USER MANUAL AND INSTALLATION

ARUMAK

casals
fans of innovation

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INDEX

ARUMAK

SECURITY AND MARKING STANDARDS "CE"

Our R & D department is concerned with achieving efficient products in compliance with the current "safety standards". The rules and recommendations set out below mainly reflect what is in effect in safety material and therefore are mainly based on compliance with the general rules. Therefore, we strongly recommend all the people who manipulate the machine to follow the rules of accident prevention in their place and in their country. Casals ventilation is exempt from any liability for any damage caused to people or property arising from non-compliance with safety regulations, as well as any changes made to the product.
The CE marking and the relative declaration of conformity certify compliance with applicable Community standards. Products that are not marked on the CE plate must be completed by the buyer who must then certify the entire plant, thus providing the certificate of conformity.
The machines meet the requirements of:
- Machinery Directive 2006/42 / CE.
- Low voltage directive 2014/35 / CE.
- With the Electromagnetic Compatibility Directive 2014/30 / CE.
- Ecodesign Directive 2009/125 / CE.

GENERAL RULES

Safety guards should not be removed if it is not due to absolute need for work; in which case appropriate measures must be taken that must be taken immediately in the event of possible danger.
All maintenance work (ordinary and extraordinary) must be carried out with the machine stopped, electrical power, pneumatic etc ... disconnected. To avoid the danger of accidental insertion, stick on electrical panels, control units and control consoles
warning signs with the words "Warning: command excluded for maintenance in progress". Before connecting the power cable to the terminal board verify that the line voltage is suitable for that shown on the machine's plate, pay attention to the labels placed on the product; if time goes by they should become illegible and they would have to be replaced.
The device must not be used by people (including children) whose physical, sensory or mental abilities are reduced, or with lack of experience or knowledge, unless they have been able to benefit, through the intermediation of a responsible person in their security, surveillance or instructions on the use of the device. Children should be checked to prevent them from playing with the device.

MAINTENANCE

The maintenance staff, in addition to having to observe the current legal provisions on accident prevention, must comply with the instructions shown below:
- Wear appropriate safety clothing.
- Use soundproof headphones when the noise exceeds the allowed limit.
- Verify the existence of an interlock that foresees the start-up of the machine by other people.

These heat recovery systems lack the maintenance periodically to perform correctly the function for which they were designed. The frequency with which maintenance is performed depends on the characteristics of the environment in which the device is inserted and the number of hours of operation, so what is indicated below should be seen as guidance.

Fan

Operations to be carried out:
• Check if there are no foreign bodies inside the module.
• Check that all screws are tightened to avoid unwanted vibrations.
• General interior cleaning.
Maintenance interval: half-yearly

Filters

Operations to be carried out:
• Check if there are no foreign bodies inside the module.
• Check that all screws are tightened to avoid unwanted vibrations.
• Check if there are no cuts in the filter mat.
• Check the clogging status of the filters (clean or replace if necessary).
• General interior cleaning.
Maintenance frequency: monthly

Heat recovery
Operations to be carried out:
• Check if there are no foreign bodies inside the module.
• Check that all screws are tightened to avoid unwanted vibrations.
• Check the condition and fixing and cleaning of the recovery element.
• General interior cleaning.
Maintenance interval: half-yearly

Water coil
Operations to be carried out:
• Check if there are no foreign bodies inside the module.
• Check that all screws are tightened to avoid unwanted vibrations.
• Check the connections to the battery.
• Check and clean (if necessary and with care not to cause damage) the fins of the batteries.
• If there are deformed fins, place them in the correct position with a suitable "comb".
• General interior cleaning
Maintenance frequency: annual

Electric coil
• Check if there are no foreign bodies inside the module.
• Check that all screws are tightened to avoid unwanted vibrations.
• Check the state of the connections, replacing and re-making connections if necessary.
• General interior cleaning.
Maintenance interval: half-yearly

