

8902/HLB...M88-E
Nr.807025

1 (11)

H O L T E N L a m i n A i r

Type HLB 2448/2472 M88

INSTRUCTION AND MAINTENANCE MANUAL

INTRODUCTION**HLB 2448/2472 M88**

Before the cabinet is put into use, the instruction and maintenance manual must be read carefully in order to avoid errors and consequent damages.

By complaints or spare parts ordered we kindly ask you to state the data mentioned on the type plate.

The microbiological safety cabinet class II complies with the demands of DIN 12 950 as well as NSF Std. 49 and by means of accessories may be brought to comply with BS 5726.

8902/HLB...M88-E

3 (11)

Technical data

	HLB 2448 M88	HLB 2472 M88
Dimensions		
Inside		
width	1180 mm	1800 mm
height	800 mm	800 mm
depth	580 mm	580 mm
Outside		
width	1265 mm	1885 mm
height	1975 mm*	1975 mm*
depth	890 mm	890 mm
Capacity of the trough	6.5 l	9.5 l
Weight (net)	225 kg	300 kg
Mains voltage	220 V-	220 V-
Mains frequency	50 Hz	50 Hz
Current intensity	3 A	6 A
Extra equipment:		
Max. 3 safety plug boxes	220 V- 6 A	220 V- 6 A
Each plug box can be loaded to 6 A.		
However, all 3 plug boxes may only		
be loaded to a total of max. 6 A.		
Required mains fuse	10 A	10 A
Noise level when in operation according to DIN 45 635 Bl. 1	60 dB(A)	60 dB(A)

* NB! Special height for BS-version.

8902/HLB...M88-E

4 (11)

Description**Principle of operation**

The safety cabinet is a modified fume cupboard, in the working chamber of which prevails a vertical laminar flow. During operation the front is partially open; the top of the front consists of an opening front window. Below the front window you will find the work opening.

Air cleaning

The air is cleaned by means of HEPA-filters.

Prefilter

The prefilter extends the lifetime of the main filter and the exhaust filter.

Degree of detention 99.99% of all particles 0.3 um and larger.

Main filter

Degree of detention 99.999% of all particles 0.3 um and larger.

The prefiltered air entering the work chamber is cleaned by this filter.

Exhaust filter

Degree of detention 99.999% of all particles 0.3 um and larger.

Before the already prefiltered air is exhausted to the room, it is cleaned by this filter.

Air flow supervision

All filters are supervised by means of a differential pressure switch; possible disturbances will be shown both with visual and acoustic alarm (see also paragraph "Operation").

Function components of the cabinet

The ventilator/ventilators is/are built into the prefiltered area of the bottom part of the cabinet.

The necessary electric control, incl. fuses, is placed in the top part of the unit behind the lamp cover. Mains connection takes place through the side lid on the right side of the cabinet.

The front window which is made of a UV-resistant synthetic material is continuously adjustable in height and stays in position by itself.

The allowable height of the work opening is marked with a green colour on the right guideway of the front window. The non-allowable area is marked with a red colour (see also paragraph "Operation").

The table top which is made of stainless steel consists of several plates which are easily removed for cleaning.

Below the table top is placed a trough for collecting fluids. The ball valve with stopper in a chain is accessible below the cabinet.

The lighting of the working chamber is placed outside the working chamber behind a lamp cover. The lighting is thereby antidazzling and creates neither turbulences nor unwanted heating.

All necessary switches and signal lamps for operation and supervision are together with the hour counter gathered in a control panel on front of the cabinet (see also paragraph "Operation").

Possible extra equipment:

UV-light with screen; placed on the back wall of the working chamber.

Front window of polycarbonate.

Reduced ventilator speed.**

Safety plug boxes 220 V / 6 A for further electric auxiliary devices; placed either on the front of the bottom part or on the back wall of the working chamber.

Special table tops, lowered, possibly teflon-coated.

Gas fittings for different gasses respectively vacuum; placed on the back wall of the working chamber.

