ECO SERIES

Purair®

Green Performance Ductless Fume Hoods

"High Efficiency, Cost-Effective, Energy-Saving Design."

10 • 15 • 20 • 25 • 30

— Purair® ECO-25

Available with BACnet Networking Protocol, Compliant with ASHRAE SSPC 135, Building Automation and Control Network

Meets or Exceeds OSHA, ANSI and other International Standards

Air Science®

ISO 9001
ISO 14001
BUREAU VERITAS
Certification

BACnet™

JUMP TO:

APPLICATIONS

- LEEDS Installations
- Capsule Filling
- Chemical Sampling
- Dental Labs
- Drug and Chemical Analysis
- Forensics
- Histology
- Ink fumes
- Light Grinding
- Pharmaceuticals
- Pipetting
- Slide Staining
- Spray Adhesives
- Weighing

Purair ECO SERIES

Green Performance Ductless Fume Hood Series

- *ECOair™ Controller with Color Display Interface (optional).*
- *Available BACnet Open-Source Interface.*
- *Protects the user and the environment.*
- *Easy to change filters.*
- *Improved clamping prevents bypass leakage.*
- *Available in 5 standard sizes.*
- *Tempered glass sliding sash and side view windows.*
- *Sliding sash, manual, standard.*
- *Ergonomic arm rest for user comfort.*

Purair® ECO-25, shown with optional Mobile Base, Modular Utility Package and Equipment Rack.

INTRODUCTION

The Purair® ECO Series ductless fume hoods are high designed to protect the user and the environment from hazardous vapors generated on the work surface. Central to the ECO Series design is the innovative Air Science Multiplex™ Filtration Technology and the Air Science exclusive EFT™ Enhanced Filtration Technology developed to assure universal protection in the work environment over the widest range of applications in the industry.

Purair® ECO cabinets are available with the optional ECOair™ controller with an open-source BACnet networking protocol for seamless integration with a multitude of building automation and supervisory control, alarm and monitoring functions.

DUCTLESS TECHNOLOGY: *The ECO-friendly Choice*

Advanced carbon filtration technology offers a safe, high performance alternative to conventional ducted fume hoods for a broad range of applications.

- **Environmental Benefits.** Air Science ductless fume hoods isolate and trap chemical vapors to prevent ecological impact through release into the environment.
- **Versatile.** Each filtration system is selected for its specific application. The Multiplex Filter broadens the range of applications. Carbon filters are available in more than 14 configurations for use with vapors or organic solvents, acids, mercury, formalde-hyde. HEPA/ULPA filters can be added for biological safety.
- **Easy to Install.** The ductless fume hood is self-contained and does not require venting to the outside. Many 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 fumes.
- **Self-Testing.** Electronic airflow monitoring assures continuous safety.

Made in the U.S.A.

This Product Exceeds OSHA, ANSI and Other International Standards.

PRODUCT FEATURES:

A. **Filter ID Window:** A strategically placed front cover window shows the installed filter part number and installation date; encourages timely filter replacement.

B. **Tempered Glass Side Walls:** Clear side panels allow ambient light into the work area and provide a less obstructed view of the work surface.

C. **Tempered Glass Sliding Sash:** When closed, the cabinet sash isolates the air within and protects interior work items from inadvertent external contact.

D. **Spillage Tray:** A black polypropylene spillage tray is removable for easy cleaning.

E. **ECOair™ Touchpad Control Panel (shown):** Security access color touch screen controller for set point, monitoring parameters and all operational and safety features.

F. **Steel Support Frame:** Chemical resistant coating.

G. **Electrostatic Pre-Filter:** 95.5% effective pre-filter, accessible from inside the work area to contain the release of any trapped particulates.

H. **Pass-Through Ports:** For routing electrical cords and instrumentation leads as required.

I. **Dynamic Filtration Chamber:** Prevents any possible leakage of contaminated air by pressurizing the fan plenum (positive air) and depressurizing the filter compartment (negative air).

J. **Stand:** Optional stand.

K. **Safety Filter:** Optional carbon or HEPA/ULPA safety filter adds additional protection.

L. **Track and Wheel system:** Permits the filter wheels to glide into place on tracks before clamping tightly to the filter gasket; prevents damage during installation and assures filter integrity.

