

ALFA series

Model: ALFA 12K WIFI, ALFA 18K WIFI, ALFA 24K WIFI



SPLIT TYPE INVERTER AIR-CONDITIONER

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INSTALLATION MANUAL





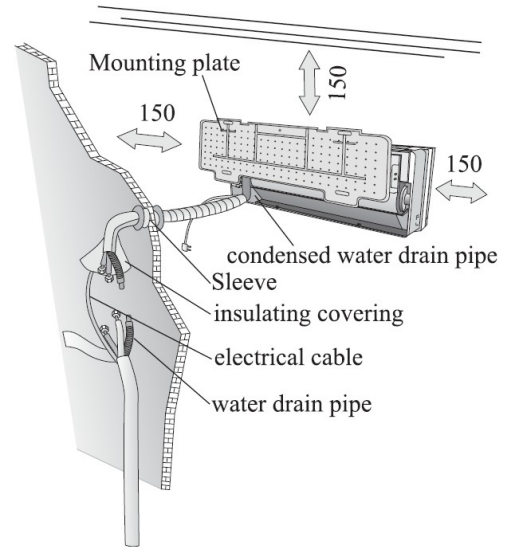
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1. SELECTING THE INSTALLATION PLACE

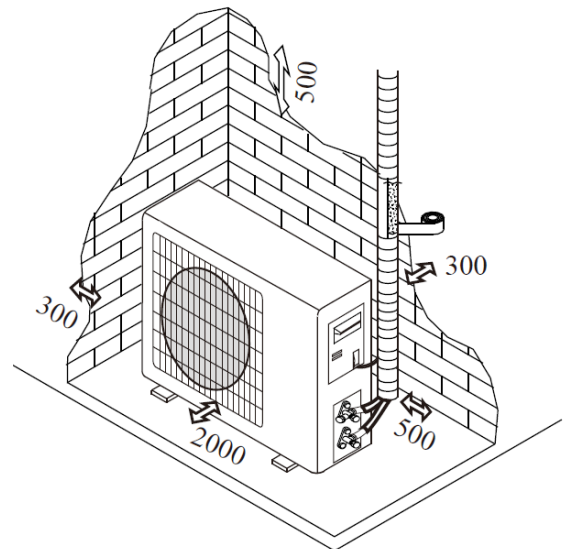
1.1. INDOOR UNIT

- Install the indoor unit on a strong wall that is not subject to vibrations.
- The in let and outlet ports should no be obstructed: the air should be able to blow all over the room.
- Do not install the unit near a source of heat, steam, or flammable gas.
- Install the unit near an electric socket or private circuit.
- Do not install the unit where it will be exposed to direct sunlight.
- Select a site where the condensed water can be easily drained out, and where it is easily connected to outdoor unit.
- Check the machine operation regularly and reserve the necessary spaces as shown in the picture.
- Select a place where the fiter can be easily taken out.



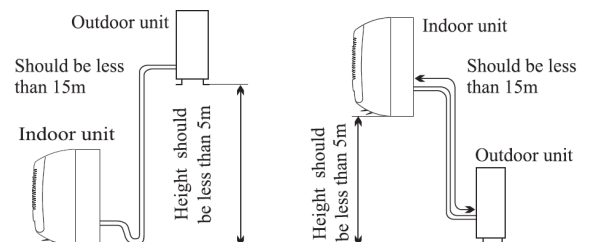
1.2. OUTDOOR UNIT

- Do not install the outdoor unit near sources of heat, steam or flammable gas.
- Do not install the unit in too windy or dusty places.
- Do not install the unit where people often pass. Select a place where the air discharge and operating sound will not disturb the neighbours.
- Avoid installing the unit where it will be exposed to direct sunlight (other wise use a protection, if necessary, that should not interfere with the air flow).
- Reserve the spaces as shown in the picture for the air to circulate freely.
- Install the outdoor unit in a safe and solid place.
- If the outdoor unit is subject to vibration, place rubber gaskets onto the feet of the unit.



