

# Vented Enclosure<sup>SM</sup> SERIES

Precision Containment for All Applications

24 • 34 • 48 • 60

"Turbulent-Free Airflow, Ideal for Balances."



*Vented Enclosure Model VE24T  
shown with Fume Extractor,  
Model VE-FES*

Provides Unsurpassed Precision for  
Compounding and Powder Weighing

Meets or Exceeds OSHA, ANSI and  
other International Standards



GSA Schedule  
Contract GS-07F-032P

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**APPLICATIONS**

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

**INTRODUCTION**

Air Science Vented Enclosures provide effective containment of airborne particulates during manipulation and transfer of potent compounds. Our in-house research suggests that even slight modifications of enclosures can result in containment factors from the microgram down to the nanogram. Our turbulent-free design utilizes environmentally friendly, ductless technology in combination with carbon / HEPA filtration to provide precise, safe containment in all applications. Ductless technology also makes installation of dedicated workstations easy, as no additional HVAC design is required. Air Science offers a host of vented enclosures to meet every analytical need.



**Vented Enclosure<sup>SERIES</sup>**  
Precision Containment

- Proven Performance.
  - Turbulent-free Airflow Pattern.
  - Custom sizes to meet every need.
  - Specialized HEPA-filter technology for increased safety.
  - Ductless design increases location possibilities.
  - Easy-to-Change Filtration system.
- Vented Enclosure Model VE48T



**DUCTLESS TECHNOLOGY: The Eco-friendly Choice**

Advanced HEPA filtration technology offers a safe, high performance alternative to conventional ducted vented enclosures for a broad range of applications.

- **Environmental Benefits.** Air Science ductless vented enclosures isolate and trap potent powders down to the nanogram, preventing detrimental impacts to operators.
- **Versatile.** Each filtration system is selected for its specific application. The Multiplex Filter broadens the range of applications and our "bag out" HEPA filtration system completely protects operators from potent powders.
- **Easy to Install.** The ductless hood is self-contained and does not require venting to the outside. 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.
- **Safe to Use.** Cabinet airflow and face velocity protect users from incidental exposures to particulates.



### PRODUCT 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 airflow alarm.

**D. Single Hinged Front Sash:**  
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 waste chute allow for disposal bags to be connected and prevent contamination to the surrounding lab.

**I. Stand:** Optional mobile cart with locking casters.

### OTHER 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.



Vented Enclosure Model VE24T; shown with optional mobile cart; and Fume Extractor Model VE-FES.

**VENTED ENCLOSURE FEATURES & BENEFITS**

Air Science Vented Enclosures are available in 8 standard sizes, in metal, stainless steel, or polypropylene construction, totaling 24 standard models.

- Increase operator safety by trapping potent powders at the nanogram level.
- Multiplex filter broadens range of filtration applications and utilizes "bag out" HEPA filtration system.
- No HVAC tie-in requirements, decreasing energy load and increasing installation possibilities.
- Available in custom sizes to fit a wide range of application needs.
- Accessories include an optional base stand, air flow meter, and cable ports.

**THE AIR SCIENCE PERFORMANCE ADVANTAGE**

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

**Professional Quality.**

Air Science vented enclosures comply with current technical and safety regulations.

**HEPA / Multiplex Filtration.**

Air Science Multiplex and "bag out" HEPA filtration systems offer a range of options for high performance protection.

**Industrial Components.**

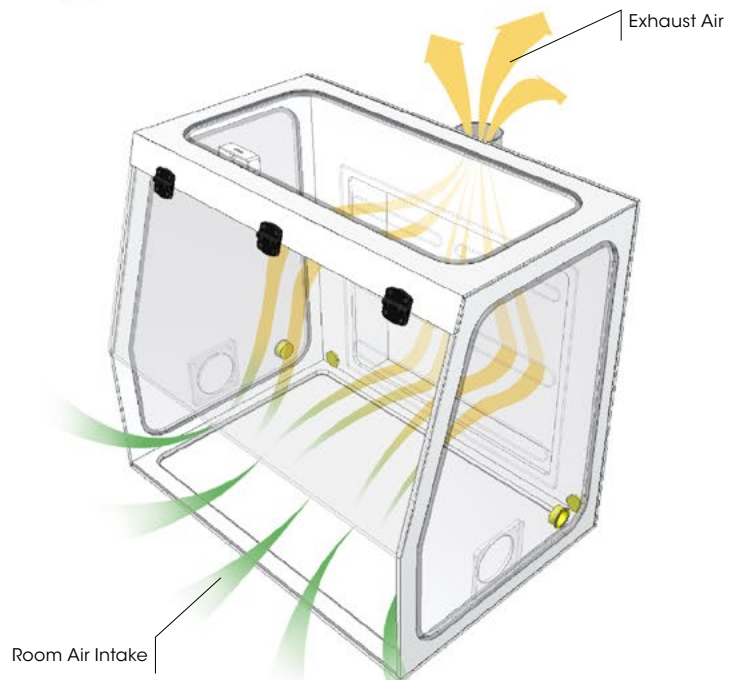
The cabinet frame and work surfaces are durable and chemically resistant.

