INSTALLATION AND USER MANUAL

Daikin Altherma
Heat pump convector

FWXT10AATV3(C)
FWXT15AATV3(C)
FWXT20AATV3(C)

We want to thank you for choosing one of our products.

We are confident that you will be happy with your selection because it represents the state of the art in the technology of home climate control.

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

Daikin Europe N.V.

Compliance

This unit complies with the following European Directives:

- Low voltage 2014/35/UE;
- Electromagnetic compatibility 2014/30/UE ;

Symbols

The pictograms in the next chapter provide the necessary information for correct, safe use of the machine in a rapid, unmistakable way.

Editorial pictograms

U User
- Refers to pages containing instructions or information for the user.

I Installer
- Refers to pages containing instructions or information for the installer.

S Service
- Refers to pages containing instructions or information for the installer TECHNICAL CUSTOMER SERVICE.

Safety pictograms

⚠ Generic danger
- Signals that the operation described could cause physical injury if not performed according to the safety rules.

⚠ Danger of high voltage
- Signals that the operation described could cause electrocution if not performed according to the safety rules.

⚠ Danger due to heat
- Signals that the operation described could cause burns if not performed according to the safety rules.

⛔ Prohibition
- Refers to prohibited actions.

General table of contents

GENERAL

1.1 General warnings

⚠ After unpacking, make sure that all the components are present. If not, contact your installer of your DAIKIN affiliate office.

⚠ DAIKIN appliances must be installed by an authorised 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 DAIKIN in the instructions leaflet supplied together with the appliance.

⚠ These appliances have been designed both for conditioning and/or heating environments and must be destined for this use only and compatibly with their performance characteristics.
DAIKIN EUROPE N.V. accepts no responsibility, either contractual or extra-contractual, for any damage caused to persons, animals of 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 the DAIKIN technical service department or else professionally qualified personnel and do not intervene personally on the appliance.

⚠ If the appliance is not 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 system otherwise empty the system.

⚠ If the room temperature is too low or too high it is damaging for the health and is also a useless waste of energy.
Avoid prolonged contact with the direct air flow.

⚠ Do not leave the room closed for long periods. Periodically open the windows to ensure a correct 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 DAIKIN technical service centre.

⚠ All repair or maintenance interventions must be performed by the 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.

⚠ Danger from burns - take care when touching

1.2 Essential safety rules

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

⛔ The unit can be used by children over the age of 8, and by people with reduced physical, sensory or mental capabilities, or with no experience or necessary knowledge, as long as they are monitored or after they have received instructions on the safe use of the unit and have understood the dangers involved.
Children must not play with the appliance.
The cleaning and maintenance that must be performed by the user should not be carried out by children without supervision.

⛔ It is forbidden to touch the appliance with wet hands or body when barefoot.

⛔ It is forbidden to carry out any cleaning before having disconnected the appliance from the electricity mains supply by turning the system master switch to "OFF".

⛔ It is forbidden to modify the safety or adjustment devices or adjust without authorisation 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.

⛔ Ilt 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 of more than 70 °C.

1.3 Product range

Daikin wall mounted heat pump convectors (FWXT series) are available in three different performance levels and sizes, all with two-pipe configuration.

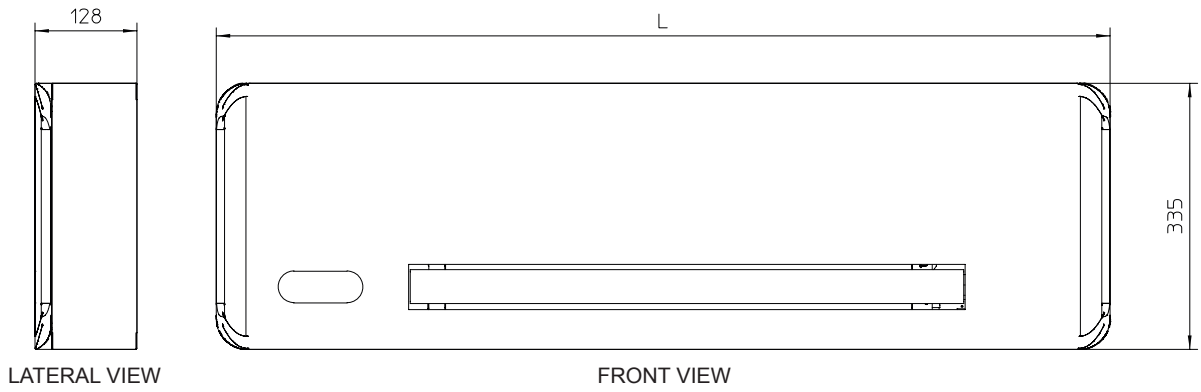
1.4 Technical specifications

TECHNICAL DATA				
FWXT		**10ATV3**	**15ATV3**	**20ATV3**
Coil water content	L	0.54	0.74	0.93
Maximum operating pressure	bar	10	10	10
Maximum water inlet temperature	°C	80	80	80
Minimum water inlet temperature	°C	4	4	4
Hydraulic connections	"	Eurokonus 3/4	Eurokonus 3/4	Eurokonus 3/4
Power supply voltage	V/ph/Hz	230/1/50	230/1/50	230/1/50
Maximum power consumption at maximum speed	W	17.6	19.8	26.5
Maximum power consumption at minimum speed	W	4.8	5.1	5.8
Length	mm	902	1,102	1,302
Height	mm	318	318	318
Depth	mm	128	128	128
Weight	kg	14	16	19

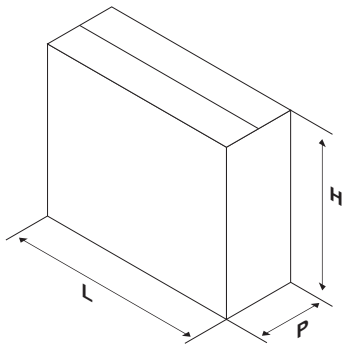
1.5 Filomuro overall dimensions

FWXT	U.M.	10ATV3	15ATV3	20ATV3
Dimensions				
L	mm	927	1.127	1.327

FWXT



1.6 Dimensions and weight for transportation



Package	M.E.	10ATV3	15ATV3	20ATV3
Dimensions				
Weight	kg	15	17	20
L	mm	1.035	1.235	1.435
H	mm	490	490	490
P	mm	213	213	213

INSTALLATION

2.1 Unit placement

Daikin FWXT convectors have to be installed only in high wall position, above 2 meters.

⚠ Avoid installing the unit near:
- areas exposed to direct sunlight;
- heat sources;
- in damp areas and areas in which the unit can come into contact with water;
- in environments with oil mists;
- in environments subject to high frequencies.

⚠ Make sure that:
- the wall on which you intend to install the unit is strong enough to support the weight;
- the wall surface is not crossed by pipelines or power lines;
- the wall is perfectly flat;
- there are no obstructions nearby that could compromise the inlet and outlet airflow;
- the wall on which you are installing the unit is (if possible) an external perimeter wall, in order to allow condensate drain outside the premises;
- air flow is not directed towards by-standers.

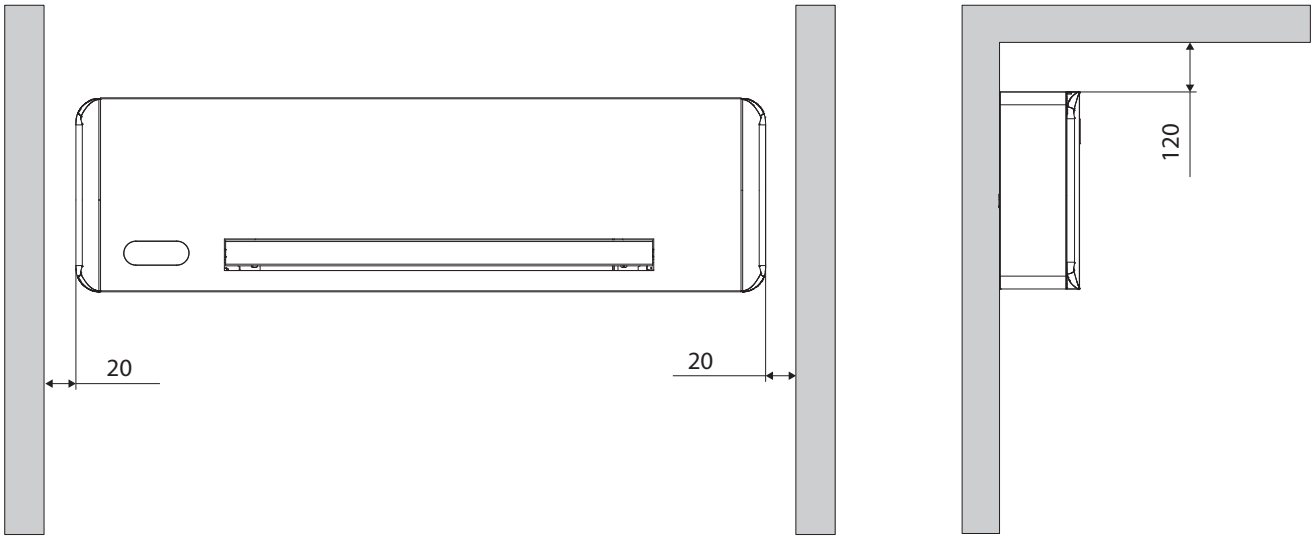
2.2 Installation procedure

The assembly steps described below and their drawings refer to a version of the machine with connections on the right side.
For ideal installation and performance levels, carefully follow the instructions in the manual.

Failure to do so may cause system malfunctions and automatically voids the warranty, and relieves the manufacturer of any harm caused to persons, animals or property.

2.3 Installation space

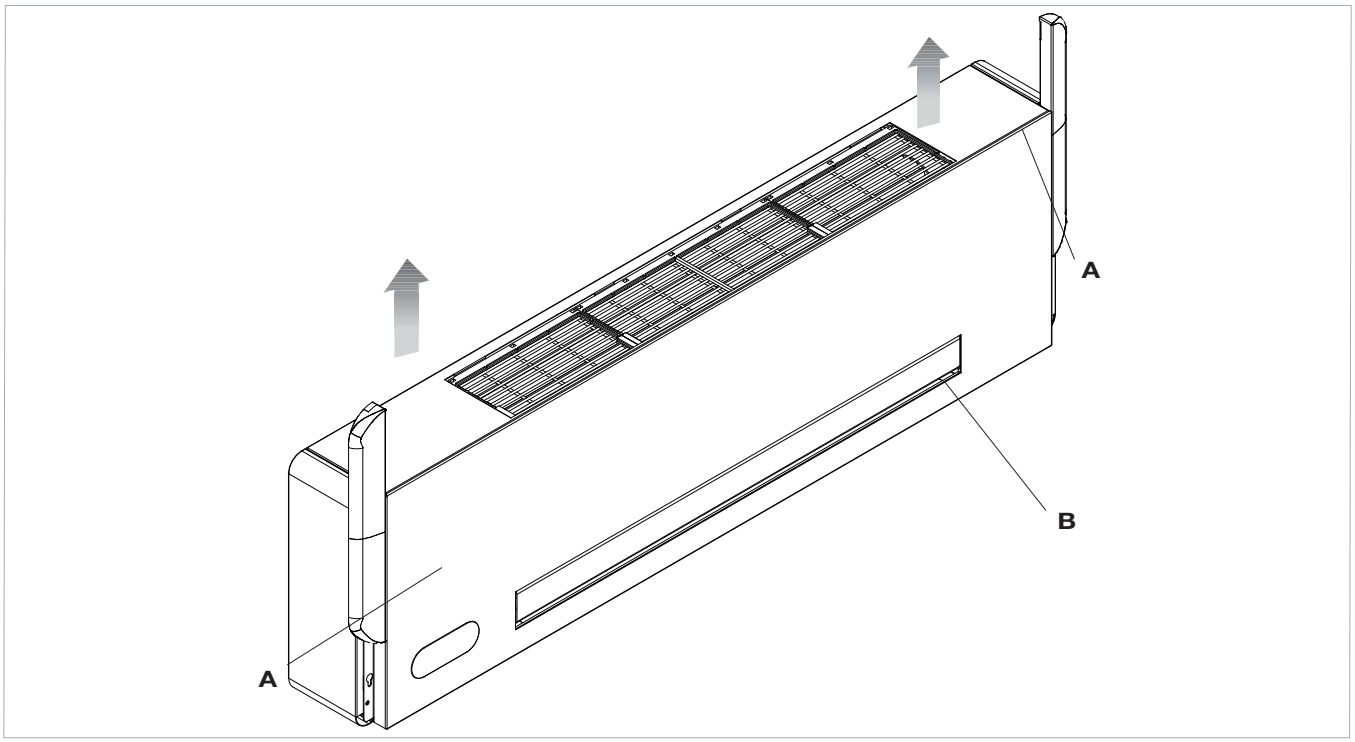
The figure shows the minimum distances required for the convector from the walls and furniture on site.