1.3. INSTALLATION DIAGRAM

- The purchaser must ensure that the person and/or company who is to install maintain or repair this air conditioner has qualifications and experience in refrigerant products.*



2. INSTALLATION OF THE INDOOR UNIT

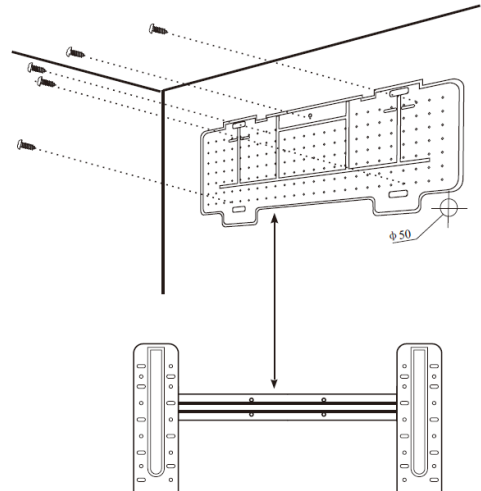
Before starting installation, decide on the position of the indoor and outdoor units, taking into account the minimum space reserved around the units.

- Do not install your air conditioner in a wet room such as a bathroom or laundry etc.
- The installation site should be 250cm or more above the floor.

2.1. INSTALLATION OF THE MOUNTING PLATE

1. Always mount the rear panel horizontally and vertically.
2. Drill 32mm deep holes in the wall to fix the plate.
3. Insert the plastic anchors into the hole.
4. Fix the rear panel on the wall with provided tapping screws.
5. Be sure that the rear panel has been fixed firmly enough to withstand the weight.

The shape of the mounting plate may be different from the one above, but installation method is similar.

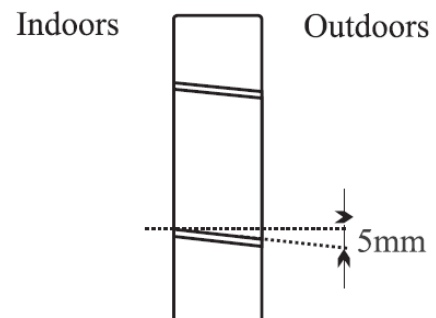


2.2. DRILLING A HOLE IN THE WALL FOR THE PIPING

1. Make the piping hole ($\varnothing 55$) in the wall at a slight downward slant to the outdoor side.
2. Insert the piping-hole sleeve into the hole to prevent the connection piping and wiring from being damaged when passing through the hole.

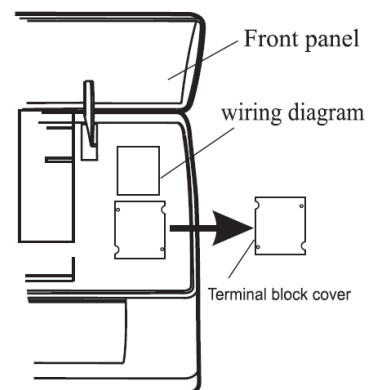
The hole must slope downwards towards the exterior.

Keep the drain pipe down towards the direction of the wall hole, otherwise leakage may occur.



2.3. ELECTRICAL CONNECTIONS INDOOR UNIT




1. Open the front panel.
2. Take off the cover as indicated in the picture (by removing a screw or breaking the hooks).
3. For the electrical connections, see the circuit diagram on the right part of the unit under the front panel.
4. Connect the cable wires to the screw terminals by following the numbering. Use wire size suitable to electric power input (see name plate on the unit) and according to all current national safety code requirements.

