

CLEANAIR
by **BAKER**



BioVanguard Green Line

CLASS II BIOLOGICAL
SAFETY CABINET

OPERATOR, PRODUCT AND
ENVIRONMENTAL PROTECTION



Product Portfolio

Personal Protection

In some laboratories lab technicians must be protected against the substances in the cabinet.



Product Protection

In certain laboratories, the product or research must be performed or processed in a sterile environment.



Personal & Product Protection

There are various activities that are performed in a cabinet where both the person and the product must be protected.



Specials & Projects

If a standard cabinet does not meet your wishes & requirements; we have all disciplines in-house to adjust the cabinet to your needs.



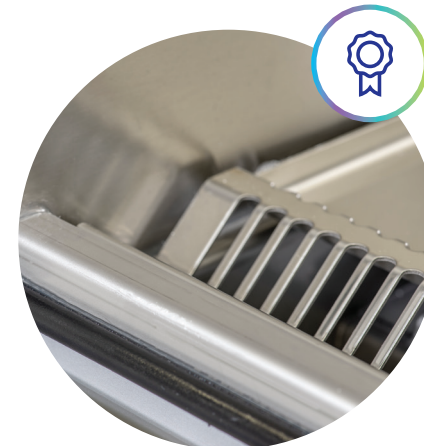
Professionals in laminar flow and microbiological safety workbenches



CleanAir by Baker designs and produces high-quality microbiological safety workbenches and laminar flow systems for numerous markets and segments.

Our workbenches are mainly used in the pharmaceutical industry, (academic) hospitals, research laboratories, plant breeding and the food industry, but also in various technical applications.

You can find us wherever the protection / safety of people, products and the environment against micro-organisms, viruses and dust particles is necessary. All our products are created in close collaboration with you.



Our goal; let you as a customer benefit from the joint years of knowledge of CleanAir and Baker, by creating a range of extremely safe, high-quality biological safety workbenches and laminar flow systems - flexibly adaptable to your wishes.

BioVanguard Green Line

CleanAir by Baker BioVanguard Series, our newest range of high quality Class II Biological Safety Cabinets ensures the highest level of protection for operator, product and environment, minimizing hazards inherent to working with agents assigned to biosafety levels 1, 2 and 3.

This series has been designed according to the highest standards of quality, biological safety, reliability, ergonomics and usability and meets the latest customer requirements such as low energy consumption and low sound level.

BioVanguard: basic principles

BioVanguard provides operator protection by inflow, product protection by HEPA-filtered laminar downflow in the working area (30% exhaust; 70% recirculation) and environmental protection by HEPA-filtered exhaust air.

Applications

BioVanguard is designed for microbiological research with biological agents (e.g. bacteria, viruses, etc) and allergens.

Available sizes

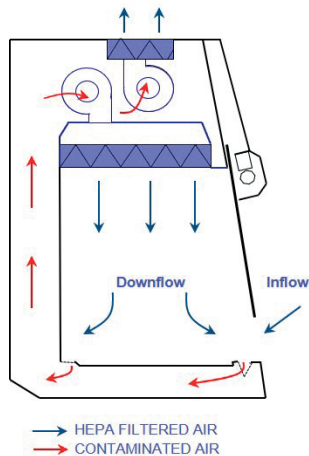
BioVanguard is available in 3, 4, 5 and 6 ft (90, 120, 150 and 180 cm) width.

International safety standards

BioVanguard Series is designed and manufactured according to international biosafety standards EN12469 (Class II), NSF49 (Class II Type A2), and PIC's. The working area is classified as ISO 14644-1 (Class 5) and GMP Annex 1 (Class A). BioVanguard B is designed and manufactured according to DIN 12980 (Class II).

BioVanguard 4, B4, 6 and B6 are also TÜV certified.

- Low energy
- Low sound level
- Superior quality
- High performance
- Ergonomic design
- Easy to operate
- Easy to clean
- Easy to decontaminate
- Low maintenance
- Easy installation
- According highest standards
- Microprocessor safety control
- GMP and PIC's compliant
- Enhanced safety features

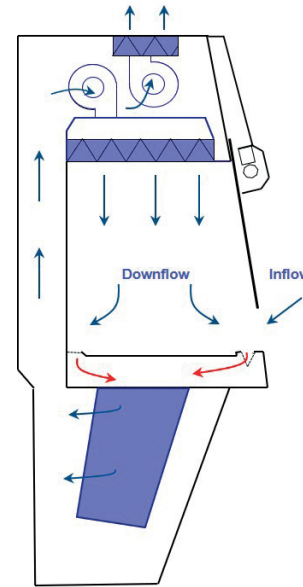


BioVanguard B: basic principles

BioVanguard B is equipped with additional V-shaped HEPA filters underneath the work surface, which filters the inflow air and keep the internal construction of the cabinet free of contamination and therefore ensures the topmost safety for high risk applications such as production of cytotoxic medicines.

