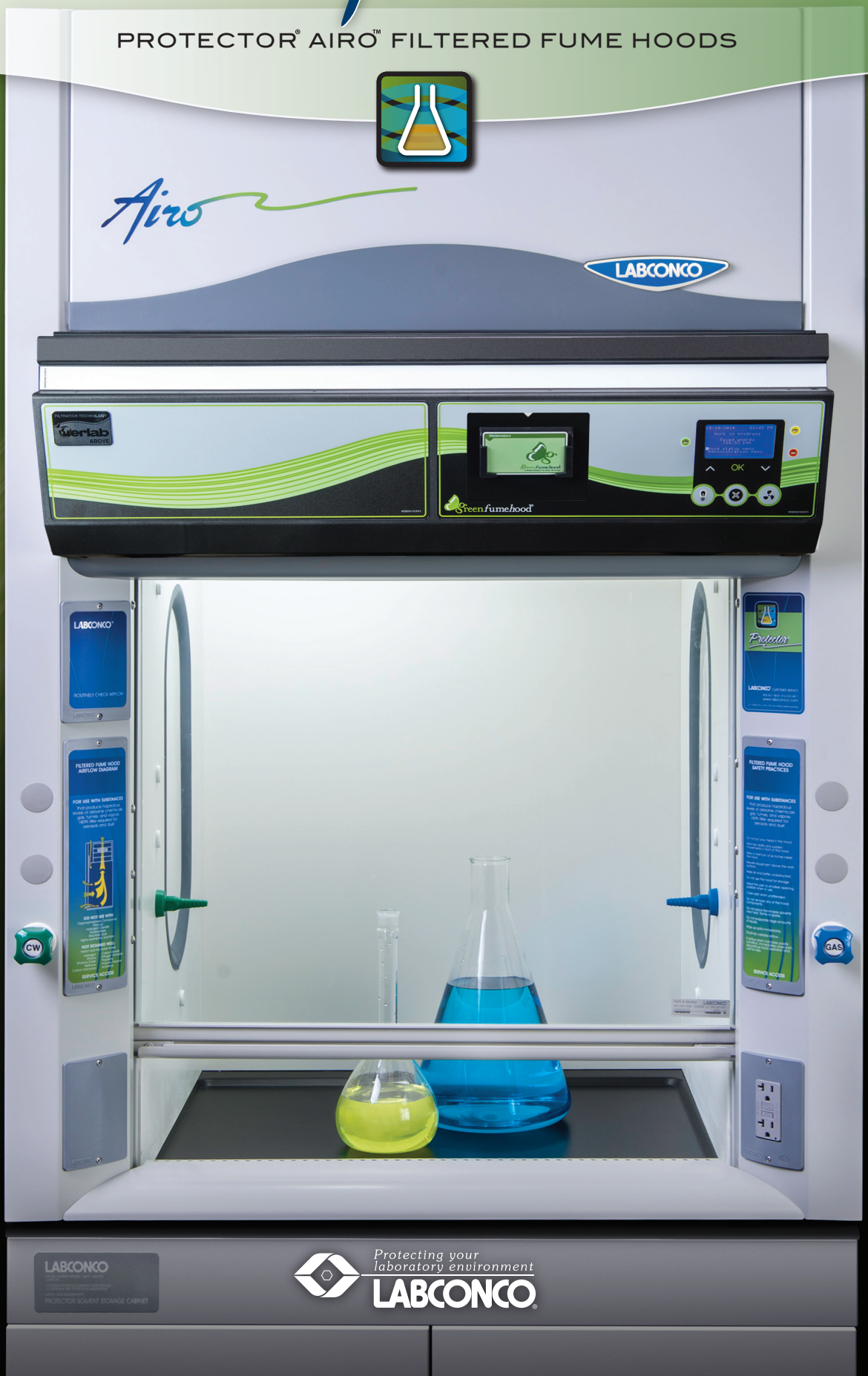
Airo

PROTECTOR® AIRO™ FILTERED FUME HOODS



Protector® Airo™ Filtered Fume Hoods

If you have robust chemical applications requiring a fume hood but have low ceiling height and no means to duct to the outside, consider the Protector® Airo™ Filtered Fume Hood. Labconco has combined its patented fully-featured, containment-enhancing Protector® Hood design with Erlab's GreenFumeHood® (GFH) Filtration Technology to deliver a multi-use fume hood that requires no ducting. The Protector Airo Filtered Fume Hood delivers uncompromising safety to confined laboratory spaces.*

