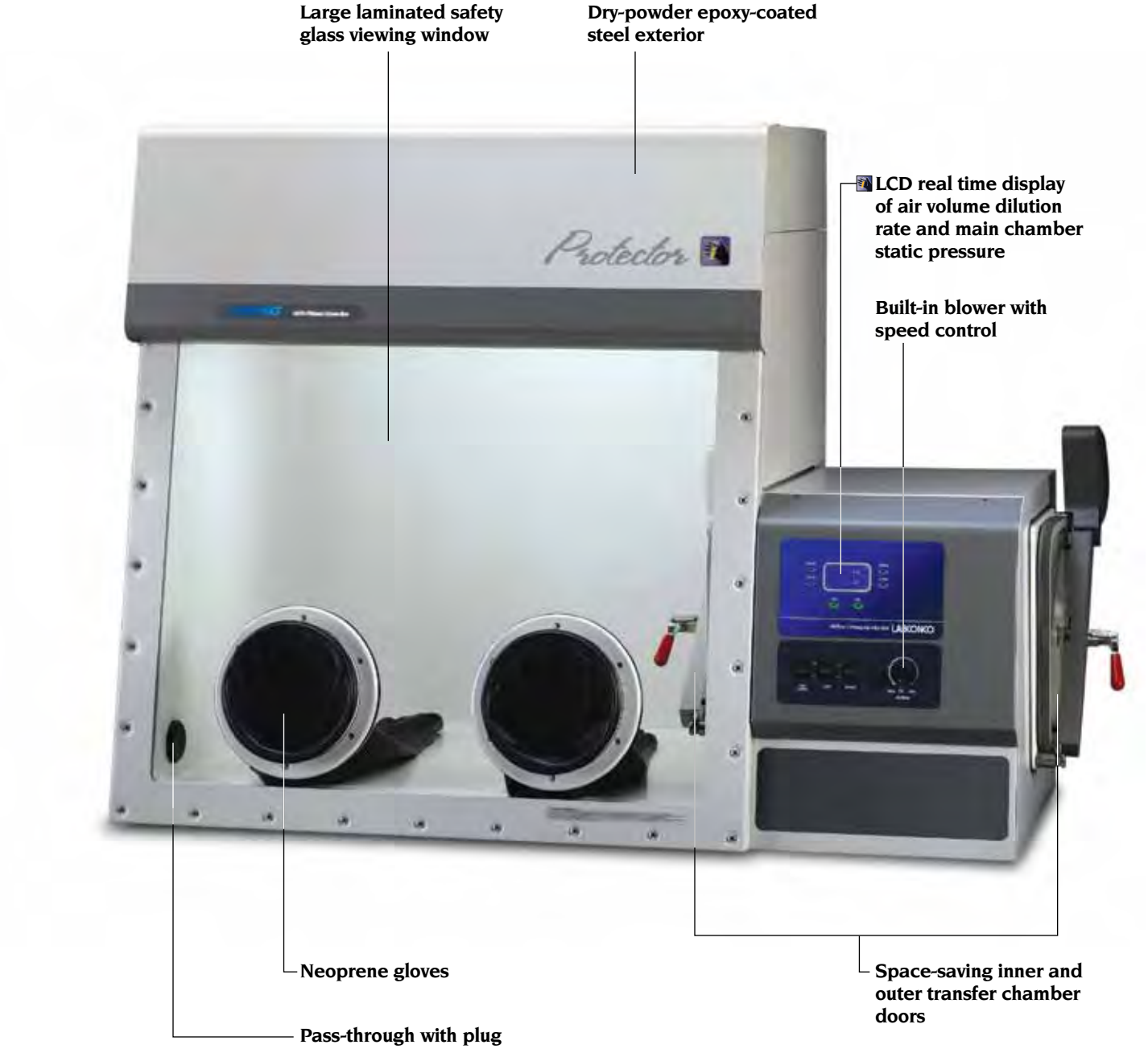
Protector® Filtered Glove Boxes

INTRODUCTION

Protector Filtered Glove Boxes are ventilated boxes that use ambient air to provide user protection from extremely hazardous particulates for applications such as nanoparticle manipulation, toxic powder weighing, pharmaceutical research and biochemistry. Microorganisms, low-level radiochemicals, chemical carcinogens and asbestos may also be used in these boxes. In addition, by reversing the negative air pressure in the main chamber to positive pressure, these boxes may be used for cleanroom applications requiring ISO Class 3 conditions. Models with one-piece molded fiberglass liners feature inlet and outlet HEPA filters. Models with stainless steel liners feature inlet and outlet ULPA filters.



Exclusive Feature

Protector® Filtered Glove Boxes

FEATURES & BENEFITS

Inlet and outlet* HEPA *or* ULPA *filters prevent particulate contaminants from entering or leaving the glove box chamber. HEPA filters, which are standard on fiberglass-lined boxes, are 99.99% efficient on 0.3 micron particulates. ULPA filters, which are standard on stainless steel-lined boxes, are 99.999% efficient on 0.12 particulates.

***True* Bag-in/Bag-out Filter Disposal System** allows for safe filter removal and replacement.

- ***Particulate-free* Class 3 *conditions.*** Airborne particulate cleanliness (measured under positive and negative pressures per ISO 14644-1 test method) exceeds ISO Class 4 conditions and achieves ISO Class 3 conditions.

- ***Particulate containment* <20 *nanograms per cubic meter*** as confirmed by SafeBridge Consultants, Incorporated assures user protection during glove box use.

- ***Built-in blower with speed control,*** capable of airflows from 15 to 85 CFM, pulls room air through the inlet HEPA or ULPA filter and discharges HEPA or ULPA filtered air back into the laboratory through the top of the box. This negative pressure operation ensures that all internally-contaminated air passes through the exhaust filter before returning to the laboratory.

