



BH-EN and UltraSafe
Class II biological safety cabinets

Personnel, environment and product protection



Compliance, protection, reliability. And more.

Gelaire BH-EN and UltraSafe cabinets

APPLICATIONS

Microbiology

Gelaire BH-EN and UltraSafe Class II biological safety cabinets provide protection for personnel, environment and products in work with microorganisms of Risk Groups 2 and 3.

Cabinets provide protection by creating an air barrier at the work opening, recirculating HEPA-filtered laminar airflow downwards through the work zone and by HEPA filtration of exhaust air.

Limitations

These cabinets are intended only for handling biological materials which can be inactivated by a decontamination procedure such as that described in AS 2252 Part 4.

An increasing number of animal studies involve the use of cytotoxic drugs and some of this work has been carried out in Class II cabinets. These cabinets are unsuitable for use with cytotoxic drugs, because aerosols recirculated within the cabinet contaminate fans and internal plenums, thereby exposing service personnel to contaminated surfaces.

For applications involving cytotoxic drugs or other potentially-toxic compounds requiring sterility and containment, Gelaire CytoFast cytotoxic drug safety cabinets complying with AS 2567 should be specified.

AIRFLOWS AND PROTECTION

Cabinets are part-recirculating laminar airflow enclosures with separate H14 HEPA filter systems for exhaust and laminar airflow.

Personnel and environment protection is provided by an air barrier at the work opening and HEPA filtration of exhaust air. Inflow of ambient air into a full-width grille in the work opening creates the air barrier. A quantity of air equal to the barrier inflow is exhausted to the room through the exhaust filter. Vertical laminar airflow recirculated within the work zone through a second HEPA filter maintains a sterile environment for product protection.

All potentially-contaminated zones within the cabinet that operate at positive pressure are surrounded by zones of negative pressure relative to the laboratory. This 'bio-dynamic' sealing system ensures that airborne contaminants are kept within the cabinet and captured by the HEPA filters.

DESCRIPTION

BH-EN hinged-window cabinets embody the latest European control and HEPA filtration technology, together with class-leading ergonomics and functionality. A microprocessor-based monitoring system automatically controls all functions and safety alarms. Cabinets may be installed on laboratory benches or on optional Gelaire floor stands. Width options are 900 mm, 1200 mm, 1500 mm and 1800 mm; with the option of exhaust discharge at the top or right hand side. Left hand exhaust is available to special order.

UltraSafe electric sash-window cabinets have the same general specification and performance as BH-EN cabinets, but with glass side panels, an electrically-operated sliding window and exhaust discharge on the top. The window can be raised to a maximum opening of 420mm for cleaning or movement of materials; or completely closed, obviating the need for a work zone closure panel.

ECS® control and energy management the new ECS® (Eco Control System) microprocessor employs the latest technology for integrated management of airflows and filtration. Self-regulation of airflows compensates for gradual loading of filters, while restoring power balance. Combining AC fans and certified low pressure-drop filters, the ECS® system optimises power consumption, thereby reducing CO₂ emissions into the environment.



BH-EN2004 hinged window cabinet

Gelaire BH-EN and UltraSafe cabinets

BEYOND MINIMUM SAFETY REQUIREMENTS

Factory manufacturing and product certification



UNI EN ISO 9001 - 2000
CERTIFICATION OF
QUALITY SYSTEM



Comité sectorielle associé par la LNE



Compliance

Cabinets comply with Australian standard AS 2252.2 and the EU standard EN 12469. In addition to providing air barrier containment in accordance with AS 1807.22 (polydispersed aerosol/ photometer test), when tested to AS 1807.26 (KI-Discus), the Operator Protection Factor is significantly higher than the required value of 1×10^5 .

Safety & operational features

- Eco® Control System optimises energy consumption
- Fans automatically adjust to maintain safe airflows
- Constant monitoring and reporting of all operating functions in an illuminated LCD
- Display of laminar flow and air barrier velocities, operated by sensitive anemometers
- Real-time clock
- Selectable display of:
 - Internal and external temperature
 - Hours of operation
 - Fan power factor
 - Scheduled filter lifetime
- Speed-reduction 'standby' mode allows continuous operation with power saving
- 'Blackout' reporting if power supply to the cabinet fails while the user is absent
- Audible and visible alarms indicate window malposition, out-of-range airflows or any other malfunction

Independent testing and certification

Gelaire safety cabinets are tested and certified on-site, prior to use by an independent NATA-registered testing laboratory.



UltraSafe 212D electric sash window cabinet

Gelaire BH-EN and UltraSafe cabinets

FEATURES



UltraSafe 212D



BH-EN work zone

Construction

- Robust, gastight housing with Dupont™ *Alesta*® antimicrobial powder-coat paint finish using environmentally-sustainable silver ions to resist growth and spread of microbes
- 304 stainless steel (SS) work zone.
- 316 stainless steel work tray for increased corrosion resistance
- H14 minipleat HEPA filters with protective hydrophobic membrane on work zone filter

Ergonomics

- Cabinets are designed and manufactured according to the directions on ergonomics in ISO standard 14738
- Flat air barrier grille integrated into the work tray without ledge or joint
- Hinged window easily opened and closed by gas springs (BH-EN)
- Silent, smooth electric sash window (UltraSafe)
- Touch operation of control panel
- Noise level in situ typically < 60 dB(A) with ultra-low vibration