The Benefits of GFH Filtration Technology

Safety-driven safety sums up the benefits of GFH Filtration Technology, which allow the Protector Airo Filtered Fume Hood to perform well beyond the SEFA 9-2010 DH III definition (Table 1). The user's safety is maintained because the Protector Airo has built-in features that constantly monitor and prevent unsafe conditions without relying on user practices or modifications. These safeguards include:

- Controlled access to specified users via radio frequency identification (RFID) cards. Unauthorized personnel are prevented from operating the hood.
- Sensor package that detects primary filter breakthrough of solvent and acid fumes, laboratory air quality, sash position and temperature. Audio/visual alarms alert you to filter breakthrough, fan failure, high sash position and high temperature, which could indicate fire.
- Intelligent filter indication of type and status (primary or secondary). RFID technology scans each filter's serial number preventing saturated filter re-installation.
- Optional gGuard® communication software that offers real time monitoring by a designated facility manager. From a remote location, data such as usage authorization, filter usage, filter saturation detection, sash position and temperature may be observed and managed.

The 3' Protector Airo Filtered Fume Hood with 31.7" depth uses two Neutrodine Carbon Filters, accessible from the side. Neutrodine Filters in 3' and 4' Protector Airo Hoods with 37.7" depths are accessed from the front. An optional HEPA Filter is available as an add-on to handle applications involving nuisance dust or powders.

Erlab-proven Neutrodine® Filters—the heart of GFH Filtration Technology

The Protector Airo goes beyond the typical DH III ductless fume hood. A typical DH III ductless hood uses application-specific carbon filtration, which limits its ability to handle several chemicals at one time or adapt to new lab procedures. Instead, the Protector Airo uses Neutrodine Filters, the most comprehensive, safety-driven carbon filter available. This single molecular filter type can easily adsorb most chemicals and mixtures, taking the guesswork out of filter selection. The Neutrodine Filter was tested and found efficient on over 500 chemicals, each at six or more concentrations. Because Neutrodine Filters allow the simultaneous handling of solvents, acids and bases, the Protector Airo may be used for a broad range of general chemistry fume hood applications.

Table 1.

SEFA 9-2010

SEFA 9-2010 (Recommended Practices for Ductless Enclosures) defines three categories of "ductless hoods."

DH I - A ductless hood equipped with a filtration device designed to control non-toxic chemicals, nuisance odors and particulates.

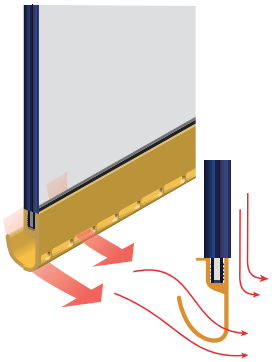
DH II - A ductless hood capable of meeting all DH I requirements, and equipped with a filtration device designed to filter manufacturer-approved toxic contaminants to filter breakthrough only.

DH III - A ductless hood capable of meeting all DH II requirements, and equipped with a filtration device designed to filter manufacturer-approved toxic contaminants beyond primary filter breakthrough by providing secondary back-up protection.

**U.S. Patent No. 6,461,233*

The Benefits of Protector Fume Hood Technology

Several Protector Hood features maximize containment and enhance user comfort.



- Patented* Clean-Sweep™ Sash Handle and Sash Tracks that bleed air into the interior and away from the user's breathing zone. The slim-line radiused sash handle reduces turbulence.
- Patented* Eco-Foil™ Air Foil with Clean-Sweep openings to pull inflow air into the hood in non-turbulent air streams. The curve of the foil is comfortable for arms resting on it.
- Cord-Keeper™ Slots on the left and right side of the air foil that allow the sash to be closed completely when electrical cords are plugged into the side receptacles.

Easy to install in tight lab spaces

Unlike traditional fume hoods that require a nine-foot ceiling height or greater, the Protector Airo's lower height allows placement in spaces with ceiling heights as low as eight feet. Two depths are offered: standard 37.7" and narrower 31.7".

