



M O R E T H A N T E C H N O L O G Y

TECHINCAL DESCRIPTION

TOPFLOW3

Mobile LAF cabinet for LAB animals cages changing

ARTICLE DESCRIPTION

Top Flow 3

CODE

0030100000



ST-[TOPFLOW3]_EN-0

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environmental testing division



biomedical division



laf & isolators division



refrigeration engineering division

Technical requirements

Top Flow 3 is a double fan, double side operated vertical laminar airflow cabinet, with partial recirculation. This unit is manufactured like a Class II microbiological safety cabinet with 0.40 m/s mean LAF velocity, front opening inward air velocity more than 0.40 m/s and visual/acoustic alarms in compliance to European standard EN 12469: 2000.

Top Flow 3 is specifically designed for manipulating and passing of mice or other experimental animals, from dirty cages to clean cages, in a sterile area, with protection for operator, animal and environment. An electrical driven lifting system of the whole cabinet allows the optimum ergonomic worker posture..

Warranties

Protection of manipulated product from environmental contamination and cross-contamination, furthermore the slight front air barrier warranties a protection of operator and environment. The protection of environment is warranted also by an absolute filtration of the exhaust air.

It is not a biological safety cabinet and therefore it cannot be used with classified pathogens agents.

Norms and directives

The apparatus is developed in agreement with the following directives:

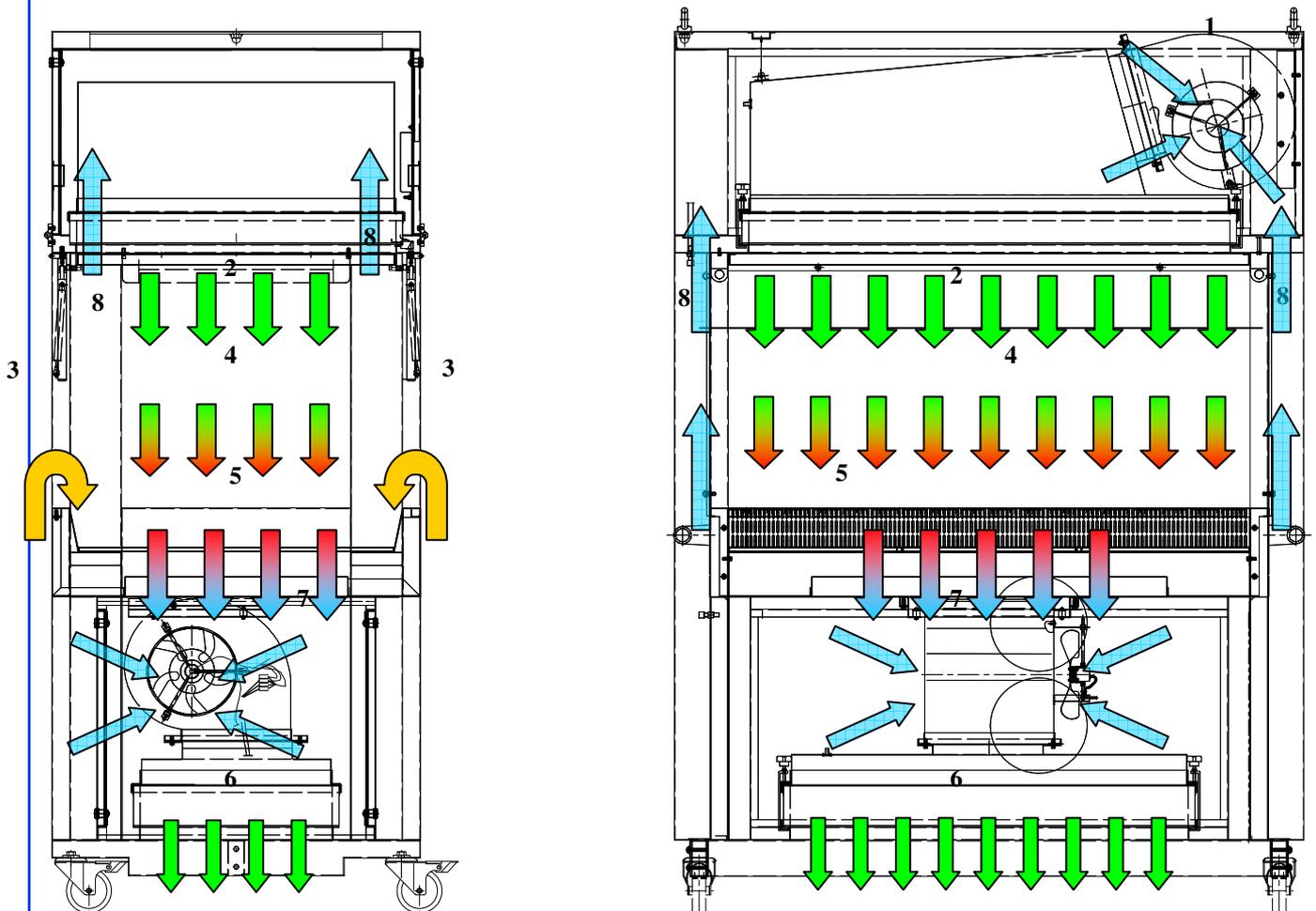
- ⇒ MACHINERY DIRECTIVE 2006/42/CE, (when available)
- ⇒ ELECTROMAGNETIC COMPATIBILITY DIRECTIVE 2004/108/CE
- ⇒ LOW TENSION DIRECTIVE 2006/95/CE
- ⇒ EN 12100-1
- ⇒ EN 12100-2
- ⇒ EN 61010-1
- ⇒ EN 61326-1