**Reliability.**

Internal systems are isolated from fumes, extending product life.



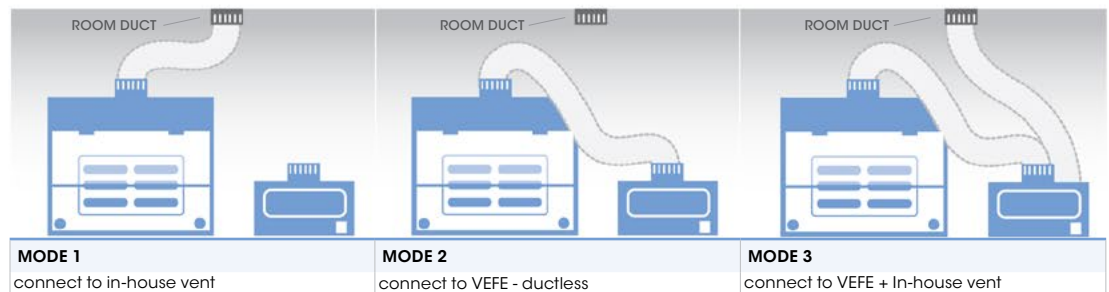
**VENTED ENCLOSURE AIRFLOW PATTERN**



Vented Enclosure Model VE48T

The rear baffle system allows unrestricted horizontal airflow through the enclosure for maximum containment.

**OPERATION MODES**



## multiple<sup>x</sup>

### AIR SCIENCE MULTIPLEX FILTRATION TECHNOLOGY

Multiplex Filtration consists of a pre-filter and main filter to create a combination of chemical and physical architecture customized to each application. The mechanical design enhances safety, convenience and overall value.

The multiplex option permits one or more filtration options to be combined to meet a wider range of multiple-use applications. Multiplexing permits configuration for the capture of acids, bases and particulates such as biological aerosols when paired with HEPA or ULPA filters.

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



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.



Optional bag-out biohazard filter.

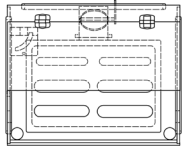
Fume Extractor VE-FED; available in polypropylene, stainless steel, or metal finish.

The Air Science Fume Extractor can reduce the load on your laboratory's HVAC system as it does not require the addition of ductwork for an outside air source. This makes each specific weigh station a standalone unit and allows operators to quickly deploy new workstations without costly modifications to the current laboratory setup.

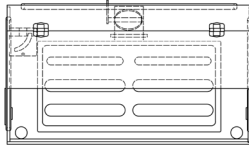
The Fume Extractor can be located up to 8 ft. away from the workstation and with a compact, lightweight design is perfect for above or below counter placement.

### MULTIPLEX FILTRATION SYSTEM, SUMMARY

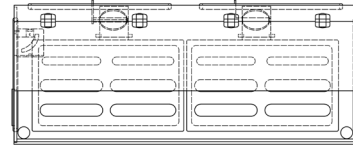
	Pre-Filter	Main Filter
<b>Electrostatic</b>	Protects the main filters from aerosols, mists, dust and particulates with filter efficiency superior to 95.5% down to 0.5 microns.	
	Standard	--
<b>Activated Carbon</b>	FILTCO™ Sourced. A single carbon filter containing activated carbon granules chemically formulated to capture one or more specific vapors or family of vapors.	
<b>Single:</b> One type of activated carbon.	--	Specify
<b>Blended:</b> A single filter with two or more types of carbon blended throughout.	--	Specify
<b>Layered:</b> A single filter with two or more types of carbon in separate layers.	--	Specify
<b>Stacked:</b> Two or more single filters each with a different type of carbon.	--	Specify
<b>HEPA/ULPA</b>	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



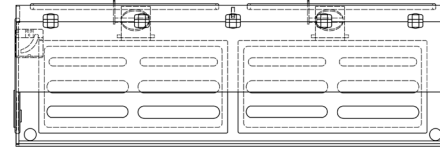
VE24S



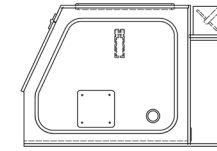
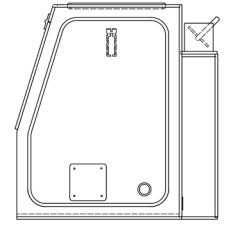
VE34S



VE48S



VE60S

Side View  
[S-Series]Side View  
[T-Series]

