
GELAIRE®

BH-G Class II Biological Safety Cabinets



- **Continuous monitoring of air velocities**
- **Self-adjusting fan system**
- **Ergonomically designed**
- **Electrically driven sliding sash**
- **Compliance with EN12469-2000 and AS2252 Part 2**

New Generation Safety Design & Construction

GELAIRE® BH-G Series Class II Biological Safety Cabinets belong to the latest generation of laminar airflow and biological containment systems. They combine the rigid safety requirements of International Standards with high quality design and construction.

BH-G Series Cabinets meet and exceed performance requirements of Australian Standard AS 2252 Part 2, while complying with the latest European Standard EN 12469.

The BH-G Series Class II Cabinets are designed to protect the material to be manipulated, while protecting the operator and environment from microbial contamination from within the cabinet. Approximately 70% of the air is re-circulated via the main vertical laminar airflow HEPA Filter, whilst the remaining 30% is discharged through an exhaust HEPA Filter to create an effective air barrier at the front opening of the cabinet. The cabinets are suitable for handling CDC 1-3, DPAG C-B1-B2 etiologic agents, providing Operator, Product and Environmental Protection.

Applications

GELAIRE® BH-G Series Class II Series Safety Cabinets can be used in a wide range of disciplines, as defined in appropriate standards. They are especially suitable for applications such as:

- Microbiology
- Virology
- Cell culture
- Recombinant DNA
- Handling of hazardous agents to human beings or animals as defined in appropriate International Safety Standards.

Unique Features and Benefits

- Electrically driven sliding sash front window designed and manufactured to comply with AS 1807.5 test method for work zone integrity. Exhaust air slots in the side walls adjacent to the sliding window serve to enhance containment and an effective air barrier.
- The front window can be completely opened for service or cleaning.



- The front window has a 3 degree slope to optimise operator visibility of the inside of the work chamber.
- Continuous monitoring, measurement and display on the front control panel of air barrier and work area velocities in metres per second (mps). Air velocity measurement is by accurate rotating vane anemometers located on the main fan and upstream of the exhaust HEPA Filter.
- Compliance with both Australian and European Standards.
- Sophisticated microprocessor based monitoring system with audible and visual alarms alerts the operator if the air barrier fails or the cabinet fails to operate safely.
- Loss of air barrier integrity is measured and reported via a highly sensitive rotating vane anemometer rather than a simple pressure switch.
- Self-adjusting fan system ensures airflow velocities are maintained at set levels even with progressive loading of the HEPA Filters.
- Super quiet operation with a noise level of less than 60 dBA, when measured in accordance with Australian Standard AS1217.7, is 2 dBA lower than the requirements of AS 2252 Part 2.
- The cabinet has been designed and manufactured according to the general directions of ergonomics provided for by the EN ISO 14738 Standard. The ergonomically designed air barrier grille provides user comfort and minimises wrist and arm pressure point problems associated with other class II cabinets.
- Main and exhaust fan systems can be set at 30% below their nominal speeds when the cabinet is not in use, extending fan and HEPA Filter life. When operated in this mode a warning message is displayed in the control panel LED and the fluorescent light and gas solenoid control cannot be switched on.
- Password input controls the activation and deactivation of the cabinet preventing unauthorised use.
- Two-speed exhaust fan, regular and double speed; the double speed fan automatically activates should the main motor-fan fail ensuring protection of personnel and the environment.
- The cabinet internal and external temperature, residual life of HEPA Filters and UV lamp are monitored and reported on the control panel LED.
- Solenoid controlled gas outlet, vacuum, power outlet and work area UV lamp are **standard items** not optional accessories.
- Cabinet is airtight and the bio-dynamic sealing of the negative pressure plenums ensures that contaminated air is kept inside the system eliminating the possibility of HEPA Filter bypass.
- No contaminated part of the cabinet is under positive pressure to the laboratory, thus protecting personnel and environment from bio contamination risks.

