ASALAIR BIOHAZARD
ATLANTIC CABINET

MICROBIOLOGICAL SAFETY CABINET
CLASS II TYPE A2

MODEL:

ATLANTIC 900 - CODE 29940030

ATLANTIC 1200 - CODE 29940140

ATLANTIC 1500 - CODE 29940141

ATLANTIC 1800 - CODE 29940142

ASALAIR BIOHAZARD ATLANTIC cabinet has been planned, built and tested in accordance with:

- **2014-35-UE (LOW TENSION)**
- **2014-30-UE (EMC)**
- **2006/42/CE (MACHINERY DIRECTIVE)**

Certified according to the techinical normatives:

- **UNI EN 12469:2001**
- **UNI EN ISO 14644-1:2016**
- **EC 61010-1:2010, IEC 61010-1:2010/AMD1:2016**
- **EN 61326-1:2013**

It complies with the rules:

- BRITISH STANDARD BSI 5726
- WEEE Directive 2012/19/UE
- CEI 66.5 E CEI 62.25
- U.S. FEDERAL STANDARD 209/E
- DIN 12950
- NSF 49:2002

It complies with safety advice being stated by OMS.

DESCRIPTION

ASALAIR BIOHAZARD ATLANTIC, available on models 900-1200-1500-1800 (identifying the width) is a microbiological safety cabinet in class II type A2 with vertical laminar flow and with frontal entrance through which the operator can work in the workroom, and that has been designed and built to protect operator, increase the product protection by external contamination and to diminish environment biological risks, by the absolute hepa filtration of the ejected air flow.

Inhaled air frontally pass under the work surface and laterally to the lateral walls of the workroom.
It does not enter in the work zone, thanks to the vertical laminar flow that in the same time comes down in all the workroom, and joins itself, under the work surface. This zone, thanks to the fans aspiration, is in negative pressure.
Aspired air by the main fan goes in a plenum where a part of it, approx. 70%, goes to the work zone by absolute hepa filtration (protected zone with laminar flow in class 100 or ISO 5), and the other part, approx. 30%, through a second fan, for ejection, is filtered by a second hepa filter (and by an activated carbon filter, if present) and ejected to the external (air re-circulation system).
The amount of ejected air is re-integrated with a same amount of external air aspired through the work frontal entrance, creating a frontal barrier that protect the operator; it prevents the aerosol escape, and the penetration of particles from the external.

Vertical laminar flow and the ejected laminar flow are filtered by hepa absolute filters, composed of microfibbers of glass fibber knit with epoxy resin in one rigid frame, tested M.P.P.S in accordance with C.E.N. 1822 global efficiency 99.995% class H14, that produce a vertical laminar flow in class 100 at 0.3 micron, in accordance with Fed Std 209E (Laser Test Royco 256) or in class ISO 5 in accordance with ISO 14644.1.

The vertical laminar flow and inlet airflow speed are constant, since all functions are automatically controlled by the microprocessor and displayed on the controls and programming LCD panel, touch screen 7".

Produced airflow is uniform and unidirectional, formed by a number of little parts of parallel and sterile air that move themselves at the same speed in all points so that a homogeneous current of air with no turbulence is produced.
In a sterilised zone, each polluting substance in the working area is pushed away by a source of sterilised air.

The vertical laminar flow cabinet ASALAIR BIOHAZARD ATLANTIC was designed and built to allow manipulations in sterile environment of infectious agents that belong at the risk group 2 and 3.

The utilisation of highest quality components, the working methods and the safety for either the environment or the operator, enable ASALAIR BIOHAZARD ATLANTIC to be classified according to the BS 5726 – DIN 12950 – NSF 49 - UNI 12469 **class II type A2, with a laminar flow speed of 0.40 m/sec.**

Rooms belonging to class II (according to the NSF 49:2002) are different mainly because of the ratio of volumes of recycled air inside the working area, inside the room and/or outside:

- **type A1** (30% ejected air inside the room – 70% recycled air). Front speed = 0.38 m/sec. May have positive pressure contaminated ducts and plenum.

- **type A2 (30% ejected air outside the room – 70% recycled air). Front speed = 0.45 m/sec. Have ducts and plenum under negative pressure.**

- **type B1** (70% ejected air outside the room – 30% recycled air). Front speed = 0.5 m/sec. Contain negative pressure plenum.

- **type B2** (100% ejected air outside the room). Front speed = 0.5 m/sec.
  Does not re-circulate air within the cabinet.

