephone; remote controller should be close to indoor unit during operation.
- Replace new batteries of the same model when replacement is required.
- When you don’t use remote controller for a long time, please take out the batteries.
- If the display on remote controller is fuzzy or there’s no display, please replace batteries.

Clean and maintenance

Note:

- Turn off the air conditioner and disconnect the power before cleaning the air conditioner to avoid electric shock.
- Do not wash the air conditioner with water to avoid electric shock.
- Do not use volatile liquid to clean the air conditioner.
- Do not use liquid or corrosive detergent clean the appliance and do not splash water or other liquid onto it, otherwise, it may damage the plastic components, even cause electric shock.

Clean surface of indoor unit

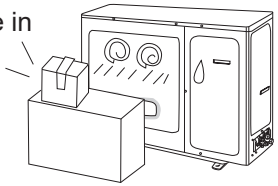
When the surface of indoor unit is dirty, it is recommended to use a soft dry cloth or wet cloth to wipe it.

Note:

- Do not remove the panel when cleaning it.

NOTICE: Checking before use-season

1. Check whether air inlet and air outlet are blocked.
2. Check whether circuit breaker, plug and socket are in good condition.
3. Check whether filter is clean.
4. Check whether the remote controller is installed with batteries.
5. Check whether mounting bracket for outdoor unit is damaged or corroded. If yes, please contact dealer.
6. Check whether drainage pipe is damaged.



Clean and maintenance

NOTICE: Checking after use-season

1. Disconnect power supply.
2. Clean filter and indoor unit's panel.
3. Clear dust and obstructions from the outdoor unit.
4. Check whether mounting bracket for outdoor unit is damaged or corroded. If yes, please contact Kolin Hotline.

Notice for recovery

1. Many packing materials are recyclable materials. Please dispose them in appropriate recycling unit.
2. If you want to dispose the air conditioner, please contact Kolin Service Hotline or consultant Authorized Service Partners for the correct disposal method.

Malfunction

General phenomenon analysis

Please check below items before asking for maintenance. If the malfunction still can't be eliminated, please contact local dealer or qualified professionals.

Phenomenon	Check items	Solution
Indoor unit can't receive remote controller's signal or remote controller has no action.	● Whether it's interfered severely (such as static electricity, stable voltage)?	● Pull out the plug. Reinsert the plug after about 3min, and then turn on the unit again.
	● Whether remote controller is within the signal receiving range?	● Signal receiving range is 8m.
	● Whether there are obstacles?	● Remove obstacles.
	● Whether remote controller is pointing at the receiving window?	● Select proper angle and point the remote controller at the receiving window on indoor unit.
	● Is sensitivity of remote controller low; fuzzy display and no display?	● Check the batteries. If the power of batteries is too low, please replace them.
	● No display when operating remote controller?	● Check whether remote controller appears to be damaged. If yes, replace it.
	● Fluorescent lamp in room?	● Take the remote controller close to indoor unit. ● Turn off the fluorescent lamp and then try it again.
Air conditioner can't operate	● Power failure?	● wait until power recovery.
	● Is plug loose?	● Reinsert the plug.
	● Circuit breaker trips off?	● Ask professional to replace it.
	● Wiring has malfunction?	● Ask professional to replace it.
	● Unit has restarted immediately after stopping operation?	● Wait for 3min, and then turn on the unit again.
	● Whether the function setting for remote controller is correct?	● Reset the function.

Malfunction

Phenomenon	Check items	Solution
Mist is emitted from indoor unit's air outlet	● Indoor temperature and humidity is high?	● Because indoor air is cooled rapidly. After a while, indoor temperature and humidity will be decrease and mist will disappear.
No air emitted from indoor unit	● Air inlet or air outlet of indoor unit is blocked?	● Eliminate obstacles.
	● Under heating mode, indoor temperature is reached to set temperature?	● After reaching to set temperature, indoor unit will stop blowing out air.
	● Heating mode is turned on just now?	● In order to prevent blowing out cold air, indoor unit will be started after delaying for several minutes, which is a normal phenomenon.
Set temperature can't be adjusted	● Unit is operating under auto mode?	● Temperature can't be adjusted under auto mode. Please switch the operation mode if you need to adjust temperature.
	● Your required temperature exceeds the set temperature range?	● Set temperature range: 16℃~30℃.
Cooling (heating) effect is not good.	● Voltage is too low?	● Wait until the voltage resumes normal.
	● Filter is dirty?	● Clean the filter.
	● Set temperature is in proper range?	● Adjust temperature to proper range.
	● Door and window are open?	● Close door and window.
Odours are emitted	● Whether there's odour source, such as furniture and cigarette, etc.	● Eliminate the odour source.
		● Clean the filter.

Malfunction

Phenomenon	Check items	Solution
Air conditioner operates normally suddenly	● Whether there's interference, such as thunder, wireless devices, etc.	● Disconnect power, put back power, and then turn on the unit again.
Outdoor unit has vapor	● Heating mode is turned on?	● During defrosting under heating mode, it may generate vapor, which is a normal phenomenon.
"Water flowing" noise	● Air conditioner is turned on or turned off just now?	● The noise is the sound of refrigerant flowing inside the unit, which is a normal phenomenon.
Cracking noise	● Air conditioner is turned on or turned off just now?	● This is the sound of friction caused by expansion and/or contraction of panel or other parts due to the change of temperature.

Malfunction

Error code

- When air conditioner status is abnormal, temperature indicator on indoor unit will blink to display corresponding error code. Please refer to below list for identification of error code.

Error code	Troubleshooting
H3	It can be eliminated after restarting the unit. If not, please contact qualified professionals to deal with it.
H6	It can be eliminated after restarting the unit. If not, please contact qualified professionals to deal with it.
E1	It can be eliminated after restarting the unit. If not, please contact qualified professionals to deal with it.
E3	It can be eliminated after restarting the unit. If not, please contact qualified professionals to deal with it.
E4	It can be eliminated after restarting the unit. If not, please contact qualified professionals to deal with it.
E5	It can be eliminated after restarting the unit. If not, please contact qualified professionals to deal with it.
E6	It can be eliminated after restarting the unit. If not, please contact qualified professionals to deal with it.
E8	It can be eliminated after restarting the unit. If not, please contact qualified professionals to deal with it.
e6	It can be eliminated after restarting the unit. If not, please contact qualified professionals to deal with it.
F0	Please contact qualified professionals to deal with it.
F1	Please contact qualified professionals to deal with it.
F2	Please contact qualified professionals to deal with it.
F3	Please contact qualified professionals to deal with it.
F4	Please contact qualified professionals to deal with it.
F5	Please contact qualified professionals to deal with it.

Note: If there're other error codes, please contact Kolin Service Hotline or its Authorized Service Partners for service.

⚠ WARNING

- If any of the following issues occur, turn off the air conditioner and disconnect the power immediately. Then, contact Kolin Service Hotline or its Authorized Service Partners for service.
  - The power cord is overheating or damaged.
  - There is an abnormal sound during operation.
  - The circuit breaker trips frequently.
  - The air conditioner emits a burning smell.
  - The indoor unit is leaking.
- Do not repair or refit the air conditioner by yourself.
- If the air conditioner operates under abnormal conditions, it may cause malfunction, electric shock or fire hazard.

Safety operation of flammable refrigerant

Qualification requirement for installation and maintenance man

- All the work men who are engaging in the refrigeration system should bear the valid certification awarded by the authoritative organization and the qualification for dealing with the refrigeration system recognized by this industry. If it needs other technician to maintain and repair the appliance, they should be supervised by the person who bears the qualification for using the flammable refrigerant.
- It can only be repaired by the method suggested by the equipment's manufacturer.

