

# Guide to Esco Products and Services

Controlled Environment, Laboratory and Pharmaceutical Equipment Solutions  
for Life Science, Pharmaceutical, Biomedical and Industrial Research Applications

Worldwide Edition, 2013/2014



**ESCO**

WORLD CLASS. WORLDWIDE.

# Guide to Esco Products and Services

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*Pictured: Esco Micro Pte. Ltd. is headquartered in Singapore, a modern city state located in Southeast Asia with a population of more than 4 million. From Singapore, Esco manages operations throughout the world.*

## Welcome to Esco

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

- Founded in 1978.
- A leader in the development of controlled environment, laboratory and pharmaceutical equipment solutions.
- A world leader in biological safety cabinets.
- Esco has established offices in 13 countries such as Bahrain, China, India, Japan, Korea, Malaysia, Philippines, Singapore, South Africa, UK, US, Indonesia and Vietnam and is continually expanding.
- North American facilities in Pennsylvania; sales, service, logistics for US & Canada.
- Group total of more than 600 employees.
- Distributors in more than 110 countries.
- Products independently tested to international standards.
- Large R&D investments, world leading technologies.
- State-of-the-art production; vertically integrated manufacturing floor space.
- Worldwide service played out over a geographic expanse so broad that the sun never sets on what we do.



*Pictured: Esco's state-of-the-art primary manufacturing facility, the world's largest manufacturing base for LAF/BSC cabinets.*

## A Tradition of Quality

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**2013** ■ Esco launches Airstream® G3 Class II, the greenest low noise biological safety cabinet in the world.

Esco launches eSafe, the technologically and ergonomically advanced TÜV-NORD certified BSC.

Esco launches SubliMate® Bench Top Freeze Dryers.

**2011** ■ Esco launches Lexicon® range of Ultra-low Temperature Freezers.

Esco launches CelCulture® CO<sub>2</sub> incubator with Suppressed O<sub>2</sub> feature.

**2009** ■ Isotherm® - new Laboratory Ovens and Incubators.

Pharmacon™ new Downflow Booths.

Swift® MaxPro and MiniPro new generation PCR thermal cyclers

Esco launches Labculture® In Vitro Fertilization Workstations.

**2012** ■ Esco manufactured the lowest noise (45 dBA) BSC in the world for a large installation in Karolinska Institute, Sweden.

Esco launches the Esco Medical Division, providing world class ART/IVF solutions worldwide, with a focus on the new Miri® Multi-room Incubator.

Esco Pharma equipment was launched at P MEC China exhibition.

**2010** ■ Esco launches CelCulture® New CO<sub>2</sub> incubator.

**2008** ■ Isoclean® - new compounding pharmacy isolators.

Frontier Acela® - the world's first ergonomically designed, angled front, high performance low flow fume hood.

Labculture® Class II (Low Noise Series) – introduced as the industry's lowest noise (~50dBA per EN) biological safety cabinet.

Infinity® – the world's first biological safety cabinet designed with a redundant dual fan system that guarantees operator protection even in case of a single fan failure.

**2007** ■ Esco became member of NSF Joint Committee and JACA Committee.

Esco launches VIVA Animal Containment Workstations.

**2006** ■ Esco earns on-site UL accreditation.

**2005** ■ The Chinese Food and Drug Administration invites Esco to participate in a joint committee to develop the National Standard for Biological Safety Cabinets.

Esco launches its first line of Ductless Fume Hoods.

