

OPERATING AND MAINTENANCE MANUAL CYTOFAST ELITE



***VERTICAL LAMINAR AIRFLOW CABINET
FOR CYTOTOXIC DRUGS***

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REFERENCE STANDARD: this instruction and maintenance manual complies with the European standard en-591 (march 1994) approved by CEN (European Committee for Standardization) relating to the requirements for drawing up users' instruction manuals for laboratory instruments.

Note: the inobservance of the instructions of this manual can reduce the operator safety

1 GENERAL

Vertical laminar airflow benches with partial exhaust and protection barrier, the CYTOFAST ELITE cabinets, are designed to protect both the material to be manipulated from contamination and to protect the operator and the environment from microbial cytotoxic contamination hazards.

The de-dusted, filtered and sterile air passing through the main HEPA filter ensures optimum airflow laminarity on the work surface, thanks to its even perforation and the frontal air barrier. The system is designed to create a protective barrier and prevent exchanges between the internal, potentially biologically contaminated air, and the outside.

CYTOFAST ELITE cabinets are Class II Biohazard cabinets, according to the definitions now adopted by all the main international standards, with about 70% laminar flow recirculated air and 30% extracted air with prior HEPA filtering. Suitable for the treatment of class CDC-1/2/3, DHSS-C/B1/B2 group 1,2,3 microorganisms as per D.L. 81/08 "Safety in the working environment" and wherever a product-personnel-environment cross-protection is required.

Especially suitable for applications such as:

- Manipulation of eziologic agents having a known pathogenicity on humans and animals.
- Presence of high concentrations of biologic materials.
- Presence of agents likely to cause genetic alterations or synergetic activities with other materials.
- Oncogenic viruses.

But above all designed for:

- Preparation and handling of cytotoxic drugs
- Preparation and manipulation of antineoplastic chemotherapeutics

Do not manipulate the products on the slotted part at the entry of the chamber, but in the middle of the work surface.

The performances of the cabinets are detailed in the TESTING CERTIFICATE below, in compliance with the requirements of:

- ISO 14644-1 Class 5

For the Biohazard/Cytotoxicity:

- DIN 12980: 2005
- EN 12469: 2000

Furthermore CytoFAST Elite cabinets fulfil the armonized standards EN 61010-1 as well as EN 61326 according to the applicable European directives regarding the CE marking.

CytoFAST cabinets comply with the above-mentioned standards ONLY if the instruments connected to the electrical socket positioned inside the work chamber are "CE" marked or in any case it meets the above mentioned standards aiming to avoid any electromagnetic interference.

All FASTER's cabinets are provided with high insertion loss filters.

Faster s.r.l. cannot be held responsible for malfunctions, damage to people or property due to non-compliance, poor or no maintenance, or improper use of the cabinet.

2 INSTALLATION

2.A INSTRUCTIONS AND CHECKS ON DELIVERY

Considering the critical nature of the use of the CYTOFAST ELITE cabinet and the need to keep it in optimum condition, installation is very important.

CYTOFAST ELITE Biohazard cabinets are positioned on a pallet, wrapped in an extensible film and contained in a package of multi-layer strapped cardboard.

After placing the cabinet in its site of use, opened the package and removed the extensible film, check that the equipment has not suffered any dents or scratches due to transport or improper handling of the package.

In case of any further transport, packing and storage by the user after the initial period of use (e.g.: change of laboratory or factory), contact the technical assistance service or the distributor for more accurate and precise instructions or for assistance by specialized technicians.

2.B INSTALLATION REQUIREMENTS

Install the cabinet away from drafts and heat sources (radiators, ventilators/convectors), to ensure proper functioning. For instance, in a small room (<math><30\text{ m}^3</math>), if an exhaust duct is used to discharge air outside the building, we recommend the installation of a grill in the room in order to provide an air supply equal at least to the quantity entering the front of the cabinet to create the protective barrier and a negative pressure in the work area.

- Install the cabinet in a well-ventilated room with a low degree of dust.
- The distance between the cabinet and the exhaust system (if present) should be as short as possible.
- Place the cabinet away from doors and windows, which may cause malfunctions
- Place the cabinet in places where there is little human traffic.
- The exhaust system should be installed on the roof or on a wall or through a window. Otherwise, it can be connected to a chimney.
- The door of the room should be in such a position relative to the cabinet as to prevent drafts.
 - o Min. temperature 5 °C
 - o Max. temperature: 40 °C
 - o Max. humidity: 80% at 31°C, linear drop in relative humidity down to 50% relative humidity at 40°C.

It is recommended that the exhaust duct, located on top of the cabinet, should be connected to the outside of the building. In this case an anti-blowback shutter should also be installed on the exhaust flange.

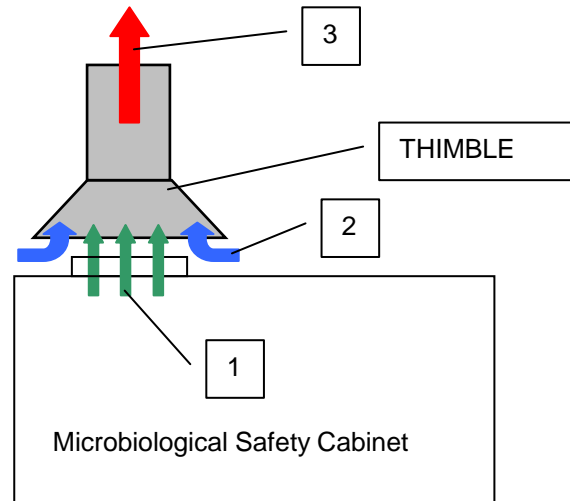
The max. length of the \varnothing 200mm exhaust duct should not exceed 10m. Otherwise changes must be made in the extraction fan or a remote exhaust motor-fan must be installed. The anti-blowback system prevents air from flowing back into the extraction channel.

Before connecting the cabinet to the mains power supply, check the necessary voltage and power indicated on the plate near the power cable. The room must be equipped with an earth connection and connections to the gas and/or vacuum networks, and an air exhaust duct must be installed outside the building.

Thimble method example

LEGENDA:

1. Exhaust air from the cabinet.
2. Air from the environment.
3. Bleed Air (100-200 m³/h more than the exhaust air flow rate from the cabinet) to a dedicated exhaust fan (in the electronic board a voltage free contact is available –see electrical diagram- to check when ventilation is ON).



For the connection to the gas and/or vacuum networks, read carefully chapter 2C.

The quantity of heat generated by the cabinet, if the air is not extracted outside the room, is the following for the eight models respectively:

The quantity of heat generated by the cabinet, if the air is not extracted outside the room, is the following for the four models respectively:

- CYTOFAST ELITE 209: 410 Kcal/h
- CYTOFAST ELITE 212: 460 Kcal/h
- CYTOFAST ELITE 215: 520 Kcal/h
- CYTOFAST ELITE 218: 540 Kcal/h

The installation must be done by technicians authorized by Faster S.r.l. or by the distributor

2.C ELECTRIC/GAS CONNECTIONS and INSTALLATION OF THE WORK SURFACE

The electrical connection of the CytoFAST Biohazard cabinet is made by connecting the power cable located on the upper of the right side of the cabinet to a suitable power point (see technical table) . When the cabinet is connected, the green light on the control panel switches on (see chapter 4E).

If stipulated by local legislation, insert upstream of the power line an automatic protection overload switch provided with a differential relay, with a rated switching voltage no greater than 30 mA.

The right side of the cabinet is also provided with two gas/vacuum intakes with manual taps one of which is fitted with an electrovalve.

The connection with the two gas/vacuum intakes is made according to the type of connection: town gas or industrial gas (air, vacuum, nitrogen, etc.).

The cabinet must be connected by qualified staff to the town gas mains through an approved conduit for safety reasons.;

For the installation of the work surface, proceed as follows:

- remove the protective paper from the work surface resting against the back of the cabinet, taking care not to scratch its surface,
- open the safety front window,
- clean the work surface with a damp cloth soaked in alcohol or soapy water or with a commonly available product designed for stainless steel,
- place the table in the work chamber, allowing the back to slide on the chamber's supporting bases up to its bottom wall
- close the safety front window

Note: the plug of the supply cable of the cabinet has the function of “main switch”, therefore the operator has to access easily to it also after the installation of the cabinet.

Technical Features Table

Description	Unit	CytoFAST Elite 209	CytoFAST Elite 212	CytoFAST Elite 215	CytoFAST Elite 218
Overall Dimensions (L x H x P ^(*))	mm	1045x2345x860	1350x2345x860	1655x2345x860	1960x2345x860
Usefull dimensions (L x H x P)	mm	899x740x580	1194x740x580	1499x740x580	1804x740x580
Maximum front aperture	mm	440	440	440	440
Working aperture	mm	200	200	200	200
Weight	Kg	215	245	285	325
Noise level	dB (A)	<56	<57	<58	<59
Lighting level	Lux	>1000	>1000	>1000	>1000
Nitrogen, CO ₂ , compressed air - maximum pressure	bar	4	4	4	4
Fuel gas- maximum pressure	mbar	20	20	20	20
Main voltage	V	230V AC 2P+T	230V AC 2P+T	230V AC 2P+T	230V AC 2P+T
Frequency	Hz	50	50	50	50
Maximum power consumption	W	1424	1534	1681	1898
Current	A	7.82	8.63	9.18	9.80
Electrical class		1	1	1	1
Protection level		IP20	IP20	IP20	IP20
Internal outlet (maximum current for all the sockets: 4A)		2P+T 230V 4A	2P+T 230V 4A	2P+T 230V 4A	2P+T 230V 4A
Fluorescent lamps	W	2x30	2x36	2x58	2x58

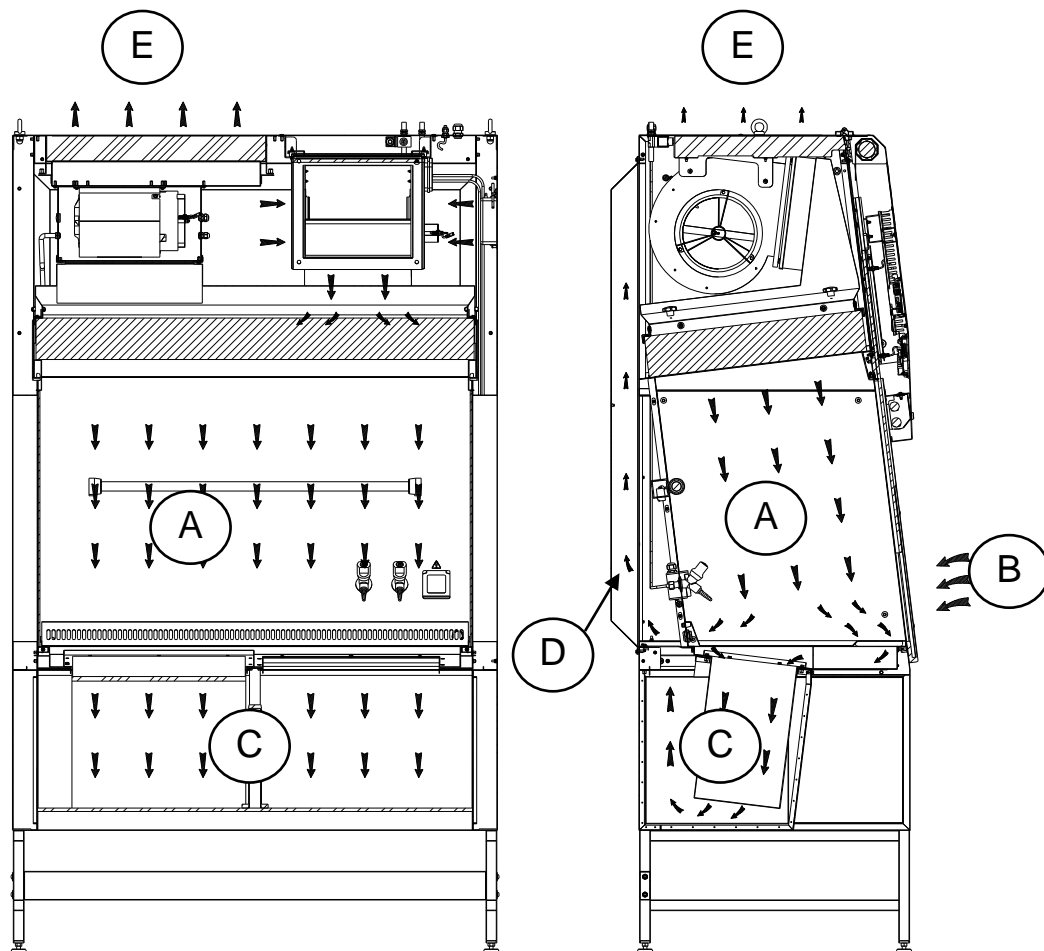
(*) Overall depth can be reduced to 795 mm removing the back external panel

3 OPERATION PRINCIPLES

The following are the working principles of the CYTOFAST ELITE-cabinet :

the pressurized air pushed into the plenum of the main motor-fan passes through the absolute filter and then downwards, in laminar flow, into the working chamber (A). From here, through the slots of the work surface, the air passes through the absolute filter placed under the work surface (C) and is sucked into the intake up channel situated at the rear of the working area (D). Part of the air (E) is extracted by the second motor-fan through the corresponding absolute exhaust filter. This extracted air generates the intake of air from the outside (front barrier) which ensures the protection of the operator/environment from hazardous material manipulated in the working area.

The extracted air may be filtered again through a second absolute exhaust filter placed on the exhaust duct of the cabinet (BS 5726), if the air is recycled inside the laboratory where the cabinet is installed.



4 OPERATION

4.A SCOPE

The vertical laminar airflow cabinet CYTOFAST ELITE is manufactured in compliance with international standards for the protection of the material, the operator and the environment against biological (Class II) and cytotoxic hazards and is suitable for the manipulation of low- and middle-risk pathogenic agents.

4.B CONTROL AND REGULATION SYSTEMS

The CYTOFAST ELITE cabinet is provided with an automatic regulation system to keep the airflow speed (0.4 m/sec) in the work chamber and the recycling air/extracted air ratio constant. This system counters the effects of the gradual clogging of the three HEPA filters up to pressures of nearly 35 mm H₂O.

The soft-touch control panel is microprocessor-controlled with a display showing all relevant data with regard to the operating functions, the different alarms and the error messages.

The solid work surface creates optimal airflow laminarity at working level in the preparation of cytotoxic drugs, while the front longitudinal slots create a protective air-barrier.

