

Purair^{BIO}®

Class II, Type A2 Biological Safety Cabinets

48

"The World's Most Extensive Selection of Containment Solutions."



— Purair BIO 48,
PB-48

Creating Safe Solutions for Life Science Laboratories

Certified for safety and performance



NSF Certification applies to the biological safety cabinet Models AHA-143-AA-A and AHA-143-BA-A manufactured by Chung Fu Technical Development Co. Ltd. and marketed by Air Science, LLC as Models PB-48 and PB-48EN.



EN12469



Schedule
Contract GS-GTF563P



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**APPLICATIONS**

The Purair[®] BIO is designed for applications that involve low and moderate risk biological agents. Specific applications include, but are not limited to:

- Life Science Research
- Sterile Product Preparation
- Biological Protocols

INTRODUCTION

The Purair BIO is designed to protect individuals, the environment, and products from a variety of biological particulates, serving as the primary barrier in life science research and experimentation.

As a Class II Type A2 biosafety cabinet, the Purair BIO minimizes and contains Biosafety Level 1-3 agents, maintaining 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 and low energy consumption.

Purair^{BIO}**Class II, Type A2 Biological Safety Cabinets**

- *Safe. NSF 49, EN 12469, and UL61010-1 certified, ensuring safe operations for operators, the environment, and products. An "EN certified only" model, the Purair BIO-EN, is also available.*
- *Double-wall cabinet design. Contaminated air is fully contained and isolated thanks to a double-wall cabinet design and negative internal pressure.*
- *No safety dead zone. The Purair BIO has an innovative surrounded air intake grille that keeps all contaminated air contained within the cabinet.*
- *HEPA Filtration. The AstroCel[®] supply/exhaust HEPA filters provide 99.995% efficiency at 0.3 microns (Class H14).*
- *Isolated Controls. All control systems and pipelines are completely isolated from contaminated areas for safe and convenient operations.*

- *Purair BIO (PB-48), shown with optional stand with leveling feet.*

**Enhanced Protection and Ease of Use**

The Air Science Purair BIO provides multiple levels of protection and user-friendly operation. Some of the main construction and maintenance features offered by the Purair BIO include:

- **Multiple Service Connections.** 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.
- **Tempered Glass Windows.** Anti-ultraviolet 6mm tempered glass ensures maximum protection for the operator.
- **Unique Window Cleaning Mechanism.** The front sash windows of the Purair

BIO can be released and lowered to easily access the inner surface of the glass, providing safer and more convenient cleaning than other cabinets.

- **Ergonomic Design.** The angled window design (10 degrees) reduces operator head and elbow discomfort, as well as eye strain and fatigue.
- **Easy Cleaning.** The work area and work tray are fabricated in a single piece of stainless steel with rounded corners. This reduces particulate adhesion and makes removal and cleaning convenient and straightforward.
- **Patented HEPA Filtration Lock.** Allows HEPA filters to be replaced from the front of the cabinet quickly and easily.



PRODUCT FEATURES:

- A. User Interface:** Ergonomics, safety and aesthetics all come together with the 10° pitch of the face.
- B. Removable Tray:** Raised one-piece work surface lifts and removes for easy surface decontamination.
- C. Durable Interior:** The Purair BIO utilizes a heavy-gauge, one-piece liner with coved corners for easy cleaning and durability.
- D. Standard Control System:** Reliable rocker switches and easy-to-read gauge for safety and durability.
- 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. Ergonomic Fit:** The angled front, narrow-front grille, raised armrest and frameless sash create an ergonomic work environment. Unique front grille designed to provide the maximum product and personnel protection.
- G. Clean:** Single-piece stainless-steel work tray and front grille, lower drain pan with angled side, and single-piece work zone liner eliminate joints for superior cleanability.
- H. Safe:** HEPA filters (Class H14) tested to a typical efficiency of >99.99% for 0.3 micron particles.
- I. 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.
- J. Surround Air Intake Grill:** All contaminated air is enclosed in the work area. No safety dead zone.
- K. Optional Mounting Stand:** Stand height of 26" (660 mm) creates work surface height of 29.4" (746 mm) for seated position. To configure height for standing position, contact Air Science.

