

# USE AND INSTALLATION MANUAL **PICCOLO**

On/Off water cooled  
conditioning system

## **SET CODE**

PICCOLO 12

PICCOLO 18



## CE DECLARATION OF CONFORMITY

### Description

MONOSPLIT WATER TO AIR

### Model

PICCOLO 12

PICCOLO 18

Is in compliance with the follow ECC direcrives, latest modification included, and the relevant nationale granting regulations in force:

2004/108/CE

2006/95/CE

2003/108/CE

2011/65/CE

2012/2016/CE

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# 1. GENERAL INFORMATION

## 1.1 SYMBOLOGY

Within this publication and / or inside the equipment we used the following symbols:



**USER:** Information, paragraph, chapter Manual affecting the user or the user.



**INSTALLER:** Information, paragraph, section of the manual that affect the installer.



**TECHNICAL ASSISTANCE CENTRE:** Information, paragraph, chapter of the manual that affect the service center.



**IMPORTANT:** Calls attention to technical information and practical advice that make possible a more efficient use and economical equipment.



**OBLIGATION:** Calls attention to actions that impose an obligation in order to obtain the correct functioning of the machine.



**WARNING:** Calls attention to actions that, if not correctly performed, may cause serious injury.



**PROHIBITION:** Calls attention to actions that impose a ban.



**VOLTAGE WARNING:** Calls attention to actions that, if not carried out correctly, can cause serious injury or death to exposed persons.



**DANGER HIGH TEMPERATURES:** Calls attention to actions that, if not correctly performed, may cause serious personal injury caused by the high temperature of the components.

## 1.2 USE ALLOWED

These appliances have been designed for cooling of the air. A different application, unless expressly authorized by Tekno Point, is to be considered improper and therefore not permitted.

Tekno Point excludes all contractual and non-contractual liability for damage caused to people, animals or things by incorrect installation, adjustment and maintenance, improper use or as a partial or superficial reading of the information contained in this manual. In addition, the ongoing improvements of the products, reserves the right to change the data in any time and without notice and is not responsible for any inaccuracies contained in this document, if due to printing or copying errors.

**Please read this file, the execution of all work must be performed by qualified and experienced personnel, knowing the rules in force in different countries.**

**The guarantee is invalidated if they do not meet the above mentioned directions.**

The documentation supplied with the unit must be delivered to the end customer (user) who should keep it carefully for future maintenance or service.

**Upon delivery of the goods by the carrier,** check the integrity of the packaging is that the units. Should you find any damage or lack of components, indicate this on the delivery note to the unit's receipt: please make an all-party control, in order to verify that the transport did not cause damage, the damage may be present must be communicated to the carrier, adding the clause reserves on the transport document, specifying the type of damage, also inform, by fax or registered mail within 8 days from the date of receipt of goods, a formal complaint to the company.

### 1.3 OBSERVATIONS

Keep the manual in a dry location to avoid deterioration. carefully read and understood all the information contained in this manual.

Pay particular attention to the operating standards with **“DANGER,” “PROHIBITION” or “REQUIRED”** because, if neglected, may cause damage to the machine and / or to persons and property.

For anomalies do not by this manual, contact the Customer Service. Tekno Point accepts no responsibility for any damage due to improper use of the machine, and a partial or superficial reading of the information contained in this manual.

The device must be installed in such a way as to make possible the maintenance and / or repair.

The warranty does not cover in any case cover costs doutdoor unit to lifting apparatus and platforms or other lifting systems that would be necessary to carry out warranty work.

Tekno Point does not emit drawings or specifications of the connection systems. Any departure from the requirements contained in this manual must be validated in writing by the technical Tekno Point.

### 1.4 SAFETY RULES



Recall that the use of products using electricity and water, involves the observance of some fundamental safety rules such as:

The use by children and unassisted disabled persons.  
Do not touch the appliance when barefoot or with wet or damp parts of the body.

**It does not carry out cleaning operations without first disconnecting the electric power supply by moving the main system switch to “off.”**

It is forbidden to modify the safety or adjustment devices without authorization and instructions from the manufacturer.

Do not pull, detach or twist the electrical cables coming from, even when disconnected from the power network.

Do not open the doors of access to internal components, if it is not switched off the system using the main switch.

You do not climb on the appliance with walking, sitting and / or rest any type of object.

Do not spray or pour water directly on the unit.  
You not dispose of, abandon or leave within reach of children packaging materials (cardboard, staples, plastic bags, etc.)  
As it can be potentially dangerous.



**Respect safety distances between the unit and other equipment or structures** to ensure sufficient drive access space for maintenance and / or service as described in this handbook (see chapter Technical spaces).



**Power unit:** must be done with electric cables of adequate section for the power of the unit and the power supply voltage values must match those indicated on the respective machines; All units must be earthed in compliance with current legislation in the different countries.



**hydraulic coupling must be performed as instructed to ensure proper operating condition.** If during the winter period the unit is not in operation it is necessary to empty the water circuit.



**Handle the unit with** care avoiding to turn it over and overlay parcels that could damage it.



**Tampering, removal, deterioration of identification plates, makes difficult any installation, maintenance and ordering spare parts.**

### 1.5 RECEIPT OF THE PRODUCT AND HANDLING

This equipment is supplied on a wooden pallet protected by cardboard packaging. A kit is also provided:

- Manual Installation, use and maintenance of comprehensive warranty and the EC declaration
- Anti-vibration feet, water filter, gas fittings for indoor unit (in models where necessary).

- Documentation ventilating unit (inside their packaging).
- Connection diagram (adhesive label on the inside of the inspection panel).



**The Owner's Manual is an integral part of the equipment; it is recommended to read and kept with care.**

Unpack only with equipment placed in the installation position. After removing the packaging, handling should be carried out by qualified personnel and equipped with adequate facilities to the weight of the structure. The manipulation of the condensing unit is only permitted in the vertical position maintained equipment.



To disperse the parts of the package, or leave them within reach of children as they are potential sources of danger. Packaging must be disposed according to local legislation.



Check upon receipt that there are no transport damage and / or handling, and that in the package are present all desired accessories.



## 2. DESCRIPTION UNIT PICCOLO

### 2.1 BEFORE INSTALLING

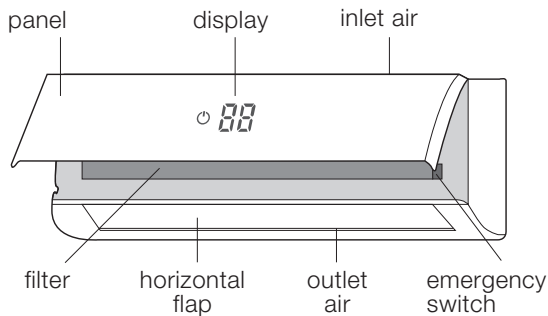
Before installing the unit, carefully read and store the user manual and manufacturer's general conditions listed below.

