Esco Biological Safety Cabinets
Your protection from biohazards.
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Welcome to Esco

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

Esco represents innovation and forward-thinking designs, which are all coupled with the highest standard quality since 1978. The Esco Group of Companies remains dedicated in delivering innovative solutions for the clinical, life sciences, research, industrial, laboratory, pharmaceutical and IVF community. With the most extensive product line in the industry, our products have passed a number of international standards and certifications. Esco operates under ISO 9001, ISO 14001 and ISO 13485.

Availability and Accessibility. Headquartered in Singapore, manufacturing facilities are located in Asia and Europe. R&D is conducted worldwide spanning the US, Europe and Asia. Sales, services and marketing subsidiaries are located in 12 major markets including the US, UK, Japan, China and India. Our regional distribution centers are located in China, UK, India, Malaysia, Philippines, Singapore, South Africa, South Korea and United States of America. Because of our worldwide presence, you can be sure that Esco is within your reach.

High Quality, Reliable and Dependable. Our customers are confident that only with the best quality, reliable, and dependable products, can they be sure of the accuracy of their research and procedures. 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 users.

Esco Cares for Your Comfort. Comfort of our users is ensured by building ergonomic designs and by reducing the noise levels of the units.

Esco Cares for the Environment. One in every four of Esco’s employees is involved in Research and Development and a number of these evaluate new components and/or designs to produce energy-efficient equipment. Being GREEN is more than just modifying the parts we use to produce a new energy-efficient technology, it also embodies the every aspect of the company.

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

As Esco takes the opportunity to respond to the world’s needs, we aim not just to contribute in the advancement of scientific discoveries but also in making the world a safer, healthier and a better place to live in.
An integral part of our business planning effort is based on managing a robust research and development program in Singapore, China, Europe and the USA, balanced against an investment in service support, training and customer education. Compared to industry averages, Esco invests a significant percentage of annual revenues in research and development. As a result of our investment, and with continuous feedback and idea evaluation among our research, global sales, marketing, purchasing and manufacturing teams; Esco products reflect the best contemporary designs in performance, ergonomics and customer satisfaction.

- Engineers located in technology centers in Singapore, China, Europe and the USA
- Growing patent portfolio
- Core competencies:
  - Embedded system, sensor and software development and integration
  - Containment engineering for biohazards, chemical vapors and hazardous powders
  - Decontamination cycle development
  - Computational fluid dynamics
  - Temperature, humidity, gas and environmental control
  - Imaging systems
  - Wireless and remote monitoring

**Research and Development**

Esco’s manufacturing advantage stems from our extensive degree of vertical integration, enabled by our world leading high throughput. All processes, with a few exceptions, are performed in-house. This allows us to achieve quality and reliability that is truly world class.

- Incoming materials inspection and warehousing
- CNC-controlled sheet metal fabrication and welding
- Environmentally-friendly powder coating lines
- Electromechanical final product assembly
- Electrical / electronics sub-assembly
- Multi-step electrical and physical performance testing
- Independent quality control at each step in the production cycle
- Microbiology, chemistry, containment test labs

Esco’s focus on quality and timeliness is relentless. Continuous improvement is a mantra. Cross functional teams from Esco Production, R&D, Quality Assurance, Senior Management, are regularly assembled to review and implement areas for improvement.

**Production and Quality**
**Life Sciences Laboratory Equipment**

**Sample Preparation**
- Class I Biological Safety Cabinets
- Class II Type A2 Biological Safety Cabinets
- Class II Type B2 Biological Safety Cabinets
- Class III Biological Safety Cabinets
- Horizontal Laminar Flow Clean Benches
- Vertical Laminar Flow Clean Benches
- Laboratory Animal Research Workstations
- Freeze Dryers

**Sample Cultivation**
- CO₂ Incubators with Cooling System
- CO₂ Incubators with Stainless Steel Exterior
- CO₂ Incubators (Water Jacketed)
- Laboratory Shakers

**Sample Analysis**
- PCR Thermal Cyclers
- Conventional Thermal Cyclers
- Real-time PCR Systems
- PCR Sample Handling
- Microplate Shakers
- PCR Cabinets

**Sample Storage & Sample Protection Solutions**
- Ultra-low Temperature Freezers
- Lab Refrigerators and Freezers
- Sample Database Management Software
- Intelligent Remote Monitoring Application Protocol
- Remote Monitoring, Datalogging, Programming Software
- Wireless Monitoring System

**Chemical Research**
- Ductless Fume Hoods
- Laboratory Fume Hoods
- Fume Hood Airflow Monitors
- Exhaust Blowers
- Powder Weighing Balance Enclosures

**General Equipment**
- Laboratory Thermostatic Products
- Laboratory Oven
- Laboratory Incubator
- Refrigerated Incubator
- Constant Climate Chamber

**Medical / IVF Equipment**
- Time-Lapse Embryo Incubators
- Benchtop Multi-room Embryo Incubators

**Pharmaceutical Equipment**
- CO₂ Incubators
- IVF Workstation
- Anti-Vibration Table
- CO₂ / O₂ Temperature Validation Unit

**Airflow Containment**
- Downflow Booths
- Ceiling Laminar Airflow Units
- Laminar Flow Horizontal Trolley
- Laminar Flow Vertical Trolley
- Laminar Flow Straddle Units
- Garment Storage Cabinet

**Cross Contamination Facility Integrated Barrier**
- Cleanroom Air Showers
- Air Shower Pass Box
- Cleanroom Transfer Hatch
- Pass Boxes
- Soft Wall Cleanroom
- Dynamic Passboxes and Dynamic Floor Label Hatches

**Isolation Containment**
- Aseptic Containment Isolator (ACTI)
- Weighing and Dispensing Containment Isolator (WDCI)
- General Processing Platform Isolator (GPPI)

**Barrier Isolation System**
- Pharmacy Compounding Aseptic Containment Isolator (Recirculating)
- Pharmacy Compounding Aseptic Isolator
- Cytotoxic Safety Cabinets

**Global Network**

- Sales/Service Subsidiary Companies
- Distributors
- Factories
- R&D Centers
- Regional Distribution Centers
We adapt to your needs!

Esco offers a wide range of models in biosafety cabinetry. From classifications of BSC to certifications to different international standards, Esco offers it all. Esco has the broadest selection of biosafety cabinets in the market. Esco manufactures a wide array of sizes and configuration to guarantee that there is always an Esco biosafety cabinet that suits your need.

Comprehensive Performance Testing at Esco

Every biosafety cabinet manufactured by Esco is individually tested, documented by serial number and validated with the following test methods:

- Inflow and downflow velocity
- PAO aerosol challenge for filter integrity
- Airflow pattern visualization
- Electrical safety to IEC61010-1
- Additional KI-Discus containment and microbiological testing are performed on statistical sampling basis

Know your Biosafety Levels.

Biosafety Levels 1 through 4 were established by the Centers for Disease Control (CDC) and the National Institutes of Health (NIH) and are combinations of laboratory practices and techniques, safety equipment and facilities. All of these levels are appropriate for the biohazard posed by the agents used and for the laboratory activity.

Selection of a Biological Safety Cabinet

A BSC should be selected primarily in accordance with the type of protection needed: product protection; personnel protection against Risk Group 1 ~ 4 microorganisms; personnel protection against exposure to radionuclides and volatile toxic chemicals; or a combination of these. The table below shows which BSCs are recommended for each type of protection.

<table>
<thead>
<tr>
<th>Type of Protection</th>
<th>BSC Selection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personnel Protection, microorganisms in Risk Group 1-3</td>
<td>Class I, Class II, Class III</td>
</tr>
<tr>
<td>Personnel Protection, microorganisms in Risk Group 4, glove box laboratory</td>
<td>Class III</td>
</tr>
<tr>
<td>Personnel Protection, microorganisms in Risk Group 4, suit laboratory</td>
<td>Class I, Class II</td>
</tr>
<tr>
<td>Product Protection</td>
<td>Class II, Class III</td>
</tr>
<tr>
<td>Volatile radionuclide/chemical protection, re-circulated back to work zone</td>
<td>Class II Type B1, Class II Type A2 vented to outside</td>
</tr>
<tr>
<td>Volatile radionuclide/chemical protection, no re-circulated back to work zone</td>
<td>Class I, Class II Type B2, Class III vented to outside</td>
</tr>
</tbody>
</table>

Is your Biological Safety Cabinet truly safe?

Many cabinets meet the minimum safety requirements of international standards like NSF/ANSI 49 and EN 12469, but does your biosafety cabinet have these extended safety features to further protect you from the cabinet’s wear and tear and unexpected situations?

**Negative-pressed side walls**
Negative-pressed side walls help prevent contaminants from escaping out.

**Puncture-resistant metal plenum**
Metal plenum resists tear and leak, unlike plastic bag / HPX plenum

**ULPA Filter**
ULPA filter has 10x filtration efficiency of HEPA filter ~ 10x more protection against biohazards.

**Antimicrobial powder coating**
Antimicrobial coating impregnated with silver ions can inhibit microbial growth to improve safety.

**Think safety.** Choose a biosafety cabinet with enhanced safety features beyond international standard requirements.
Esco biosafety cabinets save energy, money and environment!

Esco provides biological safety cabinets that are energy-efficient. With its dedication to protect the environment, we employ EC or DC fans in a move to reduce energy costs. With EC technology, 90% efficiency can be reached across a very wide speed and load range by converting AC mains to DC via proprietary electronics. This not only saves up to 66% of the energy demand of conventional AC fans, but also produces less heat output for cooler working conditions and significantly lowers noise levels.

Moreover, higher torque can be delivered and constant airflow is maintained since the fans can run at higher speeds than conventional systems. HEPA filter life is extended and general maintenance costs are reduced.

<table>
<thead>
<tr>
<th>Description</th>
<th>AC2-4S -NS /AR2 with DC ECM blower</th>
<th>Typical BSC with AC Blower</th>
<th>Savings</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instantaneous Power</td>
<td>200</td>
<td>800</td>
<td>600</td>
<td>Watt</td>
</tr>
<tr>
<td>Hours of Operation in a year</td>
<td>400</td>
<td>1600</td>
<td>1200</td>
<td>KWh</td>
</tr>
<tr>
<td>Energy cost USA at $ 0.10 / KWh</td>
<td>40</td>
<td>160</td>
<td>120</td>
<td>USD</td>
</tr>
<tr>
<td>Energy cost EU at € 0.20 / KWh</td>
<td>80</td>
<td>320</td>
<td>240</td>
<td>Euro</td>
</tr>
<tr>
<td>CO₂ released in USA at 1 lbs / KWh</td>
<td>400</td>
<td>1600</td>
<td>1200</td>
<td>lbs</td>
</tr>
<tr>
<td>CO₂ emission in EU at 0.35 Kg / KWh</td>
<td>140</td>
<td>560</td>
<td>420</td>
<td>Kg</td>
</tr>
</tbody>
</table>

*Values based on estimates only.

Ensured containment of biohazards with Esco biological safety cabinets.

Containment refers to the ability of the cabinet/enclosure to contain all hazardous particles inside the working space without any escape through the front of the cabinet.

There is only one recognized way in the entire world to perform testing of containment on a safety cabinet in the field and after manufacture – the KI-DISCUS test as specified in EN12469:2000. It should be noted that a cabinet can pass all the airflow tests but still fail the containment test.

Esco is one of the few companies outside Europe with KI-DISCUS testing capabilities. We maintain a statistical testing program by which a cabinet from a statistical sample of units manufactured is individually-tested at the factory with the KI-DISCUS test. In addition, all our safety cabinets have been type-tested and approved for containment with this method. Finally, many Esco cabinets have also been independently type-tested – in the most recognized international laboratories – using the microbiological method for operator protection.

Aside from KI-DISCUS, microbiological tests such as product and cross-contamination protection tests are also employed. These tests determine whether aerosols formed during microbiological applications can be effectively contained within the biosafety cabinet, whether outside contaminants will not be able to enter the work zone, and whether aerosol contamination of other equipment can be effectively minimized.
Biological Safety Cabinets Product Overview

Esco is a world leader in biological safety cabinets, offering the industry's widest product range, with thousands of installations in leading laboratories in more than 100 countries around the globe. Esco's biological safety cabinets have earned more independent certifications in more countries, in more languages, than any other product, demonstrating our commitment to the industry's best safety and quality.

Class I Biological Safety Cabinets
The Class I cabinet has the most basic and rudimentary design of all biological safety cabinetry available today. It provides protection to the operator and the environment from exposure to biohazards and is suitable for work with microbiological agents assigned to biosafety levels 1, 2 and 3.

Brand available: Airstream®

Class II Type A2 Biological Safety Cabinets
The Class II Type A2 biological safety cabinet is the most common Class II cabinet. It is also the most common safety cabinet of all the different types available. It has a common plenum from which 30% of air is exhausted, and 70% is re-circulated to the work area as the downflow. It provides protection to the operator and the environment from exposure to biohazards, and also protects products from contaminated room air and cross-contamination.

Note: If trace amount of toxic chemicals are employed as an adjunct to microbiological processes, Type A cabinets should be exhaust-ducted.

Brands available: Airstream®, Labculture®, eSafe®, NordicSafe®

Class II Type B2 Biological Safety Cabinets
In a Class II Type B2 biological safety cabinet, all inflow and downflow air is exhausted after HEPA filtration to the external environment without recirculation within the cabinet. Type B2 cabinets are suitable for work with toxic chemicals employed as an adjunct to microbiological processes under all circumstances since no re-circulation occurs. In theory, Type B2 cabinets may be considered to be the safest of all Class II BSCs since the total exhaust feature acts as a fail-safe in the event that the downflow and/or exhaust HEPA filtration system cease to function normally.

Brands available: Airstream®, Labculture®

Class III Biological Safety Cabinet
The Class III biological safety cabinet provides an absolute level of safety, which cannot be attained with Class I and Class II cabinets. It is suitable for work with microbiological agents assigned to biosafety levels 1, 2, 3 and 4. It is frequently specified for work involving the most lethal biological hazards.

Brand available: Airstream®

Esco's Superior Microprocessor Controllers
With Esco's dedication to make your lives in the laboratory easier and safer, we developed superior microprocessor controllers for you – ergonomically designed for easy reach, viewing and operation.

Sentinel™ Platinum Microprocessor Controller
- Large graphical LCD to illustrate cabinet operating parameters
- Displays all safety information on one screen
- Centered and angled down for easy reach and viewing
- Available for eSafe® Class II Type A2 (EC2) only
Sentinel™ Gold Microprocessor Controller
- Displays all safety information on one screen
- Centered and angled down for easy reach and viewing
- Selectable Quickstart mode for fast operation
- Available for Airstream® Class I (AC1), Airstream® Class II Type A2 (AC2), Labculture® Class II Type A2 (LA2), Labculture® Class II Type B2 (LB2) and NordicSafe® Class II Type A2 (NC2) BSCs

Sentinel™ Silver Microprocessor Controller
- Supervises all cabinet functions
- Centered and angled down for easy reach and viewing
- Large display monitors operational parameters
- Available for Airstream® Class II Type B2 (AB2), Airstream® Class III (AC3) BSCs

Esco also offers easy-to-use Rocker Switches and Pressure Gauge for Airstream® Reliant Class II Type A2 (AR2) and Labculture® Reliant Class II Type A2 (LR2) models.
Esco brings ergonomics to a new level!

Must-haves of an Esco Biological Safety Cabinet:

1. Centered and angled down controller for easy reach and viewing
2. Curved corners for easy cleaning
3. Easy-to-reach service fixtures and outlets
4. Easy-to-lift and easy-to-clean work tray
5. Raised arm rest for comfortable working posture
6. Sufficient and uniform lighting at more than 1200 lux
7. Low noise
8. Angled front sash to prevent reflection and improve reach
9. Ergonomic chair for adequate back support
10. Ergonomic foot rest for individuals whose feet do not rest comfortably on the floor
11. UV light strategically placed inside the cabinet to avoid eye irritation
Class I Biological Safety Cabinet
Airstream® Class I Biological Safety Cabinet

Provides protection for you and your environment.

The Airstream® Class I biological safety cabinet offers protection for you and your environment. It has been certified by PHE / Public Health England (formerly HPA) for compliance to EN 12469. AC1 is ergonomically designed without compromising your safety.

1.2 mm (0.05”) 18 gauge SS
304, 4B Finish
Spill-retaining work top design with a recessed central area contains accidental liquid spills.

Sentinel™ Gold Microprocessor Controller
- Displays all safety information on one screen
- Centered and angled down for easy reach & viewing

Optional Secondary H14 or Carbon Filter
H14 Filter
- 10x filtration efficiency of HEPA filter

Easy-to-clean Back Wall
- Large back wall radius for easy cleaning
- With UV Lamp Provision

Hinged Window
- 90º opening for an easy workzone access
- 8 mm UV-resistant Polycarbonate Window
- Gasket-surrounded window to provide airtight seal for better safety.

UV Door
- Safety door against UV light
- Provides airtight seal during decontamination
- Integrated with VHP Injection Port for easy connection to VHP/HPV generator

Work Top
- 1.2 mm (0.05”) 18 gauge SS 304, 4B Finish
- Spill-retaining work top design with a recessed central area contains accidental liquid spills.

