FAN COIL TYPE

Operation and Installation Manual

FCE-034BCN2A	**FCE-034BCN2B**	**FCE-034BCD2A**
FCE-051BCN2A	**FCE-051BCN2B**	**FCE-051BCD2A**
FCE-068BCN2A	**FCE-068BCN2B**	**FCE-068BCD2A**
FCE-085BCN2A	**FCE-085BCN2B**	**FCE-085BCD2A**
FCE-102BCN2A	**FCE-102BCN2B**	**FCE-102BCD2A**
FCE-136BCN2A	**FCE-136BCN2B**	**FCE-136BCD2A**
FCE-170BCN2A	**FCE-170BCN2B**	**FCE-170BCD2A**
FCE-204BCN2A	**FCE-204BCN2B**	**FCE-204BCD2A**
FCE-238BCN2A	**FCE-238BCN2B**	**FCE-238BCD2A**
FCE-034BCD2B	**FCE-034BCB2A**	**FCE-034BCB2B**
FCE-051BCD2B	**FCE-051BCB2A**	**FCE-051BCB2B**
FCE-068BCD2B	**FCE-068BCB2A**	**FCE-068BCB2B**
FCE-085BCD2B	**FCE-085BCB2A**	**FCE-085BCB2B**
FCE-102BCD2B	**FCE-102BCB2A**	**FCE-102BCB2B**
FCE-136BCD2B	**FCE-136BCB2A**	**FCE-136BCB2B**
FCE-170BCD2B	**FCE-170BCB2A**	**FCE-170BCB2B**
FCE-204BCD2B	**FCE-204BCB2A**	**FCE-204BCB2B**
FCE-238BCD2B	**FCE-238BCB2A**	**FCE-238BCB2B**

- Please read this operation manual before using the air conditioner.

No.0010577408

■ About This Manual

Table of Contents

Important Notice

1.Fan coil air conditioners are end units of a water chiller air conditioning system featuring high profession and high technological requirement. Therefore, installation, trial, operation and management of such air conditioners shall only be done by specially trained technicians.

2.The air conditioners are widely used except in wet, outdoor, dusty and corrosive environments as well as locations of explosive risk.

3.Operating conditions:

(1) Power supply: 1 PH. 220V ~, 50Hz.

(2) Unit max. working pressure: 1.6 MPa.

Notes:

All illustrations and contents in this manual are provided for information only. Haier will continuously improve its products in aspects of product dimensions, performances, materials and structures without further notification. Please contact us to request update documents when you need it.

■ Product Introduction

Fan coil air conditioner consists mainly of a centrifugal fan and a coil heat exchanger. It forms an end unit of a water chiller air conditioning system widely used in multi-room or large industrial and civil buildings like hotels, restaurants, factories, hospitals, exhibition halls, shopping malls and office buildings. It can meet people's cooling, heating and dehumidifying demands, and thus create a fresh, quiet and spring-like working and living environment.

Features:

1.Safe, reliable and long life.

Each coil heat exchanger pressure leakage tested. Forged brass inlet/outlet joint, reliable and durable. One-piece pressed and rust-free painted drip tray. Motor with low-noise rolling bearing ensures a long life 60,000 hours free of lubrication and maintenance. Specially treated rust free motor long shaft.

2.High efficiency, adequate capacity.

Coil is formed of seamless plain tube tightly wrapped with slit plain foil through tube expanding mechanically. High heat transmission efficiency and adequate cooling (heating) capacity.

3.Big air flow, low noise.