OTHER FEATURES:

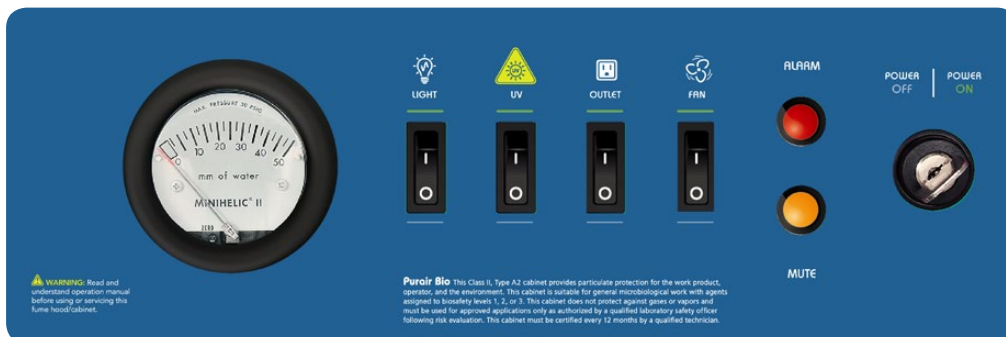
NSF 49 & EN12469 Listed: Certified for safety and performance. NSF 49 and EN 12469 certified to meet international and industry standards of performance and protection.

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.

Purair BIO (PB-48), shown with optional base stand with adjustable feet.



The Purair BIO includes an integrated control center for easy management of all functions.

Analog Minihelic™ gauge verifies airflow; **On/Off switches** are provided for interior lighting, UV lamp, interior outlet activation and fan; **Sash alarm indicator** activates an audible and visual warning of unsafe sash position (8 inches or 20cm from the bottom of cabinet); **Mute button** silences the alarm for a specified time; **On/Off switch** controls main power.

PURAIR[®] BIO FEATURES & BENEFITS

The Purair BIO saves money and decreases the load required on your facility HVAC system. Industry-leading innovations and technology make the Purair BIO:

Easy to Install.

The biosafety cabinet is self-contained and does not require venting to the outside. 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.

Energy Efficient.

Because filtered air is returned to the room no demands are required of the facility HVAC capacity for make-up air.

Cost Effective.

Facility ductwork, HVAC and construction costs are eliminated.

Safe to Use.

Cabinet airflow and face velocity protect users from incidental exposure to particulates.

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

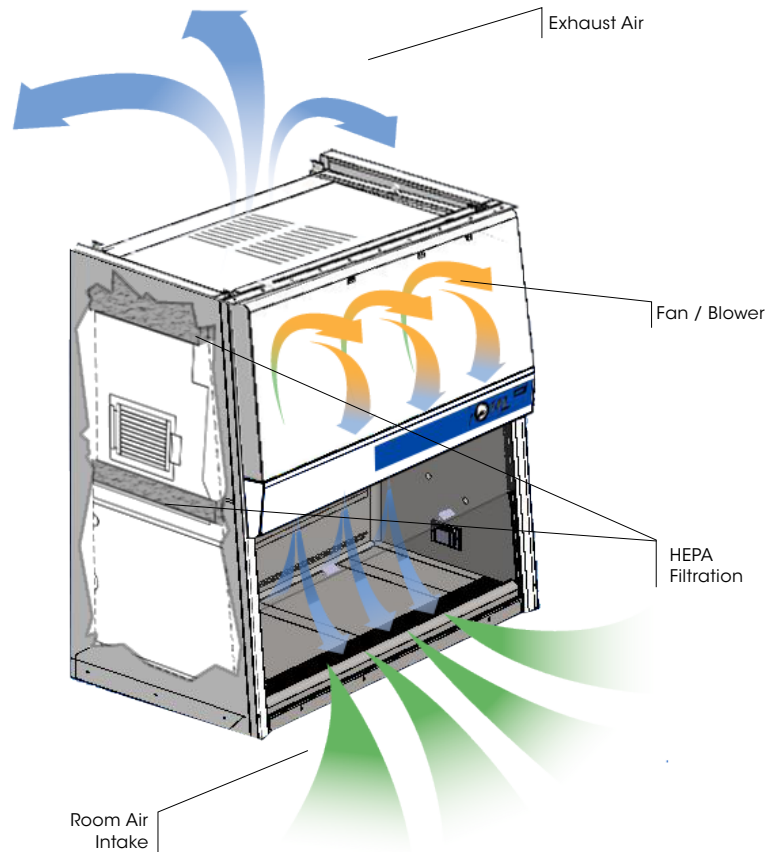
HEPA filtration protects the operator from particulates and the process/samples from contamination by maintaining cleanliness within the work zone.

