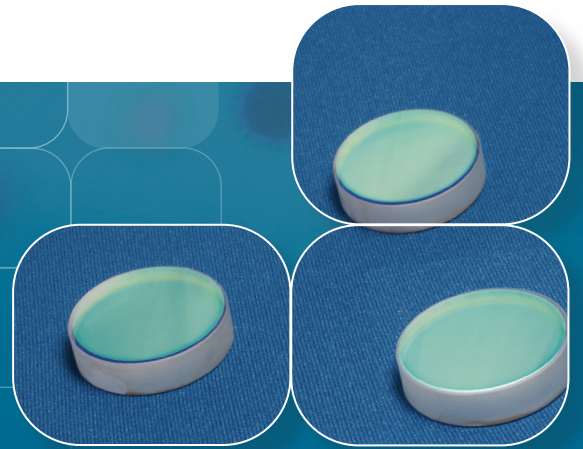


# Airstream®

**Esco Laminar Flow Cabinet**  
*The Perfect Cabinet for the Optical Industry*



*Esco Airstream® Vertical Laminar Flow Cabinet  
Model: LVS-4A with Matte Black Interior*





## Welcome to Esco

*Esco's Vision is to provide enabling technologies for scientific discoveries to make human lives healthier and safer.*

The Esco Lifesciences Group is committed to deliver innovative solutions for the clinical, life sciences, research, industrial, laboratory, pharmaceutical, and IVF community. With the most extensive product line in the industry, Esco have passed a number of international standards and certifications. Esco represents innovation and forward-thinking designs, that are of the highest standard quality since 1978.

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**Availability and Accessibility.** Esco has headquarters in Singapore, Indonesia, and Philippines, with manufacturing facilities are located in Asia and Europe. Research and Development (R&D) is conducted worldwide spanning the US, Europe and Asia. Sales, services and marketing subsidiaries are located in 42 major markets including US, UK, Japan, China and India. Esco regional distribution centers are located in Singapore, Malaysia, Thailand, Vietnam, Myanmar, Indonesia, Philippines, Bangladesh, Hong Kong, Taiwan, South Korea, China, Japan, India, UAE, Central and South Africa, Denmark, Germany, Italy, Lithuania, Russia, United Kingdom, and USA. Because of our worldwide presence, you can be sure that Esco is within your reach.

**High Quality, Reliable, and Dependable.** Esco products are of high quality, reliable, and dependable; assuring customers of research accuracy. Cross functional teams from Esco Production, R&D, Quality Assurance, and Senior Management, are regularly assembled to review and implement areas for improvement.

**Esco Cares for Your Safety.** Esco focuses on providing safety not just for your samples but also for you and the environment.

**Esco Cares for Your Comfort.** Building ergonomic designs and reducing noise levels of the units ensures comfort for our users.

**Esco Cares for the Environment.** One in every four of Esco's employees is involved in R&D and a number of them evaluate new components and/or designs to produce energy efficient equipment. Being GREEN is more than just modifying parts used to produce a new energy efficient technology, it is also embodied in the every aspect of the company.

**Customer Service and Support.** Our service does not stop once purchase has been done. Esco gives on-time customer service and offers end-user seminars, service training, preventive maintenance, and provides educational materials and informative videos.

As Esco takes the opportunity to respond to the world's needs, we aim not only to contribute in the advancement of scientific discoveries but also in making the world a safer, healthier, and better place to live in.



## THE OPTICS INDUSTRY

Similar to the electronics and semiconductor industry, the optics industry requires the same clean environment with stringent control on the amount of particulate present in the air. Contamination from even the minute particles can cause adverse effects on the quality and even cause irreparable damage to high-performance optics. Temperature, humidity, and static discharges are also considered when setting up a cleanroom for optics manufacturing / assembly.

When conducting inspection for optical systems i.e. lenses and lens filters, a clean environment is not enough. One must also account for the light and reflection inside the work-zone. Esco is a renowned leader when it comes to providing cleanroom and controlled environment technologies for various industrial sectors.

