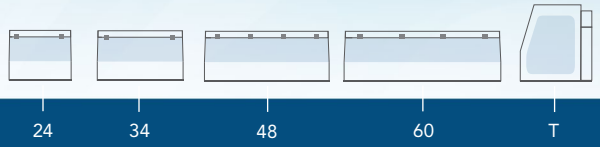
Vented Enclosure SERIES™



Vented Enclosures

- Precision Containment for All Applications
- Meets or Exceeds OSHA, ANSI and Other International Standards

Vented Enclosure model VE24T shown with Fume Extractor, model VE-FES

Air Science®

"The World's Most Extensive Selection of Ductless Fume Hoods."

ENERGY STAR PARTNER

ISO 9001
ISO 14001
BUREAU VERITAS
Certification

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INTRODUCTION

Vented enclosures provide effective containment of airborne particulates during manipulation and transfer of potent compounds. The turbulent-free design utilizes environmentally friendly, ductless technology in combination with carbon/HEPA filtration to provide precise, safe containment in all applications. Our selection of vented enclosures meets every analytical need.

APPLICATIONS

Bulk Powder Weighing and Transfers \ Task-Specific Workstations \ Short Duration Projects \ Balance and Microscope Enclosure \ Robotics \ Enclosure \ Compounding Activities

Deep into its second generation, Air Science embraces the diversity and cultural heritage of the founders and co-workers who are continuing a tradition of excellence. Demonstrating a commitment to adaptation, inclusion, and quality output from a United States-based company with a domestic and global reach.

KEY FEATURES

- Custom sizes to meet every need.
- Turbulent-free airflow pattern.
- Proven performance.
- Specialized HEPA filter technology for increased safety.
- Easy to change filtration system.
- Ductless design increases location possibilities.

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. Carbon filters are available in more than 14 configurations for use with vapors of organic solvents, acids, mercury, and formaldehyde. 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 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 exposures to fumes.

Vented Enclosure Model VE48T

Fume Extractor Model VE-FED.

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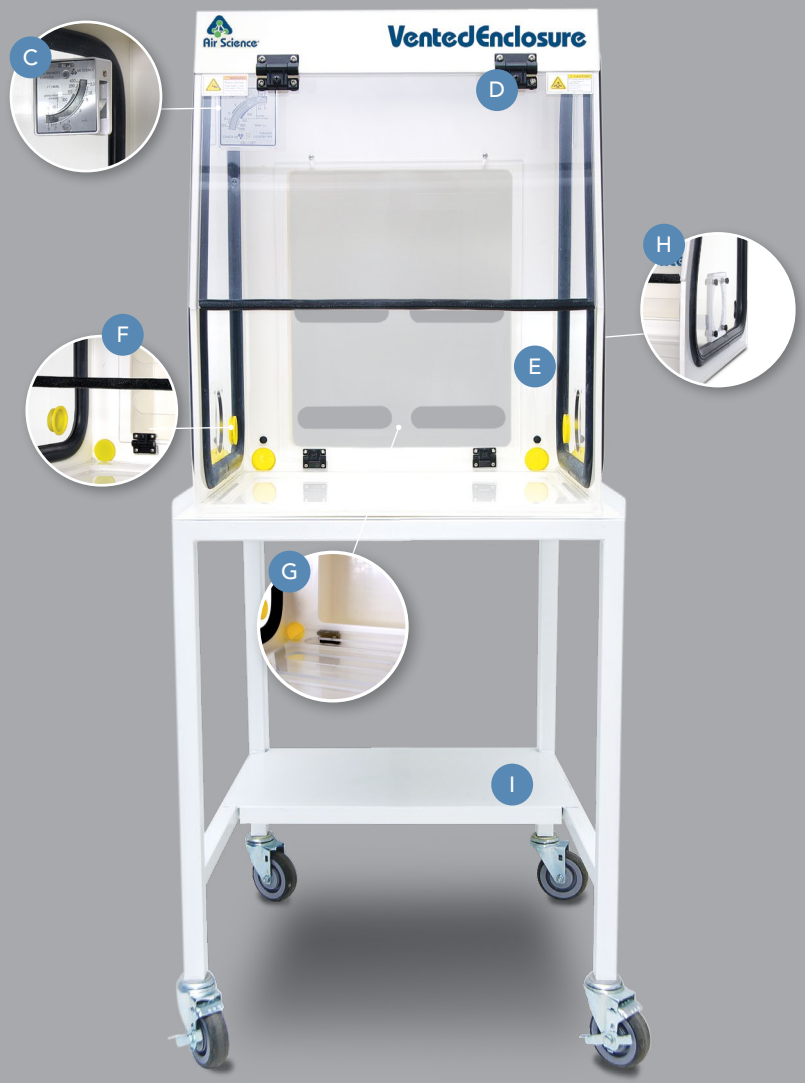

DESIGN FEATURES

A. Filtration: Available with extended life HEPA filtration systems, in conjunction with Multiplex filtration. Our HEPA filters are fitted with a "bag-out" system to completely protect operators during filter changes.