The vertically sliding safety glass sash is electrically operated. When the cabinet is running the work opening must be 200mm; any moving of the glass activates an audible and visual alarm, which cannot be silenced according to the EN 12469 standard.

When the cabinet is off the glass can be either opened up to the maximum opening or closed completely.

The front sash window can be closed and opened by pressing alternatively one of the two keys “arrow-up and arrow-down” [8] – and the red safety key on the right (see paragraph 4E)

The further red key [16] is a safety measure for the operator, because the moving of the glass from the work position is possible only if this key and one of the other two keys (arrow-up and arrow-down) are pressed at the same time.

When the cabinet is on, any change of the work aperture invalidates the efficiency of the air barrier protecting the operator, therefore if the operator presses the two keys at the same time he is perfectly aware of the potential risk he is running

Furthermore a safety device is installed, which stops the motor-fans automatically when the cabinet is on and the electrically operated sash window is completely closed.

To optimize the visibility inside the work chamber, the cabinet is ergonomically angled sloping-fronted (abt. 7 degrees sloping as to the vertical)

4.C REMOTE SIGNALS (OPTIONAL)

The electronic control board can be improved adding the following optional features:

Ventilation status (ON/OFF)

It is possible to obtain a 12 Vdc output to connect a led light or alternatively a Normally Open voltage free contact to be connected to an external circuit.

There are two different working possibilities:

- 1 the signal starts when ventilation is turned ON and stops when ventilation is OFF.
- 2 the signal is flashing during the start up phase of the ventilation and is ON when the correct air flow conditions are reached.

Correct air flow conditions

It is possible to obtain a 12 Vdc output to connect a led light or alternatively a Normally Open voltage free contact to be connected to an external circuit. That signal is closed when air flow rate is in the correct range and it is open in case of any flow alarm.

External consent

On request it is possible to allow ventilation to be turned ON by a remote volt free contact. When the ventilation is turned ON the cabinet stay in stand by (start up) till the remote normally open contact is closed. If during normal ventilation the remote contact is open the following message will appear "REMOTE CONTACT OFF" and the operator has to switch OFF ventilation as soon as possible and then check the reasons of the failure.

4.D INFLATABLE GASKET (OPTIONAL)

The optional inflatable gasket can be used to improve the sealing of the front glass during normal working phase or during the sterilization of the unit.

The cabinet is supplied with a plastic pipe to be connected to compressed air line (at customer charge) or to a compressor (available as option on request).

The gasket can be inflated only when the front glass is in working position or in completely closed position. To inflate and deflate the gasket the "SET" [10] and "GLASS SAFETY" [16] keys have to be pressed at the same time.

Since the gasket will be pressed against the front glass, in that case it is not allowed to move the glass and the message "DEFLATE GASKET" will appear.

If the gasket is deflated, after 5 seconds, a pressure sensor will allow the front glass to be moved again.

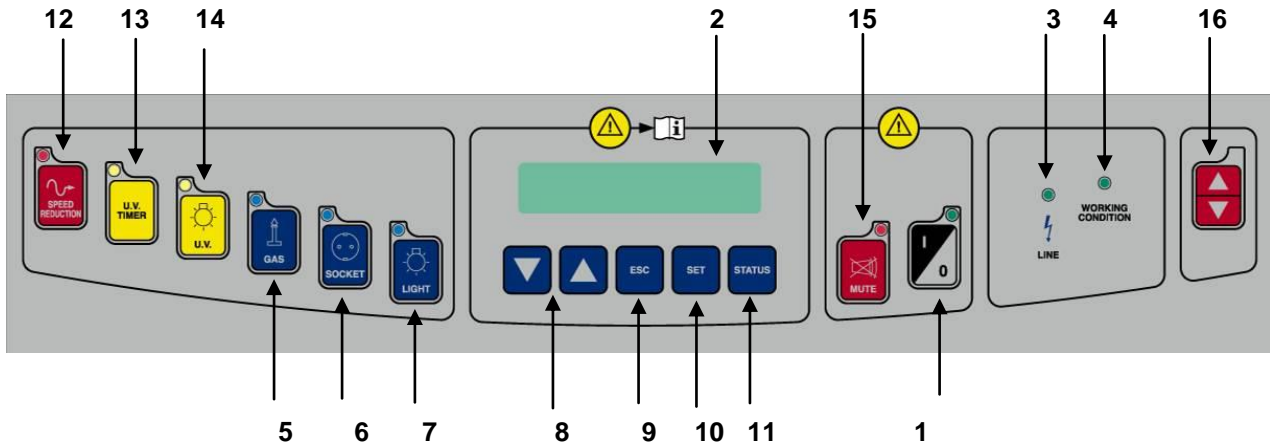
In case the control panel is opened and the glass is moved, the gasket will deflate immediately if it is inflated

The pneumatic circuit of the gasket is fitted with pressure switch in order to check the correct operation of it.

In case of a pressure loss the alarm message "CHECK THE GASKET" will alert the operator.

4.E SYMBOLS of the CONTROL PANEL

List and description of all the symbols and controls of the control panel:



1 MAIN SWITCH:

Position "0"

in the "0" position, the green light of the mains voltage is on (3); the LCD displays the model name. In this position the operator can activate only the fluorescent light (7), the U.V. lamp (14) and the power outlet (6) (with plug installed) and can activate the data stored in the microprocessor by pressing the "STATUS" key (2).

Position "I"

by pressing "I" the password to enter is requested. When the password is typed in (press arrow-up key (▲) 5 times, arrow-down key (▼) 4 times and press SET(10)) the green led of the switch lights up and the cabinet starts operating, LAF and exhaust (if installed) motor-blowers are powered and first "CHECK PANEL" then "STAND-BY" appears on the display. The LCD shows the required time (about 40 seconds) for the laminar flow and the exhaust velocity to reach the pre-set values. In addition, an audible alarm will sound intermittently during this stand-by period, alerting the operator not to start working yet. When the audible alarm stops and the message "STAND-BY" disappears from the display, the cabinet is ready for use.. The LAF and face barrier air velocities are displayed.

NOTE: In any case, it is advisable to wait 5 minutes before starting work.

2 DISPLAY

Rearlight liquid crystal "LCD" display composed of 2 lines of 20 characters each showing the operating parameters and alarms.

3 LINE

The green mains light switches on if the unit is connected to the mains and the line is live

4 WORKING CONDITION

The green LED lights up when the ventilation works correctly.

5 GAS

This activates the control for opening/closing the gas electrovalve; when enabled, the display shows "GAS ON". It operates only when the cabinet is running to prevent possible over-heating and risks of damaging the HEPA filter.

6 SOCKET

This supplies voltage; when enabled, the display shows "POWER ON".

7 LIGHT

This switches on the fluorescent light; when enabled, the display shows "Light on". Switching on the fluorescent light automatically the U.V. lamp switches off.

8 UP/DOWN ARROWS

Use the arrow keys to scroll the menu, to program changing parameters and to put in the password. Three passwords are programmed: 1) to start the cabinet – 2) to enter the operator menu – 3) to enter the main menu to change the data input (allowed only to authorized technical staff – service – because unsuitable interventions can cause troubles and incorrect operation of the cabinet

9 ESC

ESC key deletes the operation of data input and goes back to the starting condition.

10 SET

SET key lets you enter the different functions or confirm the data input going back to the upper level.

11 STATUS

If pressed in sequence, the following data will appear on the display:

External Temperature: Shows the temperature outside of the cabinet; the LCD will display (for example) "EXT. TEMPERATURE=27°C" This value is taken by an electron probe installed outside the cabinet.

Internal Temperature: Shows the internal temperature of the cabinet work area; the LCD will display (for example) "INT. TEMPERATURE =30°C" . This value is taken by an electron probe located inside the cabinet.

U.V. Lamp Residual Lifetime: Shows the operating time of the U.V.lamp pre-set by the user with the appropriate keys. The LCD will display (for example) "U.V. TIME=XXXX h" . When such time is over, the message "U.V. LIFETIME OVER" will appear on the line below.

1, 2, 3, 4, 5 **Residual lifetime of filters** : it is the operation time of the filters installed in the cabinet that can be programmed by the user.

The LCD will display (for example)" RES. TIME FILTER 1=XXXX:XX h:min". When such time is over, the message "CHECK FILTER (es.) 1". will appear on the line below.

The filters installed in the cabinet follow the numbering listed below

TYPE of FILTER	NUMBER
<u>LAF HEPA FILTER</u>	<u>1</u>
<u>EXH HEPA FILTER</u>	<u>2</u>
<u>HEPA UNDER WORK SURFACE</u>	<u>3</u>
<u>ADDITIONAL HEPA FILTER</u>	<u>4</u>
<u>CHARACOAL FILTER</u>	<u>5</u>

LAF Power: it is shown indirectly by the power supply voltage of the main motor, expressed as percentage of max. load voltage displayed also in proportion by a bar.

The display shows the notice(es.): "MOT.LAF = XX % " (max.100%).

Potenza EXH: it is shown indirectly by the power supply voltage of the exhaust motor, expressed as percentage of max. load voltage displayed also in proportion by a bar.

The display shows the notice(es.): "MOT.EXH = XX % " (max.100%).

Operating Time: Shows the operating time of the cabinet from the moment when the main switch is positioned on "I"
The LCD will display (for example) "WORK TIME=XXXXXh". This value cannot be reset.

12 SPEED REDUCTION

By pushing the corresponding red key the password (the same of start) is requested. Once confirmed the password the function is enabled. When it is enabled, the corresponding red LED lights up and the LAF and exhaust speed are about 30% lower than their nominal speeds. The light and the gas electrovalve cannot be switched on. If they are on, they switch off automatically. The following two messages appear alternatively:

**>>>ATTENTION<<<
DANGER**

and:

**REDUCED AIRFLOW
>>>DO NOT WORK<<<**

The "SPEED REDUCTION" function can be enabled only with the main switch in position "I". Only the power supply (3) can be operating.

13 U.V. TIMER

This concerns the yellow key for the timed management of the U.V. lamp (with timer). When the front sash window is completely down, by pushing the relevant key, you are requested to set the time. The timer resolution is 1 minute and the maximum time is 180 minutes (3 hours). The display will show the latest pre-set value, which can be changed using the "arrow" keys; when the time has been set, press the "SET" key to confirm. At this point the yellow LED lights up, the U.V. lamp is activated and the countdown starts. During the cycle the following message appears:

**U.V. TIMER
U.V. Timer (min) xxxx**

where "xxxx" is the time in minutes before the automatic stopping of the U.V. lamp. When the time reaches zero, the U.V. lamp is disabled and a brief audible warning signal is activated. To cut off the cycle press the "U.V. TIMER" key again.

If during the cycle there is a blackout, the timer is set again, the U.V. lamp is activated again and the countdown starts again. The U.V. lamp is activated only when the lighting is off. If the lighting is activated when the U.V. TIMER is on, the U.V. lamp switches off. Also the starting up of the cabinet cuts off the cycle and switches off the U.V. lamp.

14 U.V.

Yellow key to switch on UV lamp with non programmable timer. This supplies the U.V. lamp in "manual" mode; when enabled, the display shows "U.V. on". The U.V. lamp switches on only if the cabinet is off, the lighting of the cabinet is off and the front sash window is completely closed. After 180 minutes the U.V. lamp switches off automatically.

N.B.

When UV is on the front glass cannot be raised

15 MUTE

The red alarm LED lights up when an alarm condition occurs, which is shown also by the message appearing on the LCD. By pushing "MUTE" the alarm stops sounding.

16 UP/DOWN ARROWS

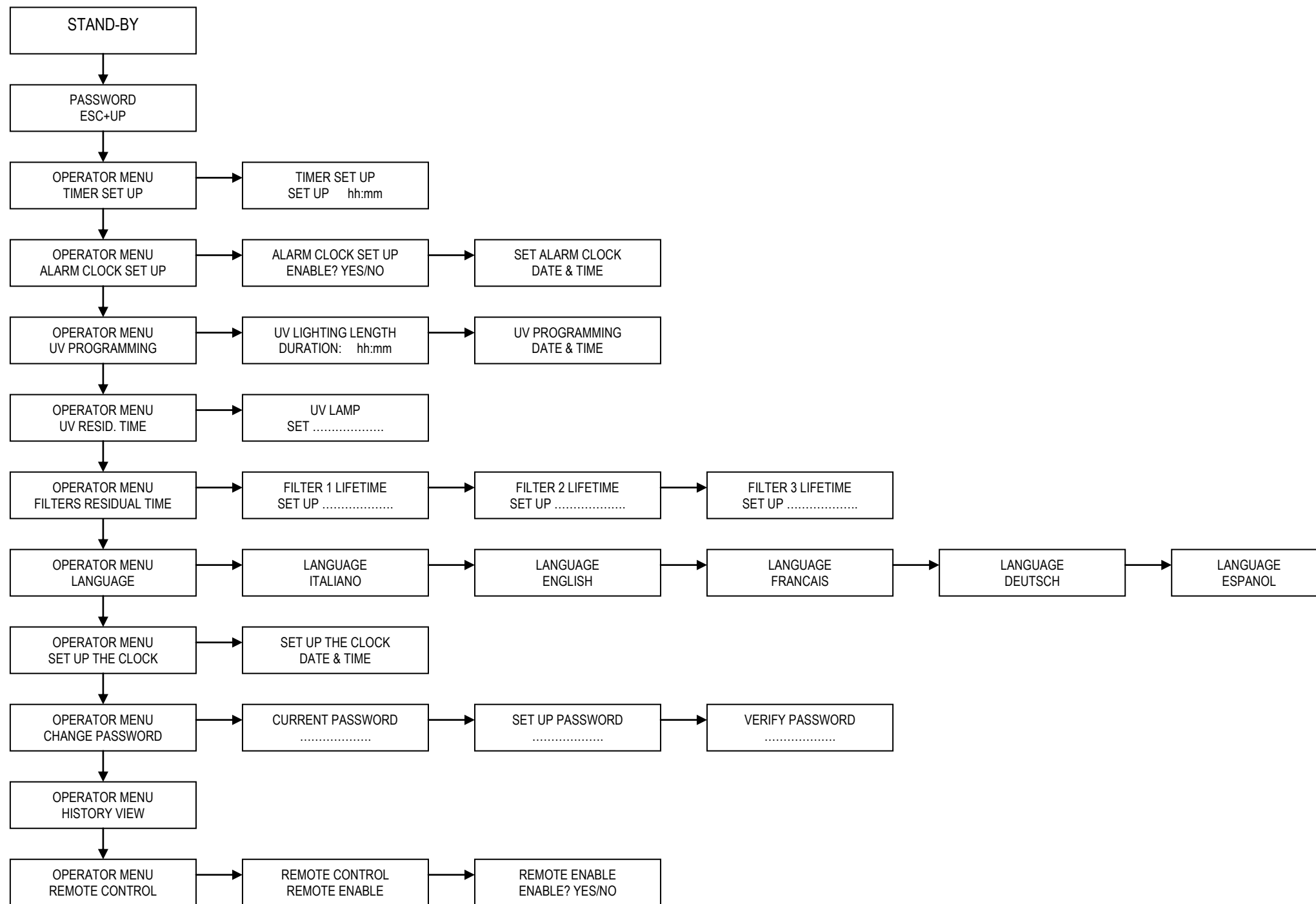
Red safety button, working only in cabinets fitted with electrically operated, vertically sliding sash

4.F MANAGEMENT AND PROGRAMMING OF RESIDUAL LIFETIME

Get access to operator menu when the cabinet is in stand-by pressing “ESC” [9] together with “UP arrow” [8] keys (password).