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### AIRSTREAM® GEN 3 LAMINAR FLOW CABINET FOR THE OPTIC INDUSTRY

Esco Airstream® laminar flow cabinet is built with the latest laminar flow technology and innovation to provide superior product protection for your samples and processes. It is powered by the latest generation DC ECM that saves up to 70% of energy compared to AC motor and offers stable airflow despite voltage fluctuation. Other key features include ULPA filtration system that creates ISO Class 3 work-zone, Isocide™ antimicrobial coating that inhibits bacterial growth within 24 hours of exposure, Sentinel™ Gold Microprocessor Control and a matte black powder-coated interior to prevent light reflection.

Enjoy the benefits of product protection with more product variants and sizes to suit more applications and user preferences.

Key features include:

- Energy-efficient DC ECM blower
- Isocide™ antimicrobial powder coating
- ULPA filter (ISO Class 3 work-zone)
- Low noise emission
- Sentinel™ Gold microprocessor control system
- Recessed central work tray to contain spills
- Ergonomic design
- Matte black coating in work zone to prevent light reflection





### Airflow Sensor

- Real-time airflow monitoring system
- Alerts the user if the airflow is insufficient

### Energy-Efficient DC ECM Blower

- Powered by latest generation DC ECM that is more efficient than legacy ECM and VFD motors
- 70% Energy savings compared to AC motor
- Stable airflow despite building voltage fluctuations & filter loading
- Standby mode that provides ISO Class 5 work-zone



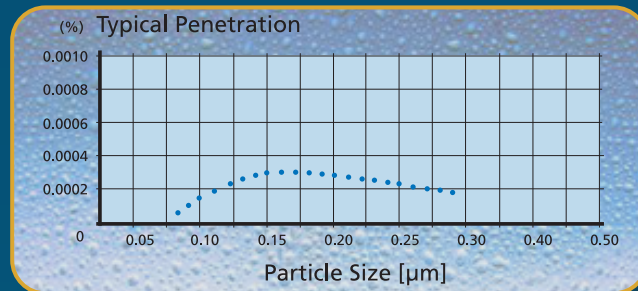
### Black Interior

- Internal surfaces are coated with matte black powder coating
- Prevents light reflection and absorbs excess light



### ULPA Filter

- 10x filtration efficiency than of HEPA filter, creates ISO Class 3 work-zone instead of the industry-standard ISO Class 5
- 10x cleaner work-zone than cabinets with HEPA filter



