

APPLICATION GUIDE



DUCTABLE FANCOIL

ARIA 2

1,3 - 6,6 kW

ARIA2-AGU-1610-E



www.lennoxemea.com



LENNOX

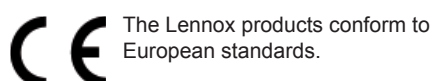
ARIA 2

APPLICATION GUIDE

Ref : ARIA2-AGU-1610-E

General rules for installation	2
Performance	3
Guidelines	4
Configurations	5
Identification of the unit	6
Unit selection	6
Wrapper	6
Heads	6
Filters	6
Heat exchangers	7
Condensate drain pan	7
Fan sections	7
ACCESSORIES	
End brackets for anchoring to the ceiling	8
External air intake	8
Auxiliary tray	8
Electric heaters	8
Settings: valves	9
2-way valves	9
3-way valves	9
Silencers	10
Damper section for flow calibration	10
Drain pump	10
DIMENSIONS	
General size unit + General unit size with silencers	11
GENERAL WARNINGS	
Mechanical installation	12
Safety devices	12
Inspection of the unit	12
Changing filters	13
Disposal	13

All technical and technological information in this manual, including the technical descriptions and the diagrams provided, are the property of Lennox and may not be used (except in the operation of the product), reproduced, issued to or made available to third parties without prior written agreement of Lennox.



GENERAL RULES FOR INSTALLATION

e ventilation units of the ARIA 2 Series are suitable ducted fan coils, with the adoption of the appropriate components to perform the thermo hygrometric variations of the ambient humidity.

The typical application is the conditioning of offices, shops, public and residential environments.

The units are available in four sizes for a range of flow between 290 and 1090 m³ / h, and with total pressures up to 75 Pa.

The ARIA 2 Series is characterized by a low height because it is designed for the ceiling installation that does not require dedicated technical spaces, making accessible the entire surface of the premises. The inspection of the components is from below with the ability to perform the extraction of the filter from the bottom as well as also laterally.

PERFORMANCES

2 PIPES		213	216	223	226
Ranks	n°	3R	6R	3R	6R
Air Flow	m³/h	490	480	1090	1080
		390	380	890	880
		290	280	690	680
Static pressure	Pa	76	65	75	65
		50	50	50	50
		27	27	30	30
Total cooling capacity (1)	W	1760	2850	4270	6620
		1550	2430	3810	5730
		1300	1940	3270	4740
Sensible cooling capacity (1)	W	1520	2200	3540	5030
		1300	1830	3090	4280
		1060	1430	2580	3470
Water flow	l/h	302	490	734	1138
		266	418	655	984
		223	334	563	815
Pressure drop	Kpa	6	9	20	10
		5	7	17	8
		4	5	13	6
Heat capacity (2)	W	2540	3750	5940	8530
		2190	3110	5190	7250
		1790	2420	4360	5860
Water flow	l/h	302	490	734	1138
		266	418	655	984
		223	334	563	815
Pressure drop	Kpa	7	10	16	11
		5	8	14	8
		4	5	10	6
Sound power level aspiration + radiated	dB(A)	63	63	67	67
		60	60	65	65
		52	52	62	62
Sound power level Flow	dB(A)	61	61	66	66
		58	58	63	63
		48	48	60	60
Signal voltage	Volt	10,0	10,0	9,5	10,0
Fan power max	W	64,50	61,30	151,00	155,70
Signal voltage	Volt	10,0	10,0	9,5	10,0
		8,30	8,90	7,80	8,90
		6,10	6,60	6,00	6,90

4 PIPES		413	416	423	426
Ranks (main coil)	n°	3R	6R	3R	6R
Ranks (auxiliary coil)		2R	2R	2R	2R
Heat capacity (3)	W	3190	3190	7700	7700
		2750	2750	6760	6760
		2250	2250	5710	5710
Water flow	l/h	279	279	673	673
		241	241	591	591
		196	196	499	499
Pressure drop	Kpa	4	4	26	26
		3	3	21	21
		2	2	16	16

