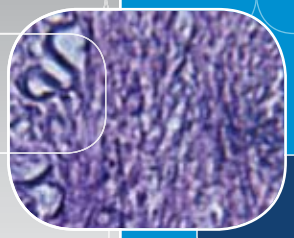


Airstream®

Airstream Class II, Biological Safety Cabinet (E-series), Model AC2-4E_.

Class II, Biological Safety Cabinets

The Industry's Most Energy Efficient Class II Cabinet

ESCO
WORLD CLASS. WORLDWIDE.

Main Features

- NEW dual exhaust filtered models provide >100,000x better protection than conventional single exhaust models.
- NEW improved low noise design improves operator comfort.
- NEW counterbalanced sliding sash is easier to operate.
- Esco Airstream Class II Biological Safety Cabinets are now better than ever.
- Long life ULPA filtration technology, >99.999% efficient at 0.1 to 0.3 micron sizes, trusted by the world's leading pharmaceutical companies and research laboratories, delivers superior product, operator and cross contamination protection.
- User friendly Sentinel™ microprocessor control technology with integrated temperature-compensated airflow monitoring system.
- Unique Esco Dynamic Chamber™ plenum design delivers quiet, uniform airflow.

  INNOVA™ energy saving fan technology reduces cabinet power consumption, heat output, and delivers lowest total cost of ownership.
- ISOCIDE™ antimicrobial coating on all painted surfaces inside and out minimizes contamination.
- Ergonomically angled front, armrest, frameless sash for operator comfort. Actual work opening is 25.4mm (1") larger than tested sash opening to provide additional work space.
- Safe - 0.9m/3', 1.2m/4', 1.8m/6' models tested and certified to EN12469 at the Health Protection Agency, Porton Down, UK.
- Available in stainless steel sided models with one piece internal work zone liners for superior cleanability, or glass sided models for customers who prefer a brighter work space with maximum visibility.
- 0.6m/2' AC2-E Series Glass Sided models available for applications in which space is at a premium.
- Backed by our industry-leading warranty with trained sales and service partners worldwide.

EN 12469

Airstream E-Series Class II Biological Safety Cabinet, model AC2-4E_ shown with optional support stand. Features glass sides to enhance visibility inside the work area. Available in 0.6, 0.9, 1.2, 1.5 and 1.8 meter models (2', 3', 4', 5' and 6') stand.

Putting Your Needs First
Airstream® Offers the Most Complete Class II Cabinet Range

Airstream Product	E-Series	G-Series	S-Series	D-Series
Side Wall	Tempered Glass Increase Visibility and Prevent the Operator from Being "Boxed-In"		Single Piece Stainless Steel with Coved Corners for Cleanability. Side Capture Zones and Negative Pressure Side Walls Optimize Containment.	
Work Tray	Multi-Piece, Autoclavable		Single Piece Stainless Steel, Spill Retaining	
Fan System	Combined Inflow/Downflow Fan(s), Energy Efficient, Cost Effective	Independent Inflow/Downflow Fans, Redundant System Provides Protection in Case of Fan Failure	Combined Inflow/Downflow Fan(s), Energy Efficient, Cost Effective	Independent Inflow/Downflow Fans, Redundant System Provides Protection in Case of Fan Failure
Exhaust Filter	Single ULPA Filter, >99.999% Efficient	Dual ULPA Filters, >100,000x Better Protection than Single Filter Systems	Single ULPA Filter, >99.999% Efficient	Dual ULPA Filters, >100,000x Better Protection than Single Filter Systems
Sizes Available	0.6m (2'), 0.9m (3'), 1.2m (4'), 1.5m (5'), 1.8m (6')	1.2m (4'), 1.8m (6')	0.9m (3'), 1.2m (4'), 1.5m (5'), 1.8m (6')	1.2m (4'), 1.8m (6')

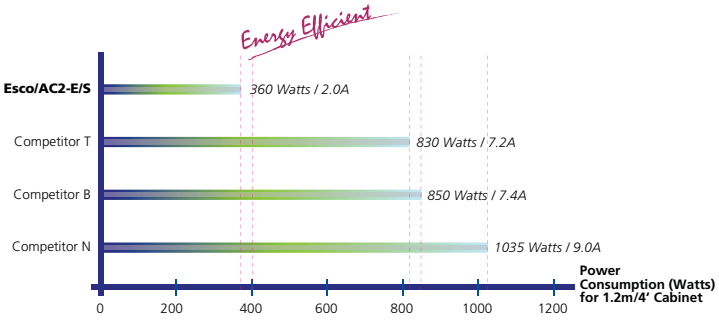
Thousands of Units Installed in Laboratories in More than 100 Countries

Esco Airstream Class II Biological Safety Cabinets offer premium operator, product and environmental protection with advanced technology.