The following diagram shows the organization of “OPERATOR MENU”

By pressing “SET” [10] you can either go to the highlighted entry or confirm data entry while by pressing “ESC” [9] you go back to the beginning



TIMER (countdown):

- use "UP/DOWN arrow" keys [8] to scroll the operator menu
- select "TIMER SET UP." and press "SET" [10] key; the display will show:

**TIMER SET UP
SET UP hh:mm**

- input the desired time and press SET [10] to confirm
- press ESC to exit the operator menu
- the display will show alternatively the countdown and the standard information
- when the countdown finish an audible signal will advise the operator. It is possible silence the signal with the ESC key

To disable the countdown:

- select "TIMER SET UP" and press "SET" [10]; the display shows:

**TIMER SET UP
RESET? YES**

- press "SET" [10] to confirm
- press "ESC" [9] to exit the operator menu.

ALARM CLOCK:

- use "UP/DOWN arrow" keys [8] to scroll the operator menu
- select "ALARM CLOCK SET UP" and press "SET" [10]; the display shows:

**ALARM CLOCK SET UP
ENABLE? YES**

- press SET [10] to confirm and the display shows:

**. ALARM CLOCK SET UP
DATE & TIME**

- set the date and the time with the arrow keys and confirm pressing SET; when the time previously set is reached and audible signal will advise the operator. Is possible silence the signal with the ESC key.

To disable this function:

- select "ALARM CLOCK SET UP" and press "SET" [10]; the display shows:

**ALARM CLOCK SET UP
ENABLE? NO**

- disable the alarm clock choosing "NO" and press "SET" [10] to confirm
- press "ESC" [9] to exit the operator menu.

UV PROGRAMMING:

- use "UP/DOWN arrow" keys [8] to scroll the operator menu
- select "UV PROGRAMMING" press "SET" [10]; and the display shows:

**UV LIGHTING LENGTH
SET UP hh:mm**

- input the desired time for the UV cycle and press SET [10] to confirm
- the display shows:

**.UV PROGRAMMING
DATE & TIME**

- set date and time with the arrow keys and confirm pressing SET. when the time previously set is reached the UV lamp switches ON, if the requirements to switch ON the UV lamp are not satisfied (e.g.: glass open) an alarm message will be displayed.
- press "ESC" [9] to exit the operator menu.

U.V. LAMP RESIDUAL LIFETIME:

- use "UP/DOWN arrow" keys [8] to scroll the operator menu
- select "U.V. LAMP RESIDUAL LIFETIME." and press "SET" [10] key; the display will show:

**U.V. LAMP RESIDUAL LIFETIME
set XXXX**

- where XXXX shows the number of the hours set for lifetime of the U.V. lamp.
- Use the "up and down arrow" keys to adjust the hours parameter
- Then press the "SET" key [10] to confirm the data and/or go back to previous menu
- To conclude programming, press ESC" [9] key.

FILTERS RESIDUAL LIFETIME:

- use "UP/DOWN arrow" keys [8] to scroll the operator menu
- select "FILTERS RESIDUAL LIFETIME." and press "SET" [10] key; the display will show:

**FILTER 1 RESIDUAL LIFETIME
set XXXX**

where XXXX shows the number of the hours set for lifetime of the FILTER 1

- Use the "up and down arrow" keys to adjust the hours parameter
- Then press the "SET" key [10] to confirm the data and pass to filter 2 and so on up to filter 5
- To conclude programming, press ESC" [9] key.

LANGUAGE SELECTION

- use "UP/DOWN arrow" keys [8] to scroll the operator menu
- select "LANGUAGE" and press "SET" [10] key; the display will show:

LANGUAGE English

- With the "up and down arrow" keys select the desired language (Italian, English, French, German, Spanish). Press the "SET" key to confirm and exit the "LANGUAGE" menu.
- Press the "SET" key to exit the Operator Menu and return to the standard display.
- press "ESC" [9] key to go out.

SET UP THE CLOCK

- use "UP/DOWN arrow" keys [8] to scroll the operator menu
- select "SET UP THE CLOCK." and press "SET" [10] key; the display will show:

SET UP THE CLOCK set XXXX

- Use the "up and down arrow" keys to change the hours, minutes, days, month, year, weekday
- Then press the "SET" key [10] to confirm the data and/or go back to previous menu
- To conclude programming, press ESC" [9] key.

PASSWORD CHANGE

- use "UP/DOWN arrow" keys [8] to scroll the operator menu
- select "CHANGE PASSWORD" and press "SET" [10] key; the display will show:

CURRENT PASSWORD PSW:

- digit the present Password then press "SET" key

SET UP PASSWORD PSW:

- digit the new Password then press "SET" key

CHECK PASSWORD PSW:

- digit the password again and then press "SET" key to confirm the data and/or go back to previous menu
- To conclude programming, press ESC" [9] key.

DISPLAY OF HISTORICAL FILES

- use "UP/DOWN arrow" keys [8] to scroll the operator menu
- select "HISTORY VIEW" and press "SET" [10] key; the display will show:
- use "UP/DOWN arrow" keys to scroll through the list of the possible troubles happened . The list is in chronological order and contains up to 64 voices
- To conclude programming, press ESC" [9] key.

REMOTE CONTROL

- use "UP/DOWN arrow" keys [8] to scroll the operator menu
- select "REMOTE CONTROL" and press "SET" [10] key; the display will show:

**REMOTE CONTROL
REMOTE ENABLE**

- press again SET and the display shows the following message:

**REMOTE ENABLE
ENABLE? YES/NO**

- Choose the desired option and press SET
- press "ESC" [9] to exit the operator menu.

4.G DISPOSAL OF WASTES AND CONTAMINATED MATERIALS

DISPOSAL OF ELECTRIC AND ELECTRONIC DEVICES



INFORMATION FOR EUROPEAN UNION USER

This symbol on the device means that when it needs to be disposed, it must be handled separately from urban waste.

At the moment of the disposal, contact the dealer, to receive information about the collect and disposal in accordance with the laws in force in the country.

Appropriate disposal of this product will help to prevent potential negative effects on health and environment and to promotes re-use and / or recycling of materials of the equipment.

The improper disposal of the product by holder involves the application of sanctions in accordance with the regulations in their own country.

INFORMATION FOR USERS OUTSIDE THE EUROPEAN UNION

This symbol is valid only in the European Union If you want to dispose this product, contact your local authorities or dealer and ask for the correct method of disposal.

ATTENTION: Before disposal, the cabinet where contaminants and pathogens have been manipulated, must be sterilized
--

The fluids of pathogenic material removed from the work surface and the liquid collection tank located under the table as well as from the HEPA absolute filters replaced during maintenance work are biologically toxic and harmful and must be submitted to special treatment. For more detailed information on such treatment, see the standards and regulations in force on the treatment and disposal of biologically toxic/harmful wastes. All other materials, which the cabinet is made, are recyclable but cannot be disposed as local waste materials.

MATERIALS, WHICH THE CABINET IS MADE OF

PARTS OF THE CABINET	MATERIALS
External structure	Epoxy powder coated steel
Inside work chamber	AISI 304 stainless steel
Work surface	AISI 316L stainless steel
Motor-fans	Galvanized steel
Filters	Frame: in aluminium alloy Filtration bed: glass fibre Protection: Fe net/epoxy powder painted Gasket: polyurethane
Keyboard	PE, graphite, circuits in materials compatible with Rohs regulations
Front and side glasses	Stratified soda-calcic silicate sheet
Gaskets	EPDM
Wirings	Wires according to Rohs regulations, flame-proof cases in PVC
Gland	Body/nut in polyamide, inside part in EPDM

4.H ERGONOMICS

This Microbiological safety cabinet has been designed and manufactured according to the general directions on the ergonomics provided for by the EN ISO 14738 standard.

Furthermore all maintenance operations can be carried out in safety by merely following the instructions given in this manual at chapter 7.

5 LIMITATIONS

PRECAUTIONS for the correct use of the cabinet

Listed below are the most important guidelines to be followed and the main substances to be avoided to ensure the correct use of the CYTOFAST ELITE cabinet:

- NEVER USE chlorine-based substances (e.g. sodium hypochlorite) as they are corrosive for the metal structure of the cabinet, and in particular for stainless steel parts.
- When the nature of the work carried out under the cabinet changes completely or following an accidental spilling of dangerous material, STOP working and start again only after having cleaned the cabinet,
- DO NOT use ethanol as a sterilizing substance if a heat source is used under the cabinet,
- DO NOT eat, drink or smoke in the work zone,
- AVOID substances that release explosive vapors.

In addition, when working with the cabinet, AVOID:

- the introduction of extraneous material
- the introduction of paper or cloth that might clog the slots of the work surface
- working in the part of the work surface near the front opening of the cabinet (longitudinally slotted zone)
- upstream contamination of the material, putting the hands or any object between the absolute filter and the sterile material
- don't working under the cabinet if the airflow has not yet been activated, i.e. until "STAND-BY" disappears, and the green led "WORKING CONDITION" lights on. After the cabinet is switched on, and if the work requires special sterile conditions, chemical sterilization of the work chamber must be carried out using a cloth soaked in bactericide. Then wait for 20-30 minutes for the bactericide to take effect.
- using in the work zone large-size bunsen burners, as the flame might damage the absolute filter located in the upper part of the working area
- manipulating pathogenic material not included in the categories indicated for Biohazard cabinets Class II according to EN-12469

IMPORTANT: The UV radiations emitted by the germicidal UV lamp can cause erythemas and conjunctivitis.

AVOID EXPOSURE OF SKIN AND EYES TO DIRECT RADIATION

6 OPERATING PROCEDURES

6.A PRELIMINARY CHECKS

Before carrying out any type of work, the following conditions should be verified:

- that the cabinet power cable is connected to a power point at a suitable voltage and frequency as per instructions shown on the label stuck near the electric cable
- that all alarm lights are off
- that the work area inside the cabinet is free from materials used during the previous session.
- that the cabinet has been sterilized in case of change in the nature of work to be carried out

6.B SWITCHING ON the CYTOFAST ELITE cabinet

To start the cabinet, proceed as indicated below (read chapter 4C):

1. turn on the light by pushing the blue button [7] (If the UV lamp [14] is on, it switches off)
2. be sure that the sash window is in the work standard position (see para. 4B.)
3. press the main switch I/O (1) and enter the password to switch on the cabinet (5 times arrow up, 4 times arrow down; "SET"). At first the display shows "CHECK PANEL" and the corresponding control leds of the keyboard light up. Then the message "STAND-BY" is displayed for about 40 seconds and the hour-counter starts operating
4. after 40 seconds of stand-by, the cabinet is ready for work. "STAND-BY" disappears from the screen and the LAF and protection barrier velocities are displayed
5. wait for 5 minutes before starting work [see chapter 5]
6. during this period of time, introduce into the internal work area of the cabinet only the materials which are indispensable for the job at hand.

All movements made under the laminar air-flow cabinet should be parallel to the work surface, taking care to work in the middle of the table to avoid upstream contamination (for instance, when taking a sample from a bottle, hold the bottle gently but firmly with one hand, keeping it slightly inclined, and work with the other hand, so that the air that comes into contact with the hand does not directly contact the inside, but rather the outside of the bottle).

6.C SWITCHING OFF the CYTOFAST ELITE cabinet

At the end of the work session, proceed as follows:

1. remove the material from the internal work chamber *
2. clean the work surface and the inside walls of the chamber, as indicated in the "Cleaning Instructions" section (chapter 7A)
3. allow the laminar air-flow cabinet to run for 20-30 minutes after the work is over
4. turn off the light by pushing the blue key (7)
5. press "I/O"(1) key switch and enter the password for switching off the cabinet. (5 times arrow up (▲), four times arrow down (▼) and then press "SET"
6. slide the sash window completely down
7. In alternative to above point 6, if necessary, apply UV lamp (optional) on the back wall of the work chamber, plug it into the internal socket installed on the right-hand side of the work chamber, slide the sash window completely down and switch on the germicide lamp by pushing the "U.V." yellow key [14].

ATTENTION: To prevent accidents the operator must check that there are not other operators working with the cabinet before moving the sash window.

ATTENTION: We remind you that the materials in the work area may be contaminated with pathogenic agents. Behave accordingly.

7 MAINTENANCE

7.A INSTRUCTIONS FOR DAILY CLEANING OF CYTOFAST ELITE (by users)

Clean the outside of the CYTOFAST ELITE cabinet, made of varnished iron-carbon sheet steel, using a damp cloth soaked in soapy water or some other commonly available products for varnished metal surfaces. The recommended procedure to follow is:

1. NEVER USE CHLORINE-BASED SUBSTANCES
2. Switch off the cabinet and disconnect it from the mains;
3. Clean carefully all the painted surfaces using a damp and squeezed cloth with soapy water or equivalent product.
4. Wipe all the surfaces using a soft cloth absolutely not abrasive.

If the cabinet is used for pathogenic agents is necessary Clean/sterilize the internal work chamber with a bactericidal agent (e.g. phenolic compositions, aldehydes, quaternary ammonium salts, etc.). The recommended procedure to follow is:

1. Switch off the cabinet and disconnect it from the mains;
2. Protect your hands wearing gloves if required by the bactericidal agent you are using
3. Spray the bactericidal agent on the side and the back walls and on the work surface in a such uniform way to avoid leaving not sprinkled zones.
4. Do not spray the filtering upper zone to avoid damaging this part
5. Wipe carefully all the sprinkled zones using clean blotting paper. Be sure to remove any residual of the bactericidal agent.

If pathogenic material has been spilled during the work session, sterilize the work surface, then remove it using the small handles mounted on the sides. Sterilize the spilled materials contained in the collection basin located under the surface and remove all spilled material by means of blotting paper. For thorough cleaning we suggest the use of solution.

