

OPERATING & MAINTENANCE MANUAL

CHEMFAST

CONTENTS

1. GENERAL	2
2. INSTALLATION	3
2A. INSTRUCTIONS AND CHECKS ON DELIVERY	3
2B. INSTALLATION REQUIREMENTS	3
2C. ELECTRICAL/GAS CONNECTION	4
2D. POSITIONING OF THE CABINET ON THE SUPPORTING TABLE	4
3. OPERATION PRINCIPLES	6
4. OPERATION	7
4A. SCOPE	7
4B. SYSTEM AND PERFORMANCE CONTROLS	7
4C. REMOTE SIGNALS (OPTIONAL AVAILABLE FOR CHEMFAST ELITE)	8
4D. SYMBOLS OF CONTROL BOARD	9
4E. OPERATOR MENU (ONLY FOR CHEMFAST ELITE)	12
5. HOUR COUNTER / UV TIMER (ChemFAST Top)	16
5A. Hours counter	16
5B. Energy save	16
5C. DISPOSAL OF WASTES AND CONTAMINATED MATERIALS	17
5D. ERGONOMICS	17
6. LIMITATIONS	18
7. OPERATING PROCEDURES	19
7A. GENERAL OPERATING INSTRUCTIONS	19
7B. FUME CUPBOARD SWITCHING ON	19
7C. FUME CUPBOARD SWITCHING OFF	19
8. MAINTENANCE	20
8A. INSTRUCTIONS FOR SIX-MONTH CLEANING (By The User)	20
8B. CONTROL AND MONITORING PROCEDURES	20
8C. PREFILTER REPLACEMENT (by the user)	22
8D. ACTIVATED CHARCOAL FILTER REPLACEMENT (By The User)	22
8E. FLUORESCENT LAMPS REPLACEMENT (by the user)	22
8F. MOTOR FAN REPLACEMENT (by the technical assistance staff)	23
8G. GAS SENSOR REPLACEMENT (for Elite-vesion if installed - by the technical assistance staff)	23
9. SPARE PARTS LIST	24
10. ACTIVATED CHARCOAL FILTERS AND PREFILTERS LIST	26
11. TROUBLESHOOTING	28
12. TRANSPORT, PACKING, STORAGE INSTRUCTIONS	29
13. ADDITIONAL INFORMATION	31
13A. GUARANTEE	31
13B. MAINTENANCE SERVICE ADDRESS	31
14. DRAWINGS AND DIAGRAMS	32
14A. MAINTENANCE OPERATIONS DIAGRAM	33
14B. FRONT DIAGRAM	34
14C. SIDE DIAGRAM	35
15. ASSEMBLY DIAGRAM FOR SUPPORT TABLE	36
16. SENSORS LIST	38
17. WIRING DIAGRAMS	39
17A. Wiring Diagram With AC Motor	39
17B. Wiring Diagram With DC Motor for Extra Filter	41
17C. Wiring Diagram With DC Motor and Fluid Pump	45
18. DECLARATION OF CONFORMITY	50

1. GENERAL

The fume cupboards operating with molecular filtration system CHEMFAST are designed to meet all safety requirements of operator and environment whenever vapours, aerosols and chemicals are used in the routine work in laboratories.

They must not be used when large quantities of solvents are evaporated, in acid digestion procedures or when working with unknown chemicals.

Especially suitable for applications such as:

- Chemicals handling
- Practice in schools
- Cytology
- Hematology/Pathology
- Sterilization of endoscopes
- Ria test
- Manipulation of radioactive labelled compounds
- Assembly of medical devices

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

- BS 7258-1: Laboratory Fume Cupboards Part 1: Specification for safety and performance

The fume cupboards CHEMFAST fulfil the harmonized standards EN 61010-1 as well as EN 61326 according to the applicable European directives regarding the CE marking.

The fume cupboards CHEMFAST comply with the above-mentioned Directives ONLY if the instrumentation that is eventually connected to the electric socket positioned inside the work chamber are "CE" marked or in any case meets the standards mentioned in the above directives aiming to avoid any electromagnetic interference.

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

Faster s.r.l. disclaims any responsibilities for malfunctions, damages to people or properties due to non-compliance, omitted or poor maintenance, and improper use of the equipment.

Attention: The CHEMFAST is not suitable for working in sterility and cannot be used either as biosafety cabinet or for cytotoxic drugs.

2. INSTALLATION

2A. INSTRUCTIONS AND CHECKS ON DELIVERY

Installation plays an important role for CHEMFAST cupboards, whose use is sometimes critical; therefore they should always operate under their best conditions.

The fume cupboards CHEMFAST are located on a pallet, wrapped into a stretchable film and placed inside a multilayer strapped cardboard package.

For a general check, place the unit in its working place, open the package and remove the stretchable film, then check if the unit has suffered from any dents or scratches due to transportation or incorrect handling.

In case of transportation, packaging and stocking by the user after a first period of use (i.e. laboratory or plant change), contact the technical service or the distributor in order to obtain accurate and precise directions or to ask for the intervention of qualified technicians.

CHEMFAST fume cupboards - with or without packages - must always be sheltered from rain.

2B. INSTALLATION REQUIREMENTS

During installation, the unit shall be protected from draughts and heat sources (radiators, fan convectors) in order to create the best working conditions.

- The clearance around the work opening shall measure at least 1.000 mm.
- The front distance between the work openings of two cupboards used by one single operator shall measure at least 1,500 mm.
- No walls or obstacles should affect the air flow within 1,500 mm from the work opening.
- No cupboard shall be installed where it could be disturbed by another equipment and/or unit.
- The distance between the work opening and any air source shall be at least 2,000 mm.
- The distance between the front opening and the door or any other entrance way shall be at least 1,500 mm.
- The distance from the exhaust to the ceiling shall be at least 200 mm.

Min. temperature 5 °C

Max. temperature: 40 °C

Max. humidity: 80% at 31°C, linear drop in relative humidity down to 50% relative humidity at 40°C.

Before connecting the fume cupboard to the main power supply, check the voltage and power on the label next to the power cable. The room must be grounded, connected to the gas and/or vacuum network, if required, and fitted with an air exhausting duct outside the building where the unit is to be installed (if air shall be discharged outside, instead of being recirculated in the environment).

The unit is always installed by Faster S.r.l. authorized staff.

2C. ELECTRICAL/GAS CONNECTION

The electrical connection of the fume cupboard CHEMFAST is carried out 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 4D

If provided by the laws in force, insert an automatic protection switch (at its maximum power) upstream on the power input line. The switch shall be fitted with a differential relay with operating current not exceeding 30 mA.

Any instrument with a heat source shall be located at a distance of at least 150 mm from the bottom and side walls. Moreover we recommend not to use a flame at less than 300 mm from the adsorbing filter.

2D. POSITIONING OF THE CABINET ON THE SUPPORTING TABLE

ChemFAST cupboards can be supplied with the relevant supporting table, which they have to be fixed to.

After assembling the supporting table (see instructions at para. 14) put the supporting table on a flat not sloping floor and be sure that all the parts of the cabinet, that can be opened (control board panel and window) are locked. Then position the cabinet on the table.

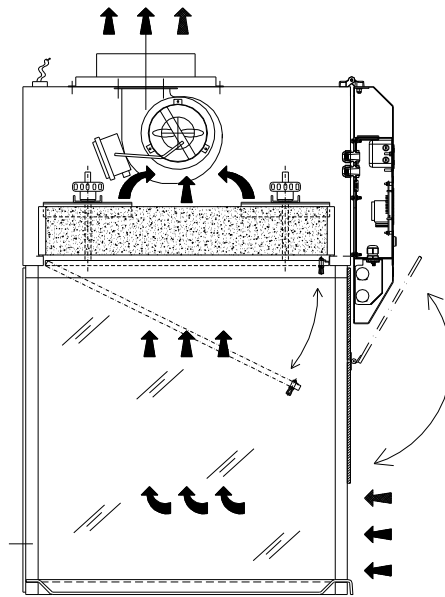
Technical Features Table

Description	Unit	ChemFAST 6	ChemFAST 9	ChemFAST 12	ChemFAST 15	ChemFAST 18
Overall Dimensions (L x H x P(*))	mm	595x1120x760	885x1120x760	1185x1120x760	1500x1120x760	1800x1120x760
Usefull dimensions (L x H x P)	mm	553x660x600	823x660x600	1123x660x600	1438x660x600	1738x660x600
Maximum front aperture	mm	455	455	455	455	455
Working aperture	mm	200	200	200	200	200
Weigh	Kg	70	85	100	115	130
Noise level	dB (A)	52	52	52	52	52
Lighting level	Lux	>1000	>1000	>1000	>1000	>1000
Main voltage	V	230V AC 2P+T	230V AC 2P+T	230V AC 2P+T	230V AC 2P+T	230V AC 2P+T
Frequency	Hz	50	50	50	50	50
Power consumption (measured at 0.55m/s)	W	88	122	207	210	297
Current (measured at 0.55m/s)	A	0,527	0,665	1,06	1,23	1,55
Electrical class		1	1	1	1	1
Protection level		IP20	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	2P+T 230V 4A
Fluorescent lamps	W	2x15	2x18	2x30	2x36	2x58

3. OPERATION PRINCIPLES

The working process for the CHEMFAST is the following:

- air is taken from outside through the front opening; the contaminant is removed at work surface level and is carried upwards into the upper part or head of the fume cupboard, with an air flow.
- inside the fume cupboards head, air goes through a prefilter which cleans the air from particles and aerosol or mist; then air goes through an activated charcoal filter (standard type and chemiadsorbing type) where the physical, chemical-physical and chemical reactions to remove the contaminant from the air flow take place. The air is then exhausted outside the fume cupboard and recirculated in the environment.



4. OPERATION

4A. SCOPE

The fume cupboards CHEMFAST are designed to protect the operator and the environment from fumes, vapours and smells produced during routine laboratory operations whenever chemicals, reagents etc. are used.

Their use is NOT recommended for particular workings which do not belong to laboratory routines, such as those generating large quantities of evaporated solvents, acid digestions and the use with solvents whose nature, structure and chemical formula are unknown.

4B. SYSTEM AND PERFORMANCE CONTROLS

The fume cupboards CHEMFAST are fitted with regulator in order to keep the airflow speed constant with the progressive clogging/saturation of the main activated charcoal filter and prefilter.

The control panel is fitted with various controls, such as:

CHEMFAST-Top

- manual regulation for airflow speed
- hours counter monitoring the real operation time of the fume cupboard

CHEMFAST-Elite

- microprocessor for air speed, prefilter and main filter efficiency automatic control
- alarm devices for low/high airflow speed, device monitoring possible explosive concentrations, motorfan malfunctioning and gas sensor control
- hours counter monitoring the real operation time of the fume cupboard and the activated charcoal filter

4C. REMOTE SIGNALS (OPTIONAL AVAILABLE FOR CHEMFAST ELITE)

The electronic control board can be improved with an output signal: 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. This signal can be set in three different modes:

Motor ON:

The signal starts when ventilation is turned ON and stops when ventilation is OFF.

