Class II, Type A2 Biological Safety Cabinets

- Creating Safe Solutions for Life Science Laboratories
- Engineered for Simplicity and Efficiency
- Certified for Safety and Performance

The single EC blower motor assures lower cost of ownership in one of the world's most energy efficient biological safety cabinets.

220–490 watt

Purair BIO model AS-AHA-133-CA-A

230 watt

Purair BIO model AS-AHA-133-CA-A

INTRODUCTION
The Purair® BIO biological safety cabinet (BSC) is designed for safety and performance in accordance with US and International Standards such as NSF/ANSI 49 which certify that Class II, Type A2 laminar flow cabinets are suitable for working with biosafety agents at levels 1, 2, 3, and 4. Air Science 4-foot models are certified by NSF. HEPA filtration of downflow and exhaust paths provides a primary containment work area for life science research, cell culture processing, and other applications where protection of the user, the work product, and the environment, and mitigation of cross-contamination on the work surface are needed.

APPLICATIONS
Purair BIO is designed to protect individuals, the environment, and products from a variety of biological particulates. Specific applications include, but are not limited to:
- Life Science Research
- Sterile Product Preparation
- Biological Protocols

KEY FEATURES
- The Purair BIO does not use a costly, and overcomplicated microprocessor-based controller. Our basic electronic control system provides simple and reliable oversight of all cabinet systems.
- Our design is based on a single, energy-efficient EC Brushless DC Motor and air circulation system which manages airflow at all critical points including inflow, downflow, and exhaust. There is no need for dual motor synchronization, balancing, and expense.
- Front access to both HEPA supply and exhaust filters encourages quick, safe filter removal and replacement by an authorized technician.

ENHANCED PROTECTION, EASE OF USE
The Purair BIO maintains negative pressure inside the cabinet during operation to prevent contaminants from escaping the work area. HEPA filtration scours 70% of the incoming room air to protect the products, while the remaining 30% of the exhausted air is filtered by a second HEPA filter. Purair BIO cabinets provide ample workspace with environmentally sound operation, low energy consumption, and user-friendly operation.

- Single EC Blower Motor Design. The Purair BIO is designed with a single EC blower motor for ease of use, reliability, and to promote low cost of ownership. Dual motor designs can introduce a number of problems, including unbalanced airflow, higher maintenance costs, longer certification processes, and uneven filter loading. Airflow adjustments are simpler, operational costs lower, and maintenance easier for BSCs equipped with single EC blower motors.
- Flexibility. The Purair BIO includes multiple service connections for maximum flexibility. It includes duplex electrical outlets with splash-proof, UL listed covers. CSA certified service valves for gas, air, and vacuum are also available. Maximum working pressure of 75PSI.
- Operator Safety. The anti-ultraviolet, 6 mm tempered glass ensures maximum protection for the operator.
- Ergonomic Design. The user interface combines ergonomics, safety, and aesthetics with a 10° angled window design that reduces operator head and elbow discomfort, as well as eye strain and fatigue.

This product exceeds OSHA, ANSI and other International Certification Standards. Specifications are subject to change without notice.

1) Energy consumption disclosure is based on internal testing with the blower running and lights on.
DESIGN FEATURES

A. Energy Efficient: The quiet, internal EC Brushless DC Motor ensures sufficient airflow across the work surface at all times while saving up to 86% over traditional PSC motors (based on internal testing).

B. Standard Control System: Includes simple, reliable membrane-style switches and an easy-to-read gauge for safety and durability.

C. HEPA Filtration Lock: The patented Quick Access HEPA Filtration System allows filter changes to be performed from the front of the cabinet by a single person without tools.

D. Paper Catch: Protective screen located at the bottom of the rear air return plenum prevents wipes and other paper products from being drawn into the blower system.

E. Double-Wall Plenum Design: Double-wall design creates a unique plenum which surrounds contaminated areas with negative pressure, preventing the possibility of contamination from leaks in filter seal, gasket, or cabinet structure.

