

INSTALLATION MANUAL

CLIMASTAR
silicium technology



SILICIUM HYBRID INVERTER

Congratulations on your purchase of your SILICIUM HYBRID INVERTER UNIT!!

The product you have just purchased has undergone numerous tests and inspections to guarantee the highest quality.

We hope it will give you entire satisfaction.

We are sure you will be happy with it because it represents the state of the art in the technology of home air conditioning.

By following the suggestions contained in this manual, the air conditioning unit that you have purchased will operate without problems giving you optimum room temperatures with minimum energy costs.

CLIMASTAR

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1. GENERAL

1.1.Conformity

This unit complies with European directives:

- Low voltage directive 2006/95/CE
- Electro-magnetic compatibility directive 2004/108/CE

1.2.General Warnings



Please, read carefully this guide before installing the device.



After unpacking, make sure that all the components are present. If not, please contact to the CLIMASTAR distributor who sold you the appliance.



CLIMASTAR appliances must be installed by an authorized installer who, on completion of the work, will release a declaration of conformity to the client in respect of the laws in force and the indications given by CLIMASTAR in the instructions leaflet supplied together with the appliance.



This appliance has been designed both for conditioning and/or heating environments and must be destined for this use only and compatibly with its performance characteristics.

CLIMASTAR accepts no responsibility, either contractual or extra-contractual, for any damage caused to persons, animals or property as a result of incorrect installation, adjustment, or maintenance, or improper use.



In case of water leaks, turn the master switch of the system to "OFF" and close the water taps.

As soon as possible, call to the CLIMASTAR technical service department or else professionally qualified personnel and do not intervene personally on the appliance.



If the appliance is not going to be used for a long period of time, the following operations should be performed:

- Turn the master switch of the system to "OFF"
- Close the water taps
- If there is the risk of freezing, make sure that anti-freeze has been added to the water system otherwise empty the system.

-  If the room temperature is too low or too high it is negative for your health and is also a useless waste of energy.
Please do avoid prolonged contact with the direct air flow.
-  Do not leave the rooms closed for long periods. Periodically open the windows to ensure a correct ventilation and change of air
-  This instruction leaflet is an integral part of the appliance and consequently must be kept carefully and must ALWAYS accompany the appliance, even when it is passed to a new owner or user or transferred onto another system. If it is lost or damaged, please contact the local CLIMASTAR technical service center to get a new one.
-  All repair or maintenance interventions must be performed by the CLIMASTAR technical service department or by professionally qualified personnel as foreseen in this booklet. Do not modify or intervene on the appliance as this could create dangerous situations and the manufacturer will not be responsible for any damage caused.
-  Please beware of the danger of burns. Some parts can be hot

1.3. Fundamental safety rules

Remember that some basic safety rules should be followed when using a product that uses electricity and water, such as:

-  It is forbidden that unassisted children or disabled persons can use or manipulate on the appliance
-  It is forbidden to touch the appliance in barefoot or with wet hands or wet body parts.
-  It is forbidden to carry out any cleaning before having disconnected the appliance from the electricity.
-  It is forbidden to modify the safety devices or adjustment devices without authorization and indications of the manufacturer.
-  It is forbidden to pull, cut or knot the electrical cables coming out of the appliance, even if it is disconnected from the mains supply.
-  It is forbidden to poke objects or anything else through the inlet or outlet grills.

-  It is forbidden to open the doors which access the internal parts of the appliance without first turning the system master switch to "OFF".
-  It is forbidden to dispose of or leave in the reach of children the packaging materials which could become a source of danger.
-  It is forbidden to climb onto the appliance or rest any object on it.
-  The external parts of the appliance can reach temperatures higher than 70°C.

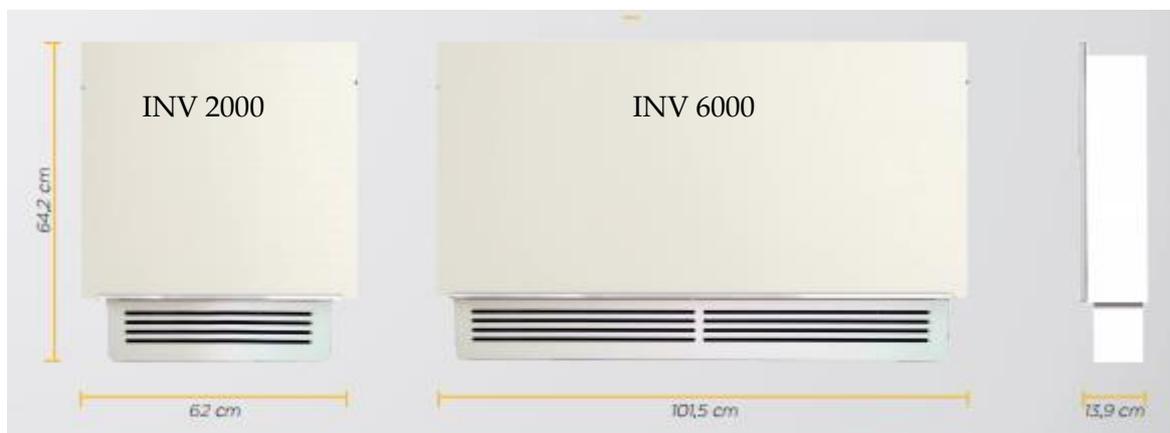
1.4. Product range

Hybrid Inverter ranges contain two different models DK INV 2000 and DK INV 6000, suitable for two pipes heating and cooling installations with metal housing and radiant accumulation Duak-Kherr front panel.