Installation notes

- The air conditioner is not allowed to use in a room that has running fire (such as fire source, working coal gas ware, operating heater).
- It is not allowed to drill hole or burn the connection pipe.
- The air conditioner must be installed in a room that is larger than the minimum room area. The minimum room area is shown on the nameplate or following table a.
- Leak test is a must after installation.

table a - Minimum room area (m^2)

	Charge amount (kg)	floor location	window mounted	wall mounted	ceiling mounted
Minimum room area(m^2)	≤1.2	/	/	/	/
	1.3	14.5	5.2	1.6	2.6
	1.4	16.8	6.1	1.9	2.8
	1.5	19.3	7	2.1	3
	1.6	22	7.9	2.4	3.2
	1.7	24.8	8.9	2.8	3.4
	1.8	27.8	10	3.1	3.6
	1.9	31	11.2	3.4	3.8
	2.0	34.3	12.4	3.8	4
	2.1	37.8	13.6	4.2	4.2
	2.2	41.5	15	4.6	4.4
	2.3	45.4	16.3	5	4.6
	2.4	49.4	17.8	5.5	4.8
	2.5	53.6	19.3	6	5
	2.6	58.1	20.9	6.5	5.2
	2.7	62.6	22.6	7	5.4
	2.8	67.4	24.3	7.5	5.6
	2.9	72.3	26	8.1	5.8
	3.0	77.3	27.9	8.6	6
	3.1	82.6	29.8	9.2	6.2
	3.2	88	31.7	9.8	6.6
	3.3	93.6	33.7	10.4	7
	3.4	99.3	35.8	11.1	7.4
	3.5	105.2	37.9	11.7	7.9
	3.6	111.3	40.1	12.4	8.3
	3.7	117.6	42.4	13.1	8.8
	3.8	124	44.7	13.8	9.3
	3.9	130.7	47.1	14.6	9.8
	4.0	137.4	49.5	15.3	10.3

Safety operation of flammable refrigerant

Maintenance notes

- Check whether the maintenance area or the room area meet the requirement of the nameplate.
  - It's only allowed to be operated in the rooms that meet the requirement of the nameplate.
- Check whether the maintenance area is well-ventilated.
  - The continuous ventilation status should be kept during the operation process.
- Check whether there is fire source or potential fire source in the maintenance area.
  - The naked flame is prohibited in the maintenance area; and the "no smoking" warning board should be hanged.
- Check whether the appliance mark is in good condition.
  - Replace the vague or damaged warning mark.

Welding

- If you should cut or weld the refrigerant system pipes in the process of maintaining, please follow the steps as below:
  a. Shut down the unit and cut power supply
  b. Eliminate the refrigerant
  c. Vacuuming
  d. Clean it with N_2 gas
  e. Cutting or welding
  f. Carry back to the service spot for welding
- The refrigerant should be recycled into the specialized storage tank.
- Make sure that there isn't any naked flame near the outlet of the vacuum pump and it's well-ventilated.

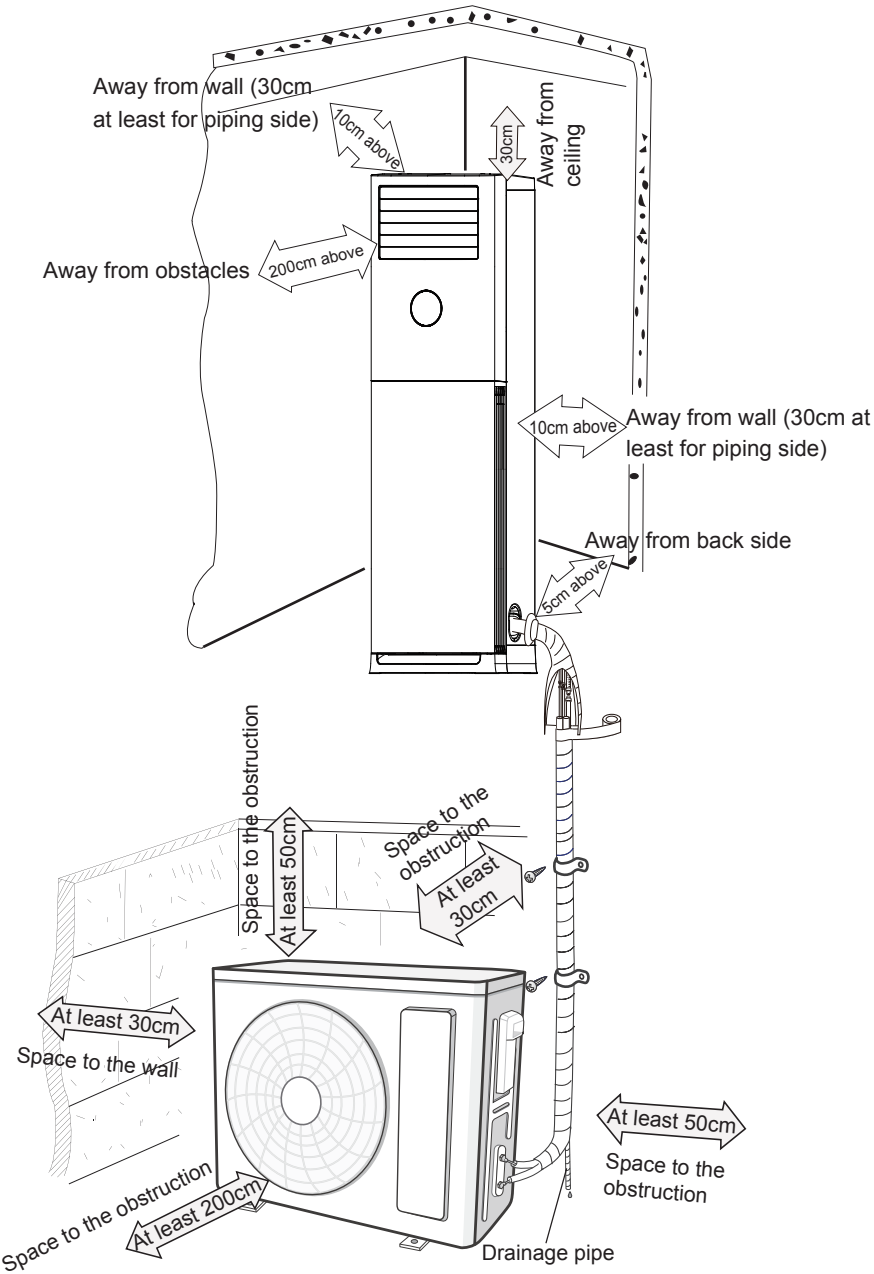
Filling the refrigerant

- Use the refrigerant filling appliances specialized for R32. Make sure that different kinds of refrigerant won't contaminate with each other.
- The refrigerant tank should be kept upright at the time of filling refrigerant.
- Stick the label on the system after filling is finished (or haven't finished).
- Don't overfilling.
- After filling is finished, please do the leakage detection before test running; another time of leak detection should be done when it's removed.

Safety instructions for transportation and storage

- Please use the flammable gas detector to check before unloading and opening the container.
- No fire source and smoking.
- Follow local rules and laws.

Installation dimension diagram



NOTICE:

Actual product may be different from above graphics, please refer to actual products.

Safety precautions for installing and relocating the unit

To ensure safety, please be mindful of the following precautions.

