Airstream Class I, Biological Safety Cabinet, Model AC3-4B.

Class III, Biological Safety Cabinets

The Premier Solution for High Containment Laboratories
Main Features

- Exhaust air is double-filtered through high-quality ULPA filters (per IEST-RP-CC-001.3) with typical efficiency of >99.999% for 0.1 to 0.3 micron particles, better than HEPA filters.
- Exclusive dual exhaust filters provide >100,000 times better protection than single-stage designs.
- Microprocessor-based Esco Sentinel™ Silver control system provides visual / audible alarms for airflow.
- Magnehelic* pressure gauge is mounted in the rear of the work zone for at-a-glance monitoring of work zone negative pressure.
- Neoprene™ gauntlets are single piece leak-tested glove assemblies which guarantee maximum protection.
- An integrated pass-through with interlocking doors permits materials transfer without risk of environmental contamination.
- Esco ISOCIDE* antimicrobial surface on all painted surfaces minimizes contamination.
- An angled cabinet front ensures an ergonomic working posture.
- Cabinet operates at negative pressure relative to the laboratory in order to prevent migration of pathogenic materials out of the work area.

*Registered trademark of Dwyer Instruments, Inc.
Esco ULPA Filter Efficiency

Independent supply and exhaust filters provide 99.999% typical efficiency for particle sizes of 0.1 to 0.3 micrometers. Airstream Series filters meet the IEST-RP-CC001.3 recommended practice for ULPA performance (USA), and EN 1822 for H14 performance (EU).

**Esco Cabinets Use Swedish Camfil Farr® Mini-Pleat Filters Without Aluminum Separators to Increase Filter Efficiency, Minimize the Chance of Leakage, and to Prolong Filter Life. Filters Include a Lightweight Aluminum Frame for Structural Stability and Elimination of Swelling Common to Conventional Wood Frames.**

**Operator, Product and Environmental Protection**

The Esco Airstream Class III Biological Safety Cabinet (AC3) offers the highest possible level of containment and protection. The cabinet’s air-tight seal and advanced ULPA filtered laminar airflow provides product, operator, 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.

**Sentinel™ Microprocessor Control, Alarm, Monitoring System**

The Esco Sentinel™ microprocessor-based control system supervises operation of all cabinet functions.
Biological Safety Cabinets

Class III Biological Safety Cabinets

- 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.
- Industrial grade support frame constructed of electro-galvanized steel with an abrasion resistant finish.

Comfortable Ergonomic Design

- The angled front improves reach into the work area and reduces glare from the glass surface.
- The instant-start 5000k fluorescent lamp operates on an electronic ballast to reduce heat, improve comfort and conserve energy.
- The airflow alarm can be activated or deactivated depending on user preference and nature of the work. Consult your Esco Operating Manual or contact your Sales Representative for information on user-preference programming capabilities built into the Sentinel™ microprocessor platform.
- The control panel is located in the center of the cabinet and angled down for easy access by the operator.

Cabinet Filtration System

- Dynamic air barrier, inflow and forward-directed downflow air converge
- Ambient air is pulled into the cabinet through a disposable pre-filter, trapping larger particles and prolonging the life of main filter. Air is then passed through the downflow ULPA filter into the work zone as a vertical laminar flow air stream, bathing the work surface in clean air.
- 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 and exits the chamber through perforations around the perimeter of the work zone.
- Air from work zone passes through the first ULPA exhaust filter below the work surface, before traveling through internal ducting and exhausting to the laboratory environment after passing through the second ULPA exhaust filter located above the cabinet’s main chamber.