### Quiet Operation

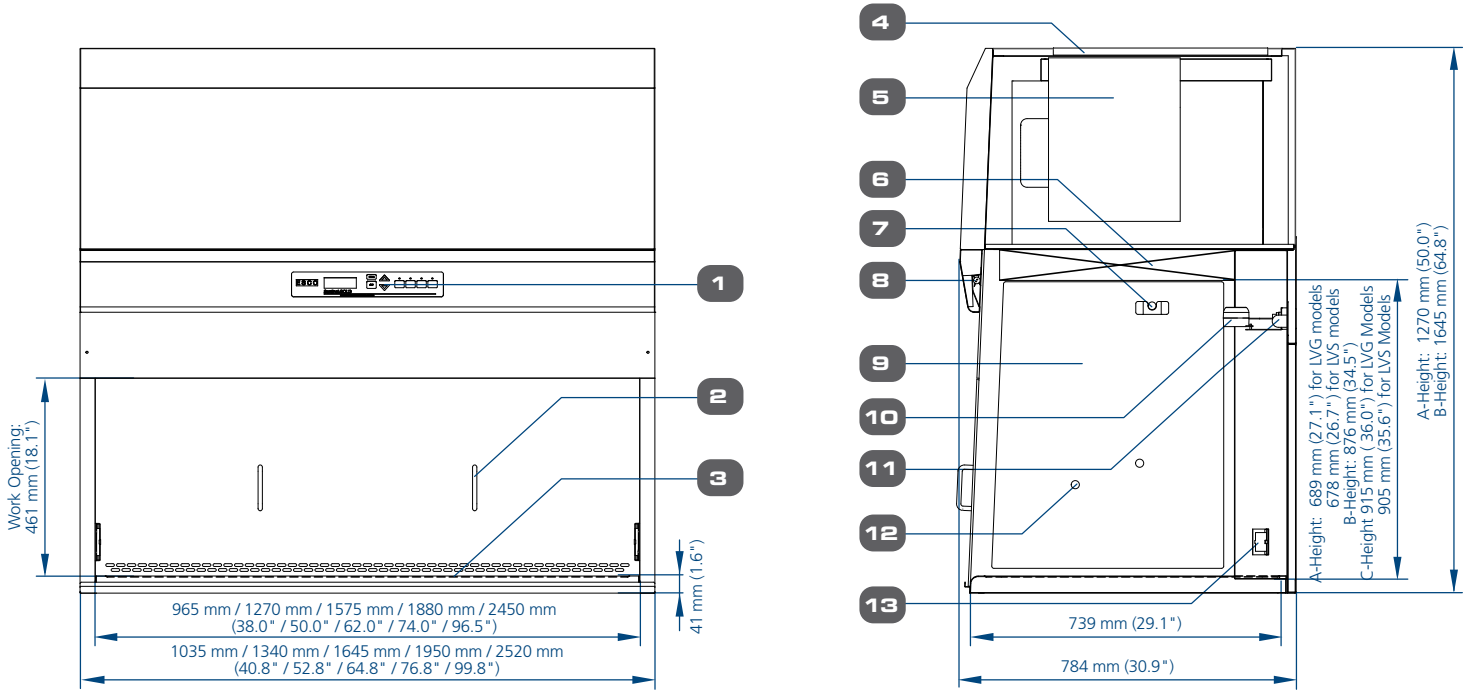
- Comfortable low noise emission at 52 dBA  
*\*LVG-4A in an open field condition*
- Reduces fatigue and improves work concentration



Esco Airstream® Vertical Laminar Flow Cabinet  
Model: LVS-4A with Matte Black Interior

	Cabinet Performance	Air Quality	Filtration	Electrical Safety
Standards Compliance	IEST-RP-CC002.2, Worldwide	ISO 14644.1, Class 3, Worldwide AS 1386 Class 1.5, Australia JIS B9920, Class 3, Japan	EN-1822 (H14), Europe IEST-RP-CC001.3, Worldwide IEST-RP-CC007, Worldwide IEST-RP-CC034.1, Worldwide	IEC61010-1, Worldwide EN 61010-1, Europe UL61010-1, USA CAN/CSA-22.2, No.61010-1

# Airstream® Vertical Laminar Flow Engineering Drawing



- 1. Esco Sentinel™ Gold Microprocessor Control System
- 2. Optional Front Cover
- 3. Stainless Steel Work Top with Black Powder Coating
- 4. Pre-filter
- 5. DC ECM Blower (Self-compensating and lower noise)
- 6. ULPA filter
- 7. IV Bar Retrofit Kit Provision
- 8. LED Lamp
- 9. Stainless Steel Side Walls (for LVS Variant)
- 10. Airflow Sensor
- 11. UV Lamp
- 12. Service Fixture Retrofit Kit Provision (2 holes on each side)
- 13. Electrical Outlet Retrofit Kit provision (1 outlet on each side)

