FORTUNA Workstation

User Manual

origio

Dear User,

Congratulations on your purchase of a FORTUNA workstation. This device has been tested and certified to protect your samples from particles.

The user's manual is meant to provide you with instruction on how to use the FORTUNA workstation safely and effectively.

The FORTUNA workstation provides you with unique features that will enable you to perform your IVF processes safely and effectively.

For any further questions on using this product or need further explanation of any of its features, please contact ORIGIO A/S, or your local distributor.

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I. HOW TO USE THIS MANUAL

This manual is only meant as a guide on the operation of the workstation for the user, who uses the workstation as part of their regular procedures in the laboratory.

It does not contain information with regard to the technical service, maintenance, and details of design, production, or every possible situation which may arise during installation. This work or actions are to be completed by a certificated or technically trained engineer approved by ORIGIO or our authorized distribution network.

To reduce the risk of fire or electric shock, do not disassemble or remove any covers as there are no user serviceable parts inside.

Repair should be done by authorized service personnel only.

Correct Use

The following procedures must always be followed:

- Prior to the initial operation of the workstation, the operator must perform an installation test. The test result must be documented by a test report. The installation test must be performed by a qualified technician or a certified company.
- The use of the product will be confined to trained and expert users
- Keep these operating instructions close to the unit so that safety instructions and important information are always accessible.
- The operator must prepare clear standard operating instructions in the language of the operating and cleaning personnel based on these operating instructions.
- Should you encounter problems that are not properly detailed adequately in these operating instructions, please contact ORIGIO immediately for your own safety.
- After any changes to the installation conditions or after any modification to the technical system, a repeat test must be performed and the test result must be documented by a test report.

Incorrect Use

- The FORTUNA workstation must not be used as a biosafety cabinet.
- The workstation must not be operated if no repeat test is performed at the installation or after changes in the installation conditions or modifications to the technical system, as the protection provided by the equipment may be impaired.
- The workstation must not be operated if the alarm system of the device has issued a failure message and the cause for the failure has not been repaired, as the protection provided by the equipment may be impaired.

a. Standard and safety regulations

The device complies with the safety requirements of the following standards and guidelines:

USA/Canada

- IEC 61010-2-010
- IEC 61010-1 3rd edition

Europe / Middle East / Africa

- IEC 61010-2-010
- IEC 61010-1 3rd edition

Australia /Asia / Pacific

- IEC 61010-2-010
- IEC 61010-1 3rd edition

b. General Notes

The address of ORIGIO Headquarter is:

ORIGIO A/S
Knardrupvej 2
2760 Måløv Denmark

For inquiries call Customer Service: +45 46 79 02 02 or by email customer@origio.com

c. Intended use

The FORTUNA cabinet is a microprocessor controlled laminar airflow cabinet, for installation and operation in laboratories for sample protection. The FORTUNA workstation is available as a laminar airflow cabinet and as an IVF workstation. Depending on the model the IVF workstations is available with the option of one or two warmed surfaces in the table plate with processor controlled heated glass, one or two gas humidified devices, an LCD or LED monitor, an anti-vibration table, UV Light, and preparation for the integration of microscopes with an integrated light source.

d. Symbols used in the user manual

Throughout this manual, blocks of text may be accompanied with a pictogram. These blocks are WARNINGS, CAUTIONS, and IMPORTANT NOTES and they are used as follows:

	**NOTE** **Used to direct attention to a special item or for useful information**
	WARNING
	DANGER UV light radiation hazard. Use only with shielding in place. Protect eyes and skin from exposure to UV light.
	FURHTER INFORMATION Further information is provided in other sections or manuals.

e. Warranty and Liability

Limited Warranty

ORIGIO Equipment warrants to the purchasers of all devices and products solely manufactured by ORIGIO.

In the event of product failure under normal use, due to defects in material or workmanship, within a period of twenty four months (24) months from the date of invoice of the Product and from the point of origin, the product will be repaired, or at ORIGIO option, replaced, at **no** charge. ORIGIO assumes that the Purchaser is experienced in the use of this device and is able to judge from his/her own expertise the suitability or otherwise of the product for the intended use. This limited warranty does not apply to products subjected to abnormal use or conditions, improper storage, damaged by accident, misuse or abuse, improper line voltage, products whose serial number has been altered, to products not shipped in accordance with the recommendations of ORIGIO, and/or to products altered or serviced by anyone other than ORIGIO authorized distributors. Distributor is responsible for the labor and travel costs during this period.

This limited warranty is exclusive and in lieu of all other warranties whether written, oral, expressed or implied. In particular, ORIGIO does not warrant that the product is suitable for the needs of the purchaser and there are no warranties given as to merchantability or fitness for a particular purpose other than the one specified in ORIGIO literature that accompanies every specific product.

ORIGIO reserves the right to change or discontinue this product without prior notice.

Liability:

Because ORIGIO EQUIPMENT has no control or influence over the conditions under which this device is used, over its method of use or administration, or on handling of the product after it leaves its possession ORIGIO takes no responsibility for the results, use and/or performance of the product. ORIGIO expects that use of the product will be confined to trained and expert users.

In no event shall ORIGIO be liable for any direct or indirect damages including incidental, consequential or special damages, arising out of or in connection with the use or performance of the product.

If ORIGIO provides you with technical documentation, this does not authorize you to perform repairs, adjustments or alterations on the device or accessories.

No representative of ORIGIO and no vendor of the product is authorized to change any of the foregoing terms and conditions, and the purchaser accepts the product subject to all terms and conditions herein, subject always to any contrary provisions which are necessarily implied by stature or law notwithstanding the within terms and conditions.

Replacement:

As mentioned in the Limited Warranty, The decision whether to provide any remedy or whether to refund any portion of the purchase price shall be at the discretion of ORIGIO.

Before returning a product for any reason, please contact your nearest ORIGIO distributor for assistance and instructions.

f. Safety Instructions

☞	**To avoid unintended or improper operation of the workstation, please read this manual carefully**
	**Warning:** *The workstation should be certified by a qualified technician or a certified company before its initial use. The workstation should be recertified whenever it is relocated.* *The workstation has to be serviced annually thereafter.* *Do not assume that filter integrity and airflow performance have not been compromised during shipment.* .
☞	**To ensure that the working area is clean and sterile the workstation fan must be run at normal speed for at least 30 minutes prior to working inside the Workstation.**
☞	Objects and instruments must be carefully cleaned and/or disinfected before bringing them into the work chamber.
☞	Necessary instruments for use during work must be placed within reach to avoid unnecessary movement inside the Workstation.
☞	For reliable operation it is important that the air-flow conditions are as unobstructed as much as possible. Therefore, never overload the work chamber.
☞	Put on necessary personal clothing for reducing particle emission from operator (i.e. gloves, masks and general clean room clothing). Special attention should be given to hands and lower parts of the arms, as these are the parts of the operator most likely to emit particles near the product.
☞	All work in the workstation must be performed with slow movements. Rapid arm movements in the chamber may cause slipstreams, which will draw contaminated air into the work chamber.
☞	Transport of possibly contaminated material may create airflows which can contaminate the product.
	The device must not be used for working with materials which can cause allergic reactions, or any harm to the health of the operator or the personnel. Attention is drawn to the risk assessment requirements of the Control of Substances Hazardous to Health (COSHH) Regulations 1999. (UK)
	The workstation is not suitable for HIGH-RISK biological agents. HIGH RISK biological agents include all etiologic agents designated Class 4 by CDC, and oncogenic viruses classed high risk by NCI. (USA)
	The workstation will not provide any protection for operator or environment against harmful gases or vapors.
	There are no user-serviceable parts within the housing. Repairs to this equipment should only be performed by a qualified technician or certified company. For service information, please contact your nearest ORIGIO distributor for assistance.
	Some internal components of the workstation may become contaminated during normal use of the unit. Only experienced personnel competent in decontamination procedures or certified

	companies should decontaminate the workstation before servicing these components.
	Ensure that the workstation is connected to electrical service in accordance with local and national electrical codes. Failure to do so may create a fire or electrical hazard.
	Do not remove or service any electrical components without first disconnecting the workstation from electrical service.
	Avoid the use of flammable gases or solvents in the workstation. Care must be taken to ensure against the concentration of flammable or explosive gases or vapors.
	An open flame should NOT be used in the workstation. Open flames disrupt airflow patterns in the workstation and may burn the HEPA filter and/or damage the filter's adhesive.
	Gases under high pressure should not be used in the workstation, as they may disrupt its airflow patterns
	The HEPA filter is fragile and should not be touched. Avoid puncturing either HEPA filter during installation or normal use. If you suspect that a HEPA filter has been damaged, DO NOT use the workstation; contact a local certification provider.
	The HEPA filter in the workstation will gradually accumulate airborne particulate matter from the room and from work performed in the workstation. The rate of accumulation will depend upon the cleanliness of the room air. The airflow sensor(s) will alarm when the HEPA filters will need to be checked.
	The VOC filter placed in the contained box on top of the workstation has to be exchanged every 3 to 6 month. The rate of exchange of the VOC filter will depend upon the cleanliness of the room air. Only experienced personnel competent in decontamination procedures or certified companies should replace and decontaminate the workstation before use.
	Fuses must be exchanged by a qualified technician or a certified company. Please contact your nearest ORIGIO EQUIPMENT distributor for assistance.

g. Symbols on the equipment

	**Caution – Consult this manual for safety precautions**
	Protective Earth Symbol
	**Caution - High voltage. Possibility of electric shock**.
	DANGER UV light radiation hazard. Use only with shielding in place. Protect eyes and skin from exposure to UV light.
	Label Power outlet(s), maximum 200 W per outlet (2 outlets per workstation is the maximum)

II. DELIVERY

a. Standard Components

Model FORTUNA LAF:

- LAF cabinet
- 2 x Electrical outlets in the back wall
- Support frame (Legs Assembly and fittings)

Model FORTUNA IVF:

- LAF Cabinet with Heated surface and heated surface controller
- Heated Glass and controller (HG37model)
- Support frame (Legs Assembly and fittings)
- 2 x Electrical outlets in the back wall
- Humidifier with one glass bottle per humidifier
- An anti-vibration table (only for FORTUNA1200 ICSI and FORTUNA 1800 MP)
- An integrated 21” monitor (except the FORTUNA 1200 ICSI)
- A USB connection
- A shelf for mounting for the Heated Glass controller unit.

All models:

- Device documentation:
  - Installation manual,
  - Bolts, screws and washers required for the installation
  - User manual,
  - Factory test report,

Optional components and accessories will be listed as separate items in the delivery document.

b. Inspection and acceptance

After the device has been delivered, immediately check:

- The device is complete and according to order,
- For possible damage.

	**Please refer to the “Transport” section for further information about anti-shock and anti-tilt sensor activation.**

c. Transport

To prevent tilting, always transport the device using a suitable carrier, even for a transport within a building, and separate it from the stand.

CAUTION:
Do not transport the device over large distances without transport lock and original device packaging

The device is packed in a wooden like crate mounted and strapped to a wooden pallet. The workstation is also fixed to the pallet with 2 screws in the back.

For the safety of the device and making sure that the device has been properly handled, anti-chock and anti-tilt sensors are placed on the exterior of the crate. In case of activation of the sensors, please notify and report it immediately to your transporter and your local ORIGIO distributor and inspect the device accordingly for damages.

Handling

Indicator

Handling

Indicator

III. INSTALLATION

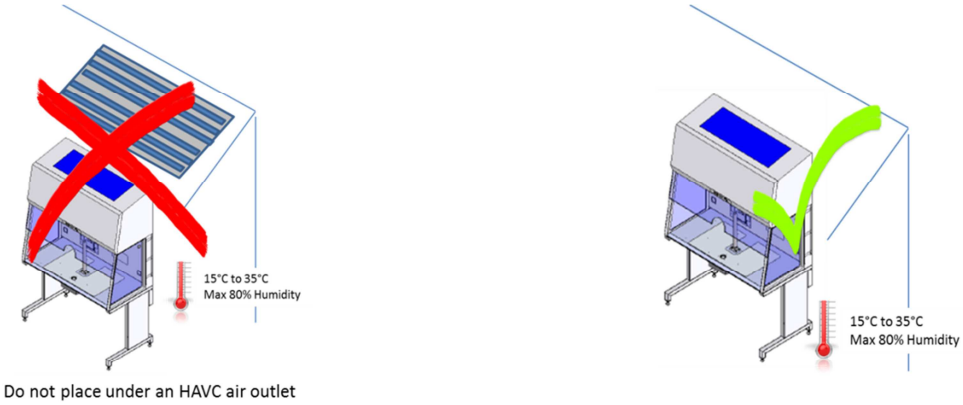
CAUTION:
The installation of the workstation must be completed by a certificated or technically trained engineer approved by ORIGIO or our authorized distribution network

a. Ambient Locations

The operational safety and proper function of the device depend on the location where it is to be used. The device must be operated only at locations that meet the ambient conditions listed below.

Location requirements:

- The electrical system of the device has been designed for an operating height of up to 2000 m (6500 ft.) above sea level.
- The cabinet is to be used indoor only.
- Operate the workstation only at or below Pollution Degree 2
- The mains power supply outlets should be out of normal reach to prevent accidental shut-off, but within easy access for disconnection.
- The flooring of the location must be adequately strong.
- The room in which the device is installed must be of adequately height. The distance between the exhaust air opening and the room ceiling must be at least 200 mm (8 in).
- The location must be equipped with an appropriate ventilation system.
- The temperature within the room must be between 15 ℃ and 35 ℃ (68 ℉ and 95 ℉)
- The relative humidity in the vicinity of the device must not exceed 80%.
- Choose a draft-free location where the workstation does not interfere with the room traffic.
- The device should be placed on a level secure surface, away from heaters, coolers and air-conditioning outlets.



Do not place under an HAVC air outlet

Figure A

Temporary Storage: If the device is stored only temporarily (up to four weeks), the ambient temperature may be between +5℃ and 40℃ (4 1℉ and 104℉). For longer storage periods, the location requirements apply.

b. Room Ventilation:

The room ventilation of the laboratory should preferably be a ventilation system that complies with the national requirements for the application.

- The inlet air and exhaust air openings of the room ventilation must be located so that drafts are prevented from impairing the function of the Fortuna air system.

c. Installation test

Do not operate the equipment before the installation test has been completed.

The installation inspection of the workstation must be conducted by a qualified technician or a certified company. It is important to validate if the workstation functions listed below were checked and if the results are within the safety value tolerances specified in the manufacturing test report included in the folder.

- Down flow velocity test
- Airflow smoke pattern test
- Temperature calibration of the heat surface and the heated glass. (FORTUNA IVF only)

A repeat test must also be performed after repairs to the device or after moving the device more than 10 cm (4.9 inch).

The operator must request a written test report from the authorized test service.

Safety warranty: The operational safety of the device, particularly the samples, is guaranteed only if all safety functions of the device have been tested and approved. ORIGIO will not warrant the operational safety if the device is operated without performance of the required installation test or if the installation test and repeat test are not performed by adequately trained and authorized personnel.

Device Hygiene: **The installation test does not include** any decontamination measures. For operation in the sample chamber of the workstation, the sample chamber and the accessories required for the work process must be disinfected and cleaned in accordance with the hygiene guidelines set forth for the application.

h. Accessories

CAUTION:
The installation of the workstation must be completed by a certificated or technically trained engineer approved by ORIGIO or our authorized distribution network

There are several accessories that can be either integrated or added to the FORTUNA workstation. These concerns:

- Light source: TLB 7000
- Heated glass stage: HG37
- Humidifier
- Integrated Stereomicroscope(s)
- Camera(s) for the stereomicroscope(s)
- LED or LCD monitor
- Mini-Incubator Placement
- Liquid Bath heating controller
- Anti-vibration table
- UV – Light shield cover

It is important to refer to the operating instructions recommended by the manufacturer. The user manuals are found separate to this document

- **Light source TLB 7000:**

Depending on the customer order and on the configuration selected, a light source TLB 7000 can be attached to the bottom of the workstation table plate.

To operate the light source, please refer to the TLB 7000 Manual included in the provided instruction manual folder.

- **Heated Glass HG37:**

As standard every FORTUNA IVF workstation (except the FORTUNA 1200 ICSI) has a heated glass integrated in the table plate. The controller of the heated glass has to be mounted and connected to the heated glass.