- ***Fast "clean up"*** reduces turnaround time to load and unload materials. During perimeter scan testing, 0.05 ppm average tracer gas levels or less were detected after a five-minute dilution (surpasses ASHRAE 110 standards).

- ***Leak-tight.*** Each box is factory-tested with a mass spectrometer while pressurized with helium at 5 inches of water gauge and found to have no detectable leaks greater than 1×10^{-6} ml/sec.

- **LCD *display*** provides real time monitoring and adjustable alarm levels for volume dilution rates in cubic feet per minute (CFM) and air changes/minute (ACM), and main chamber static pressure in inches of water, which indicates HEPA/ULPA filter loading. An audible/visual alarm alerts when airflow/pressure is below set limits.

- ***Bright interior.*** Fluorescent illumination exceeds 120 foot-candles on fiberglass-lined models and 80 footcandles on stainless steel-lined models.

Interior, left-hand side, wall-mounted pass-through with plug allows for on-site installation of an optional electrical receptacle or optional pass-through port for RS-232, gas/liquid or oxygen or moisture monitor.

Large laminated safety glass viewing window provides maximum visibility (36" wide x 27.7" high) and is removable to allow for placement of large equipment. A powder-coated steel frame and one piece neoprene gasket form a tight seal.

Space-saving inner and outer transfer chamber doors pivot upward to conserve space and are counterbalanced and equipped with quick latches for easy operation.

Interior right-hand side wall-mounted electrical receptacle (duplex on 100/115 volt models, single on 230 volt models), with 10 amp maximum circuit load, provides power for instruments inside box. Double glove boxes also include a centrally-mounted interior receptacle.

Neoprene gloves, size 9 ¾, 30" long, are impermeable to water vapor, gases and toxic chemicals.

Large transfer chamber allows quick transfer of materials and equipment between the laboratory and main chamber.

One-piece molded fiberglass or type* 304 *stainless steel liner provides a smooth, durable surface that resists chemical corrosion and simplifies cleaning.