NOTE: Never use solutions containing free chlorine (for instance, sodium hypochlorite), which cause corrosion to steel and stainless steel, resulting in irreparable damage to the cabinet structure. For the procedure of DECONTAMINATION of the work surface, pls refer to the instructions given by the manufacturer of the cytotoxic drug to be manipulated

7.B CLEANING OF GLASS

for the internal cleaning of the glass proceed as follows (see also para 14A) :

switch the cabinet off as per paragraph 6C.

move the glass up in the position of maximum opening by pushing the proper button

to have complete access to the back of the sash window open the control board [1] turning the locks [2] with the proper key (– see fig. 5))

clean the back of the sash window with suitable detergents

close the control board panel [1] and move completely down the sash window.

to have complete access to the front of the sash window open the control board panel [1]

clean the front of the sash window with suitable detergents

close the control board panel [1] locking the relevant locks [2].

7.C INSTRUCTIONS FOR THE FUMIGATION/STERILIZATION OF BIOLOGIC SAFETY CABINETS

Procedure:

For gas disinfection, formaldehyde is evaporated in the tightly sealed sample chamber. The quantity of the formaldehyde used depends on the sample chamber volume of the cabinet version to be disinfected (see Technical Data).

Per cubic meter of sample chamber volume, at least 5 g formaldehyde must be evaporated with 20 ml water (corresponds with 25 ml of a 20 % formaldehyde solution). The formaldehyde evaporates immediately when its boiling point is reached. The required reaction time is at least 6 hours.

After the required reaction time, the formaldehyde should be neutralized by evaporating a 25 % ammonium solution (10 ml per cubic meter of sample chamber volume).

Ambient conditions and accessories:

The temperature at the cabinet location should be approx 21° C, the relative humidity should be between 60 and 85 %. To evaporate the solution, a heating device with a container is required.

NOTE – Disinfection procedure!

A disinfection with formaldehyde must be performed in accordance with the specifications of NSF 49/1992, Annex G. As this procedure has considerable risks, it must only be performed by specially trained and authorized service personnel!

If you use a FASTER formalin vaporizer follow this procedure:

1. after filling the two containers of the vaporizer according to the above-said instructions, the vaporizer can be connected to the power point inside the cabinet.
2. set the timer at 6 hours.
3. cover the cabinet completely with a polyethylene sheet which is to be carefully sealed at the bottom with adhesive tape (see enclosed picture 1); also the feeding cable of the cabinet must be sealed as shown in the enclosed picture 2.
4. start the sterilization cycle by pressing SET and STATUS key together, digit the password (3 times arrow up + ENTER). All the functions of the cabinet are deactivated except the power point. Now the fans start working for 30 secs. at intervals of 15 min. for totally 8 hours.
CYCLE: abt. 1 hour of formaldehyde evaporation, 6 hours (time set with the timer) of fumigation process, 1 hour of reagent evaporation. Total time : 8 hours.
5. when the sterilization cycle is over, the message "END STERILIZATION" is displayed
6. to go out of the programme press SET and STATUS key together, digit the password (3 times arrow up + ENTER)
7. At this point, after wearing protective gloves, protective mask and clothing the polyethylene sheet can be removed and must be submitted to special waste disposal according to possible local regulations.
8. Aerate profusely the room in order to evacuate completely the residual gas and smell.

This fumigation operation is to be considered as a suggestion.



Picture 1



Picture 2.

Post-fumigation cleaning

Having performed fumigation, the manipulation of the filters is safe: however, this manipulation should be carried out by technicians wearing protective gloves and clothing.

Before using the cabinet again any possible remains of the foregoing procedure of vaporization and relevant neutralization (which can show, for example, as white dust) must be removed from the work chamber.

ATTENTION: for cabinets that are not connected to the outside, but recycling the air in the environment, make sure that ambient concentration does not exceed $2.5\text{mg}/\text{m}^3$, as higher concentrations are harmful.

Faster S.r.l. refuses all responsibility for the performance of such sterilization procedures or of any possible consequences deriving from it, reminding that the full responsibility for the operation lies only and exclusively with the properly trained operator-user.

7.D REPLACEMENT OF HEPA FILTERS (by technical assistance personnel)

Important: before replacing HEPA filters, it is absolutely necessary that:

- if pathogens have been manipulated, the cabinet must be decontaminated and the user must issue a sterilization certificate to the personnel before the start of the operation.
- for the safety of the personnel and the environment, the use of PVC gloves is recommended as well as the collection of the replaced HEPA filters in polyethylene bags.

Replacement of MAIN/EXHAUST HEPA filter (see diagram for maintenance operations)

LAF Filter

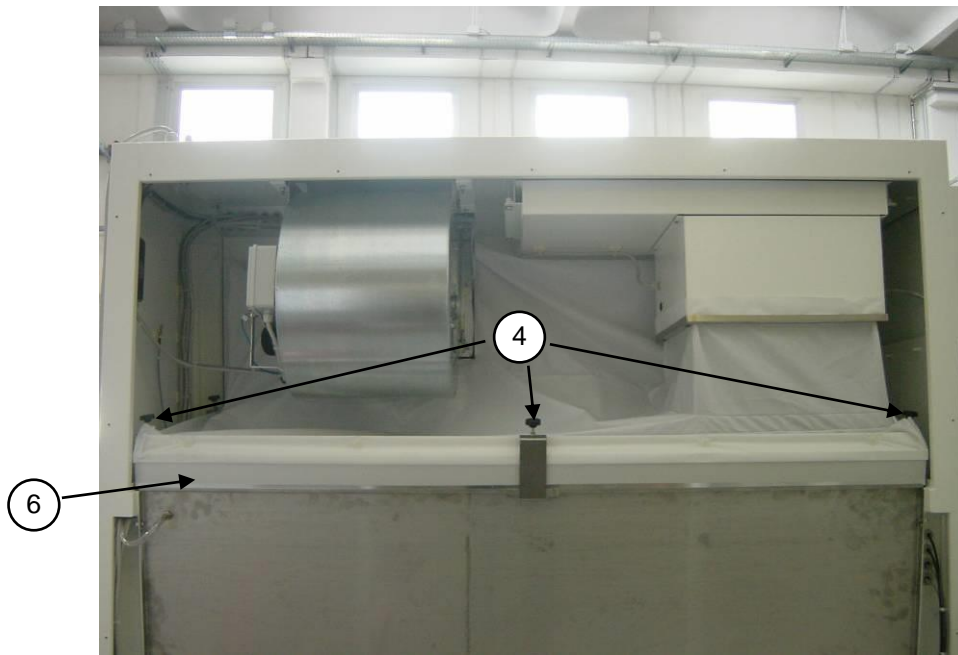
1. Open the front sash window completely by pressing the “arrow-up” button
2. Switch off the cabinet and disconnect it from the mains
3. Open the control board [1] turning the locks [2] with the proper key.



4. Remove the internal panel [3] unscrewing the relevant fastening screws.



5. Rotate the threaded bars [4] to release the HEPA filter [6].

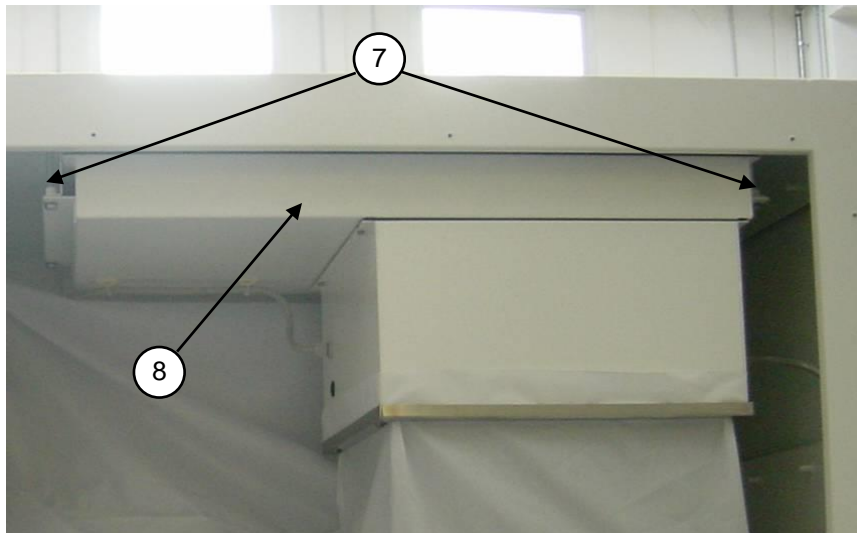


(rear view)

6. Remove the HEPA filter wearing PPD and put it in a hermetically sealed polythene bag.
7. Place the additional gasket (if it is not already present) on the filter shoulder frame opposite the shoulder gasket of filter (already present).
8. Install the new HEPA filter.
9. Lock the HEPA filter [6] by means of the threaded locking bars [4]

Exhaust Filter

10. Rotate the fastening threaded bars [7] to lift down the plenum group [8] and to release the HEPA filter.

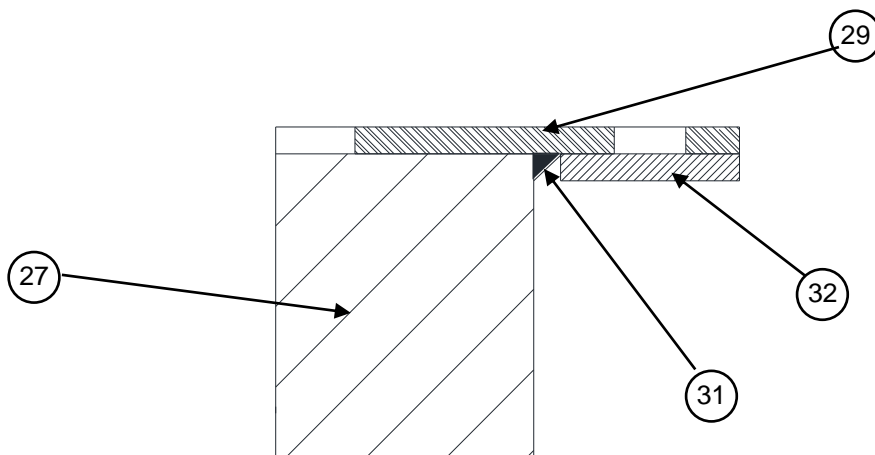
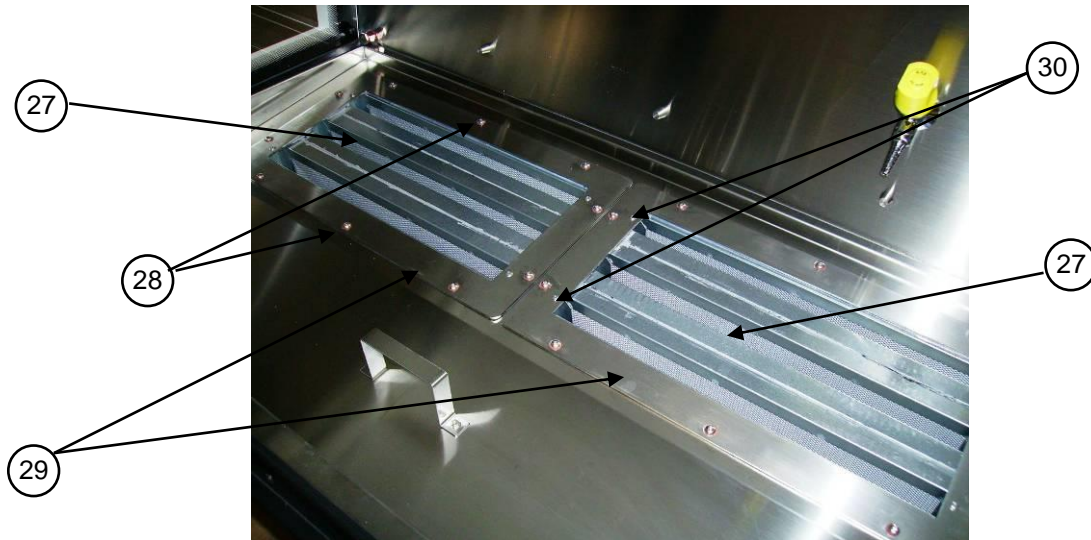


(rear view)

11. Proceed as indicated in above 6, 7 and 8 points.
12. Lock the HEPA filter by rotating the fastening threaded bars [7].
13. Re-close the internal panel [3] with the special fastening screws.
14. Re-close the control board [1] with care and lock it with the closures [2].
15. Proceed with the necessary control-calibration procedures of the laminar air-flow cabinet.

Main HEPA filter under the work surface (F3)

1. Decontaminate the working chamber.
2. Remove the work surface [18] to access the HEPA filter [27]
3. Tape the top of the HEPA filter [27] to trap the contamination.
4. Unscrew the bolts [28], extract the filters [27]
5. Remove the frames [29] unscrewing the four fasten screws [30]
6. Place the filter in two safety bags.
7. Install the frames [29] on the new filters
8. Use silicon to fill the joining points between frame and filter [31].
9. Place the gasket [32] on the frame
10. Place the new filters, and fasten them with the bolts [28]
11. Reposition the work surface



lj

ATTENTION: Gaskets should be of the closed-cell type and have no interstices in the joining points. Gaskets of EPDM, neoprene, hypalon, etc. may be replaced by CAF-type non-adhesive silicone.

ATTENTION: the two main/exhaust HEPA filters should be replaced at the same time. Having replaced the filters, proceed with the calibration of the motor-fan speed. Carry out a check with a particle counter and possibly a D.O.P. test. For these operations, contact your local distributor.

7.E REPLACEMENT OF MOTOR-FANS (by technical assistance personnel)

ATTENTION: before replacing the motor-fans, the cabinet must be decontaminated and a sterilization certificate must be issued to the technicians before starting the operation (see par. 7D). For the safety of the personnel and the environment, the use of PVC gloves is recommended as well as the collection of the replaced materials in polyethylene bags.

