

# Streamline®

## Class II Biological Safety Cabinets



Streamline Class II Biological Safety Cabinet  
Model SC2-4A...

EN12469

### Introduction

Esco SC2 Class II Biological Safety Cabinets provide optimum performance which is continuously monitored and controlled by our user-friendly Sentinel™ Delta control system, allowing you, the user, a safe and reliable working environment. The angled front and glass side windows provide an ergonomic work environment for the user.

### Containment and Protection

- The supply HEPA filter and exhaust HEPA filter create a fully integrated performance envelope for product, operator and environmental protection.
- Inflow of room air enters the front air grille to establish operator protection; room air does not enter the work zone, preventing product contamination.
- The raised armrest prevents the operator from blocking the inflow grilles.
- The inflow velocity, downflow velocity, air flow path and intake geometry are precision tuned and tested to create an optimum air curtain at the front aperture. This curtain maintains operator and product protection even in the unlikely event of a severe inflow or downflow imbalance that would compromise protection in a conventional cabinet.
- Safe - 1.2 m (4') model tested and certified to EN12469 at the Health Protection Agency, Porton Down, UK.

### Integrated Filtration System

Independent supply and exhaust HEPA filters provide typical efficiency of >99.99% at 0.3 microns. Streamline filters meet the IEST-RP-CC001.3 recommended practice for HEPA performance (USA), and EN 1822 for H13 performance (EU).

- HEPA filters (per IEST-RP-CC001.3), are tested to a typical efficiency of >99.99% at 0.3 micron particles.
- Modern separator-less mini-pleat filter construction maximizes

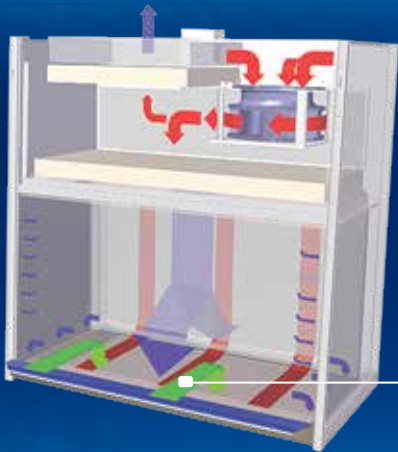
the filter surface area to extend filter life and eliminate possible filter media damage by thin and sharp aluminum separators used in conventional HEPA filter construction.

- The filter assembly is constructed in accordance with EN 1822 requirements.
- The supply filter provides ISO Class 4 (per ISO 14644.1) clean air to the work surface in a gentle vertical laminar flow for product protection.
- The exhaust filter traps biohazard particles acquired from the work surface before air is exhausted to the room, offering personal and environmental protection.
- The exhaust filter media is protected from mechanical damage by an integrated metal screen guard, which is absent from conventional HEPA filters.

### User-Friendly Control System

The user-friendly Esco Sentinel Delta™ microprocessor-based control system, fitted in the SC2 cabinet, supervises the operation of all cabinet functions. The controls are configurable to meet user requirements. Enhanced features promote cabinet usability.

- Accurate true airflow velocity sensing technology measures all critical cabinet airflow parameters allowing superior monitoring. The airflow sensor is temperature compensated to increase accuracy.
- Solid state variable speed controllers offer superior control over conventional "step" controllers.
- A bright, easy-to-read, LCD display provides continuous monitoring of cabinet airflow.
- An additional UV-interlock ensures that the optional UV lamp is deactivated when the sash is not fully closed.
- Audible and visual alarms ensure product, operator and environmental protection by alerting the user in the event of low airflow or unsafe sash positions.



### Cabinet Filtration System

Dynamic air barrier, inflow and forward-directed downflow air converge

- 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 (blower 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

- ULPA/HEPA-filtered air
- Unfiltered / potentially contaminated air
- Room air / Inflow air

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 blue 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 35% exhaust and 65% recirculation process is continued.

### The Highest Quality Cabinet Construction

Robust construction and enhanced safety features qualify the cabinet for the most demanding laboratory applications. The cabinet is fully assembled and ready to install and operate when shipped.