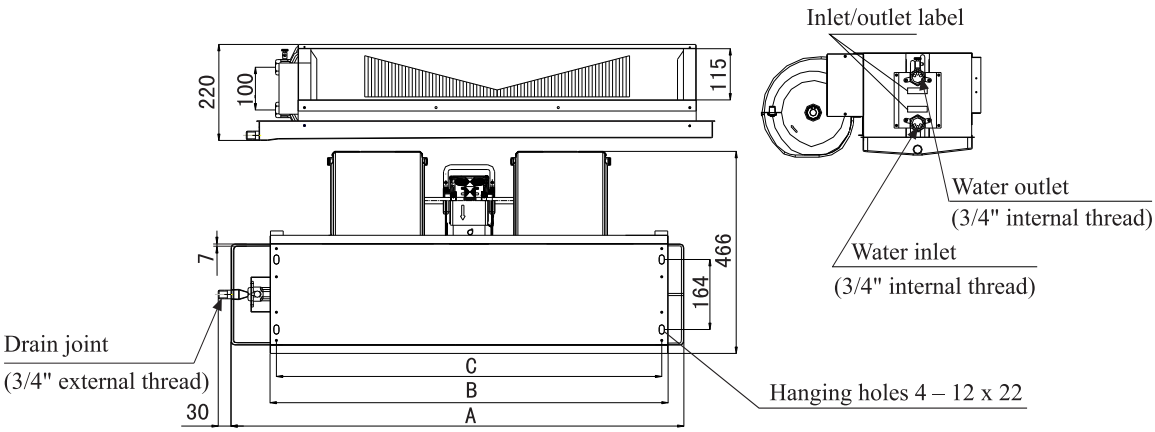
Easy dismantling latch type volute casing. Multi-vane centrifugal impeller. Different prioritized matches between impeller and motor to suit fan coils of different sizes.

4.High versatility.

Fan coil with draw-out surface cooler, easy repair and maintenance. Easy and flexible site conversion over right/left water inlets. Combined high static pressure 30Pa and low static pressure 0Pa to meet individualized demands.