Dry-powder epoxy-coated steel exterior, has superior corrosion resistance.

ETL-listed. All North America models carry the ETL mark signifying they are certified to UL 61010-1 and CAN/CSA C22.2 No. 1010.1.

CE mark. All international models conform to the CE (European Community) requirements for electrical safety and electromagnetic compatibility.

Full one-year warranty on parts and labor.



The ***Protector Combination Glove Box*** functions as a filtered glove box with the added ability to be switched to a controlled atmosphere box as needed. See pages 13-14 for more information.

Exclusive Feature

Protector® Filtered Glove Boxes

SPECIFICATIONS



Protector Filtered Glove Box 5065010 on Adjustable Height Mobile Base Stand 5235500.

All models feature:

- Particulate containment <20 nanograms per cubic meter (naproxen sodium surrogate) as confirmed by SafeBridge Consultants, Incorporated.
- Fast "clean up" time. 0.05 ppm average tracer gas levels or less detected during perimeter scan testing (surpasses ASHRAE 110 standards) after 5 minute dilution.
- Airborne particulate cleanliness (measured under positive and negative pressures per ISO 14644-1 test method) exceeds ISO Class 4 conditions and achieves ISO Class 3 conditions.
- Factory leak-tested with a mass spectrometer while pressurized with helium at 1 inch of water gauge. No detectable leaks greater than 1 x 10^{-6} ml/sec.
- Inlet and outlet particulate (HEPA or ULPA) filters.
- Test port for challenging HEPA or ULPA filter integrity.
- True Bag-In/Bag-Out Filter Disposal System.
- LCD display and programmable alarm levels of volume dilution rates in cubic feet per minute (CFM), air changes/minute (ACM), and main chamber pressure (inches of water).
- Mutable, audible/visual low airflow/pressure alarm.
- Built-in blower with speed control capable of airflow from 15 CFM to 85 CFM depending on voltage and frequency.
- Laminated safety glass, 3/8" thick, viewing window. Viewing area, 36" w x 27.7" high.
- Inner and outer pivoting transfer chamber doors, counterbalanced and equipped with quick-latches.
- Interior right-hand side wall-mounted electrical receptacle (duplex on 100/115 volt models) with 10 amp maximum.
- Interior left-hand side wall-mounted pass-through with plug.
- Pair of neoprene gloves, 0.015" thick, 30" long, size 9 ¾.
- Switches for light, blower and electrical receptacle.
- Two 8" ID, epoxy-coated aluminum, double-grooved glove ports with neoprene gaskets.
- Two 25-watt fluorescent lights.
- Dry-powder epoxy-coated, 18 and 20 gauge steel exterior panels.
- ETL listing, UL 61010-1 and CAN/CSA C22.2 No. 1010.1 conformity (North America models).
- CE Conformity Marking (International models).

Fiberglass-lined models feature:

- Inlet and outlet HEPA filters, 99.99% efficient on 0.3 micron particulates, rated for 70 CFM at <0.90" static pressure.
- One-piece molded fiberglass liner.
- Clear acrylic inner and outer transfer chamber doors.
- Illumination exceeds 120 footcandles.

Stainless steel-lined models feature:

- Inlet and outlet ULPA filters, 99.999% efficient on 0.12 micron particulates, rated for 70 CFM at <1.00" static pressure.
- Type 304 stainless steel liner.
- Type 304 stainless steel inner and outer transfer chamber doors.
- Type 304 stainless steel front panel.
- Illumination exceeds 80 footcandles.

Double width models feature:

- Inlet and outlet ULPA filters, 99.999% efficient on 0.12 micron particulates.
- Type 304 stainless steel liner.
- Type 304 stainless steel inner and outer transfer chamber doors.
- Type 304 stainless steel front panel.
- Four fluorescent lights.
- Illumination exceeds 80 footcandles.
- Centrally-mounted electrical receptacle.
- Two viewing windows.
- Four neoprene gloves and glove ports.