In the type A2, air cabinet may be re-circulated back into the laboratory room or ducted out of the building by means of a thimble connection.
The compensation is done thanks to the air intake through the frontal grid that creates an air barrier thus preventing the exit of polluted aerosol.

If the ASALAIR BIOHAZARD ATLANTIC cabinet must be connected with an outlet system to eject the air from the room, the connector's length must not be over 4 metres otherwise contact the producing firm to have an additional motor-fan installed since the length of the outlet channel might even cause a loss of charge higher than the one being supplied by the outlet fan.

If the ASALAIR BIOHAZARD ATLANTIC cabinet will be connect to an outlet duct already connect to other cabinets, you will have to put a non-return valve in the conveyor.

The outlet duct must have a diameter of at least 150 mm. with a capacity of:

- **300 m³/h: for ATLANTIC 900**
- **400 m³/h: for ATLANTIC 1200**
- **500 m³/h: for ATLANTIC 1500**
- **600 m³/h: for ATLANTIC 1500**

The ejection outside the room is needed if you manipulate volatile substances that are not hold by the Hepa filters.

Anyway, the use of these substances must be limited since this cabinet partially recycles the air.

FEATURES

- Steel supporting structure with anti-acid epoxidated painting.
- Adsorption area in negative pressure to avoid the polluted air entrance in the workroom.
- Stainless steel room AISI 304 2B glazed with rounded edges to avoid cross-contamination and facilitate cleaning.
- Tray closed worktop AS STANDARD, in stainless steel AISI 304 2B glazed (IN ALTERNATIVE AND ONLY ON REQUEST, perforated version, divided into sectors removable and autoclavable).
- Stainless steel low box Aisi 304 2B glazed below the worktop to impound fluids.

Tray closed worktop AS STANDARD

ONLY ON REQUEST: worktop in perforated version, divided into sectors removable and autoclavable

- Tilted front panel, to facilitate operator's movement.
- Front screen in tempered glass thickness 5 mm with motorized movement, opening of the optimum working at 200 mm from the worktop; with the start of the fans the glass is positioned automatically thanks to a system of position sensors. Front opening with glass totally open 460 mm.
- Stainless steel safety wire, which prevents the fall of the glass in case of breakage or failure of the lift system.
- Power switch, connection outlet 10A, power cable and overload fuses
- N°2 electric internal auxiliary socket inside the workroom. IP 55 protection
- 3/8" Grey air/vacuum cock.
- 3/8" Yellow gas cock (press. max 2 bar) + safety solenoid valve
- Air/vacuum and gas connections positioned in the upper side of the cabinet to minimize the overall.
- Fluorescent lamp positioned outside the working area, in the control panel, easy access for replacement: 30 Watt for Atlantic 900, 36 Watt for Atlantic 1200-1500-1800.
- **Accessory on request:** UV germicidal lamp to be positioned inside the workroom; 18 Watt for Atlantic 900, 30 Watt for Atlantic 1200-1500-1800. The germicidal UV lamp is removable, when not in use can be stored in the compartment under the armrest.
- Timed UV lamp socket. In case of glass front screen open UV lamp do not start.
- **ON REQUEST** the germicidal UV lamp can be fixed to the rear wall of the working chamber with direct wiring to the control board.
- Two, for vertical laminar flow and expulsion flow, hepa absolute filters, composed of microfibers of glass fiber knit with epoxy resin in one rigid frame, tested M.P.P.S in accordance with C.E.N. 1822 global efficiency 99.995% class H14, that produce a vertical laminar flow in class 100 at 0.3 micron, in accordance with Fed Std 209E (Laser Test Royco 256) or in class ISO 5 in accordance with ISO 14644.1. **On request equipped with ULPA**

filters.

- Attack with hose union to be grafted, for execution of the hepa filter efficiency DOP test.
- Hepa filters, easy to be removed from the front part with a mechanic lifting system.
- Plenum in negative pressure.
- N°2 low background noise electric fans (n° 3 for 1800 Atlantic) that meet the requirements of the EN 60335-1, EN 50178, EN 60950 directive, VDE,CE, UL approvals.
- Noise Db (A) < 60
- Possibility to connect PC with outlet USB (on the LCD internal board).
- Cabinet is supplied with arms-rest, to improve the operator comfort.
- External ejection canalisation pre-arrangement.
- Pressure switch of good seal of plenum.

