Model ADC-4B2

Ascent™ Max
Ductless Fume Hoods
The Safe, Energy-Efficient Solution for Modern Chemistry
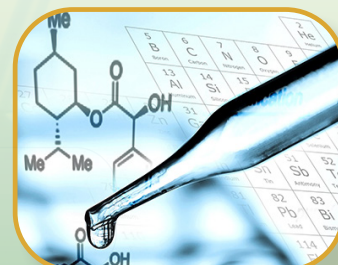
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Why Esco Ductless Fume Hoods?

✓ **The "GREEN" solution**
  - Environmentally friendly
  - Does not discharge toxic gases to the environment
  - Saves energy, and reduces total carbon footprint

✓ **Safe carbon filtration**
  - Compliance to international standards
  - Proprietary Nanocarb™ activated carbon technology
  - Industry-unique dual diffuser system on our Ascent™ Max fume hoods optimizes carbon filter life
  - Optional VOC sensor system on our Ascent™ Max hoods detects filter saturation
  - FiltraCheck™ service to qualify your application's suitability for a ductless solution
  - Chemical Guide provides list of chemicals with specific suitability and safety data

✓ **Low cost**
  - No ductwork required
  - No exhaust system required
  - Saves the need for elaborate make-up air systems, in turn saving running costs required to condition make-up air

✓ **Convenience**
  - No installation hassle
  - Mobile, flexible and easily relocatable

| Guide to Ascent™ Max Models					
A D C - 4 B 2					
1st Placeholder **External Width**	**Code**	2nd Placeholder **Model**	**Code**	3rd Placeholder **Electrical**	**Code**
0.9 m (3 ft)	3	ADC-B (Single-layer Carbon Filter)	B	110-220 VAC, 60 Hz	2
1.2 m (4 ft)	4	ADC-C (Double-layer Carbon Filter)	C		
1.5 m (5 ft)	5	ADC-E (One-layer Carbon Filter, One-layer HEPA Filter)	E		
1.8 m (6 ft)	6	ADC-E Custom (Double-layer HEPA Filter, No Carbon)	E-C		

Ascent™ Max
Ductless Fume Hood

Save Expensive Lab Ventilation Costs and Energy

Comparison between Conventional Fume Hood and Ductless Fume Hood				
		Conventional Ducted Hood	*Energy Efficient* Ductless Fume Hood (Integrated Fan & Filter)	Remarks
Initial Capital Costs	**A** Ductwork	US$ 1500	None	Efficient carbon filtration system means potentially complex ducting systems are not required.
	B External Exhaust Blower	US$ 2200	None	Compact integrated fan is sufficient to overcome the pressure drops across carbon filters.
	C Make-up Air System	US$ 2000	None	No exhaust means conditioned air is not drawn out of the lab. Expensive make-up air system with chiller/ heater and dehumidifier is not required.
	Net Initial Capital Cost Savings: US$ 5700			
Annual Running Costs	**D** External Exhaust Blower	US$ 2000	None	Energy requirements for small integrated blower is significantly less than that of large external exhaust blower.
	E Integrated Exhaust Blower	None	US$ 100	
	F Make-up Air System	US$ 3000	None	Conventional fume hoods consistently draw conditioned air out, giving rise to high energy consumption of make-up air system.
	G Carbon Filter	None	US$ 600	Assuming this is ADC-4B2 with two Type-A carbon filters, and moderate use requiring filters change once a year.
	Net Annual Running Cost Savings: US$ 4300			

Fixed Cost B
Running Cost D

Fixed Cost C
Running Cost F

Fixed Cost A

Running Cost E

Running Cost G
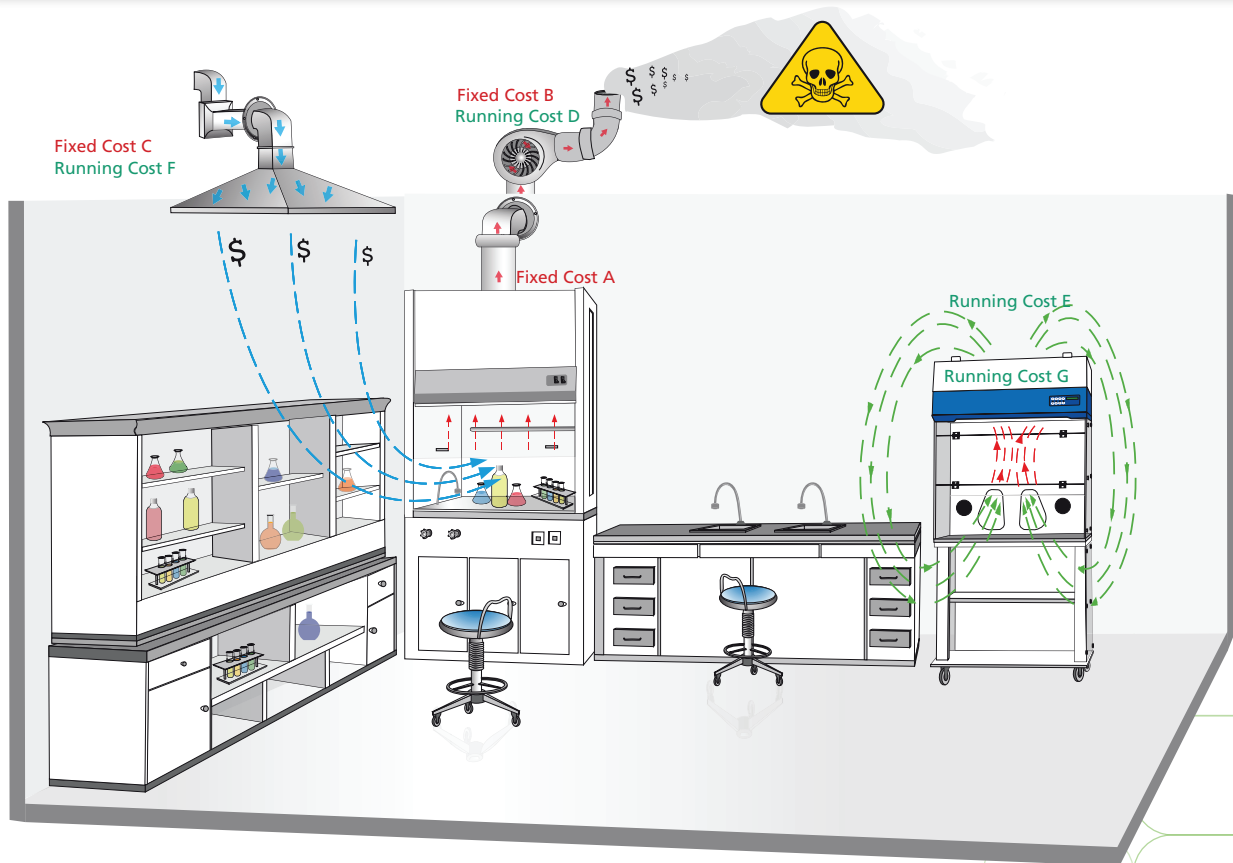
Note: Numerical figures are estimates based on US average weather conditions and commercial sector energy prices for a 6' (1.8 m) hood operating for 24 hrs a day at nominal hood opening and 100 fpm (0.5 m/s) face velocity. Figures provide a guide and differ in individual situations. (Evan Mills, Dale Sartor (2003), Energy use and savings potential for laboratory fume hoods).