1.5. Nominal technical features

TECHNICAL DATA			
MODEL		DK INV 2000	DK INV 6000
Battery water contents	l	0,47	1,13
Maximum working pressure	bar	10	10
Maximum water inlet temperature	°C	80	80
Minimum inlet water temperature	°C	4	4
Hydraulic fixtures	"	Eurokonus	Eurokonus
Power supply	V/Hz	230/50	230/50
Maximum current absorbed	A	0.68/0,11	1.26/0,18
Maximum power absorbed	W	156.9/11,9	310/20
Weight	K	20	34

1.6. Overall dimensions



2. INSTALLATION

2.1. Positioning the unit.



Avoid installing the unit in proximity to:

- places subject to exposure to direct sunlight;
- in proximity to sources of heat;



Make sure that:

- the wall on which the unit is to be installed is strong enough to support the weight;
- the part of the wall where the unit is to be installed does not have pipes or electric wires passing through;
- that part of the wall is perfectly flat.
- in damp areas or places with probable contact with water;
- in places with oil fumes
- places subject to high frequencies.
- there is an area free of obstacles which could interfere with the inlet and outlet air flow;
- the installation wall is preferably part of an outside perimeter wall to allow the discharge of the condensation water outside;

2.2. Installation modes.

The following descriptions of the different mounting phases and charts refer to a version of the device with water connections on the left (standard version).



If you have purchased a special unit with the water connections to the right, please follow the same instructions and bear in mind that charts and drawings are only indicative for learning process and not exact. Images are to be considered as a mirror image.

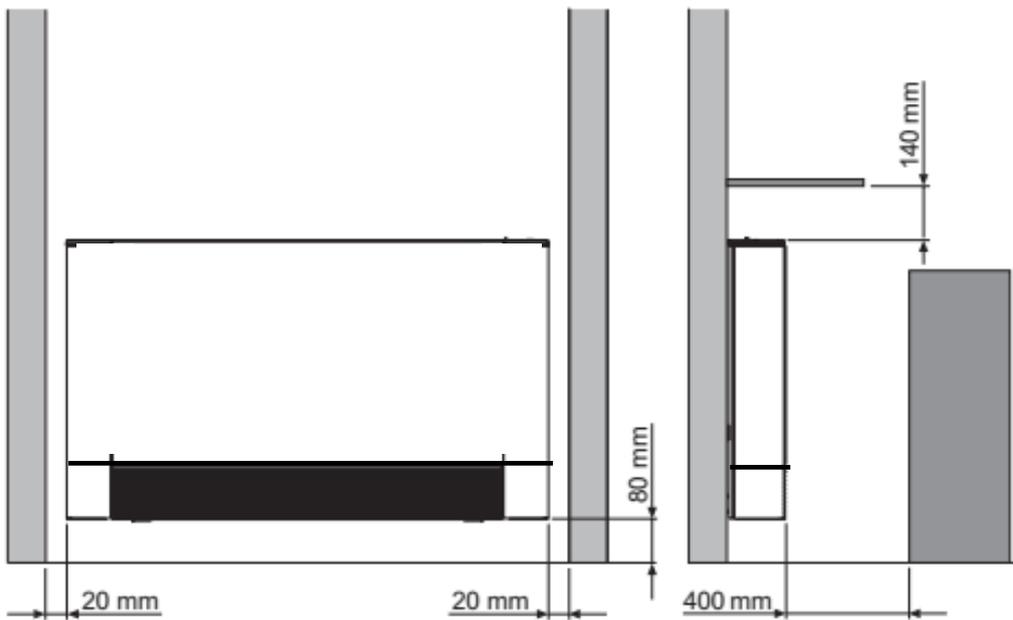
To ensure that the installation is performed correctly and that the appliance will perform perfectly, please carefully follow the instructions explained in this manual.



Miss-respecting the rules indicated not only can cause malfunctions of the appliance but it will also invalidate the warranty and hence CLIMASTAR shall not respond for any damage to persons, animals or property.

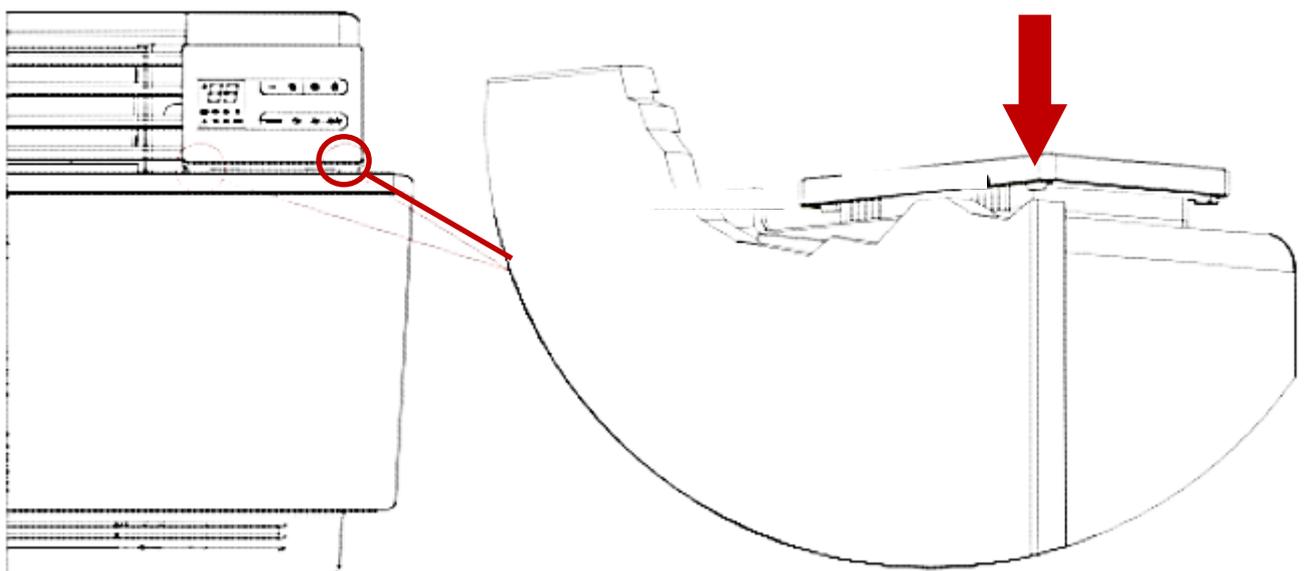
2.3. Minimum installation distances

Figure below shows the minimum clearance distances between the wall mounted device and furniture present in the room.