M. **Modular Utility Package** (Optional).

N. **Ergonomic Arm Rest:** An ergonomic arm rest improves user comfort and productivity.

OTHER FEATURES:

Smooth Sash Operation: The chain drive sash mechanism is quieter and smoother to operate than conventional counter-balanced design.

Sash Options: Manual sliding sash, standard. Optional motorized sliding sash or manual hinged sash are available; see accessories.

Power Supply: Operates on standard 120V, 60Hz, single phase power; other voltages available upon request.

Electronic Gas Detection System: Increases safety, provides four methods for filter monitoring and gas detection.

Purair® ECO-20, shown with optional Mobile Base, Modular Utility Package and ECOair™ touchpad controller.

Purair® ECO FEATURES & BENEFITS

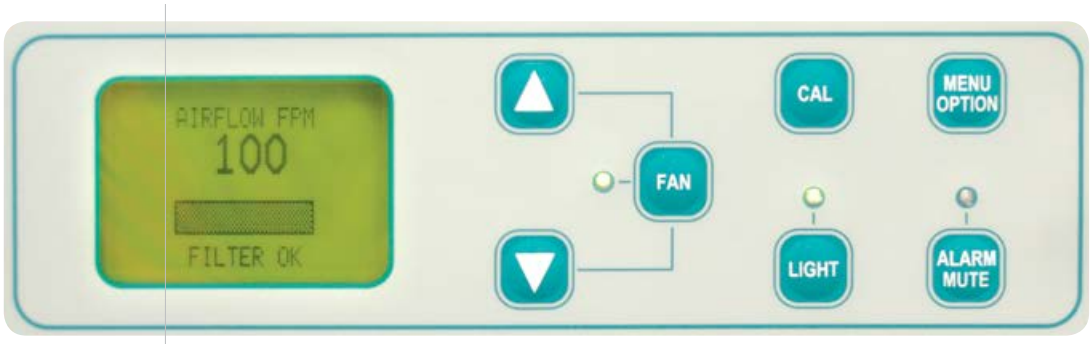
Purair® ECO cabinets are available in 4 standard sizes, in metal or optional polypropylene construction.

- A high capacity air handling system delivers face velocity of 100 FPM.
- The ECOair™ Controller manages all local cabinet functions, set points and alarms.
- The BACnet operating system is based on a non-proprietary, open source platform for seamless integration with a building management and supervisory protocol.
- The Air Science filter assembly is easy to access, easy to change.

The Purair® ECO Series fume hoods use energy-efficient ebmpapst centrifugal blowers for long life, dependable performance.

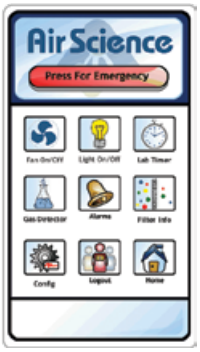
*The standard **Advanced** control panel includes an on/off switch, low airflow alarm and hour meter to aid in determining available filter life.*

*An optional electronic **Filter Saturation Alarm (FSA)** is available with the standard **Advanced** control panel. In addition to all the features of the **Advanced** control panel the **FSA** adds an electronic gas sensor and emits audio and visual alerts when the main filter needs to be changed.*

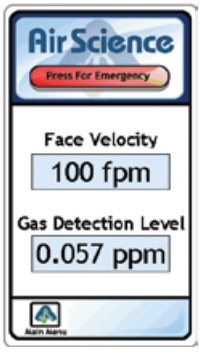


*The optional **Monitair** microprocessor controller monitors and displays cabinet operating parameters, airflow, containment, and filter condition; emits audio and visual alerts if conditions become unsafe, all on a LCD display.*

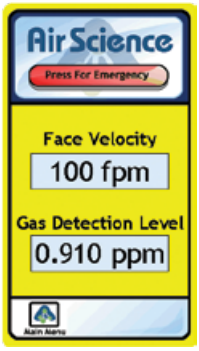
The ECOair Controller permits easy, intuitive management over the local cabinet. A sequence of color coded displays provides operating status at-a-glance. All setpoints, alarm parameters and other cabinet functions are established through the touchpad. Options include the Filter Saturation Alarm, Monitair Controller or ECOair control packages. See Accessories.