Available sizes

BioVanguard B is standard available in 4 and 6 ft (120 and 180 cm) width.



Low energy consumption and sound level

BioVanguard Series is designed and manufactured according to the latest customer requirements. Low energy consumption of the BioVanguard Series is ensured by using efficient and energy saving EC fans. Low sound level is the result of the smart design and construction of the cabinet.

GMP and PIC's compliant

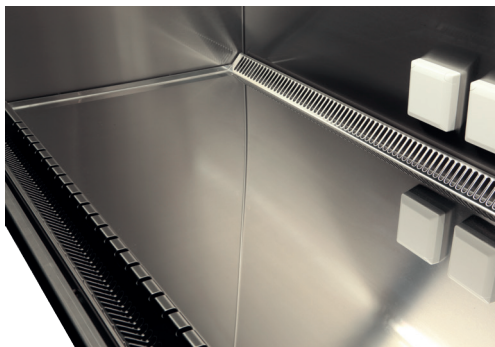
- Downflow velocity can be set according to GMP Annex 1 and PIC's regulations (0,45 m/s).
- Two analogue 4–20mA connections are available for particle count sensor, pressure sensor, temperature and relative humidity sensor. Also limits/alarms (high/low) can be set. Data from these sensors is visible on the display.
- GMP compliant support frame optional available.

Features & benefits

Ergonomic design



- 7° sloped front window for ergonomic work position of the operator. With predefined working, open and close position.
- Ergonomic epoxy coated aluminium arm rest contributes to the comfortable working position of the operator.
- Ergonomic lighting is positioned outside the work area. This does not disturb the downflow, nor create inconvenient shades, nor create obstructions during cleaning.
- Ergonomic foot rest is integrated in the optional available support frame.
- User-friendly LCD control panel, positioned at an angle, showing the operator all relevant functions and alarms at a glance.



Easy to clean

- Advanced sliding/hinged window: The front window can be lifted completely, opening the entire work area for easy cleaning and/or (un) loading large items.
- The drip tray underneath the worktop collects spilled liquids up to 1,5 Litres (according to EN 12469), preventing these liquids from entering parts of the cabinet that are difficult to clean.
- Standard equipped with seamless one piece Stainless Steel worktop. Easy to clean and able to collect another 2-3 Litres of spilled liquids.
- Standard equipped with one piece Stainless Steel work area with rounded corners, allowing easy cleaning.
- Window grips are glued on the outside of the front window, creating a smooth inner surface which is easy to clean.

Easy to decontaminate

The rubber sealing between the work area and front window and the optional available decontamination kit assures that the cabinet is gas- and airtight for gaseous decontamination.

Optional available connections can be installed on the cabinet for easy decontamination.



Advanced safety features

- Exceeds EN12469 standard; because of the multi-shell construction all contaminated areas are under or surrounded by negative pressure.
- Work top with V-shaped air slits provides superior safety by preventing blocking the inflow and contamination from the operator's sleeves.
- Pre-filter prevents dust, dirt and particles to gather in the interior of the cabinet, it increases the life time of the HEPA-filters and it ensures maximum effect of decontamination.*
- Laminated safety glass front window (8 mm, 2 layers).
- Arm rest operates like an aerofoil, improving air inflow and thus operator protection.