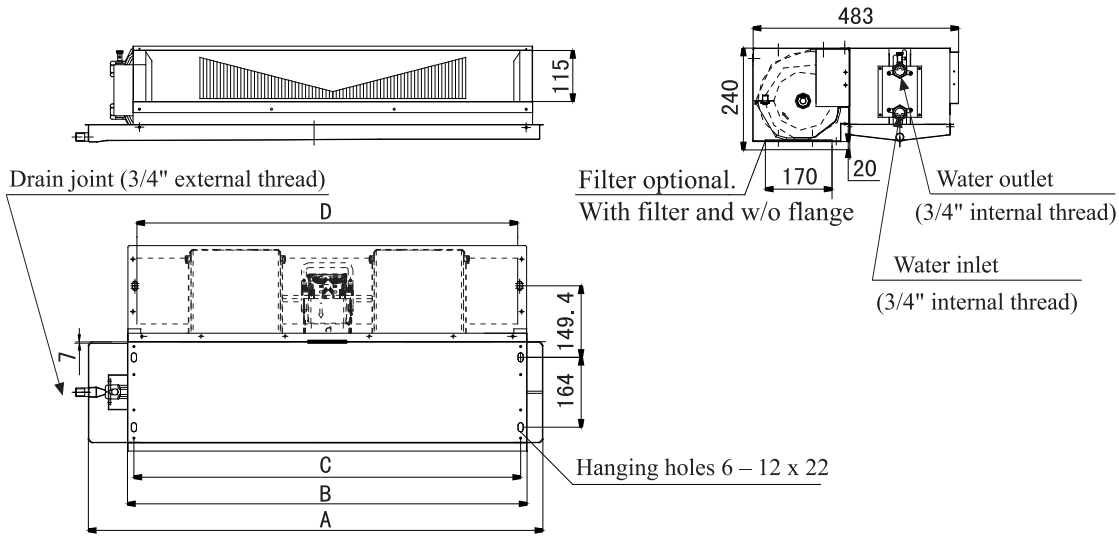
■ Unit Overall Dimensions and Weight

● Horizontal concealed units



Standard drip tray					Extended drip tray				
Model	Overall dimension (mm)			Weight (kg)	Model	Overall dimension (mm)			Weight (kg)
	A	B	C			A	B	C	
FCE-034BCN2A	624	508	478	12.5	FCE-034BCN2B	944	508	478	13.5
FCE-051BCN2A	624	508	478	13	FCE-051BCN2B	944	508	478	14
FCE-068BCN2A	944	808	778	16.9	FCE-068BCN2B	1084	808	778	17.4
FCE-085BCN2A	944	808	778	17.8	FCE-085BCN2B	1084	808	778	18.3
FCE-102BCN2A	944	808	778	18.3	FCE-102BCN2B	1084	808	778	18.8
FCE-136BCN2A	1374	1238	1208	29	FCE-136BCN2B	1634	1238	1208	29.9
FCE-170BCN2A	1374	1238	1208	29.3	FCE-170BCN2B	1634	1238	1208	30.2
FCE-204BCN2A	1634	1498	1468	33.4	FCE-204BCN2B	1754	1498	1468	33.8
FCE-238BCN2A	1634	1498	1468	33.6	FCE-238BCN2B	1754	1498	1468	34

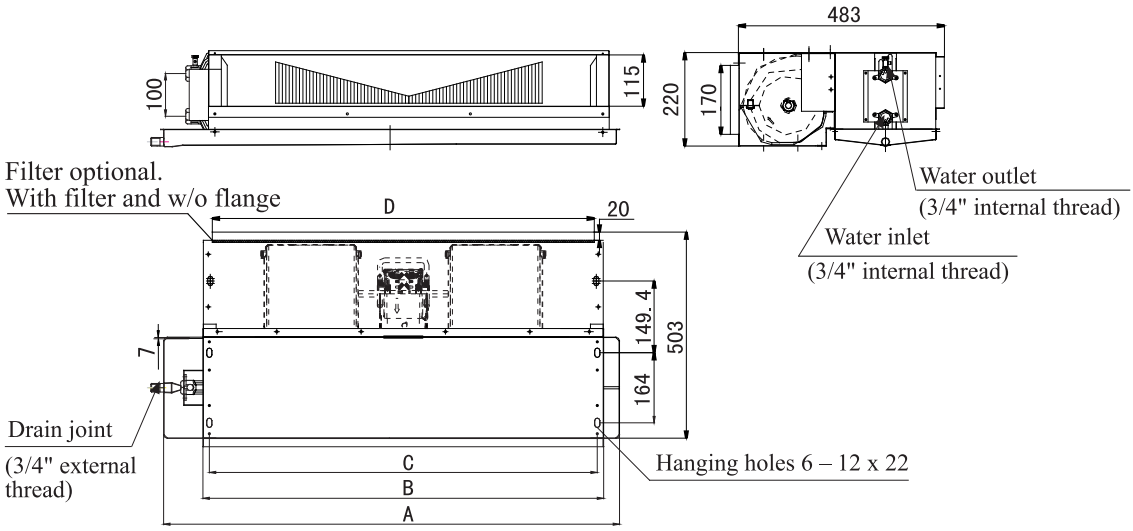
● Horizontal concealed units with bottom return air box



■ Unit Overall Dimensions and Weight

Standard drip tray						Extended drip tray					
Model	Overall dimension (mm)				Weight (kg)	Model	Overall dimension (mm)				Weight (kg)
	A	B	C	D			A	B	C	D	
FCE-034BCD2A	624	508	478	451	15	FCE-034BCD2B	944	508	478	451	16
FCE-051BCD2A	624	508	478	451	15.5	FCE-051BCD2B	944	508	478	451	16.5
FCE-068BCD2A	944	808	778	751	20.4	FCE-068BCD2B	1084	808	778	751	20.9
FCE-085BCD2A	944	808	778	751	21.3	FCE-085BCD2B	1084	808	778	751	21.8
FCE-102BCD2A	944	808	778	751	21.8	FCE-102BCD2B	1084	808	778	751	22.3
FCE-136BCD2A	1374	1238	1208	1183	34	FCE-136BCD2B	1634	1238	1208	1183	34.9
FCE-170BCD2A	1374	1238	1208	1183	34.3	FCE-170BCD2B	1634	1238	1208	1183	35.2
FCE-204BCD2A	1634	1498	1468	1443	39.3	FCE-204BCD2B	1754	1498	1468	1443	39.7
FCE-238BCD2A	1634	1498	1468	1443	39.5	FCE-238BCD2B	1754	1498	1468	1443	39.9