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Ascent™ Max Ductless Fume Hood, ADC Models

Cabinet Filtration System

- The inflow moves from the ambient environment into the work zone through the hood front opening with an average velocity of 80 fpm (0.4 m/s).

- Negative pressure is maintained within the main chamber of the hood to ensure that no chemical fumes or vapors escape the work zone.

- Air is taken through a pre-filter and activated carbon mounted in the interior of the hood. The carbon filter removes all fumes from the exhaust air stream and filtered clean air is exhausted directly back to the room.
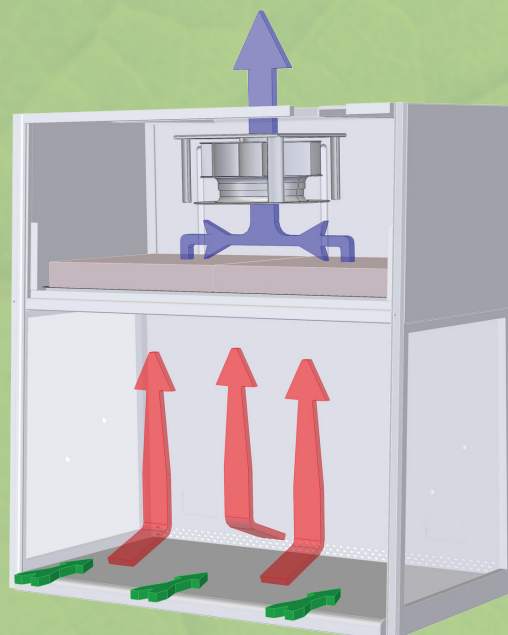
■ Carbon-filtered air
■ Unfiltered / potentially contaminated air
■ Room air / Inflow air

Esco Sentinel™ Silver Microprocessor Control System

Menu button - access the menu screen to change settings, admin pin, perform calibration and choose set mode

Set/Mute button - choose the menu or sub-menu displayed on the LCD screen - enables/ disables Sash Alarm sound

Up and Down arrow buttons - selects the menu options -increase and decrease value inside menu options -moves the sash window upward and downward (for motorized sash only)

LCD Display -graphical interface indicates hood performance. Displays digital read-out with alpha-numeric display indicates all input, status and alarm function

| MENU | SET | ▲ | ▼ |

AIR SAFE   16:20

Read all safety-related instructions before use

Test / certify this cabinet at least annually

Designed to Meet IEC 61010-1
Safety / Protection Standards
ISO 9001 Quality Certified
Manufacturing Environment
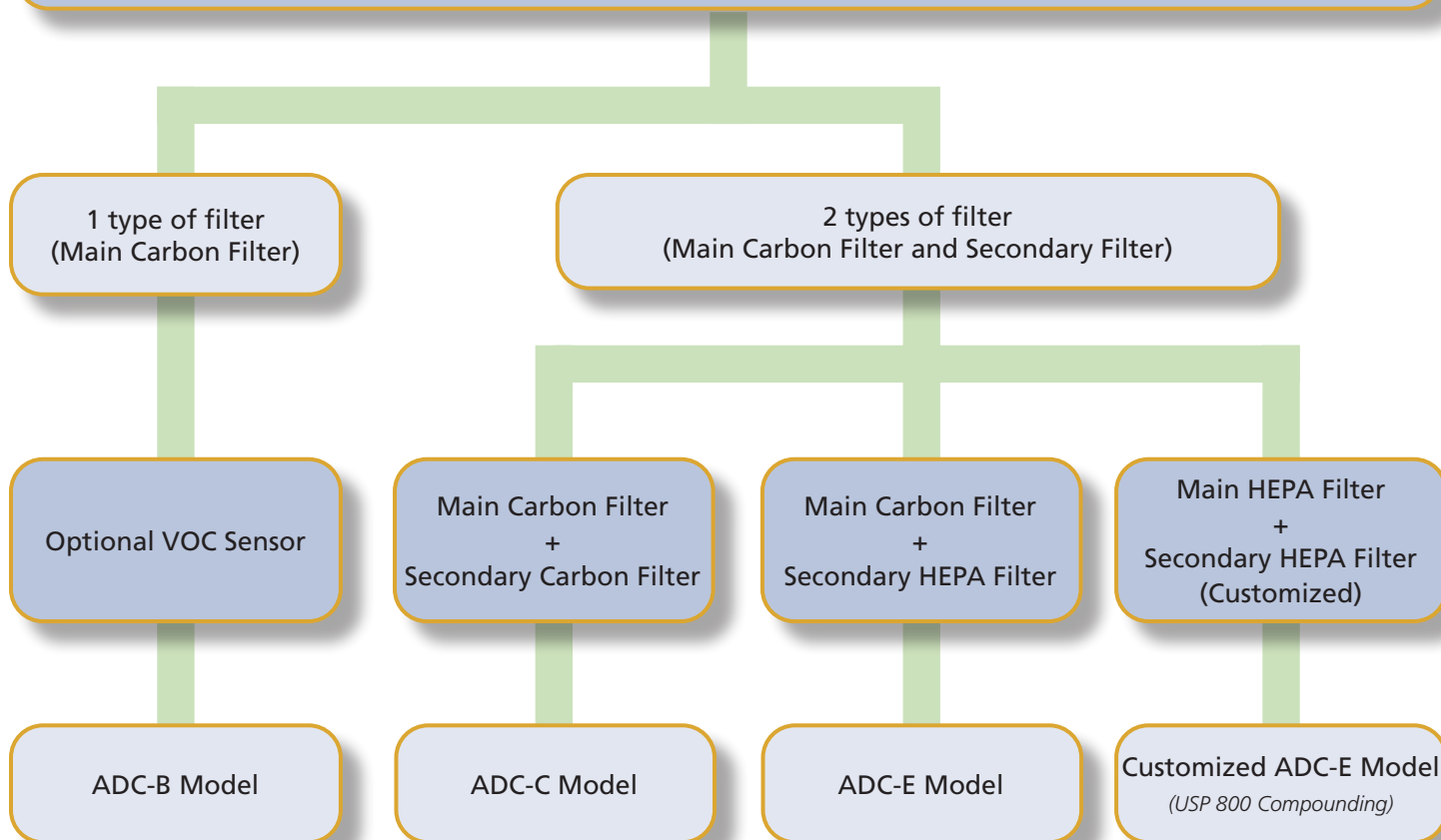
ESCO ®