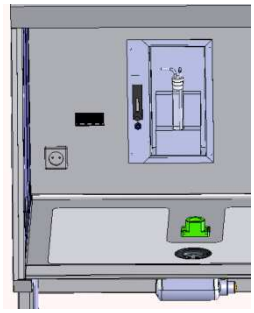
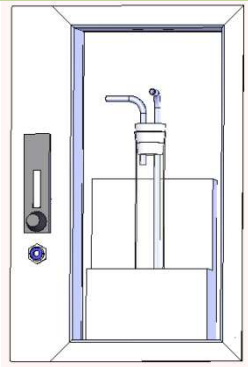
To Operate the Heated Glass refer to the HG37 included in the provided instruction manual folder.

- **Humidifier:**

The FORTUNA IVF workstation is fitted with one humidifier with a single glass bottle as standard

Model variation:

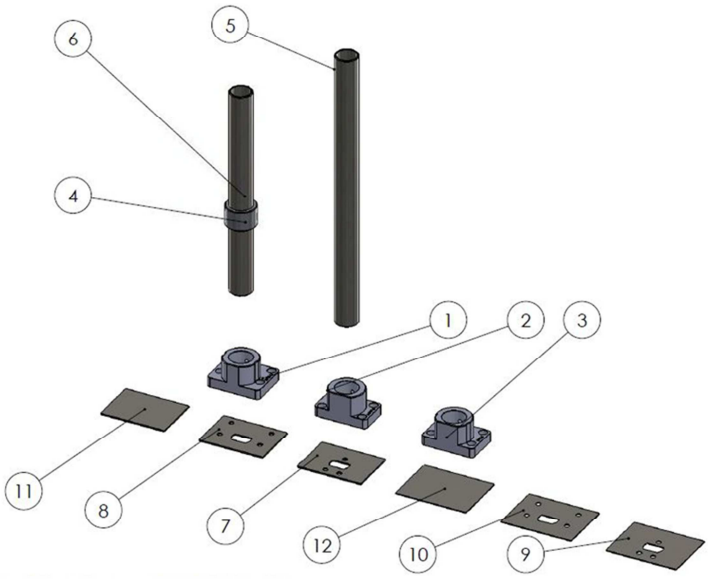
- *The humidifier is not available on the FORTUNA 1200 ICSI.*
- *The FORTUNA 1800 DUAL, has two humidifiers with a single glass bottle as standard each*

	1. The nozzle for the output of gas is fitted on the back wall of the work area, next to the humidifier glass bottle.
	2. The glass bottle is placed in a aluminum block which is heated via the table plate heating system 3. To use the humidifier, connect the gas tube located at the back of the workstation to the laboratory premixed carbon dioxide gas source. 4. It is recommended that the gas inlet pressure to the workstation does not exceed 0.5bar. 5. Fill the humidifier glass 4/5 up with distilled water. The water will only need to be replaced occasionally.
	**Do not use 100% CO2; this will be lethal to your samples. Use only premixed 5% or 6% CO2 gas concentration.**
	6. Use a glass hood (option, not provided as standard) and connect the elbow with a silicon tube and connect the other end of the silicon tube to the outlet of the gas located next to the humidifier glass bottle.
	7. A standard setting on the gas valve is 4-5 l/hour, but this varies with the user preferences. 8. Once satisfied with the gas flow into the glass hood, place it over the specimens/petri dish on your heated table plate.
☞	**If not in use, remember to turn the gas valve to the minimum. For a complete stop of the gas, the connection to the laboratory gas has to be disconnected.** **The glass bottle and the glass hoods can be disconnected and autoclaved.**

- **Integrated microscope(s):**

The stereomicroscope preparation is standard in the FORTUNA IVF workstation (except in the FORTUNA 1200 ICSI).

The workstation will be delivered with a kit with different adaptors and bolts to fit most of the microscopes



* The blanket cover is to be drilled in case of a need to fit other microscope types

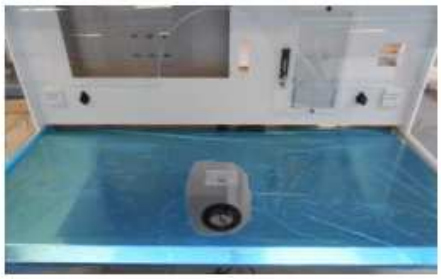
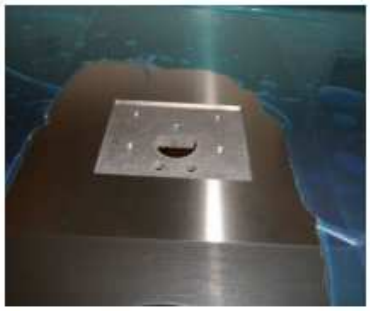
KIT INCLUDES

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	WG0244	MP18 Olympus adapter	1
2	WG0245	MP19 Nikon adapter	1
3	WG0247	MP6 Zeiss adapter	1
4	WG0299	microscope stand stop ring	1
5	WG0359	Ø32 mm microscope pole 400 mm	1
6	WG0400	Ø32 mm microscope pole 300 mm	1
7	WG0854	cover plate Leica	1
8	WG0855	cover plate Nikon-Olympus-Zeiss	1
9	WG0860	top plate Leica	1
10	WG0861	top plate Nikon-Olympus-Zeiss	1
11	WG0864	cover plate - no holes	1
12	WG0865	top plate - no holes	1

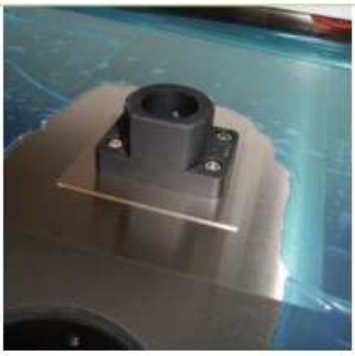
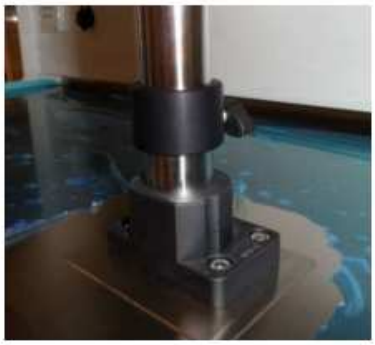
Microscope Kit (items not shown)

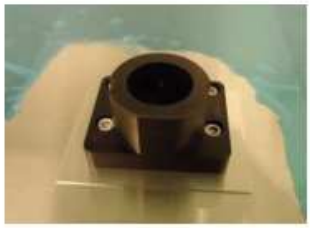
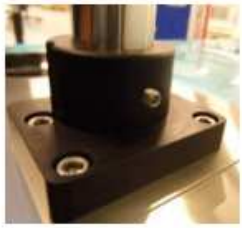
Item Number	Part Number	Description	Quantity
13	WG0027	6 x 16 bolt ss shcs	4
14	WG0083	M5 washer	3
15	WG0395	28mm cap	1
16	WG0515	M6 x 15 finger screw	1
17	WG0665	M5 lock washer	3
18	WG0712	BNC converter RG6/RG59 to VGA	1
19	WG0816	M6 x 8 blind set screw	1
20	WG0867	M5 x 25 buttonhead	3
21	WP0035	cardboard box 420x210x70 mm	1

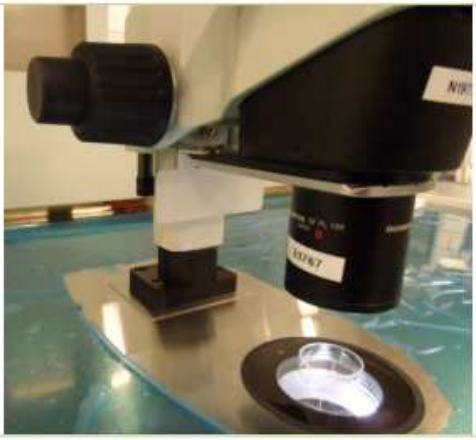
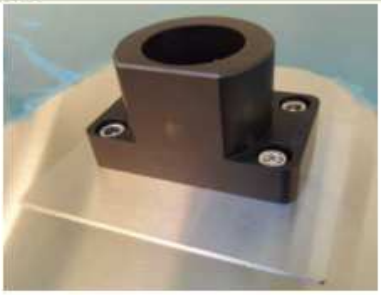
Fitting Plates

1.	Remove existing plate. Place protective cover over table work area.	
2.	Clean fitting slot area. Remove any dust.	
3.	Remove protective cover from lower stainless steel plate. Insert lower stainless steel support plate to the slot.	
4.	Remove protective cover from top stainless steel cover plate. Place top stainless steel cover plate over lower one and line up holes.	
5.	For Olympus go to point 11 For Nikon go to point 14 For Leica go to point 17	

Zeiss

6.	Place Zeiss pole mounting block 'MP6-Z' (WG0247) on the top plate. Secure into place with 4 M6x16 (WG0027) bolts.	 
7.	Place pole (L300 = WG0400 or L400= WG0359) into mounting block. Secure with M6x8 grub screw (WG0816) at the back.	 
8.	Place supporting collar and tighten butterfly screw at the back.	

9.	Place microscope supporting bracket on to pole.	
10.	Place microscope on to supporting bracket. Install TLB7000 light source and focus as required.	
	Olympus	
11.	Place Olympus pole mounting block 'MP18-O' (WG0244) on the top plate. Secure into place with 4 M6x16 bolts (WG0816).	 
12.	Place pole (L300 = WG0400 or L400= WG0359) into mounting block. Secure with M4x8 grub screw (WG0816) at the back.	 

13.	Place microscope on pole and focus as required.	
	Nikon	
14.	Place Nikon Mounting block and secure into place with 4 M6x16 (WG0027) bolts.	 
15.	Place pole (L300 = WG0400 or L400= WG0359) into mounting block. Secure with M4x8 grub screw (WG0816) at the back.	 
16.	Place microscope on pole and focus as required.	

Leica

17.	Place Leica mounting plates on to table plate.	
18.	Place Leica pole on to table plate.	
19.	Mount microscope on to the pole.	

- **Camera(s) for the stereomicroscope(s):**

The stereomicroscope preparation is standard in the FORTUNA IVF workstation (except in the FORTUNA 1200 ICSI). The stereomicroscope can be fitted with an analogue or digital camera. The camera connection to the monitor must be performed by a certificated or technically trained engineer approved by ORIGIO or our authorized distribution network.

	**Please refer to the manual of the microscope and camera manufacturer for the installation, instructions and cleaning.**

- **LED / LCD Monitor:**

The FORTUNA IVF has an integrated monitor as standard (except the FORTUNA 1200 ICSI). To adjust the contrast or the light intensity, it has to be performed by a certificated or technically trained engineer approved by ORIGIO or our authorized distribution network.

	Please refer to the manual of the monitor manufacturer for the operating instructions of the monitor.

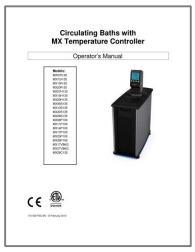
- **Mini Incubator Placement:**

The FORTUNA workstation has the option to have a preparation for integrating a mini incubator in the back wall. The installation must be performed by a certificated or technically trained engineer approved by ORIGIO or our authorized distribution network

	Please refer to the installation manual of the mini-incubator manufacturer for the installation, instructions and cleaning.

- **Liquid Bath Heating Controller:**

The FORTUNA IVF has the option to have Electrical or Liquid heating. For the latter, the use of a Liquid bath circulator is required. It is installed on the lower part of the support frame. The installation has to be performed by a certificated or technically trained engineer approved by ORIGIO or our authorized distribution network.

	To Operate the Liquid Bath controller, please refer to the provided instruction manual.  

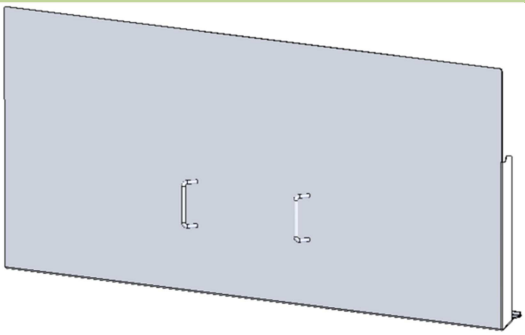
- **Anti-vibration Table:**

The FORTUNA 1200 ICSI and 1800 MP are delivered with an integrated anti-vibration table. The installation has to be performed by a certificated or technically trained engineer approved by ORIGIO or our authorized distribution network.

- **UV- Light Shield Cover:**

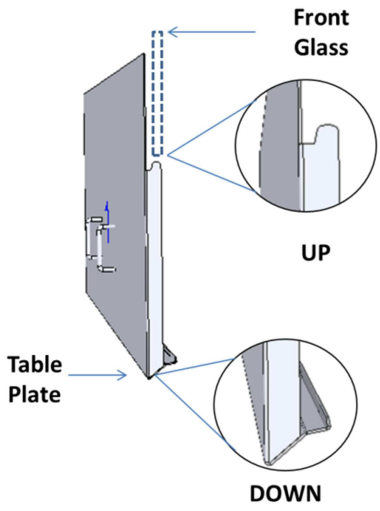
If the Fortuna is delivered with a UV-Light, a UV-Light shield cover has to be installed during UV-Light decontamination program.

	**For protection against unintended UV radiation which will harm eyes and skin, use the timer to start the UV decontamination when no personnel is present in the room where the workstation is located.** **UV light may damage materials such as polymers, plastic found as an example in microscopes.**
	1. Remove the microscope (s) from the workstation

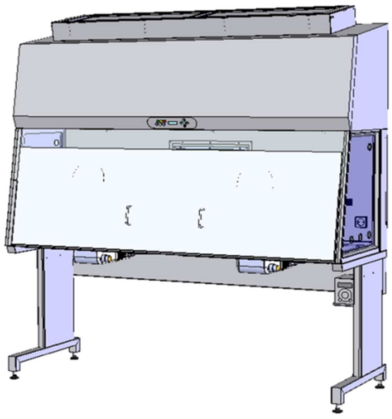


completely.

2. Take the shield cover with the handles



FORTUNA with the UV-Light Shield Cover



3. As indicated, in the left side drawing, make sure the shield is installed with the correct side. Slide and push gently the shield hooks under the front glass of the workstation and let the bottom rest on the table plate.

4. Once the decontamination program is finished, remove the shield cover by gently pulling and sliding the shield to release the hook from the front glass and pull towards you.

5. Re-install the microscope (s)

IV. DEVICE DESCRIPTION

The device is designed to provide a sterile environment within the working area of the workstation.