Isocide™ Powder Coat
- Silver ion-impregnated powder coat
- Inhibits microbial growth to improve safety

Airflow Sensor
- Monitors real-time airflow for safety
- Alerts the user if airflow is insufficient

Energy-efficient ECM Motor
- 70% energy savings from AC Motor
- Stable airflow, despite building voltage fluctuations
- Night Setback to further reduce power consumption by 65%

RS 232 Port and Zero Volt Relay Contact
- RS 232 Port to send operational information to Building Management System (BMS)
- Zero Volt Relay Contact to turn ON/OFF exhaust blower and signal the building alarm

Monitors real-time airflow for safety
Alerts the user if airflow is insufficient

Enables easy cleaning

Available in 1.2 meter / 4 ft width

Airstream® Class I Biosafety Cabinet
Model AC1-4E8

Esco Class I Microbiological Safety Cabinets has been certified by PHE / Public Health England (formerly HPA) for compliance to EN 12469
## Standards Compliance

<table>
<thead>
<tr>
<th>Biological Safety Cabinets</th>
<th>Filtration</th>
<th>Electrical Safety</th>
</tr>
</thead>
<tbody>
<tr>
<td>EN 12469, Europe</td>
<td>EN-1822 (H14), Europe</td>
<td>IEC61010-1, Worldwide</td>
</tr>
<tr>
<td>SANS12469, South Africa</td>
<td>IEST-RP-CC001.3, USA</td>
<td>EN-61010-1, Europe</td>
</tr>
</tbody>
</table>

## Technical Specifications for Airstream® Class I Biological Safety Cabinet

### Model

<table>
<thead>
<tr>
<th>Specification</th>
<th>AC1-4E8</th>
</tr>
</thead>
<tbody>
<tr>
<td>External Dimensions (W x D x H)</td>
<td>1340 x 731 x 1395 mm (52.8&quot; x 28.8&quot; x 55.0&quot;)</td>
</tr>
<tr>
<td>Gross Internal Dimensions (W x D x H)</td>
<td>1220 x 660 x 670 mm (48.0&quot; x 26.0&quot; x 26.4&quot;)</td>
</tr>
<tr>
<td>Usable Work Area</td>
<td>0.76 m²</td>
</tr>
<tr>
<td>Maximum Window Opening (at 90° opening)</td>
<td>565 mm (22.2&quot;)</td>
</tr>
<tr>
<td>Working Opening</td>
<td>203 mm (8&quot;)</td>
</tr>
<tr>
<td>Average Inflow Velocity</td>
<td>0.85 m/s (167 fpm)</td>
</tr>
</tbody>
</table>

### Airflow Volume

<table>
<thead>
<tr>
<th>Type</th>
<th>Inflow</th>
<th>Exhaust</th>
</tr>
</thead>
<tbody>
<tr>
<td>m³/h</td>
<td>758 (446 cfm)</td>
<td>758 (446 cfm)</td>
</tr>
</tbody>
</table>

### Required Exhaust with Optional Thimble Exhaust Collar

| Static Pressure for Optional Thimble Exhaust Collar | 85 Pa (0.34 in H2O) |

### HEPA Filter Typical Efficiency

- >99.999% at 0.1 to 0.3 micron, ULPA as per IEST-RP-CC001.3 USA
- >99.999% at MPPS, H14 as per EN 1822 EU

### Sound Emission in Typical Lab Room per EN 12469

- 48.4 dBA

### Fluorescent Lamp Intensity (lux)

- >1200 lux (>111 foot candles)

### Cabinet Construction

- Main body: 1.2 mm (0.08")/18 gauge EG Steel with Isocide™ oven-baked epoxy-polyester antimicrobial powder coating
- Work Zone: Table: 1.2 mm (0.08") / 18 gauge, SS 304, 4B Finish
- Side Walls: 5 mm (0.2") UV-absorbing tempered glass

### Electrical

- Cabinet Full Load Amps (FLA): 8.1
- Heat Load (BTU / Hr): 628
- Nominal Power Consumption: 184 W
- Net Weight: 230 Kg (507 lbs)
- Shipping Weight: 285 Kg (628 lbs)
- Shipping Dimensions, Maximum (W x D x H): 1450 x 820 x 1760 mm (57.1" x 32.3" x 67.6")
- Shipping Volume, Maximum: 2.09 m³

## Guide to Models

### AC1-4E8

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>4 ft (1220mm)</td>
<td>4</td>
<td>Glass side walls</td>
<td>E</td>
<td>230 V, 50/60 Hz</td>
<td>8</td>
</tr>
</tbody>
</table>
Class II Type A2 Biological Safety Cabinets

Esco’s Class II Type A2 cabinets provide protection to (a) the operator and laboratory environment from particulates generated within the work zone; (b) the product and process within the work zone from airborne contamination from ambient air; (c) and the product and process within the work zone from cross contamination.

Note: Class II Type A2 biological safety cabinets can be used to handle minute quantities of volatile toxic chemicals and trace amounts of radionuclides when thimble-ducted. Use this option if chemical vapor re-circulation into the work zone is permitted.
We understand your BSC requirements.

Airstream® offers the most complete Class II cabinet range, with 9 models to choose from.
Class II Type A2 Biological Safety Cabinets

Airstream® Class II Type A2 Biological Safety Cabinets, Gen 3

The World’s Most Energy-Efficient, Quiet, and Compact Biosafety Cabinet

RS 232 Serial Interface Port
- Sends operational information to Building Management System (BMS)
- Optional zero volt exhaust and alarm contact

Sentinel™ Gold Microprocessor Controller
- Displays all safety information on one screen
- Centered and angled down for easy reach & viewing
- Selectable Quickstart mode for fast operation

Curved Corner & Glass Side
- Large corner radius for easy cleaning
- Easy-to-reach service fixture and outlets
- Stainless steel side wall is available (AC2-S and AC2-D variant)

Divided Work Tray
- Easy to lift and clean
- Single-piece recessed tray is available (AC2-S and AC2-D variant)

Raised Arm Rest
- Helps prevent grille blocking
- Comfortable working posture

Removable Paper Catch
- Easy to clean
- Optional pre-filter can be fitted

Available in 0.6, 0.9, 1.2, 1.5, and 1.8 meter width

Esco Airstream Class II has been certified by PHE / Public Health England (formerly HPA) for compliance to EN 12469
The most energy-efficient Class II Biosafety Cabinet in the world with 70% Energy savings compared to AC motor
- Stable airflow, despite building voltage fluctuations & filter loading
- Night Setback mode to further reduce power consumption by 60%

Energy-Efficient ECM Motor

- Monitors real-time airflow for safety
- Alerts the user if airflow is insufficient

Airflow Sensor

- Monitors real-time airflow for safety
- Alerts the user if airflow is insufficient

ULPA Filter

- 10x Filtration efficiency of HEPA filter
- Creates ISO Class 3 work zone instead of industry-standard ISO Class 5

Dynamic Chamber™

- Blower plenum and side walls (AC2-S and AC2-D variant)
- Prevents contaminants from escaping outside

ISOcidE® Powder Coat

- Silver ion-impregnated powder coat
- Inhibits microbial growth to improve safety

Standards Compliance

<table>
<thead>
<tr>
<th>Biosafety Cabinet</th>
<th>Air Quality</th>
<th>Filtration</th>
<th>Electrical Safety</th>
</tr>
</thead>
<tbody>
<tr>
<td>EN 12469, Europe</td>
<td>ISO 14644.1 Class 3, Worldwide</td>
<td>EN-1822 (H14), Europe</td>
<td>IEC 61010-1, Worldwide</td>
</tr>
<tr>
<td>SANS 12469, South Africa</td>
<td>JIS B9920 Class 3, Japan BS 5295 Class 3, UK</td>
<td>IEST-RP-CC001.3, USA</td>
<td>EN 61010-1, Europe</td>
</tr>
<tr>
<td>10x Filtration efficiency of HEPA filter</td>
<td>Prevents contaminants from escaping outside</td>
<td>IEST-RP-CC007, USA</td>
<td>UL 61010-1, USA</td>
</tr>
<tr>
<td>10x Filtration efficiency of HEPA filter</td>
<td>Prevents contaminants from escaping outside</td>
<td>IEST-RP-CC034.1, USA</td>
<td>CAN / CSA-22.2, No.61010-1</td>
</tr>
<tr>
<td>10x Filtration efficiency of HEPA filter</td>
<td>Prevents contaminants from escaping outside</td>
<td>IEST-RP-CC034.1, USA</td>
<td>CAN / CSA-22.2, No.61010-1</td>
</tr>
</tbody>
</table>
Class II Type A2 Biological Safety Cabinets

Airstream® Class II Type A2 Biological Safety Cabinets (AC2-K)
The World’s Leading Energy-Efficient, Quiet and Compact Biosafety Cabinet

Note: Airstream® (AC2-K) model is only available for Australia.

Voltage Free Relay Contact
- Zero volt exhaust and alarm contact

Airflow Sensor
- Monitors real-time airflow for safety
- Alerts the user if airflow is insufficient
- High-end Accusense sensor made by Degree C

Sentinel™ Gold Microprocessor Controller
- Displays all safety information on one screen
- Centered and angled down for easy reach & viewing
- Selectable Quickstart mode for fast operation

Counter-balance Sash Window
- Aerosol-tight window seal
- Manual window with counter-balance system

Unique Stainless Steel Side Walls
- Large corner radius for easy cleaning
- Easy-to-reach service fixture and outlets

Single-Piece Work Tray
- Recessed to contain spillage
- Sloped perimeter that is easy to wipe

Raised Arm Rest
- Helps prevent grille blocking
- Comfortable working posture

Removable Paper Catch
- Easy to clean
- Optional pre-filter can be fitted
The most energy-efficient Class II Biosafety Cabinet in the world
- 70% Energy savings compared to AC motor
- Stable airflow, despite building voltage fluctuations & filter loading
- Standby mode to further reduce power consumption by 60%

**H14 Filter**
- H14 Filter with efficiency of 99.999%
- Creates ISO Class 3 work zone instead of industry-standard ISO Class 5

**ISOCIDE® Powder Coat**
- Silver ion-impregnated powder coat
- Inhibits microbial growth to improve safety

**Optional Hydrogen Peroxide Injection Port**
- Easily connects to VHP/HPV Generator
- Combined with sealed front window for easy decontamination

**Angled Drain Pan**
- Easy to clean
- Does not harbor contaminants

---

<table>
<thead>
<tr>
<th>Standards Compliance</th>
<th>Biosafety Cabinet</th>
<th>Air Quality</th>
<th>Filtration</th>
<th>Electrical Safety</th>
</tr>
</thead>
<tbody>
<tr>
<td>AS1807.22, Australia</td>
<td>ISO 14644-1 Class 3, Worldwide</td>
<td>EN-1822 (H14), Europe</td>
<td>IEST-RP-CC001.3, USA</td>
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<tr>
<td>SANS 12469, South Africa</td>
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<td>IEST-RP-CC034, 1, USA</td>
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<td>IEC 61010-1, Worldwide</td>
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<td>61010-1, USA</td>
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<td>EN 61010-1, Europe</td>
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<td>61010-1, USA</td>
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<td>UL 61010-1, USA</td>
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<td></td>
<td></td>
<td>CAN / CSA-22.2, No.61010-1</td>
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</tbody>
</table>
Class II Type A2 Biological Safety Cabinets

Airstream® and Airstream® Reliant Class II Type A2 Biological Safety Cabinets

The World’s Most Energy-Efficient, Quiet, and Compact Biosafety Cabinet

Note: Airstream® Reliant (AR2) model is only available for USA.

RS 232 Serial Interface Port and Voltage Free Relay Contact
(Not Applicable for AR2)
- Sends operational information to Building Management System (BMS)
- Zero Volt Relay Contact to turn ON/OFF exhaust blower and signal the building alarm

Sentinel™ Gold Microprocessor Controller (for AC2)
- Displays all safety information on one screen
- Centered and angled down for easy reach & viewing
- Selectable Quickstart mode for fast operation

Rocker Switches and Pressure Gauge (for AR2)
- Easy-to-use switches
- Displays filter loading status
- Manually adjustable UV timer

Single-Piece Wall
- Easy-to-reach service fixture and outlets
- Large radius for easy cleaning

Single-Piece Work Tray
- Recessed to contain spillage
- Sloped perimeter that’s easy to wipe

Raised Arm Rest
- Helps prevent grille blocking
- Comfortable working posture

Available in 0.9, 1.2, 1.5 and 1.8 meter width (3’, 4’ 5’ and 6’)

Airstream® Class II, NSF 49
ESCO Corporation
1554 East Bannock, Boise, Idaho 83712
1-800-331-ESCO (3732)
www.ESCO.com

Sentinel™ Gold Microprocessor Controller
Sentinel™ Gold Microprocessor Controller
Displays all safety information on one screen
Centered and angled down for easy reach & viewing
Selectable Quickstart mode for fast operation

Sentinel™ Gold Microprocessor Controller
Sentinel™ Gold Microprocessor Controller
Displays all safety information on one screen
Centered and angled down for easy reach & viewing
Selectable Quickstart mode for fast operation
**Airflow Sensor** (Not Applicable for AR2)
- Monitors real-time airflow for safety
- Alerts the user if airflow is insufficient

**Energy-Efficient DC ECM Motor**
- The leading energy-efficient Class II Type A2 Biosafety Cabinet in the world with 70% Energy savings compared to AC motor
- Stable airflow, despite building voltage fluctuations & filter loading
- Standby mode to further reduce power consumption by 60%

**ULPA Filter**
- 10x Filtration efficiency of HEPA filter
- Creates ISO Class 3 work zone instead of industry-standard ISO Class 5

**Dynamic Chamber™**
- Blower plenum and side walls are surrounded by negative pressure
- Prevents contaminants from escaping outside

**Angled Sash**
- 5° angled front to optimize user comfort, reduce glare and maximize reach into the work area

**ISOCLIDE® Powder Coat**
- Silver ion-impregnated powder coat
- Inhibits microbial growth to improve safety

**Removable Paper Catch**
- Easy to clean
- Optional pre-filter can be fitted

**Certification**

<table>
<thead>
<tr>
<th>Standards Compliance</th>
<th>Biosafety Cabinets</th>
<th>Air Quality</th>
<th>Filtration</th>
<th>Electrical Safety</th>
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</thead>
<tbody>
<tr>
<td>NSF / ANSI 49 NSF*</td>
<td>ISO 14644.1, Class 3, Worldwide; JIS B9920, Class 3, Japan; BS 5295, Class 3, UK; US Fed Std 209E, Class 1, USA</td>
<td>EN-1822 (H14), Europe; IEST RP-CC001.3, USA; IEST RP-CC007, USA; IEST RP-CC034.1, USA</td>
<td>UL-61010A-1, USA; CSA22.2 No.1010-192, Canada; EN61010-1, Europe; IEC61010-1, Worldwide</td>
<td></td>
</tr>
</tbody>
</table>
Aside from providing protection for you and your environment, Airstream® Plus Class II biological safety cabinet provides protection for your microbiological samples.

**Sentinel™ Gold Microprocessor Controller**
- Displays all safety information on one screen
- Centered and angled down for easy reach & viewing
- Selectable Quickstart mode for fast operation

**Voltage Free Relay Contact**
- Zero volt exhaust and alarm contact

**Airflow Sensor**
- Monitors real-time airflow for safety
- Alerts the user if airflow is insufficient
- High-end Accusense sensor made by Degree C

**Motorized Window**
- Aerosol-tight window seal
- Window automatically stops at safe operating height
- Conveniently move the window by fingertip

**Unique Stainless Steel and Glass Hybrid Wall (E-Series)**
- Large corner radius for easy cleaning
- Easy-to-reach service fixture and outlets
- Stainless steel side wall is available (S-Series)
- Hole-free side glass for increased safety

**Divided Work Tray**
- Easy to lift and clean
- Single-piece recessed tray is available (S-Series)

**Raised Arm Rest**
- Helps prevent grille blocking
- Comfortable working posture

**Removable Paper Catch**
- Easy to clean
- Optional pre-filter can be fitted

---

Available in 0.9, 1.2, 1.5 and 1.8 meter widths (3', 4', 5' and 6')
**Optional Hydrogen Peroxide Injection Port**
- Easily connects to VHP/HPV Generator
- Combined with sealed front window for easy decontamination

**Angled Drain Pan**
- Easy to clean
- Does not harbor contaminants

**H14 / Optional U15 Filter**
- H14 Filter with efficiency of 99.999%
- U15 Filter with efficiency of 99.9999% (10x filtration efficiency of H14 filter)
- Creates ISO Class 3 work zone instead of industry-standard ISO Class 5
- Easy filter replacement procedure due to customized plenum design

**LED Lamp**
- Energy-efficient
- Last 4x longer than fluorescent lamp
- Brighter than fluorescent lamp

**ISOcIDE® Powder Coat**
- Silver ion-impregnated powder coat
- Inhibits microbial growth to improve safety

**DUAL Energy-Efficient DC ECM Motor**
- The most energy-efficient Class II Biosafety Cabinet in the world with 70% energy savings compared to AC motor.
- Stable airflow, despite building voltage fluctuations & filter loading
- Standby mode to further reduce power consumption by 60%

**H14 / Optional U15 Filter**
- H14 Filter with efficiency of 99.999%
- U15 Filter with efficiency of 99.9999% (10x filtration efficiency of H14 filter)
- Creates ISO Class 3 work zone instead of industry-standard ISO Class 5
- Easy filter replacement procedure due to customized plenum design

**LED Lamp**
- Energy-efficient
- Last 4x longer than fluorescent lamp
- Brighter than fluorescent lamp

**ISOcIDE® Powder Coat**
- Silver ion-impregnated powder coat
- Inhibits microbial growth to improve safety

**Optional Hydrogen Peroxide Injection Port**
- Easily connects to VHP/HPV Generator
- Combined with sealed front window for easy decontamination

