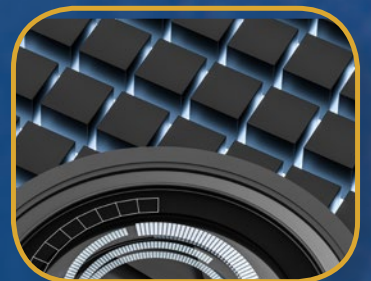




# Optics Industry





## Welcome to Esco

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

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

**Availability and Accessibility.** Esco has headquarters in Singapore, Indonesia, and Philippines, with manufacturing facilities are 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 products are of high quality, reliable, and dependable; assuring customers of research accuracy. 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 you and the environment.

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

**Esco Cares for the Environment.** One in every four of Esco's employees is involved in R&D and a number of them evaluate new components and/or designs to produce energy efficient equipment. Being GREEN is more than just modifying parts used to produce a new energy efficient technology, it is also embodied in the every aspect of the company.

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

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

## Optics Industry



## OVERVIEW

Optics, a science that deals with the properties and propagation of light and how it behaves and interacts with matter, serves as an enabling technology in the life science industry including the production of lasers and optical sensors, fiber optics used for transmission of internet communication and signal, and optical instruments such as eye-glass lenses, and other devices for aiding vision.

Optics industry requires an environment with stringent control on the amount of particulate present in the air. Contamination from even the minute particles can cause adverse effects on the quality and even cause irreparable damage to high-performance optics. As a market leader in containment, clean air, pharmaceutical, and laboratory equipment technologies, Esco provides state of the art tools to make your laboratory safe and efficient. Esco manufactures a wide array of sizes and configuration to guarantee that there is always an Esco equipment that fits your laboratory needs.

## Applications

- Safe handling of chemicals used in manufacturing of raw materials
- Protection for Particulate and Fume Exposure in Eye-glass lens production
- Tempering and drying of Optical lens