⚠ Warning

- **When installing or relocating the unit, be sure to keep the refrigerant circuit free from air or substances other than the specified refrigerant.**
  Any presence of air or other foreign substance in the refrigerant circuit will cause system pressure rise or compressor rupture, resulting in injury.
- **When installing or moving this unit, do not charge the refrigerant which is not comply with that on the nameplate or unqualified refrigerant.**
  Otherwise, it may cause abnormal operation, wrong action, mechanical malfunction or even series safety accident.
- **When refrigerant needs to be recovered during relocating or repairing the unit, be sure that the unit is running in cooling mode.Then, fully close the valve at high pressure side (liquid valve).About 30-40 seconds later, fully close the valve at low pressure side (gas valve), immediately stop the unit and disconnect power. Please note that the time for refrigerant recovery should not exceed 1 minute.**
  If refrigerant recovery takes too much time, air may be sucked in and cause pressure rise or compressor rupture, resulting in injury.
- **During refrigerant recovery, make sure that liquid valve and gas valve are fully closed and power is disconnected before detaching the connection pipe.**
  If compressor starts running when stop valve is open and connection pipe is not yet connected, air will be sucked in and cause pressure rise or compressor rupture, resulting in injury.
- **When installing the unit, make sure that connection pipe is securely connected before the compressor starts running.**
  If compressor starts running when stop valve is open and connection pipe is not yet connected, air will be sucked in and cause pressure rise or compressor rupture, resulting in injury.
- **Prohibit installing the unit at the place where there may be leaked corrosive gas or flammable gas.**
  If there leaked gas around the unit, it may cause explosion and other accidents.
- **Do not use extension cords for electrical connections. If the electric wire is not long enough, please contact Kolin Service Hotline or its Authorized Service Partners and ask for a proper electric wire.**
  Poor connections may lead to electric shock or fire.
- **Use the specified types of wires for electrical connections between the indoor and outdoor units. Firmly clamp the wires so that their terminals receive no external stresses.**
  Electric wires with insufficient capacity, wrong wire connections and insecure wire terminals may cause electric shock or fire.

Tools for installation

1 Level meter	2 Screw driver	3 Impact drill
4 Drill head	5 Pipe expander	6 Torque wrench
7 Open-end wrench	8 Pipe cutter	9 Leakage detector
10 Vacuum pump	11 Pressure meter	12 Universal meter
13 Inner hexagon spanner		14 Measuring tape

Note:

- Please contact Kolin Authorized Service Partners for installation.
- Don't use unqualified power cord.

Selection of installation location

Basic requirements

Installing the unit in the following places may cause malfunction. If it is unavoidable, please consult Kolin Service Hotline or its Authorized Service Partner:

1. The place near strong heat sources vapors, flammable or explosive gas, or volatile objects spread in the air.
2. The place with high-frequency devices (such as welding machine, medical equipment).
3. The place near coast area.
4. The place with oil or fumes in the air.
5. The place with sulfureted gas.
6. Other places with special circumstances.
7. Please try your best to keep way from fluorescent lamp.
8. It's not allowed to be installed on the unstable or motive base structure (such as truck) or in the corrosive environment (such as chemical factory).

Indoor unit

1. Avoid installing the indoor unit in a place where generated or leaked inflammable gas will stay.
2. Avoid installing the indoor unit in a moist place or in a place where oil may be splashed on the unit.
3. Select a location where outlet air may reach each corner of the room.
4. Select a location where connection pipe can be led to outdoor conveniently.
5. Select a location where air inlet and outlet won't be blocked.
6. Select a location with least affection of outdoor air.
7. Select a location with firm and flat floor.
8. Retain sufficient space for maintenance and installation.
9. Ensure the installation meets the requirement of installation dimension diagram.
10. Do not use the unit in the immediate surroundings of a laundry a bath a shower or a swimming pool.

Outdoor unit

1. Select a location where the noise and outflow air emitted by the outdoor unit will not affect neighborhood.
2. The location should be well ventilated and dry, in which the outdoor unit won't be exposed directly to sunlight or strong wind.
3. The location should be able to withstand the weight of outdoor unit.
4. Make sure that the installation follows the requirement of installation dimension diagram.
5. Select a location which is out of reach for children and far away from animals or plants. If it is unavoidable, please add fence for safety purpose.
6. The height difference between indoor unit and outdoor unit should be within at least less than 20 m. The length of the connection pipe should be at a maximum of 30 m. (See sheet 1-page 29)

Requirements for electric connection

Safety precaution

1. Must follow the electric safety regulations when installing the unit.
2. If the supply cord is damaged, it must be replaced by the manufacturer or its Authorized Service Partners or a similarly qualified person in order to avoid a hazard.
3. According to the local safety regulations, use qualified power supply circuit and circuit breaker.
4. A circuit breaker having a contact separation of at least 3mm in all poles should be fixed in fixed wiring.
5. The appliance shall be installed in accordance with national wiring regulation.
6. The circuit breaker must have the functions of magnetic tripping and heat tripping in order to prevent short circuit or overload.
7. Make sure the power supply matches with the requirement of air conditioner. Unstable power supply or incorrect wiring may result in electric shock, fire hazard or malfunction. Please install proper power supply cables before using the air conditioner.
8. Properly connect the live wire, neutral wire and grounding wire of power socket.
9. Be sure to cut off the power supply before proceeding any work related to electric safety.
10. Do not turn on the power if the installation is not yet completed.

Grounding requirement

1. The air conditioner is a first-class electrical appliance and must be properly grounded to ensure safety during operation. Grounding must be performed using a dedicated grounding device, and only by a qualified professional. Always make sure that the unit is effectively grounded to prevent the risk of electric shock.
2. The yellow-green wire in the air conditioner is the designated grounding wire. This wire is strictly for grounding purposes and must not be used for any other function.
3. The grounding resistance should comply with national electrical safety standards.
4. For short circuit and overload protection, include a Circuit Breaker with the capacity specified in the following table. Ensure this Circuit Breaker is equipped with magnetic and thermal trip functions. (Caution: Do not use only a fuse for circuit protection.)

Model	Capacity	Circuit Breaker
KL-IF40-G6H1M32	38,466 kJ/h (10.69 kW)	40A
KL-IF60-G6H1M32	58,140 kJ/h (16.15 kW)	60A

Installation of indoor unit

Step one: choosing installation location

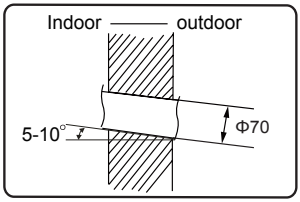
Recommend the installation location to the client and then confirm it with the client.

Step two: open piping hole

1. Choose the position of piping hole according to the direction of outlet pipe.
2. Open a piping hole with the diameter of Φ70 on the selected outlet pipe position. In order to drain smoothly, slant the piping hole on the wall slightly downward to the outdoor side with the gradient of 5-10°.

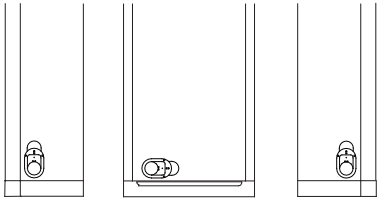
Note:

- Pay attention to dust prevention and take relevant safety measures when opening the hole.

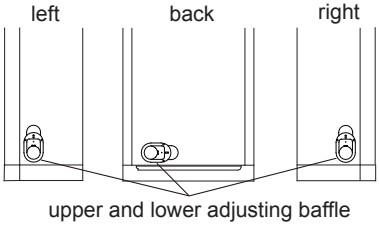


Step three: outlet pipe

1. The pipe can be led out in the direction of left, right or rear.

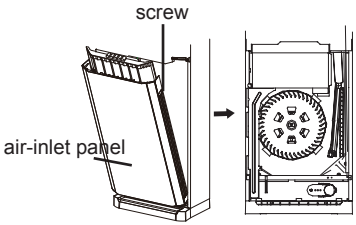


2. After confirming the direction of outlet pipe, loosen the screws at the upper and lower adjusting baffle to let the connection pipe /drain pipe connects the indoor unit.