All models require:

- Supporting base. Adjustable Height Mobile and Stationary Base Stands are available. See pages 23-24.

Options include:

- Factory installed left side door. See page 24.
- Factory installed valves. Contact Labconco for ordering information.

See pages 9 and 21-24 for ordering information on optional accessories.

See page 8 for dimensional data.

Exclusive Feature **Tested on fiberglass-lined model.*

Protector® Filtered Glove Boxes

ORDERING INFORMATION

Use this key to configure the **seven digit catalog number** to order your Protector Filtered Glove Box. For example, a **5065010** is a Protector HEPA-Filtered Glove Box with fiberglass liner and North America, 100-115 volts receptacle and plug type.

Configure Your Catalog Number:

5 0 6 5 0 1 0

The first five digits indicate liner material and filter type.

The last two digits indicate receptacle and plug type and glove box width.

Step 1. Choose one of two liner/filter options:

Option 1:
Fiberglass-lined, HEPA filtration. The first five digits are **50650**.

Option 2:
Stainless steel-lined, ULPA filtration. The first five digits are **50655**.

Step 2.
Select your Receptacle and Plug Type and Glove Box Width.

Option 1: North America, 100-115 volts. The last two digits are **10** for single width, **12** for double width.

Option 2: British (UK). The last two digits are **31** for single width, **33** for double width.

Option 3: Schuko. The last two digits are **35** for single width, **37** for double width.

Option 4: China/Australia. The last two digits are **40** for single width, **42** for double width.

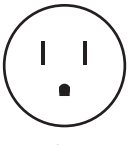
Option 5: North America, 208-230 volts. The last two digits are **45** for single width, **47** for double width.

Base Catalog Number	Glove Box Width	Filter Type	Liner Material	Shipping Weight lbs./kg	Electrical Receptacle & Plug Type				
					North America 115 Volts	British (UK)*	Schuko*	China/ Australia*	North America 230 Volts
50650	Single	HEPA	Fiberglass	500/227	10	31	35	40	45
50655	Single	ULPA	Stainless Steel	650/295	10	31	35	40	45
50655	Double	ULPA	Stainless Steel	1300/590	12	33	37	42	47

**International electrical configuration*

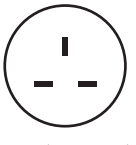
Electrical Receptacle & Plug Configurations & Electrical Requirements