Alarm:

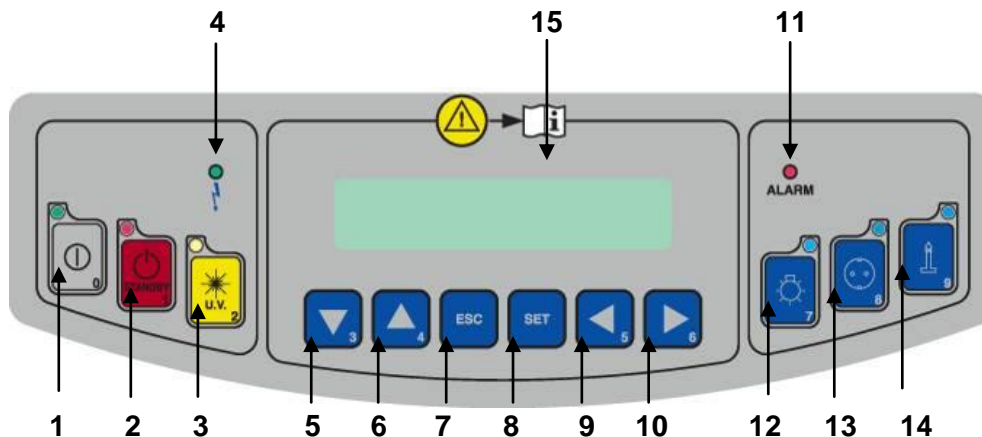
That signal is ON in case of any flow alarm and it is OFF when air flow rate is in the correct range.

AIR FLOW OK:

That signal is ON when air flow rate is in the correct range and it is OFF in case of any flow alarm.

4D. SYMBOLS OF CONTROL BOARD

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



1 MAIN SWITCH:

Position "OFF"

Position "ON"

in the "OFF" position, the green light of the mains voltage is on (4); the LCD displays the model name. In this position the operator can activate only the fluorescent light (12), the U.V. lamp (3) and the power outlet (13) (with plug installed) and can activate the data stored in the microprocessor by pressing the "Right Arrows" key (9-10). Press the key "ON" [1], insert the password using the small numbers in the right lower corner of the keys and press SET. Default password is 5 [9] – 4 [6]. When the password is typed in the green led of the switch lights up and the cabinet starts operating, the motor-blower is powered and first "CHECK PANEL" then "STAND-BY" appears on the display till the air flow reaches the pre-set value. 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 air velocity is displayed.

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

2 STAND BY (speed reduction) Not available:

3 U.V. Not available

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

5-6UP/DOWN ARROWS Use the arrow keys to scroll the menu, to program changing parameters.
The same keys are also used to change the airflow speed within the minimum and maximum set limits.

7 ESC ESC key deletes the operation of data input and goes back to the starting condition.
When an alarm condition occurs, which is shown also by the message appearing on the LCD. By pushing "ESC" the alarm stops sounding (only if enabled). If the cause of the alarm is not resolved after 2 minutes the buzzer starts to sound again.

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

9-10LEFT/RIGHT ARROWS (ONLY CHEMFAST ELITE) Use the arrow keys to scroll the menu: if pressed the following data will appear on the display:

GAS concentration:

1, 2, 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 (i.e.) 1". will appear on the line below.

The filters installed in the cabinet follow the numbering listed below

TYPE of FILTER	NUMBER
MAIN FILTER (CARBON OR HEPA)	1
SAFETY FILTER (CARBON OR HEPA)	2

LAF Power: it is shown indirectly by the power supply voltage of the 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%).

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.

11 ALARM

When an alarm occurs the red LED lights up.

12 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.

13 SOCKET

This supplies voltage; when enabled, if the PCB for the automatic regulation is installed the display shows "POWER SUPPLY ON". The global current for all the sockets installed on the cabinet is 4 Amps.

14 GAS

Not available

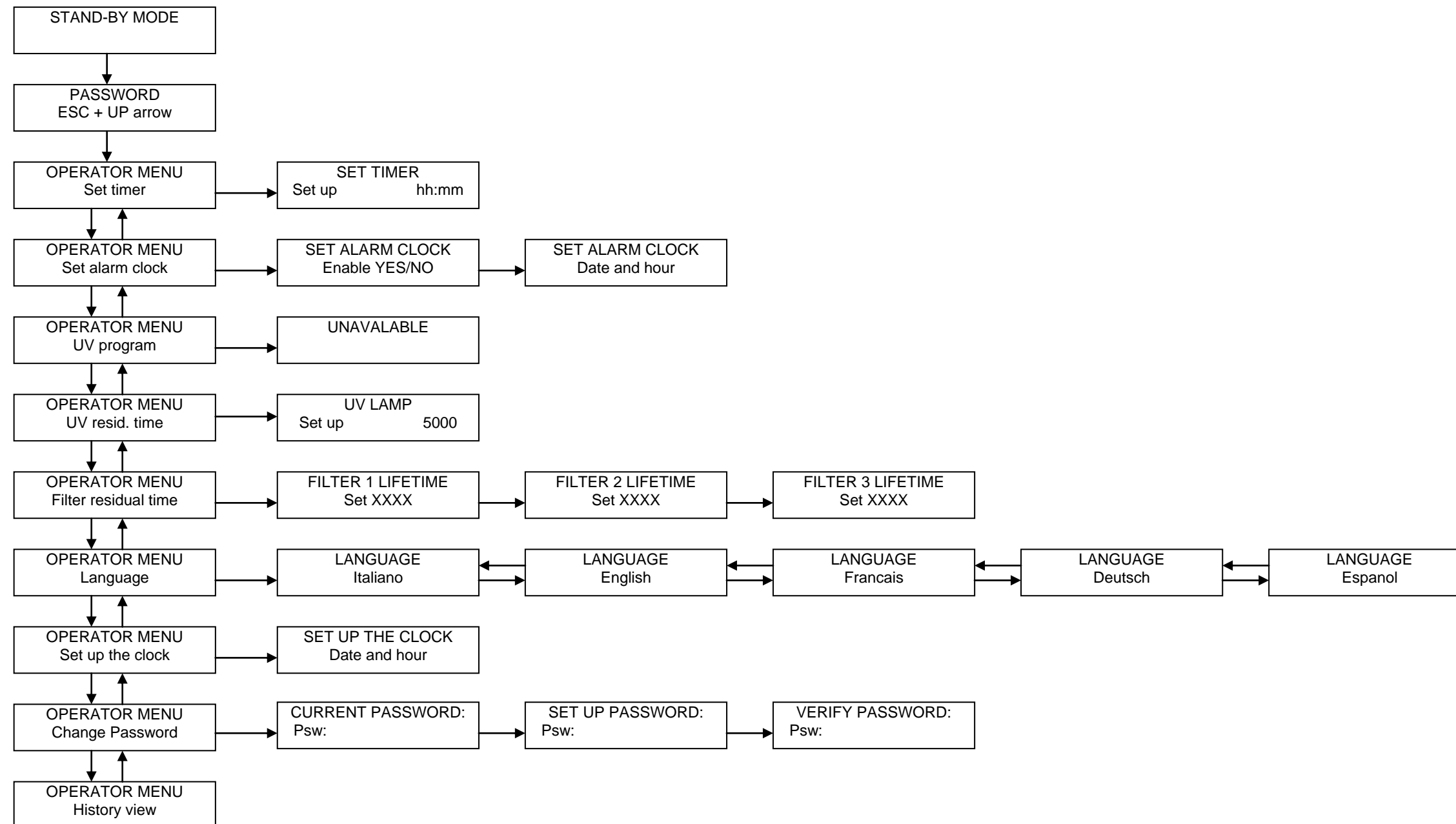
15 DISPLAY

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

CHEMFAST TOP: Rearlight liquid crystal "LCD" display; it show the operating time of the cabinet.

4E. OPERATOR MENU (ONLY FOR CHEMFAST ELITE)

It's possible enter the operator menu, with the cabinet in stand-by mode and when the cabinet is switched on, by pressing at the same time the keys "ESC" (7) and "ARROW UP" (6). Entering the operator menu while the ventilation is running it's possible to set only the "ALARM CLOCK" and the "TIMER".



FILTERS RESIDUAL LIFETIME:

- use "UP/DOWN arrow" keys [5/6] to choice the desired menu
- select "FILTERS RESIDUAL LIFETIME." and press "SET" [8] 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 [8] to confirm the data and pass to filter 2 and so on up to filter 5 (as for relation between number and type of filter see table par. 4C)
- To conclude programming, press ESC" [7] key.

LANGUAGE SELECTION

- use "UP/DOWN arrow" keys [5/6] to choice the desired menu
- select "LANGUAGE" and press the "SET" key and the following message will be shown on the display:

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 "ESC" [7] key to go out.

SET UP THE CLOCK

- use "UP/DOWN arrow" keys [5/6] to choice the desired menu
- select "SET UP THE CLOCK." and press "SET" [8] key; the display will show:

SET UP THE CLOCK
set XXXX

- Use the "left and right arrow" keys to select the desired parameter and set it using the "up and down arrow" keys
- Then press the "SET" key to confirm the data and/or go back to previous menu
- To conclude programming, press ESC" [7] key.

PASSWORD CHANGE

- use "UP/DOWN arrow" keys [5/6] to choice the desired menu
- select "PASSWORD CHANGE" and press "SET" [8] key; the display will show:

CURRENT
PSW:

- digit the present Password then press "SET" key

SET UP PASSWORD
PSW:

- digit the new Password then press "SET" key

VERIFY 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" [7] key.

DISPLAY OF HISTORICAL FILES

- use "UP/DOWN arrow" keys [5/6] to choice the desired menu
- select "ALARMS DISPLAY " and press "SET" [8] key;
- 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" [7] key.

- use "UP/DOWN arrow" keys [5/6] to choice the desired menu
- select "ALARM CLOCK" and press "SET" [8] key; the display will show:

Alarm clock set up
Set up XXXX

- Use the "left and right arrow" keys to select the desired parameter and set it using the "up and down arrow" keys
- Then press the "SET" key to confirm the data and/or go back to previous menu
- Press "ESC" to abort the procedure
- When the set time is reached the buzzer start to ring and the display show this message

ALARM CLOCK
ALARM

- Press the "ESC" key to silence the acoustic signal

TIMER SET UP

- use "UP/DOWN arrow" keys [5/6] to choice the desired menu
- select "TIMER SET UP" and press "SET" [8] key; the display will show:

Timer set up
Set up XXXX

- Use the "left and right arrow" keys to select the desired parameter and set it using the "up and down arrow" keys
- Then press the "SET" key to confirm the data and/or go back to previous menu
- Press "ESC" to abort the procedure
- At the end of the countdown the buzzer start to ring and the display will show this message:

TIMER
ALARM

- Press the "ESC" key to silence the acoustic signal

5. HOUR COUNTER / UV TIMER (ChemFAST Top)

Available only in English language.

5A. Hours counter

During the standard operating of the cabinet the display shows:



The hour counter starts when the ventilation is switched ON and stop when the ventilation is turned OFF

It is possible RESET the hour counter pressing in sequence the following keys:

ESC – Arrow down – Arrow up – SET

After this the display will show this message:

WORKTIME RESET
Confirm? No

Change the answer with the arrow keys and press SET

5B. Energy save

The hours counter/UV timer PCB has the function: Energy save:


When the cabinet is in Stand by mode, after few minutes the display switch OFF (only the green led still remain lighted).

To switch on the display it is necessary press any key

The functions of this PCB are available only in English language.

5C. DISPOSAL OF WASTES AND CONTAMINATED MATERIALS

DISPOSAL OF ELECTRIC AND ELETTRONIC DEVICES (AEE)

	<p>INFORMATION FOR EUROPEAN UNION USER</p> <p>This symbol on the device means that when it needs to be disposed, it must be handled separately from urban waste.</p> <p>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.</p>
<p>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.</p> <p>The improper disposal of the product by holder involves the application of sanctions in accordance with the regulations in their own country.</p>	
<p>INFORMATION FOR USERS OUTSIDE THE EUROPEAN UNION</p> <p>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.</p>	

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

The materials replaced during maintenance operations are activated charcoal filters and pre-filters. Obviously, these materials are not toxic when they are new; they become toxic after using them, since they absorb a number of contaminant agents (generally speaking chemical substances). The above materials shall be considered just like the substances used in the fume cupboard. Therefore, for their disposal and treatment, it is necessary to comply with the relevant local regulations and ministerial decrees.