Because the Protector Airo requires no connection to ductwork, initial building infrastructure change costs are minimized and hood placement can be in hard-to-duct areas such as the center or basement of multi-level buildings. Should lab configurations change, the Protector Airo may be relocated without disrupting existing heating and air conditioning systems.

Labconco factory installs the control panel on the front of the hood for ease of installation. The high capacity Neutrodine Filters, ordered separately from the hood, require initial set up, but may last two years or more before replacement is required.

Choose the right hood for you

The Protector Airo Filtered Fume Hood is available in 3' and 4' widths. The 3' hoods are offered in 31.7" and 37.7" depths. The 4' hoods come in 37.7" depth. To determine if your application is right for a Protector Airo, consult the list of non-compatible chemicals and applications on page 5 and then contact a Labconco specialist who can evaluate the chemicals you plan to use in your experiments and provide you with a recommendation.

The compact 3' Protector Airo Filtered Fume Hood fits easily in laboratories with low ceiling heights and limited space.

Protector® Airo™ Filtered Fume Hoods

3' Protector Airo Filtered Fume Hood 184300002 is shown with SpillStopper Work Surface 9500300 and Protector Standard Storage Cabinet 9900100.

All models feature:

- By-pass airflow design.
- Eco-Foil™ Air Foil with aerodynamic Clean-Sweep™ airflow openings.*
- Cord-Keeper™ Slots on left and right side of air foil.
- Glacier white powder-coated steel exterior.
- Chemical-resistant, fiberglass-reinforced, composite panel liner.
- Single piece, tempered safety glass vertical-rising sash with cable pulley, sash weight and powder-coated aluminum sash handle and tracks with Clean-Sweep™ airflow openings. Sash stop at 16" sash opening height. Sash opens to 26" high for loading.
- Removable front and side panels, and front and interior service access panels (except side window models) for access to plumbing and electrical wiring.
- Pre-wired vapor-proof fluorescent lights providing up to 63 foot candles.
- Factory-prepared for up to two electrical duplex receptacles and six service fixtures.
- Factory-installed control panel with digital display, fan button and light button.
- Roughing prefilter(s).
- Built-in exhaust fan(s) to maintain 60 fpm face velocity at 16" sash opening height.
- Sound pressure of <60 dB(A) with sash at operating height and <48 dB(A) with sash closed.
- Sensor package for primary filter breakthrough of solvent and acid fumes, laboratory air quality, sash position, and temperature.
- Audible/visual alarms for breakthrough detection, temperature ≥40° C (104° F), fan failure and high sash position opening. At ≥60° C (140° F), all fans stop.
- Three radio frequency identification (RFID) cards included: 9580901 User Card, 9580900 Administrator Card, and 9580902 Maintenance Card. Additional cards available upon request.
- Power cord with plug. Or, may be hard wired to top-mounted boxes.

Standards conformance and regulations:

- SEFA 9-2010, DH III
- SEFA 8-2010, Cabinet Surface Finish Tests
- ASHRAE 110-95
- ANSI Z9.5-2011
- AFNOR NF-X 15-211
- ASTM E84-09C
- UL 61010-1
- CAN/CSA C22.2 No. 61010.1

⚠**WARNING:** Cancer - P65Warnings.ca.gov (California only)

Fixtured models may feature:

- Two pre-plumbed service fixtures with forged brass valves, lower right side with brass tubing for gas and lower left side with copper tubing for cold water. Components for converting either or both fixtures to air and vacuum are provided. Inlet tubing is not provided.
- One pre-wired GFCI electrical duplex receptacle on lower right side.

Required (not included):

- Neutrodine Filters (see page 7).
- Work Surface (see back page).
- Base Cabinet or Stand (contact Labconco).

Optional accessories include (see back page):

- HEPA Filter.
- gGuard® Communication software.
- ADA Remote Control.

Contact Labconco for ordering information on electrical duplex receptacles, service fixtures and other fume hood accessories.

**U.S. Patent No. 6,461,233*

See back cover for a list of trademarks.

Heights of switches and electrical receptacle, when work surface is set to ADA height, meet requirements of ADA.

