

# THE BAKER COMPANY

**BioPROtect® III**  
*Class II Style Walk-In Clean Air and  
Containment Enclosures.*

## **BioPROtect® III** *and BioPROtect® III Jr.*



*The BioPROtect® III, shown with optional stainless steel cart.*

### **Clean Air and Containment**

The Baker Company BioPROtect® III and III Jr. are Class II style clean air and containment enclosures designed for high-volume robotic and automated equipment applications. The BioPROtect® III accommodates *high-throughput robotic systems (including ancillary devices), ultra-centrifuges, flow cytometers, aerosol generators and*

*other large pieces of laboratory equipment.*

- BioPROtect® III offers clean air and containment while allowing access to the spacious 164 cu.ft interior work area (nominal) through combination double doors and 8" sash opening.
- BioPROtect® III Jr. has single-door access with a 78 cu.ft. interior volume (nominal).

### **General Design and Performance Features**

- BioPROtect® III—164 cu.ft. interior, 76"H x 102"W x 36.5"F-B, nominal
- BioPROtect® III Jr.—78 cu.ft. interior, 76"H x 49"W x 36.5"F-B, nominal
- Ideal for high-throughput screening, combinatorial chemistry, drug discovery, immunology, tissue culture, clinical research, molecular biology and quality control assays.
- High-performance airflow system provides optimum protection against airborne particulates and aerosols for personnel, product and the environment.
- HEPA-filtered, particulate-free airflow throughout the work area provides an aseptic environment and minimizes cross contamination.
- Modular construction allows disassembly for shipping, delivery and placement; cabinet design simplifies assembly and installation prior to certification.
- Factory direct installation and/or installation supervision is available.



*BioPROtect® III Jr. features the full performance of BioPROtect® III in a smaller cabinet. The reach-in/walk-in cabinet offers ample space for mobile cart (shown, not included), process equipment or instrumentation.*

## Class II, Type A2 Biocontainment Applications

The BioPROtect® III enclosures are designed for aseptic product preparation and biological investigation involving agents of low to moderate risk. The BioPROtect® III may be exhausted back into the laboratory or connected to an in-house exhaust system.

## Design and Performance Features

BioPROtect® III incorporates a high-performance airflow system which reduces cost of ownership.

- Baker's new StediFLOW VFD (variable frequency drive) motor controller uses less energy, reduces heat output and operates more quietly.
- Superb airflow characteristics deliver unidirectional, downflow air over the work area for maximum product protection.
- Supply and exhaust HEPA filters are rated at 99.99% minimum efficiency in capturing 0.3 micrometer particles.
- When exhausted back into the room, the BioPROtect® III eliminates ceiling height restrictions in airflow.



## BioPROtect® III Containment and Protection

|   | Exhausted to room                               | Exhausted to <b>untreated</b> facility exhaust system | Exhausted to <b>treated</b> facility exhaust system |
|---|---|---|---|
| <b>Protection From Particulates</b>     | Protects personnel, product and the environment | Protects personnel, product and the environment       | Protects personnel, product and the environment     |
| <b>Protection From Gases and Vapors</b> |   | Protects personnel                                    | Protects personnel and the environment              |

*If installed to the facility exhaust system by a canopy connection, the BioPROtect® III provides particulate protection, plus additional protection of personnel from small quantities of vapors and gases. If the facility exhaust system is specially treated with activated charcoal, scrubbing or catalytic conversion, protection from exhausted vapors and gases is extended to the environment. <sup>1</sup>*

## BioPROtect® III Design Features

- 1 Pressure gauge monitors operation.
- 2 Exhaust HEPA filter for personnel and environmental protection.
- 3 Energy efficient fluorescent lighting, externally mounted, with solid-state ballasts to reduce flicker, minimize heat output, improve eye comfort, and extend lamp life by as much as 50%.
- 4 Supply HEPA filter for product and process protection is easily accessible from inside.
- 5 Optional air and vacuum petcock adapters.
- 6 Front air capture grille.
- 7 Dual doors (single door on BioPROtect® III Jr.) allow flexible access for loading and handling of large carts and robotics systems.
- 8 Independent ground-fault interrupt (GFI) outlets with self-resetting circuit breaker for user safety.
- 9 Remote circuit breakers for each sidewall duplex receptacle.
- 10 Front access to exhaust HEPA filters.
- 11 Stainless steel interior.
- 12 Optional stainless steel cart.
- 13 8" fixed sash opening.
- 14 Baker's new StediFLOW VFD (variable frequency drive) motor controller uses less energy, reduces heat output and operates more quietly.
- 15 Straight back wall easily accommodates most lab apparatus and instrumentation.

**Note:** BioPROtect® III is not designed for use with large quantities of volatile chemicals. The adequacy of this enclosure should be determined by an industrial hygienist or safety officer.