F. Air Velocity: The air velocity and associated correction factors are preset at the factory to meet regulatory requirements and ensure operator safety.

G. Clean: All internal work surfaces are constructed of VIRO-CUT™ Antibacterial Stainless Steel which inhibits the growth of most common bacteria. The raised work tray is also removable for easy surface decontamination.

H. Surround Air Intake Grille: All contaminated air is enclosed in the work area. No safety dead zone.

I. Outlet: Outlets are installed in the work area to guard against electrical shock.

J. Durable Interior: The Purair BIO utilizes a heavy-gauge, one-piece liner with coved corners for enhanced durability.

K. Ergonomic Fit: The angled front, narrow-front grille, and frameless sash create an ergonomic work environment. The #304 stainless steel elbow/arm rest provides ergonomic forearm support to prevent grille blockages and improve posture.

L. Safe: Includes HEPA filters (Class H14) tested to a typical efficiency of >99.99% for 0.3 micron particles.

ADDITIONAL FEATURES

Robust Cabinet Construction: Key components, including fluorescent lamps, motor capacitor, electrical harness, electronic ballast, and switch control are mounted outside the airstream and away from contaminated air to permit service without decontamination.

NSF 49 & EN12469 Listed: NSF 49 (4-foot models only) and EN12469 certified to meet international and industry standards of performance and protection.

Safety Interlock Feature: Activates the fan and fluorescent light in the cabinet automatically when the sash window is opened. The UV light is also automatically switched off during this time. When the window is fully closed, the UV light is switched on and the fluorescent lamp and fan are turned off automatically.

Standards Compliant: The Purair BIO undergoes 10 internal quality tests prior to leaving the factory, including pressure decay testing, downflow velocity testing, and HEPA filter leak testing.

Full Product Support: The best value Class II Biological Safety Cabinet on the North American market supported by nationwide sales and service representatives.

This product exceeds OSHA, ANSI and other International Certification Standards. Specifications are subject to change without notice.

1) Energy consumption disclosure is based on internal testing with the blower running and lights on.

220 watt1 Purair Bio model AS-AHA-103-CA-B.
The Purair BIO includes industry-leading innovations and technology. It is easy to install, energy efficient, cost effective, and safe.

**PERFORMANCE**

The supply/exhaust HEPA filters provide 99.99% efficiency at 0.3 microns (Class H14).

**DESIGN**

The Purair BIO is self-contained and does not require venting to the outside. Because filtered air is returned to the room, there is no increased load requirement for facility HVAC make-up air. This eliminates the cost of additional facility ductwork construction as well as HVAC maintenance and overhead.

**VIRO-CUT Antibacterial Stainless Steel:**

The cabinet interior steel includes an anti-growth chemical embedded throughout. This ensures that regular cleaning and disinfecting activities will not degrade the antibacterial properties.

**RELIABILITY**

An innovative surrounded air intake grille keeps all contaminated air contained within the cabinet and isolated thanks to a double-wall design and negative internal pressure.

**SELECTION**

Purair BIO biological safety cabinets are available in 4 standard sizes. The slim profile hood design is the thinnest on the market and allows multiple laboratory configurations. Units are portable and may be moved from one location to the next with minimal downtime and without filter changes. Set-up, operation, and filter maintenance are straightforward.

**CONTROL**

Purair BIO biological safety cabinet uses time-proven electronic controls instead of costly microprocessor controllers.

Because all Class II, Type A2 cabinets must meet NSF standards for airflow, face velocity, and other performance attributes, eliminating superfluous control and indicating devices simplifies operation and user interface while essential functions are maintained. As a result, the Purair BIO Series offers a cost-effective, efficient, and compliant solution to biological safety cabinet applications in life science and associated uses.

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1) Energy consumption disclosure is based on internal testing with the blower running and lights on.
CONTAINMENT AND PROTECTION

The Purair BIO maintains an airflow ratio of 70% recirculation to 30% exhaust to ensure operator protection. The inflow and downflow balance is precisely established, with no room air entering the work zone to prevent product contamination. Airflow patterns are precisely tuned and tested to create an optimum air curtain on the front aperture, maintaining personnel and product protection even during the unlikely event of severe inflow or downflow imbalances.

