



# Agriculture & Fisheries Industry







# Welcome to Esco Lifesciences

Esco Lifesciences' vision is to provide enabling technologies for scientific discoveries to make human lives healthier and safer.

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

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

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

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

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

**Esco Lifesciences Cares for the Environment.** Esco Lifesciences incorporates the latest proven technologically advanced components available. One in every four of Esco's employees is involved in Research and Development and are evaluating new components or designs for better efficiency. Whenever a new technology is available, Esco Lifesciences redesigns technology into our new products that will use lesser energy.

**Customer Service and Support.** Our service does not stop once purchase has been done. Esco Lifesciences gives on-time customer service such as service training, preventive maintenance, and re-certification, to respond to your equipment needs. Esco Lifesciences also offers free end-user seminars and provides educational materials and informative videos.

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



## OVERVIEW

As the population grows, so does the demand for agricultural commodities. The Agriculture and Fisheries Industry plays an important role in ensuring the quality of crop and livestock production and improvement of the marine environment through intensive quality control activities and in continuous research efforts.

Esco remains true to its mission of providing world-class laboratory equipment to support the needs of the Agriculture and Fisheries Industry as the population strives in growing sustainable resources to support the increasing multitude.

### Sample Preparation

- Biological Safety Cabinet
- Laminar Flow Cabinet
- Laboratory Centrifuge

### Sample Cultivation/Incubation

- CO<sub>2</sub> Incubator
- Laboratory Shaker

### Sample Analysis

- PCR Thermal Cycler

### Sample Storage and Preservation

- Laboratory Refrigerator and Laboratory Freezer
- Ultra-Low Temperature Freezer

### General Equipment

- Laboratory Oven
- Laboratory Incubator
- Refrigerated Incubator

### Chemical Analysis (QA/QC)

- Ductless Fume Hood
- Laboratory Fume Hood





AC2-4S\_NS

## Airstream®

### Class II Biological Safety Cabinets

#### Features

- Energy saving DC ECM blower
- Isocide™ antimicrobial powder coating
- H14 filter or ULPA filter with 99.999% efficiency at 0.1 – 0.3 µm selection.
- Large performance envelope
- Ergonomic design
- Low noise
- Easy to clean

#### Introduction

Esco's Biological Safety Cabinet is a primary engineering control which provides user protection against biohazards as the inflow air creates airflow barrier preventing accidental release of biohazards from the cabinet's working area and at the same time provides product protection with the airflow barrier inside the work zone which is on the other hand created by the downflow air.

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.

#### Basic Principle

Ambient air is pulled through front grille to create inflow, without going through the work surface. Inflow is joined by half of the downflow, to create front air curtain that is fine-tuned to create a large performance envelope. The combined air stream travels through the back air column towards the blower. Approximately 1/3 of the air in the common plenum is exhausted through the ULPA filter to the room. The remaining 2/3 of the air is passed through the downflow ULPA filter and into the work area as a vertical laminar flow air to create ISO Class 3 work surface and prevents cross contamination.

Near the work surface, the downflow splits. About half goes to the front grille, and half goes to the rear grille. A small portion enters the side capture zones to prevent dead air corners (small blue arrows). The design was optimized to give large performance envelope, that provides operator and product protection at wide Inflow and Downflow variation from the Nominal point.



NSF / ANSI 49



UL 61010



国家食品药品监督管理局



TÜV NORD, Germany



JIS K3800



EN 12469



SANS 12469



STANDARDS Australia



Green Product



## Airstream® Class II Type A2 Biological Safety Cabinets

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

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

**We understand your BSC requirements.**

Airstream® offers the most complete Class II cabinet range, with 9 models to choose from.



*Model AC2-4E8*



*Model AC2-4D8*



*Model AC2-4G8*



*Model AC2-4S8*



*Model AC2-4S9-NS*



*Model AR2-4S9*  
(Available only for USA)



*Model AC2-4E8-TU*



*Model AC2-4S8-TU*



*Model AC2-4K8*  
(Available only for Australia)

## OPTIONS AND ACCESSORIES



**Support Stands**

- Fixed height, with levelling feet or casters
- Telescoping height, with levelling feet or casters
- Electronic adjustable height, with levelling feet or casters



**Electrical Outlet**

- European/ Worldwide Style, available in Type C, D, E, F, G, H, I
- North American style



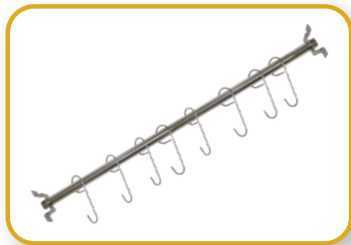
**Germicidal UV Lamp**

- Emission of 253.7 nanometers for most efficient decontamination
- Lamp is positioned away from operator's line-of-sight for safety and proper exposure to interior surfaces



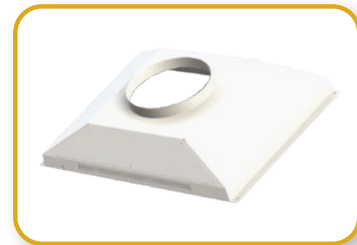
**Service Fixtures**

- European/ Worldwide style
- North American style
- Electronic adjustable height, with levelling feet or casters



**IV Bars with hooks**

- Stainless steel construction, Max Load 6 Kg (13 lbs)
- Available for all standard Esco cabinets



**Exhaus Accessories**

- Air-tight damper and thimble exhaust collar
- SEAS (Sentinel Exhaust Alarm System)\*
- Anti-blow back valve
- Tri-safe exhaust collar with alarm



**Ergonomic Foot Rest**

- Angled, helps maintain proper posture
- Easily adjustable from 3" to 11" in 1" increment, 20" wide
- Anti-skid coating, chemical-resistant finish



**Ergonomic Lab Chair**

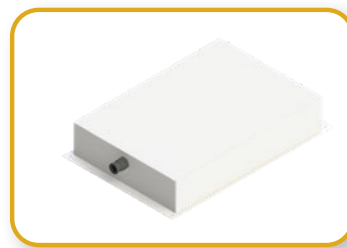
- Laboratory-grade construction
- Alcohol-resistant PVC materials
- Adjustable height 395-490 mm (15.6"-19.3")





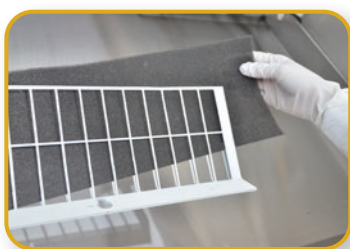
**PVC Arm Rest**

- Chemically treated, improves operator comfort, easy to clean



**VHP Port**

- VHP Out Top Box for Cabinet with or without exhaust collar installed



**Pre-filter**

- Pre-filter on paper catch



**Formalin Vaporizer**

- Dependable construction and innovative design
- Specifically designed for safety cabinet decontamination with automatic control

\* Type A Biological Safety Cabinets with thimble exhaust collar NOT equipped with alarm system can no longer be certified by an NSF-Accredited certifier.