The Purair BIO uses AstroCel[®] 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 AstroCel II Fluid Seal 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



PURAIR[®] BIO AIRFLOW PATTERN



- The Purair BIO Biological Safety Cabinet maintains a constant face velocity of 100 FPM in compliance with most national laboratory standards. The combination of supply and exhaust HEPA filters gives the Purair BIO cabinet a fully integrated performance envelope for product, operator and environmental protection.
- An optional exhaust collar may be added which allows the Purair BIO to be integrated into an existing ventilation system.

wooden framed filters. The filters do not contain aluminum separators to provide unobstructed airflow and superior filtration.

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.



An optional multi-lingual microprocessor controller with graphic user interface is available; see Accessories.

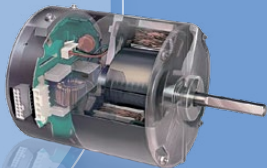
ENERGY EFFICIENT PROTECTION

The Purair BIO maintains the world's highest ECM rating for a brushless DC motor and saves up to 86% over traditional PSC motors (based on internal testing). Additional benefits include:

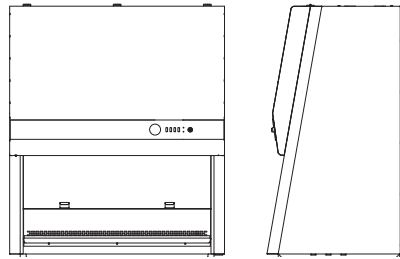
Extended filter life. Constant airflow design automatically adjusts air pressure to stabilize airflow and extend the life of the installed HEPA filters.

More Air Volume. High torque capabilities transport more air volume and pressure than traditional AC motors.

Energy Efficient. Over 80% of the output power is converted to kinetic energy to ensure ongoing energy savings over the life of the motor.



The ECM brushless DC motor with excellent energy efficiency.



Front View

Side View

PROTECTION

	Agents	Particulates (99.99% @ 0.3 microns)	Vapors
Personnel		Yes	Optional (ducted)
Work Product		Yes	Optional (ducted)
Environment		Yes	Optional (ducted)

MODEL	CERTIFICATIONS			DIMENSIONS			WEIGHT (lbs/Kg)	
Metal	NSF 49	EN12469	UL61010-1	Internal Height	External (W x D x H)	Shipping (W x D x H)	Net	Ship

Purair BIO Models

PB-48-115V _{1,5}	Yes	No	Yes	25.1" 637 mm	56.3" x 34.9" x 64.2" 1430 x 887 x 1630 mm	59.1" x 41.3" x 74.8" 1500 x 1050 x 1900 mm	771 / 350	837 / 380
PB-48-230V _{2,6}	Yes	No	Yes	25.1" 637 mm	56.3" x 34.9" x 64.2" 1430 x 887 x 1630 mm	59.1" x 41.3" x 74.8" 1500 x 1050 x 1900 mm	771 / 350	837 / 380

Purair BIO EN Models

EN 12469 PB-48-EN115V _{3,7}	No	Yes	No	25.9" 658 mm	57" x 31.8" x 59.8" 1448 x 807 x 1519 mm	59.1" x 41.3" x 74.8" 1500 x 1050 x 1900 mm	683 / 310	749 / 340
EN 12469 PB-48-EN230V _{4,8}	No	Yes	No	25.9" 658 mm	57" x 31.8" x 59.8" 1448 x 807 x 1519 mm	59.1" x 41.3" x 74.8" 1500 x 1050 x 1900 mm	683 / 310	749 / 340

OPTIONS & ACCESSORIES

Purair BIO Models		PB-48-115V PB-48-230V	PB-48-EN115V PB-48-EN230V
Control System Connectivity	RS 232/485 connection for local data transmission networks.	PB-48-RS _{1,2}	PB-48-RS _{3,4}
Microprocessor Control	Full-color Microcomputer Touch Panel with easy to use graphical user interface. Real time digital display of inflow velocity, temperature, HEPA filter pressure and usage time for HEPA filters and UV lamps.	PB-48-MICRO _{1,2}	PB-48-MICRO _{3,4}
Base Stand	Mounting stand with leveling feet. Stand height of 26" (660 mm) creates work surface height of 29.4" (746 mm) for seated positions. Stands to configure for standing positions are available, contact Air Science for details.	PB-48-FSTD	PB-48-FSTD
Exhaust Collar	For connecting the biosafety cabinet to building exhaust or remote blower for outside ducting.	PB-48-EXH	PB-48-EXH
Service Fixture Kit	Additional connections available for Air/Gas/Vacuum. Field Installed.	U-KIT	U-KIT
IV Bar Kit	Includes 6 hooks. Specify when ordering. Field installed.	BAR	BAR
Electrical Outlets	2 duplex electrical outlets (4 sockets total)—2 left and 2 right with splash proof cover (UL listed). Note: EN units have 2 sockets total.	PB-48-EO	PB-48-EO