B. Hose: Each unit is provided with an 8 ft. PVC heavy-walled flex hose with smooth inner surfaces to minimize pressure drop and friction loss.

C. Air Velometer: An analog air velocity meter in the field of vision of the user provides independent backup to the electronic filter blockage alarm.

D. Single Hinged Front Sash: Allows full access to the work area.

E. Turbulent Free Design: Our enclosure designs provide a smooth transition of airflow into the enclosure, with the air pulled across the work surface in a uniform, horizontal pattern, reducing the rolling effect found in conventional vented enclosures.

F. Pass Through Ports: Electrical cords and cables are safely routed into the cabinet through pass through ports; located only on the side panels.

G. Plenum-Slotted Baffle: Produces a horizontal airflow pattern in the work area. Baffle can be lowered for cleaning. A 4"OD exhaust port is provided to connect to ductwork or fume extractor.

H. Clear Side Panels: Clear side panels with optional waste chute allow for disposal bags to be connected and prevent contamination to the surrounding lab.

I. Stand: Optional mobile cart with locking casters.

J. SafeSwitch Filter Shutter System: Optional unique filter shutter system closes the exposed filter media face and minimizes exposure to the contaminated filters, protecting the operator and the environment.

ADDITIONAL FEATURES

Flexible Design: Air Science offers flexible solutions for any analytical operation. Our ventless enclosures can be plumbed into an existing HVAC setup or incorporated with our Fume Extractor to minimize upfront workstation construction costs.

Standards Compliant: Performance specifications and construction meet or exceed OSHA, ANSI and relevant international standards to assure operator safety.

Validated Performance: Safebridge Consultants have verified and confirmed performance of Air Science vented enclosures in controlling airborne concentrations of particulate powder.

Each Air Science fume hood includes features expressed through sound design and certified quality construction. Options and accessories add functional performance to meet specific applications.

Vented Enclosure Model VE24T, shown with optional mobile cart.

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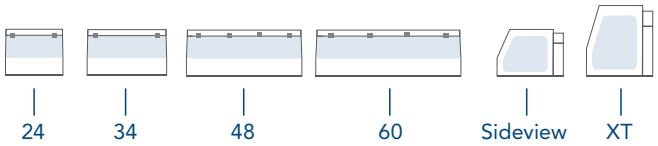


PERFORMANCE

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

- 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.

A high capacity air handling system delivers face velocity of 100 fpm.

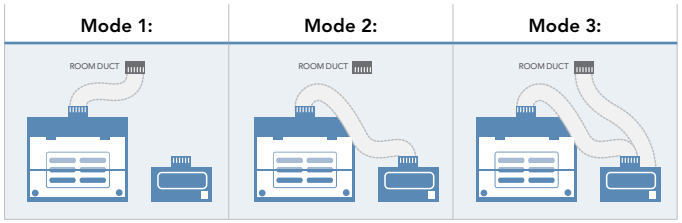
DESIGN

Professional quality Air Science vented enclosures comply with current technical and safety regulations. The cabinet frame and work surfaces, comprised of industrial components, are durable and chemically resistant.

The Air Science filter assembly is easy to access, easy to change, plus a unique filter clamping design eliminates bypass leakage outside the cabinet.

The optional SafeSwitch HEPA Filter Shutter System is available for safer filter exchange.

OPERATION MODES



Basic Control Panel

SELECTION

Vented enclosure products are available in 8 sizes, including 4 standard and 4 XT tall models.

RELIABILITY

Internal systems are isolated from fumes, extending product life.

CONTROL

The **basic control panel** is standard and includes an On/Off switch and filter blockage alarm.

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multiplex™

FILTRATION

At the heart of the Purair product line is innovative filtration technology. **The Multiplex Filtration System** consists of a pre-filter, main activated carbon or HEPA/ULPA filter, and safety activated carbon or HEPA/ULPA filter. The system permits a customized combination of filter media and configuration for chemical and physical adsorption specific to each application need.