Specification

Construction: Steel-carbon epoxy powder coated by electro-spraying provides improved strength and resistance to corrosion and atmospheric agents.

Work Surface: Solid or optional perforated work surface manufactured from AISI-304 stainless steel. Subject to work processes the optional perforated work surface provides optimum laminarity of airflow patterns.

Work Chamber: Continuous seam welded, radius angled AISI-304 stainless steel.

HEPA Filters: Mini pleat HEPA Filters are Hot DOP tested with an efficiency, higher than 99.995% MPPS-0.005% penetration with a performance exceeding the requirements of EN1822, US Federal Standard 209e, British Standard 5295 and VDI-2083.

Motor-Blowers: Two (2) IP-55 protection factored direct drive centrifugal fans are controlled by two automatic speed regulators and are purpose designed to maintain constant airflow into the work area and through the front protective air barrier grille.

Microprocessor Based Monitoring System: The new generation system controller provides high level control and digital data processing. The Control Panel with rearlit LCD display keeps the operator constantly informed of the cabinet's operating conditions, in particular:

- Display of front air barrier velocity and work area velocity
- Display of inside and outside temperature
- Display of residual lifetime of HEPA Filters and UV Lamp
- Display of power rating factor of the main and exhaust motor-blowers:

Audible and Visual Alarms for:

- Front air barrier velocity falling below the set/safe level.
- Work area laminar airflow velocity falling below the set level.
- Front window being left open.
- Exhaust or main HEPA Filters clogging.
- UV lamp failing or reaching end of effective life.
- Power failure to cabinet.
- Other possible malfunctions and relevant remedies displayed in LCD.

Additional Features:

- A gas outlet with solenoid control, a vacuum outlet and one power outlet are fitted as **standard items**, not optional extras (on the right hand side)
- A UV lamp for sterilisation of the work area is a **standard item**, not an optional extra. The UV lamp is controlled by two timers, 3 hours fixed and variable 1 to 180 minutes in 1 minute steps. UV lamp operates only when front window is in closed

- A stainless steel spillage tray is fitted beneath the work surface to collect spilt liquids
- Optional perforated work surface
- Maintenance access to filters, motor-blower(s) and control panel by lifting the upper front access panel
- **Power Supply:** 230V, 50Hz, single phase.

Lighting: Fluorescent tubes in built-in housing, positioned outside the contaminated area.

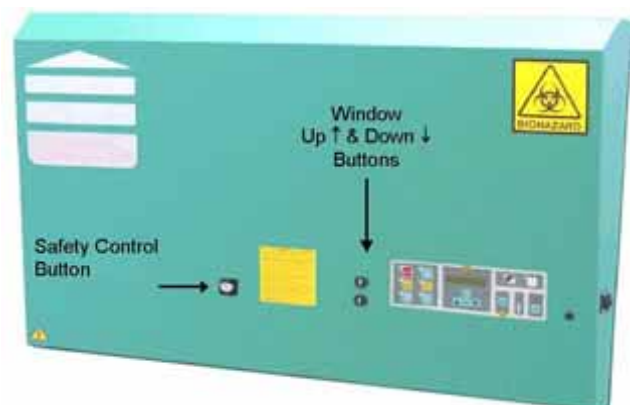
Front Window: Electrically driven sliding window made from laminated safety glass.

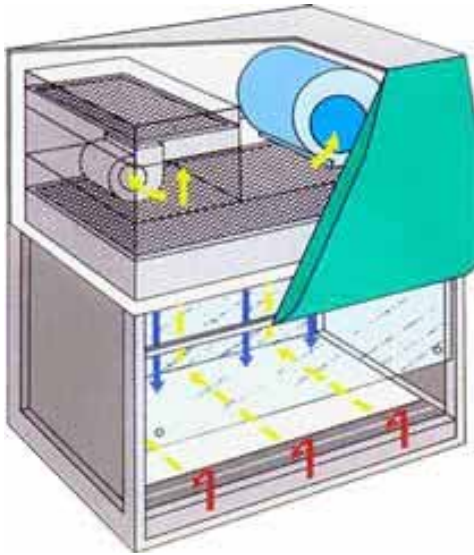
To maintain barrier containment according to AS2252 / AS 1807 the working position of the front window is pre-set and the Cabinet is operated at that position. If an attempt is made to operate the Cabinet with the window in any position, other than the preset safe position, a visual and audible alarm will sound. As an additional safety precaution the alarm can not be silenced until the window is returned to the safe operating position.