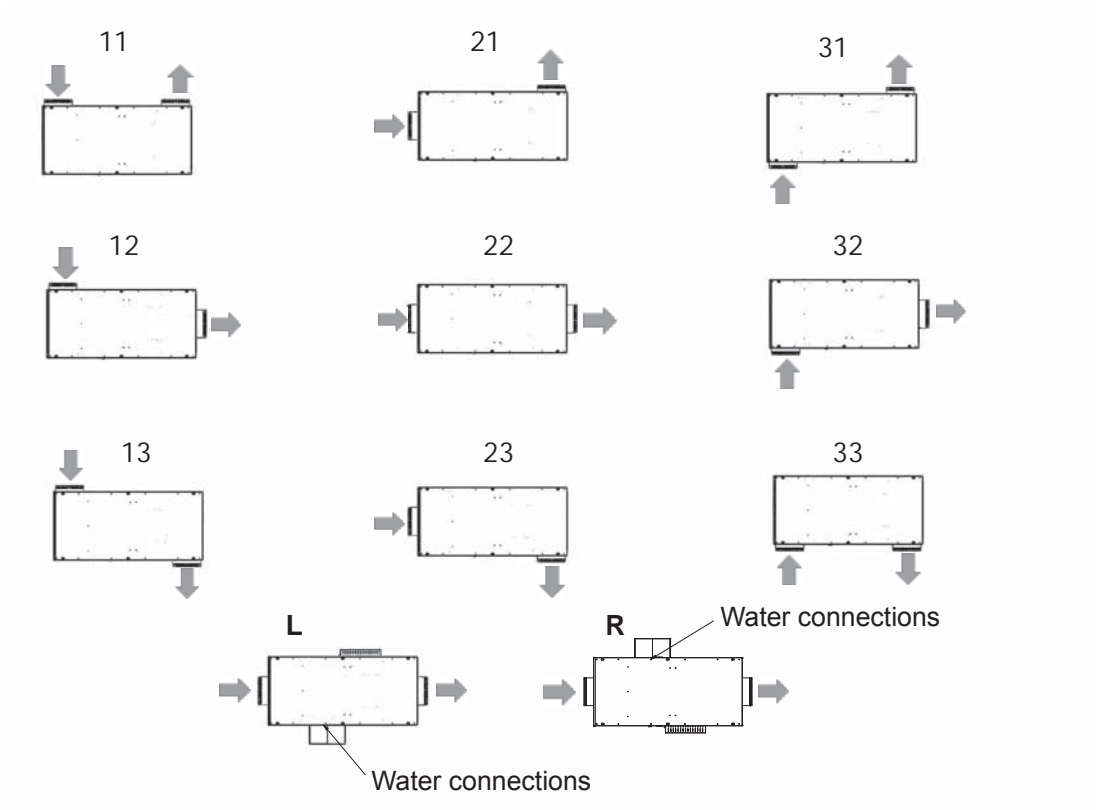
(1) COOLING Temp. Water inlet 7°C	Temp. Water outlet: 12°C	Temp. Air Inlet: 27°C d. b. - 19°C w.b.
(2) HEATING Air temp.: 20°C	Temp. Water inlet: 50°C	
(3) HEATING Air temp.: 20°C	Temp. Water inlet: 70/60°C	

GUIDELINES

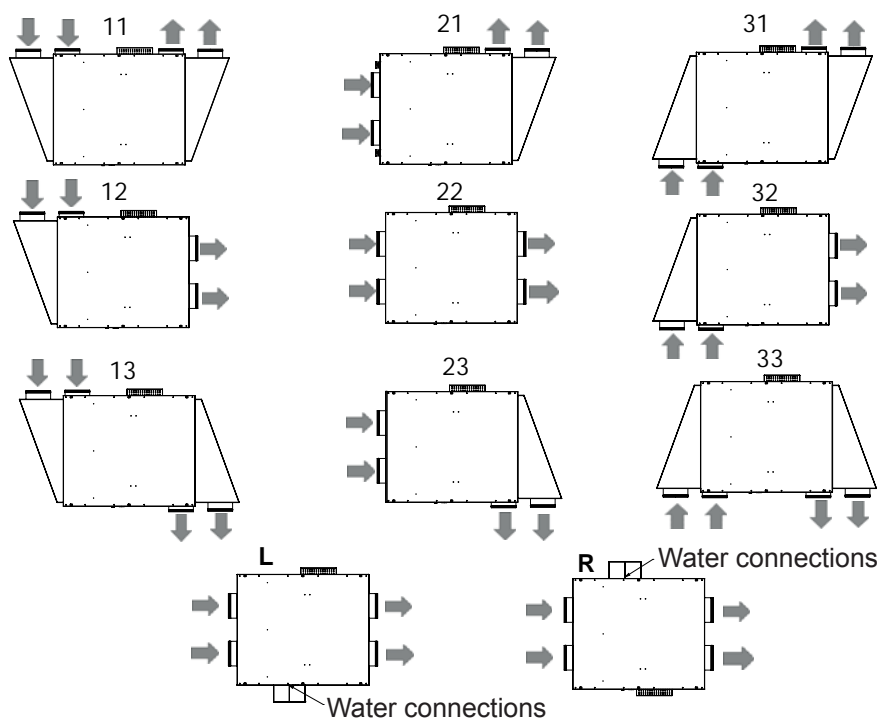
Depending on the size constraints of the system and the environment, the ARIA 2 units can be configured with different combinations of hydraulic connections, recovery and exhaust air side.

If you do not specify when ordering, the air connections are provided in the front position (22).