The FORTUNA workstation is designed to provide:

- Protection of the processed sample against particle contamination
- Heating control of the heated work area for sample handling (IVF Workstation configuration)
- Gassing and Humidification control for the sample (IVF Workstation configuration)
- Heating control of the light opening for morphology study under microscopy (IVF Workstation configuration)

This user manual covers the following models:

FORTUNA LAF Range:

- FORTUNA 900 LAF
- FORTUNA 1200 LAF
- FORTUNA 1500 LAF
- FORTUNA 1800 LAF

FORTUNA IVF range:

- FORTUNA 900 IVF
- FORTUNA 1200 IVF
- FORTUNA 1500 IVF
- FORTUNA 1800 IVF
- FORTUNA 1800 Dual
- FORTUNA IVF 1800 MP
- FORTUNA IVF 1200 ICSI
- FORTUNA IVF 1800 ICSI

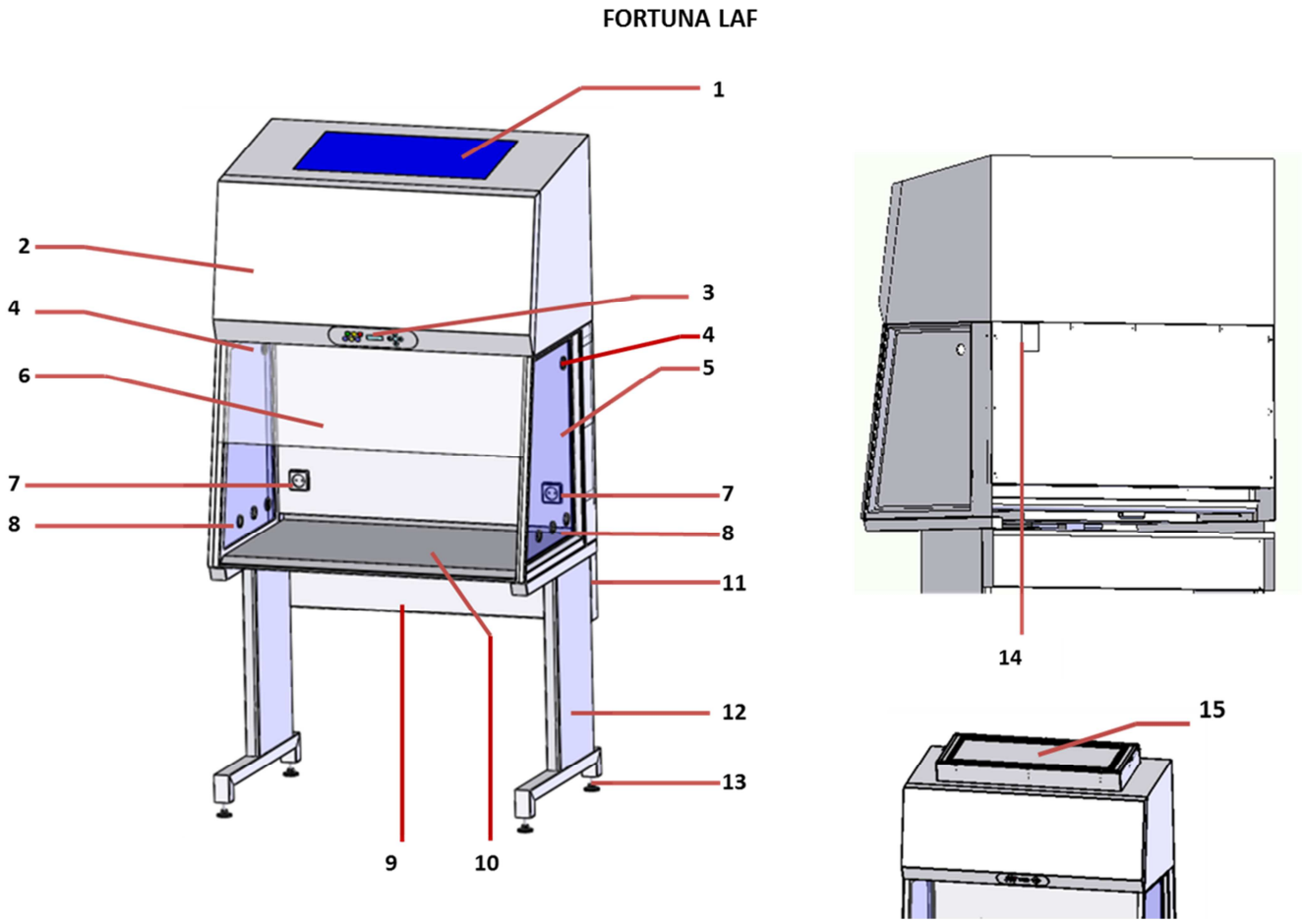
The FORTUNA workstation has a built-in microprocessor controller featuring:

- LCD display indicating fan and alarm status.
- Air velocity sensor.
- Clock (7 days) and hour-counter and pre-setting for the automatic start-up of the device.
- Keypads to program, turn ON/ OFF features, and enter numerical values.
- Pre-setting of automatic start-up and UV timer.
- Alarm for any deviation from safety conditions.

Furthermore, the FORTUNA workstation has the following characteristics:

- An ergonomically correct 10° sloping front for max imum operator comfort.
- Fixed front window, leaving a work opening of 55 cm.
- Side windows in safety glass for perfect light conditions and view to the surroundings.
- Negative pressure plenum for highest sample safety.
- Adjustable fan speeds.
- Work chamber with tabletop in stainless steel (AISI 304).
- The internal light is installed between the air distributor and the main HEPA filter. This secures that the light is glare-free and the airflow is turbulence free.

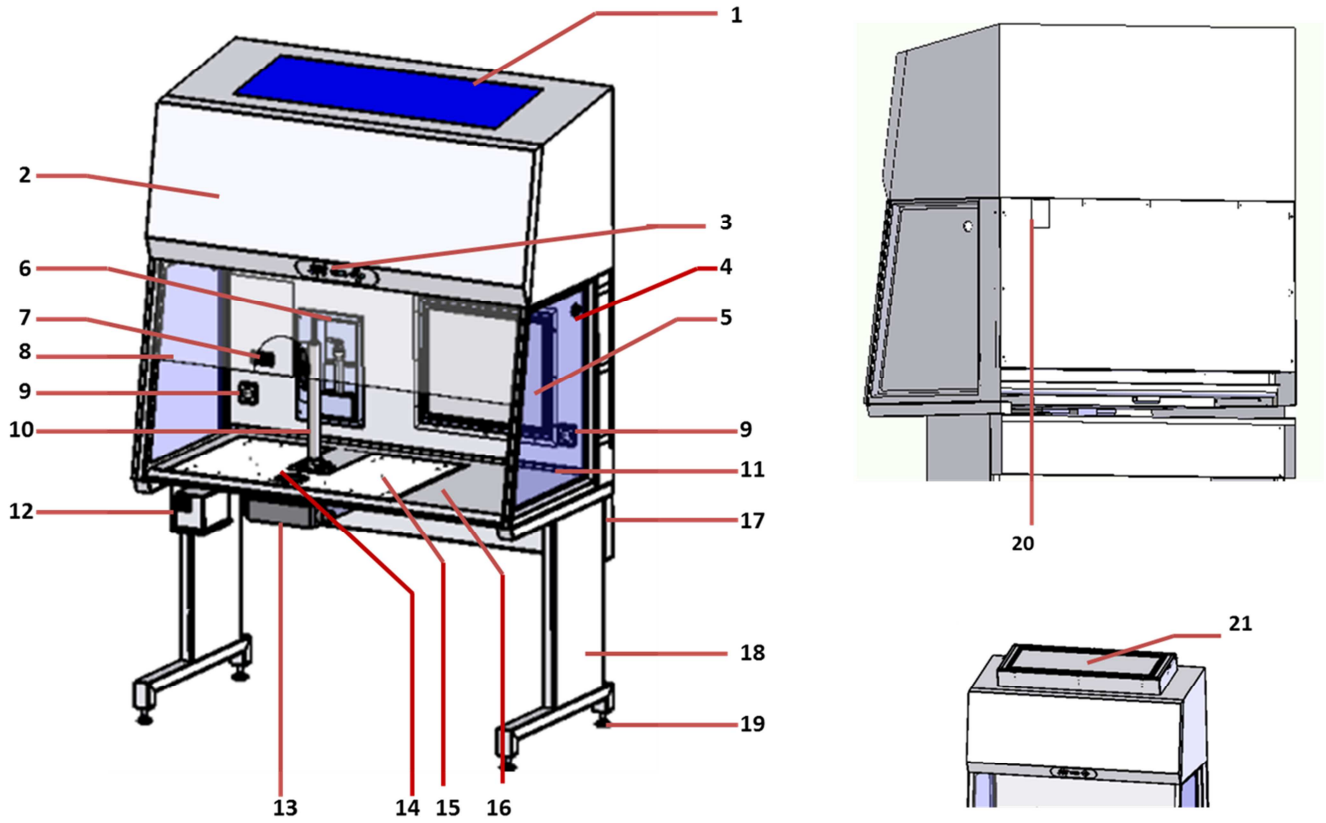
a. Overall view



FORTUNA LAF MODEL

1- Pre-filter and pre-filter holder.
2- Front cover of the unit.
3- Control panel.
4- Window openings for routing cables. The openings are blocked with a removable plastic cover.
5- Laminated safety Glass Side window
6- Laminated safety Glass front window
7- Electrical outlets.
8- Window openings for routing cables. The openings are blocked with a removable plastic cover.
9- Support frame.
10- Stainless steel table plate.
11- Cable channel integrated in the support frame.
12- Legs.
13- Feet, adjustable.
14- Power inlet.
15- VOC Filter and box (Optional)

Note: The FORTUNA LAF is available in different sizes.

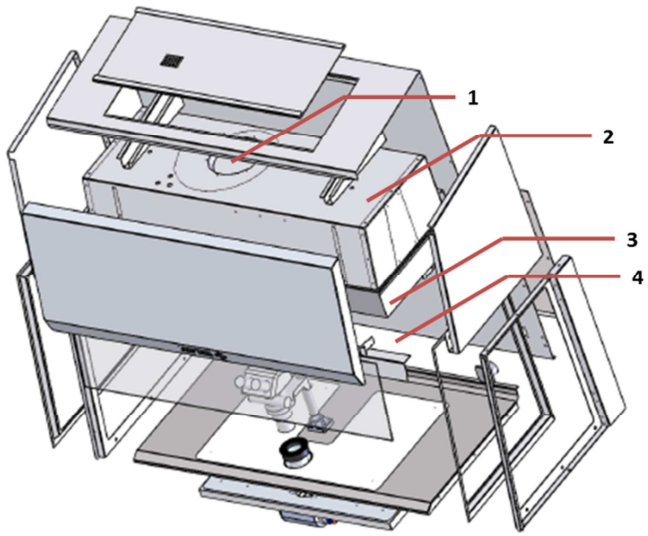


FORTUNA IVF MODEL

1. Pre-filter and pre-filter cage
2. Front cover of the unit
3. Control panel
4. Openings for routing cables. The openings are blocked with a removable plastic cover.
5. 21” monitor
6. Gassing and humidification device.
7. Heat controller.
8. Laminated safety Glass front window with a preparation cut for the microscope (s)
9. Electrical outlets.
10. Microscope pole.
11. Laminated safety Glass Side window.
12. Heated Glass controller – HG37.
13. Light source – TLB 7000.
14. Heated Glass – HG 37.
15. Heated surface.
16. Stainless steel table plate.
17. Support frame with integrated cable channel.
18. Legs.
19. Feet, adjustable.
20. Power inlet
21. VOC Filter and box (Optional)

Note: The FORTUNA IVF is available in different sizes therefore the number and position of the following items (7, 8,10,13,14, and 15) may vary.

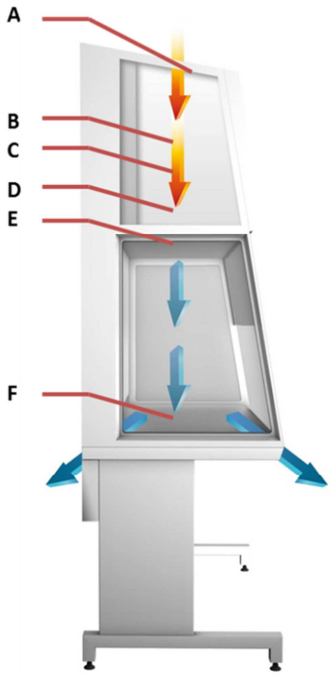
b. Inner overview

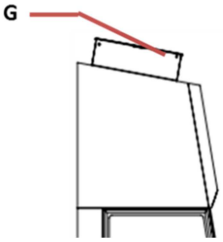


FORTUNA MODEL

1- Fan (s)
2- Plenum
3- HEPA filter
4- Laminator air panel

c. Air Flow Principle





The vertical clean air workstation is a turbulence-free (laminar) vertical displacement flow of clean air in the work chamber protecting the product against particle contamination.

Filters: The FORTUNA workstation main filter is a high-efficiency HEPA filter class (H14) and the pre-filter of FORTUNA is EU-3 type to capture dust particles for increased life time of the HEPA filter.

Air velocity monitoring: The turbulence-free vertical flow can be monitored by means of an air velocity sensor. Any deviation from safe conditions will be indicated by a visually and an acoustic alarm.

Filter System: The air circulation will be drawn through a pre-filter located on top of the workstation (A). It is provided to capture large debris and dust. These filters are to be exchanged or washed monthly. The air is drawn into the workstation by the down flow fan (B) located in the plenum(C) and pushed through the HEPA filter (D) and the laminator air panel, entering the sample chamber (F) as essentially particle free air. The air is expulsed from the working chamber from the front and the back of the work chamber.

Note: If the FORTUNA is mounted with the VOC Filter box (G), the air circulation will be drawn first through the VOC filter located on top of the workstation and the pre-filter (A). The air is drawn into the workstation by the down flow fan (B) located in the plenum(C) and pushed through the HEPA filter (D) and the laminator air panel, entering the sample chamber (F) as essentially particle free air. The air is expulsed from the working chamber from the front and the back of the work chamber.

d. Device interfaces

The standard equipment includes two electrical outlets for internal power supply of accessories.

	**maximum 200 W per outlet**

Electrical data of internal outlets

Rated voltage: 230/115 VAC, 50/60 Hz

Fusing: T 3.5A/230V, T 4A/115V

e. Chamber Illumination

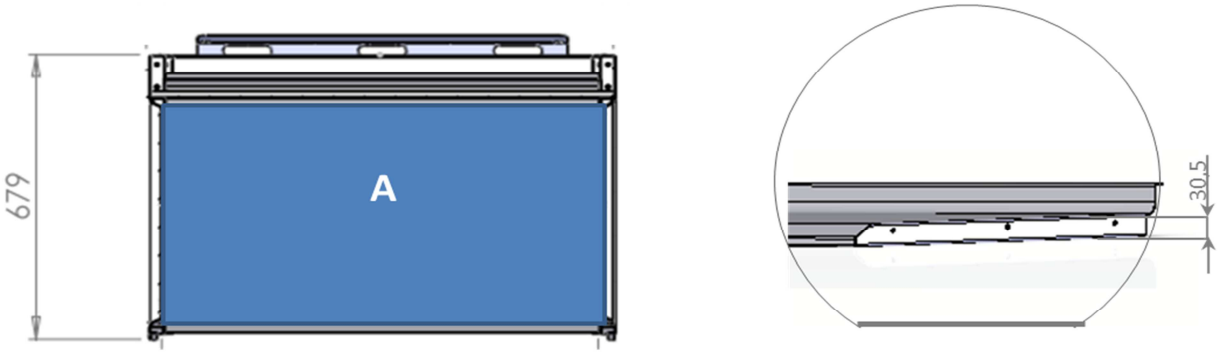
	Two light tubes are installed in a FORTUNA Workstation between the laminator air panel and the HEPA filter.

f. Working Area

The FOTUNA LAF standard equipment includes a single-piece stainless steel work plate connected to the sample chamber and the support stand.

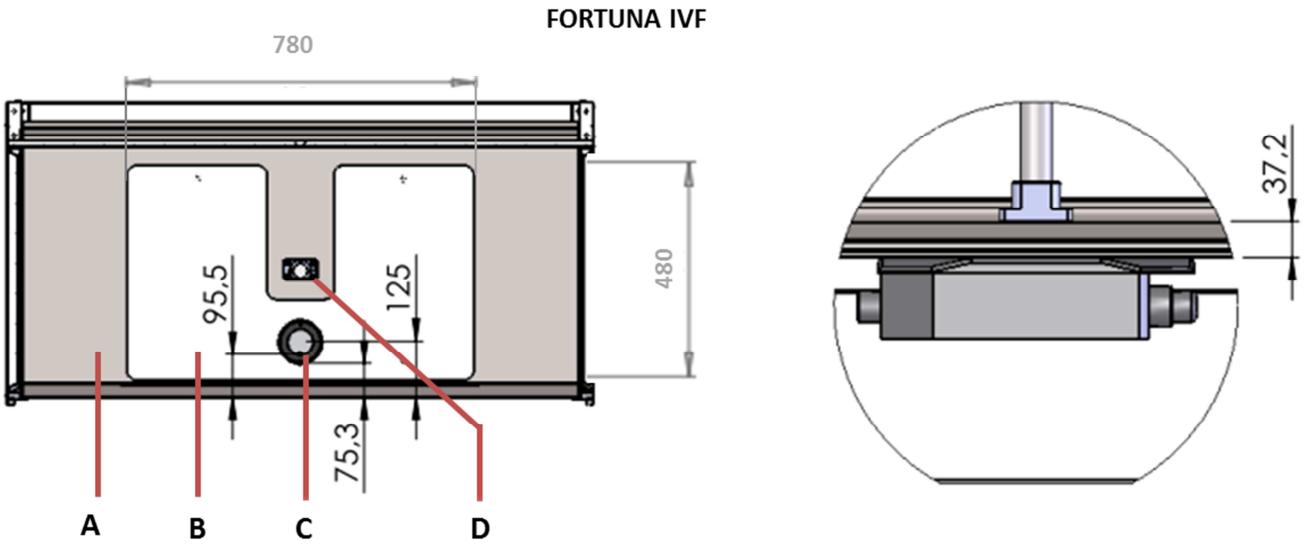
The working area (A) extends to the whole surface as indicated in the figure below.