IMPORTANT !!

The apparatus doesn't reenter in the field of application of the directive Us 93/42 about the medical devices, as it is deduced by the definition of "medical Device" at the art. 1 point 2 of the same directive.

STERIL is not responsible for damages to people or things caused by an improper use of the system and, particularly, from the non observance of the instruction of use and maintenance that accompany the same.

The cabinet is not designed for working in explosion proof laboratory or in tropical thermo-igrometric conditions.



How it works

The main fan (1) pushes air through an HEPA filter generating a clean unidirectional vertical airflow (2) at 0.40 m/s, Class ISO 5 according to ISO EN 14644-1 (Class M3.5/100 as for FS209e).

The product is protected, by this clean laminar flow, from contaminated particles (3) coming from the room or from the staff.

Contaminated air coming from the work area (4) and make-up air from the environment (3) is sucked in the front sloping slots and passes across F5 pre filters (5).

Clean air (6) is exhausted from the cabinet through a second HEPA filter (H14) by the lower fan (7) in order to create an inflow air (3) at one or both of the front openings. This "barrier" prevent any escape of contaminated aerosol from the cabinet to the environment protecting also the staff.

Part of the air (8) is sucked by the main fan (1) through the four side ducts and then recirculated to the work area (2).

Technical Specification

Main and Exhaust HEPA filter: H14, 99.995% efficiency MPPS according to EN 1822 (99.999% DOP test efficiency at 0,3 µm);

Main and Exhaust filters HEPA are fitted according to negative seal principle to avoid any escape of contaminated particles and they are testable with DOP for filter integrity).

Pre-filter (F5) installed below the working surface, to extend filters life and to prevent blockage of motor blower

Cleanness of air in working area is class ISO 5 @ 0.3 and 0.3 µm particles according to ISO EN 14644-1 (Class M3.5/100 according to FS209E).

Exterior structure in carbon-steel (12/10) white coated with epoxy polyester powder RAL 9010

Work surface and harm-rest in stainless steel AISI 304L scotch brite

Drain basin under the aspiration part of the work surface, made in stainless steel AISI 304L with rounded edge;

Protection grid, for main HEPA filter made by anodized aluminium.

Side windows in 5 mm Safety Glass.