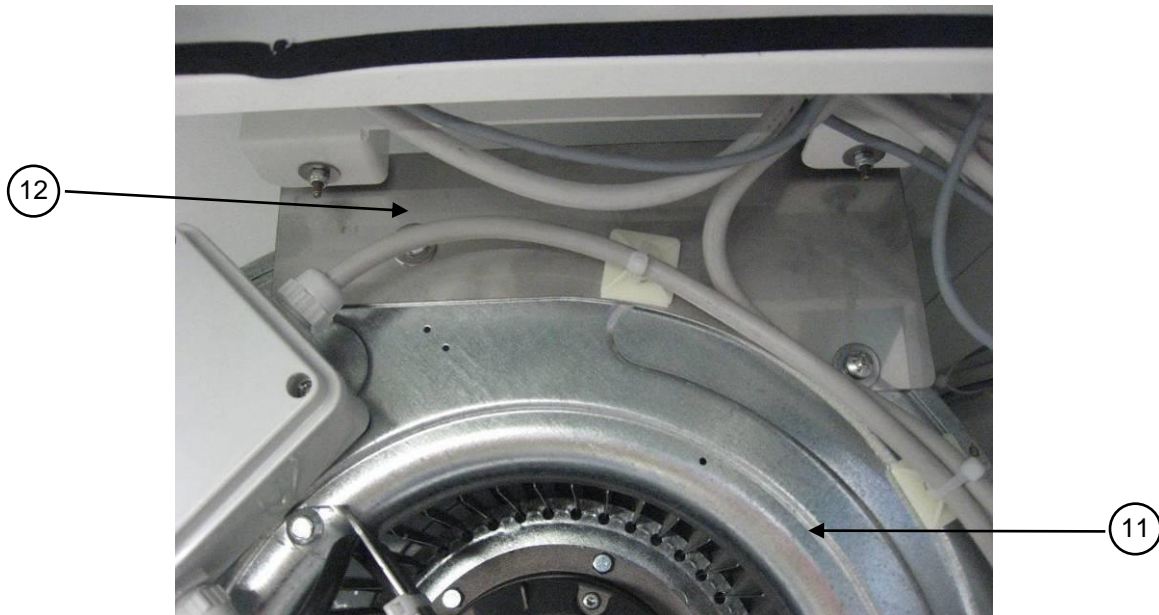
Replacement of main motor-fan.

1. Proceed as indicated in sub-section "Replacement of HEPA filters", from 1 to 3 points.
2. Remove the frame [19] in front of the fan and release the textile plenum



3. Disconnect electrical connectors from terminal board in the plastic box.
4. Unscrew fastening screws [10] of the main motor-fan [11] and the flow sensor group [15] unscrewing the relevant stirrup from the motor-fan

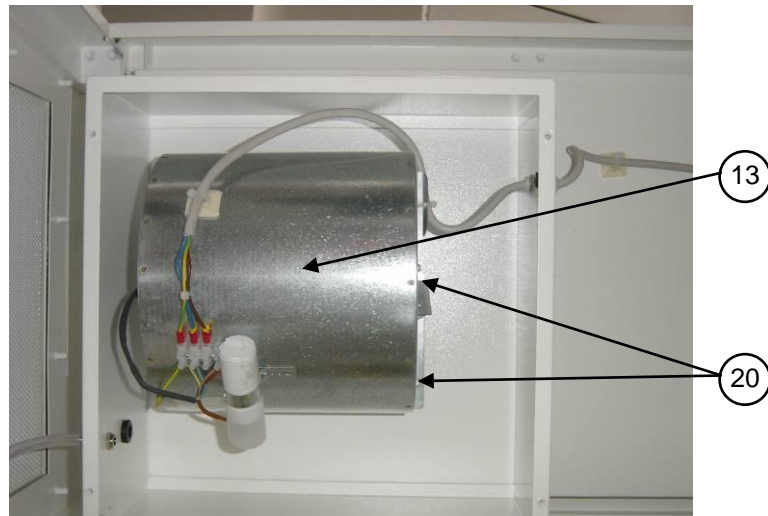
- Remove the main motor-fan [11] including the side stirrup [12].



- Position the new motor-fan after having mounted again the flow sensor group [15] and the relevant stirrup.
- Fasten the motor-fan with the relevant screws and reconnect electrical connectors.
- Proceed as indicated in the sub section "Replacement of HEPA filters", from 13 to 15 points.

Replacement of exhaust motor-fan (only for CytoFAST Elite).

- Proceed as indicated in sub-section "Replacement of HEPA filters", from 1 to 4 points and remove the exhaust HEPA filter.
- Remove the textile plenum
- Remove the anemometric fan [14]



4. Remove the screws [20] of the exhaust fan [13] and the electrical connection. Place the new exhaust fan and set the wiring.
5. Re-place the textile plenum

7.F REPLACEMENT OF FLUORESCENT LAMPS (by technical assistance personnel)

Lift down completely the front sash window

Disconnect the mains power.

Open the front control panel [1] unscrewing the fastening locks [2],

Replace the lamps [16]

Close the front control panel [1] with the fastening locks [2].

7.G REPLACEMENT OF U.V. GERMICIDE LAMP (by technical assistance personnel)

Disconnect the electrical connections of the lamps from the outlet.

Remove the protection grid of the lamp

Replace the germicide bulb.

Fasten the protection grid and connect the electric connections again.

IMPORTANT: during the installation of the new U.V. lamp, pay attention not to leave fingerprints on the lamp which will block the UV effect.

7.H SPARE PARTS LIST

CODE	DESCRIPTION	CytoFAST Elite			
		209	212	215	218
V20000003990	24V gas electro-valve	1	1	1	1
V20000004010	Electro-valve connector	1	1	1	1
V20000004510	Box IP-44	1	1	1	1
V20000004325	UNEL socket	1	1	1	1
V20000006030	30 W/84 fluorescent lamp	2	-	-	-
V20000006040	36 W/84 fluorescent lamp	-	2	-	-
V20000006050	58 W/84 fluorescent lamp	-	-	2	2
V20000006350	2x30W lamp-holder	1	-	-	-
V20000006360	2x36W lamp-holder	-	1	-	-
V20000006370	2x58W lamp-holder	-	-	1	1
V20000006900	Line Filter	1	1	1	1
V30000000470	Potentiometer 22HP-10E	1	1	1	1
V30000000090	Proximity Namur AEG 8/2	2	2	2	2
V30000005000	CytoFAST Elite keyboard	1	1	1	1
V30000007000	MicroP "BHCPU_P" card	1	1	1	1
V30000007100	"BIOHP_A" power card	1	1	1	1
V30000007200	NBHG Glass motor control board	1	1	1	1
V40000004150	350N 234mm course gas spring	2	-	-	-
V40000004160	400N 234mm course gas spring	-	2	-	-
V40000004180	500N 234mm course gas spring	-	-	2	-
V40000004540	550N 234mm course gas spring	-	-	-	2
V40000004190	P100 support for gas springs	4	4	4	4
V40000007000	Window motor	1	1	1	1
V50000000170	DDM 10/8, 600W C/F main motor-fan	1	1	1	1
V50000000070	61022Z DDM 133-190 exh. Motor fan	1	1	-	-
V50000000080	6102AZ DDM 146-190 exh. Motor fan	-	-	1	1
V50000000900	Exh. sensor fan diam. 154	1	1	1	1
V50000000910	LAF sensor fan diam. 200	1	1	1	1
V50000100220	exhaust HEPA filter 457 x 457 x 69mm	1	-	-	-
V50000100230	Exhaust HEPA filter 457 x 610 x 69mm	-	1	-	-
V50000100240	Exhaust HEPA filter 457 x 762 x 69mm	-	-	1	-
V50000100250	Exhaust HEPA filter 457 x 915 x 69mm	-	-	-	1
V50000102350	LAF HEPA filter, 915 x 610 x 115mm (laminator sheet)	1	-	-	-
V50000102360	LAF HEPA filter, 1220 x 610 x 115mm (laminator sheet)	-	1	-	-
V50000102370	LAF HEPA filter, 1525 x 610 x 115mm (laminator sheet)	-	-	1	-
V50000102380	LAF HEPA filter, 1830 x 610 x 115mm (laminator sheet)	-	-	-	1

V50000100950	Main HEPA filter 730x287x400 (under the work surface)	1		1	2
V50000100940	Main HEPA filter 530x287x400 (under the work surface)		2	1	
K60021230800	Left-hand side glass	1	1	1	1
K60021231400	Right-hand side glass	1	1	1	1
K60020930900	Frontal glass CytoFAST Elite 209	1	-	-	-
K60021230900	Frontal glass CytoFAST Elite 212	-	1	-	-
K60021530900	Frontal glass CytoFAST Elite 215	-	-	1	-
K60021830900	Frontal glass CytoFAST Elite 218	-	-	-	1
V20000006070	U.V. lamp 15W	1	1	-	-
V20000006080	U.V. lamp 30W	-	-	1	1

8 TROUBLESHOOTING - PROBABLE CAUSES OF MALFUNCTIONS

PROBLEM	CAUSE	REMEDY
Cabinet does not work	<ul style="list-style-type: none"> - Power outage upstream from the cabinet - Electronic board out of order - Blown fuse(s) 	<ul style="list-style-type: none"> - Check the voltage input to the cabinet - Replace PCB - Replace fuses
Alarm: "front window open"	The front window is not properly closed	Close the front window
Alarm: "HEPA filter clogged"	Main HEPA filter clogged	Replace HEPA filter
Alarm: "No laminar air-flow velocity"	Defective LAF flow sensor	Replace sensor
Alarm: "low barrier velocity"	The exhaust fan is out of order	<ul style="list-style-type: none"> - If laminar airflow is present, check if exhaust duct is clear - Check the exhaust motor-fan fuse (3A) - If the problem persists, check the motor relay in the electronic card located under the control panel. - Check the exhaust motor-fan
	- HEPA filters are clogged	- Replace HEPA filters
	- Insufficient voltage due to current rushes in the mains	- Control power voltage and if the problem persists, use a voltage stabilizer
Alarm: "No barrier velocity"	Exhaust flow sensor out of order	Replace the sensor
After a period of user-absence an alarm sounds but the cabinet works normally	Possible blackout for a period of about 5 seconds to 2 hours.	<p>Switch off the cabinet and then switch it on again. If the alarm stops, the blackout is confirmed. In this case the user knows that there can be exhausted airborne particle contamination from the cabinet into the environment.</p> <p>If the alarm persists after re-starting the cabinet, proceed as for the previous problem.</p>
During work, an alarm sounds, laminar airflow stops and the speed of the protective barrier increases (also the noise level increases due to the higher speed of the exhaust fan). Alarm "LAF velocity" starts.	The main fan is out of order	IMPORTANT: if this problem occurs, the work area is contaminated by the laboratory air, but the environment is fully protected from any contaminants present in the work area.

PROBLEM	CAUSE	REMEDY
<p>During work, an alarm sounds, the laminar airflow works regularly, and the velocity of the protective barrier is reduced by about 30%. Alarm: "barrier and exhaust fan"</p>	<p>The exhaust fan is out of order</p>	<p>See the above-mentioned problem "Alarms: low barrier velocity".</p> <p>IMPORTANT: if this problem occurs, the material present in the work area is not damaged, the laboratory is sufficiently protected by the protection barrier assured by the main fan and by the design characteristics of these cabinets.</p> <p>If necessary, you can continue working under protection, but avoid quick movements and large flames and do not place large objects under the airflow.</p>
<p>During work, the laminar airflow seems to work regularly, but the alarm "Barrier velocity" starts sounding.</p>	<p>Exhaust and main filters are clogged</p>	<p>Replace HEPA filters</p>

9 MONITORING SYSTEM

ALARM OR ERROR MESSAGE	DESCRIPTION
Min. LAF Alarm	Airflow speed in the work chamber under minimum threshold value
Min. BARRIER Alarm	Insufficient air suction from the front aperture, thus air speed in the exhaust channel under minimum threshold value
LAF Triac Failure	Too fast and uncontrollable main motor-fan (LAF)
No encoder input LAF	No input from the fan anemometer installed on the LAF main motor-fan
No encoder input EXH	No input from the fan anemometer installed in the exhaust duct
Max LAF Alarm	Airflow speed in the work chamber over maximum threshold value
Position the window	The front window is not closed correctly
UV Lifetime over	Residual lifetime of the UV lamp expired
Sensors failures	Failure to one of the sensors. Press "MUTE" key and the correspondent sensor is displayed
BLACK-OUT	Warning of black-out when the cabinet is working Press "MUTE" to stop the alarm
HEPA Filters Check	Possible clogging of absolute (HEPA) filters
Exhaust Duct Check	Possible clogging of the exhaust duct
Position the window	The sash window is not in the correct position
F1 (2, 3, 4, 5) lifetime over	Filter 1 (2, 3, 4, 5) residual lifetime is over
ATTENTION DANGER Reduced airflow. DO NOT WORK	Warning to pay attention when the speed reduction is activated (only for keyboards with "SPEED REDUCTION" key)
CHECK THE GLASS	The view-screen has not moved properly Check there are not obstacles below the screen. In case the screen is blocked by an obstacle, call technical assistance.