## Other Accessories

Accessories	Description
Decontamination bag	<ul style="list-style-type: none"> <li>• Plastic decontamination bag for formalin decontamination on all BSC</li> </ul>
Port	<ul style="list-style-type: none"> <li>• Airtight cable port, installed on right side wall</li> <li>• Holds 1 to 4 cables</li> </ul>
Microscope Viewing Pouch	<ul style="list-style-type: none"> <li>• Factory-installed</li> <li>• Mounting and viewing pouch integrated into sash</li> </ul>
IQ/OQ	<ul style="list-style-type: none"> <li>• Installation Qualification and Operational Qualification Protocol</li> </ul>



LHG-4DS-F- \_

## Airstream® Gen 3 Horizontal Laminar Flow Cabinet

### Features

- Energy saving DC ECM Blower
- Isocide™ antimicrobial powder coating
- ULPA Filter with >99.999% efficiency at 0.1 – 0.3 µm
- Low noise
- Simple switch controller
- Recessed central work tray to contain spills
- Ergonomic design
- Audible and visual alarms



### Introduction

Plant Tissue Culture is one of the most promising branches of plant science, occupying key positions in plant biotechnology, plant breeding and plant propagation. Plant tissue culture, by definition, is the application of various techniques for the aseptic culture of plant cells, tissues, organs and their components under known physical and chemical conditions in vitro.

The remarkable success of the applications of plant tissue culture in plant biotechnology and plant science has led it to its significant roles in agriculture, forestry and horticulture. Several of its applications include large-scale micropropagation, somatic embryogenesis and synthetic seed technology, genetic engineering of plants by gene transfer technology, and commercial production of plants.

Among the many concerns in plant tissue culture, the sensitivity of its samples to any source of contamination highly influences its success. A single bacterial cell or fungal spore can be fatal to a small plant piece since it can easily contaminate the growth media. It is essential to maintain a sterile environment as much as possible to avoid the contamination of samples, and this can be provided using a laminar flow cabinet.

Airstream® Horizontal Laminar Flow Cabinets is designed specifically for plant tissue culture. It offers a combination of smooth and easily cleanable work zone, easy-to-use features, superior filtration efficiency, and energy efficient technology as part of Esco's advocacy to produce environment-friendly laboratory equipment. Experience quality protection. Experience innovation.

### Basic Principles

Room air is taken in from the top of the clean bench through a disposable pre-filter with 85% arrestance; this serves to trap larger particles and increase the life of the main filter. Air is forced evenly across the HEPA filter; the result is a stream of clean laminar air within the workzone of the clean bench; this dilutes and flushes all airborne contaminants from the interior. A nominal filter face velocity of 0.45 m/s or 90 fpm ensures that there is a sufficient number of air changes within the enclosed area of the clean bench to maintain cleanliness. The purified air travels across the internal work zone of the clean bench in a horizontal, unidirectional stream and leaves the main work chamber across the entire open front of the clean bench.



## OPTIONS AND ACCESSORIES



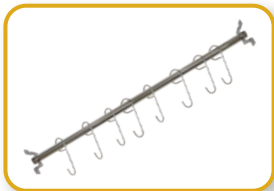
### Germicidal UV Lamp

- Emission of 253.7 nanometers for most efficient decontamination
- Lamp is positioned away from operator's line-of-sight for safety and proper exposure to interior surfaces



### Electrical Outlet

- European/ Worldwide Style, available in Type C, D, E, F, G, H, I
- North American style



### IV Bars with Hooks

- Stainless steel construction, Max Load 6 Kg (13 lbs)
- Available for all standard Esco cabinets



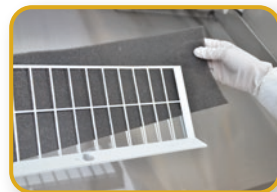
### PVC Arm Rest

- Chemically treated, improves operator comfort, easy to clean



### Support Stands

- Fixed height, with levelling feet or casters
- Telescoping height, with levelling feet or casters
- Electronic adjustable height, with levelling feet or casters



### Pre-filter

- Pre-filter on paper catch



TCR-1500-<sub>-</sub>



TCV-1500-<sub>-</sub>

## Versati™ Centrifuge

### Features

- Distinct control panel and intelligent Versati™ Microprocessor Control System
- Genuine-Protac™ safety lid lock
- V-balance™ weight imbalance protection
- Smartdrive™ rotor auto recognition
- Diverse choices of rotor (swing-out and fixed-angle rotors)
- Temperature range from -20°C to 40°C with 1°C increments (Refrigerated models only)
- Maintenance-free, brushless motor
- CFC-free refrigeration system
- Emergency switch
- Storage of up to 99 programs



CE



### Introduction

Versati™ centrifuges are equipped with maintenance-free motors, robust mechanism, and intelligent Versati™ microprocessor control system that offers extreme reliability and safety. Versati™ has a strong versatility covering micro centrifuge and low-to-high speed general-purpose centrifuge with variety of rotors, adapters, and accessories to fit all your application needs and suit various consumable tubes, strips, and plates.

### Versatile and Outstanding Features

- **Compact Design** - Small footprint and curved design ensure comfortable loading and unloading of samples and cleaning of the unit.
- **Incredible Flexibility** - Wide choice of easy and interchangeable rotors meets all your application needs. Huge selection of adapters allows centrifugation of practically all commercially available tubes.
- **High Temperature Ramp Rate** - Compressor in Versati™ centrifuges has strong power which allows fast cooling rate. The time cost can be as low as 10 mins when temperature decreases from room temperature to 4°C.
- **Fast Pre-cooling** - Versati™ centrifuges provide fast pre-cooling function that is maintained even when centrifuge is not in use. This feature is useful if the samples are temperature-sensitive.
- **Overspeed Protection** - Equipped with speed detection system, Versati™ centrifuges show the actual speed on the screen. Once the speed exceeds the safety range, the alarm will sound off and rotation is halted.
- **Over Temperature Protection** - The unit will stop running once an over temperature is detected in the chamber, rotor, and frequency converter. This provides comprehensive protection which prolong the life span of Versati™ centrifuges.
- **Aerosol-tight and Autoclavable** - High-quality, extremely robust aluminum lid of rotor allows aerosol-tight centrifugation. Rotor, buckets, lids, and adapters are autoclavable (20 min, 121°C) to ensure sterility of the centrifuge environment.