STANDARDS & COMPLIANCE

Purair BIO Models	PB-48-115V _{1,5} PB-48-230V _{2,6}	PB-48-EN115V _{3,7} PB-48-EN230V _{4,8}
Quality Management Systems	ISO 9001	ISO 9001
International Biological Safety Standards	NSF 49 Certified EN 12469 Compliance Certified	-- EN 12469 Compliance Certified
Electrical Safety	UL61010-1/ CSA-C.22.2 No. 61010-1 Certified	--

Electrical Safety and Certification

- All components meet or exceed applicable safety requirements.
- Each cabinet is individually tested for electrical safety at the factory and documentation specific to each tested cabinet is maintained on file.
- UL Listed for USA and Canada.
- Models available with NSF 49 and EN12469 certifications.

Contact Air Science or your Sales Rep for preparation information.

Warranty

The Purair BIO and BIO-EN cabinets are warranted for 5 years for cabinet structure, 1 year for electrical components, and 1 year for all consumables.

Each cabinet is shipped with a comprehensive user manual and IQ/OQ documentation is available upon request.

Contact your local Sales Representative for specific warranty details or documentation requests.

PRODUCT SPECIFICATIONS

Purair BIO Models	PB-48-115V ^{1,5} PB-48-230V ^{2,6}	PB-48-EN115V ^{3,7} PB-48-EN230V ^{4,8}
International Certifications	NSF 49; EN 12469; UL61010-1	EN 12469
Room Height Suggested	98.4" / 250 cm	94.5" / 240 cm
Window Operation Height	8" / 203 mm	8" / 203 mm
Noise (dBA, 1 meter)	<65	<65
Fluorescent Lighting Intensity	>1,000 Lux (>100 foot-candles)	>1,000 Lux (>100 foot-candles)
Fluorescent Lamp	(2) 28W / T5	(2) 28W / T5
UV Lamp	(1) FL 30W / 254 nm	(1) FL 30W / 254 nm
Construction	SUS#304; 6 mm tempered window glass	SUS#304; 6 mm tempered window glass
Blower	ECM brushless DC Motor	ECM brushless DC Motor
Electrical	115, 60Hz, 10A OR 230V/50Hz/7A	115, 60Hz, 10A OR 230V/50Hz/7A
Power Consumption	300 (watt) for 115V or 345 (watt) for 230V	300 (watt) for 115V or 345 (watt) for 230V
Electrical Switches	Push Switch; On/Off	Push Switch; On/Off

Airflow Specifications

Average Inflow Velocity	100 FPM (0.51 m/s)	100 FPM (0.51 m/s)
Average Downflow Velocity	73 FPM (0.37 m/s)	67 FPM (0.34 m/s)
Airflow	70% recirculated / 30% exhausted	70% recirculated / 30% exhausted
Exhaust Air Volume with Exhaust Canopy	566 CFM (16 m ³)	566 CFM (16 m ³)

Filter Specifications

Supply HEPA Filter	(1) Astrocel [®] I 99.995% @0.3 microns (Class H14)	(1) Astrocel [®] II 99.995% @0.3 microns (Class H14)
Exhaust HEPA Filter	(1) Astrocel [®] I 99.995% @0.3 microns (Class H14)	(1) Astrocel [®] I 99.995% @0.3 microns (Class H14)

¹ Reference No.: AHA-143-AA-A

³ Reference No.: AHA-145-AA-A

⁵ Reference No.: AHA-143-BA-A

⁷ Reference No.: AHA-145-BA-A

² Reference No.: AHA-143-AB-A

⁴ Reference No.: AHA-145-AB-A

⁶ Reference No.: AHA-143-BB-A

⁸ Reference No.: AHA-145-BB-A



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NSF Certification applies to the biological safety cabinet Models AHA-143-AA-A and AHA-143-BA-A manufactured by Chung Fu Technical Development Co. Ltd. and marketed by Air Science, LLC as Models PB-48 and PB-48EN.

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