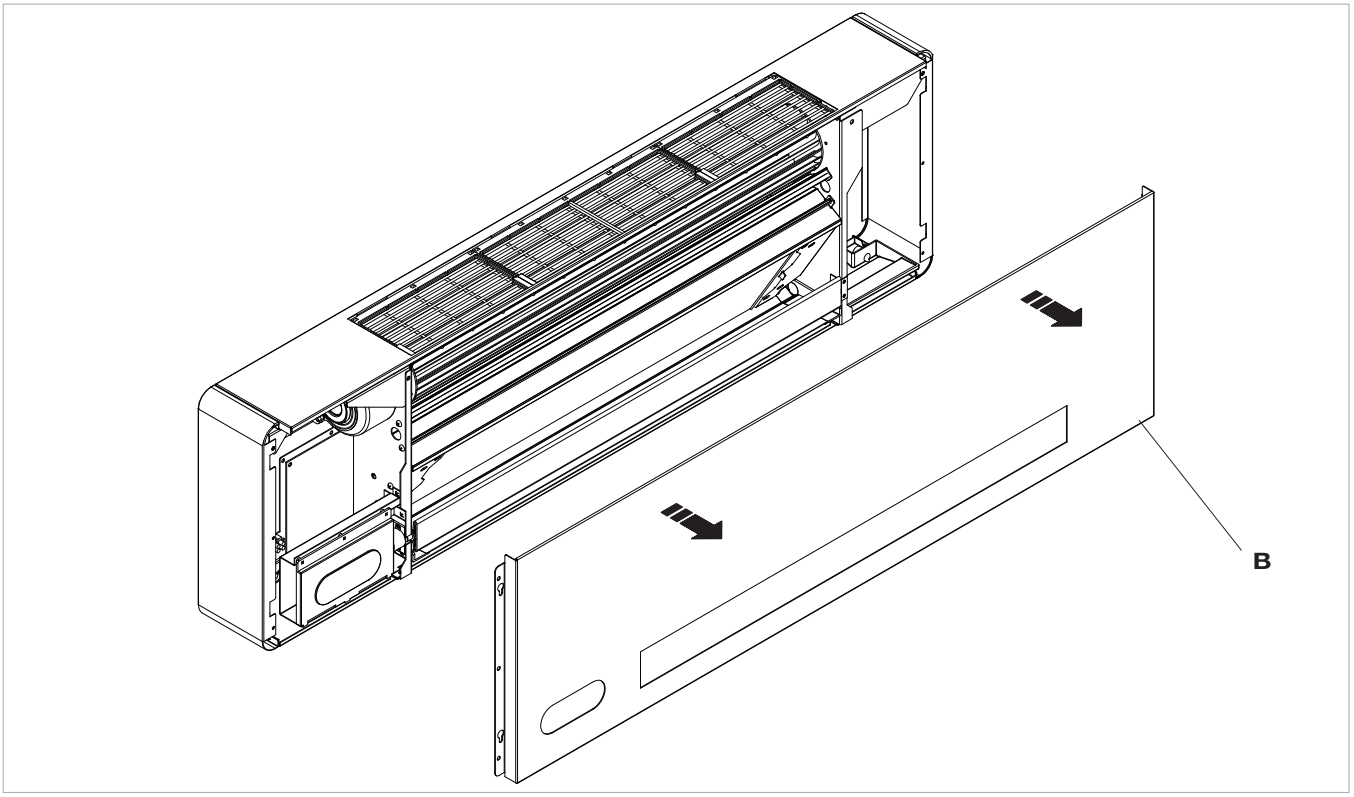


2.4 Opening the unit

- Remove the side panels by pulling them upwards as shown in the figure below;
- Remove the 6 hex screws present on the sides of the front panel;
- Remove the aesthetic front panel as shown in the figure;

A	side panels
B	aesthetic front panel

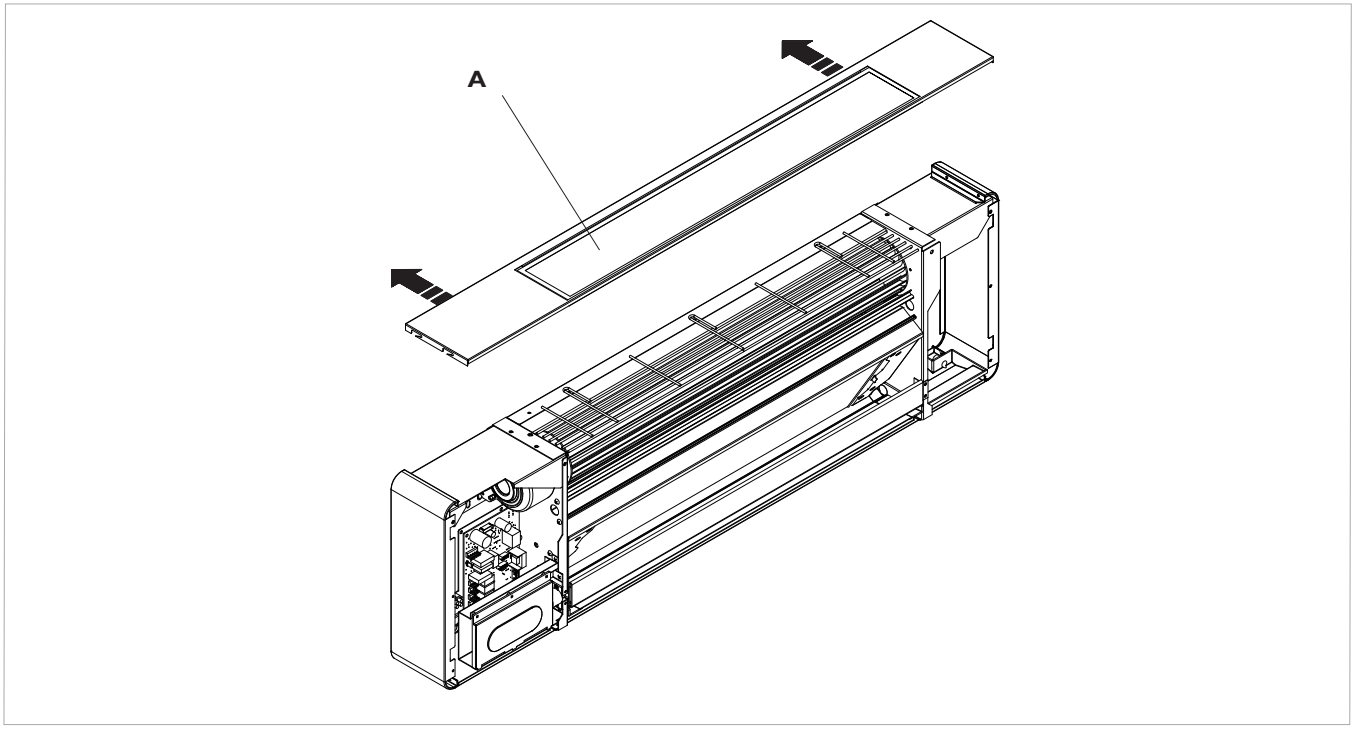


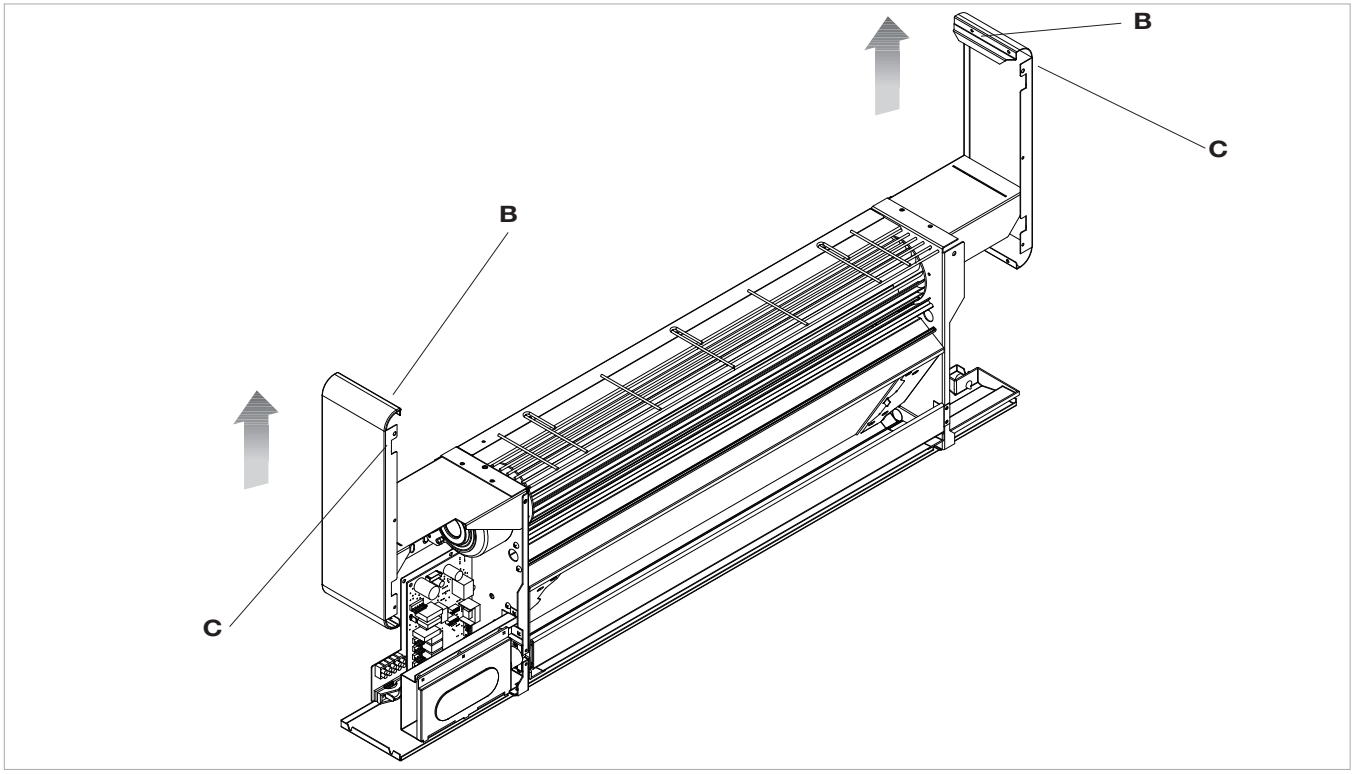


- Remove the upper grille by pulling it in your direction and lifting it upwards, as shown in the figure;
- remove the side panels by lifting them upwards;