North America, 110-115 volts
100-115 volts, 50/60 Hz, 10 amps



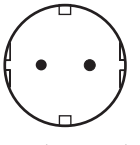
For Catalog Numbers ending in 10 or 12

British (UK)
208-230 volts, 50/60 Hz, 10 amps



For Catalog Numbers ending in 31 or 33

Schuko
208-230 volts, 50/60 Hz, 10 amps



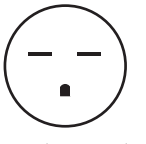
For Catalog Numbers ending in 35 or 37

China/Australia
208-230 volts, 50/60 Hz, 10 amps



For Catalog Numbers ending in 40 or 42

North America, 208-230 volts
208-230 volts, 60 Hz, 10 amps



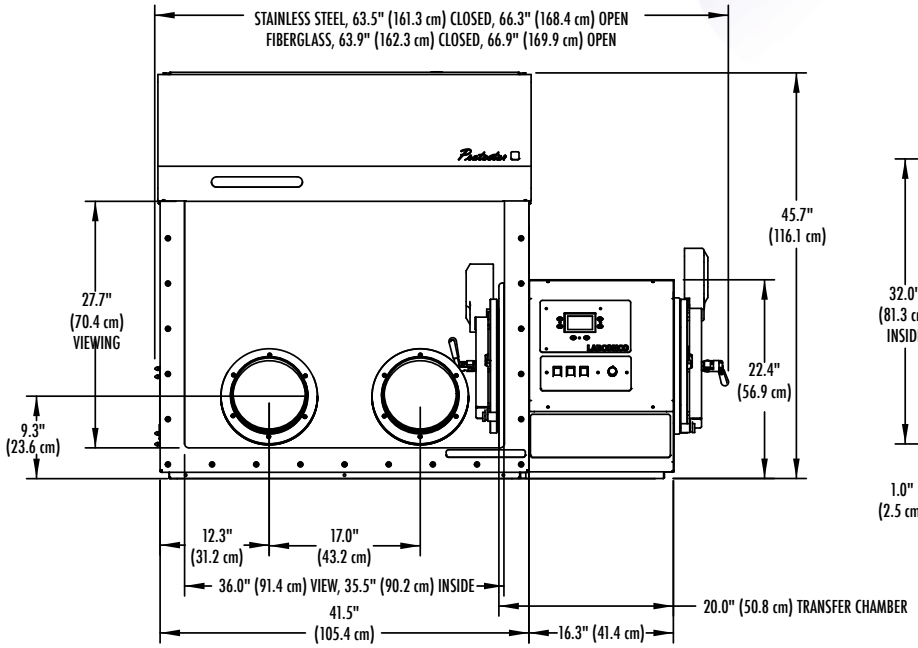
For Catalog Numbers ending in 45 or 47

Built-in Blower Information

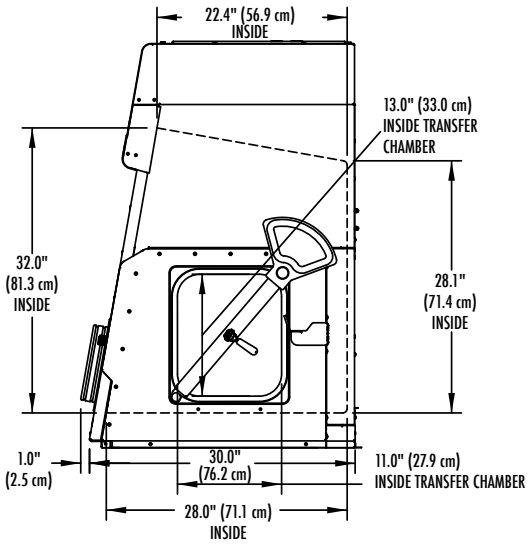
Voltage	Filter Type	Exhaust Volume (CFM) Minimum	Exhaust Volume (CFM) Maximum	Air Volume Changes per minute (ACM) Mininum	Air Volume Changes per minute (ACM) Maximum
100-115	HEPA	≤20	≥75	≤1.1	≥4.1
208-230	HEPA	≤28	≥60	≤1.5	≥3.3
100-115	ULPA	≤20	≥60	≤1.1	≥3.3
208-230	ULPA	≤28	≥45	≤1.5	≥2.5

