

Handbook Of Microbiological Safety Cabinet Type

OPTIMALE

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Dear Sirs,

You have just acquired an “**OPTIMALE**” and we congratulate you.

This cabinet guarantees you:

- To work in sterile conditions.
- The protection of the operator.
- The protection of the surrounding environment from all risks of contamination.

Your cabinet **OPTIMALE** is recommended for the **manipulations of pathogenic germs (levels 2 and 3)**.

The model **OPTIMALE (12)** is built according to the European Norm **EN 12469**. It is controlled and certified by LNE with the NF mark:

FRENCH STANDARD INSTITUTION (AFNOR)

**Tour EUROPE - Cedex 7
92 080 PARIS LA DEFENSE
Tél: 00 33 / 1 42 91 55 55
Minitel: 3616 Marque NF**

ELECTED ORGANISM

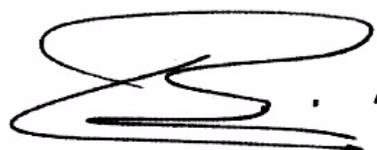
**Laboratoire National d'Essai (LNE)
Service Certification
1, rue Gaston Boissier
75 724 PARIS cedex 15**

We wish you a good utilisation and we are staying at your complete disposal for further details.

Eric FITOUSSI



Bernard BIJAOU



Managing Director

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I – CONSTRUCTION

1 – FRAME

The external frame is manufactured with epoxy painted steel.
The internal frame is completely in 304 L stainless steel smooth finish and thickness of 15/10
This unit is very strong and insensitive to the deformations and alterations.

2 – WORK SURFACE

Removable, it is made of one part white TRESPA panel.

3 - AIR FLOW BARRIER

This barrier is created through a Perforated Grid in stainless steel 304L. This avoids cross contamination.

4 - RECEPTACLE

Placed under the work surface, its structure in Stainless steel 304L permits to contain liquids.
It can be cleaned by easily removing.

5 - LIGHTING

A fluorescent lighting is fixed outside the work volume on the front panel.
The level is 600-800 LUX on the work surface.

6 - SASH WINDOW

A front sash window panel (Triplex Glass) acts as a protective shield. The standard working position is 220 mm high above the work surface.

Three other positions of the window panel are possible:

- Standard Position for normal use
- Total Opening position (orange colour button)
- Total Closing till the bottom of the work surface.

7 - VENTILATION

This cabinet is equipped with an adjustable and direct centrifugal fan designed to maintain the air flow velocity at low rotation speed (ECM technology: principle hereunder)

In order to avoid any vibration, engine and turbine are balanced together and the blower is mounted on rubber vibration isolators.

8 - FILTRATION

HEPA Filters are installed with an efficiency of 99.999% for particles greater than 0.3 μ (classification H14 DOP tested).

Those filters are designed for laminar air flow blowing (ISO 5, Class 100, US Norm) and exhaust.

<u>Media:</u>	Glass Fiber
<u>Frame:</u>	Aluminium frame and two white epoxy grids (both sides of the filter).
<u>Gasket:</u>	Neoprene Gasket.

9 - AUTOMATIC AIR FLOW REGULATION

Air Flow Velocity is maintained constant automatically at 0,4 m/s +/-10% whatever the clogging of the filters. Use of ECM Fans allows an automatic flow rate regulation due to the microprocessor integrated inside the fan.

- Fan for OPTIMALES 9 and 12: ECM DP 9.7
- Fan for OPTIMALES 16 and 18: ECM DP 9.9