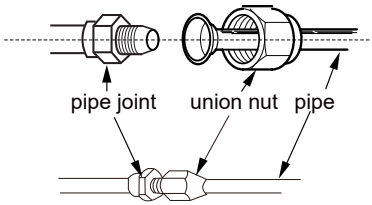
Step four: connect the pipe of indoor unit

1. Take out the left and right screw cover and then remove the screws on air-inlet panel to remove the panel.

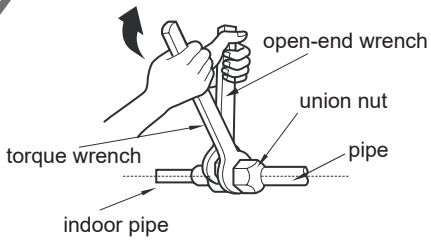


Installation of indoor unit

2. Aim the pipe joint at the corresponding bellmouth.

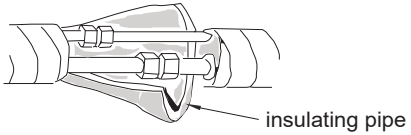


3. Pretighten the union nut with hand.
4. Adjust the torque force by referring to the following sheet. Place the open-end wrench on the pipe joint and place the torque wrench on the union nut. Tighten the union nut with torque wrench.



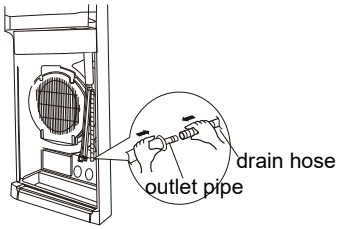
Hex nut diameter	Tightening torque (N·m)
1/4"	15.7 (1.6kg.m)
3/8"	29.4 (3.0kg.m)
1/2"	49.0 (5.0kg.m)
5/8"	73.6 (7.5kg.m)

5. Wrap the indoor pipe and joint of connection pipe with insulating pipe, and then wrap it with tape.

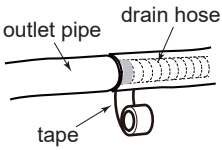


Step five: install drain hose

1. Connect the drain hose to the outlet pipe of indoor unit.

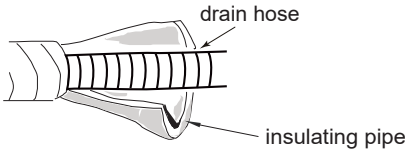


2. Bind the joint with tape.



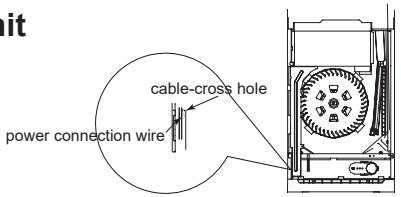
Note:

- Add insulating pipe in the indoor drain hose in order to prevent condensation.



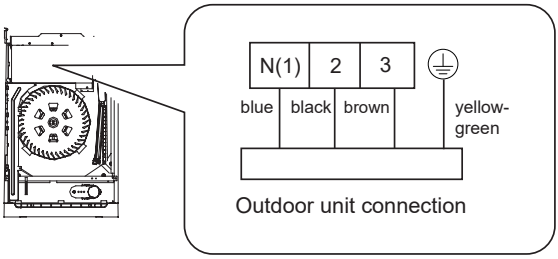
Step six: connect wire of indoor unit

1. Make the power connection wire go through the cable-cross hole of indoor unit and then pull it out.



Installation of indoor unit

2. Remove the wire clip; connect the power connection wire to the wiring terminal according to the color; tighten the screw and then fix the power connection wire with wire clip.



3. Adjust the position of upper and lower adjusting baffle; clamp the connection pipe and drain pipe as firm as possible.
4. Tighten the screws.

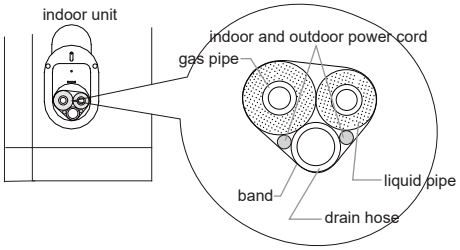
Note:

All wires of indoor unit and outdoor unit should be connected by a professional.

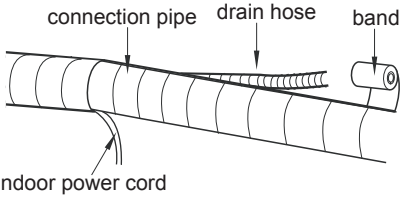
- If the length of power connection wire is insufficient, please contact the supplier for a new one. Avoid extending the wire by yourself.
- For the air conditioner with plug, the plug should be reachable after finishing installation.
- For the air conditioner without plug, an circuit breaker must be installed in the line.

Step seven: bind up pipe

1. Bind up the connection pipe, power cord and drain hose with the band.



2. Reserve a certain length of drain hose and power cord for installation when binding them. When binding to a certain degree, separate the indoor power and then separate the drain hose.



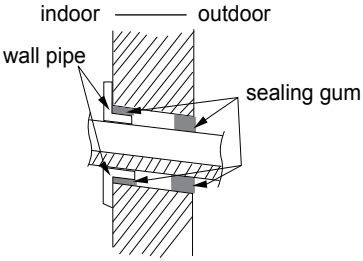
3. Wrap it evenly, and rolling width should be 1/3 of bandaging belt. Do not wrap it too tight or too loose.
4. The liquid pipe and gas pipe should be bound separately at the end.

Note:

- The power cord and control wire can't be crossed or winding.
- The drain hose should be bound at the bottom.

Step eight: place the indoor unit

1. Put the bound pipes in the wall pipe and then make them pass through the wall hole.
2. Stuff the gap between pipes and wall hole with sealing gum.
3. Fix the wall pipe.



Note:

- Do not bend the drain hose too excessively in order to prevent blocking.

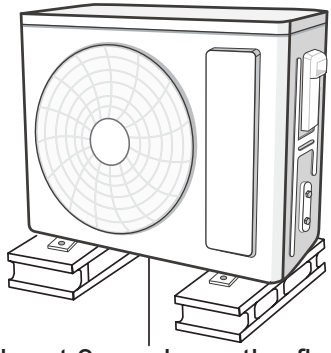
Installation of outdoor unit

Step one: fix the support of outdoor unit (select it according to the actual installation situation)

1. Select installation location according to the house structure.
2. Fix the support of outdoor unit on the selected location with expansion screws.

Note:

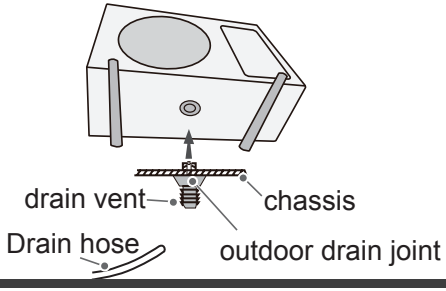
- Take sufficient protective measures when installing the outdoor unit.
- Make sure the support can withstand at least four times of the unit weight.
- The outdoor unit should be installed at least 3cm above the floor in order to install drain joint. (for the model with heating tube, the installation height should be no less than 20cm.)
- For the unit with cooling capacity of 2300W ~5000W, 6 expansion screws are needed; for the unit with cooling capacity of 6000W ~8000W, 8 expansion screws are needed; for the unit with cooling capacity of 10000W ~16000W, 10 expansion screws are needed.



Step two: install drain joint (Only for some models)

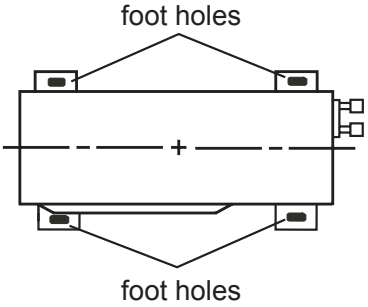
1. Connect the outdoor drain joint into the hole on the chassis, as shown in the picture below.
2. Connect the drain hose into the drain vent.