2.4. Side opening.

Without the front panel fitted, you can find on the left-hand side a cover that protects one screw, lift the upper cover and loosen the screw. Then you will find another two screws in the lower part, loosen them too. Then move it slightly to the left and lift the side panel up.



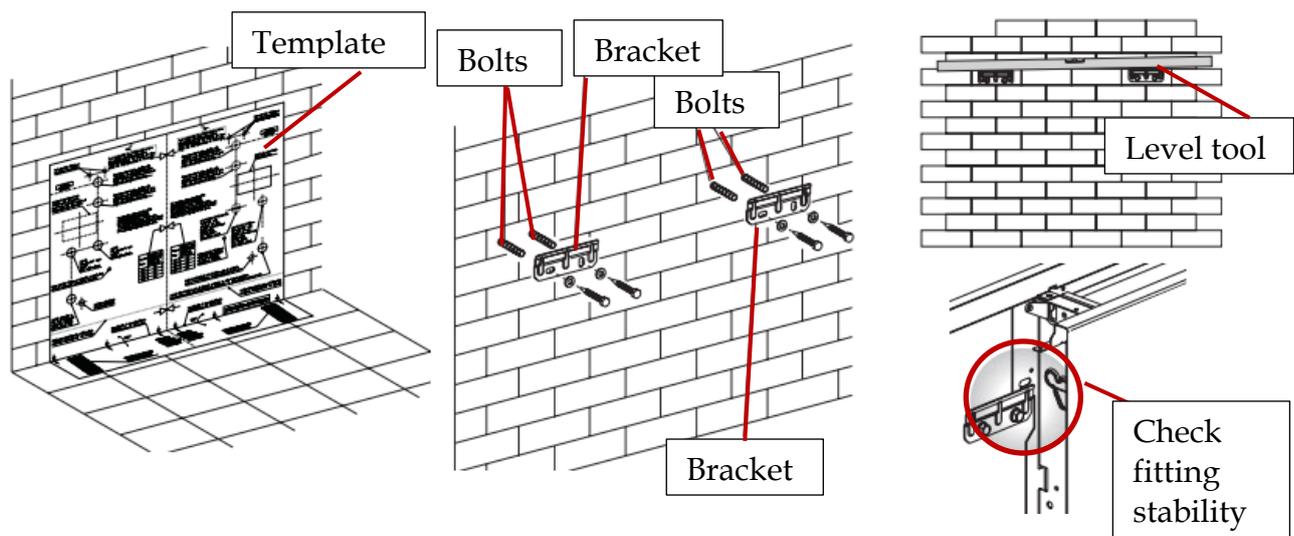
On the opposite side, please do the same

2.5.Wall installation

Using the paper template, you can find on the device packaging, trace the position of the two fixing brackets on the wall. Use a suitable drill to make the holes with and insert the toggle bolts (2 for each bracket); fix the two brackets. Do not over-tighten the screws so that the brackets can be adjusted with a spirit level.

Once everything is perfectly leveled, please fully tighten the four screws to secure the two wall brackets. Check the stability by manually trying to move the brackets to the right and to the left, up and down.

Mount the unit, checking that it fits correctly onto the brackets and check that it is stable.



2.6.Hydraulic connections.

		Hybrid 2000	Hybrid 6000
Mínimum pipeline diameter	mm	12	16



The choice and sizing of the hydraulic lines must be made by an expert who must operate according to the rules of good technique and the laws in force, taking into account that undersized pipes may cause malfunction.

To proceed with hydraulic connections please follow these recommendations:

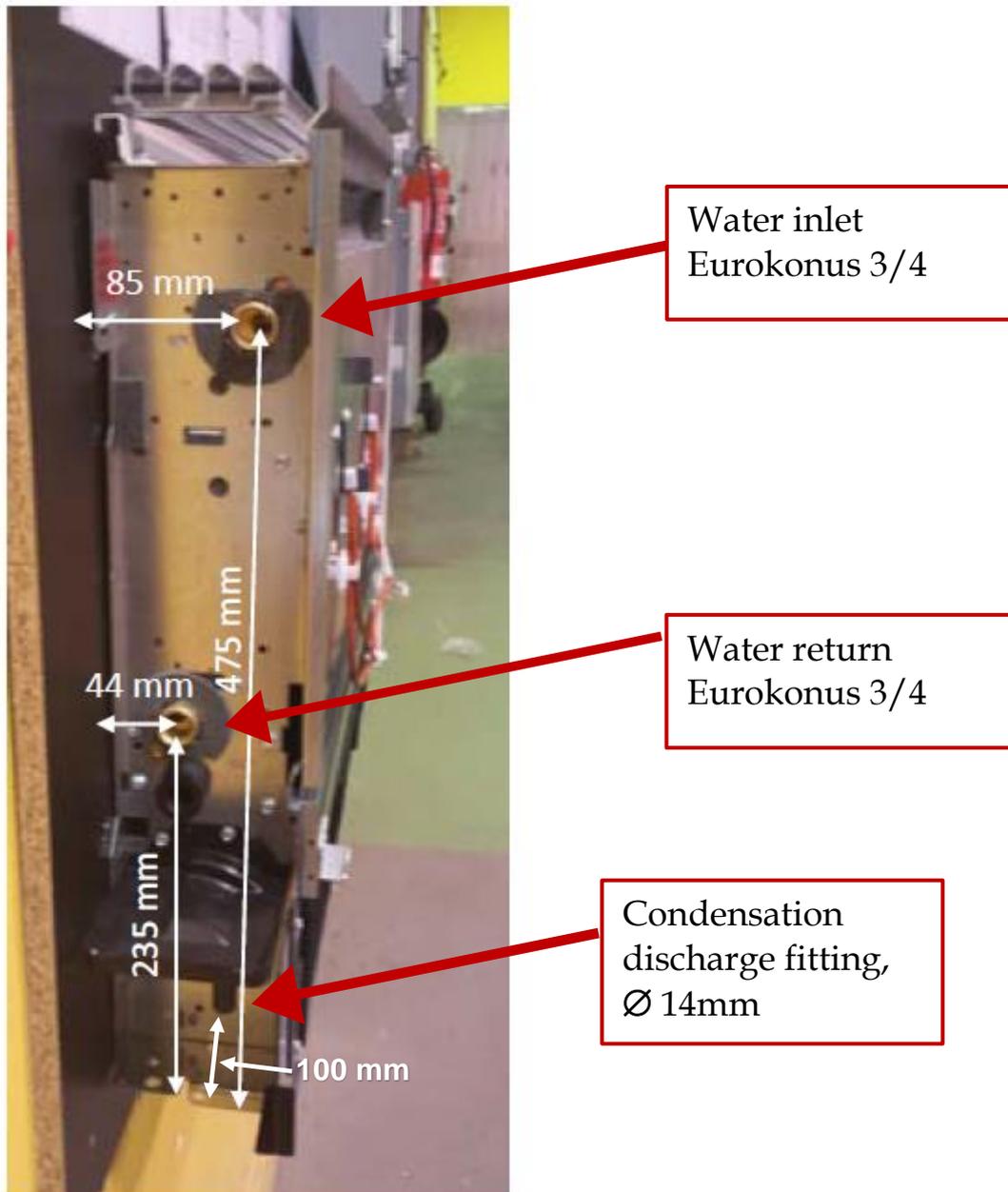
- Position the hydraulic lines (pipes).
- Tighten the connections using the “spanner and counter spanner” method.
- Check for any leaks.
- Coat the connections with insulating material.
- The hydraulic lines and joints must be thermally insulated.
- Avoid partial insulations on pipes.