**Angled Drain Pan**
- Easy to clean
- Does not harbor contaminants

## Standards Compliance

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<tr>
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<tr>
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## Guide to Models

<table>
<thead>
<tr>
<th>Airstream Variant</th>
<th>Code</th>
<th>Nominal Width</th>
<th>Side Walls</th>
<th>Electrical Code</th>
<th>Suffix</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sentinel™ Gold</td>
<td>C</td>
<td>2 ft (0.6 m)</td>
<td>Glass side walls</td>
<td>E</td>
<td>230 V, 50/60 Hz</td>
<td>8</td>
</tr>
<tr>
<td>Rocker Switches and Pressure Gauge™</td>
<td>R</td>
<td>3 ft (0.9 m)</td>
<td>Stainless steel side walls</td>
<td>S</td>
<td>115 V, 50/60 Hz</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4 ft (1.2 m)</td>
<td>Stainless steel side walls (for AC2-K)</td>
<td>K</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>5 ft (1.5 m)</td>
<td></td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>6 ft (1.8 m)</td>
<td></td>
<td>6</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Airstream® Reliant is only available for USA. Airstream® (AC2-K) is only available for Australia.

a. Applicable for Airstream® Reliant only (AR2)
b. 2 ft (0.6 m) nominal width available for AC2 (E and S-series); AC2 (D and G-series) available in 4 th and 6 ft nominal width. Airstream® (AC2-K) is available in 4 ft width only.
c. Unique hybrid side walls for AC2-E-TU, Stainless steel side walls for AC2-K, AC2-NS and AR2. Code for AC2-K side walls is K.
d. Airstream® (AC2-K) electrical code is 230 V, 50/60 Hz (code 8); Airstream® Reliant (AR2) electrical code is 115 V, 50/60 Hz (code 9).
| Glass Side: 230 V, 50/60 Hz | AC2-2E8 2010718 | AC2-3E8 2010658 | AC2-4E8 2010621 | AC2-5E8 2010656 | AC2-6E8 2010657 |
| Glass Side: 115 V, 50/60 Hz | AC2-2E9 2010777 | AC2-3E9 2010779 | AC2-4E9 2010697 | AC2-5E9 2010784 | AC2-6E9 2010787 |
| Stainless Steel Side: 230 V, 50/60 Hz | AC2-2S8 2010767 | AC2-3S8 2010721 | AC2-4S8 2010711 | AC2-5S8 2010725 | AC2-6S8 2010722 |
| Stainless Steel Side: 115 V, 50/60 Hz | AC2-2S9 2010790 | AC2-3S9 2010792 | AC2-4S9 2010744 | AC2-5S9 2010797 | AC2-6S9 2010800 |

| Nominal Size | 2 ft (0.6 meter) | 3 ft (0.9 meter) | 4 ft (1.2 meter) | 5 ft (1.5 meter) | 6 ft (1.8 meter) |
| External Dimensions (W x D x H) | Width | 730 mm (28.8") | 1035 mm (40.8") | 1340 mm (52.8") | 1645 mm (64.8") | 1950 mm (76.8") |
| Depth without Arm Rest | 753 mm (29.5") |
| Depth with Arm Rest | 810 mm (32.0") |
| Height | 1400 mm (54.8") |

| Gross Internal Dimensions (W x D x H) | Width | 610 mm (24.0") | 915 mm (36.0") | 1220 mm (48.0") | 1525 mm (60.0") | 1830 mm (72.0") |
| Depth | 580 mm (22.8") |
| Height | 660 mm (26.0") |

| Usable Work Area | 0.27 m² (2.9 sq.ft.) | 0.42 m² (4.5 sq.ft.) | 0.56 m² (6.1 sq.ft.) | 0.71 m² (7.63 sq.ft.) | 0.86 m² (9.2 sq.ft.) |
| Tested Opening | 175 mm (7") |
| Working Opening | 190 mm (7.5") |

| Average Airflow Velocity | Inflow | 0.45 m/s (90 fpm) |
| Downflow | 0.30 m/s (60 fpm) |

| Airflow Volume | Inflow | 173 cm/h (102 cfm) | 259 cm/h (152 cfm) | 346 cm/h (204 cfm) | 432 cm/h (254 cfm) | 519 cm/h (305 cfm) |
| Downflow | 369 cm/h (217 cfm) | 553 cm/h (325 cfm) | 738 cm/h (434 cfm) | 922 cm/h (543 cfm) | 1107 cm/h (657 cfm) |
| Exhaust | 173 cm/h (102 cfm) | 259 cm/h (152 cfm) | 346 cm/h (204 cfm) | 432 cm/h (254 cfm) | 519 cm/h (305 cfm) |
| Required Exhaust with Optional Thimble Exhaust Collar | 260 m³/h (153 cfm) | 320 m³/h (189 cfm) | 538 m³/h (317 cfm) | 615 m³/h (362 cfm) | 823 m³/h (485 cfm) |
| Static Pressure for Optional Thimble Exhaust Collar | 28 Pa / 0.11 in H₂O | 29 Pa / 0.11 in H₂O | 31 Pa / 0.12 in H₂O | 35 Pa / 0.14 in H₂O | 47 Pa / 0.18 in H₂O |

| ULPA Filter Typical Efficiency | >99.999% at 0.1 to 0.3 micron, ULPA as per IEST-RP-CC001.3 USA |

| Sound Emission* | NSF / ANSI 49 | 56.3 | 56.6 | 58.7 | 58.2 | 59.4 |
| EN 12469 | 51.0 | 52.0 | 53.5 | 53.6 | 55.7 |

| Fluorescent Lamp Intensity (lux) | 859 | 1279 | 1404 | 1227 | 1384 |
| Fluorescent Lamp Intensity (ft-cd) | 80 | 119 | 130 | 114 | 129 |

| Cabinet Construction | Main body | 1.2 mm (0.05") 18 gauge electro-galvanized steel with white oven-baked epoxy-polyester Isocide™ antimicrobial powder-coated finish |
| Work Zone | 1.5 mm (0.06") 16 gauge stainless steel, type 304, with 4B finish |
| Side Walls (E Series) | UV-absorbing tempered glass, 5 mm (0.2"), colorless and transparent |
| Side Walls (S Series) | 1.5 mm (0.06") 16 gauge stainless steel, type 304, with 4B finish |

| Electrical | Cabinet Full Load Amps (FLA) | 1.8 | 3.5 | 3.7 | 4.3 | 5.5 |
| Heat Load (BTU / Hr) | 324 | 447 | 580 | 717 | 966 |

| Nominal Power Consumption (W) | 95 | 131 | 160 | 210 | 283 |

| Net Weight** | 116 Kg (256 lbs) | 173 Kg (381 lbs) | 230 Kg (507 lbs) | 288 Kg (635 lbs) | 346 Kg (763 lbs) |
| Shipping Weight** | 143 Kg (315 lbs) | 214 Kg (472 lbs) | 285 Kg (628 lbs) | 356 Kg (785 lbs) | 428 Kg (944 lbs) |

| Shipping Dimensions | 850 x 820 x 1760 mm (33.5" x 32.3" x 69.3") | 1120 x 820 x 1760 mm (44.1" x 32.3" x 69.3") | 1450 x 820 x 1760 mm (57.1" x 32.3" x 69.3") | 1720 x 820 x 1760 mm (67.7" x 32.3" x 69.3") | 2050 x 820 x 1760 mm (80.7" x 32.3" x 69.3") |
| Shipping Dimensions, Maximum (W x D x H)** | 850 x 820 x 1760 mm (33.5" x 32.3" x 69.3") | 1120 x 820 x 1760 mm (44.1" x 32.3" x 69.3") | 1450 x 820 x 1760 mm (57.1" x 32.3" x 69.3") | 1720 x 820 x 1760 mm (67.7" x 32.3" x 69.3") | 2050 x 820 x 1760 mm (80.7" x 32.3" x 69.3") |
| Shipping Volume, Maximum** | 1.23 m³ (43.2 ft³) | 1.62 m³ (57.2 ft³) | 2.09 m³ (73.8 ft³) | 2.48 m³ (87.6 ft³) | 2.96 m³ (104.5 ft³) |

* 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 3-4 dBA above these values.
** Cabinet only, excludes optional stand.
### Technical Specifications for Airstream® Class II Type A2 Biological Safety Cabinets, Gen 3 (D- and G-series)

<table>
<thead>
<tr>
<th>Glass Side: 230 V, 50/60 Hz</th>
<th>AC2-4G8 2010734</th>
<th>AC2-6G8 2010743</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stainless Steel Side: 230 V, 50/60 Hz</td>
<td>AC2-4D8 2010733</td>
<td>AC2-6D8 2010742</td>
</tr>
</tbody>
</table>

### Nominal Size

- 4ft / 1.2 m
- 6ft / 1.8 m

### External Dimensions (W x D x H)

<table>
<thead>
<tr>
<th>Width</th>
<th>Depth without arm rest</th>
<th>Depth with arm rest</th>
<th>Height</th>
</tr>
</thead>
<tbody>
<tr>
<td>1340 mm (52 ¾&quot;)</td>
<td>753 mm (29 ½&quot;)</td>
<td>810 mm (32&quot;)</td>
<td>1400 mm (54 ¾&quot;)</td>
</tr>
<tr>
<td>1950 mm (76 ¾&quot;)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Gross Internal Dimensions (W x D x H)

<table>
<thead>
<tr>
<th>Width</th>
<th>Depth</th>
<th>Height</th>
</tr>
</thead>
<tbody>
<tr>
<td>1220 mm (48&quot;)</td>
<td>580 mm (22 ¼&quot;)</td>
<td>660 mm (26&quot;)</td>
</tr>
<tr>
<td>1830 mm (72&quot;)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Usable Work Area

- 0.56 m² (6.1 sq.ft.)
- 0.86 m² (9.0 sq.ft.)

### Tested Opening

- 175mm (7")

### Working Opening

- 190 mm (7 ½")

### Average Airflow Velocity

<table>
<thead>
<tr>
<th>Inflow</th>
<th>Downflow</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.45 m/s (90 fpm)</td>
<td>0.30 m/s (60 fpm)</td>
</tr>
</tbody>
</table>

### Airflow Volume

<table>
<thead>
<tr>
<th>Inflow</th>
<th>Downflow</th>
<th>Exhaust</th>
<th>Required Exhaust With Optional Thimble</th>
<th>Static Pressure For Optional Thimble Exhaust Collar</th>
</tr>
</thead>
<tbody>
<tr>
<td>346 cm³/h (588 cfm)</td>
<td>738 cm³/h (1254 cfm)</td>
<td>346 cm³/h (588 cfm)</td>
<td>538 m³/h (317 cfm)</td>
<td>31 Pa / 0.12 in H₂O</td>
</tr>
<tr>
<td>519 cm³/h (881 cfm)</td>
<td>1107 cm³/h (1880 cfm)</td>
<td>519 cm³/h (881 cfm)</td>
<td>823 m³/h (485 cfm)</td>
<td>47 Pa / 0.18 in H₂O</td>
</tr>
</tbody>
</table>

### ULPA Filter Typical Efficiency

- >99.999% at 0.1 to 0.3 micron, ULPA as per IEST-RP-CC001.3 USA
- >99.999% at MPPS, H14 as per EN 1822 EU

### Sound Emission*

- NSF / ANSI 49: 61.3 dBA
- EN 12469: 58.3 dBA

### Fluorescent Lamp Intensity (lux)

- 1400

### Cabinet Construction

<table>
<thead>
<tr>
<th>Main body</th>
<th>Work Zone</th>
<th>Side Walls (G-Series)</th>
<th>Side Walls (D-Series)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.2 mm (0.05&quot;) 18 gauge electro-galvanized steel with white oven-baked epoxy-polyester Isocide™ antimicrobial powder-coated finish</td>
<td>1.5 mm (0.06&quot;) 16 gauge stainless steel, type 304, with 48 finish</td>
<td>UV absorbing tempered glass, 5 mm (0.2&quot;), colorless and transparent</td>
<td>1.5 mm (0.06&quot;) 16 gauge stainless steel, type 304, with 48 finish</td>
</tr>
</tbody>
</table>

### Electrical

<table>
<thead>
<tr>
<th>Cabinet Full Load Amps (FLA)</th>
<th>Heat Load (BTU / Hr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.6 A</td>
<td>905</td>
</tr>
<tr>
<td>11.0 A</td>
<td>1230</td>
</tr>
</tbody>
</table>

### Nominal Power Consumption

- 265 W
- 360 W

### Net Weight **

- 240 Kg (529 lbs)
- 366 Kg (807 lbs)

### Shipping Weight **

- 295 Kg (650 lbs)
- 448 Kg (988 lbs)

### Shipping Dimensions, Maximum (W x D x H) mm **

- 1450 x 820 x 1760
- 2050 x 820 x 1760

### Shipping Volume, Maximum **

- 2.09 m³
- 2.96 m³

---

* 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 3-4 dBA above these values.

** Cabinet only, excludes optional stand.
# Technical Specifications for Airstream® Class II Type A2 Biological Safety Cabinets (AC2-4K8)

<table>
<thead>
<tr>
<th>Specification</th>
<th>AC2-4K8 201103B</th>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>Nominal Size</strong></td>
<td></td>
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</tr>
<tr>
<td>Width</td>
<td>1340 mm (52.8&quot;)</td>
<td></td>
</tr>
<tr>
<td>Depth without arm rest</td>
<td>767 mm (30.2&quot;)</td>
<td></td>
</tr>
<tr>
<td>Depth with arm rest</td>
<td>823 mm (32.4&quot;)</td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td>1400 mm (55.1&quot;)</td>
<td></td>
</tr>
<tr>
<td><strong>External Dimensions (W x D x H)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td>1220 mm (48.0&quot;)</td>
<td></td>
</tr>
<tr>
<td>Depth</td>
<td>580 mm (22.8&quot;)</td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td>654 mm (25.7&quot;)</td>
<td></td>
</tr>
<tr>
<td><strong>Usable Work Area</strong></td>
<td>0.56 m² (6.1 sq.ft.)</td>
<td></td>
</tr>
<tr>
<td><strong>Tested Opening</strong></td>
<td>175 mm (6.9&quot;)</td>
<td></td>
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<tr>
<td><strong>Average Airflow Velocity</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inflow</td>
<td>0.65 m/s (128 fpm)</td>
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</tr>
<tr>
<td>Downflow</td>
<td>0.41 m/s (81 fpm)</td>
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</tr>
<tr>
<td><strong>Airflow Volume</strong></td>
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<td></td>
</tr>
<tr>
<td>Inflow</td>
<td>500 cmh (294 cfm)</td>
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</tr>
<tr>
<td>Downflow</td>
<td>1026 cmh (604 cfm)</td>
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</tr>
<tr>
<td>Exhaust</td>
<td>500 cmh (294 cfm)</td>
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</tr>
<tr>
<td>Required Exhaust with Optional Thimble Exhaust Collar</td>
<td>554 cmh (326 cfm)</td>
<td></td>
</tr>
<tr>
<td>Static Pressure for Optional Thimble Exhaust Collar</td>
<td>38 Pa / 0.12 in H₂O</td>
<td></td>
</tr>
<tr>
<td><strong>ULPA Filter Typical Efficiency</strong></td>
<td>&gt;99.999% at 0.1 to 0.3 micron, ULPA as per IEST-RP-CC001.3 USA</td>
<td></td>
</tr>
<tr>
<td><strong>Sound Emission per AS 1807.20</strong></td>
<td>61 dBA</td>
<td></td>
</tr>
<tr>
<td><strong>Fluorescent Lamp Intensity</strong></td>
<td>866 lux (80 foot candles)</td>
<td></td>
</tr>
<tr>
<td><strong>Cabinet Construction</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Main body</td>
<td>1.2 mm (0.05&quot;) 18 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>1.5 mm (0.06&quot;) 16 gauge stainless steel, type 304, with 4B finish</td>
<td></td>
</tr>
<tr>
<td>Side Walls</td>
<td>1.5 mm (0.06&quot;) 16 gauge stainless steel, type 304, with 4B finish</td>
<td></td>
</tr>
<tr>
<td><strong>Electrical</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cabinet Full Load Amps (FLA)</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Heat Load (BTU/Hr)</td>
<td>682</td>
<td></td>
</tr>
<tr>
<td><strong>Nominal Power Consumption (W)</strong></td>
<td>223</td>
<td></td>
</tr>
<tr>
<td>**Net Weight **</td>
<td>236 Kg (520 lbs)</td>
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</tr>
<tr>
<td>**Shipping Weight **</td>
<td>260 Kg (573 lbs)</td>
<td></td>
</tr>
<tr>
<td><strong>Shipping Dimensions, Maximum (W x D x H)</strong></td>
<td>1450 x 880 x 1760 mm (57.1&quot; x 34.6&quot; x 69.3&quot;)</td>
<td></td>
</tr>
<tr>
<td><strong>Shipping Volume, Maximum</strong></td>
<td>2.25 m³ (79.5 ft³)</td>
<td></td>
</tr>
</tbody>
</table>

*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 3-4 dBA above these values.