NOTE: As for the shape of drainage joint, please refer to the current product. Do not install the drainage joint in the severe cold area. Otherwise,it will be frosted and then cause malfunction.



Step three: fix outdoor unit

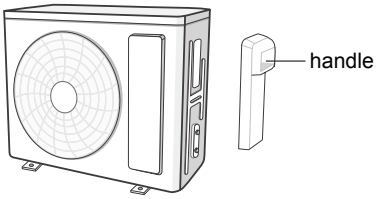
1. Place the outdoor unit on the support.
2. Fix the foot holes of outdoor unit with bolts.



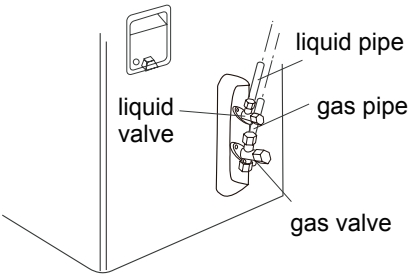
Installation of outdoor unit

Step four: connect indoor and outdoor pipes

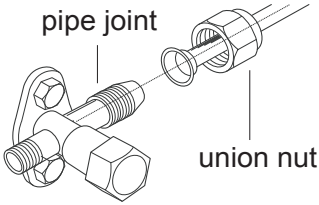
1. Remove the front side plate or handle.



2. Remove the screw cap of valve and aim the pipe joint at the bellmouth of pipe.



3. Pretighten the union nut with hand.

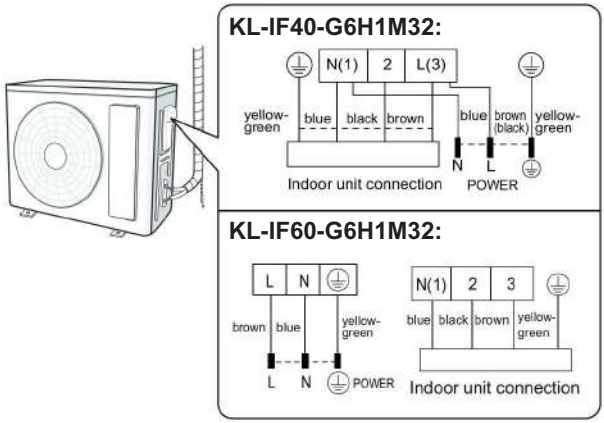


4. Tighten the union nut with torque wrench by referring to the sheet below.

Hex nut diameter	Tightening torque (N·m)
1/4”	15.7 (1.6kg.m)
3/8”	29.4 (3.0kg.m)
1/2”	49 (5.0kg.m)
5/8”	73.6 (7.5kg.m)

Step five: connect outdoor electric wire

1. Remove the wire clip; connect the power connection wire and signal control wire (only for cooling and heating unit) to the wiring terminal according to the color; fix them with screws.



Installation of outdoor unit

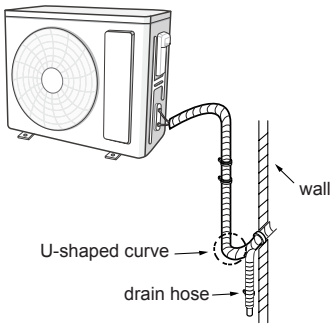
2. Fix the power connection wire and signal control wire with wire clip (only for cooling and heating unit).

Note:

- After tightening the screw, pull the power cord slightly to check if it is firm.
- Never cut the power connection wire to prolong or shorten the distance.

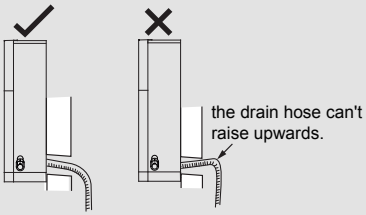
Step six: neaten the pipes

1. The pipes should be placed along the wall, bent reasonably and hidden possibly. Min. semidiameter of bending the pipe is 10cm.
2. If the outdoor unit is higher than the wall hole, you must set a U-shaped curve in the pipe before pipe goes into the room, in order to prevent rain from getting into the room.

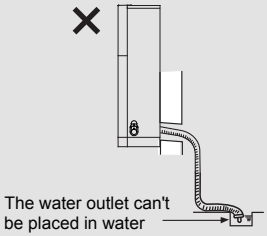


Note:

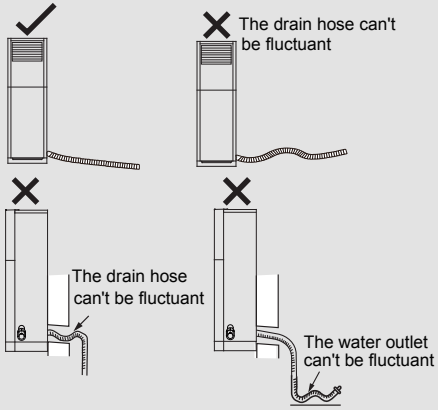
- The through-wall height of drain hose shouldn't be higher than the outlet pipe hole of indoor unit.



- The water outlet can't be placed in water in order to drain smoothly.



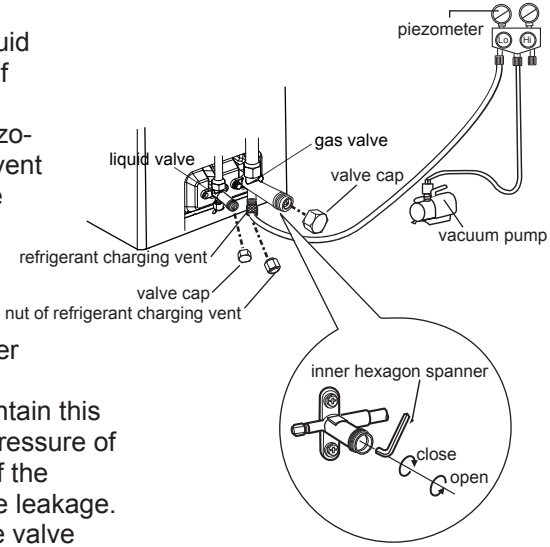
- Slant the drain hose slightly downwards. The drain hose can't be curved, raised and fluctuant, etc.



Vacuum pumping

Use vacuum pump

1. Remove the valve caps on the liquid valve and gas valve and the nut of refrigerant charging vent.
2. Connect the charging hose of piezometer to the refrigerant charging vent of gas valve and then connect the other charging hose to the vacuum pump.
3. Open the piezometer completely and operate for 10-15min to check if the pressure of piezometer remains in -0.1MPa.
4. Close the vacuum pump and maintain this status for 1-2min to check if the pressure of piezometer remains in -0.1MPa. If the pressure decreases, there may be leakage.
5. Remove the piezometer, open the valve core of liquid valve and gas valve completely with inner hexagon spanner.
6. Tighten the screw caps of valves and refrigerant charging vent.
7. Reinstall the handle.



Leakage detection

1. With leakage detector
   Check if there is leakage with leakage detector.
2. With soap water
   If leakage detector is not available, please use soap water for leakage detection. Apply soap water at the suspected position and keep the soap water for more than 3min. If there are air bubbles coming out of this position, there's a leakage.

Check after installation

● Check according to the following requirement after finishing installation.

Items to be checked	Possible malfunction
Has the unit been installed firmly?	The unit may drop, shake or emit noise.
Have you done the refrigerant leakage test?	It may cause insufficient cooling (heating) capacity.
Is heat insulation of pipeline sufficient?	It may cause condensation and water dripping.
Is water drained well?	It may cause condensation and water dripping.
Is the voltage of power supply according to the voltage marked on the nameplate?	It may cause malfunction or damaging the parts.
Is electric wiring and pipeline installed correctly?	It may cause malfunction or damaging the parts.
Is the unit grounded securely?	It may cause electric leakage.
Does the power cord follow the specification?	It may cause malfunction or damaging the parts.
Is there any obstruction in the air inlet and outlet?	It may cause insufficient cooling (heating) capacity.
The dust and sundries caused during installation are removed?	It may cause malfunction or damaging the parts.
The gas valve and liquid valve of connection pipe are open completely?	It may cause insufficient cooling (heating) capacity.
Is the inlet and outlet of piping hole been covered?	It may cause insufficient cooling (heating) capacity or waste electricity.