-Do not over-tighten to avoid damaging the insulation.

-Use hemp and green paste to seal the threaded connections; the use of Teflon is highly recommended when there is anti-freeze in the hydraulic circuit.



Hydraulic connections lay out:



2.7. Condensation discharge

The condensation discharge network must be suitably sized (minimum inside pipe diameter 16 mm) and the pipeline positioned in such a way that it keeps a constant inclination, never lower than 1%.

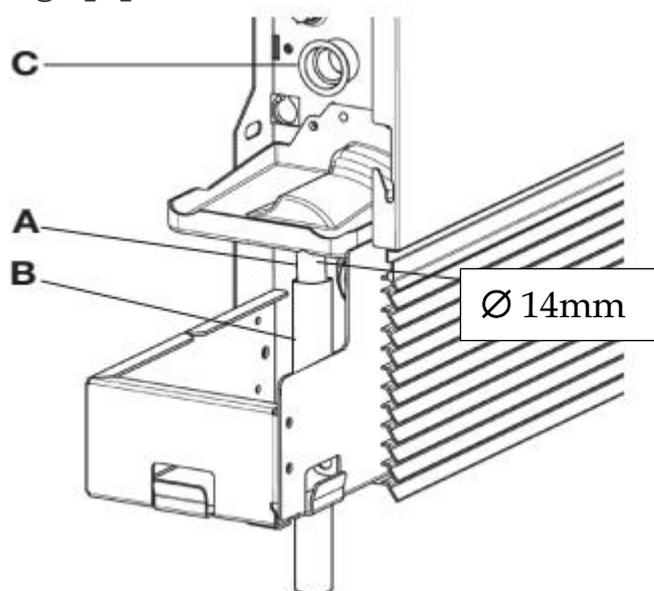
In the appliance, the discharge pipe is connected directly to the discharge tray, positioned at the bottom of the side panel underneath the hydraulic connections.

- ⚠ -If possible, make the condensation liquid flow directly in a gutter or to a “rainwater” discharge.
 - ⚠ -When discharging directly into the main drains, it is sensible to make a siphon to prevent bad smells returning up the pipe towards the room. The curve of the siphon must be lower than the condensation collection bowl.
 - ⚠ -If the condensation needs to be discharged into a container, it must be open to the atmosphere and the tube must not be immersed in water to avoid problems of adhesiveness and counter-pressure that would interfere with the normal outflow
 - ⚠ -If there is a height difference that could interfere with the outflow of the condensation, a pump must be mounted:
 - ⚠ - Small draining pump can be installed under the lateral drainage tray; such pumps are commonly found in commerce.
- ⚠ However, on completion of the installation it is advisable to check the correct outflow of the condensation liquid by slowly pouring about ½ l of water into the collection tray in about 5-10 minutes

Mounting the condensation discharge pipe

Connect to the condensation collection tray discharge a tube for the outflow of the liquid fitting it adequately. Check that the drip-collector extension is present and correctly installed.

- A** Discharge fitting (Ø 14mm)
- B** Tube for liquid outflow
- C** Connect the drip collector extension (not included installer has to add it).



2.8. Filling the system.

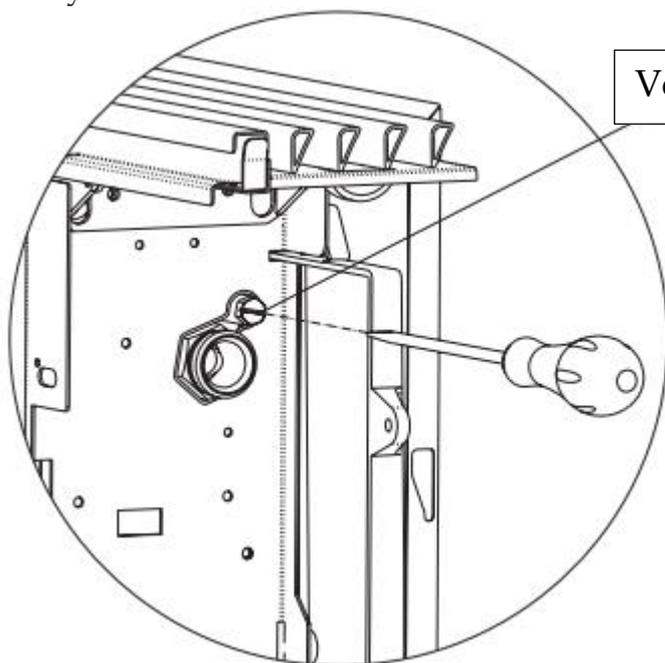
When starting up the system, make sure that the hydraulic unit lockshield is open. If there is no electric power and the thermo-valve has already been powered use the special cap to press the valve stopper to open it.