## Supply and Exhaust HEPA Filter Performance

Because HEPA filters remove micro-organisms and airborne particulates (generally called aerosols) from the air, the quality, performance and useful life of supply and exhaust filters are critical considerations in the biosafety environment.

- Each HEPA filter is scan-tested for leaks and tested for overall efficiency by the manufacturer, then individually scan-tested by Baker to assure leak-free performance.
- Minimum HEPA filter efficiency is 99.99% for particulates of 0.3 micrometers, with increased efficiency for particulates greater and smaller than 0.3 micrometers.
- The supply HEPA filter pulls down from above the interior work area.
- The exhaust HEPA filter can be inserted and removed from the front of the cabinet.
- A closed-cell neoprene gasket provides an airtight seal between the filter assembly and the metal plenum.

## Blower/Motor System

Baker's new StediFLOW VFD (variable frequency drive) motor controller uses less energy, reduces heat output and operates more quietly. VFD is state-of-the-art technology in HVAC systems for performance and energy savings.

The BioPROtect® III cabinet can automatically handle an increase in pressure drop of more than 250% across the filter without reducing total air delivery more than 10%. There is no need for manual speed control.

- Maintains precise airflow.
- Reduces amperage required by 40–60%, as compared with original models.
- Automatically compensates for normal power line variations, air disruptions and filter loading.
- Constant air volume reduces risk of performance degradation, which can compromise personnel and product protection.

## Easier On-Site Installation, Certification and Testing

Several BioPROtect® III design features combine to simplify on-site assembly, certification and maintenance for qualified service personnel, thus reducing downtime and improving life cycle costs.

- The modular design allows on-site assembly with commonly available tools.
- Baker offers a choice of factory-direct installation or factory-supervised installation; contact The Baker Company for details.
- Once installed, the plenum assembly places supply and exhaust HEPA filters within easy reach, allowing the filters to be clamped directly to the plenum against the closed-cell neoprene gasket.

## Comfortable Lighting Improves Visibility, Reduces Heat

Ergonomic benefits of the BioPROtect® III include externally mounted fluorescent lamps and electronic ballasts which provide better visibility at the work surface, less heat at the face (front) of the cabinet, and improved user comfort.

- Electronic ballasts eliminate fluorescent lamp "flicker," minimizing eyestrain and improving productivity.
- The warm, natural illumination exhibits better color fidelity.

## Cabinet Construction Enhances Performance, Minimizes Downtime

Baker cabinet designs represent many years of experience in stainless steel fabrication and craftsmanship. Design considerations such as aerodynamically shaped surfaces and non-glare satin finish interiors combine to improve comfort, simplify cleaning and maintain proper containment.

- Corrosion-resistant, 16-gauge, Type 304 stainless steel interior surfaces permit easy cleaning.
- The stainless steel floor retains spills.
- A protective grille located at return air plenums prevent wipes and other paper materials from being inadvertently drawn into the blower system, eliminating costly decontamination and downtime to extract materials from the blower.
- The position of the stainless steel air diffuser/filter protector located below the supply filter in the work area provides added filter protection.
- The 16-gauge, cold-rolled steel exterior cabinet is protected with a white powder coat finish.

## Electrical System Offers Safety and Convenience

The BioPROtect® III electrical system is designed for safety and convenience. GFI duplex outlets are provided to accommodate high-throughput and robotic instrumentation, centrifuges and other equipment.

- Each outlet is provided with a drip-proof cover and self-resetting circuit breaker.
- The internal work area outlets are on a separate circuit from the cabinet lights and blower/motor so that an overload caused by research equipment will not affect cabinet function.

## Options and Accessories

For convenience, most options, accessories and modifications are factory installed and should be specified when ordering. Commonly requested options are listed below. For detailed information on accessories and modifications, refer to Baker Accessories literature, or contact The Baker Company.

- LE (Low Edition) model available for installations in laboratories with 8' ceilings
- All stainless steel lift cart with casters
- Service petcocks (specify label and location)
- Additional electrical outlets, 115V, 220V or 440V (specify location)
- Blower/Motor switch with additional pole for interlocking with facility exhaust system
- Replaceable service panels with cut-outs for conveyors can be positioned on either or both sides

## To Order

For applications assistance and ordering information, terms and conditions of sale, contact The Baker Company toll-free USA 800-992-2537 or 207-324-8773, e-mail your request to [bakerco@bakerco.com](mailto:bakerco@bakerco.com), or visit our Web site at [www.bakerco.com](http://www.bakerco.com).