- Horizontal concealed units with back return air box



Standard drip tray						Extended drip tray					
Model	Overall dimension (mm)				Weight (kg)	Model	Overall dimension (mm)				Weight (kg)
	A	B	C	D			A	B	C	D	
FCE-034BCB2A	624	508	478	451	15	FCE-034BCB2B	944	508	478	451	16
FCE-051BCB2A	624	508	478	451	15.5	FCE-051BCB2B	944	508	478	451	16.5
FCE-068BCB2A	944	808	778	751	20.4	FCE-068BCB2B	1084	808	778	751	20.9
FCE-085BCB2A	944	808	778	751	21.3	FCE-085BCB2B	1084	808	778	751	21.8
FCE-102BCB2A	944	808	778	751	21.8	FCE-102BCB2B	1084	808	778	751	22.3
FCE-136BCB2A	1374	1238	1208	1183	34	FCE-136BCB2B	1634	1238	1208	1183	34.9
FCE-170BCB2A	1374	1238	1208	1183	34.3	FCE-170BCB2B	1634	1238	1208	1183	35.2
FCE-204BCB2A	1634	1498	1468	1443	39.3	FCE-204BCB2B	1754	1498	1468	1443	39.7
FCE-238BCB2A	1634	1498	1468	1443	39.5	FCE-238BCB2B	1754	1498	1468	1443	39.9

■ Unit Installation

Installation

Acceptance Inspection

Each fan coil unit is packaged in corrugated cartons to avoid damages during transportation, handling and site placement.

To make sure no damages occurred due to transportation, please follow below steps to check upon receiving the equipment:

1.Before acceptance, please check if each unit shows any abnormal facts, if carton edges and corners are in good conditions and if there're obvious carton damages;
2.For any obvious carton damages, please immediately unpack to inspect the unit itself. If the unit is indeed damaged, please indicate on the receipt and refuse to accept. Please also check accessories;
3.Check hidden damages of the unit;
4.If any hidden damage is found, do not move the unit on the site. The receiver has the obligation to evidence such damage does not occur after delivery. Meanwhile, please stop unloading and take photos for reference;
5.If damages are found, please notify the carrier, and request the carrier and the receiver to conduct a joint inspection;
6.Do not repair it yourself before inspection and confirmation by the carrier representative has been made;

After confirmation of damages, please contact related persons for replacement.

Installation Precautions

To ensure good installation and operation, do check the following items before installation of the unit:

1.Adequate space shall be provided for installation and maintenance of the unit. Please refer to *Unit Overall Dimensions and Weight*. Removable ceiling panels or accesses shall be provided for daily maintenance;
2.Determine locations of pipelines and electric wires before installation;
3.Make sure hanging structure adequate to support the unit weight;
4.All units shall be leveled to ensure smooth water drain and proper operation;
5.The unit connecting air duct shall be within the external static pressure scope;
6.Thermal insulation of chilled water valves and pipelines shall be made by the installer.

Installation

Installation of fan coil units shall refer to *Unit Overall Dimensions and Weight*. With mounting holes on the top, the unit can be hung under the slab by the hanging rods. Please install according to the following steps:

1.The installer installs hanging rods or other hanging devices;
2.Assemble upper nut and washer to avoid unit vibrating during operation;
3.Insert hanging rods into mounting holes of the unit;

■ Unit Installation

4.Assemble lower nut and washer to fix the unit. Turn lower nut to adjust levelness ensuring drain of condensate, and then tighten upper nut.

Note:
Levelness adjustment shall take fan coil case as the reference. Its coil and drip tray have been designed with slight inclination for water drain.

Air duct connection
Air ducts made of galvanized steel sheet of certain thickness (provided by the installer) may be connected to the flanges at air inlet/outlet of the unit. Refer to Unit Overall Dimensions and Weight. Insert air ducts into flanges and fix with screws. If air duct and flange have different sizes, they should be connected through a site-made adapter. Connection of air supply cabinet and air duct: insert air duct into flange and fix them horizontally with screws or rivets. Same for connection of return air box.