Intelligent, ergonomic design enhances productivity, operator comfort, maintenande and utility value. With an extensive track record of safety, reliability and performance, Airstream cabinets make ideal investments for a wide range of general laboratory applications.

Airstream biological safety cabinets provide protection against Biosafety Levels 1, 2 and 3 and may be used for handling Biosafety Level 4, provided that the operator wears a positive pressure suit.

Save Energy, Money and the Planet!



INNOVA™ backward curved, motorized impeller fan technology replaces conventional fans. Improved energy efficiency dramatically lowers operating costs. Lower heat output further improves building energy efficiency.

Energy savings of up to US$500 per cabinet per year, based on average 500W savings on a 1.2m/4' cabinet, continuous operation, and electricity cost of US$0.10/kWH, plus additional savings from reduced building cooling load.

Airstream S-Series Class II Biological Safety Cabinet, Model AC2-4S_, shown with optional support stand.

Airstream™ Class II Biological Safety Cabinets (E-Series)

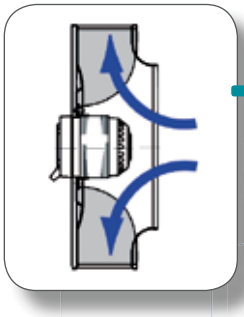
Provide Operator, Product and Environmental Protection

High Performance Fan System

German made ebm-papst® permanently lubricated, centrifugal motor/fans with external rotor designs.

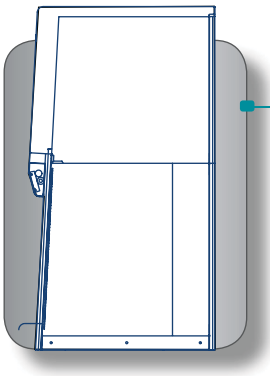
Motors selected for energy efficiency, compact design, and flat profile. Completely integrated assembly optimizes motor cooling.

All rotating parts balanced for smooth, quiet, vibration-free operation.



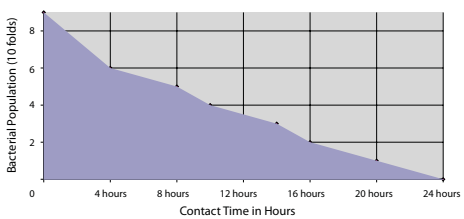
ULPA Filtration System

Swedish Camfil Farr® ULPA filters operate at a typical efficiency of >99.999% at 0.1 to 0.3 micron sizes, providing superior product protection over conventional HEPA filters. ULPA filters last as long as HEPA filters and are inexpensive to replace.



User Interface

Ergonomically angled front improves reach and comfort, reduces glare. Armrest with curved front edge provides excellent forearm support. Frameless, shatterproof sash is easier to clean, offers larger, unobstructed viewing area. Narrow profile inflow grille reduces strain while working.



Built-In Protection

External surfaces are powder coated with Esco ISOCIDE™ to eliminate 99.9% of surface bacteria within 24 hours of exposure.

Airstream Class II Biological Safety Cabinet, Model AC2-4E_.

Sentinel Silver™ Microprocessor Control, Alarm System

Advanced microprocessor control supervises operation of all cabinet functions. Temperature-compensated air velocity sensor monitors both exhaust and downflow. Pressure sensors which do not accurately measure airflow are not used. 24-hour clock, UV timer, UV run hour meter, blower run hour meter, are standard. Programmable PIN restricts unauthorized cabinet access.

Robust Cabinet Construction

Key components, including fluorescent lamps, motor capacitor, electrical harness, electronic ballast, and switch control are mounted outside the airstream and away from contaminated air to permit service without decontamination.

Work Top

Multi-piece tray components lift and remove to provide easy access and to encourage surface decontamination. Work trays are rounded at the rear for easy cleaning.

Dynamic Chamber™ Plenum Design

Negative pressure *Positive pressure*

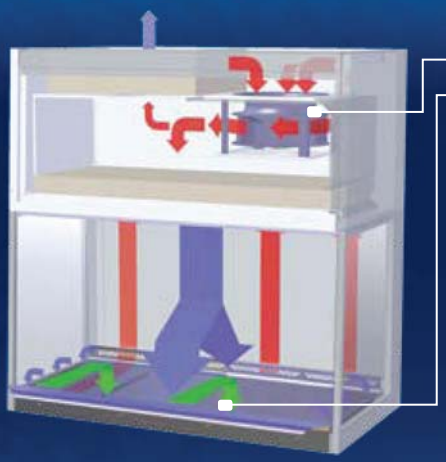
The Esco permanent metal Dynamic Chamber™ plenum surrounds contaminated areas with negative pressure, preventing the possibility of contamation from leaks in filter seal, gasket or cabinet structure; no fabric bags are used.