### Agriculture and Fisheries Industry

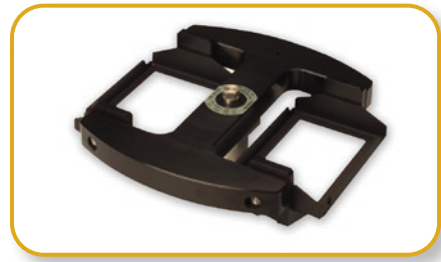


## General Accessories for Versati™ Tabletop Centrifuge



**Swing-bucket Rotor**

Aluminum swing-bucket rotor with circular flat-bottom buckets made of polypropylene can hold up to 4 x 250 ml tubes. It has flexible adapters ideal for medical and biotechnology laboratories.



**Microtiter Plate Rotor**

This microtiter plate rotor has a maximum capacity of up to 6 plates. This can also accommodate deep well plate, culture plate, microtest/ terasaki plate, microsonic system, and PCR well plate.



**Fixed-angle Rotor**

The maximum capacity of this fixed-angle rotor is 6 x 250 ml. It can also run tubes ranging from 1.5/2.0 ml to 50 ml using suitable adapters.



**Aerosol-tight Fixed-angle Rotor**

This TÜV Nord Certified Bioseal Rotor used for 1.5/2.0 ml tubes is also available in tabletop centrifuge models. Adapters are used to run 0.5 ml and 2.0 ml / 0.4 ml PCR tubes.



**Fixed-angle Rotor**

This aluminum fixed-angle rotor can hold twenty 10 ml dome tubes. This rotor has no available adapter.



**Fixed-angle Rotor**

Aluminum rotor for ten 50 ml conical tubes. It has available adapters for 15 ml conical and dome tubes.

*Note: There are a total of 12 rotor options for TCVI TCR and 47 available adapters for both models.*



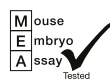
CCL-170- \_

# CelCulture® CO<sub>2</sub> Incubator

## Features

- VivoCell™ precise parameter control
- Infrared (IR) CO<sub>2</sub> sensor
- VentiFlow™ forced convection
- SteriSafe™ ULPA filtration system
- SwiftCon™ 90°C moist heat decontamination cycle
- Isocide™ antimicrobial coating
- Gas inlet filter
- Intuitive user interface with data and event logging

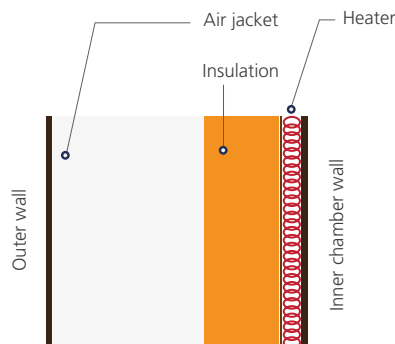
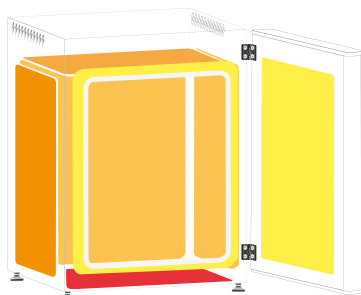
Available sizes: 50, 170, and 240 L



## Introduction

CO<sub>2</sub> incubators are widely used in scientific research to grow and maintain cell cultures. Typical fields of application include tissue engineering and other mammalian cell research applications. Sleek, reliable and intuitive, Esco CelCulture® CO<sub>2</sub> incubators provide complete sample protection that brings your scientific dreams one step closer to reality.

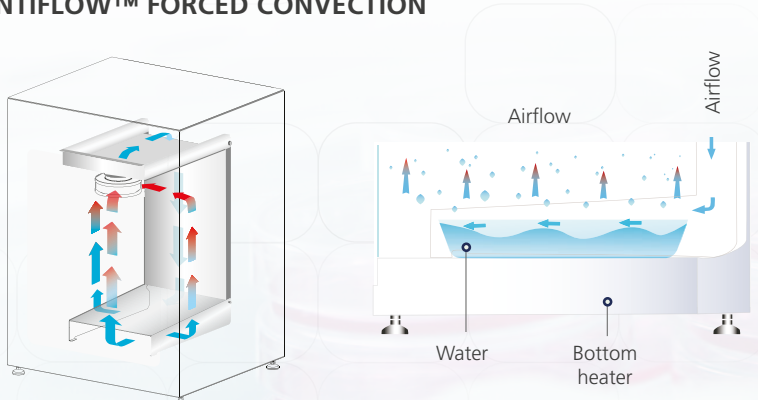
### DIRECT HEAT AND AIR JACKET



- Direct heating enables rapid temperature recovery while air jacket provides isolation against ambient temperature fluctuations.
- Precise heating in the chamber is achieved by using 8 heaters located in 3 zones. The 3 zones are intelligently controlled by the microcontroller for best temperature uniformity and minimal fluctuation.

- The main heater provides precise temperature control.
- The bottom heater warms the water pan and provides humidity.
- The outer door heater prevents condensation on glass door and facilitates temperature recovery.

### VENTIFLOW™ FORCED CONVECTION



- No disturbance to cell culture.
- Blower automatically stops when door is opened to minimize mixing of chamber and room air.
- Accelerates recovery of chamber air to ISO Class 5 Cleanliness after door closing to prevent contamination.
- Improves CO<sub>2</sub>, humidity and temperature uniformity.
- Filtered air circulates across water pan to accelerate humidifying process.

## Agriculture and Fisheries Industry

## OPTIONS AND ACCESSORIES



### Humidity Display

This option allows the incubator to monitor the relative humidity inside the chamber. The probe for the sensor works in freezing conditions (-70°C) and also in temperatures up to 180°C. The sensor is easy to install and has excellent accuracy. The airflow in the chamber does not affect the measurement. The sensor is maintenance-free. It does not need to be removed during 90°C moist heat decontamination cycle.



### CO<sub>2</sub> Backup

This option allows two tanks of CO<sub>2</sub> to be connected to the incubator. It will automatically switch from the primary tank to the secondary tank when low gas pressure is detected on the primary tank.



### Analog Output

A set of relay contacts is provided at the rear of the incubator that allows the incubator to output analog signals representing the temperature, CO<sub>2</sub> / O<sub>2</sub> content and relative humidity, depending on the options available in your incubator. This allows the chamber to be connected to an in-house data acquisition or alarm system. This option can also be field-installed.