Standards Compliance

<table>
<thead>
<tr>
<th>Biosafety Cabinets</th>
<th>For Air Quality</th>
<th>For Filtration</th>
<th>For Electrical Safety</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>IEST-G-CC1001, USA</td>
<td>IESTRP-CC007.1, Worldwide</td>
<td>EN 61010-1, Europe</td>
</tr>
<tr>
<td></td>
<td>IEST-G-CC1002, USA</td>
<td>IESTRP-CC1001.3, Worldwide</td>
<td>UL 61010-1, USA</td>
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<tr>
<td></td>
<td></td>
<td>EN 1822 (H14), Europe</td>
<td>CAN/CSA-22.2, No. 61010-1</td>
</tr>
</tbody>
</table>

Glove Sizes

- To find out your glove size, measure (in inches) around your hand with a tape measure at the place indicated on the diagram. This measurement, in inches, is the closest to your glove size, i.e. 8” is equal to a glove size of 8.
- You should use your dominant hand, the right if you are right-handed, and the left if you are left-handed.
- Standard glove sizes available are 7, 8 (standard size) and 9. Specify when ordering.

The AC3 cabinet is engineered for comfort, utility value and safety.

- The angled front improves reach into the work area and reduces glare from the glass surface.
- All stainless steel work surface is easy to clean.
- Optional electrical service fittings are located for easier access.
- 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.
- Industrial grade support frame constructed of electro-galvanized steel with an abrasion resistant finish.

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 stainless steel work surface is easy to clean.
- Optional electrical service fittings are located for easier access.

Airstream.
Biological Safety Cabinets • Class III Biological Safety Cabinets
Touchpad data entry buttons permit control settings and access to diagnostics, default settings and hierarchical menus.

Color coded indicator lamps display green for primary function (fan operation); blue for secondary function (fluorescent lights and electrical outlet); and orange for caution (UV lamp ON).

Programmable automatic UV light timer simplifies operation, enhances contamination control, extends UV lamp life and saves energy.

Digital read-out with alpha-numeric display indicates all input, status and alarm functions. All functions can be user activated through touch-pad programming access; see Operations Manual.

- The lamp delivers uniform lighting to the work surface for greater comfort, reduced glare and improved productivity (see Technical Specifications).
- Neoprene™ synthetic arm-length gauntlets are flame and abrasion resistant. Single piece, leak-tested assembly guarantees maximum protection. Black color allows the detection of leaks by visual means.
- Glove ports are designed for easy and safe glove changing.

**Electrical 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.
- All electrical components are UL-listed or recognized.

Contact your local Sales Representative for specific warranty details or documentation requests.

**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.

**Electrical Outlets and Utility Fixtures**
- Electrical outlet, ground fault, North America
- Electrical outlet, Europe / Worldwide

**Cabinet Accessories**
- Germicidal UV lamp - Controlled by automatic UV lamp timer through Sentinel™ microprocessor control panel

**ISOCIDE™ Antimicrobial Powder-Coating**

All exterior painted surfaces are powder-coated with Esco Isocide, an antimicrobial inhibitor to minimize contamination. Isocide is integrated into the coating substrate and cannot wash out or diminish by repeated cleaning. Performance results are available upon request. Contact Esco or your Esco Sales Representative for details.
**General Specifications, Airstream Class III, Biological Safety Cabinets**