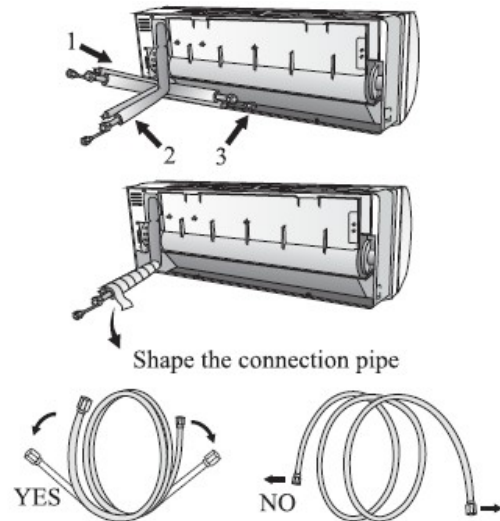


An efficient earth connection must be ensured. Optional the wires can be connected to the main PCB of indoor unit by manufacturer according to the model without terminal block.

2.4. REFRIGERANT PIPING CONNECTION

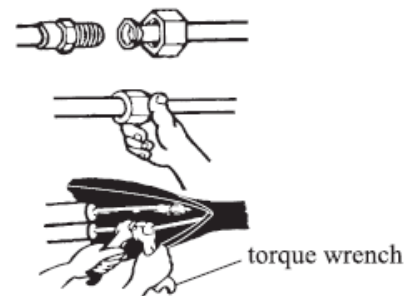
The piping can be run in the 3 directions indicated by numbers in the picture. When the piping is run in direction 1 or 3, cut a notch along the groove on the side of the indoor unit with a cutter. Run the piping in the direction of the wall hole and bind the copper pipes, the drain pipe and the power cables together with the tape with the drain pipe at the bottom, so that water can flow freely.

-  Do not remove the cap from the pipe until connecting it, to avoid dampness or dirty from entering.
-  If the pipe is bent or pulled too often, it will become stiff. Do not bend the pipe more than three times at one point.
-  When extending the rolled pipe, straighten the pipe by unwinding it gently as shown in the picture.



2.5. CONNECTIONS TO THE INDOOR UNIT

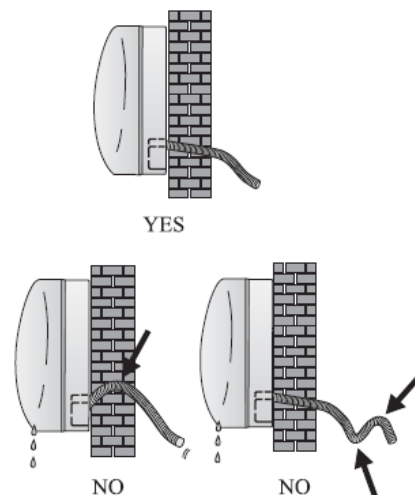
1. Remove the indoor unit pipe cap (check that there is no debris inside).
2. Insert the flare nut and create a flare at the extreme end of the connection pipe.
3. Tighten the connections by using two wrenches working in opposite directions.



2.6. INDOOR UNIT CONDENSED WATER DRAINAGE

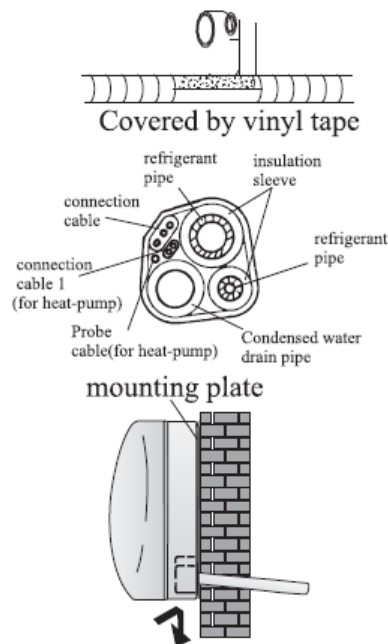
The indoor unit condensed water drainage is fundamental for the success of the installation.