## Sample Preparation

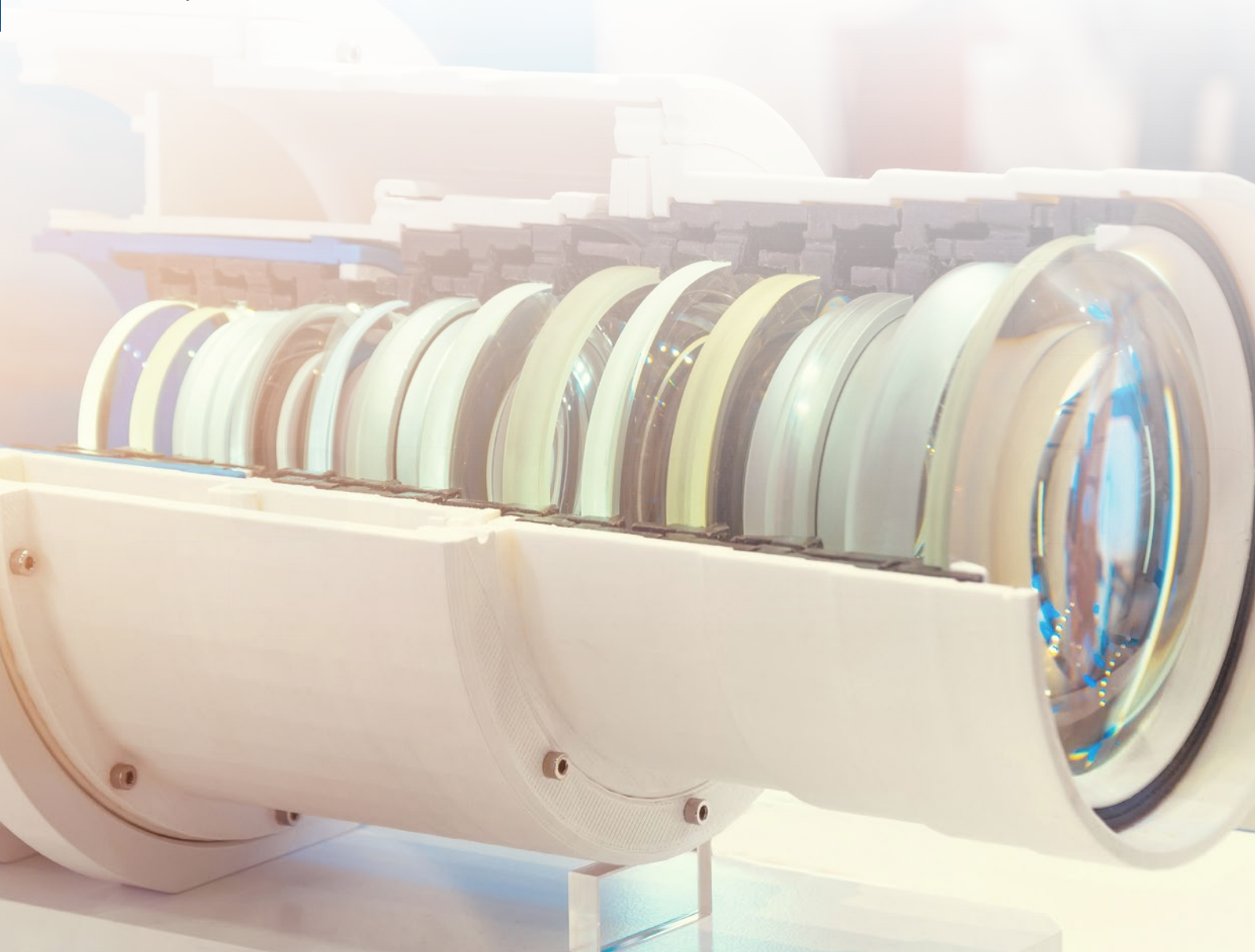
- Laminar Flow Clean Benches

## Chemical Analysis (QA/QC)

- Ductless Fume Hood

## General Equipment

- Laboratory Oven





LVS-4A\_

# Airstream® Gen 3 Laminar Flow Clean Benches

## Features

- Energy saving DC ECM Blower
- ISOCIDE™ antimicrobial powder coating
- ULPA Filter with >99.999% efficiency at 0.1 to 0.3 µm
- Low noise
- Sentinel™ Gold Microprocessor Control System
- Recessed central work tray to contain spills
- Ergonomic design
- Matte black coating in work zone to prevent light reflection



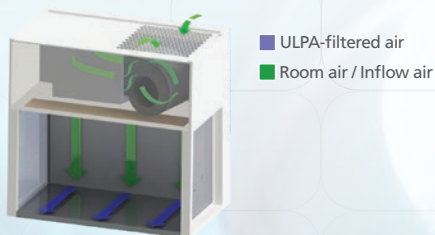
## Introduction

Esco laminar flow clean benches are the premium selection for the discerning researcher, offering a combination of value, high quality construction, low operating noise levels, and a wide product range to suit all budgets from the industry leader. Laminar flow clean benches are used in applications where there is no generation of biohazardous materials, hence operator protection is not required and a matte black powder-coated interior to prevent light reflection.

## Basic Principle

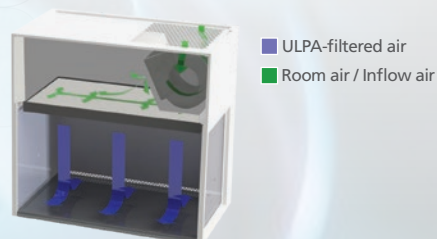
### Airstream® Horizontal Laminar Flow Stainless Steel Side Wall Version

- 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 ULPA/H14 filter(s); 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.



### Airstream® Vertical Laminar Flow Stainless Steel Side Wall Version

- 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 ULPA/H14 filter(s); 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 working zone of the clean bench in a vertical, unidirectional stream and leaves the main work chamber across the entire open front of the clean bench and through Auto-Purge™ slots at the back wall of the work zone which are designed to eliminate air turbulence and the possibility of dead air corners in the work zone.



## Airstream® Gen 3 Laminar Flow Clean Benches

The Leading Solution for Research Laboratories

Esco Airstream® Laminar Flow Clean Benches are designed to provide superior product protection for your samples in research laboratories by preventing the entry of room and airborne contaminants. They are built with the latest laminar flow technology and innovation, and offers a wide range of options for user preferences.