ASALAIR BIOHAZARD ATLANTIC cabinet class II type A2 (normative NSF 49:2002):

- **Laminar flow speed m/s 0.40.**
- **Frontal barrier laminar flow speed m/s 0.45**
- **Ejected air volume:**
  - **300 m³/h for 900 ATLANTIC**
  - **400 m³/h for 1200 ATLANTIC**
  - **500 m³/h for 1500 ATLANTIC**
  - **600 m³/h for 1800 ATLANTIC**
- **70% Air re-circulated**
- **30% Ejected air**

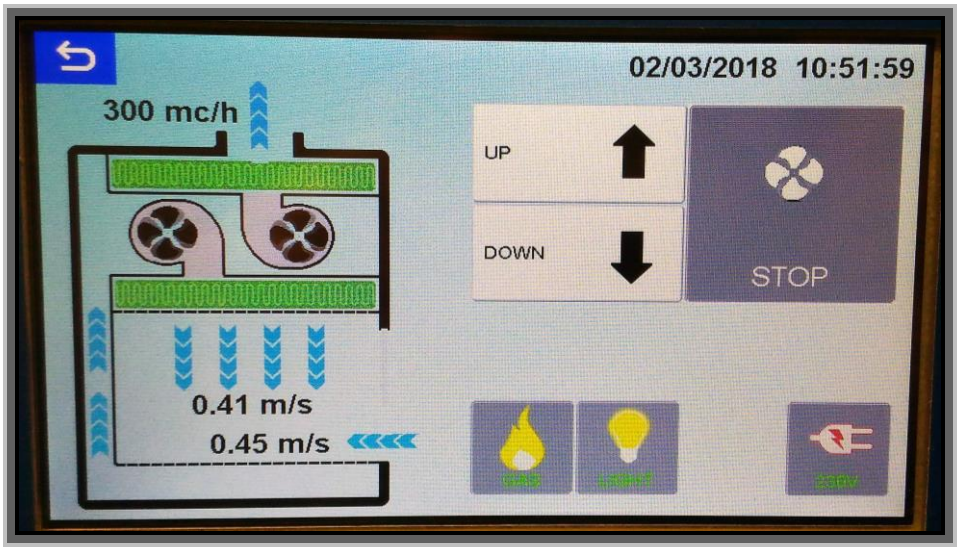
ATTENTION:

All ATLANTIC cabinets, as an alternative to absolute HEPA filters, can be supplied with absolute ULPA filters (Ultra Low Penetration Air) tested in accordance with regulations C.E.N M.P.P. S 1822 with overall efficiency. 99,9995% class U15, which produce a sterile airflow to 0.3-micron class 10 according to Fed Std 209E, (Laser Test Royco 256) or ISO class 4 according to ISO 14644.1.

♦ Controls and programming LCD panel, touch screen 7" with:

- Personalizable access user code
- Touch controls and operating parameters can be easily understood by graphic symbols
- Animated operating parameters
- Language selection ITALIAN or ENGLISH
- Settable date and clock
- Visual and audible alarms: fan failure, vertical laminar flow lack, front barrier flow lack, air ejection volume insufficiency, open glass, pressure in the plenum lack, hepa filter clogging.
- Touch controls selectable on display:
  - on/off fans
  - on/off lighting
  - on/off Uv lamp (if present), in continuos or timed
  - on/off outlet service
  - on/off solenoid valve for gas cock
  - automatic raising/lowering of the front glass, with the the power of the fans, up to the work position, or manual to allow cleaning of work area

- Views on display:
  - vertical laminar air flow speed in m/s
  - inlet air flow speed – front barrier in m/s
  - air ejection volume in m³/h
  - main and ejection hepa filters use counter, max 9999 hours (possibility to zeroes)
  - lighting lamp use counter max 9999 hours (possibility to zeroes)
  - uv lamp use counter max 9999 hours (possibility to zeroes)
  - timer, hours / minutes, to set the use of uv lamp, max 99 hours and 59 minutes



