

**Probably the best Class II safety cabinets in the world... : LaminAir model HB and HBB / HoltenLaminAir S/A.**

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Probably the best  
Class II safety cabinets  
in the world....



*LaminAir*

- MODEL HB AND HBB



Highest performance



Lowest noise level



# 1

## Higher safety for you, your product and environment

The new HB and HBB-series are characterized by a very high degree of safety for the user and the product. The cabinets are equipped with high quality HEPA filters. The main HEPA filter in the top of the working chamber has the same dimensions as the table top. This ensures an unidirectional turbulence free air flow in the working chamber, and an optimum product protection. The main and exhaust filters are constructed with aluminium frames and one-piece gaskets – a construction ensuring an optimum tightness and a longer lifetime for the filters.

The operator protection is supervised by visual and acoustic alarms, warning if any safety parameters are incorrect. The biohazard label informs about the high degree of safety.

All cabinets are carefully constructed and tested according to the demands stipulated in eq. DIN 12950, NSF Std. 49 and BS 5726 standard.



The effective HEPA filter systems of the HB and HBB cabinets gives an extra safety in the daily work due to the very high filter efficiency of 99,999% against all particles  $>0.3 \mu\text{m}$ .

If extra safety is wanted, e.g. when changing filters, Holten offers a HB+B cabinet with double filter system.

- ensures the continuous work in the lab during filter change
- provides double safety
- makes the contamination way negligible for lowest risk for personnel
- can be applied in class III laboratories



# 2

## Superior design, high comfort for operator...

The modern and well-considered design makes it a real pleasure to work with the HB and HBB cabinets. The construction gives a correct working posture. Both models allow enough space underneath the work surface for the operator to have his legs placed in an ergonomically correct position.

The front edge is made of stainless steel and slopes downwards to suit the position of the operator's arms during work. The height of the front edge is reduced, ensuring a correct and comfortable working posture.

The working area is illuminated by fluorescent light mounted outside the cabinet to supply a uniform glare-free light of min. 1000 lux in the working area, without creating heat and turbulence in the clean laminar air flow. Due to the construction of the lamp cover, there is no reflecting light from the back wall.

The side windows give a much better visual field, optimizing the work lighting conditions. At the same time it is possible to supervise lab activities while working to avoid the feeling of being shut in.

The construction makes it very easy to install the cabinet in the laboratory. The outer dimensions allow the cabinet to be carried through most doors. All cabinets are delivered with a power cord etc. for easy and simple installation.



- handling of medium to low risk organisms
- handling of tissue culture
- bacteriological diagnosis
- handling of animals
- pharmaceutical industry
- AIDS handling
- production of cytostatics
- work of isotopes and of genetic manipulation



# Safety Class II and even more...

# HB+B



High safety,  
easy service  
while working

# +B

## 4

### The sound of silence...

The HB and HBB cabinets have the lowest noise level available. Both cabinets have a noise level below 55 dbA. This enhances the working environment in the laboratory for both operator and working personnel. The low noise allows continuous running avoiding daily cleaning procedures and allows direct resuming of work.

The figure relates to the point where the operator notices the sound from the cabinet. In this point the sound is less than 55 dbA.



## 3

### Easy service, minimum maintenance...

The unique construction of the HB and HBB cabinets allows an easy daily cleaning. The cabinets are made of smooth surfaces without fixings. All corners are rounded, giving easy access for cleaning. The drain tap under the table top is very convenient when draining spillage or surplus disinfection fluids from the trough.

Easy access to the electric components in the lamp cover. The construction of the lamp cover makes it possible to change the light tube from outside the cabinet, ensuring no contact with the contaminated areas in the work chamber.

The cabinets are very easy to service. Due to the construction, all service is done from the top and front of the unit. The filters are easily exchanged on both the HB and HBB cabinets. The B filter on the operator or the working personnel in the laboratory, as the main filter keeps the air in the chamber uncontaminated while changing. The filters can be exchanged without sterilization of the cabinet as the B-filter keeps the cabinet uncontaminated.

Two service valves are mounted on the back wall in the work chamber for easy filter test, avoiding the need to move the cabinet from the wall.





### Control panel

The HB and HBB models are supplied with a soft touch and easy-to-use electronic control panel with built in operation time. Each panel is supplied with functions for the separate optional equipment. The photo shows an example of a cabinet equipped with UV light and reduced speed. The push buttons have a pilot light, indicating operation.

As an option, the cabinets can be equipped with UV-light placed on the front cover. The UV-light is operated from the control panel. The cabinets can also be equipped with a reduced speed function. The reduced speed leaves the working area uncontaminated when not in use. The reduced speed function permits a minimum energy consumption. The reduced speed is controlled from the control panel.