Pipeline Connection

Connection of chilled water pipeline
Connect chilled water pipe to the coil with a 3/4" external threaded connector. The fan coil has its inlet at bottom and outlet on top. See *Unit Overall Dimensions and Weight* for dimensions of coil connection.

Connection of condensate pipeline
Condensate pipe may be of PVC or steel and shall have a flexible connection. The hose shall not be more than 300mm long and should be transparent. It shall be tightly fixed with a clip without leakage. It is suggested the drain pipe inclination shall be at least 1:50.

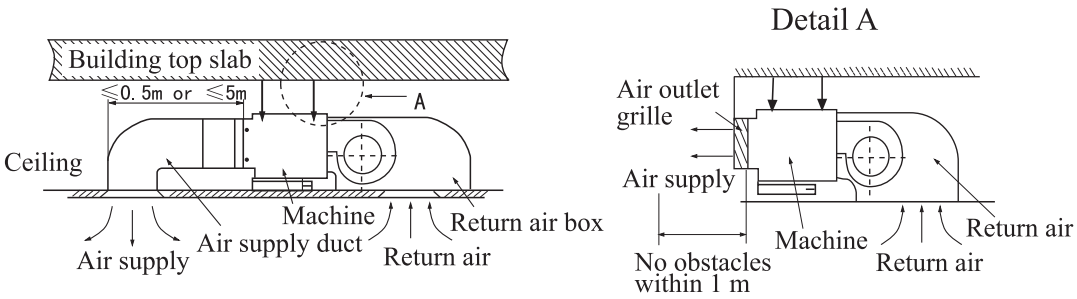
Note:
To avoid dew formation during cooling, chilled water pipe and condensate pipe must be thermally insulated with careful treatment at insulation ends.

Electric Wiring
Make electric wiring according to the wiring diagram shipped with the equipment.
The earth point provided on the unit shall be connected to the grounding system of the building.
All electric connections shall comply with local electric regulations.

Note:
Before maintenance, the power supply shall be disconnected to prevent human injury. Connecting wires shall be made of copper. Other conducting materials may result in overheating and unit damage.

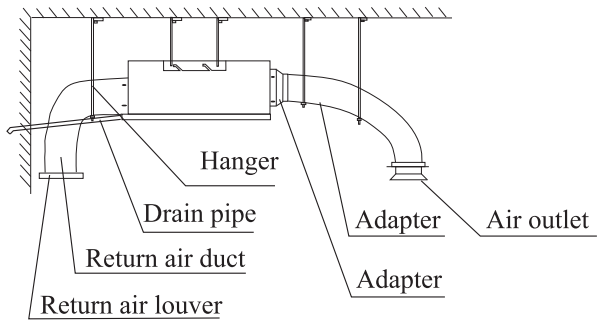
■ Unit Installation

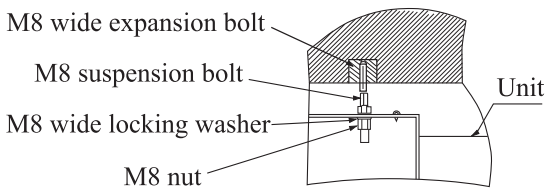
For concealed installation, a return air box must be designed and installed as shown below.



The distance from air duct outlet to air conditioner outlet shall depend on actual air duct length and static pressure terminal applied. See installation figures for long and short air ducts. For short air duct connection, low static pressure speed of motor is used, and the distance from air duct outlet to air conditioner outlet shall not be greater than 0.5m; for long air duct connection, high static pressure speed of motor is used, and the distance from air duct outlet to air conditioner outlet may be within 5m.

Note: At low static pressure, please connect the motor high, middle and low speed terminals to the three-speed switch (or fan coil unit controller); at high static pressure, please connect the motor ultrahigh, high and middle speed terminals to the triple-speed switch (or fan coil unit controller). One three-speed switch (or fan coil unit controller) shall only control one fan coil unit.