2.9. Evacuating air while filling the system.

- Open all the system interception devices (manual or automatic);
- Start the filling by slowly opening the system water filling tap;
- Take a screwdriver and act on the highest air relief valve of the battery (water heat exchanger);
- When water starts coming out of the air relief valves of the appliance, close them and continue filling until reaching the nominal value set up for the system.

 Check the hydraulic sealing of the junctions.

 It is recommended to repeat these operations after the appliance has been running for a few hours and periodically check the pressure of the system.



Venting of the heat exchanger

2.10. Electrical connections.

2.10.1. Connecting the control board.

This control board is a panel with 8 capacitive keys and the display shows function AUTO ventilation adjustment step.

The thermostat is adjustable from 5 to 40 ° C, it has a summer and winter selector through the water temperature probe (10 k) positioned in the cockpit on the battery of the device. It can handle the functions from a minimum water temperature (heating mode) of 30° C and a maximum water temperature (cooling mode) of 20° C.

The control board is inside the machine and has two outputs at 230 V, one for the management of a solenoid valve to control the water and another one to manage the heating element of the front DUAL KHERR panel.

The PCB provides also the possibility of free operation without the water sensor H2 in which case the stationary fan thresholds are ignored.

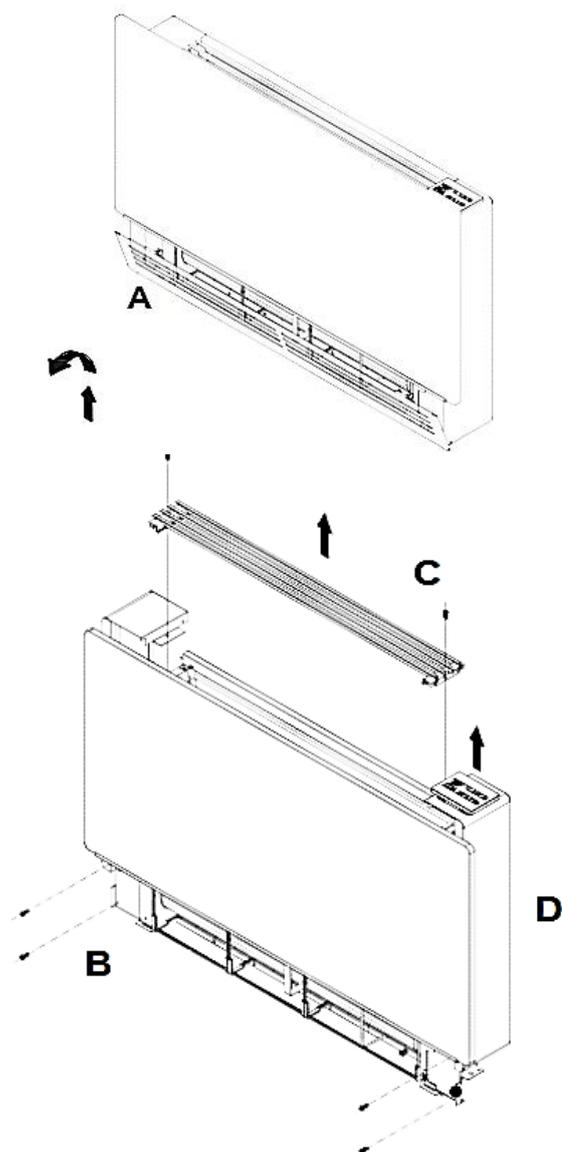
For access to inside of the machine and make the electrical connections follow the following steps:

- Detach the suction grille (ref. **A**) and remove the fixing screws (ref. **B**) of the side dx visible below the grid itself;

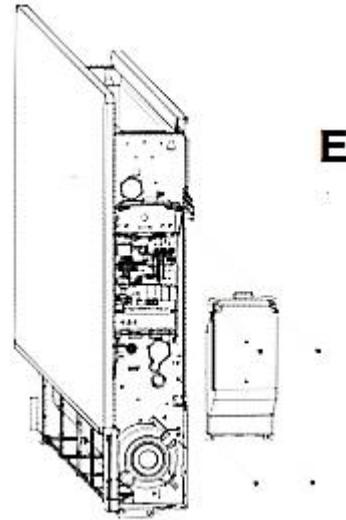
- Remove the outlet grille (ref. **C**) and release the right side lifting it upwards (ref. **D**);

- Remove the cover of the control box (ref. **E** -next page) and perform the connection (see connections);