**Cabinet only, excludes optional stand.
## Technical Specifications for Airstream®, NSF-certified and Airstream® Reliant Class II Type A2 Biological Safety Cabinets

<table>
<thead>
<tr>
<th>Model</th>
<th>110-130 VAC, 50/60 Hz</th>
<th>AC2-359-NS 2010945</th>
<th>AC2-459-NS 2010752</th>
<th>AC2-559-NS 2010977</th>
<th>AC2-659-NS 2010925</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>AR2-359 2010982</td>
<td>AR2-459 2010753</td>
<td>AR2-559 2010984</td>
<td>AR2-659 2010986</td>
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</tr>
<tr>
<td></td>
<td>AC2-358-NS 2010946</td>
<td>AC2-458-NS 2010747</td>
<td>AC2-558-NS 2010978</td>
<td>AC2-658-NS 2010963</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>220-240 VAC, 50/60 Hz</th>
<th>AC2-359-NS 2010945</th>
<th>AC2-459-NS 2010752</th>
<th>AC2-559-NS 2010977</th>
<th>AC2-659-NS 2010925</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>AR2-359 2010982</td>
<td>AR2-459 2010753</td>
<td>AR2-559 2010984</td>
<td>AR2-659 2010986</td>
</tr>
<tr>
<td></td>
<td>AC2-358-NS 2010946</td>
<td>AC2-458-NS 2010747</td>
<td>AC2-558-NS 2010978</td>
<td>AC2-658-NS 2010963</td>
</tr>
</tbody>
</table>

### External Dimensions (W x D x H) mm
- 1035 x 753 x 1400 mm (40.7" x 29.6" x 55.1")
- 1340 x 753 x 1400 mm (52.8" x 29.6" x 55.1")
- 1645 x 753 x 1400 mm (64.8" x 29.6" x 55.1")
- 1950 x 753 x 1400 mm (76.8" x 29.6" x 55.1")

### Gross Internal Dimensions (W x D x H) mm
- 915 x 580 x 660 mm (36" x 22.8" x 26")
- 1220 x 580 x 660 mm (48" x 22.8" x 26")
- 1525 x 580 x 660 mm (60" x 22.8" x 26")
- 1830 x 580 x 660 mm (72" x 22.8" x 26")

### Usable Work Area
- 0.42 m² (4.5 ft²)
- 0.56 m² (6.0 ft²)
- 0.70 m² (7.5 ft²)
- 0.86 m² (9.3 ft²)

### Tested Opening
- 203 mm (8")

### Average Inflow Velocity
- 0.53 m/s (105 fpm)

### Average Downflow Velocity
- 0.30 m/s (60 fpm)

### Airflow Volume
- Inflow: 354 cm³/h (208 cfm), 473 cm³/h (278 cfm), 591 cm³/h (348 cfm), 709 cm³/h (417 cfm)
- Downflow: 553 cm³/h (325 cfm), 738 cm³/h (434 cfm), 922 cm³/h (543 cfm), 1107 cm³/h (652 cfm)
- Required Exhaust With Optional Thimble:
  - 531 cm³/h (313 cfm), 710 cm³/h (418 cfm), 887 cm³/h (522 cfm), 1064 cm³/h (626 cfm)
- Static Pressure For Optional Thimble:
  - 32 Pa / 0.12 in H₂O, 45 Pa / 0.18 in H₂O, 57 Pa / 0.23 in H₂O, 68 Pa / 0.27 in H₂O

### ULPA Filter Typical Efficiency
- >99.999% at 0.1 to 0.3 micron, ULPA as per IEST-RP-CC001.3 USA
- >99.999% at MPPS, H14 as per EN 1822 EU

### Sound Emission per NSF / ANSI 49*
- 57.5 dBA, 58.5 dBA, 60.5 dBA

### Fluorescent Lamp Intensity (lux)
- 1983 lux (184 foot candles), 1700 lux (158 foot candles), 1200 lux (95 foot candles), 1647 lux (153 foot candles)

### Cabinet Construction
- **Main body**: 1.2 mm (0.05") / 18 gauge EG Steel With Isocide™ Oven-Baked Epoxy-Polyester Powder Coating
- **Work Zone**: 1.5 mm (0.06") / 16 gauge, SS 304, 4B finish
- **Side Walls**: 1.5 mm (0.06") / 16 gauge, SS 304, 4B finish

### Electrical 110-130VAC 50/60Hz
- **Cabinet Full Load Amps (FLA)**: 11, 11.5, 12.5, 15
- **Heat Load (BTU / Hr)**: 503, 628, 698, 999
- **Nominal Power Consumption (W)**: 160, 200, 222, 318

### Net Weight**
- 188 Kg (414 lbs), 230 Kg (507 lbs), 288 Kg (634 lbs), 346 Kg (763 lbs)

### Shipping Weight**
- 216 Kg (476 lbs), 285 Kg (628 lbs), 356 Kg (785 lbs), 428 Kg (944 lbs)

### Shipping Dimensions, Maximum (W x D x H)**
- 1120 x 820 x 1760 mm (44" x 32" x 69")
- 1450 x 820 x 1760 mm (57" x 32" x 69")
- 1720 x 820 x 1760 mm (68" x 32" x 69")
- 2050 x 820 x 1760 mm (80" x 32" x 69")

### Shipping Volume, Maximum**
- 2.09 m³ (74 ft³)
- 2.09 m³ (74 ft³)
- 2.48 m³ (88 ft³)
- 2.96 m³ (105 ft³)

Specifications are subject to change without notice.

Note: Airstream® Reliant Biological Safety Cabinet is only available for USA.

*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 3-4 dBA above these values.

**Cabinet only, excludes optional stand.
## Technical Specifications for Airstream® Plus Class II Type A2 Biological Safety Cabinets

<table>
<thead>
<tr>
<th>Class:</th>
<th>AC2-3E8-TU</th>
<th>AC2-4E8-TU</th>
<th>AC2-5E8-TU</th>
<th>AC2-6E8-TU</th>
</tr>
</thead>
<tbody>
<tr>
<td>220-240 VAC, 50/60 Hz</td>
<td>2011036</td>
<td>2011005</td>
<td>2010981</td>
<td>2011007</td>
</tr>
<tr>
<td>Stainless Steel Side:</td>
<td>AC2-3S8-TU</td>
<td>AC2-4S8-TU</td>
<td>AC2-5S8-TU</td>
<td>AC2-6S8-TU</td>
</tr>
<tr>
<td>220-240 VAC, 50/60 Hz</td>
<td>2011037</td>
<td>2010749</td>
<td>2010980</td>
<td>2010943</td>
</tr>
<tr>
<td>Nominal Size</td>
<td>Width: 3 ft (0.9 meter)</td>
<td>4 ft (1.2 meter)</td>
<td>5 ft (1.5 meter)</td>
<td>6 ft (1.8 meter)</td>
</tr>
<tr>
<td></td>
<td>Depth without arm rest: 1035 (40.7&quot;)</td>
<td>1340 mm (52.8&quot;)</td>
<td>1645 mm (64.8&quot;)</td>
<td>1950 mm (76.8&quot;)</td>
</tr>
<tr>
<td></td>
<td>Depth with arm rest: 767 mm (30.2&quot;)</td>
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<td></td>
<td>Height: 1400 mm (55.1&quot;)</td>
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<td></td>
<td>Tested Opening: 175 mm (7&quot;)</td>
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<tr>
<td></td>
<td>Usable Work Area: 0.42 m² (4.5 sq.ft.)</td>
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<tr>
<td></td>
<td>0.56 m² (6.1 sq.ft.)</td>
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<td></td>
<td>0.71 m² (7.6 sq.ft.)</td>
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<td></td>
<td>0.86 m² (9.2 sq.ft.)</td>
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<tr>
<td></td>
<td>Average Airflow Velocity</td>
<td>Inflow: 0.48 m/s (95 fpm)</td>
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<td></td>
<td></td>
<td>Downflow: 0.35 m/s (69 fpm)</td>
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<tr>
<td></td>
<td>Airflow Volume</td>
<td>Inflow: 278 cm³/h (164 cfm)</td>
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<td></td>
<td></td>
<td>369 cm³/h (217 cfm)</td>
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<td></td>
<td>463 cm³/h (273 cfm)</td>
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<td></td>
<td>553 cm³/h (325 cfm)</td>
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<td></td>
<td></td>
<td>Downflow: 661 cm³/h (389 cfm)</td>
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<td></td>
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<td>876 cm³/h (516 cfm)</td>
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<td></td>
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<td>1099 cm³/h (647 cfm)</td>
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<td></td>
<td></td>
<td>1314 cm³/h (773 cfm)</td>
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<td></td>
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<td>Exhaust: 278 cm³/h (164 cfm)</td>
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<td></td>
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<td>369 cm³/h (217 cfm)</td>
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<td></td>
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<td>463 cm³/h (273 cfm)</td>
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<tr>
<td></td>
<td></td>
<td>553 cm³/h (325 cfm)</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Required Exhaust with Optional Thimble Exhaust Collar: 320 m³/h (189 cfm)</td>
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<tr>
<td></td>
<td></td>
<td>554 cm³/h (326 cfm)</td>
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<td>692 cm³/h (407 cfm)</td>
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<td></td>
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<td>830 cm³/h (488 cfm)</td>
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<td></td>
<td>Static Pressure for Optional Thimble Exhaust Collar: 29 Pa / 0.11 in H₂O</td>
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<tr>
<td></td>
<td></td>
<td>38 Pa / 0.12 in H₂O</td>
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<tr>
<td></td>
<td></td>
<td>44 Pa / 0.14 in H₂O</td>
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<td></td>
<td></td>
<td>50 Pa / 0.18 in H₂O</td>
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</tr>
<tr>
<td>ULPA Filter Typical Efficiency</td>
<td>&gt;99.999% at 0.1 to 0.3 micron, ULPA as per IEST-RP-CC001.3 USA</td>
<td></td>
<td></td>
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<tr>
<td>Sound Emission per EN 12469*</td>
<td>&gt;99.999% at MPPS, H14 as per EN 1822 EU</td>
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<tr>
<td>Fluorescent Lamp Intensity</td>
<td>1008 lux (93 foot-candles)</td>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1562 lux (145 foot-candles)</td>
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<tr>
<td></td>
<td>1510 lux (140 foot-candles)</td>
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</tr>
<tr>
<td></td>
<td>1450 lux (134 foot-candles)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cabinet Construction</td>
<td>Main body: 1.2 mm (0.05&quot;) 18 gauge electro-galvanized steel with white oven-baked epoxy-polyester isocote™/antimicrobial powder-coated finish</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Work Zone: 1.5 mm (0.06&quot;) 16 gauge stainless steel, type 304, with 48 finish</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Side Walls (E Series): UV absorbing tempered glass, 6 mm (0.2&quot;), colorless and transparent 1.5 mm (0.06&quot;) 16 gauge stainless steel, type 304, with 48 finish</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Side Walls (S Series): 1.5 mm (0.06&quot;) 16 gauge stainless steel, type 304, with 48 finish</td>
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<tr>
<td>Electrical</td>
<td>Cabinet Full Load Amps (FLA): 10</td>
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<tr>
<td></td>
<td>Heat Load (BTU/hr): 597</td>
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<tr>
<td></td>
<td>682</td>
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<td></td>
<td>785</td>
<td></td>
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<tr>
<td></td>
<td>938</td>
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<td></td>
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<tr>
<td>Maximum Power Consumption</td>
<td>(5A EOs included) (W): 1880</td>
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<tr>
<td>Nominal Power Consumption (W):</td>
<td>175</td>
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<tr>
<td></td>
<td>200</td>
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<tr>
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<td>245</td>
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<tr>
<td></td>
<td>287</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Net Weight**:</td>
<td>191 Kg (421 lbs)</td>
<td></td>
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<tr>
<td></td>
<td>236 Kg (520 lbs)</td>
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<tr>
<td></td>
<td>293 Kg (645 lbs)</td>
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<tr>
<td></td>
<td>351 Kg (773 lbs)</td>
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<td></td>
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<tr>
<td>Shipping Weight**:</td>
<td>220 Kg (485)</td>
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</tr>
<tr>
<td></td>
<td>260 Kg (573 lbs)</td>
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<tr>
<td></td>
<td>331 Kg (729 lbs)</td>
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<tr>
<td></td>
<td>403 Kg (888 lbs)</td>
<td></td>
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</tr>
<tr>
<td>Shipping Dimensions, Maximum (W x D x H)**</td>
<td>1100 x 880 x 1760 mm (43.3&quot; x 34.6&quot; x 69.3&quot;)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1450 x 880 x 1760 mm (57.1&quot; x 34.6&quot; x 69.3&quot;)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1720 x 880 x 1760 mm (67.7&quot; x 34.6&quot; x 69.3&quot;)</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>2050 x 880 x 1760 mm (80.7&quot; x 34.6&quot; x 69.3&quot;)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shipping Volume, Maximum**</td>
<td>1.7 m³ (60.0 ft³)</td>
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<tr>
<td></td>
<td>2.25 m³ (79.5 ft³)</td>
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<tr>
<td></td>
<td>2.66 m³ (93.9 ft³)</td>
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<tr>
<td></td>
<td>3.17 m³ (111.9 ft³)</td>
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</tr>
</tbody>
</table>

*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 3-4 dBA above these values.
**Cabinet only, excludes optional stand.
Class II Type A2 Biological Safety Cabinets

Labculture® Class II Type A2 Biological Safety Cabinets

The Most Certified Energy-efficient, Safe, and Ergonomic Biosafety Cabinet in the World

Note: Labculture® Reliant (LR2) model is only available for USA. | Labculture® (LA2-K) model is only available for Australia.

Aside from providing protection for you and your environment, Labculture® Class II biological safety cabinet provides protection for your microbiological samples.

Sentinel™ Gold Microprocessor Controller
- Displays all safety information on one screen
- Centered and angled down for easy reach & viewing
- Selectable Quickstart mode for fast operation
- Not applicable to LR2

Rocker Switches and Pressure Gauge (for LR2)
- Easy-to-use switches
- Displays filter loading status
- Manually adjustable UV timer

Adjustable UV Timer (for LR2)
- Easily adjustable to desired minutes to hours
- Prolongs UV lamp, for not turning it ON overnight

Single-Piece Wall
- Large radius for easy cleaning
- Side-mounted electrical outlets and staggered service fixtures, for easy reach

Single-Piece Work Tray
- Recessed to contain spillage
- Curved grill to prevent blockage

Raised Arm Rest
- Helps prevent grille blocking
- Comfortable working posture

Angled Drain Pan
- Easy to clean
- Does not harbor contaminants

RS 232 Port and Zero Volt Relay Contact
- RS 232 Port to send operational information to Building Management System (BMS)
- Zero Volt Relay Contact to turn ON/OFF exhaust blower and signal the building alarm
- Not applicable for LA2-L

Labculture® Reliant (LR2) model is only available for USA. | Labculture® (LA2-K) model is only available for Australia.

Aside from providing protection for you and your environment, Labculture® Class II biological safety cabinet provides protection for your microbiological samples.

Labculture® Class II, Type A2 Biosafety Cabinet, Model LA2-4A_-E
**Energy-Efficient DC ECM Motor**
- Powered by latest generation DC ECM motor, 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
- Night Setback mode to further reduce power consumption by 60%

**Airflow Sensor**
- Monitors real-time airflow for safety
- Alerts the user if airflow is insufficient

**ULPA Filter**
- 10x Filtration efficiency of HEPA filter
- Creates ISO Class 3 work zone instead of industry-standard ISO Class 5

Esco cabinets use ULPA filters (per IEST-RP-CC001.3) / H14 per EN 1822 instead of H13 HEPA filters used on many BSCs in the market.

HEPA filters only offer 99.99% typical efficiency at 0.3 micron, while ULPA filters provide 99.999% typical efficiency for particle sizes of 0.1 to 0.3 micron.

**Dynamic Chamber™**
- Blower plenum and side walls are surrounded by negative pressure
- Prevents contaminants from escaping outside

**ISOCIDE® powder coat**
- Silver ion-impregnated powder coat
- Inhibits microbial growth to improve safety

**ebm-papst Motor (for LA2-L)**
- German-made, permanently lubricated, centrifugal motor/blowers with external rotor designs
- Integrated blades narrow the profile and eliminate need for a motor shaft
- Motors are selected for energy-efficiency, compact design, and flat profile. The completely integrated assembly optimizes motor cooling.
- All rotating parts are unitized and balanced for smooth, quiet, vibration-free operation.

**Greater Access Opening**
- With greater tested and working opening for comfort and convenience

**Labculture® Class II, Type A2 Biosafety Cabinet, Model LA2-4A-E**
Guide to Models

<table>
<thead>
<tr>
<th>Variant Code</th>
<th>Nominal Width</th>
<th>Side Walls</th>
<th>Electrical Code</th>
<th>Suffix Code</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sentinel Gold A</td>
<td>3 ft (0.9 m)</td>
<td>3</td>
<td>Labculture® (certified to NSF, EN, JIS and CFDA) A</td>
<td>230 V, 50 Hz</td>
<td>1</td>
</tr>
<tr>
<td>Rocker Switches and Pressure Gauge</td>
<td>4 ft (1.2 m)</td>
<td>4</td>
<td>Labculture® Reliant S</td>
<td>115 V, 60 Hz</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>5 ft (1.5 m)</td>
<td>5</td>
<td>Labculture® (certified to AS 2252) K</td>
<td>230 V, 60 Hz</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>6 ft (1.8 m)</td>
<td>6</td>
<td>Labculture® Low Noise L</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>8 ft (2.4 m)</td>
<td>8</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Labculture® Reliant (LR2) model is only available for USA.
Labculture® (LA2-K) model is only available for Australia.

