



Protector® XL™ Laboratory Hoods

Protector XL Benchtop Laboratory Hoods have chemical-resistant panel liners that offer superior design flexibility. They are supplied in widths from 3 to 16 feet and three depths to meet a variety of installation and application requirements.

Like the Protector XStream Hoods, Protector XL Benchtop Hoods incorporate many containment-enhancing features including Clean-Sweep™ technology and Eco-Foil™ air foil. Testing confirms the Protector XL Hood meets the SEFA-1* standard of a low velocity, high performance hood and may be operated as low as 60 fpm.



The Opti-Zone™ Baffle's unique slot pattern and sizes increase velocities in the middle and at the work surface of the hood where it is needed while slowing velocities at the corners. The overall effect is to lower the required average face velocity necessary for containment. Tapered slots decrease resistance to air entering the baffle.

**See back cover for a list of regulations, standards and registered trademarks.*



Protector[®] XL[™] Laboratory Hoods



8' Protector XL Laboratory Hood 111800002 is shown with SpillStopper Work Surface 9500800, Protector Standard Storage Cabinet 9900000 and Protector Solvent Storage Cabinet 9902000.

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 and baffle.
- ▣ Opti-Zone[™] Baffle* with flame spread index less than 25 per ASTM E84**. Baffle is removable for cleaning.
 - Tempered safety glass vertical-rising sash with cable pulley and powder-coated aluminum sash handle.
 - 37.5" (95.3 cm) high sightline from the work surface and header panel.
- ▣ Removable front and side panels, and front and interior service access panels for access to plumbing and electrical wiring.
 - Pre-wired T8 fluorescent lighting with vapor-proof design and ADA-compliant light and blower switches.
 - Powder-coated stainless steel, 12.81" (32.5 cm) ID exhaust connection(s).

All models conform to the following regulations and standards**:

- CFR 29, Part 1910
- NFPA 45-2011
- ASHRAE 110-1995
- UL 61010-1
- UL 1805
- SEFA 1-2010
- ASTM E84-09C
- ANSI Z9.5-2011
- CAN/CSA C22.2 No. 61010.1
- SEFA 8-2010, Cabinet Surface Finish Tests

8' models are available with:

- Optional split dual tempered safety glass vertical-rising sashes with cable pulleys and powder-coated sash handles.

10', 12' and 16' models feature:

- By-pass block
- Split dual tempered safety glass vertical-rising sashes with cable pulleys, powder-coated sash handles and 10" (25.4 cm) high static viewing windows to permit the sashes to be fully raised without extending above the hood. Four sashes on 16' models.

Fixtured models 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 and, on 8' and larger models only, one additional pre-wired GFCI electrical duplex receptacle on the lower left side.

Required accessories not included:

- Remote Blower.
- Work Surface.
- Ductwork.
- Base Cabinet or Stand.

Optional accessories for on-site installation include:

- Service Fixture Kits.
- Distillation Grid Kits.
- Guardian Airflow Monitor Kits.
- Ceiling Enclosure and Rear Finish Panel Kits.
- Electrical Duplex Kits.
- Sash Stop Kits.

See pages 20-23 for ordering information on work surfaces and accessories.

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

**See back cover for a list of regulations, standards and registered trademarks.

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

 Exclusive Feature



Ordering Information

PROTECTOR[®] XL[™] LABORATORY HOODS

Use this key to configure the **nine digit catalog number** to order your Protector XL Laboratory Hood. For example, a **111800002** is an 8' Protector XL Laboratory Hood, with 31.7" depth, 100-115 volt, 50/60 Hz electrical requirements, two service fixtures and two GFCI electrical duplex receptacles.

1
1
1
0

STEP 1. Select the **width** of your fume hood. This number is the fourth digit of your catalog number. Shipping weight is also noted for 31.7" deep models. Add 10 lbs. (5 kg) for Fixtured Models.

3 = 3' (91 cm) 350 lbs. (159 kg)	6 = 6' (183 cm) 525 lbs. (238 kg)	0 = 10' (305 cm) 855 lbs. (388 kg)
4 = 4' (122 cm) 375 lbs. (170 kg)	7 = 7' (213 cm) 600 lbs. (272 kg)	1 = 12' (366 cm) 1045 lbs. (474 kg)
5 = 5' (152 cm) 450 lbs. (204 kg)	8 = 8' (244 cm) 675 lbs. (306 kg)	2 = 16' (488 cm) 1410 lbs. (640 kg)

STEP 2. Select the **exterior depth** of your fume hood. This number is the fifth digit of your catalog number. To the shipping weight noted above, add 40 lbs. (18 kg) for 37.7" deep models and 85 lbs. (39 kg) for 43.7" deep models.