- All components are designed for maximum chemical resistance for a long service life and increased durability.
- Multi-piece stainless steel tray components lift and remove to provide easy access and to encourage surface decontamination.
- Tempered glass side windows maximize visibility.
- A drain pan contains spills and prevents liquids from entering the filtration and blower systems.
- There are no screws on the front or sides to trap contaminants or complicate cleaning.
- External surfaces are coated with Esco Isocide antimicrobial coating to protect against surface contamination and inhibit bacterial growth. Isocide eliminates 99.9% of surface bacteria within 24 hours of exposure.

### Blower Efficiency

The SC2 blower system is designed for high performance operation, maximum energy efficiency and minimal maintenance.

- Industry exclusive backward curved,

motorized impeller design replaces conventional blowers.

- Improved energy efficiency lowers operating costs.
- Reduced noise and vibration levels over conventional blowers provide a comfortable working environment.
- Built-in RFI and electrical noise filters eliminate interference with adjacent instrumentation.
- The external rotor motor design allows for optimum cooling of the motor during extended operations and extends the motor bearing life.
- To prevent fan damage, a paper-catch grille traps papers or towels that may drop down on the drain pan, preventing them from being pulled into the column by fan suction.

### Designed and Built to Exceed Safety Criteria

All components used in Esco products meet or exceed all the applicable safety requirements.

- Each cabinet is individually factory tested for electrical safety after production.

### Warranty

Streamline SC2 cabinets are warranted for 1 year excluding consumable parts and accessories.

### Safety and Certification

All components meet or exceed applicable safety requirements.

- Each cabinet is individually factory tested for electrical safety.
- Documentation specific to each cabinet serial number is maintained on file.
- Certified to EN 12469.

### Accessories and Options

Esco offers a variety of options and accessories to meet local applications. Contact Esco or your local Sales Representative for ordering information.

- Support stands
- Electrical outlet, ground fault, North America
- Electrical outlet, Europe / Worldwide
- Service fixture (air, gas, vacuum)
- Germicidal UV lamp
- PVC armrest
- Ergonomic lab chair



	Cabinet Performance	Air Quality	Filtration	Electrical Safety
Standards Compliance	EN 12469:2000, Europe	ISO 14644.1 Class 4, Worldwide IEST-G-CC1001, USA IEST-G-CC1002, USA	EN-1822 (H13), Europe IEST-RP-CC001.3, Worldwide IEST-RP-CC007.1, Worldwide IEST-RP-CC034.1, Worldwide	UL 61010-1, USA CAN/CSA-22.2, No. 61010-1 EN 61010-1, Europe IEC 61010-1, Worldwide

# Streamline®

Biological Safety Cabinets • Class II Biological Safety Cabinets

## General Specifications, Streamline Class II Biological Safety Cabinet

*Note to customer: Insert electrical voltage number into last model number digit \_ when ordering.*