## Esco Vertical Laminar Flow Cabinet Accessories

Model	3 feet width	4 feet width	5 feet width	6 feet width	8 feet width
Electrical Outlet	EO-				
IV Bar	IV-960 5170603	IV-1265 5170604	IV-1570 5170605	IV-1875 5170606	IV-2445 5170607
Support Stand Telescoping with Castors (28" to 34")	STC-3A0 5130055	STC-4A0 5130056	STC-5A0 5130057	STC-6A0 5130058	STC-8A0 Gen2 5131146
Support Stand Telescoping with Leveling Feet (28" to 34")	STL-3A0 5130050	STL-4A0 5130051	STL-5A0 5130052	STL-6A0 5130053	STL-8A0 Gen2 5131150
Support Stand with Leveling Feet (28")	SAL-3A0 Gen2 5130170	SAL-4A0 Gen2 5130134	SAL-5A0 Gen2 5130171	SAL-6A0 Gen2 5130172	SAL-8A0 Gen2 5131124
Support Stand with Leveling Feet (34")	SAL-3A0 Gen2 5130174	SAL-4A0 Gen2 5130175	SAL-5A0 Gen2 5130176	SAL-6A0 Gen2 5130177	SAL-8A0 Gen2 5131125
Pre-filter	PF-4 5090003	PF-2 (2 pcs.) 5090001	PF-3 and PF-4 5090002 and 5090003	PF-4 (2pcs.) 5090003	PF-2 and PF-4 (2 pcs.) 5090001 and 5090003
PVC Arm Rest	ME-W-REST 5170127				
Height-adjustable Lab Chair (Blue)	ME-LD-AR360 115006				
Ergonomic Foot Rest	FT-REST 5170073				

## Esco Horizontal and Vertical Laminar Flow Clean Benches Front Cover

	3 feet	4 feet	5 feet	6 feet	8 feet
LVS A-Height	FC-LVS-3A 5170595	FC-LVS-4A 5170584	FC-LVS-5A 5170596	FC-LVS-6A 5170597	
LVS C-Height		FC-LVS-4C 5170598	FC-LVS-5C 5170061	FC-LVS-6C 5170599	FC-LVS-8C 5170600