10 TRANSPORT, PACKING and STORAGE INSTRUCTIONS

IMPORTANT: Disconnect the power and sterilize the unit before performing any of the following operations

The following instructions are essential if the end user needs to transport, pack or store a cabinet after a period of routine use (e.g. laboratory/plant relocation):

Disconnect tubes for gas/vacuum (if present)

If the cabinet exhausts to the outside of the building or is connected to the intake channel of the air treatment system, remove the connection tube from the cabinet to the outside or cabinet to the air treatment system. Be careful not to damage or cover with dust (or any other material) the exhaust duct of the cabinet

Remove the work surface and cover it with a protective film

Close the cabinet front opening using the closing/sterilizing panel and open the two latches of the front safety glass

If the cabinet is to be moved from one laboratory to another within the same building:

- on a table with wheels: it is sufficient to put the cabinet on the table; do not place it on one side or on the back panel.
- by a forklift: put the cabinet on a pallet to ensure good stability and to protect the basin under the cabinet and the front window against damage in transit

Take care not to damage protruding parts (e.g.: key switch, gas/vacuum taps, exhaust duct) when passing through doors/windows

If the cabinet is to be kept temporarily unused at final destination, cover the cabinet itself with a protective film (pluriball or expansible film) taking care to protect also the exhaust duct, especially from dust

We recommend extreme caution in long-distance moving carried out by forwarding agents (e.g. change of address): we suggest that you use the original packaging supplied by the manufacturer with the cabinet. Packaging characteristics:

Wooden pallets of the following dimensions:

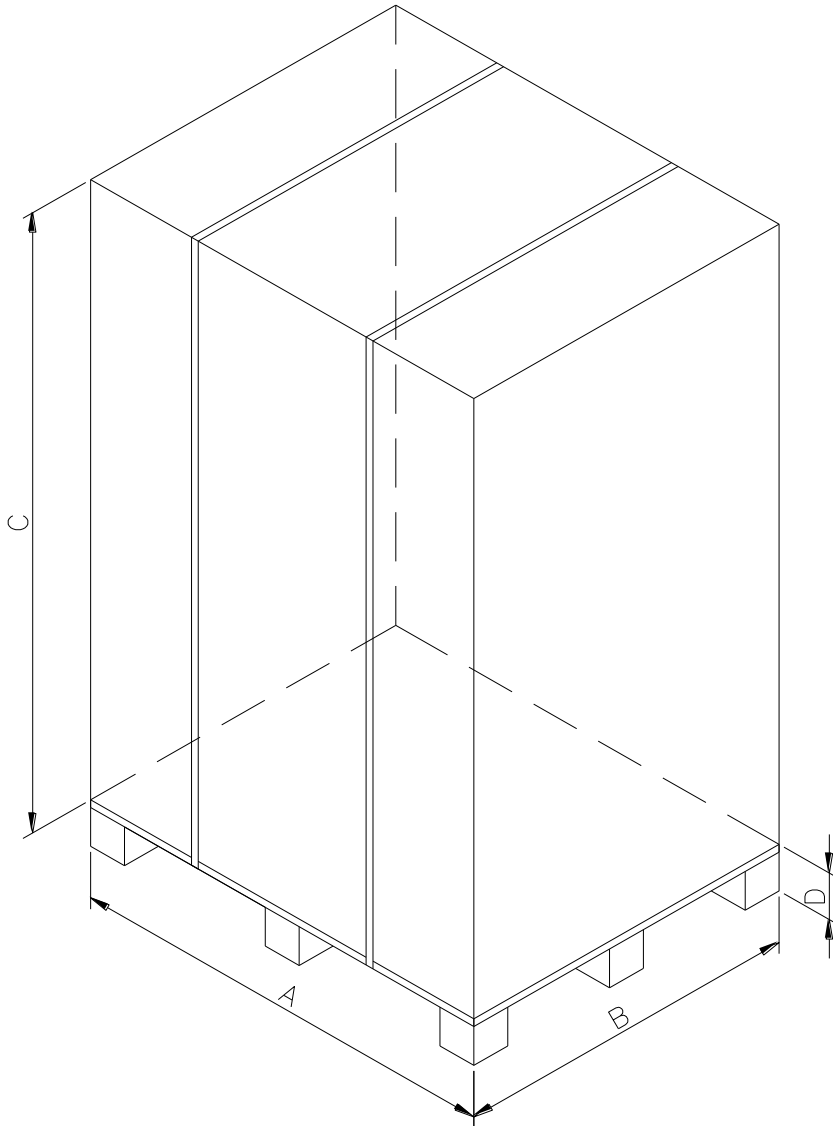
CYTOFAST ELITE 209: 113 x 90 x 12 cm
 CYTOFAST ELITE 212: 145 x 90 x 12 cm
 CYTOFAST ELITE 215: 175 x 90 x 12 cm
 CYTOFAST ELITE 218: 205 x 90 x 12 cm

- Cardboard base to be laid on the pallet of the following dimensions:

CYTOFAST ELITE 209: 110 x 87 x 1 cm
 CYTOFAST ELITE 212: 142 x 87 x 1 cm
 CYTOFAST ELITE 215: 172 x 87 x 1 cm
 CYTOFAST ELITE 218: 202 x 87 x 1 cm

- Pluriball to wrap and protect the cabinet from dust

Cardboard outer package of the following dimension:



Cabinet model	A	B	C	D
CytoFAST Elite 209	1130	900	2250	120
CytoFAST Elite 212	1450	900	2250	120
CytoFAST Elite 215	1750	900	2250	120
CytoFAST Elite 218	2050	900	2250	120

Steel straps and clips

During transport take care to maintain the package in a vertical position (i.e. the pallet at the bottom).
The cabinet (with or without the package) must be kept in a place with the following environmental conditions:

- Min. temperature 0 °C
- Max. temperature: 70 °C
- Max. humidity: 90%

11 ADDITIONAL INFORMATION

11.A GUARANTEE

The guarantee for vertical laminar air-flow cabinets is 24 months from date of invoice.

In addition to those cases specifically indicated in Chapter 5 relating to improper use of the cabinet, the guarantee offered by Faster S.r.l., also excludes certain improper uses described in the instruction manual, of which the most important are listed again below :

installation in a place which does not conform to the manufacturer's recommendations

wrong power voltage

poor earthing

use of chlorine or its derivatives, incompatible with stainless steel, for cleaning the cabinet,

tampering or changes made by the client

tampering with the cabinet using any type of tool

improper connection between the electrical outlet and the power cable, wrong connection between the gas cock or electro-valve and gas mains

11.B ADDRESS FOR TECHNICAL ASSISTANCE (for the distributor)

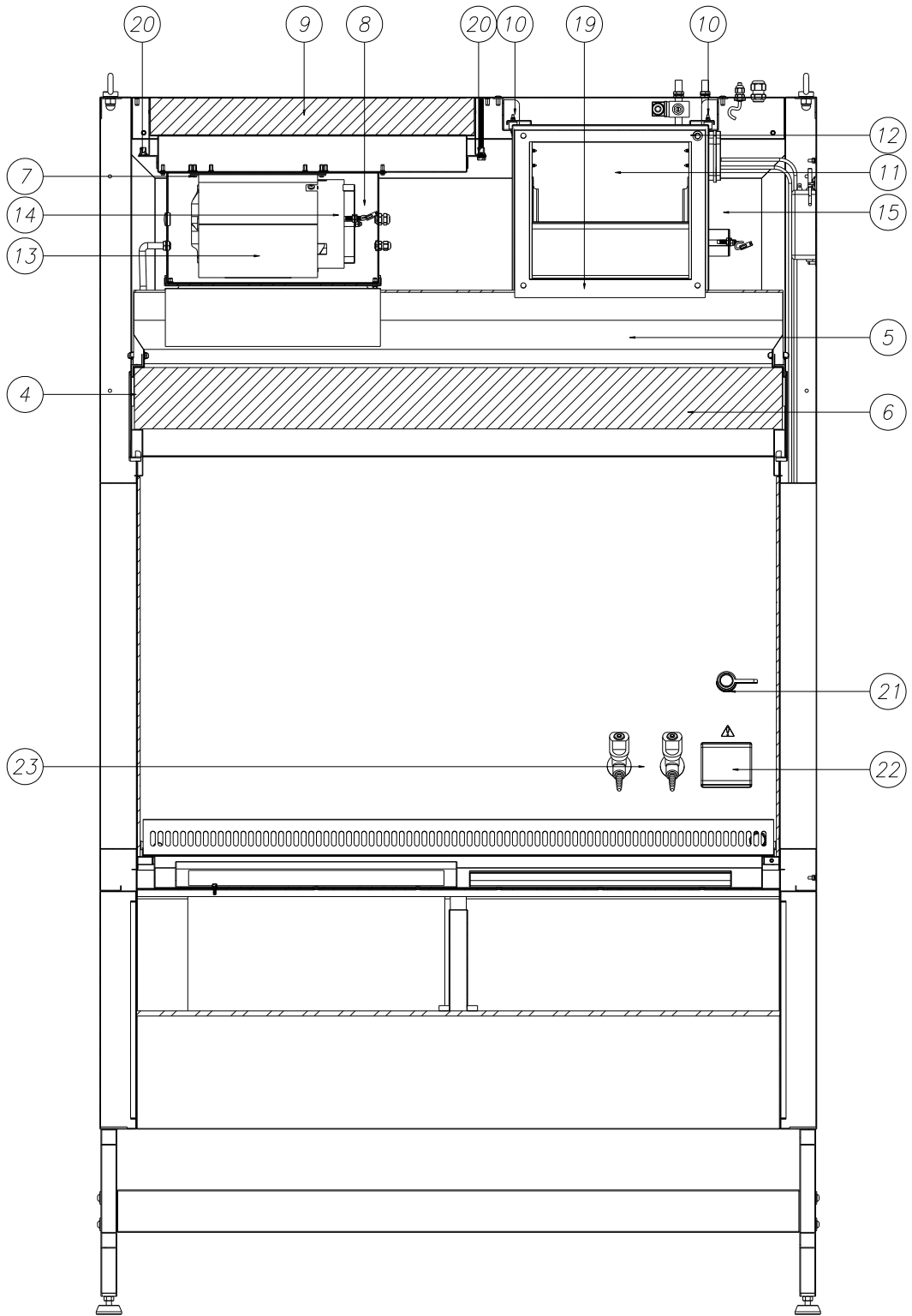
12 DIAGRAMS

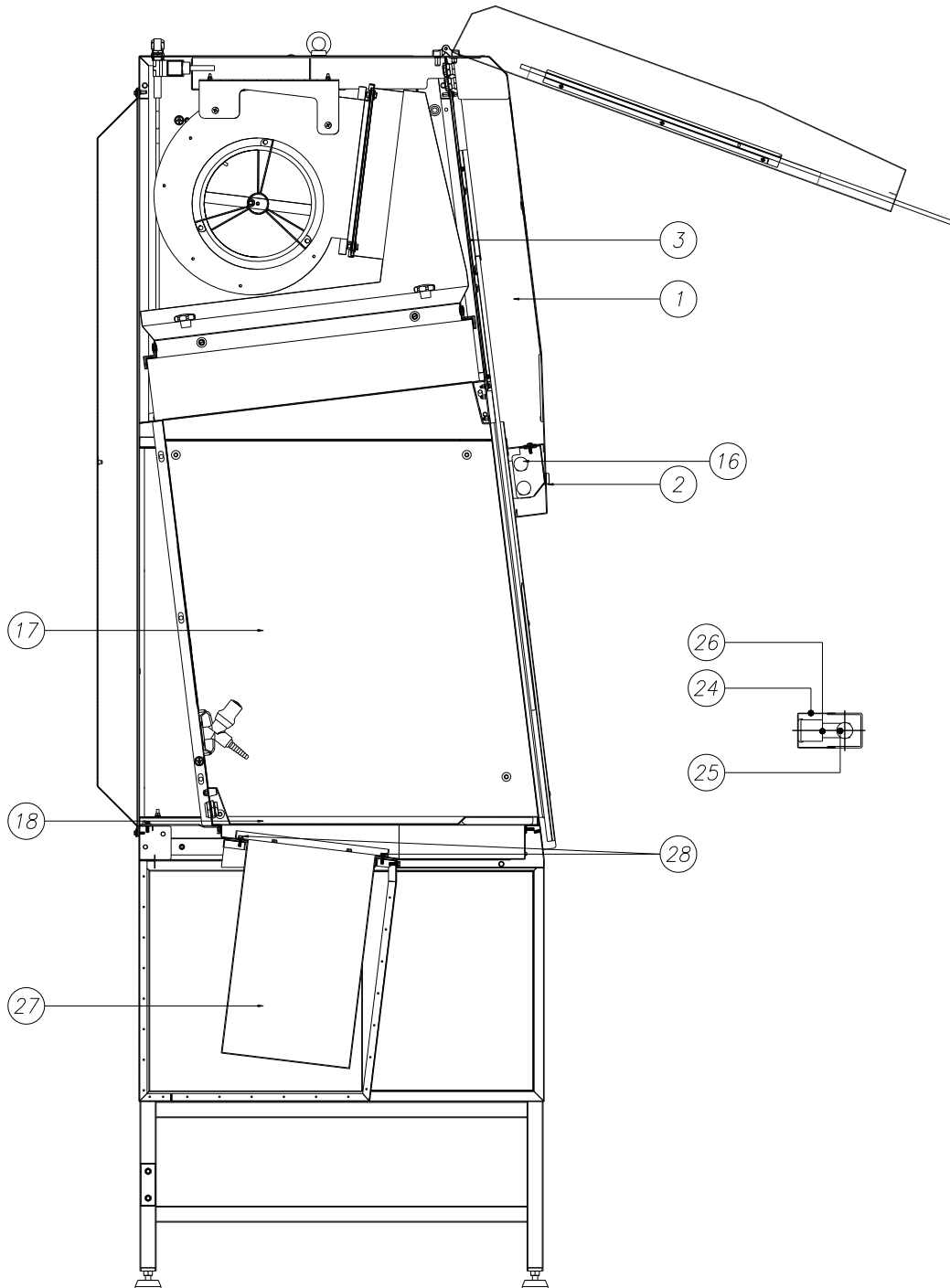
LEGENDA

Ref. DESCRIPTION

1	Control board panel
2	Control panel locks
3	Internal panel
4	LAF plenum tie-rod
5	LAF plenum
6	Main HEPA filter
7	Screws fixing exhaust motor-fan
8	EXHAUST plenum
9	EXHAUST HEPA filter
10	Screws fixing Main motor-fan
11	Main motor-fan
12	Stirrup main motor fan
13	EXHAUST motor-fan
14	Exhaust flow sensor
15	Main flow sensor
16	Lamps
17	Work chamber
18	Work surface
19	Frame
20	Threaded bars
21	UV lamp socket
22	Socket
23	Taps
24	UV lamp carter
25	UV lamp
26	UV lamp holder
27	HEPA filter under the work surface
28	Fasten bolt for the filter under the work surface