Microprocessor safety features

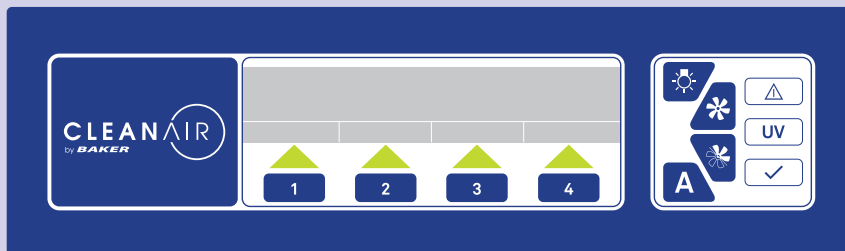
- Separate alarms for downflow (high/low) and inflow (high/low); action can be taken accordingly.**
- Automatic filter clogging compensation: The microprocessor will automatically increase the fan speed to compensate filter clogging etc, ensuring flow at set point, providing maximum level of product and operator protection.
- Gas valve safety control: Gas can only be switched on when the cabinet indicates safe work mode. If the cabinet is switched off or shows an alarm, the gas will automatically be switched off.
- UV light safety control: FL light will be switched off when UV light is switched on.
- Two redundant microprocessors (fail-safe synchronization).

*Without pre-filter, dust within the cabinet will create a layer and become a barrier between the disinfectants and the microbiological contamination, influencing the effect of decontamination negatively. This causes a risk of contamination for the service technician and the laboratory. **Example: A downflow alarm means that the product is not protected, but the operator still is. In this case, the operator can safely start his procedure to stop working, clean the working area, switch off the cabinet and start investigate the cause of the downflow alarm.

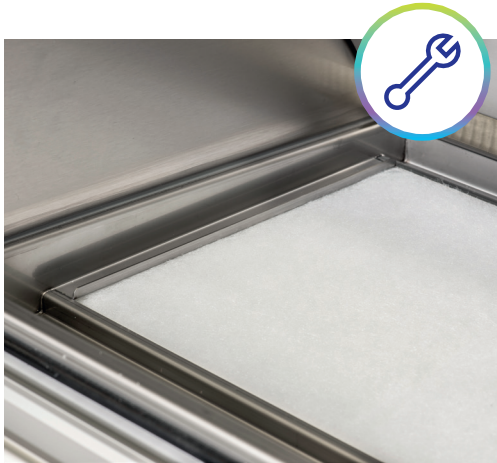
** Example: A downflow alarm means that the product is not protected, but the operator still is. In this case, the operator can safely start his procedure to stop working, clean the working area, switch off the cabinet and start investigate the cause of the downflow alarm.

Control panel with alarms and parameters

- Green light indicates safe work mode
- Red light indicates alarm (visual and audible) for:
 - Downflow (high/low)
 - Inflow (high/low)
- Window (out of working position)
- Switch for work mode (on/off)*
- Switch for stand-by mode (on/off)
- Switch for UV light (on/off)*
- Switch for LED light (on/off)
- Switch for power socket (on/off)*
- Switch for gas valve (on/off)
- English, Spanish, French, German and Dutch language
- Real-time clock
- Total running hours for fan, LED, UV
- Pin code to prevent unauthorised usage
- Volt free contact for forwarding alarms to building management systems
- Volt free contact(s) which can be used to switch on/off an external system such as additional exhaust system/fan



*Also controllable by programmable clock (on/off) or timer (off)



Low maintenance. Easy installation

- Accurate and independent control for inflow and downflow velocity; fast and easy adjustable to on site conditions (building, HVAC, laboratory).
- Pre-filter prevents dust, dirt and particles entering the HEPA filters, tremendously increasing HEPA filter lifetime.
- Innovative, unique and patented 4F System (Fast, Friendly and eFFicient) to replace the downflow filter. The filter is easily accessible from the front of the cabinet using a unique fast tightening/untightening device, reducing the time required to replace the filter within a short period of time.
- All technical parts are easy accessible from the front of the cabinet.
- Easy to connect to a duct: For all sizes of cabinets, the exhaust filter is standard positioned at the centre of cabinet.
- Smart positioned, easy replaceable air velocity sensors.

Customized colours

BioVanguard Series is standard equipped with a white front hood. Does your laboratory already contain cabinets with coloured front hoods? Or does your laboratory definitely need some colour? No problem. You can order customized coloured front hoods at surcharge.

Standard configuration

BioVanguard Series is standard equipped with:

- Epoxy coated exterior
- Stainless Steel interior
- Stainless Steel one piece worktop
- Pre-filter & drip tray
- 2 x Electrical socket

Electrical or manual window

BioVanguard Series is available with manual or electrical front window.

Options & Accessories

The available options and accessories make this cabinet adaptable to many applications. Together with the flexibility and expertise of our engineering department, this series is suitable to customize to customer specific requirements.