1. Make sure that the unit corresponds with the needs of the system.
2. Make sure that the cooling water flow is sufficient for the proper functioning of the system.
3. Make sure that refrigeration and hydraulic piping is correct according to the manufacturer's requirements.
4. Assemble the water filter provided to protect the plate exchanger (water inlet).
5. If impurities are present in the water, perform periodic filter maintenance.
6. Make sure the electrical connection terminals are powered by the correct voltage (see unit's identification plate). An incorrect voltage will irreparably jeopardise the main components of the unit.
7. If alarms are activated, consult the user manual or contact the manufacturer's service assistance centre.
8. Do not force, for any reason, the operation of the unit, or tamper or alter the safety devices inside it.
9. Start up cannot be carried out with incomplete, provisional systems or carried out in a precarious manner.
10. The connections to the unit (hydraulic and electric) must be carried out by skilled, competent personnel and must meet all safety standards and health regulations currently in force in the country in which the unit is used.
11. The technical documentation (diagrams and manuals) must be kept in good condition in an easily accessible place for quick reference when needed.
12. The unit should not be used for purposes that do not correspond with the uses for which it was built.
13. Respect the technical spaces indicated in this manual to ensure good access to the unit during maintenance.
14. If damage occurs to the unit caused by the failure to comply with the above-mentioned points or the information contained in this manual, the manufacturer reserves the right to partially or completely void the guarantee.
15. Contact the manufacturer's Technical Assistance Centre for further explanation or clarification regarding the above information.



# 3. USER GUIDE INDOOR UNIT

## INDOOR UNIT



## REMOTE CONTROL



### 3.1 BATTERY INSTALLATION

1. Press the back of the remote at the point indicated by the symbol slide the cover in the direction of the arrow.
2. Insert two 1.5V AAA batteries, and make sure that the polarity is correct. Re-insert the cover.

3. After powering up the device, press the "ON / OFF" button on the remote control to turn them on the device.

### 3.2 USER GUIDE

1. After powering up the device, press the "ON / OFF" button on the remote control to turn them on the device.
2. Press the "MODE" button to select the desired operating mode: Auto (Auto Preset), Cool (cooling), Dry (dehumidification), Fan (ventilation), Heat (heat pump).
3. Press the (-) or (+) buttons to select the desired temperature. (Can not be selected in AUTO mode).

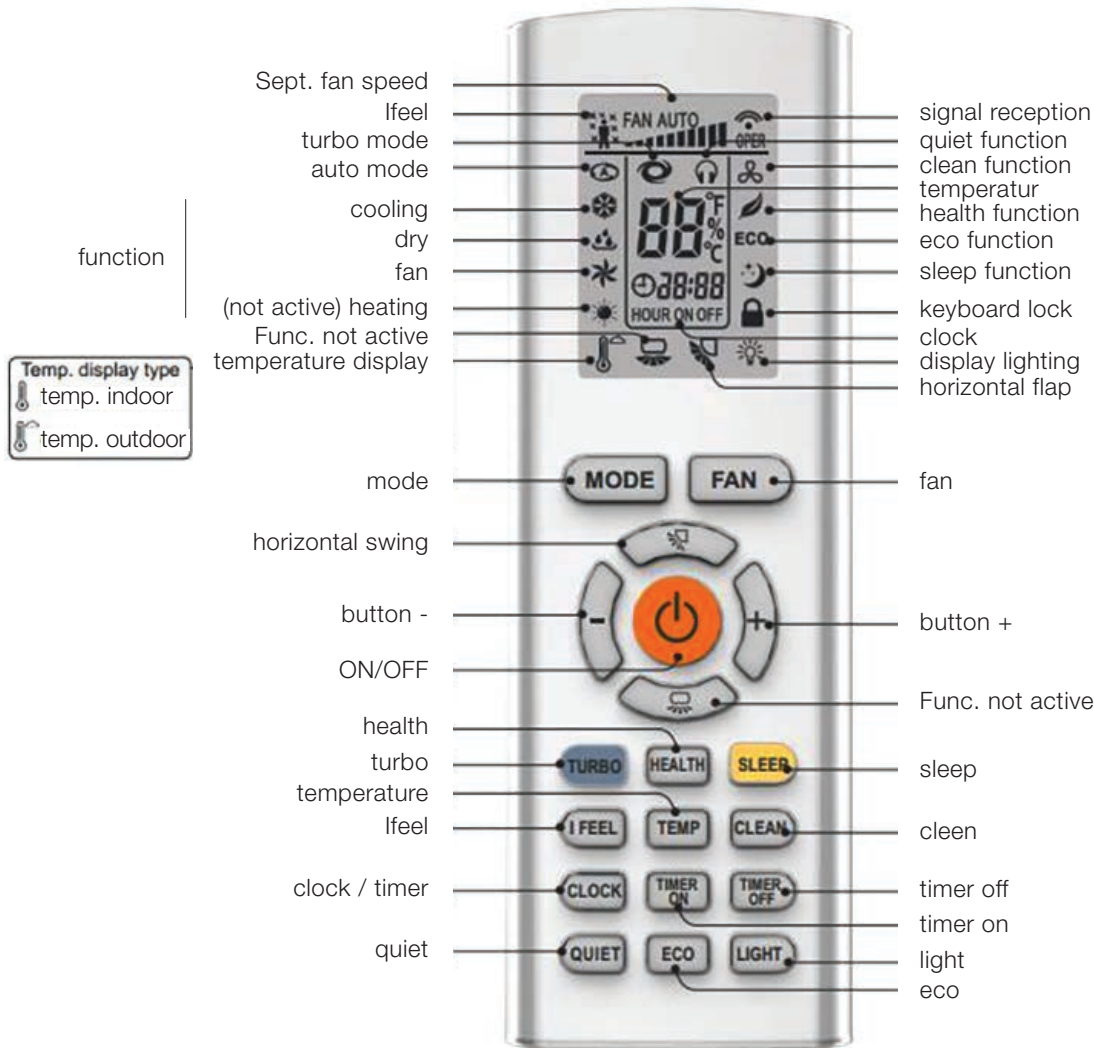
4. Press the "FAN" button to select the desired fan speed: Auto, fan1, fan2, Fan3, fan4, fan5, InfinteSpeed.


5. Press the (↺) buttons to select the direction of the air flow.

- While using the remote control aim it in the direction Inner Unity.
- The distance between the remote control and the receiver must not be greater than 8 meters, and there must be no obstacles.
- The infrared signal could suffer interference from the reactor of fluorescent lamps or WI-FI sources. In these cases it is recommended that the distance between the remote control Indoor Unit.

- ❗ Replace the old batteries with two new of the same type, and dispose of according to current legislation.
- In the event of prolonged disuse of the remote control it is advisable to remove the batteries.

### 3.3 BUTTONS REMOTE CONTROL




- After attacking the power, the air conditioner will beep. The indicator is ON. After you can use the air conditioner with the remote control. While the indicator is ON, pressing the remote control button, the icon  will flash once and the air conditioner

will beep, which means that the signal has been sent to the air conditioner. While the indicator is OFF, the “light” and “clock” icon will appear on the remote screen.

### 3.4 MODE BUTTON

By pressing this button you can you can select the desired operating mode.

When you select the AUTO mode, the air conditioner will operate in accordance with the set of factory settings. The temperature can not be set and will not appear on the display, as usual. Or by pressing this button  you can adjust the angle of the flap and then the direction of the air jet. After you select the COOL mode, the air conditioner will operate in cooling mode. Press the “+” and “-” to adjust the temperature.

Press the FAN button to vary the air outlet speed. When you select the DRY mode, the air conditioner will operate in dry mode at the lowest speed setting (fan1). In

this mode you can not adjust the air speed. When you select the FAN mode, the air conditioner will release air at room temperature will not warm it raffrescherà.

Pressing the FAN button you can adjust the air outlet speed.