FORTUNA LAF



The FORTUNA IVF standard equipment includes:

- A single-piece stainless steel work plate (A) connected to the sample chamber and the support stand.
- The heated surface (B) is delimited by a visible U shape. The heated surface is built-in below the work-plate. The total heated working area is of 780 x 480mm.
- The heated glass (C) is inserted in the work plate.
- The microscope pole fixation (D) is mounted on the work plate (A).



g. UV Light

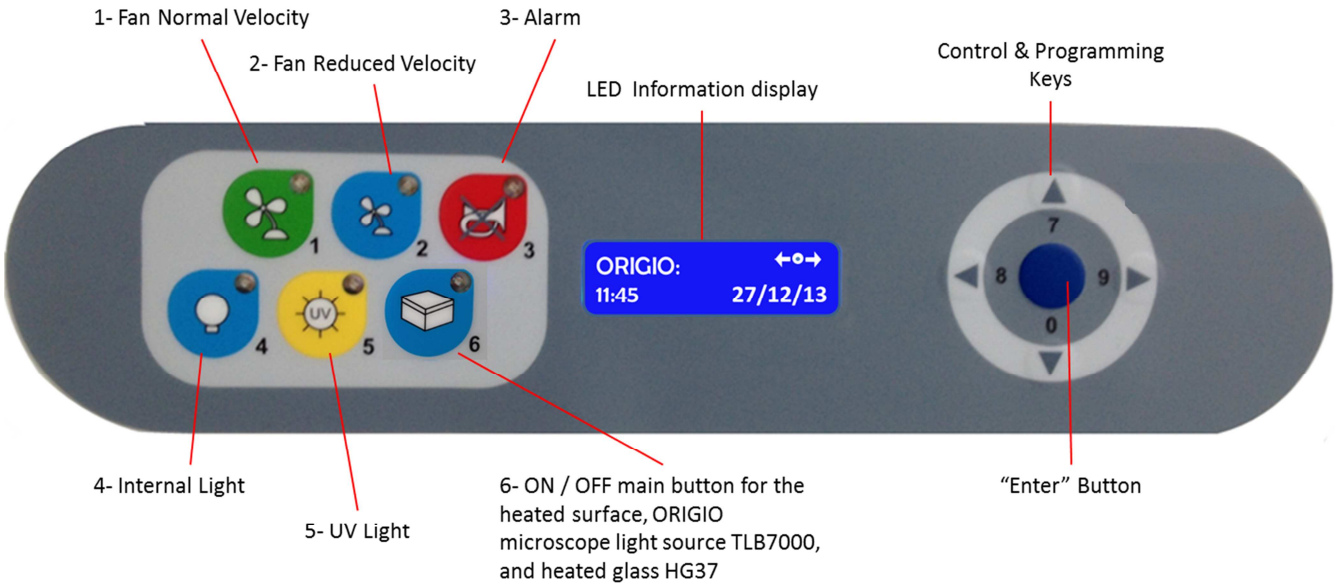
The UV Light (optional) for disinfection of the unit is located on the back wall below the HEPA filter and lodged in a compartment as indicated in the picture below.

WARNING: The radiation of the UV-lamps causes skin burns and conjunctivitis within minutes. For this reasons skin and eyes must be protected from direct radiation. The use of the UV light shield cover is mandatory during a UV light decontamination.

V. CONTROL PANEL

A. DISPLAY

During normal use, the LED display shows the time and the day and the “Control and programming keys”  to navigate through the menu program. The numbers 0 to 9 at the control are programming keys are for on / off and programming purposes.



Switching fans ON / OFF at normal speed

Press the “1- Fan Velocity” button to turn the fans ON. When activated a small green light on top of the button will switch on.

Press the “1- Fan Velocity Button” to turn the fans OFF. When activated the small green light on top of the button will be OFF.

	**To prevent any accidental switching ON or OFF of the fan, the buttons for normal and reduced velocity must be activated for at least 15 seconds before they take effect.**
	**DO NOT WORK IN THE WORK SPACE AREA WHEN THE FANS ARE SWITCHED OFF**

Switching fans ON / OFF at reduced speed

Press the “2- Fan Reduced Velocity” button to turn the fans ON. When activated a small blue light on top of the button will switch on.

Press the “2- Fan Velocity Reduced Button” to turn the fans OFF. When activated the small blue light on top of the button will be OFF.

	When turning ON the reduced speed velocity, the internal light will turn off to alert the user. The internal light can be switched on again if needed.

- **Alarm**

When an alarm is activated an audible acoustic signal is activated. On the control panel a small red light is activated on the Alarm button. Press the Alarm Button to mute the acoustic alarm signal but, the red alarm light will be continue light up unto the alarm case has been solved.

The error causing the alarm will be explained on the LED display.

When the error has been fixed the audible alarm and the small red light are switched off.

	MUTING THE ACOUSTIC SIGNAL WILL NOT SOLVE THE PROBLEM THAT CAUSED THE ERROR

a. Internal light

To switch ON the illumination light of the work chamber, press the “4-Internal Light” button. When activated, a small blue light on top of the button will switch on.

To switch OFF the illumination light of the work chamber, press the “4-Internal Light” button again. The small blue light on top of the button will be OFF.

	To adjust the light intensity, refer to the section “Adjusting the level intensity of the internal light”.

b. UV light

	The UV light and UV light timer are optional features.
	For increased safety against unintended UV radiation which will harm eyes and skin, use the timer to start the UV decontamination when no personnel is present in the room where the workstation is located. Use the front shield cover (Optional) to contain the radiation
	To program the UV light time, refer to the section “Programming and Controlling the UV light timer”.

To switch ON the UV light for decontaminating the work chamber, press the “5- UV Light” button. When activated a small yellow light on top of the button will switch on

c. Heated surface, ORIGIO light source, and heated glass stage

	**To operate the heated work area, refer to the section “Heated Surface”.**

To switch ON the ORIGIO Light Source and the working heated surface (s), press the button. When activated a small blue light on top of the button will switch on. This button simultaneously activates the working heated surface and the ORIGIO light source. (Note this feature is not available on the FORTUNA 1200 ICSI or the FORTUNA LAF)

To switch OFF the ORIGIO Light Source and the working heated surface (s), press the button again. The small blue light on top of the button will be switched OFF.

B. CONTROL & PROGRAMMING

This section describes how to access the different menus and how to control and to program some the features offered with your workstation. The Control & Programming menu of your workstation contains the following:

Standard display.

Adjusting the intensity of the internal light.

Programming and controlling the UV light timer.

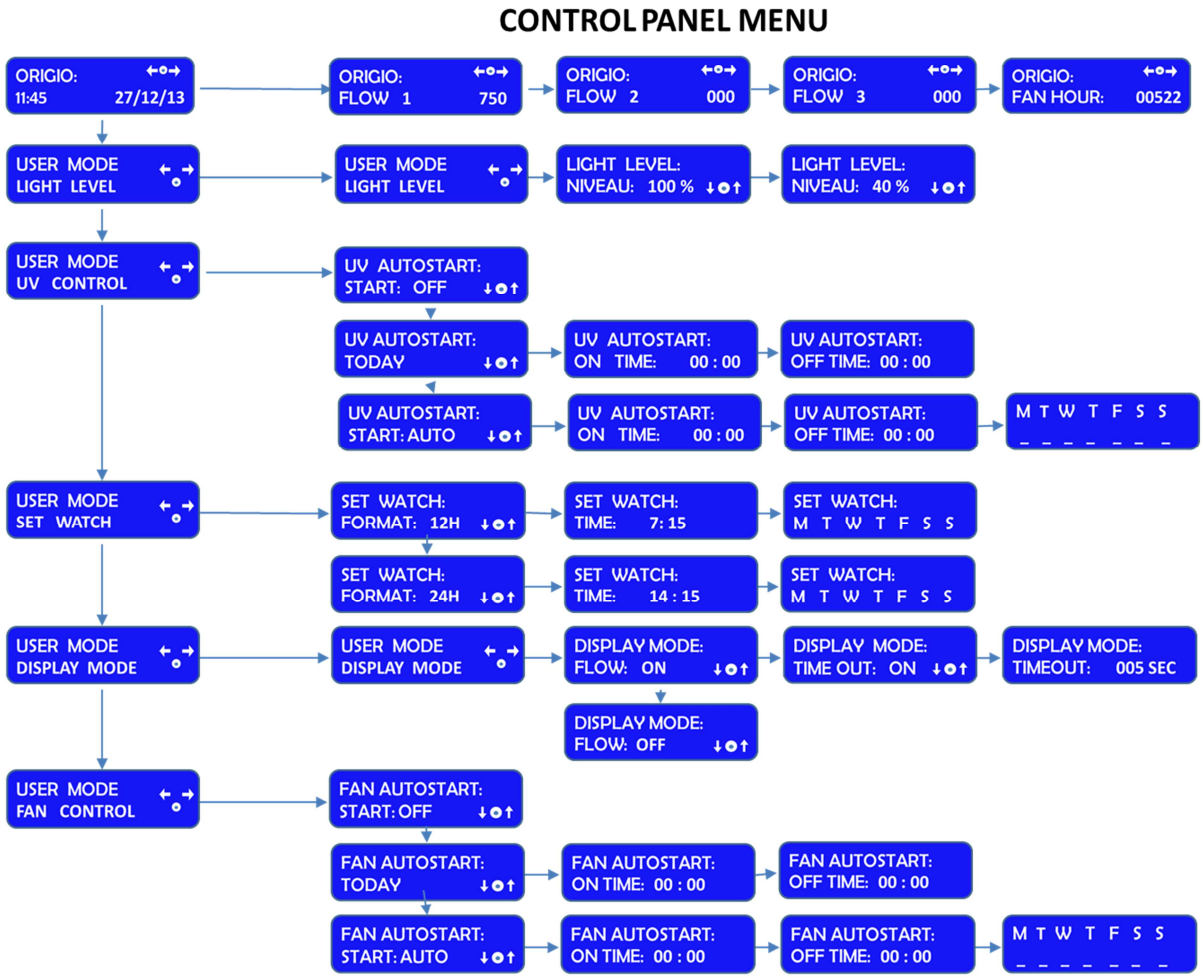
Setting the internal clock.

Adjusting display settings.

Programming and controlling the automatic start and shut-off of the fan.

Entering the service mode.

a. Overview of the Control Panel Menu

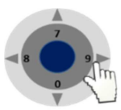


b. General air flow information & counter

This section describes how to access information about the running hours of the fan. Depending on the configuration of the workstation, there can be up to two fans, designated FLOW 1, FLOW 2.

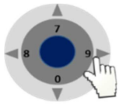
To learn how to enable and disable these functions refer to the section "Programming the Air Flow to Auto Start".

Standard display.



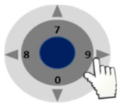
Press the right or left arrow button to navigate towards the FLOW information.

ORIGIO with FLOW 1 will be displayed together with a value. This value is for internal service information.



Press the right or left arrow button to navigate towards the FLOW information.

ORIGIO with FLOW 2 will be displayed together with a value. This value is for internal service information.



Press the right or left arrow button to navigate towards the FLOW information.

ORIGIO with FAN HOUR will be displayed together with a value. This value is the number of hours the fan has been running since last service of the air flow system.

c. Adjusting the level intensity of the internal light

This section covers how to adjust the light intensity of the internal light of the workstation.

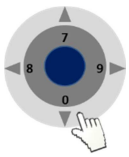
Standard display.

Press the “enter” button to enter the menu.

The USER MODE with the “LIGHT LEVEL” will be displayed together with a representation of the “Control & Programming Keys”. The first line with the arrow symbol “⬅ ➡”enables the user to go back to the previous menu or to move to another function. The symbol “**o**” represents the “ENTER” button.

Press the “enter” button to validate your choice.

The LIGHT LEVEL and “NIVEAU: 100 % will be displayed together with a representation of the Control & Programming Keys



Press on the up or down arrow. The level of intensity will go up or down. Repeat pressing on the arrow until you reach the level of intensity desired. If you hold down the arrow, the light intensity will change more rapidly.

Press on the “enter” button to validate and to return to the MENU or wait a few seconds and the display will return by itself to the standard display

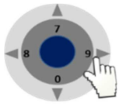
d. Programming and Controlling the UV light timer

This section describes how to program the UV light timer.

	**Note: for this feature to work correctly, you must set up the date and time first. How to do this is described in the section "Programming Time and Date"**
	**For protection against unintended UV radiation which will harm eyes and skin, use the timer to start the UV decontamination when no personnel is present in the room where the workstation is located. Use the front shield cover (optional) to contain the radiation. Refer to the section " III- Installation – UV Light shield cover " for installation.**

Standard display.

Press the "enter" button to enter the menu.

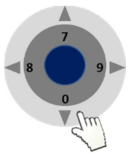


Press on the right arrow button to enter the next menu.

The USER MODE with the "UV CONTROL" will be displayed together with a representation of the "Control & Programming Keys. The first line with the arrows symbol "⬅ ➡"enables the user to go back to the previous menu or to move to another function. The symbol "**o**" represents the "enter" button.

Press the "enter" button to validate your choice.

The UV AUTOSTART with START: OFF will be displayed.



Press the up or down arrow to change the settings between START: OFF, TODAY and START: AUTO.

If you wish to program the UV light to start today, use UV AUTOSTART TODAY.

If you wish to program the UV light to start on a different day, use UV AUTOSTART START: AUTO.

UV Autostart Option Selected: "TODAY"

Press the "enter" button to enter the menu.

The UV AUTOSTART and "ON TIME: 00:00" will be displayed. This is the time at which the UV light should start

Press the "enter" button to validate your choice.

The first digit of the hour will be blinking. To enter the hour press the appropriate number found on the control panel. Continue this operation for the hours and the minutes. This will indicate the Time when the UV Light will switch ON automatically

Press the "enter" button to validate your choice.

The UV AUTOSTART and "OFF TIME: 00:00" will be displayed. This is the Time at which the UV Light will switch off.

Press the "enter" button to validate your choice.

The first digit of the hour will be blinking. To enter the hour press the appropriate number found on the control panel. Continue this operation for the hours and the minutes. This will indicate the time when the UV light will turn OFF automatically.

Press the "enter" button to validate your choice.

UV Autostart Option Selected: "AUTO"

Note: for this feature to work correctly, you must set up the date and time first. How to do this is described in the section "Programming Time and Date"

Press the "enter" button to enter the menu.

The UV AUTOSTART and "ON TIME: 00:00" will be displayed. This is the time at which the UV light should start

Press the “enter” button to validate your choice.

The first digit of the hour will be blinking. To enter the hour press the appropriate number found on the control panel. Continue this operation for the hours and the minutes. This will indicate the time when the UV Light will switch ON automatically

Press the “enter” button to validate your choice.

The UV AUTOSTART and “OFF TIME: 00:00” will be displayed. This is the Time at which the UV Light will switch off.

Press the “enter” button to validate your choice.

The first digit of the hour will be blinking. To enter the hour press the appropriate number found on the control panel. Continue this operation for the hours and the minutes. This will indicate the time when the UV light will turn OFF automatically.

Press the “enter” button to validate your choice.

The Week display will appear “ M T W T F S S”

Press the “enter” button to validate your choice.

The Monday option will be blinking.

Press on the UP arrow to select Monday or press the right and left arrows to navigate between the days.

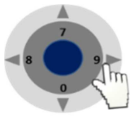
In this example the Monday option will be marked with an “X” to indicate that the UV light will be ON, on Monday at the desired time and will be switched OFF at the desired time programmed earlier in this section.

Press on the “enter” button to confirm.

e. Programming Time and Date

This section describes how to set the time and the date.

Press the “enter” button to enter the menu.



Press the right or left arrow button to reach the menu displaying “SET WATCH”.

The USER MODE menu with SET WATCH will be displayed together with a representation of the “Control & Programming keys”.

Press the “enter” button to enter the menu.