**2004** ■ Esco earns first NSF / ANSI certification for biological safety cabinet.

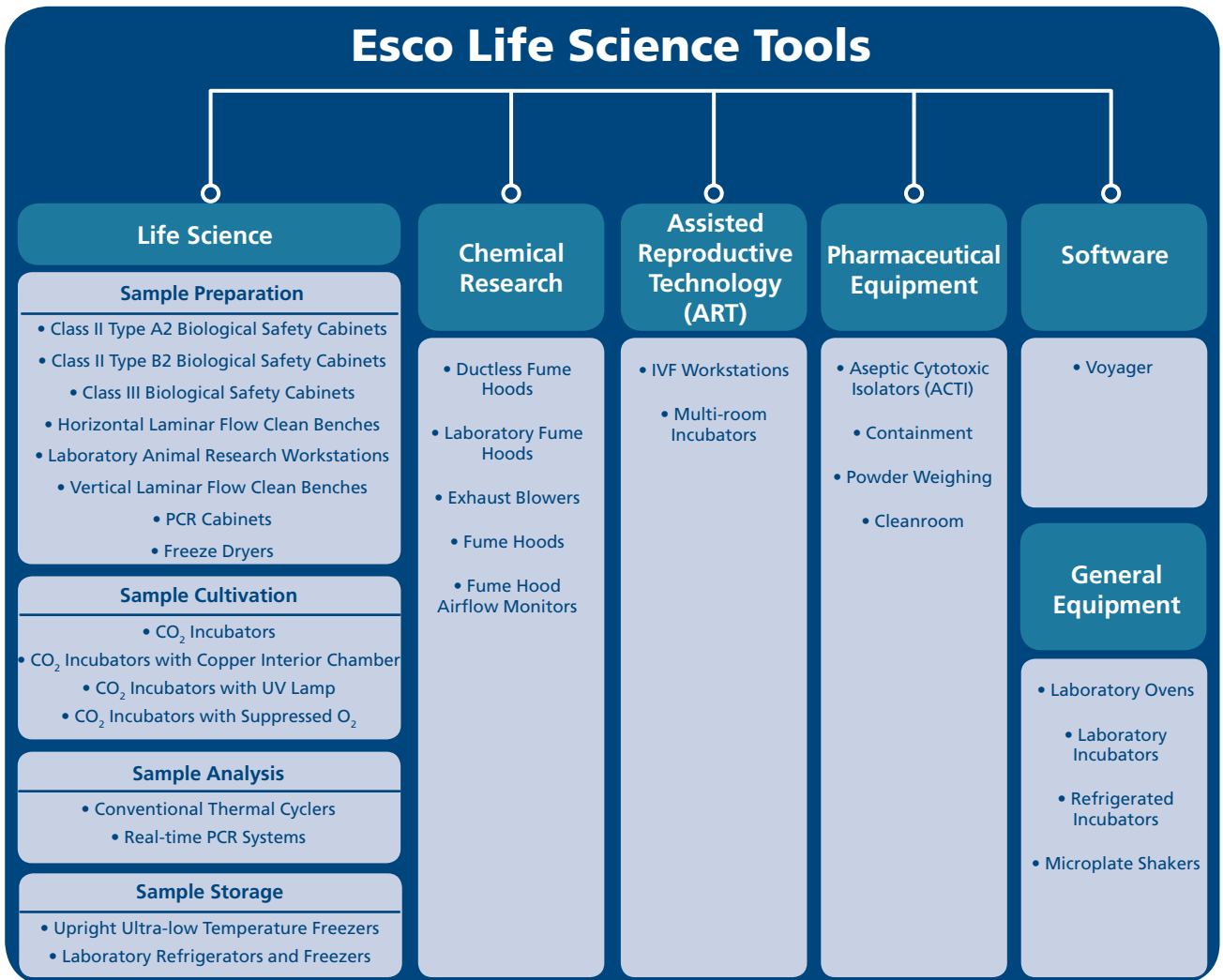
**1990** ■ Esco expands distribution to pharmaceutical, life science, biotechnology and medical research markets.

**1978** ■ Esco manufactures the first laminar flow clean bench; designs and builds its first microelectronics Class 10,000 cleanroom for Siemens Corporation.

**2001** ■ Esco earns first EN 12469 certification for biological safety cabinet.

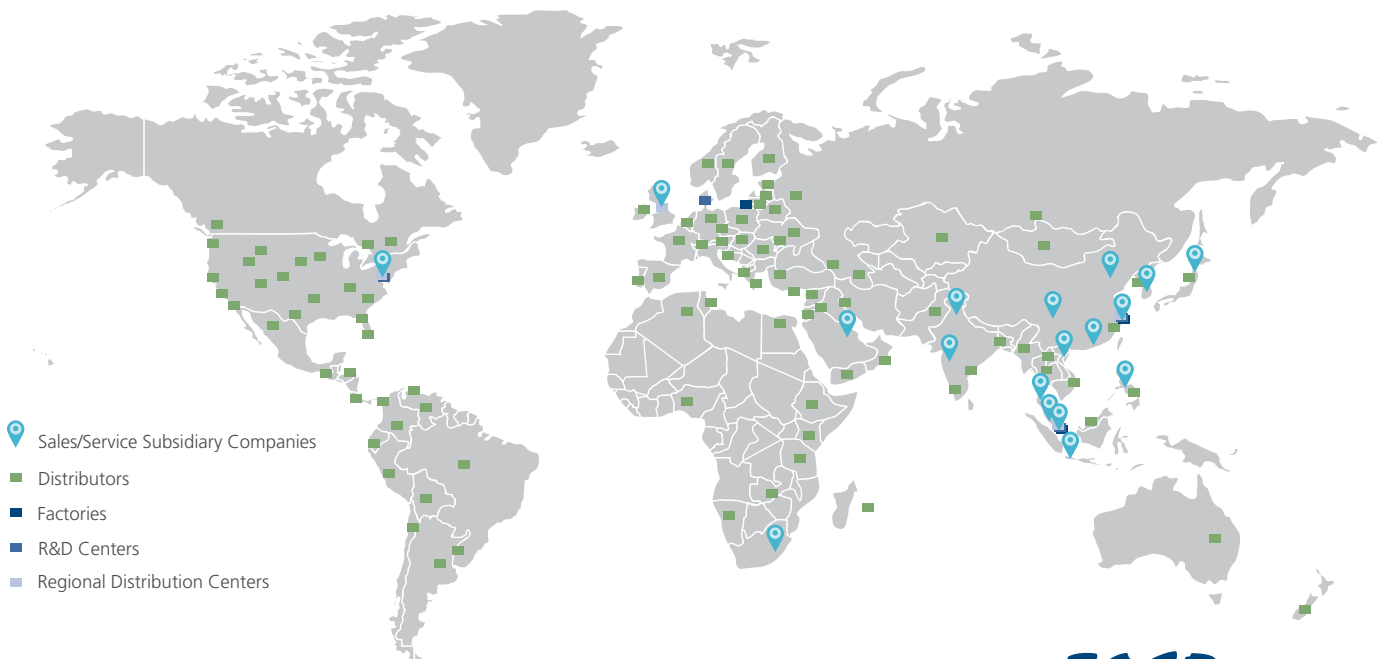
**1984** ■ Esco designs and builds Class 100 laundry and becomes the first company in the region to enter the cleanroom laundry business.