5D. ERGONOMICS

This 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 are assured to be carried out in safety by merely following the instructions given in this manual at chapter 7.

6. LIMITATIONS

Conditions for a correct use of the fume cupboard.

We list below the most important conditions and the substances to avoid for a correct use of the fume cupboard:

- DO NOT use manipulations/reactions generating large quantities of solvents and/or industrial quantities.
- AVOID operations such as acid digestions, operations with radioactive compounds in potentially hazardous quantities, avoid the use with substances having an unknown formula, nature and origin.
- DO NOT use the fume cupboard for manipulations/operations if the activated charcoal filter installed is not adequate. In case of doubts, contact the FASTER S.r.l. distributor.
- DO NOT use the fume cupboard if the pre-filter is clogged and/or the activated charcoal filter is saturated.
- DO NOT use the fume cupboard if the front side is totally open, since this could create a drastic reduction in the airflow speed and in efficiency.
- AVOID high concentrations of smokes, for instance in case of an accidental leakage of chemicals, since this could create a temporary block of the main filter. Therefore, immediately remove/clean the spillage (preferably by using adsorbent granules). The use of adsorbent papers or fabrics could worsen the evaporation process. In case of several spillages, it is necessary to remove the filter and replace it with a new one. The old filter, once stabilized after a few days, can be used again if not saturated.

7. OPERATING PROCEDURES

7A. GENERAL OPERATING INSTRUCTIONS

Before carrying out any type of action, the operator shall check the following conditions:

- 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
- The fume cupboard can work in an efficient way if the filter installed was correctly selected according to the type of application (in case of doubts, contact Faster S.r.l. distributor).
- Periodically check the efficiency of the activated charcoal filter and pre-filter.
- When you use the fume cupboard, the front door shall ALWAYS be completely lowered in order to obtain the maximum airflow speed.
- For information purposes, reduced airflow speeds ($<0,4$ m/s) indicate reduced toxic vapours containment capacities. Therefore, we recommend to work at speeds higher than 0.5 m/s, except for the storage of reagents bottles or when low toxicity compounds are handled.
- We recommend to replace the pre-filter each time you replace the activated charcoal filter. A spare filter should always be kept available, in case of emergency.

7B. FUME CUPBOARD SWITCHING ON

To start the cabinet, proceed as indicated below:

1. turn on the light by pushing the blue button [10]
2. press the main key I/O (see chapter 4D.) and enter the password to switch on the cabinet (5 – 4 – 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
3. after 40 seconds of stand-by, the cabinet is ready for work. "STAND-BY" disappears from the screen and the LAF velocity are displayed
4. Adjust the airflow speed by means of the HIGH/LOW ARROW keys of the keyboard, according to the type of process to carry out.

7C. FUME CUPBOARD SWITCHING OFF

Once the process is over, carry out the following actions:

1. Remove any waste material from the work chamber.
2. Clean the work surface and the inner chamber walls as described under "Cleaning instructions" (chapter 7A).
3. If the lamp is on, switch it off by pressing the keyboard key.
4. press "I/O" key switch and enter the password for switching off the cabinet (5 – 4 – SET).

8. MAINTENANCE

IMPORTANT: It is recommended to perform the standard tests and maintenance once per year by specially trained and authorized service personnel according to the standards, in order to ensure the efficiency and safety of the (microbiological safety/laminar flow/cytotoxic safety/chemical fume hood) cabinet.

ATTENTION: Disconnect the fume cupboard from the main power supply before carrying out the operations described below.

8A. INSTRUCTIONS FOR SIX-MONTH CLEANING (By The User)

- Remove and clean the work surface and the side walls, the bottom and the front door with a diluted detergent solution. This should be a non-corrosive solution for the fume cupboard structure.
- Control the side walls, the bottom and the front door in order to check if there are corrosive actions and damage/breakage to the structure.
- Control the hinged doors for corrosion; if necessary adjust the hinge friction by acting on the central adjusting screw.
- Remove the prefilter/s and filter/s and control the head inside and the fan assembly for correct operation.

8B. CONTROL AND MONITORING PROCEDURES

The monitoring of the fume cupboard CHEMFAST operating parameters aims at assuring an efficient operation.

In particular: the use of fume cupboards with clogged prefilter/s implies a reduction in the airflow speed and therefore a non-removal of the contaminant. Their use with saturated activated charcoal filter/s implies the non-removal of the contaminant.

With CHEMFAST-Elite fume cupboards, the microprocessor monitors the airflow speed; therefore there is no need for the operator to check the prefilter. With CHEMFAST-Top fume cupboards, which are not fitted with an airflow speed control system, the prefilter must be controlled manually every month or every three month, according to the amount of work carried out, by the user or by a service company with adequate monitoring devices.

Cupboards like the CHEMFAST-Elite (fitted with an optional gas detector), a gas detector constantly monitors the exhaust air and is able to signal possible concentrations of explosive gases.

NOTE: We remind that the smell of some compounds (e.g. H_2S or NH_3) is very strong. Therefore the presence of smells does not automatically imply a higher concentration of solvent in the air than that allowed.

AIRFLOW SPEED MEASUREMENT (carried out on a monthly basis by the user)

The airflow speed is measured by means of an anemometer which can be a hot-wire, fan, vane anemometer or others.

Start the fume cupboard and wait at least 5 minutes to balance the airflow speed.



a D:GROUP Company

Minimum three readings should be taken across the working opening; note these data in the "CHEMFAST monitoring card". If the average airflow is lower than 0.5 m/sec, REPLACE THE PREFILTER/S.

MANUAL MEASUREMENT OF THE CHARCOAL FILTER SATURATION DEGREE (carried out on a monthly or quaterly basis by the user)

The test is executed by means of a sampling device (Gastec or Draeger or Kittigawa type). Select the sampling tube for the substances used in the laboratory routine (e.g. alcohol or toluene or trichloroethylene).

Place 6 ml of the selected solvent into a beaker; with a hotplate make it boil in two minutes.

This operation gives a solvent concentration equal to 100-200ppm.

Sample the outlet airstream from the unit, following the instructions of the gas sampling tube supplier.

Read the detected concentration. If higher than TLV, REPLACE THE CHARCOAL FILTER/S. If lower, note the value read on the "CHEMFAST MONITORING CARD".

Example:

CHEMFAST MONITORING CARD

Model :

Serial number :

Installed filter type/code :

Facsimile

Filter installation date :

Pre-filter installation date :

Used chemicals :

PRE-FILTER CONTROL

<u>Date</u>	<u>Speed (m/s)</u>	<u>Replaced Pre-filter</u>	<u>Signature</u>
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FILTER CONTROL

<u>Date</u>	<u>Used Solvent</u>	<u>CONC(PPM)</u>	<u>Replaced Filter</u>	<u>Signature</u>
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8C. PREFILTER REPLACEMENT (by the user)

- Open the front control panel, rotate and unlock the tightening lock (13), then lower the pre-filter case (6).
- Remove the prefilter from the relevant case
- Insert the new prefilter in its seat.
- Close the prefilter case (6) and fix it with the tightening lock (13)

8D. ACTIVATED CHARCOAL FILTER REPLACEMENT (By The User)

ATTENTION: For safety and environmental reasons, the worn-out activated charcoal filter/s shall be handled with rubber gloves and deposited in polyethylene bags

- Open the front control panel (1) unscrewing the fastening socket head screws (2) and block it with the proper bracket (3) located on the right side of the panel.
- Raise the activated charcoal filters (4) by unscrewing the proper knobs (5) for a few centimeters.
- Remove the activated charcoal filter (4) from its slide guide.
- Insert the new activated charcoal filter/s (4) into the relevant slide guides so that it correctly leans on the structure.
- Turn the knobs (5) of the filter group and block the activated charcoal filter (4).
- Close the control panel (1) and fix it with the proper screws.
- When you switch on the fume cupboard again, set the installation date (only for the "Elite" version).

8E. FLUORESCENT LAMPS REPLACEMENT (by the user)

- Open the front control panel (1) unscrewing the fastening socket head screws (2)
- and block it with the proper bracket (3) located on the right side of the panel.
- Turn the fluorescent tube (8) by 90° and remove it.
- Put the new fluorescent tube (8) into the lamp holder and turn it of 90°.
- Close the front control panel (1) and fix it with the proper screws.

8F. MOTOR FAN REPLACEMENT (by the technical assistance staff)

- Disconnect the cabinet from the main
- Open the front control panel (1) unscrewing the fastening socket head screws (2) and block it with the proper bracket (3) located on the right side of the panel.
- Disconnect the electric connectors of the motorfan terminal board (9).
- Unscrew the fixing screws (10) of the motorfan (9).
- Remove the motorfan (9) without damaging the activated charcoal filter (4).
- Install the new motorfan (9) and fix it with the proper screws and washers (10).
- Reconnect the electric connectors to the terminal board of the new motorfan (9).
- Close the control panel (1) and fix it with the proper screws.

8G. GAS SENSOR REPLACEMENT (for Elite-vesion if installed - by the technical assistance staff)

- Open the front control panel (1) unscrewing the fastening socket head screws (2) and block it with the proper bracket (3) located on the right side of the panel.
- Loosen the cable press of the gas sensor (11) located on the control box (7) inside the front panel (1).
- Remove the gas sensor (11) from the cable press and from the base on which it is mounted.
- Place the new gas sensor (11) on the previous base and block it in the cable press of the control box (7).
- Close the control panel (1) and fix it with the proper screws.

9. SPARE PARTS LIST

ITEM	DESCRIPTION	ChemFAST				
		6	9	12	15	18
K60008330100	PVC Basin	1				
K60008430100	PVC Basin		1			
K60008530100	PVC Basin			1		
K60008611500	AISI-316 Basin				1	
K60008711500	AISI-316 Basin					1
V50000105520	MF 50 Prefilter wool (m ²)	0,3	0,4	0,6	0,75	0,75
V50000000010	RF2C-133/190 K097 DSF Motor-fan	1	1	1	2	2
V50000000080	6102AZ DDM 146/190 Motor fan (optional)	1	1	1	2	2
K60008431000	side glass	2	2	2	2	2
K60008331100	lower front glass ChemFAST 6	1				
K60008431100	upper front glass ChemFAST 9		1			
K60008531100	upper front glass ChemFAST 12			1		
K60008631100	upper front glass ChemFAST 15				1	
K60008731100	upper front glass ChemFAST 18					1
K60008331200	lower front glass ChemFAST 6	1				
K60008431200	lower front glass ChemFAST 9		1			
K60008531200	lower front glass ChemFAST 12			1		
K60008631200	lower front glass ChemFAST 15				1	
K60008731200	lower front glass ChemFAST 18					1
K60008310400	back panel ChemFAST 6	1				
K60008410400	back panel ChemFAST 9		1			
K60008510400	back panel ChemFAST 12			1		
K60008610400	back panel ChemFAST 15				1	
K60008710400	back panel ChemFAST 18					1
V40000003140	VB/60 6 lobes wheel M-12	4	6	6	9	9
V40000003190	Snap-hinge	4	4	4	6	6
V20000005990	15 W/86 fluorescent lamp	2				
V20000006020	18 W/84 fluorescent lamp		2			
V20000006030	30 W/84 fluorescent lamp			2		
V20000006040	36 W/84 fluorescent lamp				2	
V20000006050	58 W/84 fluorescent lamp					2

V20000006340	2x15W lampholder	1				
V20000006330	2x18W lampholder		1			
V20000006350	2x30W lampholder			1		
V20000006360	2x36W lampholder				1	
V20000006370	2x58W lampholder					
V20000006900	FN2070A-10-06 net filter	1	1	1	1	1
V30000000030	SP-31 gas sensor (only CHEMFAST Elite)	1	1	1	1	1
V30000000090	Proximity NAMUR AEG 8/2 (only CHEMFAST Elite)	1	1	1	1	1
V30000008150	Microprocessor control card (only CHEMFAST Elite)	1	1	1	1	1
V30000008300	Hourcounter card (only CHEMFAST TOP)	1	1	1	1	1
V30000008000	Power card	1	1	1	1	1
V30000008200	Flat cable (only CHEMFAST Elite)	1	1	1	1	1
V30000005200	Keyboard	1	1	1	1	1