A	upper filters
B	side plates

C	side screw

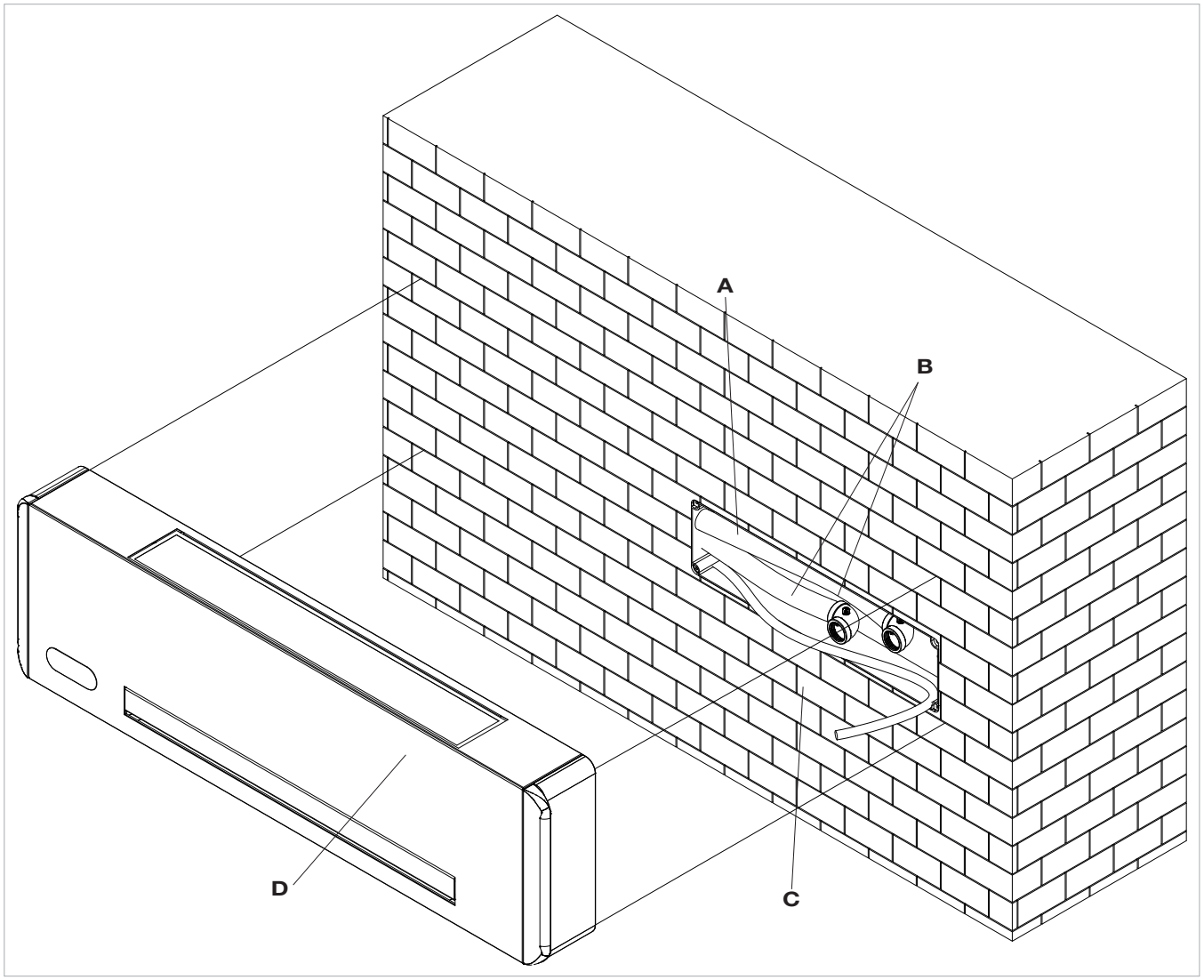




2.5 Wall installation

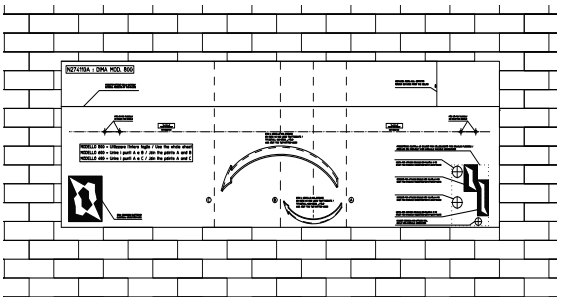
- For smooth installation, especially if you want to set-up the system before you install the device, we recommend installing a wall recess, as shown in the figure;
- If you do not complete installation of the device when installing the wall recess, leave the water and condensate drain pipes hanging loose, so that you can later make the connections without joints;
- When you finally install the device, it will be possible to connect the convector with a 90° fitting and socket with eurokonus connection;
- another option if you can comfortably bend the pipeline (which will depend on the depth of the installed recess) is to install the eurokonus connection inside the pipeline;
- pay attention to the tilt angle of the condensate drain pipe, which must rest be laid on the lowermost part of the recess so that the pipe's height never exceeds the height of the cooler-radiator drain connection;
- for the installation heights, refer to the installation template supplied with the device and which is shown in the following pages.

A	wall recess
B	connecting water pipelines
C	condensation drainage pipe
D	heat pump convector



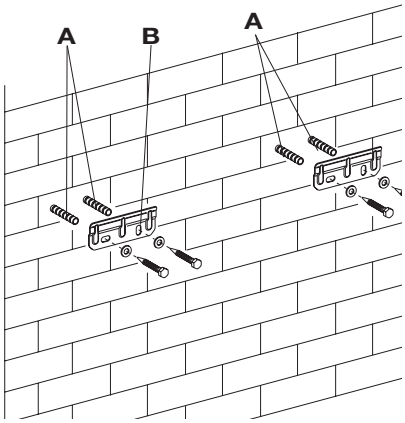
1. Use the paper template shown in full scale on the next page and trace the position of the two fixing brackets on the wall.
2. Drill a hole using a proper tip and insert the plugs (2 per bracket) then attach the two brackets. Do not over-tighten the screws so that you can adjust them with a spirit level.
3. Firmly fasten the brackets by tightening the four screws.
4. Check stability by moving the brackets to the right and left, up and down.
5. Assemble the unit, making sure it fastens properly onto the brackets and that it is stable.
6. Make sure the tilt angle of the cooler-radiator matches the measure shown in the figure below.

A	plugs

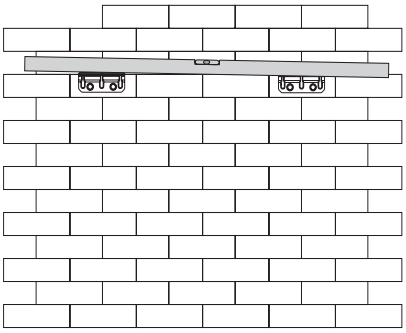


1.

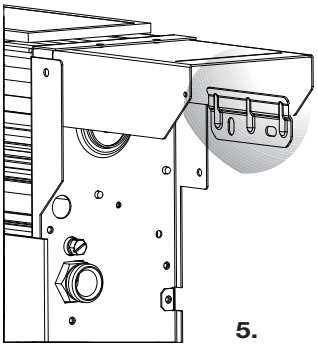
B	brackets



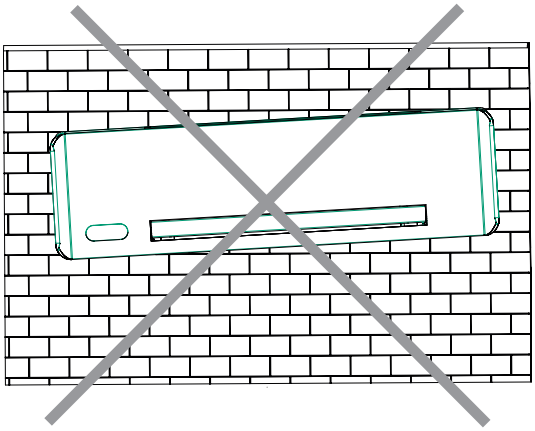
2.



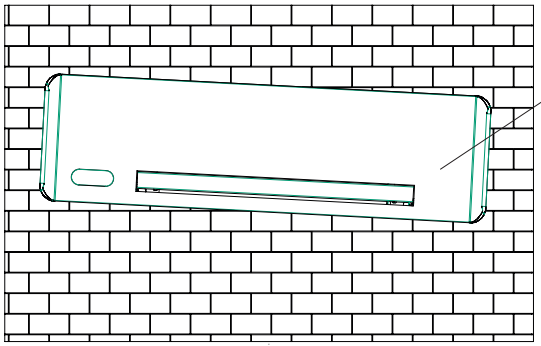
3.



5.