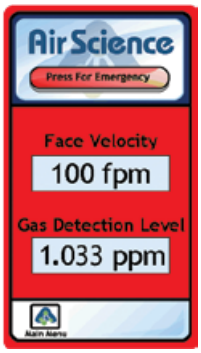
The Main menu screen provides all information, set-up and communications protocols. These include fan and lighting ON/OFF functions, access to the on-board filter information library, gas detector selection, set-up, alarms, user security access and networking configurations.



Home screen displays real time face velocity (in FPM or m/s) and gas detection levels at the primary filters.



Home Screen flashes YELLOW background as either face velocity and/ or gas detection levels approach within 10% of their respective alarm setpoints.



Home screen flashes RED background and audio alarm starts as either face velocity or gas detection levels hit or surpass their respective alarm setpoints.

ECOair™ Controller with BACnet Control/ Alarm/Monitoring:

The BACnet operating system was developed under the auspices of ASHRAE as an internationally recognized, open source protocol for building automation. Now used in more than 30 countries worldwide, BACnet offers a universal management solution for optimal energy savings and environmental safety.

- While the Purair® ECO operates flawlessly in a stand-alone mode with the standard controller, the ECOair™ controller permits single or multiple cabinets to seamlessly tie-in to a reciprocal BACnet building automation protocol for supervisory control and monitoring.
- ECOair™ with BACnet allows the building network to monitor individual cabinet On/Off status and route alarms to pre-designated addresses to warn of unsafe or dangerous conditions.
- Although other competitive systems include supervisory and monitoring functions operating on costly proprietary software platforms, the Air Science open-source BACnet solution fully integrates with more than 400 other manufacturers to complete a holistic communications network without expensive proprietary programming.

ECOair™ Controller Features:

The ECOair™ Controller maintains local supervision of all cabinet functions. The Main Menu screen provides all information, set-up and communications protocols. These include fan and lighting On/ Off functions, access to the on-board Filter Information Library, gas detector selection, set-up, alarms, user security access and networking configurations.

- The controller simultaneously controls and monitors all sensors, systems, alarms and switches including face velocity and gas detection levels.
- A color touch screen display is used for security access, set point and cabinet status.
- The Home screen background is white during normal operating conditions.
- If pre-set warning parameters are surpassed for face velocity or gas levels the background will flash yellow to permit users ample time to mitigate the condition and return the system to normal.
- If no action is taken and conditions deviate beyond alarm set points the screen background will flash red and an audible alarm will sound.
- Temperature/heat sensor monitors for unstable chemical reacting or fire within the workzone.
- Concurrently, any emergency protocol programmed into the building alarm system will be activated.
- Additionally, a Press for Emergency button can be manually activated to set the unit into alarm mode and initiate the emergency protocol networked into the building alarm system.
- Filter maintenance and email notifications for filter re-order, service and waste removal providers can be programmed to initiate automatically through the networking feature.

Electronic Gas Detection System:

The Purair® ECO ductless fume hood provides four methods for filtration monitoring and gas detection.

- The PID analyzer contains an internal wide spectrum reference.
- A metal oxide array accommodates for hydrocarbons and VOCs.
- An acid array detects acid vapors.
- A colorimetric gas sampling port permits manual testing for a wide variety of substances. The front mounted sampling port is positioned for easy access.

THE AIR SCIENCE PERFORMANCE ADVANTAGE

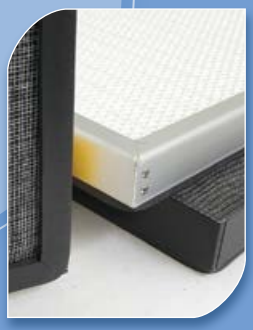
Each Purair® ECO fume hood includes features expressed through professional design and certified quality construction. Options and accessories add functional performance to meet specific applications.

Professional Quality. Air Science fume hoods meet or exceed current technical and safety regulations.

Multiplex Filtration. The Air Science Multiplex Filter offers a range of options for high performance protection.

Industrial Components. The cabinet frame and work surfaces are durable and chemically resistant.

Reliability. Internal systems are isolated from fumes, extending product life.



The Multiplex filter configuration permits a customized combination of filter media for a broad range of chemical families and biological agents if required. EFT™ Filtration Technology broadens the Air Science application for ductless fume hoods.