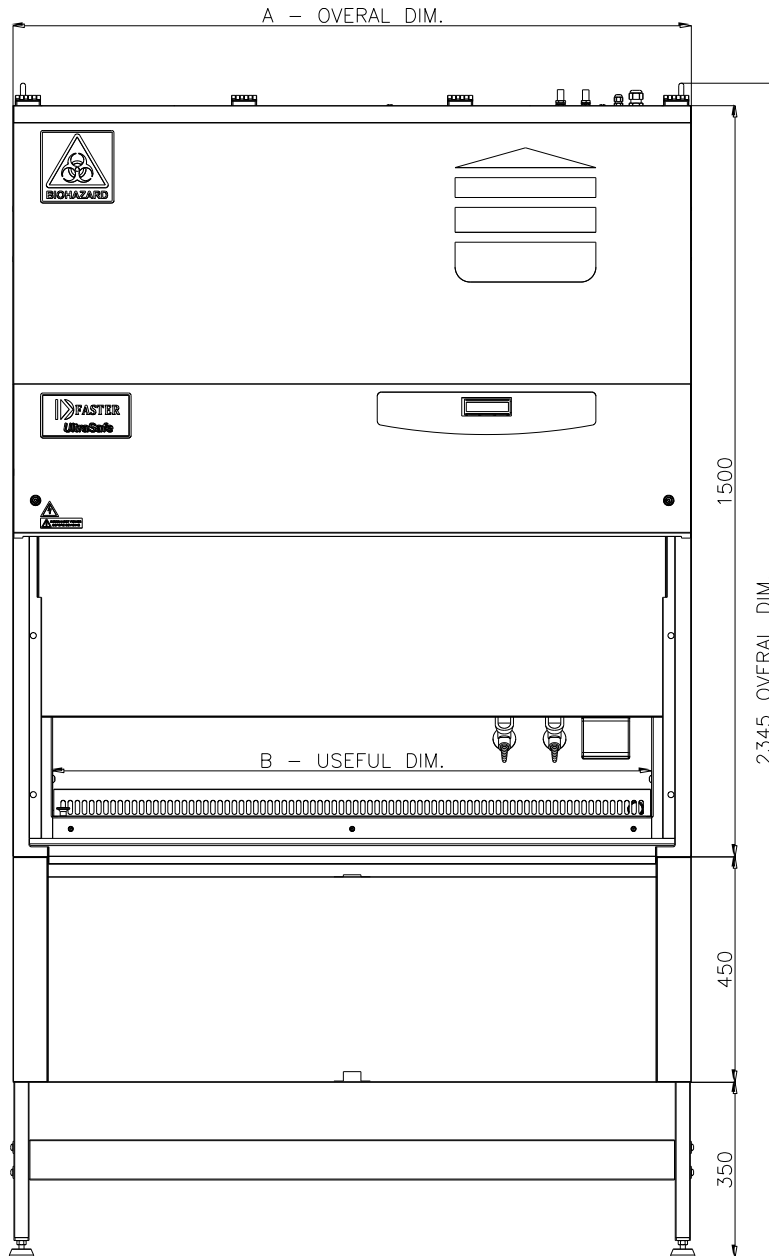
12.A DIAGRAM FOR MAINTENANCE OPERATIONS



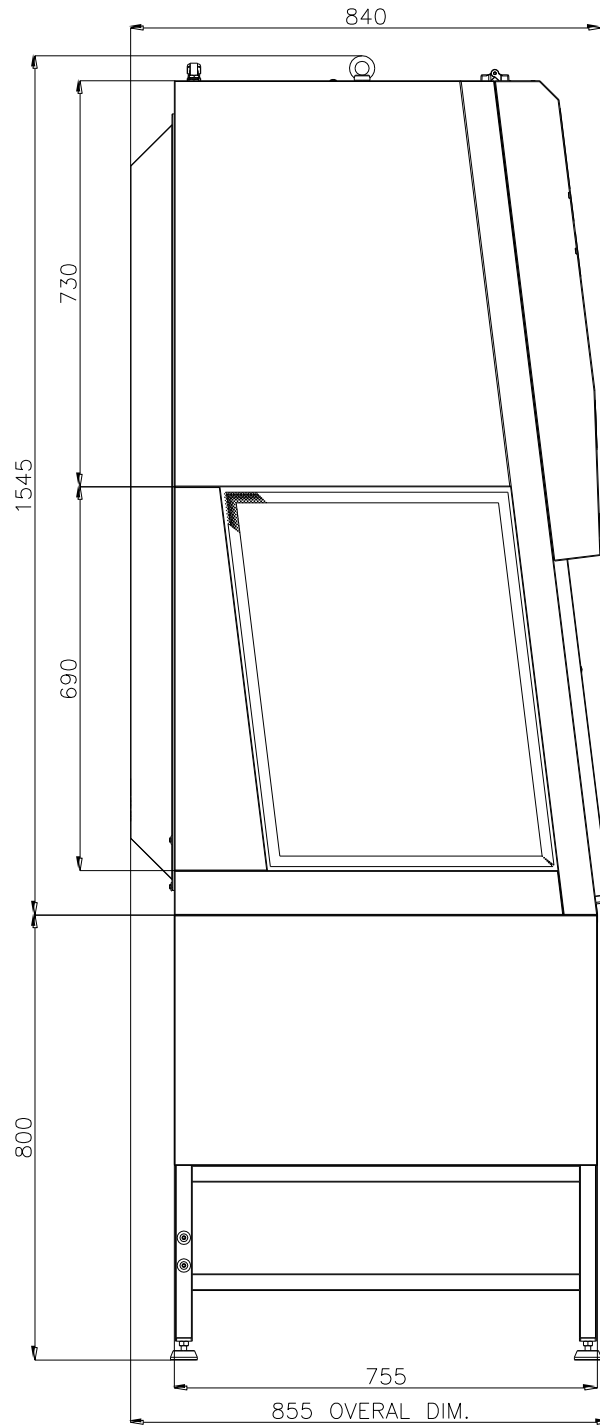


Side view

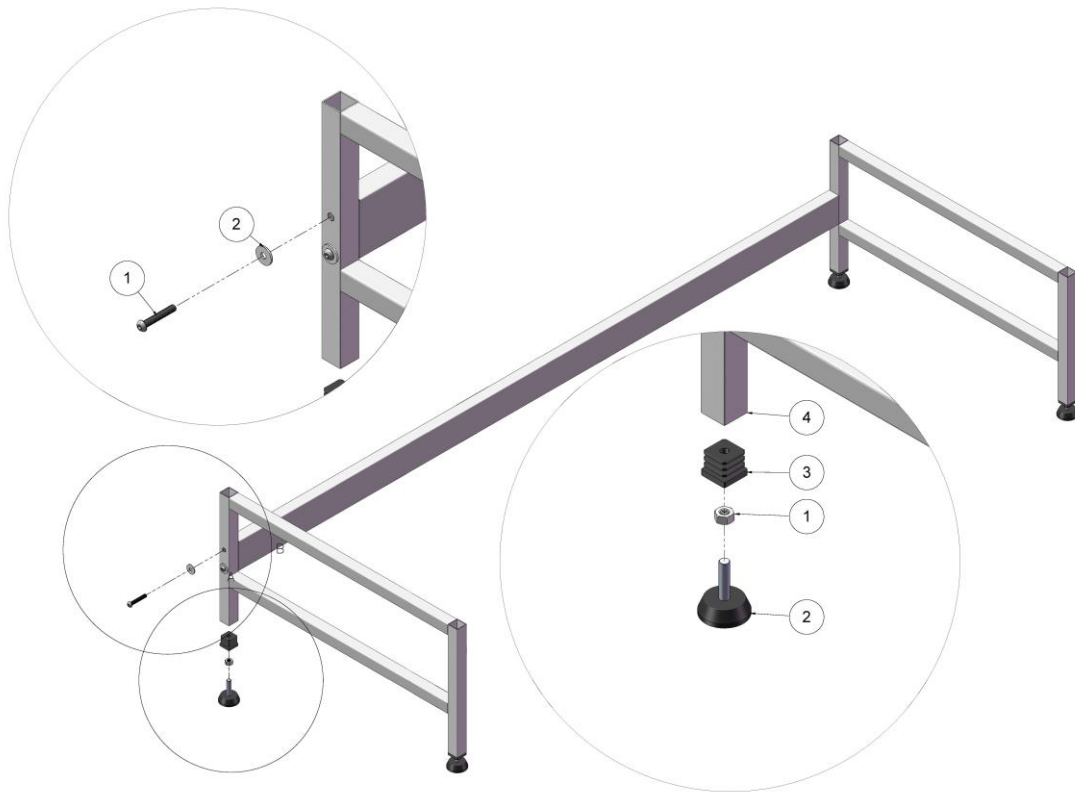
12.B CYTOFAST ELITE FRONTAL and SIDE DIAGRAM



CytoFAST Elite	A	B
209	1045	899
212	1350	1194
215	1655	1499
218	1960	1804



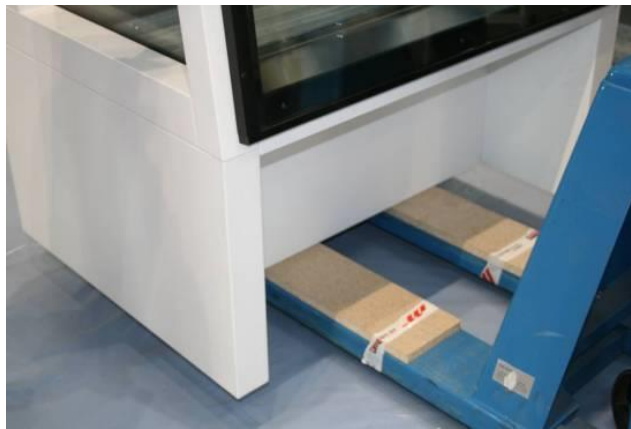
13 ASSEMBLY of SUPPORT TABLE



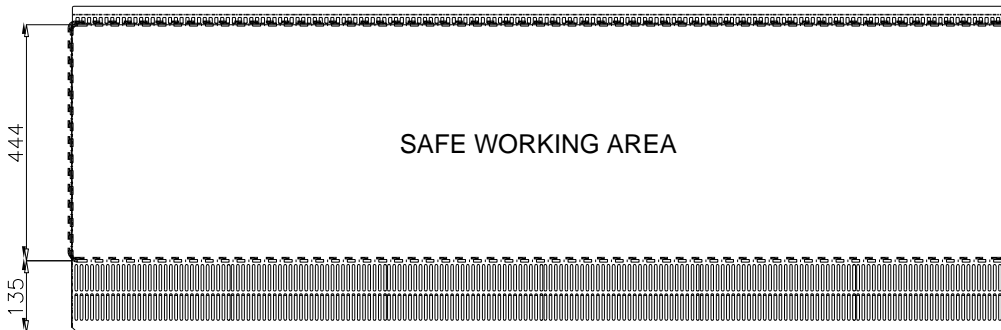
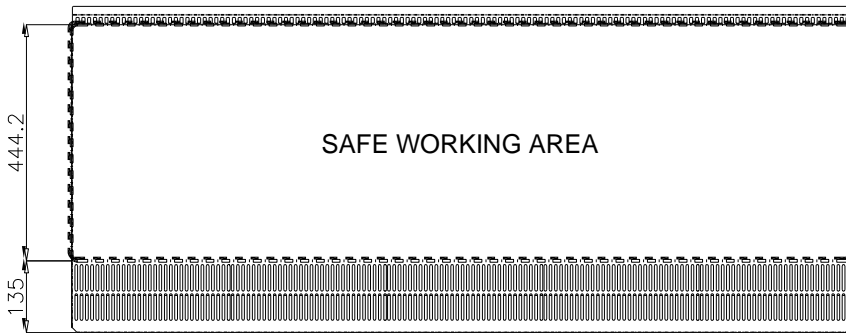
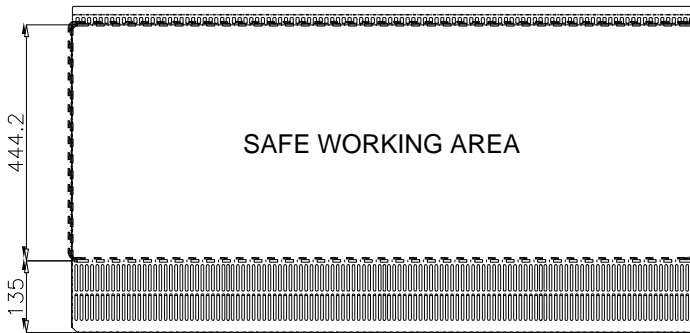
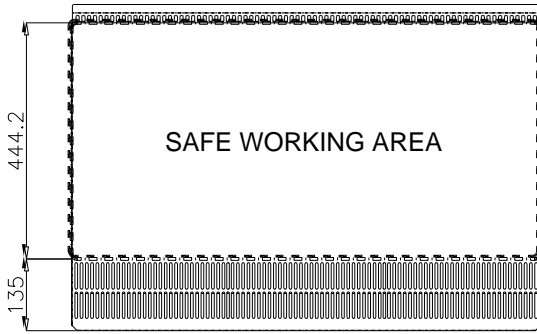
14 ASSEMBLY OF THE CABINET ON THE SUPPORTING STAND

When the stand has been assembled the cabinet can be installed following this procedure:

- Check the correct levelling of the stand and in case adjust the height of the feet [3]
- Check the tightening of all the screws and the firmness of the stand
- Lift the cabinet with suitable equipment (for example a forklift) complying with the safety rules (the weight of the cabinet is shown in the "table of technical features" Para. 9) and put it on the stand. The cabinet can be lifted using the two eyebolts on the top of the unit.
- Put the cabinet on the stand, taking good care to fit together the jutting feet of the cabinet and the cavities of the stand