## Products and Application



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## Global Network



**ESCO**

WORLD CLASS. WORLDWIDE.

## Product Development and Innovation

### Continuous Research and Development



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.

- 70 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
  - Temperature, humidity, gas and environmental control
  - Computational fluid dynamics
  - And many more

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## Manufacturing

### Quality, Cost, Productivity, Effectiveness, Timeliness



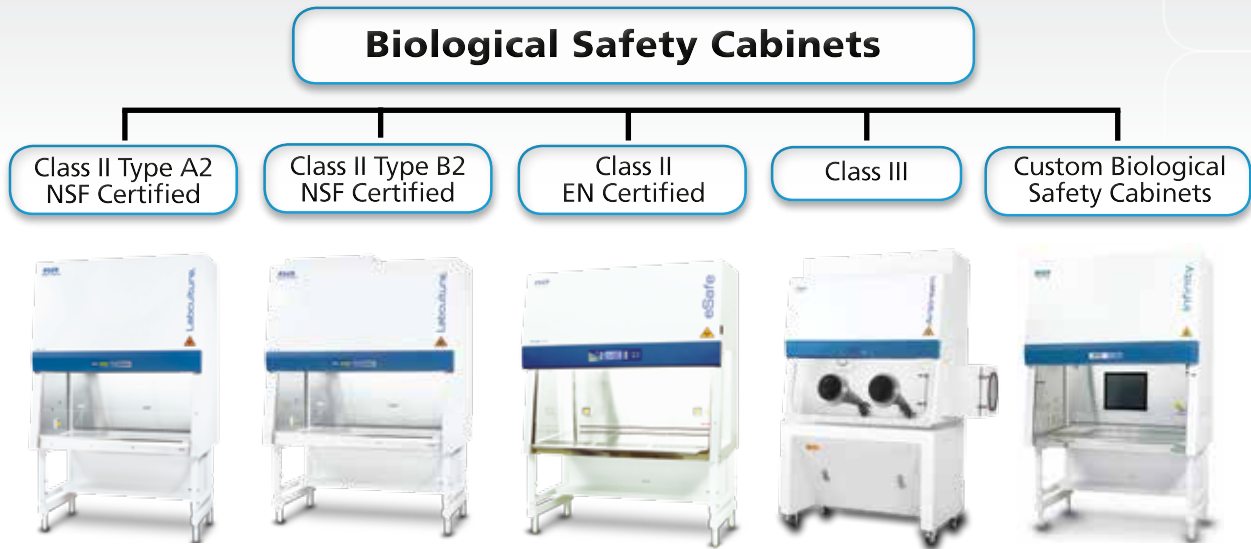
Esco's manufacturing advantage stems from our extensive degree of vertical integration, enabled by our world-leading throughput. All processes, with a few exceptions, are performed in-house. This allows us to achieve quality and reliability that is truly world-class. Our plant capabilities include:

- 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.





## Biological Safety Cabinets

The World's Most Certified Cabinets



Esco Biological Safety Cabinets represent more than 20 locally, regionally and internationally-recognized certifications. These accreditations testify to the enhanced performance of Esco products in biological and microbiological applications.

### Introduction:

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.

### Features:








- Energy saving ECM blower.\*
- ISOCIDE anti microbial powder coating.
- ULPA Filter with > 99.999% efficiency @ 0.1 – 0.3 µm.
- Large performance envelope.
- Ergonomic design.
- Low noise.
- Easy to clean.

### Product Lines:

- Class II, Type A2 Biological Safety Cabinets.
- Class II, Type B2 Biological Safety Cabinets.
- Class III Biological Safety Cabinets.
- Formalin Vaporizers.
- Options and Accessories.

\*Most Models

### Certifications:

- NSF / ANSI 49 
- UL 61010 
- JIS K3800 
- SFDA YY-0589 
- EN 12469 
- SANS 12469
-   Public Health of England



## Laminar Flow Clean Benches

### Horizontal Laminar Flow Clean Benches



### Vertical Laminar Flow Clean Benches



## Laminar Flow Clean Benches

### The Leading Solution for Research Laboratories

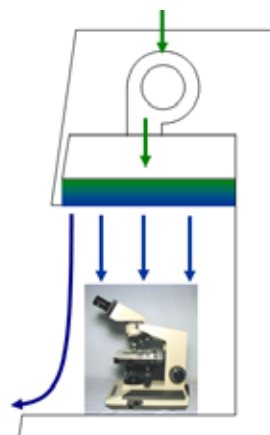
*Esco is the world leader in premium laminar flow cabinets for the global life sciences market.*

#### Introduction:

Esco is an industry leader in the development of professional quality laminar flow clean benches. With tens of thousands sold throughout the life sciences market worldwide, Esco has reinforced its reputation for dependability by providing reliable protection for samples and work processes in a multitude of applications.

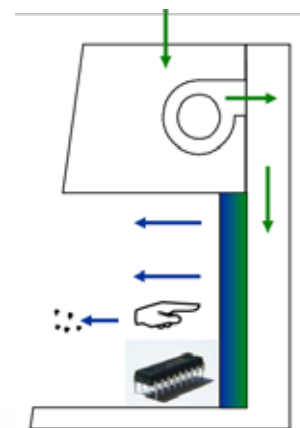
Our selection of Vertical, Horizontal and Specialty clean benches offers a variety of choices for installations where high quality construction is essential. Our clean benches are aerodynamically engineered and use only premium quality ULPA filters with integrated motor/blower assemblies for quiet operation and long service life.