Fan button -turns the fan on and off

Lamp button -turns the lamp on and off

Socket button -turns the electrical socket on and off - The maximum rating of all the outlets in the cabinet is 5 A.

(UV button is not applicable with ductless fume hoods)

Ascent™ Max
Ductless Fume Hood

Esco Ductless Fume Hood

This type of fume hood is suitable for applications involving transfer of chemicals, titration, sample preparation, weighing, extraction and experiments with no forced or with minimal evaporation. This is usually preferred because of the hassle-free installation and of its plug and play feature.

1 type of filter
(Main Carbon Filter)

2 types of filter
(Main Carbon Filter and Secondary Filter)

Optional VOC Sensor

Main Carbon Filter
+
Secondary Carbon Filter

Main Carbon Filter
+
Secondary HEPA Filter

Main HEPA Filter
+
Secondary HEPA Filter
(Customized)

ADC-B Model

ADC-C Model

ADC-E Model

Customized ADC-E Model
(USP 800 Compounding)

Not sure on the quantity of filter?

Fill out our FiltraCheck™ Form

and let us do the work!
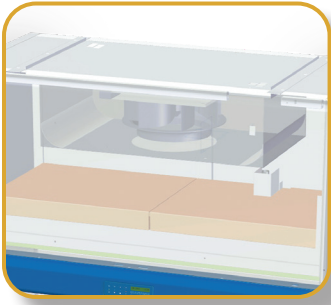
https://www.escolifesciences.com/form/filtracheck-form

FiltraCheck™ is now available in iOS and Android!

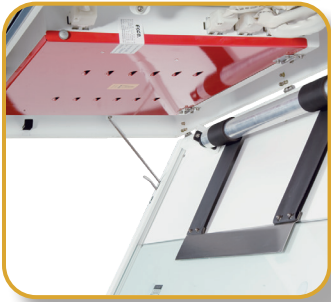Get the real-time recommendation of the appropriate

fume hood models and filters.
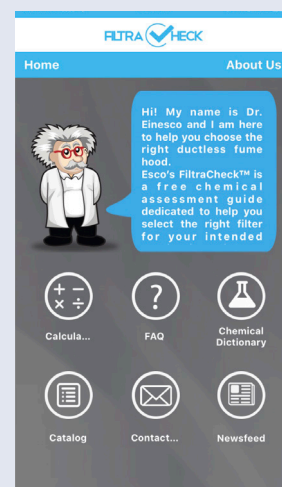
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Esco Ascent™ Max Ductless Fume Hood

Provides Operator and Environment Protection

Centrifugal Fan

- *Permanently lubricated fans are energy efficient with external rotor motor design that reduces operating costs.*
- *Extremely low noise and low vibration level*

Robust Hood Construction

- *Key components including Fluorescent Lamps, Motor Capacitor, Electrical Harness, Electronic Ballast, and Switch Control are mounted outside the airstream and away from contaminated areas to permit easy service.*

Nanocarb™ Activated Carbon Filters

- *Optimized retention capacity*
- *Diffusion technology to ensure even filter loading*
- *Efficient perimeter clamping ensures no leakage as well as allows easy filter change procedure.*

Rear Walls

- *Electro galvanized steel wall for superior durability*

Work Top

- *1.5 mm, 16 gauge, type 304 stainless steel 4B finish*
- *Easy to clean, corrosion and chemical resistant makes it an ideal worktop for experiments*

*Ascent™ Max Ductless Fume Hood, Model ADC-4B2
Shown with STL (telescoping height stand for leveling feet, nominal range 26" to 36" or 660 mm to 914 mm*

Standards Compliance	Chemical Fume Containment	Filter Efficiency	Electrical Safety
	ANSI / ASHRAE 110-1995, USA BS 7258, UK AFNOR NF X 15-203, France EN14175.3, Europe	BS 7989 - 2001, UK AFNOR NF X 15-211, France	UL-61010-1, USA/Canada CAN/CSA-22.2, No.61010-1 EN-61010-1, Europe IEC61010-1, Worldwide

MENU   SET   ▲   ▼

AIR SAFE   16:20

Read all safety-related instructions before use
Test / certify this cabinet at least annually

Designed to Meet IEC 61010-1
Safety / Protection Standards
ISO 9001 Quality Certified
Manufacturing Environment

ESCO®

Sentinel™ Silver Microprocessor Control, Alarm System

- *Advanced microprocessor control supervises operation of all hood functions. Temperature-compensated air velocity sensor monitors airflow. 24-hour clock and blower run hour meter are standard.*