■ Installation Inspection & Startup

Installation Inspection

After installation, the installers shall re-inspect and confirm the following items have been made.

Note:
To avoid human injury, before starting up the unit, the power supply shall be disconnected.
1. The unit has been firmly connected with the hanging rods and slabs;
2. Air ducts have been completely connected and firmly installed;
3. Water pipe connection has been completed with no leakage;
4. Drain pipe connection has been completed with no leakage;
5. Electric control wires have been completely connected with no poor contact and missing;
6. This manual has been carefully read through. Operators are generally familiar with the unit and can operate it.

Startup
The fan coil unit can be controlled with the motor speed switch or the controller.
The controller consists of a motor speed switch, an ON/OFF switch and a thermostat. The thermostat controls on/off of the chilled water valve and is normally provided with a temperature setting dial.
The speed switch is marked with OFF / HIGH / MID / LOW. It controls the motor speed and thus the air flow.

Air Discharge
For first water filling, the fan coil pipeline may retain some air, which will be finally entrapped at top of the coil. A manual discharge valve is provided at the water outlet joint of the coil. When abnormal noise is heard due to residual air in the coil, turn the discharge valve knob to release the air. If the knob is too tight, you may use a pair of pinchers to turn it anticlockwise until water flows out of the valve steadily, and then tighten the knob again.

■ Unit Maintenance

Checklist of Periodic Maintenance
The following is a suggested maintenance plan.

Note:
To avoid human injury, the power supply must be disconnected before maintenance is carried out.

Monthly Check if the drip tray is clean and if condensate can flow to the drain pipe freely.

Yearly
1. Check if the unit casing is corroded. Clean and repair it if necessary;
2. Check if the fan blades and volute are damaged. Manually turn the blades to make sure it rotates freely without obstacles;
3. Check if coil fins are too dirty or damaged;
4. Clean and tighten all electric wirings;
5. Drain chilled water of all the system to make descaling and water replacement.

Note:
1. Untreated water may cause unit scaling, corrosion and deterioration. System testing and maintenance shall be guided by water treatment experts. Haier shall not be held liable for any losses due to poor water quality.
2. Due to limitation of support weight and dimensions, this job shall be collaborated by two installers to ensure safety.
3. During off period in winter, water inside the unit shall be drained to avoid pipe cracks due to ice formulation.

Coil Cleaning
Blocked or contaminated coil may decrease cooling capacity. Please clean it in the following steps:
1. Disconnect the power and motor wiring to stop rotation of fan blades;
2. Untighten fixing screws between side panel and drip tray;
3. Separate the casing and trip tray. Untighten fixing screws between fixing plate and side panel;
4. Draw out the coil evaporator;
5. Clean the coil and remove the scale;
6. Re-install the coil evaporator and drip tray, and fix them with screws;
7. Connect the power and water supply. Make trial operation to see the effect.

Drip tray
For smooth draining of condensate, the drip tray must keep clean, otherwise immediate cleaning must be made.

■ Troubleshooting

Common troubles and clearing measures:

Faults	Causes	Clearing measures
Too low air flow	Dirty filter	Clean or replace
	Blocked air outlet	Clear the block
Big noise of the unit	Noise from fan bearing	Repair or replace
Insufficient cooling (heating) effect	Dirty filter	Clean or replace
	Cold (hot) water not cold (hot) enough	Decrease (increase) water temperature
	Small water flow	Increase water flow
	Too low air flow	Raise air flow
Water leakage	Blocked drip tray outlet	Clear the block
	Insufficient thermal insulation of pipes and fittings	Better insulation
	Unleveled installation	Re-level
	Frozen cracks of heat exchanger	Repair or replace

■ Cautions

Disposal of the old air conditioner

Before disposing an old air conditioner that goes out of use, please make sure it's inoperative and safe. Unplug the air conditioner in order to avoid the risk of child entrapment.

The valuable materials contained in a air conditioner can be recycled. Contact your local waste disposal center for proper disposal of an old air conditioner and contact your local authority or your dealer if you have any question. Please ensure that the pipework of your air conditioner does not get damaged prior to being picked up by the relevant waste disposal center, and contribute to environmental awareness by insisting on an appropriate, anti-pollution method of disposal.