Since 1978, Esco has emerged as the industry leader producing laminar flow cabinets that are the premium selection for the discerning researcher and offering a combination of value, high quality construction, low operating noise levels, and a wide product range to suit all budgets.



Vertical Laminar Flow Cabinet

- Air does not blow straight to user's face.
- Air curtain is not disrupted by large object.



Horizontal Laminar Flow Cabinet

- Easier to put sensitive material near clean air source.
- Contaminant is not blown towards sensitive material.



### Animal Research Workstations

Dual Access Animal Containment Workstation



Bedding Disposal Animal Containment Workstations



Universal Animal Containment Workstations



## Lab Animal Research Products

### Esco Solution for Animal Research Laboratories

*Animal research, cage changing and bedding disposal procedures are now simpler, safer and more productive with the Esco range of VIVA® Lab Animal Research Products.*

#### Introduction:

Esco's experience in clean air and containment technologies extends to lab animal research products to help protect the investigator, animal technicians, animals, and the environment during research, cage changing and bedding disposal procedures.

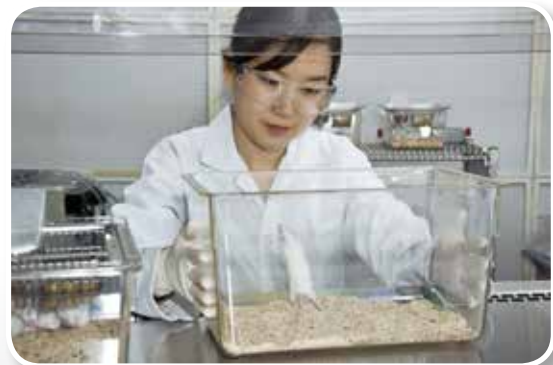
VIVA lab animal research products help laboratories comply with NIOSH recommendations to create a safer, healthier, more productive work environment and to ensure that this is achieved, operator and environment protection of each VIVA workstation was evaluated through the ELISA analysis.

Actual cage changing and bedding disposal operations were performed to simulate how the workstations are used, and allergen concentration at designated areas was sampled. The allergen concentration was quantified using sandwich ELISA method.

The result: VIVA Workstations offer high levels of operator and environment protection that can substantially help to minimize allergen exposure.

#### Product Lines:

- Universal Access Animal Containment Workstations.
- Dual Access Animal Containment Workstations.
- Bedding Disposal Animal Containment Workstations.
- Air Showers.



#### PCR Cabinets



#### Freeze Dryers



#### Microplate Shakers



Designed and Made in the E.U.

## Sample Preparation Equipment

### PCR Cabinets

#### Introduction:

Polymerase Chain Reaction\* (PCR) is a process where millions of copies of DNA are amplified from a single copy or low copy number template. Because of the high copy number generated during PCR, it is also essential to prevent possible contamination of the PCR samples.

Contamination control and PCR process repeatability is simplified with the Esco range of PCR Cabinets. Each Esco PCR Cabinet provides ULPA-filtered vertical laminar flow to purge the work area of contaminants between amplifications and during preparatory procedures. An integrated UV lamp enables rapid decontamination of the work zone between experiments and prevents cross-contamination. Esco offers premium performance for a price that is competitive with conventional "dead" air boxes.

#### Features:

- Greater protection against contamination from the ambient environment and cross-contamination within the main chamber.
- High quality polyester pre-filter and main HEPA filter with a typical efficiency of >99.99% at 0.3 microns.
- Built-in UV lamp with timer to facilitate decontamination between PCR cycles.
- Available in 0.6, 0.9 and 1.2 meter models (2', 3' and 4').

### Freeze Dryers

#### Introduction:

Esco, a world leader in clean air equipment and refrigeration control are proud to announce the launch of a new range of "state of the art" Bench Top Freeze Dryers. Designed to meet the requirements of modern research.

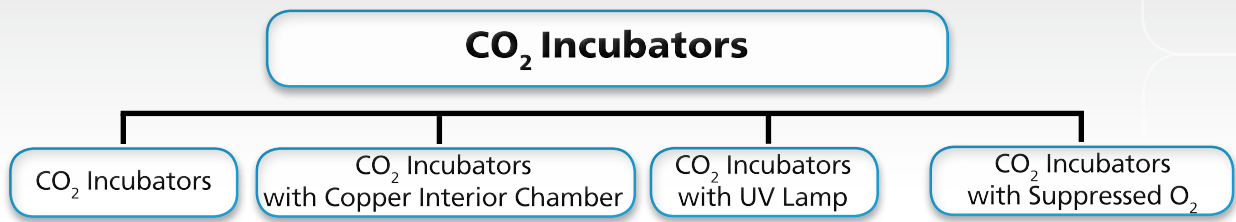
#### Features:

- 3 models are available with compact design, and can achieve low condenser temperature down to -90C.
- 2 Kg and 5Kg ice capacity allowing for multiple cycles before defrosting.
- LusterClear™ fully flushed and clean condenser surface design allowing for easy cleaning and preventing damage to cooling coils during ice core removal.
- SmarTouch™ large touch screen controller delivers ergonomic, intuitive interfaces and easy-to-use programming for freeze drying, defrosting, language selection, pressure, temperature units, data logging files and real time clock.
- A New innovative EzySeal™ rubber valve design for easier flask fitting, sealing, drying and removal.
- Pressure sensor and IceOut™ defrost system are equipped as standard for the discerning researchers.