Test operation

1. Preparation of test operation

- The client approves the air conditioner.
- Specify the important notes for air conditioner to the client.

2. Method of test operation

- Put through the power, press ON/OFF button on the remote controller to start operation.
- Press MODE button to select AUTO, COOL, DRY, FAN and HEAT to check whether the operation is normal or not.
- If the ambient temperature is lower than 16℃ , the air conditioner can't start cooling.

Installation instructions of anti-collapse chain

- In order to prevent accidental collapse of indoor unit, please install the anti-collapse chain.

  Installation steps:

  1. Remove the screw of anti-collapse hole at the top cover of indoor unit (see fig. 3);
  2. Take out the anti-collapse chain and put it into the anti-collapse hole, and then tighten it with screw (see fig. 4);
  3. Fix the other end of anti-collapse chain on the wall with screw (ST4.2X38) (see fig. 4).

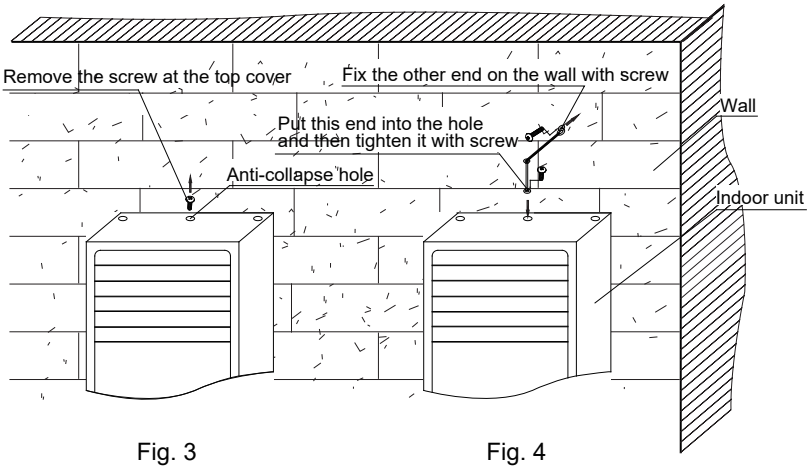


Fig. 3 Fig. 4

- The above figure may be different from the actual products; please refer to the actual products.

Configuration of connection pipe

1. Standard length of connection pipe
   - 3m - 5m
     **(5m - free charge on outdoor unit)*
2. Minimum length of connection pipe is 3 meters.
3. Maximum length and maximum height of connection pipe:

Sheet 1. Maximum length and height of connection pipe.

Model	Capacity	Maximum length of connection pipes	Maximum height of connection pipes
KL-IF40-G6H1M32	38,466 kJ/h (10.69 kW)	30 m	20 m
KL-IF60-G6H1M32	58,140 kJ/h (16.15 kW)	30 m	20 m

4. The calculation method of additional refrigerant oil and refrigerant charging amount after prolonging connection pipe
   After the length of connection pipe is prolonged for 5 m at the basis of standard length, you should add 5ml of refrigerant oil for each additional 5m of connection pipe.
   The calculation method of additional refrigerant charging amount (on the basis of liquid pipe):
   (1) Additional refrigerant charging amount= prolonged length of liquid pipe × additional refrigerant charging amount per meter
   (2) Basing on the length of standard pipe, add refrigerant according to the requirement as shown in the table. The additional refrigerant charging amount per meter is different according to the diameter of liquid pipe. See Sheet 2.

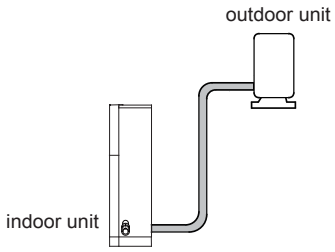
Configuration of connection pipe

Sheet 2. Additional refrigerant charging amount for R32

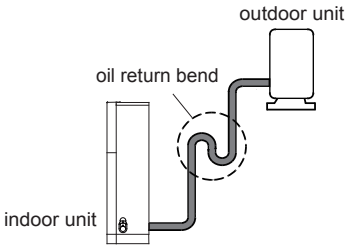
Piping size		Indoor unit throttle	Outdoor unit throttle	
Liquid pipe	Gas pipe	Cooling only, cooling and heating (g / m)	Cooling only (g / m)	cooling and heating (g / m)
1/4"	3/8" or 1/2"	16	12	16
1/4" or 3/8"	5/8" or 3/4"	40	12	40
1/2"	3/4" or 7/8"	80	24	96
5/8"	1" or 1 1/4"	136	48	96
3/4"	–	200	200	200
7/8"	–	280	280	280

Note: The additional refrigerant charging amount in Sheet 2 is recommended value, not compulsory.

5. If the outdoor unit is higher than the indoor unit for more than 5m, an oil return bend is needed.



Below 5m



Above 5m

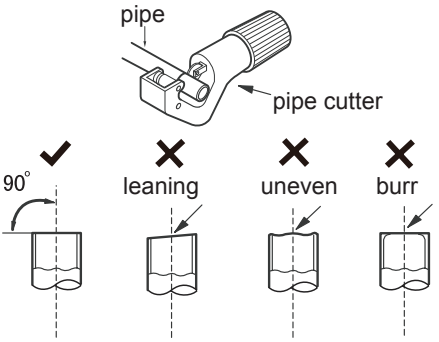
Pipe expanding method

Note:

Improper pipe expanding is the main cause of refrigerant leakage. Please expand the pipe according to the following steps:

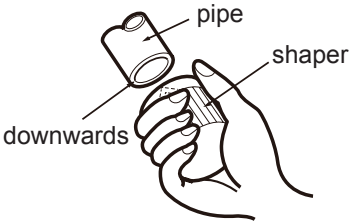
A: Cut the pipe

- Confirm the pipe length according to the distance of indoor unit and outdoor unit.
- Cut the required pipe with pipe cutter.



B: Remove the burrs

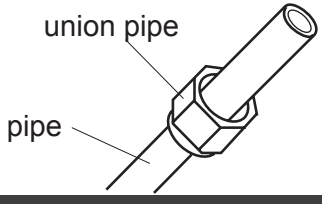
- Remove the burrs with shaper and prevent the burrs from getting into the pipe.



C: Put on suitable insulating pipe

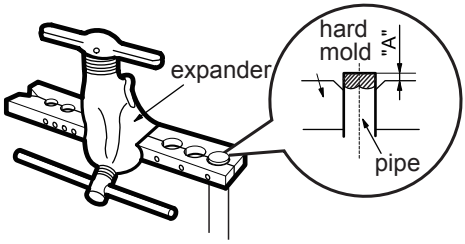
D: Put on the union nut

- Remove the union nut on the indoor connection pipe and outdoor valve; install the union nut on the pipe.



E: Expand the port

- Expand the port with expander.



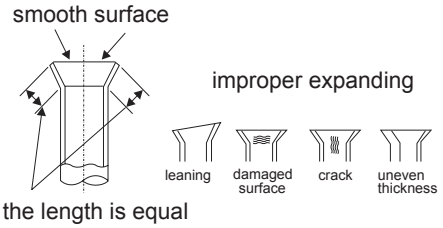
Note:

- "A" is different according to the diameter, please refer to the sheet below:

Outer diameter (mm)	A(mm)	
	Max	Min
Φ6-6.35(1/4")	1.3	0.7
Φ9-9.52(3/8")	1.6	1.0
Φ12-12.7(1/2")	1.8	1.0
Φ15.8-16(5/8")	2.4	2.2

F: Inspection

- Check the quality of expanding port. If there is any blemish, expand the port again according to the steps above.