0 = 31.7" (81 cm)	2 = 43.7" (111 cm)
1 = 37.7" (96 cm)	

STEP 3. Select the **sash style** available for your hood width. Note that either sash style may be used on 8' wide hoods. This number comprises the sixth digit of your catalog number.

Sash Style	For hood width: 3', 4', 5', 6', 7', 8'	For hood width: 8', 10', 12', 16'
Single	0	—
Dual*	—	8

STEP 4. 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.

Electrical Requirements	No Service Fixtures	Two Service Fixtures	Two Service Fixtures & GFCI Duplex**
100-115 volts, 50/60 Hz, 10 amps	00	—	02
208-230 volts, 50/60 Hz, 5 amps	20	21	—

*16' hoods have four sashes.

**Hoods with GFCI electrical duplex are rated at 20 amps. 8', 10', 12' and 16' Hoods have two GFCI electrical duplex receptacles, one mounted on each side, 20 amps each.

Total Exhaust CFM and Static Pressure @ 28" Sash Opening (100% Open)

Face Velocity (fpm)	Airflow Volumetric Rate (CFM) @ Static Pressure (inches of water)								
	3' Hood CFM s.p.	4' Hood CFM s.p.	5' Hood CFM s.p.	6' Hood CFM s.p.	7' Hood CFM s.p.	8' Hood CFM s.p.	10' Hood CFM s.p.	12' Hood CFM s.p.	16' Hood CFM s.p.
100	495 0.13	725 0.27	955 0.34	1180 0.46	1410 0.23	1640 0.31	2100 0.45	2560 0.62	3500 0.37
80	395 0.08	580 0.17	765 0.22	945 0.29	1125 0.15	1310 0.20	1680 0.28	2050 0.39	2800 0.23
60	295 0.05	435 0.10	575 0.12	710 0.17	845 0.08	985 0.11	1260 0.16	1535 0.22	2100 0.13

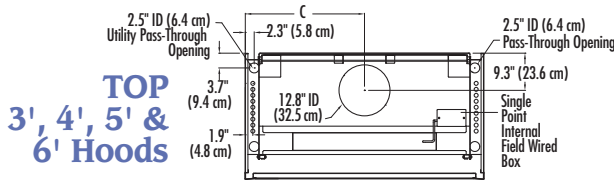
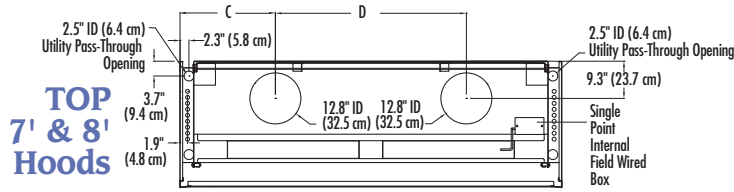
Total Exhaust CFM and Static Pressure @ 18" Sash Opening (62.5% Open)

Face Velocity (fpm)	Airflow Volumetric Rate (CFM) @ Static Pressure (inches of water)								
	3' Hood CFM s.p.	4' Hood CFM s.p.	5' Hood CFM s.p.	6' Hood CFM s.p.	7' Hood CFM s.p.	8' Hood CFM s.p.	10' Hood CFM s.p.	12' Hood CFM s.p.	16' Hood CFM s.p.
100	310 0.05	450 0.11	595 0.13	735 0.18	880 0.09	1025 0.12	1300 0.17	1585 0.24	2170 0.14
80	250 0.03	365 0.07	480 0.09	590 0.11	705 0.06	820 0.08	1050 0.11	1280 0.16	1750 0.09
60	185 0.02	270 0.04	360 0.05	440 0.07	525 0.03	615 0.04	800 0.06	970 0.09	1330 0.05