ARIA 2
213
216
413
416



ARIA 2
223
226
423
426



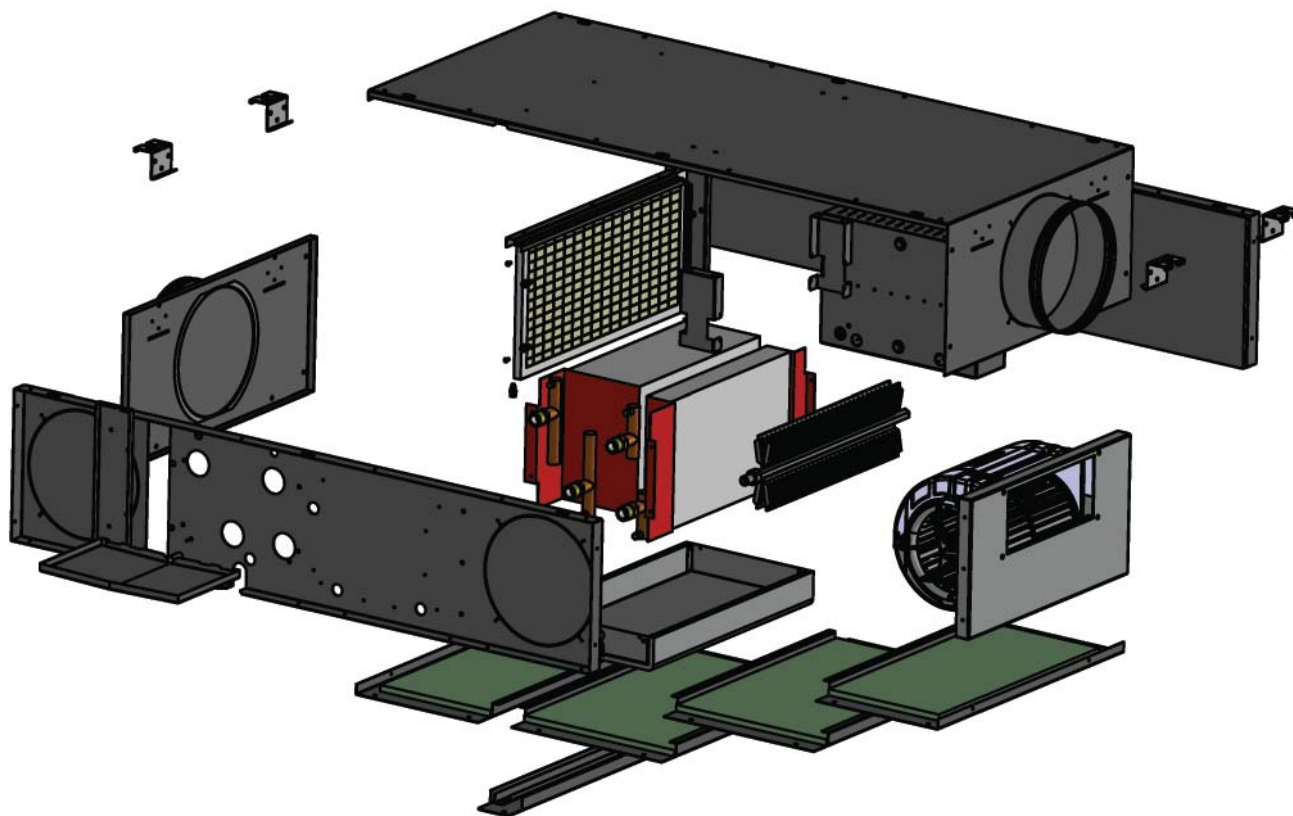
CONFIGURATION

Depending on the type of plant, the ARIA 2 units can be configured in different ways, with auxiliary heat exchanger for four pipe installation, with different combinations of filters, with electrical resistance, outputs and inputs directional air already in the order or alternatively on site with the added accessory "infill kit."

The machine consists of:

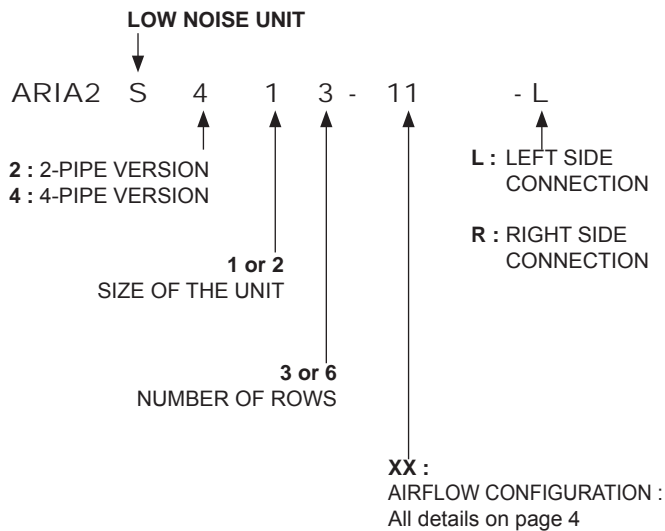
- 1) integrated recovery section;
- 2) filtration section;
- 3) exchange section with condensate drain pan;
- 4) ventilation section;
- 5) delivery section.

Important to remember that the inspection takes place always from the bottom.



IDENTIFICATION OF THE UNIT

The unit identification passes through a three-digit abbreviation.



CASING

The construction of the unit is of the single panel with self-supporting components assembled by self-tapping screws.

The thickness of the panels is of 1mm and they are made of galvanized steel according to regulations.

The internal parts subject to direct contact with the air flow are insulated with a 10 mm thick polyurethane film having a reaction to fire class according to European standards EN 13501-1.

For routine maintenance, the unit is accessible by the removal of panels positioned on the bottom; in any case for special operations such as the complete removal of the motor or of the heat exchanger, this is achievable without the uninstallation of the unit.

HEADS

The final end of the machine, both suction and discharge are made with circular spigots of nominal 200 mm diameter. The units of the Series 1 are provided with a spigot nominal 200 mm diameter, while the units of the second series are provided with two spigots of 200 mm on the suction and discharge sides.