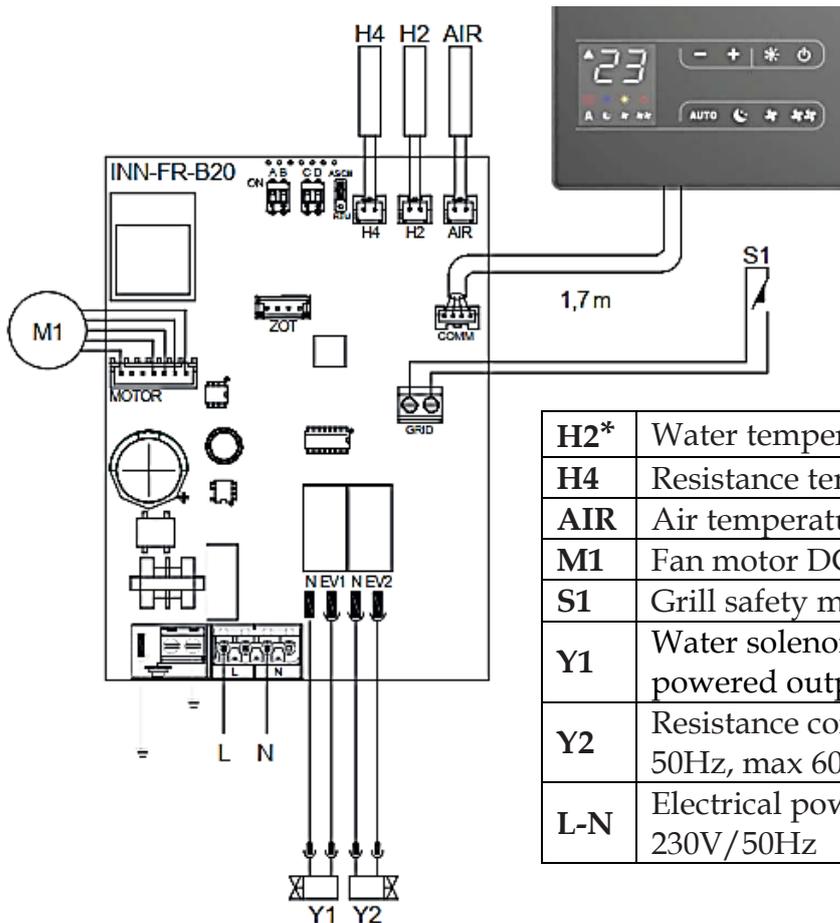
- Fix the probe to sense the temperature of the resistance H4 on the top of the panel DUAL KHERR;



- Make the electrical connections following the instructions in chapter “Connections on electronic board 2.10.2”, sort the cables, fix the cables with the help of 3 jumpers supplied;
- Close the box by fixing 4 screws;
- Reassemble the side aesthetic panel of the unit



2.10.2. Connections on electronic board.



H2*	Water temperature probe 10 kΩ
H4	Resistance temperature probe 10 kΩ **
AIR	Air temperature probe 10 kΩ
M1	Fan motor DC inverter
S1	Grill safety micro-switch
Y1	Water solenoid valve (23V/50Hz 1A powered output)
Y2	Resistance connection. ** Output 230V/50Hz, max 600 W.
L-N	Electrical power supply connection 230V/50Hz

*If after powering the equipment the board detects the probe, the start-up will take place under normal conditions with minimum water temperature in heating (30 °C) and maximum water temperature in cooling (20 °C) functions. The board can also operate without probe, case in which the minimum and maximum thresholds will be ignored

**If it connects the resistance run activation procedure and place the probe on the top panel H4 DUAL Kherr.

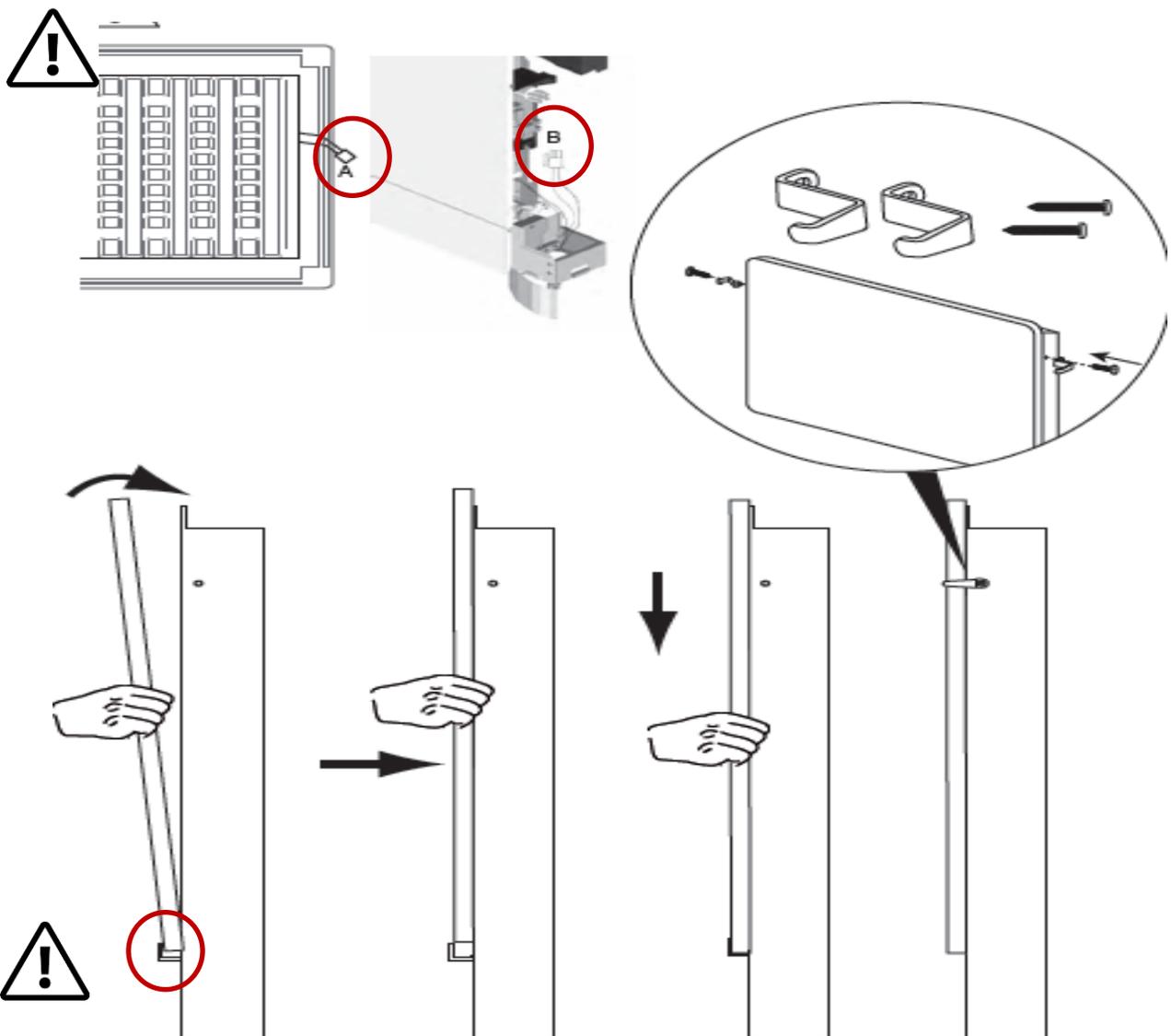


Do not connect the output resistance Y2 before you performed the activation process and have connected and correctly positioned the probe H4.