The 5 Stars of Labculture® Class II Type A2 Biological Safety Cabinet

Have you heard? Esco’s Labculture® Class II Type A2 Biological Safety Cabinet is definitely a must-have for a microbiological laboratory. Here are its exciting features.

**Energy-efficient.** Labculture® is powered by the latest generation DC ECM motor that is more efficient than ECM and VFD motors. Aside from it renders up to 70% energy savings, it provides stable airflow, despite building voltage fluctuations and filter loading.

**Ergonomic.** Labculture® is designed to provide you maximum comfort when working in your laboratory. With its centered and angled down microprocessor controller, you can easily reach and view all of the cabinet’s safety information in one screen. Cleaning will never be difficult anymore because of its easy-to-clean drain pan, walls and work tray. With its ergonomic arm rest and chair, you will definitely achieve comfortable working posture.

**Safe.** Equipped with efficient ULPA filter and Dynamic Chamber™, you are assured that you and your environment is safe from biohazards. Isocide™ powder coat inhibits microbial growth in its exterior surface for improved safety. Other safety features of Labculture® include zero volt relay contact and airflow sensor.

**Quiet.** You can work at ease with its less than 67dBA (NSF/ANSI 49) or 65dBA (EN 12469) sound emission. Truly, you can achieve a peaceful working environment.

**Most certified.** Labculture® Class II Type A2 biological safety cabinet is definitely superior among biological safety cabinets. It is currently certified to NSF/ANSI 49, EN 12469, JIS K 3800 and CFDA YY 0569.
**Technical Specifications for Labculture® and Labculture® Reliant Class II Type A2 Biological Safety Cabinets**

<table>
<thead>
<tr>
<th>Labculture® Class II A2</th>
<th>LA2-3A_.E</th>
<th>LA2-4A_.E</th>
<th>LA2-5A_.E</th>
<th>LA2-6A_.E</th>
<th>LA2-8A_.E</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Nominal Size</strong></td>
<td>0.9 meter (3')</td>
<td>1.2 meter (4')</td>
<td>1.5 meter (5')</td>
<td>1.8 meter (6')</td>
<td>2.4 meters (8')</td>
</tr>
<tr>
<td><strong>External Dimensions</strong></td>
<td>1115 x 852 x 1540 mm (44.0&quot; x 33.5&quot; x 60.6&quot;)</td>
<td>1420 x 852 x 1540 mm (56.0&quot; x 33.5&quot; x 60.6&quot;)</td>
<td>1725 x 852 x 1540 mm (68.0&quot; x 33.5&quot; x 60.6&quot;)</td>
<td>2030 x 852 x 1540 mm (80.0&quot; x 33.5&quot; x 60.6&quot;)</td>
<td>2600 x 852 x 1540 mm (102.4&quot; x 33.5&quot; x 60.6&quot;)</td>
</tr>
<tr>
<td><strong>Internal Dimensions</strong></td>
<td>970 x 623 x 670 mm (38.2&quot; x 24.5&quot; x 26.4&quot;)</td>
<td>1270 x 623 x 670 mm (50.0&quot; x 24.5&quot; x 26.4&quot;)</td>
<td>1570 x 623 x 670 mm (61.8&quot; x 24.5&quot; x 26.4&quot;)</td>
<td>1870 x 623 x 670 mm (73.6&quot; x 24.5&quot; x 26.4&quot;)</td>
<td>2440 x 623 x 670 mm (96.0&quot; x 24.5&quot; x 26.4&quot;)</td>
</tr>
<tr>
<td><strong>Usable Work Area</strong></td>
<td>0.45 m² (4.8 sq.ft.)</td>
<td>0.6 m² (6.5 sq.ft.)</td>
<td>0.75 m² (8.1 sq.ft.)</td>
<td>0.9 m² (9.7 sq.ft.)</td>
<td>1.2 m² (13 sq.ft.)</td>
</tr>
<tr>
<td><strong>Tested Opening</strong></td>
<td>229 mm (9&quot;)</td>
<td>229 mm (9&quot;)</td>
<td>229 mm (9&quot;)</td>
<td>203 mm (8&quot;)</td>
<td>203 mm (8&quot;)</td>
</tr>
<tr>
<td><strong>Working Opening</strong></td>
<td>274 mm (10.8&quot;)</td>
<td>274 mm (10.8&quot;)</td>
<td>274 mm (10.8&quot;)</td>
<td>248 mm (9.8&quot;)</td>
<td>248 mm (9.8&quot;)</td>
</tr>
<tr>
<td><strong>Average Airflow Velocity</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inflow</td>
<td>0.53 m³/105 (70 fpm)</td>
<td>0.35 m³/105 (70 fpm)</td>
<td>0.35 m³/105 (70 fpm)</td>
<td>0.33 m³/105 (65 fpm)</td>
<td>0.33 m³/105 (65 fpm)</td>
</tr>
<tr>
<td>Downflow</td>
<td>424 m³/h (251 cfm)</td>
<td>555 m³/h (328 cfm)</td>
<td>686 m³/h (406 cfm)</td>
<td>724 m³/h (426 cfm)</td>
<td>945 m³/h (560 cfm)</td>
</tr>
<tr>
<td>Exhaust</td>
<td>628 m³/h (363 cfm)</td>
<td>822 m³/h (476 cfm)</td>
<td>1016 m³/h (588 cfm)</td>
<td>1210 m³/h (700 cfm)</td>
<td>1579 m³/h (914 cfm)</td>
</tr>
<tr>
<td>Required Exhaust with Optional Thimble Exhaust Collar</td>
<td>424 m³/h (251 cfm)</td>
<td>555 m³/h (328 cfm)</td>
<td>686 m³/h (406 cfm)</td>
<td>724 m³/h (426 cfm)</td>
<td>945 m³/h (560 cfm)</td>
</tr>
<tr>
<td>Static Pressure for Optional Thimble Exhaust Collar</td>
<td>529 m³/h (311 cfm)</td>
<td>764 m³/h (450 cfm)</td>
<td>1116 m³/h (657 cfm)</td>
<td>1164 m³/h (685 cfm)</td>
<td>1540 m³/h (913 cfm)</td>
</tr>
<tr>
<td>ULPA Filter Typical Efficiency</td>
<td>&gt;99.999% for particle size between 0.1 to 0.3 microns per IEST-RP-CC001.3 / H14 per EN 1822</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Sound Emission</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NSF / ANSI 49</td>
<td>62.5 dBA</td>
<td>63 dBA</td>
<td>63.5 dBA</td>
<td>64 dBA</td>
<td>64.5 dBA</td>
</tr>
<tr>
<td>EN 12469</td>
<td>59.5 dBA</td>
<td>60 dBA</td>
<td>60.5 dBA</td>
<td>61 dBA</td>
<td>61.5 dBA</td>
</tr>
<tr>
<td><strong>Fluorescent Lamp Intensity</strong></td>
<td>&gt; 1230 lux (&gt;- 140 foot-candles)</td>
<td>&gt; 1400 lux (&gt; 130 foot-candles)</td>
<td>&gt; 1070 lux (&gt; 100 foot-candles)</td>
<td>&gt; 1230 lux (&gt; 114 foot-candles)</td>
<td>&gt; 1230 lux (&gt; 114 foot-candles)</td>
</tr>
<tr>
<td><strong>Cabinet Construction</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Main Body</td>
<td>Electro-galvanized steel with white over-baked epoxy-polyester Isocide™ antimicrobial powder-coated finish, 1.5 mm (0.06&quot;) / 16 gauge thick</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Work Zone</td>
<td>Stainless steel Type 304 with No 4 Finish, 1.5 mm (0.06&quot;) / 16 gauge thick</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Electrical</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Full Load Amps 230 V</td>
<td>4.5 A</td>
<td>5.5 A</td>
<td>5.7 A</td>
<td>6 A</td>
<td>6.5 A</td>
</tr>
<tr>
<td>Full Load Amps 115 V</td>
<td>9 A</td>
<td>11 A</td>
<td>11.5 A</td>
<td>12 A</td>
<td>13 A</td>
</tr>
<tr>
<td>Heat Load</td>
<td>853 BTU/h</td>
<td>972 BTU/h</td>
<td>1177 BTU/h</td>
<td>1297 BTU/h</td>
<td>1774 BTU/h</td>
</tr>
<tr>
<td><strong>Nominal Power Consumption</strong></td>
<td>250 W</td>
<td>285 W</td>
<td>345 W</td>
<td>380 W</td>
<td>520 W</td>
</tr>
<tr>
<td><strong>Net Weight</strong>*</td>
<td>243 Kg (536 lbs)</td>
<td>283 Kg (624 lbs)</td>
<td>350 Kg (772 lbs)</td>
<td>426 Kg (939 lbs)</td>
<td>580 Kg (1279 lbs)</td>
</tr>
<tr>
<td><strong>Shipping Weight</strong>*</td>
<td>292 Kg (644 lbs)</td>
<td>345 Kg (761 lbs)</td>
<td>410 Kg (904 lbs)</td>
<td>486 Kg (1072 lbs)</td>
<td>640 Kg (1411 lbs)</td>
</tr>
<tr>
<td><strong>Shipping Dimensions, Maximum (W x D x H)</strong></td>
<td>1200 x 950 x 1900 mm (47.2&quot; x 37.4&quot; x 74.8&quot;)</td>
<td>1550 x 950 x 1900 mm (61.0&quot; x 37.4&quot; x 74.8&quot;)</td>
<td>1950 x 950 x 1900 mm (76.8&quot; x 37.4&quot; x 74.8&quot;)</td>
<td>2150 x 950 x 1900 mm (84.6&quot; x 37.4&quot; x 74.8&quot;)</td>
<td>2720 x 950 x 1900 mm (106.4&quot; x 37.4&quot; x 74.8&quot;)</td>
</tr>
<tr>
<td><strong>Shipping Volume, Maximum</strong>*</td>
<td>2.17 m³ (77 cu.ft.)</td>
<td>2.80 m³ (99 cu.ft.)</td>
<td>3.52 m³ (124 cu.ft.)</td>
<td>3.88 m³ (137 cu.ft.)</td>
<td>4.91 m³ (173 cu.ft.)</td>
</tr>
</tbody>
</table>

*NSF / ANSI 49 certified models are LA2-E and LA2-L.  
**EN 12469 certified models are LA2-E, LA2-L, and LA2-K.  
***JIS K 3800 and CFDA YY-0569 certified model is LA2-E only.  
****AS 2252 certified model is LA2-K only.
## Technical Specifications for Labculture® Low Noise Class II Type A2 Biological Safety Cabinets (LA2-\_L\_)  

### General Specifications  
**International Models**  
(Europe, Asia-Pacific, Africa, Latin America / 230 V, 50 & 60 Hz)

<table>
<thead>
<tr>
<th>Model</th>
<th>LA2-3L1</th>
<th>LA2-4L1</th>
<th>LA2-5L1</th>
<th>LA2-6L1</th>
</tr>
</thead>
</table>

#### Nominal Size  
<table>
<thead>
<tr>
<th>Size</th>
<th>0.9 meters (3')</th>
<th>1.2 meters (4')</th>
<th>1.5 meters (5')</th>
<th>1.8 meters (6')</th>
</tr>
</thead>
</table>

#### External Dimensions (W x D x H)  
- Without Base Stand  
  - 1115 x 810 x 1540 mm  
  - 43.9" x 31.9" x 60.6"
- With Base Stand (Min)  
  - 1115 x 810 x 2251 mm  
  - 43.9" x 31.9" x 88.6"
- With Base Stand (Max)  
  - 1115 x 810 x 2404 mm  
  - 43.9" x 31.9" x 94.6"

#### Gross Internal Dimensions (W x D x H)  
- 970 x 623 x 670 mm  
  - 38.2" x 24.5" x 26.4"
- 1270 x 623 x 670 mm  
  - 50.0" x 24.5" x 26.4"
- 1570 x 623 x 670 mm  
  - 61.8" x 24.5" x 26.4"
- 1870 x 623 x 670 mm  
  - 73.6" x 24.5" x 26.4"

#### Usable Work Area  
- 0.45 m² (4.8 sq.ft.)  
- 0.6 m² (6.5 sq.ft.)  
- 0.75 m² (8.1 sq.ft.)  
- 0.9 m² (9.7 sq.ft.)

#### Tested Opening  
- 173 mm (6.8")

#### Working Opening  
- 218 mm (8.6")

#### Average Airflow Velocity  
- Inflow: 0.45 m/s (90 fpm)
- Downflow: 0.30 m/s (60 fpm)

#### Airflow Volume  
- Inflow: 272 m³/h (163 cfm)
- Downflow, 70%: 653 m³/h (390 cfm)
- Exhaust, 30%: 272 m³/h (163 cfm)
- Required Exhaust With Optional Thimble Exhaust Collar: 405 m³/h (242 cfm)
- Static Pressure For Optional Thimble Exhaust Collar: 32 Pa / 0.26 in H₂O

#### ULPA Filter Typical Efficiency  
- ≥99.999% at particle size between 0.1 to 0.3 microns

#### Sound Emission*  
- NSF / ANSI 49: <57.5 dBA
- EN 12469: <52.5 dBA

#### Fluorescent Lamp Intensity  
- > 1150 Lux (> 107 foot-candles)

#### Cabinet Construction  
- Electrogalvanized steel with Isocide oven-baked epoxy-polyester powder coating

#### Electrical **  
- 220-240V, AC, 50Hz, 1Ø
- 220-240V, AC, 60Hz, 1Ø

#### Net Weight ***  
- LA2-3L1: 243 kg / 536 lbs
- LA2-4L1: 283 kg / 624 lbs
- LA2-5L1: 317 kg / 698 lbs
- LA2-6L1: 350 kg / 772 lbs

#### Shipping Weight ***  
- LA2-3L1: 292 kg / 644 lbs
- LA2-4L1: 345 kg / 761 lbs
- LA2-5L1: 402 kg / 886 lbs
- LA2-6L1: 486 kg / 1071 lbs

#### Shipping Dimensions, Maximum (W x D x H) ***  
- LA2-3L1: 1200 x 940 x 1940 mm  
  - 47.2" x 37" x 76.4"
- LA2-4L1: 1530 x 940 x 1940 mm  
  - 60.2" x 37" x 76.4"
- LA2-5L1: 1950 x 940 x 1940 mm  
  - 76.8" x 37" x 76.4"
- LA2-6L1: 2200 x 940 x 1940 mm  
  - 86.6" x 37" x 76.4"

#### Shipping Volume, Maximum ***  
- LA2-3L1: 2.14 m³ (76 cu.ft.)
- LA2-4L1: 2.79 m³ (99 cu.ft.)
- LA2-5L1: 3.56 m³ (126 cu.ft.)
- LA2-6L1: 4.01 m³ (142 cu.ft.)

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* Noise reading at open field condition / anechoic chamber  
** Additional voltages may be available; contact Esco for ordering information.  
*** Cabinet only, excludes optional stand.
## Technical Specifications for Labculture® Class II Type A2 Biological Safety Cabinets (LA2-_K_)