The SET WATCH menu with FORMAT: 12H or 24H will be displayed together with a representation of the “Control & Programming keys”

Press on the DOWN or UP arrows to change the settings from 12H to 24H and vice versa.

Press the “enter” button to enter the menu.

The SET WATCH menu with TIME will be displayed.

The first digit of the hour will be blinking. To enter the hour press the appropriate number found on the control panel.

Example: Setting up the watch at 16:39

Press on the button that has the number **1** and it will be registered on the display.

The second digit of the hour will be blinking.

Press on the button that has the number **6** and it will be registered on the display. Continue like this to fill out all digits.

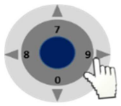
Press the “enter” button to enter the menu, and press the right or left arrow buttons to reach the menu displaying “SET WATCH”.

The SET WACH menu with the day's first letter "M T W T F S S" will be displayed.

Press on the RIGHT or LEFT arrow button to navigate to the correct day.

Press the "enter" button to validate your choice.

The SET WACH menu with DATE will be displayed. The Date has the format of DD / MM/ YY.

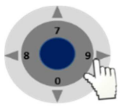


Press on the RIGHT arrow button to navigate to the day, month or year section. Use the same method as for setting the time to enter the date.

f. Programming the Air Flow to auto start (Weekly or Daily)

This section describes how to enable and program the airflow to auto start on a specific date and time, and how to disable that feature.

Press the "enter" button to enter the menu.

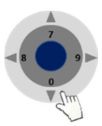


Press on the RIGHT or LEFT arrow button to reach the menu displaying "FAN CONTROL"

The USER MODE menu with FAN CONTROL will be displayed together with a representation of the "Control & Programming Keys.

Press on the "ENTER" button to enter the menu

The FAN AUTOSTART and "START: OFF" will be displayed. This indicates that the auto start function is disabled.



Press Down or UP to change the settings. Two options can be selected FAN AUTOSTART: TODAY or, FAN AUTOSTART: START: AUTO.:

The FAN AUTOSTART and "TODAY" indicates that the auto start function can be programmed for the current day at a specific time.

FAN AUTOSTART: START: AUTO ↓●↑	The FAN AUTOSTART and “START: AUTO” indicates that the auto start function can be programmed any given day and time.

Option selected: TODAY

	**Press the “enter” button to enter the menu.**
FAN AUTOSTART: ON TIME: 00 : 00	The FAN AUTOSTART and “ON TIME: 00:00” will be displayed. This is the time at which the fans should start.
	Press the “enter” button to enter the menu.
FAN AUTOSTART: ON TIME: ■0 : 00	The first digit of the hour will be blinking. To enter the hour press the appropriate number found on the control panel. Continue this operation for the hours and the minutes. This will indicate the time when the fan will turn ON automatically.
	Press the “enter” button to validate your choices.
FAN AUTOSTART: OFF TIME: 00 : 00	The FAN AUTOSTART and “OFF TIME: 00:00” will be displayed. This is the time at which the fans will turn off.
	Press the “enter” button to enter the menu.
FAN AUTOSTART: OFF TIME: ■0 : 00	The first digit of the hour will be blinking. To enter the hour press the appropriate number found on the control panel. Continue this operation for the hours and the minutes. This will indicate the time when the fan will turn OFF automatically.
	Press the “enter” button to confirm your choices.

Option selected: AUTO

☞	**Note: for this feature to work correctly, you must set up the date and time first. How to do this is described in the section “Programming Time and Date”**
	**Press the “enter” button to enter the menu.**
FAN AUTOSTART: ON TIME: 00 : 00	The FAN AUTOSTART and “ON TIME: 00:00” will be displayed. This is the time at which the fans should start.

Press the “enter” button to enter the menu.

The first digit of the hour will be blinking. To enter the hour press the appropriate number found on the control panel. Continue this operation for the hours and the minutes. This will indicate the time when the fan will turn ON automatically.

Press the “enter” button to validate your choices.

The FAN AUTOSTART and “OFF TIME: 00:00” will be displayed. This is the time at which the fans will turn off.

Press the “enter” button to enter the menu.

The first digit of the hour will be blinking. To enter the hour press the appropriate number found on the control panel. Continue this operation for the hours and the minutes. This will indicate the time when the fan will turn OFF automatically.

Press the “enter” button to confirm your choices.

The Week display will appear “ M T W T F S S”

Press the “enter” button to validate your choice.

The Monday option will be blinking.

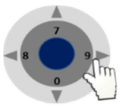
Press on the UP arrow to select Monday or press the right and left arrows to navigate between the days,

In this example the Monday option will be marked with an “X” to indicate that the fan will be ON, on Monday at the desired time and will be switched OFF at the desired time programmed earlier in this section.

Press on the “enter” button to confirm

g. Setting up The timer function to control heating, light source TLB7000 and Heated glass HG37

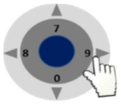
From STANDARD DISPLAY



Press on the RIGHT or LEFT arrow button to navigate towards the Information menu until you reach the SERVICE MODE

Press on the “ENTER” button to enter the service functions

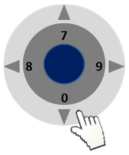
Enter the code 1234 using the numbers found on the control panel and press enter.



Press on the RIGHT or LEFT arrow button to navigate towards the information menu until you reach the EXT CONTROL menu

Press Enter to reach the display OUT 1

Go into OUT1 by pressing ENTER



Press on the down arrow only. And the option “CALENDAR” will be displayed

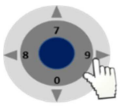
Press on the “ENTER” button to enter the service functions

Once this is enabled go through the other settings

log out of the service

Press on the “ENTER” to log out.

Back to the Standard display.



Press on the RIGHT or LEFT arrow button to navigate towards the information menu until BOX CALENDAR is displayed.

Press on the “ENTER” to go into this menu to set up the start time and working days of the week it applies for.

BOX AUTOSTART will be displayed

Press on the “ENTER” to enable

First digit of the hour will be blinking. To enter the hour press the appropriate number found on the control panel. Continue this operation for the hours and the minutes. This will indicate the **start** time

Press the “enter” button to validate your choices.

First digit of the hour will be blinking. To enter the hour press the appropriate number found on the control panel. Continue this operation for the hours and the minutes. This will indicate the **end** time

Press the “enter” button to validate your choices.

The Week display will appear “ M T W T F S S”

Press the “enter” button to validate your choice.

The Monday option will be blinking.

Press on the UP arrow to select Monday or press the right and left arrows to navigate between the days,

In this example the Monday option will be marked with an “X” to indicate that the unit will be ON, on Monday at the desired time and will be switched OFF at the desired time programmed earlier in this section.

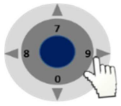
Press on the “enter” button to confirm.

The above will auto start any units connected to the OUT 1 connector of the workstation, which are also enabled by the button 6:-

h. Display Mode Functions

This section describes how to enable and disable the Flow and Fan information presented in the overview of the control panel menu.

Press the "enter" button to enter the menu.



Press on the RIGHT or LEFT arrow button to reach the menu displaying "DISPLAY MODE"

The USER MODE menu with DISPLAY MODE will be displayed together with a representation of the "Control & Programming Keys".

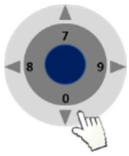
Press the "enter" button to enter the menu.

The DISPLAY MODE and "FLOW: ON" will be displayed together with a representation of the Control & Programming Keys.

Press on the up or down arrow to select the between up or on mode. This feature will disable the view of the information on FLOW 1, FLOW 2 AND FLOW 3:

Press Enter to validate. The display will return to DISPLAY MODE.

Press the "enter" button to enter the menu.

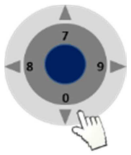


Press on the DOWN or UP arrow to reach the following display:

The DISPLAY MODE and "TIME OUT" will be displayed together with a representation of the Control & Programming Keys.

Press on the “ENTER” button to enter the menu to turn this function ON or OFF. Turning this function OFF will disable the following display and return to DISPLAY MODE

Press the “enter” button to enter the menu.



Press on the DOWN or UP arrow to reach the following display:

DISPLAY MODE:
TIMEOUT : 005 SEC

The DISPLAY MODE and “TIME OUT: 005 SEC” will be displayed. This feature indicates that any information or changes will remain displayed for 5 seconds before returning to the Standard Display. The display time is of a minimum of 5 seconds and therefore can only be increased. To increase the duration of the displayed information use the UP and DOWN arrows.

VI. OPERATION

a. Preparation for the sample chamber

The sample chamber surfaces and the accessories required for the work process must be disinfected and cleaned in accordance with the hygiene guidelines set for the application and the standard operating procedures of the laboratory.

b. Working in the sample chamber

The observance of work rules ensures a minimum of operational safety when handling the workstation.

Before starting an operation:

- Take off jewelry.
- Put on required personal protective gear, e.g. gloves, face, or body protection.
- Clean and disinfect sample chamber surfaces at regular intervals.
- Follow your internal standard protocols

During operation:

- Place samples only within the defined work area of the work plate.
- Do not place unnecessary items into the sample chamber.
- Use only disinfected and cleaned accessories for the work process.
- Do not cause air turbulence, by quick hand, arm or body movement in the sample chamber or in front of the work opening.
- Do not place accessories into the sample chamber that cause air turbulence or emit excessive heat (e.g. gas burner).
- Do not block air circulation at the ventilation slots located at the rear of the work plate.

Sitting posture during work:

To prevent risks to health, a height-adjustable working chair with an adjustable seat back should be used during extended work periods at the workstation.

- When the forearm rests on the work plate, it should be in an almost horizontal position
- When the thigh is in a horizontal position, the angle between thigh and lower leg should exceed 90°.
- To ensure compensation between floor and sitting height, use a footrest. (not provided)

VII. CLEANING AND DECONTAMINATION

a. Decontamination procedure:

The following procedures can be applied for decontaminating the workstation.

Wipe/spray disinfection: is the standard disinfection procedure for the FORTUNA workstation.

UV disinfection: If the unit is provided with a UV light, it is suited as an intensifying additional disinfection after the wipe/spray disinfection.

UV light may alter coloration of plastic components after extended exposure.

Recommended disinfectants: Disinfectants based on quaternary ammonium compounds are acceptable for use and compatible with all components.

Chloride-containing disinfectants may damage some surfaces. Therefore, use only disinfectants that do not contain chloride.

Disinfectants with an alcohol content of more than 70% may alter plastic components after extended exposure. It also releases VOC's which might affect samples.

b. Wipe/spray disinfection

The Wipe / spray disinfection is to be performed at the following stages:

- Pre-disinfection
- Cleaning
- Final disinfection

Pre-disinfection:

1. Remove all samples from the sample chamber and store them properly.
2. Remove accessories from the workstation and disinfect them using the disinfection procedure recommended by the manufacturer.
3. For pre-disinfection, spray disinfectant on all sample chamber surfaces or wipe the surfaces using disinfectant.
4. Do not remove the optional UV lamp from its base; wipe it thoroughly using a damp cloth.
5. Switch the device on.
6. Allow disinfectant to react as recommended by manufacturer, and then operate the workstation for at least 20 minutes at high speed so that released aerosols can be absorbed by the filters.

Cleaning:

1. Wipe the surfaces clean using a clean cloth and plenty of clear water.
2. Remove dirt residues and deposits thoroughly.
3. Remove the cleaning liquid from the floor pan and wipe all sample chamber surfaces dry.

Final disinfection:

1. Spray disinfectant on all sample chamber surfaces or wipe the surfaces clean with disinfectant.
2. Allow disinfectant to react as recommended by manufacturer, and then operate the workstation for at least 20 minutes at high speed so that released aerosols can be absorbed by the filter

c. UV disinfection:

The UV disinfection is recommended to be taken after the wipe/spray disinfection. The UV disinfection can be performed by using the optional integrated UV lamps in the FORTUNA. The run time of the routine can be preset from the control panel.

To start the UV disinfection routine, please refer to the section "Programming and Controlling the UV light timer" for further information

WARNING: The radiation of the UV-lamps causes skin burns and conjunctivitis within minutes. For this reasons skin and eyes must be protected from direct radiation. The use of the UV light shield cover is mandatory during a UV light decontamination

d. Cleaning of the exterior surfaces.

Wipe the exterior surfaces of the workstation using a solution of warm water and commercial dishwasher solution, then, wipe exterior surfaces dry using a soft, clean cloth.

e. Cleaning of the humidifier

The following procedures can be applied for decontaminating the integrated humidifier. It is recommended to clean and disinfect the humidifier monthly.

- Turn off the gas flow.
- Mark each tube connected to the infuser in order to recognize the inflow from the outflow.
- Detach the tubes from the infuser. The tubes can be slightly pulled to enable this process
- Remove and empty the bottle.
- Fill the bottles with 2/3rd quaternary ammonium compounds solution.
- Replace the bottles back into the block and connect the hoses accordingly.
- Disconnect the external silicone hose from the glass incubator hood and place the tube in a recipient.
- Turn on the gas flow to approximately 30l/h and leave the flow running for 20 minutes.
- Turn the gas flow off. Disconnect the tubes and empty the remains of the bottle and rinse the bottle and diffuser extensively with water. Empty the recipient.
- Place the bottle, the infuser and the glass incubator hood into an autoclave.
- Run a suitable sterilization program for the autoclave.

Please refer to the autoclave documentation provided by the manufacturer.

It is recommended to have a back-up flask and infuser as spare part to swap out or to replace in case of damage. It is recommended to change the external silicone hoses every 6 months.

- Once autoclaved, fill the bottle with 2/3rd of sterile water and put the bottle back in the humidifier assembly at back wall of the workstation.
- Put a small dab of mineral oil on the lid of the infuser bit to prevent it from getting stuck over time.

Make sure the mineral oil does NOT fall into the water, if this happens you will have to clean thoroughly the bottle.

- Connect the infuser to the hoses and place a recipient at the end of the external silicone hose.
- Turn on the gas flow to the system at 30l/h and leave it running for 20 minutes.
- Turn off the gas flow and empty the recipient.
- Connect the glass incubator hood to the external silicone hose.

VIII. SHUT-DOWN

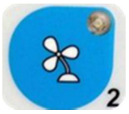
a. Interrupting an operation

To interrupt a work process:

1- Remove all samples from the workstation and store them properly.
2- Remove accessories from the sample chamber and clean and disinfect them.
3- Clean and disinfect the sample chamber surfaces, the work plate, and the floor pan
4- The workstation functions are to be switched to the OFF mode:

Press the "1 key - Fan Velocity Button" to turn the fans OFF. When activated the green small light on top of the button will be OFF.

Or



Press the "2 key - Fan Velocity Reduced Button" to turn the fans OFF. When activated the small blue light on top of the button will be OFF.

To switch OFF the illumination light of the work chamber; press the "4 key -Internal Light" button again. The small yellow light on top of the button will be OFF.

To switch OFF the ORIGIO Light Source and the working heated surface (s), press the "6 key button again. The small light on top of the button will be switched OFF.

b. Shutting the unit down

If the unit is not to be used for an extended period of time, it should be decontaminated.

Disconnect the device from the main power supply system.

IX. DECOMMISSIONING

Warning:

When the workstation has to be decommissioned, the process of decontamination and discard has to be followed according to national rules and regulations applicable in the country where the workstation is installed.

X. TROUBLESHOOTING YOUR AIR FLOW

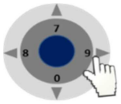
d. Flow 1 alarm

You have an alarm on the FLOW 1. This indicates the alarm settings for the downflow need to be adjusted.

Before starting, control that the white pre-filter mounted at the top of the workstation are not blocked by dust or other obstructions, make sure that all accessories, devices regularly used in the workstation are in place and not taken out but at the same time are not blocking for the airflow passing out through the back of the work table.

Then follow the instructions:

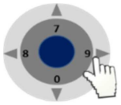
From STANDARD DISPLAY



Press on the RIGHT or LEFT arrow button to navigate towards the information menu until you reach the SERVICE MODE

Press on the “ENTER” button to enter the service functions

Enter the code 1234 using the numbers found on the control panel and press enter.