OPTIONALS						
ITEM	DESCRIPTION	6	9	12	15	18
V01000017050	Gas cock with safety release 3/8"	1	1	1	1	1
V20000003380	Box for interlocked socket	1	1	1	1	1
V20000004325	Socket	1	1	1	1	1
V20000004510	Socket plastic box	1	1	1	1	1

10. ACTIVATED CHARCOAL FILTERS AND PREFILTERS LIST

ITEM	DESCRIPTION	QUANTITY
FX0000854010	A/C filter for CHEMFAST 6/12/15(2)	13,0 kg
FX0000854020	SULF filter for CHEMFAST 6/12/15(2)	15.5 kg
FX0000854030	UR filter for CHEMFAST 6/12/15(2)	5.5 kg
FX0000854040	AM filter for CHEMFAST 6/12/15(2)	21.5 kg
FX0000854050	CYAN filter for CHEMFAST 6/12/15(2)	15.5 kg
FX0000854060	MER filter for CHEMFAST 6/12/15(2)	15.5 kg
FX0000854070	ACR filter for CHEMFAST 6/12/15(2)	16,0 kg
FX0000854080	FOR filter for CHEMFAST 6/12/15(2)	18,0 kg
FX0000854090	HEPA FILTER FOR ChemFAST 06/12/15(2)	
FX0000844010	A/C filter for CHEMFAST 9/15(1)/18	9,0 kg
FX0000844020	SULF filter for CHEMFAST 9/15(1)/18	10,0 kg
FX0000844030	UR filter for CHEMFAST 9/15(1)/18	10,0 kg
FX0000844040	AM filter for CHEMFAST 9/15(1)/18	14,4 kg
FX0000844050	CYAN filter for CHEMFAST 9/15(1)/18	10,0 kg
FX0000844060	MER filter for CHEMFAST 9/15(1)/18	10,0 kg
FX0000844070	ACR filter for CHEMFAST 9/15(1)/18	10,5 kg
FX0000844080	FOR filter for CHEMFAST -9/15(1)/18	11,5 kg
FX0000844090	HEPA FILTER FOR ChemFAST 09/15(1)/18	
FX0000854000	PREFILTER FOR ChemFAST 09/15/18 Top-Elite (10 pos.)	pack of 10 pcs.
FX0000844000	PREFILTER FOR ChemFAST 06/12/15 Top-Elite (10 pos.)	pack of 10 pcs.

ATTENTION: **CHEMFAST 6** is fitted with no.1 suitable filter
CHEMFAST 9 and 12 are fitted with no. 2 suitable filters.
CHEMFAST 15 are fitted with no. 2+1 suitable filters
CHEMFAST 18 are fitted with no. 4 suitable filters

PREFILTERS

High performance prefilters are designed to remove particulates from the air stream. The filter material is based on electrets, which are permanently charged di-electrics. They remove particulates from polluted air by strong electrostatic forces generated by the fibres of which they are made. The combination of strong electric charges and open structure provides a filter with high efficiency, low airflow resistance and high loading capacity.

Prefilter efficiency is equal to 75÷85 dust weight arrestance (ASHRAE)

MAIN FILTERS

Three types of filter media are available.

Most of these are impregnated activated charcoal, to provide a higher filter capacity for lower molecular weight organic compounds and inorganic gases and vapours.

A number of filter efficiency studies have been carried out and all results using single bed filters show efficiencies very close to 100% .

1. A/C FILTER

The A/C filter is the most widely used filter in the range and is used primarily for solvent fume removal. It is manufactured from coco-nut shell based activated charcoal of 4 x 8 USS mesh size and surface area up to 1050m²/gm.

Filtration is achieved by the physical adsorption of molecules in the pores of the activated charcoal by Van der Waals forces.

2. ACR FILTER

This filter is impregnated with halide salts and is used for the high efficiency removal of iodine and methyl iodine. It is frequently used for iodination reactions with low-level radioactive iodine and efficiencies in excess of 99,99% have been measured

3. FORM FILTER

This filter is impregnated with an oxidizing agent to oxidise formaldehyde to formate salts.

It is widely used in hospital pathology laboratories and suitable for use with formalin, gluteraldehyde and aldehydes in general.

CHEMFAST EXH. FILTER (OPTIONAL)			
Filter Type	Code	Dimension	Cabinet Model
Sulfuric acid	FX0000834840	450x300x30	6
	FX0000854840	610x610x30	9 – 12 – 15 – 18
Ammonia	FX0000834850	450x300x30	6
	FX0000854850	610x610x30	9 – 12 – 15 – 18
Cyanides	FX0000834820	450x300x30	6
	FX0000854820	610x610x30	9 – 12 – 15 – 18
Formaldehyde	FX0000834870	450x300x30	6
	FX0000854870	610x610x30	9 – 12 – 15 – 18
Generic	FX0000834800	450x300x30	6
	FX0000854800	610x610x30	9 – 12 – 15 – 18
Iodine	FX0000834830	450x300x30	6
	FX0000854830	610x610x30	9 – 12 – 15 – 18
Mercury	FX0000834860	450x300x30	6
	FX0000854860	610x610x30	9 – 12 – 15 – 18
Urinés	FX0000834810	450x300x30	6
	FX0000854810	610x610x30	9 – 12 – 15 – 18
HEPA filter	FX0000834880	457x610x69	6
	FX0000854880	610x610x69	9 – 12 – 15 – 18

11. TROUBLESHOOTING

DEFECT	CAUSE	REMEDY
Nothing works	Power cut off before the equipment	Check if power reaches the equipment
	PCB out of order	Replace PCB located in the control panel
	Fuses are interrupted.	Replace the fuses.
"GAS DETECTOR" pre-alarm. (for CHEMFAST Elite)	Gradual clogging/saturation of the activated charcoal filter (pre-alarm threshold value)	Reduce the quantity of solvent used under the cupboard.
"GAS DETECTOR" alarm (for CHEMFAST Elite)	The charcoal filter is completely saturated	Replace the activated charcoal filter
	"Gas sensor" broken, if you are not working under the cupboard.	Replace the "Gas sensor"
Total absence of airflow in the work area	The motorfan does not work.	Replace the motorfan
Low airflow speed in the work area.	The exhaust duct is obstructed (if present)	Check if the exhaust duct is obstructed (if present)
	The prefilter is clogged	Replace the prefilter
Unsteady reading of the speed displayed (only for CHEMFAST ELITE)	Anomalies in the fan anemometer	Check/replace the fan anemometer
	The exhaust duct is obstructed (if present)	Check the exhaust duct (if existing)
	Loss of calibration values in the PCB	Reset the calibration values of the PCB

12. TRANSPORT, PACKING, STORAGE INSTRUCTIONS

ATTENTION: Disconnect the unit from the main power supply before doing any of the following operations

Following indications are of the essence in case the end user has to transport, pack and storage the fume cupboard after a first period of routine operation (e.g. laboratory/ plant moving):

- Disconnect the inlet tubes of gas/vacuum.
- If the fume cupboard exhausts to the outside of the building or is connected to the exhaust duct of the conditioning system, remove the connection tube cabinet/outside - cabinet/conditioning system duct, paying attention not to damage or to cover with dust (or any other material) the exhaust duct of the fume cupboard.
- In case the fume cupboard is moved from a laboratory to another in the same building:
- by means of table with wheels: it is sufficient to put the cabinet on the table avoiding to turn it on a side or on the back panel.
- by means of a forklift : put the cabinet on a pallet to ensure good conditions of stability and to prevent the spill tray in the lower part of the fume cupboard from damages for transport.
- Pay attention not to damage the fume cupboard when passing through doors/windows
- If the cabinet must be kept temporarily unused at the final destination, film the cabinet itself with a protective cover (pluriball or expandible films).
- On the contrary, we recommend extreme caution on long-distance movings carried out by forwarding agents (e.g. change of address): we suggest to use the same packages supplied by the manufacturer with the cabinet made as follows :

Wooden pallets of the following dimensions:

CHEMFAST 6	: 111 x 90 x 12 cm
CHEMFAST 9	: 111 x 90 x 12 cm
CHEMFAST 12	: 147 x 90 x 12 cm
CHEMFAST 15	: 202 x 90 x 12 cm
CHEMFAST 18	: 202 x 90 x 12 cm

Carton basement to be laid on the pallet of the following dimensions:

CHEMFAST 6	: 108 x 79,5 x 1 cm
CHEMFAST 9	: 108 x 79,5 x 1 cm
CHEMFAST 12	: 138,5 x 83,5 x 1 cm
CHEMFAST 15	: 147 x 90 x 1 cm
CHEMFAST 18	: 147 x 90 x 1 cm

Pluriball to wrap and protect the cabinet from dust

Package in carton of the following dimension:

CHEMFAST 6	: 111 x 90 x 128 cm (1cm thick)
CHEMFAST 9	: 111 x 90 x 128 cm (1cm thick)
CHEMFAST 12	: 147 x 90 x 128 cm (1cm thick)
CHEMFAST 15	: 202 x 90 x 128 cm (1cm thick)
CHEMFAST 18	: 202 x 90 x 128 cm (1cm thick)



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Steel strap and clips

During transport pay attention to maintain the package in vertical position (i.e. the pallet at the bottom)

The cabinet (with or without the package) must be kept in a place ensuring following environmental conditions :

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

13. ADDITIONAL INFORMATION

13A. GUARANTEE

The guarantee for fume cupboards ChemFAST is 12 months from invoice date.

The limitations of the guarantee established by Faster S.r.l. concern, besides the cases indicated in Chapter 5 relating to improper use of the fume cupboard by user, also several contra-indications in the instruction manual, among which the following are reminded:

- installation in a place not conforming to instructions
- wrong feed voltage
- poor earthing
- utilization of chlorine or its derivatives, incompatible with stainless steels, for cleaning the cabinet,
- tampering or changes made by the client
- tampering cupboard with any type of tool
- wrong connection between electric intake and feed cable, wrong connection between gas cock or electro-valve and gas mains

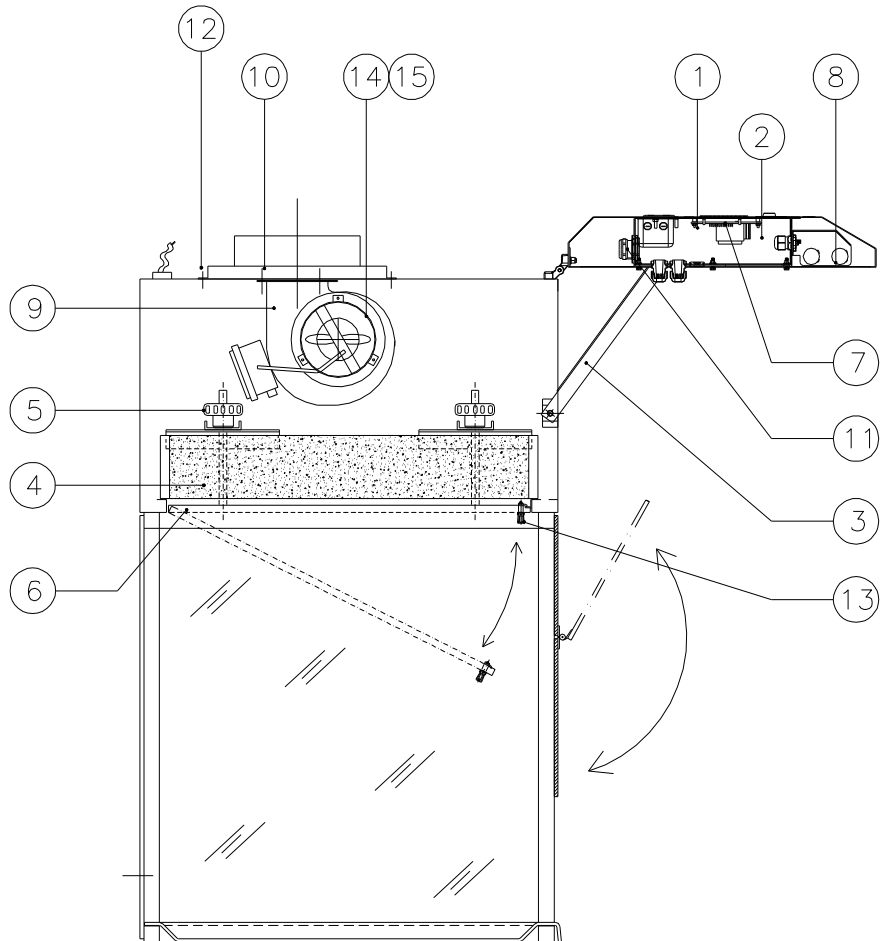
13B. MAINTENANCE SERVICE ADDRESS

Company.....	
address.....	
Tel	Fax.....
Contact.....	