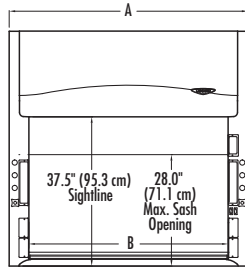


Dimensional Data

PROTECTOR[®] XL™ LABORATORY HOODS

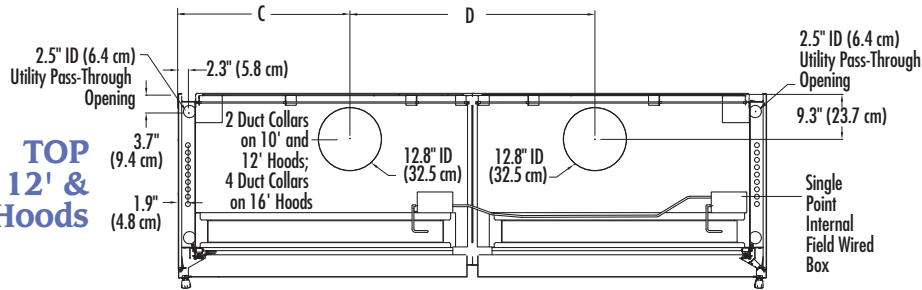


FRONT 3', 4', 5', 6', 7' & 8' Hoods



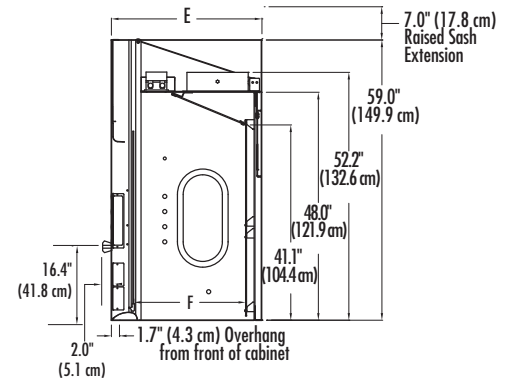
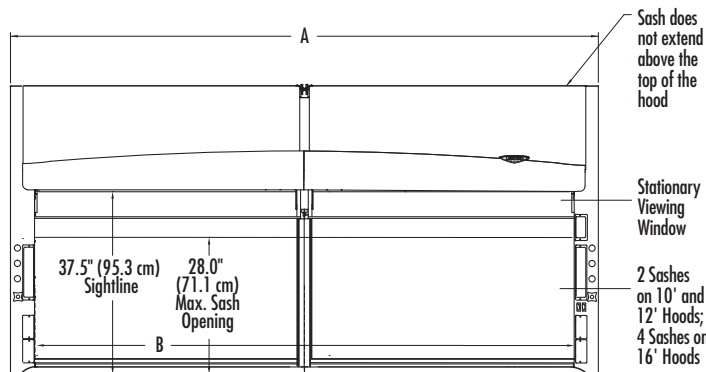
	A	B	C	D
3' Hood	36.0" (91.4 cm)	26.1" (66.3 cm)	18.0" (45.7 cm)	—
4' Hood	48.0" (121.9 cm)	38.1" (96.8 cm)	24.0" (61.0 cm)	—
5' Hood	60.0" (152.4 cm)	50.1" (127.3 cm)	30.0" (76.2 cm)	—
6' Hood	72.0" (182.9 cm)	62.1" (157.7 cm)	36.0" (91.4 cm)	—
7' Hood	84.0" (213.4 cm)	74.1" (188.2 cm)	21.0" (53.3 cm)	42.0" (106.7 cm)
8' Hood	96.0" (243.8 cm)	86.1" (218.7 cm)	24.0" (61.0 cm)	48.0" (121.9 cm)
10' Hood	120.0" (304.8 cm)	110.1" (279.7 cm)	35.0" (88.9 cm)	50.0" (127.0 cm)
12' Hood	144.0" (360.0 cm)	134.1" (340.6 cm)	41.0" (104.1 cm)	62.0" (157.5 cm)
16' Hood	192.0" (487.7 cm)	182.1" (462.5 cm)	24.0" (61.0 cm)	48.0" (121.9 cm)

TOP 10', 12' & 16' Hoods



E	F
31.7" (80.5 cm)	23.6" (59.9 cm)
37.7" (95.8 cm)	29.6" (75.2 cm)
43.7" (111.0 cm)	35.6" (90.4 cm)

FRONT 10', 12' & 16' Hoods



Contact Labconco at 800-821-5525 or 816-333-8811 or visit www.labconco.com for BIM Revit® and detailed AutoCAD® drawings. See back cover for trademark information.