- The following checks shall be applied to installations using flammable refrigerants:
  – the charge size is in accordance with the room size within which the refrigerant containing parts are installed;
  – the ventilation machinery and outlets are operating adequately and are not obstructed;
  – if an indirect refrigerating circuit is being used, the secondary circuit shall be checked for the presence of refrigerant;
  – marking to the equipment continues to be visible and legible. Markings and signs that are illegible shall be corrected;
  – refrigeration pipe or components are installed in a position where they are unlikely to be exposed to any substance which may corrode refrigerant containing components, unless the components are constructed of materials which are inherently resistant to being corroded or are suitably protected against being so corroded.
- Repair and maintenance to electrical components shall include initial safety checks and component inspection procedures. If a fault exists that could compromise safety, then no electrical supply shall be connected to the circuit until it is satisfactorily dealt with. If the fault cannot be corrected immediately but it is necessary to continue operation, an adequate temporary solution shall be used. This shall be reported to the owner of the equipment so all parties are advised.
- Initial safety checks shall include:
  – that capacitors are discharged: this shall be done in a safe manner to avoid possibility of sparking;
  – that no live electrical components and wiring are exposed while charging, recovering or purging the system;
  – that there is continuity of earth bonding.
- Checks to the area
  Prior to beginning work on systems containing flammable refrigerants, safety checks are necessary to ensure that the risk of ignition is minimised. For repair to the refrigerating system, DD.3.3 to DD.3.7 shall be completed prior to conducting work on the system.
- Work procedure
  Work shall be undertaken under a controlled procedure so as to minimise the risk of a flammable gas or vapour being present while the work is being performed.
- General work area
  All maintenance staff and others working in the local area shall be instructed on the nature of work being carried out. Work in confined spaces shall be avoided.
- Checking for presence of refrigerant
  The area shall be checked with an appropriate refrigerant detector prior to and during work, to ensure the technician is aware of potentially toxic or flammable atmospheres. Ensure that the leak detection equipment being used is suitable for use with all applicable refrigerants, i.e. non-sparking, adequately sealed or intrinsically safe.
- Presence of fire extinguisher
  If any hot work is to be conducted on the refrigerating equipment or any associated parts, appropriate fire extinguishing equipment shall be available to hand. Have a dry powder or CO_2 fire extinguisher adjacent to the charging area.
- No ignition sources
  No person carrying out work in relation to a refrigerating system which involves exposing any pipe work shall use any sources of ignition in such a manner that it may lead to the risk of fire or explosion. All possible ignition sources, including cigarette smoking, should be kept sufficiently far away from the site of installation, repairing, removing and disposal, during which refrigerant can possibly be released to the surrounding space.

  Prior to work taking place, the area around the equipment is to be surveyed to make sure that there are no flammable hazards or ignition risks. "No Smoking" signs shall be displayed.
- Ventilated area
  Ensure that the area is in the open or that it is adequately ventilated before breaking into the system or conducting any hot work. A degree of ventilation shall continue during the period that the work is carried out. The ventilation should safely disperse any released refrigerant and preferably expel it externally into the atmosphere.
- Checks to the refrigeration equipment
  Where electrical components are being changed, they shall be fit for the purpose and to the correct specification. At all times the manufacturer's maintenance and service guidelines shall be followed. If in doubt,consult the manufacturer's technical department for assistance.
  The following checks shall be applied to installations using flammable refrigerants:

- the actual refrigerant charge is in accordance with the room size within which the refrigerant containing parts are installed;
- the ventilation machinery and outlets are operating adequately and are not obstructed;
- if an indirect refrigerating circuit is being used,the secondary circuit shall be checked for the presence of refrigerant;
- marking to the equipment continues to be visible and legible. Markings and signs that are illegible shall be corrected;
- refrigeration pipe or components are installed in a position where they are unlikely to be exposed to any substance which may corrode refrigerant containing components, unless the components are constructed of materials which are inherently resistant to being corroded or are suitably protected against being so corroded.

- Checks to electrical devices

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

Initial safety checks shall include:
- that capacitors are discharged: this shall be done in a safe manner to avoid possibility of sparking;
- that no live electrical components and wiring are exposed while charging, recovering or purging the system;
- that there is continuity of earth bonding.

- Repairs to sealed components

During repairs to sealed components, all electrical supplies shall be disconnected from the equipment being worked upon prior to any removal of sealed covers, etc. If it is absolutely necessary to have an electrical supply to equipment during servicing, then a permanently operating form of leak detection shall be located at the most critical point to warn of a potentially hazardous situation.

Particular attention shall be paid to the following to ensure that by working on electrical components, the casing is not altered in such a way that the level of protection is affected. This shall include damage to cables, excessive number of connections, terminals not made to original specification, damage to seals, incorrect fitting of glands, etc.
– Ensure that the apparatus is mounted securely.
– Ensure that seals or sealing materials have not degraded to the point that they no longer serve the purpose of preventing the ingress of flammable atmospheres. Replacement parts shall be in accordance with the manufacturer's specifications.
NOTE:The use of silicon sealant can inhibit the effectiveness of some types of leak detection equipment. Intrinsically safe components do not have to be isolated prior to working on them.

- Repair to intrinsically safe components

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

- Cabling

Check that cabling will not be subject to wear, corrosion, excessive pressure, vibration, sharp edges or any other adverse environmental effects. The check shall also take into account the effects of aging or continual vibration from sources such as compressors or fans.

- Detection of flammable refrigerants

Under no circumstances shall potential sources of ignition be used in the searching for or detection of refrigerant leaks. A halide torch (or any other detector using a naked flame) shall not be used.

- Leak detection methods

The following leak detection methods are deemed acceptable for all refrigerant systems.
Electronic leak detectors may be used to detect refrigerant leaks but, in the case of flammable refrigerants, the sensitivity may not be adequate, or may need re-calibration. (Detection equipment shall be calibrated in a refrigerant-free area.) Ensure that the detector is not a potential source of ignition and is suitable for the refrigerant used. Leak detection equipment shall be set at a percentage of the ***LFL*** of the refrigerant and shall be calibrated to the refrigerant employed, and the appropriate percentage of gas (25% maximum) is confirmed.
Leak detection fluids are also suitable for use with

most refrigerants but the use of detergents containing chlorine shall be avoided as the chlorine may react with the refrigerant and corrode the copper pipe-work.

If a leak is suspected, all naked flames shall be removed/extinguished.

If a leakage of refrigerant is found which requires brazing, all of the refrigerant shall be recovered from the system, or isolated (by means of shut off valves) in a part of the system remote from the leak. For appliances containing flammable refrigerants, oxygen free nitrogen (OFN) shall then be purged through the system both before and during the brazing process.

- Removal and evacuation

When breaking into the refrigerant circuit to make repairs - or for any other purpose - conventional procedures shall be used. However, for flammable refrigerants it is important that best practice is followed since flammability is a consideration. The following procedure shall be adhered to:

- remove refrigerant;
- purge the circuit with inert gas;
- evacuate;
- purge with inert gas;
- open the circuit by cutting or brazing.

The refrigerant charge shall be recovered into the correct recovery cylinders. For appliances containing flammable refrigerants, the system shall be "flushed" with OFN to render the unit safe. This process may need to be repeated several times. Compressed air or oxygen shall not be used for purging refrigerant systems.

For appliances containing flammable refrigerants, flushing shall be achieved by breaking the vacuum in the system with OFN and continuing to fill until the working pressure is achieved, then venting to atmosphere, and finally pulling down to a vacuum. This process shall be repeated until no refrigerant is within the system. When the final OFN charge is used, the system shall be vented down to atmospheric pressure to enable work to take place. This operation is absolutely vital if brazing operations on the pipe-work are to take place.