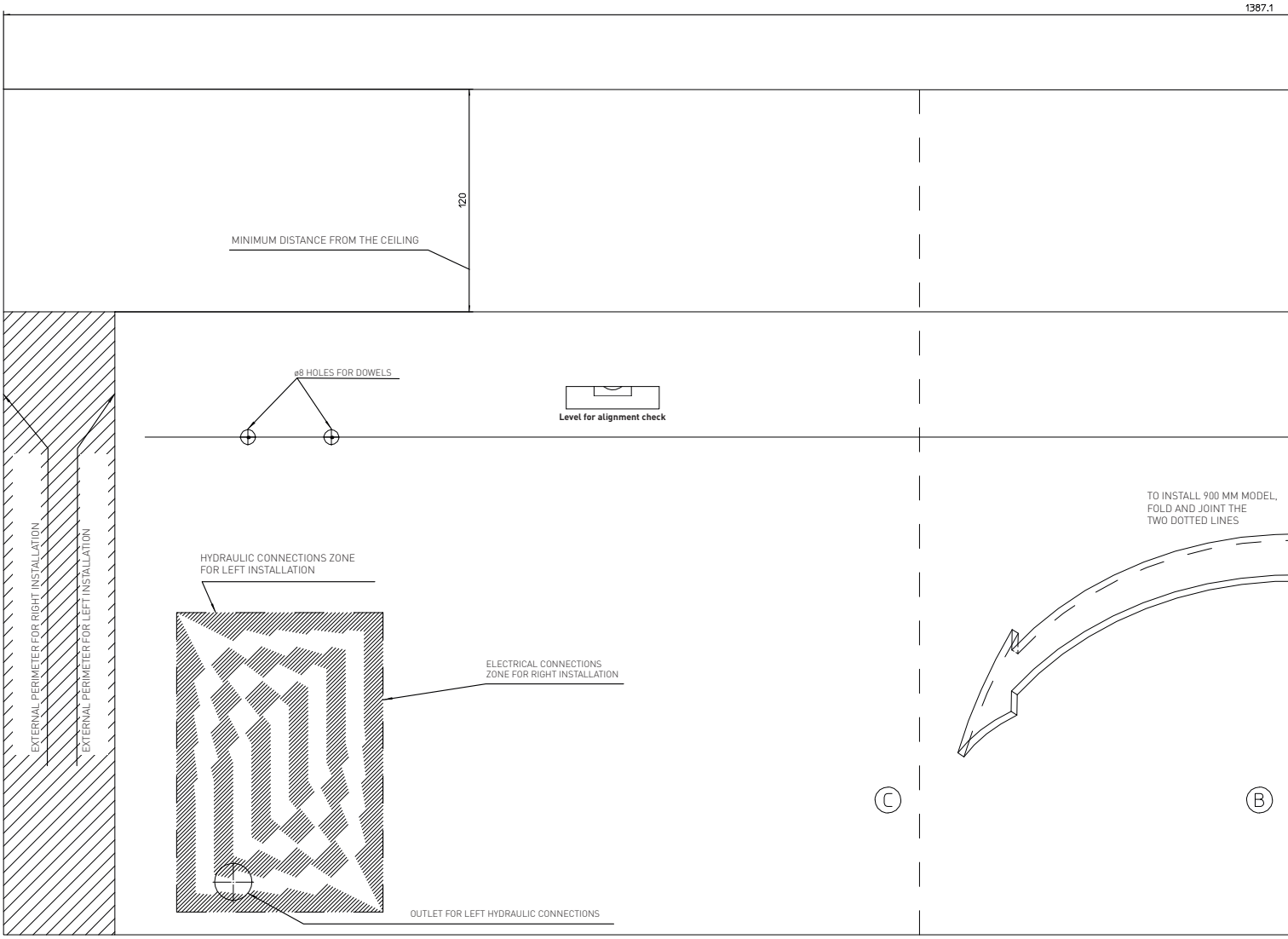


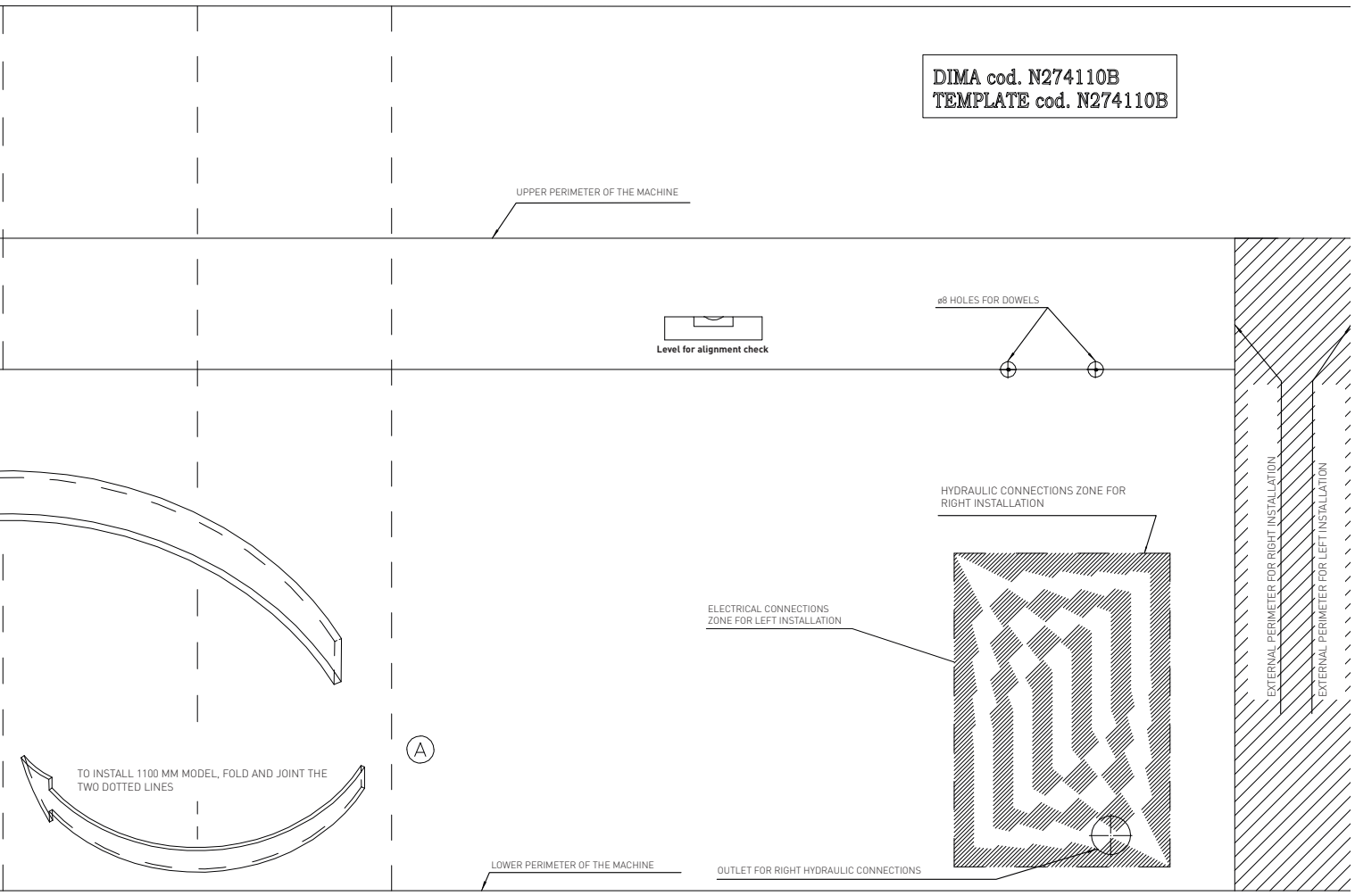
6. NO



6. OK, max tilt 1°
<u>toward hydraulic parts</u>

2.6 Installation template




DIMA cod. N274110B
TEMPLATE cod. N274110B
UPPER PERIMETER OF THE MACHINE
ø8 HOLES FOR DOWELS
Level for alignment check
HYDRAULIC CONNECTIONS ZONE FOR RIGHT INSTALLATION
ELECTRICAL CONNECTIONS ZONE FOR LEFT INSTALLATION
EXTERNAL PERIMETER FOR RIGHT INSTALLATION
EXTERNAL PERIMETER FOR LEFT INSTALLATION
A
TO INSTALL 1100 MM MODEL, FOLD AND JOINT THE TWO DOTTED LINES
LOWER PERIMETER OF THE MACHINE
OUTLET FOR RIGHT HYDRAULIC CONNECTIONS

2.7 Hydraulic connections

FWXT	U.M.	10ATV3	15ATV3	20ATV3
Pipeline diameter	mm	14	16	18

The engineer is responsible for choosing the right water lines and their size, in accordance with good installation practices and the applicable laws, keeping in mind that under-sized pipelines lead to poor system operation.

To make the connections:
- position the water lines
- tighten the connections using the "wrench against wrench" method
- check for any fluid loss
- apply a lining to the connections (use proper insulating material)

The hydraulic lines and fittings must be thermally insulated.

Avoid partial insulation of the pipes.

Avoid over-tightening the pipes to avoid damage to the insulation.

To ensure water tightness of the threaded connections, use hemp and green paste; the use of teflon tape is recommended if you have poured anti-freeze liquid in the water circuit.

Carefully check that the insulation is tight, in order to prevent the formation and dripping of condensate.

Note: Always provide an electrically controlled valve on the machine or upstream that interrupts the water flow when the setpoint is reached.

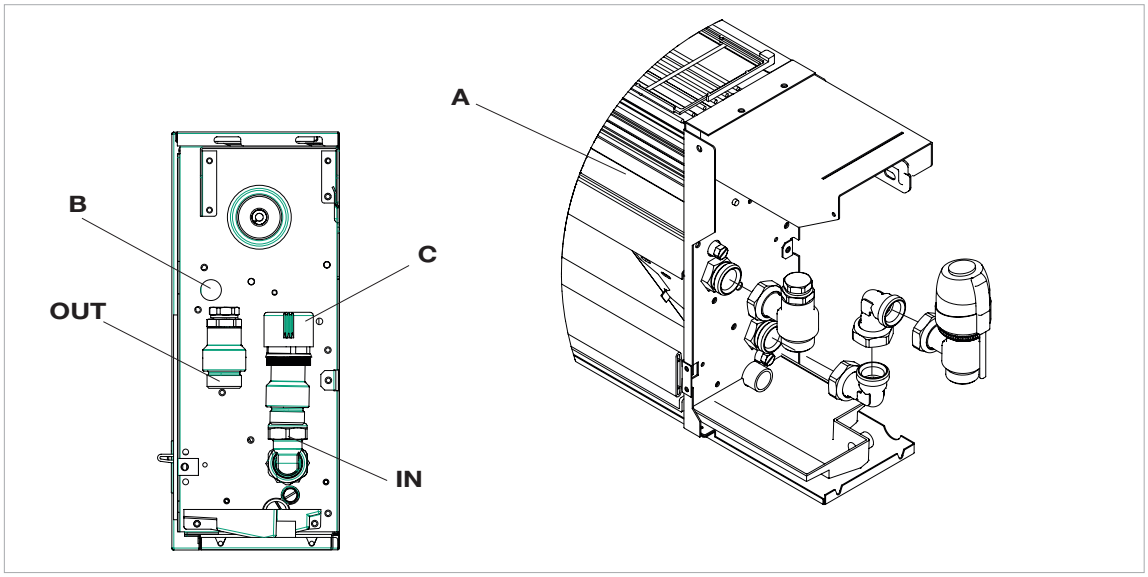
Connection to the 2-way valve unit with thermoelectric motor (EKT2VK0)

Connect the pipeline to the delivery and return lines as shown in the figure, with the delivery line at the top;

Comply with the requirements for electrical connections, as described in para. 2.11

A	convector
B	electric cable entry hole
C	thermoelectric motor

IN	water inlet pipe fitting
OUT	water outlet pipe fitting



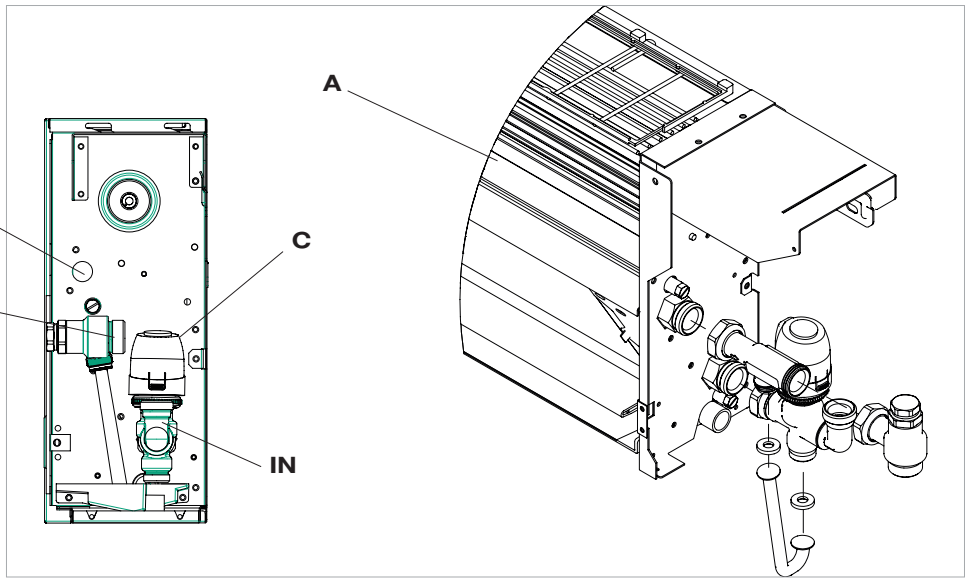
Connection to the 3-way diverter valve unit with thermoelectric motor (EKT3VK0)

Connect the pipeline to the delivery and return lines as shown in the figure, with the delivery line at the top;

Comply with the requirements for electrical connections, as described in para. 2.11

A	convector
B	electric cable entry hole
C	thermoelectric motor

IN	water inlet pipe fitting
OUT	water outlet pipe fitting



2.8 Condensate drain

The condensate drain network must be sized appropriately (minimum inner pipe diameter: 14 mm) and the pipeline positioned so that it maintains a consistent slope along the line (never less than 1%). The drain pipe connects directly to the drain pan installed at the bottom on the side panel under the hydraulic connections.

- If possible, make the condensate liquid flow directly onto a gutter or into a "clean water" drain.
- If the liquid is discharged into a sewer, we recommend that you install a trap-vent to prevent bad odours from rising back up into the building. The curve of the trap must be lower than the condensate tray.
- If you need to drain the condensate into a container, it must remain open and the pipe must not be immersed in water to prevent adhesion and back-pressure that would obstruct free flow.
- If the drain pipe has to overcome a gap in height due to its particular installation which would obstruct condensate flow, remember to install a pump:

These pumps are commonly available on the market.

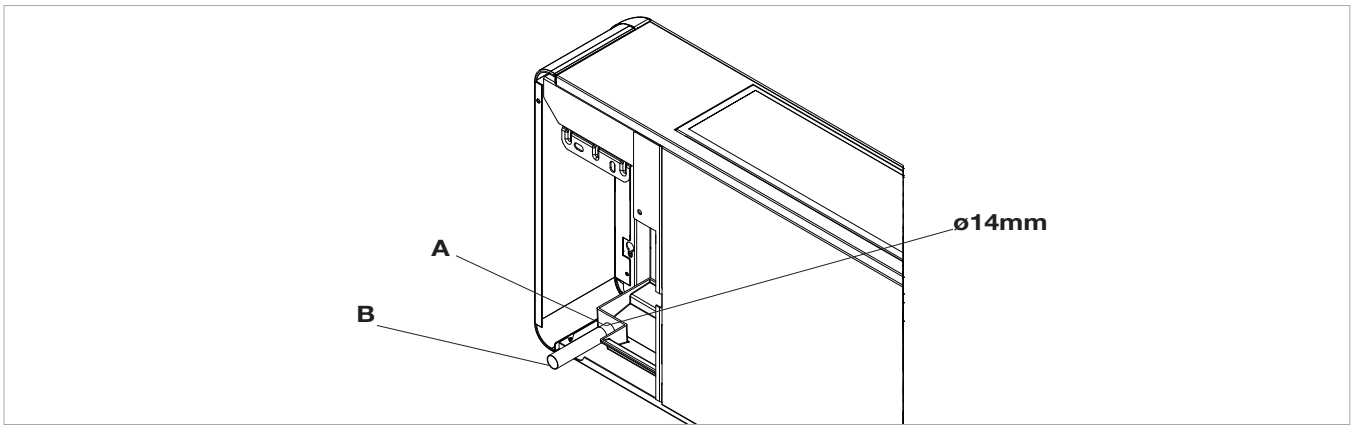
However, it is advisable that after installing the pump you check proper flow of the condensate liquid, pouring it in very slowly (about 1/2 l of water in about 5-10 minutes) into the drain pan.