SpillStopper™ Work Surfaces

SpillStopper Work Surface 9500400 for use with 4' Protector Premier and XL Laboratory Hoods



Features:

- Molded from a special formulation of corrosion-resistant epoxy resins.
- Dished and contoured to conform to the interior liner of Protector Laboratory 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.
- May be ordered with a pre-cut 6" x 3" (15.2 x 7.6 cm) oval cupsink cutout. Cupsink is sold separately. See page 21.

Use this key to configure the **seven digit catalog number** to order your SpillStopper Dished Solid Epoxy Work Surface. For example, a **9503610** is a 6' SpillStopper Work Surface, with a left rear cupsink cutout for use with a Protector XStream Hood.

9

5

0

STEP 1. Select the **model and exterior depth** of your fume hood. This number is the fourth digit of your catalog number.

Model & Depth	
0	Premier, XL with 31.7" depth
1	XL with 37.7" depth
2	XL with 43.7" depth
3	XStream, 37.7" depth

STEP 2. Select the **nominal width** of your fume hood. This number is the fifth digit of your catalog number.

3 = 3'*	8 = 8'
4 = 4'	0 = 10'*
5 = 5'	1 = 12'*
6 = 6'	2 = 16'*
7 = 7'*	

STEP 3. Select a **left cupsink cutout** option (cupsink is sold separately). See dimensional drawing. This number is the sixth digit of your catalog number.

Left Cupsink Cutout	
0	None
1	Rear
2	Side**

STEP 4. Select a **right cupsink cutout** option (cupsink is sold separately). See dimensional drawing. This number is the seventh digit of your catalog number.

Right Cupsink Cutout	
0	None
1	Rear
2	Side**

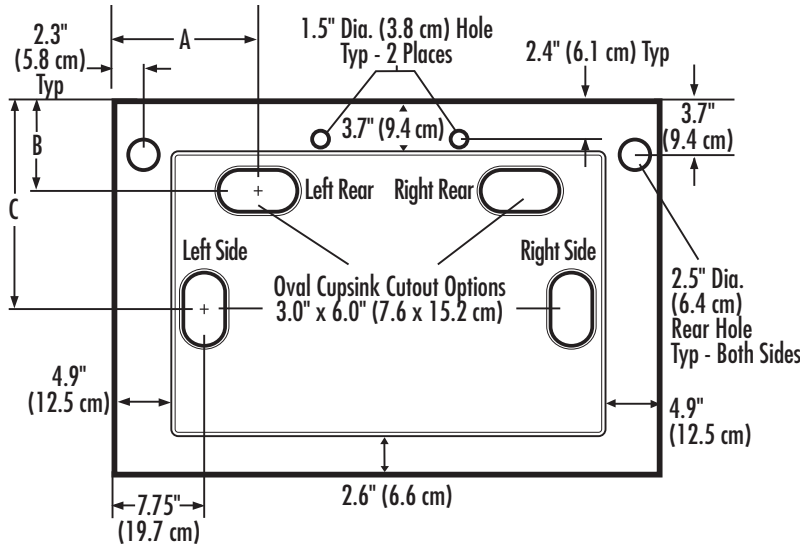
*Protector XL Laboratory Hoods only.

**Not compatible with Protector Solvent Storage Cabinets.

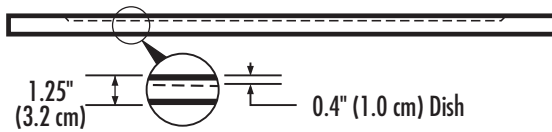


Dimensional Data & Accessory

SPILLSTOPPER™ WORK SURFACES



TOP



FRONT

Radiused Front Edge Only



SIDE



4005200 Oval Polypropylene Cupsink
Mounts in work surface with cupsink cutout, 3.0" x 6.0" (7.6 x 15.2 cm). 1.5" (5.8 cm) National Pipe Straight Mechanical (NPSM) thread. Shipping weight 4 lbs. (2 kg)

Hood Model/ Depth	Work Surface Depth	A	B	C
Premier & XL, 31.7" deep	30.0" (76.2 cm)	9.5" (24.1 cm)	4.6" (11.7 cm)	18.8" (47.8 cm)
XL, 37.7" deep	36.0" (91.4 cm)	12.5" (31.8 cm)	7.3" (18.5 cm)	19.0" (48.3 cm)
XL, 43.7" deep	42.0" (106.7 cm)	12.5" (31.8 cm)	7.3" (18.5 cm)	14.9" (37.8 cm)
XStream, 37.7" deep	36.0" (91.4 cm)	12.5" (31.8 cm)	10.3" (26.2 cm)	19.0" (48.3 cm)