Optional VOC Sensor

- *Detects presence of volatile organic compounds in the exhaust and alarms to indicate filter saturation*

Sash Window

- *3° sloped front allows easy access to work zone - enhancing ergonomics, eliminating operator fatigue and increasing productivity*
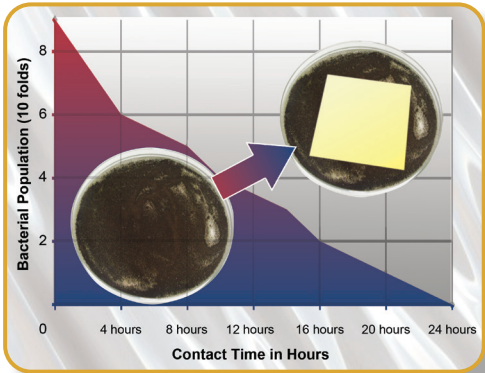

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Auto Purge Slots

- *Improves containment and operator protection by preventing accumulation of fumes in the work zone*

ISOCIDE™ Powder Coat

- *Silver-ion impregnated powder coat*
- *Inhibit microbial growth to improve safety*

Bacterial Population (10 folds)

8

6

4

2

0   4 hours   8 hours   12 hours   16 hours   20 hours   24 hours
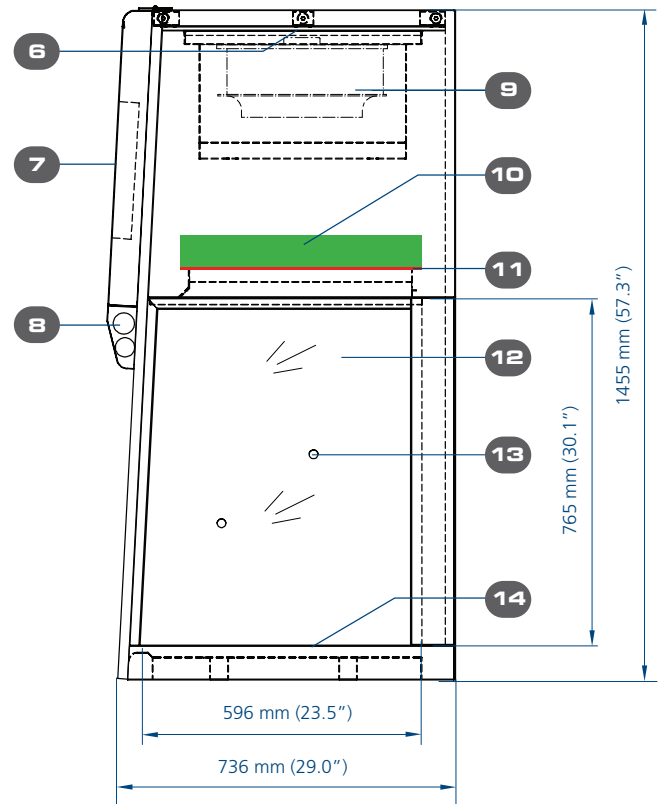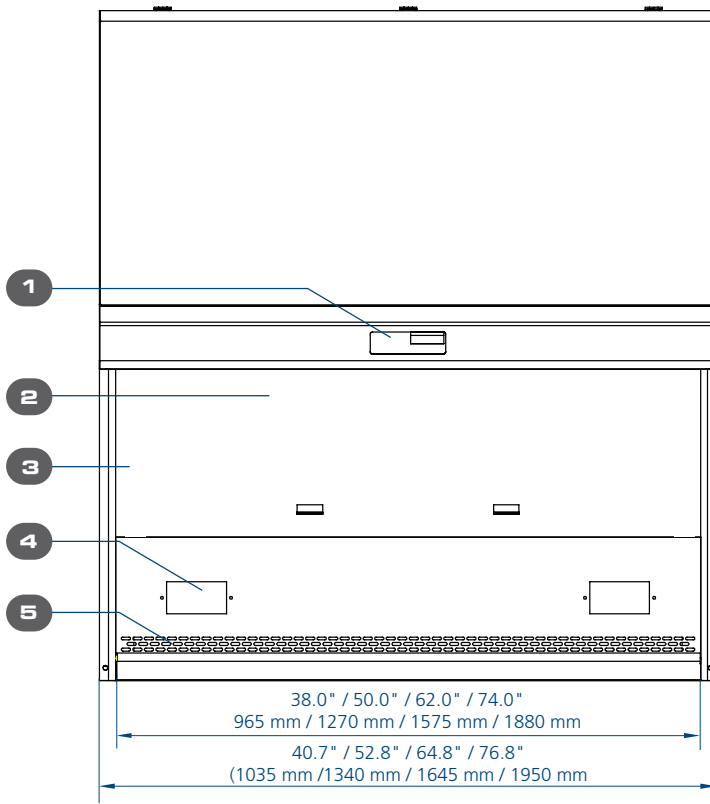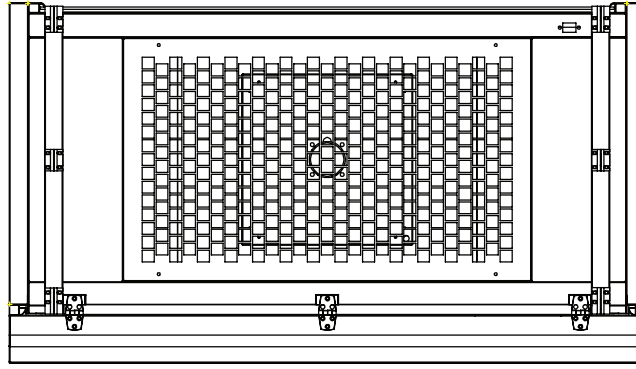
Contact Time in Hours

Support Stand

- *Made from durable material to support a maximum weight of 500-600 Kg (1102 - 1322 lbs)*
- *Available in two options: leveling feet (STL) and caster wheels (STC)*