MODEL	DIMENSIONS			WEIGHT (lbs/Kg)
	Metal	Internal Height	Internal Depth	
<b>Standard Height Models (S-Series)</b>				
VE24S	17" 432 mm	22.5" 568 mm	24" x 28" x 19.5" 610 x 711 x 495 mm	84 / 38
VE34S	17" 432 mm	22.5" 568 mm	34" x 28" x 19.5" 864 x 711 x 495 mm	108 / 49
VE48S	17" 432 mm	22.5" 568 mm	48" x 28" x 19.5" 1219 x 711 x 495 mm	132 / 60
VE60S	17" 432 mm	22.5" 568 mm	60" x 28" x 19.5" 1524 x 711 x 495 mm	157 / 71

**Tall Models (T-Series)**

VE24T	28.75" 730 mm	23" 584 mm	24" x 28" x 30" 610 x 711 x 762 mm	97 / 44
VE34T	28.75" 730 mm	23" 584 mm	34" x 28" x 30" 864 x 711 x 762 mm	126 / 57
VE48T	28.75" 730 mm	23" 584 mm	48" x 28" x 30" 1219 x 711 x 762 mm	154 / 70
VE60T	28.75" 730 mm	23" 584 mm	60" x 28" x 30" 1524 x 711 x 762 mm	185 / 84

**Fume Extractor**

VE-FES	--	--	17.5" x 25.5" x 18" 445 x 648 x 457 mm	45 / 20
VE-FED	--	--	35" x 25.5" x 18" 889 x 648 x 457 mm	90 / 41

**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.

*Note: Model VE48S was used in performance verification.*

**POTENT COMPOUND CHARACTERIZATION SCHEME**

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

*Note: The Safebridge Consultants name is used for informational purposes only and endorsement of their testing services or their endorsement of Air Science products is neither given nor implied.*

*The Potent Compound Characterization Scheme used by Air Science USA, LLC may not represent the protocol in use at your organization. The Characterization should be reviewed and fully understood by your industrial hygienist before using a containment device.*

## ENCLOSURE PRODUCT SPECIFICATIONS

Vented Enclosure Model	VE24S VE24T	VE34S VE34T	VE48S VE48T	VE60S VE60T
Work Surface	<... Polypropylene ...>			
Construction	<... Polypropylene and Acrylic ...>			

## Required Airflow Specifications

Target Face Velocity of 60	100 CFM	141 CFM	200 CFM	249 CFM
Target Face Velocity of 100	166 CFM	236 CFM	333 CFM	416 CFM
Airflow	<... Horizontal ...>			

Specifications subject to change.

## ENCLOSURE OPTIONS &amp; ACCESSORIES

Vented Enclosure Model	VE24S VE24T	VE34S VE34T	VE48S VE48T	VE60S VE60T
Base Stand	P5-CART	P10XL-CART	P20-CART	P25-CART
UV Lamp	UV-VE24	UV-VE34	UV-VE48	UV-VE60
Trash Chute	TRASH	TRASH	TRASH	TRASH
Work Surface (Black)	TRAY-B-VE24	TRAY-B-VE34	TRAY-B-VE48	TRAY-B-VE60
Work Surface (Stainless)	TRAY-SS-VE24	TRAY-SS-VE34	TRAY-SS-VE48	TRAY-SS-VE60
Work Surface (Epoxy Resin)	TRAY-ER-VE24	TRAY-ER-VE34	TRAY-ER-VE48	TRAY-ER-VE60
Task Light	LAMP-VE24	LAMP-VE34	LAMP-VE48	LAMP-VE60
Electric Airflow Alarm	Eafa	Eafa	Eafa	Eafa
Sliding Sash	SASH-VE24	SASH-VE34	SASH-VE48	SASH-VE60
Glove Ports	GLOVE-VE24	GLOVE-VE34	GLOVE-VE48	GLOVE-VE60

## STANDARDS &amp; COMPLIANCE

Quality Management Systems	ISO 9001
Chemical Fume Containment	ANSI/ASHRAE 110 1995 SAFE BRIDGE 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
OSHA, Occupational Safety and Health Administration	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 Energy Star Partner

## EXTRACTOR PRODUCT SPECIFICATIONS

Fume Extractor Model	VE-FES	VE-FED
Noise Level	<52 dBA	<52 dBA
Airflow CFM	265	530
Fan	Centrifugal.	
Electrical Supply	110V 60Hz; other voltage options available.	
Controls	Remote, optional.	
Monitoring	Low airflow alarm, standard	
Construction	Polypropylene, metal or stainless steel.	

## Filter Specifications

Pre-filter	Electrostatic
Main Filter	HEPA and/or Carbon; Bag-out version available.

Specifications subject to change.

## EXTRACTOR OPTIONS &amp; ACCESSORIES

Fume Extractor Model	VE-FES	VE-FED
Remote Control	REMOTE	REMOTE
Filter Saturation Alarm	FSA	FSA
Bag-Out HEPA filter	HEPA-BO	HEPA-BO



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