FILTERS

Various types of filters are available to meet the functions required by the different applications.

SYNTHETIC

Flat filters medium efficiency

Synthetic 12mm thick. (Standard model based on the drive) is a coarse dust filter consists of a galvanized steel frame, welded and galvanized mesh, containment, the filtering medium support in flat synthetic fibre.

Class of filtration G2.

On request with additional price: G4 class.

Installation and extraction: on sliding guides.

Side extraction and from the bottom of the unit.

Corrugated medium efficiency filters

Synthetic 25mm thick. It is a coarse dust filter consists of a galvanized steel frame, welded and galvanized mesh, containment, the filtering medium support in corrugated synthetic fibre.

Class of filtration G3.

On request with additional price: G4 class.

Installation and extraction: on sliding guides.

Side extraction and from the bottom of the unit.

METAL

Corrugated medium efficiency filters

Metal 25 mm thick. It is a coarse dust filter consists of a galvanized steel frame, welded and galvanized mesh, containment, the filtering medium multilayer in aluminum flat wire.

Washable

Class of filtration G1.

Installation and extraction: on sliding guides.

Side extraction and from the bottom of the unit.

HEAT EXCHANGERS

The heat exchangers are housed inside the unit immediately after the filter section, laterally anchored to the sides of the unit.

For easy removal from the installed unit, the exchanger section has a dedicated lower inspection panel.

The water coils of collectors are equipped with air vents for drainage (it is recommended before performing the initial operation of the unit to perform the evacuation of any air present in the circuit).

The batteries in standard execution, are subjected to a pneumatic seal test at a pressure of 16 bar, by means of dry air injection and immersion in the test tank.

They are made of copper pipe with a diameter of 3/8 "(9.52 mm.) aluminum fins crimped mechanically to the tubes.

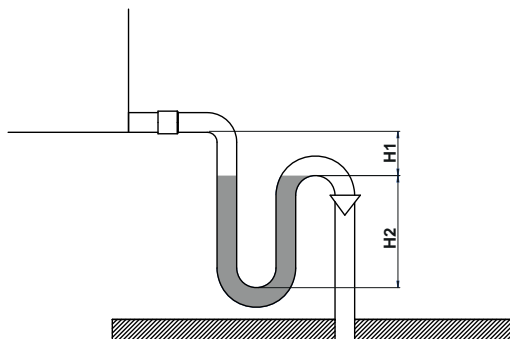
The containment frame is 1mm-thick galvanized steel.

The units can be equipped with an additional battery (only for heating with \varnothing 1/2" male gas).

CONDENSATE DRAIN PAN

The condensate drain pans are made of galvanized steel with exhaust pipe with hose-connection in plastic material.

The output of the condensate drain positioned on the same side of the water connections is lateral and this allows installation in false ceiling without protrusions beneath the unit (provided you remote fit the necessary siphon).



Siphon

$$H1 = \Delta p / 10$$

$$H2 = ((\Delta p / 10) / 2) + 30 \quad \Delta p = \text{in Pa}$$

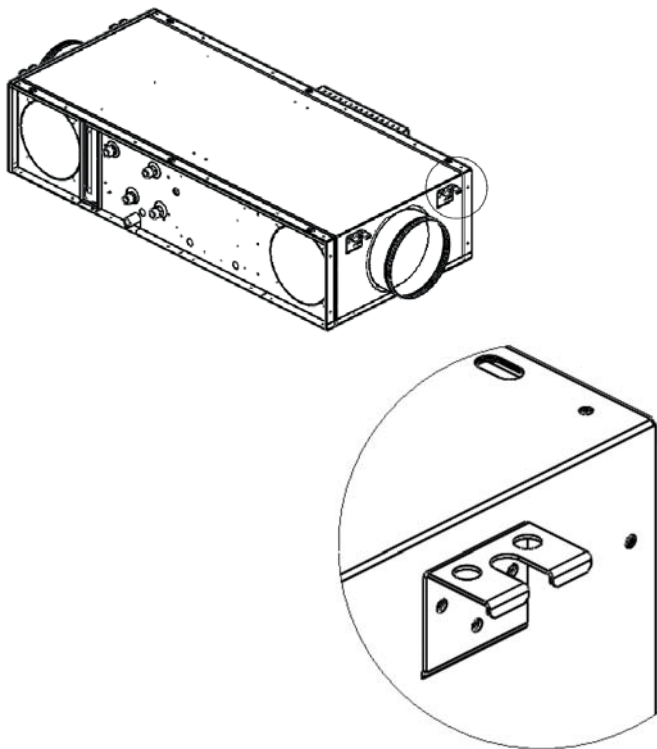
H1; H2 = mm

FAN SECTIONS

Fans centrifugal paddle forward, double inlet. Brushless-DC motor external rotor motor with with separate electronic switching units (driver). continuous adjustment via signal 0 ... 10 V. The fan unit is particularly quiet with plastic impellers statically and dynamically balanced, directly keyed on the motor shaft.