Standard specification

- Solenoid-controlled gas tap (on RHS)
- Vacuum tap (on RHS)
- Splashproof power outlet (on RHS)
- Additional LHS power outlet on UltraSafe 215D and US 218D
- Germicidal UV lamp with two programmable timer modes
- Closure panel for work opening (BH-EN)
- Window closes fully (UltraSafe)

Accessories and options

- Top, RHS or LHS exhaust (BH-EN)
- Fixed-height floor stand
- *Ergo-Lab* height-adjustable electric floor stand
- Additional splashproof power outlet in work zone on LHS (standard on UltraSafe 215D and 218D)
- Activated carbon exhaust filter
- Armrests for work surface (UltraSafe)
- Inflatable window seal for fumigation (UltraSafe)

Installations

Biological safety cabinets should be installed in accordance with AS 2252 Part 4, with particular attention to selecting locations away from sources of air movements such as doorways, passageways, air diffusers and exhausts that could influence cabinet airflows. A comprehensive Gelaire manual is available to assist with cabinet installations.

Gelaire BH-EN and UltraSafe cabinets

OPERATING PRINCIPLES

Cabinets are part-recirculating laminar airflow enclosures with separate H14 ULPA filter systems for exhaust and laminar airflow.

Personnel and environment protection is provided by an air barrier at the work opening and ULPA filtration of exhaust air.

Inflow of ambient air into a full-width grille in the work opening creates the air barrier; and a quantity of air, equal to that of the barrier air, is exhausted to the room through the exhaust filter. Vertical laminar airflow recirculated within the work zone through a second UPLA filter maintains a sterile environment for product protection.

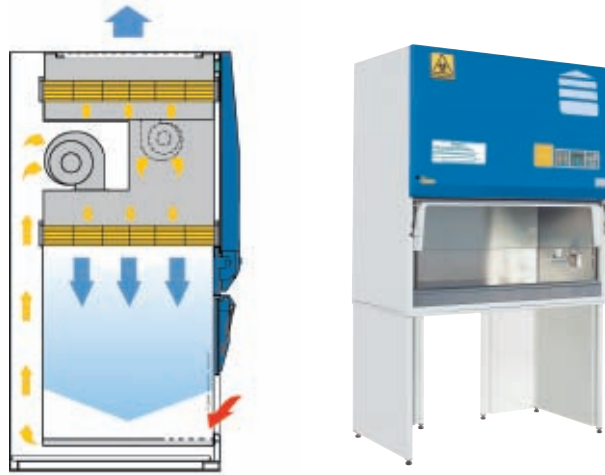
All potentially-contaminated zones within the cabinet that are at positive pressure are surrounded by zones of negative pressure relative to the laboratory. This 'bio-dynamic' sealing system ensures that airborne contaminants are kept within the cabinet and captured by the ULPA filters.

Limitations

These cabinets are intended only for handling biological materials which can be inactivated by a decontamination procedure such as that described in AS/NZS 2647.

For applications involving cytotoxic drugs or other potentially-toxic compounds, Gelaire CytoSafe cabinets complying with AS 2567 should be considered.

BH-EN with hinged window



- Window opens fully for cleaning or materials access
- Vacuum and gas taps, power outlet, programmable germicidal UV standard fitting
- Work zone closure panel
- Top or side exhaust

Model	Dimensions mm						Weight kg
	Overall			Work zone			
	H	W	D	H	W	D	
BH-EN2003	1470	1015	785	660	885	580	186
BH-EN2004	1470	1320	785	660	1190	580	218
BH-EN2005	1470	1625	785	660	1495	580	265
BH-EN2006	1470	1930	785	660	1800	580	304

UltraSafe with electric sash window



- Smooth, electric sash window
- Glass side panels
- Window closes fully – no separate cover
- Vacuum and gas taps, power outlet, programmable germicidal UV standard fittings
- Top exhaust

Model	Dimensions mm						Weight kg
	Overall			Work zone			
	H	W	D*	H	W	D	
US-209D	1500	1045	860	700	900	600	170
US-212D	1500	1350	860	700	1195	600	200
US-215D	1500	1655	860	700	1500	600	230
US-218D	1500	1960	860	700	1805	600	265
Work opening height and air barrier test method			200 mm			AS 1807.22	
			250 mm			AS 1807.26	

* Depth 795 with rear panel removed

External air Sterile air Recirculated air Cabinets shown with optional floor stands.

OTHER PRODUCTS



- *CytoFast* cytotoxic drug safety cabinets
- Horizontal and vertical laminar flow cabinets
- Animal cage-change cabinets
- *RHLAF* dust and powder-containment cabinets
- *VPCR* laminar flow cabinets for PCR
- *Ergo-Lab* height-adjustable electric stands

www.gelaire.com.au



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Vilair-AAF is a specialised manufacturer and supplier of air filtration and contamination-control systems. Products include the Airguard® range of air filters, replacement filter media for all filter brands, laminar downflow dispensary and sampling booths, pass-through hatches and air showers.

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www3.biotest.de/ww/en/pub/diagnostic/hygienecontrol.cfm



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Air Techniques is the leading designer and manufacturer of specialised testing equipment for HEPA filters, media, filter cartridges, respirators and protective masks. Equipment includes aerosol photometers and aerosol generators for testing HEPA filters, safety cabinets and cleanrooms.

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