2.11. Error signals on Display.

Error	Display
Failure on room temperature sensor	⚠ E1
Failure on fan motor, due to external particle or rotation sensor	⚠ E2
Failure on water temperature sensor (H2), check sensor has 10kΩ	⚠ E3
Failure in heating element (overheat). Automatic rearm < 35°C	⚠ E4
Failure in heating element, (H4) blocked or not connected.	⚠ E5
S1 grill microswitch activated due to filter cleaning	⚠ Gr

2.12. Dual-Kherr front panel fitting



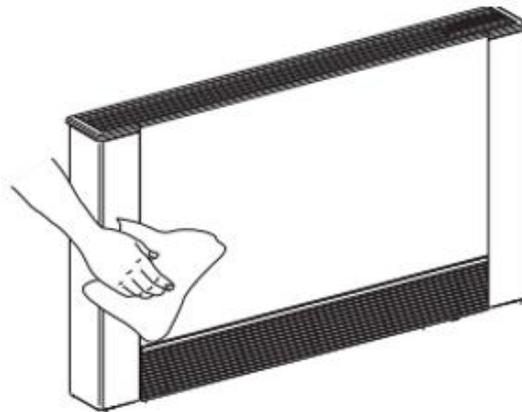
3. MAINTENANCE

Periodic maintenance is essential to keep Hybrid INV always efficient, and safe over time. These operations can be carried out every six months or annually by the Technical Assistance Service, who is technically qualified and prepared and has the necessary original spare parts.

3.1. Cleaning the outside

Before every cleaning and maintenance intervention, disconnect the appliance from the mains by switching off the master switch.

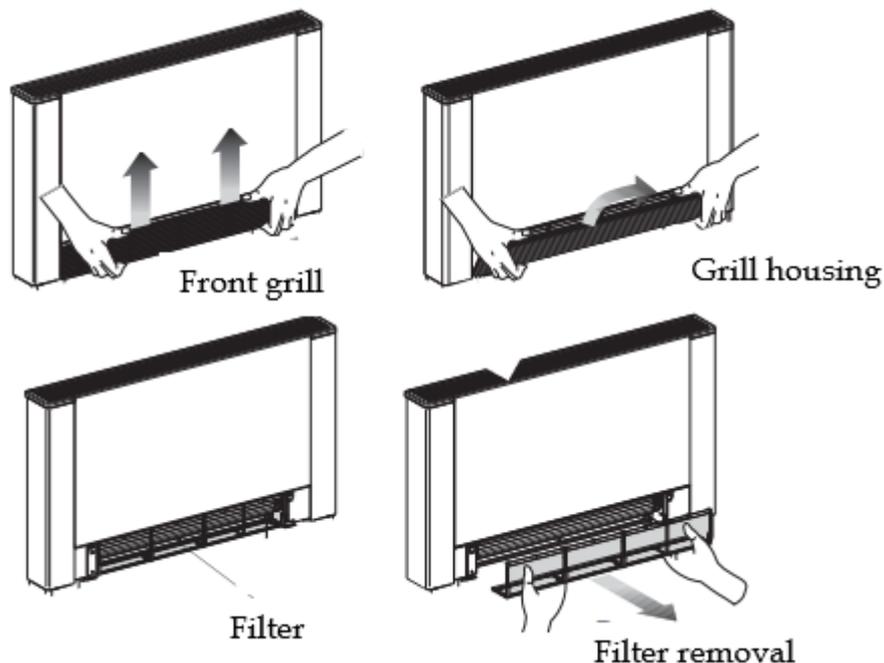
- Wait until the parts have cooled down to avoid the risk of burns.
- Do not use abrasive sponges or abrasive or corrosive detergents to avoid damaging the painted surfaces.
- When necessary, clean the outer surfaces of the Hybrid Inverter with a soft damp cloth.



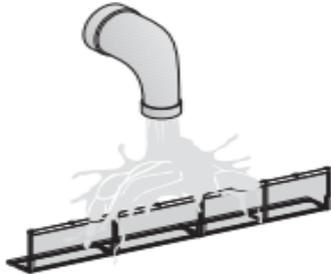
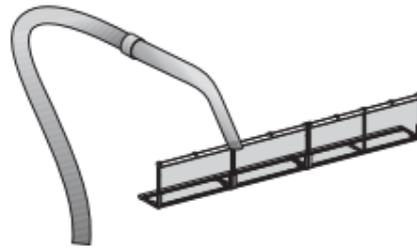
3.2. Cleaning the air suction filter

After a period of continuous operation and in consideration of the concentration of impurities in the air, or when re-starting the performance after a period of inactivity, proceed as described below:

- Extract the front grill by lifting it slightly and turn it until it comes right out of its seat
- Extract the filter, pulling it horizontally outwards.