Exclusive Feature

Ordering Information

Protector® Airo™ Filtered Fume Hoods

Use this key to configure the **nine digit catalog number** to order your Protector Airo Filtered Fume Hood. For example, a **184300002** is a 3' Protector Airo Filtered Fume Hood with 31.7" depth, 100-115 volt, 50/60 Hz electrical requirements, two service fixtures and one GFCI electrical duplex receptacle.

NOTE: Neutrodine Filters are required for operation and sold separately. See page 7.

1 8 4 _ _ 0 0

STEP 1. Select the **width and depth** of your fume hood. These two numbers comprise the fourth and fifth digits of your catalog number. Shipping weight is shown.

- **30** = 36.0" (91.4 cm) w x 31.7" (80.5 cm) d, 435 lbs. (197 kg)
- **31** = 36.0" (91.4 cm) w x 37.7" (95.8 cm) d, 475 lbs. (215 kg)
- **41** = 48.0" (121.9 cm) w x 37.7" (95.8 cm) d, 525 lbs. (238 kg)

STEP 2. Select the **Electrical Requirements, Service Fixtures** and **GFCI Electrical Duplex Receptacle** combination you desire. These two numbers comprise the eighth and ninth digits of your catalog number. Add 10 lbs. (5 kg) for models with service fixtures.

Electrical Requirements/ Plug Type	No Service Fixtures	Two Service Fixtures	Two Service Fixtures & GFCI Duplex*	No Service Fixtures & GFCI Duplex*
100-115 volts, 50/60 Hz, 10 amps North America, 100-115 volts, 50/60 Hz, 10 amps; 8.5' cord	00	01	02	03
208-230 volts, 50/60 Hz, 5 amps North America, 208-230 volts, 50/60 Hz, 5 amps; 6.5' cord	20	21	–	–

**Hoods with GFCI electrical duplex are rated at 20 amps.*

Incompatible Chemicals and Applications (not permitted for use in the Protector Airo Filtered Fume Hood)

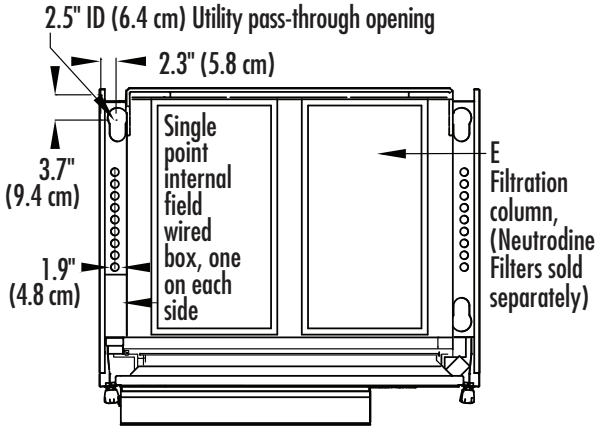
- Highly exothermic reactions
- Hydrogen Cyanide
- Mercury
- Organophosphoric Compounds
- Perchloric Acid
- Radioisotopes

Chemicals Not Retained Well (not recommended for use in the Protector Airo Filtered Fume Hood)

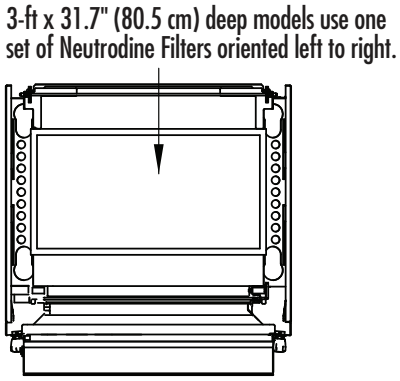
- Acetylene
- Carbon Dioxide
- Carbon Monoxide
- Ethane
- Ethylene Oxide
- Helium & Noble Gases
- Hydrogen
- Methane
- Nitrogen Monoxide
- Propylene
- Propyne, Propane