1. Place the drain hose below the piping, taking care not to create siphons.
2. The drain hose must slant downwards to aid drainage.
3. Do not bend the drain hose or leave it protruding or twisted and do not put the end of it in water. If an extension is connected to the drain hose, ensure that it is lagged when it passes into the indoor unit.
4. If the piping is installed to the right, the pipes, power cable and drain hose must be lagged and secured onto the rear of the unit with a pipe connection.








After having connected the pipe according to the instructions, install the connection cables. Now install the drain pipe. After connection, lag the pipe, cables and drain pipe with the insulating material.

1. Arrange the pipes, cables and drain hose well.
2. Lag the pipe joints with insulating material, securing it with vinyl tape.
3. Run the bound pipe, cables and drain pipe through the wall hole and mount the indoor unit onto the upper part of the mounting plate securely.
4. Press and push the lower part of the indoor unit tightly against the mounting plate.



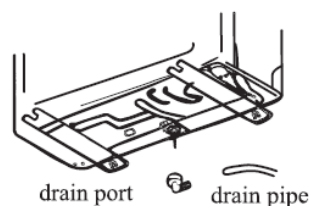
3. INSTALLATION OF THE OUTDOOR UNIT

-  The outdoor unit should be installed on a solid wall and fastened securely.
-  The following procedure must be observed before connecting the pipes and connecting cavles: decide which is the best position on the wall and leave enough space to be able to carry out maintenance easily.
-  Fasten the support to the wall using screw anchors which are particularly suited to the type of wall.
-  Use a larger quantity of screw anchors the normally rquired for the weight they have to bear to avoid vibration during operation and remain fastened in the same position for years without the screws becoming loose.
-  The unit must be installed following the national regulations.

3.1. OUTDOOR UNIT CONDENSED WATER DRAINAGE (ONLY FOR HEAT PUMP MODELS)

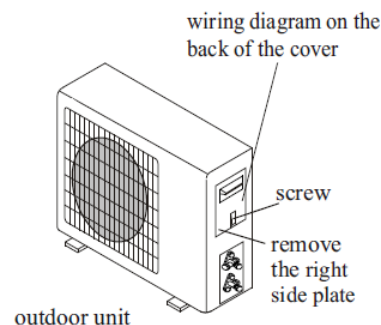
The condensed water and the ice formed in the outood unit during heating operation can be drained away through the drain pipe.

1. Fasten the drain port in the 25mm hole placed in the part of the unit as shown in the picture.
2. Connect the drain port and the drain pipe. Pay attention that water is drained in a suitable place.



3.2. ELECTRICAL CONNECTIONS

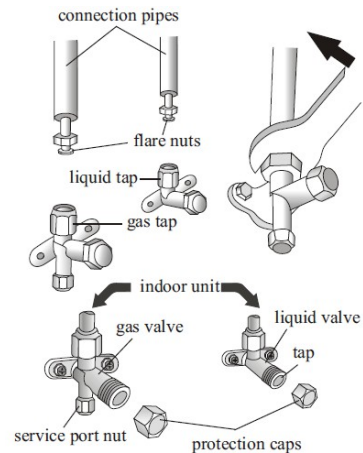
1. Remove the handle on the right side plate of outdoor unit.
2. Connect the power connection cord to the terminal board. Wiring should fit that of indoor unit.
3. Fix the power connection cord with wire clamp.
4. Confirm if the wire has been fixed properly.
5. An efficient earth connection must be ensured.
6. Recover the handle.



3.3. CONNECTING THE PIPES

Screw the flare nuts to the outdoor unit coupling with the same tightening procedures described for the indoor unit. To avoid leakage, pay attention to the following points:

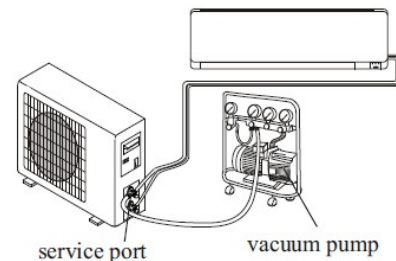
1. Tighten the flare nuts using two wrenches. Pay attention not to damage the pipes.
2. If the tightening torque is not sufficient, there will probably be some leakage. With excessive tightening torque there will also be some leakage, as the flange could be damaged.
3. The surest system consists in tightening the connection by using a fix wrench and a torque wrench: in this case use the table on page 10.