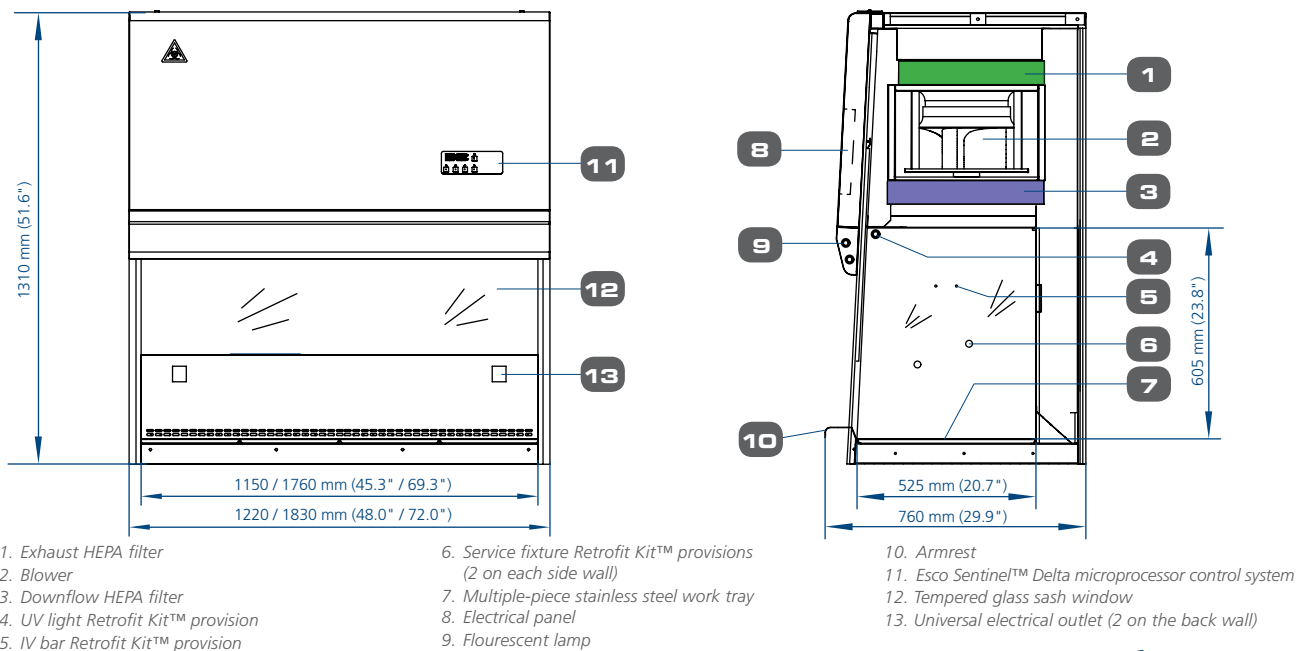
Model		SC2-4A_	SC2-6A_
Nominal Size		1.2 meters (4')	1.8 meters (6')
External Dimensions (W x D x H)	Without Base Stand	1220 x 760 x 1310 mm 48.0" x 29.9" x 51.6"	1830 x 760 x 1310 mm 72.0" x 29.9" x 51.6"
	With Base Stand 711 mm (28") Type	1220 x 760 x 2021 mm 48.0" x 29.9" x 79.6"	1830 x 760 x 2021 mm 72.0" x 29.9" x 79.6"
Internal Work Area, Dimensions (W x D x H)		1150 x 525 x 605 mm 45.3" x 20.7" x 23.8"	1760 x 525 x 605 mm 69.3" x 20.7" x 23.8"
Average Airflow Velocity	Inflow	0.45 m/s (90 fpm)	
	Downflow	0.31 m/s (61 fpm)	
Exhaust HEPA Filter Typical Efficiency		>99.99% at 0.3 microns	
Downflow ULPA Filter Typical Efficiency		>99.999% for particle size between 0.1 to 0.3 microns	
Sound Emission Per IEST-RP-CC002.2*	NSF / ANSI 49	<61 dBA	<63 dBA
	EN 12469	<58 dBA	<60 dBA
Fluorescent Lamp Intensity At Zero Ambient		1240 Lux (115 foot candles)	1340 Lux (124 foot candles)
Cabinet Construction	Main Body	1.2mm (0.05") 18 gauge electro-galvanized steel with white oven-baked epoxy-polyester powder-coated finish	
	Work Zone	1.2mm (0.05") 18 gauge stainless steel grade 304	
Electrical**	220-240V, AC, 50Hz, 1Ø	<b>SC2-4A1</b>	<b>SC2-6A1</b>
	Cabinet Full Load Amps (FLA)	2A	3.5 A
	Optional Outlets FLA	5A	5A
	Cabinet Nominal Power	256 W	520 W
	Cabinet BTU	874	1774
	110-120V, AC, 60Hz, 1Ø	<b>SC2-4A2</b>	<b>SC2-6A2</b>
	Cabinet Full Load Amps (FLA)	3.5A	6.5 A
	Optional Outlets FLA	5A	5A
	Cabinet Nominal Power	301 W	611 A
	Cabinet BTU	1027	2085
Net Weight***		162 kg (356 lbs)	219 kg (482 lbs)
Shipping Weight***		219 kg / 483 lbs	378.8 kg / 835 lbs
Shipping Dimensions, Maximum (W x D x H)***		1350 x 800 x 1610 mm 53.1" x 31.5" x 63.4"	2050 x 850 x 1610 mm 80.7" x 33.5" x 63.4"
Shipping Volume, Maximum***		1.74 m <sup>3</sup> (61 cu.ft.)	2.81 m <sup>3</sup> (99 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.