The analog signal outputs can be set to operate in either voltage DC (0-5 Vdc) or current (4-20 mA) mode. The factory default setting is voltage. Switch on the board to toggle between the modes.



### Sealed Inner Door Kit with 2 glass doors (50L) / Sealed Inner Door Kit with 4 glass doors (170L) Sealed Inner Door Kit with 4 glass doors (240L) / Sealed Inner Door Kit with 6 glass doors (240L)

CelCulture® CO<sub>2</sub> incubators can be equipped with 2, 4 or 6 glass doors, that can be opened horizontally which allows access to defined sections of the incubator without affecting much the inner atmosphere of the chamber. This minimizes recovery time and contamination risks. The sealed-inner door is also reversible as same as the outer door which can be installed to be opened either from-right-to-left or from-left-to-right. The sealed-inner door is available as a factory-installed option or field installed retrofit kit.



### N<sub>2</sub> Back-up

This option allows two tanks of N<sub>2</sub> to be connected to the incubator. It will automatically switch from the primary tank to the secondary tank when low gas pressure is detected on the primary tank.



### Floor Stand 200 mm (8.0") With Adjustable Feet (240 L)

Floor stands are available with adjustable feet, with a nominal range of 180 mm to 250 mm (7.1" to 9.8") for comfortable access to the incubator and to avoid floor contamination.



### 2-Stage Gas Regulator for CO<sub>2</sub>/N<sub>2</sub>

CO<sub>2</sub> and N<sub>2</sub> gas input regulators reduce pressure from the tank to the incubator. It has dual pressure gauges, barbed line connection and shut-off valve. It prevents over-pressurization of the gas supply into the incubator which could cause the tubing to burst.



### Extra Shelf (Stainless Steel) for Standard Stainless Steel Chamber

Each CelCulture® CO<sub>2</sub> incubator comes standard with 3 shelves for 50 L / 4 shelves for 170 L & 240L and it can accommodate up to a maximum of 4 shelves for 50 L / 7 shelves for 170 L & 240 L.



### Stacking Kit

The stacking kit is a provision to stack one incubator on top of another incubator. Four stacking brackets are included as standard inside the Accessories Kit Box with each incubator.



### Electronic CO<sub>2</sub> Analyzer, For CO<sub>2</sub> / Temp Measurement Electronic CO<sub>2</sub> + O<sub>2</sub> Analyzer, For CO<sub>2</sub> / O<sub>2</sub> / Temp Measurement Electronic CO<sub>2</sub> + O<sub>2</sub> + RH Analyzer, For CO<sub>2</sub> / O<sub>2</sub> / RH / Temp Measurement

The electronic analyzer allows the measurement of CO<sub>2</sub> concentration, O<sub>2</sub> concentration, relative humidity and temperature (temperature probe already included).



### 6" Chart Recorder, Temp/RH, 115/230VAC 50/60 Hz

The chart recorder provides an easy-to-read graph of data vs time. It is a reliable, accurate, and stable instrument for on-the-spot written documentation of incubator chamber temperature. This model offers 6" chart of temperature and humidity data.





# OrbiCult™ Laboratory Shaker

## Features

- Heavy-duty and high-speed application
- Reduce maintenance
- Versatile for microorganism cultivation
- Easy-to-use design
- Audible and visible alarms
- World class compressor with low energy consumption
- External surfaces are powder coated with Esco Isocide™

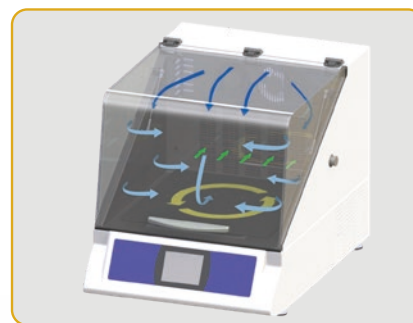


## Introduction

OrbiCult™ Laboratory Shakers offer versatile models designed with outstanding features to provide reliable results for various applications in agricultural research such as shaking liquid cell cultures of insect, fish, or plant cells, incubation of microorganisms or for production of other cell products.

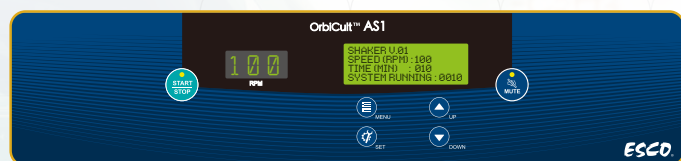
## Airflow Circulation

- Two circulating fans located on top of the perforated panel, disperse and distribute the air inside the chamber
- Perforation located below the circulating fan absorbs the air to recirculate the air inside the chamber
- Platform performs counterclockwise rotation based on the motor drive motion
- Air temperature changes during suction process
  - For refrigerated unit, evaporator located behind the perforated panel will cool down the air
  - For non-refrigerated unit, heater located below the circulating fan will heat up the air

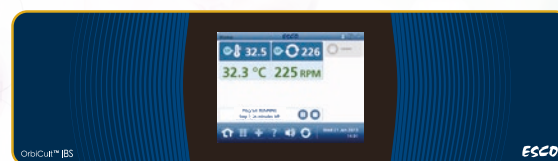


- Discharge Air
- Circulating Air
- Suction Air
- Motor Drive Rotation

## Digital LED Controller (for AS1 model)



## SmarTouch™ Controller (for IBS model)



## OPTIONS AND ACCESSORIES



### Universal Platform

Have standard holes pattern that can fit any flask clamps and test tube rack. All multiple flask clamps and labware holders are shipped separately and installed by the end user.



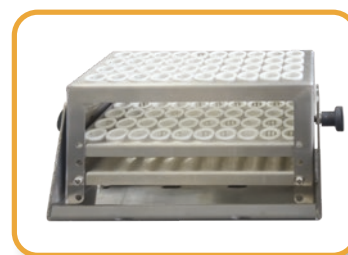
### Dedicated Platform

Platforms have a customized pattern to optimize the number of a particular size of flask clamp on a platform. Dedicated platforms are pre-installed with the flask clamps.



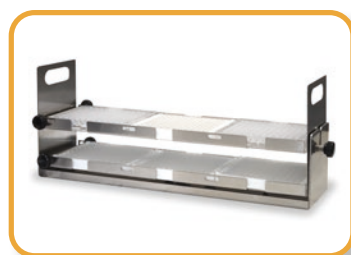
### Flask Clamps

Single-piece stainless steel clamps that provide enough strength and security to hold flasks.



### Test Tube Rack

Stainless steel rack that stabilizes and holds the test tubes.