10- Electrical Plug

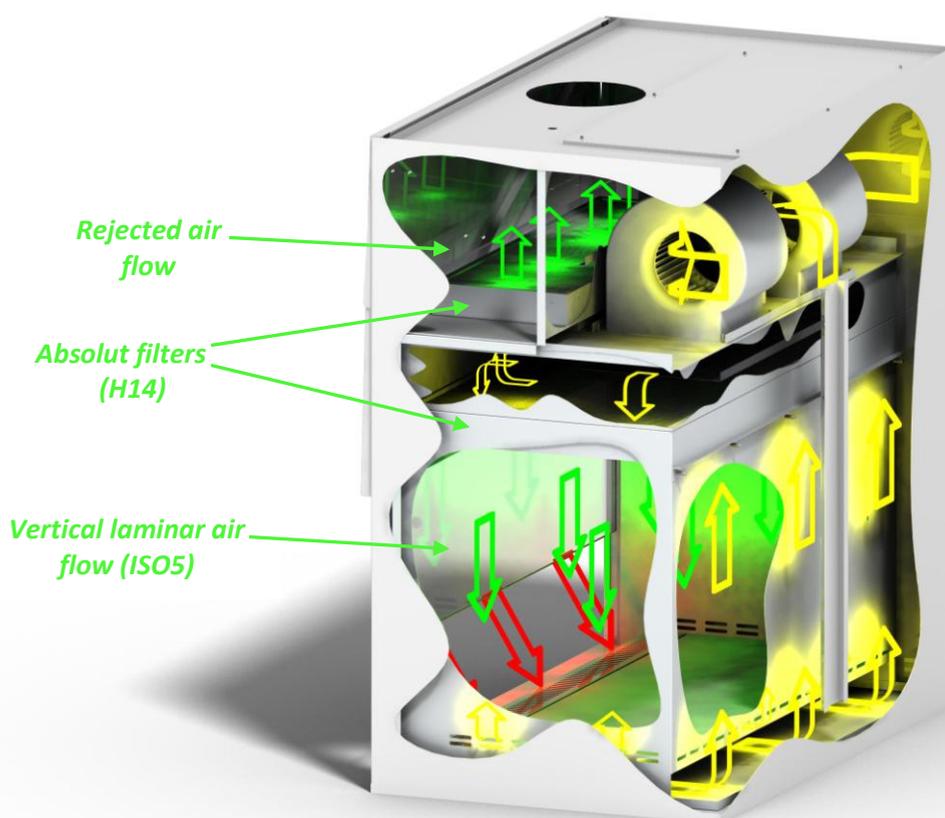
On the back wall and right side, you benefit from 1 European electrical plug without pin.

II – OPERATING DESCRIPTION SECURITY

1 – OPERATING DESCRIPTION

The vertical laminar air flow ISO 5 (class 100) is issued from the first absolute filter above the work surface, sweeping all the work volume in order to keep the handling out of any contamination.

The 30% of air flow rate exhausted through the second HEPA filter (located on the top of the booth) is compensated by new air sucked through a grid in the forefront of the work surface. This is creating a real air flow protection for the user.



2 – SECURITY

The use of the Optimale is possible only when the key position is ON : in position “arrêt” with window closed, the cabinet is OFF.

When the Optimale is in function (key in position ON), you benefit from the following safe principle:

In order to protect the operator, the OPTIMALE regulation system is designed to maintain the air flow constant whatever the clogging of the filter.

A spot light and a buzzer alarm inform that you have to remove the HEPA Filters in a delay of 3 to 4 weeks, when it is clogged.

Other alarm prevents when sash window position is higher or lower than the recommendation for normal use. Nevertheless you can stop the alarm if you need a longer delay with the sash window completely open (use the switch board behind the front panel for filters access: change position n°2 on the switch).