Dimensional Data

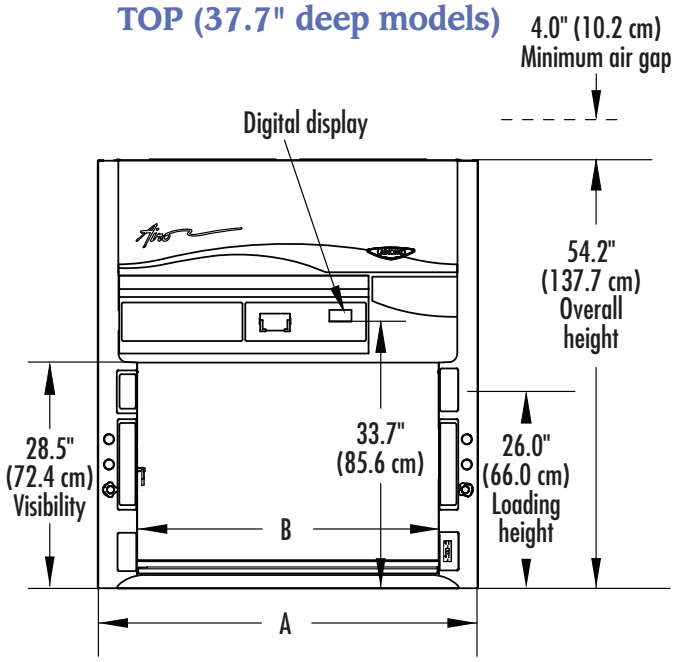
Protector® Airo™ Filtered Fume Hoods



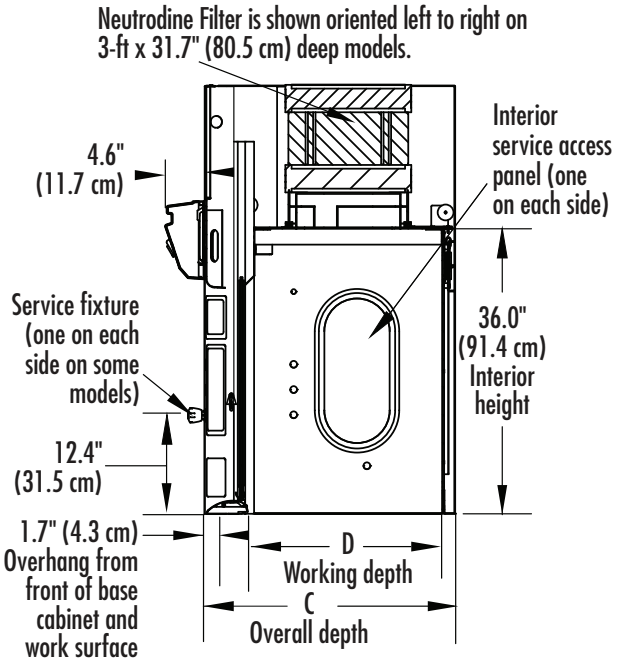
TOP (37.7" deep models)



TOP (31.7" deep models)



FRONT



SIDE

	A	B	C	D	E
3' w x 31.7" d Filtered Hood	36.0" (91.4 cm cm)	26.2" (66.5 cm)	31.7" (80.5 cm)	25.3" (70.9 cm)	1 ea
3' w x 37.7" d Filtered Hood	36.0" (91.4 cm cm)	26.2" (66.5 cm)	37.7" (95.8 cm)	31.3" (126.7 cm)	1 ea
4' w x 37.7" d Filtered Hood	48.0" (121.9 cm)	38.2" (97.0 cm)	37.7" (95.8 cm)	31.3" (126.7 cm)	2 ea

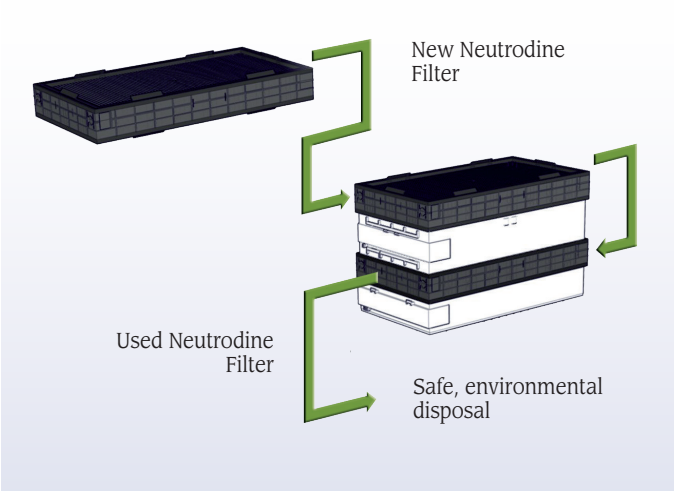
NOTE: Optional HEPA filter adds 4" of additional height to hood.