Condensate drain pipe assembly

Connect the drain connection of the drain pan that collects the condensate fluid to a hose and tighten it properly.

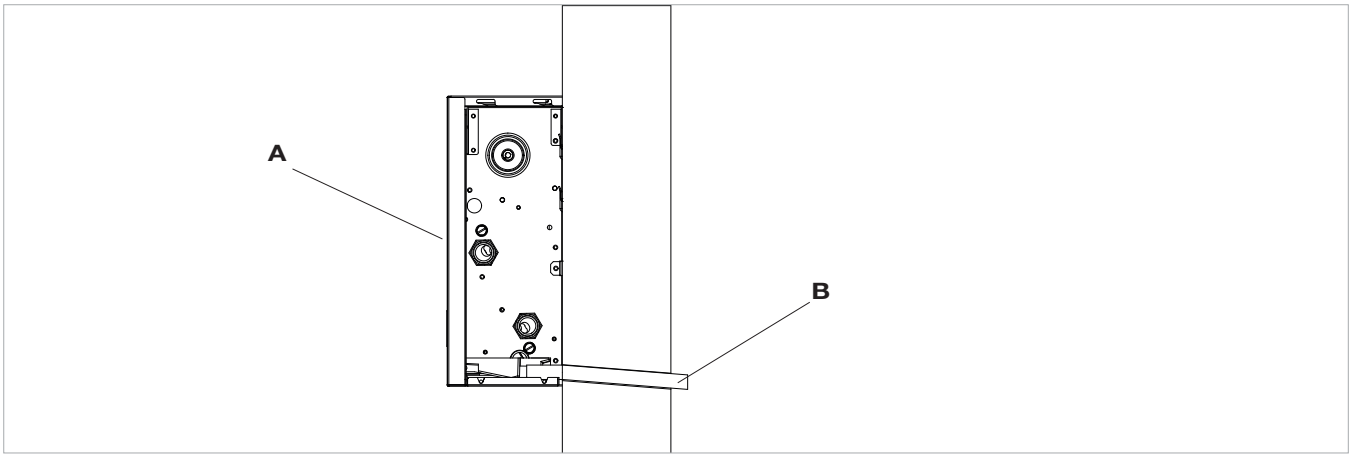
A	drain connection
B	liquid drain pipe

Make sure the drip-guard extension is present and that it has been properly installed.



Pay attention to the tilt of the condensate drain pipe when it channels condensate outside the premises as shown in the figure.

A	convector
B	condensate drain pipe



2.9 Filling system

When starting the system, make sure that the lock-shield on the hydraulic unit is open. If there is a power black-out and the thermal valve is already running, use its cap to press the valve shutter and open it.

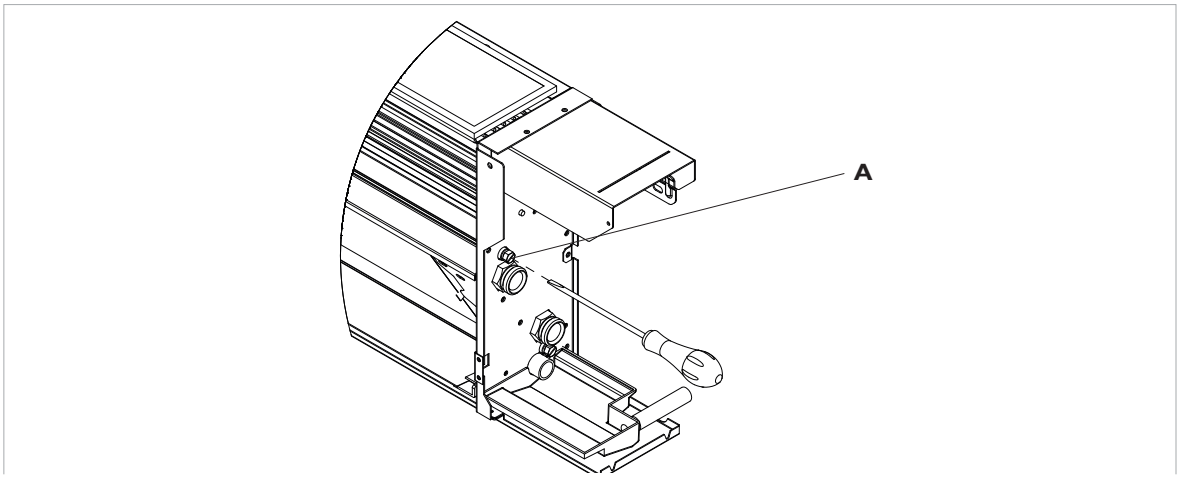
2.10 Evacuating the air when filling the system

- Open all the system's shut-off valves (whether manual or automatic);
- Start filling the system by slowly opening the water tap;
- With the aid of a screwdriver, open the vent on the uppermost coil connection (see figure below);
- When water begins to leak out of the breather valves, close them and continue to fill the system (as per the rated specifications).

Check the tightness of the gaskets.

We recommend that you repeat this operation when the device has been running for a few hours and that you regularly check the system's pressure.

A	Coil vent



2.11 Wiring

- Access the electrical parts as described in paragraph 2.4.
- An on/off switch with delayed fuse or an automatic circuit breaker (2A) must be installed to supply power to the system.
- Because the wiring features a suppression filter, as required by the applicable laws and standards, which naturally induces leakage current to the ground, it is best to install selective differential circuit breakers upstream of the system.
- For safety reasons, the on/off switch referred to above should be installed near the device or at any rate in open view.
- The power cables must be equipped with copper conductors having the following unitary sections (the values indicated refer to a maximum line length of 15m). The cables must be appropriate for the type of installation, in accordance with the applicable CEI standards.

FWXT	**U.M.**	**10ATV3**	**15ATV3**	**20ATV3**
Power conductor (phase + neutral)	mm^2	1.5	1.5	1.5
Protective conductor section G/V	mm^2	1.5	1.5	1.5

CONTROL PANEL INSTALLATION AND CONNECTION

3.1 Board connections with TOUCHPAD AND REMOTE CONTROL

⚠ Before you connect the cooler-radiator, make sure that:
- the voltage and frequency match the values on the device's nameplate.
- The power line has an efficient ground connection and is appropriately sized for the unit's maximum current absorption (minimum cable section: 1.5 mm^2).

⚠ If you need to replace the power cable, contact only the technical customer service or qualified staff, in compliance with the applicable national laws.

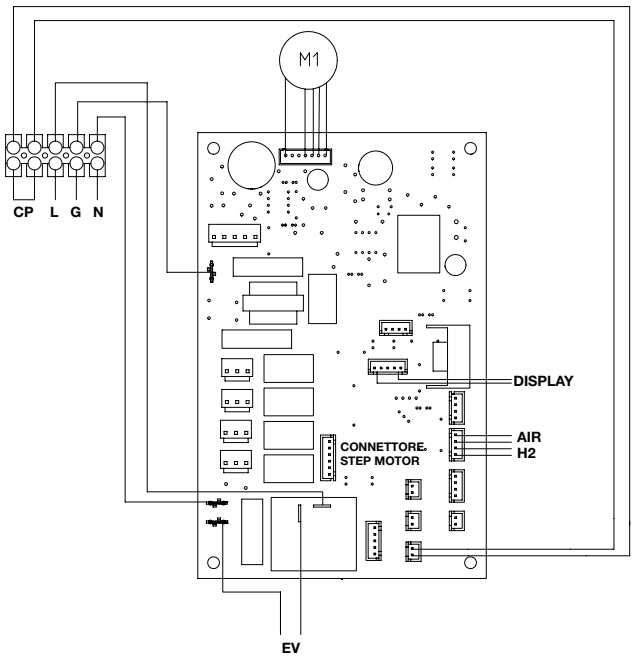
You can use a cable embedded in the wall in the position traced with the installation template to make the electrical connection (recommended connection for devices installed in the upper part of the wall).
In any case, you must check that the power supply is protected against overload and/or short-circuits.

In order to prevent any risk of electric shock, it is essential to disconnect the main circuit breaker before making any electrical connections and performing maintenance on the equipment.

H2	water temperature probe 10 kΩ
M1	fan motor DC inverter
EV	water solenoid valve (230V/50Hz 1A powered output)
L-N	230V/50Hz electrical power supply connection
G	protective conductor

CP	presence sensor input (if closed, the fan coil goes into stand-by.)
AIR	Optional air probe
DISPLAY	control panel (display) wiring

Connection diagram



CP presence contact input connection

When the CP contact opens (connected to a clean contact, not live) the unit is in stand-by mode and the display reads "CP".

Through this contact, you can connect an external device that inhibits the unit as: opening window contact, remote on/off, infrared presence sensor, enabling badge, etc.

See paragraph 4 on page 26 **for the instructions for use with the Touchpad and remote control.**

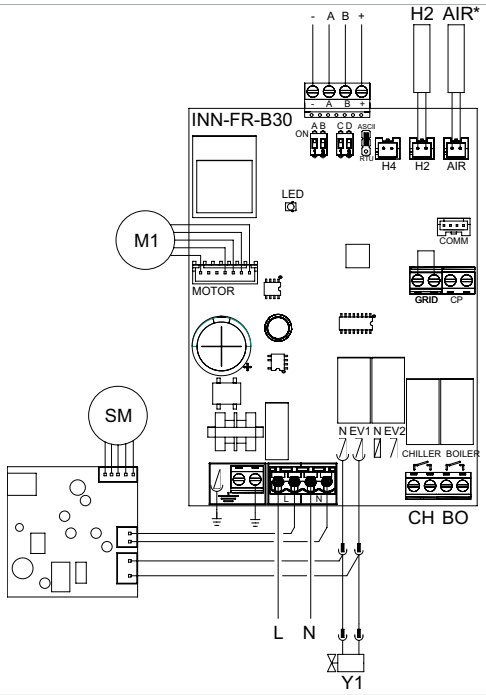
3.2 Connection for remote control panel

The convector is equipped with an electronic board with continuous fan modulation for connection to wall controller EKWHCTRL1 (to be ordered separately).