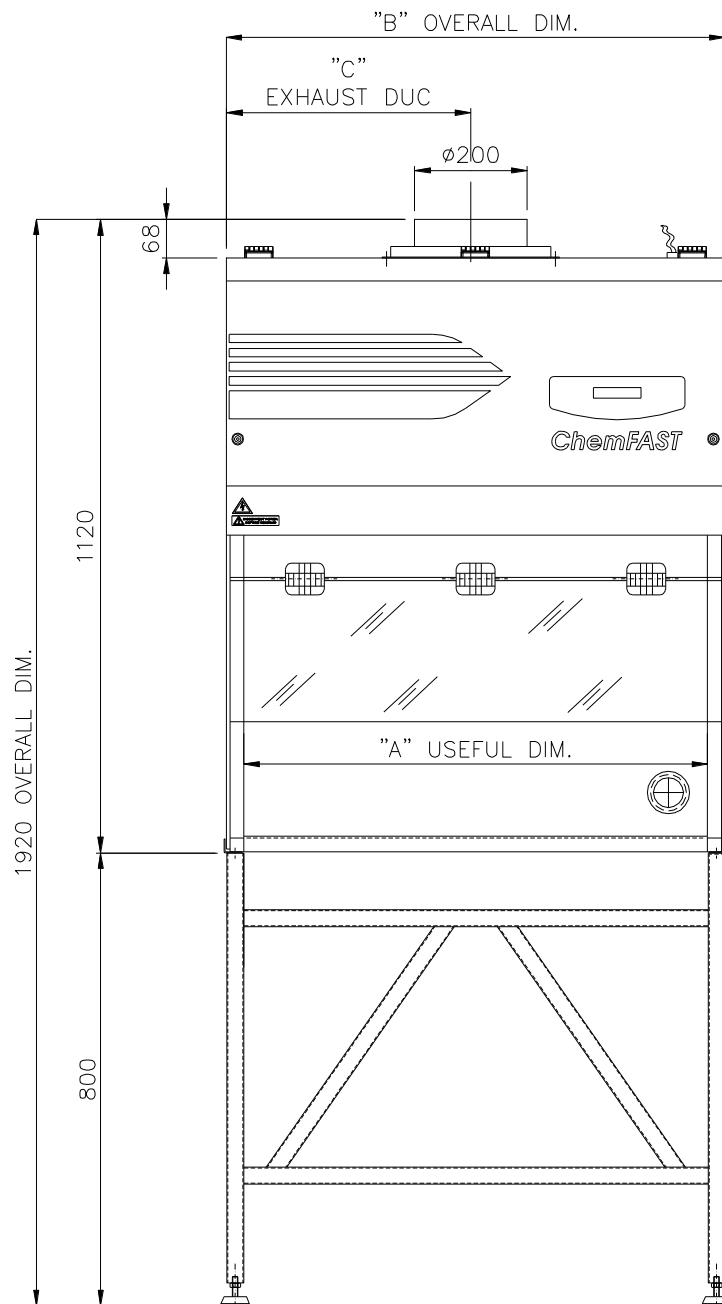
14. DRAWINGS AND DIAGRAMS

LEGENDA	
1	Control panel
2	Fastening socket head screws
3	Bracket
4	Charcoal filter
5	Knobs
6	Pre-filter case
7	Control box
8	Lamps
9	Motor fan
10	Screws of motor fan
11	GAS sensor
12	Screws
13	Lock of pre-filter case
14	Air flow sensor
15	Fan