### Microplate Shakers

#### Introduction:

The Esco ProvoCell Shaking Micro Incubator is designed for a wide variety of mixing applications for accurate incubation of reactions and denaturation of nucleic acids and proteins. ProvoCell combines an advanced microprocessor-based controller with Peltier heating and cooling to deliver outstanding reliability, safety and overall performance.



## CO<sub>2</sub> Incubators

### Cradle for Beautiful Cells

*Sleek, reliable and intuitive, Esco CelCulture CO<sub>2</sub> incubators provide comprehensive sample protection that brings your scientific dreams one step closer to reality.*

#### Introduction:



Esco CelCulture - world class CO<sub>2</sub> Incubator from Esco with the best temperature and CO<sub>2</sub> control providing superior protection and the best environment for cell cultures.

#### Features:

- **Precise Parameter Control:**
  - best uniformity and control among competition, which means samples are evenly heated.
  - fast recovery without overshoot to ensure uniform CO<sub>2</sub> levels even with frequent door opening.
  - direct heat and air jacket for rapid temperature recovery and provide isolation from ambient temperature fluctuations.
  - forced convection system accelerates recovery of chamber air after door closing to prevent contamination.

- **Robust Contamination Control** for optimum protection of your samples using:
  - ULPA filter
  - validated 90°C moist heat decontamination
  - filtered gas injection lines
  - Isocide™ antimicrobial coating
- **To provide maximum safeguarding of your cell cultures, all CelCulture® CO<sub>2</sub> incubators can be used with Voyager Software:**
  - allows automatic, continuous monitoring of device parameters.
  - with alarms to alert user when exceeding pre-define parameter limits.
  - allows user to configure devices remotely.
- **User friendly controller software interface:**
  - Comprehensive, user-configurable alarms.
  - CelAlert™ alarm system reminds user to replace parts.
  - Intelligent data and event logger records all incubator parameters for on screen recall. A16Mb built-in flash memory guarantees long term storage of data.

#### Certifications:

- HPA (Moist Heat Decontamination) 
- UL Listed 
- MEA (Mouse Embryo Assay)



**PCR Thermal Cyclers**

**Conventional Thermal Cyclers**

**Real-time PCR Systems**



**PCR Thermal Cyclers**

*Esco PCR products are used in genomics, proteomics, molecular biology and forensic sciences where DNA amplification is required.*

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**Conventional Thermal Cyclers**

**Introduction:**

Polymerase Chain Reaction (PCR) is fundamental to almost all applications requiring a high copy number of genetic material and it is used in all laboratories working with DNA and RNA.

Esco offers a choice of Conventional Thermal Cycler models designed to meet critical requirements for almost all kinds of PCR variants such as Gradient PCR, Touchdown PCR, High-throughput PCR, In situ PCR, and so on. Block configurations are available for a number of sample formats of PCR tubes, strips, plates and slides.

Choose the Swift MiniPro or the new Aeris model for reliable conventional thermal cycling.

**Features:**

- Excellent temperature uniformity and stability.
- Suitable for various sample formats, which can simplify experiments.
- User friendly controls and operation.
- Long warranty period wipes your worries away.

**Real-time PCR Systems**

**Introduction:**

Over the last 5 years, Esco Thermal Cyclers have been known under the Swift brand that also includes Real Time (Quantitative) PCR systems under the Spectrum product line.

The Esco Swift Spectrum qPCR machines come in 48- and 96-well formats and have full functionality. Notably, these are open systems designed for use with most commonly available dyes that are suitable to applications such as diagnostics, research, and quarantine product testing. The included software is very powerful and seamlessly performs absolute or relative quantification, and even SNP analysis.

Choose the Swift Spectrum Real Time Thermal Cyclers for DNA quantification at your fingertips.

**Features:**

- Best uniformity and accuracy ensure reliability and excellent performance.
- Open system with wide selection of excitation and emission wavelength options.
- User-friendly with three language choices (English, Chinese and Spanish) on the control system.
- Industry-leading warranty for peace of mind.



**Upright Ultra-low Temperature Freezers**

Lexicon I



Lexicon II



Designed in the USA

**Ultra-low Temperature Freezers**  
Highest Reliability, Top Performance

*Incorporates the best and most complete sample protection and sample organization system of any ULT manufacturer*

**Introduction:**

Ultra-low temperature (ULT) freezers are widely used in scientific research for long-term storage of samples. As ULT freezers are often operated at -80°C continuously for years, reliability is of paramount importance to researchers.

Esco has used industry-accepted Highly Accelerated Life Testing (HALT) to stress test a large number of Lexicon Freezers at extreme conditions. All Lexicon freezers passed these extreme stress tests insuring a design that is optimized to protect your precious samples.

In accordance with ANSI/ASHRAE 72-2005 and ARI 1200-2006/2008 guidelines and as tested by a UL validated third party test lab, DNS USA, the Esco Lexicon ULT Freezer surpassed the performance of 5 major competitors with lower energy consumption, superior cabinet performance (as measured by warm-up time), and demonstrated a larger BTU refrigeration reserve capacity to insure the highest level of performance and protection of your samples.

**Features:**

- Excellent Vial Capacity With A Minimal Footprint.
- Three Controllers Are Available In Every Size to Meet Every Customer Needs.
- Complete Event Monitoring and Logging System.
- Email Alerts Via Wi-Fi and Network Cable in Case of Sample Threatening Alarms.