The integrated HEPA filtration system provides clean air to the work surface in a gentle vertical laminar flow pattern, allowing the exhaust HEPA filter to trap biohazardous particles prior to the air being exhausted into the room.

HEPA FILTRATION

The Purair BIO uses HEPA filters to provide a range of high performance protection.

These self-contained filters are designed to physically capture particles larger than 0.3 microns with >99.995% typical efficiency.

The filters feature an integral groove filled with gel at the air inlet side, ensuring a perfect seal to the housing system. The aluminum frame guards against swelling typical of wooden framed filters.

For unobstructed airflow and superior filtration, filters do not contain aluminum separators.

A patented HEPA filtration lock maintains filter efficiency, minimizes the chance of leakage, and prolongs filter life. The filters can also be changed from the front side of the cabinet quickly and easily.

ENERGY EFFICIENCY

The Purair BIO maintains the one of the world’s highest performance ratings for a brushless DC motor. Additional benefits include:

**Better Apportioned Power.** Over 80% of the EC motor output power is converted to kinetic energy to ensure sustainable energy savings over the life of the motor.

**Extended Filter Life.** Balanced airflow and even distribution of downflow and exhaust paths promotes uniform filter loading to prolong filter life.

**Constant Feedback Motor Speed.** The EC motor automatically adjusts speed to maintain compliant airflow at all critical points while compensating for filter loading and facility voltage fluctuations.

**Energy-efficient EC brushless DC motor**

**What We Avoid**

- Costly microprocessor controllers
- Dual blower motors with twice the energy consumption

**Face Velocity (Cabinet Intake)**

<table>
<thead>
<tr>
<th>NSF 49</th>
<th>EN12469</th>
</tr>
</thead>
<tbody>
<tr>
<td>~105 fpm</td>
<td>~80 fpm</td>
</tr>
<tr>
<td>~0.5 m/s</td>
<td>~0.4 m/s</td>
</tr>
</tbody>
</table>

Note: 105 fpm is the midpoint for the approved range.

An optional exhaust collar may be added which allows the Purair BIO to be connected to a facility exhaust ventilation system.

**Airflow**

The Purair BIO is configured to comply with either NSF 49 or EN12469 criteria for airflow within critical points of the cabinet. In either model, the combination of HEPA supply and exhaust filters yields a fully integrated performance envelope for product, personnel, and environmental protection from particulates.
### Purair BIO Models