Protector® Filtered Glove Boxes

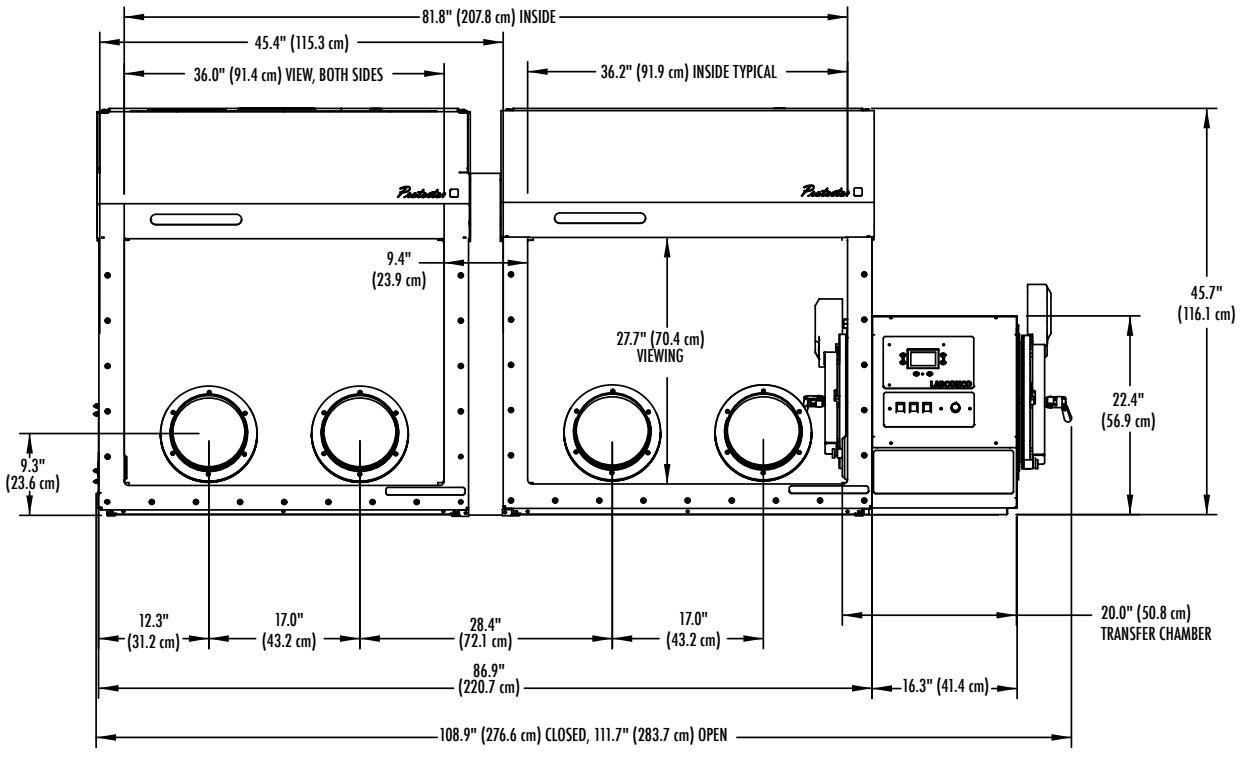
DIMENSIONAL DATA



FRONT VIEW—SINGLE WIDTH MODELS



SIDE VIEW—ALL MODELS



FRONT VIEW—DOUBLE WIDTH MODELS



5225105 Replacement Inlet or Outlet HEPA Filter

99.99% efficient on 0.3 micron diameter particles. May also be used in place of standard inlet or outlet ULPA filter. Shipping weight 6.5 lbs. (3 kg)

5225106 Replacement Inlet or Outlet ULPA Filter

99.999% efficient on 0.12 micron diameter particles. May also be used in place of standard inlet or outlet HEPA filter. Shipping weight 6.5 lbs. (3 kg)

5241700 Bag Set for Bag-In/Bag-Out HEPA Filter Replacement

Includes two bags and two straps necessary for changing and disposing of one inlet or outlet filter. Shipping weight 1 lb. (0.5 kg)

5441200 Positive Pressure Conversion Kit

Changes the built-in blower operation from standard negative pressure to positive pressure operation. The blower pushes instead of pulls HEPA/ ULPA filtered air through the main chamber. Typical applications for positive pressure operation include handling materials that are highly sensitive to airborne particulate contaminants. The Positive Pressure Conversion Kit creates particulate cleanliness inside the box measured to ISO 14644-1 test method, achieving ISO Class 3 conditions (1 particle 0.5 µm or larger per cubic foot of air per minute). Includes hose, two clamps and harness assembly. Not recommended for use with applications involving hazardous substances. Shipping weight 6 lbs. (3 kg)