- Unique Predictive Failure Management and Freezer Health Monitoring System.
- Battery Back-Up to 72 Hours and Available CO<sub>2</sub> and LN<sub>2</sub> Backup Systems.
- Compatible with Voyager Software that Allows easy, unified local freezer control and monitoring for proper operation from a central location via user established or local network.
- SampleTracker Inventory Management System to Track all Stored Samples. (Patent Pending).
- iRMAP allows for an additional optional Esco service to allow Esco to monitor freezers from a remote location.
- PROtect Redundant Wireless Sample Monitoring System.

**Certifications:**

- UL Listed 



Laboratory Refrigerators and Freezers



Laboratory Refrigerators and Freezers  
High Performance Series

Introduction:

Esco HP Series Laboratory Refrigerators and Freezers are high performance models designed to provide a high level of protection to samples used in life science research and clinical applications. When the highest level of cold storage performance, reliability, and flexibility is needed, the Esco HP series of Laboratory Refrigerators and Freezers is the best choice. All products have the CE mark as a demonstration of quality.

Features:

- **Robust and functional construction:**
  - Exterior of all models have an anti-bacterial coating to minimize contamination.
  - All models include a stainless steel interior that protects the cabinet from rust and corrosive reagents.
  - Insulating and anti-mist tempered glass door on refrigerators offers excellent visibility and maintains superior thermal performance.
  - Door automatically closes when released to maintain temperature and to protect samples.
  - All units include a key lock for added sample security, shelves, mounted on anti-tilt clips and locking wheels or casters for easy movement.
- **Safety features:**
  - Open door alarm.
  - High temperature alarm.
  - Low temperature alarm.
  - Power failure alarm.
  - Condenser filter alarm.
  - Dry contact to connect to remote alarms.
- **Environment-Friendly:**
  - Standard internal LED lighting saves 70% energy compared to ordinary lighting and has a very long

lifetime.

- All units feature low energy consumption. Saves money!
- Use of eco friendly refrigerants- Recyclable and eco-friendly materials.
- CFC free
- Very low noise level.
- **Advanced electronic control system:**
  - Electronic controller with 0.1°C resolution. Best in the industry!
  - Automatic defrost eliminates ice in almost all environments.
  - Controls are available in 5 languages.
  - Controller can incorporate password protection for greater security.
  - The interactive display may be customized.
- **Easy to clean and service:**
  - Stainless steel chamber resists corrosion and is easily cleaned.
  - Automatic defrost.
  - Service can be carried out from the top/front.
  - Diagnostic functions in the microprocessor include historical read-out of the parameters.
  - Low service costs.
- **Optional accessories:**
  - Additional shelves and aluminum drawers are available. The drawers are light weight, chemical resistant, and are supplied with partitions.

Product Line:

- HP series Refrigerator: 140liter, 400liter, 700liter, 1500liter.
- HP series Freezer (-25°C): 140liter, 400liter, 700liter, 1500liter, HP series Freezer (-40°C): 400liter, 700liter.
- HP series combined Refrigerator and Freezer: 400liter, 700liter.

# Voyager



## Voyager

### Remote Monitoring, Datalogging, Programming Software

**Introduction:**

Esco Voyager® is a PC-based software package developed for the remote monitoring, datalogging, and programming / device configuration of Esco controlled environment laboratory equipment. Compatible equipment includes laboratory ovens, microbiology incubators, CO<sub>2</sub> incubator and ultra-low temperature freezer. Voyager® interfaces with individual Esco equipment over RS485 using the EscoBUS communications protocol.

**Compatible Esco Equipment**  
(Clockwise from top):

- Lexicon Ultra-low Temperature Freezer (UUS)
- Isotherm Refrigerated Incubator (IFC)
- Isotherm Forced Convection Incubator (IFA)
- CelCulture CO<sub>2</sub> Incubator (CCL)



### Ductless Fume Hoods

Ascent Opti Ductless Fume Hood

Ascent Max Ductless Fume Hood

Powder Max Powder Weighing Enclosure



## Ductless Fume Hoods

The Safe, Energy Efficient Solution for Modern Chemistry

*Esco Ascent Ductless Fume Hoods provide protection to both laboratory personnel and the environment from toxic fumes.*



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#### Introduction:

Esco Ascent Ductless fume hoods are a sensible balance of quality, performance and cost-effectiveness. They provide protection to both laboratory personnel and the environment from toxic fumes. 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, mobility, and convenience as you do not have to deal with complicated ducting systems.

Esco Ductless fume hoods' fume containment and airflow uniformity meet the requirements of ASHRAE 110-1995, BS 7258, EN 14175-3 and AFNOR NFX 15-203.

#### Key Benefits:

- **Low cost:**
  - No ductwork required.
  - No exhaust system required.
  - Saves the need for elaborate make-up air systems, in turn saving running costs required to condition make-up air.
- **Convenience:**
  - Minimal installation expense.
  - Mobile, flexible and can be easily relocated.
- **Environmentally friendly:**
  - Personnel and environmental protection with the use of Nanocarb™ carbon filters.
  - Saves energy as there is no need for complicated ducting and make-up air systems.

#### Product Lines:

- The Standard Ascent Max Ductless Fume.
- The Ascent Max Ductless Fume Hood with secondary back up carbon exhaust filter.
- The Ascent Max Ductless Fume Hood with transparent glass back wall.
- The Ascent Max Ductless Fume Hood with secondary back up HEPA filter.