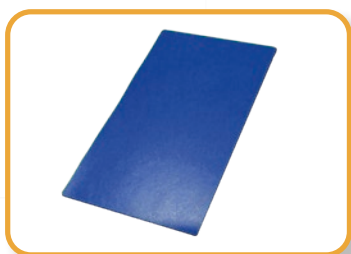
### Microplate Holder

Double layer racks that hold up to six standard deep well plates.



### Utility Carrier

Made of stainless steel that holds different glassware in between of adjustable stainless steel bars.



### Sticky Mats

Allows the user to place the flask directly on the mat without the use of a clamp. Sticky mats are very convenient if the user desires to rotate at less than 350 rpm. This can be ordered separately and attach on Universal Platform.



### Gas Manifold

Contain 12 gas ports that add versatility for aerobic and anaerobic cell cultivation.

The IBS is available with a 12-port gas manifold option to allow operator to supply gas directly to the culture medium of 12 individual flasks.



AERIS-BG096

# Aeris™

## Conventional PCR Thermal Cycler

### Features

- Multi-block capability
- Adjustable hot lid temperature and ramp rate
- Excellent temperature accuracy and uniformity
- Can perform standalone operation
- Software allows variety of PCR conditions, can control up to 30 units via one PC
- Password protection for secure system access

### Introduction

Esco offers a choice of Conventional Thermal Cycler designed to meet critical requirements for all kinds of PCR processes, such as, Gradient PCR, Touch down PCR, High throughput PCR, in situ PCR and so on, using a variety of PCR tubes, strips, plates and slides. Designed to meet critical requirements for pathogen detection and quantification.

The Aeris™ thermal cycler offers five interchangeable blocks designed to meet critical requirements for different applications. It comes with an intuitive touch screen to deliver easy-to-use programming; AeonStar™ Peltier is qualified to deliver outstanding and precise performance and unique IsoHeat™ temperature control technology delivering high heating and cooling rates with excellent temperature accuracy and uniformity. SmartDrive™ automatic block recognition increases user convenience. AerisLine™ software enables the remote control of up to 30 individual units via one PC.

### OPTION: Choose the appropriate block for your PCR application

Five Interchangeable Blocks



**AERIS-BG096**  
**G-96 WELL**

**Applicable consumables:** 0.2 ml tube, 96-well microplate, 12 x 8 strips, 8 x 12 strips



**AERIS-BG384**  
**G-384 WELL**

**Applicable consumables:** 384-well microplate



**AERIS-B4830**  
**48 x 0.2 ml + 30 x 0.5 ml WELL**

**Applicable consumables:** 0.2 ml tubes, 0.5 ml tubes, 4 x 12 strips



**AERIS-B4076**  
**4 IN SITU SLIDES**

*For In Situ PCR*

**Applicable consumables:** 4 slides *in situ*



**AERIS-BD048**  
**D-48 X 0.2 ml**

Two in one! Two independent experiments may be carried out at the same time.

**Applicable consumables:** 0.2 ml tubes, 6 x 8 strips

### Agriculture and Fisheries Industry





SWT-MIP-0.2

## Swift™ MiniPro®

### Conventional PCR Thermal Cycler

#### Features

- **Superior Performance**
  - Excellent Temperature Uniformity
  - High Temperature Precision
  - Outstanding Ramp Rate
- **Convenience**
  - Compact Footprint
  - Convenient Setup, Fast Run
  - Friendly Interface
  - Adjustable Hot Lid
  - Adjustable Ramp Rate
- **Stability**

#### Introduction

The Esco Swift™ MiniPro® thermal cycler is a low cost personal thermal cycler with a compact footprint, suitable for a variety of critical experimental applications, such as Touch Down PCR, Time Release PCR and others. The Swift™ MiniPro® thermal cycler uses advanced peltier technology to achieve precise temperature control and fast ramp rates with minimal over- and under-shoot for process speed and accuracy.

### OPTION: Choose the type of block that comes with the main unit depending on your sample requirements



**Block 1**  
24 x 0.2 ml

**Applicable consumables:** 0.2 ml tubes, 3 x 8 strips



**Block 1**  
18 x 0.5 ml

**Applicable consumables:** 0.5 ml tubes



# HP Series

## Laboratory Refrigerators and Freezers

### Features

- Forced-air design
- Intelligent automatic defrost
- Excellent temperature uniformity
- Door lock
- Triple-pane glass doors for refrigerators
- Isocide™ antimicrobial powder coating
- High-quality stainless-steel interior for sample protection
- Internal LED lighting that saves up 70% power with less heat exposure
- Standard wheels for easy location or movement
- Audible and visual alarms

**ISOCIDE™**



CE



### Introduction

Laboratory professionals invest time, money and hard work on irreplaceable samples. A cold storage equipment can store thousands to millions of dollars' worth of valuable products. Once proper storage requirements are not met, these precious samples may be put at risk and eventually lead to sample spoilage and wastage. That is why, it is important to carefully choose the cold storage that can assure optimal product protection.

Esco HP Series is designed for laboratory use offering superior product protection with long term reliability and exceptional product quality. When superior levels of cold storage performance, reliability, and flexibility are needed, the Esco HP series of Laboratory Refrigerators and Freezers is the best choice—it provides a high-performance protection for your precious samples! Laboratory Refrigerators are generally used for storing non-volatile reagents and non-volatile biological specimens.



HR1-140S-      HR1-400T-  
+2°C to +15°C

Laboratory Refrigerators



HF2-400T-      HF2-1500S-  
(HF2): -10°C to -25°C  
(HF3): -20°C to -40°C

Laboratory Freezers

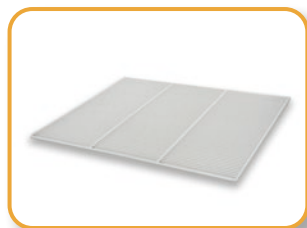


HC6-400S-      HC6-700S-  
Refrigerator: +2°C to +15°C  
Freezer: -10°C to -24°C

Laboratory Combination Refrigerators and Freezers

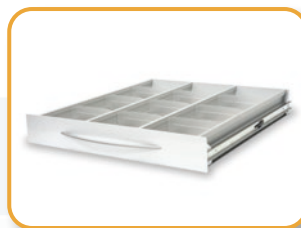
## Agriculture and Fisheries Industry

## OPTIONS AND ACCESSORIES



### Shelf Kits (SK\_)

Atoxic, plastic-coated steel, supported by anti-tilt clips. It is for additional space inside your chamber where you can place your samples. It also provides a good support for your samples to prevent damage and maintain organization of samples.