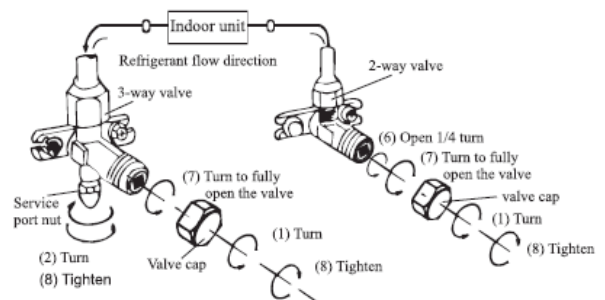
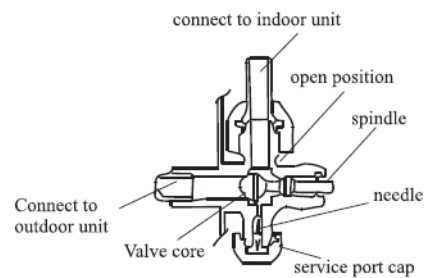
3.4. BLEEDING

Air and humidity left inside the refrigerant circuit can cause compressor malfunction. After having connected the indoor and outdoor units, bleed the air and humidity from the refrigerant circuit by using a vacuum pump.

- ➡ (1) Unscrew and remove the caps from the 2-way and 3-way valves.
- ➡ (2) Unscrew and remove the cap from the service port.
- ➡ (3) Connect the vacuum pump hose to the service port.
- ➡ (4) Operate the vacuum pump for 10-15 minutes until an absolute vacuum of 10mm Hg has been reached.
- ➡ (5) With the vacuum pump still in operation, close the low-pressure knob on the vacuum pump coupling. Stop the vacuum pump.
- ➡ (6) Open the 2-way valve by 1/4 turn and then close it after 10 seconds. Check all the joints for leaks using liquid soap or an electronic leak device.
- ➡ (7) Turn the body of the 2-way and 3-way valves. Disconnect the vacuum pump hose.
- ➡ (8) Replace and tighten all the caps on the valves.



3-way valve diagram



4. OPERATION TEST

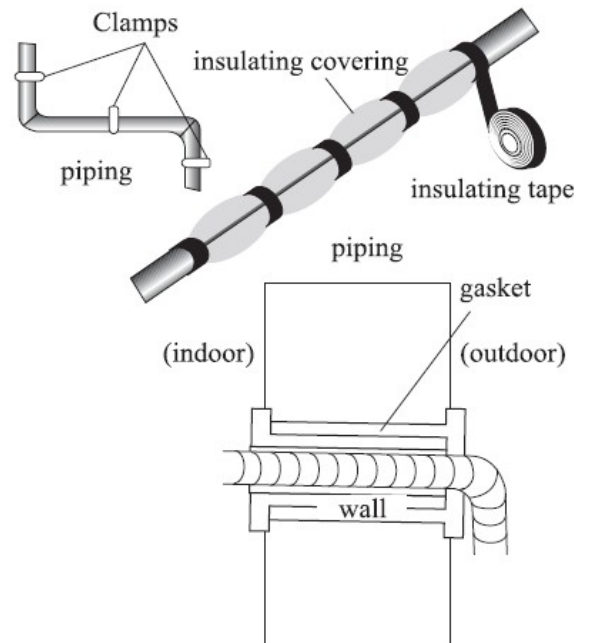
1. Wind insulating covering around the joints of the indoor unit and fix it with insulating tape.
2. Fix the exceeding part of the signal cable to the piping or to the outdoor unit.
3. Fix the piping to the wall (after having coated it with insulating tape) using clamps or insert them into plastic slots.
4. Seal the hole in the wall through which the piping is passed so that no air or water can fill.