The Air Science **carbon filtration technique** is based on enhanced, activated carbon particle formulations from specially selected, naturally occurring raw material that is 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.

View available filters and descriptions on page 8.

safe SWITCH™

The optional SafeSwitch HEPA Filter Shutter system ensures that operators are safely separated from trapped contaminants during filter changes.

FILTER CONFIGURATION

The Multiplex feature permits one or more filtration options to be combined to meet a wider range of multiple-use applications.

The vented enclosure can be equipped with a single activated carbon main filter or with a stacked configuration which combines two main filters, each activated to adsorb one or more specific vapors or family of vapors. For safety against particulates, an optional HEPA or ULPA can also be added. When used with a HEPA/ULPA filter, the vented enclosure may be applied as a Class I Biological Safety Cabinet.

The carbon filter is sized to fit the specified product model number and configured to optimize airflow across 100% of the filter surface area. The self-contained assembly maximizes filter efficiency, prolongs filter life, optimizes diffusion and saturation and improves user safety.

P. Electrostatic Pre-Filter: Protects the main filters from aerosols, mists, dust, and particulates.

C. Activated Carbon Main Filter: A single, blended, or stacked filter configuration.

H. HEPA/ULPA Filter, Optional: Both HEPA and ULPA filters use micro-glass fiber media designed to capture fine particles and biologicals. Both filters can capture particles smaller than the micron size for which they are tested. HEPA and ULPA filter efficiencies are 99.995% at 0.3 microns and 99.9995% at 0.12 microns respectively.

MULTIPLEX FILTRATION SYSTEM, SUMMARY

Application	Chemical	Powder/ Biological	Chemical & Powder	Chemical within Cleanroom
Primary Filter	C	H	H C	H C
Pre-FIlter	P	P	P	P

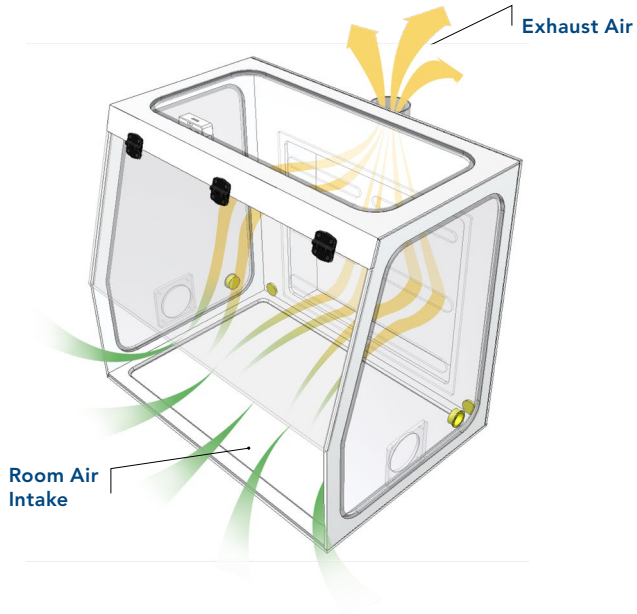
The system can be configured for the capture of acids, bases, and particulates, such as biological aerosols, when paired with HEPA or ULPA filters.

AIRFLOW

The vented enclosures maintain a constant face velocity of 100 fpm in compliance with USA and international standards for safety and performance. Contaminated air is pulled through the Multiplex filtration system; clean air is returned to the room. .

The primary filters are easy to replace and install. The filter clamps tightly against the filter gasket to prevent filter bypass and maintain filter integrity.

⚠ **The pre-filter** may be replaced while unit is in operation.



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ENHANCED FILTRATION

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 Purair 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.

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		Green
Test Results	EFT	
Isopropanol (alcohol)	2052	673
Cyclohexane (aliphatic hydrocarbon)	1531	914
Hydrochloric acid (inorganic acid)*	1205	2729*