## Laboratory Fume Hoods

Frontier Duo Fume Hood



Frontier Floor Mounted Fume Hood



Frontier Acid Digestion Fume Hood



Frontier Radioisotope Fume Hood



## Laboratory Fume Hoods

### Laminar Topography and Perfect Protection Perimeter

Laboratory fume hoods serve to control exposure to toxic, offensive or flammable vapors, gases and aerosols.



#### Introduction:

Esco Laboratory Fume Hoods are among the best in the world, compliant with international standards such as the American ASHRAE 110-1995 and the British BS 7258, independently tested by INVENT-UK. They have also been successfully tested for fume containment specified in the European Standard EN 14175-3 and received Underwriters Laboratories, USA Classification under the fume hood standard UL 1805, tested for fire, electrical, and mechanical hazards.

#### Features:

- Durable construction made of industrial-grade electro-galvanized steel with corrosion and abrasion resistant, oven-baked, powder-coated finish.
- Precisely tuned aerodynamic design eliminates air turbulence, minimizes noise levels and static pressure losses.
- Constant volume/high performance concept eliminates the need for complex VAV systems.



- Designed with computational fluid dynamics ensuring maximum containment, therefore enhancing safety.
- Ergonomically designed for operator comfort and convenience.
- Isocide antimicrobial coating prevents surface contamination and inhibits bacterial growth.
- ASHRAE 110 and EN 14175 certified and UL classified.

#### Product Lines:

- General Purpose Benchtop Hoods.
- Acid Digestion Hoods.
- Perchloric Acid Hoods.
- Radioisotope Hoods.
- Floor Mounted Hoods.
- High Performance, Low Flow Hoods.
- Polypropylene Hoods.
- Chemical Fume Scrubbers.
- Exhaust Blowers.

#### Certifications:

- ASHRAE 110 
- EN 14175 
- UL classified 

### Fume Hoods Accessories

Fume Scrubbers



Exhaust Blowers



Fume Hood Airflow Monitors



## Fume Hoods Accessories

### Fume Scrubbers

#### Introduction:

A properly used and properly functioning fume hood exhausts hazardous gases, dusts, mists, and vapors from a confined location and helps protect workers from inhalation exposure. To be able to provide the best fume exhaust system, Esco offers fume hoods accessories such as fume scrubbers, exhaust blowers, and airflow monitors compatible with most Esco fume hoods.

Esco's Fume Scrubber provides excellent air pollution control for water soluble chemicals present in the laboratory fume hood exhaust fumes. More and more laboratory designers and facility operators are considering the use of scrubbers for their fume hoods to address laboratory operator safety and environmental concerns.

#### Key Benefits:

- Excellent removal efficiencies with 95-98% efficiency for most water-soluble acid and base laden airstreams.
- Durable body made of chemical and corrosion resistant polypropylene.
- The packing, spray manifold and mist eliminator counted



on top of fume hood, pump and reservoir in the base cabinet. This arrangement ensures that minimal extra space is required for the scrubber system.

### Exhaust Blowers

#### Introduction:

The Esco Exhaust Blower is specifically designed for corrosive fume hood applications.

#### Key Benefits:

- Plastic impeller and casing that are highly resistant to chemicals and corrosion.
- Performance in accordance with AMCA 210-85 and ISO 5801.
- Single block, strong, high density, UV-treated and recyclable polypropylene (PPH), no welded joints.

### Fume Hood Airflow Monitors

#### Introduction:

Esco® Sentinel XL™ Fume Hood Monitor measures and monitors the "face velocity" inside a fume hood. The system will generate an alarm if the face velocity drops lower than the low alarm point or rises higher than the high alarm point.

All of the features in this monitor system will provide the user with a higher level of confidence in his or her safety when using the fume hood.

### ART Workstations



 Designed in Denmark

## ART Workstations

### Esco Assisted Reproductive Technology (ART) Equipment

*The Esco suite of ART equipment is the best choice for proven safety and performance for the fertility laboratory.*

#### Introduction:

The Fertilisafe Multi-Zone (MZ) ART Workstation is an advanced workstation specially designed for Assisted Reproduction Techniques (ART) such as gamete or embryo manipulation during IVF. A precision-controlled heated tabletop provides the user total control over the environmental conditions required for embryological procedures.

The Fertilisafe MZ has other features that make it the perfect system for fertility labs. It includes a humidification system, provision for stereomicroscopes, integrated light source, and heated glass stage. What makes the Fertilisafe unique however is the surveillance system provided on the integrated touchscreen monitor. The surveillance system provides graphical information of the 10 heated zones (4ft width model) or 20 heated zones (6ft width model with dual microscope setup).

#### Key Benefits:

- Next-generation temperature regulation for ART applications.
- Real-time feedback of workstation performance parameters via the surveillance system.
- Low noise and vibration.

#### Features:

- Advanced smart power injection multi-Zone heated table plate (9+1 zones) keeps samples warm.

- Surveillance system running data logger (included) constantly displays important parameters such as temperature of each zone and humidified gas flow rate.
- A touchscreen monitor is built-in and runs the system software.
- Provision for integration of most common microscopes comes standard.
- Integrated heated glass stage and integrated transmitted light source with dual-sided mirror and intensity control knobs complete the system for microscopy work.
- PT1000 temperature validation ports allow easy temperature validation.
- The humidification system provides digital flow control of pre-mixed gas that keeps samples in a controlled environment eliminating dead air zones, prolonging main filter life and enhancing product and cross-contamination protection.