### Horizontal Laminar Flow Clean Benches



LHG-4\_G-F\_

LHS-4\_G-F\_

### Vertical Laminar Flow Clean Benches



LVS-4\_G-S\_  
(Sliding Sash)

LVS-4\_G-F\_  
(Fixed Sash)

LVG-4\_G-F\_  
(Fixed Sash)

LVG-4\_G-S\_  
(Sliding Sash)

## OPTIONS AND ACCESSORIES



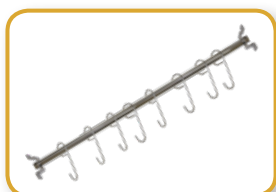
### Germicidal UV Lamp

- 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



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

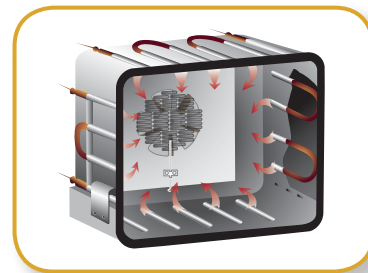
### Introduction

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

### Optics 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



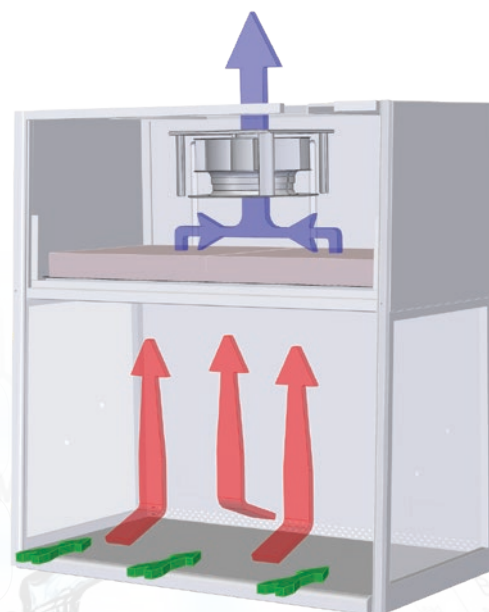
## Introduction

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-PP

- Main Filter: Carbon Filter
- Has an option for motorized sash
- Has provision for PP drip cup and swan-neck faucet
- 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

# After Sales Services



## Parts Availability

Whenever service is needed and parts are required, minimizing downtime is a critical objective. Statistical usage analysis helps Esco to predict parts life, permitting Esco to manage logistics and stage proper inventories around the world. The combination of predictive maintenance, historical data and geospecific proximity assures our customers that parts and labor are available whenever service is scheduled through the local sales organization.

## Registration, Documentation and Instruction

Quality control at Esco extends from research and development through engineering, manufacturing, shipment, delivery and customer feedback. Esco maintains an aggressive program to encourage warranty card registration by mail, email or online submission so that we know where Esco products are located and how they are being used. Rest assured that all information disclosed from warranty registrations will be kept confidential. All Esco products include unique serial numbers for identification. Documentation for all performance tests is archived and maintained for customer reference with all the back up procedures.

## Online Technical Information

Site preparation instructions are useful before product arrival and installation. Installation and start-up manuals, operation manuals and quick reference guides are available anytime from the Esco resources online.

## NSF International Accreditations and TÜV Nord Certification

The National Sanitation Foundation (NSF) International is an independent, non-profit organization that provides standards development, product certification, auditing, education and risk management for public health and the environment.

The NSF mark is your assurance that the product complies with all the standard requirements, tested by one of the most respected independent certification organizations in existence today. NSF conducts periodic unannounced inspections and product testing to verify that the product continues to comply with the standard. It is valued by consumers, manufacturers, retailers and regulatory agencies worldwide.

TÜV NORD GS certification has been helping to minimise risks and hence ensure maximum safety and quality. TÜV NORD's recognised certifications stand worldwide for an exemplary level of safety and make a valuable contribution to the continuing improvement of products and processes.

Esco's passed the stringent requirements during testing and inspection and has given as the TÜV NORD approval mark which confirms compliance of the product with the provisions of the Product and Equipment Safety Act as regards health and safety.

In line with Esco's commitment in providing world class services worldwide, Esco as a manufacturer feels the impact of providing the best after-sales service through our competent service engineers. Thus, Esco is the only manufacturer in the world with the most number of NSF accredited certifiers across the globe. In addition, Esco enhances the capacity to the highest quality of service by providing TÜV NORD GS certified service engineers with expertise to ensure timely preventive and corrective maintenance of the laboratory equipment. These accreditations make Esco not only an **Excellent Standards CO**mpany but also an **Excellent Service CO**mpany, which exemplifies Esco's collective quest of being an **Eternally Successful CO**mpany.