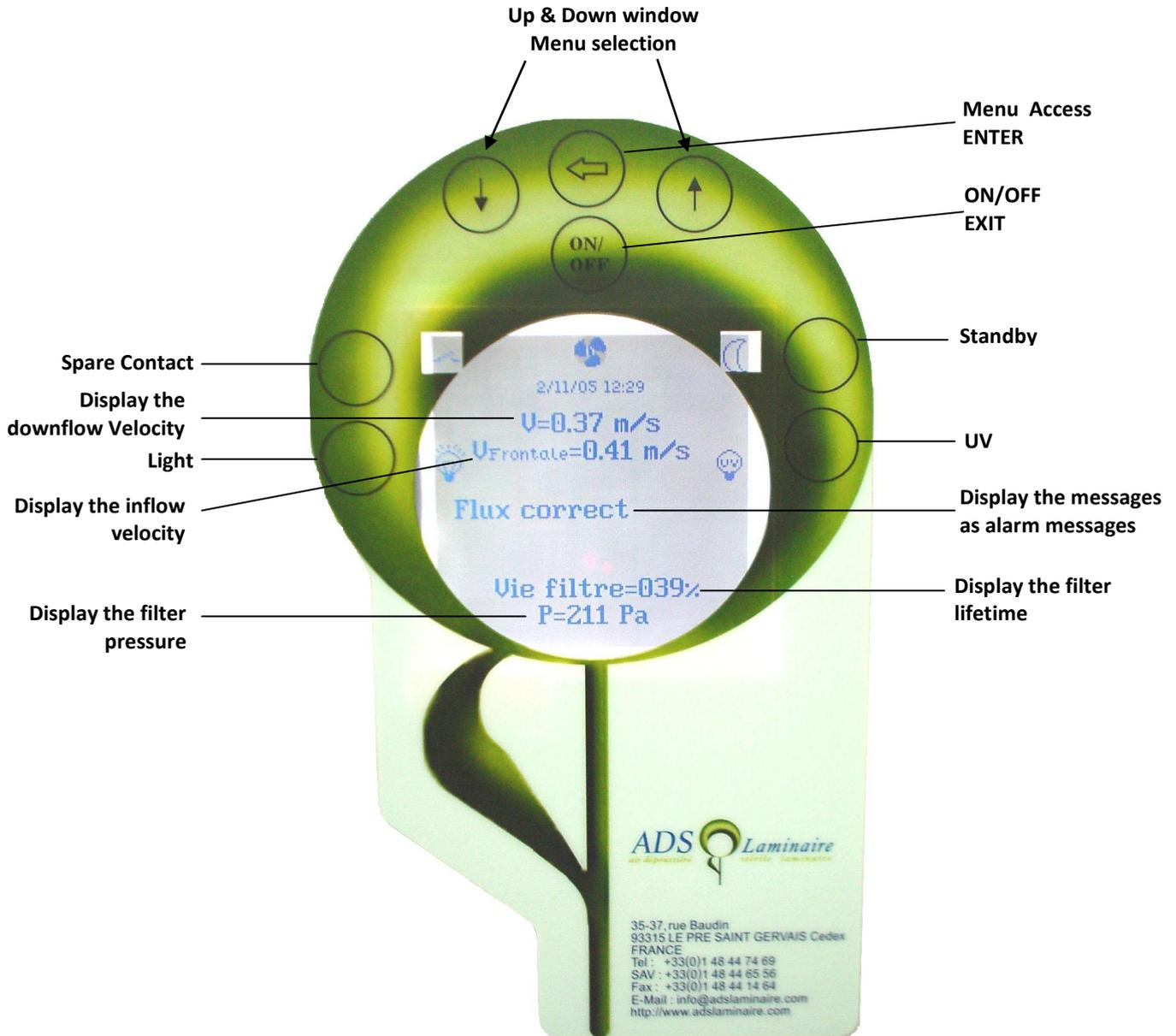
3 - PACKAGING AND TRANSPORT

In case of long time without using you must **package** the cabinet to avoid climatically variations in respecting the conditions stipulated in the part IV of this present Handbook.

If the OPTIMALE has to be transported, it has to undergo no shock.

III – FRONT PANEL

A. PRESENTATION



B. BUTTONS

- **On/Off** : Switch on and switch off the cabinet, which means the fan and all functions.

Allows to exit from a menu or a sub menu or to cancel a function.

- **Sleep** : Switch on and switch off the Sleep mode.
-   : Up & down the sash windows.
Use it to navigate into the menu or to select a choice.
- **Light** : Switch on and switch off the main light
- **UV** : Switch on and switch off the UV Lamp. Only available during the Sleep Mode.
- **Spare contact** : Switch on and switch off a contact in the main board ready to connect any accessory (solenoid, electrical socket, ...)

IV – USING

A. STARTING



Push ON/OFF Button to turn ON.

If no password has been recorded, the cabinet starts directly.

If a password has been recorded (Factory settings) you need to enter it.



The Factory settings password is "0001". You can change it in the User Menu.



The panel displays "Wait" and the sash window stays closed until the velocity is OK. Then, the window raises itself to the correct height.



Push ON/OFF Button to turn OFF the cabinet. If no password has been recorded, the cabinet will stop directly.

If a password has been recorded (Factory settings) you need to enter it. The Factory settings password is "0001". You can change it in the User Menu. Then, the window closes automatically (an alert message displays) and the light switches off.

B. SLEEP MODE



Push Sleep Button  during 2 seconds to switch the cabinet in Sleep mode. When the moon is highlighted, it's OK.