**ESCO**

WORLD CLASS. WORLDWIDE.

## Multi-room Incubators



 Designed in Denmark

 Made in the E.U.

## Multi-room Incubators

*Designed for the fertility laboratory, the new Esco Miri delivers features that not only make sense, but deliver top performance making it the perfect choice for routine incubation of embryos during IVF.*

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### Introduction:

The Esco Miri is a revolution in form and functionality for CO<sub>2</sub> incubators for in vitro fertilization (IVF). With 6 chambers, the Miri is a multi-room incubator that allows users to access their cultures in one chamber without affecting the neighboring chambers. Thus, the harmful effects of fluctuations in temperature and gas caused by frequent incubator access are avoided.

Built specifically to equip IVF laboratories and clinics to provide the best standards of care, it boasts a unique set of features that cannot be found elsewhere.

### Features:

- 6 chambers are completely independent from each other preventing cross-contamination.
- Mixed gas NOT required = reduced operating costs.
- Heating in the lid (oil overlay not required) prevents condensation and enhances temperature regulation/recovery.
- Documented UVC decontamination of recirculated gas.
- MEA tested and documented.

- 12 x PID regulation system, the most advanced in the world.
- Built-in temperature validation.
- Full parameter display at a distance.
- Pressure sensors on external gas.

### Certifications:

- IEC/EN 60601-1 3rd edition
- EU MDD Class IIa Medical Device



### Pharmaceutical Equipment

Aseptic



Containment



Powder Weighing



Designed in the USA

## Pharmaceutical Equipment

For decades, Esco has been a pioneer in the development of clean air / containment technology, earning a reputation for innovation in the worldwide laboratory and cleanroom industry. Esco utilizes this wealth of knowledge and experience to expand its cleanroom range into what is now the Pharma Division.

### Introduction:

Our Esco Pharma Dedicated R&D Engineers have a combined 30 years of experience in systems design of a variety of containment and aseptic process equipment. This team of engineers has helped to grow the pharma line of products from basic cleanroom equipment to more state-of-the-art products, from hospital pharmacy isolators to advanced containment isolator systems, including new products to meet various needs.

Esco Pharmaceutical Equipment is divided into 3 main categories:

- Airflow Containment.
- Isolation Containment.
- Cross Contamination Facility Integrated Barriers.

### Airflow Containment Products:

- Pharmacon Downflow Booths.
- Esco Straddle Unit Single, Esco Straddle Unit Double, Custom LF Cabinets.
- Esco Garment Storage Cabinet, Laminar Flow Storage Cabinet.
- Laminar Flow Vertical Trolleys, Laminar Flow Horizontal Trolleys.
- Ceiling Suspended Laminar AirFlows, Fan Filter Units.
- Laminar Flow Booths, Modular Enclosures.

### Isolation Containment:

- Aseptic Containment Isolator (ACTI).
- Weigh / Dispense Containment Isolator (WDCI).
- CAI and CACI.
- Custom Isolators.

### Cross Contamination Facility Integrated Barriers:

- Static Barriers.
- Dynamic Airflow Barriers.
- Biodecon Barriers.



### Laboratory Ovens and Incubators

Laboratory Ovens



Laboratory Incubators



Refrigerated Incubators



## Laboratory Ovens and Incubators

Reliable Performance For Universal Applications

*Introducing Esco Isotherm® - world class laboratory ovens and incubators from Esco with the technologies and compliance to prove it.*

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#### Introduction:

Introducing Esco Isotherm® - world class laboratory ovens from Esco with the technologies and compliance to prove it. Ergonomic, intuitive interfaces, microprocessor PID controls with programming options, 4-zone heated air jacket, precisely tuned and tested ventilation and insulation package, all supported by Esco's solutions-based sales and service representatives worldwide.

#### Features:

- Solaris™ Pre-Heat Chamber Technology.
- Forced convection design produces faster temperature response rates, improved uniformity, and reduced fluctuation.
- Fan speed and air exchange rates are adjustable.
- Wide Range of Programming Options.



- Multiple redundant over-temperature protection systems to guarantee maximum sample and user protection.
- Access port for Temperature validation and mapping.
- Ergonomic Door Handle with Keylock.

#### Product Lines:

- Forced Convection Laboratory Ovens.
- Forced Convection Laboratory Incubators.
- Refrigerated Incubators.
- Stainless Steel Options for all sizes of Ovens, Incubators & Low Temperature Incubators.



# After Sales Services

## Esco After Sales Services

### Parts Availability

Whenever service is needed and parts are required, minimizing downtime is a critical objective. Statistical usage analysis helps Esco 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 submittal so that we know where Esco products are located and how they are being used. Data from our warranty registration program is confidential and provides us with valuable contact information should we ever need to notify you about your Esco product.

All Esco products include unique serial numbers for identification.

Documentation for all performance tests is archived and maintained for customer reference.

### 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. An interactive online LiveSupport™ concierge center accessible through the Esco website offers extended hours of operation. LiveSupport permits users to dialogue directly with Esco personnel.



### References and Links

For more about Esco products, markets, employment opportunities, history, education, information resources, and Singapore, visit our information portal at [www.escoglobal.com](http://www.escoglobal.com).





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