EQUIPMENT WARRANTY
Casals Ventilation warrants this product against all manufacturing defects for a period of two (2) years from the date of purchase.
The service under warranty, will only be paid by presenting the purchase receipt, which shows that the machine is within the warranty period. If, during the guarantee period, the product resulting from recognizing the problems of manufacturing defects, Casals ventilation or its authorized technical services, shall, to the free repair on site or (according to the criteria of Casals ventilation) to replace the product or make available to the customer for the replacement of defective components according to the following conditions. Casals ventilation reserves the right, (at its own discretion) to replace the components of defective products or low-value products, both components or new products, such as components or recycled products.
Warranty exclusions
• Pieces of natural wear.
• Parts subject to deterioration or breaking, for example belts, filters, fuses, etc.
• Failures caused by misuse, neglect, negligence, atmospheric discharges, floods, humidities, falls, crashes, accidents and transportation.
• Failures caused due to the use of equipment for purposes other than those foreseen.
Failures caused as a result of manipulation, change or repair of equipment by unauthorized persons or technical services or due to the use of inappropriate parts or accessories.
Faults caused due to incorrect or illegal installation (voltage, water pressure or other), power anomalies, non-compliance with the instructions.
• Wear or aesthetic deterioration, resulting from the use, changes in tones, oxidation or corrosion of the device or its components.
• A possible repair does not result in the continuation of the warranty nor will it entitle any compensation.
The guarantee does not apply every time ...
• The type plate of the equipment is tampered with or tampered with.
• False data is provided.
• Do not accompany the equipment with the purchase document.
• The equipment is manipulated, changed or repaired by unauthorized persons or technical services.
• Verification / maintenance operations are not carried out or are carried out by unauthorized technicians.

CONDITIONS OF INSTALLATION

The installation inside or outside buildings with an ambient temperature between -15 ° and + 50 ° C

It should be avoided:

- Areas near heat sources, steam, gas or flammable liquids and / or explosives, especially dusty areas, proximity to water sources such as tanks, showers or swimming pools. Do not touch the appliance with wet or damp hands or feet. Do not leave the device exposed to atmospheric agents.

Must be:

- Use the device only for the use for which it has been expressly manufactured. The manufacturer is not liable for possible damages arising from improper or incorrect uses.
- Consider an area where the air drive and the noise of the unit do not cause discomfort to neighbors.
- Consider a position that respects the minimum spaces (as indicated in this manual).
- Consider a position that does not obstruct steps or entries.
- The degree of protection of the unit is IP20.

In case of installation abroad:

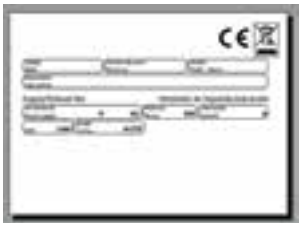
- Place the unit in a place protected from atmospheric agents.
- Use the corresponding rain protection cover (if necessary together with the corresponding protection hoods with net). In this case, the degree of protection becomes IP22.

RESIDUAL RISKS

The risk analysis of the products has been carried out according to the Machinery Directive (Annex I of Directive 2006/42 / EC). This manual contains the information for all the exposed personnel in order to prevent possible damages to people and / or things due to residual risks.

SIGNALS PLACED ON THE MACHINE

Various signaling pictograms may be present on the machine, which must not be removed. This signals are divided into:

- PROHIBITION SIGNALS	
- Do not repair or adjust during motion.	
- DANGER AND INFORMATION SIGNALS	
- Attention to the presence of electric current.	
- Automatic start Danger.	
- Attention to the instruction manual.	
- Grounding the machine.	
- PRODUCT MARKING	
	

RECEPTION OF THE MERCHANDISE

Each product is checked carefully before shipment. At the time of reception, check that the product has not been damaged during transport; otherwise, communicate the incident to the carrier. The carrier is responsible for possible damages derived from transportation. The products are packed in pallets and fixed to it by strips and protective film, or in self-supporting cardboard boxes, properly fixed to the pallet.

DISPLACEMENT

Before moving the product, make sure that the medium used has adequate capacity. For lifting, use forklifts, lifting the pallet. The maximum hand lift is specified in the 89/391 / EEC standard and later. It is generally acceptable a weight of 20 kg below the back but above ground level.

STORAGE

Store the unit in a sheltered place, without excessive humidity and not subject to strong temperature fluctuations, in order to avoid the formation of condensation inside the unit. Storage is not recommended for a period longer than one year. If more than one year is stored, it is necessary to check the free rotation of the bearings before installation (turn the turbine by hand).

PROLONGED STOP

In case of prolonged shutdown, with the unit connected to the ventilation system, close the suction / discharge ducts and periodically check the absence of humidity inside the machine. In case of moisture formation, dry it immediately.

START UP

Before commissioning, it is advisable to carry out some checks (follow the safety instructions set out in the DISMOUNTING AND ASSEMBLY section):

- Make sure that there is no condensation inside the unit, and if necessary dry it before putting the unit into operation.
- Check the status of the filters.
- Make sure that the interior of the product has no foreign bodies and that all the components are fixed in their seats.
- Manually test that the turbine does not rub against the suction mouth of the machine.
- Check that the inspection gate is closed.