N°2 hinged **frontal screens**, one per side, in 4+4 mm double layer Laminated Safety Glass with anodised aluminium frame with aperture height in working position of 290 mm. Opening angle of 150° to obtain a free aperture section of 1160 x 530 mm (w x h).

N°2 **soft touch control panel**, one in each side in order to work with a cabinet like two independent cabinets (see description below).

N°2 **front closure** in plexiglas.

Fluorescent lights installed outside the contamination area (2x15Watt) to obtain 400 lux (unbother for animals).

Easy **maintenance** of the motorblower and of the HEPA filters from both front side of cabinet.

Two lateral **handles** for movement and positioning.

External dimension: 1400 x 840 x 1980 mm (wxdxh).

Working chamber dimension: 1160 x 700 x 674 mm (wxdxh).

Base supplied with stainless steel wheels and brakes (125 mm diameter) and electrical adjustable device for regulation of work surface height from 800 mm to 1100 mm; Level of work surface is 100 mm under level of harm-rest.



Exhaust air

Exhaust flow rate is **automatically adjusted by the microprocessor** when one or two operator/aperture are in service (with one aperture exhaust flow rate is about 550 m³/h equal to 0.43 m/s air front barrier velocity, with two aperture exhaust flow rate increases automatically to 1100 m³/h in order to maintain the same air front barrier velocity).

Without other notice the cabinet discharge in the laboratory about 30% of the air, after absolute filtration by an exhaust HEPA filter, when one aperture is in service, about 50% of the air when two aperture are in service.

Main and exhaust HEPA filter are protected by **metallic grids** to prevent damages of filter .

Management system

Air ventilation control by means of automatic regulation of the revolution velocity of the motor blower. Two high-resolution flow rate volumetric devices, directly interfaced to microprocessor, achieve the automatic regulation. The microprocessor guarantees the activity of the motor blowers and controls the optimal function even in presence of effects caused by progressive clogging of the HEPA filters.

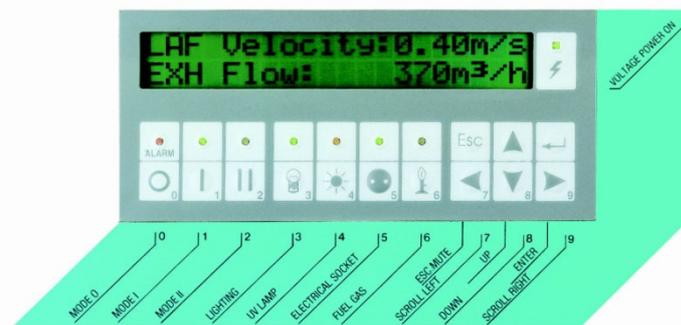
Alarm device optical (red signal light visible from working position and display message) and acoustic (buzzer) type, activated, at real time, by the microprocessor, with indication of type of alarm activate showing on a wide alpha numeric display (see drawing below).

Monitoring with alarms of the following parameters:

- Exhaust flow rate out of the pre-set range;
- Laminar air flow velocity out of the pre-set range;
- Front window in wrong position;