Key Features

- The filter assembly is constructed in accordance with EN1822 requirements.
- All contaminated plenums are surrounded by negative pressure, virtually eliminating filter perimeter leaks.
- The backward curved wheel with external rotor motor delivers class-leading energy efficiency for lower operating costs.
- Unique raised armrest design elevates the operator's arms to prevent inflow grille blockage which may compromise safety.
- The cabinet work zone has no welded joints to collect contaminants or rust.
- Glass sides eliminate the feeling of "working in a box", enhance cabinet lighting, and permit observation of procedures.
- Actual sash opening is larger than tested opening, and improves reach into the work zone without compromising safety.
- Programmable automatic UV light timer simplified operation while extending UV lamp life and saving energy.
- Built-in warm white, electronically ballasted, 5000k lighting provides excellent illumination of the work zone and reduces operator fatigue. The reliable lighting system is zero-flicker and instant start.
- Powder coated work zone rear wall eliminates harsh reflections which may be associated with conventional stainless steel interiors.
- Cabinets are KI-Discus tested on a sampling basis for performance integrity.
- Airstream AC2 Series cabinets are warranted for 3 years excluding consumable parts and accessories.
- Additional IQ/OQ documentation is available upon request.

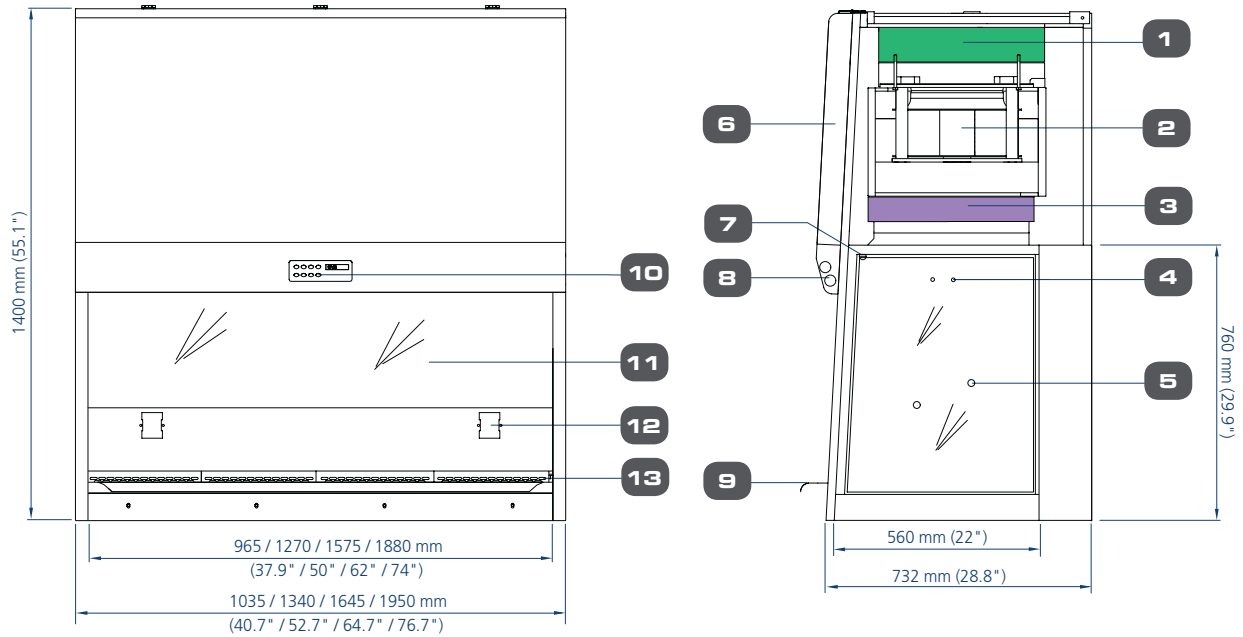
	Biological Safety Cabinets	Air Quality	Filtration	Electrical Safety
Standards Compliance	Type-tested to EN 12469, Europe	ISO 14644.1 Class 3, Worldwide AS 1386 Class 1.5, Australia JIS B9920 Class 3, Japan	IEST-RP-CC034.1, Worldwide IEST-RP-CC007.1, Worldwide IEST-RP-CC001.3, Worldwide EN 1822, Europe	IEC 61010-1, Worldwide EN 61010-1, Europe UL 61010-1, USA CAN/ CSA C22.2 No. 61010-1