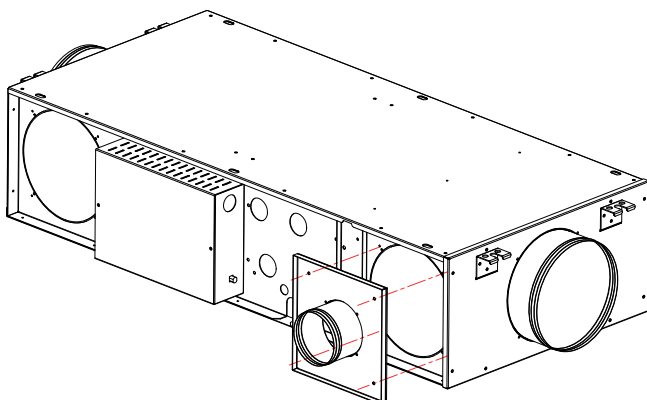
END BRACKETS FOR ANCHORING TO CEILING

The unit is fitted with holes positioned on the upper part of the same (see figure) in order to allow anchoring to the ceiling by means of threaded bars or expansion screws (not provided). Optional is the anchoring system located at the unit head with the brackets.



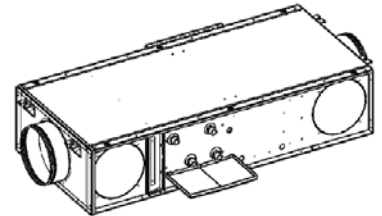
EXTERNAL AIR INTAKE

On the side of the unit there are provided two predispositions for the eventual installation of outdoor air intake of 100 mm or 125 mm.



AUXILIARY TRAY

The auxiliary tray, supplied as an accessory, collects condensation of the control valves. In any case it is recommended to insulate with appropriate insulating material, once the installation is complete, the connections of the exchanger in the vicinity of the frame.



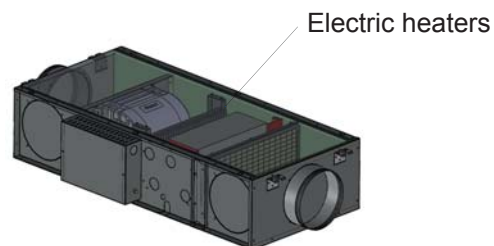
ELECTRIC HEATERS

Inside the unit can be installed the section of electrical resistance. This is an accessory that comes installed only at time of order; it can not retrofitted.

The resistors used are aluminum, complete with a manual reset safety thermostat to inhibit the power and activate the alarm in case of overheating. For each model there are two heating power levels: standard and boosted. The finned elements provide high efficiency in order to maintain a low power density on the surfaces, thus limiting overheating of the elements and thus increasing the duration of the same. Thanks to the low surface temperature of the heating elements we also limit the effect of air ionization. This heating system has a dual function: - heating the air to arrive at the steady operation of the set-point; - Post-heating during the dehumidification phase, so as to bring the air temperature to the setpoint.

Therefore, the installed heating power is capable of maintaining the dry bulb temperature in the room during operation in dehumidifying mode.

213	216	413	416
700 W		1000 W	
223	226	423	426
900 W		1900 W	



SETTINGS: VALVES

The technical data of valves with electrothermal ON / OFF actuator are as follows:

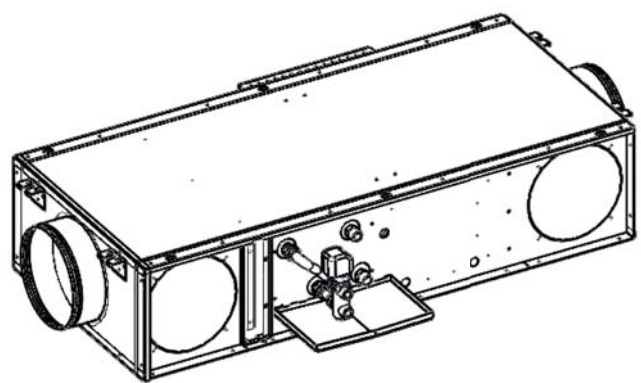
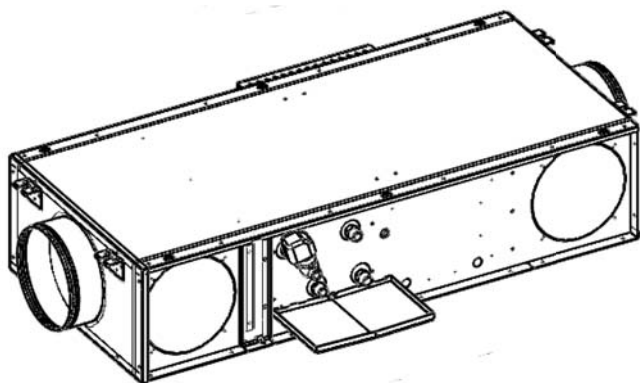
- Action ON / OFF
- 24-230VAC / DC power supply (+10% / - 15%) (24 VAC non-standard only on request)
- Frequency 50-60Hz
- Power consumption at regime 2.5W
- Initial peak current 0.20 to x 0.5 sec (230V) 0.25 to x 30 sec (24V)
- Initial opening (NC) or closing (NA) (power ON) 230V 75 s
- Final time of opening (NC) or closing (NA) (power ON) 3 min
- Actuator stroke max 3.5 mm
- Valves stroke 2.5 mm
- Operating pressure: 1600 kPa
- Minimum temperature of water supply: 4°C
- Maximum temperature of water supply: 110°C
- Minimum and maximum ambient temperature: 0-50°C
- Rating / Protection VA: 5 VA / IP 44 according to EN 6052
- Maximum content of glycol in the water: ≤ 30%
- Bypass leakage <0.02% Kvs