ENHANCED FILTRATION TECHNOLOGY

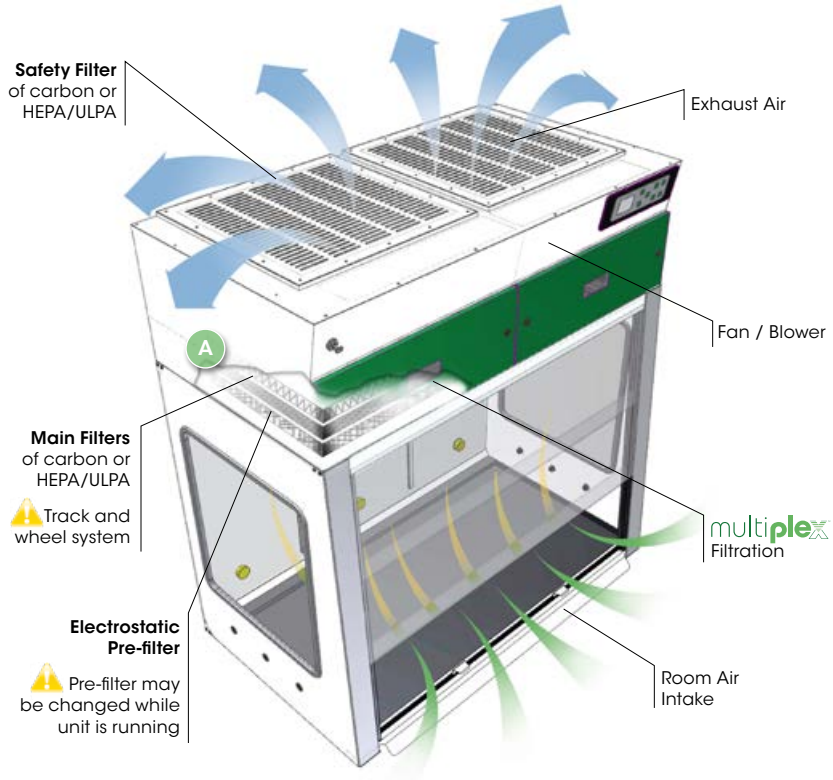
The Air Science Enhanced Filtration Technology (EFT™) is a universal filtration system developed for use with a wide range of core chemical families. These include organic acids, alcohols, aliphatic hydrocarbons, aromatic hydrocarbons, esters, aldehydes, ketones, ethers, halogens and others. Although the EFT™ system is weighted to accommodate these families, it can handle inorganic acids as well.

The Air Science EFT™ system is available as an option on Air Science Advanced ductless fume hoods standard on Purair® ECO Series fume hoods, and can be retrofitted on many Air Science ductless fume hoods already in service worldwide.

Independent Test Results

Independent testing confirms that the Air Science EFT™ system is superior in critical areas to other "green" fume hood systems recently introduced to the industry. AFNOR NFX 15-211 requires that three chemicals (isoproponal, cyclohexane and hydrochloric acid) be tested under very precise conditions to ascertain and establish retention capacity at 1% of the threshold limit value (TLV) for each chemical.

PURAIR® ECO SERIES AIRFLOW PATTERN



Purair® ECO-20, shown with Multiplex Filtration System.

The Purair® ECO Series ductless fume hood maintains a constant face velocity of 100 FPM in compliance with USA and international standards for safety and performance. Contaminated air is pulled though the Multiplex filtration system where activated carbon adsorbs chemical vapors; clean air is returned to the room.

A. The main filter is easy to replace; no tools required. The filter glides in on a wheel and track system, them clamps tightly against the filter gasket to prevent filter tears and to maintain filter integrity.

Retention Capacity (grams) for a Single Module at 1% of the TLV (Threshold Limit Value)

Specification	AFNOR NFX 15-211	
Testing Laboratory	IBR	Intertek
Product Manufacturer	Air Science	Brand E
Filter Type	EFT	Green
Test Results		
Isopropanol (alcohol)	2052	673
Cyclohexane (aliphatic hydrocarbon)	1531	914
Hydrochloric acid (inorganic acid)*	1205	2729*

**Based on "core" chemical families typically used in ductless fume hood applications, the Air Science EFT™ filter offers significant advantages over filters marketed as "universal" filters. On inorganic acids the EFT™ filter provides a lesser but more realistic usable capacity in that with moderate to heavy acid applications, all ductless fume hoods made of metal are subject to corrosion and rust. In those applications Air Science recommends its polypropylene or total exhaust hoods with a specially formulated heavy duty acid filter.*

THE AIR SCIENCE MULTIPLEX™ FILTRATION TECHNOLOGY SYSTEM

The Multiplex™ Filtration System consists of a pre-filter, main filter and optional safety filter to create a combination of chemical and physical architecture customized to each application.