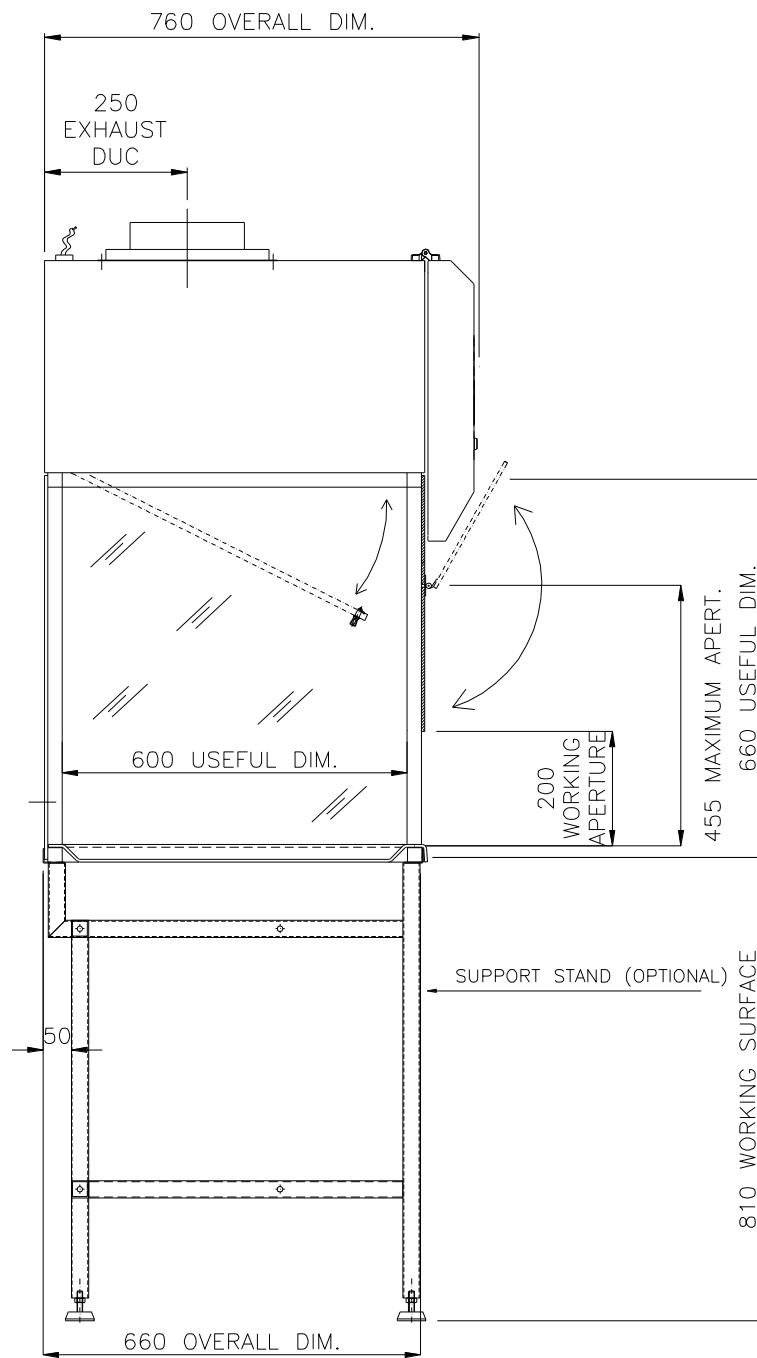
14A. MAINTENANCE OPERATIONS DIAGRAM



14B. FRONT DIAGRAM

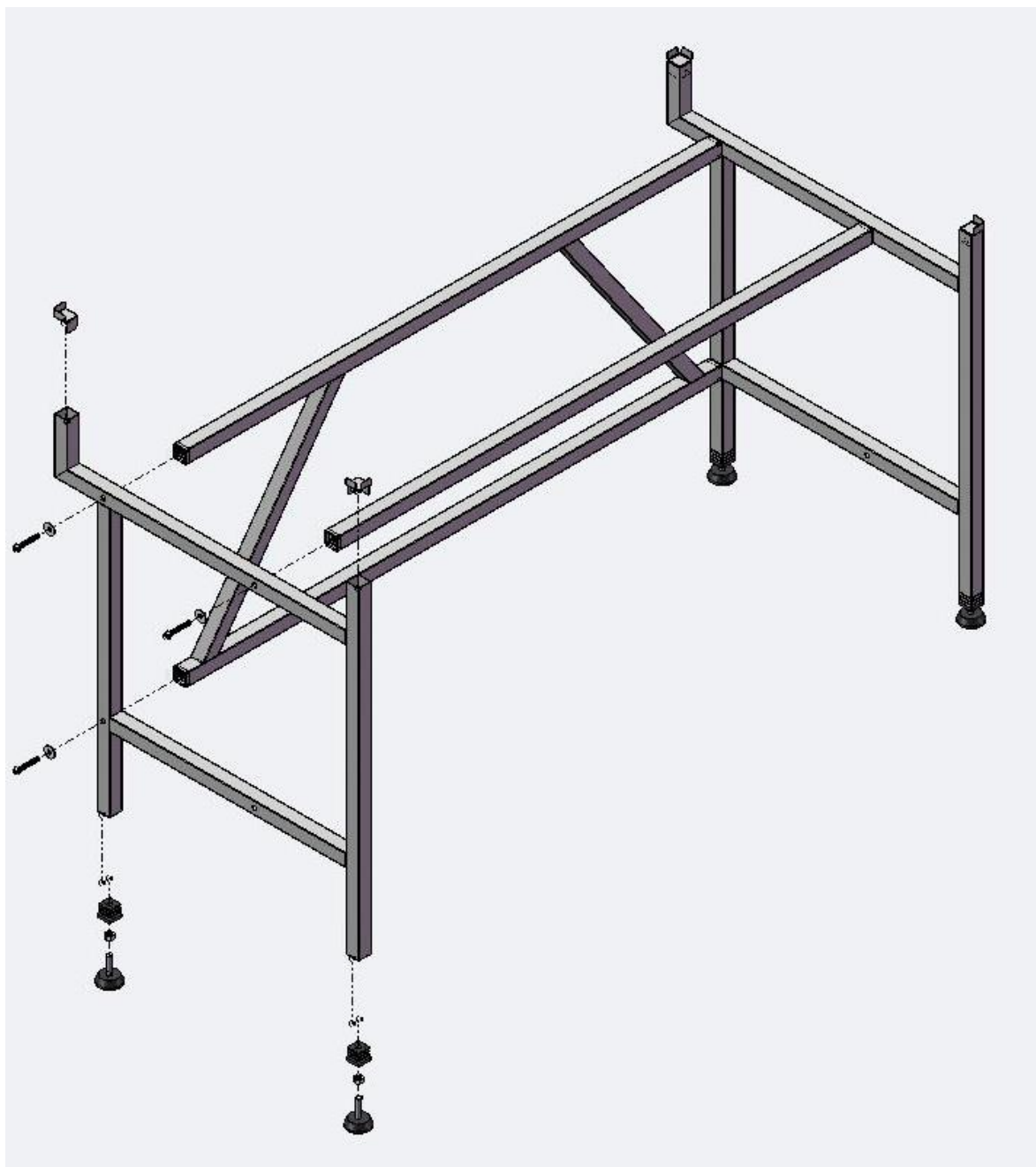


14C. SIDE DIAGRAM

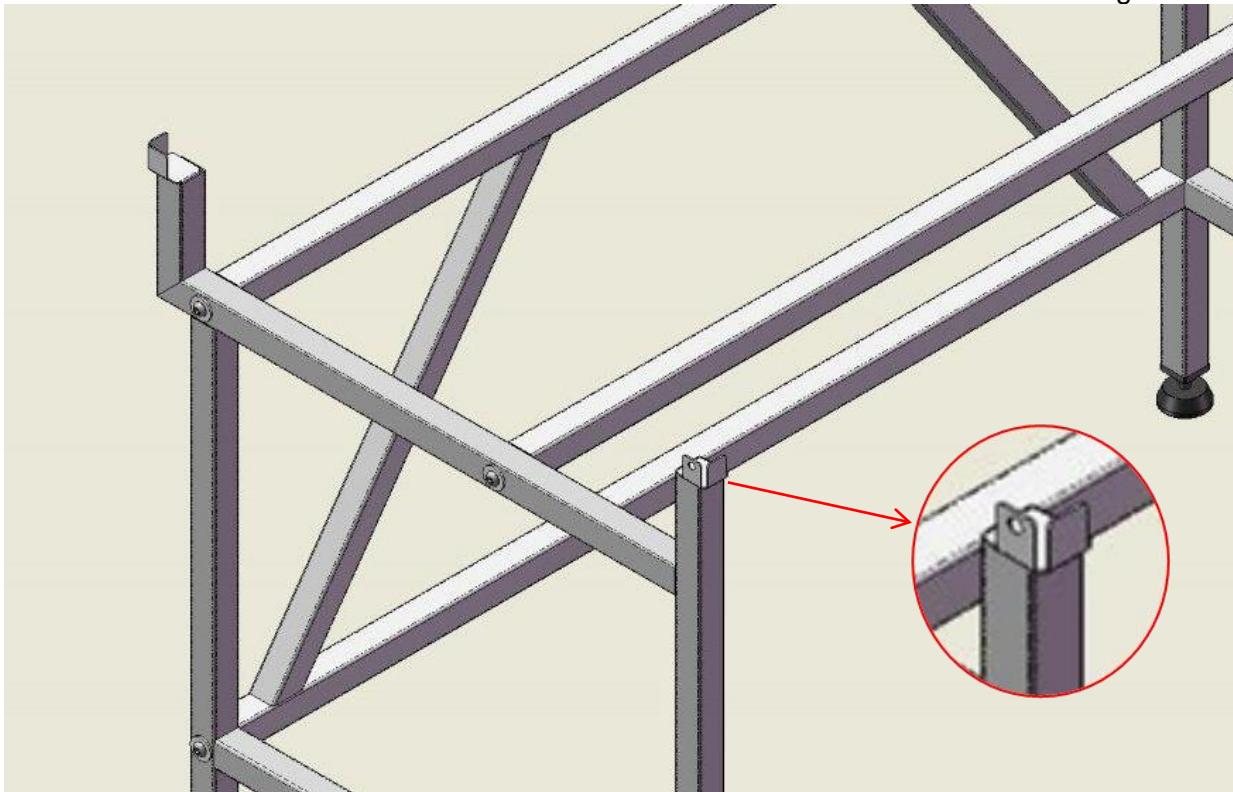


15. ASSEMBLY DIAGRAM FOR SUPPORT TABLE

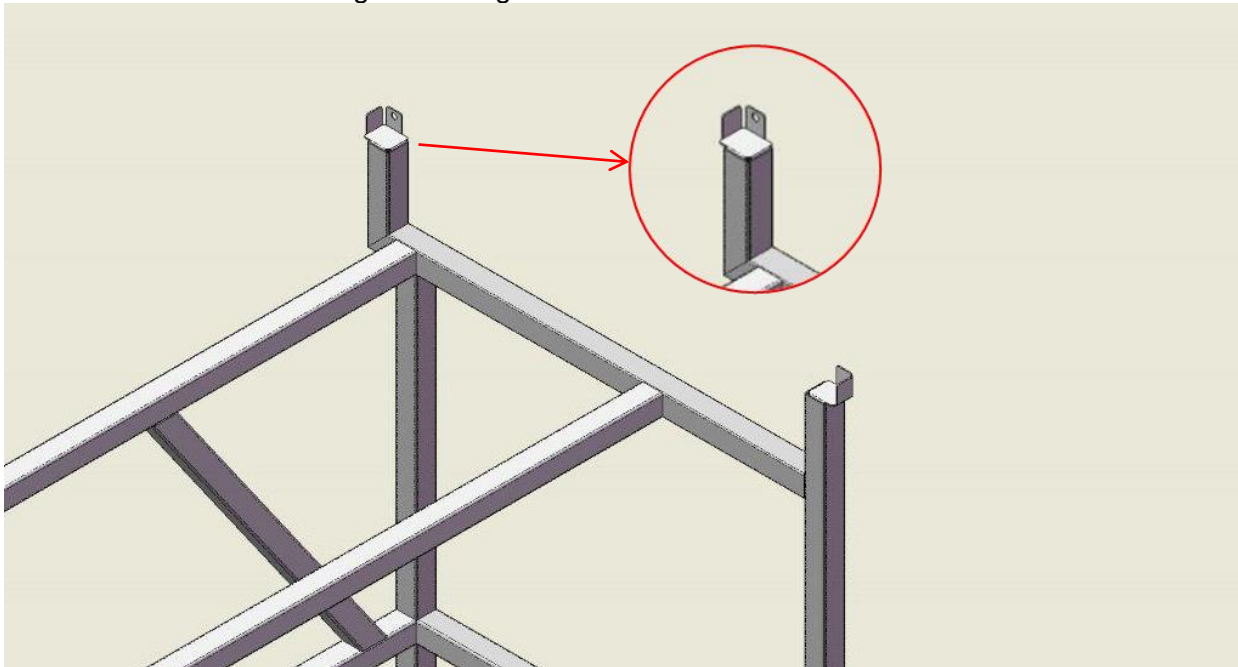
The supporting stand is supplied not assembled, with the kit of screws and the feet.



The 4 stand brackets must be installed as follow. 1 bracket with hole in the left front leg



1 bracket with hole in the right back leg



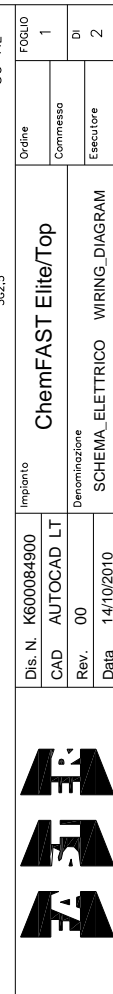
The other 2 brackets (left back leg and right front back) upside down

16. SENSORS LIST

PCB PLUG PLUG	SOFTWARE NAME OF THE SENSOR Software name	DESCRIPTION Description
J9 – CPULAF	-	GAS SENSOR
J4 - CPULAF	S0	Air flow sensor (only ChemFAST Elite)
J3 - CPULAF	S1	Window sensor (only ChemFAST Elite)
J2 - CPULAF	S2	
J3 - PWLAF	S3	Not used
J2 - PWLAF	S4	Not used