ATTENTION:

If the mouths of a fan are not properly holed, a suitable protection net must be provided. Check the electrical ground connection. The electrical connection must be made by qualified personnel.

DISASSEMBLY AND ASSEMBLY

Before starting any operation, make sure that the product is not in operation and can not be fed accidentally or accidentally, and that the fans are stopped. The disassembly and the corresponding assembly are extraordinary maintenance operations and must be carried out by qualified personnel.

ELIMINATION

In accordance with the Directive of the European Parliament 2012/19 / EU on waste electrical and electronic equipment (WEEE) ".

The crossed-out wheeled bin symbol on the appliance or on the packaging indicates that the product, at the end of its useful life, must be disposed of separately from the other waste to allow proper treatment and recycling. The user must, therefore, deliver free of charge the device, when it reaches the end of its useful life, to the corresponding local centers for selective collection of electrical and electronic waste, or return it to the distributor according to the following modalities:

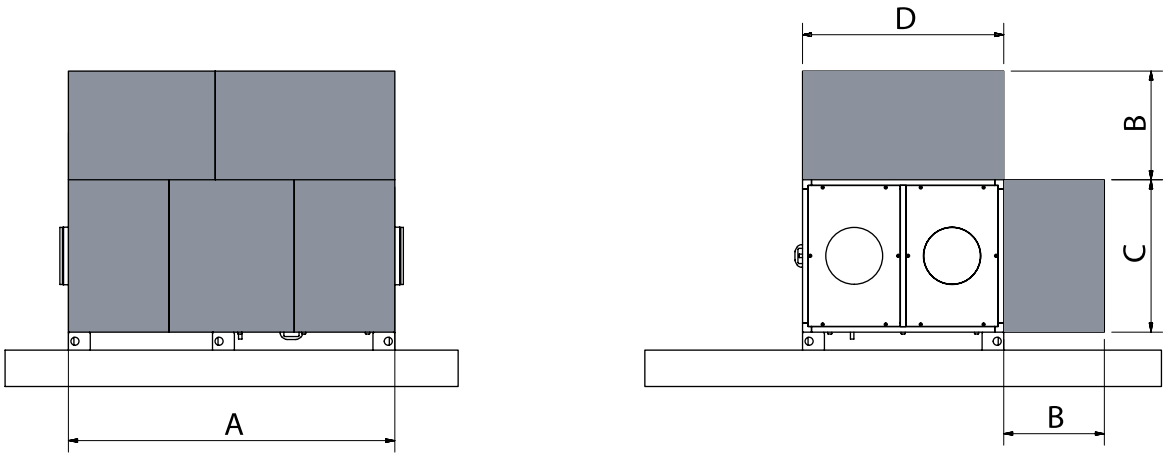
- For devices of very small size, or with an exterior side of no more than 25 cm, free delivery without obligation of purchase is foreseen in the stores with an area of sale of electrical and electronic devices superior to 400 m2. For stores with inferior surfaces, this modality is optional.
- For appliances with dimensions greater than 25 cm, delivery is foreseen in all the points of sale in the 1-for-1 mode, that is, the delivery to the distributor may only be made at the time of purchase of a new equivalent product, in reason of one to one. The adequate selective collection for the subsequent delivery of the discarded device to recycling, treatment and compatible environmental elimination, helps to avoid possible negative effects on the environment and health and favors the reuse and / or recycling of the materials that make up the device . The illegal elimination of the product by the user supposes the application of the sanctions foreseen by the current legislation.

ARUMAK H
INSTALLATION OF THE UNIT

HORIZONTAL FLOOR INSTALLATION

The heat recovery unit ARUMAK is equipped with special supporting basement. Put the unit in the right position, carry out the connection to the ducting, the connection to the supply mains through the electrical panel and the condensate discharge pipe fastening on the air exhaust side. (In case of unit with water coil, also on the supply air side).