When the Cabinet is switched off and not in use the front glass window can be either opened to its maximum open position of 465mm or completely closed. A front enclosure panel is also provided to enclose the front work opening when the window is left in an open position.




The glass window is easily moved up and down by pressing one of the two buttons, ↑ (arrow up) and ↓ (arrow down) together with the 'safety control' black button all located on the front panel in easy reach of the operator. The safety requirement to push both (↑ up or ↓ down plus safety) buttons simultaneously protects the operator against accidental or unintentional movement of the window beyond the safe set position.

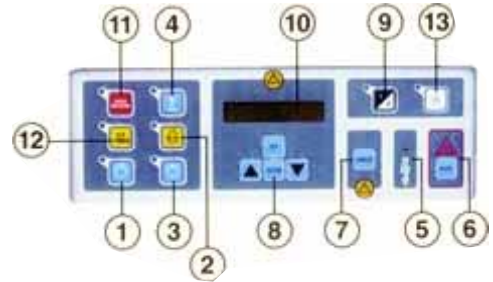
The motor, which drives the window, automatically turns off when the control buttons are released and the window position is set thus preventing damage to the motor.





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|-----------------------------|---------------------------------------|
| 1: Light switch | 8: Programming area |
| 2: UV lamp switch | 9: Main switch |
| 3: Electrical socket switch | 10: Rearlit alpha numeric LCD display |
| 4: Solenoid valve switch | 11: Speed reduction key |
| 5: Power supply LED | 12: UV timer key |
| 6: Alarm LED | 13: Correct working status |
| 7: Control parameters keys | |

 STERILE AIR
 EXTERNAL AIR
 RECIRCULATED AIR



Technical Specifications

| Model | Workspace Dimensions (mm) | | | Overall Dimensions (mm) | | | Power Kw | Weight kg |
|-------------|---------------------------|-----|-----|-------------------------|------|-----|----------|-----------|
| BH-G 2003-D | 885 | 655 | 646 | 1090 | 1470 | 885 | 0.85 | 186 |
| BH-G 2004-D | 1190 | 655 | 646 | 1395 | 1470 | 885 | 1.1 | 218 |
| BH-G 2006-D | 1800 | 655 | 646 | 2005 | 1470 | 885 | 1.5 | 304 |

| Exhaust Duct Diameter (mm) | Temperature Rise (°C) | Volts/Hz | Noise (dBA) | Lighting (lux) | Vibration (mm rms) |
|----------------------------|-----------------------|----------|-------------|----------------|--------------------|
| 200 | <4 | 230/50 | <65 | >800 | <0.005 |

Accessories

| Code | Description |
|--------------|--|
| 20F74 700910 | Epoxy powder painted modular floor stand for BH-G 2003 |
| 20F74 700920 | Epoxy powder painted modular floor stand for BH-G 2004 |
| 20F74 700940 | Epoxy powder painted modular floor stand for BH-G 2006 |
| 20F72 502020 | Exhaust charcoal filter with housing for BH-G 2003/4/6 |
| 20F72 799521 | Additional exhaust HEPA Filter with housing for BH-G |
| 20F72 702050 | Additional Work Area Power Outlet |
| 20F72 702060 | Additional Work Area Vacuum Outlet |



Related Products:

GELAIRE Class 2 Biological Safety Cab
AirCare Laminar Flow Cabinet

Data Sheets:

E54153
E54148