TWO-WAY VALVES

Battery	Exchanger connections	Valve	Kvs valve
213	1/2"	1/2"	1,7
216	1/2"	1/2"	1,7
223	1/2"	3/4"	2,8
226	3/4"	3/4" kvs4	4
413	1/2"	1/2"	1,7
416	1/2"	1/2"	1,7
423	1/2"	1/2"	1,7
426	1/2"	1/2"	1,7

THREE-WAY VALVES

Battery	Exchanger connections	Valve	Kvs valve	Kvs valve by-pass
213	1/2"	1/2"	1,7	1,3
216	1/2"	1/2"	1,7	1,3
223	1/2"	3/4"	2,8	1,8
226	3/4"	3/4" kvs4	4	1,8
413	1/2"	1/2"	1,7	1,3
416	1/2"	1/2"	1,7	1,3
423	1/2"	1/2"	1,7	1,3
426	1/2"	1/2"	1,7	1,3



SILENCER

The sound reduction section is available only on special order and the car in this case presents bigger dimensions in length. The type of construction involves the use of rock wool baffles of from 70 kg / m³ of 50 mm thickness (25 mm for the first and last septum, juxtaposed to the inner walls of the Central air handling) with air passages from 100 ± 10 mm. The standard design includes rock wool baffles with glass veil coating against fraying of the fibers.

ACOUSTIC ATTENUATION

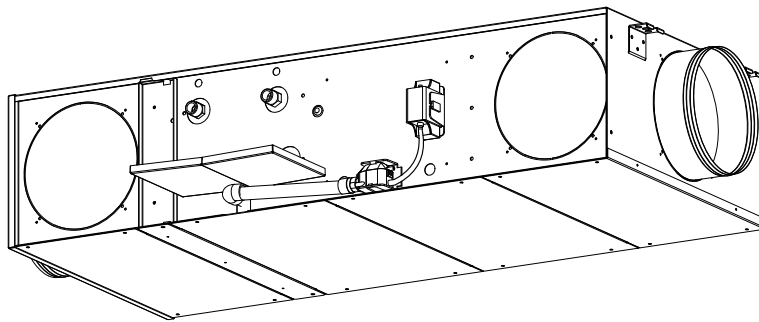
P mm	OCTAVE BAND [Hz]							
	63	125	250	500	1000	2000	4000	8000
213-216 / 413-416	2	5	8	16	20	20	10	5
223-226 / 423-426	3	6	11	20	25	25	15	8

DAMPER SECTION FOR FLOW CALIBRATION

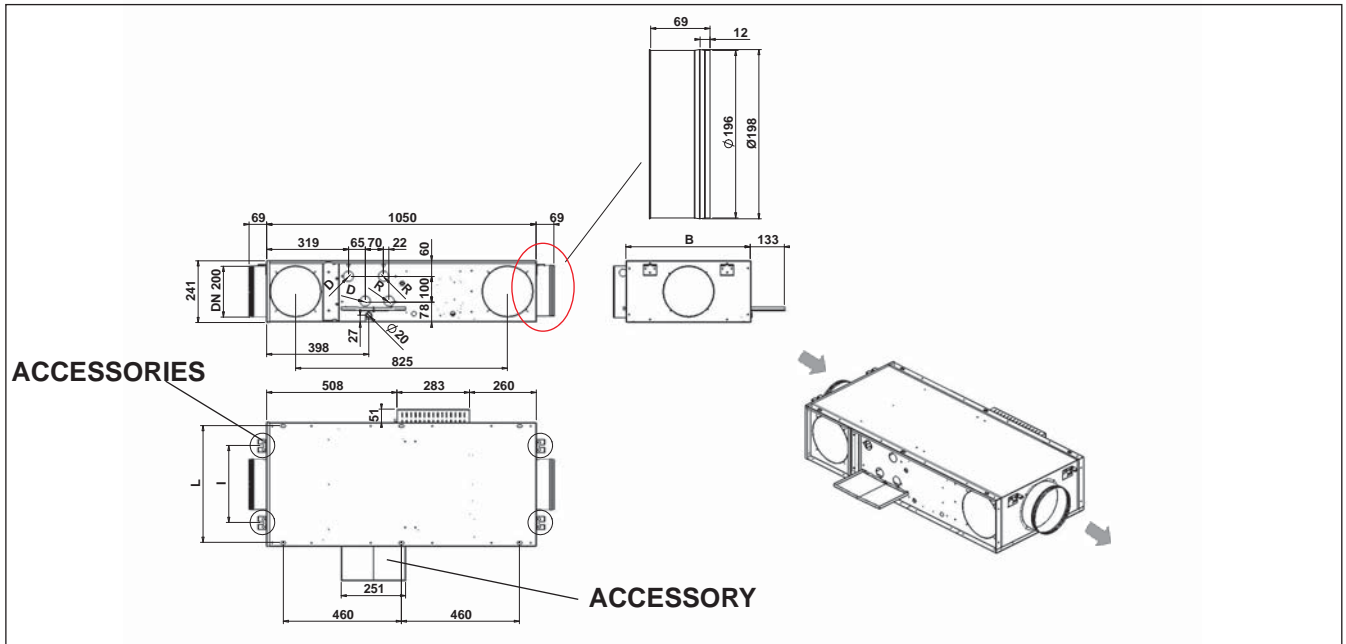
The damper for flow spigot is available as an accessory.