17A. Wiring Diagram With AC Motor

17A. Wiring Diagram With AC Motor

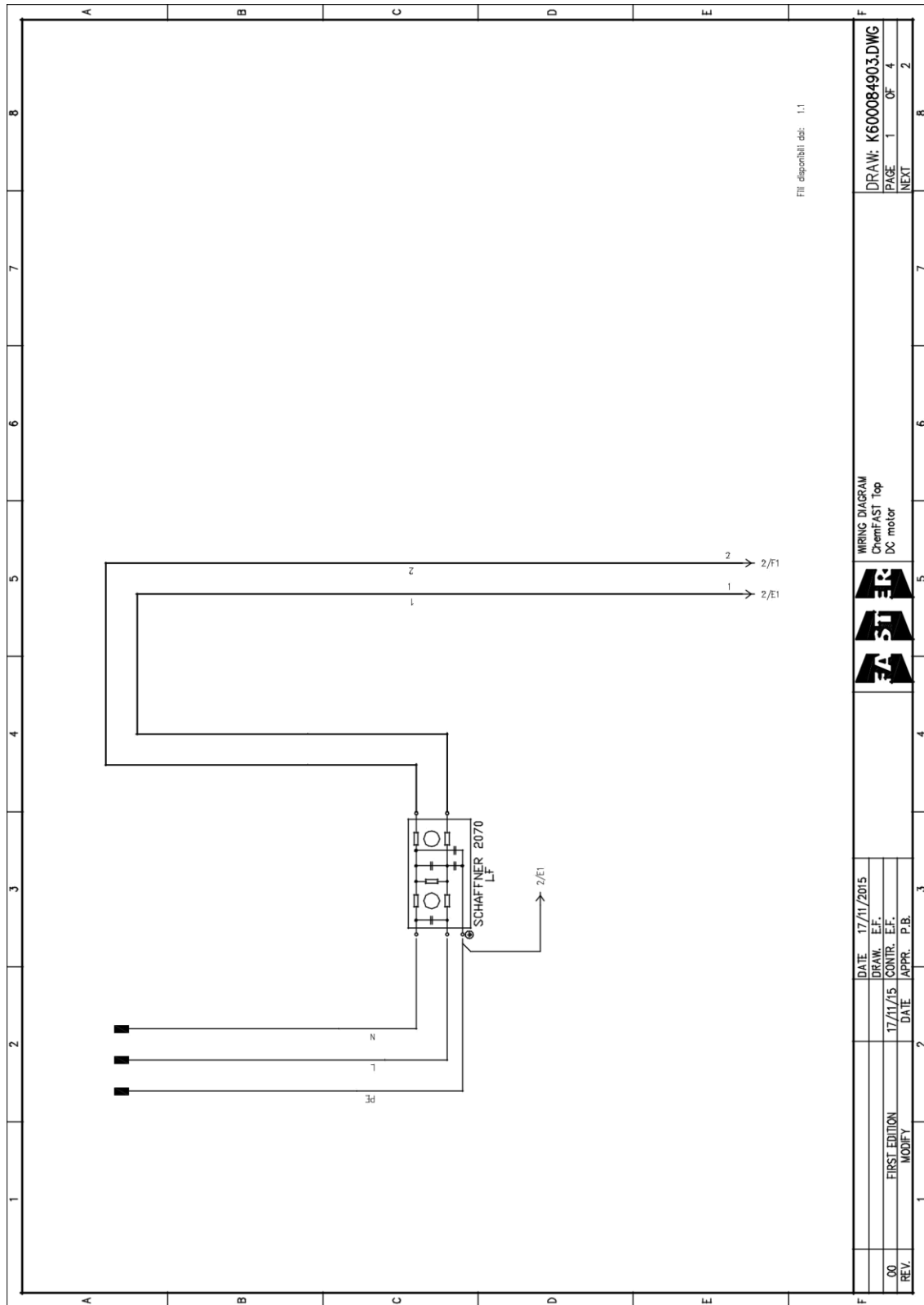


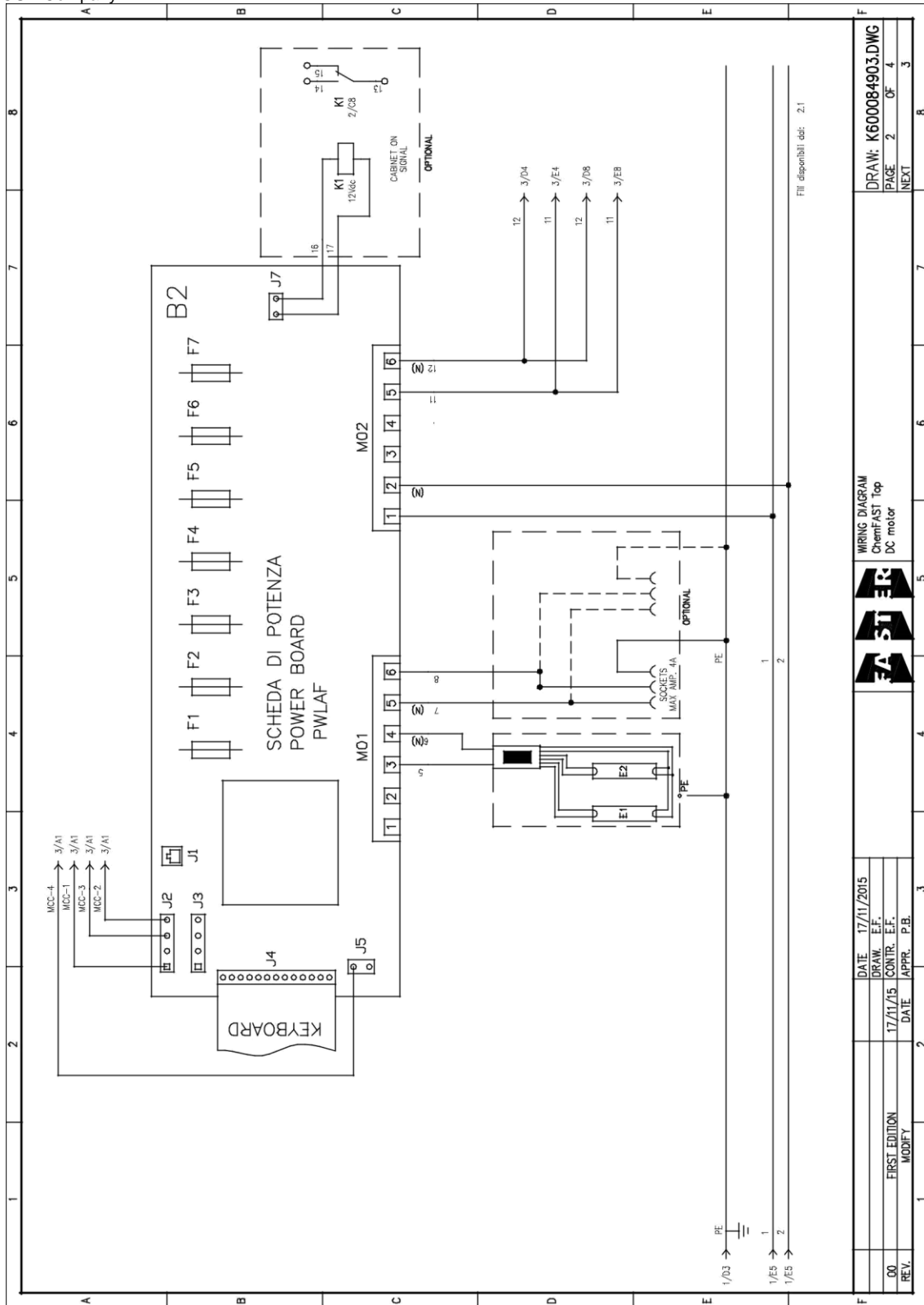
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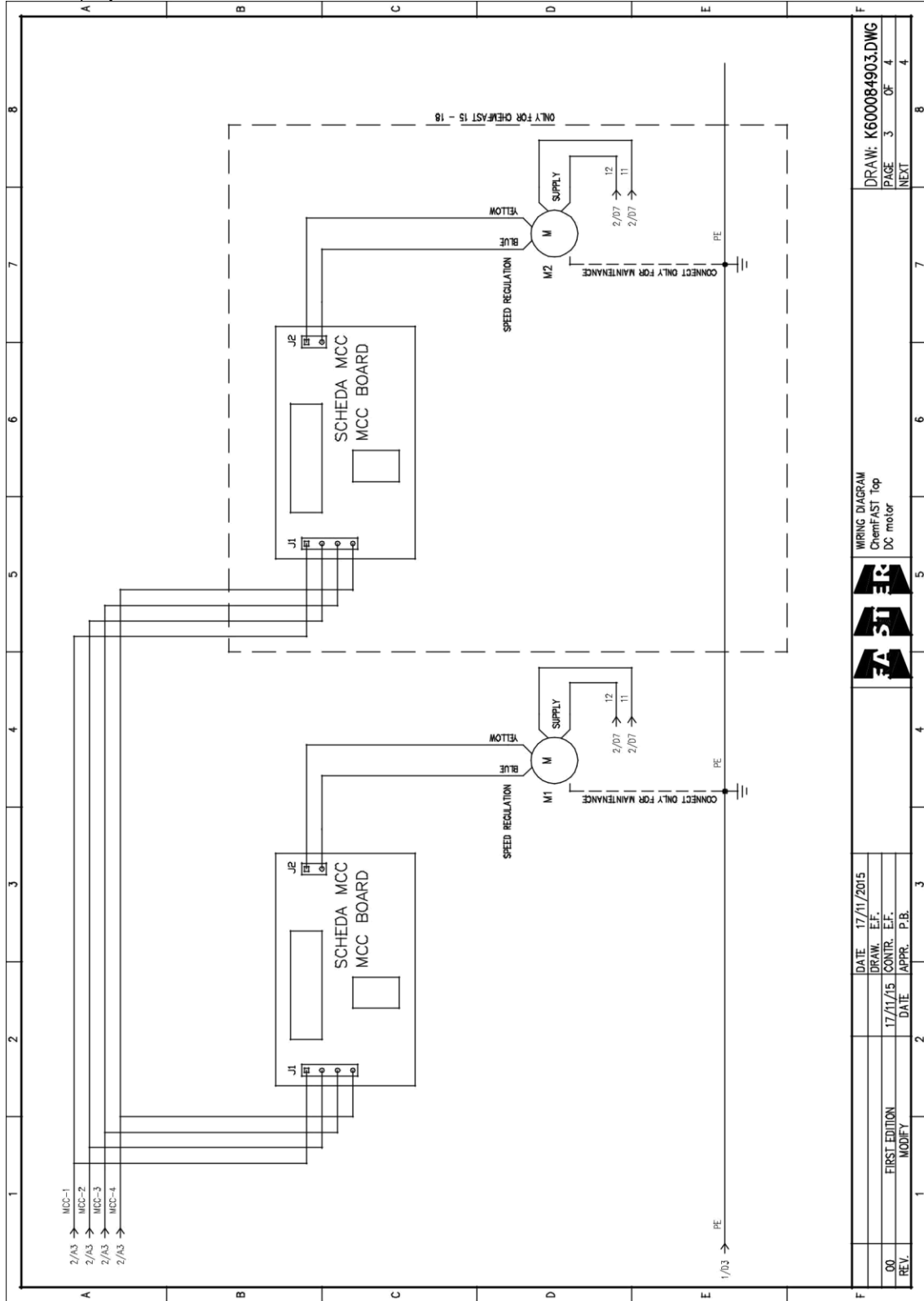
a D:GROUP Company

17B. Wiring Diagram With DC Motor for Extra Filter





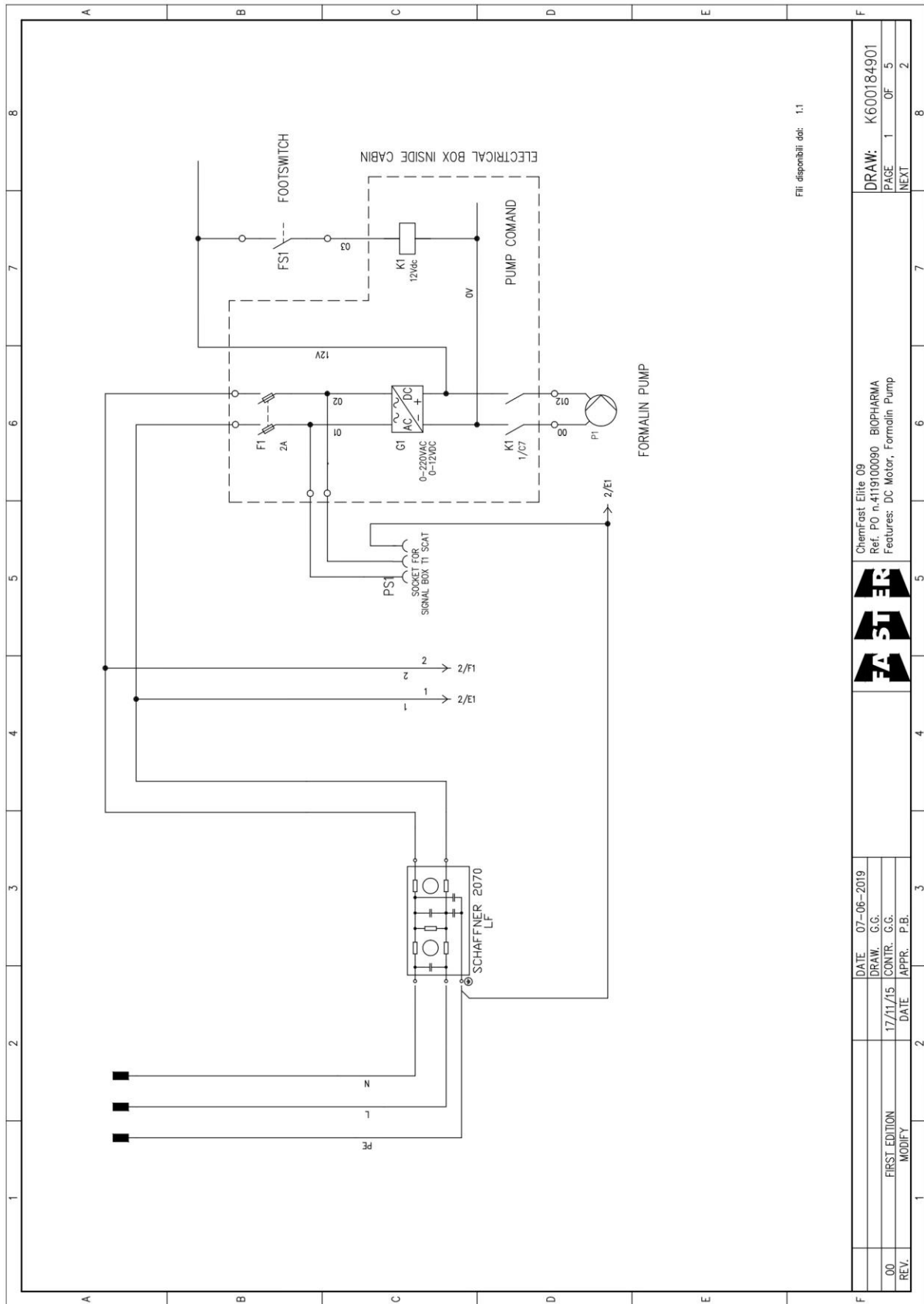
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CONTR. E.F.				
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FIRST EDITION			CONTR. E.F.			APPR. P.B.			PAGE		3
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17C. Wiring Diagram With DC Motor and Fluid Pump