The mechanical design enhances safety, convenience and overall value.

- The electrostatic pre-filter is accessible from within the cabinet.
- A filter clamping mechan-ism allows for the filter to be easily installed and ensures an even seal at the filter peripheral face at all times to prevent bypass leakage.
- The filter chamber prevents contaminated air from contacting internal cabinet mechanisms.
- The main filter number and installation date are displayed in a front-access window.

The Air Science carbon filtration technique is based on enhanced, activated carbon particle formulations from specially selected, naturally occurring raw material superior to wood or other organic sources. The carbon is treated to attain the proper porosity and aggregate surface area and to react with several ranges of aerosolized chemicals moved through the filter by an air handling blower.

- The multiplex option permits one or more filtration options to be combined to meet a wider range of multiple-use applica-tions. Multiplexing permits configuration for the capture of acids, bases and particulates such as biological aerosols when paired with HEPA or ULPA filters.
- The Air Science carbon filter is a self-contained assembly sized to fit the specified product model number, and configured to optimize airflow across 100% of the filter surface area for maximum efficiency, prolonged filter life, optimal diffusion and saturation capacity, and user safety.

Air Science is the single source supplier for all pre-filters and carbon filters used in its products, plus those of many other manufacturers.

MULTIPLEX FILTRATION SYSTEM, SUMMARY

	Pre-Filter	Main Filter	Safety Filter
Electrostatic	Protects the main filters from aerosols, mists, dust and particu-lates with filter efficiency superior to 95.5% down to 0.5 microns		
	Standard	--	--
Activated Carbon	FILTCO™ Sourced. A single carbon filter containing activated carbon granules chemically formulated to capture one or more specific vapors or family of vapors.		
Single: One type of activated carbon.	--	Specify	Specify
Blended: A single filter with two or more types of carbon blended throughout.	--	Specify	Specify
Layered: A single filter with two or more types of carbon in separate layers.	--	Specify	--
Stacked: Two or more single filters each with a different type of carbon.	--	Specify	--
HEPA/ULPA	A self-contained filter designed to physically capture particles larger than 0.3 microns (HEPA) or 0.12 microns (ULPA). Normally used as a safety filter; can be used as a main filter. When used with a HEPA/ULPA filter the ductless fume hood may be applied as a Class I Biological Safety Cabinet.		
	--	Specify	Specify

AVOID REVOLVING FILTERS

Air Science strongly discourages the unsafe practice of revolving secondary back-up filters into the primary filter compartment. All Air Science units are designed to avoid this false sense of security.

In a revolving filter system, users are instructed to rotate the secondary back-up filter into the primary filter position after non-permissible exposure levels of chemicals are detected within the monitoring chamber.

Depending on when the unit can be properly shut down, the secondary filter can be loaded to the point of satura-tion itself, thereby creating a safety hazard if the filter is considered new.

If a new spare filter is not immediately available, a user may inadvertently (or knowingly) re-install a contaminated primary filter into the secondary location permitting the system to operate without protection.

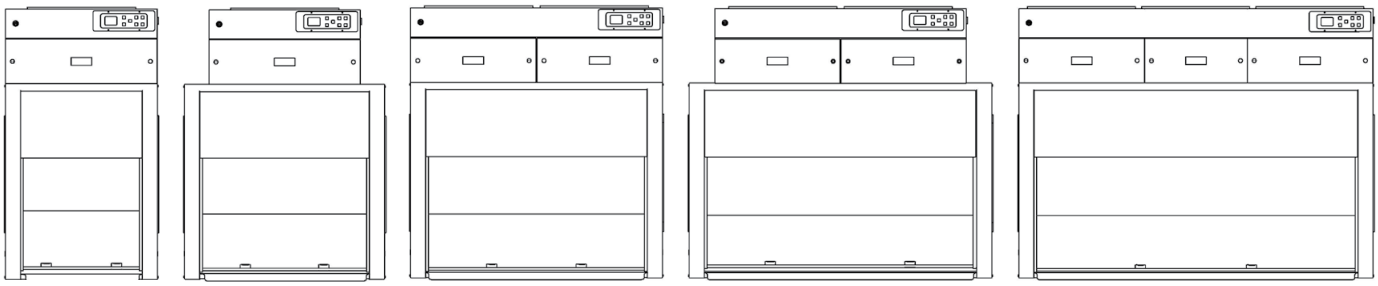
Additionally, the secondary filter can become contami-nated as it ages, sometimes for years, on top of an operational cabinet, losing filter efficiency by the time it is installed.