Minimum space required for the maintenance (mm)



MODEL	A	B	C	D
ARUMAK 430 H	1420	600	450	900
ARUMAK 800 H	1420	600	550	900
ARUMAK 2100 H	1800	800	840	1100
ARUMAK 2600-3700 H	1050	800	1040	1340

This operation must be performed ONLY BY QUALIFIED STAFF

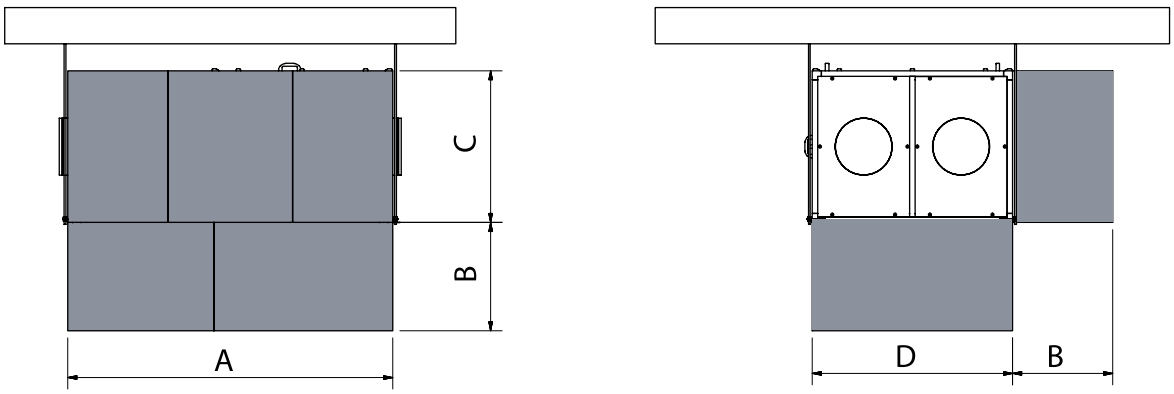
	Install the unit using appropiate equipment that handle weights from 100 to 380 kg in order to avoid risks during the instalation and manipulation of the unit.
	PPE: Personal Protective Equipment.

ARUMAK H
INSTALLATION OF THE UNIT

CEILING INSTALLATION

The unit is equipped with lifting rods in the four unit angles, where hooking is possible through threaded bars or chains in order to facilitate ceiling fastening and levelling. After fastening the unit in the right position, carry out the connection to the ducting, the connection to the supply mains through the electrical panel and the condensate discharge pipe fastening on the air exhaust side. (In case of unit with water coil, also on the supply air side).

Minimum space required for the maintenance (mm)



MODEL	A	B	C	D
ARUMAK 430 H	1420	600	450	900
ARUMAK 800 H	1420	600	550	900

The ceiling installation for 2100-2600-3700 size of ARUMAK H it is not recommended. The manufacturer is not responsible for injury to persons or damages to things in case of this type of installation.

CAUTION: The operations of inspection of the heat exchanger for these sizes can not be made manually for the high weight of the same which would result in an unacceptable level of risk.

This operation must be performed ONLY BY QUALIFIED STAFF

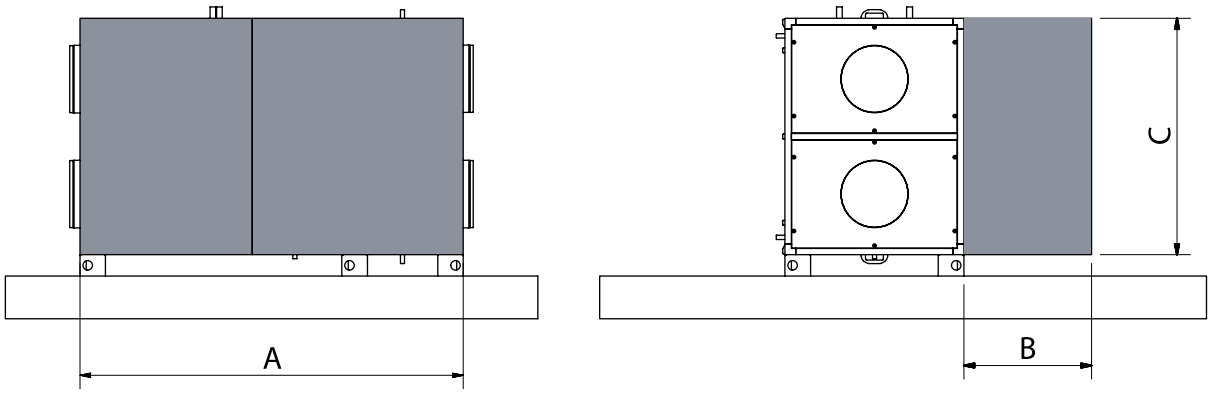
	Install the unit sing appropiate equipment to handle weights from 100 to 380 kg in order to avoid risks during the load handling procedures. Do not stand under the unit until it is completely attached to the ceiling. During installation you may need to work at height (over 2m H). Therefore evaluate the risks of falling, inert suspension or generic injury and take the necessary precautions.
	PPE: Personal Protective Equipment.