TECHNICAL DATA

ATLANTIC	Work area dimensions WxDxH (mm)	External dimensions WxDxH (mm)	External dimensions with support WxDxH (mm)	Average vertical laminar flow speed (m/s)	Average frontal barrier laminar flow speed (m/s)	Total / Ejected air volume (m^3/h)	Weight (Kg)
900	**825x550x570**	**1015x785x1460 (H:1580 mm with conveyor)**	**1015x785x2260 (2290 with wheels)**	**0.40**	**0.45**	**1050 / 300**	**190**
1200	**1130x550x570**	**1320x785x1460 (H:1580 mm with conveyor)**	**1320x785x2260 (2290 with wheels)**	**0.40**	**0.45**	**1350 / 400**	**230**
1500	**1435x550x570**	**1625x785x1460 (H:1580 mm with conveyor)**	**1625x785x2260**	**0.40**	**0.45**	**1650 / 500**	**270**
1800	**1740x550x570**	**1930x785x1460 (H:1580 mm with conveyor)**	**1930x785x2260**	**0.40**	**0.45**	**1950 / 600**	**320**

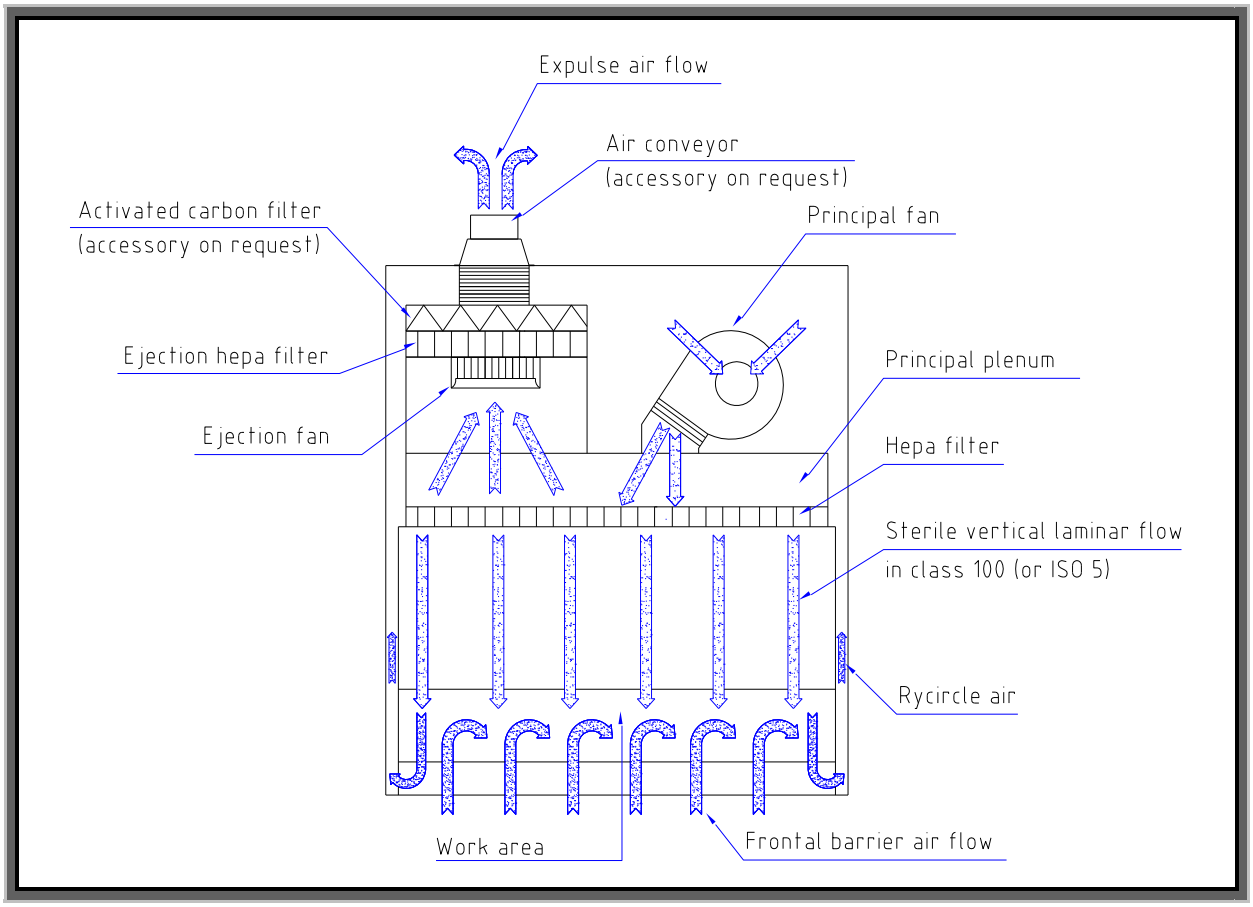
- **After positioning the cabinet must be mounted armrest. The total depth "P" will result 885 mm.**
- External dimensions with scratch-resistant bi-laminated wood support table (only for ATLANTIC 900-1200), WxDxH:

  ATLANTIC 900: 1200 x 800 x 2290 mm. (2320 with wheels)
  ATLANTIC 1200: 1400 x 800 x 2290 mm. (2320 with wheels)

ELECTRIC SPECIFICATION

ATLANTIC	Feeding power	Power absorption	Protection fuses	Lighting lamp Watt/Lux	Electrical outlet power	Germicide UV lamp
900	230 V - 50 Hz.	700 W + 440 W	2 x 5 AF (5 x 20) mm.	1x30 W 900 Lux	10 A	1x18 W
1200	230 V - 50 Hz.	700 W + 440 W	2 x 5 AF (5 x 20) mm.	1x36 W 900 Lux.	10 A	1x30 W
1500	230 V - 50 Hz.	700 W + 440 W	2 x 5 AF (5 x 20) mm.	1x36 W 900 Lux	10 A	1x30 W
1800	230 V - 50 Hz.	700 W + 440 W	2 x 5 AF (5 x 20) mm.	1x36 W 900 Lux	10 A	1x30 W

PARTS LIST AND FLOW SCHEME



FITTINGS ON DEMAND

- Activated carbon cell to be introduced after the second hepa filter, in ejection, in case of work with toxic steam.

- UV germicidal lamp to be positioned inside the workroom; 18 Watt for Atlantic 900, 30 Watt for Atlantic 1200-1500-1800. The germicidal UV lamp is removable, when not in use can be stored in the compartment under the armrest.

- **ON REQUEST** the germicidal UV lamp can be fixed to the rear wall of the working chamber with direct wiring to the control board.

- Worktop in perforated version, divided into sectors removable and autoclavable

- Conveyor's connection of external outlet of air, Ø150 mm (900-1200-1500 Atlantic), Ø200 mm (1800 Atlantic), with anti-wind grid.

- Opened support WxDxH:
- ATLANTIC 900: 1000x700x800 (830 with wheels) mm.
- ATLANTIC 1200: 1300x700x800 (830 with wheels) mm.
- ATLANTIC 1500: 1600x700x800 mm.
- ATLANTIC 1800: 1900x700x800 mm.

- Support table for 900 ATLANTIC cabinet with scratch-resistant laminated floor WxDxH: 1200x800x830 (860 with wheels) mm.
- Support table for 1200 ATLANTIC cabinet with scratch-resistant laminated floor WxDxH: 1400x800x830 (860 with wheels) mm.

- Four wheels kit for support (only for ATLANTIC 900-1200)

- Drawers set with three draws and wheels WxDxH 410x500x570 mm. to fit under the support.

- EXACARB Module - activated carbon-filtering system. Activated carbon filtering module, with its motor-fan and external conveyor Ø200 mm, enables to filter toxic substances (such as steam or chemical gas) that are inside the room before they are eliminated in the environment. Activated carbon keeps toxic steam inside its molecules thus enabling to control the chemical contamination of air. Therefore, you will have a total environmental safety. Activated carbon filter is placed on the hepa ejection filter, before the entrance on the roof. Supplementary motor-fan connected, by a flexible cable, to the external conveyor Ø200 mm, must be fixed to the wall of the room where is present the exit for ejected air. If you must eject the air in to the room, place the supplementary fan in correspondence of the ejection hole on the roof of the hood.

- **"THIRD FAN" ADDITIONAL EXHAUST FAN FOR EXACARB MODULE**

INSTALLATION AND USE OF ADDITIONAL EXHAUST FAN

NOTE: in the box that contains additional exhaust fan you'll find instruction booklet, with installation instructions and wiring.