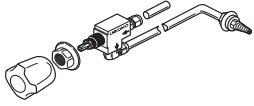
Nominal Width	Hood Model	Hood Exterior Depth	Hood & Work Surface Width	Work Surface Shipping Wt. lbs./kg
3'	XL	31.7"	36.0" (91.4 cm)	85/39
3'	XL	37.7"	36.0" (91.4 cm)	90/41
3'	XL	43.7"	36.0" (91.4 cm)	105/48
4'	Premier, XL	31.7"	48.0" (121.9 cm)	110/50
4'	XL, XStream	37.7"	48.0" (121.9 cm)	120/54
4'	XL	43.7"	48.0" (121.9 cm)	140/64
5'	Premier, XL	31.7"	60.0" (152.4 cm)	150/68
5'	XL, XStream	37.7"	60.0" (152.4 cm)	160/73
5'	XL	43.7"	60.0" (152.4 cm)	180/82
6'	Premier, XL	31.7"	72.0" (182.9 cm)	205/93
6'	XL, XStream	37.7"	72.0" (182.9 cm)	220/100
6'	XL	43.7"	72.0" (182.9 cm)	250/113
7'	XL	31.7"	84.0" (213.4 cm)	210/95
7'	XL	37.7"	84.0" (213.4 cm)	230/104
7'	XL	43.7"	84.0" (213.4 cm)	270/122
8'	Premier, XL	31.7"	96.0" (243.8 cm)	240/109
8'	XL, XStream	37.7"	96.0" (243.8 cm)	250/113
8'	XL	43.7"	96.0" (243.8 cm)	290/132
10'	XL	31.7"	120.0" (304.8 cm)*	290/132
10'	XL	37.7"	120.0" (304.8 cm)*	370/168
10'	XL	43.7"	120.0" (304.8 cm)*	480/218
12'	XL	31.7"	144.0" (365.8 cm)*	320/145
12'	XL	37.7"	144.0" (365.8 cm)*	440/200
12'	XL	43.7"	144.0" (365.8 cm)*	500/227
16'	XL	31.7"	192.0" (487.7 cm)*	350/159
16'	XL	37.7"	192.0" (487.7 cm)*	480/218
16'	XL	43.7"	192.0" (487.7 cm)*	550/249

*Shipped in two equal width sections.

Contact Labconco for information on base cabinets and stands.



Accessories



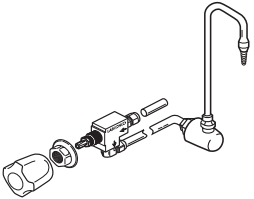
Standard Service Fixture Kits

For mounting on the left or right side of a Protector Hood. Each kit includes one remotely-controlled service fixture with valve and 0.25" diameter tubing, color-coded fixture knob and color-coded hose connector. **Inlet tubing is not included.** Shipping weight 4 lbs. (1.8 kg)

Catalog #	Kit	Tubing	Valve	Knob/Connector Color	Max. Flow Rate	Max. Working Pressure [†]
9808300	Cold Water (CW)	Copper	Brass	Green	3.5 GPM (13.2 LPM)	40 psi
9808400	Air (AIR)	Copper	Brass	Orange	23.7 CFM	40 psi
9808500	Vacuum (VAC)	Copper	Brass	Yellow	8.6 CFM	14.7 psi
9808700	Gas (GAS)	Brass	Brass	Blue	29.0 CFM (441 BTU/sec)	40 psi
9808800	Argon (ARG)	Copper	Brass	Gray	20.2 CFM	40 psi
9808900	Hot Water (HW)	Copper	Brass	Red	3.5 GPM (13.2 LPM)	40 psi
9809100	Deionized/ Distilled Water (DI)	Stainless Steel	Nickel-Plated & Stainless Steel	White	3.5 GPM (13.2 LPM)	40 psi
9809200	Steam (STM)	Copper	Brass	Black	0.5 LBM/min	40 psi
9809300	Nitrogen (NIT)	Copper	Brass	Brown	24.1 CFM	40 psi
9809700 ^{††}	Oxygen (OXY)	Copper	Brass with Oxygen- Compatible Lubricant	Light Green	22.6 CFM	40 psi