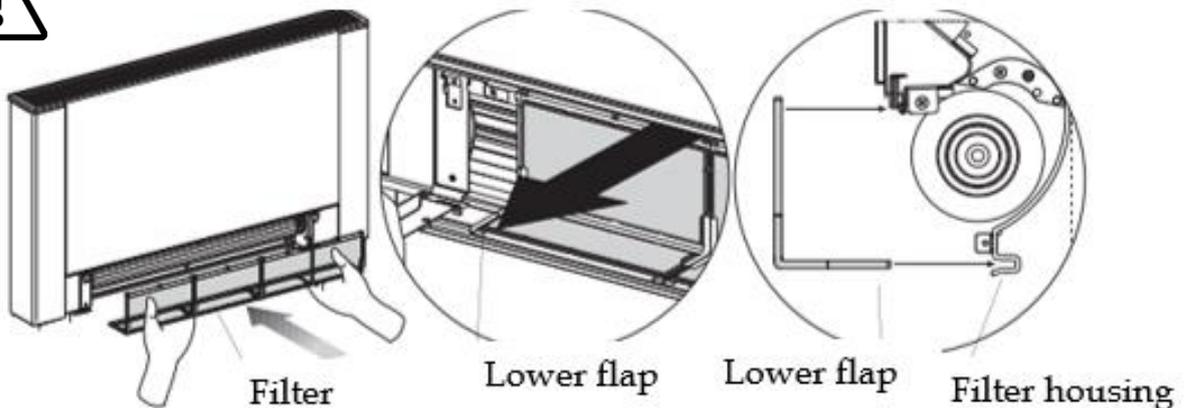


- Remove the dust from the filter using a vacuum cleaner



- Wash the filter with running water without using any detergents or solvents and then let it dry.

- Remount the filter on the cooler-radiator, paying particular attention to introduce the lower flap in its housing.



It is forbidden to use the device without its mesh filter.

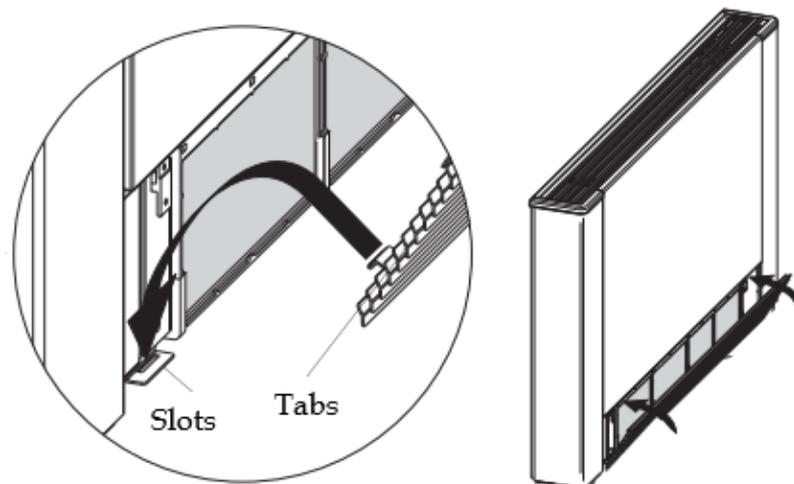


The device is fitted with a safety switch that prevents the fan from starting if the mobile panel is incorrectly positioned or missing. (⚠ Gr on display).



After filter cleaning check if the panel is properly mounted.

To finish insert the two tabs in the appropriate slots, turn them and hook them giving them a slight hit on the top.



3.3. Energy saving tips



- Always keep the filters clean;
- Keep the doors and windows in the rooms fitted with air conditioning systems closed as much as possible.
- During summer limit as much as possible the entry of direct sun rays in the rooms fitted with air conditioning systems (use curtains, blinds, etc.)

4. TROUBLESHOOTING



In case of water leaks or anomalous functioning immediately cut off the power supply and close the water taps.



- Should one of the following anomalies occur, contact an authorized service center or an authorized qualified person, but do not intervene personally:
- The ventilation does not activate even if there is hot or cold water in the hydraulic circuit.
 - The appliance is leaking water in heating mode.
 - The appliance is leaking water in cooling mode.
 - The appliance makes an excessive noise.
 - There is dew on the front panel.

4.1. Table of anomalies and remedies

The interventions must be carried out by a qualified installer or by a specialized service center.

Effect	Cause	Remedy
A delayed activation of the ventilation respect to the new temperature or function settings.	The circuit valve needs some time to open and as a result the hot or cold water takes time to circulate in the	Wait for 2 or 3 minutes to open the circuit valve.
The appliance does not activate the ventilation.	No hot or cold water in the system.	Check that the water boiler or cooler are functioning correctly.
The ventilation does not activate even if there is hot or cold water in the hydraulic circuit.	The hydraulic valve remains closed.	Dismount the valve body and check if the water circulation is restored.
		Check the working efficiency of the valve by powering it separately with 230V. If it activates the problem could be the electronic control.
	The fan motor is blocked or burnt out.	Check the windings of the motor and the free rotation of the fan.
	The micro-switch that stops the ventilation when the filter grill is opened does not close correctly.	Check that by closing the grill the micro- switch contact is activated.
	The electrical connections are not correct.	Check the electrical connections.
The appliance leaks water during the heating function.	Leaks in the hydraulic connections of the system.	Check the leak and fully tighten the connections.
	Leaks in the valve unit.	Check the state of the gaskets.
There are formations of dew on the front panel.	Thermal insulation unstuck.	Check the correct positioning of the thermo-acoustic insulation paying attention to that in the front above the finned battery.
There are drops of water on the air outlet grill.	In situations of high humidity (>60%) condensation could form, especially at the minimum ventilation speeds.	As soon as the humidity starts falling the phenomenon disappears. In any case the presence of a few drops of water in the appliance does not indicate a malfunction.

Effect	Cause	Remedy
The appliance leaks water only during the cooling function.	The condensation bowl is blocked.	Slowly pour a bottle of water in the low part of the battery to check the drainage; if necessary, clean the bowl and/or increase the inclination of the drainage pipe.
	The condensation discharge does not need an inclination for correct drainage.	
	The connection pipes and the valve unit are not insulated well.	Check the insulation of the pipes.
The appliance makes a strange noise.	The fan touches the structure.	Check the clogging of filters and clean them if necessary
	The fan is unbalanced.	The unbalancing causes excessive vibrations of the machine; replace the fan.
	Check the clogging of filters and clean them if necessary	Clean the filters

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CARDBOARD PACKAGING CAN BE RECYCLED



DO NOT PLACE THE ELECTRICAL ITEM IN
THE GENERAL WASTE (IT SHOULD BE TAKEN
TO A LOCAL RECYCLING CENTRE).