Ensure that the outlet for the vacuum pump is not close to any ignition sources and that ventilation is available.

- Charging procedures

In addition to conventional charging procedures, the following requirements shall be followed.

- Ensure that contamination of different refrigerants does not occur when using charging equipment. Hoses or lines shall be as short as possible to minimise the amount of refrigerant contained in them.
- Cylinders shall be kept in an appropriate position according to the instructions.
- Ensure that the refrigerating system is earthed prior to charging the system with refrigerant.
- Label the system when charging is complete (if not already).
- Extreme care shall be taken not to overfill the refrigerating system.

Prior to recharging the system, it shall be pressure-tested with the appropriate purging gas. The system shall be leak-tested on completion of charging but prior to commissioning. A follow up leak test shall be carried out prior to leaving the site.

- Decommissioning

Before carrying out this procedure, it is essential that the technician is completely familiar with the equipment and all its detail. It is recommended good practice that all refrigerants are recovered safely. Prior to the task being carried out, an oil and refrigerant sample shall be taken in case analysis is required prior to re-use of recovered refrigerant. It is essential that electrical power is available before the task is commenced.

a) Become familiar with the equipment and its operation.

b) Isolate system electrically.

c) Before attempting the procedure, ensure that:

– mechanical handling equipment is available, if required, for handling refrigerant cylinders;

– all personal protective equipment is available and being used correctly;

– the recovery process is supervised at all times by a competent person;

– recovery equipment and cylinders conform to the appropriate standards.

d) Pump down refrigerant system, if possible.

e) If a vacuum is not possible, make a manifold so that refrigerant can be removed from various parts of the system.

f) Make sure that cylinder is situated on the scales before recovery takes place.

g) Start the recovery machine and operate in accordance with manufacturer's instructions.

h) Do not overfill cylinders. (No more than 80% volume liquid charge).

i) Do not exceed the maximum working pressure of

the cylinder, even temporarily.

j) When the cylinders have been filled correctly and the process completed, make sure that the cylinders and the equipment are removed from site promptly and all isolation valves on the equipment are closed off.

k) Recovered refrigerant shall not be charged into another refrigerating system unless it has been cleaned and checked.

- Labelling

Equipment shall be labelled stating that it has been de-commissioned and emptied of refrigerant. The label shall be dated and signed. For appliances containing flammable refrigerants, ensure that there are labels on the equipment stating the equipment contains flammable refrigerant.

- Recovery

When removing refrigerant from a system, either for servicing or decommissioning, it is recommended good practice that all refrigerants are removed safely.

When transferring refrigerant into cylinders, ensure that only appropriate refrigerant recovery cylinders are employed. Ensure that the correct number of cylinders for holding the total system charge is available. All cylinders to be used are designated for the recovered refrigerant and labelled for that refrigerant (i.e. special cylinders for the recovery of refrigerant). Cylinders shall be complete with pressure-relief valve and associated shut-off valves in good working order. Empty recovery cylinders are evacuated and, if possible, cooled before recovery occurs.

The recovery equipment shall be in good working order with a set of instructions concerning the equipment that is at hand and shall be suitable for the recovery of all appropriate refrigerants including, when applicable, flammable refrigerants. In addition, a set of calibrated weighing scales shall be available and in good working order. Hoses shall be complete with leak-free disconnect couplings and in good condition. Before using the recovery machine, check that it is in satisfactory working order, has been properly maintained and that any associated electrical components are sealed to prevent ignition in the event of a refrigerant release. Consult manufacturer if in doubt.

The recovered refrigerant shall be returned to the refrigerant supplier in the correct recovery cylinder, and the relevant waste transfer note arranged. Do not mix refrigerants in recovery units and especially not in cylinders.

If compressors or compressor oils are to be removed, ensure that they have been evacuated to an acceptable level to make certain that flammable refrigerant does not remain within the lubricant. The evacuation process shall be carried out prior to returning the compressor to the suppliers. Only electric heating to the compressor body shall be employed to accelerate this process. When oil is drained from a system, it shall be carried out safely.

- General

That the installation of pipe-work shall be kept to a minimum.

That compliance with national gas regulations shall be observed.

That mechanical connections made in accordance with 22.118 shall be accessible for maintenance purposes.

The design and specifications are subject to change without prior notice for product improvement. Any updates to the manual will be uploaded to the Kolin official website, please check for the latest version.

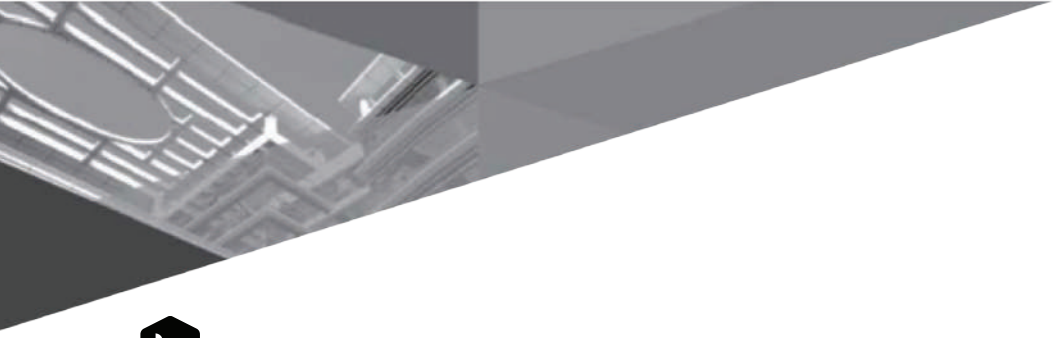
If you have any concerns, please contact us at the following:

Customer hotline: **(02) 8852-6868**
Text hotline: **+63 917-881-8982**
Email: **service@kolinphil.com.ph**

Also, please like and follow us on social media accounts:

Facebook: kolinphilippines
Instagram: kolinphilippines
Youtube: kolinphilippines
Tiktok: kolinphilippines
Website: www.kolinphil.com.ph

KPI112825



Kolin Philippines International, Inc.

SERVICE CENTERS

BRANCH	ADDRESS	TEL. NO.
Bacolod	Door #A-2 & A-3 UTC Bldg.,Alunan St., Brgy. 36, Bacolod City	(034) 466-9145
Cagayan De Oro	Door #3 De Oro Land Bldg.,Julio Pacana St., Puntod, Cagayan de Oro City	(088) 557 - 7353
Cebu	Lot 758-B-1, P. Suico St. Upper Tabok, Mandaue City, Cebu	(032) 234 - 1844
Dagupan	Unit #1 107 Caranglaan District, Dagupan City, Pangasinan	(075) 529 - 0587
Davao	Blk 17 Lot 9, Calamansi St.,Juna Subd., Matina, Davao City	(082) 272 - 0048
Iloilo	Door# 4,5 & 7, D' Appliance Arcade,South Fundidor, Molo, Iloilo City	(033) 337 - 5914
Pampanga	LRK Commercial Bldg., Jose AbadAve., Lagundi, Mexico, Pampanga	(045) 455 - 2934

For More air conditioner tips, please like, share and follow us on our social media accounts:

Facebook : kolinphilippines
Instagram : kolinphilippines
Youtube : kolinphilippines
Tiktok : kolinphilippines
Website : www.kolinphil.com.ph

OFFICE

Kolin Bldg.1854 Sta. Rita St.,
Guadalupe Nuevo, Makati City, 1212
Service Hotline: (632) 8852 - 6868

PLANT

Blk 3 Lot 5, Main Drive First Cavite
Industrial Estate, Langkaan 1,
Dasmariñas City, Cavite
Tel. No.: (046) 402-0793