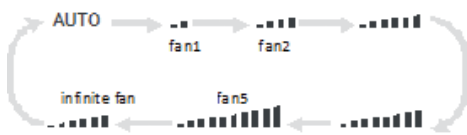


**I** To prevent the release of cold air once set the indoor unit will delay of 1-5 min of air leakage.

the temperature range can be set from 16 to 31 ° C; air speed: Auto, fan1, fan2 Fan3, fan4, fan5 and turbo.

### 3.5 BUTTON FAN


Repeatedly pressing this button will select sequentially the required fan speed, according to the circular pattern shown below.

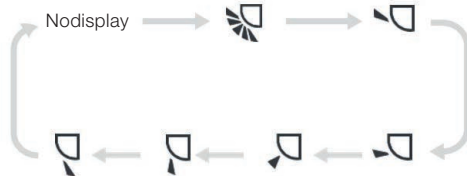


**notes:**


1. In the AUTO speed, the unit selects the optimum speed depending on the mode of operation and the measured and desired temperatures.
2. Fan speed in DRY mode is FAN1.
3. "Infinite fan" speed mode, allows the user to adjust the fan speed by buttons "+" or "-".

### 3.6 BUTTON

Pressing this button, the swing function (vertical tilt of the deflector) is activated or deactivated. Pressing a remote control simultaneously OFF "MODE" button and the  button you get the desired positioning, according to the circular pattern shown below, and shown in the display.



**notes:**

If you select with the remote control, it is self swing the horizontal flap basculerà vertically and continuously to the maximum angle.  When you select fixes the flap position. The horizontal flap will stop in the position shown in the display.

### 3.7 BUTTON + E -

Press the button once "+" or "-" to increase or decrease of one the desired temperature. Keeping them pressed the value will change rapidly. The desired temperature (not set in "AUTO" mode) will be displayed in the display.

Mode TIMER ON, TIMER OFF or CLOCK, by pressing "+" or "-" you adjust the timer (See CLOCK key, TIMER ON, TIMER OFF).

### 3.8 BUTTON TURBO


Press this button to activate or deactivate the TURBO mode operation COOL / HEAT / FAN.

- Pressing the "QUIET" buttons or "FAN" this function is deactivated.
- Not available in DRY and AUTO mode.

### 3.9 BUTTON HEALTH

Press this button to toggle the mode HEALTH

### 3.10 BUTTON LIGHT


Press the "LIGHT" button to activate and deactivate the display of the panel. The icon  of the remote control will activate or deactivate accordingly.

### 3.11 BUTTON SLEEP

Press this button to activate or deactivate the SLEEP mode operation COOL / HEAT / DRY.

- To change the "MODE" the SLEEP mode will be canceled.
- The feature is not available in FAN and AUTO modes.

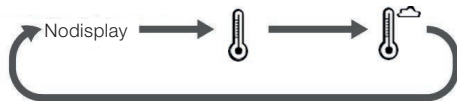
### 3.12 BUTTON I FEEL



Press this button to activate and deactivate I FEEL and the corresponding icon will be display  in the remote control display. By activating this function the probe temperature will be that in the remote control, which will send the information

to the indoor unit. Make sure that the handset is close to the user, away from sources of heat or cold environments, and is able to communicate via infrared with the indoor unit.

### 3.13 BUTTON TEMP

By pressing this button, you can visualizzare in the desired temperature of the panel display, the measured temperature Unit Internal and External Unit, according to the circular pattern shown below:



- "No Display" will display the desired temperature
-  displays the temperature measured Inner Unit
-  displays the temperature measured by the Unit External

The indication of outside temperature is not available for all models. In this case the display will indicate the internal temperature.

### 3.14 BUTTON CLEAN

In CLEAN mode, the air conditioner automatically cleans and dries the evaporator, keeping it in top condition for the next operation. The Clean function is activated only in cooling or dry mode.

**notes:**  
If the air conditioner is running in cooling or dry mode, press the Clean button activates or deactivates the cleaning function

### 3.15 BUTTON CLOCK

To program the zone, press and 0:00 into the remote display will flash. Press "+" or "-" within 5 seconds to adjust the hour. Each press of "+" or "-" buttons, the clock increases or decreases by 1 hour.


Pressing again 0:00 into the remote display will flash. Press "+" or "-" within 5 seconds. to adjust the minutes. Each press of the buttons "+" or "-", the clock will increase or decrease

by 1 min. Holding down "+" or "-" button, the display values will change fast.

Once you reach the desired value, press "CLOCK" to confirm, The icon will stop blinking 00:00.


**notes:**  
The watch adopts 24-hour mode 00-24.

### 3.16 BUTTON TIMER ON

This button selects the desired start time. After pressing the icon  disappears, "ON" and blink 00:00. Press "+" or "-" for 5 sec. to select the desired ignition time "TIMER ON". Each press of the buttons "+" or "-", the clock increases or decreases by 1 hour. Pressing "TIMER ON" 0:00 in the remote control display will flash. Press "+" or "-" within 5 seconds to adjust the minutes. Each press of the buttons "+" or "-", the clock will increase or decrease by 10 minutes. Pressing "TIMER ON" 0:00 in the remote control display will

flash. Press "+" or "-" within 5 seconds. to adjust the minutes. Each press of the buttons "+" or "-", the clock will increase or decrease by 1 min. Holding down "+" or "-", the display values will change fast. Press again "TIMER ON" to confirm. The display will stop flashing. To clear the programmed start press "TIMER ON".

### 3.17 BUTTON TIMER OFF

This button selects the desired sleep time. After pressing the icon  disappears, "OFF" and flashing 00:00. Press "+" or "-" for 5 sec. to select the desired start time "TIMER OFF". For each button press "+" or "-", the clock increases or decreases by 1 hour. Pressing "TIMER OFF" on display 00:00 in the remote control will flash. Press "+" or "-" within 5 seconds. to adjust the minutes. Each press of the buttons "+" or "-", the clock will increase or decrease by 10 minutes. Pressing "TIMER OFF", the display on the remote control

will flash. Press "+" or "-" within 5 seconds. to adjust the minutes. Each press of "+" or "-", the clock will increase or decrease by 1 minute. Holding down "+" or "-", the display values will change fast. Press again "TIMER OFF" to confirm. The display will stop flashing. To clear the sleep timer press "TIMER OFF"

### 3.18 BUTTON QUIET

This feature allows you to increase the quietness of operation Inner Unity.

### 3.19 NOTES FOR DISPOSAL

1. Most of the packaging materials are recyclable. Please dispose of them in appropriate recycling units.
2. If you want to eliminate the air conditioner, please contact the manufacturer or a local authority waste management for proper disposal.

### 3.20 BUTTON ECO


In cool mode (cooling), Press the "ECO" button to configure the unit in "ECO" mode (low-power / low environmental impact)

- Appears in Display the ECO icon.
- Automatic adjustment of cooling capacity and ventilation. It is not possible temperature settings.

- The "SLEEP" mode and "ECO" can not be set simultaneously.
- Pressing the "MODE" button disables the "ECO mode".

### 3.21 FEATURES INTRODUCED WITH COMBINATION OF BUTTONS

#### Children safety

Press "+" and "-" simultaneously to activate and deactivate the "LOCH" function. The icon  of the remote control will activate or deactivate accordingly.