ASHRAE 110

*Esco Ascent Ductless fume hood is certified to ASHRAE 110-1995 for fume containment at 80 fpm (0.40 m/s)*

Model ADC-_B2, Ascent™ Max Ductless Fume Hood Engineering Drawing

38.0" / 50.0" / 62.0" / 74.0"
965 mm / 1270 mm / 1575 mm / 1880 mm

40.7" / 52.8" / 64.8" / 76.8"
(1035 mm /1340 mm / 1645 mm / 1950 mm

1455 mm (57.3")

765 mm (30.1")

596 mm (23.5")

736 mm (29.0")

1. Esco Sentinel™ Silver Microprocessor
   Control System
2. Tempered Glass Sliding Sash Window
3. E.G. Steel Back wall
4. Optional EO-HA Single Electrical Outlet
   (max 5A combined for max 2 outlets)
5. AutoPurge™ Slots
6. Optional VOC sensor
7. Electrical Panel

8. Fluorescent Lamps
9. Fan
10. Main Carbon filter
11. Prefilter (built inside the carbon filter)
12. Tempered Glass Sides
13. Service Fixture Retrofit Kit Provision
    (2 on each side)
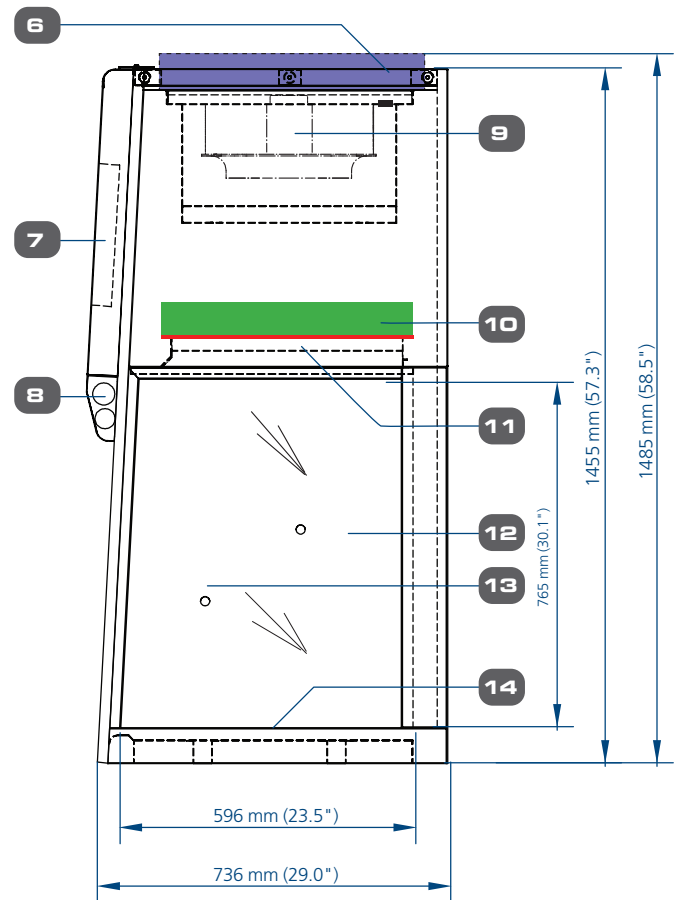14. Stainless Steel Worktop

Ascent™ Max
Ductless Fume Hood

Model ADC-_C2, Ascent™ Max Ductless Fume Hood Engineering Drawing (with Secondary Backup Carbon Filter)
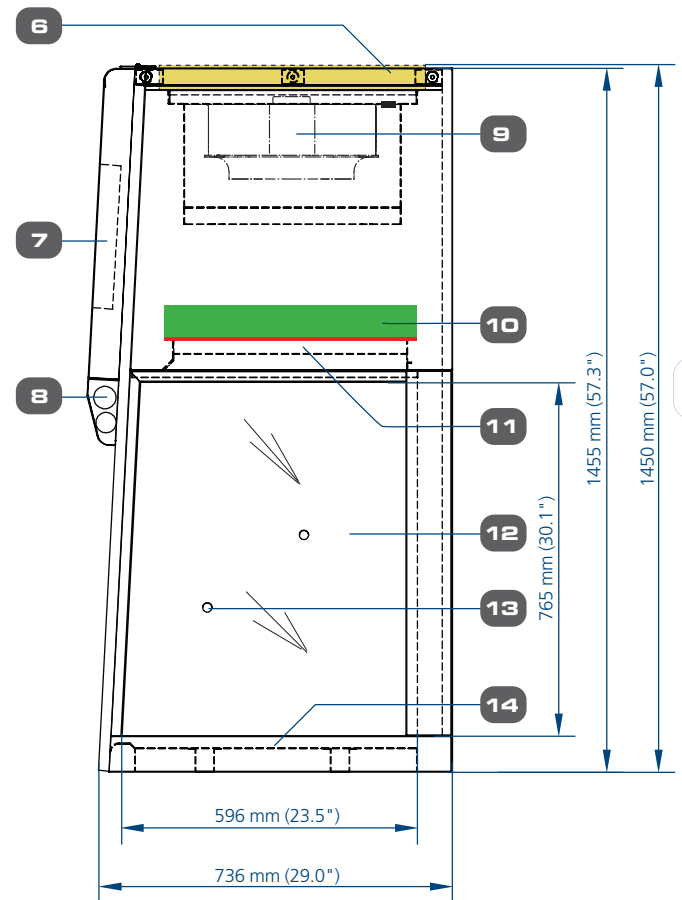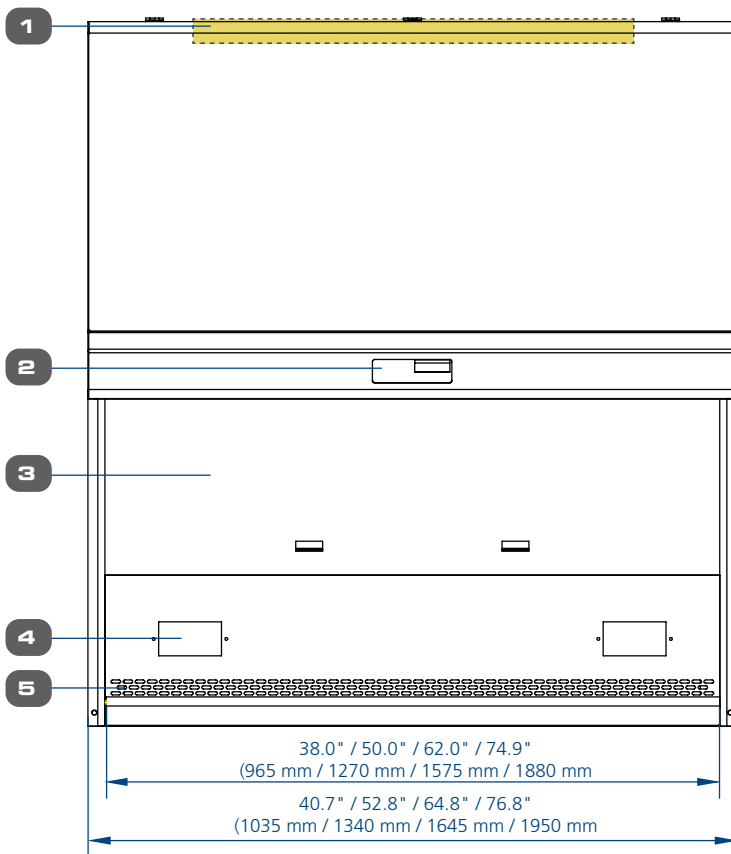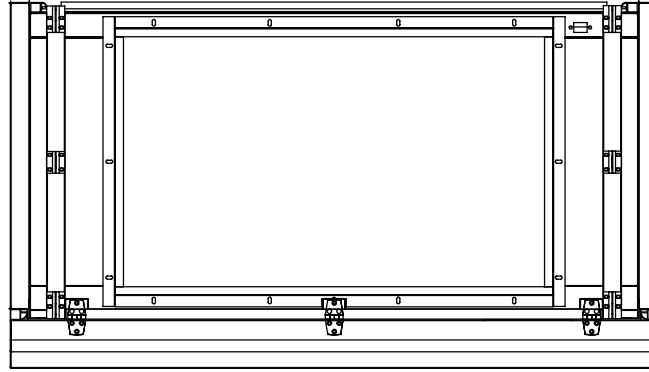
1. Secondary Exhaust Carbon Filter
2. Esco Sentinel™ Silver Microprocessor Control System
3. Tempered Glass Sliding Sash Window
4. Optional EO-HA Single Electrical Outlet (max 5A combined for max 2 outlets)
5. AutoPurge™ Slots
6. Optional VOC sensor
7. Electrical Panel