<table>
<thead>
<tr>
<th>General Specifications</th>
<th>LA2-3K1</th>
<th>LA2-4K1</th>
<th>LA2-6K1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal Size</td>
<td>0.9 meter (3’)</td>
<td>1.2 meter (4’)</td>
<td>1.8 meter (6’)</td>
</tr>
<tr>
<td>External Dimensions</td>
<td>1115 x 852 x 1540 mm (44” \times 33.5” \times 60.6”)</td>
<td>1420 x 852 x 1540 mm (55.9” \times 33.5” \times 60.6”)</td>
<td>2030 x 852 x 1540 mm (80.0” \times 33.5” \times 60.6”)</td>
</tr>
<tr>
<td>Gross Internal Dimensions</td>
<td>960 x 623 x 670 mm (37.8” \times 24.5” \times 26.4”)</td>
<td>1270 x 623 x 670 mm (50.0” \times 24.5” \times 26.4”)</td>
<td>1870 x 623 x 670 mm (73.6” \times 24.5” \times 26.4”)</td>
</tr>
<tr>
<td>Gross Internal Dimensions</td>
<td>960 x 623 x 670 mm (37.8” \times 24.5” \times 26.4”)</td>
<td>1270 x 623 x 670 mm (50.0” \times 24.5” \times 26.4”)</td>
<td>1870 x 623 x 670 mm (73.6” \times 24.5” \times 26.4”)</td>
</tr>
<tr>
<td>Usable Work Area</td>
<td>0.4 m² (4.8 sq.ft.)</td>
<td>0.6 m² (6.5 sq.ft.)</td>
<td>0.9 m² (9.7 sq.ft.)</td>
</tr>
<tr>
<td>Tested Opening</td>
<td>175 mm (6.9”)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Working Opening</td>
<td>274 mm (10.8”)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Airflow Volume</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average Airflow Inflow</td>
<td>0.62 m/s (122 fpm)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Airflow Volume</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inflow</td>
<td>375 m³/h (221 cfm)</td>
<td>496 m³/h (292 cfm)</td>
<td>926 m³/h (545 cfm)</td>
</tr>
<tr>
<td>Exhaust</td>
<td>808 m³/h (476 cfm)</td>
<td>1068 m³/h (629 cfm)</td>
<td>1573 m³/h (926 cfm)</td>
</tr>
<tr>
<td>Exhaust Collar</td>
<td>375 m³/h (221 cfm)</td>
<td>496 m³/h (292 cfm)</td>
<td>926 m³/h (545 cfm)</td>
</tr>
<tr>
<td>Exhaust Collar</td>
<td>529 m³/h (311 cfm)</td>
<td>764 m³/h (450 cfm)</td>
<td>1417 m³/h (834 cfm)</td>
</tr>
<tr>
<td>Static Pressure</td>
<td>32 Pa / 0.12 in H₂O</td>
<td>49 Pa / 0.19 in H₂O</td>
<td>80 Pa / 0.32 in H₂O</td>
</tr>
<tr>
<td>ULPA Filter Efficiency</td>
<td>&gt;99.999% for particle size between 0.1 to 0.3 microns per IEST-RP-CC001.3 / H14 per EN 1822</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sound Emission</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>with Ecophon**</td>
<td>59.9 dBA</td>
<td>55.6 dBA</td>
<td>61.6 dBA</td>
</tr>
<tr>
<td>Australia</td>
<td>59.4 dBA</td>
<td>55.1 dBA</td>
<td>61.2 dBA</td>
</tr>
<tr>
<td>Fluorescent Lamp Intensity</td>
<td>&gt; 1230 Lux (&gt; 114 foot-candles)</td>
<td>&gt; 1400 Lux (&gt; 130 foot-candles)</td>
<td></td>
</tr>
<tr>
<td>Cabinet Construction</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electrogalvanized steel with Isocide oven-baked epoxy-polyester powder coating 1.2 mm (0.05”) / 18 gauge</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.5 mm (0.06”) / 16 gauge thick</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electrical</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Full Load Amps 230 V</td>
<td>4.5 A</td>
<td>5.5 A</td>
<td>6.5 A</td>
</tr>
<tr>
<td>Electrical Outlet 5 A</td>
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<td>5 A</td>
<td></td>
</tr>
<tr>
<td>Heat Load</td>
<td>853 BTU/Hr</td>
<td>972 BTU/Hr</td>
<td>1297 BTU/Hr</td>
</tr>
<tr>
<td>Nominal Power Consumption</td>
<td>233 W</td>
<td>245 W</td>
<td>350 W</td>
</tr>
<tr>
<td>Net Weight ***</td>
<td>237 Kg (522 lbs)</td>
<td>283 Kg (624 lbs)</td>
<td>426 Kg (939 lbs)</td>
</tr>
<tr>
<td>Shipping Weight ***</td>
<td>287 Kg (633 lbs)</td>
<td>345 Kg (761 lbs)</td>
<td>486 Kg (1071 lbs)</td>
</tr>
<tr>
<td>Shipping Dimensions, Maximum (W x D x H) ***</td>
<td>1200 x 950 x 1900 mm (47.2” \times 37.4” \times 74.8”)</td>
<td>1550 x 950 x 1900 mm (61.0” \times 37.4” \times 74.8”)</td>
<td>2150 x 950 x 1900 mm (84.6” \times 37.4” \times 74.8”)</td>
</tr>
<tr>
<td>Shipping Volume, Maximum ***</td>
<td>2.17 m³ (77 cu.ft.)</td>
<td>2.80 m³ (99 cu.ft.)</td>
<td>3.88 m³ (137 cu.ft.)</td>
</tr>
</tbody>
</table>

* Depth includes the remove-able arm rest and front cover. When they are removed, depth is 790 mm (31.1”).
** 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 3-4 dBA above these values.
*** Cabinet only, excludes optional stand.
Learn About International Standards

Esco Biological Safety Cabinets are one of the most-certified cabinets in the world. Esco performs testing in accordance with more than 20 of the world’s most recognized standards, of local, regional and international scopes. In particular, testing in our laboratory is most frequently conducted based on: EN 12469, NSF 49, IEST RP. An NSF-Accredited Biological Cabinet Field Certifier is available in-house full-time to supervise all testing work.

About ANSI / NSF 49

The NSF International (formerly The National Sanitation Foundation) Biological Safety Cabinetry Program was initiated during the 1970s at the request of the regulatory community, including the Centers for Disease Control (CDC), National Institutes of Health (NIH), and the National Cancer Institute (NCI).

The first phase of the program was the development of NSF/ANSI Standard 49 for the evaluation of Class II laminar flow biological safety cabinets. The standard was completed in 1976, followed by the implementation of a testing and certification program to that standard, titled the Biological Safety Cabinetry Certification Program.

The third and final stage was completed in 1993, titled the Biological Safety Cabinet Field Certifier Accreditation Program.

NSF Certification program is accredited by the American National Standards Institute (ANSI) and the Standards Council of Canada (SCC), and is recognized as the leader in the certification of Class II Biological Safety Cabinets throughout the USA and Canada.

About UL

Underwriters Laboratories Inc. (UL) is an independent, not-for-profit product-safety testing and certification organization. Founded in 1894, UL is now one of the most recognized conformity assessment providers in the world. Conformity to UL Standard 61010A-1 (Electrical Equipment For Laboratory Use; Part 1: General Requirements) is a pre-requisite to NSF certification.

About EN 12469

EN 12469: 2000 Biotechnology - Performance criteria for microbiological safety cabinets is the new harmonized European standard for microbiological safety cabinets, published by CEN, the European Committee for Standardization. This standard replaces the following standards for Biological Safety Cabinets: British Standard BS5726, German Standard DIN12950 Teil 10 and French Standard NF X44-201:1984. The European Committee for Standardization (CEN) was founded in 1961 by the national standards bodies in the European Economic Community and EFTA countries.

About JIS K3800

The Japan Industrial Standard (JIS) K3800 covers performance and safety requirements for Class II biological safety cabinets. Certification to JIS K3800 is performed by Japan Air Cleaning Association (JACA). Similar to NSF International, JACA also performs field certifier training and accreditation in Japan.

About AS 2252

AS 2252 is also known as the Australian standard, was prepared by the Australian members of the Joint Standards Australia/Standards New Zealand Committee ME-060. It supersedes AS/NZS 2647:2000. This standard specifies requirements for biological safety cabinets including installation and use. For Class I biological safety cabinet, emphasis is given to personnel and environment protection. For Class II biological safety cabinet, its design should provide personnel, environment and product protection.

About CFDA YY 0569

CFDA YY 0569, formerly known as State Food and Drug Administration YY 0569 (SFDA YY 0569) is the Chinese Standard for biological safety cabinets. It is modeled on both the EN 12469:2000 and NSF49:2002. This standard adopted the KI-DISCUS test from the European standard. Even though YY 0569 is based from the two major international standards, there are some notable improvements, i.e. instant display for air exchange rate and air intake, audio and visual warning system, to alert workers to performance malfunctions of biological safety cabinets. It is similar to NSF such that it recognizes four types of Class II BSCs. In summary, there are aspects unique to NSF and EN standards that are used as basis for YY 0569.
Class II Type A2 Biological Safety Cabinets
NordicSafe® Class II Type A2 Biological Safety Cabinets
The Industry’s Most Comfortable, Energy-Efficient Cabinet

Esco NordicSafe® Class II Microbiological Safety Cabinets offer a premium level of operator, product and environmental protection with advanced technology.

Main Features

- Extremely low energy consumption (190 Watts) for environment-friendly operation.
- Latest generation, energy-efficient ECM blower from ebm-papst Germany maintains constant airflow, despite building voltage fluctuations.
- Quietest cabinet in the industry (51 dBA), emulates soft noise of distant waterfalls, for a serene working environment that helps reduce fatigue and improve concentration.
- Half Speed Mode reduces energy consumption to 80 watts while still maintaining personnel and product protection when the cabinet is not being used.
- Zero Volt Relay Contact, to synchronize turning ON/OFF internal blower fan with remote exhaust fan.
- Esco Sentinel™ Gold microprocessor with integrated temperature-compensated airflow monitoring system.
- Quickstart mode, to turn the blower and lights on/off, by moving the sash window to correct position.
- RS 232 data output port enables remote monitoring of cabinet operating parameters.
- Unique Esco Dynamic Chamber™ plenum design delivers quiet, uniform airflow.
- Negative pressure plenum surrounds contaminated positive pressure plenum; no fabric bags are used.
- Dual, long-life ULPA filters (per IEST-RP-CC001.3), for supply and exhaust airflow.
- Ergonomically-angled front improves reach and comfort.
- Frameless, shatterproof motorized sash is easier to clean, offers larger, unobstructed viewing area.
- Multi-piece tray components are autoclavable. They are easy to lift and remove, to provide easy access during surface decontamination.
- The front sash is motorized for convenient one-touch operation.
- Raised airflow grille maintains safety by preventing blockage.
- Transparent side windows, angled front, and reduced noise levels combine to create the most comfortable, well-lit cabinet in Esco’s range.
- Esco ISOcide™ antimicrobial coating on all painted surfaces minimizes contamination.

Guide to Models

<table>
<thead>
<tr>
<th>Nominal Width</th>
<th>Code</th>
<th>Electrical Code</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 ft (1.2 m)</td>
<td>4</td>
<td>220-240 V, 50 Hz</td>
<td>8</td>
</tr>
<tr>
<td>6 ft (1.8 m)</td>
<td>6</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Ultra low noise level achieved on 1.2 meter (4’) model per EN12469 at open field condition.
## Technical Specifications for NordicSafe® Class II Type A2 Biological Safety Cabinets

<table>
<thead>
<tr>
<th>Model</th>
<th>NC2-4L8</th>
<th>NC2-6L8</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Nominal Size</strong></td>
<td>1.2 meters (4’)</td>
<td>1.8 meters (6’)</td>
</tr>
<tr>
<td><strong>External Dimensions (W x D x H)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Without Base Stand</td>
<td>1200 x 812 x 1410 mm (main body)*</td>
<td>1800 x 812 x 1410 mm (main body)*</td>
</tr>
<tr>
<td>With Optional Base Stand, 711 mm (28”) type</td>
<td>1200 x 812 x 2121 mm (main body)*</td>
<td>1800 x 812 x 2121 mm (main body)*</td>
</tr>
<tr>
<td><strong>Internal Work Area, Dimensions (W x D x H)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Without Base Stand</td>
<td>1130 x 584 x 670 mm</td>
<td>1720 x 584 x 670 mm</td>
</tr>
<tr>
<td>With Optional Base Stand, 711 mm (28”) type</td>
<td>445.7” x 23.0” x 26.4”</td>
<td>67.1” x 23.0” x 26.4”</td>
</tr>
<tr>
<td><strong>Tested Opening</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.44 m² (4.7 sq.ft)</td>
<td>0.81 m² (8.7 sq.ft)</td>
</tr>
<tr>
<td><strong>Working Opening</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>173 mm (6.8”)</td>
<td>173 mm (6.8”)</td>
</tr>
<tr>
<td><strong>Average Airflow Velocity</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inflow</td>
<td>0.45 m/s (90 fpm) at initial setpoint</td>
<td></td>
</tr>
<tr>
<td>Downflow</td>
<td>0.32 m/s (65 fpm) at initial setpoint with uniformity of better than ±20%</td>
<td></td>
</tr>
<tr>
<td><strong>Airflow Volume</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inflow</td>
<td>317 m³/h (187 cfm)</td>
<td>485 m³/h (286 cfm)</td>
</tr>
<tr>
<td>Downflow</td>
<td>703 m³/h (414 cfm)</td>
<td>1165 m³/h (686 cfm)</td>
</tr>
<tr>
<td>Exhaust</td>
<td>317 m³/h (187 cfm)</td>
<td>485 m³/h (286 cfm)</td>
</tr>
<tr>
<td>Required Exhaust With Optional Thimble Exhaust Collar</td>
<td>479 m³/h (282 cfm)</td>
<td>757 m³/h (446 cfm)</td>
</tr>
<tr>
<td>Static Pressure For Optional Thimble Exhaust Collar</td>
<td>28 Pa / 0.11 in H₂O</td>
<td>43 Pa / 0.17 in H₂O</td>
</tr>
<tr>
<td><strong>ULPA Filter Typical Efficiency</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Downflow</td>
<td>&gt;99.999% at 0.1 to 0.3 microns and MPPS as per IEST-RP-CC001.3 USA with H14 rating as per EN 1822, Europe</td>
<td></td>
</tr>
<tr>
<td>Exhaust</td>
<td>52 dBA</td>
<td>54 dBA</td>
</tr>
<tr>
<td><strong>Typical Sound Emission per EN 12469</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>52 dBA</td>
<td>54 dBA</td>
</tr>
<tr>
<td><strong>Fluorescent Light Intensity At Zero Ambient</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1200 Lux (111 foot candles)</td>
<td>1600 Lux (149 foot candles)</td>
</tr>
<tr>
<td><strong>Cabinet Construction</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Main Body</td>
<td>1.2 mm (0.05”) 18 gauge electrogalvanized steel with white oven-baked epoxy-polyester iodide antimicrobial powder coated finish</td>
<td></td>
</tr>
<tr>
<td>Work Surface</td>
<td>1.5 mm (0.06”) 16 gauge stainless steel, type 304, with BA finish</td>
<td></td>
</tr>
<tr>
<td>Side Walls</td>
<td>UV absorbing tempered glass, 5 mm (0.2”), colorless and transparent</td>
<td></td>
</tr>
<tr>
<td><strong>Electrical</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>220-240V, AC, 50Hz, Ø</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cabinet Full Load Amps (FLA)</td>
<td>3 A</td>
<td>3.5 A</td>
</tr>
<tr>
<td>Optional Outlets FLA</td>
<td>5 A</td>
<td>5 A</td>
</tr>
<tr>
<td>Cabinet Nominal Power</td>
<td>187 W</td>
<td>272 W</td>
</tr>
<tr>
<td>Cabinet BTU</td>
<td>638</td>
<td>928</td>
</tr>
<tr>
<td><strong>Net Weight</strong>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>208 kg (459 lbs)</td>
<td>287 kg (633 lbs)</td>
</tr>
<tr>
<td><strong>Shipping Weight</strong>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>247 kg (545 lbs)</td>
<td>339 kg (747 lbs)</td>
</tr>
<tr>
<td><strong>Shipping Dimensions, Maximum (W x D x H)</strong>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1350 x 850 x 1760 mm</td>
<td>2050 x 850 x 1760 mm</td>
</tr>
<tr>
<td></td>
<td>53.1” x 33.5” x 69.3”</td>
<td>80.7” x 33.5” x 69.3”</td>
</tr>
<tr>
<td><strong>Shipping Volume, Maximum</strong>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2.02 m³ (71 cu.ft.)</td>
<td>3.07 m³ (108 cu.ft.)</td>
</tr>
</tbody>
</table>

### Standards Compliance
- **For Microbiological Safety Cabinets**: EN 12469, Europe
- **For Air Quality**: ISO 14644.1 Class 3, Worldwide
- **For Filtration**: AS 1386 Class 1.5, Australia; JIS 89920 Class 3, Japan

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* Excluding hump. Please refer to engineering drawing on page 6 for details.
** Noise reading in open field condition / anechoic chamber.
*** Cabinet only; excludes optional stand.
ULPA VS HEPA

What is an ULPA Filter?
ULPA (Ultra-Low Penetration Air) Filter is a dry extended media filter in a rigid frame, with a minimum particle-collection efficiency of 99.999%. Depending on the filter, the particle-collection efficiency can be measured at 0.3 µm or at MPPS.


ULPA filters have an efficiency of 99.999% vs 99.99% of HEPA filters, therefore ULPA filters meet HEPA filter efficiency requirement, but at higher efficiency, giving you better operator and product protection.

ULPA filters provide an ISO Class 3 work zone vs ISO Class 5 of HEPA filters, thus offering substantially better product protection for your precious work.

Esco ULPA filter replacement cost is about the same, than competitor HEPA filter, which on average is about $300-400. Please feel free to ask for our formal replacement filter quotation and compare with competitor HEPA filters.

If 1 million spores are released on the work zone, only 1 spore will escape from ULPA filter while 10 spores will escape from HEPA filter. This can mean the difference between healthy operators or not.

Despite ULPA filter media has 5% higher pressure drop, Esco uses larger filter media to have same filter life (typically 8-10 years) as HEPA used by competitors.

At same filter life and replacement cost, Esco ULPA filters reduce the chance of operator infection and product contamination, which potentially reduces liability & product failure cost, yielding huge savings for you.

There is an absolute gain when you use ULPA filters - and at no extra cost for you.
Aside from providing protection for you and your environment, eSafe® Class II biological safety cabinet provides protection for your microbiological samples.