### Drawer Kits (DK\_)

A drawer extractible on telescopic slides, adjustable in height, bottom made of painted steel, beehive structure type, supplied with adjustable dividers made of polypropylene, front is fitted with an ergonomic aluminum handle, for the storage of samples in a more convenient and organized way.



### Digital Monitor (DM\_)

An independent visual/acoustic alarm and recording system, with an accuracy of 0.1°C due to the PT100 probe used for temperature detection. It will take over alarm failures, together with standard rechargeable batteries that record event such as unauthorized personnel.



### Access Port (AP\_)

A 15 mm or 35 mm diameter hole that will be placed at the back of the unit, closed with a white plastic cap, used for the access of additional probes inside the chamber.



### Basket Kit (BK1)

Made of stainless steel that provides an anti-corrosion environment for your samples. It is mounted on anti-tilt side slides and can be glided outside the chamber for the purpose of easy access to samples.



### Chart Recorder

The chart recorder provides an easy-to-read graph of data vs time. It is a reliable, accurate, and stable instrument, for on-the-spot written documentation of chamber temperature.

Model	Item Code	Description
SK1	1330063	Shelf Kits for HR1-140, HF2-140 (Standard and Touchscreen models)
SK2	1330064	Shelf Kits for HR1-400, HF2-400 and HC6-400 (Standard and Touchscreen models)
SK3	1330065	Shelf Kits for HR1-700, HF2-700, HF3-700, HC6-700, HR1-1500 and HF2-1500 (Standard and Touchscreen models)
SK4	1330066	Shelf Kits for HF3-400 (Standard and Touchscreen models)
DK1	1330067	Drawer Kits for HR1-140, HF2-140 (Standard and Touchscreen models)
DK2	1330068	Drawer Kits for HF2-400, HR1-400 and HC6-400 (Standard and Touchscreen models)
DK3	1330069	Drawer Kits for HR1-1500, HF2-1500, HR1-700, HF2-700 and HC6 700 (Standard and Touchscreen models)
DK4	1330070	Drawer Kits for HF3-400 (Standard and Touchscreen models)
DK5	1330071	Drawer Kits for HF3-700 (Standard and Touchscreen models)
DM1	1330072	Digital Monitor for single chamber models for Touchscreen models only
DM2	1330073	Digital Monitor for dual chamber models for Touchscreen models only
AP15	1330074	15 mm Access Port for all models (Standard and Touchscreen models)
AP35	1330075	35 mm Access Port for all models (Standard and Touchscreen models)
BK1	1330076	Stainless Steel Basket Kit for HR1-700, HR1-1500, HF2-700, HF2-1500, HF3-700 and HC6-700S (Standard and Touchscreen models)
Backup Battery	1330127	Standard backup battery for acoustic and visual alarm during power failure (Standard and Touchscreen models)
4-20 mA	1330129	4-20 mA Output (Touchscreen models)
GSM	1330216	GSM Module (Touchscreen models)
Chart Recorder	1330185	Chart Recorder for all models (Standard and Touchscreen models)
IQQQ	9010179	Installation Qualification Operation Qualification for all models





# Lexicon® II

## Ultra-low Temperature Freezers

### Features

- Temperature range: -50°C to -86°C
- Simple and intuitive controller
- Fast pull down
- Effective cooling technology
- Superior insulation system
- Environment-friendly HFC Refrigerants
- Excellent uniformity
- Extended warm-up time during a power failure
- Isocide™ antimicrobial powder coating
- Audible and visual alarms

Available sizes: 363, 480, 597, and 714 L



### Introduction

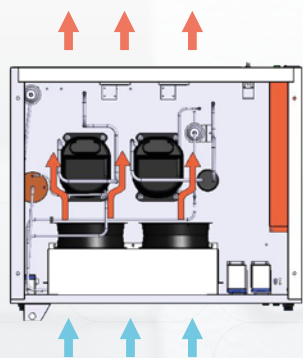
Cold storage equipment plays a very important role in a researcher's life work. Most of the studies conducted by each researcher rely on low-temperature storage in maintaining the integrity and quality of their precious samples and other biological products. For some studies, environmental samples are collected and sent to the biorepository for long-term storage in an Ultra-low Temperature Freezer (-50 to -86°C).

Esco Lexicon® II Ultra-low temperature freezer are designed with the performance and quality that are demanded by sensitive and precious samples across clinical and research applications. As ULT freezers are often operated at -80°C continuously for years, reliability is of paramount importance to the researchers. Constructed from high-quality proven components with energy-efficient refrigeration design, Esco ULT Freezers provide top-notch protection that can withstand the test of time to guarantee the integrity of your samples.

### Silver Controller



### Gold Controller



### CASCADE COMPRESSOR

- 2-Stage cascade refrigeration system.
- Two fans are employed to draw consistent airflow from the front to the back of the freezer to cool the condenser.
- Two 1-hp hermetic compressors operated at a low speed for longer life.
- The compressors sit directly behind the fans and are air-cooled for better operating conditions.

## Agriculture and Fisheries Industry

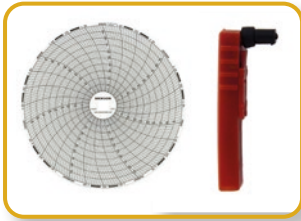
## OPTIONS AND ACCESSORIES



Chart Recorder Kit



LCO<sub>2</sub> Back-up System



Temperature Chart and Pen Replacements for 6" Chart Recorder



Ice Scraper



Standard Cardboard 2-inch and 3-inch Boxes



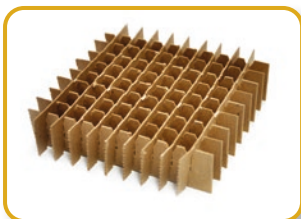
Cryo Safety Gloves



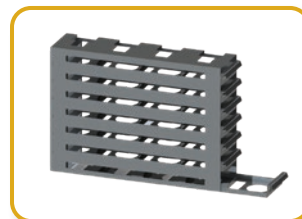
Additional Shelving Kit



Modifiable Clip rack for Lexicon® II



Standard Cardboard 49-cell, 64-cell, 81-cell, and 100-cell Dividers



2-inch and 3-inch Drawer rack for Lexicon® II



SMS Module System (for Gold controller)



PROtect Gen 2 - Independent and Redundant Monitoring System



IFA-110

# Isotherm®

## Forced Convection Laboratory Incubators

### Features

- Ventiflow™ Ventilation System – forced air convection design
- Pre-heat Chamber Technology – 4-zone heated air jacket
- SmartSense™ Microprocessor PID Control Technology
- Isocide™ antimicrobial powder coating
- Door keylock
- Multiple redundant over-temperature protection system
- Superior insulation

Available sizes: 32, 54, 110, 170, and 240 L

**ISOCIDE™**



CE

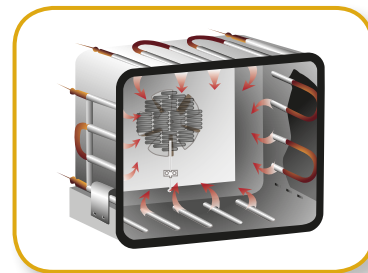
### Introduction

Esco Isotherm® world class laboratory incubators are used for thermal convection applications such as bacteria culture and Coliform determination among many others. With ergonomic design, microprocessor PID controls, 4-zone heated air jacket and precisely tuned and tested ventilation and insulation package, Esco Isotherm® is your reliable incubator for universal application.