#### Unit of measure

The unit is off, press the buttons "-" and "MODE" simultaneously to set the temperature units between ° C and ° F and vice versa.

#### minimum temperature settable value

With the machine off press both buttons "TEMP" and "-". The display will show the minimum temperature set in cooling mode (default 16 ° C). E 'can set a new value using the "+" or "-" from 16 ° C to 31 ° C. A further press of the "TEMP" and "-" shows the machine in stand-by.

#### minimum temperature settable value

With the machine off press both buttons "TEMP" and "+". The display will show the minimum set in the cooling temperature (default 31 ° C). E 'can set a new value using the "+" or "-" from 16 ° C to 31 ° C. A further press of the "TEMP" and "+" buttons shows the machine in stand-by.

### 3.22 START OF SEASON

1. Make sure the air vents are clear.
2. Check whether the electrical switch, plug and outlet are in good condition.
3. Check the filter is clean.
4. Check if the drain hose is effective.
5. Disconnect the power supply.
6. Clean filters and panel Indoor Unit.

# 4. CLEANING AND MAINTENANCE INDOOR UNIT

## 4.1 CLEANING THE PANEL

To clean the I.U. panel, it is recommended to use a soft damp cloth or dry.

### notes:

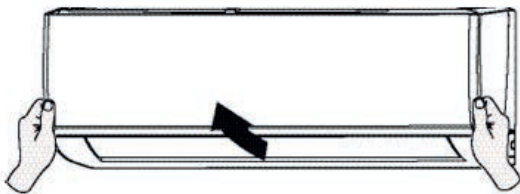
Do not remove the panel to clean it.



## 4.2 CLEANING FILTERS

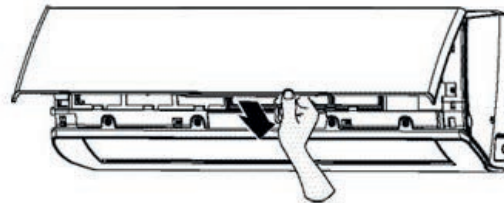
1. Open the panel.

Pull the panel as shown in FIG.



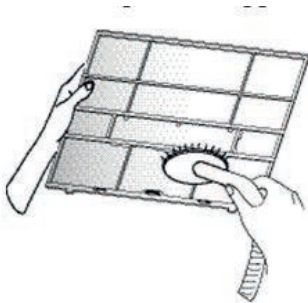
2. Remove the filter.

Remove the filter as shown in FIG.



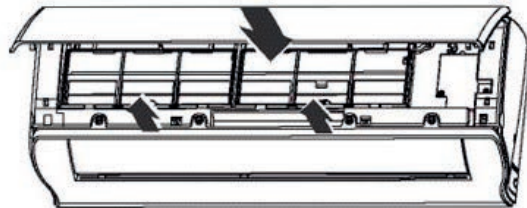
3. Clean the filter.

Use a vacuum cleaner to clean the filter. When the filter is very dirty, use water (below 45 ° C) to clean it, and then put it in a shady and cool place



4. Insert the filter.

Insert the filter clean, dry and close the panel.



**ELECTRICAL DISCONNECT THE UNIT BEFORE ATTEMPTING TO CLEAN IT, TO PREVENT SHOCK END.**



**DO NOT CLEAN THE APPLIANCE WITH JETS OF WATER, TO AVOID ELECTRICAL SHOCK END.**



**DO NOT CLEAN THE APPLIANCE WITH LIQUID HIGH VOLATILITY.**

- The filter should be cleaned every three months. If there is a lot of dust in the environment of operation, the frequency must be increased. After removing the filter, do not touch the fins to avoid injury. Do not use fire or hair dryer to dry the filter to prevent deformation or fire hazards.

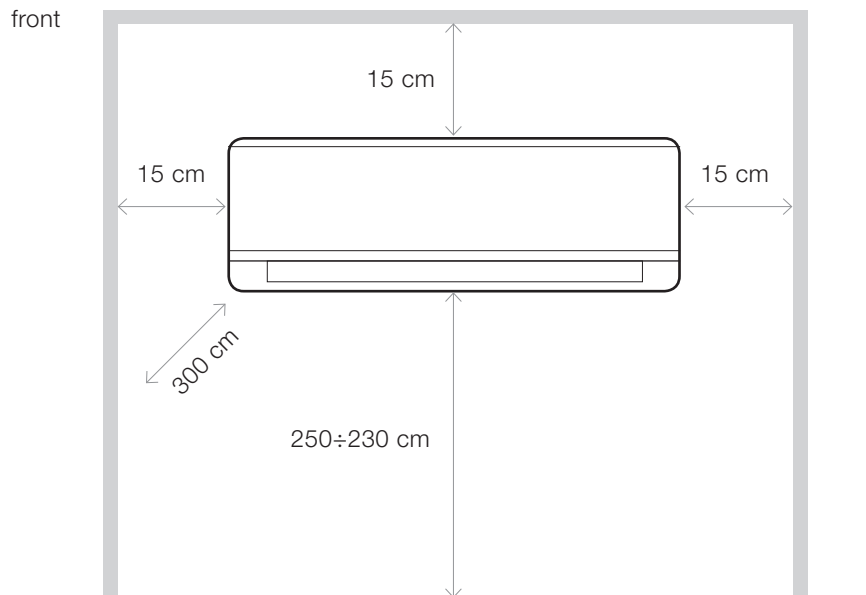
# 5. MALFUNCTION ANALYSIS

## INDOOR UNIT

### 5.1 GENERAL IMPACTS OF NON-COMPLIANCE

irregularity	verification	Remedy
The indoor unit does not receive the signal from the remote control	There were power surges?	Cut off the power and feed it after a wait of at least 180sec.
	There are fluorescent lamps?	Move the remote closer all'U.I. Turn off fluorescent lamps and try again.
	The remote control is beyond the scope of maximum distance?	The maximum distance is 8 m.
	There are obstacles between remote control and unit?	Removing obstacles
	The remote is pointed correctly to the receiver?	Replace the remote control and try again.
	The display is uneven?	Check the batteries, replace them if necessary.
	The remote control appears to regulate, positioned correctly but the U.I. It does not receive the signal	Contact supplier.
No air comes out	Air intake or outlet blocked?	Remove any obstacles.
	!The set temperature has been reached?	After reaching the temperature set, the UI stops the fan.
	It just been turned on the unit in heating mode?	To avoid the cold air flow, ventilation is activated only when the heat exchanger is sufficiently hot.
The device does not work	Lack of electricity?	Attendere fino al suo ripristino.
	damaged electrical wiring?	Replaced by a qualified
	There was a sudden power surge?	Cut off the power and feed it after a wait of at least 180 sec.
	Setting the remote control correct?	To verify
emits fog	The temperature and the ambient humidity are high?	It 'a natural phenomenon. With decreasing temperature and humidity the phenomenon fades.
Can not be done change the temperature	The unit is in AUTO mode?	The desired temperature can not be changed in AUTO mode. Change the operating mode.
	E 'over a temperature request The range of adjustment?	September temperatures range: 16 ° C ~ 30 ° C
Cooling are not effective	dirty filter?	check
	Voltage too low?	check
	The set temperature is reached?	check
	There are no doors or windows open, heat or thermal bridges?	check
emission bad smells	Dry siphon condensate	Put a little 'of water in the basin. Clean the filter.
The unit comes on suddenly	Possible interference such as voltage surges, storms, magnetic waves.	Cut off the power and feed it after a wait of at least 180 sec.
noise like gurgling	The machine has just been turned on?	Inside the heat exchanger is a change of state of a fluid. It is a normal phenomenon especially immediately after power
noise like crunch	The machine has just been turned on or off?	It 'a noise level due to normal expansion of the components, accentuated in heat pump mode.