Precision Tuned and Tested Airflow and Intake Geometry



- Ambient air is pulled through the perforations located towards the work zone front to prevent contamination of the work surface and work product. The inflow does not mix with the clean air within the cabinet work zone. Inflow air travels through a return path toward the common air plenum (fan plenum) at the top of the cabinet.
- The uniform, non-turbulent air stream protects against cross contamination within and throughout the work area.
- Near the work surface, the downflow air stream splits with a portion moving toward the front air grille, and the remainder moving to the rear air grille. A small portion of the ULPA filtered downflow enters the intake perforations at the side capture zones at a higher velocity (small purple arrows).
- A combination of inflow and downflow air streams forms an air barrier that prevents contaminated room air from entering the work zone, and prevents work surface emissions from escaping the work zone.
- Air returns to the common air plenum where the 32% exhaust and 68% recirculation process is continued.
- Optimized air curtain maintains personnel and product protection even in the unlikely event of inflow and downflow imbalance that would compromise protection on a conventional cabinet.

Airstream Model AC2 (E-Series) Biological Safety Cabinet Technical Specifications, Tempered Glass Side Walls



1. *Exhaust ULPA filter*
2. *Fan*
3. *Downflow ULPA filter*
4. *Standard IV bar Retrofit Kit™ provision*
5. *Plugged service fixture provisions (2 on each side)*
6. *Electrical and electronics panel*
7. *Standard UV light Retrofit Kit™provision*
8. *Fluorescent lamp*
9. *Stainless steel armrest*
10. *Esco Sentinel microprocessor control system*
11. *Tempered glass sliding sash window*
12. *Standard electrical outlet Retrofit Kit™ provision*
13. *Stainless steel multi-piece work tray*

General Specifications, Airstream Class II, Biological Safety Cabinets (E-Series)

Note to customer: Insert electrical voltage number into last model number digits _ when ordering