Neutrodine® Filters by Erlab®

The Neutrodine Filter is a comprehensive molecular filter that allows the simultaneous handling of solvents, acids, bases, ammonia and formaldehyde. Neutrodine Filters don't simply filter the molecules, they transform them! Erlab scientists view filtration technology from a different perspective—it's not just about the carbon. Neutrodine filters utilize multiple layers of technology to transform molecules, allowing the simultaneous adsorption of solvents, acids, and bases. Each filter is designed with a unique filter frame that prevents carbon shifting and channeling. The design offers a high retention capacity, which extends the lifetime of the filter and provides an unprecedented level of safety and operating cost savings.

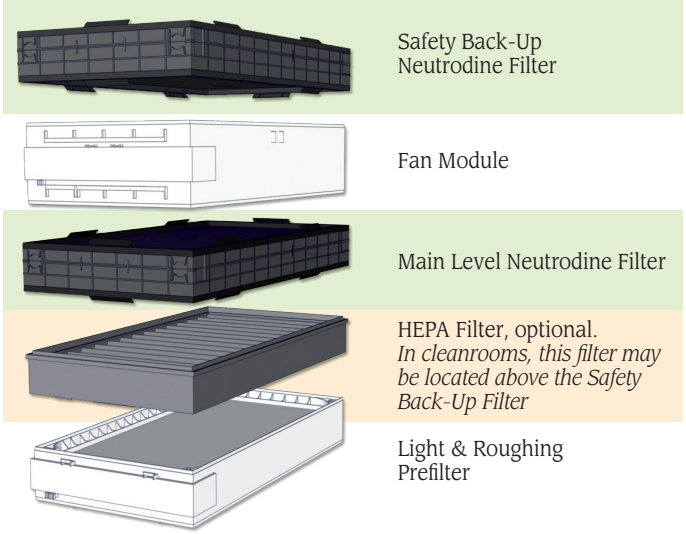
In addition, for each filtration column, two filters are stacked: one main level plus one safety back-up level. Once breakthrough is detected in the main filter indicating saturation, the safety back-up filter may be moved to the main level and a new safety back-up filter installed. This revolving filter system minimizes filter replacement requirements and optimizes main filter lifetime, thereby saving money and reducing environmental impact.

Revolving Filter System



Hood Width	Filter Columns	Required No. of Neutrodine Filters	Replacement No. of Main Level Neutrodine Filters	Total Neutrodine Filter Media Weight*	Optional No. of HEPA Filters	Total HEPA Filter Weight
3'	1	2	1	50 lbs.	1	10 lbs.
4'	2	4	2	100 lbs.	2	20 lbs.
		Initial order quantity of Cat. #9577400	*Replacement order quantity of Cat. #9577400*		*Initial and replacement order quantity of Cat. # 9577401*	

Typical Filtration Column Configuration



Safety Back-Up Neutrodine Filter

Fan Module

Main Level Neutrodine Filter

HEPA Filter, optional. *In cleanrooms, this filter may be located above the Safety Back-Up Filter*

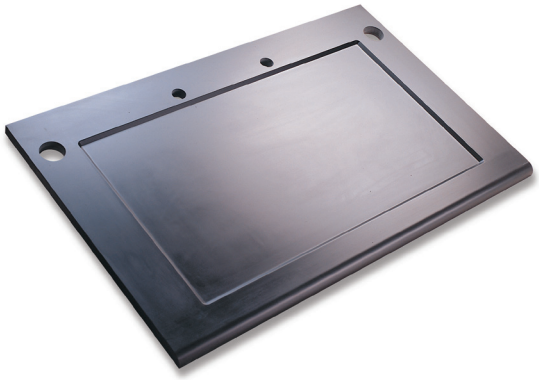
Light & Roughing Prefilter

Ordering Information

Catalog #	Description	Shipping Wt.
9577400	Neutrodine Filter, molecular carbon, 1 each	35 lbs. (16 kg)
9577401	HEPA Filter, 99.995% efficient, H14 type, 1 each**	25 lbs. (11 kg)
9577402	Replacement Roughing Prefilter, located in light box, 1 each	5 lbs. (2 kg)
9577403	Replacement Acid Sensor, required every two years	5 lbs. (2 kg)
9577700	Replacement Light Bulb	5 lbs. (2 kg)