Disposal of the packaging of your new air conditioner

All the packaging materials employed in the package of your new air conditioner may be disposed without any danger to the environment.

The cardboard box may be broken or cut into smaller pieces and given to a waste paper disposal service. The wrapping bag made of polyethylene and the polyethylene foam pads contain no fluorochloric hydrocarbon.
All these valuable materials may be taken to a waste collecting center and used again after adequate recycling.

Consult your local authorities for the name and address of the waste materials collecting centers and waste paper disposal services nearest to your house.

Safety Instructions and Warnings

Before starting the air conditioner, read the information given in the User's Guide carefully. The User's Guide contains very important observations relating to the assembly, operation and maintenance of the air conditioner.

The manufacturer does not accept responsibility for any damage that may arise due to non-observation of the following instructions.

- Damaged air conditioners are not to be put into operation. In case of doubt, consult your supplier.

- Use of the air conditioner is to be carried out in strict compliance with the relative instructions set forth in the User's Guide.

- Installation shall be done by professional people, and don't install the unit by yourself.

- For the purpose of safety, the air conditioner must be properly grounded in accordance with specifications.

- Always remember not to operate the air conditioner before opening its inlet grill.

- All electrical repairs must be carried out by qualified electricians. Inadequate repairs may result in a major source of danger for the user of the air conditioner.

- Do not damage any parts of the air conditioner that carry water by piercing or perforating the air conditioner's tubes with sharp or pointed items, crushing or twisting any tubes, or scraping the coatings off the surfaces.

■ Cautions

• Do not obstruct or cover the ventilation grille of the air conditioner. Do not put fingers or any other things into the inlet/outlet and swing louver.
• Do not allow children to play with the air conditioner.

Specifications

The refrigerating circuit is leak-proof.
The machine is adaptive in following situation:

1. If the supply cord is damaged, it must be replaced by the manufacturer or its service agent or a similar qualified person.
2. The wiring method should be in line with the local wiring standard.
3. The power cable and connecting cable are self-provided.
   The requirement of the connecting cable:

Model	Connecting cable
ALL	Power cable: H05RN-F 3G 2.5mm^2

All the cables shall have got the local authentication certificate.

4. The breaker of the air conditioner should be all-pole switch; and the distance between its two contacts should be no less than 3mm. Such means for disconnection must be incorporation in the fixed wiring.
5. The appliance is not intended for young children or infirm persons without super vision.
6. Young children should be supervised to ensure that they do not play the appliance.

■ Safety precautions

Carefully read the following information in order to operate the air conditioner correctly.

Below are listed three kinds of Safety Cautions and Suggestions.

WARNING! Incorrect operations may result in severe consequences of death or serious injuries.

CAUTION! Incorrect operations may result in injuries or machine damages; in some cases may cause serious consequences.

INSTRUCTIONS! These information can ensure the correct operation of the machine.

Be sure to conform with the following important Safety Cautions.
The Safety Cautions should be at hand so that they can be checked at any time when needed.
If the conditioner is transferred to the new user, this manual should be as well transferred to the new user.

■ Safety precautions

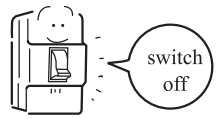
WARNING!

- **Don't blow the human body with the cooling air too long, and don't let the room temperature decrease too low either.**

  Otherwise the one will feel unpleasant or harm ones' health.

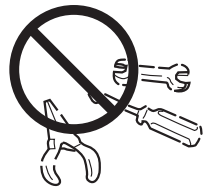
- **If any abnormal phenomena is found (e. g. smell of firing), please cut off the power supply immediately, and contact the dealer to find out the handling method.**

  In such case, to continue using the conditioner will damage the conditioner, and may cause electrical shock or fire hazard.



- **When need maintenance and repairment, call dealer to handle it.**

  Incorrect maintenance and repairment may cause water leak, electrical shock and fire hazard.