8. Fluorescent Lamps
9. Fan
10. Main Carbon Filter
11. Pre-filter (built inside the carbon filter)
12. Tempered Glass Sides
13. Service Fixture Retrofit Kit Provision (2 on each side)
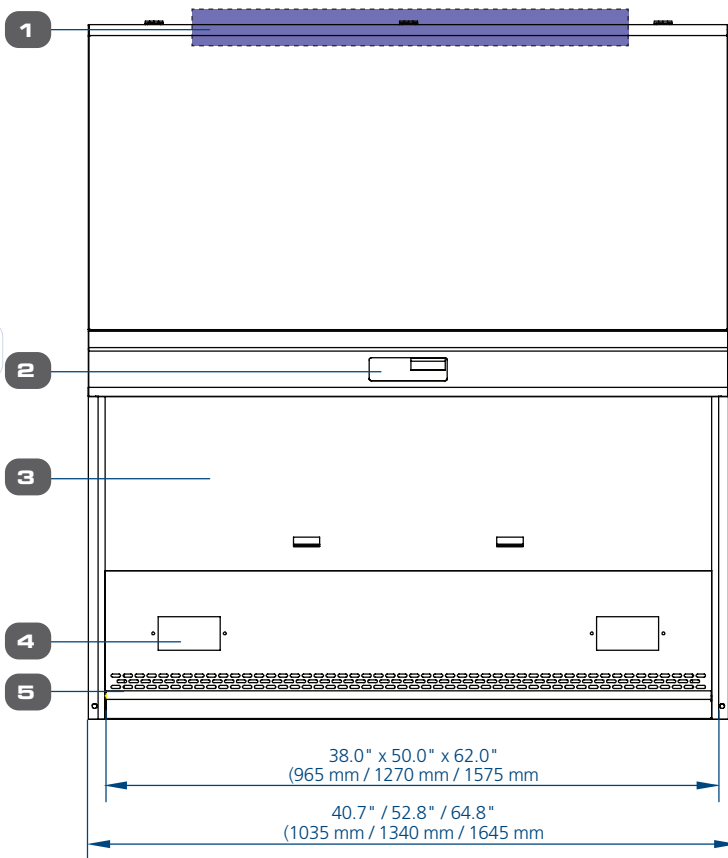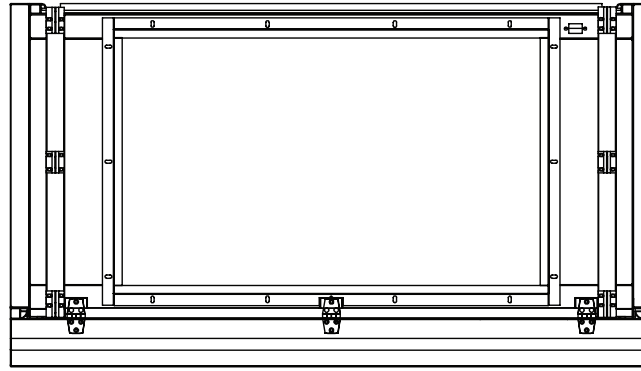14. Stainless Steel Worktop

Model ADC-_E2, Ascent™ Max Ductless Fume Hood Engineering Drawing (with Secondary HEPA Filter)

38.0" x 50.0" x 62.0"
(965 mm / 1270 mm / 1575 mm

40.7" / 52.8" / 64.8"
(1035 mm / 1340 mm / 1645 mm

1455 mm (57.3")