4.1. INDOOR UNIT TEST

- Do the ON/OFF and FAN operate normally?
- Does the MODE operate normally?
- Do the set point and TIMER function properly?
- Does each lamp light normally?
- Do the flap for air flow direction operate normally?
- Is the condensed water drained regularly?

4.2. OUTDOOR UNIT TEST

- Is there any abnormal noise or vibration during operation?
- Could the noise, the air flow or the condensed water drainage disturb the neighbours?
- Is there any coolant leakage?



The electronic controller allows the compressor to start only three minutes after voltage has reached the system.



5. INFORMATION FOR THE INSTALLER

| INVERTER TYPE CAPACITY (Btu/h) | 9K/13K | 22/24K |
|---|----------|----------|
| Length of pipe with standard charge | 4m | 4m |
| Maximum distance between indoor and outdoor unit | 15m | 15m |
| Additional refrigerant charge | 15g/m | 25g/m |
| Max. Diff. In level between indoor and outdoor unit | 5m | 5m |
| Type of refrigerant | R32/R290 | R32/R290 |

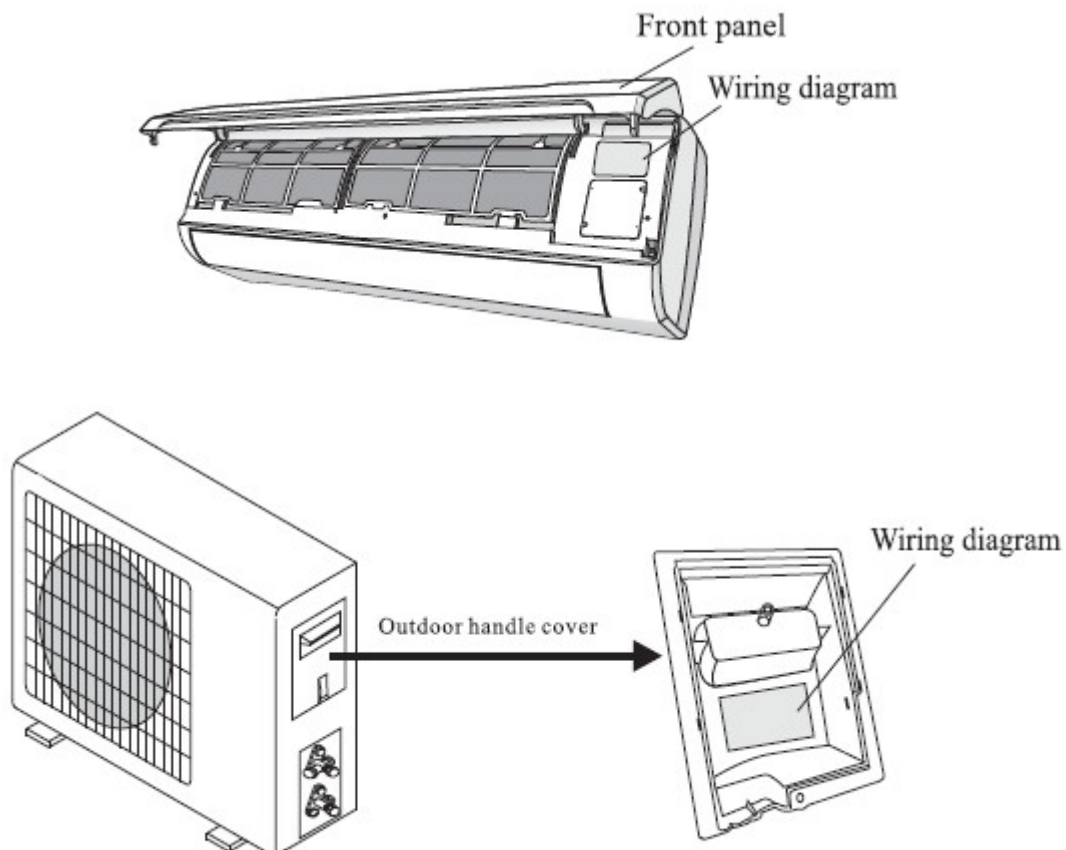
5.1. TIGHTENING TORQUE FOR PROTECTION CAPS AND FLANGE CONNECTION

| PIPE | TIGHTENING TORQUE [N x m] | CORRESPONDING STRESS (using a 20cm wrench) | | TIGHTENING TORQUE [N x m] |
|-------------------------|------------------------------|---|------------------|------------------------------|
| 1/4" (ϕ 6) | 15-20 | Wirst strength | Service port nut | 7-9 |
| 3/8" (ϕ 9.52) | 31-35 | Arm strength | Protection caps | 25-30 |
| 1/2" (ϕ 12) | 35-45 | Arm strength | | |
| 5/8" (ϕ 15.88) | 75-80 | Arm strength | | |

5.2. WIRING DIAGRAM


For different models, the wiring diagram may be different. Please refer to the wiring diagrams pasted on the indoor unit and outdoor unit respectively.