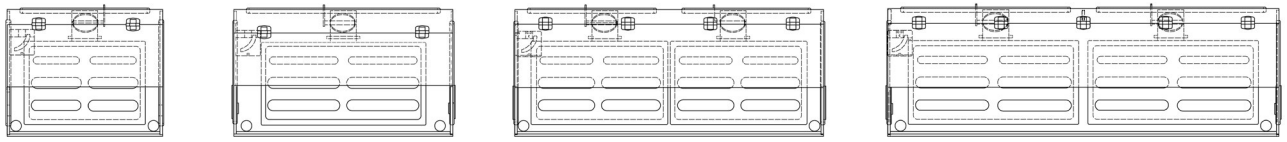
**Based on "core" chemical families typically used in ductless fume hood applications, the Air Science EFT filter offers significant advantages over filters marketed as "universal" filters. With moderate to heavy acid applications, all ductless fume hoods made of metal are subject to corrosion and rust. On inorganic acids, the EFT filter provides a lesser, but more realistic, usable capacity.*

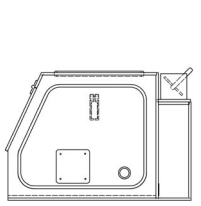
secur.
safe disposal service

Filter disposal services are available in selected markets providing responsible destruction or recycling of saturated filters in authorized facilities.

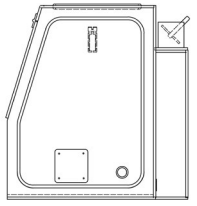
Through our partner company Filtco Filters, Air Science is a single source supplier of all pre-filters, carbon filters, and HEPA/ULPA filters used in our products and those of many other manufacturers.

VE24S VE34S VE48S VE60S





Side View (S-Series)



Side View (T-Series)

MODEL	DIMENSIONS			WEIGHT (LBS/KG)	
	Internal Height	External (W × D × H)	Shipping (W × D × H)	Net	Ship
Standard Height Models (S-Series)					
VE24S	17" / 432 mm	24" × 28" × 19.5" / 610 × 711 × 495 mm	40" × 40" × 40" / 1016 × 1016 × 1016 mm	40 / 18	95/ 43
VE34S	17" / 432 mm	34" × 28" × 19.5" / 864 × 711 × 495 mm	48" × 40" × 40" / 1219 × 1016 × 1016 mm	50 / 23	110 / 50
VE48S	17" / 432 mm	48" × 28" × 19.5" / 1219 × 711 × 495 mm	55" × 40" × 40" / 1397 × 1016 × 1016 mm	90 / 41	155 / 70
VE60S	17" / 432 mm	60" × 28" × 19.5" / 1524 × 711 × 495 mm	72" × 40" × 40" / 1829 × 1016 × 1016 mm	100 / 45	180 / 82
Tall Models (T-Series)					
VE24T	28.75" / 730 mm	24" × 28" × 30" / 610 × 711 × 762 mm	40" × 40" × 40" / 1016 × 1016 × 1016 mm	45 / 20	100 / 45
VE34T	28.75" / 730 mm	34" × 28" × 30" / 864 × 711 × 762 mm	48" × 40" × 40" / 1219 × 1016 × 1016 mm	55 /25	115 / 52
VE48T	28.75" / 730 mm	48" × 28" × 30" / 1219 × 711 × 762 mm	55" × 40" × 40" / 1397 × 1016 × 1016 mm	95 / 43	160 / 73
VE60T	28.75" / 730 mm	60" × 28" × 30" / 1524 × 711 × 762 mm	72" × 40" × 40" / 1829 × 1016 × 1016 mm	105 / 48	185 / 84
Fume Extractor					
VE-FES	--	17.5" × 25.5" × 18" / 445 × 648 × 457 mm	40" × 40" × 35" / 1016 × 1016 × 889 mm	45 / 20	120 / 54
VE-FED	--	35" × 25.5" × 18" / 889 × 648 × 457 mm	60" × 40" × 35" / 1524 × 1016 × 889 mm	90 / 41	200 / 91

POTENT COMPOUND CHARACTERIZATION SCHEME

Powder Toxicity Level	Operator Exposure Limit (8-hr Time Weighted Average)	Protection Required
1- Low Toxicity	<0.5 mg / m^3	Open Bench or Vented Enclosure
2- Intermediate Toxicity	0.5 mg / m^3 to 10 µg / m^3	Fume Hood or Vented Enclosure
3- Potent	10 µg / m^3 to 30 ng / m^3	Vented Enclosure
4- High Toxicity	>30 ng / m^3	Isolator

SafeBridge® CONSULTANTS, INC.

PERFORMANCE VERIFICATION

Safebridge Consultants executed performance verification and assessed the ability of Air Science Vented Enclosures (VE48S) to contain and control airborne concentrations of particulate powder during bench-scale operations.