-AB+	serial connection for wall-mounted remote controller EKWHCTRL1 (respect the AB polarisation)
H2**	hot water temperature probe 10 kΩ
M1	fan motor connection
Y1	thermoelectric motor (230V/50Hz 1A powered output)
L-N	230V/50Hz electrical power supply connection
BO	heating request output (free contact max 1A)
CH	cooling request output (free contact max 1A)
CP	presence sensor input (if closed, the convector goes into stand-by.)
AIR	Optional air probe (*)

SM	Step motor (diffuser)
*	Connect as an alternative to the air probe of the EKWHCTRL1 wall-mounted control panel
**	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). The board can also operate without a water probe, in such cases the fan stop thresholds will be ignored

Connection diagram



Fitting the wall-mounted remote control panel EKWHCTRL1

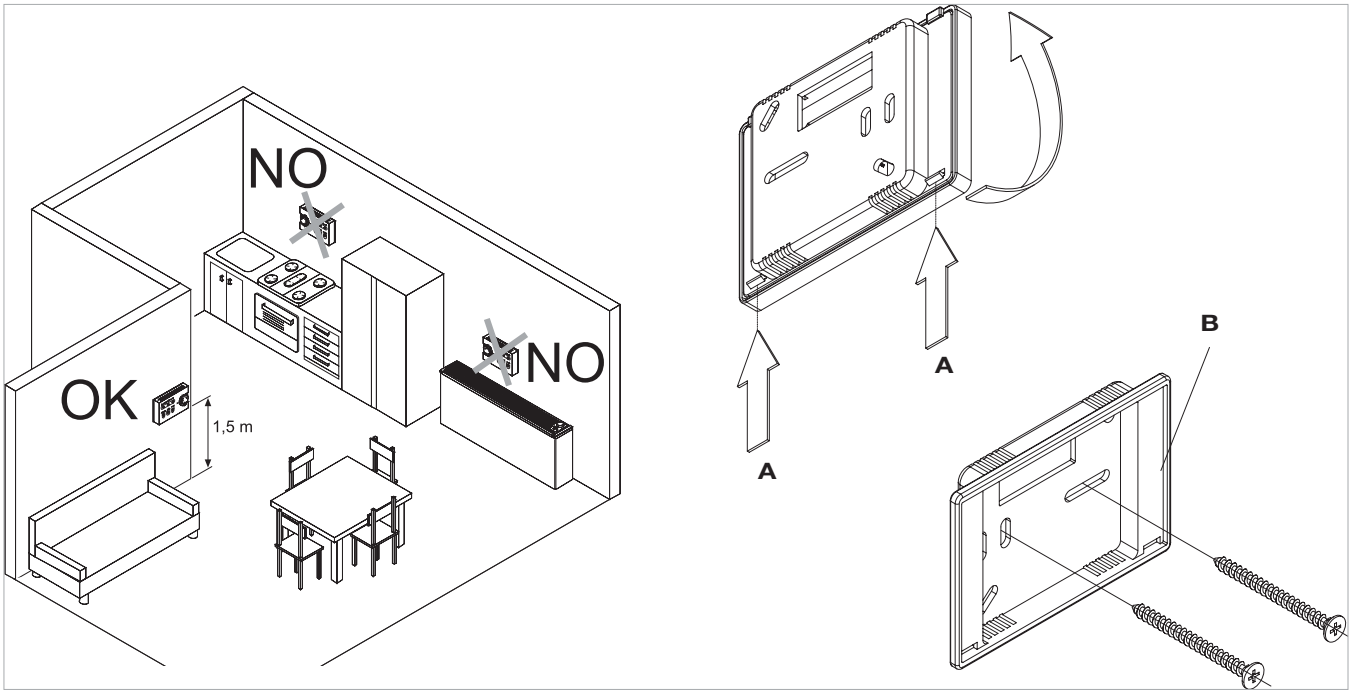
The wall-mounted EKWHCTRL1 is an electronic thermostat (fitted with temperature probe optionally remotable in one of the convectors connected to it) with the possibility of controlling one or more cooler-convector/cooler-radiators (up to a maximum of 30).

Install the wall-mounted remote control EKWHCTRL1 away from doors or windows and sources of heat (heaters, convectors, stoves, direct sunlight), on internal walls at a height of about 1.5 m from the floor.

The wall-mounted remote control is already assembled in the package, therefore before mounting them the two parts must be disconnected by unhooking the two protruding notches on their back (A).

Use the base of the control (ref. B in figure) to trace the fixing point on the wall (use the two opposite holes).
Then proceed with the operations below:

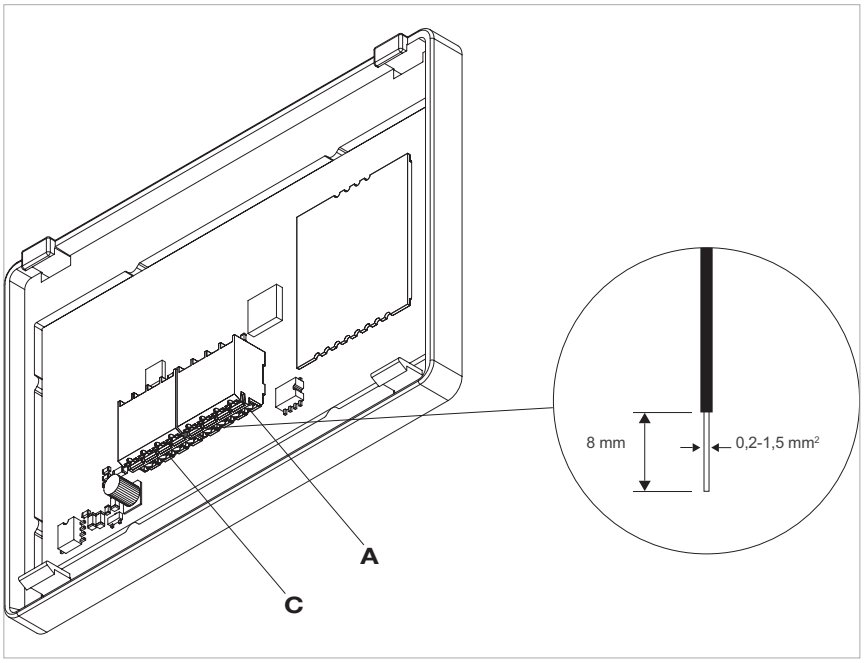
- drill the holes in the wall;
- route the electric wires through the window on the base;
- fix the base of the control to the wall using suitable plugs;
- perform the electrical connection and then close the control paying attention not to crush the conductors.



Spring clamps -AB+ and CP connection

The spring terminals intended for the electrical connections are compatible with 0.2 to 1.5 mm² section rigid or flexible cables, while if they are provided with lugs with plastic collar, their maximum section is reduced to 0.75 mm².
For correct and secure connection follow the operations below:
- strip the cable by 8 mm as shown below;
- if the cable is rigid you should be able to insert its end easily, while if it is flexible you should use a pair of nose grippers;
- insert the cables completely and make sure they are properly fixed by pulling them slightly;

To disconnect the cables use a screwdriver to press the corresponding white notch (ref.C) and remove the conductor.



CP presence contact input connection

When the contact connected to the CP (ref. A) input is closed, all the convectors connected will be switched off.

The input cannot be connected in parallel to one of another electronic board (use separate contacts).

EKWHCTRL1 connections

Connect the RS485 line of the wall-mounted remote control to one or more (up to a maximum of 30) units through a cable suitable for RS485 serial connection, keeping it separate from power supply cables.

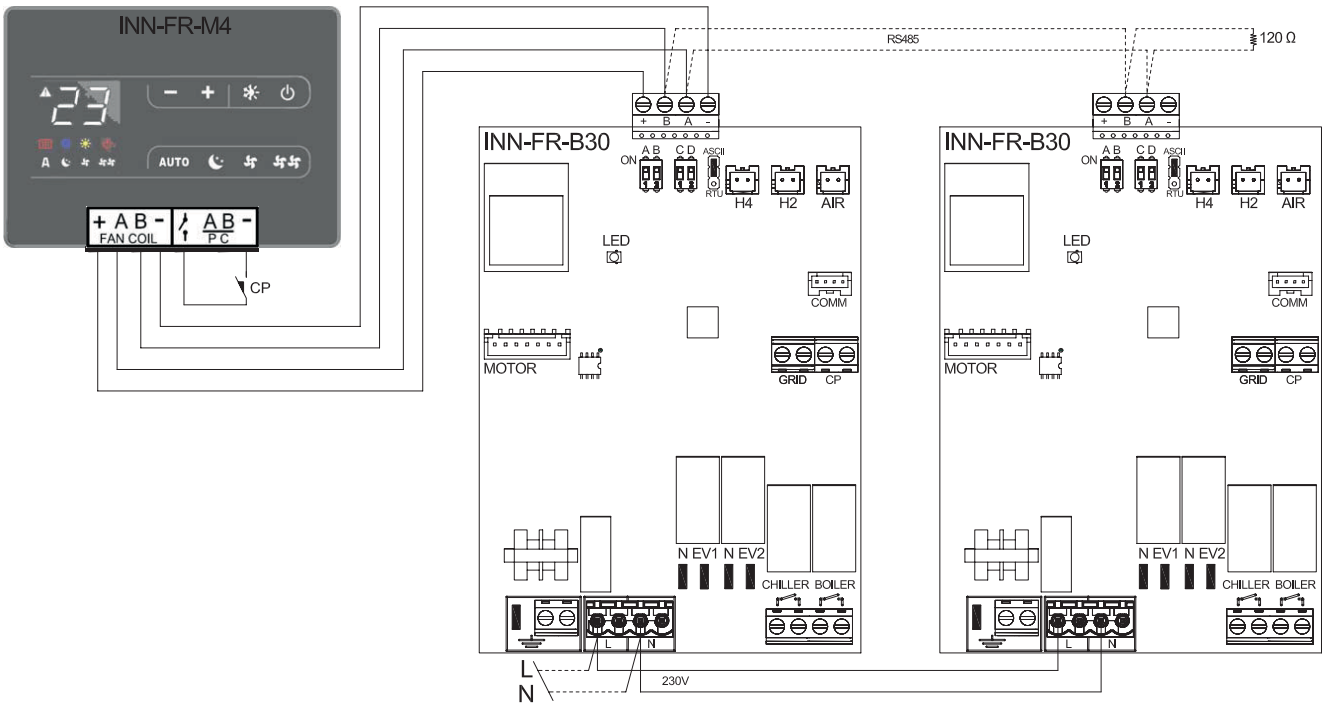
Try to inimise the length of the connection cables;

Complete the line with the 120 Ω resistance supplied;

Do not make "star" connections;

The RS485 connection is polarised, observe the indications “A” and “B” on each peripheral device connected (for the connection it is preferable to use a shielded cable with a minimum section of 0.35 mm^2);

Connect the + and - power supply terminals of the wall-mounted terminal, 5 V DC voltage, on one of the convector boards, respecting the polarities.



See paragraph 5 on page 30 **for the istructions for use with wall-mounted control panel.**

INSTRUCTIONS FOR USE WITH TOUCH-SCREEN AND REMOTE CONTROL

4.1 Warnings

⚠ Do not lean or sit on the body of the cooler-radiator to avoid damaging it.

⚠ Do not manually move the horizontal louver of the air outlet. Always use the remote control to do this operation.

⚠ If water leaks from the device, you must switch it off immediately and disconnect the power supply. Then, call the nearest customer service centre.

⚠ The device must not be installed in rooms where there are explosive gases or where there are conditions of humidity and temperature out of the limits defined in the installation manual.

⚠ Regularly clean the air filter as described in the relevant paragraph.

4.2 Management of the unit with the touch-screen and remote control

1 Remote control
2 Touch-screen display

KEY / DISPLAY:

88.8 Setpoint

Up key

Down key

On/off key

Key to enable cooling only mode

Not used

Key to enable ventilation only mode

Key to enable heating only mode (1)

Key to enable heating only mode (2)

Night comfort key

Airflow direction control key

Fan speed control key

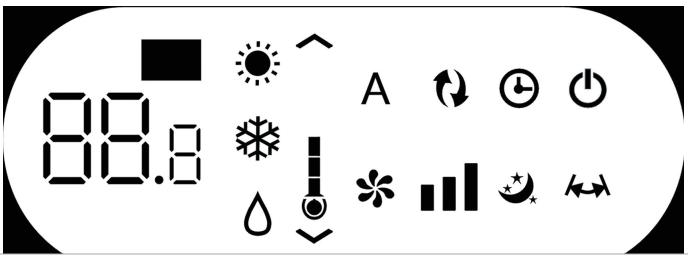
Key to set the Timer function (1)

Key to set the Timer function (2)

Light sensor

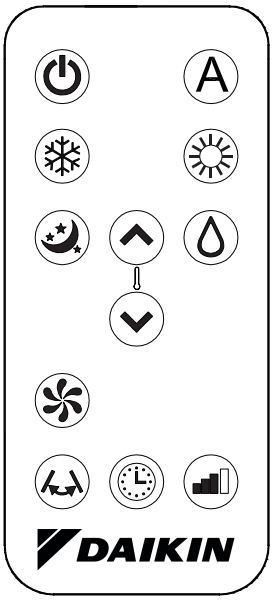
Digital thermometer;
1÷7 bars - red in winter, blue in summer

Not used



Normally the display shows the operating status (see the Functional description chapter) and any alarms (see the Alarms display paragraph).

You can also select the various functions by pressing on the symbols.



You can set the various functions by pressing the keys (see the keys function chapter).