- ☞ On indoor unit, the wiring diagram is pasted under the front panel.
- ☞ On outdoor unit, the wiring diagram is pasted on the backside of the outdoor handle cover.



 For some models the wires has been connected to the main PCB of indoor unit by manufacturer without terminal block.


6. CABLE WIRES SPECIFICATION

| INVERTER TYPE CAPACITY (Btu/h) | | 10K | 13K | 18/22K | 24K | |
|-----------------------------------|---|---|---|--------------------------------|--------------------------------|--|
| | | Sectional Area | | | | |
| Power supply cable | N | 1.0mm ² (1.5mm ²) AWG18 (AWG16) | 1.0mm ² (1.5mm ²) AWG18 (AWG16) | (1.5mm ²) AWG16 | (1.5mm ²) AWG14 | |
| | L | 1.0mm ² (1.5mm ²) AWG18 (AWG16) | 1.0mm ² (1.5mm ²) AWG18 (AWG16) | (1.5mm ²) AWG16 | (1.5mm ²) AWG14 | |
| | E | 1.0mm ² (1.5mm ²) AWG18 (AWG16) | 1.0mm ² (1.5mm ²) AWG18 (AWG16) | (1.5mm ²) AWG16 | (1.5mm ²) AWG14 | |
| Connection supply cable | N | 1.0mm ² (1.5mm ²) | 1.0mm ² (1.5mm ²) | 1.5mm ² | 0.75mm ² | |
| | L | 1.0mm ² (1.5mm ²) | 1.0mm ² (1.5mm ²) | 1.5mm ² | 0.75mm ² | |
| | 1 | 1.0mm ² (1.5mm ²) | 1.0mm ² (1.5mm ²) | 1.5mm ² | 0.75mm ² | |
| |  | 1.0mm ² (1.5mm ²) | 1.0mm ² (1.5mm ²) | 1.5mm ² | 0.75mm ² | |

6.1. AIR CONDITIONER INDOOR UNIT FUSE PARAMETER IS

 220V 7K, 9K, 12K, 15K, 16K, 18K, 22K, 24K, 30K = 50T, 3.15A

6.2. AIR CONDITIONER INDOOR UNIT FUSE PARAMETER IS

 110V 7K, 9K, 12K = 50T, 3.15A

6.3. AIR CONDITIONER OUTDOOR UNIT FUSE PARAMETER IS

 125V 7K, 9K, 12K = 61T, 15A

6.4. AIR CONDITIONER OUTDOOR UNIT FUSE PARAMETER IS

 250V 18K, 22K, 24K = 65TS, 25A

7. MAINTENANCE

Periodic maintenance is essential for keeping your air conditioner efficient.