### Table top

The HB(B) table tops are as a standard divided into 4 separate plates in either stainless steel. As option is a table top in white or green teflon coating on stainless steel or in solid polypropylene. The white teflon gives optimum lighting conditions in the working chamber. The green teflon is acid- and heat-resistant.

The division of table tops gives an increased strength, allowing heavy apparatus in the working chamber.

Due to the construction the plates can be removed for easy cleaning and autoclaving. The plates are secured against incorrect installing after cleaning.

Lowered table tops are available for the HB(B) cabinets.

### Electric outlet

The cabinets can be supplied with electrical outlets on the left side of the back wall, for powered equipment used in the working chamber.

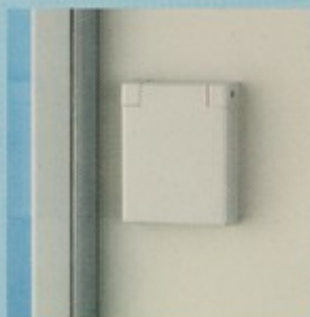
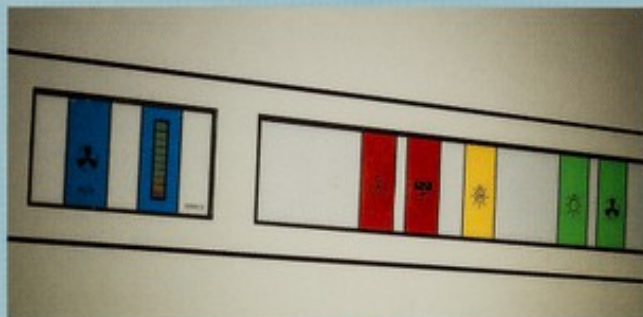
### Extra valves

For added convenience in daily work, the cabinets can be equipped with valves mounted on the lower part of the side windows. Valves for CO<sub>2</sub>, vacuum, gas etc. are available. A solenoid controlled gas valve is also available.

### Charcoal filter and exhaust to the outside

It is possible to have a charcoal filter built into the recirculating air flow when working with isotopic and cytostatic products. The very effective charcoal filter gives an overall safety and increases the safety in the cabinet. For compliance with BS 5726, the cabinets are also available with an anti-blow-back valve, placed on top of the cabinet for connection to exhaust ducting.

## Options and features



### Air velocity and pressure indicator

The velocity indicator, VI, provides a supervision of the air velocity in the unidirectional air flow. The red light indicates an insufficient air flow caused by locked air intake, filter should be changed continuing work.

The pressure indicator, PI, measures the pressure drop over the HEPA filter. The red light indicated that proper operation is impossible and that filter change is necessary.

### Push-up, sliding or hinged front window

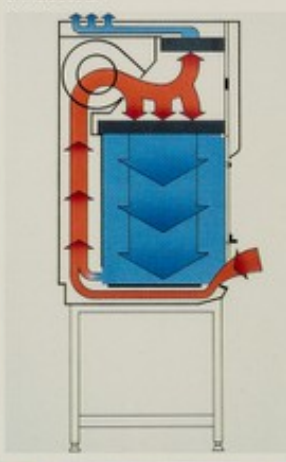
As a standard, the cabinet are available with a hinged front window. It offers very easy cleaning on the outside as well as the inside of the window giving high degree of safety. The window is very handy due to outside gas dampers, which also allow complete opening of the window. A plate for complete and tight closing of the working chamber is included.

As an option, a sliding window is available. It has a security brake and a guideway with colour indication of permitted work opening. It is possible to close the window tightly, keeping the working chamber uncontaminated. It is also possible to open the window completely when larger apparatus needs to be installed in the chamber.

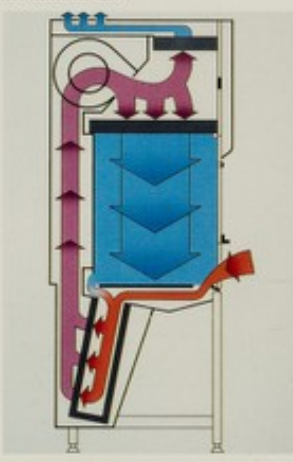
As an option, a push-up window is available. As the sliding window but without security brake.

### Filter systems

The HB class II cabinet is equipped with one filter system consisting of two HEPA-filters in the top of the cabinet, a main filter and an exhaust filter. 75% of the air volume is recirculated, 25% is exhausted.



The HBB Class II cabinet is equipped with two filter systems. Two HEPA-filters in the top and a B-filter under the table top. Giving limited contaminated area, long life of exhaust and main filters. 75% recycled - 25% exhausted air.