5441100 Recirculation Kit

Allows the built-in blower exhaust to be connected to the inlet HEPA/ ULPA filter, providing total recirculation of air volume useful for semi-dry atmosphere operations. Includes hose, clamps and epoxy-coated steel adapter. Other accessories, such as Valves, Traps and Diaphragm Pumps, may be combined with the Recirculation Kit to maintain specific air chemistry conditions inside the main chamber. See page 20 for ordering information on Drying Train accessories. Shipping weight 5.5 lbs. (2.5 kg)

5242400 DOP Test Kit for HEPA Filters

Includes the connections, hoses and test procedure necessary to conduct a HEPA filter leak test on both the inlet and outlet filter. Test should be performed by a qualified technician using calibrated equipment. Shipping weight 5 lbs. (2 kg)



Add-A-Valve Kits

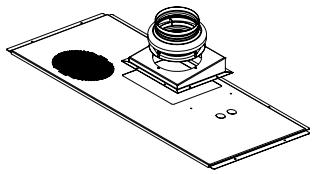
Include two manual valves, tubes, nuts and instructions to add valves to the glove box for evacuating with vacuum, filling with inert gas, connecting to a drying train or connecting to filtration components. Valves mount in predrilled holes behind the label located below the control panel.

Catalog Number	Description	Shipping Weight
5442600	Two Manual Valves for Transfer Chamber	5 lbs. (2.2 kg)
5442700	Two Manual Valves for Main Chamber	5 lbs. (2.2 kg)



5441300 Blower Foot Switch

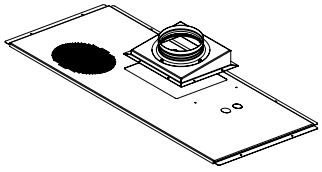
Provides a hands-free means to temporarily shut off power to the blower when obtaining sensitive balance readings or manipulating fine powders. Includes foot pedal and power cord. Shipping weight 4.5 lbs. (2 kg)



Thimble Exhaust Connectors

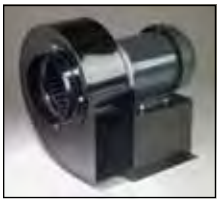
Epoxy-coated steel for connecting the glove box to ductwork attached to building exhaust, remote blower or FilterMate Portable Exhauster. Contact Labconco for ordering information on the FilterMate Portable Exhauster.

Catalog Number	Description	Shipping Weight
5441000	5" diameter. For connection to FilterMate Portable Exhauster.	15 lbs. (6.8 kg)
5440900	6" diameter. For connection to house exhaust or remote blower.	15 lbs. (6.8 kg)



5440800 Hard Duct Connector

Epoxy-coated steel, 6" diameter, for connecting the glove box to ductwork attached to a remote blower. Remote blower must be balanced with glove box's built-in blower. **Requires ductwork and remote blower.** Shipping weight 15 lbs. (6.8 kg)



Remote Blowers

For ducting Protector Filtered Glove Boxes. Direct drive blower has a 1/4 hp TEFC-type motor and overcomes external static pressure of 0.5" at 420 CFM. Housing and impeller are corrosion-resistant, phenolic-coated steel. Blower inlet is 5.94" OD and is sized to accept 6" nominal diameter PVC duct. Blower outlet is 4.25" x 7.38" OD. Dimensions: 14.6" w x 13.5" d x 13.25" high (37.1 x 34.3 x 33.7 cm). **Damper is required.**

CFM @ Static Pressure – Inches of H_2O						
S.P.	0.0"	0.125"	0.25"	0.50"	0.75"	0.87"
CFM	595	560	515	420	300	167

Remote Blowers

Catalog Number	Electrical Requirements	Shipping Weight
4863500	115 volts, 60 Hz, 4.4 amps	35 lbs. (16 kg)
4863501*	115/230 volts, 50 Hz, 5.6/2.8 amps	35 lbs. (16 kg)

**International electrical configuration*

Dampers

Catalog Number	Description	Shipping Weight
4724200	6" diameter, PVC	1 lb. (0.5 kg)
3924000	6" diameter, Powder-coated steel	1 lb. (0.5 kg)