PROCEDURE:

Three separate operators performed small-scale powder manipulations, utilizing Naproxin Sodium as a surrogate powder to identify the range of potential exposures and respective containment during handling procedures. Air samples measuring the exposure of each operator were taken, culminating in the development of the Potent Compound Characterization chart outlined here.

Model VE48S was used in performance verification.

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Vented Enclosure PRODUCT SPECIFICATIONS

Filtration	VE24S	VE24T	VE34S	VE34T	VE48S	VE48T	VE60S	VE60T
Airflow	<··· Horizontal. ···>							
Face Velocity (60)	100 cfm	126 cfm	141 cfm	180 cfm	200 cfm	252 cfm	249 cfm	318 cfm
Face Velocity (100)	166 cfm	210 cfm	236 cfm	299 cfm	333 cfm	420 cfm	416 cfm	530 cfm

Construction	VE24S	VE24T	VE34S	VE34T	VE48S	VE48T	VE60S	VE60T
Finish	<··· Polypropylene. ···>							
Work Surface	<··· Polypropylene. ···>							

Fume Extractor PRODUCT SPECIFICATIONS

Filtration	VE-FES	VE-FED
Airflow	265 cfm	530 cfm

Construction	VE-FES	VE-FED
Finish	<··· Metal. ···>	
Blower	<··· Centrifugal blower. ···>	
Controls	<··· Main On/Off. ···>	
Electrical	<··· 120V, 60Hz or 230V, 50Hz volatages availble. Specify when ordering. Other voltage options available. ···>	
Monitoring	<··· Filter blockage alarm, standard. ···>	

Efficiency	VE-FES	VE-FED
Noise, dBA[3]	< 52	< 52

FILTER SPECIFICATIONS

Fume Extractor	VE-FES	VE-FED
Primary Filter(s)*	(1)	(1)
Pre-Filter*	(1)	(1)

** For specific examples refer to Multiplex filtration system summary on page 5.*

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 as well as 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 glutaralde-hyde fumes. It is widely used in hospital pathology laboratories.
EDU	Designed to handle chemicals normally used in a university level chemistry curriculum.
MIL	Designed for military applications involving war gasses.
HEPA/UPLA	Powders, particulates, and biologicals.
CPT	Universal filtration.

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OPTIONS & ACCESSORIES

Vented Enclosure		VE24S VE24T	VE34S VE34T	VE48S VE48T	VE60S VE60T
Spill Tray (Epoxy Resin)	Removable for easy cleaning.	TRAY-VE24-RESIN	TRAY-VE34-RESIN	TRAY-VE48-RESIN	TRAY-VE60-RESIN
Base Stand, Mobile, With Casters	Provides a lower storage shelf; accommodates wheelchair access. Locking casters fix the hood in place.	CART-25	CART-35	CART-50	CART-60
Base Cabinet, Fixed (Metal)	Provides storage space below.	CART-MCC-25	CART-MCC-35	CART-MCC-50	CART-MCC-60
Base Cabinet, Fixed (Polypropylene)	Provides storage space below.	CART-SSC-25	CART-SSC-35	CART-SSC-50	CART-SSC-60
Fire Safety Cabinet Base	Flame resistant safe storage for combustible and flammable liquids.	CART-FSC-25	CART-FSC-35	CART-FSC-50	CART-FSC-60
Trash Chute	Side mounted trash chute. Bags not included.	TRASH	TRASH	TRASH	TRASH

Fume Extractor		VE-FES	VE-FES
Remote Control**	Wired controller, provides lower access height to comply with ADA requirements	REMOTE	REMOTE
SafeSwitch HEPA Filter Shutter System*	Minimizes exposure to filter contaminants when removing used HEPA filters for insertion of new filters.	ASTM-030-SS	ASTM-030-SS

* *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.*

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WARRANTY

This product is protected by the Air Science **Legacy Lifetime Warranty™** which starts on the date of shipment from our factory. This limited warranty is the result of thousands of successful Air Science production applications in pharmaceutical, laboratory, forensic, industrial, and educational applications.

This warranty covers defects in materials and workmanship. Our liability under the Legacy Lifetime Warranty 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. Normal conditions apply.

LEARN MORE

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

STANDARDS & COMPLIANCE

Quality Management Systems	ISO 9001:2015
Chemical Fume Containment	ANSI/ASHRAE 110 1995
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
Product Design	ANSI Z 9.5-2003 ANSI Z 9.7-1998
OSHA, Occupational Safety and Health Information	OSHA Standard -29 CFR, 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 14001:2015 ENERGY STAR® Partner

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