#### Ventiflow™ Ventilation System

- Forced convection design produces faster temperature response rates, improves uniformity and reduces fluctuation
- Low energy consumption and low noise level



#### Pre-Heat Chamber Technology

- 4-zone heated air jacket ensures stable heating and maximum temperature uniformity in the chamber
- 2-point door seal and eccentric hinge ensures maximum gasket



#### Multiple redundant over-temperature protection system

- Over-all temperature protection meets DIN 12880 Class 3.1 standards
- All electrical components are UL recognized



#### SmartSense™ Microprocessor PID Control Technology

- Connected to an instrument-grade precision platinum temperature probe
- Ensures fast ramp time. Prevents overshoot and ensures stable temperature once set point is achieved

## Agriculture and Fisheries Industry





IFC-110

# Isotherm®

## Refrigerated Incubators

### Features

- Ventiflow™ Ventilation System – forced air convection design
- Pre-heat Chamber Technology – 4-zone heated air jacket
- SmartSense™ Microprocessor PID Control Technology
- Isocide™ antimicrobial powder coating
- Auto-defrost system
- German-made EBM papst fan

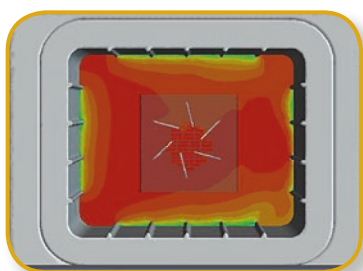
Available sizes: 110, 170, and 240 L

**ISOCIDE™**



### Introduction

The Esco Isotherm® world class laboratory incubators are used for applications such as BOD determination and environmental research among many others. With ergonomic design, microprocessor PID controls, 4-zone heated air jacket and precisely tuned and tested ventilation and insulation package, Esco Isotherm® is your reliable refrigerated incubator for universal application.



#### Pre-Heat Chamber Technology

- Connected to an instrument-grade precision platinum temperature probe
- Ensures fast ramp time. Prevents overshoot and ensures stable temperature once set point is achieved



#### UV Disinfection

- Can be manually or automatically operated



#### Auto-Defrost System

- Auto-heating activates and continues for a predetermined time during operation
- Auto-defrosting during operation and activates regularly



#### German-made EBM Papst Fan

- Permanently lubricated and maintenance-free for uniform air circulation



OFA-110

# Isotherm®

## Forced Convection Laboratory Oven

### Features

- Ventiflow™ Ventilation System – forced air convection design
- Pre-heat Chamber Technology – 4-zone heated air jacket
- SmartSense™ Microprocessor PID Control Technology
- Isocide™ antimicrobial powder coating
- Door keylock
- Multiple redundant over-temperature protection system
- Superior insulation

Available sizes: 32, 54, 110, 170, and 240 L

**ISOCIDE™**



CE

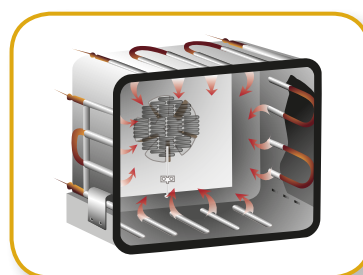
### Introduction

The Esco Isotherm® world class laboratory ovens are used for high-forced volume thermal convection applications such as drying and curing among many others. With ergonomic design, microprocessor PID controls, 4-zone heated air jacket and precisely tuned and tested ventilation and insulation package, Esco Isotherm® is your reliable oven for universal application.



#### Ventiflow™ Ventilation System

- Forced convection design produces faster temperature response rates, improves uniformity and reduces fluctuation
- Low energy consumption and low noise level



#### Pre-Heat Chamber Technology

- 4-zone heated air jacket ensures stable heating and maximum temperature uniformity in the chamber
- 2-point door seal and eccentric hinge ensures maximum gasket



#### Multiple redundant over-temperature protection system

- Over-all temperature protection meets DIN 12880 Class 3.1 standards
- All electrical components are UL recognized



#### SmartSense™ Microprocessor PID Control Technology

- Connected to an instrument-grade precision platinum temperature probe
- Ensures fast ramp time. Prevents overshoot and ensures stable temperature once set point is achieved

## Agriculture and Fisheries Industry

## OPTIONS AND ACCESSORIES (for Isotherm® products)



### Wall Bracket (only for 32 L and 54 L chambers)

- Accommodates desired operating heights



### Reversed Door Swing (Factory-installed)



### Voyager Software Kit

- Esco Voyager is a PC-based software package developed for remote monitoring, datalogging and programming/device configuration of Esco controlled environment laboratory equipment



### Support Stands Fixed Height at 720 mm (28.3")



### Additional Shelf

- Two shelves are included for 32 L, 54 L, 110 L, 170 L and 240 L models as standard. Additional shelves may be ordered.



### Optional Stainless Steel Exterior

- Robust construction and corrosion-resistant surface that meets pharmaceutical and clinical laboratory requirements



ADC-B

# Ascent™ Ductless Fume Hoods

## Features

- **“GREEN” solution**
  - Environment-friendly
  - Does not discharge toxic gases to the environment
  - Saves energy, and reduces total carbon footprint
- **Safe carbon filtration**
  - Compliance to international standards
  - Optional VOC sensor system to detect filter saturation
  - FiltraCheck™ service to qualify your application’s suitability for a ductless solution
- **Low cost**
  - No ductwork required
  - No exhaust system required
- **Convenience**
  - No installation hassle and portable