If the cabinet is already fitted with the third fan for air exhaust is necessary:

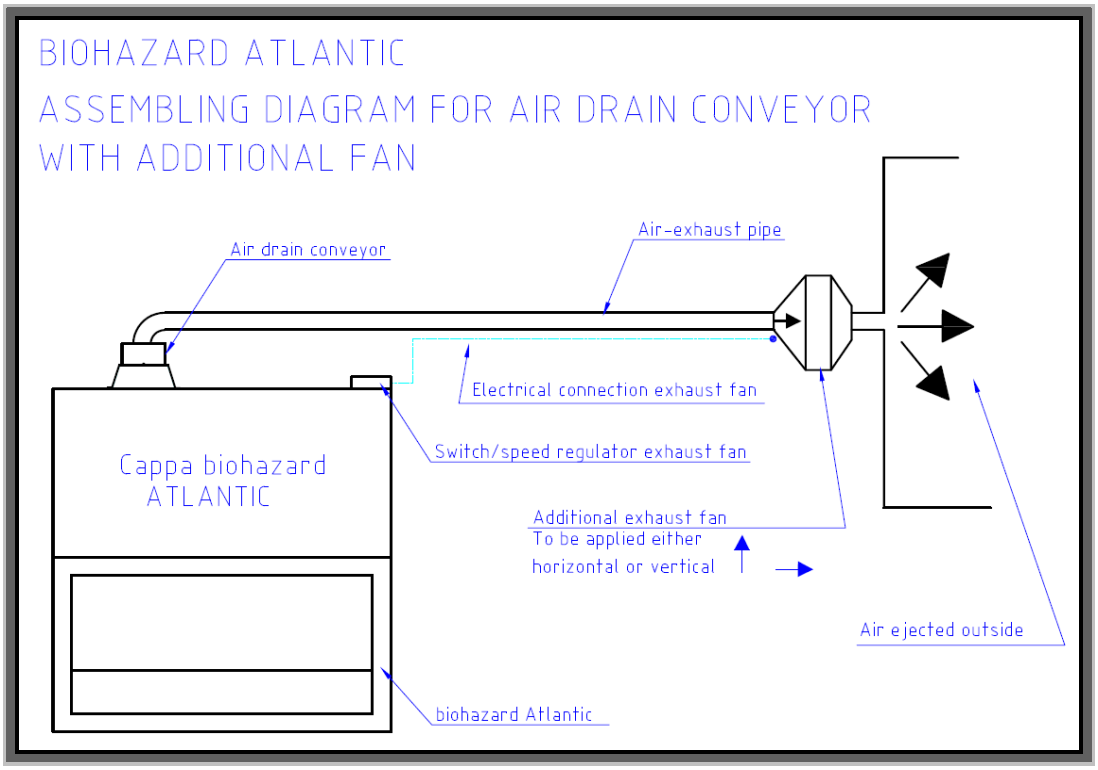
1. Attach supplied additional exhaust fan to the wall with brackets supplied.
2. Connect air drain conveyor Ø 200 mm, placed in correspondence of the air exhaust hole, on the cabinet roof, to the additional exhaust fan through air exhaust pipe.
3. Electrically connect the additional exhaust fan to the speed regulator mounted on the cabinet roof, using approximately 1 meter long cable that comes out if the fan is mounted on the cabinet, or prolonging the lenght necessary if the the fan is mounted on the wall.
4. Turn on the cabinet and turn on the fans.
5. Turn on the speed regulator to turn on the additional exhaust fan and regulate its speed.
6. Using an anemometer check that these parameters are guaranteed, with cabinet in use:
   - Vertical laminar flow speed, inside the workroom: m/s 0.40 ± 20%.
   - Frontal barrier laminar flow speed m/s 0.45 ± 20%.
   - Exhaust air volume on the third fan exit 300/400/500/600 m^3/h ± 20%.

7. The cabinet has a self-regulation of the two fans, principal and expulsion, to ensure correct operating parameters listed above.
8. To get the correct value of volume of air ejected at the exit of the third supplementary fan, 300/400/500/600 m^3/h, you must run the anemometer measurement of the average speed of the outgoing air and calculate the volume of air expelled by the formula **V = S x A x 3600**, where:

   V: exhaust air volume in m^3/h
   S: exit fan area. In this case with diameter 200 mm area is 0.031 m^2.
   A: exhaust air average speed (at least 5 points), measured on the exit fan area.

9. Act on the speed regulator to increase or decrease the speed of additional fan in order to offset any losses generated by the conformation of the eject system.

If the third extra fan was provided as an accessory after the provision of the cabinet, the customer have to fix, on the cabinet roof, the switch box/regulator and the additional fan electrical wiring/box (see specific instructions of extra fan).



Fix additional exhaust fan at the room wall, so that the air outlet pipe is always in aspiration. This allows the ejection of the exhaust airflow also in case of losses of the pipe.

Switch and speed regulator for additional exhaust fan, positioned on the cabinet roof