ARUMAK V
INSTALLATION OF THE UNIT

HORIZONTAL FLOOR INSTALLATION (OF THE VERTICAL VERSION)

The heat recovery unit ARUMAK is equipped with special supporting basement. Put the unit in the right position, carry out the connection to the ducting, the connection to the supply mains through the electrical panel and the condensate discharge pipe fastening on the air exhaust side. (In case of unit with water coil, also on the supply air side).

Minimum space required for the maintenance (mm)



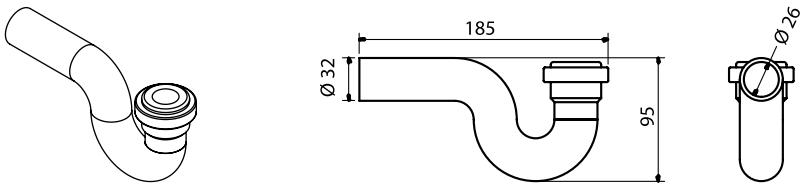
MODEL	A	B	C
ARUMAK 430 V	1420	600	900
ARUMAK 800 V	1420	600	900
ARUMAK 2100 V	1800	800	1100
ARUMAK 2600-3700 V	2180	800	1340

This operation must be performed ONLY BY QUALIFIED STAFF

	Install the unit using appropiate equipment that handle weights from 100 to 380 kg in order to avoid risks during the instalation and manipulation of the unit.
	PPE: Personal Protective Equipment.

MONTING OF CONDENSATE DRAINAGE

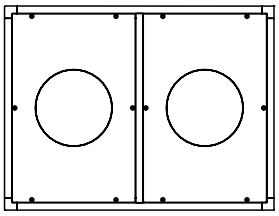
The unit is equipped with condensate drainage to evacuate the water during normal operation. Should always be provided with a drain pipe siphon and minimum slope of 3% in order to avoid stationing of condensate. The siphon is essential for the proper functioning of the machine in order to avoid sucking air and allow the natural flow of condensate.



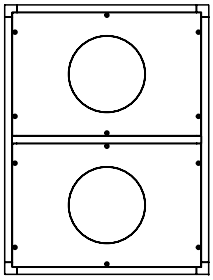
NOTE: provide 1 additional siphon in case of BA water coil; both condensate drains must have each own trap.

INSTALLATION OF WEATHER PROTECTION COWL (VIS)

The protection cowling with VIS is recommended to protect ejection and suction mouths in case of installation outside the units (birds, rain, etc.).