<table>
<thead>
<tr>
<th>MODEL</th>
<th>VOLTAGE</th>
<th>CERTIFICATIONS</th>
<th>PROTECTION</th>
<th>DIMENSIONS</th>
<th>WEIGHT (LBS/KG)</th>
</tr>
</thead>
<tbody>
<tr>
<td>AS-AHA-103-CA-B</td>
<td>115V, AC, 60Hz</td>
<td>NSF 49, EN12469</td>
<td>Particulates*</td>
<td>36.2” x 24.6” x 28” internal (W x D x H)</td>
<td>463 / 210, 529 / 240</td>
</tr>
<tr>
<td>AS-AHA-103-CB-B</td>
<td>230V, AC, 50Hz</td>
<td></td>
<td>When ducted to outside</td>
<td>920 x 626 x 709 mm</td>
<td></td>
</tr>
<tr>
<td>3 ft.</td>
<td>AS-AHA-133-CA-A</td>
<td>115V, AC, 60Hz</td>
<td>Yes</td>
<td>40.7” x 31.1” x 60.5” external (W x D x H)</td>
<td>529 / 240, 617 / 280</td>
</tr>
<tr>
<td>4 ft.</td>
<td>AS-AHA-133-CB-A</td>
<td>230V, AC, 50Hz</td>
<td>Yes</td>
<td>1034 x 789 x 1537 mm</td>
<td></td>
</tr>
<tr>
<td>4 ft.</td>
<td>AS-AHA-133-CA-B</td>
<td>115V, AC, 60Hz</td>
<td>Yes</td>
<td>43.3” x 33.5” x 77.8” shipping (W x D x H)</td>
<td>529 / 240, 617 / 280</td>
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<tr>
<td>4 ft.</td>
<td>AS-AHA-133-CB-B</td>
<td>230V, AC, 50Hz</td>
<td>No</td>
<td>1100 x 850 x 1950 mm</td>
<td></td>
</tr>
<tr>
<td>5 ft.</td>
<td>AS-AHA-163-CA-B</td>
<td>115V, AC, 60Hz</td>
<td>Yes</td>
<td>529 / 240, 617 / 280</td>
<td>529 / 240, 617 / 280</td>
</tr>
<tr>
<td>5 ft.</td>
<td>AS-AHA-163-CB-B</td>
<td>230V, AC, 50Hz</td>
<td>No</td>
<td>551” x 33.5” x 77.8”</td>
<td></td>
</tr>
<tr>
<td>6 ft.</td>
<td>AS-AHA-193-CA-B</td>
<td>115V, AC, 60Hz</td>
<td>Yes</td>
<td>1400 x 850 x 1950 mm</td>
<td>529 / 240, 617 / 280</td>
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<tr>
<td>6 ft.</td>
<td>AS-AHA-193-CB-B</td>
<td>230V, AC, 50Hz</td>
<td>No</td>
<td>1700 x 850 x 1950 mm</td>
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</tbody>
</table>

* 99.99% @ 0.3 microns

** 4 ft. EN versions have a 20 cm window position, all other models have a 25 cm window position.

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**Biological Safety Cabinets**

- **3 ft.**
- **4 ft.**
- **5 ft.**
- **6 ft.**

**Specifications**

- This product exceeds OSHA, ANSI and other International Certification Standards. Specifications are subject to change without notice.
- Energy consumption disclosure is based on internal testing with the blower running and lights on.

**Get a Quote.**

120 6th Street, Fort Myers, FL 33907
Toll Free: 800-306-0656 | www.airscience.com
### Specifications

#### Filtration

<table>
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<tbody>
<tr>
<td>Airflow</td>
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<tr>
<td>Average Inflow Velocity</td>
<td></td>
<td>60 fpm (0.30 m/s)</td>
<td>60 fpm (0.30 m/s)</td>
<td>60 fpm (0.30 m/s)</td>
<td>60 fpm (0.30 m/s)</td>
<td>60 fpm (0.30 m/s)</td>
<td>60 fpm (0.30 m/s)</td>
<td>60 fpm (0.30 m/s)</td>
<td>60 fpm (0.30 m/s)</td>
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<tr>
<td>Average Downflow Velocity</td>
<td></td>
<td>64 fpm (0.325 m/s)</td>
<td>60 fpm (0.30 m/s)</td>
<td>60 fpm (0.30 m/s)</td>
<td>60 fpm (0.30 m/s)</td>
<td>60 fpm (0.30 m/s)</td>
<td>60 fpm (0.30 m/s)</td>
<td>60 fpm (0.30 m/s)</td>
<td>60 fpm (0.30 m/s)</td>
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<tr>
<td>Exhaust Air Volume with Exhaust Canopy</td>
<td></td>
<td>353 cfm (10 m³)</td>
<td>459 cfm (13 m³)</td>
<td>388 cfm (11 m³)</td>
<td>565 cfm (16 m³)</td>
<td>671 cfm (19 m³)</td>
<td>671 cfm (19 m³)</td>
<td>671 cfm (19 m³)</td>
<td>671 cfm (19 m³)</td>
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#### Construction