1485 mm (58.5")

765 mm (30.1")

596 mm (23.5")

736 mm (29.0")

1. HEPA Filter

2. Esco Sentinel™ Silver Microprocessor
   Control System

3. Tempered Glass Sliding Sash Window

4. Optional EO-HA Single Electrical Outlet
   (max 5A combined for max 2 outlets)

5. AutoPurge™ Slots

6. Optional VOC sensor

7. Electrical Panel

8. Fluorescent Lamps

9. Fan

10. Main Carbon Filter

11. Pre-filter (built inside the carbon filter)

12. Tempered Glass Side

13. Service Fixture Retrofit Kit Provision (2 on each side)

14. Stainless Steel Worktop

Ascent™ Max
Ductless Fume Hood

General Specifications, Ascent™ Max Ductless Fume Hood (B, C and E-Series)

B Series		ADC-3B2	ADC-4B2	ADC-5B2	ADC-6B2
External Dimensions (W x D x H)		1035 x 736 x 1455 mm (40.7" x 29.0 x 57.3")	1340 x 736 x 1455 mm (52.8 " x 29.0" x 57.3")	1645 x 736 x 1455 mm (64.8" x 29.0" x 57.3")	1950 x 736 x 1455 mm (76.8" x 29.0" x 57.3")
Internal Work Area (W x D x H)		965 x 596 x 765 mm (38.0" x 23.5" x 30.1")	1268 x 596 x 765 mm (50.0" x 23.5" x 30.1")	1575 x 596 x 765 mm (62.0" x 23.5" x 30.1")	1880 x 596 x 765 mm (74.0" x 23.5" x 30.1")
Sound Emission		55 dBA	57 dBA	57 dBA	
Fluorescent Light Intensity		>1000 lux (>93 foot-candles)			
Net weight		175 kg (386 lbs)	225 kg (496 lbs)	245 kg (540 lbs)	293 kg (646 lbs)
Shipping Weight		205 kg (452 lbs)	261 kg (575 lbs)	320 kg (705 lbs)	380 kg (838 lbs)
Shipping Dimensions		1130 x 840 x 1750 mm (44.5" x 33.0" x 68.9")	1410 x 840 x 1750 mm (55.5" x 33.0" x 68.9")	1730 x 840 x 1750 mm (68.1" x 33.0" x 68.9")	2050 x 840 x 1750 mm (80.7" x 33.0" x 68.9")
Electrical 110-120 VAC, 60 Hz,1Ø	Cabinet Full Load Amps (FLA)	3.5 A		4 A	
	Optional Outlets (FLA)	5 A			
	Cabinet Nominal Power	238 W	275 W	315 W	345 W
	Cabinet BTU/HR	812	938	1075	1177

C Series		ADC-3C2	ADC-4C2	ADC-5C2	ADC-6C2
External Dimensions (W x D x H)		1035 x 736 x 1460 mm (40.7" x 29.0" x 57.5")	1340 x 736 x 1460 mm (52.8 " x 29.0" x 57.5")	1645 x 736 x 1460 mm (64.8" x 29.0" x 57.5")	1950 x 736 x 1460 mm (76.8 " x 29.0" x 57.5")
Internal Work Area (W x D x H)		965 x 596 x 765 mm (38.0" x 23.5" x 30.1")	1268 x 596 x 765 mm (50.0" x 23.5" x 30.1")	1575 x 596 x 765 mm (62.0" x 23.5" x 30.1")	1880 x 596 x 765 mm (74.0" x 23.5" x 30.1")
Sound Emission		60 dBA		61 dBA	62 dBA
Fluorescent Light Intensity		>1141 lux (>106 foot-candles)	>1397 lux (>130 foot-candles)	>1141 lux (>106 foot-candles)	>1060 lux (>99 foot-candles)
Net weight		175 kg (386 lbs)	225 kg (496 lbs)	245 kg (540 lbs)	293 kg (646 lbs)
Shipping Weight		253 kg (558 lbs)	336 kg (741 lbs)	336 kg (741 lbs)	398 kg (877 lbs)
Shipping Dimensions		1130 x 840 x 1750 mm (44.5" x 33.1" x 68.9")	1450 x 840 x 1750 mm (57.1" x 33.1" x 68.9")	1750 x 840 x 1750 mm (68.9" x 33.1" x 68.9")	2020 x 840 x 1750 mm (79.5" x 33.1" x 68.9")
Electrical 110-120 VAC, 60 Hz,1Ø	Cabinet Full Load Amps (FLA)	3.5 A		4 A	
	Optional Outlets (FLA)	5 A			
	Cabinet Nominal Power	270 W	355 W	430 W	473 W
	Cabinet BTU/HR	921	1211	1467	1614

E Series		ADC-3E2	ADC-4E2	ADC-5E2	ADC-6E2
External Dimensions (W x D x H)		1035 x 736 x 1485 mm (40.7" x 29.0" x 58.5")	1340 x 736 x 1485 mm (52.8" x 29.0" x 58.5")	1645 x 736 x 1485 mm (64.8" x 29.0" x 58.5")	1950 x 736 x 1485 mm (76.8" x 29.0" x 58.5")
Internal Work Area (W x D x H)		965 x 596 x 765 mm (38.0" x 23.5" x 30.1")	1268 x 596 x 765 mm (50.0" x 23.5" x 30.1")	1575 x 596 x 765 mm (62.0" x 23.5" x 30.1")	1880 x 596 x 765 mm (74.0" x 23.5" x 30.1")
Sound Emission		61 dBA		62 dBA	62 dBA
Fluorescent Light Intensity		>1115 lux (>104 foot-candles)	>1107 lux (>103 foot-candles)	>1107 lux (>103 foot-candles)	>700 lux (>65 foot-candles)
Net weight		175 kg (386 lbs)	225 kg (496 lbs)	245 kg (540 lbs)	293 kg (646 lbs)
Shipping Weight		216 kg (476 lbs)	274 kg (604 lbs)	335 kg (739 lbs)	398 kg (877 lbs)
Shipping Dimensions		1130 x 840 x 1750 mm (44.5" x 33.1" x 68.9")	1450 x 840 x 1750 mm (57.1" x 33.1" x 68.9")	1750 x 840 x 1750 mm (68.9" x 33.1" x 68.9")	2020 x 840 x 1750 mm (79.5" x 33.1" x 68.9")
Electrical 110-120 VAC, 60 Hz,1Ø	Cabinet Full Load Amps (FLA)	3.5 A		4 A	
	Optional Outlets (FLA)	5 A			
	Cabinet Nominal Power	269 W	313 W	334 W	348 W
	Cabinet BTU/HR	918	1068	1140	1187