## References and Links

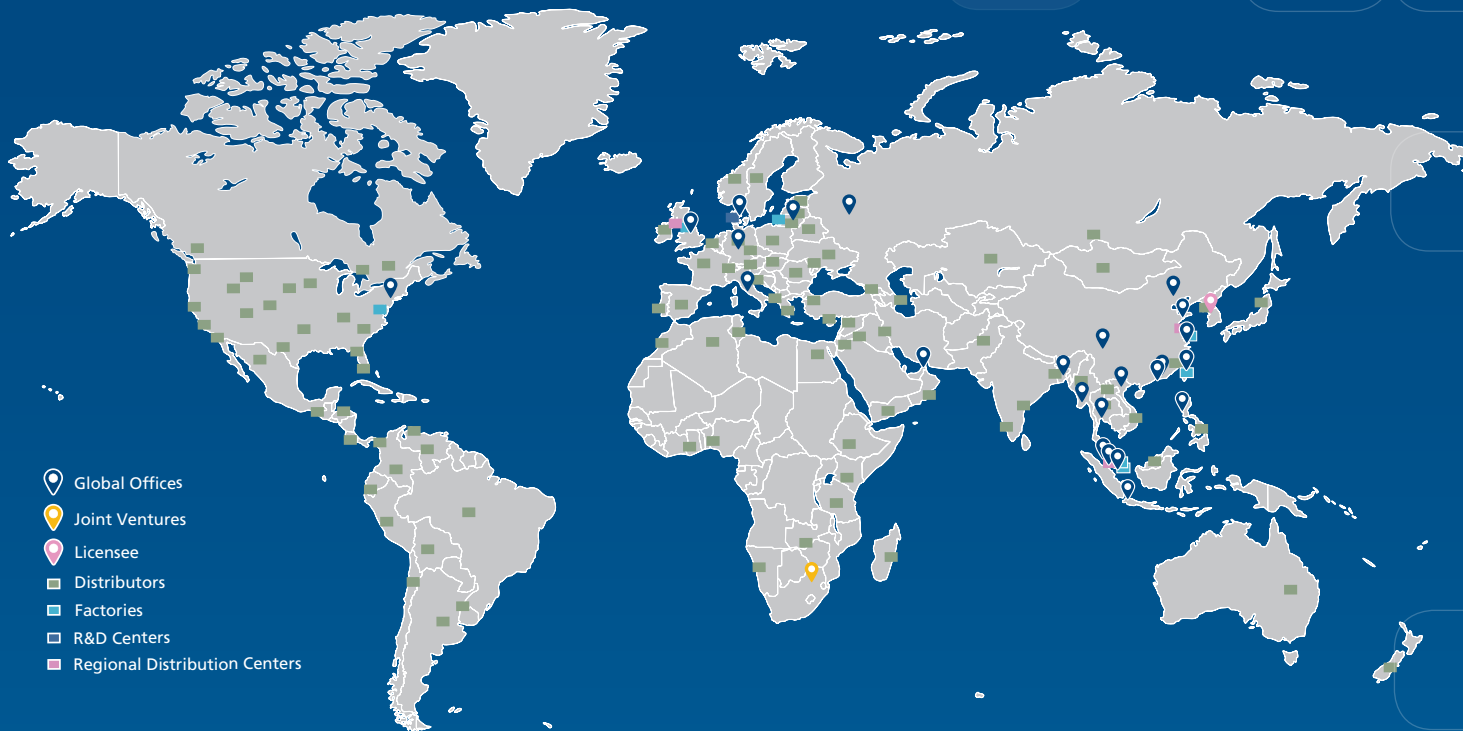
For more information, you can visit Esco at [www.escolifesciences.com](http://www.escolifesciences.com)





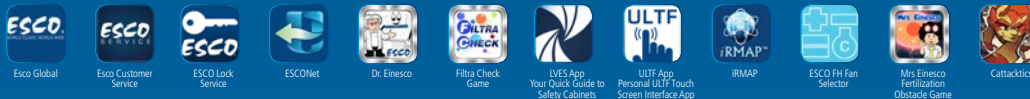
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- Regional Distribution Centers

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