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

<table>
<thead>
<tr>
<th>Model</th>
<th>AC3-4B__</th>
<th>AC3-5B__</th>
<th>AC3-6B__</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal Size</td>
<td>1.2 meters (4')</td>
<td>1.5 meters (5')</td>
<td>1.8 meters (6')</td>
</tr>
<tr>
<td>External Dimensions (W x D x H)</td>
<td>1665 x 850 x 2250 mm</td>
<td>1970 x 850 x 2250 mm</td>
<td>2275 x 850 x 2250 mm</td>
</tr>
<tr>
<td>Internal Work Area, Dimensions (W x D x H)</td>
<td>1340 x 560 x 650 mm</td>
<td>1645 x 560 x 650 mm</td>
<td>1950 x 560 x 650 mm</td>
</tr>
<tr>
<td>Internal Work Area, Space</td>
<td>0.75 m² (8.1 sq.ft)</td>
<td>0.92 m² (9.9 sq.ft)</td>
<td>1.09 m² (11.7 sq.ft)</td>
</tr>
<tr>
<td>Number of Gloves Ports</td>
<td>2 ports</td>
<td>4 ports</td>
<td>4 ports</td>
</tr>
<tr>
<td>Glove Type &amp; Sizes Available</td>
<td>Neoprene™ polychloroprene synthetic rubber gauntlets. Available in sizes 7, 8 (standard size) and 9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Initial Airflow Volume</td>
<td>603 m³/h (355 cfm)</td>
<td>756 m³/h (445 cfm)</td>
<td>902 m³/h (531 cfm)</td>
</tr>
<tr>
<td>Negative Zone Pressure</td>
<td>-275 Pa (-1.1” Wg)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-Filter</td>
<td>Disposable and non-washable polyester fibers with 85% arrestance / EU3 rated</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ULPA Filter Typical Efficiency (Downflow, 1st Exhaust, 2nd Exhaust)</td>
<td>Typical: 99.999% at 0.1 to 0.3 μm and MPPS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sound Emission (Typical)*</td>
<td>NSF 49</td>
<td>EN 12469</td>
<td></td>
</tr>
<tr>
<td>Fluorescent Light Intensity At Zero Ambient</td>
<td>&gt;2000 Lux (&gt;186 foot candles)</td>
<td>&gt;1800 Lux (&gt;167 foot candles)</td>
<td>&gt;2000 Lux (&gt;186 foot candles)</td>
</tr>
<tr>
<td>Cabinet Construction</td>
<td>Main Body</td>
<td>1.5 mm (0.06&quot;) 16 gauge electro-galvanized steel with white oven-baked epoxy-polyester Isocide antimicrobial powder coated finish</td>
<td></td>
</tr>
<tr>
<td>Work Zone</td>
<td>1.2 mm (0.05&quot;) 18 gauge stainless steel, type 304, with 4B finish</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electrical**</td>
<td>220-240V, AC, 50Hz, 1Ø</td>
<td>110-120V, AC, 60Hz, 1Ø</td>
<td></td>
</tr>
<tr>
<td>Cabinet Full Load Amps (FLA)</td>
<td>AC3-481</td>
<td>AC3-581</td>
<td>AC3-681</td>
</tr>
<tr>
<td>3 A</td>
<td>3 A</td>
<td>3 A</td>
<td></td>
</tr>
<tr>
<td>Optional Outlets FLA</td>
<td>5 A</td>
<td>5 A</td>
<td>5 A</td>
</tr>
<tr>
<td>Cabinet Nominal Power</td>
<td>361 W</td>
<td>430 W</td>
<td>495 W</td>
</tr>
<tr>
<td>Cabinet BTU</td>
<td>1232</td>
<td>1407</td>
<td>1553</td>
</tr>
<tr>
<td>Cabinet Full Load Amps (FLA)</td>
<td>AC3-482</td>
<td>AC3-582</td>
<td>AC3-682</td>
</tr>
<tr>
<td>10 A</td>
<td>11.5 A</td>
<td>11.5 A</td>
<td></td>
</tr>
<tr>
<td>Optional Outlets FLA</td>
<td>5 A</td>
<td>5 A</td>
<td>5 A</td>
</tr>
<tr>
<td>Cabinet Nominal Power</td>
<td>536 W</td>
<td>586 W</td>
<td>620.5 W</td>
</tr>
<tr>
<td>Cabinet BTU</td>
<td>1829</td>
<td>2000</td>
<td>2117</td>
</tr>
<tr>
<td>Net Weight</td>
<td>498 kg (1096 lbs)</td>
<td>598 kg (1316 lbs)</td>
<td>676 kg (1487 lbs)</td>
</tr>
<tr>
<td>Shipping Weight</td>
<td>606.5 kg / 1337 lbs</td>
<td>615 kg / 1356 lbs</td>
<td>720 kg / 1587 lbs</td>
</tr>
<tr>
<td>Shipping Dimensions, Maximum (W x D x H)</td>
<td>2600 x 1950 x 1320 mm</td>
<td>2600 x 2150 x 1320 mm</td>
<td>2600 x 2150 x 1320 mm</td>
</tr>
<tr>
<td></td>
<td>102.4&quot; x 76.8&quot; x 52.0&quot;</td>
<td>102.4&quot; x 84.6&quot; x 52.0&quot;</td>
<td>102.4&quot; x 84.6&quot; x 52.0&quot;</td>
</tr>
<tr>
<td>Shipping Volume, Maximum</td>
<td>6.69 m³ (236 cu.ft.)</td>
<td>7.38 m³ (261 cu.ft.)</td>
<td>7.38 m³ (261 cu.ft.)</td>
</tr>
</tbody>
</table>