General Specifications, Ascent™ Max Ductless Fume Hood (B, C, and E series)

Standard Filtration Elements	Pre-filter	Disposable, non-washable polyester fibre, 85% arrestance, EU3 rated (built inside the carbon filter)
	Main filter*	Activated Carbon with Granular Media bed (8 different filter types available , codes A-H)
	Secondary Filter (not applicable for B series)	C Series - Activated Carbon with Granular Media bed (8 different filter types available , codes A-H) E Series - HEPA filter, typical efficiency of >99.99% at 0.3 microns, removes particles and aerosols
Inflow Airflow Velocity		0.40 m/s - 0.6 m/s (80-120 fpm)
Airflow alarm		Yes
Hood Construction	Main Body	1.2 mm (0.05") 18 gauge electro-galvanized steel with white oven-baked epoxy-polyester Isocide™ antimicrobial powder coated finish
	Side Walls	Tempered Glass
	Work Top	1.5 mm (0.06") 16 gauge stainless steel, type 304, with 4B finish Upgrades available: Epoxy
Sash	Sash Type	Vertical Sliding
	Material	Tempered Glass
	Sloping	3°
	Work Opening	10" (254 mm)
	Max. Opening	17.3" (440 mm)

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Options & Accessories

Support Stands

- **Support Stand with Caster Wheels (STC)**
  - Nominal range 660 mm to 880 mm (26" to 34.6")
  - Adjustable in 25.4 mm (1") increments.
  - Durable polyurethane caster wheels with 360 degree horizontal rotation.
  - Brake system on front wheels.
  - Maximum weight supported: 600 kg (1323 lbs)

- **Support Stand with Leveling Feet (STL)**
  - Nominal range 26" to 36" or 660 mm to 914 mm.
  - Maximum weight supported: 600 kg (1323 lbs)

- **Base Cabinet with Caster Wheels (BCC)**
  - Maximizes storage space in the laboratory; convenient for solvents, acids and other laboratory chemicals.
  - Includes an adjustable white powder-coated steel shelf
  - Industrial-grade support structure constructed of electro-galvanized steel and abrasion resistant ovenbaked powder-coated finish
  - Durable polyurethane caster wheels with 360 degree horizontal rotation
  - Brake system on front wheels
  - Maximum weight supported: 600kg (1323 lbs)

### Electrical Outlets and Utility Fittings

- **Electrical Outlets**
  - Direct-mounted, Optional EO-HA Single Electrical Outlet.
  - May be field installed.
  - Maximum current draw: 5 Amp for all outlets combined.

- **VOC Sensor**
  - Optional VOC Sensor may be installed to monitor the chemical concentration at the hood exhaust.
  - The microprocessor control will activate audible / visual alarms if high concentrations of chemical vapors are detected.

- **Factory-Installed Service Fixtures**
  - Polypropylene drip-cup sink.
  - Epoxy coated swan-neck faucet.
 - Factory installed; specify when ordering.
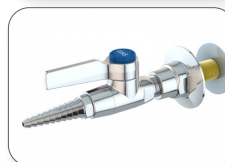
- **Retrofit Kit™ Service Fixtures**
  - Universal service fixtures for air / water / vacuum / gas.
  - May be field installed.

Nanocarb™ Filter Options		
Code	**Name**	**Suitable Applications**
A	Standard Filter	All common laboratory chemicals, especially with organics. When no specific requirements are present, or when more than one type of chemical is used.
B	Acid Filter	Applications involving sulphur dioxide, hydrofluoric acid fumes. Removes inorganic / organic acid vapors and fumes.
C	Mercury Compounds Filter	Highly effective for removal of mercury vapor and compounds. (Stable, non-volatile mercuric sulphide filter media).
D	Sulphur Compounds Filter	Removal of sulphur compounds.
E	Halogen Compounds Filter	Removal of halogen compounds like Chlorine, Fluorine, Iodine, Bromine, Astatine etc.
F	Aldehyde Filter	Formaldehyde applications or when aldehydes are present. Hospital pathology and endoscopy applications.
G	Ammonia / Amines Filter	High performance removal of ammonia/amines by chemisorption.
H	Chloroform / Ether	Removal of Chloroform, Isoflurane and various types of Ether compounds such as diethyl ether.
Optional HEPA Filter (ADC-_E_ Models Only)		HEPA filter with a typical efficiency of 99.99% removes particulates and aerosols. Ductless fume hoods with HEPA filters are suitable for cleanroom applications, or may be used as a Class I Biological Safety Cabinet.
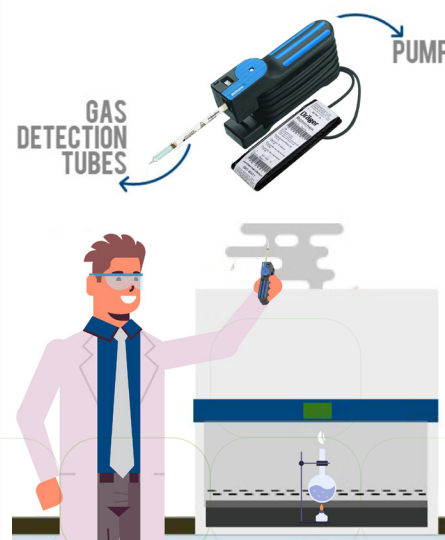
Check the carbon filter absorption every 3 months by using gas detection tubes or portable chemical sensor, and ensure that the chemical ppm above cabinet filter is below OSHA PEL limit.

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