## General Specifications, Airstream® Vertical Laminar Flow Cabinet, A-Height (Interior Height: 2.25 ft / 0.7 m)

		LVS-3AG-F8 2120381	LVS-4AG-F8 2120382	LVS-5AG-F8 2120383	LVS-6AG-F8 2120384
Stainless Steel Sides		LVS-3AG-F9 2120443	LVS-4AG-F9 2120445	LVS-5AG-F9 2120447	LVS-6AG-F9 2120449
	Nominal Size	0.9 meter (3')	1.2 meter (4')	1.5 meter (5')	1.8 meter (6')
External Dimensions (W x D x H)		1035 x 784 x 1270 mm (40.8" x 30.9" x 50.0")	1340 x 784 x 1270 mm (52.8" x 30.9" x 50.0")	1645 x 784 x 1270 mm (64.8" x 30.9" x 50.0")	1950 x 784 x 1270 mm (76.8" x 30.9" x 50.0")
Internal Work Area, Dimensions (W x D x H)		965 x 739 x 678 mm (38.0" x 29.1" x 26.7")	1270 x 739 x 678 mm (50.0" x 29.1" x 26.7")	1575 x 739 x 678 mm (62.0" x 29.1" x 26.7")	1880 x 739 x 678 mm (74.0" x 29.1" x 26.7")
Internal Work Area, Space		0.6 m <sup>2</sup> (6.5 ft <sup>2</sup> )	0.8 m <sup>2</sup> (8.6 ft <sup>2</sup> )	1.0 m <sup>2</sup> (10.7 ft <sup>2</sup> )	1.3 m <sup>2</sup> (14.0 ft <sup>2</sup> )
Average Airflow Velocity	0.45 m/s (90 fpm) at initial setpoint				
Air Volume		1117 m <sup>3</sup> /hr (657 cfm)	1471 m <sup>3</sup> /hr (866 cfm)	1824 m <sup>3</sup> /hr (1074 cfm)	2177 m <sup>3</sup> /hr (1281 cfm)
ULPA Filter Typical Efficiency	> 99.999% at particle size between 0.1 to 0.3µm				
Sound Emission per IEST-RP-CC002.2*		51.6 dBA	52.4 dBA	55.6 dBA	57.6 dBA
Cabinet Construction	Main Body	1.2 mm (0.05") 18-gauge electro-galvanized steel with white oven-baked epoxy-polyester powder-coated finish			
	Work Zone	1.2 mm (0.05") 18-gauge stainless steel, grade 304, with 4B finish with matte / non-glossy black powder coat			
	Side Walls				
Electrical Power Rating 8: 220-240 VAC, 50 / 60 Hz, 1 phase	Cabinet Full Load Amps (FLA)	7.3 A	7.5 A	7.8 A	8.5 A
	Optional Outlets (FLA)	5 A			
	Cabinet Nominal Power (W)	129	151	199	258
	Heat Rejected, BTU per Hour	440	515	679	880
Electrical Power Rating 9: 110-130 VAC, 50 / 60 Hz, 1 phase	Cabinet Full Load Amps (FLA)	12 A	12.5 A	13.3 A	13.5 A
	Optional Outlets (FLA)	5 A			
	Cabinet Nominal Power (W)	132	155	204	264
	Heat Rejected, BTU per Hour	450	529	696	908
Net Weight**		135 Kg (298 lbs)	158 Kg (348 lbs)	199 Kg (438 lbs)	208 Kg (459 lbs)
Shipping Weight**		167 Kg (368 lbs)	202 Kg (445 lbs)	256 Kg (564 lbs)	273 Kg (602 lbs)
Shipping Dimensions, Maximum (W x D x H)**		1120 x 900 x 1590 mm (44" x 35" x 62")	1400 x 900 x 1590 mm (55" x 35" x 62")	1720 x 900 x 1590 mm (68" x 35" x 62")	2200 x 900 x 1590 mm (87" x 35" x 62")
Shipping Volume, Maximum**		1.6 m <sup>3</sup> (56.6 ft <sup>3</sup> )	2.0 m <sup>3</sup> (70.6 ft <sup>3</sup> )	2.5 m <sup>3</sup> (88.2 ft <sup>3</sup> )	3.3 m <sup>3</sup> (116.5 ft <sup>3</sup> )

Specifications are subject to change without notice.

\*Noise reading in open field condition / anechoic chamber. Noise reading in normal room varies by room size, layout, and background noise, but may reach roughly 3 dBA above these values.

\*\*Cabinet only, excludes optional stand.

General Specifications, Airstream® Vertical Laminar Flow Cabinet, C-Height (Interior Height: 3.0 ft / 0.9 m)

	LVS-4CG-F8 2120565	LVS-6CG-F8 2120569	LVS-8CG-F8 2120686
Stainless Steel Sides	LVS-4CG-F9 2120605	LVS-6CG-F9 2120609	LVS-8CG-F9 2120687
Nominal Size	1.2 meter (4')	1.8 meter (6')	2.4 meter (8')
External Dimensions (W x D x H)	1340 x 774 x 1645 mm (52.8" x 30.5" x 64.8")	1950 x 774 x 1645 mm (76.8" x 30.5" x 64.8")	2520 x 774 x 1645 mm (64.8" x 30.5" x 64.8")
Internal Dimensions (W x D x H)	1270 x 739 x 905 mm (50.0" x 29.1" x 35.6")	1880 x 739 x 905 mm (74.0" x 29.1" x 35.6")	2450 x 739 x 905 mm (96.5" x 29.1" x 35.6")
Internal Work Area, Space	0.9 m <sup>2</sup> (9.7 ft <sup>2</sup> )	1.4 m <sup>2</sup> (15.1 ft <sup>2</sup> )	1.8 m <sup>2</sup> (19.4 ft <sup>2</sup> )
Average Airflow Velocity	0.45 m/s (90 fpm) at initial setpoint		
Air Volume	1471 m <sup>3</sup> /hr (866 cfm)	2177 m <sup>3</sup> /hr (1281 cfm)	2269 m <sup>3</sup> /hr (1336 cfm)

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