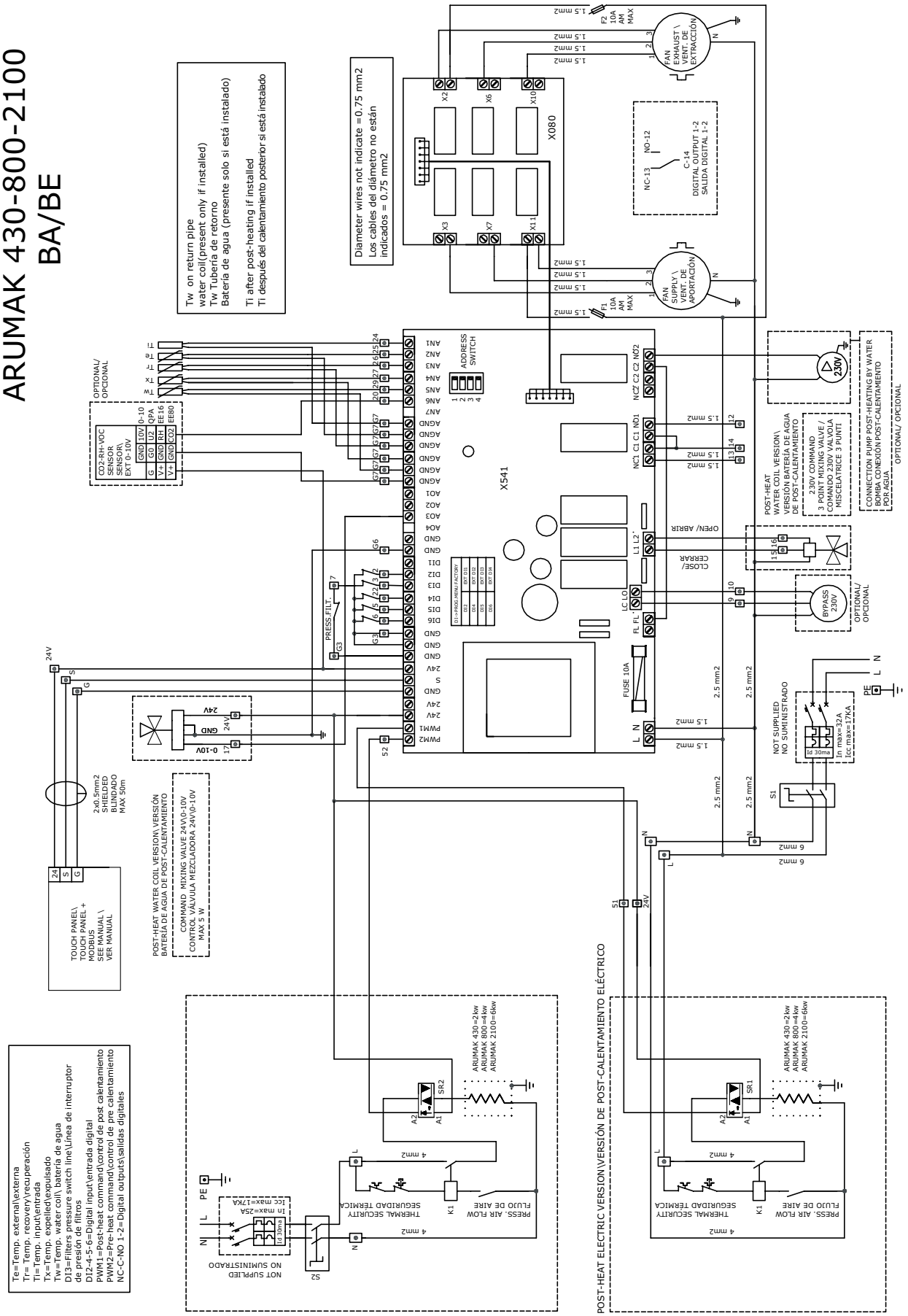
ARUMAK H



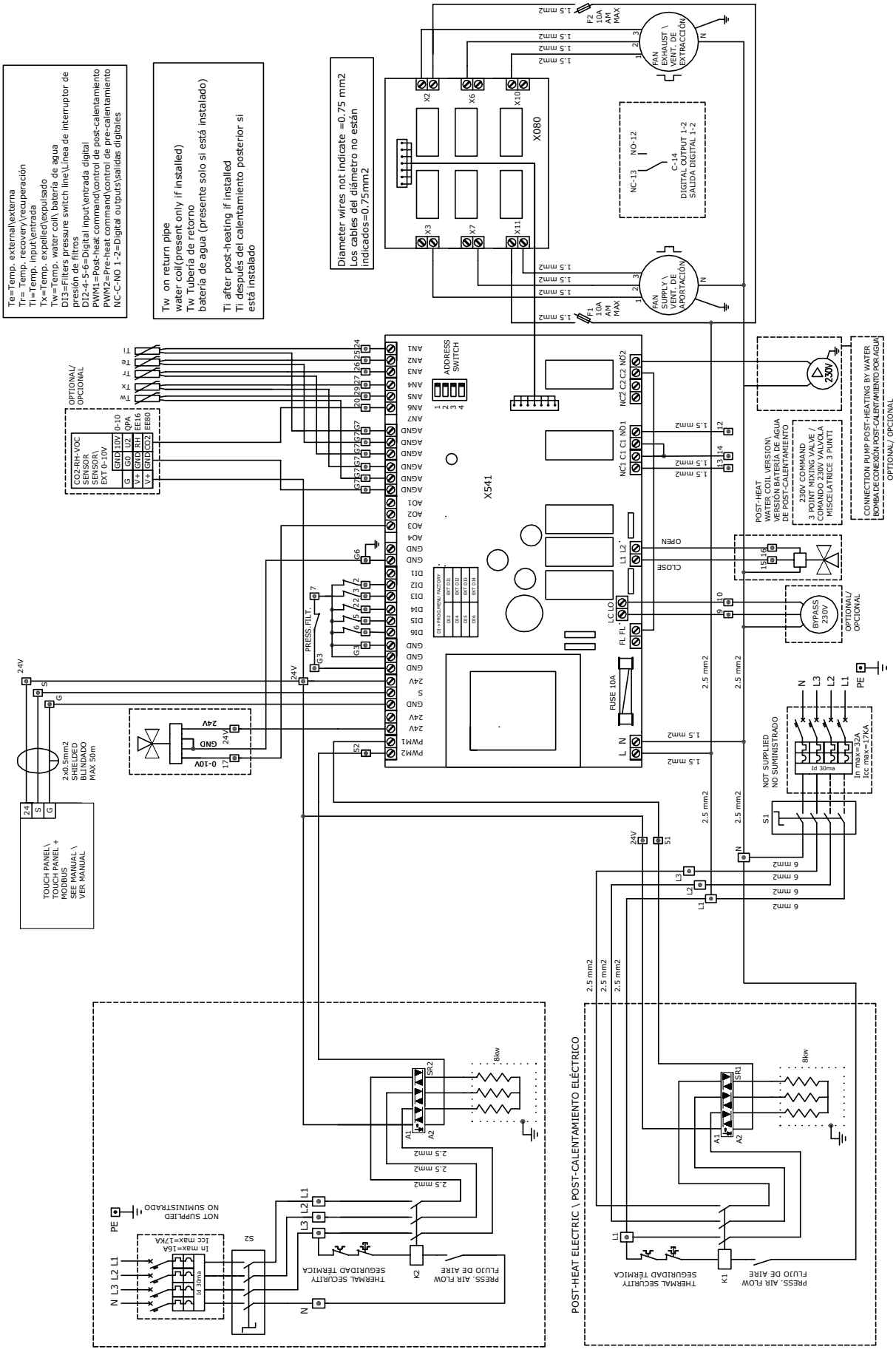
ARUMAK V

	This operation must be performed ONLY BY QUALIFIED STAFF.
	CAUTION: Before performing any procedure on the unit make sure that there is no voltage.
	PPE: Personal Protective Equipment.

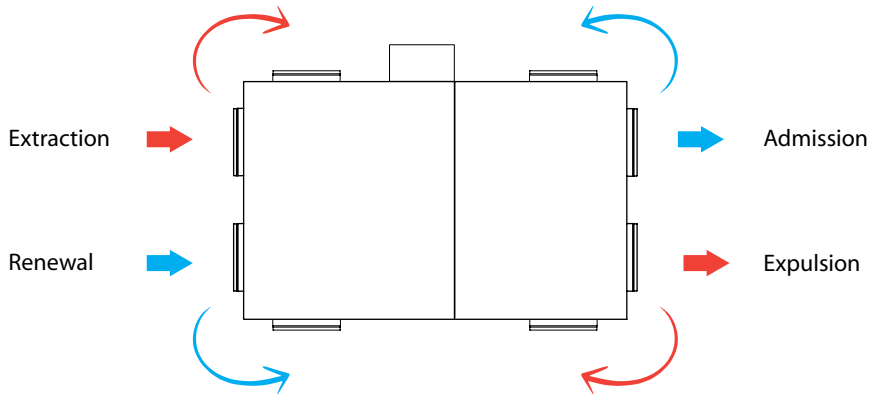
ARUMAK 430-800-2100 BA/BE