**Filter media in the total number of filters required for operation per hood width.*
***HEPA filter adds 4" of additional height to hood.*

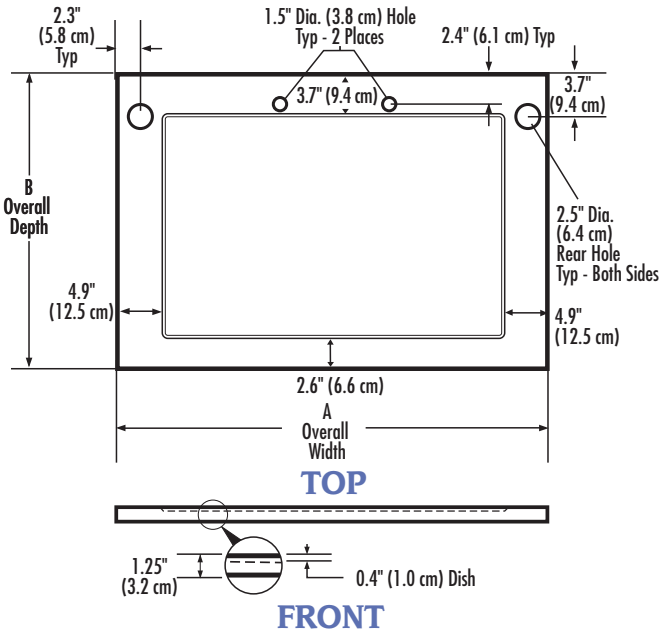
Accessories



SpillStopper™ Work Surfaces

Molded from a special formulation of corrosion-resistant epoxy resins. Dished and contoured to conform to the interior liner of the Protector Airo Hoods. Front edge has a large radius to aerodynamically direct airflow into the hood. Pre-drilled 1.5" (5.8 cm) diameter holes for venting and 2.5" (6.4 cm) diameter holes for plumbing pass-through. 1.25" (3.2 cm) thick. Contact Labconco for ordering information on SpillStopper Work Surfaces with sink cutouts.

Catalog #	Overall Width (A)	Overall Depth (B)	Shipping Wt.
9500300	36.0" (91.4 cm)	30.0" (76.2 cm)	85 lbs. (39 kg)
9501300	36.0" (91.4 cm)	36.0" (91.4 cm)	90 lbs. (41 kg)
9501400	48.0" (121.9 cm)	36.0" (91.4 cm)	120 lbs. (54 kg)



9581100 gGuard® Communication Software

Automatically collects and records hood data, alerts and alarms on a customer-supplied personal computer. Monitors, manages and provides data via email to a designated facility manager. Provides access to the following: usage authorization, filter usage, Neutrodine Filter saturation detection, filter identification, sash position, blower speed, laboratory air pollution detection, temperature and usage statistics. Software available on USB flash drive. PC requirements include Windows 7 or newer operating system; x86 (32 bits)/x64 (64 bits)/ia64; Processor x86 - 1 Gb or more, 512 Mb min x 64 - 1, 4Gb or more; 850 Mb + 5 Gb free memory hard disk for the SQL database (x86 processor) or 2 Gb + 5 Gb free memory hard disk for the SQL database (x64 processor); 32 bits graphic card, 10/100/1000 Mbps ethernet card; and USB port. Shipping weight 0.5 lb. (0.2 kg)

9579700 ADA* Remote Control

Allows persons in wheelchairs and/or shorter individuals to access the fan and light switches through a wireless remote control. Shipping weight 1 lb. (0.5 kg)

**Americans with Disabilities Act*

Contact Labconco for ordering information on base cabinets, stands, service fixtures, electrical receptacles, BACnet™ Gateway Hardware and other fume hood accessories.

Protecting your laboratory environment
LABCONCO

Labconco Corporation
8811 Prospect Avenue, Kansas City, MO 64132-2696
800-821-5525 or 816-333-8811
FAX 816-363-0130, www.labconco.com