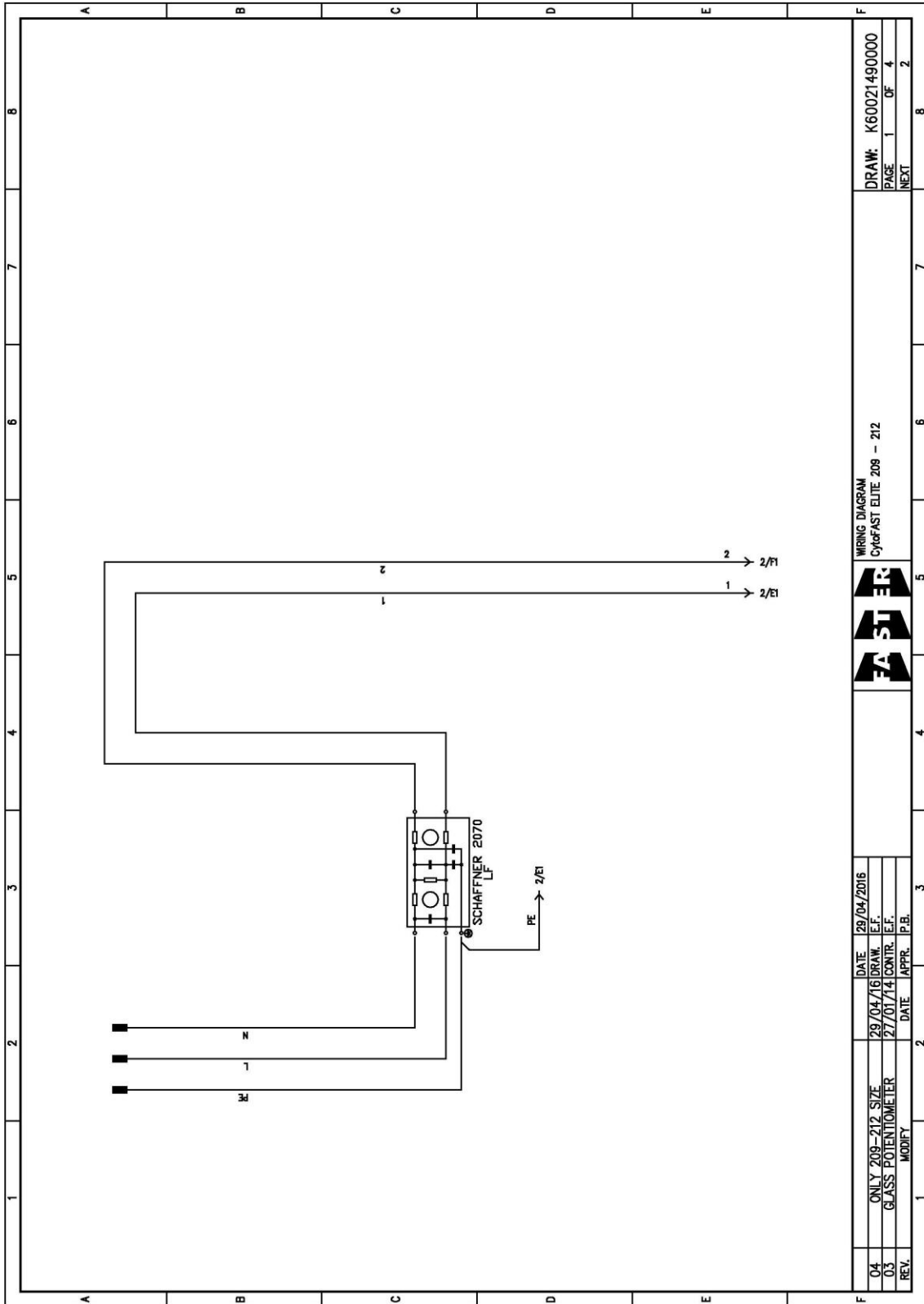
15 SAFE WORKING AREA DIAGRAM

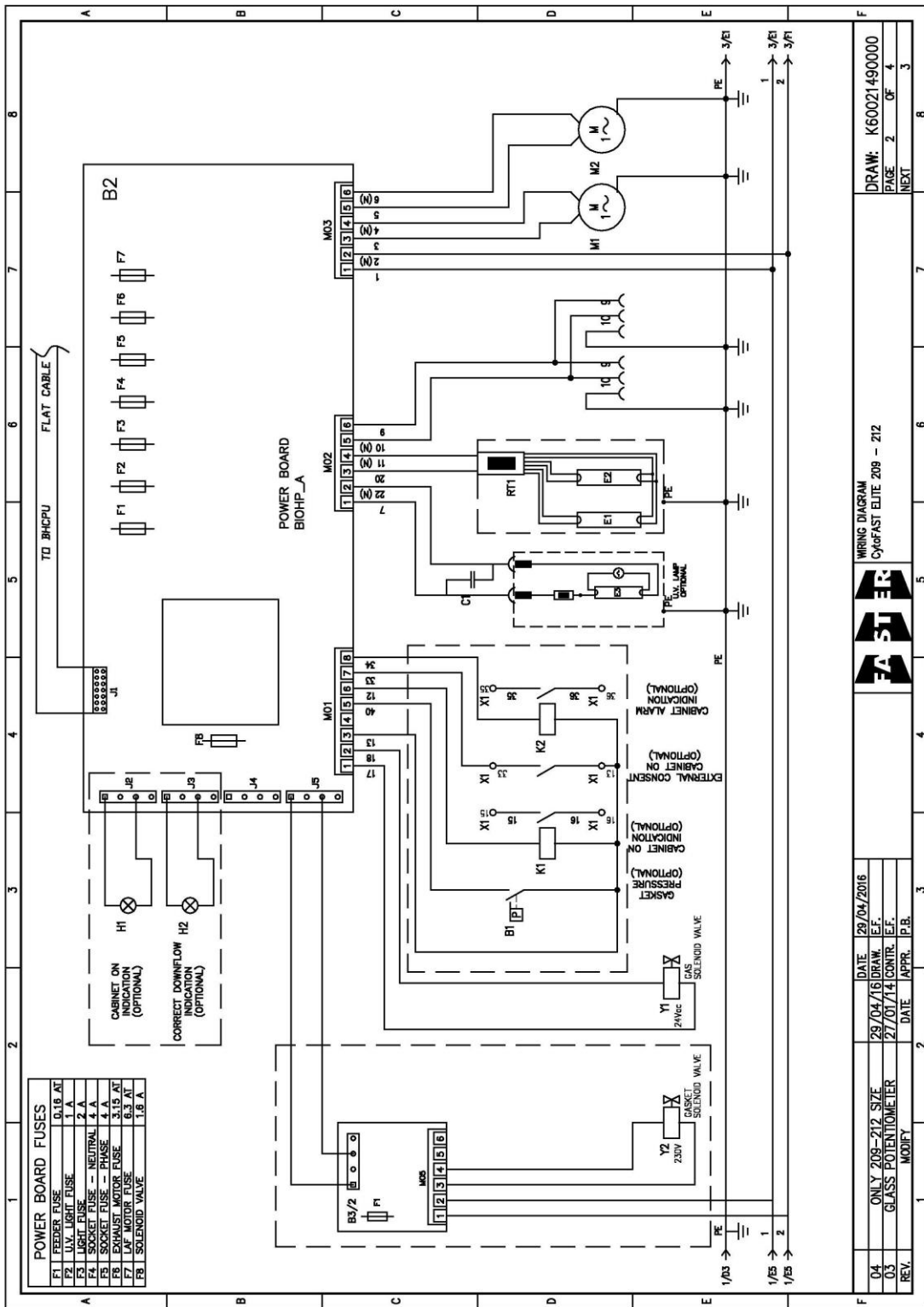


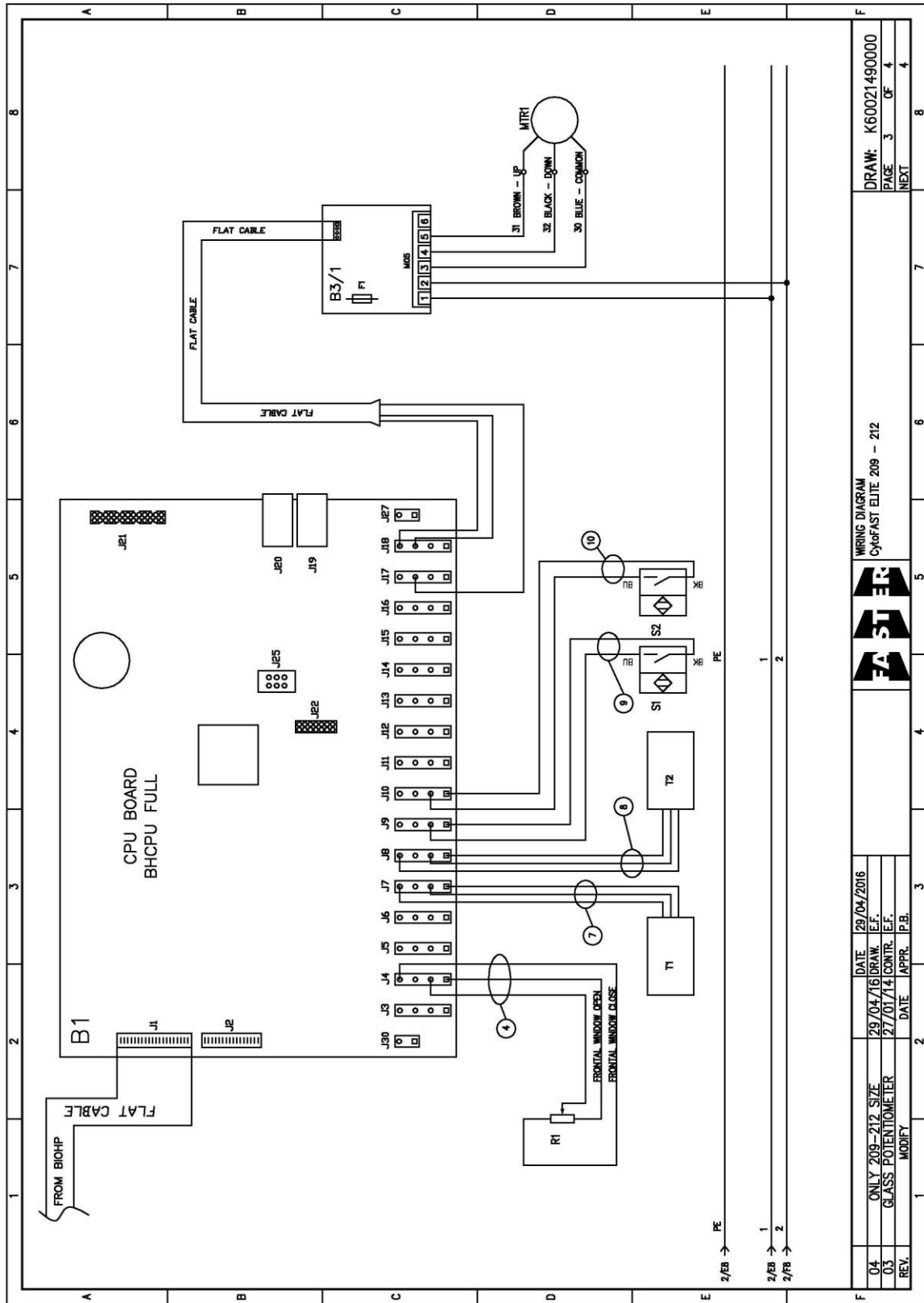
16 SENSORS LIST

PCB PLUG	SOFTWARE NAME OF THE SENSOR	DESCRIPTION
J4	S16	GLASS POTENTIOMETER
J9	S0	LAF
J10	S1	EXH
J11	S2	not used
J12	S3	not used
J13	S4	not used
J14	S5	not used
J15	S6	not used
J16	S7	not used
J17	S8	Card NBHG
J18	S9	Card NBHG

17 WIRING DIAGRAM







04	ONLY 209-212 SIZE	DATE	29/04/2016	DATE	29/04/16	DATE	27/01/14	DATE	APPR.	IP.B.	REV.	MODIFY
03	GLASS POTENTIOMETER	DATE	27/01/14	DATE	27/01/14	DATE	27/01/14	DATE	APPR.	IP.B.	REV.	MODIFY
WIRING DIAGRAM CyroFAST ELITE 209 - 212												
DRAW: K60021490000 PAGE 3 OF 4 NEXT												

INITIALS	DESCRIPTION	QUANTITY	CytoFAST Elite 209	CytoFAST Elite 212	NOTE
T1	INTERNAL TEMPERAT. SENSOR	1			
T2	EXTERNAL TEMPERAT. SENSOR	1			
S1	LAF MOTOR PROXIMITY	1	AEG 8/2	AEG 8/2	
S2	EXHAUST MOTOR PROXIMITY	1	AEG 8/2	AEG 8/2	
R1	WINDOW POTENTIOMETER	1	10K0	10K0	
F1	FEEDER FUSE	1	0.16 AT	0.16 AT	DIM. 5 X 20
F2	U.V. LIGHT FUSE	1	1 A	1 A	DIM. 5 X 20
F3	LIGHT FUSE	1	2 A	2 A	DIM. 5 X 20
F4	INTAKE FUSE -- PHASE	1	4 A	4 A	DIM. 5 X 20
F5	INTAKE FUSE -- NEUTRAL	1	4 A	4 A	DIM. 5 X 20
F6	EXHAUST MOTOR FUSE	1	3.15 AT	3.15 AT	DIM. 5 X 20
F7	LAF MOTOR FUSE	1	6.3 AT	6.3 AT	DIM. 5 X 20
F8	ELECTRIC VALVE FUSE	1	1.6 A	1.6 A	DIM. 5 X 20
F1 (B3/1)	WINDOW MOTOR FUSE	1	1.6 A	1.6 A	DIM. 5 X 20
F1 (B3/2)	INFLATABLE GASKET FUSE	1	1.6 A	1.6 A	DIM. 5 X 20
E1	NEON TUBE	1	30 W	36 W	TYPE G13
E2	NEON TUBE	1	30 W	36 W	OPTIONAL
E3	NEON TUBE U.V.	1	15 W	15 W	
M1	LAF MOTOR	1	DDM 10/8 600 W	DDM 10/8 600 W	
M2	EXHAUST MOTOR	1	DDM 133/190	DDM 133/190	
MTR1	WINDOW MOTOR	1			
Y1	ELECTRIC VALVE	1	24 V c.a.	24 V c.a.	
C	CAPACITOR	1	4 microF 450 V	4 microF 450 V	
B1	CPU BOARD	1	BHCPU_C	BHCPU_C	
B2	POWER BOARD	1	BIOHP_A	BIOHP_A	
B3/1	WINDOW MOTOR BOARD	1	NBHG_A	NBHG_A	
B3/2	GASKET BOARD	1	NBHG_A	NBHG_A	OPTIONAL
LF	LINE FILTER	1	FN2070A-10-06	FN2070A-10-06	
Y2	GASKET ELECTRIC VALVE	1	230 V c.a.	230 V c.a.	OPTIONAL
K1	12 V DC MY3 RELAY	1	12 V d.c.	12 V d.c.	OPTIONAL
K2	12 V DC MY3 RELAY	1	12 V d.c.	12 V d.c.	OPTIONAL

04	ONLY 209-212 SIZE	DATE	29/04/2016	DATE	29/04/16	DATE	27/07/14	DATE	APPR.	IP.B.
03	GLASS POTENTIOMETER	DATE		DATE		DATE		DATE		
REV.	MODIFY	DATE		DATE		DATE		DATE		

WRING DIAGRAM
 CytoFAST ELITE 209 - 212

DRAW:	K60021490000
PAGE	4 OF 4
NEXT	

18 DECLARATION OF CONFORMITY



The undersigned legal representative of the company Faster S.r.l. hereby declares that the follow products:

CytoFAST Elite

are in compliance with the following directives:

2006/42/EC	Directive of the European Parliament and of the Council on machinery
2014/30/UE	Directive of the European Parliament and of the Council on the harmonization of the laws of the Member States relating to electromagnetic compatibility (recast)
2014/35/UE	Directive of the European Parliament and of the Council on the harmonization of the laws of the Member States relating to the making available on the market of electrical equipment designed for use within certain voltage limits

and with the following standards:

EN 12469	Biotechnology: performance criteria for microbiological safety cabinets
DIN 12980	Cabinets for handling cytotoxic drugs – Requirements, testing
EN 61010-1	Safety requirements for electrical equipment for measurement, control and laboratory use Part 1: general requirements
EN 61326-1	Electrical equipment for measurement, control and laboratory use EMC requirements

and, according to the above-mentioned directives, the CE IIA mark has been applied.

The undersigned also declares that the person who is authorised to compile the relevant technical documentation is Mr. Pietro Bascapè

Cornaredo – June 7 , 2016

Faster S.r.l.



Maria Giulia Turzi
Chairman of the board