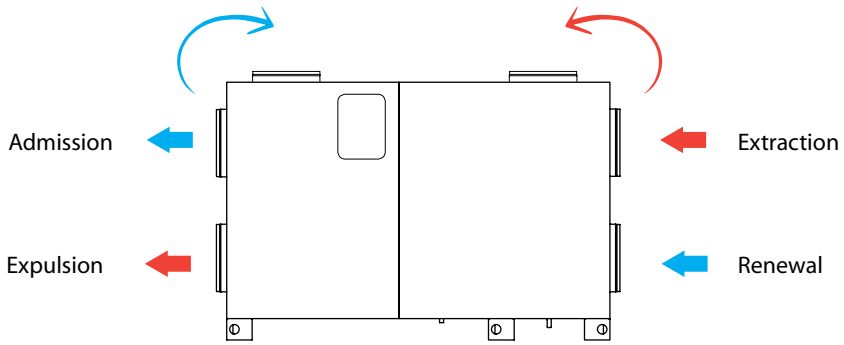
ARUMAK 2600-3700 BA/BE



CONFIGURATION ARUMAK
ARUMAK H (horizontal) – SUPERIOR VIEW



ARUMAK V (vertical) – SIDE VIEW



	This operation must be performed ONLY BY QUALIFIED STAFF.
	CAUTION: Before performing any procedure on the unit make sure that there is no voltage.
	DPI: dispositivos de protección individual.