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## Summary Specification

**BioPROtect® III Class II Style Clean Air and Containment Enclosure**

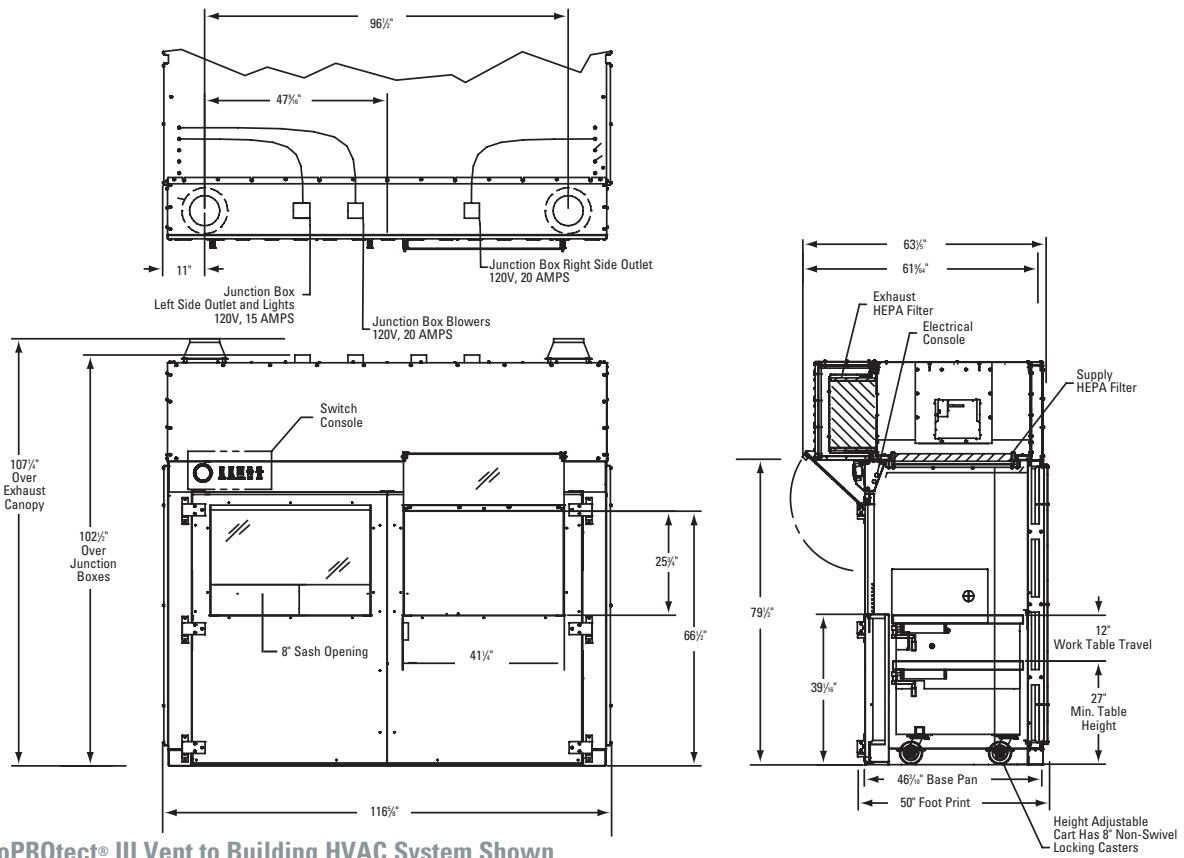
**Model Number: BioPROtect® III**

**Cabinet Type: Walk-in/Reach-in Clean Air and Containment Enclosure**

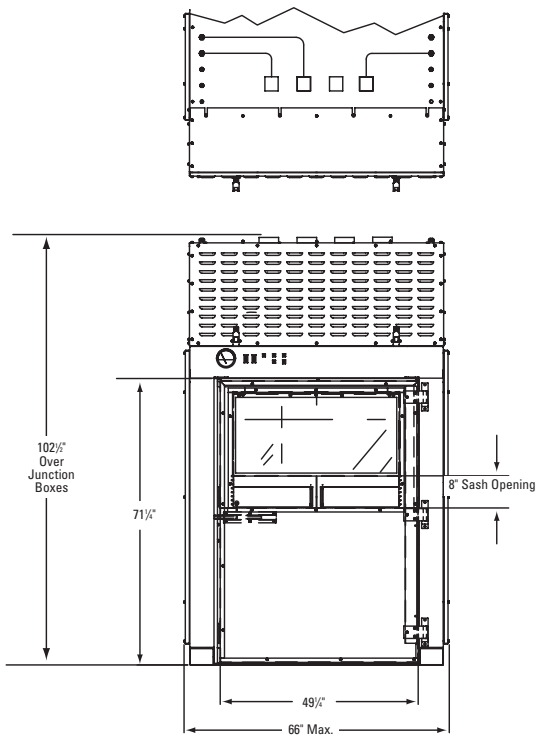


### Site Preparation

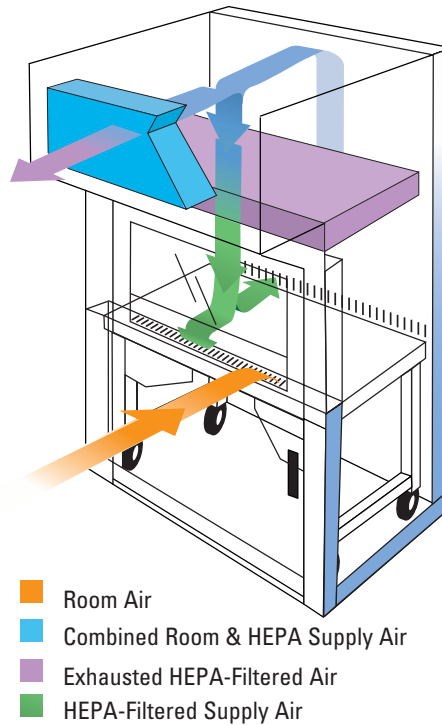
| Model  | BioPROtect® III and LE Models   | BioPROtect® III Jr.   |
|--|---|---|
| Electrical System, 60Hz  | Three 115V junction boxes, 20 amps each   | One 115V junction box, 20 amps<br>Two 115V junction boxes, 15 amps              |
| Exhaust Requirement<br>When unit is exhausted to building system | Canopy Connection (CEC):<br>700 CFM, 0.15 to 0.25" water column suction, total  | Canopy Connection (CEC):<br>350 CFM, 0.03 to 0.045" water column suction, total |
| Duct Diameter  | Two (8") ducts  | One (8") duct   |
| Filtration System  | Exhaust and supply filters are standard HEPA filters with an efficiency of 99.99% when filtering particles of 0.3 micrometers |   |



BioPROtect® III Vent to Building HVAC System Shown



BioPROtect® III Jr. Vent to Lab System Shown





**Purchase Specification**  
**BioPROtect® III and**  
**BioPROtect® III Jr.**  
**Class II Style Clean Air and**  
**Containment Enclosure**

1. Manufacturer shall provide a certified copy of the personnel and product (biological) tests via modified NSF International Standard #49, performed on the unit.
2. Viewscreen shall be constructed of  $\frac{3}{8}$ " scratch-resistant polycarbonate with a fixed opening of 8" for access.
3. All biologically contaminated ducts, plenums and work area side walls shall be permanent metal construction and maintained under negative pressure or enclosed within a negative pressure zone.
4. Audible and visible alarm system shall be provided to indicate low exhaust airflow.
5. Intake velocity through the 8" front access opening shall be 100 FPM (Type A2).
6. Unit shall exhaust 490 (nominal) CFM of air with an average of 100 FPM (Type A2) calculated air intake through front access opening at 8" operating level. BioPROtect® III Jr., 245 CFM (nominal).