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

(Cont.)

- Emission of 253.7 nanometers for most efficient decontamination
- Ergonomic lab chair
- Laboratory grade construction, meets Class 100 cleanliness; alcohol resistant PVC materials
- Adjustable height 395-490 mm (15.6”-19.3”)
- Ergonomic foot rest
- Angled, helps maintain proper posture

- Adjustable height
- Anti-skid coating, chemical resistant finish
- Formalin vaporizer

The Airstream Class III Biological Safety Cabinet is available in all stainless steel construction for pharmaceutical grade applications, contact Esco or your Sales Representative for more details.
Airstream Model AC3 Class III Biological Safety Cabinet Technical Specifications

Model AC3-4B

1. Esco Sentinel microprocessor control system
2. Pass box
3. Pre-filter
4. Electrical & electronics panel
5. ULPA filter (downflow)
6. Fluorescent light
7. Glove ports
8. First exhaust ULPA filter
9. First exhaust blower
10. Second exhaust ULPA filter
11. Second exhaust blower
12. UV lamps (optional)
13. Pressure gauge
14. Work zone back wall: optional electrical outlet
15. Exhaust collar (optional)*

Model AC3-5B

1. Esco Sentinel microprocessor control system
2. Pass box
3. Pre-filter
4. Electrical & electronics panel
5. ULPA filter (downflow)
6. Fluorescent light
7. Glove ports
8. First exhaust ULPA filter
9. First exhaust blower
10. Second exhaust ULPA filter
11. Second exhaust blower
12. UV lamps (optional)
13. Pressure gauge
14. Work zone back wall: optional electrical outlet
15. Exhaust collar (optional)*

Model AC3-6B

1. Esco Sentinel microprocessor control system
2. Pass box
3. Pre-filter
4. Electrical & electronics panel
5. ULPA filter (downflow)
6. Fluorescent light
7. Glove ports
8. First exhaust ULPA filter
9. First exhaust blower
10. Second exhaust ULPA filter
11. Second exhaust blower
12. UV lamps (optional)
13. Pressure gauge
14. Work zone back wall: optional electrical outlet
15. Exhaust collar (optional)*

*NIOSH Alert: If biosafety cabinets are used for minute quantities of volatile toxic chemicals and trace amounts of radionuclides, they must be exhausted through properly functioning exhaust canopies.
Since 1978, Esco has emerged as a leader in the development of controlled environment, laboratory and pharmaceutical equipment solutions. Products sold in more than 100 countries include biological safety cabinets, fume hoods, ductless fume hoods, laminar flow clean benches, animal containment workstations, cytotoxic cabinets, hospital pharmacy isolators, and PCR cabinets and instrumentation. With the most extensive product line in the industry, Esco has passed more tests, in more languages, for more certifications, throughout more countries than any biosafety cabinet manufacturer in the world. Esco remains dedicated to delivering innovative solutions for the clinical, life science, research and industrial laboratory community. www.escoglobal.com.