Either practice puts both personnel and the environment at risk, even though some manufacturers provide stickers to label the filters as "used".

The Air Science non-revolving filter practice ensures that only a new filter is fitted into the primary filter compartment, and permits the secondary filter to remain installed for at least twice the change-out period, resulting in a 50% savings in filter change-out costs.

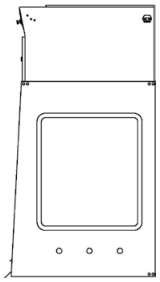
AIR SCIENCE FILTER SUMMARY

Formula	Description
GP Plus!	The most widely used filter in the range, primarily for solvent, organic, and alcohol removal.
ACI Plus!	Neutralizes volatile inorganic acid vapors.
ACR	Iodine and methyl iodide vapors. It is frequently used for iodination reactions with low level radioactive iodine.
ACM	Mercury vapor.
AMM	Removes vapors from dilute ammonia solutions and to remove low molecular weight amines.
SUL	Designed to remove hydrogen sulphide and low molecular weight mercaptans.
CYN	Removal of hydrogen cyanide. Many cyanide compounds will evolve HCN gas if acidified, so this filter is normally specified if working with any cyanide compound.
FOR	Designed to oxidize formaldehyde and glutaraldehyde fumes. It is widely used in hospital pathology laboratories.
ETH	Diethyl ether is adsorbed on activated carbon, but because of its low boiling point, the local head adsorption can reduce the capacity of the filter. Special impregnation allows a chemical reaction which increases the filter capacity.
EDU	Designed to handle chemicals normally used in a university level chemistry curriculum.
MIL	As the name implies, this filter is designed for military applications involving war gasses.
HEPA/ UPLA	Powders and particulates.
EPT	Universal filtration.



ECO-10 ECO-15 ECO-20 ECO-25 ECO-30

MODEL	DIMENSIONS			WEIGHT (lbs/Kg)	
	Internal Height	External (W x D x H)	Shipping (W x D x H)	Net	Ship
Purair® ECO Model					
ECO-10	38" 965 mm	30" x 28" 53" 762 x 711 x 1346 mm	50" x 40" x 42" 1270 x 1016 x 1067 mm	161 / 73	214 / 97
ECO-15	38" 965 mm	39" x 28" x 53" 990 x 711 x 1346 mm	40" x 50" x 42" 1016 x 1270 x 1067 mm	193 / 87	265 / 120
ECO-20	38" 965 mm	49" x 28" x 53" 1244 x 711 x 1346 mm	55" x 60" x 42" 1397 x 1524 x 1067 mm	276 / 125	375 / 169
ECO-25	38" 965 mm	59" x 28" x 53" 1498 x 711 x 1346 mm	40" x 67" x 42" 1016 x 1702 x 1067 mm	305 / 138	387 / 175
ECO-30*	38" 965 mm	69" x 28" x 53" 1752 x 711 x 1346 mm	40" x 80" x 42" 1016 x 2032 x 1067 mm	405 / 183	466 / 211



Side View

PRODUCT SPECIFICATIONS

Purair® ECO Model	ECO-10	ECO-15	ECO-20	ECO-25	ECO-30
Airflow CFM	145	220	295	365	440
Face Velocity FPM	100	100	100	100	100
Lighting	2 x 15 watts				
Noise, dBA, 1 meter	< 50	< 53	< 53	< 53	<56
Construction	<··· White epoxy coated steel frame and head unit. Clear sides and back panel. Polypropylene spill tray. ···>				
Blower	<··· EBM centrifugal fan. ···>				
Electrical	<··· 120V, 60Hz or 220V, 50Hz voltages available. Specify when ordering. Other voltage options available. ···>				
Electrical Switches	<··· Main On/Off ···>				
Monitoring	<··· Low airflow alarm, standard. ···>				