Press on the RIGHT or LEFT arrow button to navigate towards the information menu until you reach the FLOW SENSORS menu

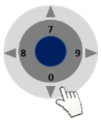
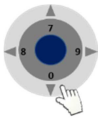
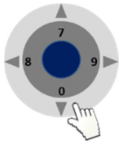
Press on the “ENTER” button

FLOW SENSOR 1 with as a standard type ANALOG will be displayed. If not SWITCH will be displayed. FLOW SENSOR 1 is the down flow sensor.

Press on the “ENTER” button

NEW CALIBRATION will be displayed.

Press on the “ENTER” button

FLOW ALARM 1: HIGH: 0285 ↓⊙↑	FLOW ALARM 1 with HIGH and a set of values will be displayed (e.g. 0285)
	Press on the arrow down until the alarms starts. By pushing the arrow the numbers will decrease by units.
	By maintaining a constant pressure on the arrow, the numbers will decrease by decimals
	Press on the arrow up one unit at a time and wait for 2 to 3 seconds to see if the alarm stops.
	Repeat the operation until the alarm stops.
	When the alarm has stopped, read the value displayed: e.g. 0225. Add 50 to the number: 0225 + 50 = 0275. Press on the arrow up until you reach this number.
	Press on the “ENTER” button.
FLOW ALARM 1: LOW: 0175 ↓⊙↑	FLOW ALARM 1 with LOW and a set of values will be displayed (e.g. 0175)
	Press on the arrow up until the alarms starts. By pushing the arrow the numbers will decrease by units.
	By maintaining a constant pressure on the arrow, the numbers will decrease by decimals.
	Press on the arrow down one unit at a time and wait for 2 to 3 seconds to see if the alarm stops.
	Repeat the operation until the alarm stops.
	When the alarm has stopped, read the value displayed: e.g. 0125. Add 50 to the number: 0125 + 50 = 0175. Press on the arrow down until you reach this number.
	Press on the “ENTER” button.
FLOW ALARM 1: ALARM: NORMAL ↓⊙↑	FLOW ALARM 1 with ALARM NORMAL will be displayed.
SERVICE: LOGOUT ←⊙→	Press on the “ENTER” button and navigate in the menu until your reach SERVICE LOGOUT and press “ENTER” you will now reach the standard menu.

XI. HEATED SURFACE

See also the section "Working Heated Surface and ORIGIO Light Source".

The heated surface is only applicable on the following FORTUNA IVF models:

- FORTUNA 900 IVF
- FORTUNA 1200 IVF
- FORTUNA 1500 IVF
- FORTUNA 1800 IVF
- FORTUNA 1800 DUAL
- FORTUNA 1800 MP

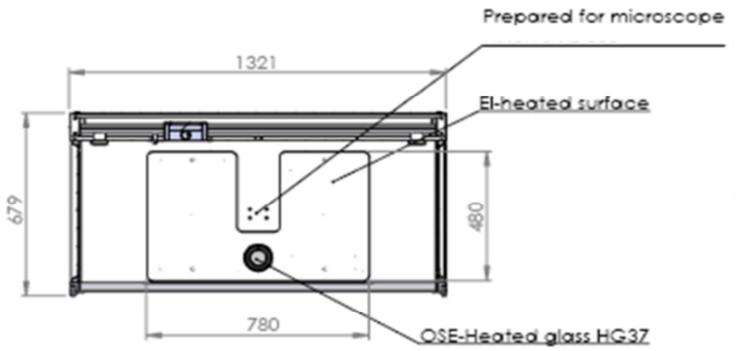
There are two types of heated surfaces for your workstation:

- Electrical heating (standard solution, described in this manual).
- Liquid heating with a water circulator pump (please refer to the user manual of the water circulator pump, not included in this manual)

The heated area is indicated by a brushed steel effect in the work surface.

Operational Characteristics

The heated surfaces, will be heated to 37ºC, and are controlled by an accurate sensor and a control processor.



Example of a warmed surface

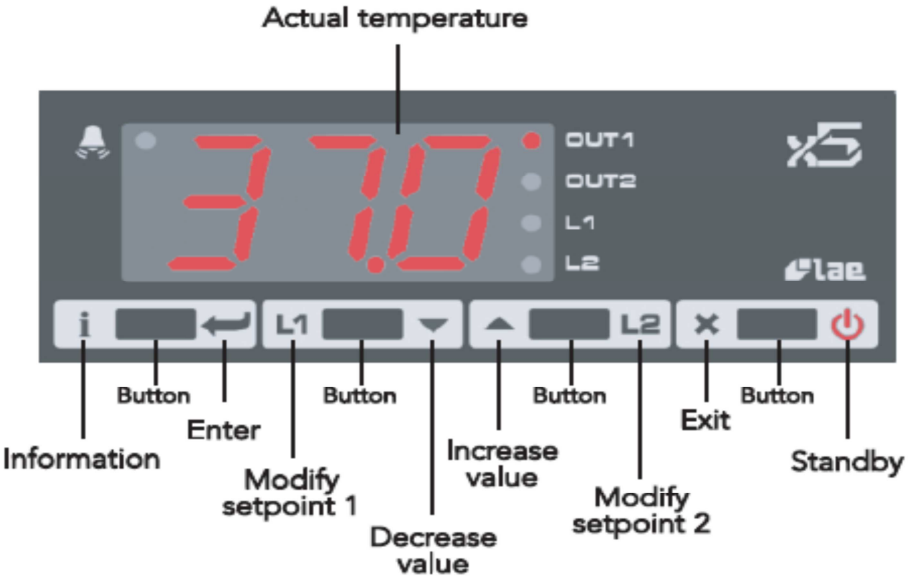
CAUTION. Placing of large hot or cold masses on the heated elements will affect the regulation process and should be avoided during normal operation.

Placing a hand will also draw heat from the surface, therefore please avoid placing fingers or a hand on the surface during warming up or during the calibration of the controller.

Turn on the heating system at least 60 minutes before starting the work. If possible place all needed equipment on the surface during the warming up period to warm these appropriately. Always wait for the temperature to stabilize completely before starting work.

CAUTION. There is heat loss from the edges of the heated surface. Do not place temperature sensitive material there.

a. Temperature Controller



The display shows the temperature readout from the chosen channel (only channel 1 is used in this example). In case of an alarm situation a red light will start flashing in the top left-hand corner of the display. On the right-hand side of the display it is indicated which parameter is shown in the display. Below is listed all possible values and messages that can be shown in the display:

Display	Description
OFF	Controller is in standby
OR	Probe T1 out of range or failure
HI	Room high temperature alarm
LO	Room low temperature alarm
TUN	Controller is in auto tuning
E1	In tuning: Timeout 1 error
E2	In tuning : Timeout 2 error
E3	Out of range error

LED	Description
OUT1	Channel 1 output
OUT2	Channel 2 output
L1	Channel 1 set point modification
L2	Channel 2 set point modification
🔔	Alarm

Information	Description
THI	Maximum temperature recorded
TLO	Minimum temperature recorded
LOC	Keypad state lock

The four buttons for operating the temperature controller are placed below the display. These are described in the figure above.

Each button has two functions - one in each side of the button. Simply press the appropriate symbol to use the buttons.

The heated surface is designed to provide and maintain a constant 37 ℃ over the heated part of the wo rking surface to within ± 0.2 ℃ at a maximum ambient tem perature of 35 ℃. The controller is operating in P ID (Proportional-Integral-Derivative) mode to get the most accurate and stable temperature possible.

b. User Setup

The units are delivered ready for use from the factory. Should it be necessary to access the parameters in the temperature controller, the process is described here.

Button	Description
	Show value
	Select data by using the up and down arrows
	Enter
	Exit the menu

 **Note: After 10 seconds without activity, the menu will exit.**

Accessing the parameters and information menu

 **Press and release the information button.**

 To the select the data to be displayed press the UP or DOWN arrow.

 Press the information button to display the value you have selected.

Resetting the THI and TLO recordings

 **To the select the data to be reset press the UP or DOWN arrow.**

 Press the information button to display the value you have selected.

 To reset the value, press and hold the information button simultaneously with the exit button.

Channel 1 set point

 **Press and release L1. The LED L1 will flash and the display will show 1SP (set point) for 1 second and then the set point associated value.**

To select the desired value press the UP or DOWN arrow.

To store the desired value press enter or wait 10 seconds.

To reset the value, press and hold the information button simultaneously with the exit button.

Standby

This section describes how to put the controller on standby, or resume from standby.

Press down the standby button for 3 seconds.

Keypad lock

The keypad lock can be used to protect the settings from intentional or unintentional changes.

Press the information button to enter the INFO menu.

Use the UP and DOWN arrows to select LOC (keypad lock). Set the parameter LOC = YES to lock the keypad.

To unlock the keypad, change the setting to LOC = NO.

c. Operating the heated areas

Normal Operation

The temperature controller will maintain the work surface temperature at 37 ℃ and will not require an y user interaction after the initial setup performed by a service technician.

Checking the temperature

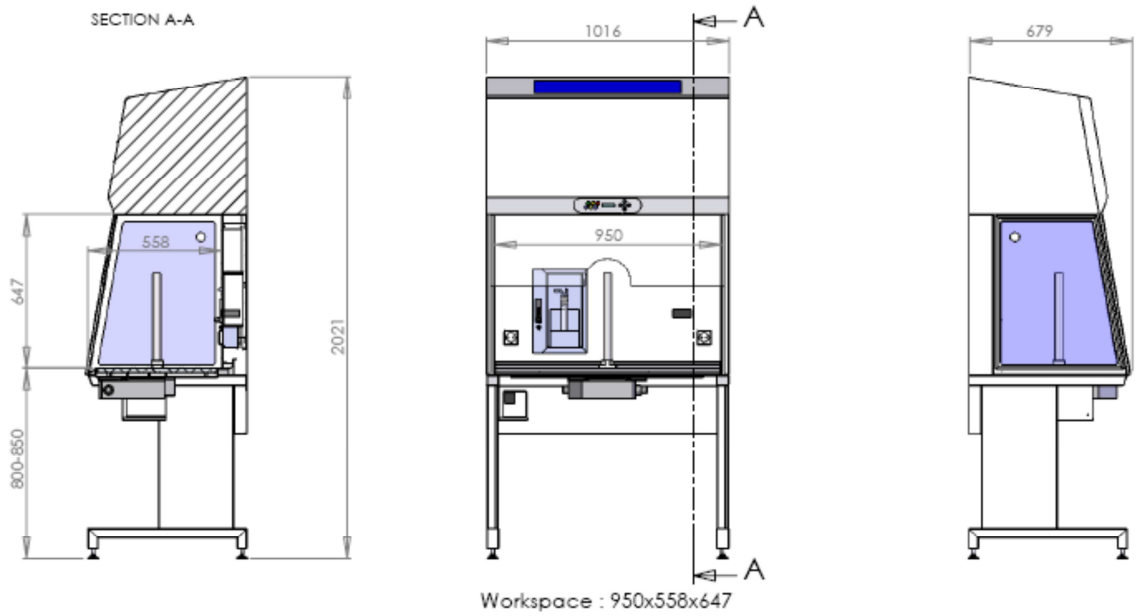
The actual temperature of the surface is shown on the display (OUT1). L1 will show the set point temperature.

XII. TECHNICAL SPECIFICATIONS

This manual covers the following FORTUNA Models:

a. FORTUNA 900 IVF or LAF

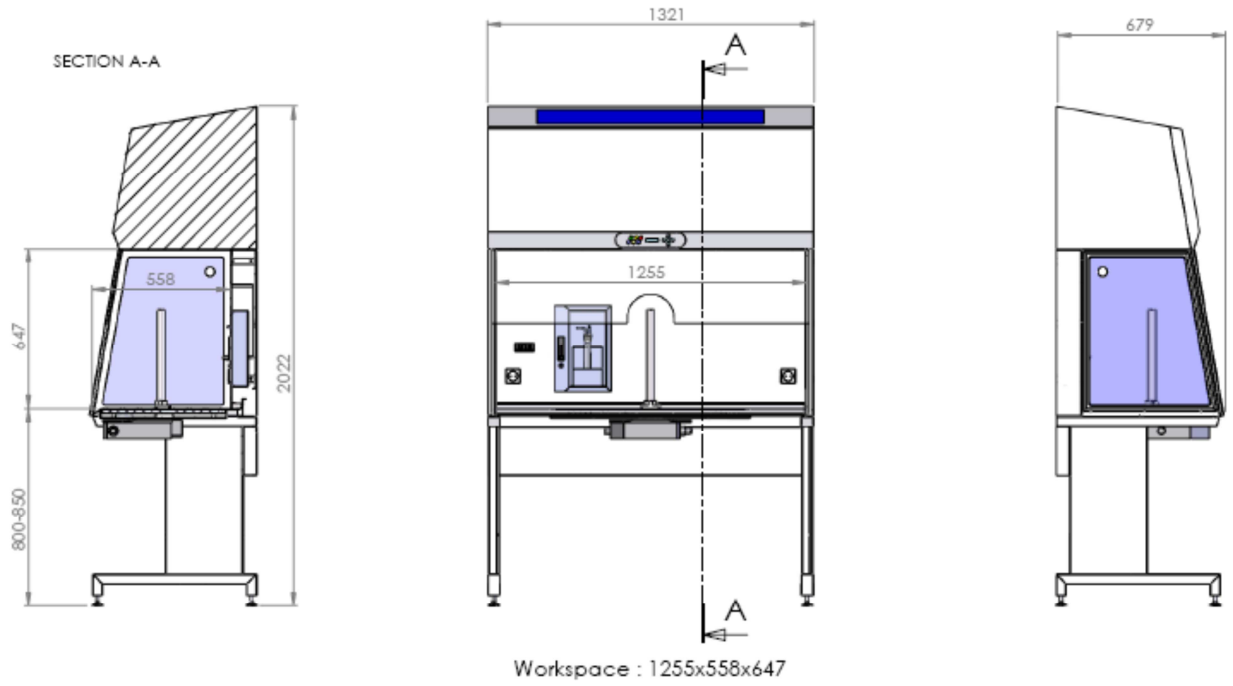
IVF model is illustrated



FORTUNA 900 IVF			
Dimensions (W x D x H)	1016 X 679 x 2021 mm		
Workspace (W x D x H)	950 x 526 x 647 mm		
Table plate standard height	80 – 85 cm		
Air velocity, vertical flow	0,15 m/s (adjustable 0.01 -0.70 m/s)		
Air Velocity, deviation	+/- 10%		
Noise Level, ISO 6081	<46 dB(A)		
Light intensity variable	0 – 2000 Lux		
HEPA Filters, EN 1822	Efficiency is 99.999% against 0.3 µm particle H-14 size		
Power consumption normal operation	LAF: 95 W IVF: 615 W (heat plate warm up)		
Max power consumption outlets (total)	400 W		
Main overcurrent protection fuses	Workstation Rating	LAF	IVF
	230V	3.15 A	6.3 A
	115 V	3.15 A	6.3 A
Outlet overcurrent protection fuse	Workstation Rating	LAF	IVF
	230V	3.15 A	3.15 A
	115 V	4 A	4 A
Voltage / Frequency	220-240V / 50-60 Hz or 110 -120V / 50 -60 Hz		
Window material (side/Front)	Hardened / laminated safety glass		
Cabinet material / Work surface	Polyester coated steel /AISI 304 stainless steel		
Ingress Protection	IP50		
Pollution Degree	2		
Intended use	Indoor Use Only		
Altitude	Operating height ≤ 2000 m (6500 ft.) above sea level		
External dimensions packed (D x W x H)	1516x916x1559 mm		
Shipping volume	2,17 m³		
Net weight / Gross Weight	225 Kg / 315 Kg		

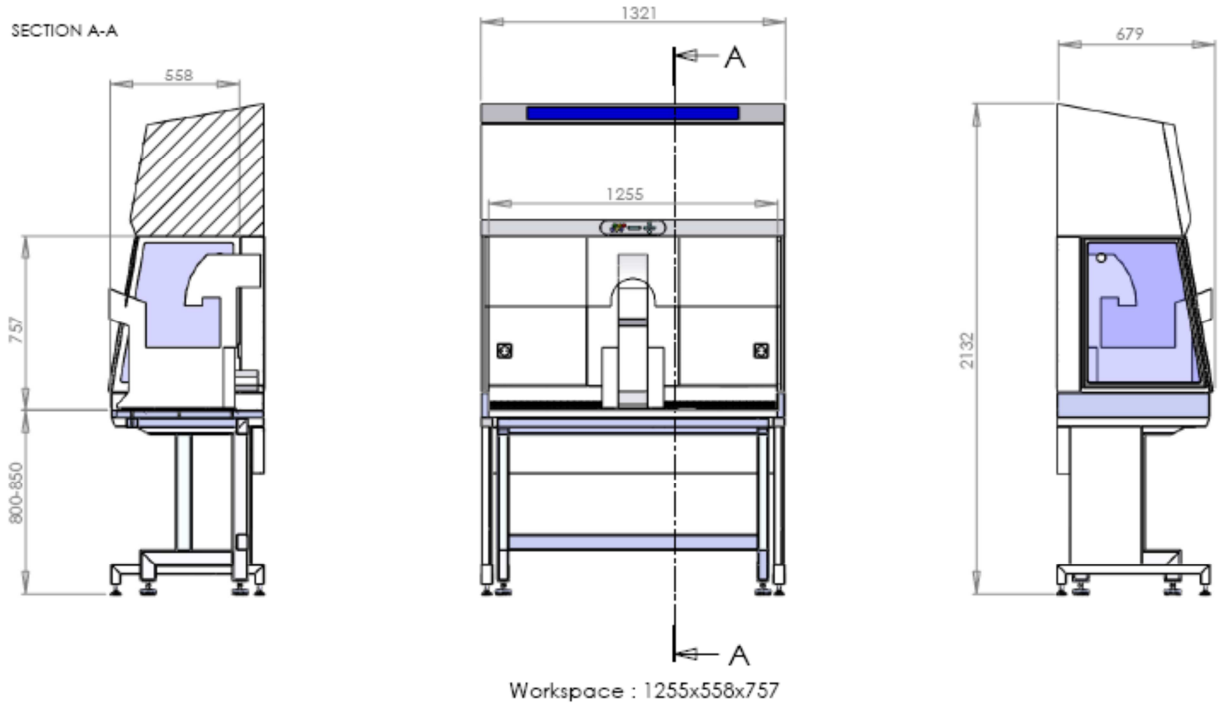
b. FORTUNA 1200 IVF or LAF

IVF model is illustrated.