**Sentinel™ Platinum Microprocessor Controller**
- Large graphical LCD illustrates cabinet operating parameters
- Displays all safety information on one screen
- Centered and angled down for easy reach & viewing

**Unique Stainless Steel and Glass Hybrid Wall (L-Series)**
- Large corner radius for easy cleaning
- Glass side walls to improve visibility
- Electrical outlets, service fixtures VHP / HPV ports on the side wall

**Motorized Window**
- Conveniently move the window by fingertips
- Window automatically stops at safe operating height

**Multi-piece Work Tray (L-Series)**
- Easy to lift for cleaning
- Simple design, without support beams

**Raised Arm Rest**
- Helps prevent grille blocking
- Comfortable working posture
- Horizontal and angled arm placement

**Angled Drain Pan**
- Easy to clean
- Does not harbor contaminants

**Airflow Sensor**
- Monitors real-time airflow for safety
- Alerts the user if airflow is insufficient
- High-end Accusense sensor made by Degree C

Available in 1.2, 1.5, and 1.8 meter width
Energy-Efficient DC ECM Motor
- Powered by latest generation DC ECM motor, 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
- Night Setback mode to further reduce power consumption by 60%

High Grade H14 Filter
- 10x Filtration efficiency of conventional H13 HEPA filter
- Creates ISO Class 3 work zone instead of industry-standard ISO Class 5

Dynamic Chamber™
- Blower plenum and side walls
- Prevents contaminants from escaping outside

Isocide™ Powder Coat
- Silver ion-impregnated powder coat
- Inhibits microbial growth to improve safety

Standards Compliance

<table>
<thead>
<tr>
<th>Biosafety Cabinets</th>
<th>Air Quality</th>
<th>Filtration</th>
<th>Electrical Safety</th>
</tr>
</thead>
<tbody>
<tr>
<td>EN 12469, Europe</td>
<td>ISO 14644 1, Class 3, Worldwide</td>
<td>EN-1822 (H14), Europe</td>
<td>EC61010-1, Worldwide</td>
</tr>
<tr>
<td>JS B9920 Class 3, Japan</td>
<td>IESTR-CC001.3, USA</td>
<td>IESTR-CC007, USA</td>
<td>EN-61010-1, Europe</td>
</tr>
<tr>
<td>BS 5295, Class 3, UK</td>
<td>IESTR-CC033, USA</td>
<td>IESTR-CC034, 1, USA</td>
<td>UL-C-61010-1, USA</td>
</tr>
<tr>
<td>US Fed Std 209E, Class 1 USA</td>
<td>EN-61010-1, Europe</td>
<td>CAN/CSA22.2, No.61010-1</td>
<td></td>
</tr>
</tbody>
</table>

The TÜV-Nord certified cabinet models are: EC2-4L8, EC2-4S8, EC2-5L8, EC2-5S8, EC2-6L8, and EC2-6S8.
# Technical Specifications for eSafe® Class II Type A2 Biological Safety Cabinets

## Guide to Models

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>4 ft (1.2 m)</td>
<td>4</td>
<td>Glass</td>
<td>L</td>
<td>230 V, 50/60 Hz</td>
<td>8</td>
</tr>
<tr>
<td>5 ft (1.5 m)</td>
<td>5</td>
<td>Stainless Steel</td>
<td>S</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 ft (1.8 m)</td>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## Glass Side

<table>
<thead>
<tr>
<th>Nominal Size</th>
<th>EC2-4L8 2010604</th>
<th>EC2-5L8 2010634</th>
<th>EC2-6L8 2010605</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width (ft)</td>
<td>4 ft (1.2 meter)</td>
<td>5 ft (1.5 meter)</td>
<td>6 ft (1.8 meter)</td>
</tr>
<tr>
<td>Depth (mm)</td>
<td>1340 mm (52.8&quot;)</td>
<td>1645 mm (64.8&quot;)</td>
<td>1950 mm (76.8&quot;)</td>
</tr>
<tr>
<td>Height (mm)</td>
<td>1450 mm (57&quot;)</td>
<td>1525 mm (60.0&quot;)</td>
<td>1830 mm (72.0&quot;)</td>
</tr>
</tbody>
</table>

## Stainless Steel Side

<table>
<thead>
<tr>
<th>Nominal Size</th>
<th>EC2-4S8 2010717</th>
<th>EC2-5S8 2010719</th>
<th>EC2-6S8 2010720</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width (ft)</td>
<td>4 ft (1.2 meter)</td>
<td>5 ft (1.5 meter)</td>
<td>6 ft (1.8 meter)</td>
</tr>
<tr>
<td>Depth (mm)</td>
<td>1220 mm (48.0&quot;)</td>
<td>1525 mm (60.0&quot;)</td>
<td>1830 mm (72.0&quot;)</td>
</tr>
<tr>
<td>Height (mm)</td>
<td>650 mm (25.6&quot;)</td>
<td>650 mm (25.6&quot;)</td>
<td>650 mm (25.6&quot;)</td>
</tr>
</tbody>
</table>

## External Dimensions (W x D x H)

- **Width**: 1340 mm (52.8") 1645 mm (64.8") 1950 mm (76.8")
- **Depth without arm rest and front sash cover removed**: 790 mm (31.1")
- **Depth with arm rest**: 857 mm (33.7")
- **Height**: 1450 mm (57")
- **Width**: 1220 mm (48.0") 1525 mm (60.0") 1830 mm (72.0")
- **Depth**: 630 mm (24.8")
- **Height**: 650 mm (25.6")

## Gross Internal Dimensions (W x D x H)

## Usable Work Area

- **Glass Side**: 0.63 m² (6.8 ft²)
- **Stainless Steel Side**: 0.79 m² (8.5 ft²)

## Tested Opening

- **Glass Side**: 175 mm (6.9")
- **Stainless Steel Side**: 190 mm (7.5")

## Working Opening

- **Glass Side**: 175 mm (6.9")
- **Stainless Steel Side**: 190 mm (7.5")

## Average Airflow Velocity

- **Inflow**: 0.50 m/s (100 fpm)
- **Downflow**: 0.35 m/s (70 fpm)

## Airflow Volume

### Inflow

- **385 m³/h (227 cfm)**
- **482 m³/h (284 cfm)**
- **518 m³/h (305 cfm)**

### Downflow

- **892 m³/h (525 cfm)**
- **1118 m³/h (658 cfm)**
- **1339 m³/h (788 cfm)**

### Exhaust

- **385 m³/h (227 cfm)**
- **482 m³/h (284 cfm)**
- **518 m³/h (305 cfm)**

### Required Exhaust Volume with Optional Thimble Exhaust Collar

- **538 m³/h (317 cfm)**
- **615 m³/h (362 cfm)**
- **823 m³/h (485 cfm)**

### Required Static Pressure for Optional Thimble Exhaust Collar

- **31 Pa/0.12 in H₂O**
- **35 Pa/0.14 in H₂O**
- **47 Pa/0.18 in H₂O**

## HEPA Filter Typical Efficiency

- **>99.999%** at 0.1 to 0.3 micron as per IEST-RP-CC001.3 USA (ULPA)
- **>99.99%** at MPPS as per EN 1822 EU (H-14)

## Sound Emission*

### NSF / ANSI 49

- **56 dBA**
- **59 dBA**
- **59 dBA**

### EN 12469

- **53 dBA**
- **56 dBA**
- **56 dBA**

## Fluorescent Lamp Intensity (Lux)

- **1340 lux (124 ft-lumen) max (adjustable)**
- **1610 lux (150 ft-lumen) max (adjustable)**
- **1457 lux (135 ft-lumen) max (adjustable)**

## Cabinet Construction

- **Main body**: 1.5 mm (0.06") 18 gauge electro-galvanized steel with white oven-baked epoxy-polyester Isocide™ antimicrobial powder-coated finish
- **Work Zone**: 1.5 mm (0.06") 18 gauge stainless steel, type 304, with 48 finish
- **Side Walls (L-Series)**: UV absorbing tempered glass, 6 mm (0.2") colorless and transparent
- **Side Walls (S-Series)**: 1.5 mm (0.06") 18 gauge stainless steel, type 304, with 48 finish

## Electrical

- **Cabinet Full Load Amps (FLA)**: 10.5, 11.1, 11.3
- **Heat Generation (BTU/hr)**: 751, 887, 1228

## Nominal Power Consumption

- **220 W**
- **315 W**
- **360 W**

## Shipping Weight***

- **289 Kg (637 lbs)**
- **348 Kg (765 lbs)**
- **400 Kg (882 lbs)**

## Shipping Volume, Maximum (W x D x H)***

- **2.4 m³ (85 ft³)**
- **2.7 m³ (95 ft³)**
- **3.4 m³ (120 ft³)**

---

*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 3-4 dBA above these values.

**Cabinet Heat Load (BTU/hr) = Cabinet nominal power x 3.412

***Cabinet only, excludes optional stand.
Class II Type B2 Biological Safety Cabinets

Esco’s Class II Type B2 Biological Safety Cabinets provide operator, product and environmental protection against biohazards assigned in Biosafety Levels 1, 2, and 3. This type of cabinet can be used for handling biohazards assigned to Biosafety Level 4, provided that the operator wears positive pressure suit.

Recommended Class II, Type B2 Biological Safety Cabinet Installation

- **Exhaust Blower at terminal end** (preferably one blower per individual cabinet and connected to emergency power)
- **Pitot Tube Duct traverse penetration** (drill penetrations in ductwork)
- **Anti Blowback Valve (Optional)**
- **Air Tight Damper (Required)**
  - Enables static pressure to be adjusted as filter loads to maintain airflow volume
  - Enables the cabinet to be sealed off during decontamination
- **Supply Air** (make up for Inflow and Downflow Air), located far away from exhaust blower

**Note:** Cabinet shown with optional Support Stand, Air-tight Damper, optional Anti Blowback Valve and optional Exhaust Blower. Exhaust ductwork is not provided by Esco.
Class II Type B2 Biological Safety Cabinets

Labculture® Class II Type B2 Biological Safety Cabinet

Probably the Most Advanced, Energy-efficient, Safe and Ergonomic Biosafety Cabinet in the World

Esco Labculture® Class II, Type B2 Biological Safety Cabinet provides operator, product and environmental protection against biohazards assigned in Biosafety Levels 1, 2, and 3. This cabinet can be used for handling biohazards assigned to Biosafety Level 4, provided that the operator wears positive pressure suit.

RS 232 Port and Zero Volt Relay Contact
- RS 232 Port to send operational information to Building Management System (BMS)
- Zero Volt Relay Contact to turn ON/OFF exhaust blower and signal the building alarm

Sentinel™ Gold Microprocessor Controller
- Displays all safety information on one screen
- Centered and angled down for easy reach & viewing
- Selectable Quickstart mode for fast operation

Single-Piece Wall
- Large radius for easy cleaning
- Side-mounted electrical outlets and staggered service fixtures, for easy reach

Single-Piece Work Tray
- Recessed to contain spillage
- Curved grill to prevent blockage

Raised Arm Rest
- Helps prevent grille blocking
- Comfortable working posture

Angled Drain Pan
- Easy-to-clean
- Does not harbor contaminants

Available in 0.9, 1.2, 1.5, 1.8 and 2.4 meter models (3’, 4’, 5’, 6’ and 8’). Shown with optional telescoping stand.
Available in 0.9, 1.2, 1.5, 1.8 and 2.4 meter models (3’, 4’, 5’, 6’ and 8’). Shown with optional telescoping stand.

Monitors real-time airflow for safety

Alerts the user if airflow is insufficient

**Energy-Efficient DC ECM Motor**
- Powered by latest generation DC ECM motor, 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
- Night Setback mode to further reduce power consumption by 60%

**ULPA Filter**
- 10x Filtration efficiency of HEPA filter
- Creates ISO Class 3 work zone instead of industry-standard ISO Class 5

Esco cabinets use ULPA filters (per IEST-RP-CC001.3) / H14 per EN 1822 instead of H13 HEPA filters used on many BSCs in the market.

HEPA filters only offer 99.99% typical efficiency at 0.3 micron, while ULPA filters provide 99.999% typical efficiency for particle sizes of 0.1 to 0.3 micron.

**Dynamic Chamber™**
- Blower plenum and side walls are surrounded by negative pressure
- Prevents contaminants from escaping outside

**ISOCIDE® powder coat**
- Silver ion-impregnated powder coat
- Inhibits microbial growth to improve safety

**Certification**

<table>
<thead>
<tr>
<th>Biosafety Cabinets</th>
<th>Air Quality</th>
<th>Filtration</th>
<th>Electrical Safety</th>
</tr>
</thead>
</table>
### Guide to Models

<table>
<thead>
<tr>
<th>Nominal Width</th>
<th>Code</th>
<th>Electrical Code</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 ft (0.9 m)</td>
<td>3</td>
<td>220-240 V, 50 Hz</td>
<td>1</td>
</tr>
<tr>
<td>4 ft (1.2 m)</td>
<td>4</td>
<td>110-120 V, 60 Hz</td>
<td>2</td>
</tr>
<tr>
<td>5 ft (1.5 m)</td>
<td>5</td>
<td>220-240 V, 60 Hz</td>
<td>3</td>
</tr>
<tr>
<td>6 ft (1.8 m)</td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8 ft (2.4 m)</td>
<td>8</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

### Technical Specifications for Labculture® Class II Type B2 Biological Safety Cabinets

#### Nominal Size
- 0.9 meter (3')
- 1.2 meter (4')
- 1.5 meter (5')
- 1.8 meter (6')
- 2.4 meters (8')

#### External Dimension (W x D x H)

<table>
<thead>
<tr>
<th></th>
<th>Without Base Stand</th>
<th>With Optional Base Stand, 711 mm (28') type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Without Base Stand</td>
<td>1115 x 852 x 1610 mm (44.0&quot; x 33.5&quot; x 63.3&quot;)</td>
<td>1115 x 852 x 2321 mm (44.0&quot; x 33.5&quot; x 91.4&quot;)</td>
</tr>
<tr>
<td>With Optional Base Stand</td>
<td>1420 x 852 x 1610 mm (56.0&quot; x 33.5&quot; x 63.3&quot;)</td>
<td>1420 x 852 x 2321 mm (56.0&quot; x 33.5&quot; x 91.4&quot;)</td>
</tr>
<tr>
<td></td>
<td>1725 x 852 x 1610 mm (68.0&quot; x 33.5&quot; x 63.3&quot;)</td>
<td>1725 x 852 x 2321 mm (68.0&quot; x 33.5&quot; x 91.4&quot;)</td>
</tr>
<tr>
<td></td>
<td>2030 x 852 x 1610 mm (80.0&quot; x 33.5&quot; x 63.3&quot;)</td>
<td>2030 x 852 x 2321 mm (80.0&quot; x 33.5&quot; x 91.4&quot;)</td>
</tr>
<tr>
<td></td>
<td>2600 x 852 x 1610 mm (102.4&quot; x 33.5&quot; x 63.3&quot;)</td>
<td>2600 x 852 x 2321 mm (102.4&quot; x 33.5&quot; x 91.4&quot;)</td>
</tr>
</tbody>
</table>

#### Internal Dimensions (W x D x H)

|            | 970 x 623 x 715 mm (38.2" x 24.5" x 28.1") | 1270 x 623 x 715 mm (50.0" x 24.5" x 28.1") |
|            | 1570 x 623 x 715 mm (61.8" x 24.5" x 28.1") | 1870 x 623 x 715 mm (73.6" x 24.5" x 28.1") |
|            | 2170 x 623 x 715 mm (85.4" x 24.5" x 28.1") | 2470 x 623 x 715 mm (97.1" x 24.5" x 28.1") |

#### Usable Work Area
- 0.45 m² (4.8 sq.ft.)
- 0.6 m² (6.5 sq.ft.)
- 0.75 m² (8.1 sq.ft.)
- 0.9 m² (9.7 sq.ft.)
- 1.2 m² (13 sq.ft.)

#### Tested Opening
- 203 mm (8.0")
- 203 mm (8.0")
- 203 mm (8.0")
- 203 mm (8.0")
- 203 mm (8.0")

#### Working Opening
- 274 mm (10.8")
- 274 mm (10.8")
- 274 mm (10.8")
- 248 mm (9.8")
- 248 mm (9.8")

#### Average Airflow Velocity
- Inflow: 0.53 m/s (105 fpm)
- Downflow: 0.31 m/s (60 fpm)

#### Airflow Volume
- Inflow: 376 m³/h (223 cfm)
- Downflow: 628 m³/h (363 cfm)
- CBV Exhaust Air Volume**: 1127 m³/h (658 cfm)
- Min Exhaust Static Pressure: 400 Pa / 1.6 in H₂O
- CBV Exhaust Static Pressure**: 575 Pa / 2.3 in H₂O

#### Supply ULPA Filter Typical Efficiency
- >99.99% for particle size between 0.1 to 0.3 microns

#### Exhaust HEPA Filter Typical Efficiency
- >99.99% at 0.3 microns

#### Maximum Sash Opening
- 508 mm (20")

#### Sound Emission***
- NSF / ANSI 49: 57 dBA
- EN 12469: 54 dBA

#### Fluorescent Lamp Intensity At Zero Ambient
- >1250 lux (>116 foot-candles)
- >1400 lux (>130 foot-candles)
- >1200 lux (>111 foot-candles)

#### Cabinet Construction
- Main Body: Electro-galvanized steel with white oven-baked epoxy-polyester Isocide™ antimicrobial powder-coated finish, 1.5 mm (0.06") / 16 gauge thick
- Work Zone: Stainless steel Type 304 with No.4 finish, 1.5 mm (0.06") / 16 gauge thick

#### Electrical
- Full Load Amps 230 V: 4.5 A
- Full Load Amps 115 V: 9 A
- Heat Load: 566 BTU/Hr
- Nominal Power Consumption: 166 W

#### Net Weight****
- 279 Kg (615 lbs)
- 317 Kg (699 lbs)
- 359 Kg (791 lbs)
- 438 Kg (966 lbs)
- 591 Kg (1304 lbs)

#### Shipping Weight****
- 318 Kg (703 lbs)
- 370 Kg (814 lbs)
- 402 Kg (886 lbs)
- 491 Kg (1083 lbs)
- 651 Kg (1435 lbs)

#### Shipping Dimensions, Maximum (W x D x H)****
- 1210 x 950 x 1950 mm (47.6" x 37.4" x 76.8")
- 1520 x 950 x 1950 mm (59.8" x 37.4" x 76.8")
- 1900 x 950 x 1950 mm (74.8" x 37.4" x 76.8")
- 2150 x 950 x 1950 mm (84.7" x 37.4" x 76.8")
- 2720 x 950 x 1950 mm (107.1" x 37.4" x 76.8")

#### Shipping Volume, Maximum****
- 2.24 m³ (78.1 cu.ft.)
- 2.82 m³ (99.6 cu.ft.)
- 3.52 m³ (124.3 cu.ft.)
- 3.98 m³ (140.6 cu.ft.)
- 5.04 m³ (178.0 cu.ft.)