DRAIN PUMP

Drain pump is available as an accessory.

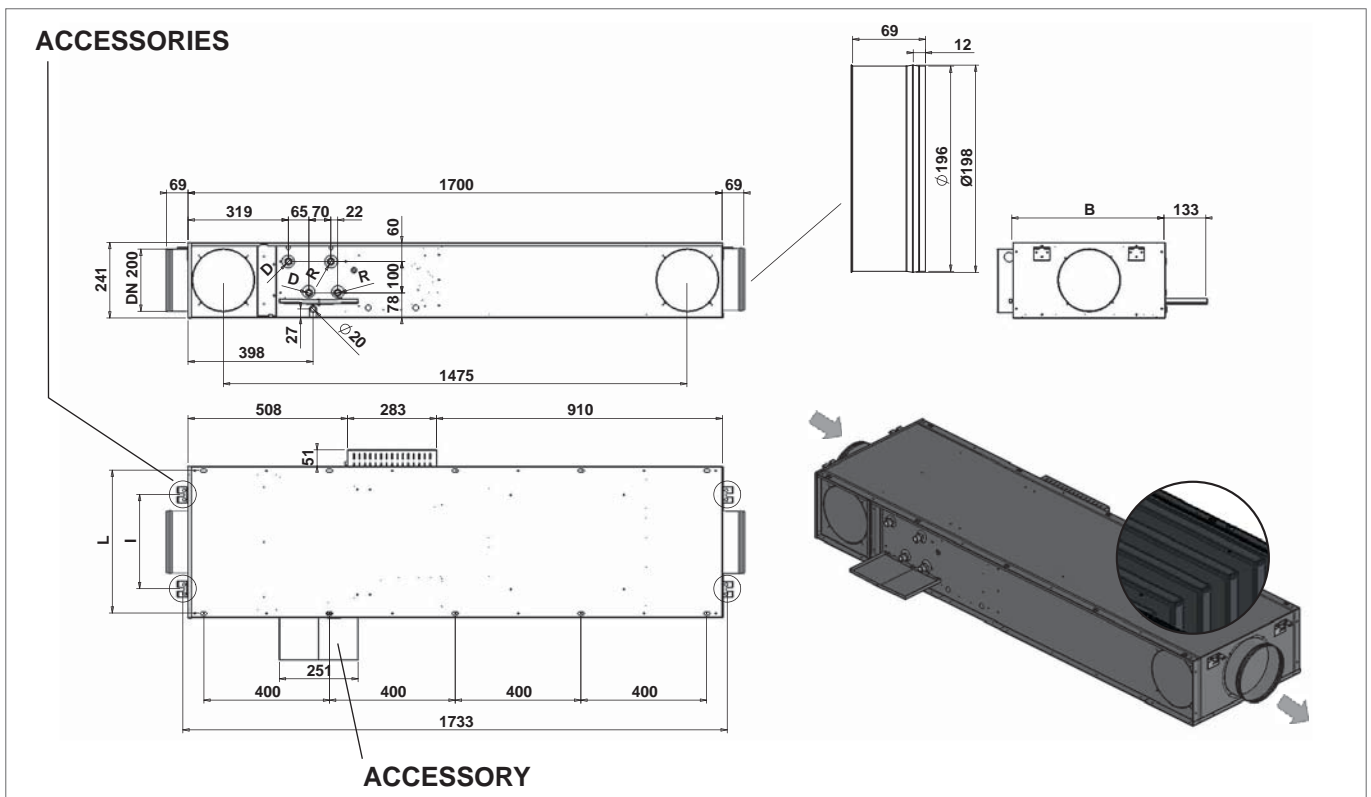


GENERAL SIZE UNIT



	2 PIPES				4 PIPES			
	213	216	223	226	413	416	423	426
B	482	482	882	882	482	482	882	882
D	1/2"	1/2"	1/2"	3/4"	1/2"	1/2"	1/2"	3/4"
R	/	/	/	/	1/2"	1/2"	1/2"	1/2"

GENERAL UNIT SIZE WITH SILENCERS



	2 PIPES				4 PIPES			
	213	216	223	226	413	416	423	426
B	482	482	882	882	482	482	882	882
D	1/2"	1/2"	1/2"	3/4"	1/2"	1/2"	1/2"	3/4"
I	300	300	300	300	700	700	700	700
L	455	455	455	455	855	855	855	855
R	/	/	/	/	1/2"	1/2"	1/2"	1/2"

MECHANICAL INSTALLATION

The appliance must be installed in such a position as not to compromise the aspiration and the eventual expulsion of air.

Being a typical ceiling installation, the utmost care is recommended to avoid as much as possible the phenomenon of stratification.