OPTIONS

- Electrical window
- Electrical sockets *
- Taps (natural gas, vacuum, O2, N2, etc)
- UV light **
- Decontamination connection
- Exhaust transition
- Double exhaust HEPA filter
- Data connection box (USB, etc)
- Flush mounted monitor
- FAT / SAT / IQ / OQ

* 2x Electrical sockets included in standard- and QR configuration
Preparation for taps in standard- and QR configuration

ACCESSORIES

- Support frame (fixed / electrical adjustable / GMP compliant)
- Segmented worktop
- Decontamination kit
- Thimble
- Anti-blowback valve

QUICK RESPONSE CONFIGURATION

The Quick Response (QR) configuration includes:

BioVanguard & BioVanguard B

- UV
- Prepared for Gas and Vacuum



Technical Specifications

BioVanguard

| TYPE | BioVanguard 3 | BioVanguard 4 | BioVanguard 5 | BioVanguard 6 |
|--|-------------------|-------------------|-------------------|-------------------|
| DIMENSIONS (MM) | | | | |
| Exterior dimensions (wxdxh) | 1072 x 787 x 1602 | 1375 x 787 x 1602 | 1679 x 787 x 1602 | 1985 x 787 x 1602 |
| Interior dimensions (wxdxh) ^[1] | 875 x 550 x 744 | 1180 x 550 x 744 | 1485 x 550 x 744 | 1790 x 550 x 744 |
| Height with support frame ^[2] | 2267 / 2367 | 2267 / 2367 | 2267 / 2367 | 2267 / 2367 |
| Working aperture (wxh) ^[3] | 875 x 175 / 330 | 1180 x 175 / 330 | 1485 x 175 / 330 | 1790 x 175 / 330 |
| Weight (kg) | 200 | 220 | 275 | 300 |
| Exhaust connection Ø | 250 | 250 | 250 | 250 |
| PERFORMANCES | | | | |
| Downflow velocity (m/s) ^[4] | 0,36 | 0,36 | 0,36 | 0,36 |
| Power consumption (w) ^[5] | 135 | 156 | 199 | 271 |
| Light intensity (lux) | 850 | 1000 | 850 | 1150 |
| ELECTRICS | | | | |
| Electrical connection (V)/(Hz) | 230 / 50 | 230 / 50 | 230 / 50 | 230 / 50 |
| FILTERS | | | | |
| Pre-filter (ISO 16890) | Coarsefilter | Coarsefilter | Coarsefilter | Coarsefilter |
| Downflow HEPA filter (EN 1822) | H14 | H14 | H14 | H14 |
| Exhaust HEPA filter (EN 1822) | H14 | H14 | H14 | H14 |

BioVanguard B

| TYPE | BioVanguard B4 | BioVanguard B6 |
|--|-------------------|-------------------|
| DIMENSIONS (MM) | | |
| Exterior dimensions (wxdxh) ^[6] | 1375 x 787 x 2262 | 1985 x 787 x 2262 |
| Interior dimensions (wxdxh) ^[1] | 1180 x 550 x 744 | 1790 x 550 x 744 |
| Height with support frame ^[2] | 2267 / 2367 | 2267 / 2367 |
| Working aperture (wxh) ^[3] | 1180 x 175 / 330 | 1790 x 175 / 330 |
| Weight (kg) | 270 | 400 |
| Exhaust connection Ø | 250 | 250 |
| PERFORMANCES | | |
| Downflow velocity (m/s) ^[4] | 0,36 | 0,36 |
| Power consumption (w) ^[5] | 196 | 340 |
| Light intensity (lux) | 1000 | 1150 |
| ELECTRICS | | |
| Electrical connection (V)/(Hz) | 230 / 50 | 230 / 50 |
| FILTERS | | |
| Pre-filter (ISO 16890) | Coarsefilter | Coarsefilter |
| Downflow HEPA filter (EN 1822) | H14 | H14 |
| 1st HEPA filter (EN 1822) | H14 | H14 |

[1] Depth at bottom of work area = 550 mm. Depth at top of work area = 470 mm

[2] Support frame with fixed working height 800 mm / 900 mm

[3] Work mode / maximum mode

[4] Optional: velocity can be set to 0,45 m/s according to GMP and PIC's

[5] Measured according EN 12469 (Cabinet on, light on, downflow 0,28 m/s)

[6] Height including 1st HEPA filter section (660 mm)

Would you like more information about the BioVanguard Greenline or our other biological safety cabinets or laminar flow solutions?

Visit our website: www.cleanair.eu.com or contact our experts.

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