FORTUNA 1200 IVF or LAF			
Dimensions (W x D x H)	1321 X 679 x 2022 mm		
Workspace (W x D x H)	1255 x 526 x 647 mm		
Table plate standard height	80 – 85 cm (option 75-80 cm or 90 -95 cm or electrically adjusted)		
Air velocity, vertical flow	0,15 m/s (adjustable 0.01 -0.70 m/s)		
Air Velocity, deviation	+/- 10%		
Noise Level, ISO 6081	<46 dB(A)		
Light intensity variable	0 – 2000 Lux		
HEPA Filters, EN 1822	Efficiency is 99.999% against 0.3 µm particle H-14 size		
Power consumption normal operation	LAF: 115 W IVF: 620 W (heat plate warm up)		
Max power consumption outlets (total)	400 W		
Main overcurrent protection fuses	Workstation Rating	LAF	IVF
	230V	3.15 A	6.3 A
	115 V	3.15 A	8 A
Outlet overcurrent protection fuse	Workstation Rating	LAF	IVF
	230V	3.15 A	3.15 A
	115 V	4 A	4 A
Voltage / Frequency	220-240V / 50-60 Hz or 110 -120V / 50 -60 Hz		
Window material (side/Front)	Hardened / laminated safety glass		
Cabinet material / Work surface	Polyester coated steel /AISI 304 stainless steel		
Ingress Protection	IP50		
Pollution Degree	2		
Intended use	Indoor Use Only		
Altitude	Operating height ≤ 2000 m (6500 ft.) above sea level		
External dimensions packed (D x W x H)	1516x916x1559 mm		
Shipping volume	2,17 m³		
Net weight / Gross Weight	250 Kg / 330 Kg		

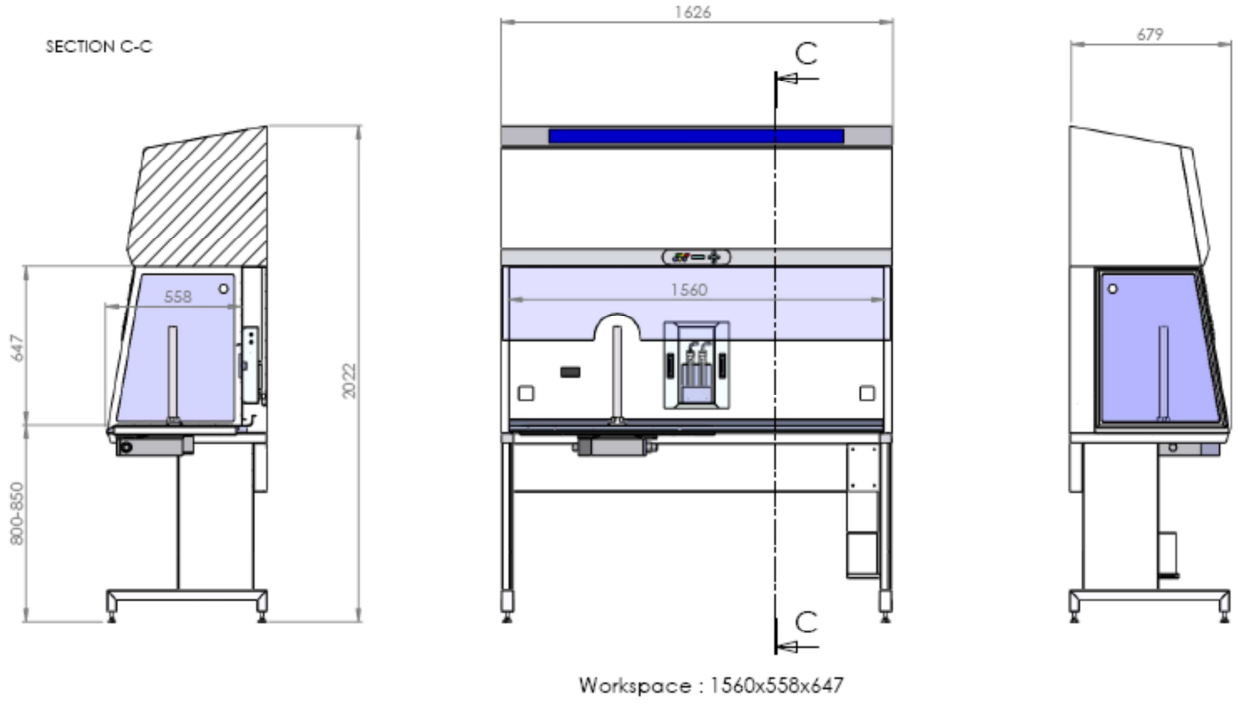
c. FORTUNA 1200 ICSI



FORTUNA 1200 ICSI			
Dimensions (W x D x H)	1321 X 679 x 2132 mm		
Workspace (W x D x H)	1255 x 526 x 757 mm		
Table plate standard height	80 – 85 cm		
Air velocity, vertical flow	0,15 m/s (adjustable 0.01 -0.70 m/s)		
Air Velocity, deviation	+/- 10%		
Noise Level, ISO 6081	<46 dB(A)		
Light intensity variable	0 – 2000 Lux		
HEPA Filters, EN 1822	Efficiency is 99.999% against 0.3 µm particle H-14 size		
Power consumption normal operation	115 W		
Max power consumption outlets (total)	400 W		
Main overcurrent protection fuses	Workstation Rating	ICSI	NA
	230V	3.15 A	NA
	115 V	3.15 A	NA
Outlet overcurrent protection fuse	Workstation Rating	ICSI	NA
	230V	3.15 A	NA
	115 V	4 A	NA
Main overcurrent protection fuses			
Outlet overcurrent protection fuse			
Voltage / Frequency	220-240V / 50-60 Hz or 110 -120V / 50-60 Hz		
Window material (side/front)	Hardened / laminated safety glass		
Cabinet material / Work surface	Polyester coated steel /AISI 304 stainless steel		
Ingress Protection	IP50		
Pollution Degree	2		
Intended use	Indoor Use Only		
Altitude	Operating height ≤ 2000 m (6500 ft.) above sea level		
External dimensions packed (D x W x H)	1516x916x1559 mm		
Shipping volume	2,17 m³		
Net weight / Gross Weight	250 Kg / 330 Kg		

d. FORTUNA 1500 IVF or LAF

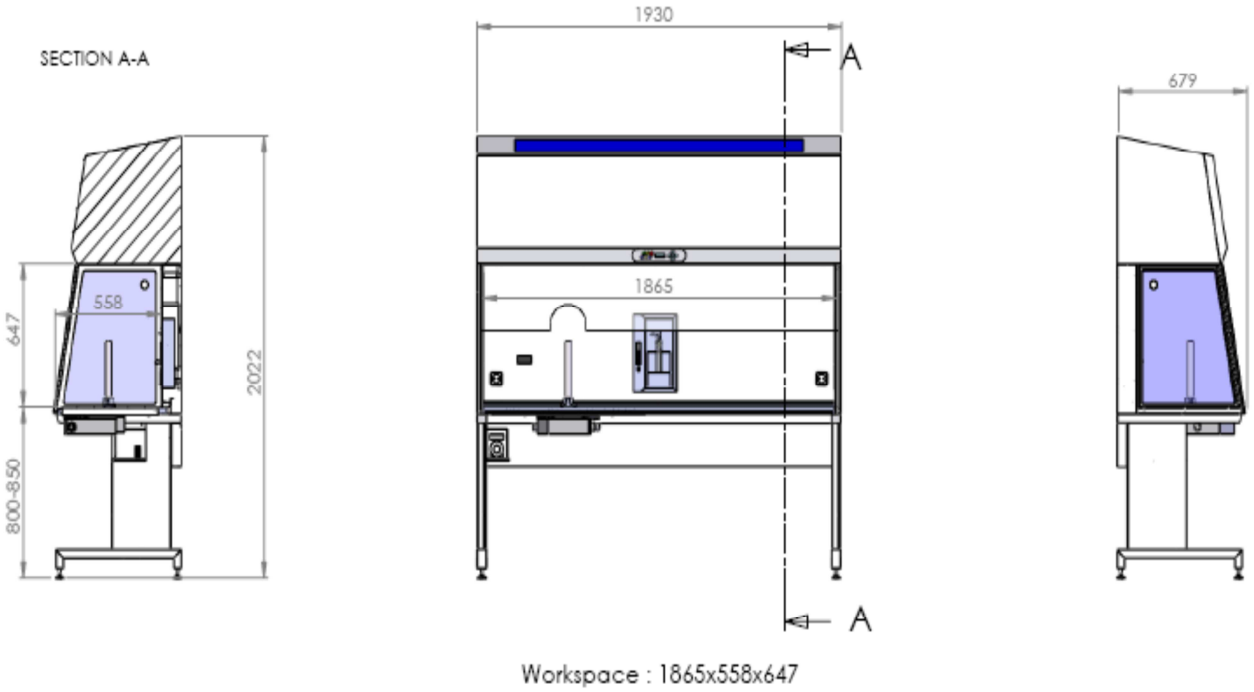
IVF model is illustrated.



FORTUNA 1500 IVF or LAF			
Dimensions (W x D x H)	1626 X 679 x 2022 mm		
Workspace (W x D x H)	1560 x 526 x 647 mm		
Table plate standard height	80 – 85 cm (option 75-80 cm or 90 -95 cm or electrically adjusted)		
Air velocity, vertical flow	0,15 m/s (adjustable 0.01 -0.70 m/s)		
Air Velocity, deviation	+/- 10%		
Noise Level, ISO 6081	<48 dB(A)		
Light intensity variable	0 – 2000 Lux		
HEPA Filters, EN 1822	Efficiency is 99.999% against 0.3 µm particle H-14 size		
Power consumption normal operation	LAF: 130 W IVF: 650 W (heat plate warm up)		
Max power consumption outlets (total)	400 W		
Main overcurrent protection fuses	Workstation Rating	LAF	IVF
	230V	3.15 A	6.3 A
	115 V	3.15 A	8 A
Outlet overcurrent protection fuse	Workstation Rating	LAF	IVF
	230V	3.15 A	3.15 A
	115 V	4 A	4 A
Voltage / Frequency	220-240V / 50-60 Hz or 110 -120V / 50-60 Hz		
Window material (side/Front)	Hardened / laminated safety glass		
Cabinet material / Work surface	Polyester coated steel /AISI 304 stainless steel		
Ingress Protection	IP50		
Pollution Degree	2		
Intended use	Indoor Use Only		
Altitude	Operating height ≤ 2000 m (6500 ft.) above sea level		
External dimensions packed (D x W x H)	2166x916x1559 mm		
Shipping volume	3,1 m³		
Net weight / Gross Weight	275 Kg / 370 Kg		

e. FORTUNA 1800 IVF or LAF

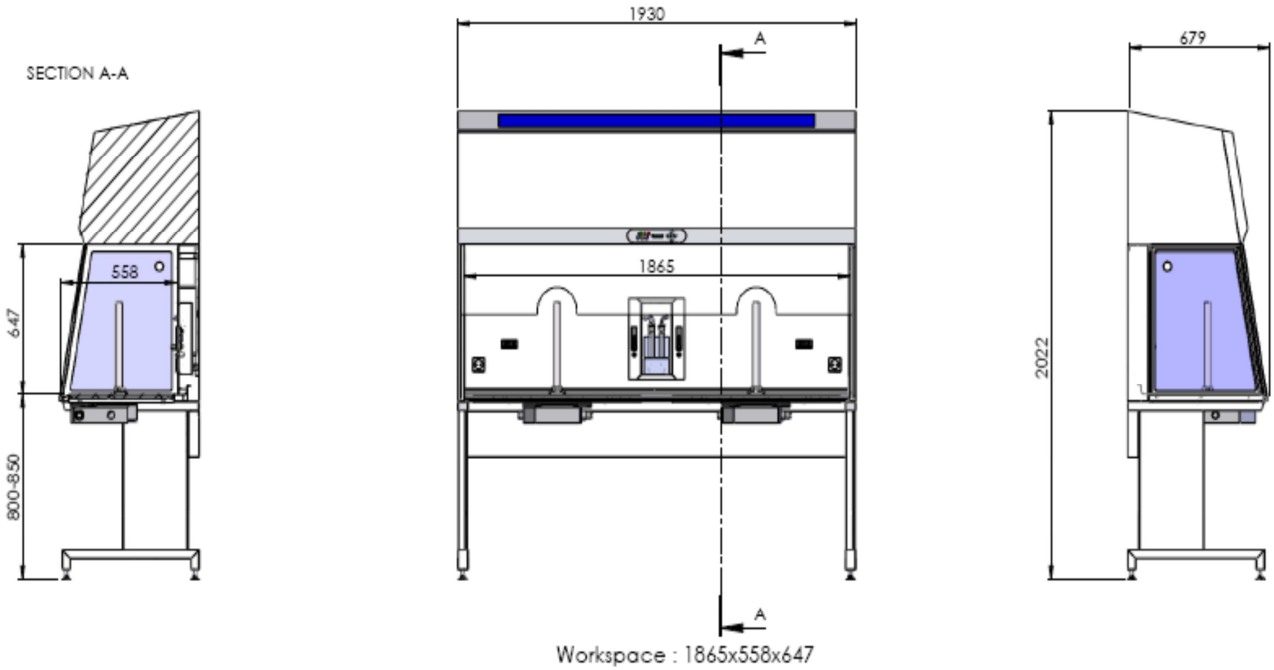
IVF model is illustrated.