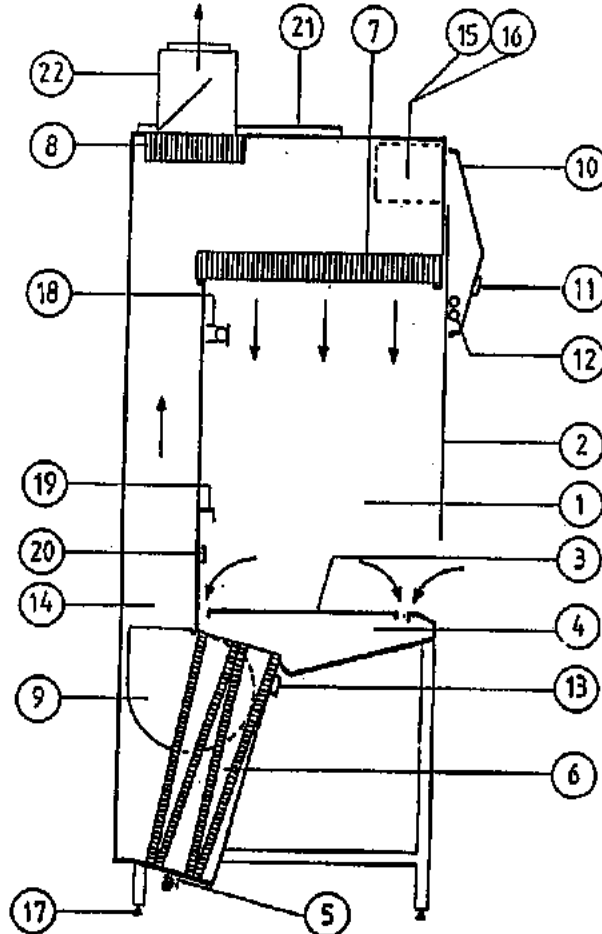
BS-version, with which the exhaust air from the microbiological safety cabinet can be led out into the open in accordance with British Standard (BS) 5726. Obtainable as conversion set.

** NB! Not possible with GS-version.

8902/HLB...M88-E

6 (11)

Basic Drawing*



- | | |
|--------------------------------|-----------------------------------|
| 1 Working chamber | 11 Control panel |
| 2 Front window | 12 Lighting |
| 3 Work table | 13 Plug boxes *** |
| 4 Trough | 14 Mains connection * |
| 5 Drain with valve and stopper | 15 Diff. pressure switch ** |
| 6 Prefilter | 16 Electr. control incl. fuses ** |
| 7 Main filter | 17 Adjustable feet |
| 8 Exhaust filter | 18 UV-light *** |
| 9 Ventilator | 19 Fittings *** |
| 10 Lamp cover | 20 Plug boxes *** |

* accessible from the right side

** accessible from front

*** extra equipment

* NB! Special basic drawing for BS-version.

Placing

Place the cabinet on a firm even floor, adjust the adjustable feet and check that the cabinet is in a vertical and stable position.

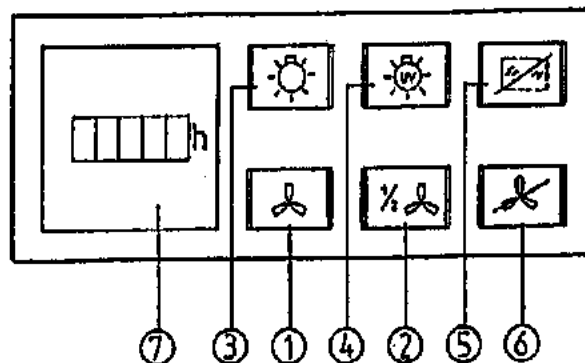
Wherever possible, avoid air movements in the room in which the cabinet is placed.

Mains connection

Before connection it should be checked that the mains conditions correspond to those stated on the type plate.

The cabinet is equipped with a flexible mains cable with plug.

Required mains cutout of the cabinet: 10 A.

Operation**Control panel***

- 1 Pushbutton with signal light (green)
- Ventilator normal speed
- 2 Pushbutton with signal light (yellow)
- Ventilator reduced speed
NB! By reduced speed the acoustic alarm is cut off
- 3 Pushbutton with signal light (green)
- Work chamber lighting
- 4 Pushbutton with signal light (yellow)
- UV-light (extra equipment)
- 5 Signal light (red) with possibility of resetting the acoustic alarm
- Front window not in working position
- 6 Signal light (red) with possibility of resetting the acoustic alarm
- Amount of exhaust air not sufficient
- 7 Hour counter

* NB! Special control panel for GS-version.

Explanations

The ventilator is started or stopped by activating the green pushbutton. By means of the yellow pushbutton it is possible to choose between normal and reduced speed. NB! The ventilator must always operate at normal speed when work is performed in the cabinet.

The working chamber lighting can be switched on/switched off independently of the ventilator.

The UV-light can be switched on independently of the ventilator; however, only when the working chamber lighting is off.

If the front window is outside the allowable working height, i.e. inside the area marked with red, this will be indicated by a signal light and an acoustic signal. By activation of the pushbutton the acoustic signal can be stopped. The signal light will turn off when the front window again is inside the allowable working height or closed.

Insufficient amount of exhaust air is indicated by a signal light and an acoustic signal. By activation of the pushbutton the acoustic signal can be stopped. The signal light will turn off when the disturbance has been set right by service.