## 6. PLACE OF INSTALLATION INDOOR UNIT



### 6.1 PLACE OF CHOICE

The installation in the following locations can result in non-compliance of operation:

1. Near to sources of heat, steam, gas explosive or flammable, corrosive or excessive dust.
2. Near the electromagnetic emission sources.
3. brackish atmosphere.
4. Atmosphere with oils and fumes.
5. sour atmosphere.
6. uninhabitable environments safely.
7. Laundries.
8. There must be no obstacles near the air inlet and outlet.
9. Select a location where the condensate can be dispersed easily.
10. Select a convenient location for connecting the outdoor unit and close to the power outlet.
11. The place of installation must be out of reach of children.
12. The place of installation must be able to withstand the weight Indoor Unit and should not increase noise and vibration.
13. The appliance must be installed 2.5m above the floor.
14. Do not install the indoor unit right above the electrical appliance.

# 7. PRELIMINARY CHECKS

## 7.1 EQUIPMENT

1. Level
2. Drill
3. Hexagonal wrench
4. Wrench
5. Vacuum pump
6. Screwdriver
7. flaring
8. cutter
9. Measuring tape
10. Pressure gauges
11. Core drill
12. Vacuum cleaner
13. Search Getaway
14. Metro

## 7.2 SAFETY PRECAUTIONS

1. Must be in the electrical safety regulations when installing the unit.
2. According to the local safety regulations, you must use a suitable power supply circuit.
3. Make sure that the power connections meet the requirements of the air conditioner. An unstable power or wiring may cause malfunction. Install a correct power supply circuit before using the air conditioner.
4. properly connect the phase wires, neutral and ground.
5. Make sure the power is disconnected before proceeding with works related to electrical safety and energy.
6. Do not feed the circuit before finishing the installation.
7. If the power cord is damaged it must be replaced by qualified personnel, in order to avoid risks.
8. If the temperature of the refrigerant circuit is too high to keep the interconnect cables away from copper pipes.
9. The equipment should be installed in accordance with the national regulations of the electrical wiring.
10. The installation must be performed in accordance with the requirements on the NEC and CEC only by authorized personnel.

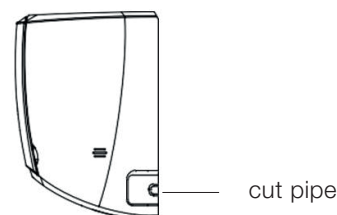
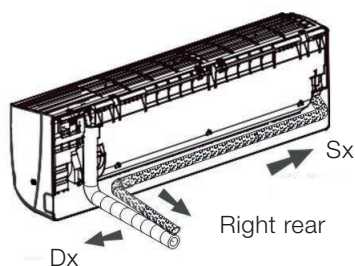
## 7.3 REQUIREMENTS OF GROUND

1. The air conditioner is an electrical appliance in Class A. The grounding should be performed with a suitable device to the ground. Make sure the ground is always respected, otherwise it may cause electric shock.
2. The yellow-green cable in the air conditioner is the cable of the ground, which can not be used for other purposes.
3. The grounding resistance should comply with the national electrical safety regulations.
4. The appliance must be positioned so that the plug is accessible.

# 8. INSTALLATION INDOOR UNIT

## 8.1 DRAIN PIPE

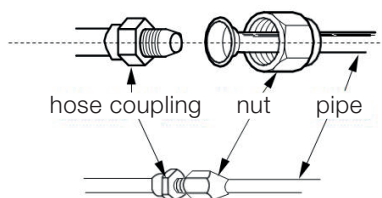
1. The tube can be taken out in the direction right, rear left or right.
2. Once you have decided to bring out the right pipe or the left and cut the corresponding hole on the body.



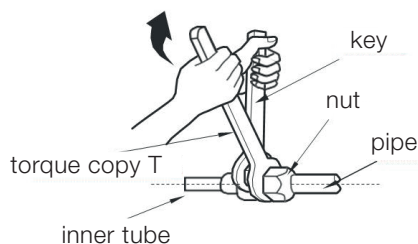
## 8.2 CONNECTION PIPES

1. Point the tube fitting to the corresponding bell.
2. Pre-tighten the nut by hand
3. Adjust the strength of the couple according to the following chart. Place the open-ended wrench on the coupling of the tube and insert the nut. Tighten the nut with a wrench.
4. Wrap the inner pipe and the coupling connection with the insulating tube and then wrap the whole with adhesive tape.

1. 2.



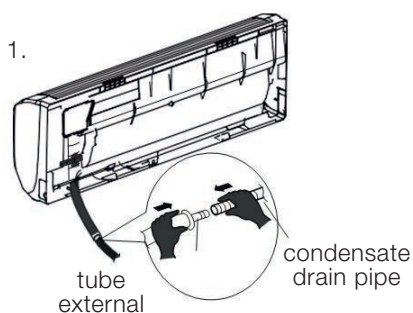
3.



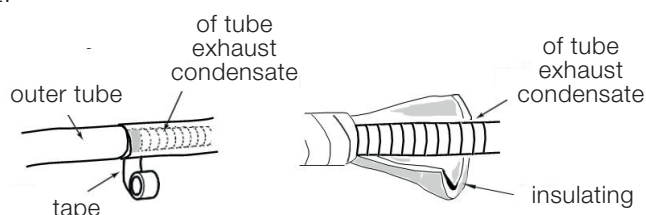
Ø hex nut	torsion strength [Nm]
Ø 6	15 - 20
Ø 9,52	30 - 40
Ø 12	45 - 55
Ø 16	60 - 65
Ø 19	70 - 75

## 8.3 INSTALLING THE DRAIN PIPE

1. Connect the exhaust pipe with the outgoing pipe from the indoor unit.
  - Wrap with insulating tube inside the exhaust pipe in order to prevent condensation.
2. Secure the joint with a ribbon.
  - The expansion plastics particles are not provided.



2.

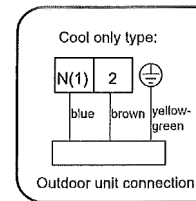
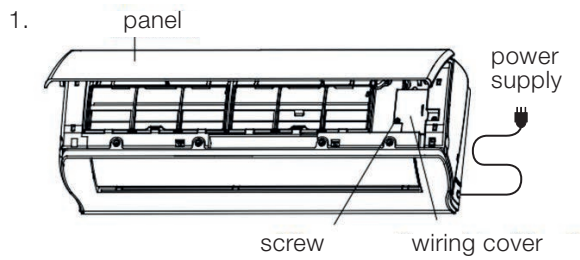




## 8.4 ELECTRICAL CONNECTIONS

1. Open the panel, remove the screw on the cable cover.
2. Thread the power cable on the hole at the back Inner Unity, and then pull it out from the front.
3. Remove the cable clip, connect the power cord to the terminal respecting the color; tighten the screw and then secure the cable with the clip.
4. Place the back cover of the cables and secure it by tightening the screw.