FORTUNA 1800 IVF or LAF			
Dimensions (W x D x H)	1930 X 679 x 2022 mm		
Workspace (W x D x H)	1865 x 526 x 647 mm		
Table plate standard height	80 – 85 cm (option 75-80 cm or 90 -95 cm or electrically adjusted)		
Air velocity, vertical flow	0,15 m/s (adjustable 0.01 -0.70 m/s)		
Air Velocity, deviation	+/- 10%		
Noise Level, ISO 6081	<48 dB(A)		
Light intensity variable	0 – 2000 Lux		
HEPA Filters, EN 1822	Efficiency is 99.999% against 0.3 μm particle H-14 size		
Power consumption normal operation	LAF: 165 W IVF: 685 W (heat plate warm up)		
Max power consumption outlets (total)	400 W		
Main overcurrent protection fuses	Workstation Rating	LAF	IVF
	230V	3.15 A	6.3 A
	115 V	3.15 A	8 A
Outlet overcurrent protection fuse	Workstation Rating	LAF	IVF
	230V	3.15 A	3.15 A
	115 V	4 A	4 A
Voltage / Frequency	220-240V / 50-60 Hz or 110 -120V / 50 -60 Hz		
Window material (side/Front)	Hardened / laminated safety glass		
Cabinet material / Work surface	Polyester coated steel /AISI 304 stainless steel		
Ingress Protection	IP50		
Pollution Degree	2		
Intended use	Indoor Use Only		
Altitude	Operating height ≤ 2000 m (6500 ft.) above sea level		
External dimensions packed (D x W x H)	2166x916x1559 mm		
Shipping volume	3,1 m³		
Net weight / Gross Weight	300 Kg / 400 Kg		

f. FORTUNA 1800 Dual

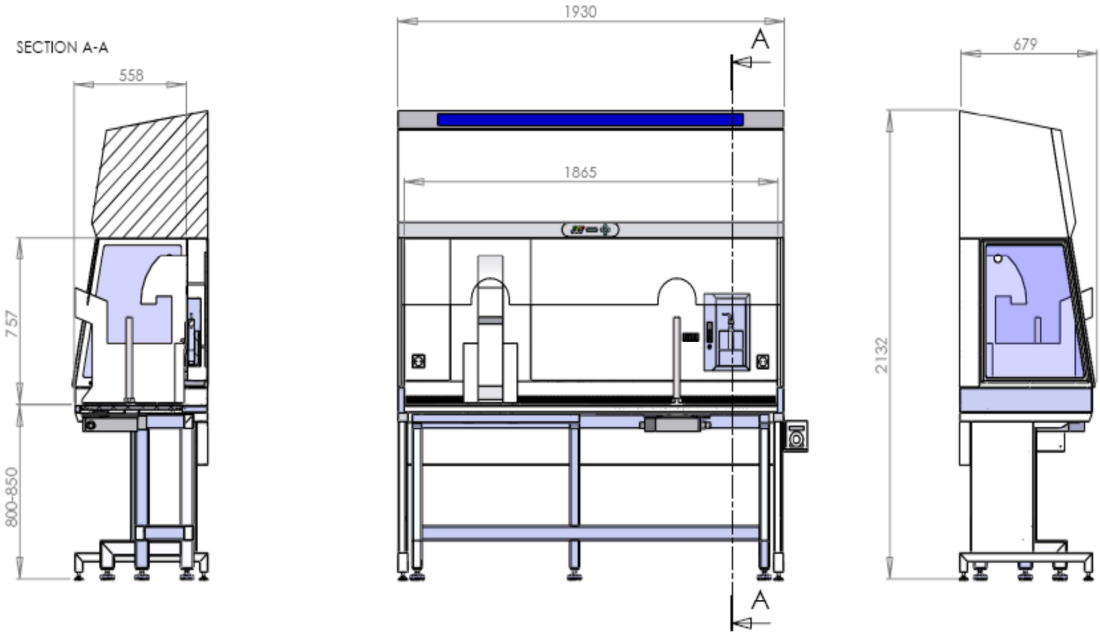
IVF model is illustrated.



FORTUNA 1800 IVF or LAF			
Dimensions (W x D x H)	1930 X 679 x 2022 mm		
Workspace (W x D x H)	1865 x 526 x 647 mm		
Table plate standard height	80 – 85 cm (option 75-80 cm or 90 -95 cm or electrically adjusted)		
Air velocity, vertical flow	0,15 m/s (adjustable 0.01 -0.70 m/s)		
Air Velocity, deviation	+/- 10%		
Noise Level, ISO 6081	<48 dB(A)		
Light intensity variable	0 – 2000 Lux		
HEPA Filters, EN 1822	Efficiency is 99.999% against 0.3 µm particle H-14 size		
Power consumption normal operation	LAF: 165 W IVF: 1205 W (heat plate warm up)		
Max power consumption outlets (total)	400 W		
Main overcurrent protection fuses	Workstation Rating	LAF	IVF
	230V	3.15 A	6.3 A
	115 V	3.15 A	NA
Outlet overcurrent protection fuse	Workstation Rating	LAF	IVF
	230V	3.15 A	3.15 A
	115 V	4 A	NA
Voltage / Frequency	220-240V / 50-60 Hz or 110 -120V / 50 -60 Hz		
Window material (side/Front)	Hardened / laminated safety glass		
Cabinet material / Work surface	Polyester coated steel /AISI 304 stainless steel		
Ingress Protection	IP50		
Pollution Degree	2		
Intended use	Indoor Use Only		
Altitude	Operating height ≤ 2000 m (6500 ft.) above sea level		
External dimensions packed (D x W x H)	2166x916x1559 mm		
Shipping volume	3,1 m³		
Net weight / Gross Weight	300 Kg / 400 Kg		

g. FORTUNA 1800MP / ICSI

MP model is illustrated.



Workspace : 1865x558x757

FORTUNA 1800 MP / ICSI			
Dimensions (W x D x H)	1930 X 679 x 2132mm		
Workspace (W x D x H)	1865 x 526 x 757 mm		
Table plate standard height	80 – 85 cm		
Air velocity, vertical flow	0,15 m/s (adjustable 0.01 -0.70 m/s)		
Air Velocity, deviation	+/- 10%		
Noise Level, ISO 6081	<48 dB(A)		
Light intensity variable	0 – 2000 Lux		
HEPA Filters, EN 1822	Efficiency is 99.999% against 0.3 µm particle H-14 size		
Power consumption normal operation	LAF: 165 W IVF: 685 W (heat plate warm up)		
Max power consumption outlets (total)	400 W		
Main overcurrent protection fuses	Workstation Rating	LAF	IVF
	230V	3.15 A	6.3 A
	115 V	3.15 A	8 A
Outlet overcurrent protection fuse	Workstation Rating	LAF	IVF
	230V	3.15 A	3.15 A
	115 V	4 A	4 A
Voltage / Frequency	220-240V / 50-60 Hz or 110 -120V / 50 -60 Hz		
Window material (side/Front)	Hardened / laminated safety glass		
Cabinet material / Work surface	Polyester coated steel /AISI 304 stainless steel		
Ingress Protection	IP50		
Pollution Degree	2		
Intended use	Indoor Use Only		
Altitude	Operating height ≤ 2000 m (6500 ft.) above sea level		
External dimensions packed (D x W x H)	2166x916x1559 mm		
Shipping volume	3,1 m³		
Net weight / Gross Weight	300 Kg / 400 Kg		

XIII. MAINTENANCE

a. Field Certification

The workstation must be inspected on an annual basis. The annual certification comprises the following checks:

- Functional test of the device.
- Checking all components for possible damage.
- Checking the filter state (particle count).
- Verifying device airflows
- Checking the airflows
- Checking and calibrating the heated surface and the heated glass (FORTUNA IVF only)

b. Service

HEPA Filter replacement:

As the filter replacement requires access to potentially contaminated portions of the cabinet, filters must only be replaced by adequately trained and authorized service personnel.

	**Filter replacement:** Before filters are replaced the appropriate decontamination and safety procedures must be completed. After the filter replacement, a certification test must be performed

Sample chamber illumination tube

To access or exchange the light tube, the laminator air panel must first be removed.

1. To access the laminator air panel it is first necessary to remove the microscope if this creates an obstacle.
2. The laminator air panel has to be removed by pulling on the two fixing tags simultaneously.
3. Remove the laminator air panel out of the workstation

4. The fluorescent tubes are mounted in rotating sockets. Rotate the tube carefully into the removal position, and then remove it from the socket. Insert the new tube and rotate it into the working position.
5. Replace the laminator air panel
6. Replace the microscope if required.

Specifications:

Fortuna size	Watt	Base	Ø / Length	Lumen	Ra	Kelvin	Color No	Color	Order No
900	15	G13	26/438 mm	950 lm	80-89 Ra	3000 K	830	Warm White	WG0504
1200	30	G13	26/895 mm	2400 lm	80-89 Ra	3000 K	830	Warm White	WG0505
1500	36	G13	26/1200 mm	3350 lm	80-89 Ra	3000 K	830	Warm White	WG0506
1800	58	G13	26/1500 mm	5250 lm	80-89 Ra	3000 K	830	Warm White	WG0507

UV Lamp

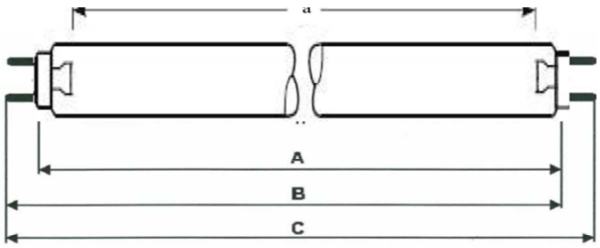
The UV lamp should be replaced after 1500 operating hours:

1. Rotate the lamp in the socket so that the lamp contacts can be removed from the groove in the socket.
2. Insert the new lamp into the socket and rotate until the contacts engage.

Specifications:

PURITEC UV-C Germicidal Low Pressure Lamp

HNS 30W G13 (G30T8/OF)



Electrical Data:

lamp power	30 W
lamp voltage	96 V
lamp current	0.37 A

Spectral Data:

radiation flux (254nm)	12.0 W
min. initial UV-C irradiance	1.1 W/m^2 (@ 1 m)
lifetime	9000 hrs
UV-C irradiance @ 9000 hrs	> 0,90 W/m^2 (@ 1 m)
generation of ozone	no

Operation conditions:

burning position	any
electronic ballast (compact fluorescent lamp)	ECG 30W
starter	ST111
correction capacitor (for one lamp using an inductive control gear)	4.5 µF
On-Off Cycles [# of cycles]	50000

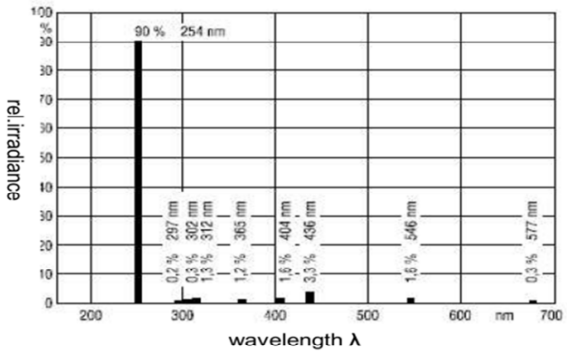
Geometric Data:

overall length	A max	894.3 mm
overall length	B min	899.3 mm
overall length	B max	901.7 mm
overall length	C max	908.8 mm
radiation length	a	824±1.3 mm
tube diameter	d	25.5 ± 0.5 mm
base		G13

Applications:

Air disinfection, liquid disinfection, surface disinfection

Spectral radiation distribution:



Notice:

The technical data given are nominal values.
Variations up to 10% with single lamps are possible

WARNING: The radiation of the HNS-lamps causes skin burns and conjunctivitis within minutes. For this reasons skin and eyes must be protected from direct radiation

Retrofitting and repairs

	**WARNING:** All retrofitting and repair work are interferences with the safety system of the unit. Particularly modifications to the filter system and resulting changes of the airflow may impair personal and material protection. Such work must be carried out only by authorized service personnel only.

XIV. ROUTINE MAINTENANCE SCHEDULE

a. Weekly

- Using a suitable disinfectant, disinfect the inside of the workstation and the work surface.

	**Please refer to the "Cleaning and decontamination" section of this manual for further information**

b. Monthly (or more often as required)

- Using a damp cloth and clean the exterior surfaces of workstation, particularly the front and top of the workstation to remove any accumulated dust.
- Check the pre-filter for cleanliness. If needed, the replacement is to be performed by a qualified technician.
- Clean and disinfect the humidification device
- All weekly activities.

	**Please refer to the "Cleaning and decontamination" section of this manual for further information**

c. Quarterly or Semiannually

- If equipped, have the FORTUNA workstation VOC pre-filters by a qualified certification technician.
- All monthly activities.

d. Annually

- Have the FORTUNA workstation t re-certified by a qualified certification technician.
- Silicone replacement tubing for humidifying system.
- Check the microscope optics and all accessories
- All monthly activities.

XV. CERTIFICATING TESTING

a. Test Terms

- **Nominal value:** Default value as specified by manufacturer.
- **Measured value:** Value measured at the location of the biological safety cabinet.
- **Tolerance:** Acceptable deviation from the nominal value.
- **Average value:** The sum of the measuring values divided by the number of tests. The average value is compared to the nominal value.
- **Set point:** Acceptable operating value for the inflow and down flow velocities.
- **Downflow velocity:**:Velocity of the displacement flow circulating through the work chamber.

b. Test

The tests that must be conducted on-site for Class I, workstation, at a minimum frequency of annually are:

- Down flow velocity profile test.
- Particle count test.
- Site installation assessment tests
- Alarm functions.

In addition to the above, the following tests performed at the request of the customer, or at the discretion of the certification provider.

- comfort and safety tests
- lighting intensity
- noise level
- vibration
- electrical leakage, ground circuit resistance and polarity tests
- Particle count
- VOC count
- Temperature calibration of the work surface and heated glass stage.

☞	**Note: Unless certification was expressly called for in the purchase order or in a subscribed service contract, the cost for this on-site testing is to be paid for by the customer.**

c. Test equipment

For conducting these tests, ORIGIO recommends testing equipment of the manufacturers listed below.

TEST EQUIPMENT	MANUFACTURER	MODEL	APPLICATION
Airborne Particle Counter	Lighthouse Worldwide Solutions	HANDHELD 3016 IAQ	Particle count
Air Velocity Meter	TSI	VELOCICALC 9535/9535-A	Air Flow velocity
Precision Thermometer including PT100 Sensor, Software and USB cable	OMEGA	HH804U	Temperature calibration
Hand-Held Medical Electrical Safety Analyzer	Rigel	288	Electrical leakage
Air Flow Tester	Dräger	Air Flow Tester kit	Smoke tester
Vibration Meter	HWL Scientific	Vib-Measurement station and software	Vibration frequencies

XVI. SPARE PARTS

Article No	DESCRIPTION
WG0528	HEPA-Filter 915x457x115 mm for FORTUNA and MARS 900
WG0529	HEPA-Filter 1525x457x115 mm for FORTUNA and MARS 1200
WG0530	HEPA-Filter 1525x457x115 mm for FORTUNA and MARS 1500
WG0531	HEPA-Filter 1830x457x115 mm for FORUTNA and MARS 1800
WG0504	Light tube 26/438mm (Ø/length) for FORTUNA and MARS 900
WG0505	Light tube 26/895 mm (Ø/length) for FORTUNA and MARS 1200
WG0506	Light tube 26/1200 mm (Ø/length) for FORTUNA and MARS 1500
WG0507	Light tube 26/1500 mm (Ø/length) for FORTUNA and MARS 1800
WG0777	Light Ballast FORTUNA 900 and 1200
WG0778	Light Ballast FORTUNA 1500 and 1800
9000020031	Pre-Filter F900 33x58cm for FORTUNA 900
9000020032	Pre-Filter F1200 33x89cm for FORTUNA 1200
9000020033	Pre-filter F1500 33x117cm for FORUNA 1500
9000020034	Pre-filter F1800 33x150cm for FORTUNA 1800
WF0090	Fan for Fortuna
WG0308	ES 911_3 Relay interface PCB
WG0310	Main Print
WG0309	Display Board
WG0311	Keyboard foil
WG0307	Flow sensor
9000050010	UV-Light Ballast
WG0009	Humidification bottle
WG0015	Diffuser for the humidification bottle
WF0137	FORTUNA Stand legs for a working height of 70-75 cm
WF0135	FORTUNA Stand legs for a working height of 80-85 cm
WF0135	FORTUNA Stand legs for a working height of 90-95 cm
WF0165	VOC Charcoal Filter for FORTUNA 900 and 1200 (915x305x40)
WF0164	2 pieces of VOC Charcoal Filter for FORTUNA 1500 and 1800 (762x305x40)
9001120137	Glass Incubator Hood (Ø130mm, H75mm)
9001120138	Glass Incubator Hood (Ø130 mm, H130mm)
9001120139	Glass Incubator Hood (Ø130mm, H30mm)

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