---

*Height includes exhaust collar, and depth includes the remove-able arm rest and front cover. When they are removed, depth is 790 mm (31.1").

**This Concurrent Balance Value (CBV) Exhaust Volume (per Pitot Duct Traverse) and Static Pressure at cabinet exhaust connection should be used when sizing the HVAC exhaust and supply.

***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.

3-4 dBA above these values.

***Cabinet only, excludes optional stand.

****Cabinet only, excludes optional stand.
Esco Airstream® Class II, Type B2 Biological Safety Cabinet provides operator, product and environmental protection against biohazards assigned in Biosafety Levels 1, 2, and 3. This cabinet can be used for handling biohazards assigned to Biosafety Level 4, provided that the operator wears positive pressure suit.

Main Features
- The best value of any Type B2 (Total Exhaust) Biological Safety Cabinet in the industry.
- Lower energy consumption and heat output than competing products delivers lower total cost of ownership.
- The angled front, narrow profile front grille, raised armrest and frameless sash create an ergonomic work environment.
- Single-piece stainless steel internal work zone eliminates welded joints where contaminants may accumulate.
- Removable one-piece work surface simplifies cleaning.
- Dual-wall construction surrounds the work zone with negative pressure plenums for maximum safety.
- Fail-safe system ensures that in case of exhaust failure, the cabinet’s main fan automatically shuts down to ensure safety to the user.
- Unique Esco Dynamic Chamber™ plenum design delivers quiet, uniform airflow.
- Long life ULPA (per IEST-RP-CC001) supply filter and HEPA exhaust filter for airflow.
- Frameless sash that is easier to clean.
- Ergonomically-angled front improves reach and comfort.
- Esco Sentinel™ microprocessor supervises all cabinet functions.
- Esco ISOCIDE™ antimicrobial coating on all painted surfaces minimizes contamination.

Standards Compliance

For Air Quality

ISO 14644.1 Class 3, Worldwide
JIS B9920, Class 3, Japan
BS 5295, Class 3, UK
US Fed Std 209E, Class 1, USA

For Filtration

EN-1822 (H14), Europe
IEST-RP-CC001.3, USA
IEST-RP-CC007, USA
IEST-RP-CC034.1, USA

For Electrical Safety

IEC 61010-1, Worldwide
EN 61010-1, Europe
UL 61010-1, USA
CAN/CSA-22.2, No. 61010-1

*CFDA certification is exclusive to AB2 models sold in China.
**Technical Specifications for Airstream® Class II Type B2 Biological Safety Cabinets**

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

<table>
<thead>
<tr>
<th>Model</th>
<th>AB2-3S</th>
<th>AB2-4S</th>
<th>AB2-5S</th>
<th>AB2-6S</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal Size</td>
<td>Without Base Stand</td>
<td>0.9 meters (3')</td>
<td>1.2 meters (4')</td>
<td>1.5 meters (5')</td>
</tr>
<tr>
<td>With Optional Base Stand, 711mm (28&quot;) type</td>
<td>1035 x 811 x 1460 mm</td>
<td>1340 x 811 x 1460 mm</td>
<td>1645 x 811 x 1460 mm</td>
<td>1950 x 811 x 1460 mm</td>
</tr>
</tbody>
</table>

**Internal Work Area, Dimensions** (W x D x H)

- Without Base Stand: 970 x 585 x 670 mm (38.2" x 23.0" x 26.4")
- With Optional Base Stand: 1035 x 811 x 2171 mm (40.7" x 39.1" x 85.5")

**Tested and Working Opening**

- 0.43 m² (4.67 sq.ft) for AB2-3S
- 0.58 m² (6.2 sq.ft) for AB2-4S
- 0.73 m² (7.8 sq.ft) for AB2-5S
- 0.87 m² (9.3 sq.ft) for AB2-6S

**Internal Work Area, Space**

- 0.43 m² (4.67 sq.ft) for AB2-3S
- 0.58 m² (6.2 sq.ft) for AB2-4S
- 0.73 m² (7.8 sq.ft) for AB2-5S
- 0.87 m² (9.3 sq.ft) for AB2-6S

**Average Airflow Velocity**

- Inflow: 0.53 m/s (105 fpm) at initial setpoint
- Downflow: 0.33 m/s (65 fpm) at initial setpoint with uniformity of better than ± 20%

**Airflow Volume**

- Inflow: 320 m³/h (190 cfm) for AB2-3S, 419 m³/h (248 cfm) for AB2-4S, 518 m³/h (307 cfm) for AB2-5S, 617 m³/h (366 cfm) for AB2-6S
- Downflow: 622 m³/h (366 cfm) for AB2-3S, 815 m³/h (480 cfm) for AB2-4S, 1007 m³/h (593 cfm) for AB2-5S, 1200 m³/h (707 cfm) for AB2-6S

**Minimum exhaust static pressure for clean exhaust filter**

- 465 Pa / 1.9 in H2O (AB2-3S), 364 Pa / 1.5 in H2O (AB2-4S), 330 Pa / 1.3 in H2O (AB2-5S), 417 Pa / 1.7 in H2O (AB2-6S)

**Static Pressure with additional 174 Pa (0.7 in H2O) required by NSF/ANSI 49:2008**

- 639 Pa / 2.6 in H2O (AB2-3S), 538 Pa / 2.2 in H2O (AB2-4S), 504 Pa / 2.0 in H2O (AB2-5S), 591 Pa / 2.4 in H2O (AB2-6S)

**Sound Emission***

- NSF/ANSI 49: <59 dBA for AB2-3S, <59 dBA for AB2-4S, <59 dBA for AB2-5S, <59 dBA for AB2-6S
- EN 12469: <56 dBA for AB2-3S, <56 dBA for AB2-4S, <56 dBA for AB2-5S, <56 dBA for AB2-6S

**Fluorescent Light Intensity At Zero Ambient**

- >1000 Lux (>93 foot candles) for AB2-3S, >1000 Lux (>93 foot candles) for AB2-4S, >900 Lux (>84 foot candles) for AB2-5S, >1000 Lux (>93 foot candles) for AB2-6S

**Cabinet Construction**

- **Main Body**: 1.5 mm (0.06") 16 gauge electro-galvanized steel with Isocide white oven-baked epoxy-polyester powder-coating
- **Work Zone**: Stainless steel Type 304 with No. 4 finish

**Electrical****

- **Cabinet Full Load Amps (FLA)**: 2 A for AB2-3S, 2 A for AB2-4S, 2 A for AB2-5S, 2 A for AB2-6S
- **Optional Outlets FLA**: 5 A for AB2-3S, 5 A for AB2-4S, 5 A for AB2-5S, 5 A for AB2-6S
- **Cabinet Nominal Power**: 277 W for AB2-3S, 292 W for AB2-4S, 330 W for AB2-5S, 340 W for AB2-6S
- **Cabinet BTU**: 945 for AB2-3S, 996 for AB2-4S, 1126 for AB2-5S, 1160 for AB2-6S

**220-240V, AC, 50Hz, 1ø AB2-3S**

- **Cabinet Full Load Amps (FLA)**: 2 A
- **Optional Outlets FLA**: 5 A
- **Cabinet Nominal Power**: 277 W
- **Cabinet BTU**: 945

**110-120V, AC, 60Hz, 1ø AB2-3S**

- **Cabinet Full Load Amps (FLA)**: 3.5 A
- **Optional Outlets FLA**: 5 A
- **Cabinet Nominal Power**: 293 W
- **Cabinet BTU**: 1000

**Net Weight*****

- 175 kg (386 lbs) for AB2-3S
- 229 kg (505 lbs) for AB2-4S
- 238 kg (525 lbs) for AB2-5S
- 279 kg (615 lbs) for AB2-6S

**Shipping Weight, Maximum*****

- 232 kg (511 lbs) for AB2-3S
- 273 kg (602 lbs) for AB2-4S
- 295 kg (650 lbs) for AB2-5S
- 350 kg (772 lbs) for AB2-6S

**Shipping Dimensions, Maximum (With Optional Stand)*****

- 1150 x 850 x 1760 mm for AB2-3S
- 1450 x 850 x 1760 mm for AB2-4S
- 1750 x 850 x 1760 mm for AB2-5S
- 2050 x 850 x 1760 mm for AB2-6S

**Shipping Volume, Maximum*****

- 1.72 m³ (61 cu.ft) for AB2-3S
- 2.17 m³ (77 cu.ft) for AB2-4S
- 2.62 m³ (93 cu.ft) for AB2-5S
- 3.07 m³ (108 cu.ft) for AB2-6S

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* This Concurrent Balance Value (CBV) Exhaust (per Pitot Duct Traverse) and Static Pressure must be used when sizing the HVAC exhaust & supply.
** This minimum exhaust static pressure for clean exhaust filter should not be used for exhaust fan sizing, and it is listed here for comparative purpose only.
*** Noise reading in open field condition / anechoic chamber.
**** Additional voltages may be available; contact Esco for ordering information.
***** Cabinet only, excludes optional stand.
****** Cabinet BTU = Cabinet nominal power x 3.41214.
The Airstream® Class III biological safety cabinet provides you the industry’s best protection for high-hazard applications, which cannot be attained with Class I and Class II cabinets. It offers the highest possible level of containment and protection. The cabinet’s airtight seal and advanced ULPA filtered laminar airflow provides product, operator and environmental protection and is suitable for use with agents assigned to all risk groups, although more commonly used for handling Risk Group 3 and 4 organisms. AC3 cabinet is engineered for comfort, utility value, and safety.

Main Features
- Exhaust air is double-filtered through high-quality ULPA filters (per IEST-RP-CC001) 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 material transfer without risk of environmental contamination.
- Esco ISO CODE™ antimicrobial surface on all painted surfaces minimizes contamination.
- Ergonomically angled front improves reach and comfort.
- 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.

Guide to Models

<table>
<thead>
<tr>
<th>Nominal Width</th>
<th>Code</th>
<th>Electrical Code</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 ft (1.2 m)</td>
<td>4</td>
<td>220-240 V, 50 Hz</td>
<td>1</td>
</tr>
<tr>
<td>5 ft (1.5 m)</td>
<td>5</td>
<td>110 V-120 V, 60 Hz</td>
<td>2</td>
</tr>
<tr>
<td>6 ft (1.8 m)</td>
<td>6</td>
<td>230 V, 60 Hz</td>
<td>3</td>
</tr>
</tbody>
</table>
### Technical Specifications for 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 Work Zone Pressure</td>
<td>-275 Pa (-1.1&quot; 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</td>
<td>≥99.999% at 0.1 to 0.3 μm and MPPS</td>
<td></td>
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<tr>
<td>Sound Emission (Typical)*</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>NSF / ANSI 49</td>
<td>&lt;54 dBA</td>
<td>&lt;55 dBA</td>
<td>&lt;56 dBA</td>
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<tr>
<td>EN 12469</td>
<td>&lt;51 dBA</td>
<td>&lt;52 dBA</td>
<td>&lt;53 dBA</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>
</tbody>
</table>

**Cabinet Construction**

| Main Body | 1.5 mm (0.06") 16 gauge electro-galvanized steel with white oven-baked epoxy-polyester Isocide antimicrobial powder coated finish |
| Work Tray | 1.5 mm (0.06") 16 gauge stainless steel Type 304 with No.4 finish |
| Work Zone | 1.2 mm (0.05") 18 gauge electro-galvanized steel with white oven-baked epoxy-polyester Isocide antimicrobial powder coated finish |

**Electrical**

<table>
<thead>
<tr>
<th>220-240V, AC, 50/60Hz, 1Ø</th>
<th>AC3-4B1</th>
<th>AC3-5B1</th>
<th>AC3-6B1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cabinet Full Load Amps (FLA)</td>
<td>3 A</td>
<td>3 A</td>
<td>3 A</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>455 W</td>
</tr>
<tr>
<td>Cabinet BTU ***</td>
<td>1232</td>
<td>1467</td>
<td>1533</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>110-120V, AC, 60Hz, 1Ø</th>
<th>AC3-4B2</th>
<th>AC3-5B2</th>
<th>AC3-6B2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cabinet Full Load Amps (FLA)</td>
<td>10 A</td>
<td>11.5 A</td>
<td>11.5 A</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>
</tbody>
</table>

| Net Weight | 498 kg (1096 lbs) | 598 kg (1316 lbs) | 676 kg (1487 lbs) |
| Shipping Weight | 606.5 kg / 1337 lbs | 615 kg / 1356 lbs | 720 kg / 1587 lbs |
| Shipping Dimensions, Maximum (W x D x H) | 2600 x 1950 x 1320 mm | 2600 x 2150 x 1320 mm | 2600 x 2190 x 1320 mm |
| Shipping Volume, Maximum | 6.69 m³ (236 cu.ft.) | 7.38 m³ (261 cu.ft.) | 7.38 m³ (261 cu.ft.) |

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* * Noise reading in open field condition/ anechoic chamber.
** ** Additional voltages may be available; contact Esco for ordering information.
*** *** Cabinet BTU = Cabinet nominal power x 3.41214.
Options and Accessories:

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

Options and accessories may not be applicable for your desired model. For detailed information on options and accessories, please see brochure of your desired BSC model.

<table>
<thead>
<tr>
<th>Accessories</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Support Stands</td>
<td>• Fixed height, with levelling feet or casters</td>
</tr>
<tr>
<td></td>
<td>• Telescoping height, with levelling feet or casters</td>
</tr>
<tr>
<td></td>
<td>• Electronic adjustable height, with levelling feet or casters</td>
</tr>
<tr>
<td>Electrical Outlets</td>
<td>• European/Worldwide Style, available in Type C, D, E, F, G, H, I</td>
</tr>
<tr>
<td></td>
<td>• North American style</td>
</tr>
<tr>
<td>Germicidal UV Lamp</td>
<td>• Emission of 253.7 nanometers for most efficient decontamination</td>
</tr>
<tr>
<td></td>
<td>• Lamp is positioned away from operator’s line-of-sight for safety and proper exposure to interior surfaces</td>
</tr>
<tr>
<td>Service Fixtures</td>
<td>• European/Worldwide style</td>
</tr>
<tr>
<td></td>
<td>• North American style</td>
</tr>
<tr>
<td></td>
<td>• Electronic adjustable height, with levelling feet or casters</td>
</tr>
<tr>
<td>IV Bars, with hooks</td>
<td>• Stainless steel construction, Max Load 6 Kg (13 lbs)</td>
</tr>
<tr>
<td></td>
<td>• Available for all standard Esco cabinets</td>
</tr>
<tr>
<td>Exhaust Accessories</td>
<td>• Air-tight damper</td>
</tr>
<tr>
<td></td>
<td>• Thimble exhaust collar</td>
</tr>
<tr>
<td></td>
<td>• Anti-blow back valve</td>
</tr>
<tr>
<td></td>
<td>• Tri-safe exhaust collar with alarm</td>
</tr>
<tr>
<td>Decontamination bag</td>
<td>• Plastic decontamination bag for formalin decontamination on all BSC</td>
</tr>
<tr>
<td>Port</td>
<td>• Air-tight cable port, installed on right side wall</td>
</tr>
<tr>
<td></td>
<td>• Holds 1 to 4 cables</td>
</tr>
<tr>
<td>Ergonomic Foot Rest</td>
<td>• Angled, helps maintain proper posture</td>
</tr>
<tr>
<td></td>
<td>• Easily adjustable from 3” to 11” in 1” increment, 20” wide</td>
</tr>
<tr>
<td></td>
<td>• Anti-skid coating, chemical-resistant finish</td>
</tr>
<tr>
<td>Ergonomic Lab Chair</td>
<td>• Laboratory-grade construction, meets Class 100 cleanliness;</td>
</tr>
<tr>
<td></td>
<td>• Alcohol-resistant PVC materials</td>
</tr>
<tr>
<td></td>
<td>• Adjustable height 395-490 mm (15.6”-19.3”)</td>
</tr>
<tr>
<td>PVC Arm Rest</td>
<td>• Chemically treated, improves operator comfort, easy to clean</td>
</tr>
<tr>
<td>Microscope Viewing Pouch</td>
<td>• Factory-installed</td>
</tr>
<tr>
<td></td>
<td>• Mounting and viewing pouch integrated into sash</td>
</tr>
<tr>
<td>VHP Port</td>
<td>• VHP Out Top Box for Cabinet with or without exhaust collar installed</td>
</tr>
<tr>
<td>Pre-filter</td>
<td>• Pre-filter on paper catch</td>
</tr>
<tr>
<td>IQOQ</td>
<td>• Installation Qualification and Operational Qualification Protocol</td>
</tr>
<tr>
<td>Formalin vaporizer</td>
<td>• Dependable construction and innovative design</td>
</tr>
<tr>
<td></td>
<td>• Specifically designed for safety cabinet decontamination with automatic control</td>
</tr>
</tbody>
</table>

Support Stands
Electrical Outlet
Germicidal UC Lamp
VHP Port
Service Fixtures
PVC Arm Rest
IV Bars, with hooks
Ergonomic Foot Rest
Ergonomic Lab Chair
Formalin Vaporizer
Exhaust Accessories
Pre-filters