### Side windows

The HB and HBB models are equipped with side windows for a larger visual field to allow supervision of the surrounding work area. This avoids the feeling of being shut in, and ensures high light intensity. By means of the windows, cabinets can be built together or other kinds of equipment can be built into the cabinets etc., without reducing the safety function. It is also possible to install an air lock for transport of materials between two cabinets.



## Contamination free vacuum source

An environment friendly vacuum pump for aspiration purposes. The compact pump makes larger installations for vacuum unnecessary. An easily exchangeable and autoclavable sterile filter to avoid contamination of the cabinet and the environment.

A very economic solution as it uses a minimum of energy. It saves valuable tap water, and protects the central vacuum system against pollution.

The pump is very suitable for:

- Filtration
- Evacuation
- Laboratory aspiration
- Cell harvest respiration

Specifications of VAC 30 and VAC 3		
Model	VAC 30	VAC 3
Cat. no.	80210008	80210007
Vacuum established mbar at + 2 °C + 24 °C	down to 7 down to 30	
Air capacity, L/min.	10	
Bath volume, L	7	4
Bath material	Stainless steel	Polycarbonat



Place  
stamp  
here

Holten Laminair A/S  
Gydevang 17-19  
DK-3450 Allerød  
Denmark

Yes, please send me: ☐ Additional information on  
☐ A quotation for

- |  |  |
|--|--|
| <input type="checkbox"/> The HV cabinet      | <input type="checkbox"/> The Holten vacuum systems |
| <input type="checkbox"/> The HVR cabinet     | <input type="checkbox"/> The HB cabinet            |
| <input type="checkbox"/> General Holten info | <input type="checkbox"/> The HBB cabinet           |

Name: \_\_\_\_\_

Company/Inst.: \_\_\_\_\_

Address: \_\_\_\_\_

Country: \_\_\_\_\_



# The Holten Family

The highest degree of safety and contamination control achievable

Holten offers a series of laminar air flow cabinets characterized by:

- The highest protection for product and operator
- Modern design
- The best working comfort
- The lowest noise level

The HV and HVR cabinets provide sterile product protection, and are very suitable for work where contamination control is of very high importance.

Very suitable for:

- Sterile work
- Plant tissue culture
- Biological handling
- Handling of electronic components

The HB and HBB are very suitable e.g. for:

- Pharmaceutical industry
- AIDS handling
- Production of cytostatics
- Work on isotopes
- Tissue Culturing

Please contact us for further information.



# We have 4 good reasons!

Safety

Design

Noise  
level

Service



- and the well-known high Holten quality

**Holten**  
LaminAir



# Technical specifications for HB and HBB

Please use the diagrams below to order a complete Holten cabinet.

The purple area is for choosing the basic parts of the cabinet such as tabletop, front window etc. A choice must be made in each product group to complete the functional cabinet.

When choosing equipment for HB(B), it gives the same part for both HB and HBB models. Support stand is only for HB models.

The blue area is for choosing additional equipment and accessories.

Features: Air velocity 0.4 m/sec in working area, 0.45 m/sec in working aperture  $\pm 20\%$ . Two sets of HEPA filters in HB, three sets in HBB. Stainless steel trough. Filter efficiency 99.999% against all particles  $>0.3 \mu\text{m}$ . 75% recycled, 25% exhausted air. 1000 lux light intensity. Noise level below 55 dbA.

Max. temperature rise  $4^\circ\text{C}$ . Soft touch control panel including pilot light and hour counter. Visual and acoustic alarm for open front window and reduced air velocity. Power 220/50 Hz.

Cabinet type HB(B)	
54240000	HB 2436
54250000	HB 2448
54260000	HB 2460
54270000	HB 2472
46240000	HB(B) 2436
46250000	HB(B) 2448
46260000	HB(B) 2460
46270000	HB(B) 2472

Front window HB(B)	
80010001	Hinged HB(B) 2436 front opening 200 mm
80010002	Hinged HB(B) 2448 front opening 200 mm
80010003	Hinged HB(B) 2460 front opening 200 mm
80010004	Hinged HB(B) 2472 front opening 200 mm
80010005	Sliding HB(B) 2436 front opening 200-525 mm
80010006	Sliding HB(B) 2448 front opening 200-525 mm
80010007	Sliding HB(B) 2460 front opening 200-525 mm
80010008	Sliding HB(B) 2472 front opening 200-525 mm
80010021	Push-up HB(B) 2436 front opening 200-525 mm
80010022	Push-up HB(B) 2448 front opening 200-525 mm
80010023	Push-up HB(B) 2460 front opening 200-525 mm
80010024	Push-up HB(B) 2472 front opening 200-525 mm