The hour counter is activated whenever ventilator is in operation - also at reduced speed.

Putting into service

Leave the cabinet switched on for approx. 15 minutes before starting work. See paragraph "Operation".

- When connecting the power, the will (for a few seconds) signal the still lacking amount of exhaust air.

and 

Working rules before starting work

The working chamber is to be cleaned thoroughly, disinfected and dried.

The use of inflammables is not permitted.

During the disinfection the ventilator must be operating. Use only low-lint wipes for cleaning and disinfection.

Objects and remedies must be carefully cleaned or disinfected before being brought into the working chamber. You must have the necessary remedies ready before work is started.

8902/HLB...M88-E

9 (11)

Working rules
during work

It is recommended to wear personal protective clothes, e.g. gloves, mask, spectacles, body protection.

The front window must be kept in working position (within the area indicated by a green colour) and the ventilator at normal speed.

Disturbances in the flow conditions due to quick movements - also in front of the work opening, covering of the suction openings in the work table and the use of burners should be avoided.

Heat sources must only operate when the ventilator is running.

Surplus liquid is collected by the trough.

- By draining of liquid, the plug of the valve is unscrewed (below the cabinet).

A vessel is placed below the valve which is then slowly opened.

Finally, the valve is closed again and the plug remounted.

The valve can also be connected to an external drain system.

Liquids must not enter the filter pit of the prefilter.

On the front window you can use antistatic spray, but agents containing chloroform must not be used by disinfection.

Working rules
after work has
been finished

The working chamber is again carefully cleaned, disinfected and dried.

Then the ventilator is left running for another 15 minutes.

Prefilter is to be changed at suitable intervals - according to how often the cabinet is used. A too high degree of fouling will be indicated by the signal for insufficient exhaust.

Maintenance
(inspection, service
and repair

In order to retain the fulfilment of standards and safety, the cabinet must be inspected by authorized personnel after each 5000 working hours or at least once a year.

During this inspection the detention degree is tested and the air velocity measured.

Furthermore, the function and safety of the cabinet must be tested.

By filter change and repairs, further measures are to be taken.

8902/HLB...M88-E

10 (11)

Change of worn electrical parts

Both light tubes incl. starter and choke coil, the safety switch for the front window, the acoustic signal and parts for operating the cabinet are placed behind the lamp cover.

When changing these parts, the two bottom fixing screws of the lamp cover are to be removed, the lamp cover is lifted by the hand and secured on both sides by means of the supplied rods. Afterwards the lamp cover is refitted and screwed on.

When changing the UV-light, the ray protection screen is to be removed and the UV-light changed.

Then the ray protection screen is remounted.

The starter for the UV-light is installed behind the lamp cover together with the other electrical components.

Protection of the mains circuit takes place by means of automatic cutouts so that a change is not necessary.

The secondary circuit is protected by means of a fuse.

Change of filters

The cabinet is disinfected before the filters are changed.

Replaced (used) filters are immediately placed in suitable containers marked "biohazard waste" and transferred to destruction together with the other infected waste from the laboratory.

Prefilter

consists of 8 (HLB 2448)/12 (HLB 2472) single filters type VZB2L, make: Sofiltra-Poelmann, detention degree: 99.99% of particles 0.3 um and larger.

- Switch on the ventilator,
- remove the plates of the table top,
- paste down the filter openings, one filter block (4 pcs) at a time,
- cut through the mounting tape between the single filters,
- pull out one filter at a time by means of special tools,
- insert new filters and fasten them by means of special tape,
- switch off the ventilator.

Main filter

consists of one filter type VEP 12P6 (HLB 2448)/one filter type VEP 18P6 (HLB 2472), make: Sofiltra-Poelman, detention degree: 99.999% of particles 0.3 um and larger.

- Demount the top cover of the cabinet,
- remove the filter,
- insert a new filter,
- remount and fasten the cover of the cabinet.
Re-establish the silicone seal.
- Test:
Degree of detention
Air velocity
Tightness.

Exhaust filter

consists of one filter type VEP 6P6 (HLB 2448)/one filter type VEP 6P6 and one filter type VEP 3P6 (HLB 2472), make: Sofiltra-Poelman, detention degree: 99.999% of particles 0.3 um and larger.

Change and test as mentioned for the main filter.

Wearing parts

Light tubes Osram DuLux
250 V-, 36 watts with starter S 10

UV-lys type TUV
250 V-, 30 watts with starter S 10

24 Volt fuse 5 x 20 mm
250 V-, T 1 A

Regarding technical data for the filters, please refer to the paragraph "Change of filters".

Enclosed

Wiring diagram
Test report.