Cold Water Gooseneck Fixture Kits

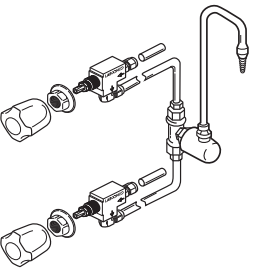
For mounting on the left or right side of any Protector Hood with interior depth less than 37.7". Each kit includes one remotely-controlled gooseneck with brass valve and 0.375" diameter copper tubing and green fixture knob. **Inlet tubing is not included.** Contact Labconco for ordering information on Gooseneck Fixture Kits for Protector Hoods with interior depths greater than 37.7". Shipping Weight 10 lbs. (4.5 kg)



Catalog #	Kit	Description	Max. Flow Rate	Max. Working Pressure ^{††}
9827900	Cold Water (CW) Gooseneck	For Hood with Interior Depths less than 37.7". Includes green epoxy-coated brass rigid/swivel gooseneck.	3.5 GPM (13.2 LPM)	40 psi
9857700 ^{†††}	Cold Water (CW) Gooseneck	For Hoods with Interior Depths less than 37.7". Includes gray PVC rigid gooseneck.	3.5 GPM (13.2 LPM)	40 psi

Hot and Cold Water Mixing Gooseneck Fixture Kit

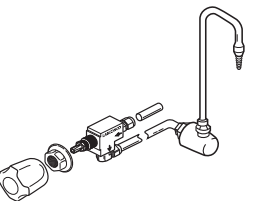
For any Protector Hood with interior depth less than 37.7". Each kit includes one remotely-controlled, white epoxy-coated, brass rigid/swivel gooseneck with brass valve and 0.25" diameter copper tubing, one green fixture knob and one red fixture knob. **Inlet tubing is not included.** Contact Labconco for ordering information on Gooseneck Fixture Kits for Protector Hoods with interior depths of 43.7" or 55.7". Shipping weight 11 lbs. (5.0 kg)



Catalog #	Kit	Description	Max. Flow Rate	Max. Working Pressure ^{††}
9828000 ^{†††}	Hot (HW) and Cold Water (CW) Mixing Gooseneck	For Hoods with Interior Depths of 24" to 37.7"	3.5 GPM (13.2 LPM)	40 psi

Deionized/Distilled Water Gooseneck Fixture Kit

For mounting on the left or right side of any Protector Hood with interior depth less than 31". Each kit includes one remotely-controlled, gray PVC rigid gooseneck with stainless steel valve and 0.25" diameter tubing and white fixture knob. Contact Labconco for ordering information on Gooseneck Fixture Kits for Protector Hoods with interior depths of 43.7" or 55.7". **Inlet tubing is not included.** Shipping weight 10 lbs. (4.5 kg)



Catalog #	Kit	Description	Max. Flow Rate	Max. Working Pressure ^{††}
9853400 ^{†††}	Deionized/Distilled Water (DW) Gooseneck	For Hoods with Interior Depths less than 37.7"	3.5 GPM (13.2 LPM)	40 psi

GPM=gallons per minute LPM=liters per minute CFM=cubic feet per minute BTU/sec=British thermal unit per second LBM/min=pounds mass per minute

[†] Maximum allowable pressure is 200 psi with a working pressure of 40 psi.

^{††} WaterSaver is a registered trademark of WaterSaver Company.

^{†††} Requires 1.375" dia. drill hole in liner.



Accessories



9851500 Duplex Electrical Receptacle Kit, 115 volts, 20 amps AC, GFCI, 60 Hz



British (UK)



Schuko



China



Australia

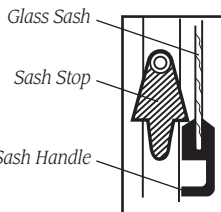


India-South Africa

Electrical Receptacle Kits

For mounting in left or right side of any 3', 4', 5', 6', 7' or 8' Protector Hood. Each Receptacle kit includes an electrical receptacle, wiring, junction box and receptacle cover plate. The International GFCI Switch is mountable in one corner post location above or below any international single outlet. Contact Labconco for ordering information on Kits for Protector Hoods with widths of 10', 12' or 16'.