Filter Specifications

Pre-Filter	Electrostatic, 1 lb / .45 kg (nominal)				
Main	(1) 22 lbs / 9.6 kg	(1) 22 lbs / 9.6 kg	(2) 44 lbs / 20 kg	(2) 44 lbs / 20 kg	(3) 66 lbs 30 kg
Safety Filter, Carbon	(1) 11 lbs / 5 kg	(1) 11 lbs / 5 kg	(2) 44 lbs 20 kg	(2) 44 lbs 20 kg	(3) 33 lbs 15 kg
Safety Filter, Biological	HEPA / ULPA	HEPA / ULPA	HEPA / ULPA	HEPA / ULPA	HEPA / ULPA

Specifications are subject to change without notice.

OPTIONS & ACCESSORIES

Purair® ECO Model	ECO-10	ECO-15	ECO-20	ECO-25	ECO-30
HEPA Safety Filter* ULPA Safety Filter*	<··· HEPA and ULPA safety filters for biological safety protection are available for all models. ···> Contact Air Science for ordering information.				
Filter Saturation Alarm*	FSA	FSA	FSA	FSA	FSA
Monitair® Controller*	MON-P	MON-P	MON-P	MON-P	MON-P
ECOair™ Controller*	ECO-P	ECO-P	ECO-P	ECO-P	ECO-P
Motorized Sliding Front Sash*	M-SASH	M-SASH	M-SASH	M-SASH	M-SASH
Hinged Front Sash, Manual*	H-SASH	H-SASH	H-SASH	H-SASH	H-SASH
Clear Back Wall*	C-BACK	C-BACK	C-BACK	C-BACK	C-BACK
Base Stand, Mobile, With Casters	P10-CART	P15-CART	P20-CART	P25-CART	P30-CART
Base Stand, Level Feet, Fixed Height	P10-BASE	P15-BASE	P20-BASE	P25-BASE	P30-BASE
Base Stand, Level Feet, Telescoping	P10-BASE-TT	P15-BASE-TT	P20-BASE-TT	P25-BASE-TT	P30-BASE-TT
Base Cabinet, Fixed	P10-ENCB	P15-ENCB	P20-ENCB	P25-ENCB	P30-ENCB
ADA Compliance*	<··· All Purair-ECO models are available in ADA compliant configurations. ···> Contact Air Science for ordering information.				
Polypropylene Construction*	ECO-10-PP	ECO-15-PP	ECO-20-PP	ECO-25-PP	ECO-30-PP
Utility Module*	<··· Includes (3) service petcocks and (1) GFCI outlet. ···> Specify left or right hand side mounting when ordering				
Equipment Rack*	E-RACK	E-RACK	E-RACK	E-RACK	E-RACK
Cup Sink, Mounts into Tray*	SINK-P	SINK-P	SINK-P	SINK-P	SINK-P
Remote Control**	RC-P	RC-P	RC-P	RC-P	RC-P
UV Lamp***	UV-15	UV-15	UV-30	UV-30	UV-30

** Factory installed; specify when ordering.*

*** Handheld box connects via cable to head unit. Includes On/Off switch and blower speed control. Can be placed inside work zone.*

**** Includes UV timer, door micro-switch. UV safety precautions must be followed.*

STANDARDS & COMPLIANCE

Quality Management Systems	ISO 9001
Chemical Fume Containment	ANSI/ASHRAE 110 1995 SAFEBRIDGE Performance Verification (VE)
Carbon Filter Efficiency	BS 7989-2001 AFNOR NFX 15-211
Biological Safety Filter Efficiency HEPA and ULPA	IEST-RP-CC-0034.2 IEST-RP-CC007.1 IEST-RP-CC001-4 EN 1822
Electrical Safety	UL-C-61010-1 CE Mark ROHS Exempt under EEE Category 9
Product Design	ANSI Z 9.5-2003 ANSI Z 9.7-1998
OSHA, Occupational Safety and Health Administration	OSHA Standard -29 CRF, Safety and Health Regulations for General Industry, 1910.1450: Occupational exposure to hazardous chemicals in laboratories. Part B, definition, laboratory type hood. All Air Science products meet this definition.
Environment	ISO 14001 Energy Star Partner
Education (UK)	CLEAPPS Instruction Approved (EDU)

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BACnet

ENERGY STAR PARTNER

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