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<tbody>
<tr>
<td>Room Height</td>
<td>89.4&quot; / 227 cm</td>
<td>89.4&quot; / 227 cm</td>
<td>89.4&quot; / 227 cm</td>
<td>89.4&quot; / 227 cm</td>
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<td>89.4&quot; / 227 cm</td>
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<td>Construction</td>
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<tr>
<td>Window Operation</td>
<td>9.8&quot; / 25 cm</td>
<td>9.8&quot; / 25 cm</td>
<td>7.9&quot; / 20 cm</td>
<td>9.8&quot; / 25 cm</td>
<td>9.8&quot; / 25 cm</td>
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<td>Blower</td>
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<td>Electrical</td>
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<td>Electrical Outlets</td>
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<td>Efficiency</td>
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<tr>
<td>Power Consumption</td>
<td>220 watt</td>
<td>300 watt</td>
<td>230 watt</td>
<td>400 watt</td>
<td>490 watt</td>
<td>230 watt</td>
<td>400 watt</td>
<td>490 watt</td>
<td>490 watt</td>
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<tr>
<td>Fluorescent Intensity lux</td>
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<tr>
<td>Fluorescent Lamp</td>
<td>(2) T5, 21 watt</td>
<td>(2) T5, 28 watt</td>
<td>(2) T5, 28 watt</td>
<td>(2) T5, 35 watt</td>
<td>(2) T5, 35 watt</td>
<td>(2) T5, 35 watt</td>
<td>(2) T5, 35 watt</td>
<td>(2) T5, 35 watt</td>
<td>(2) T5, 35 watt</td>
</tr>
<tr>
<td>UV Lamp</td>
<td>(1) FL 20 watt</td>
<td>(1) FL 30 watt, 254 nm</td>
<td>(1) FL 30 watt, 254 nm</td>
<td>(1) FL 40 watt, 254 nm</td>
<td>(1) FL 40 watt, 254 nm</td>
<td>(1) FL 40 watt, 254 nm</td>
<td>(1) FL 40 watt, 254 nm</td>
<td>(1) FL 40 watt, 254 nm</td>
<td>(1) FL 40 watt, 254 nm</td>
</tr>
<tr>
<td>Noise, dBA</td>
<td>&lt; 58</td>
<td>&lt; 63</td>
<td>&lt; 57</td>
<td>&lt; 60</td>
<td>&lt; 62</td>
<td>&lt; 57</td>
<td>&lt; 60</td>
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</tbody>
</table>

Specifications are subject to change without notice.
**VIRO-CUT ANTIBACTERIAL STAINLESS STEEL**

The antibacterial effectiveness of VIRO-CUT stainless steel is validated by the JIS Z 2801 testing standard, one of the most commonly used testing methods in the world. The JIS Z 2801 testing method measures the growth of *Escherichia coli* and *Staphylococcus aureus* over a 24-hr period.

![Escherichia coli: before (left) after (right).](image)

![Staphylococcus aureus: before (left) after (right).](image)
WARRANTY

The Purair BIO and BIO-EN are supported by a standard industry warranty which starts on the date of shipment from our factory. Under the protection period this warranty covers defects in materials and workmanship. Our liability is, at our option, to repair or replace any defective parts of this equipment if you document that these parts were defective at the time we sold the product to you.

This Warranty is valid on specified Air Science products with regard to mechanical parts AS LONG AS genuine Air Science parts and filters were used in compliance with Air Science specifications. This Warranty constitutes the customer’s sole and exclusive remedy, and Air Science’s sole and exclusive responsibility with respect to any alleged breach of this limited warranty.

For details visit the Service section of our website at www.airscience.com.

STANDARDS AND COMPLIANCE

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<tr>
<th>Standards</th>
<th>Compliance</th>
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<tr>
<td>Cabinet Performance</td>
<td>IEST-RP-CC002.2</td>
</tr>
<tr>
<td>Air Quality</td>
<td>ISO 14644-1, Class 4</td>
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<tr>
<td>Sterile Compounding</td>
<td>USP 797</td>
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<tr>
<td>Filtration</td>
<td>IEST-RP-CC034.1, 001.3</td>
</tr>
<tr>
<td>Electrical Safety</td>
<td>IEC61010-1</td>
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