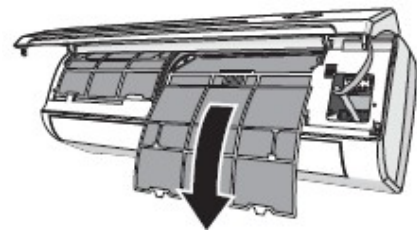
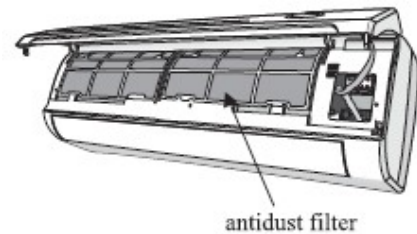
Before carrying out any maintenance, disconnect the power supply by taking the plug out from the socket.

7.1. INDOOR UNIT

Antidust filters

1. Open the front panel following the direction of the arrow.
2. Keeping the front panel raised with one hand, take out the air filter with the other hand.
3. Clean the filter with water if the filter is soiled with oil, it can be washed with warm water (not exceeding 45°C). Leave to dry in a cool and dry place.
4. Keeping the front panel raised with one hand, insert the air filter with the other hand.
5. Close.

The electrostatic and the deodorant filter (if installed) cannot be washed or regenerated and must be replaced with new filters after every 6 months.



7.2. CLEANING THE HEAT EXCHANGER:

1. Open the front panel of the unit and lift it till its greatest stroke and then unhooking it from the hinges to make the cleaning easier.
2. Clean the indoor unit using a cloth with the water (not higher than 40°C) and neutral soap. Never use aggressive solvents or detergents.
3. If the outdoor unit is clogged, remove the leaves and the waste and remove the dust with air jet or a bit of water.

7.3. END OF SEASON MAINTENANCE:

- Disconnect the automatic switch or the plug.
- Clean and replace the filters.
- On a sunny day let the conditioner work in ventilation for some hours, so that the inside of the unit can dry completely.



8. TROUBLESHOOTING

8.1. POSSIBLE FAULTS

| Case | Possible cause |
|--|---|
| Device doesn't work | A power failure / defective plug has occurred |
| | Indoor / outdoor unit fan motor damaged |
| | Compressor thermomagnetic switch defective |
| | Defective protective device or fuses |
| | Too loose connections or plug |
| | Automatic off device, self-protection function |
| | Higher or higher voltage than recommended |
| | TIMER ON function active |
| | Motherboard damage |
| Strange smell | The air filter is dirty |
| Sound of flowing water | Regression liquid in the drain |
| A slight mist is emitted from the air outlet | This happens when the air in time becomes very cold, for example in COOL or DRY modes |
| Strange noise | This noise is caused by expansion or contraction of the front panel due to temperature changes, not a problem |
| Insufficient air flow, too hot or cold | Incorrect temperature setting |
| | The air inlet or outlet of the indoor or outdoor unit is blocked |
| | The air filter is blocked |
| | The fan speed is set to the minimum |
| | Other heat sources in the room |
| | No refrigerant |
| The device does not respond to commands | The remote control is not close enough to the indoor unit |
| | Low battery on the remote control |
| | There is an obstacle between the remote control and the signal receiver on the main unit |
| Display is off | LED function active |
| | No power |



8.2. SWITCH OFF THE AIR CONDITIONER IMMEDIATELY AND CUT OFF THE POWER SUPPLY IN THE EVENT OF

- Strange noises during operation
- Faulty electronic control board
- Faulty fuses or switches
- Spraying water or objects inside the appliance
- Overheated cables or plugs
- Very strong smells coming from the appliance.

8.3. ERROR SIGNALS ON THE DISPLAY

If case of error, the display on the indoor unit shows the following error codes.

| | RUN LAMP | DESCRIPTION OF THE TROUBLE |
|----|-----------------|---|
| E1 | Flashes once | The fault of indoor temperature sensor |
| E2 | Flashes twice | The fault of indoor pipe temperature sensor |
| E6 | Flashes 6 times | Malfunction of indoor fan motor |