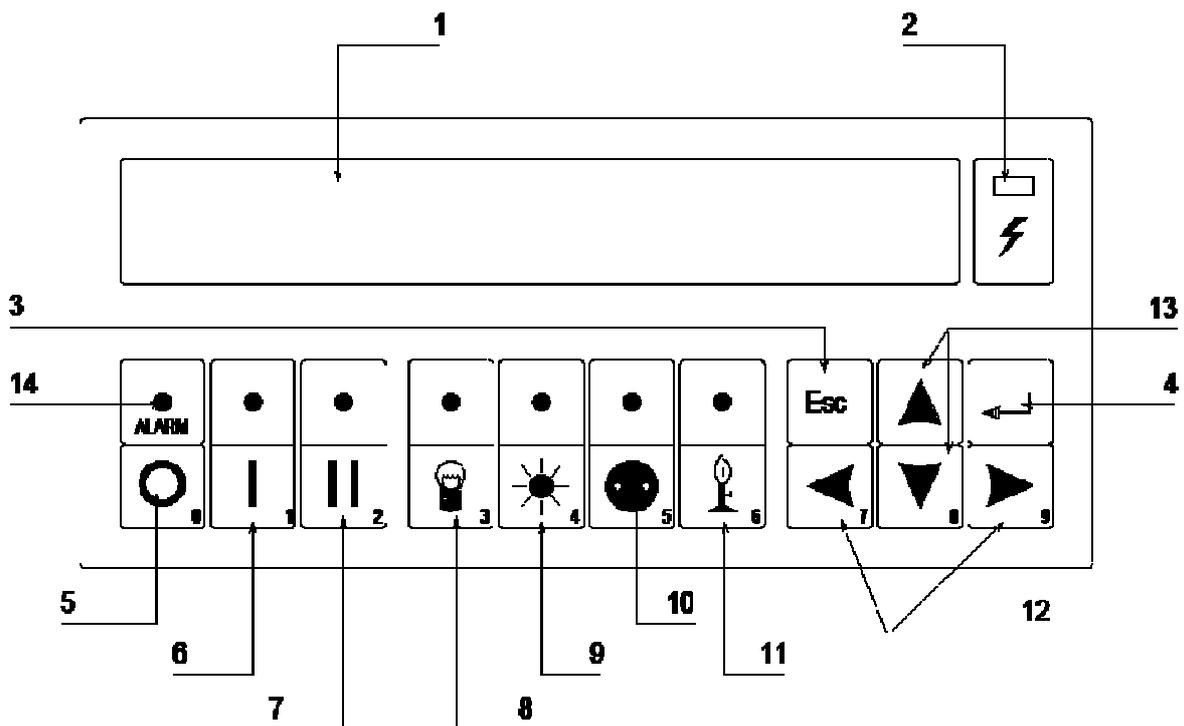
Alpha numeric display showing :

- Laminar air flow speed in m/s
- Exhaust flow rate in m³/h
- Date and time
- Hours counters
- UV lamp run hours
- HEPA filter run hours
- Date of last filters change
- Date of last service
- Date of last power failure
- Change language
- Change password
- Setting UV program cycle
- Setting decontamination cycle



The control panel accommodates (see drawing below):

1. Digital display of the cabinet parameters
2. Green LED for Power Voltage ON
3. Esc key to silence alarm or to cancel operation in progress
4. ENTER button to input data
5. Mode O (Cabinet OFF)
6. Mode I (Ventilation ON)
7. Mode II (UV + Service)
8. Lighting ON/OFF push-button
9. UV lamp ON/OFF push-button
10. Socket Outlet ON/OFF push-button
11. Fuel gas solenoid valve ON/OFF push-button
12. RIGHT/LEFT arrow keys to scroll data
13. UP and DOWN arrow keys to increase or decrease data (e.g. time) and for the activation of the lifting system
14. Red luminous indicator for alarm.



Technical characteristics

Model	Unit	Top Flow 3
Overall dimension (WxDxH)	mm	1400x820x1990
Safe working area dimension (WxDxH)	mm	1160x700x670
Package dimension (WxDxH)	mm	2100x980x1760
Front opening height	mm	290
Max front opening height	mm	530
Net weight	Kg	300
System ventilation data		
Recirculated flow rate	m ³ /h	1055
Exhaust flow rate with 1 screen opened	m ³ /h	650
Exhaust flow rate with 2 screens opened	m ³ /h	1300
Heat emission at 25 °C ⁽¹⁾	Kcal/h	650
Noise level	dB (A)	<58
Lighting	Lux	500
Electrical data		
Voltage	V	230V AC F+N+P.E.
Frequency	Hz	50
Power	W	1300
Absorption ⁽²⁾	A	10
Electrical classification (with feeding cable)		1
Protection category		IP 20
Power socket (protected by a single fuse 4A)		2P+t 250V 10/16A IP55
Fluorescent lamps	W	2x15W

⁽¹⁾ Only for cabinets that recirculate air in environmental

⁽²⁾ This value includes max absorption of power socket equal to 4A