⚠ The remote control supplied with the device is designed to provide maximum sturdiness and exceptional functionality, but should nonetheless be handled with caution.

Avoid:
- leaving it exposed to rain, spilling liquid on the keyboard or dropping it in water
- bumping it forcefully or letting it fall on hard surfaces
- leaving it exposed to direct sunlight
- placing obstacles between the remote control and the device while you are using the remote.

Moreover:
- if other devices are being used within the premises that are operated by remote control (TVs, radios, stereos, etc.), you might experience some interference
- electronic and fluorescent lamps can interfere with communications between the remote control and the device.
- remove the battery in case of prolonged inactivity of the remote control.

Inserting the battery

Use only a dry 3V lithium battery CR2025 (included) with the remote control. Used batteries must be disposed of appropriately (WEEE) through special waste collection centres provided by the local authorities.

To insert the battery, open the slot on the bottom of the remote control. Make sure to insert the battery according to the +/- polarity. Close the cover after inserting the battery.

4.3 Functional description

Main switch-on and operation

To control the device with the remote control or touch-screen display, make sure you have enabled the main switch on the power line (the technician who installed the device can help you locate the switch), or introduce a power plug on the device, plugging it into the system's socket.

After you perform these steps, you can operate the system either by pressing the symbols on the touch-screen display or using the remote control. To send commands to the indoor unit, point the front of the remote towards the unit's display. The buzzer will emit a beep and a message will appear on the display to confirm that the command has been enabled. The maximum range to send commands is about 8 metres.

Key/Display	Operation
⚠ The keys of the remote control and touch-screen display perform the same function.	
88.8	When the unit is switched on, the preset set-point appears on the 3 digits of the display.
^	• The room temperature set-point can range between 16 and 31 °C. ⚠ Do not set a temperature that is too low or too high is harmful to health and is an unnecessary waste of energy.
v	

Key/Display	Operation
	**Power on/off** By pressing the appropriate key, you can switch the device off (standby) or on. The control panel has its own memory, therefore no settings will be lost in case of shut-down or power outage. The key is used to activate or deactivate the unit for short periods. ⚠ If you plan to keep the device out of service for a prolonged time, remember to deactivate it by disconnecting the power or removing the power plug.
	**Cooling only mode** • When this operating mode is enabled, the device dehumidifies and cools the room.
	• The temperature can be set between 16 and 31 °C. If the set temperature is lower than the room temperature, after three minutes (at the most) the cooler-radiator will start running and the device begins to deliver cold air, continuing to ventilate the room even if the device reaches the set-point.
	**Ventilation only mode** When you enable this function, the device enable the fan and does not adjust the temperature or the humidity of the air in the room. THE MODE allows you to set the fan speed
	**Heating only mode** • When this operating mode is enabled, the device heats the room.
	• You can set the temperature between 16 and 31 °C and if the temperature is higher than room temperature, after three minutes (at the most) the compressor goes off and the appliance begins to provide heat.
	**Night comfort key** With the device switched on and the cooling or heating mode selected, pressing this key allows you to perform multiple functions in order to maximise the quietness of the device, saving on electricity and optimally adjusting the temperature for night comfort. In this mode the fan is set to minimum speed. This function should be activated just before falling asleep. • In cooling mode, the set temperature is increased by 1 °C after 1 hour and by 1 °C after 2 hours. After the second hour, the temperature setting is not altered any more and after 6 more hours the device shifts to stand-by. • In heating mode, the set temperature is decreased by 1 °C after 1 hour and by 1 °C after 2 hours. After the second hour, the temperature setting is not altered any more and after 6 more hours the device shifts to stand-by. This function is not available in the dehumidification only, ventilation only and automatic economy mode, and can be excluded at any time (ideally when you wake up) by pressing the key again. If you simultaneously set the Timer function, the device switches off after the preset time.
	**Airflow direction control** By pressing the appropriate key, you can set the constant oscillation of the air flow deflector, in which case the symbol on the display is on, or lock it in any position. ⚠ IMPORTANT: Never force the flow deflector manually to move it. In cooling and dehumidification mode, the flow deflector's position is reset every 30 minutes in order to prevent the formation of dew.
	**Fan speed control** Repeatedly pressing this key will change the speed with the following sequence: Minimum, Medium, Maximum and Automatic. The higher the set speed, the higher the device's performance (but also the louder the noise). If you set the speed to Automatic (you will notice the 3 speed bars slide on the display), the micro-processor will adjust the speed automatically (the higher the difference between the room temperature and the set temperature, the higher the speed). The speed is reduced automatically as the room temperature gradually reaches the set temperature. In dehumidification only mode and night comfort mode, you cannot adjust the speed, as the unit can work only at low speed.

Key/Display	Operation
	**Setting the Timer function** • The device's operating logic allows the user to freely programme when it is to switch on or off.
 	• While the cooler-radiator is on, you can programme it to switch off by pressing the Timer key and then setting the number of hours (from 1 to 24) after which the device is to switch to stand-by. • When the cooler-radiator is off, you can programme it to switch on by pressing the Timer key and then setting the number of hours (from 1 to 24) after which the device is to switch on.
	• Next, press the enter key.
	**Touch-screen display keylock** • To lock the keys, hold the Timer symbol on the touch-screen display pressed for 3 seconds. The keylock will prevent the user from enabling or disabling any function on the display. The stand-by symbol flashes intermittently every second. • To turn off the key-lock, press the Timer symbol again for 3 seconds on the touch-screen display. ⚠ Any selection from the remote control will deactivate the key-lock!

Alarms display

In the event of a malfunction, the display shows an alarm code. The device will nonetheless continue to perform certain functions (see OPERATION column).

Alarm displayed	Cause	Operation
E1	Room temperature probe (RT) failure.	It is possible to normally activate the Cooling, Dehumidification and Heating modes.
E2	Internal battery probe IPT failure	It is possible to normally activate the Cooling, Dehumidification and Heating modes.
E5	Indoor fan motor failure	You cannot activate any operating mode.
E7	Lack of communication with the display *	You cannot activate any operating mode.
CP	Presence contact CP open	The unit is enabled only if the contact is closed. Check the connection of the terminals.
 flashing	Incorrect water temperature	In heating mode, the water temperature is below 30 °C
 flashing	Incorrect water temperature	In cooling mode, the water temperature is above 20 °C

Operating the unit if the remote control is not available

If you lose the remote control, the batteries run out or the remote stops working, you can be operate the device with the keys on the touch-screen display on-board the machine.

4.4 Troubleshooting

For the user it is important to distinguish any malfunction or performance levels that differ from the system's standard operating values (see technical specifications). The most common problems can be easily solved by the user by performing certain simple tasks (see the Troubleshooting paragraph), while some system alarms require that you contact the Technical Customer Service.

⚠ Please keep in mind that any attempt by unauthorised staff to repair the device automatically voids any form of warranty.

INSTRUCTIONS FOR USE WITH REMOTE PANEL EKWHCTRL1

5.1 Wall-mounted control panel with room probe

The wall-mounted control panel EKWHCTRL1 is a thermostat fitted with temperature probe with the possibility of controlling one or more (up to a maximum of 30) convectors in broadcast mode (with simultaneous data transmission).
The control panel has its own memory, therefore no settings will be lost in case of shut-down or power outage.

⚠ Any failure of the individual terminals connected will not be signalled by the wall-mounted panel.

⚠ Thanks to the temperature probe it ensures anti-freeze safety even when set to stand-by.

⚠ After 20 seconds from the last action the panel brightness will be reduced and on the display will appear the room temperature. Press any key to restore maximum brightness.

5.2 Display

The display also offers information on the statuses and on any active alarms through 8 specific symbols:

A	Automatic operation
	Silent operation
	Maximum ventilation speed
	Night function
	Heating on

	Cooling on
	Supervision on. Flashing with CP presence contact closed.
	Alarm indication (light on)
	Panel off indication

5.3 Keys function

You can set the various functions through the 8 backlit keys:

+	Temp + allows increasing the set temperature
−	Temp - allows decreasing the set temperature
	Heating/Cooling: allows switching between heating and cooling
AUTO	The ventilation speed will be adjusted automatically between a minimum and a maximum value.

	Night function: the ventilation speed is significantly reduced and the set temperature is changed automatically
	Operation at maximum speed: allows setting he maximum ventilation speed
	ON/Stand-By: allows activating or putting the device in stand-by mode.
	Silent operation: allows limiting the ventilation speed by reducing its maximum value.

5.4 General start-up

In order to control the device from the control panel, it first has to be connected to mains.

If a main power switch has been installed on the power line, it must be activated.

- Start the system by toggling the main switch

5.5 Activation

To activate the device

Key	Operation	Display
	Press ON-Standby key	From off to on state
AUTO   	Pressing function key select one of four possible function modes.	

5.6 Heating / cooling operating mode set-up

Key	Operation	Display
	Press the Heating / Cooling key for about 2 seconds to switch between heating and cooling operating modes; the selection is shown by the heating or cooling symbols that will light up.	
	In heating, the symbol is alight when the setpoint is higher than the room temperature, and switched off when the setpoint is lower.	
	In cooling, the symbol is alight when the setpoint is lower than the room temperature, and switched off when the setpoint is higher.	

5.7 Stand By

Key	Operation	Display
	Press the ON-stand-by for about 2 s: When the device is in "stand-by" status there are no light simbols on the display.	Off

When the control is in this operating mode, the anti-freeze safety is secured. If the room temperature falls below 5 °C the hot water solenoid valve outputs and boiler consent contact is activated.

5.8 Temperature selection

Key	Operation	Display
+ −	Use the increase and decrease keys to set the desired room temperature displayed on the 3 digit display.	20.5

The adjustment range goes from 16 to 28 °C, with a resolution of 0,5 °C, but the system also allows the out of range values 5 °C and 40 °C (except in automatic mode). These values should be set only for short periods of time, after which you must adjust the selection to an intermediate value.

The control is very precise, set it to the desired value and wait for it to run the adjustment based on the actually detected room temperature.

5.9 Automatic operation

Key	Operation	Display
AUTO	Hold the AUTO key. The function activation will be signalled by the relative symbol on the display	A

The ventilation speed will be adjusted automatically between a minimum and a maximum value, based on the actual distance between the room temperature and the pre-set set-point based on an algorithm type PI.

5.10 Silent operation

Key	Operation	Display
	Hold the Silent key. The function activation will be signalled by the relative symbol on the display	

The ventilation speed is limited at a more reduced maximum value.

5.11 Night function

Key	Operation	Display
	Hold the Night function key. The function activation will be signalled by the relative symbol on the display	

By selecting this operating mode the ventilation speed is significantly reduced and the set temperature is changed automatically as follows:

- decreased by 1° C after one hour and by another degree after 2 hours in heating function;
- increased by 1° C after one hour and by another degree after 2 hours in cooling function;

5.12 Operation at maximum ventilation speed

Key	Operation	Display
	Hold the Max Operation key. The function activation will be signalled by the relative symbol on the display	

In this operating mode, you will immediately obtain maximum power output both in heating and in cooling.

After reaching the desired room temperature you should select one of the other 3 operating modes to increase the thermal and acoustic comfort.

5.13 Key locking

Key	Operation	Display
+	Press both keys + and - at the same time for 3 seconds to activate the local lock up of all keys, the confirmation is represented by the text bL appearing on the display. The user will not be able to perform any adjustment and the text bL appears every time a key is pressed. Repeat the sequence to unlock the keys.	bL
−		

5.14 Minimum brightness reduction

After 20 seconds from the last action the panel brightness will be reduced to increase the comfort during night use and on the display will appear the room temperature.

If this level of brightness still bothers you you can turn off the display completely.

Key	Operation	Display
+	With the panel off press the + key for 5 seconds until the text 01 appears on the display. Use the - key to bring the value to 00 and wait 20 seconds to check for the correct configuration.	00

5.15 Deactivation

Key	Operation	Display
	Press the ON stand-by for about 2 s: When the device is in "stand-by" status (no function) there are no light signals on the display.	Off

The control ensures anti-freeze safety even when set to stand-by.

5.16 Room temperature probe offset adjustment

In some cases the detected values might not represent the real temperature due to the fact that the temperature probe is located in the lower section of the device.