Catalog #	Kits	Outlet Type	Shipping Wt. lbs./kg
9851100	115 volts, 20 amps AC, 60 Hz	Duplex, U.S.	4/1.8
9851500	115 volts, 20 amps AC, GFCI, 60 Hz	Duplex, U.S.	4/1.8
9854200	230 volts, 20 amps AC, 60 Hz	Duplex, U.S.	4/1.8
9412500	230 volts, 13 amps AC, 50 Hz	Single, British (UK)	4/1.8
9412700	230 volts, 16 amps AC, 50 Hz	Single, Schuko	4/1.8
9412900	230 volts, 10 amps AC, 50 Hz	Single, China	4/1.8
9413100	230 volts, 10 amps AC, 50 Hz	Single, Australia	4/1.8
9413900	230 volts, 6-16 amps AC, 50 Hz	Single, India-South Africa	4/1.8
9414100	International GFCI Switch, 16 amps	Not Applicable	4/1.8



9410300 Sash Stop Kit

A Sash Stop restricts how far a vertical-rising sash may be opened. This small plastic device may be easily field installed on the fixture panel of many of our popular hoods. Protector XStream Hoods, Premier Hoods and 3' to 12' XL Hoods have been factory-prepared to accommodate a sash stop at the 60%-62.5% open position (18" to work surface). Sash Stop may also be placed at 50% open position (14" to work surface). Alternate sash positions may be field drilled. Each Sash Stop Kit includes components for one sash. Two kits are required for 10' and 12' XL Hoods. Not for use on 16' XL Hoods. Shipping weight 0.5 lb. (0.2 kg)

Guardian™ Airflow Monitors

Sense and alert the operator to low airflow conditions. From the monitor's face plate, the user can easily select and calibrate a set point between 30 and 250 fpm using a velocity meter and a screwdriver. Audible/visual alarm. Includes night setback, external alarm and alarm mute functions. Flush-mount design on Protector Premier, XStream and XL Hoods.

Catalog #	Ranges	For use with Hood:	Shipping Wt. lbs./kg
9413300	100-115 volts, 50/60 Hz	Premier, XStream, XL	6/2.7
9413301*	208-230 volts, 50/60 Hz	Premier, XStream, XL	6/2.7

Guardian™ Digital Airflow Monitors

Guardian™ Digital Airflow Monitor senses and alerts the operator to low airflow conditions. LCD displays actual airflow in fpm or m/sec. Audible/visual alarm alerts the user to sustained low velocity condition. Calibration instructions displayed on LCD. Each monitor also includes a temperature-compensated sensor, external alarm, night setback and alarm mute functions. Flush-mount design on Protector Premier, XStream and XL Hoods. Contact Labconco for optional temperature sensor and optional RS-485 port for Modbus** RTU communication.

Catalog #	Ranges	For use with Hood:	Shipping Wt. lbs./kg
9413400	100-115 volts, 50/60 Hz	Premier, XStream, XL	6/2.7
9413401*	208-230 volts, 50/60 Hz	Premier, XStream, XL	6/2.7

*International electrical configuration

**Modbus is a registered trademark of Schneider Automation

Contact Labconco for information on other accessories including ceiling enclosures, distillation grids and fire extinguishers.



Standards & Registered Trademarks

Standards

Key aspects of standards and codes as they relate to laboratory ventilation are summarized below.

ASHRAE 110-1995 Method of Testing Performance of Laboratory Fume Hoods (ANSI Approved)

Evaluates fume hood's containment characteristics.

- Three part test: Smoke generation, face velocity profile, tracer gas release @ 4 liters per minute.
- Rated As Manufactured (AM), As Installed (AI) and As Used (AU).

American Society of Heating, Refrigerating and Air-Conditioning Engineers

1791 Tullie Circle NE
Atlanta, GA 30329
(404) 636-8400
www.ashrae.org

ANSI Z9.5-2011 Standard—Laboratory Ventilation

Covers entire laboratory ventilation system.

- Vertical stack discharge @ 2000-3000 fpm.
- New and remodeled hoods shall have a monitoring device.
- Ductless hoods should only be used with non-hazardous materials.

American Industrial Hygiene Association

2700 Prosperity Avenue, Suite 250
Fairfax, VA 22031
(703) 849-8888
www.aiha.org

Federal Register 29 CFR Part 1910

Occupational exposure to hazardous chemicals in laboratories

National Research Council Recommendations Concerning Chemical Hygiene in Laboratories (Non-mandatory) from "Prudent Practices."

- Fume hoods should have a continuous monitoring device.
- Face velocities should be between 60-100 linear feet per minute (lfpm).
- Average 2.5 linear feet of hood space per person.