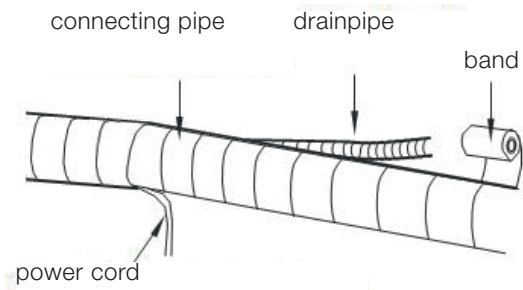
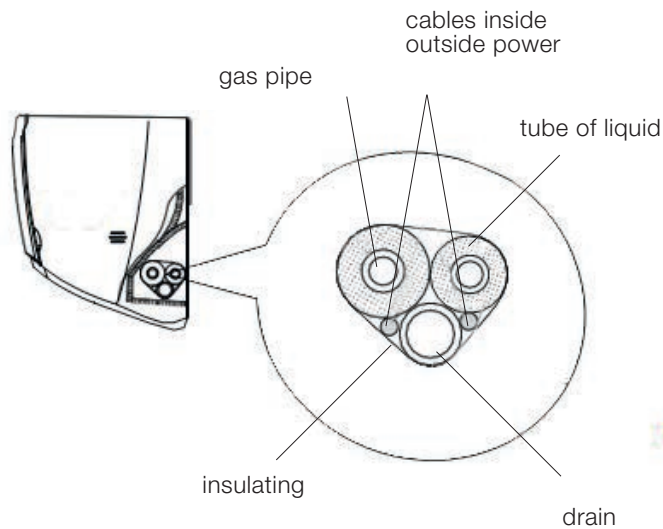
5. Close the panel.
  - All connections between Indoor and Outdoor Unit should be carried out by qualified personnel.
  - If the power cord is not long enough, contact the vendor and request a new one.
  - For air conditioners with power via plug, the plug must be attached after installation.



## 8.5 COVER TUBES

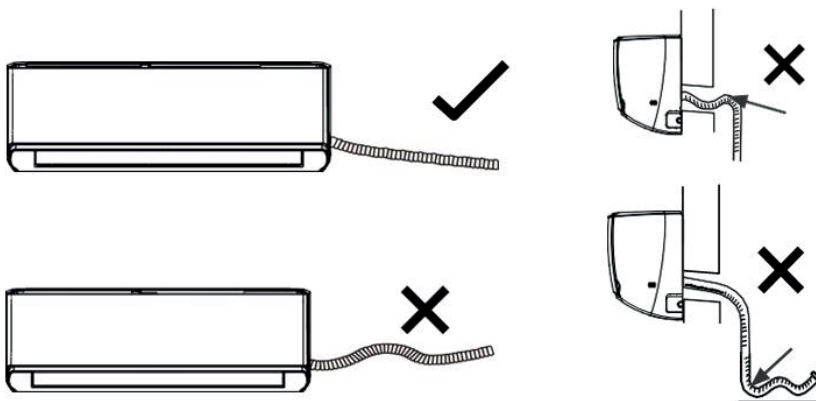
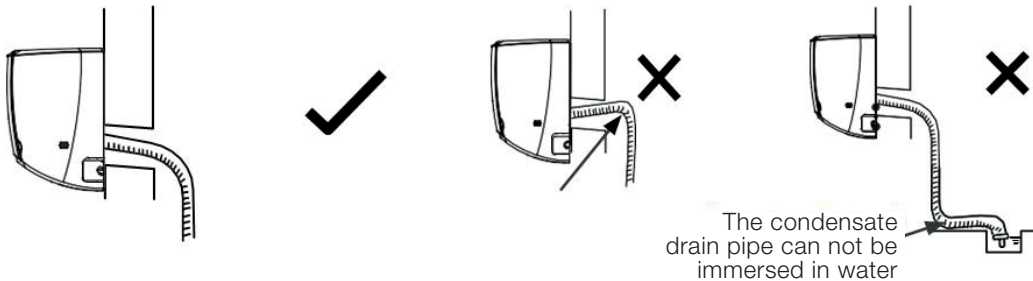
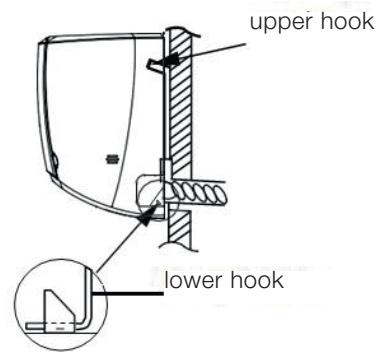
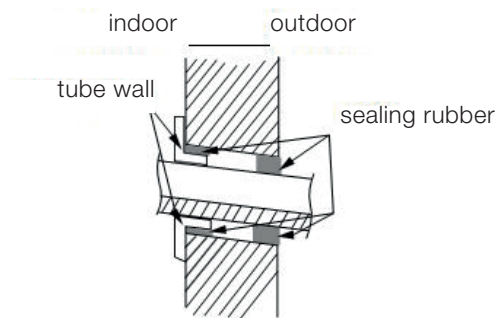
1. Coat the connecting pipes, power cable and drain hose with tape.
2. reserve a certain length of the exhaust pipe and power cable for installation. After having them covered for a certain length separating the discharge tube and the power cable (as shown in the figure).

3. cover them in the same way.
4. The coolant lines (gas / liquid) should be held separately at the end.
  - The power cable and the control wire can not be crossed.
  - The drain hose must be covered from the end.



## 8.6 WALL MOUNTING

1. Once covered, place the pipes and run them through the holes in the wall.
  2. Attach the indoor unit to the template.
  3. Coat the spaces between the pipes and between pipes and the holes with the sealing rubber.
  4. Fix the pipes in the wall.
  5. Check that the indoor unit is installed properly on the wall.
- The drain hose must not be over-coated in order to avoid the obstruction.
  - The drain hose must follow the angle of the hole in the wall as shown in FIG.
  - The water outlet can not take place in water so as to discharge smoothly.
  - Tilt the exhaust pipe down slightly. It can not be bent.



# 9. CHECKS AFTER INSTALLATION

## 9.1 EQUIPMENT

Events to Monitor	Problems associated with incorrect installation
Installation is correct?	The unit may drop, vibrate or make noise.
Are the gas leakage been checked?	Insufficient cooling.
unit thermal insulation sufficient?	It may cause condensation and consequent loss of water drops.
Water drainage is optimal?	It may cause condensation and consequent loss of water drops.
The power supply conforms to the information in specific thermal label?	The unit may be damaged or the components could burn.
The power lines and pipes are installed correctly?	The unit may be damaged or the components could burn.
The grounding of the unit was made correctly?	Risk of electric leakage.
The lines are in accordance with the requirements?	The unit may be damaged or the components could burn.
Ci sono ostacoli vicino all'ingresso o all'uscita dell'aria delle unità interna o esterna?	The unit may be damaged or the components could burn.
It has stored the length of the pipes and the refrigerant charge?	It is not easy to decide the gas charge. Ask your installer or service center.

## 9.2 TEST THE INDOOR UNIT

### 1. Preparation the function test

- The customer approves the newly assembled machine.
- To report to the customer any important information about the machine.

### 2. the function test method

- Attach the power supply, press the ON / OFF button on the remote control to start the test.
- Press the MODE button to select AUTO, COOL, DRY, FAN to see if it works in the proper manner or not.

- If the internal temperature is lower than 16 ° C, the air conditioner can not begin to cool.