Model		AC2-2E_	AC2-3E_	AC2-4E_	AC2-5E_	AC2-6E_
Nominal Size		0.6 meters (2')	0.9 meters (3')	1.2 meters (4')	1.5 meters (5')	1.8 meters (6')
External Dimensions (W x D x H)	Without Base Stand	730 x 732 x 1400 mm 28.7" x 28.8" x 55.1"	1035 x 732 x 1400 mm 40.7" x 28.8" x 55.1"	1340 x 732 x 1400 mm 52.7" x 28.8" x 55.1"	1645 x 732 x 1400 mm 64.7" x 28.8" x 55.1"	1950 x 732 x 1400 mm 76.7" x 28.8" x 55.1"
	With Optional Base Stand, 711mm (28") type	730 x 732 x 2111 mm 28.7" x 28.8" x 83.1"	1035 x 732 x 2111 mm 40.7" x 28.8" x 83.1"	1340 x 732 x 2111 mm 52.7" x 28.8" x 83.1"	1645 x 732 x 2111 mm 64.7" x 28.8" x 83.1"	1950 x 732 x 2111 mm 76.7" x 28.8" x 83.1"
Internal Work Area, Dimensions (W x D x H)		660 x 560 x 670 mm 26.0" x 22.0" x 26.4"	965 x 560 x 670 mm 38.0" x 22.0" x 26.4"	1270 x 560 x 670 mm 50.0" x 22.0" x 26.4"	1575 x 560 x 670 mm 62.0" x 22.0" x 26.4"	1880 x 560 x 670 mm 74.0" x 22.0" x 26.4"
Internal Work Area, Space		0.29 m^2 (3.1 sq.ft)	0.43 m^2 (4.6 sq.ft)	0.58 m^2 (6.2 sq.ft)	0.73 m^2 (7.7 sq.ft)	0.87 m^2 (9.3 sq.ft)
Average Airflow Velocity	Inflow	0.45 m/s (90 fpm) at initial setpoint, audible/visual alarm will activate at 0.40 m/s (80 fpm)				
	Downflow	0.30 m/s (60 fpm) at initial setpoint with uniformity of better than +/- 20%				
Airflow Volume	Inflow	185 m^3/h (109 cfm)	270 m^3/h (159 cfm)	356 m^3/h (209 cfm)	441 m^3/h (260 cfm)	527 m^3/h (310 cfm)
	Downflow	423 m^3/h (249 cfm)	563 m^3/h (331 cfm)	741 m^3/h (436 cfm)	919 m^3/h (591 cfm)	1096 m^3/h (645 cfm)
	Exhaust	185 m^3/h (109 cfm)	270 m^3/h (159 cfm)	356 m^3/h (209 cfm)	441 m^3/h (260 cfm)	527 m^3/h (310 cfm)
ULPA Filter Typical Efficiency	Downflow	>99.999% at 0.1 to 0.3 microns as per IEST-RP-CC001.3 USA >99.995% at MPPS as per EN 1822 (H-14) EU				
	Exhaust					
Sound Emission (Typical)*	NSF 49	<62 dBA	<61 dBA	<62 dBA	<62 dBA	<63 dBA
	EN 12469	<59 dBA	<58 dBA	<59 dBA	<59 dBA	<60 dBA
Fluorescent Light Intensity At Zero Ambient		>900 Lux (> 84 foot candles)	>1130 Lux (>105 foot candles)	>1280 Lux (>119 foot candles)	>1050 Lux (>97 foot candles)	>1220 Lux (>113 foot candles)
Cabinet Construction	Main Body	1.2 mm (0.05") 18 gauge electro-galvanized steel with white oven-baked epoxy Isocide antimicrobial powder coated finish				
	Work Zone	1.5 mm (0.06") 16 gauge stainless steel, type 304, with BA finish				
	Side Walls	UV absorbing tempered glass, 5 mm (0.2"), colorless and transparent				
Electrical**	220-240V, AC, 50Hz, 1Ø	AC2-2E1	AC2-3E1	AC2-4E1	AC2-5E1	AC2-6E1
	Max. Cabinet Power/ Amp	330 W / 2 A	330 W / 2 A	360 W / 2 A	360 W / 2 A	650 W / 4 A
	Nominal Cabinet Power/ Amp	268 W / 1.58 A	291 W / 1.59 A	289 W / 1.74 A	333 W / 1.79 A	549 W / 3.3 A
	Outlet Amp Fuse	5 A	5 A	5 A	5 A	5 A
	Total Amp	7A	7 A	7 A	7 A	9 A
	BTU/ Hr	1126	1126	1228	1228	2218
	110-120V, AC, 60Hz, 1Ø	AC2-2E2	AC2-3E2	AC2-4E2	AC2-5E2	AC2-6E2
	Cabinet Power/ Amp	400 W / 3.5 A	400 W / 3.5 A	400 W / 3.5 A	550 W / 5 A	750 W / 6.5 A
	Outlet Amp Fuse	5 A	5 A	5 A	5 A	5 A
	Total Amp	8.5 A	8.5 A	8.5 A	10 A	11.5 A
	BTU/ Hr	1365	1365	1365	1877	2559
	220-240V, AC, 60Hz, 1Ø	AC2-2E3	AC2-3E3	AC2-4E3	AC2-5E3	AC2-6E3
	Cabinet Power/ Amp	330 W / 2 A	330 W / 2 A	360 W / 2 A	360 W / 2 A	650 W / 4 A
	Outlet Amp Fuse	5 A	5 A	5 A	5 A	5 A
	Total Amp	7A	7 A	7 A	7 A	9 A
	BTU/ Hr	1126	1126	1228	1228	2218
Net Weight***		160 kg (353 lbs)	177 kg (390 lbs)	203 kg (447 lbs)	251 kg (552 lbs)	299 kg (658 lbs)
Shipping Weight***		187 kg (412 lbs)	230 kg (507 lbs)	265 kg (583 lbs)	294 kg (647 lbs)	385 kg (847 lbs)
Shipping Dimensions, Maximum (W x D x H)***		850 x 860 x 1660 mm 33.5" x 33.9" x 65.4"	1130 x 860 x 1660 mm 44.5" x 33.9" x 65.4"	1440 x 860 x 1660 mm 56.7" x 33.9" x 65.4"	1750 x 860 x 1660 mm 68.9" x 33.9" x 65.4"	2060 x 860 x 1680 mm 81.1" x 33.9" x 66.1"
Shipping Volume, Maximum***		1.28 m^3 (45.2 cu.ft.)	1.6 m^3 (56.5 cu.ft.)	2.05 m^3 (72.4 cu.ft.)	2.49 m^3 (87.9 cu.ft.)	2.98 m^3 (105.2 cu.ft.)

** Noise reading in open field condition/ anechoic chamber.*
*** Additional voltages may be available; contact Esco for ordering information.*
**** Cabinet only; excludes optional stand*