Determine the location of installation, bring the unit to the ceiling and draw the position of the slots in order to facilitate the drilling of the ceiling and the installation of the anchors (use at least four pieces).

Insert the supporting screws or alternatively the threaded rod or support eyebolts for the chains or steel cables. Anchor the supporting devices used by the unit, taking care to take appropriate security precautions against possible unscrewing of the threaded parts.

It's important to keep the appliance with a slight slope towards the condensate drain connections in order to facilitate the outflow of any condensate water.

Make the connection of the supply lines being careful to always use key and second key in order to avoid putting into rotation the battery attacks. In case the unit is provided with adjustment valves (always recommended), make the connection on the same taking care to insulate the pipes and the valves as well as the exchanger attacks.

It is recommended to install control or shut-off devices of the water flow. The absence of these devices could in the phases in which the fan is not in operation, cause condensation on the outside and inside of the containment frame. This phenomenon is more likely to occur during the summer.

Connect the condensate discharge pipe making sure to keep a minimum slope of 4 mm per meter of length. Always perform a siphon on or near the machine or remote in order to avoid the development of bad smells inside the device.

When connecting to an electrical network having voltage of 230 volts and frequency of 50Hz. make sure the electrical system is adapted to deliver, not only the working current required by the fan coil, also the necessary current to power appliances and equipment already in use.

Make the electrical connections according to national regulations by adopting the protective equipment required; these interventions must be made by authorized staff.

SAFETY DEVICES

The air handling units of the LX ARIA 2 series come complete with the safety devices required by current regulations.

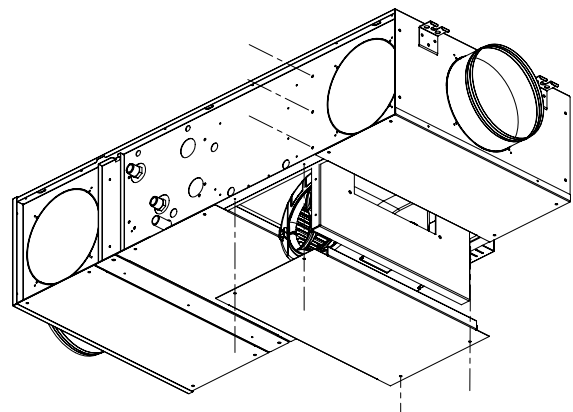
It must be clear that the links provided for the implementation of safety are to be entrusted to the installer.

In particular it recommends:

- When inspecting the machine, protective equipment must be used (gloves, goggles, etc ...)
- Before removing any inspection panel, disconnect the device from the electricity.
- Make sure it is connected to the earth spade cable that guarantees equipotentiality between the module itself and the structure of the environment.

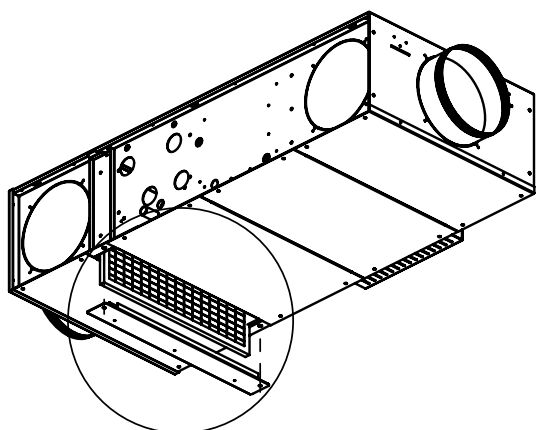
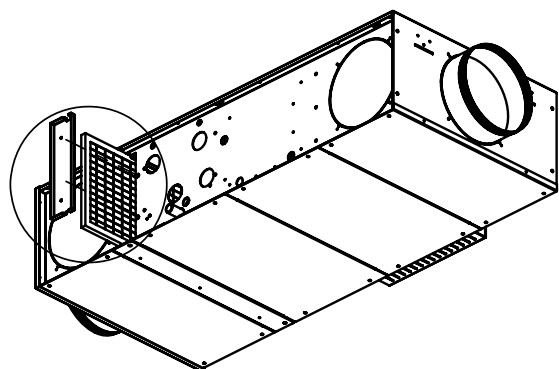
INSPECTION OF THE UNIT

The inspection and possible replacement of components is possible by accessing the unit after removing the underlying panels. In any case, the bond anchoring the motor and the exchanger is positioned on the side panel.



CHANGING FILTERS

The removal of the filter for replacement and/or cleaning may be performed from both sides of the unit or the part beneath, after removal of the relevant panel.



DISPOSAL

Consumable parts, and those substituted must be disposed with respect of safety and in compliance with environmental protection standards.

SALES OFFICES :

BELGIUM AND LUXEMBOURG

+32 3 633 3045

FRANCE

+33 1 64 76 23 23

GERMANY

+49 (0) 211 950 79 600

ITALY

+39 02 495 26 200

NETHERLANDS

+31 332 471 800

POLAND

+48 22 58 48 610

PORTUGAL

+351 229 066 050

SPAIN

+34 915 401 810

UKRAINE

+38 044 585 59 10

UNITED KINGDOM AND IRELAND

+44 1604 669 100

OTHER COUNTRIES :

LENNOX DISTRIBUTION

+33 4 72 23 20 20