7. Cabinet exterior construction: seal panels of 16-gauge cold-rolled steel and dress panels of 18-gauge cold-rolled steel, baked enamel finish Baker PermaWhite™.
8. Cabinet interior (work area) construction: 16-gauge, Type 304 stainless steel.
9. A straight back wall shall be provided to maximize work area and easily accommodate laboratory equipment.
10. Work area shall be provided with GFI protected duplex outlets with drip-proof covers and circuit breakers.
11. Cabinet shall have a stainless steel floor to facilitate cleaning and to contain spills.
12. Stainless steel air diffuser and filter protector provided in work area.
13. Speed controller shall automatically compensate for line voltage changes to maintain constant voltage to motor while allowing for manual adjustments to accommodate filter loading.
14. Unit shall have standard HEPA filters with an efficiency of 99.99% when filtering particles of 0.3-micron size.
15. Unit shall have electronic ballasts for fluorescent lighting to provide longer life and lower heat output.
16. Unit will utilize high efficiency VFD motor blowers.
17. Unit will be provided with left and right side 3" diameter cable ports.
18. Unit shall be cULus listed for electrical, fire and personal safety.

**Warranty**

The Baker Company, Inc., expressly represents and warrants all goods (a) to be as specified (and described) in The Baker Company catalogs and literature, and (b) to be free under normal use, service and testing (all as described in The Baker Company catalogs and literature) from defects in material and workmanship for a period of twelve months from the invoice date.

The exclusive remedy for any breach or violation of this warranty is as follows: The Baker Company, Inc., will F.O.B. Sanford, Maine, furnish without charge repairs to or replacement of the parts or equipment which proved defective in material or workmanship. No claim may be made for any incidental or consequential damages.

THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE UNLESS OTHERWISE AGREED IN WRITING SIGNED BY THE BAKER COMPANY. (THE BAKER COMPANY SHALL NOT BE RESPONSIBLE FOR ANY IMPROPER USE, INSTALLATION, SERVICE OR TESTING OF THE GOODS.)

*Specifications subject to change without notice.*

**THE BAKER COMPANY**

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