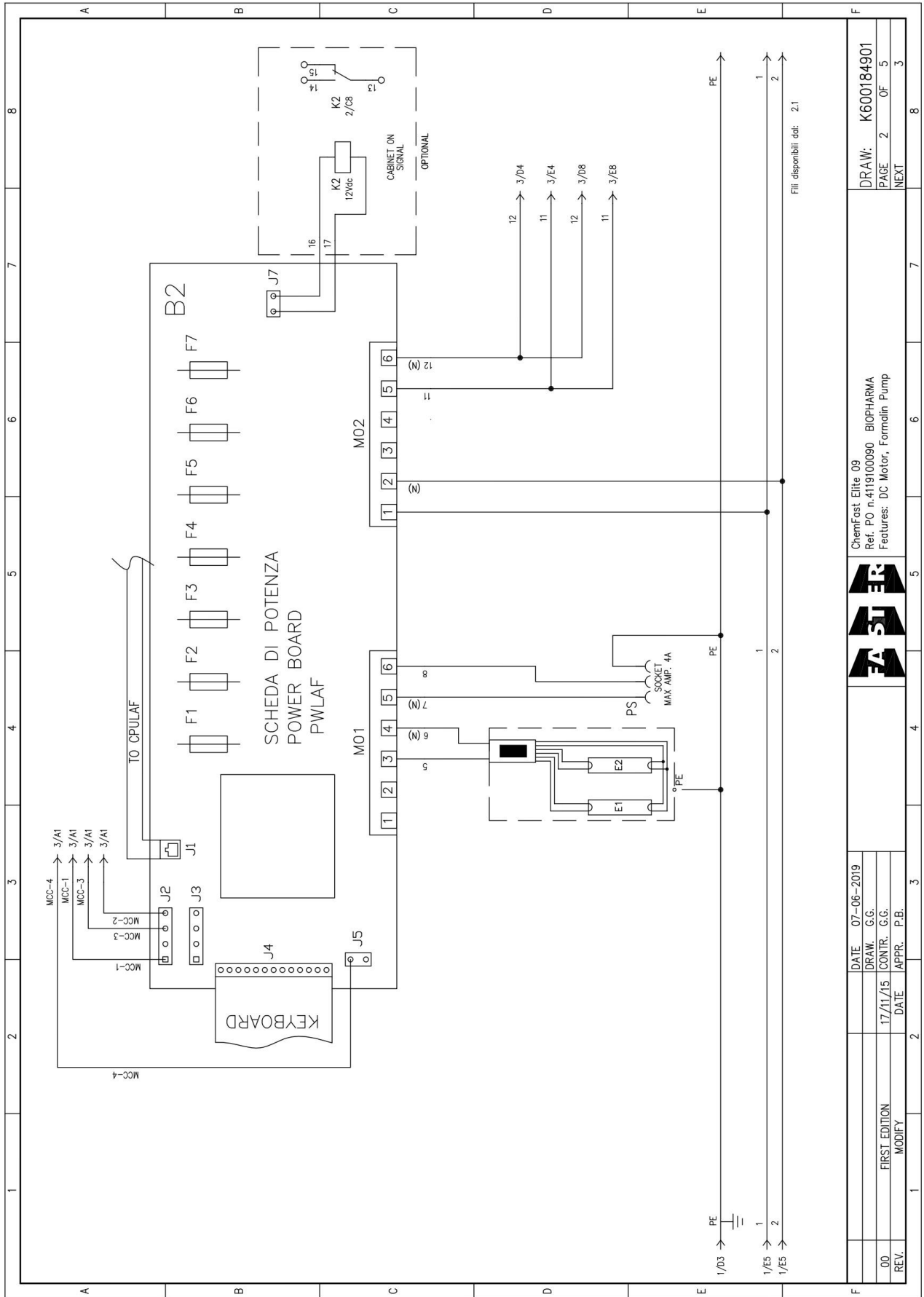
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PAGE 1 OF 5
NEXT

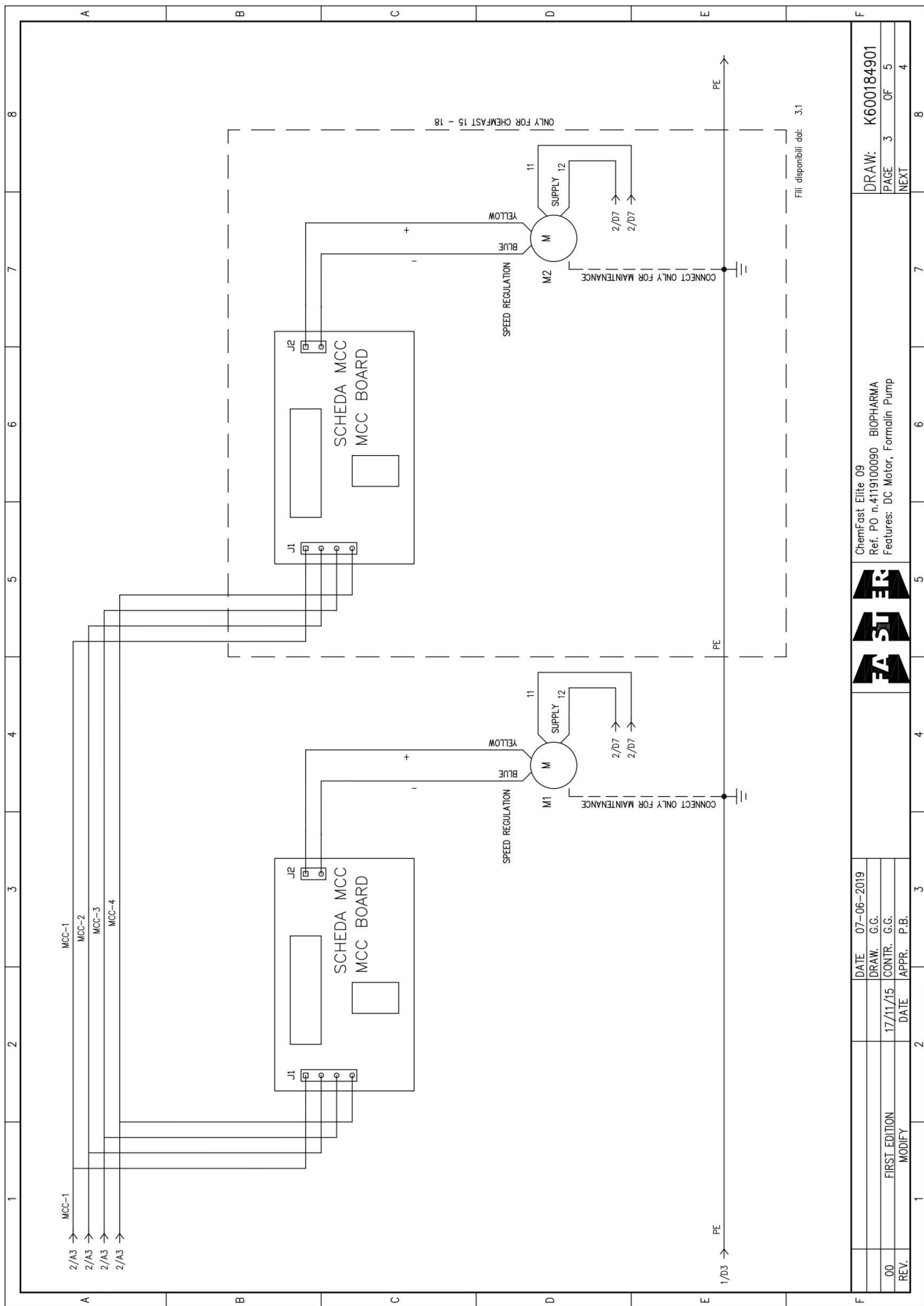
ChemFast Elite 09
Ref. PO n.4119100090 BIOPHARMA
Features: DC Motor, Formalin Pump

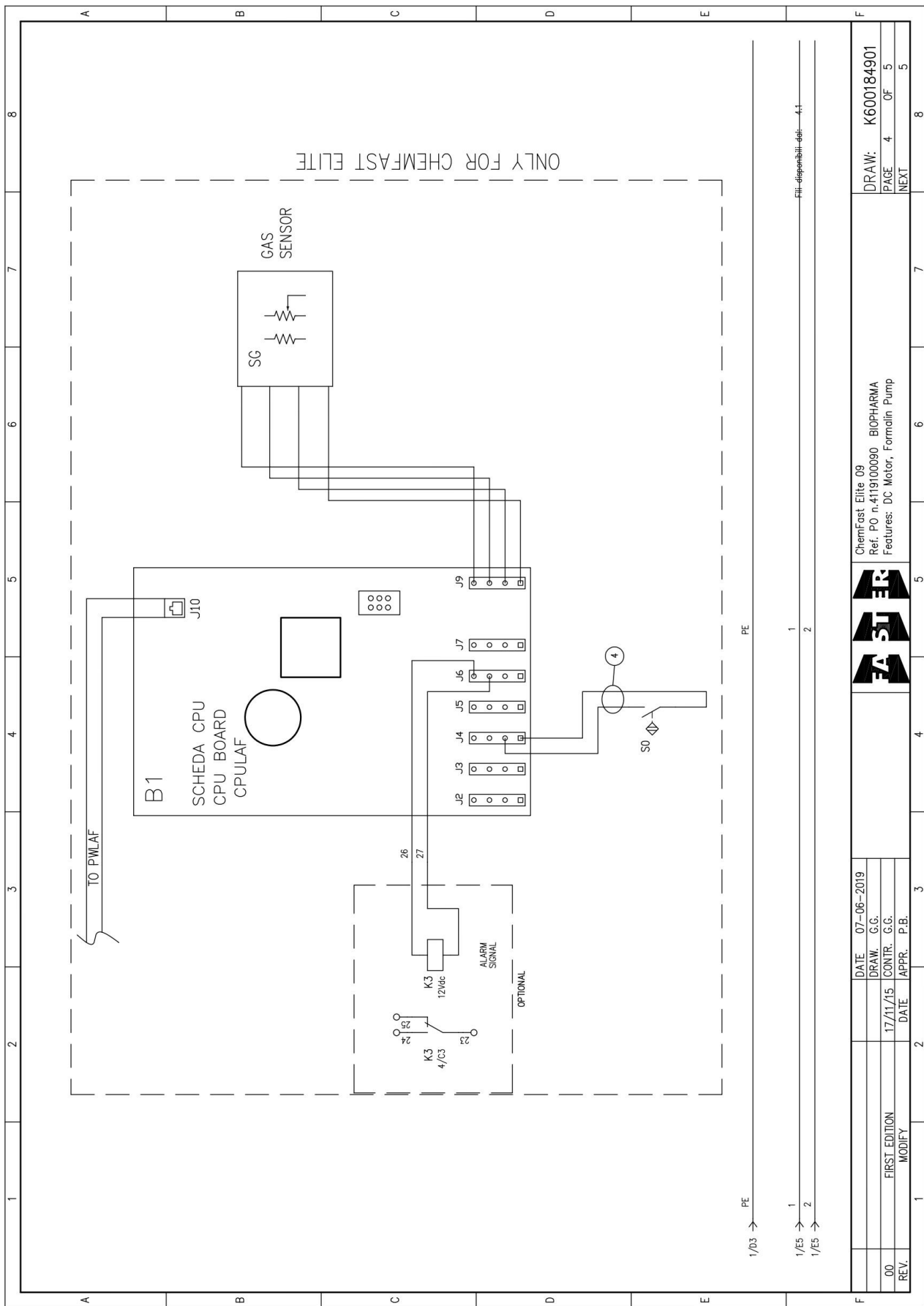


DATE 07-06-2019
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17/11/15 CONTR. G.G.
DATE APPR. P.B.

FIRST EDITION
MODIFY







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18. DECLARATION OF CONFORMITY



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

ChemFAST Elite/Top

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 approximation of the laws of the Member States relating to electromagnetic compatibility
2014/35/UE	Directive of the European Parliament and of the Council on the harmonisation of the laws of Member States relating to electrical equipment designed for use within certain voltage limits

and with the following standards:

BS 7258-1:	Laboratory Fume Cupboards Part 1: Specification for safety and performance
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, October 10, 2016

Faster S.r.l.



Maria Giulia Turzi
Chairman of the board