If no password has been recorded (Factory settings), the cabinet switch in Sleep mode directly.

If a password has been recorded you need to enter it before.

Then, the window closes automatically (an alert message displays) and the light switches off. It is possible to switch ON the light if necessary.

The screen display that you need to push Sleep button 2s more to come back to the normal mode. If a password has been recorded you need to enter it.

After few seconds, the flower icon appears in standard mode and the airflow reduces itself at the value recorded in the Program menu.





When the cabinet comes back to the normal use, the sash window stays closed until the velocity is OK. Then, the window raises itself to the correct height.

C. ACCESSORIES

- Window** : Push  to open and close the sash window. If the button is released the window stop moving. When opening, the windows stops automatically at the standard height.

Maintenance : To open the window at the maximum height, still pressing the  2 s. Then it starts opening until the button is released. If a password as been recorded in the "Window Lock" menu, a password will be asked to permit the opening,

- Light** : press the "light" button, to switch on or switch off the light. The icon display little rays when the light is ON.



- **UV**: Press the “Light” button, to switch on or switch off the UV Lamp. UV can be activated only in the “Sleep Mode”. If the cabinet is in “Normal Mode”, this message appears : “Sleep mode for UV”



The icon display little rays when the light is ON.

- **Spare Contact**: Press the “Contact” button, to switch on or switch off the spare contact.

D. ALARMS

- **Clogging Alarm** : When the filter is clogged, the alarm beeps and this message appears “ Filter Clogged”
- **Incorrect Flow Alarm** : When the velocity is out of the usual range, the alarm beeps and this message appears “ speed too low ” or “speed to high”



- **Window's Alarm** : When the window is not in the right position, the alarm beeps and this message appears " window too low " or "window to high"



- **Fan Alarm** : When the fan is out of service, the alarm beeps and this message appears " Fan Default "
- **Maintenance Alarm** : After calibration due date, this message is displayed: "Call After Sales Service"

E. Bugs

If the cabinet presents any bug, you can try to reinitialize it to fix the problem.

To reinitialize the cabinet unplug then plug it again to the power jack. Then push Up & Down buttons together during 3 second while the flower appears.

V – USING THE OPTIMALE

CONDITIONS :

The conditions of the environment hereunder have to be respected for a good operation of your MSC (Microbiological Safety Cabinet):

<u>Ambient temperature:</u>	+ 5°C to + 40°C.
<u>Humidity:</u>	30% to 95%.
<u>Agents of pollution:</u>	Do not install the MSC in a place where the quantity of pollutants is abnormal.
<u>Radiation:</u>	The OPTIMALE can not be exposed to important radiations.

OPERATING PROCEDURE OF THE CABINET:

Placed on its support legs or on an existing work bench (pallet or stable horizontal table).

- Connect the Booth on current **mono 220 V+T -15**
- Press the touch **M.A** (1), fan starts to blow. You shall wait 2 hours (time of purge) before the first utilisation.
- **Sash Window** : Press on the touch **RID** (6), then on (5) to go up or (7) to go down.. To stop the sash window in intermediate position, press on **RID** (6). The engine will stop automatically at the right high fixed in factory.
- **Light** : press on **ECL** (3). Press a second time to switch off
- **UV Light** : To switch on the Ultraviolet Lighting, press on **U.V** (10), only when the sash window is on the bottom position.
- **Standby mode** : when the sash window is maintained on bottom position ((7)) the cabinet is automatically on Standby Mode with lower velocity. To return to the standard mode, push **RID** (6) button .
- **Alarm** : If **COL** (8) and **ALM** (9) get in function, you have to remove imperatively the absolute filters which are clogged.

For all starter or new starter after a prolonged stop, wait 2 to 3 hours of purge before utilisation.

VI – RECOMMANDATION AND ADVISES

Following the Norms Recommendations

- You should **manipulate only when the sash window is in normal position of use** (automatically stopped at the right high when you open the window) and at a distance of 13 cm on the work surface from the front grids (or window).
- After Installation and the first start of the cabinet, you can use and work easily after each interruption or standby mode as described hereunder:
 - **Standby mode** : when the sash window is maintained on bottom position ((7)) the cabinet is automatically on Standby Mode with lower velocity. To return to the standard mode, push **RID** (6) button .
 - During the **night or week- end** the position of the **window is closed; thus the cabinet is automatically in Standby Mode** (half normal Velocity). The **spot lights for “V” and “M/A” are still ON**. This is the normal and recommended position for standby: you needn't to switch off completely the cabinet, just let it in Standby with red light “V” in position ON.
 - In case where you switch off the cabinet by pushing M/A button: the **spot lights are off** but an air flow follows sweeping when the window is completely closed (it is depending of the position of one Switch on the electronic board behind the Plexiglas Cover after the white front panel).