MAINTENANCE AND CLEANING OF FILTERS

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MAINTENANCE AND CLEANING OF HEAT EXCHANGER

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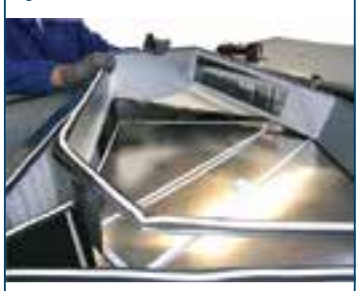

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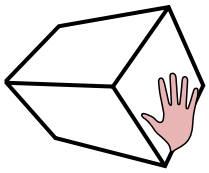
	This operation must be performed ONLY BY QUALIFIED STAFF.
	CAUTION: Before performing any procedure on the unit make sure that there is no voltage.
	PPE: Personal Protective Equipment.

PRECAUTIONS IN HANDLING THE HEAT EXCHANGER: touch only where marked (hand).



RECOMMENDED PERIODICAL MAINTENANCE FOR FILTERS
Filters replacement: variable in fuction of the air contamination in the enviroment (dust, smoke..).

RECOMMENDED PERIODICAL MAINTENANCE
Exchanger cleaning: 1 operation year approximately.

MAINTENANCE AND CLEANING OF HEAT EXCHANGER FROM BELOW

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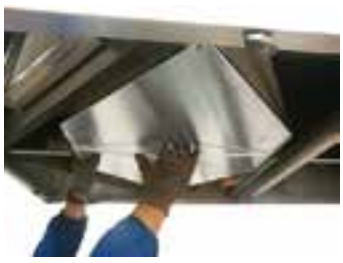

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	This operation must be performed ONLY BY QUALIFIED STAFF.		CAUTION: Before performing any procedure on the unit make sure that there is no voltage.
	PPE: Personal Protective Equipment.		

MOUNTING AND REMOVING PANELS

1

Unscrew the side panel

2

Remove the panel

3

Unscrew and remove the front panel with the fan

4

After removing the power supply or dissected the machine disconnect the wires from the fan

5

Exchange both panels and connect the cables of the fan

6

Screw the panels

ANOMALÍAS DE FUNCIONAMIENTO

Fault	Causes	Solution
Difficult start	a) Reduced supply voltage. b) Insufficient motor static torque.	a) Check motor plate data. b) Close the air locks to reach full speed. If necessary, replace the motor.
Airflow performance drop after a period of acceptable operation.	a) Air leak before and/or after the fan. b) Damaged impeller.	a) Circuit check and restore to original condition. b)Check impeller, If necessary, replace with an original spare part.
Insufficient air capacity and insufficient pressure	a) Clogged pipelines and/or suction points. b) Clogged impeller. c) Overloaded filter. d) Insufficient rotation speed. e) Clogged heat exchanger.	a) Clean pipelines and suction point cleaning. b) Clean impeller. c) Filter cleaning or replacement. d) Supply Voltage check and if necessary, correct. e) Clean Heat exchanger.
Heat Exchanger discharge air temperature too low.	a) External air lower than to -5°C.	a) Employ of post-heating devices.
Performance Insufficient Heat Exchanger.	a) Clogged heat exchanger.	a) Clean Heat exchanger.
Air pulsation.	The fan performance set too near zero-flow causing instability, Clogged or wrong duct-work connection.	Increase minimum speed on the electronic speed-Modify the circuit and/or replace the fan. regulator (in-sufficient voltage). Clean and/or replace the suction duct.
Excessive vibrations.	Rotating parts unbalance.	Check the impeller balance: in case, restore or replace it. Through an original spare-part.

Other troubleshooting for unit with CTRL-DPH microprocessor control

Fault	Causes	Solution
Fan alert.	Fan Failure or objects blocking the fan.	Check for a fan blockage: in the case of a failure, proced with removal/replacement.
Filter alert.	Clogged filters.	Replace the filters.
Prob alert.	Probe Failure.	Arrange for service technicians to replace probes.

CE DECLARATION OF CONFORMITY

We hereby declare, under our only responsibility, that the CASALS brand products described in this manual comply with the directives 2014/35/EU (Low Voltage),2006/42/EC (Machinery), 2014/30/EU (Electromagnetic compatibility), 2009/125/EC* (Ecodesign) and with all the standards mentioned in this instruction manual.

*The compliance of this Directive only affects to ErP marked compliant models.

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Sant Joan de les Abadesses 02/07/2018