Support stand HB	
80020001	Floor fix. H 76-80 cm HB 2436
80020002	Floor fix. H 76-80 cm HB 2448
80020003	Floor fix. H 76-80 cm HB 2460
80020004	Floor fix. H 76-80 cm HB 2472
80020005	Floor adj. H 75-92 cm HB 2436
80020007	Floor adj. H 75-92 cm HB 2448
80020008	Floor adj. H 75-92 cm HB 2460
80020009	Floor adj. H 75-92 cm HB 2472
80020005	Table fix. H 11-13 cm all models

HB(B) divided table top	
80160001	HB(B) 2436, stainless steel
80160002	HB(B) 2448, stainless steel
80160003	HB(B) 2460, stainless steel
80160004	HB(B) 2472, stainless steel
80160017	HB(B) 2436, white teflon coated
80160018	HB(B) 2448, white teflon coated
80160019	HB(B) 2460, white teflon coated
80160020	HB(B) 2472, white teflon coated
80160021	HB(B) 2436, green teflon coated
80160022	HB(B) 2448, green teflon coated
80160023	HB(B) 2460, green teflon coated
80160024	HB(B) 2472, green teflon coated

HB(B) lowered table top	
80160005	HB(B) 2436, stainless steel
80160006	HB(B) 2448, stainless steel
80160007	HB(B) 2460, stainless steel
80160008	HB(B) 2472, stainless steel
80160025	HB(B) 2436, white teflon coated
80160026	HB(B) 2448, white teflon coated
80160027	HB(B) 2460, white teflon coated
80160028	HB(B) 2472, white teflon coated
80160029	HB(B) 2436, green teflon coated
80160030	HB(B) 2448, green teflon coated
80160031	HB(B) 2460, green teflon coated
80160032	HB(B) 2472, green teflon coated
80160013	HB(B) 2436 grey/green polypropylene
80160014	HB(B) 2448, grey/green polypropylene
80160015	HB(B) 2460, grey/green polypropylene
80160016	HB(B) 2472, grey/green polypropylene

Valves and mounting kits	
80100001	Gas, resettable solenoid valve
80100022	Gas
80100023	Carbon dioxide
80100024	Vacuum
80100025	Nitrogen
80100026	Oxygen
80100027	Pressurized air
80210008	Vac 30 vacuum system
80210007	Vac 3 vacuum system

Control systems	
80130001	Minihelic meter - differential pressure drop of main filter
80130002	Pressure indicator, PI, with pilot lights
80130003	Velocity indicator, VI, supervision of air flow with pilot lights

HB drain tap	
80120001	Drain tap for HB floor mounting models

Mains voltage	
80030001	Voltage, 115 V

Mains frequency	
80030002	Frequency, 60 Hz

BS anti-blow-back valve	
80050001	BS HB(B) 2436
80050002	BS HB(B) 2448
80050003	BS HB(B) 2460
80050004	BS HB(B) 2472

Electric outlet in working area	
80040001	Danish standard (Fuga)
80040002	German standard (Schuko with fuses)
80040003	English standard
80040004	French standard

Control panel	
80030003	Reduced speed
80030027	Key switch

Charcoal filter	
80070001	C.F. coal 9 kg HB(B) 2436
80070002	C.F. coal 12 kg HB(B) 2448
80070003	C.F. coal 15 kg HB(B) 2460
80070004	C.F. coal 18 kg HB(B) 2472

UV light	
80080001	UV light HB(B) 2436
80080002	UV light HB(B) 2448
80080003	UV light HB(B) 2460
80080004	UV light HB(B) 2472

Specifications		Dimensions W × H × D, mm		Spillage max. L	Power con- sumption, KW	Net. weight Kg	Shipping volume m³
Model		Working chamber	External dimensions				
HB Floor	2436	900 × 705 × 600	965 × 2000 × 860	7.5	0.50	190	2.7
	2448	1200 × 705 × 600	1265 × 2000 × 860	10	0.50	200	3.4
	2460	1500 × 705 × 600	1565 × 2000 × 860	12.5	0.75	240	4.1
	2472	1800 × 705 × 600	1865 × 2000 × 860	15	0.75	250	4.7
HB Table	2436	900 × 705 × 600	965 × 1335 × 860	7.5	0.50	180	2.2
	2448	1200 × 705 × 600	1265 × 1335 × 860	10	0.50	190	2.2
	2460	1500 × 705 × 600	1565 × 1335 × 860	12.5	0.75	230	3.5
	2472	1800 × 705 × 600	1865 × 1335 × 860	15	0.75	240	4.1
HBB	2436	900 × 705 × 600	965 × 2000 × 860	5.5	0.50	215	2.7
	2448	1200 × 705 × 600	1265 × 2000 × 860	6	0.50	225	3.4
	2460	1500 × 705 × 600	1565 × 2000 × 860	7.5	0.75	290	4.1
	2472	1800 × 705 × 600	1865 × 2000 × 860	9	0.75	300	4.7



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