Use this function to adjust the measured value shown on the display within a range of +/- 10 °C in steps of 0.1 °C. Use this adjustment carefully and only after having found actual deviations from the room temperature using a reliable tool!

Key	Operation	Display
−	With the panel off hold the - key for 5 seconds to access the menu from which you can adjust (using the + and - keys) from –10 to +10 K in 0.1 K steps. After 20 seconds from the last action performed the panel turns off and the setting is saved.	00.0

5.17 Long term shut-down

For seasonal shut-downs or holidays proceed as follows:
- Disable the device.
- Set the main system switch to Off.

⚠ The anti-freeze function is not on.

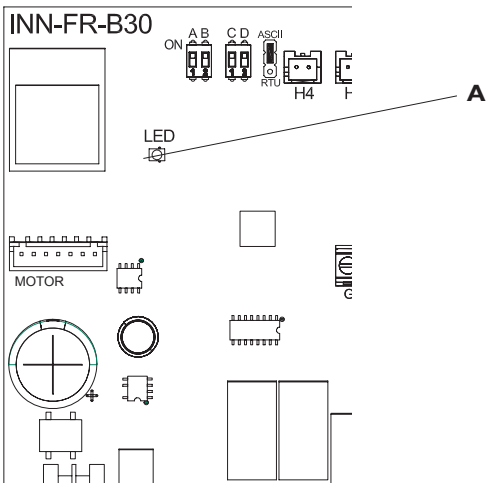
5.18 Error signals

Error	Display
Room temperature probe failure (located inside the thermostat).	⚠ E1
Failure or connection of a double remote room probe on one of the two connected cooler-radiators.	⚠ E2

5.19 Electronic control board

The electronic board allows the control of all functions from the wall-mounted EKWHCTRL1 control panel.
You can connect to and remote command up to 30 convectors that will be controlled in broadcast mode (with simultaneous commands to all convectors).
The board has a green LED indicating the status and any faults.

The main operating parameters, the setpoint and the room temperature are transmitted from the wall-mounted remote control panel to all connected terminals in the network, ensuring smooth operation.



5.20 LED Signals (ref. A)

●	Green Led: Signals the functioning of the device. Flashes in case of faults.	●	LED off: device stopped or not powered.

Error reporting

Error	Display
Communication error: The board is provided with a function that allows continuous information exchange on the serial line with the wall-mounted control panel. If it is missing for more than 5 minutes the error is displayed and the device is deactivated.	6 flashes + pause
Fan motor fault (for example jamming due to foreign bodies or fault in the rotation sensor).	2 flashes + pause
Water temperature probe failure. In this case make sure the probe has 10 kΩ.	3 flashes + pause
Water temperature outside operating range (over 20 °C in cooling, below 30 °C in heating). The fan will stop until the temperature reaches an appropriate value to meet the request*.	1 flash + pause

* If after powering the equipment the board detects the water probe, the start-up will take place with minimum and maximum water temperature thresholds.

The board can also operate without a probe, case in which the fan stop thresholds will be ignored.

ROUTINE MAINTENANCE

6.1 Maintenance

Routine maintenance is essential to keep the convector always efficient, safe and reliable over time. Routine maintenance can be performed every six months (for certain tasks) and once a year (for other tasks) by our Technical Customer Service, which is qualified for such tasks and which can also supply original spare parts, if necessary.

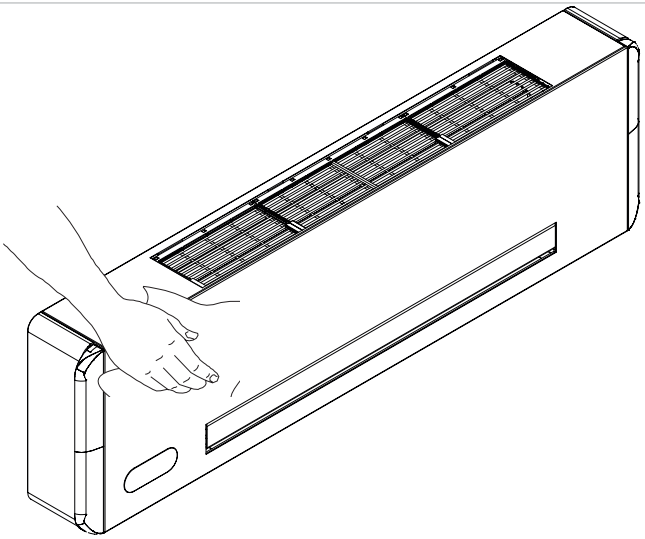
6.2 External cleaning

⚠ Disconnect the unit from the power supply before each cleaning and maintenance intervention by setting the main power supply switch to off.

⚠ Wait for the components to cool down in order to avoid any burns.

⚠ Do not use abrasive sponges or abrasive or corrosive detergents as you might damage the painted surfaces.

Clean the external surfaces of the convector using a soft cloth dampened with water.



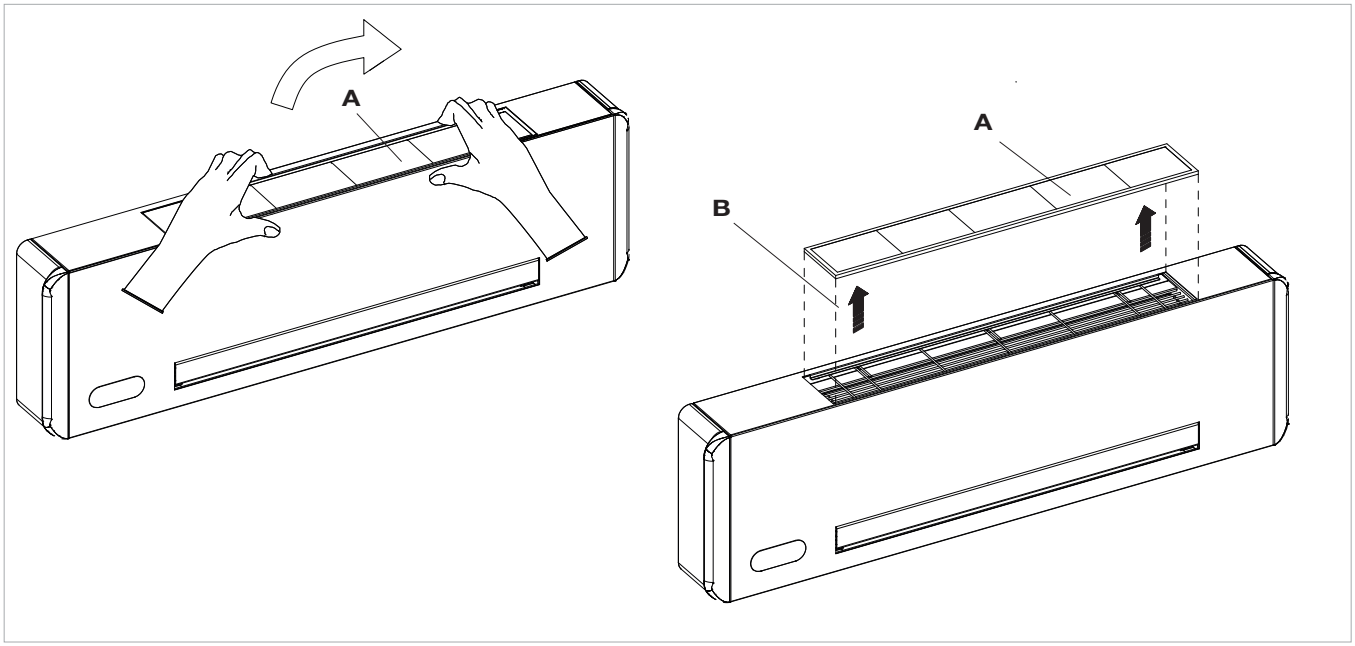
6.3 Cleaning the air suction filter

After prolonged operation and depending on the concentration of impurities in the air, or when you plan to restart the system after prolonged stand-by, proceed as follows.

Extraction of filter cells

- Remove the filter cells by lifting them slightly and turning them until they come out of their housing;
- Remove the filter by pulling it horizontally and upwards.

A	Filter
B	Filter removal



Filter media cleaning

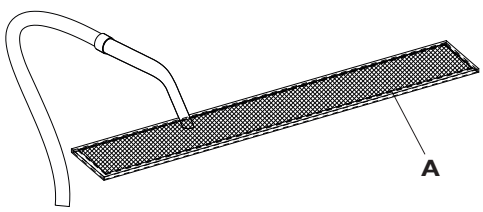
- Collect the dust from the filter using a vacuum cleaner
- Wash the filter with running water without using any detergents or solvents and then let it dry.
- Remount the filter on the cooler-radiator, paying particular attention to introduce the lower flap in its housing.

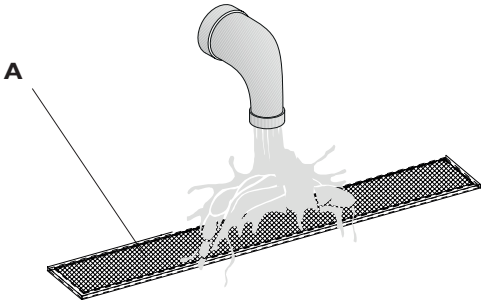
It is forbidden to use the device without its mesh filter.

The device features a safety switch that prevents the fan from starting if the mobile panel is incorrectly positioned or missing.

After filter cleaning check if the panel is properly mounted.

A	Filter





6.4 Suggestions for power saving

- Keep the filters clean;
- Keep the doors and windows of 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.).

TROUBLESHOOTING

⚠ In case of water leaks or abnormal operation, disconnect the device from power supply immediately and close the water taps.

⚠ Should you encounter any of the anomalies below, avoid taking actions on your own and contact immediately an authorised technical support centre or qualified staff.

- The ventilation does not start even if the water circuit is filled with hot or cold water.
- The device is losing water in heating mode.
- The device is losing water in cooling mode.
- The device generates excessive noise.
- There is dew on the front panel.

7.1 Troubleshooting table

The interventions must be carried out by a qualified installer or by a specialised support centre.

Effect	Cause	Solution
The ventilation is delayed with respect to the new temperature or function settings.	The circuit valve requires a certain time to open and therefore to make the hot or cold water circulate inside the device.	Wait 2 or 3 minutes to allow the circuit valve to open.
The device does not activate the ventilation.	Cold or hot water is missing from the system.	Make sure the boiler or the water cooler are on.
The ventilation does not start even if the water circuit is filled with hot or cold water.	The hydraulic valve stays closed	Demount the body of the valve and check if the water circulation is restored.
		Check the valve operation feeding it separately to 230 V. If you were to turn, the problem may be in the electronic control.
	The ventilation motor is jammed or burnt.	Check the motor windings and check if the fan rotates freely.
	The wirings are not correct,	Check all wirings.
The device is losing water in heating mode.	Leaks at the hydraulic connections of the system.	Check the leak and tighten the connections.
	Leaks at the valves unit.	Check the condition of the gaskets.
There is dew on the front panel.	Detached thermal insulation.	Check the correct positioning of the thermal and acoustic insulations paying particular attention to the front one located on top of the finned coil.
There are water drops on the air vent.	High humidity conditions (>60%) might generate condensation, especially at minimum ventilation speeds.	As soon as the level of relative humidity drops, the phenomenon disappears. However, a few water drops falling inside the device will not cause any malfunction.
The device is losing water in cooling mode.	The condensate tray is clogged.	Slowly pour a bottle of water in the lower section of the coli to check the drainage; if necessary clean the tray and/or improve the slope of the drain pipe.
	The condensate discharge pipe does not have the slope required fro correct drainage.	
	The connection pipes and the valves unit are not well insulated,	Check the pipes insulation.
The device generates excessive noise.	The fan touches the structure.	Check if the filters are dirty and clean them if necessary
	The fan is unbalanced.	The unbalancing generates excessive vibrations: replace the fan.
	Check if the filters are dirty and clean them if necessary	Clean the filters

cod. N273110A - Rev. 05

DAIKIN EUROPE N.V.

Zandvoordestraat 300, B-8400 Oostende, Belgium