IMPORTANT: You benefit from an automatic air flow re-start after a prolonged stop if you have a general electrical power cut in your building).

(Sash Window): Press on the touch **RID** (6), then on (5) to GO UP or (7) to GO DOWN. To stop the sash window in intermediate position, press on **RID** (6). The engine will stop automatically at the right high fixed in factory)

- **Light** : press on **ECL** (3). Press a second time to switch off
- **Alarms** : If **COL** (8) and **ALM** (9) get in function simultaneously, you have to remove imperatively the absolute filters which are clogged.
Others Alarm : Alarm clogging optical and acoustic (hepa filter)
Alarm fan dysfunction optical and acoustic
Alarm on sash window to ensure the right height
An alarm permanently tests the exhaust air and the air flow barrier.
The alarm of the air flow is in function while the normal air flow velocity is not reached.

VII – TECHNICAL DATA

	OPTIMALE 9	OPTIMALE 12	OPTIMALE 16	OPTIMALE 18
Weight	190 Kg	230 Kg	300 Kg	350 Kg
Recycling Airflow	790 m ³ /h	1050 m ³ /h	1310 m ³ /h	1580 m ³ /h
Extracted Airflow	350 m ³ /h	470 m ³ /h	580 m ³ /h	700 m ³ /h
Effective Length	921 mm	1226 mm	1531 mm	1836 mm
Overall Length	971 mm	1276 mm	1581 mm	1886 mm
Fan Type	DD 9/7 ECM	DP 9/7 ECM	DP 9/9 ECM	DP 9/9 ECM
Blowing HEPA Filter	M6/9L	M6/12L	M6/15 L	M6/18 L
Exhaust HEPA Filter	M3/6/90	M3/7/90	M3/9/90	2 x M3/6/90
Light	900 mm / 30 W	1200 mm / 36 W	1500 mm / 58 W	1500 mm / 58 W
UV Light	UV 450/G15T8	UV 900 / G30 T8	UV 900 / G30 T8	UV 900 / G30 T8
Sash Window Thickness 8 mm	960 x 700	1265 x 700	1570 x 700	1875 x 700

For any OPTIMALE:

DIMENSIONS

Depth:

Height:

OVERALL

786

1400

EFFECTIVE

616

650

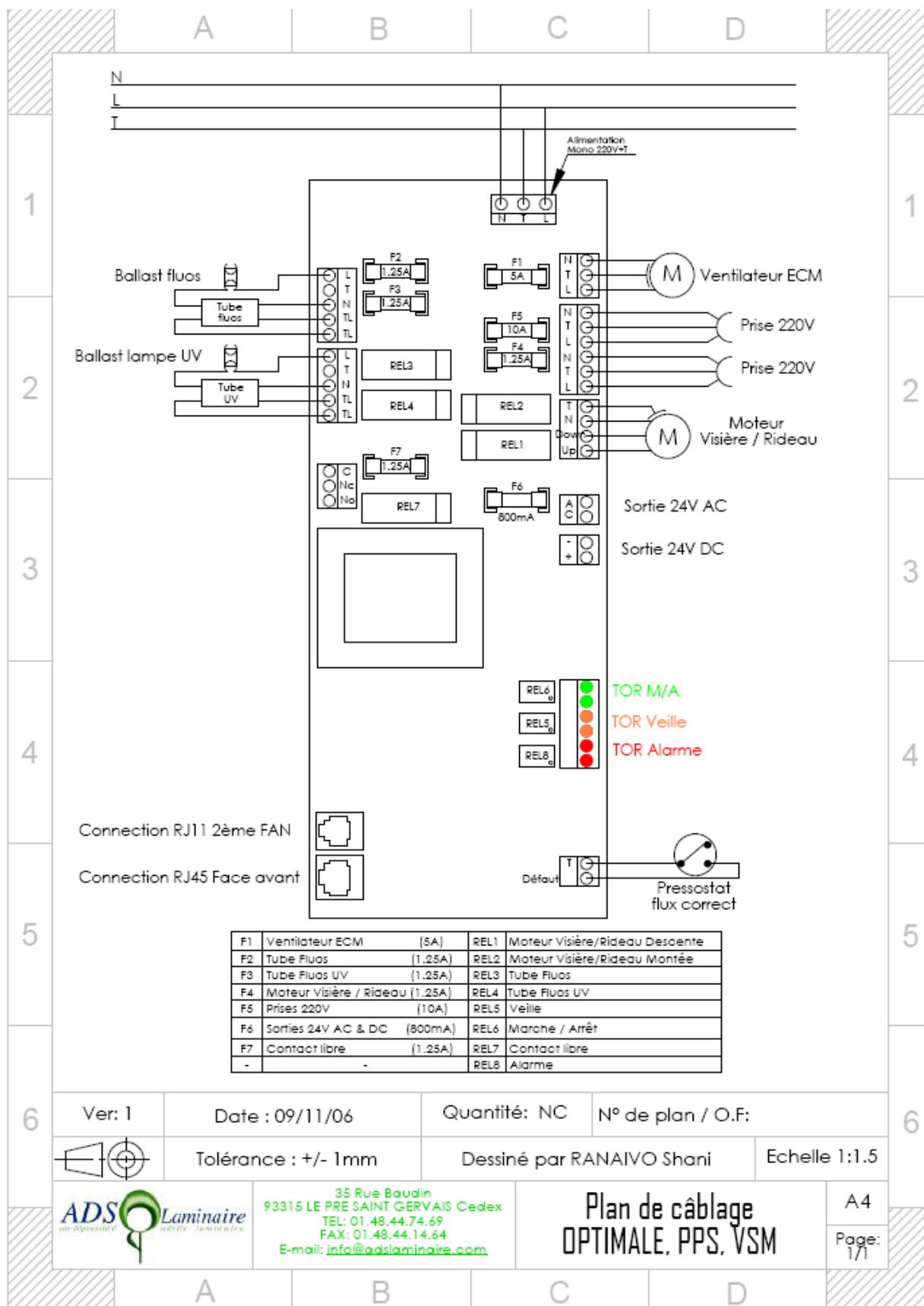
Electricity: **mono 220 + T - 15A - 50 Hz**

Noise level: < 64 dB according NF control

Level of lighting : superior to 750 LUX

ADS Linaire is allowed to change any reference in the OPTIMALE .

VIII – ELECTRICAL SKETCH



IX – MAINTENANCE

WARNING: Before accessing to the cabinet components, you have to cut the current of the MSC.

Before changing HEPA Filters, you must proceed to a decontamination of Cabinet.

As soon as the diode COL is switch ON, you have to change the two HEPA filters. Before their replacement, anticipate the sterilization of the cabinet. Thanks to a very easy access and a simple fixation system, HEPA filters are easily removable.

Blowing Filter: Unscrew from inside the booth, under the filter. Filter is free.
Do the reverse in maintaining the new filter on the top for screwing.

Exhaust Filter: The access of the filter is direct behind the front panel.
Unscrew and take out HEPA filter to replace the new one.

Fan Motor: Without maintenance.

Fluorescent lighting: Direct access behind front panel.

IMPORTANT

- HEPA Filters replacement must be made by a Specialist with validation and control.
- After long time of no use, proceed to a control and validation before your manipulations
- For usual Control and Test, you benefit from 2 inlets for DOP testing: refer to the photo hereunder
- You can use Formaldehyde Fumes to decontaminate the cabinet



X – GUARANTEE AGREEMENT

The **OPTIMALE** is guaranteed One Year for spare parts, except for wrong use and disposables.

CONDITIONS OF THE GUARANTY:

- During the period of guaranty, the customers will benefit in case of failure, from free spare parts replacement.

- *The guarantee is not available for:*

- In case of consecutive damages referring to a wrong utilisation or a default of maintenance.
(non respect of orders) or an external cause (damages of water, fire, and so on C.f. the insurance of your establishment.)
- In case of external intervention, other than **ADS LAMINAIRE** company during the period of the guaranty.