3. If there is a connection to a MULTI units, the function test should be done at the first power to ensure that you did a proper installation.

## 9.3 STEPS OF THE OPERATIONAL TEST

A. Use the remote control to select the cooling mode and set the temperature to 16 ° C. Point it to the Internal Unit display, press "+, -, +, -, +, -" for 5 seconds, the unit will show "LL" followed by a long whistle. This signals the start of the test.

B. The test is terminated when the display no longer shows "LL".

C. If the display shows "PA" and the outdoor unit is not in test mode, indicates that there is an installation error, then check the connection cables and the refrigerant connection pipes. After you correct the error to start the test.

NOTE: All units can function normally after passing the test.

# 10. INSTALLATION PICCOLO UNIT CONDENSING

## 10.1 PLACE OF INSTALLATION

The installation location should be agreed with the customer, paying attention to the following points:

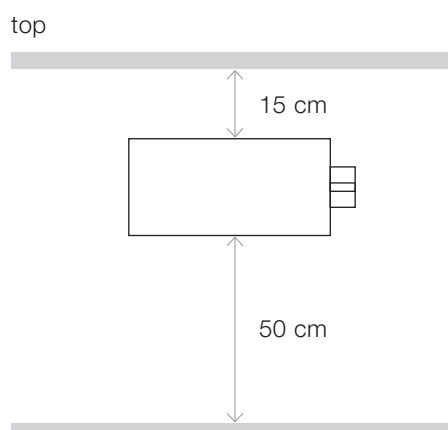
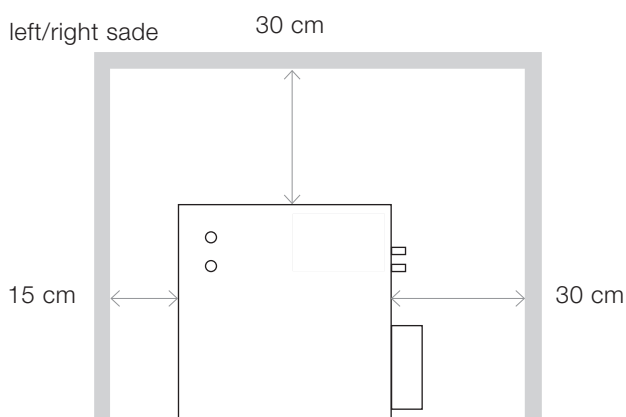
- The equipment should be placed in a technical room of adequate size and in accordance with applicable regulations in the countries where it will be installed.
- The condensing unit must not be installed outdoors.
- The plan on which will be supported to be able to support the weight, the rubber feet that is attached to the machine **SHOULD NOT BE REMOVED** except in case of use of anti-vibration spring for installations with wall bracket.

- The front panel must be inspected, so the front space should be adequate to permit the operator with all the steps required during installation, maintenance and assistance (controls, adjustments, refrigerant charge).

- In case of multiple installations (2 or more PICCOLO) **DO NOT STACK** the condensing units.

- The installation must allow authorized personnel to intervene in case of maintenance, in an easy manner which respects both the safety distances between the unit and other equipment that the technical areas mentioned below:

## MINIMUM DISTANCES



## 10.2 HYDRAULIC AND REFRIGERATION

The installer is responsible for proper selection and application of the components according to the national rules and the recommendations below:

## 10.3 WATER CONNECTIONS

The hydraulic connections are made on the connections located on the right side of the machine. Flexible hydraulic hoses are marked with label indicated the flow: WATER INLET and WATER OUTLET. Provide a faucet water input interception, use pipes with an inner diameter corresponding

to the diameter of the connections of the condensing unit because otherwise it may cause a malfunction (the warranty is void if they are not used appropriate piping).

## 10.4 REFRIGERANT CONNECTIONS

The refrigerant connections are made on the connections located on the right side of the machine.

The connections for the refrigerant lines are of the "flare".

## 10.5 CONNECTIONS BETWEEN INDOOR UNIT AND OUTDOOR UNIT

The indoor unit must be connected by means of the condensing unit Flare connections of refrigeration quality copper tube fitted at the ends of Flare and dice isolated on the entire length. It is absolutely essential to respect the diameters provided on the units PICCOLO doing may

invalidate the warranty. In case of use of evaporating units with different refrigerant connections from those projected on PICCOLO inverter drives use special fittings reduce (attention mounting said unit fittings evaporating).

## 10.6 PREPARATION OF TUBE REFRIGERATOR

Only use copper pipes as "cold" and that fit each model. The "gas pipe" and the "liquid tube" must be absolutely isolated with an insulator of 6 mm. of minimum thickness. Insert the flare nuts on the ends of the tubes before you prepare them

with a flaring tool. The insulated pipe separately with the respective fittings can then be bound to the evacuation pipe of the condensate and to electric cables by means of cable ties.

## 10.7 PATH OF PIPES

The radius of curvature of the tubes must be equal to or greater than three and a half times the diameter to the tube axis. Do not bend the pipe more than three times in a row and not make more than 10 bends on the total length of the connection. In the case where there is a height difference

between the evaporating unit and the condensing unit greater than 5 m. it will be mandatory to prepare a siphon every 3 m. The siphon must have a radius of curvature as tight as possible.

## 10.8 EXTRACTION AIR IN PIPES AND COOLING UNIT EVAPORATING

The refrigerant charge is contained only condensing unit. The Indoor Unit contains a small amount of neutral gas. Therefore,

after making the connections will be imperative to extract the air contained in said links and Indoor Units.



**WARNING FOR THE TIGHTENING OF THE VALVE IS ESSENTIAL TO USE AN SECOND KEY.**

## 10.9 PROCEDURE FOR ASSEMBLY

**The condensing LITTLE INVERTER MUST BE INSTALLED in an accessible position for servicing safely, otherwise the CAT (service centers) may refuse the CONDENSING intervento.LA LITTLE INVERTER MUST NOT BE INSTALLED AS OUTSIDE DURING THE WINTER MAY CAUSE DAMAGE TO THE CIRCUIT PICCOLOULICO.PREVEDERE ALWAYS THE ENTRY WATER FILTER AN INSPECTION ( $\leq 500$  micron mesh).**

- Connect the connecting pipes condensing unit and Unit Inner.

- Connect the vacuum pump to the fitting (suction), set in motion and make sure that the needle drops to - 0.1 MPa (-760 mm. Hg). Before disconnecting the vacuum pump check that the vacuum indicator remains stable for > 15 minutes.

- Close the service valve and disconnect the vacuum pump.  
- Remove the caps from "GAS" valve and "LIQUID" and open them with an Allen key to release the contents in R410A INVERTER SMALL group, and then replace the plugs.

- Check the connections for leaks. Use order an electronic leak detector or spray solution for leak detection.

## 10.10 ADJUSTMENT OF REFRIGERANT CHARGE

In function of the connection length independent way, it may be necessary to top up the refrigerant charge (the condensing units are preloaded to a 5-meter line). This operation must be performed by qualified personnel and in good standing of the art refrigeration engineer. The completion of charging is introduced through the fitting service valve Flare of condensing

(big road). If the refrigerant line is less than 5 m. "Download" the amount of excess refrigerant. Any intervention on the refrigerant circuits imply compliance elle recommendations elative disposal of R410A in the environment (according local regulations).