Occupational Safety & Health Administration U.S. Department of Labor

200 Constitution Avenue, NW
Washington, DC 20210
(800) 321-6742
www.osha.gov

ASTM E84-09C Standard Test Method for Surface Burning Characteristics of Building Materials

Determines the relative burning behavior of the material by observing the flame spread along the specimen.

- Measures the flame spread and smoke development.
- Material is exposed to flaming fire for 10 minutes and the results measured and recorded.
- Results are compared to the indexes of mineral fiber cement board (flame spread and smoke development of zero) and red oak flooring (smoke development of 100).

ASTM International

100 Barr Harbor Drive
P.O. Box C700
West Conshohocken, PA 19428-2959
(610) 832-9585
www.astm.org

NFPA 45: Standard on Fire Protection for Laboratories Using Chemicals, 2011 edition

- Laboratory hoods should not be relied on for explosion protection.
- Fume hood exhaust air should not be recirculated.
- Services should be external to the hood.
- Materials of construction should have flame spread of 25 or less.

National Fire Protection Association

1 Batterymarch Park
Quincy, MA 02169-7471
(800) 344-3555 or (617) 770-3000
www.nfpa.org

NIH - Section 15991 Onsite Testing for Constant Volume Hoods - June 2006

- Follows ASHRAE test methods except for the following:
 1. 6 L tracer gas release rate instead of 4 L.
 2. Hood is loaded with boxes and cans.
 3. Rapid walk-by test.

National Institutes of Health

9000 Rockville Pike
Bethesda, MD 20892
(301) 496-4000
www.nih.gov

SEFA 1-2010 Laboratory Fume Hoods Recommended Practices

- High performance fume hood definition: hood with sash fully open and operating at 60 fpm contains at 4.0 AM 0.05
- Covers design, installation, testing, maintenance and safe use of laboratory fume hoods

SEFA 8-2010 Recommended Practices For Metal Laboratory Grade Furniture, Casework, Shelving and Tables, 8.0 Cabinet Surface Finish Tests

Defines test methods for evaluating the finish of laboratory furniture.

- Laboratory grade paint finishes shall withstand chemical exposure, hot water, and impact from a one-pound ball dropped from 12".
- Paint coating shall sufficiently adhere to the substrate.
- Paint shall be resistant to scratches.

Scientific Equipment & Furniture Association

1205 Franklin Avenue, Suite 320
Garden City, NY 11530
(516) 294-5424
www.sefalabs.com

UL 61010-1 Electrical Equipment for Laboratory Use

Specifies the general safety requirements for electrical equipment.

- Based on International Electrotechnical Commission (IEC) Publication 61010-1 with differences noted for U.S. use.
- Tests for protection against electrical shock, mechanical hazards, spread of fire, radiation, liberated gases, explosion and implosion.
- Tests for resistance to shock, vibration, impact, heat, moisture and liquids.

Underwriters Laboratories Inc.

333 Pfingsten Road
Northbrook, IL 60062-2096
(847) 272-8800
www.ul.com

CAN/CSA Standard C22.2 No. 1010.1 Safety Requirements for Electrical Equipment for Measurement, Control and Laboratory Use

Specifies general safety requirements for electrical equipment.

- Design and methods of construction should provide adequate protection to the operator and the surrounding area against shock or burn, mechanical hazards, excessive temperature, spread of fire from the equipment, gas liberation, explosion or implosion.

Canadian Standards Association

5060 Spectrum Way, Suite 100
Mississauga, Ontario
L4W 5N6, CANADA
(800) 463-6727 or (416) 747-4044
www.csa.ca

ETL listing

ETL Testing Laboratories is a Nationally Recognized Testing Laboratory (NRTL). The ETL mark signifies that a product conforms to the following:

- UL Standard 61010-1 in the U.S.
- CAN/CSA Standard C22.2 No. 61010.1 in Canada.
- Products that bear the ETL mark are subjected to a comprehensive safety program that includes testing, listing, labeling and quarterly follow-up inspections.

Intertek Group

www.intertek.com

CE Marking

Indicates an electrical apparatus conformity to all safety and other directives/specifications presently required by the Council of European Communities.

- Electrical safety.
- Electromagnetic emissions testing — interference signals being output by the product.
- Electromagnetic immunity testing — the product does not respond to outside electromagnetic interference signals.

European Union

www.europa.eu

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