- **Please let the dealer be responsible for installing the conditioner.**

  Incorrect installation may cause water leak, electrical shock and fire hazard.

- **Don't put fingers or any other things into the inlet/outlet and swing louver while the conditioner is in operation.**

  Because the highspeed fan is very dangerous and may cause injuries.

- **Call the dealer to take measures to prevent the water from leaking.**

- **When conditioner is deinstalled or reinstalled dealer should be responsible for them.**

  Incorrect installation may cause water leaking, electrical shock and fire hazard.

CAUTIONS!

- **Conditioner should not be used for any other purpose other than airconditioning.**

  Don't use air-conditioner for any other special purposes, e.g. the preservation and protection of food, animals, plants, pecision apparatus as well as work of art, otherwise the qualities of these stuffs may be damaged.

- **When air-conditioner is co-used with other heat-radiator the frequent replacement of room atmosphere should be required.**

  Inefficient ventilation may cause suffocation.

- **Don't operate the air-conditioner with damp hands.**

  Otherwise will be shocked.

- **Don't place any burning unit in the air flow of air-conditioner, which may cause incomplete combustion.**
- **No inflammable spray fluid should be permitted to be placed or used near to airconditioner other wise may cause fire accidents.**
- **Air-conditioner should be cleaned only after power supply is cut off to keep from shock or hurt.**

■ Safety precautions

CAUTIONS!

- **After a long time use of air-conditioner the base should be checked for any damages.**

  If the damaged base isnot repaired, the unit may fall down and cause accidents.

- **Pets and plants should not be blowed directly in the air flow.**

  Otherwise will suffer damage.

- **Don't clean air-conditioner with water.**

  Otherwise may cause shock.

- **When use the fumigating insecticide don't open air-conditioner.**

  Otherwise the poisonous chemicals may settlein air-conditioner which harm the health ofchemical -allergic people.

CAUTIONS ON INSTALLATION

Please ask the dealer or specialist to install, never try by the users themselves. After the installation please be sure of the following conditions.

- **Please call dealer to install the air-conditioner.**

  Incorrect installation may cause water leaking, shock and fire hazard.

CAUTION !

- **Air-conditioner can't be installed in the environment with inflammable gases because the inflammable gases near to air-conditioner may cause fire hazard.**

- **Installed electrical-leaking circuit breaker.**
  It easily cause electrical shock without circuit breaker.

[Location]

- Air-conditioner should be located in well-vented and easily-accessible place.
- Air-conditioner should not be located in the following places:
  (a) Places with machine oils or other oil vapours.
  (b) Seaside with high salt content in the air.
  (c) Near to hot spring with high content of sulfide gases.
  (d) Area with frequent fluctuation of voltage e.g. factory, etc.
  (e) In vehicles or ships.
  (f) Kitchen with heavy oil vapour or humidity.
  (g) Places with acid, alkali vapuor.

- **Connect earthing wire.**

  Earthing wire should not be connected to the gas pipe, water pipe, lightning rod , in-correct earthing may cause shock.

Earthing

- **Use discharge pipe correctly to ensure efficient discharge.**

  Incorrect pipe use may cause water leaking.

[Wiring]

- Air-conditioner should be equipped with special power supply wire.

■ Notes for safety

The instructions with this warning mark must be carried out strictly,for they are all concerned with safety of the product or human beings.

- The instructions with this warning mark must be carried out strictly, for they are all concerned with safety of the product or human beings.
- Clean the dust filter periodically:
- Blockage of the dust filter would reduce the cooling and heating effect, consume more power, water would be leaked during cooling, and other failures would also occur.

The instructions with this prohibiting mark must be completely forbidden, otherwise the product would be damaged or the human being would be injured.

- Never connect the earth wire with the gas pipe, water pipe, lightening arrester, or phone line.
- Never install the air conditioner where the flammable gas is easily leaked.
- Do not spray any paint or insecticide on the air conditioner.
- Never pour water on the air conditioner.
- Keep the inlet and outlet of the air conditioner unblocked.
- When the louver is being swung, never touch the outlet or put anything into the air grille.