## 10.11 WIRING



### It MUST MAKE AN EFFECTIVE EARTHING

The manufacturer is not responsible for damage caused in the absence of the same

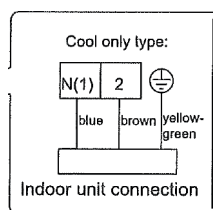
The electrical connections must be made according to the following indications:

- Use cables that meet the current standards in different countries.
- Follow the order of connecting phase, neutral and ground.
- Install a suitable protective device and the electricity disconnection with delayed characteristic curve, contacts opening of at least 3 mm and an adequate breaking and leakage protection.
- If the power of the machine appears to be three-phase, one must be sure to observe the exact sequence of steps (check with gauges work properly).
- The supply voltage of the condensing unit must have a value between  $\pm 10\%$  of the indicated value on the production data plate. If this is not respected, you have to contact their

electricity supplier. In the presence of three-phase supply, the unbalance between the three phases, must be at most 3%.

- It is forbidden to enter the electrical wiring in the condensing unit in any other part than that provided by the manufacturer (the holes with rubber grommet).
- Pass compulsorily the power supply cable through one of the holes with rubber grommet located on the left side of the car. The electrical connections are made on the terminal block that is located inside of the electrical components located behind the inspection panel.
- Connect the cable to terminals inside the electrical panel.
- Avoid direct contact with metal parts.
- Ensure, after about 10 minutes of operation of the condensing unit, the closure of the screws on the power terminal.

## 10.12 WIRING



## 10.13 INSTALLATION OF PIPES FOR COOLING

The main cause of refrigerant leaks is due to a defect in flaring. Make folders correctly observing the following guidelines:

Cut the copper cooling pipes and the electrical cable

1. Use tubes with appropriate measures the installed unit.
2. Measure the distance between the Indoor and Outdoor Unit.
3. Cut the pipes to a slightly greater length of the measured distance.
4. Cut the electrical cord 1.5 m longer than the length of the tube.

filler positioning

Remove the nuts fixed indoor and outdoor unit, insert them on the tube, and perform the flanging and the removal of burrs as previously indicated.

A. Securing the refrigerator connection

1. Align the pipes.
2. sufficiently tighten the nut with the help of two keys

burr removal

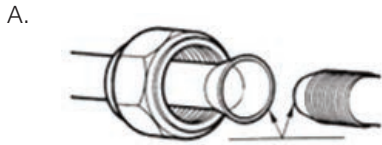
1. Completely remove all burrs from the pipe cross section.
2. The machining should be performed with the machinable end down so that the burrs do not fall inside the copper tube.

flaring

Secure the copper tube with a die size indicated in the table.

B. Precautions

An excessive torque can ruin the folder and cause refrigerant leakage.



B.

pipe diameter [mm]	tightening torque [Nm]
6,35	15 - 18
9,52	31 - 35
12,70	50 - 55
15,88	60 - 65
19,05	70 - 75

### 10.14 END OF INSTALLATION CHECKS

A few simple checks ensure correct system operation:

- Check the electrical connections.
- In multi-split models perform testing before evaporating with one on and then the next (this will highlight any incorrect connections to the ventilation units)
- Ensure the proper flow of water into the drain used

- Check the operating pressure (high pressure) by means of the manifold to verify the correct operation of the pressure valve

### 10.15 START OF CONDENSING

Before applying voltage to the condensing unit to ensure that:

- Both fixed properly and stable (if mounted on brackets between the machine and check that the bracket are tight rubber vibration dampers).
- The electrical connections, including the earth, are carried out in accordance with national laws.
- The refrigerant connections are sealed (check all connections).

- The PICCOLO system is leak tight and not leaking.
- The power supply voltage does not differ from the plate value in addition to  $\pm 10\%$ .
- The refrigerant valves are open.
- The PICCOLO valves are open.



# 11. SELF-DIAGNOSIS



## 11.1 ERROR CODES

ERROR	TROUBLESHOOTING	SOLUTION
E1	Overheat protection	Turn off, restart after 5min, if the code occurs again after a few minutes, please contact the professional person.
E2	Over current protection	Turn off, restart after 5min, if the code occurs again after a few minutes, please contact the professional person.
HE	Auxiliary heater drive circuit malfunction	Pull out the plug, please contact the professional person.
L0	Jumper malfunction	Pull out the plug, restart after 10s, if the code occurs again, please contact the professional person.
L1	PG motor (indoor) zerocrossing detecting circuit malfunction	Turn off, restart after a few seconds, if the code occurs again after a few minutes, please contact the professional person.
L2	No feedback signal of indoor unit fan	Turn off, restart after a few seconds, if the code occurs again after a few minutes, please contact the professional person.
U0	Short/open circuit of indoor environment sensor	Power off the unit, restart after 10s, if the code occurs again, please contact the professional person.
U1	Short/open circuit of indoor unit tube sensor	Power off the unit, restart after 10s, if the code occurs again, please contact the professional person.
b3	Filter filth blocage alert	Power off, clean filter. If the filter is not dirty torn off the air conditioner for 2s then restart, the code will be removed automatically.



# 12. MAINTENANCE

## PICCOLO UNIT

### 12.1 ROUTINE MAINTENANCE

Regular maintenance is essential to maintain the efficiency of the unit both in terms of operation and energy.

The maintenance plan that the Technical Assistance Centre should be observed annually, provides the following operations and checks:

- Periodic cleaning of the water filter inside the unit SMALL.
- Periodic cleaning of the air filter (blower).

- Efficiency safeties.
- Power supply voltage.
- Power consumption.
- Tightness of electrical and PICCOLO connections.
- State of the contactor / compressor / s.
- Verification of operating pressure and cooled.

### 12.2 CHEMICAL CLEANING EXCHANGE

It is recommended to chemically wash the plate heat exchanger every 3-4 years of operation.

To do this refer to the CAT.

### 12.3 REFRIGERANT CHARGE

The condensing units are loaded with R410A refrigerant gas and tested in the factory.

Under normal conditions (length within the ranges shown in the data sheets), thus they do not need any intervention on the refrigerant control.

However, over time, small leaks may develop at the joints leading to loss of refrigerant and draining of the circuit, causing the unit to function poorly.

In these cases must be found by the leaks of refrigerant, should be repaired and recharged refrigerant circuit.

The charging procedure is as follows:

- Empty and PICCOLO the entire refrigerant circuit using a vacuum pump is connected to the outlet of high pressure to the low outlet
  - Connect the refrigerant cylinder to the gas outlet on the low pressure line.
  - Charge the quantity of refrigerant gas indicated on the rating plate of the device in the liquid phase.
  - Always check the undercooling values which must be between 4 and 8 ° C and between 5 and 10 ° C (supercooling).
- In the event of partial leaks, the circuit must be completely emptied before being recharged.

The R410A refrigerant must be charged only in liquid phase.

Operating conditions other than nominal, may produce considerably different values.

Seal testing or identification of leaks must only be performed using R410A refrigerant gas, checking with a suitable leak detector.

It is prohibited to load the refrigerant circuits with a different refrigerant than the one indicated on the identification plate. Use a different refrigerant may cause serious damage to the compressor.

You must never be used in the cooling circuit, oxygen or acetylene or other flammable or poisonous gases because they can cause explosion or poisoning.

You may not use oils other than those indicated. Use oils other than those indicated may result in serious damage to the compressor.

You may not use tracer products for the detection of leaks in the cooling circuit.

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