### Model SC2 (A-Series) Streamline Biological Safety Cabinet Technical Specifications



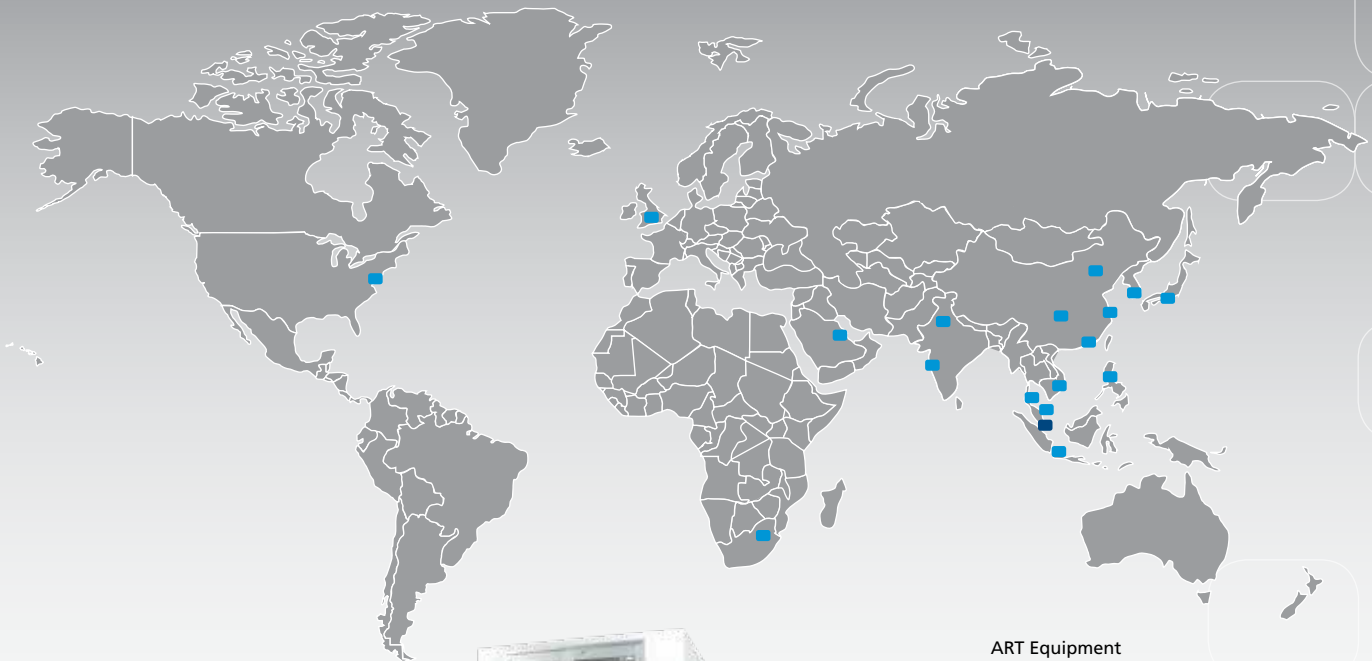
1. Exhaust HEPA filter
2. Blower
3. Downflow HEPA filter
4. UV light Retrofit Kit™ provision
5. IV bar Retrofit Kit™ provision

6. Service fixture Retrofit Kit™ provisions (2 on each side wall)
7. Multiple-piece stainless steel work tray
8. Electrical panel
9. Fluorescent lamp

10. Armrest
11. Esco Sentinel™ Delta microprocessor control system
12. Tempered glass sash window
13. Universal electrical outlet (2 on the back wall)

**ESCO**

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- Containment / Pharma Products
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- Freeze Dryer
- Lab Animal Research Products
- Laboratory Fume Hoods
- Laboratory Ovens and Incubators
- Laminar Flow Clean Benches
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- PCR Thermal Cyclers
- Powder Weighing Balance Enclosures
- Ultra-low Freezers

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