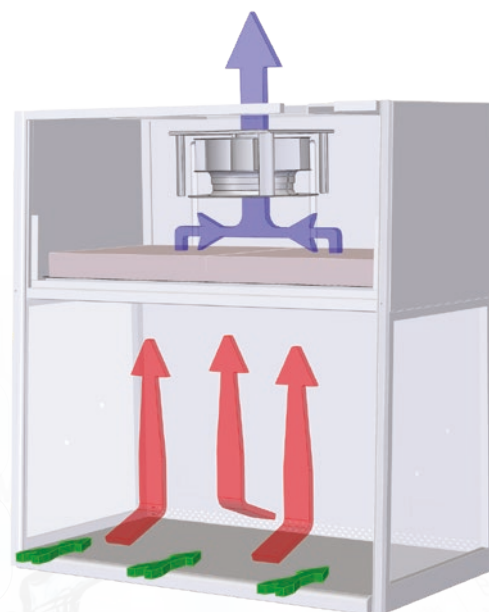
## Introduction

Esco Ascent™ Ductless Fume Hoods provide protection to both laboratory personnel and the environment from toxic fumes and are quickly becoming a viable alternative to conventional fume hoods. Unlike conventional fume hoods, these hoods filter out chemical fumes and recycle air directly back to the laboratory, providing energy savings, personnel and environmental protection, convenience as you do not have to deal with complicated ducting systems, and mobility, since ductless hoods are independent systems which do not require connection to extraction systems.

Available sizes: 3 ft, 4 ft, 5 ft, and 6 ft

## Cabinet Filtration System

- The inflow moves from the ambient environment into the work zone through the hood front opening with an average velocity of 0.4 m/s.
- Negative pressure is maintained within the main chamber of the hood to ensure that no chemical fumes or vapors escape the work zone.
- Air is taken through a pre-filter and activated carbon mounted in the interior of the hood. The carbon filter removes all fumes from the exhaust air stream and filtered clean air is exhausted directly back to the room.



Ascent™ Max Ductless Fume Hood, ADC Models

- Carbon-filtered air
- Unfiltered / potentially contaminated air
- Room air / Inflow air



## OVERVIEW OF MODELS



### Ascent™ Max Series

Model: ADC-B

(Standard model)

- Main Filter: Carbon Filter
- Has an option for motorized sash
- Optional VOC sensor
- Available sizes: 2,3,4,5,6 ft.



### Ascent™ Max Series

Model: ADC-C

(with Secondary Carbon Filter)

- Main Filter : Carbon Filter  
Secondary: Carbon Filter
- Optional VOC sensor
- Available sizes: 3,4,5,6 ft.



### Ascent™ Max Series

Model: ADC-E

(with Secondary HEPA Filter)

- Main Filter : Carbon Filter  
Secondary Filter: HEPA filter
- Optional VOC sensor
- Available sizes: 3,4,5 ft.

## OPTIONS AND ACCESSORIES



Support Stand with  
Caster Wheels



Electrical Outlet



European Style  
Service Fixture



Support Stand with  
Leveling Feet



Swan-neck Faucet



VOC Sensor



Base Cabinet



American Style  
Service Fixture



Carbon Filter



EFD-4A

# Frontier® DUO™ Laboratory Fume Hoods

## Features

- Dual wall design
- ASHRAE 110-2016 certified
- With black color phenolic resin worktop
- Has service fixtures added: 1 remote-controlled gas fixture and 1 swan-neck faucet
- Ergonomic 8° sloped front sash

Available sizes: 4, 5, 6, and 8 ft



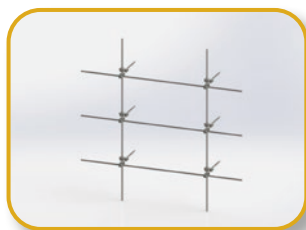
## Introduction

The Esco Frontier® Duo™ Fume Hood is an upgraded version of its predecessors representing design and engineering innovations that are at the forefront of fume hood technology. It has a rugged dual wall construction offering a much robust design that allows service fixtures and electrical outlets to be mounted on both sides of the wall.

## Optional Accessories:



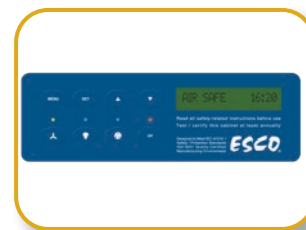
Base Cabinet (EBD)



Distillation Grid



Service Fixtures



Sentinel™ Silver  
Microprocessor  
(for EFD-B models)



EFA-4UDRVW-

# Frontier® ACELA™ Laboratory Fume Hoods

## Features

- Tri-wall design
- ASHRAE 110-2016 certified
- Low energy-consumption, high performance fume hood
- 5° sloped front sash design
- Superior containment at 0.3 m/s face velocity

Available sizes: 4, 5, 6, and 8 ft



## Introduction

The Esco Frontier® Acela™ Fume Hood is a high performance, low flow fume hood engineered for safety, performance and energy efficiency, all combined in one multi-featured product. Its ability to operate at a reduced face velocity of 0.3 m/s allows for an exhaust volume reductions of up to 58% as compared to a conventional fume hood. This directly translates to more savings for your company.

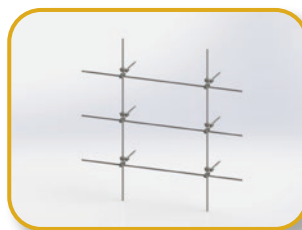
## Optional Accessories:



Base Cabinet (EBA)



Circuit Board Protection



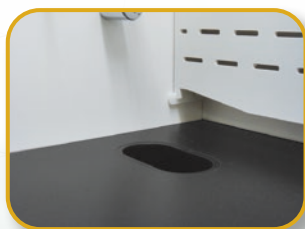
Distillation Grid



Service Fixtures



Scrubber



Worktop



Sentinel™ XL Airflow Alarm



Support Stand (ASL)



EFQ-4UDPVW-<sub>-</sub>

## Frontier<sup>®</sup> Acid Digestion<sup>™</sup> Laboratory Fume Hoods

### Features

- Tri-wall Construction
- ASHRAE 110 compliant
- Designed for acid-digestion applications (except perchloric acid)
- Built with u-PVC internal surface and polycarbonate sash to prevent etching from Hydrofluoric Acid

Available sizes: 4, 5, 6 and 8 ft



### Introduction

Esco Frontier<sup>®</sup> Acid Digestion<sup>™</sup> Fume Hood is a high performance low flow fume hood designed to handle concentrated acids at high temperatures. This specialized fume hood can be built with unplasticized polyvinylchloride (u-PVC) or polypropylene (PP) internal surfaces which are known for their superior chemical resistance. Sash is made up of polycarbonate material to prevent etching caused by Hydrofluoric Acid.

### Optional Accessories:



Base Cabinet (EBA)



Circuit Board Protection



Service Fixtures



Sentinel<sup>™</sup> XL Airflow Alarm



Scrubber



Worktop



Support Stand (ASL)







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# ESCO

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